

Appendix 6
Environmental Assessment

Prepared for
Capital Chance Ltd.

Prepared by
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S.12A AMENDMENT OF PLAN APPLICATION ON MAI PO &
FAIRVIEW PARK OZP NO. Y/YL-MP/8

REZONING FROM “R(D)” TO “R(C)1” ZONE FOR A
PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS
IN D.D. 104 & THE ADJOINING G.L. IN YUEN LONG, N.T.

ENVIRONMENTAL ASSESSMENT REPORT

Date 5 February 2025

Prepared by Crystal Lui *et al.*



Signed _____

Approved by Henry Ng
Principal Consultant



Signed _____

Project Reference SHKFVPRDEI 01

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CHAPTERS

	Page
1. INTRODUCTION.....	1-1
1.1 Background	1-1
1.2 The Project Location.....	1-2
1.3 The Project Description	1-2
1.4 Scope.....	1-2
2. AIR QUALITY	2-1
2.1 Introduction.....	2-1
2.2 Proposed Development.....	2-1
2.3 Legislation, Standards, Guidelines and Criteria	2-1
2.4 Air Quality Impact Assessment.....	2-2
2.5 Conclusion.....	2-6
3. TRAFFIC NOISE IMPACT ASSESSMENT.....	3-1
3.1 Introduction.....	3-1
3.2 Identification of Potential Noise Impacts.....	3-1
3.3 Determination of Traffic Noise Sensitive Receivers	3-1
3.4 Assessment Methodology.....	3-2
3.5 Prediction and Evaluation of Noise Impacts	3-3
3.6 Conclusion.....	3-4
4. INDUSTRIAL NOISE IMPACT ASSESSMENT	4-1
4.1 Introduction.....	4-1
4.2 Government Legislation and Standards.....	4-1
4.3 Identification of Potential Noise Impacts.....	4-2
4.4 Determination of Noise Sensitive Receivers.....	4-4
4.5 Assessment Methodology.....	4-5
4.6 Prediction and Evaluation of Noise Impacts	4-6
5. WATER QUALITY IMPACT ASSESSMENT.....	5-1
5.1 Introduction.....	5-1
5.2 Relevant Environmental Legislation and Guidelines	5-1
5.3 Description of Environs and Water Sensitive Receivers	5-2
5.4 Evaluation of Water Quality Impacts and Conclusion	5-5
6. CONSTRUCTION PHASE IMPACTS	6-1
6.1 Introduction.....	6-1
6.2 Construction Phase Air Quality Impact.....	6-1
6.3 Mitigation Measures for Fugitive Dust and Gaseous Emission.....	6-2
6.4 Construction Noise Impact.....	6-3
6.5 Construction Wastewater Impact	6-6
6.6 Construction Waste Disposal	6-8
6.7 Conclusion.....	6-9
7. OVERALL CONCLUSION.....	7-1

TABLES

Table 2.1 Hong Kong Air Quality Objectives	2-2
Table 2.2 Representative Nearby Existing and Planned ASRs.....	2-2
Table 3.1 Representative NSRs for Operational Phase Road Traffic Noise Assessment..	3-2
Table 3.2 Range of Predicted Unmitigated Road Traffic Noise Levels at Representative NSRs.....	3-3
Table 3.3 Range of Predicted Mitigated Road Traffic Noise Levels at Representative NSRs3- 4	
Table 4.1 Relevant Noise Standard for Fixed Noise Sources.....	4-2
Table 4.2 Identified Industrial Sites and Noise Sources.....	4-3
Table 4.3 Representative NSRs for Operational Phase Noise Impact Assessment.....	4-4
Table 4.4 Calculated Noise Level at the Existing Chuk Yuen Floodwater Pumping Station	4-7
Table 4.5 Calculated Noise Level Due to Operation of Planned San Tin No.1 SPS	4-7
Table 4.6 Calculated Noise Level Due to Operation of Proposed Private SPS	4-8
Table 4.7 Cumulative Noise Level Due to Operation of the Pumping Station and the Identified Fixed Noise Source	4-9
Table 5.1 Description of Water Sensitive Receivers	5-3
Table 6.1 Noise Limit for Daytime Construction Activities.....	6-5

FIGURES

Figure 1-1	Location of the Subject Site and the Environs
Figure 1-2	Master Layout Plan for the Proposed Development
Figure 2-1	Buffer Distances Between the Subject Site and Nearby Roads (Various Pages)
Figure 2-2	Locations of the Planned San Tin No. 1 Sewage Pumping Station and Proposed Private Sewage Pumping Station
Figure 2-3	Locations of Other Nearby Representative Air Sensitive Receivers
Figure 2-4	Air and Odour Survey Route
Figure 3-1	Locations of NSRs for Road Traffic Noise Impact Assessment (Various pages)
Figure 3-2	Proposed Noise Mitigation Measures for Road Traffic Noise Impact Assessment – Kindergarten of G/F
Figure 4-1	Not Used
Figure 4-2	Locations of Fixed Noise Sources
Figure 4-3	Locations of Noise Assessment Points for Fixed Noise Source Impact Assessment
Figure 4-4	Locations of Noise Assessment Points for the Existing Floodwater Pumping Station and the Proposed Sewage Pumping Station

Figure 5-1 Locations of WSRs during Construction and Operation Phases

APPENDICES

- Appendix 3–1 Typical Internal Layout Plan
- Appendix 3–2 Predicted Traffic Flow Forecast Data
- Appendix 3–3 Unmitigated Road Traffic Noise Assessment Results
- Appendix 3–4 Mitigated Road Traffic Noise Assessment Results
- Appendix 4–1 Field Visit Record
- Appendix 4–2 Calculation of Fixed Noise Sources

1. INTRODUCTION

1.1 Background

- 1.1.1 Ramboll Hong Kong Ltd. (the Consultant) has been commissioned by the Applicant, Capital Chance Limited, who is also the registered owner of the Subject Site to conduct the Environmental Assessment (EA) for a proposed residential development. Architectural drawings and technical information of the Subject Site were provided by the Project Architect (Archiplus International Ltd.) and the Project Consultants team, whereas information on road traffic forecast was provided by the traffic consultant of this Project employed by the Applicant.
- 1.1.2 The Subject Site is designated for residential use by the government under a “R(D)” zoning. It was previously approved by Town Planning Board (TPB) for house development under a planning application (Application No. A/YL-MP/205) in mid-2013. A supplementary EA Report for the Subject Site (R2838_V3.F, dated February 2013) was previously submitted to TPB under the above-mentioned planning application. The EA report at that time identified and addressed potential noise impact upon proposed sensitive receivers at the Subject Site.
- 1.1.3 A planning application for a proposed comprehensive residential development with a domestic plot ratio (DPR) of about 1.8 and 2,771 dwellings, was previously submitted under the Application No. A/YL-MP/6. The proposed villa blocks at that time were 3 to 5 storeys high whereas the residential blocks varied from 17 to 19 storeys. An EA report (R7345) was submitted in support of the above-mentioned planning application with no further technical comment received at that time (hereinafter referred to as the Previous EA report).
- 1.1.4 Since then both the development schedule and DPR have been further reviewed and the current proposed DPR for the Site is slightly reduced from 1.8 to 1.5. Accordingly, the maximum building height proposed is reduced from 19 to 16 storeys and less number of dwellings (2,322 units) is proposed for the Site. The residential blocks in the inner and eastern parts of the Site are now ranged from 14 to 16 storeys. No villa block is now proposed which is changed to non-domestic blocks on the northern part of the Site with a view to maximize the extent of proposed landscape pond. The non-domestic blocks are proposed for commercial, retail, transport layby, and E&M room.
- 1.1.5 It is noteworthy that the proposed minor amendments mostly involve a lower maximum building height and hence the resultant minor reduction in DPR and no. of storeys. The block form, building disposition, building orientation and buffer distance of the residential blocks from site boundary line under the Current Scheme remain unchanged.
- 1.1.6 The current EA report serves as an updated report to support the planning application for the Current Scheme from an environmental perspective. Practical pollution control and mitigation measures, if required for this low- to medium-rise residential development with respect to the Hong Kong Planning Standards and Guidelines (HKPSG) and other relevant legislation for the current layout are recommended in this EA report.
- 1.1.7 The proposed residential development is a designated project (DP) under the Environmental Impact Assessment Ordinance (EIAO) under Item P.1, Part 1, Schedule 2 of the EIAO (i.e. a residential development or recreational development other than New Territories exempted houses within Deep Bay Buffer Zone 1 or 2). A separate EIA study will be carried out for the proposed development and an Environmental Permit

will be required before construction and operation of the proposed development. A detailed air quality impact assessment will be conducted during the EIA stage.

- 1.1.8 The Subject Site is also the subject of a few previous approved planning applications such as those under the application nos. A/YL-MP/110, A/YL-MP/132, A/YL-MP/146, A/YL-MP/193, and A/YL-MP/205. All of these have been approved previously for residential development. There was no physical construction work at the Subject Site since then, and the Subject Site is still a vacant land (i.e. no change in land use status). As mentioned above the proposed development is a designated project and an EIA study will be carried out separately including a review on historic land uses and potential of land contamination. Operation of the development will generate limited amount of domestic waste during its operation stage. Standard approach that is widely adopted in other parts of Hong Kong will be adopted for the handling and disposal of this small quantity of waste. Waste will be collected and disposed of properly by a licensed contractor. Evaluation on construction phase waste management and best practices are provided in Section 6.6.

1.2 The Project Location

- 1.2.1 The Subject Site is bounded by the Ngau Tam Mei Drainage Channel (NTMDC) and Kam Pok Road to its immediate north and west, Ha Chuk Yuen Road and a “Village” (“V”) zone (covering Chuk Yuen Tsuen, Hang Fook Garden, etc.) to its east and south-east, and vacant land and Drainage Services Department (DSD)’s flood storage pond to its south.
- 1.2.2 Further to the west and north of the site across the said drainage channel are residential zones including several existing residential developments such as Fairview Park, Palm Springs, Royal Palms, Yau Mei San Tsuen and Wo Sang Wai.
- 1.2.3 Figure 1-1 shows the location of the Subject Site and its environs, while Figure 1-2 shows the layout plan of the proposed residential development for the Subject Site.

1.3 The Project Description

- 1.3.1 Like the previously approved scheme, the current scheme is also for residential use. With a proposed domestic plot ratio of about 1.5, the current scheme comprises 2 nos. of 14-storey residential towers, 2 nos. of 15-storey residential towers and 6 nos. of 16-storey residential towers, providing small- and medium-sized flats. There are also 4 nos. of ancillary residents’ clubhouse blocks (one incorporated with a private underground sewage pumping station (SPS)), 4 nos. of blocks accommodating local retail use, E&M, transport laybys, and GIC facilities [including a kindergarten on G/F and a neighbourhood elderly centre (NEC) on 1/F], and outdoor swimming pool. The mean site formation level proposed under the current scheme is also about 5.4mPD.
- 1.3.2 During operation, sewage generated by the proposed development will be discharged into proposed SPS and proposed sewers, which then conveys to existing Nam Sang Wai SPS. Thus, no adverse impact is envisaged for the operational phase of the Project due to effluent discharge.

1.4 Scope

- 1.4.1 The potential ecological, sewerage and its discharge, and drainage impacts, if any, of the proposed residential development are addressed in separate submissions under the same application.
- 1.4.2 This EA has identified and addressed the following major environmental issues of the proposed development:

- Traffic noise impact from the adjacent road networks on the proposed development;
- Industrial noise impact due to identified fixed noise sources;
- Operational noise due to existing planning, and proposed pumping stations;
- Potential air quality impact upon the proposed development;
- Potential water quality impact; and
- Evaluation on construction phase impacts.

- Figure 1-1 Location of the Subject Site and the Environs
- Figure 1-2 Master Layout Plan for the Proposed Development

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2. AIR QUALITY

2.1 Introduction

2.1.1 This Chapter assesses and addresses the potential air quality impacts on the proposed residential development at the Subject Site. The Assessment Area for air quality impact assessment is defined by a distance of 500m from the boundary of the Subject Site.

2.1.2 As mentioned in Sections 1.1.3 and 1.1.8, the Subject Site is also the subject of a few previous approved planning applications such as those under the application nos. A/YL-MP/193, and A/YL-MP/205. The current proposed development is also the subject of a previous planning application under the Application No. A/YL-MP/6 with a submitted EA (R7345) without further comment received (Previous EA Report). Thus, the current EA report serves as an updated report to support the current application. Setback distance from nearby existing roads as presented in previous approved planning applications has been maintained in current proposed development.

2.2 Proposed Development

2.2.1 As discussed in Sections 1.1.3 to 1.1.8 and 1.3, an EA report (R7345) was submitted in support of the planning application under Application No. A/YL-MP/6. The Current Scheme only involves a lowered maximum building height and reduced no. of storeys and hence the resultant minor reduction in DPR. The MLP, block form, building disposition, building setback from site boundary line and separation distance between air sensitive receivers (ASRs) and nearby public roads, as well as proposed separation distance for potential odour impact all remain unchanged. The master layout plan of the proposed Current Scheme is shown in Figure 1-2. The non-domestic blocks at the northern part of the subject site abutting Kam Pok Road are proposed for commercial, retail, GIC use, transport lay-by and E&M room. It is expected these facilities will unlikely involve air pollution emission except the transport lay-by. Details of design of the transport laybys is not available at this stage and will only be available in later detailed design stage. The potential location of the exhaust of the proposed transport layby will be located away from any air-sensitive uses as far as possible such as facing Kam Pok Road. The potential location of the exhaust for the proposed transport lay-by is shown in Figure 2-2, and the exact location is subject to detailed design stage. The transport layby will be designed to follow relevant guideline. The applicability of EPD's ProPECC PN 2/96 on Control of Air Pollution in Car Parks for the design and operation of the transport layby will also be considered and reviewed in detailed design stage later on.

2.3 Legislation, Standards, Guidelines and Criteria

2.3.1 The principal legislation regulating air quality in Hong Kong is the Air Pollution Control Ordinance (APCO) (Cap. 311). Air Quality Objectives (AQOs) are set for the whole of Hong Kong, which specify the statutory limits for various criteria pollutants and the maximum number of exceedance allowed over a specified period of time.

2.3.2 The current AQOs for Carbon Monoxide (CO), Nitrogen Dioxide (NO₂), Sulphur Dioxide (SO₂), and Respirable Suspended Particulates (RSP), and Fine Suspended Particulates (FSP, also known as PM_{2.5}), which are relevant to this assessment, are summarized in Table 2.1 below. The proposed upcoming new AQOs are also shown for reference. The proposed development is to meet the prevailing AQOs at the time of implementation.

- 2.3.3 Besides from the above, Air Pollution Control (Construction Dust) Regulation and Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation are also relevant during construction phase.

Table 2.1 Hong Kong Air Quality Objectives

Pollutants	Averaging Period	Current AQOs		Upcoming New AQOs **	
		Pollutants Concentration ($\mu\text{g}/\text{m}^3$)	No. of Exceedances Allowed per year	Pollutants Concentration ($\mu\text{g}/\text{m}^3$)	No. of Exceedances Allowed per year
CO	1 hour	30,000	0	30,000	0
	8 hours	10,000	0	10,000	0
	24-hour	-	-	4,000	0
NO ₂	1 hour	200	18	200	18
	Annual	40	N.A.	40	N.A.
	24-hour	-	-	120	9
SO ₂	10-min.	500	3	500	3
	Daily (24 hours)	50	3	40	3
RSP	Daily (24-hours)	100	9	75	9
	Annual	50	N.A.	30	N.A.
FSP	Daily (24-hours)	50	35 *	37.5	18
	Annual	25	N.A.	15	N.A.

Remarks:

N.A. Not applicable.

FSP means suspended particles in air with a nominal aerodynamic diameter of 2.5 μm or less. Also known as PM_{2.5}.

RSP means suspended particles in air with a nominal aerodynamic diameter of 10 μm or less.

* The current proposed development is not a government project but a private residential development. The number of exceedances allowed for FSP per year is 35 as per AQOs.

** Proposed upcoming new AQOs to be effective from April 2025.

2.4 Air Quality Impact Assessment

- 2.4.1 During construction phase, the major air quality impact of concern will be the potential fugitive dust emission during site formation stage. The first layer of existing ASRs that are nearby the Subject Site (i.e. nearest to the site boundary) which would be worst affected are selected as representative ASRs for the purpose of this study. There are also a few other approved planned development sites in adjacent, which are identified as planned ASRs. These identified nearby ASRs are shown in Figure 2-3 with details summarized in Table 2.2.

Table 2.2 Representative Nearby Existing and Planned ASRs

ASR ID	Description	Type	No. of Storey	Approx. Shortest Horizontal Distance to Boundary of Development Site (m)
A01	260 Ha Chuk Yuen Rd, Tam Mei	Village house	3	28
A02	261 Ha Chuk Yuen Rd, Tam Mei	Village house	3	25
A03	251 Ha Chuk Yuen Rd, Tam Mei	Village house	3	50
A04	253 Ha Chuk Yuen Rd, Tam Mei	Village house	3	45

ASR ID	Description	Type	No. of Storey	Approx. Shortest Horizontal Distance to Boundary of Development Site (m)
A05	257 Ha Chuk Yuen Rd, Tam Mei	Village house	3	28
A06	210 Ha Chuk Yuen Rd, Tam Mei	Village house	3	60
A07	216 Ha Chuk Yuen Rd, Tam Mei	Village house	3	36
A08	Block 9, Hang Fook Garden	Residential	3	134
A09	Block 1, Hang Fook Garden	Residential	3	159
A10	Fairview Park	Residential	3	160
A11	348 Ha Chuk Yuen Rd, Tam Mei	Village house	3	64
A12	437 Ha Chuk Yuen Rd, Tam Mei	Village house	3	55
A13	Fairview Park	Residential	3	300
A14	Temporary structure in Yau Mei San Tsuen	Village house	1	108
A15	Planned development (A/YL-MP/247)	Residential	3	73
A16	Planned development (Y/YL-MP/3) *	Residential	3	83
A17	Planned development (Y/YL-MP/3) *	Residential	3	78
A18	Planned development (A/YL-MP/287)	Residential	2	84
Remark: * The concerned REC Site is also the subject of an approved public light housing development by the government under application no. A/YL-MP/341, which is a temporarily use only for a few years and would be removed after that. Given that it is a short-term use, it is not considered further in this study. Nevertheless, site boundary at the REC Site nearest to the current Subject Site are already considered in the table.				

Since some existing ASRs are found to be in close proximity of the site boundary, additional mitigation measures such as erection of higher hoarding and relocation of dusty activities away from the nearest ASRs shall be considered. In addition, it is also recommended that electric power supply should be provided for on-site machinery as far as practicable to minimize aerial emissions.

- 2.4.2 During operation stage, proposed buildings within current proposed development site will be the ASRs. Other nearby existing and planned developments as identified in Table 2.2 above are also the ASRs. During operation, there are some air quality impacts arising from the operation of proposed private SPS and transport-layby of the proposed development, which have been addressed in the following paragraphs.

Vehicular Emissions

- 2.4.3 The Subject Site is away from roads such as Castle Peak Road – Tam Mi (a Rural Road) and San Tin Highway (an Expressway) by more than 180m (Figure 2-1 refers), and is physically separated by clusters of existing village houses at Chuk Yuen Tsuen, Tai Yuen Villa, and the existing 3-storey high Golden Age Home for Senior Citizens located between the Subject Site and the concerned roads. According to the published Annual Traffic Census 2023 report, Castle Peak Road – Tam Mi is a Rural Road while San Tin Highway is an Expressway. There is no specific buffer distance for rural road under the HKPSG. Given that the proposed development has a separation distance over 180m from Castle Peak Road – Tam Mi, which can already satisfy relevant buffer distance requirement for a district distributor road (i.e. >10m), there should be no adverse air quality impact upon the proposed development. Accordingly, the said separation distance between proposed development and San Tin Highway, can also satisfy the buffer distance requirement for a Trunk Road and Primary Distributor (i.e. >20m), for open space according to Chapter 9, Environment of the HKPSG. Thus, no adverse air quality impact upon the proposed development is anticipated.

- 2.4.4 In addition, the proposed uses within Subject Site are also setback from the adjacent Kam Pok Road, which is a Rural Road by >5m. It is also setback from local access roads (single track access road) such as Ha Chuk Yuen Road and Fung Chuk Road by about 26m to 43m, respectively (see Figure 2-1). Peripheral setback for the residential blocks has also been provided along the eastern boundary near Ha Chuk Yuen Road as well as nearby Kam Pok Road, this buffer area, which will be planted with trees, is not designed to be accessible by general public. The locations of the concerned local access roads and the separation distance measured between the nearest sensitive uses of the Subject Site and the road edge are shown in Figure 2-1. According to Chapter 3, Volume 2 of TPDM, roads are classified according to different hierarchies. In which, district distributors (DD) are roads linking districts to the Primary Distributor Roads and local distributors (LD) are roads within districts linking developments to the DD Roads. While rural roads are defined roads connecting smaller centres of population with major road networks. Thus, rural roads should have a lower hierarchy when compared with local distributors. Kam Pok Road is connecting with Castle Peak Road – Tam Mi, which then connects to slip road of San Tin Highway, it is considered Kam Pok Road has similar road hierarchy function with LD road type from traffic engineering point of view. The section of Kam Pok Road abutting the Subject Site is subject to a traffic flow up to 210 veh./hr at road no. 14 as shown in Appendix 3.2. While for Ha Chuk Yuen Road and Fung Chuk Road, these roads are local access roads which connect to Kam Pok Road and are serving local villages only. The traffic flow of these roads is up to 40 veh./hr at road nos. 20 and 21 as shown in Appendix 3-2. For the purpose of this study, buffer distance which is referenced to a DD road (i.e. >10m) is currently adopted to be conservative (see Figure 2-1). The proposed development including all proposed buildings, commercials and GIC building along Kam Pok Road will be provided with air conditioning. It is recommended that these buildings should be designed in such a way that any openable windows and fresh air intake point of air ventilation system should be located beyond the said air buffer zone. Such requirement will be incorporated in later stage of development as details of these buildings are not available which will be subject to later detailed design stage. Thus, there should be no adverse air quality impact upon the proposed development. For Ha Chuk Yuen Road and Fung Chuk Road, the proposed development is already setback from these local access roads by >10m shown in Figure 2-1, it can already satisfy the buffer distance requirement for DD road (i.e. >10m), there should be no adverse air quality impact upon the proposed development.

- 2.4.5 Internal access roads within the proposed development are EVA roads only. Since the buffer distance at the Subject Site can satisfy the HKPSG requirements and that no air sensitive uses, including fresh air intake of ventilation system, openable windows and recreational uses in open space of the proposed development are located within the buffer zone, no adverse air quality impacts on the proposed residential development due to vehicular emissions are expected. Thus, the Subject Site is unlikely to be subject to adverse air quality impact.

Industrial Emissions

- 2.4.6 Based on the latest design scheme, there are no planned industrial emission sources from the operation of this Project.
- 2.4.7 A review of chimney locations based on EPD's register previously obtained, were carried out. No chimneys were identified within the 500m Assessment Area. Additional chimney surveys were also conducted to verify the findings during previous planning application with further visits conducted in July 2019, August 2022, September 2023,

and September 2024. As no chimneys were identified within the Assessment Area, no air quality impact related to chimney emissions is expected.

Odour from Proposed San Tin No.1 Sewage Pumping Station

- 2.4.8 Potential odour impact due to other nearby sewage pumping stations is also considered. There are three existing private sewage treatment plants serving Palm Springs, Royal Palms and Fairview Parks. However, these plants are all located more than 500 m from the boundary of proposed development. Therefore, it is anticipated that no sewage odour impact from these existing sewage treatment plants upon the proposed development. There is also the future San Tin No.1 Sewage Pumping Station (SPS) planned to be located at the junction of Kam Pok Road and Castle Peak Road (about 145m northeast of the Subject Site) (Figure 2-2 refers).
- 2.4.9 With the careful design of the sewage pumping station and installation of odour removal system, it is expected that odour impact due to the sewage pumping station will be insignificant. Based on the latest information, San Tin No.1 SPS will be provided at the junction of Kam Pok Road and Castle Peak Road under PWP Item 4235DS. In addition, according to the EIA report for the said SPS project (i.e. the “EIA and TIA Studies for the Stage 2 of PWP Item No. 215DS - Yuen Long and Kam Tin Sewerage and Sewage Disposal), it has a design capacity of about 13,000 m³/day and odour removal filtering system (with efficiency of 99.5% for H₂S) will be installed in the San Tin No.1 SPS. The maximum predicted odour concentration at existing ASRs surrounding the SPS, San Tin Rural Committee with a separation distance of ~42m, which are much closer to the SPS, would be about 0.093 OU (Odour Unit), which is 1.9% of the 5 OU criteria. While the current proposed development, as mentioned above, is about 145m away from the SPS. With the odour removal filtering system and long buffer distance of the future SPS, adverse odour impact upon the proposed development is not anticipated. Thus, this is not considered further in this assessment.

Other Odour Sources

- 2.4.10 Provision of a private sewage pumping station within the Site has been proposed, which may potentially give rise to odour impact. The indicative location of the proposed private SPS is shown in Figure 2-2. Site surveys were conducted in July 2021, August 2022, September 2023, and September 2024, please refer to Figure 2-4. No odour source from Ngau Tam Mei Channel was identified during the site visit, which has a separation distance of about 21m from the proposed development. No particular air and odour emission sources were identified at nullah along Ha Chuk Yuen Tsuen, pond at DSD’s Chuk Yuen Floodwater pumping station or within 200m radius from the proposed development. It is noted that a separate EIA study and air and odour impact assessment will also be carried out for the proposed development later on. During the operational stage, sewage generated by the proposed development will be discharged to the proposed private SPS before discharging into proposed sewers along Kam Pok Road and Pok Wai South Road and then finally discharges into existing Nam Sang Wai Sewage Pumping Station. Future management and maintenance issues will be further discussed with DSD.
- 2.4.11 Detailed information regarding the design of the proposed SPS is not available at this stage, which will be subject to detailed design stage. Design of the proposed private SPS has been integrated into the Proposed Development, where the SPS will be located underground and provided inside an enclosed building structure, such that impact of odour from the SPS will be minimal. Also, the proposed exhaust point of the SPS is directed towards Kam Pok Road, allowing a separation distance of not less than 15m from any air sensitive uses including the proposed development and nearby existing

and planned ASRs. Separation distances between the closest ASRs and the exhaust of the private SPS is shown in Figure 2-2. Thus, with the careful design of this underground SPS and provision of odour removal filtering system, it is expected that odour impact arising from the SPS will be properly controlled.

- 2.4.12 With reference to the previously approved EIA Report for the project, “Outlying Island Sewerage Stage 2 - Upgrading of Cheung Chau Sewage Collection, Treatment and Disposal Facilities (EIA-219/2013)”, the odour impact assessment conducted for the Pak She SPS (with a capacity of 42,336 m³/day) has revealed that odour levels at sensitive receivers with a separation distance varying from 1m to 68m from the SPS could meet the relevant criteria for odour level after the implementation of odour removal filtering system (with efficiency of 99% for H₂S). Furthermore, according to the Project Profile for “Public Housing Development at Lin Cheung Road Site - Temporary Sewage Pumping Station and Associated Sewer Pipes” (DIR-239/2014), an odour survey was conducted at the existing Cheung Sha Wan Sewage Pumping Station (with a design capacity of 456,863 m³/day), which was reported to be equipped with odour removal filtering system with a removal efficiency of 95%. That sewage pumping station serves the developed areas in urban area. The survey found that no odour could be detected at a location over 10m away from the exhaust vent of that SPS. The exhaust height for the Pak She SPS, according to the above-mentioned EIA report, is at ground floor (~1.5m above ground level), while the above-mentioned Project Profile for Cheung Sha Wan SPS has indicated its exhaust located on G/F as well. Given the similar nature of the current proposed SPS and the relatively small scale of current proposed development (with the capacity of SPS <2,500 m³/day), the separation distance of about 15m from the exhaust point of proposed SPS for any air sensitive uses including the proposed development and nearby existing and planned ASRs should be adequate. The exhaust of current proposed SPS will also be located on ground floor. With an environmentally conscious design, adequate separation distance, and provision of the recommended odour removal filtering system at the exhaust point (with an odour removal efficiency of not less than 99% for H₂S) (removal efficiency of above-mentioned SPS EIA refers), adverse odour impact on the proposed development is not anticipated.

2.5 Conclusion

- 2.5.1 Adequate peripheral setback from the site boundary has been incorporated in the layout of the proposed development to alleviate the potential vehicular emissions impacts. The proposed development meets the buffer distance requirements stated in the HKPSG for the proposed uses within the Subject Site, thus no adverse air quality impacts due to vehicular emission are expected. In addition, as no industrial emission sources were identified within 500m from the Subject Site boundary, no adverse air quality impacts due to industrial emissions are expected. Sewage generated by the proposed development will be discharged to the proposed private SPS before discharging into proposed sewers and then conveyed to existing Nam Sang Wai Sewage Pumping Station, while the proposed private SPS will be fully underground and equipped with an odour removal filtering system (with an odour removal efficiency of not less than 99% for H₂S). With adequate buffer distance provided between the sewage pumping stations and the sensitive uses, and provision of odour removal filtering system for the proposed private SPS, no adverse odour impact on the proposed development and nearby existing sensitive uses is anticipated. Since the proposed development will constitute a designated project under the EIAO, an air quality impact assessment which includes both vehicular and odour impacts during the operational stage, is required to demonstrate the compliance of the criteria stipulated in the EIAO-TM under the EIA process.

Figure 2-1	Buffer Distances Between the Subject Site and Nearby Roads (Various Pages)
Figure 2-2	Locations of the Planned San Tin No. 1 Sewage Pumping Station and Proposed Private Sewage Pumping Station
Figure 2-3	Locations of Other Nearby Representative Air Sensitive Receivers
Figure 2-4	Air and Odour Survey Route

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3. TRAFFIC NOISE IMPACT ASSESSMENT

3.1 Introduction

3.1.1 Noise standards are recommended in Chapter 9 of the HKPSG for planning against possible road traffic noise impacts. For new dwellings, as in the case of the proposed development within the Subject Site, the maximum allowable road traffic noise level expressed in terms of $L_{10}(1 \text{ hr})$ at the typical façades of the proposed residential uses, proposed neighbourhood elderly centre (NEC) and proposed kindergarten are recommended to be 70 dB(A) and 65dB(A), respectively. The proposed NEC and its activity room does not involve any educational use. As for the proposed kindergarten, the intended use of sick bay at kindergarten is to provide a resting place for students who are sick, and there should be no clinical or diagnostical activity involved at kindergarten. Thus, it should be subject to 65dB(A) noise criteria for educational use. However, for the purpose of this noise assessment exercise, a more stringent criteria, which is 55 dB(A) has been assumed based on a conservative approach. The presence of any clinical/diagnostical uses at sick bay at kindergarten will be subject to further confirmation in later detailed design stage. As the proposed development is still at early planning stage, detailed layout and uses of ancillary facilities are not yet available at this stage. There are no known noise sensitive uses within ancillary facilities such as clubhouse at this stage.

3.1.2 As mentioned in Sections 1.1.3 and 1.1.8, the Subject Site is also the subject of a few previous approved planning applications such as those under the application nos. A/YL-MP/193, and A/YL-MP/205. The current proposed development is also the subject of a previous planning application under the Application No. A/YL-MP/6 with a submitted EA (R7345) without further comment received (Previous EA Report). Thus, the current EA report serves as an updated report to support the current application. The block form, building disposition, building orientation and buffer distance of the residential blocks from nearby existing roads under the Current Scheme remain unchanged.

3.2 Identification of Potential Noise Impacts

3.2.1 The local road network (e.g. Kam Pok Road, Yau Pok Road, Ha Chuk Yuen Road, Castle Peak Road – Tam Mi, and San Tin Highway) are considered as the major noise sources potentially affecting the proposed development (Figure 1-1 refers). The Subject Site is bounded by Kam Pok Road at the west, Fung Chuk Road at the south, and Ha Chuk Yuen Road to the east. To the immediate north of the Subject Site is the existing Kam Pok Road. Castle Peak Road – Tam Mi and San Tin Highway are further away to the east and is partially shielded by the existing villages between the Subject Site and the said road segments.

3.2.2 The traffic projection data has already taken into account other planned development projects nearby.

3.3 Determination of Traffic Noise Sensitive Receivers

3.3.1 Representative Noise Sensitive Receivers (NSRs) locations proposed under this Project, which are selected for operational phase road traffic noise are shown in Figure 3-1. The assessment points are taken at 1.2 m above the floors of the selected storey and 1m away from the external facades of openable windows. Floor mPD levels at NSRs have been updated based Current Scheme. Typical internal layouts of the proposed residential towers are presented in Appendix 3–1.

- 3.3.2 As for the proposed NEC and kindergarten uses at GIC facilities at north-eastern corner of the Subject Site (Figure 3-1 refers), its detailed design and layout will only be available at the later detailed design stage. A preliminary indicative layout plan is provided in Appendix 3-1. Based on current design, there is a solid wall in front of classrooms 1 to 3 and multi-purpose room at kindergarten and there are no openable window at these rooms, thus these rooms are not identified as noise sensitive receivers.

Table 3.1 Representative NSRs for Operational Phase Road Traffic Noise
Assessment

NSR ID	No. of Storeys (excl. basement)	mPD Level (1.2m above Floor Level)
T1	15	6.6 (G/F) – 54.4 (14/F)
T2	15	6.6 (G/F) – 54.4 (14/F)
T3	14	6.6 (G/F) – 51.2 (13/F)
T5	14	6.6 (G/F) – 51.2 (13/F)
T6	16	6.6 (G/F) – 57.5 (15/F)
T7	16	6.6 (G/F) – 57.5 (15/F)
T8	16	6.6 (G/F) – 57.5 (15/F)
T9	16	6.6 (G/F) – 57.5 (15/F)
T10	16	6.6 (G/F) – 57.5 (15/F)
T11	16	6.6 (G/F) – 57.5 (15/F)
GIC-GF (Kindergarten)	1	6.6 (G/F)
GIC-1F (NEC)	1	11.6 (1/F)

3.4 Assessment Methodology

- 3.4.1 The extent of noise assessment was based on an area within 300m radius from the Subject Site boundary. Pervious road surface is applied at San Tin Highway in noise model. While bitumen road surface is applied at other roads. Appendix 3–2, refers.
- 3.4.2 The assessment concerns the prediction of the maximum hourly L_{10} traffic noise level at NSRs of the proposed development due to the projected peak hour traffic flow on the adjacent major road networks (e.g. Kam Pok Road, Castle Peak Road, San Tin Highway, and nearby local village roads). The traffic flow data was provided by the Project traffic consultant. Further details of the projected traffic flow data are described in the following paragraphs.
- 3.4.3 The traffic flow data was predicted by the Project traffic consultant for Year 2046, which is considered to be the worst case scenario within 15 years upon completion of the proposed development on the Subject. Traffic forecast data has taken into account nearby planned development sites.
- 3.4.4 The UK Department of Transport's procedures - “Calculation of Road Traffic Noise” (CRTN) has been used in the prediction of the road traffic noise at the representative noise sensitive receivers of the proposed development within the Subject Site. The existing topographic details, such as the existing village houses near the Subject Site, have been considered in the assessment.
- 3.4.5 The noise prediction was carried out using the *RoadNoise 2000* software, which is a computerized model developed on the basis of the U.K. Department of Transport's CRTN procedures, and is acceptable to the EPD.

3.5 Prediction and Evaluation of Noise Impacts

3.5.1 The proposed development has adopted various precautionary measures in the design, which have been incorporated into the unmitigated scenario:

- Building setback from site boundary line;
- Incorporation of landscaping area to abut adjacent public road;
- Using noise-tolerant uses such as landscape pond, retail building as the buffer to help shield road traffic noise.; and
- Environmental conscious layout design at proposed kindergarten development, with noise sensitive uses facing away from public roads as far as possible .

3.5.2 Details of information on peak hour traffic volume and percentage of heavy vehicle using these roads provided by the Project traffic consultant is shown in Appendix 3–2, which represents the worst-case scenario of the projected traffic flows. The traffic flows during AM peak hour are generally higher than that during PM peak hour, thus AM peak hour is adopted for noise assessment.

3.5.3 An assessment on the road traffic noise level at the NSRs based on the above traffic flow data as well as adopted precautionary measures in design has been conducted and the results are presented in Appendix 3–3 as unmitigated scenario. Based on the assessment results, the predicted road traffic noise levels can comply with the relevant noise criteria except a few locations at kindergarten which would exceed the relevant noise criteria.

Table 3.2 Range of Predicted Unmitigated Road Traffic Noise Levels at Representative NSRs

NSR ID	Noise Criteria, dB(A)	Range of Estimated Noise Level, L ₁₀ dB(A)
T1	70	34 – 63
T2	70	40 - 61
T3	70	43 - 60
T5	70	51 - 61
T6	70	37 - 61
T7	70	43 - 62
T8	70	46 - 66
T9	70	39 - 65
T10	70	52 - 64
T11	70	52 - 68
GIC-GF (Kindergarten)	65	61 – 70
-sick bay of kindergarten	70 *	65
GIC-1F (NEC)	70	62 – 70

Remarks: Please refer to Appendix 3–3 for the estimated noise levels at each NAP and Figure 3-1 for the geographical locations of NSRs. Proposed NEC does not involve any educational use.

(1) * The intended use of sick bay at kindergarten is to provide a resting place for students who are sick, and there should be no clinical or diagnostic activity involved at kindergarten. Thus, criteria of domestic premise, i.e. 70 dB(A) has been assumed.

(2) NAPs assigned at the corridor and entrance at G/F such as GIC-GF-01, GIC-GF-08 and GIC-GF-09 are not NSRs according to current layout and the results of these NAPs shown in Appendix 3-3 are for reference only.

3.5.4 Since noise exceedances were identified at kindergarten. Noise mitigation measures have been proposed to alleviate road traffic noise impact (Figure 3-2). The concerned measures include:

- Fence Wall (3m in height) in front of kindergarten building; and

3.5.5 The proposed incorporation of the above-mentioned measures in the design of the proposed scheme has been accepted by the Applicant and the Project Architect. With these precautionary noise measures, the mitigated road traffic noise levels (based on the projected traffic flow data of this Project) at the representative NSRs are presented in Table 3.3 below. Details of the estimated road traffic noise levels are also depicted in Appendix 3–4.

Table 3.3 Range of Predicted Mitigated Road Traffic Noise Levels at Representative NSRs

NSR ID	Noise Criteria, dB(A)	Range of Estimated Noise Level, L ₁₀ dB(A)
GIC-GF (Kindergarten)	65	56 – 59
-sick bay of kindergarten	70	65
GIC-1F (NEC)	70	62 – 70

Remarks: Please refer to Appendix 3–4 for the estimated noise levels at each NAP and Figure 3-1 for the geographical locations of NSRs. Since only GIC building has exceedance in unmitigated scenario, only NSRs in GIC building are presented.

(1) * The intended use of sick bay at kindergarten is to provide a resting place for students who are sick, and there should be no clinical or diagnostic activity involved at kindergarten. Thus, criteria of domestic premise, i.e. 70 dB(A) has been assumed.

(2) NAPs assigned at the corridor and entrance at G/F such as GIC-GF-01, GIC-GF-08 and GIC-GF-09. are not NSRs according to current layout and the results of these NAPs in Appendix 3-4 are for reference only.

(3) The current presented predicted noise results at NAP GIC-GF-07 in Appendix 3-4, is based on the unmitigated result given that there is no noise exceedance.

3.6 Conclusion

3.6.1 Noise impact on the Proposed Development due to road traffic has been examined. With the implementation of precautionary measures in design and proposed noise mitigation in terms of a fence wall (3m in height) for the kindergarten on G/F, the predicted road traffic noise levels would be within the relevant noise criteria. Thus, no adverse traffic noise impact on the proposed development is then anticipated.

Figure 3-1	Locations of NSRs for Road Traffic Noise Impact Assessment (Various pages)
Figure 3-2	Proposed Noise Mitigation Measures for Road Traffic Noise Impact Assessment – Kindergarten of G/F
Appendix 3–1	Typical Internal Layout Plan
Appendix 3–2	Predicted Traffic Flow Forecast Data
Appendix 3–3	Unmitigated Road Traffic Noise Assessment Results
Appendix 3–4	Mitigated Road Traffic Noise Assessment Results

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4. INDUSTRIAL NOISE IMPACT ASSESSMENT

4.1 Introduction

4.1.1 This assessment is to identify the potential noise impact due to existing, planned fixed noise sources and assess their impacts on the presentative sensitive receivers of the proposed residential development. The extent of noise assessment was based on an area within 300m radius from the Subject Site boundary.

4.1.2 As mentioned in Sections 1.1.3 and 1.1.8, the Subject Site is also the subject of a few previous approved planning applications such as those under the application nos. A/YL-MP/193, and A/YL-MP/205. The current proposed development is also the subject of a previous planning application under the Application No. A/YL-MP/6 with a submitted EA (R7345) without further comment received (Previous EA Report). Thus, the current EA report serves as an updated report to support the current application. The block form, building disposition, building orientation and buffer distance of the residential blocks from nearby existing roads under the Current Scheme remain unchanged. As such, noise assessment and findings in the above-mentioned Previous EA report, which was based on horizontal separation distance, are still valid and are also reproduced in below paragraphs.

4.1.3 The Subject Site is located to the south of the completed Ngau Tam Mei Drainage Channel and to the west of San Tin Highway and Castle Peak Road – Tam Mi Section. Within 300m radius from the boundary of the Subject Site, there are a few existing industrial activities outside the Subject Site boundary to the south and east of the Subject Site, respectively. However, these industrial activities are relatively far away from the Subject Site, and the horizontal distance between the NSRs of the proposed development and the identified industrial activities ranges from over 180m to more than 300m. In addition, direct line of sight from the Subject Site to these industrial activities is partially blocked by the clusters of the existing village houses, which are located between the Subject Site and the said industrial activities.

4.1.4 As discussed above, the Subject Site is the subject of a few previous planning application which was also for residential use. The findings in Previous EA Report (R7345) has been referenced in current submission. Existing fixed noise sources and noise strength were already identified and established in the above-mentioned Previous EA Report. Further site visits have been conducted and found that the concerned fixed noise sources remain unchanged. Thus, noise strength data in the Previous EA Report is extracted and used in the current EA report.

4.2 Government Legislation and Standards

Noise Control Ordinance (NCO)

4.2.1 The Noise Control Ordinance (NCO) provides the statutory framework for the control of fixed plant. It defines statutory limits applicable to the fixed plants used during the operational phase of the Project. The Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM) sets the criteria - Acceptable Noise Level (ANL) for governing fixed plant noise.

Hong Kong Planning Standards and Guidelines

4.2.2 The HKPSG requires that the planned fixed noise sources shall comply with 5 dB(A) below the ANLs, or the prevailing background noise levels, whichever lower. While for existing fixed noise sources, it shall comply with the Acceptable Noise Levels (ANL) laid

down in Table 2 of IND-TM. Both the noise standard should refer to façade noise level according to HKPSG, which is defined as 1m from the exterior of the building façade.

- 4.2.3 NSRs are classified according to the Area Sensitivity Rating (ASR). Any NSR shall be assigned an ASR of "C" if it is within 100 m of a zone designated as "Industrial" or "Industrial Estate" on a statutory Outline Zoning Plan, or an ASR of "B" if it is between 100 m and 250 m from such a zone, except for cases which indicate an ASR of "C".
- 4.2.4 As the Subject Site is located in rural area, to be conservative, the ASR of "A" has been assumed. The ANL for ASRs of "A" is depicted in Table 4.1.

Table 4.1 Relevant Noise Standard for Fixed Noise Sources

Standards	Criteria in relevant Time Periods	Acceptable Noise Level (ANL), Leq (30 minutes) dB(A) (for existing noise source)
NCO	Day and Evening (07:00 – 23:00)	60
NCO	Night (23:00 – 07:00)	50

- 4.2.5 As the concerned fixed noise sources are existing uses, the ANL noise criteria is applicable. The ASRs and ANLs proposed in this EA are intended for assessment only. Nothing in the EA shall bind the Noise Control Authority in the context of enforcement against any of the fixed noise sources identified and assessed in the future under the NCO. The exact ANL for proposed development will be confirmed later on when more information about the proposed development is available.
- 4.2.6 Measured background noise level of LA₉₀ (façade level) near site boundary line was about 56 dB(A) during day-time and about 47 dB(A) during night-time, which was higher than ANL-5 criteria. The measurement was using Precision Integration Sound Level Meter, which complies with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1). The weather condition was good with calm wind condition (<5m/s) during measurement. The equipment was properly calibrated immediately prior to and following each measurement by a Sound Level Calibrator. The noise levels before and after measurement agreed to within 1.0dB. The microphone was oriented 1.2m above ground level to obtain a representative baseline condition of the Project Site. A +3 dB(A) correction factor has been applied to the measured noise levels in order to represent the façade noise levels.

4.3 Identification of Potential Noise Impacts

Industrial Noise Sources

- 4.3.1 Within 300m radius from the Subject Site, there are a few existing industrial activities. These existing noise sources and no. of equipment were identified in the Previous EA Report. These include:
- An open storage site for precast units and totally enclosed godown located to the south of the Subject Site;
 - Roadside open storage sites along the northbound of Castle Peak Road; and
 - A totally enclosed godown, small vehicle repair/ cleaning workshops, a storage site of construction materials, and an open storage site for storage of scrap metals along the southbound of Castle Peak Road, respectively.
- 4.3.2 Although these industrial sites are within 300m from the Subject Site boundary, they are relatively far away, and the horizontal distance between the NSRs of the residential

development and these industrial activities would range from over 180m to more than 300m. Furthermore, there are clusters of existing village houses at Chuk Yuen Tsuen, Tai Yuen Villa, and the existing Golden Age Home for Senior Citizens located between the Subject Site and the said industrial activities, which are worst affected (Figure 4-2 refers).

- 4.3.3 The above-mentioned Previous EA Report for the Subject Site has already identified and assessed the noise impacts due to these storage activities based on prolonged observations. Further site visits have been conducted in January 2019, March 2020, July 2021, August 2022, September 2023 and September 2024 which found that the patterns of operation of the concerned storage activities, noise sources and their characteristics remain the same. Thus, noise strength as identified in Previous EA Report are still valid. Site visits records are provided in Appendix 4-1. During the site visits, the concerned activities were found to be closed in the evening.
- 4.3.4 The Table 4.2 summarises the identified industrial noise sources and number of plants. The respective locations of the identified industrial sites are also depicted in Figure 4-2.

Table 4.2 Identified Industrial Sites and Noise Sources

Source ID	Description	Consideration of Shielding Effect	Identified Noise Source
S1-1	sheltered warehouse	The concerned warehouse is within a sheltered area with hoarding erected on 3 sides and the top, which shields the Subject Site from this warehouse	General operating noise at the warehouse
S1-2	open storage)	-	Loading and unloading using forklift
S2-1	open storage of precast units	-	Movement of Lorry
S2-2	open storage of precast units	-	Lifting of container by a mobile crane
S3	Open storage site for container offices	The Subject Site is partially shielded by Hang Fook Garden. There is also an existing layer of containers (one is placed on top of another) near the western site boundary facing the Subject Site.	Loading and Unloading of container office by lorry
S4	Open storage site for storage of scrap metals	The Golden Age Home for Senior Citizens and Tai Yuen Village shield the Subject Site from this storage site	Operation and movement of breaker machine within the storage site
S6	Storage area for construction materials	The Golden Age Home for Senior Citizens and Tai Yuen Village shield the Subject Site from this storage site	Loading and unloading using forklift
S7	Open storage for vehicles	Existing village buildings at Chuk Yuen Tsuen shield the Subject Site.	Movement of Vehicles
S8	A totally enclosed godown	Existing village buildings at Chuk Yuen Tsuen shield the Subject Site.	Uploading/ unloading using a lorry at the entrance of the godown
S9	(No longer exists in Previous EA Report)		

Source ID	Description	Consideration of Shielding Effect	Identified Noise Source
S10-1	Totally enclosed godown	The structure of the godown shields the Subject Site.	Loading and unloading using forklift
S10-2	Totally enclosed godown	The structure of the godown shields the Subject Site.	Movement of lorry

Remark: * Maximum no. of equipment adopted in the Previous EA Report.

The noise emission strength as adopted in the Previous EA Report is presented in Appendix 4-2.

Existing, Planned and Proposed Pumping Stations

- 4.3.5 There is an existing Chuk Yuen floodwater pumping station to the southwest of the Subject Site, which is managed by the Hong Kong SAR Government Drainage Services Department (DSD). There are also planned public sewerage networks and a sewage pumping station (i.e. San Tin No.1 SPS) in the area. The operational noise level during the operation of these activities could potentially affect the Subject Site.
- 4.3.6 Besides, provision of a private sewage pumping station within the Site has been proposed. While the detailed design of the proposed SPS is not available at this stage, the SPS has been integrated into the Proposed Development. It will be located underground and provided inside an enclosed building structure, such that noise impact from the SPS will be minimal.
- 4.3.7 The locations of the existing and planned pumping stations are also depicted in Figure 4-4 .
- 4.3.8 Detailed assessment of fixed plant noise impact arising from the existing and planned pumping stations is further studied and assessed in the following paragraphs in Section 4.6.
- 4.4 Determination of Noise Sensitive Receivers
- 4.4.1 Noise sensitive uses of the proposed development are the planned residential blocks within the Subject Site. The representative sensitive uses proposed under this Project, which are selected for industrial noise impact assessment, are provided in Table 4.3 below.

Table 4.3 Representative NSRs for Operational Phase Noise Impact Assessment

NSR ID	No. of Storeys	mPD Level (1.2m Above Floor)
Ni-01a	15	13.1 (1/F) – 54.4 (14/F)
Ni-01b	14	13.1 (1/F) – 51.2 (13/F)
Ni-02	16	13.1 (1/F) – 57.5 (15/F)
Ni-03	16	
Ni-04	16	
Ni-05	16	
Ni-06	16	
Ni-07	3	6.6 (G/F) – 15.6 (2/F)

Remarks: Please refer to Figure 4-3 and Figure 4-4 for the locations of NSRs.

4.5 Assessment Methodology

- 4.5.1 Like the previously scheme and in line with the assessment methodology adopted in the Previous EA Report, the current scheme takes into account the noise impact of fixed noise sources based on an area of 300m radius from the Subject Site boundary.
- 4.5.2 In the Previous EA Report, the noise emission strengths at fixed noise sources (i.e. S3 to S9 in Figure 4-2) were identified for the noise assessment (a summary table of noise strengths at fixed noise sources, is extracted and reproduced in Appendix 4–2 of this EA report).
- 4.5.3 It should be noted that for industrial noise sources to the east of the Subject Site (i.e. S3 to S9 in Figure 4-2), there are clusters of existing village houses at Chuk Yuen Tsuen, Tai Yuen Villa, and the existing 3-storey high Golden Age Home for Senior Citizens located between the Subject Site and the said industrial activities (Figure 4-2 refers). As these existing NSRs would be worst affected by the industrial sites due to their proximity to the fixed noise sources, noise strength was based on on-site noise measurements at the existing NSRs. For the industrial sites to the south of the Subject Site (i.e. S1-1 to S2-2, and S10-1 to S10-2), reference was made to the SWL and no. of equipment adopted in the fixed plant noise assessment of an approved EIA Project (i.e. "Proposed Residential Cum Recreation Development within "Recreation" Zone and "Residential (Group C) Zone at Various Lots in D104, Yuen Long, N.T." (AEIA-182/2014)). The concerned SWLs are also reproduced in in Appendix 4–2 of this EA report.
- 4.5.4 As there is no change to the identified fixed noise source activities, the noise strengths in the Previous EA Report are adopted in this noise assessment.
- 4.5.5 To predict the noise level at the future noise sensitive uses, the following correction factors, as adopted in the Previous EA Report, have been accounted for:
- Distance correction: based on the slant distance between the identified noise sources and the NSR, the distance correction is projected based on standard acoustical principle for point source;
 - As observed during the site visits, the noise sources were found to operate occasionally. Although it is unlikely that all the identified industrial sources will be in operation simultaneously, to be conservative, it has been assumed that all the identified noise sources are in operation at the same time, which also represents a worst case scenario. Noise sources are assumed to operate continuously instead of in occasion as observed onsite and all noise sources are regarded as point source;
 - Façade correction: a +3dB(A) correction is applied to account for noise reflection from façade; and
 - Barrier correction: The barrier attenuation is calculated based on Path Difference Method. Maekawa equation is applied in the calculation of barrier effect.
- 4.5.6 As discussed in Section 4.1.2, the current Subject Site is also the subject of a few previous planning applications. Both the characteristics and emission strength of identified fixed noise sources and the noise assessment methodology have previously been established in the Previous EA Reports. In the previous study, no tonality, intermittency, and impulsiveness were identified at the fixed noise sources, and such characteristics remain unchanged in the updating site visits as described in Section

4.3.3. As the noise assessment methodology has previously been established and there is no change at the environment and its characteristics based on the latest site visit, it is also adopted in this noise assessment. Corrected Noise Level (CNL) at the NSRs of the proposed development can be calculated by applying the above corrections to the measured SWL of the noise sources in accordance with the following formula:

$$\text{CNL} = \text{SWL} + C_{\text{dist}} + C_{\text{fac}} + C_{\text{barr}}$$

Where,

CNL is the corrected noise level at the Noise Sensitive Receiver in dB(A)

SWL is the measured sound power level of the industrial plant in dB(A)

C_{dist} is the distance correction in dB(A) in accordance with the Technical Memorandum on Noise From Construction Works Other than Percussive Piling.

C_{fac} is façade correction, +3 dB(A)

C_{barr} is the barrier correction in dB(A). The barrier attenuation is calculated based on Path Difference Method. Maekawa equation and general acoustic principle is applied in the calculation of barrier effect.

- 4.5.7 It shall be noted that these industrial activities are relatively far away from the Subject Site, and the horizontal distance between the NSRs of the proposed Development and the identified industrial activities ranges from over 190m to more than 300m. There are also clusters of existing village houses at Chuk Yuen Tsuen, Tai Yuen Villa, and the existing 3-storey high Golden Age Home for Senior Citizens located between the Subject Site and these industrial activities, which would be worst affected by the industrial sites due to their proximity to the industrial noise sources. However, in the noise assessment no noise shielding effect has been taken into account due to these village houses.

4.6 Prediction and Evaluation of Noise Impacts

Industrial Noise Assessment Results

- 4.6.1 Based on the assumptions mentioned above and information of noise sources in Section 4.3, noise estimation on representative NSRs at the Subject Site was carried out. According to the assessment results (Appendix 4–2), the calculated noise levels at the NSRs of this Project would comply with the relevant noise criteria (ANL). As confirmed from various site visits, night-time operation of the concerned noise sources was not observed, thus only day-time noise impact is assessed.
- 4.6.2 According to current assessment results, for residential buildings along and the kindergarten at the eastern boundary of the Subject Site, the predicted noise level at the representative NSRs is up to 55 dB(A), which can satisfy the noise criteria in Table 4.1 above.
- 4.6.3 Therefore, the Subject Site is not significantly affected by the industrial noise sources, and no noise mitigation measures will be necessary.

Existing Pumping Station

- 4.6.4 As discussed Section 4.3, there is an existing floodwater pumping station (i.e. Chuk Yuen Floodwater Pumping Station) and a planned DSD's sewage pumping station (i.e. San Tin No.1 SPS) in the area. The potential impacts due to operation of these pumping stations are evaluated further in the following paragraphs.

- 4.6.5 It was found that a totally enclosed Chuk Yuen floodwater pumping station, managed by Hong Kong Government Drainage Services Department (DSD), is located to the southwest of the Subject Site (Figure 4-2 refers). This pumping station is a completely enclosed structure and it is used for the discharge of collected rainwater.
- 4.6.6 Noise levels at two closest representative NSRs are selected for assessment of fixed plant noise impact, and the results are presented in Table 4.4. Geographical locations of the NSRs are indicated in Figure 4-2.

Table 4.4 Calculated Noise Level at the Existing Chuk Yuen Floodwater Pumping Station

NSR ID	SWL, dB(A)	Horizontal Distance between NSR and the Pumping Station, m	Distance Correction, dB(A)	Façade Correction, dB(A)	Calculated Noise Level at NSR, dB(A)
Ni-01a	79 [#]	67	-45	3	37
Ni-01b	79 [#]	181	-53	3	29

Remarks: # SWL based on approved EIA report of “Proposed Low-rise and Low-density Residential Development at Various Lots and their Adjoining Government Land in D.D. 104, East of Kam Pok Road, Mai Po, Yuen Long, N.T.”. While the measured SWL as reported in a NIA report (Report No. 22356-N1) prepared for the approved planning application no. A/YL-MP/287 for an adjacent planned development site at Kam Pok Road, was reported as 53 dB(A).

- 4.6.7 The assessment shows that no adverse noise impact resulting from the existing Chuk Yuen Floodwater Pumping Station is anticipated, and no noise mitigation measure is deemed necessary.

Planned Pumping Station

- 4.6.8 As for the Government’s planned sewage pumping station near the junction of Castle Peak Road / Kam Pok Road, according to the relevant approved EIA report (i.e. “EIA and TIA Studies for the Stage 2 of PWP Item No. 215DS - Yuen Long and Kam Tin Sewerage and Sewage Disposal”), this San Tin No.1 SPS has been proposed to be located at an offsite location about 145m northeast from the Subject Site boundary. The approximate location of the proposed SPS, based on the above EIA report, is shown in Figure 4-2. According to this approved EIA report, this future SPS will be self-protected with openings or louvers directed away from NSRs. It is a requirement in the above approved EIA Report that the SPS must be designed to minimize potential noise impact to the nearby NRS locations. Mitigation measures such as acoustic enclosure, silencer at inlet and outlet, anti-vibration spring mount, and acoustic louver are required during the detailed design of the SPS. It is also a requirement in the EIA report that the maximum permissible Sound Power Level (SWL) at the louver location of the SPS should not exceed 83.3 dB(A).
- 4.6.9 Calculation of noise level at the closest representative NSRs due to the planned SPS, based on the above SWL level, has been carried out. To be conservative, it was assumed in this report that louvers of the SPS will be facing the Subject Site. Details and calculation results are provided in Table 4.5 with the locations of assessment point indicated in Figure 4-4.

Table 4.5 Calculated Noise Level Due to Operation of Planned San Tin No.1 SPS

NSR ID	SWL at the SPS, dB(A) *	Shortest horizontal distance between the SPS and the NSR, m [#]	Distance Correction, dB(A)	Façade Correction, dB(A)	Calculated Noise Level at NSR, dB(A)
Ni-06	83.3	208	-54	3	32
Ni-07	83.3	157	-52	3	34

Remarks: # Shortest horizontal distance between the proposed SPS and the nearest NSR under this development.

* According to the Agreement No. CE 66/2001(EP), EIA and TIA Studies for the Stage 2 of PWP Item No. 215DS - Yuen Long and Kam Tin Sewerage and Sewage Disposal (YLKTSSD), Environmental Impact Assessment (Final), Mar 2004.

Proposed Private Pumping Station

- 4.6.10 As mentioned previously, a private SPS within the Subject Site has been proposed under this Proposed Development. Details of design of the proposed SPS will only be available in later detailed design stage but design of the proposed private SPS has been integrated into the Proposed Development, where the SPS will be located underground in a basement and inside an enclosed building structure, such that noise impact from the SPS will be minimal. As indicated in Figure 4-4 of this report, exhaust point of the proposed private SPS will be directed towards Kam Pok Road and away from the nearby sensitive uses, where its associated noise impact will be minimized. The exhaust of the planned SPS should be properly designed to meet the relevant noise criteria as stipulated in Chapter 9 of the HKPSG and NCO.
- 4.6.11 According to the approved “EIA and TIA Studies for the Stage 2 of PWP Item No. 215DS-Yuen Long and Kam Tin Sewerage and Sewage Disposal (AEIAR- 078/2004)” (Sections 9.6 and 9.7 refer), the sound power level (SWL) at the louvre of the Ha Tsuen Sewage Pumping Station is reported to be 94 dB(A). According to the EIA, the said Ha Tsuen SPS didn't have acoustic treatment. In the same EIA report, it was recommended that with noise mitigation measures such as acoustic silencer and enclosure, a noise reduction of about 20-30 dB(A) can be achieved. Accordingly, the maximum permissible SWLs at louvre of various sewage pumping stations proposed in that EIA study, are reported to be in the range of 64 – 74dB(A).
- 4.6.12 Based on general acoustic principles, the estimated noise level due to current proposed SPS at nearby noise sensitive receivers will be about 30dB(A), which is lower than ANL-5 criteria. Details and calculation results are provided in Table 4.6 with the location of assessment point indicated in Figure 4-4 .

Table 4.6 Calculated Noise Level Due to Operation of Proposed Private SPS

NSR ID	SWL at the louvre of SPS, dB(A) *	Shortest horizontal distance between the louvre of SPS and the NSR, m #	Distance Correction, dB(A)	Façade Correction, dB(A)	Calculated Noise Level at NSR, dB(A) *
Ni-01a	74	94	-48	3	30
Ni-01b	74	131	-50	3	27

Remarks: # Shortest horizontal distance between the proposed SPS and the nearest NSR under this development. The above estimation on noise level is for reference only. Based on current design, the proposed SPS will be underground and the exhaust will face away from NSRs of proposed development which are unlikely be affected.

* According to the SWL in Agreement No. CE 66/2001(EP), EIA and TIA Studies for the Stage 2 of PWP Item No. 215DS - Yuen Long and Kam Tin Sewerage and Sewage Disposal (YLKTSSD), Environmental Impact Assessment (Final), Mar 2004.

The planned SPS should be designed in a such a way to be free from tonality, intermittency and impulsiveness in accordance with the IND-TM requirement under the NCO.

- 4.6.13 Based on the above calculation results, the calculated noise level at the NSRs of this development is well below the relevant noise criteria described in Table 4.1 above. Therefore, it is anticipated that this proposed development will not be subject to any unacceptable noise impact due to operation of the proposed SPS in the future.

Pumping Stations and other Fixed Noise Sources

- 4.6.14 To be conservative, cumulative noise level due to the pumping stations and the identified fixed noise sources at the representative NSR locations, are also calculated. The calculation results are provided in Table 4.7 below.
- 4.6.15 Based on the results, the estimated cumulative noise levels at the selected representative NSRs can comply with the relevant noise criteria specified in Table 4.1 above. Therefore, no unacceptable industrial noise impact is anticipated.

Table 4.7 Cumulative Noise Level Due to Operation of the Pumping Station and the Identified Fixed Noise Source

NSR ID	Noise Level Due to Chuk Yuen Pumping Station, dB(A)	Noise Level Due to Proposed Private Sewage Pumping Station, dB(A)	Noise Level Due to Proposed San Tin No.1 Sewage Pumping Station, dB(A)	Noise Level Due to Fixed Noise Source, dB(A)	Cumulative Noise Level, dB(A)	Noise Criteria, dB(A)
	A	B	C	D		
Ni-01a	37*	*	#	#	37	60
Ni-01b	29 *	*	#	#	29	60
Ni-06	#	#	32 *	52 **	52	60
Ni-07	#	#	34 *	53 **	53	60

Remarks: * Estimated noise level due to operation of the existing Chuk Yuen Pumping station, planned San Tin No.1 SPS and proposed private SPS are presented in Table 4.4, Table 4.5 and Table 4.6 respectively. Based on current design, the proposed SPS will be underground and the exhaust will face away from NSRs of proposed development, which are unlikely be affected.

** Estimated noise level due to identified fixed noise sources as presented in Appendix 4–2.

No noise estimation is provided as there are no other pumping stations and/or fixed noise source within 300m from the concerned NSR.

- 4.6.16 To ensure the fixed plant noise generated by the Proposed Development would not cause excessive impact to nearby noise sensitive receivers, potential fixed noise sources within the Proposed Development, such as future noise sources at E&M room and ventilation system at transport lay-by and commercial blocks, shall be properly designed to meet the relevant noise criteria as stipulated in Chapter 9 of the HKPSG and NCO. Provisions shall be made to control the fixed noise sources by suitable at source noise control measures such as quieter plant, silencers and acoustic linings when necessary. As such, it is anticipated that the fixed plant noise impact on the surrounding NSRs due to the operation of the Proposed Development will not exceed the relevant noise criteria under the HKPSG and NCO.

Figure 4-1	Not Used
Figure 4-2	Locations of Fixed Noise Sources
Figure 4-3	Locations of Noise Assessment Points for Fixed Noise Source Impact Assessment
Figure 4-4	Locations of Noise Assessment Points for the Existing Floodwater Pumping Station and the Proposed Sewage Pumping Station
Appendix 4–1	Field Visit Record
Appendix 4–2	Calculation of Fixed Noise Sources

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5. WATER QUALITY IMPACT ASSESSMENT

5.1 Introduction

- 5.1.1 This section addresses the potential water quality impact that may arise from the proposed development within a study area of 500m.
- 5.1.2 As mentioned in Sections 1.1.3 and 1.1.8, the Subject Site is also the subject of a few previous approved planning applications such as those under the application nos. A/YL-MP/193, and A/YL-MP/205. The current proposed development is also the subject of a previous planning application under the Application No. A/YL-MP/6 with a submitted EA (R7345) without further comment received (Previous EA Report). The current proposed development is also for a residential development. Practicable mitigation measures/ best practices have been recommended where necessary. A separate EIA study will be required at the later stage to identify and address both construction and operation phases impacts, and proper mitigation measures, if any, will be proposed subject to findings of the EIA study.
- 5.1.3 An EA report (R7345) was submitted in support of the planning application under Application No. A/YL-MP/6. As discussed in Sections 1.1.3 to 1.1.8 and 1.3, MLP in current proposed scheme largely remains same. The block form, building disposition, building orientation and buffer distance of the residential blocks from nearby existing roads under the Current Scheme remain unchanged, but amendments on lowering the building height and development plot ratio. Thus, findings in above-mentioned Previous EA Report are still valid which are reproduced in below paragraphs.
- 5.1.4 The Subject Site is located within OZP S/YL-MP/8. According to the OZP explanatory statement, “no-net increase of pollution load into Deep Bay” is applicable to the Proposed Development.

5.2 Relevant Environmental Legislation and Guidelines

- 5.2.1 The relevant legislations, standards and guidelines for the assessment of water quality impacts include:
- Water Pollution Control Ordinance (WPCO) CAP 358;
 - Technical Memorandum on “Standards for Effluent Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters” (TM-Effluents);
 - Hong Kong Planning Standards and Guidelines;
 - *ProPECC PN 2/23 “Construction Site Drainage”*;
 - *ProPECC PN 1/23 - Drainage Plans Subject to Comment by the Environmental Protection Department*; and
 - TPB PG No. 12C “Town Planning Board Guidelines for Application for Developments Within Deep Bay Area under Section 16 of Town Planning Ordinance”.
- 5.2.2 The Water Pollution Control Ordinance (WPCO) (Cap. 358) enacted in 1980 is the principal legislation controlling water quality in Hong Kong. Under the WPCO, Hong Kong waters are classified into 10 Water Control Zones (WCZ). The Subject Site is situated within the Deep Bay Catchment Area of the Deep Bay Water Control Zone (WCZ) and the Ramsar Site. The TM-Effluents issued under Section 21 of the WPCO defines acceptable discharge limits of effluent to different types of receiving waters. Under the Ordinance, any discharge into the WCZ requires licensing and must comply with the terms and conditions specified in the licence, except for domestic sewage

discharged into public foul sewers, and unpolluted water into storm water drains and river courses.

- 5.2.3 The discharge from proposed development will be to nearby existing drainage system and Ngau Tam Mei Drainage Channel which is for stormwater discharge. The discharge from the proposed development shall comply with the Group D and Group C standard for effluent discharge into inland waters.

5.3 Description of Environs and Water Sensitive Receivers

- 5.3.1 The proposed development is surrounded by existing road networks. Existing Kam Pok Road is located to the immediate north and north-west directions. Ha Chuk Yuen Road and existing Chuk Yuen Tsuen are to the east and south-east, and vacant land and Drainage Services Department (DSD)'s flood storage pond to the south at Chuk Yuen floodwater pumping station. Ngau Tam Mei Drainage Channel (NTMDC) is also situated to the further west of the Subject Site. Figure 5-1 refers.

- 5.3.2 The existing Chuk Yuen Floodwater Pumping Station is managed by DSD for the discharge of collected rainwater. NTMDC is an existing engineered channel for collection of stormwater in the area, which is separated from the Subject Site by existing Kam Pok Road. Currently, the Subject Site is unpaved and surface runoff from the Subject Site would then flow into NTMDC without any treatment via existing u-channels at Kam Pok Road and Ha Chuk Yuen Road. Thus, water bodies at NTMDC, flood storage pond at Chuk Yuen Floodwater Pumping Station, and those existing stormwater drains at Kam Pok Road and Ha Chuk Yuen Road are the potential water sensitive receivers (WSRs) of this project during both construction and operational phases. All these are in fact designated stormwater collection system in the area. The proposed landscape pond within the Subject Site will be constructed at the same time as the proposed development, which will be another WSR during operation of the proposed development (during construction, it will be part of a construction site). Figure 5-1 refers. There is existing reed within Subject Site, which will be filled up as part of the proposed development. During construction, they will be part of a construction site thus it is not a water sensitive receiver. It is expected that any spare water during construction will be absorbed by soakaway mechanism so that the change of draining is minimized, and surface water will be controlled within construction site. In operation, proper stormwater drainage system will be provided for the proposed development to properly collect stormwater runoff, and discharge through screening facilities following the existing flow regime. Thus, there should be no adverse water quality impact due to proposed development.

- 5.3.3 To the further west of Subject Site are the existing Fairview Park Nullah, a proposed landscape pond of adjacent planned development. To the north and northwest are water ponds, reed near Yau Mei San Tsuen. Also water ponds and drainage to the further south such as those near Ha Chuk Yuen Road, near Hang Fook Gardens, as well as to the east and south-east of Yau Tam Mei Tsuen across San Tin Highway. The wetland conservation area (WCA) is also located to the further north, where a planned wetland conservation park largely overlaps with the WCA. Figure 5-1 refers. However, these water bodies (potential WSRs) are relatively far away from the Subject Site and are physically separated by other lands and roads, thus they are unlikely be affected by the proposed development.

5.3.4 WSRs within 500m assessment area were identified and presented in Table 5.1 and shown in Figure 5.1.

Table 5.1 Description of Water Sensitive Receivers

WSR ID	Description	Type	Status	Estimated distance (m)
C01	Wetland Conservation Area which covers the ponds between Fairview Park and Palm Springs, and those near Yau Mei San Tsuen	Wetland Conservation Area	Existing zoning	143
C02	Wetland Buffer Area which covers areas such as Fairview Park, Palm Springs, Yau Mei San Tsuen and Chuk Yuen Tsuen etc.	Wetland Buffer Area	Existing zoning	Site is partly within the buffer area
C03	Planned Wetland Conservation Park by others which covers the ponds between Fairview Park and Palm Springs, and those near Yau Mei San Tsuen	Planned Wetland Conservation Park	Planned zoning	91
D01	Ngau Tam Mei Drainage Channel	Channelized Drainage Channel	Active	21
D02	Fairview Park Nullah (Main)	Channelised Nullah	Active	90
D03	Fairview Park Nullah (surrounding Fairview Park)	Channelised Nullah	Active	76
D04	Watercourse near Palm Springs	Drainage ditches	Active	131
D05	Watercourse near Yau Tam Mei Tsuen	Drainage ditches	Active	373
D06	Drainage ditch along Ha Chuk Yuen Road	Drainage ditches	Active	3-78
M01	Marsh near Yau Tam Mei Tsuen	Natural Marsh	Active	337
M02	Marsh between Fairview Park and Palm Springs	Natural Marsh	Active	314

WSR ID	Description	Type	Status	Estimated distance (m)
M03	Reed/marsh between Fairview Park and Palm Springs	Reed/ Marsh	Active	227
M04	Reed at the north of Yau Pok Road	Reed	Active	129
M05	Reed near the Site and Chuk Yuen Tsuen	Reed	Active	Partly within the site
P01	Ponds at the north of Yau Pok Road (temporary wetland created under construction phase of a planned development site in AEIAR-189/2015)	Ponds	Active*	83
P02	Ponds near Yau Tam Mei Tsuen	Ponds	Active*	386
P03	Ponds at the south of Palm Springs	Ponds	Active*	380
P04	Ponds near Yau Mei San Tsuen	Ponds	Active*	138
P05	Pond near Yau Mei San Tsuen and Royal Palms	Ponds	Active*	312
P06	Proposed landscape pond under application no. Y/YL-MP/8	Proposed pond	-	66
P07	Ponds between Fairview Park and Palm Springs	Ponds	Active*	368
P08	Ponds near Hang Fook Gardens	Ponds	Active*	154
P09	Pond near Ha Chuk Yuen Road	Ponds	abandoned	209
P10	Water storage pond at DSD's Chuk Yuen Floodwater Pumping Station	Ponds	Active*	3
P11	Proposed landscape pond of the current development during operation stage	Newly Proposed Ponds	-	Within site

Remark: Status is based on desktop review for reference. Exact status should be subject to further review during later EIA study stage.

5.4 Evaluation of Water Quality Impacts and Conclusion

Operational Phase

- 5.4.1 During operation stage of the proposed development, potential water quality impacts would be the discharge of wastewater from domestic and commercial activities, as well as surface runoff from Subject Site during rainfall events which is known as non-point source of pollution. Currently, there is also discharge of surface runoff at the Subject Site which is directly discharged without any treatment into nearby drainage system and Ngau Tam Mei Drainage Channel.
- 5.4.2 The proposed development will be connected to the proposed sewerage system during its operation through sewage pipeline and pumping station. The proposed development will follow EPD's Practice Note PN 1/23. Drainage in covered carparks, covered transport interchange, covered loading and unloading area should be connected to foul sewer via petrol interceptors while drainage serving open space should be connected to stormwater drain via screening facilities in accordance with EPD's Practice Note PN 1/23. Swimming pool drainage design will follow the *ProPECC PN 1/23* requirements as well. As such, there should be no particular water pollution concern. As for the proposed landscape pond, it will be solely for landscape purpose, and will not serve as a compensated wetland nor a compensation pond. Details of design for the landscape pond will only be available in later detailed design stage, but proper stormwater drainage system with standard screening facilities will be provided so as to intercept the landscape pond away from other surface runoff such as open space and landscaping area. During normal operation of the landscape pond, no particular discharge is anticipated except under heavy rainfall. In case of pond maintenance, it will be arranged during dry season as far as possible when the water level at the pond is relatively low. Stormwater drains with standard screening facilities will also be designed at the outlet of landscape pond, so that in case of draining of pond there will be no direct discharge of stormwater without treatment. As mentioned above, the proposed development will be subject to an EIA study to be conducted at a later stage, construction and operation phases water quality impact assessment will be carried out and with proper mitigation measures recommended. The discharge from landscape pond would comply with the above-mentioned TM-Effluents under WPCO, and the discharge may be subject to a licence control under the WPCO and is also subject to findings of EIA study.
- 5.4.3 Sewage from the Subject Site will be collected by proposed sewers and pumping station and then conveyed to the existing Nam Sang Wai Sewage Pumping Station. A separate sewerage impact assessment has been submitted. As there will be no direct discharge of sewage to nearby area, no adverse water quality impact is expected. The proposed SPS has a ADWF capacity slightly less than 2,500 m³/day. Detailed of the proposed SPS is only available during later detailed design stage. However, as a guidance the SPS will be designed in accordance with the requirements under DSD's Sewerage Manual – Part II. As general measures, the proposed pump(s) will be designed to operate with start/stop about 5 times per hour. Measures have also been proposed for emergency such as adequate spare parts for the plant; provision of duty & standby pumps; backup power arrangement; wet well/ equalization tank; twin rising mains; and qualified personnel will be hired to inspect the plant condition and carry out maintenance on a regular basis. In addition, detection sensor will be installed at SPS and the signal will be conveyed to control room/ management office for a timely response. With the provision of these measures and standby units in place, the potential water quality impact due to sewage overflow is considered very unlikely to

occur. In case of prolonged outage of the SPS, equalization tank with storage capacity around 1,033 m³ or equivalent to ~8-hours of averaged sewage flow, has been proposed to temporarily store the collected sewage, which can also satisfy the EPD's Guidelines for the Design of Small Sewage Treatment Plants. It is anticipated that 2- to 4-hours preparation time should be adequate to mobile repair team and install backup units and arrange tank away disposal where necessary. The above measures for SPS are preliminary only, which should be subject to later detailed design stage as well as EIA study. In addition, twin rising mains is proposed. In case of maintenance of one of the rising mains, the other rising main can still operate as normal. As such, with the provision of twin rising mains, duty and standby pump units, backup power arrangement, and equalization tank, the potential water quality impact due to sewage overflow is considered very unlikely to occur. The operation of the SPS should also prevent direct discharge of raw sewage during emergency. The proposed development will also need to undergo an EIA study at the later stage, and the issue of sewerage and water quality impact due to SPS will be properly addressed.

- 5.4.4 Currently, there is also discharge of surface runoff at the Subject Site which is directly discharged without any treatment into nearby drainage system and Ngau Tam Mei Drainage Channel. During operation, proper stormwater drainage system will be provided for the proposed development to properly collect stormwater runoff, and discharge through screening facilities following the existing flow regime. Drainage system will also be provided along the site boundary to intercept stormwater. As discharge will be through degritting/ screening facilities, there will be no direct discharge of untreated stormwater runoff into nearby WSRs. As pollutants contributed by non-point source are often bound or adsorbed onto particles, an effective stormwater management system will be the removal of pollution sources prior to rainstorm and the provision of degritting/ screening facilities that collect debris or sediment. It is recommended that regular cleaning and sweeping of road surface/ open areas as well as prior to occurrence of rainstorm should be carried out to minimize exposure of pollutants to stormwater. As for landscaping area, it is recommended that fertilizers will only be applied when needed e.g. in early Spring and in late summer and to avoid major rainy season. Slow-release type fertilizers should be selected as far as possible and over dosage should be avoided. Details of the drainage system will only be available in detailed design stage. It is recommended that the drainage system of the development should be designed in such a way that stormwater runoff should be collected and directed towards the site drainage system as far as possible; screening facilities such as standard gully grating and trash grille, with spacing which is capable of screening off large substances such as fallen leaves and rubbish should be provided at the inlet of drainage system/ discharge points. It is expected that most of the large substances in stormwater runoff would be removed with such devices so as to prevent it from entering the drainage system; road gullies with standard design and petrol interceptors should be incorporated during the detailed design to remove particles and grease present in stormwater runoff; and drainage outlet of any covered car park should be connected to foul sewers via petrol interceptors or similar facilities.
- 5.4.5 Therefore, with the proposed drainage system and recommended pollution control measures in place, no adverse water quality impact due to stormwater discharge is anticipated.

Construction Phase

-
- 5.4.6 Sewage generated by construction workforce during construction stage will be collected by provision of sufficient number of chemical toilets and proper disposal. Please refer to Section 6.5 for details.
- 5.4.7 The potential water quality impact during construction stage of the proposed development as well as construction of the proposed sewers, will be the potential discharge of construction site runoff and wastewater. If not properly controlled, construction site runoff generated may bring along pollutants (e.g. sediment-laden surface runoff) and pollute the nearby water bodies depending upon the topography. During the course of construction, effluent collected from construction site should be properly collected by construction site drainage system and treated before discharge. The quality of discharge should also comply with relevant effluent discharge licence to be issued under the WPCO. The proposed sewers are underneath existing roads. The exact construction method of proposed sewers will be subject to detailed design. However, it is proposed that construction of the sewers should be carried out in phases to minimise exposed area. The temporary works area should be carefully planned and located to avoid potential disturbance. Temporary stockpile area should be located away from nearby receiving water body or drainage channel. Trenchless construction method should also be explored as far as possible. Best practices as per “Construction Site Drainage” (*ProPECC PN 2/23*) should be adopted. Various measures proposed in below paragraphs as well as those presented in Section 6.5 should be applied.
- 5.4.8 During construction, no direct discharge without treatment of construction site runoff from the construction site will be allowed. The design of the site drainage system will only be available in later detailed design stage, but the drainage system shall follow the Practice Notes for Professional Persons on “Construction Site Drainage” (*ProPECC PN 2/23*). Construction site runoff shall be collected and treated through screening facilities before discharge into the nearby storm drains by following the existing flow regime, and the discharge shall comply with the terms and conditions of the discharge licence to be issued under the WPCO. Details of recommended pollution control measures are provided in Section 6.5 of this report.
- 5.4.9 With the proposed construction phase drainage system and recommended pollution control measures in place, no adverse water quality impact due to construction site runoff will be expected.

Figure 5-1 Locations of WSRs during Construction and Operation Phases

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6. CONSTRUCTION PHASE IMPACTS

6.1 Introduction

- 6.1.1 During construction phase of proposed development, there may be potential air quality, noise and water quality impacts upon the nearby sensitive receivers. Practicable environmental mitigation measures are recommended to reduce these impacts to acceptable ranges.
- 6.1.2 During construction phase, the nearest sensitive receivers will be surrounding residential and village development sites such as existing Fairview Park, Yau Mei San Tsuen, Chuk Yuen Tsuen, Hang Fook Gardens, and Ha San Wai Tsuen (Figure 1-1 refers).

6.2 Construction Phase Air Quality Impact

- 6.2.1 The major air quality impact of concern during the construction phase will be the potential fugitive dust emission during site formation stage. The nearest ASRs and their separation distance are identified in Section 2.4.1.

Dust Emission Source

- 6.2.2 The major air quality impact of concern during the construction phase will be the potential fugitive dust emission. The major dust emission sources during the construction phase of the proposed development are expected to arise from construction activities during site formation stage such as.
- Excavation resulting in exposed ground vulnerable to soil erosion;
 - Earth moving, loading and unloading of excavated material; and
 - Vehicle movements on haul roads and over the construction site.
- 6.2.3 The Subject Site is relatively a flat land and is already served by existing road network, thus significant earth works is not anticipated during construction. The current concerned development site is still at its very early planning stage, many construction details are not yet available. It is expected that phased construction should be considered during the earth works in site formation stage with a view to minimize the active works area, although details of construction and its phasing will only be available in later detailed design stage. Further measures will be considered during the detailed design at a later stage to explore feasibility of use of electric NRMMS and avoiding the exempted NRMMS as far as practicable subject to the availability of on-site electricity, close liaison with the contractors of concurrent projects to avoid overlapping of heavy/duty works when the construction programmer becomes available. Thus, construction works should be under control and adverse construction air quality impact is not anticipated. It is noted the proposed development will be subject to a separate Environmental Impact Assessment (EIA) study including a construction phase impact assessment under the EIA Ordinance later on. Concurrent projects, if any, will also be identified and assessed accordingly. There is an approved public light housing development by the government under application no. A/YL-MP/341. However, it is understood that it is a temporary use only. According to its planning document the said public light housing development would be removed around 2029 or so, which is before the current proposed development. There are also a few previously approved planned development sites in adjacent such as the approved planning application under A/YL-MP/247, A/YL-MP/287, and Y/YL-MP/3 (as shown in Figure 2-3). Having reviewed, there is no solid construction programme of these development sites available at this stage. It is understood that all these planned development sites are

also subject to separate EIA study and their construction activities would be controlled under their respective statutory Environmental Permit (EP) issued or to be issued under the EIA Ordinance. It is anticipated that relevant identified projects would implement appropriate mitigation measures as recommended in their EIA study which shall be monitored for compliance under their EM&A programme. During construction of current proposed development, contractor(s) will be required to review the construction programme of adjacent planned development sites and closely liaise with the other contractors of planned development sites in order to minimize concurrent noisy activities as far as possible. As for the current proposed development will also undergo its EIA study, relevant mitigation measures will be proposed for implementation to alleviate construction air quality impact subject to the findings of EIA study. The need for the implementation of a construction environmental monitoring and audit program is subject to the findings of the EIA study to be conducted in future. The proposed development will follow the statutory requirement on EM&A programme/ activities accordingly.

Other Pollutants Sources

- 6.2.4 It is unlikely that potential air quality impacts from the criteria pollutants (e.g. nitrogen oxides (NO_x), sulphur dioxide (SO₂), and carbon monoxide (CO)) would be unacceptable as significant emissions are not anticipated. The Subject Site is relatively a flat land and is already served by existing road network, thus significant extent of earth works, and site formation works are not anticipated, which then limit the number of construction plant required for the construction works. It is also suggested that the contractor should plan their construction activities in such a way that only the required number of construction plants should be deployed to the construction site at different stages of works in order to minimize the number of construction plants working at the same time. The Air Pollution Control (Fuel Restriction) Regulation controls the fuel to be used. In particular, liquid fuel with a sulphur content not exceeding 0.005% by weight and a viscosity not more than 6 centistokes at 40°C, such as Ultra Low Sulphur Diesel should be used. In addition, emissions from all the regulated machines within construction site will be controlled under the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation. Only approved or exempted Non-road Mobile Machinery with a proper label will be allowed to be used at construction site. As such, emissions due to construction equipment will be under control and are unlikely to be significant.

6.3 Mitigation Measures for Fugitive Dust and Gaseous Emission

- 6.3.1 Fugitive dust and gaseous emissions arising from construction activities can be effectively suppressed by incorporating proper mitigation measures into work procedures through contractual clauses, good site management, and close monitoring by the resident engineers. The contractor shall be required to follow the requirements of the Air Pollution Control (Construction Dust) Regulations. With the adaptation of good practices, it is expected that dust and gaseous emissions can be kept at an acceptable level. The recommended mitigation measures are described below.

General Site Management

- 6.3.2 Appropriate working methods should be devised and arranged to minimise dust emissions and to ensure any installed control system and/or measures are operated and/or implemented in accordance with their design merits. No free falling of construction debris should be allowed, which should be let down by hoist or enclosed tunnel to the ground; immediately before leaving the construction site, all vehicles shall be washed to remove any dust materials from its body and wheels; providing

hoarding of not less than 2.4m high from ground level along site boundary which is next to a road or other public area; provide effective dust screens, sheeting, or netting to enclose any scaffolding built around the perimeter of a building; prevent placing dusty material storage piles near ASRs; and minimizing exposed surface and properly cover stockpile as far as possible and apply frequent watering when working close to the ASRs to suppress dust emission. In view of relatively close separation distance to ASRs near Ha Chuk Yuen Road, higher hoarding could also be considered during construction; locating the haul road away from this ASR as far as possible; and careful arrangement of construction program to avoid concurrent dusty works as far as practicable. Covering of exposed soil surface and regular watering to suppress any dust emission. In addition, feasibility of providing electric power supply can be explored for on-site machinery as far as practicable to minimise aerial emissions.

- 6.3.3 Frequent mist/ water spraying should be applied on dusty areas. The frequency of spraying will depend upon local conditions such as rainfall, temperature, wind speed and humidity. The amount of water spraying should be just enough to dampen the material without over-watering which could result in surface water runoff.

Vehicles and Unpaved Site Roads

- 6.3.4 Dust emission from unpaved roads comes predominantly from travelling of vehicles. Areas within the site where there are regular vehicle movements should have a hard surface such as crushed stone, gravel or other granular materials. Speed controls at an upper limit of 10 km/hr should be imposed and their movements should be confined to designed roadways within the site. All dusty vehicle loads should have side and tail boards covered by tarpaulin sheeting. Wheel-wash troughs and hoses should be provided at exit points of the site.

Material Stockpiling and Handling

- 6.3.5 The amount of stockpiling should be minimised where possible. Construction material or debris should be covered and stored inside enclosed areas. Other control measures such as enclosed or semi-enclosed windboard should be used, where applicable, to minimise dust emission. Regular watering is needed at areas such as storage piles, where there could be potential dust emission.

Concrete Batching Plant

- 6.3.6 No concrete batching plant is anticipated at this stage. Should a concrete batching plant be required, a specified process licence shall be obtained from the authority, which will give guidelines on dust mitigation measures required as terms and conditions, and its implementation will be controlled through the specified process licence. A quantitative construction impact assessment will be required should a concrete batching plant be required later on to ensure that no adverse construction air quality impact will be imposed on the nearby ASRs.

6.4 Construction Noise Impact

- 6.4.1 During the construction phase, major noise impacts would arise from piling works, operation of Powered Mechanical Equipment (PME), and construction-related traffic.

Construction Noise Criteria

- 6.4.2 Construction noise is controlled under the Noise Control Ordinance (NCO) which prohibits the use of powered mechanical equipment (PME) during the restricted hours (7 p.m. to 7 a.m. on normal weekdays and any time on a public holiday, including Sunday) without a valid Construction Noise Permit (CNP) from the Authority. The

criteria and procedures for issuing such a permit are specified in the “Technical Memorandum on Noise From Construction Works Other than Percussive Piling” (TM1).

- 6.4.3 With effect from 1 November 96, the use of specified powered mechanical equipment (SPME) for carrying out construction work other than percussive piling and/ or the carrying out of prescribed construction work (PCW) within a designated area are also brought under control. The relevant technical details are provided in the “Technical Memorandum on Noise from Construction Work in Designated Areas” (TM2).
- 6.4.4 Percussive piling is controlled similarly by a construction noise permit system and described in the NCO and the “Technical Memorandum On Noise From Percussive Piling” (TM3) which restrict the number of hours during which piling can be conducted. Percussive piling is prohibited between 7 p.m. and 7 a.m. and on holidays (including Sundays). Percussive piling during the daytime (i.e. between 7 a.m. and 7 p.m. on any day not being a holiday) may be carried out in accordance with the permitted hours and other conditions under a valid construction noise permit.
- 6.4.5 For construction works other than percussive piling, although TM1 does not provide control over daytime construction activities, noise limits as shown in below Table are set out in the “Minimizing Noise from Construction Activities” (*ProPECC*) PN1/24.

Table 6.1 Noise Limit for Daytime Construction Activities

NSR	0700 to 1900 Hours on Any Day Not Being a Sunday or General Holiday $L_{eq(30min.)}$, dB(A)
All domestic premises including temporary housing accommodation	75
Educational institutions including kindergartens, nurseries	70 / 65 (during examination)

Notes:

- (i) the above standards apply to uses which rely on opened windows for ventilation;
- (ii) the above standards shall be viewed as the maximum permissible noise levels assessed at 1m from the external façade

Recommended Mitigation Measures for Construction Noise

6.4.6 Sufficient noise mitigation measures should be introduced in the development to alleviate potential noise impacts on nearby NSRs. The Contractor(s) will be required under the contractual requirements to ensure regular maintenance of all plants and equipment, and that noise generation at source should be minimized and practicable noise mitigation measures should be in use. The Contractor(s) will be required to adopt quiet type construction plants (e.g. EPD’s quality powered mechanical equipment (QPME) inventory), wherever practicable. Movable noise barriers should be erected around noisy plants in order to minimize noise generation at source. With these measures in place noise generation due to construction activities would be minimized.

6.4.7 The following general noise mitigation measures are recommended for implementation:

- Application of properly designed silencers, mufflers, acoustically dampened panels and acoustic sheds or shields, etc.;
- Use of electric-powered equipment where applicable instead of diesel-powered or pneumatic-powered equipment;
- Erecting noise enclosures/ movable noise barriers around noisy plants;
- Only well-maintained plants should be operated on-site;
- Plants should be serviced regularly during the construction programme;
- Noisy activities can be scheduled to minimize exposure of nearby NSRs to high levels of construction noise. For example, noisy activities can be scheduled for midday or at times coinciding with periods of high background noise;
- Noisy equipment such as emergency generators shall always be sited as far away as possible from noise sensitive receivers;
- Location of noise emitting plants at maximum possible distances from sensitive receivers;
- Contractual clauses for construction works; and
- Schedule of noisy operations during non-restricted hours where possible.

The above-mentioned noise mitigation measures will be included in the construction stage. With these measures in place, construction noise due to the proposed development can be minimized, and no adverse noise impact is anticipated.

6.4.8 It is suggested that due consideration should be given by the contractor(s) of the project to prioritize the application of quieter construction methods and equipment for

mitigating the potential construction noise impact and will refer to the latest PN1/24 “Minimizing Noise from Construction Activities” for incorporating the necessary specifications into the Works Contract(s) for deployment and implementation of the quieter construction methods and equipment as well as other recommended noise mitigation measures as far as possible. Requirements stipulated in the EPD’s Recommended Pollution Control Clauses for Construction Contracts (RPCC) should also be observed and incorporated into the Works Contract(s) as far as necessary and appropriate to ensure the implementation of noise mitigation measures and minimization of the potential construction noise impact.

6.5 Construction Wastewater Impact

6.5.1 As discussed in 5.3.2, construction phase sensitive receivers will be those existing drains at NTMDC, flood storage pond at Chuk Yuen Floodwater Pumping Station, and those existing stormwater drains at Kam Pok Road and Ha Chuk Yuen Road. Figure 5-1 refers.

Source of Construction Wastewater

6.5.2 Construction activities would inevitably have the potential to generate wastewater. Works should be carried out in such a manner as to minimise adverse impacts on local water bodies. Activities that are likely to cause water pollution include:

- Construction runoff and drainage;
- Wastewater from Construction Site; and
- Liquid spillage, e.g. oil, diesel, solvents etc.

6.5.3 Construction runoff contains increased loads of sediments, other suspended solids and contaminants. Potential sources of pollution include runoff and erosion from the site surfaces, drainage channels; bentonite slurries and other grouting materials, concrete batching plant washout and drainage from dust suppression sprays, fuel, oil and lubricants from construction vehicles and other equipment. Also wastewater generated from construction activities, foundation works, and superstructure works. Various mitigation measures/ best practices have been proposed.

Mitigation Measures

6.5.4 The good practice given in the Practice Notes for Professional Persons on “Construction Site Drainage” (*ProPECC PN 2/23*) in controlling water pollution at construction site shall be implemented during the construction phase of the Proposed Development. Soil erosion from the construction site can be minimised through good on-site management practices by implementing viable erosion control measures which should be incorporated in contract clauses. The main practices provided in the above-mentioned document (i.e. *ProPECC PN 2/23*) are also summarized in the following paragraphs which should be enforced to prevent unacceptable construction stage impacts and for compliance with the statutory criteria.

(i) Construction Site Runoff

- Exposed soil surfaces should be protected from rainfall through, for example, by covering temporarily exposed slope surfaces or stockpiles with tarpaulin and protect temporary access roads by crushed stone or gravel;
- Exposed soil areas should be minimised to reduce the potential for increased siltation and contamination of runoff;
- Minimise the time that soil surfaces are exposed;

- Slow down water run-off flowing across exposed soil surfaces;
- Channels, earth bunds or sandbag barriers should be provided on site to properly direct surface runoff through drainage systems;
- Oil interceptors are also recommended to be provided for stormwater drains near plant maintenance/ repair areas, where necessary.
- Manholes (including newly constructed ones) should be adequately covered or temporarily sealed so as to prevent slit, construction materials or debris from getting into the drainage system;
- Construction works should be programmed to minimise soil excavation works where practicable during rainy conditions;
- Drainage facilities must be adequate for the controlled release of storm flows;
- Sedimentation basins and sand traps designed in accordance with the requirements of *ProPECC* Note PN 2/23 should be installed at the construction site for collecting surface runoff. Perimeter channels at site boundaries should be provided where necessary to intercept surface runoff from outside the site. Silt removal facilities, channels and manholes should be maintained and deposited silt and grit should be removed regularly;
- There should be no direct discharge without treatment of construction site runoff into the nearby streams and public drains;
- The Contractor shall prepare a construction site drainage management plan with details of the construction phase drainage system proposed to be constructed; discharge location(s); and screening facilities;
- The Contractor(s) shall apply for a discharge licence under the WPCO and the discharge shall comply with the terms and conditions of the licence throughout the construction phase; and
- Construction of proposed sewers should be carried out in phases to minimise exposed area. Asides from above-mentioned general best practices, the temporary works area should be carefully planned and located to avoid potential disturbance. Temporary stockpile area should be located away from nearby receiving water body or drainage channel. Best practices in “Construction Site Drainage” (*ProPECC PN 2/23*) should be adopted. Trenchless construction method should also be explored as far as possible. Visual inspection to nearby receiving drainage channels should be carried out during construction phase.
- Currently, there is existing reed within the Subject Site, which will be filled up as part of the proposed development. The concerned locations will be part of a construction site during construction stage. It is expected any spare water during construction will be absorbed by soakaway mechanism so as to minimize the chance of draining. Proper construction drainage system will also be provided on site to control and collect site surface runoff and it is treated before discharge. As such, no unacceptable water quality impacts would be expected.

(ii) Wastewater from Construction Site

- Sewage generated from the construction workforce should be contained by chemical toilets before connection to public foul sewer can be provided. The number of chemical toilets required would be subject to the capacity of the chemical toilets, and contractor’s practices/ work programme. The Contractor(s) will be required to provide an estimation on the amount of

sewage to be generated and to provide sufficient number of chemical toilets for construction workers. The chemical toilets should be serviced and cleaned by a specialist contractor at regular intervals. No discharge of sewage into nearby environment will be allowed during construction stage. Such requirements will be incorporated into relevant contractual clauses of this Proposed Amendment Scheme for proper implementation;

- Canteen facilities are not expected. However, in case canteen is required, foul water from canteens on-site, if any, should also be contained by chemical toilets/ sewage holding tank before connection to public foul sewer can be provided. Wastewater collected from canteen kitchens, should be treated via grease traps and contained by chemical toilets/ sewage holding tanks, and collected by a licensed contractor regularly;
- Vehicle wheel washing facilities should be provided at site exit such that mud, debris, etc. deposited onto the vehicle wheels or body can be washed off before leaving the site area;
- Section of construction road between the wheel washing bay and the public road should be paved with backfill to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains; and
- If bentonite is used, bentonite slurry should be reconditioned and reused as far as practicable. Spent bentonite should be kept in a separate slurry collection system for disposal at a marine spoil grounds subject to obtaining a marine dumping licence from EPD. If used bentonite slurry is to be disposed of through public drainage system, it should be treated to the respective effluent standards applicable to foul sewers, storm drains or the receiving waters as set out in the WPCO Technical Memorandum on Effluent Standards in accordance with *ProPECC PN 2/23*.

(iii) Oils and Solvents

- Spillage of fuel oils or other polluting fluids should be prevented at source. It is recommended that all stocks should be stored inside proper containers and sited on sealed areas, preferably surrounded by berms;
- Regular site inspections to ensure the proper implementation of the above measures shall be carried out.

6.6 Construction Waste Disposal

Legislation

- 6.6.1 The principal legislation controlling waste materials in Hong Kong is the Waste Disposal Ordinance (WDO) (Cap. 354) and its subsidiary regulations.

Construction Waste Impact

- 6.6.2 Construction activities will generate waste materials requiring appropriate management and disposal. Likely range of waste types includes:
- excavated C&D materials and site clearance waste;
 - wood from formwork as non-inert C&D materials;
 - general refuse generated by the workforce; and
 - chemical and oily wastes due to maintenance of equipment.

- 6.6.3 The general waste management strategy is to avoid waste generation in the first place. If that is unavoidable, source reduction and segregation should be exercised as far as practicable and at the same time, recycling and reuse should be adopted to salvage as much as possible all the recyclable and reusable materials.

Construction Waste Disposal Measures

- 6.6.4 On-site sorting of construction wastes will be recommended. On-site sorting can be achieved by avoiding the generation of “mixed waste” through good site control.
- 6.6.5 Waste generated by construction activities should be sorted into inert C&D materials and non-inert C&D materials. The inert C&D materials which comprise soil, rock, concrete, brick, cement plaster/mortar, inert building debris, aggregates and asphalt shall be reused in earth filling, reclamation or site formation works as far as possible. The non-inert C&D materials which comprises metal, timber, paper, glass, junk and general garbage shall be reused or recycled as far as practicable and, as the last resort, disposal of at landfills.
- 6.6.6 Construction wastes shall be sorted, with the inert C&D materials broken up into small pieces for disposal at public fill reception facility, and the non-inert C&D materials should be disposed of at landfill.
- 6.6.7 Chemical and oily wastes generated from the construction activities, vehicle and plant maintenance and oil interceptors should be disposed of as chemical waste in strict compliance with the Waste Disposal (Chemical Waste) (General) Regulations.
- 6.6.8 Waste disposal from construction site is subject to control under the Waste Disposal Ordinance.

6.7 Conclusion

- 6.7.1 Potential environmental impacts arising from construction activities of the proposed development, including air quality, construction wastewater, noise and waste impacts have been qualitatively assessed. Potential environmental impacts are anticipated to be within acceptable bounds with the implementation of effective environmental mitigation measures. In conclusion, it is envisaged that construction phase environmental impacts arising from the Proposed Amendment Scheme would be surmountable.

7. OVERALL CONCLUSION

- 7.1.1 The Subject Site is located between Kam Pok Road, Ha Chuk Yuen Road and Fung Chuk Road, and bounded by a number of existing and planned residential developments adjacent to Castle Peak Road and San Tin Highway. The site is designated for residential use by the government under the current OZP. A residential scheme was previously approved by TPB for the site (A/YL-MP/205). The Applicant currently proposes to rezone the site to allow for a high domestic plot ratio and hence more flat supply from the site in line with the government policy on utilizing the development potential of undeveloped housing sites to increase flat supply for the Territory.
- 7.1.2 To assess the environmental impact of the revised residential scheme, traffic noise impact assessment, industrial noise assessment, noise impact due to planned nearby sewage pumping station, and qualitative air quality impact assessment have been conducted.
- 7.1.3 Appropriate precautionary measures (e.g. setback of the proposed buildings from the site boundaries, provision of a buffer area, and fence wall) have been incorporated in the layout to alleviate potential noise impacts due to road traffic noise as well as fixed noise sources. Precautionary building design has been adopted at NEC uses to have noise sensitive uses directed away from road traffic noise source as far as possible and flat roof design to shield noise sources. With these measures, the proposed development will not be subject to unacceptable traffic noise impact, and 100% traffic noise compliance rate can be achieved.
- 7.1.4 Most of identified industrial sites are distant away from the Subject Site (varying from over 180m to over 300m). With sufficient buffer distance and proposed precautionary measures, the predicted noise level at NSRs due fixed noise sources is within the relevant noise criteria. No additional noise mitigation measures will be necessary.
- 7.1.5 The Government’s planned San Tin No. 1 sewage pumping station is relatively far away from the Subject Site, mitigation measures have already been recommended in the approved EIA Report of that project. With these mitigation measures in place, no unacceptable noise and air quality impacts due to operation of the pumping station is anticipated.
- 7.1.6 During the operational stage, the sewage generated by the proposed development will be discharged into proposed private SPS before discharging into proposed sewers along Kam Pok Road and Pok Wai South Road and finally discharges into existing Nam Sang Wai Sewage Pumping Station. Also, a proposed private sewage pumping station will be located underground and inside an enclosed building structure, and the exhaust louvre will be directed towards Kam Pok Road and away from the nearby sensitive uses, its associated noise impact will be minimized. Thus, no adverse odour and noise impacts are envisaged for the operational phase of the Project.
- 7.1.7 It was found that the Subject Site can satisfy the buffer distance requirements stated in the HKPSG for air sensitive uses of the proposed development. For buildings of air sensitive uses where the buffer distance requirement cannot be satisfied, including proposed commercials and GIC building along Kam Pok Road, they will be provided with air conditioning and designed in a way that any openable windows and fresh air intake point of ventilation system will be located beyond the said air buffer zone. thus no adverse air quality impacts due to vehicular emission are expected. No adverse air quality impacts due to industrial emissions are expected as no industrial emissions sources have been identified within 500m from the Study boundary.
- 7.1.8 Potential sources of air quality impacts during construction have been identified and practicable good practices are also recommended. With appropriate control measures

and good housekeeping practice in place, adverse air quality impact is not anticipated. Since the proposed residential development will constitute a designated project under the EIAO, an air quality impact assessment which includes both vehicular and odour impacts, will be carried out at the later stage under the EIA process to demonstrate the compliance of the criteria stipulated in the EIAO-TM.

- 7.1.9 To this end, it can be concluded that the proposed development is considered sustainable in environmental terms.

Figures

Figure 1-1

Location of the Subject Site and the Environs

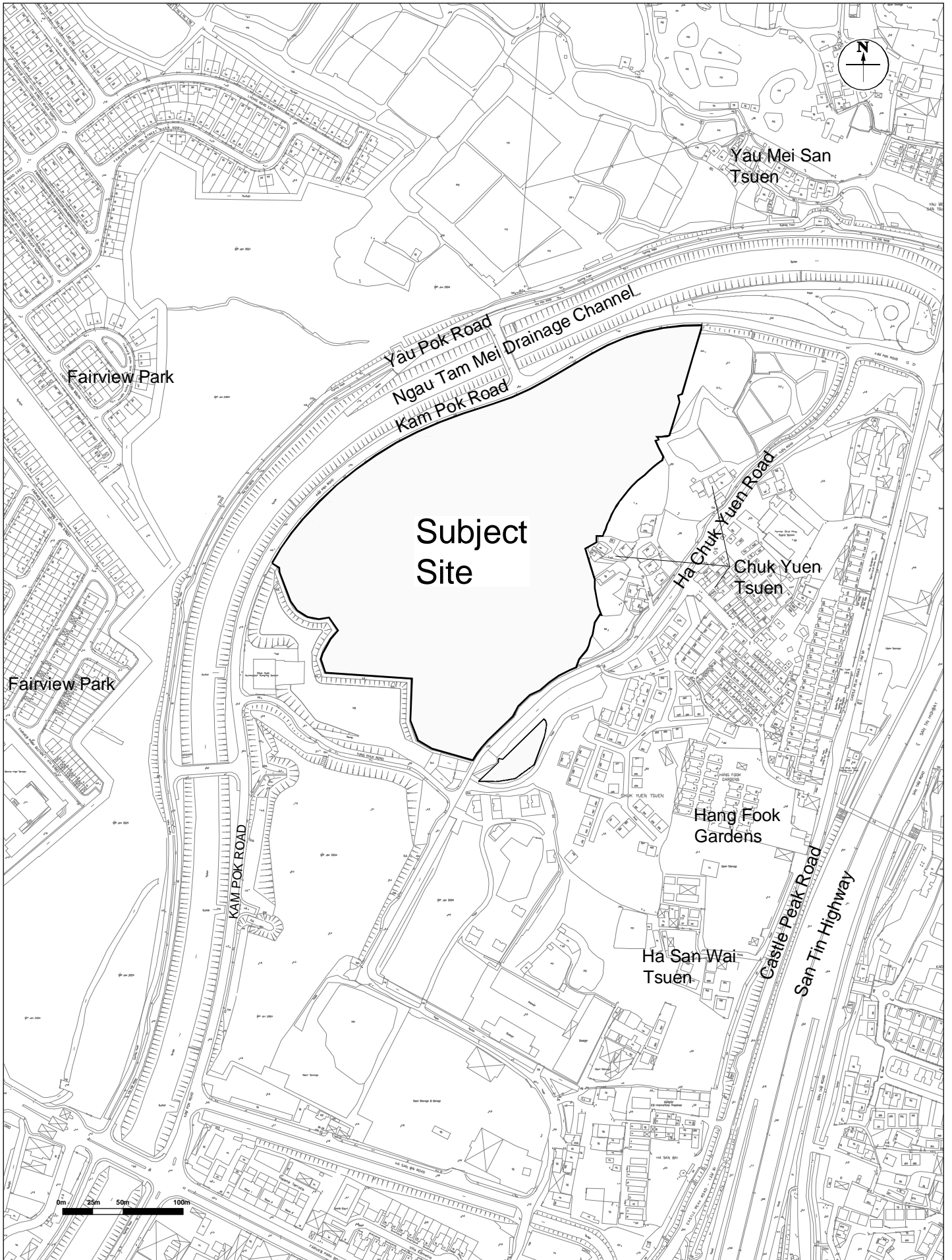


Figure: 1-1

Title: Location of the Subject Site and the Environs

RAMBOLL

Drawn by: CL

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Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Residential (Group D)' to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.

Rev.: 1.0

Date: Mar 2024

Figure 1-2

Master Layout Plan for the Proposed Development

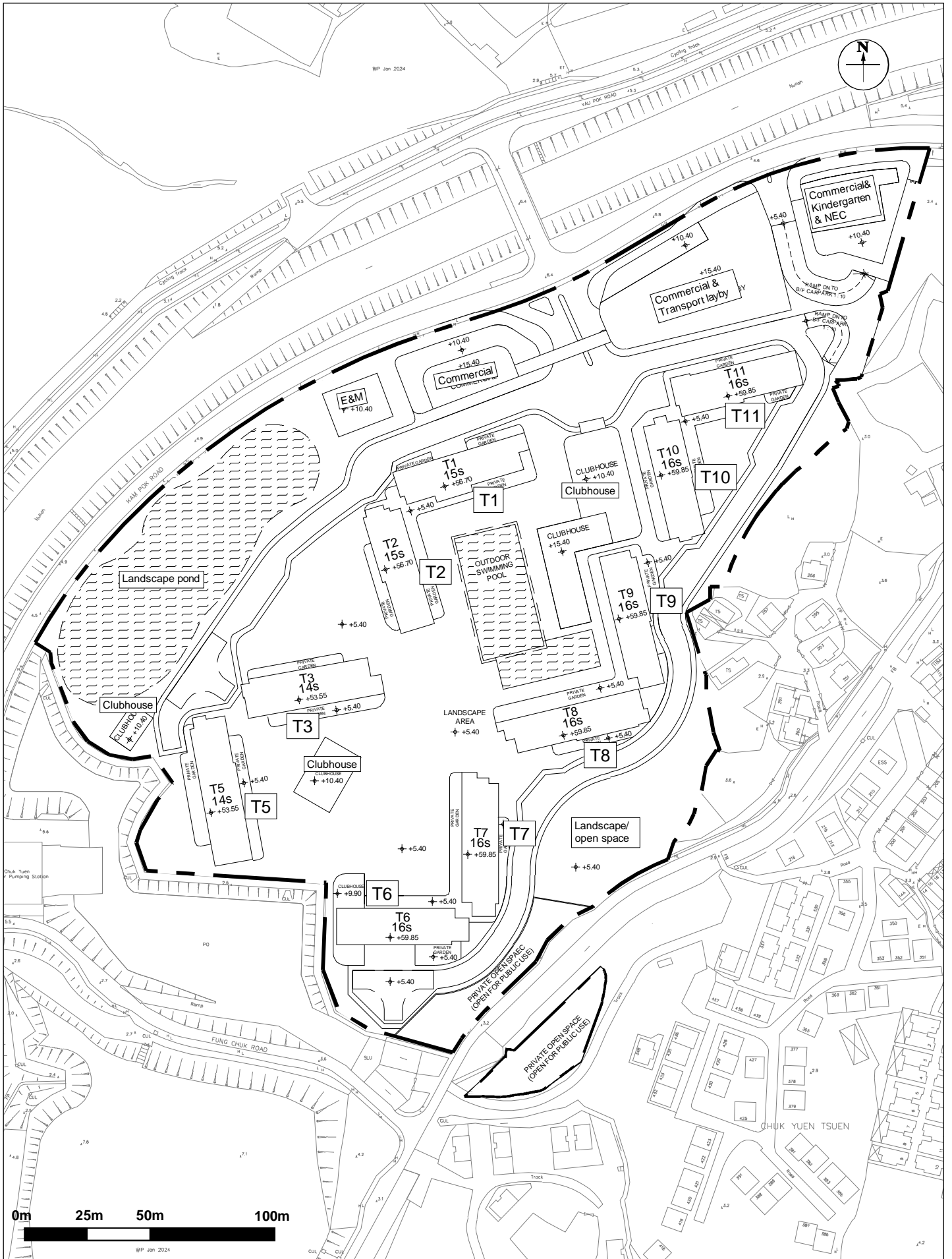


Figure: 1-2

Title: Master Layout Plan for the Proposed Development

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Residential (Group D)" to "Residential (Group C)" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.

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Rev.: 3.1

Date: Nov 2024

Figure 2-1

Buffer Distances Between the Subject Site and Nearby
Roads

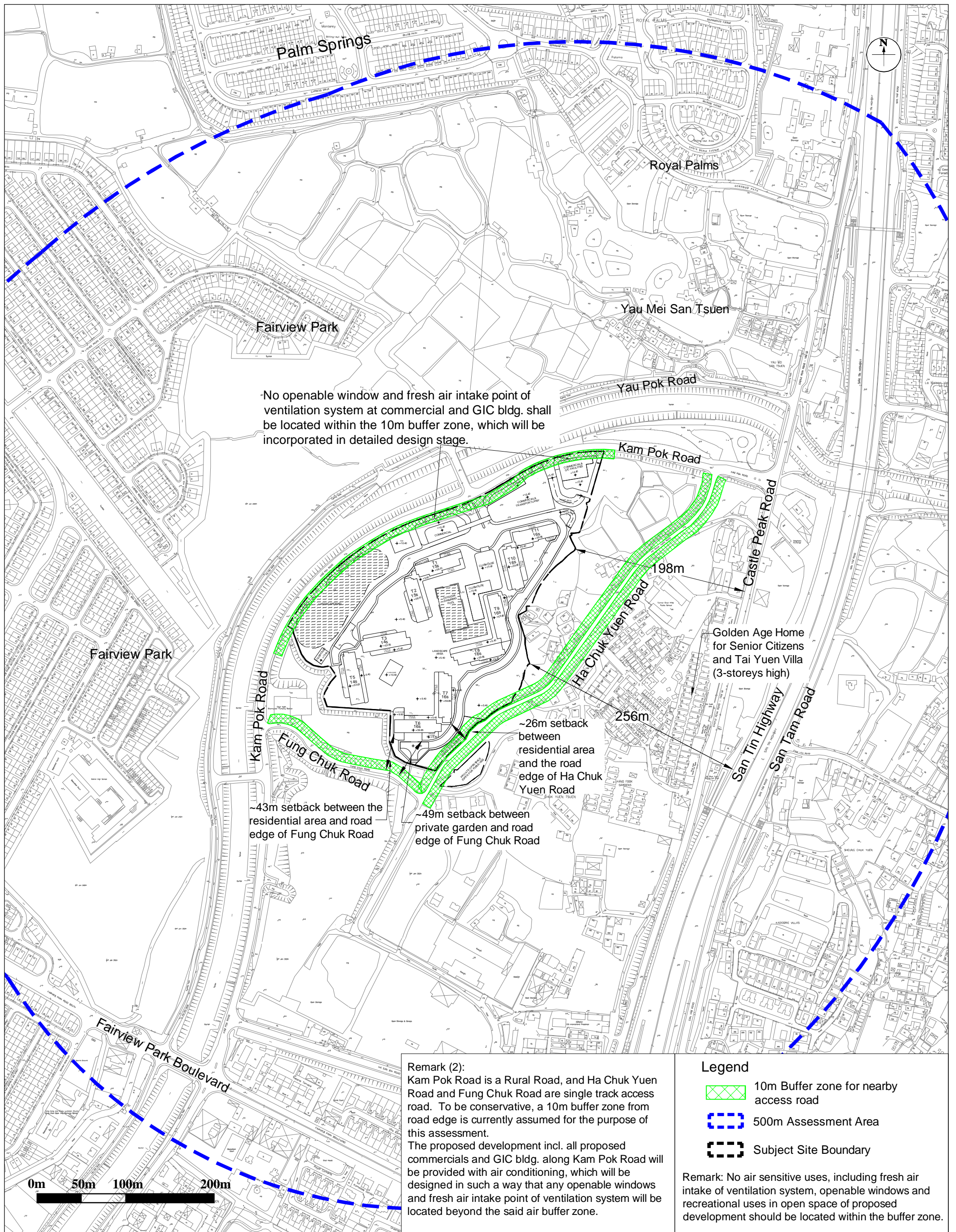


Figure: 2-1

Title: Buffer Distances Between the Subject Site and Nearby Roads

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Residential (Group D) to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.

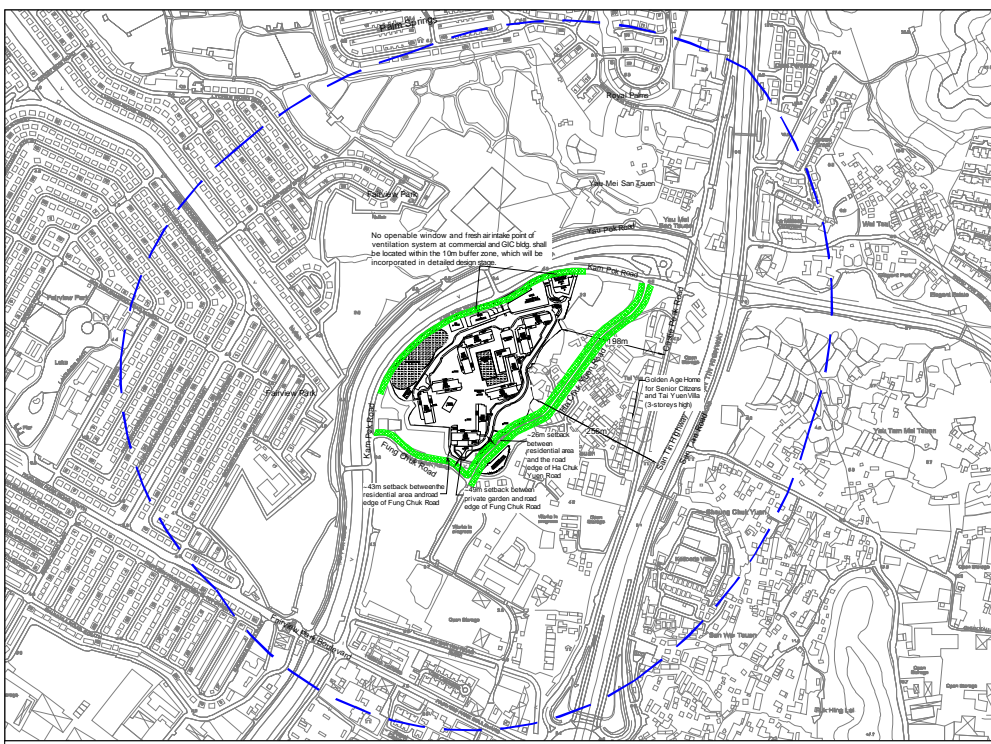


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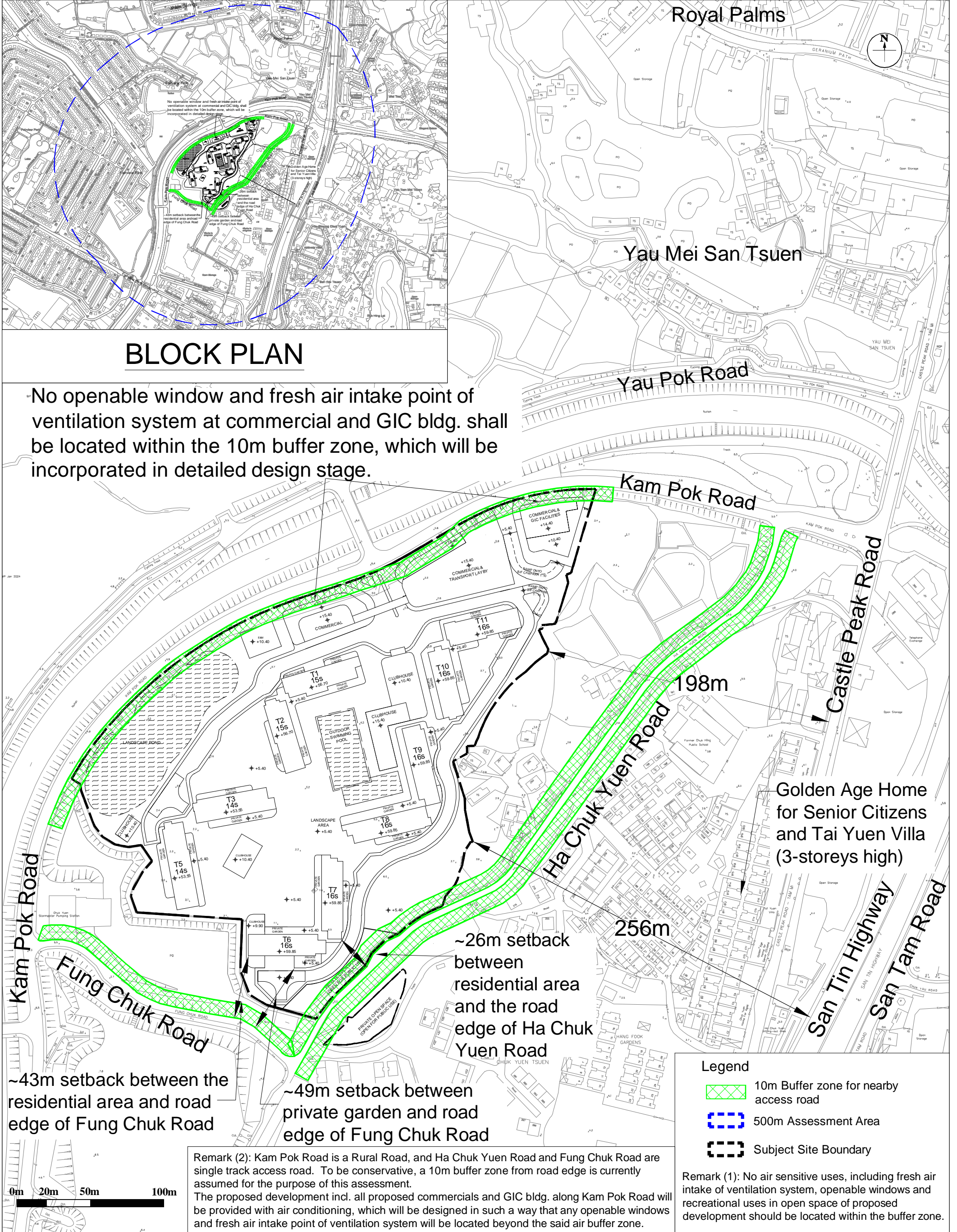
Rev.: 4.0

Date: Jan 2025



BLOCK PLAN

No openable window and fresh air intake point of ventilation system at commercial and GIC bldg. shall be located within the 10m buffer zone, which will be incorporated in detailed design stage.



~43m setback between the residential area and road edge of Fung Chuk Road

~49m setback between private garden and road edge of Fung Chuk Road

~26m setback between residential area and the road edge of Ha Chuk Yuen Road

198m

256m

Golden Age Home for Senior Citizens and Tai Yuen Villa (3-storeys high)

- Legend**
- 10m Buffer zone for nearby access road
 - 500m Assessment Area
 - Subject Site Boundary

Remark (1): No air sensitive uses, including fresh air intake of ventilation system, openable windows and recreational uses in open space of proposed development should be located within the buffer zone.

Remark (2): Kam Pok Road is a Rural Road, and Ha Chuk Yuen Road and Fung Chuk Road are single track access road. To be conservative, a 10m buffer zone from road edge is currently assumed for the purpose of this assessment. The proposed development incl. all proposed commercials and GIC bldg. along Kam Pok Road will be provided with air conditioning, which will be designed in such a way that any openable windows and fresh air intake point of ventilation system will be located beyond the said air buffer zone.



Figure: 2-1-1

Title: Buffer Distances Between the Subject Site and Nearby Roads

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Residential (Group D)" to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.



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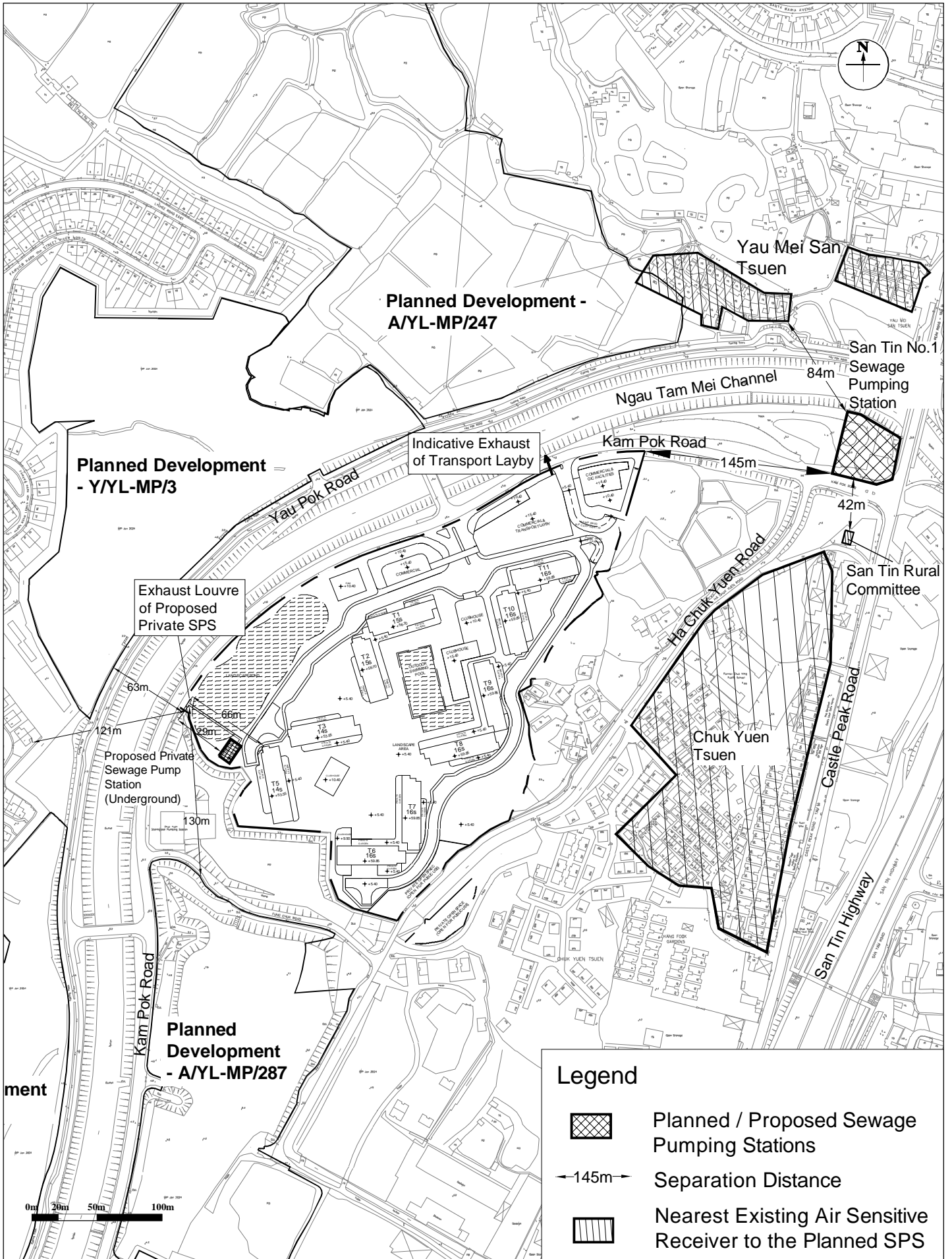
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Date: Jan 2025

Figure 2-2

Locations of the Planned San Tin No. 1 Pumping Station and
Proposed Private Sewage Pumping Station



Legend


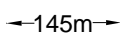

-  Planned / Proposed Sewage Pumping Stations
-  Separation Distance
-  Nearest Existing Air Sensitive Receiver to the Planned SPS

Figure: 2-2

Title: Locations of the Planned San Tin No. 1 Sewage Pumping Station and Proposed Private Sewage Pumping Station

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Residential (Group D) to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.



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Date: Feb 2025

Figure 2-3

Locations of Other Nearby Representative Air Sensitive
Receivers

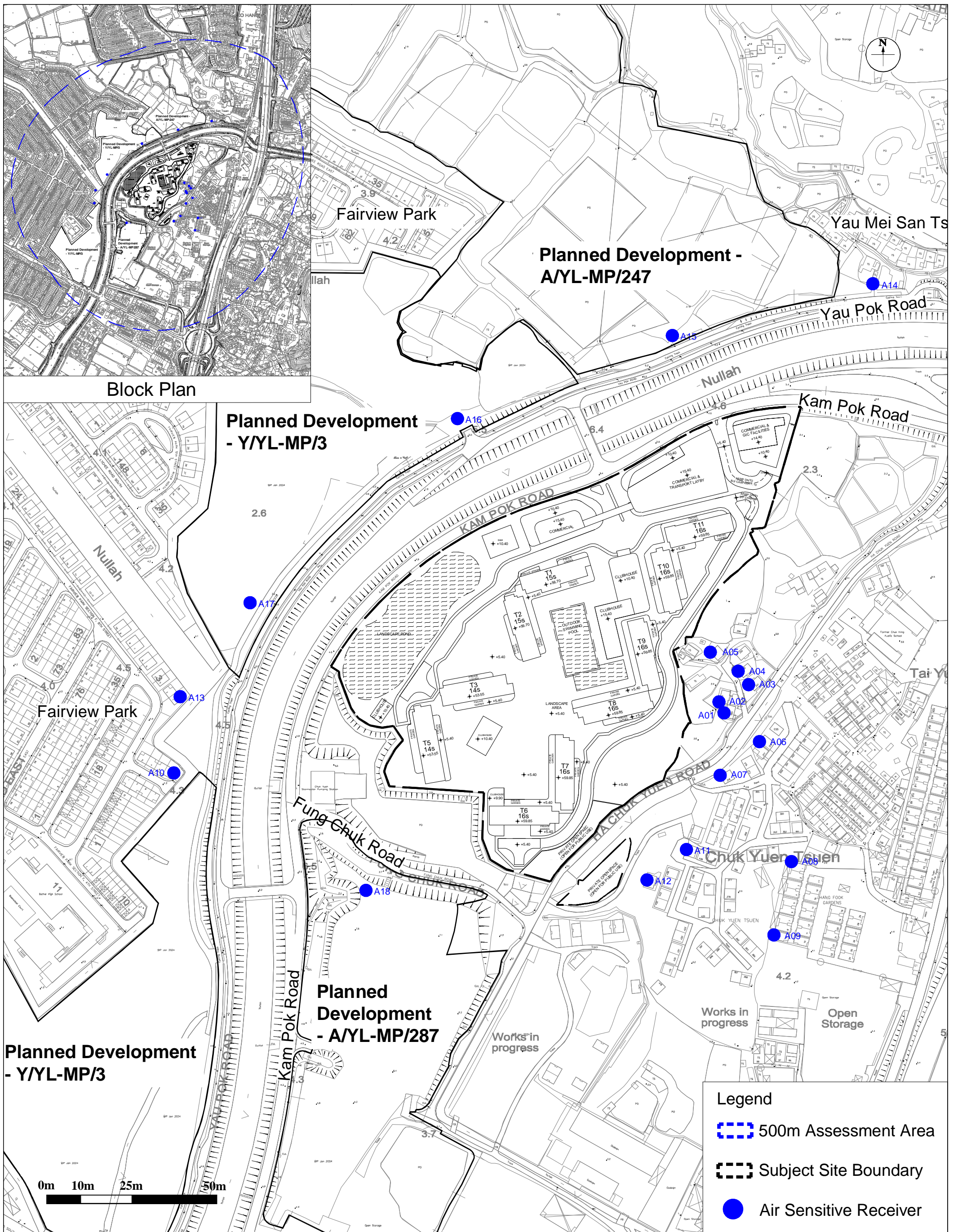


Figure: 2-3

Title: Locations of Other Nearby Representative Air Sensitive Receivers



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Rev.: 4.0

Date: Feb 2025

Figure 2-4

Air and Odour Survey Route

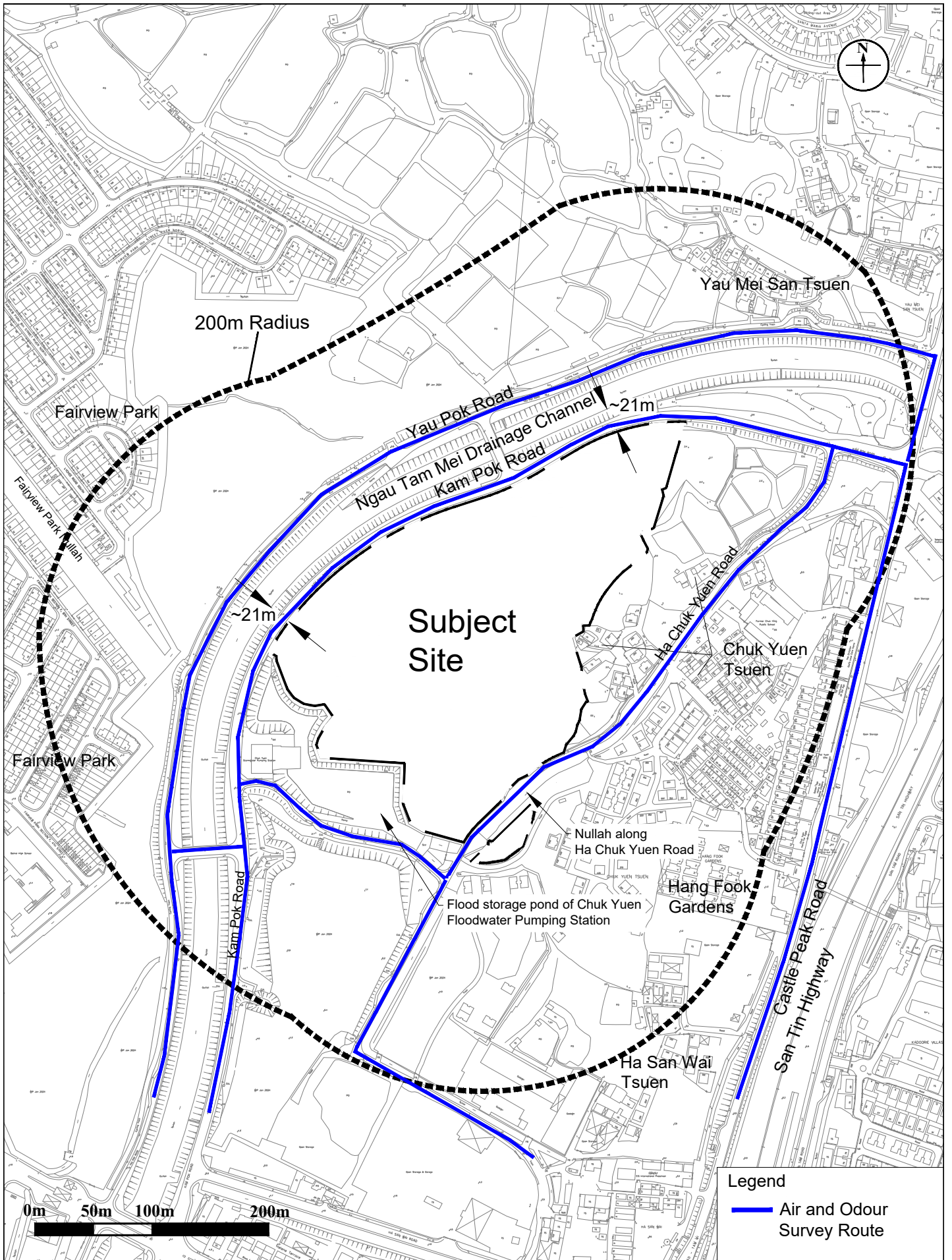


Figure: 2-4

Title: Air and Odour Survey Route

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Residential (Group D)" to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.

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Rev.: 3.0

Date: Sep 2024

Figure 3-1

Locations of NSRs for Road Traffic Noise Impact Assessment

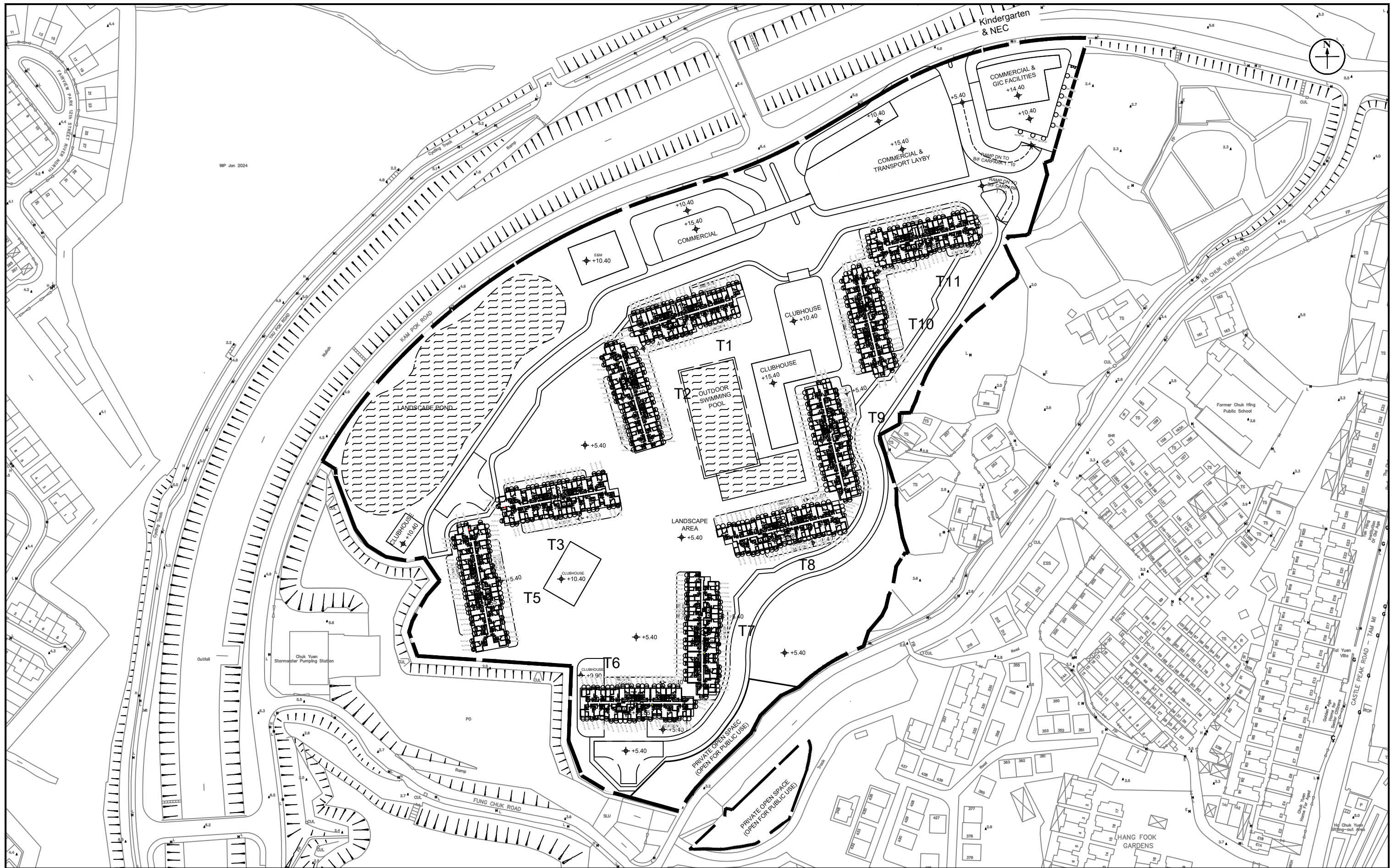


Figure: 3-1-1 (Overview, Sheet 1 of 13)

Title: Locations of NSRs for Road Traffic Noise Impact Assessment

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Residential (Group D)" to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.

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Date: Sep 2024

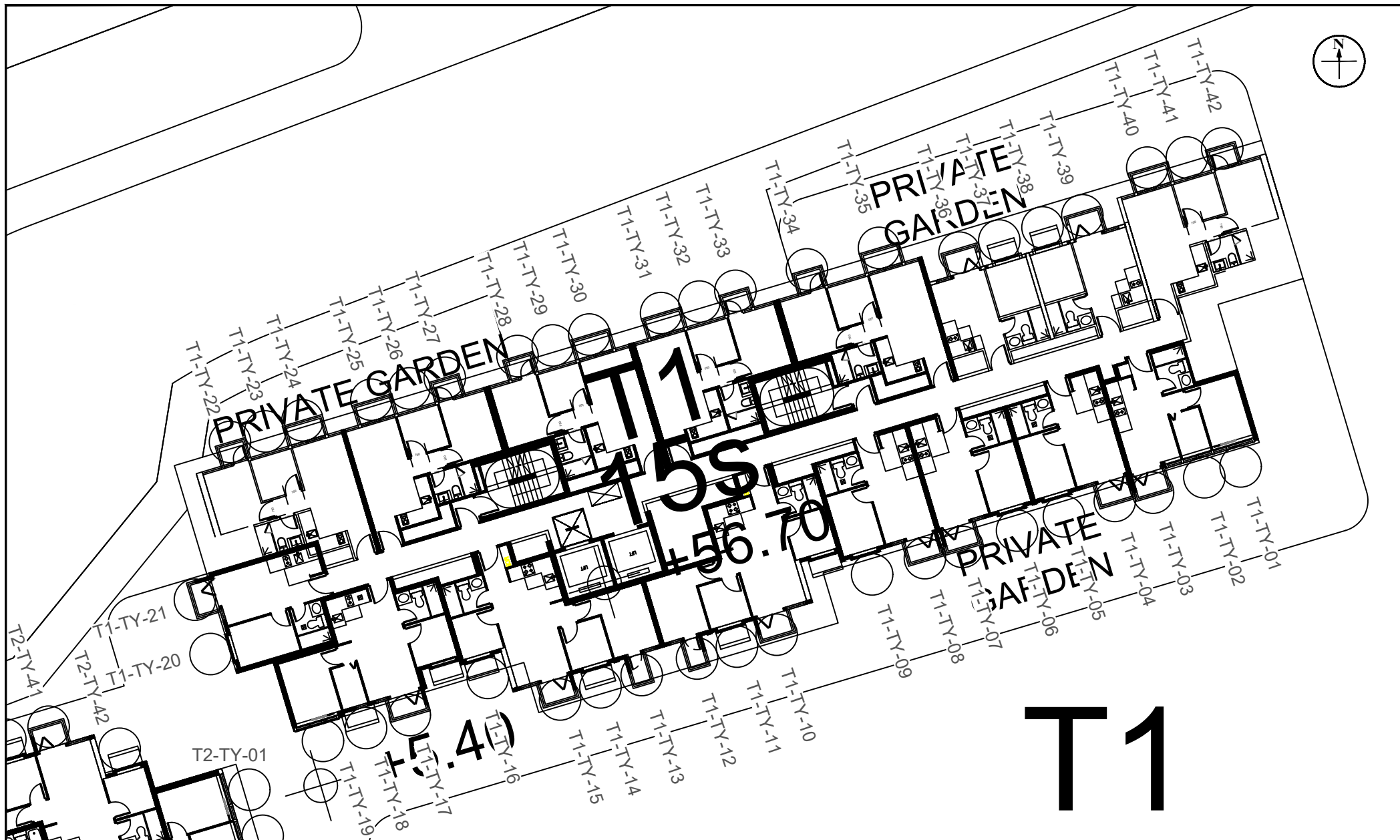


Figure: 3-1-2 (Tower 1, Sheet 2 of 13))

Title: Locations of NSRs for Road Traffic Noise Impact Assessment

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Rezoning from Residential (Group D) to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.

RAMBOLL

Drawn by: CL

Checked by: HN

Rev.: 3.0

Date: Sep 2024

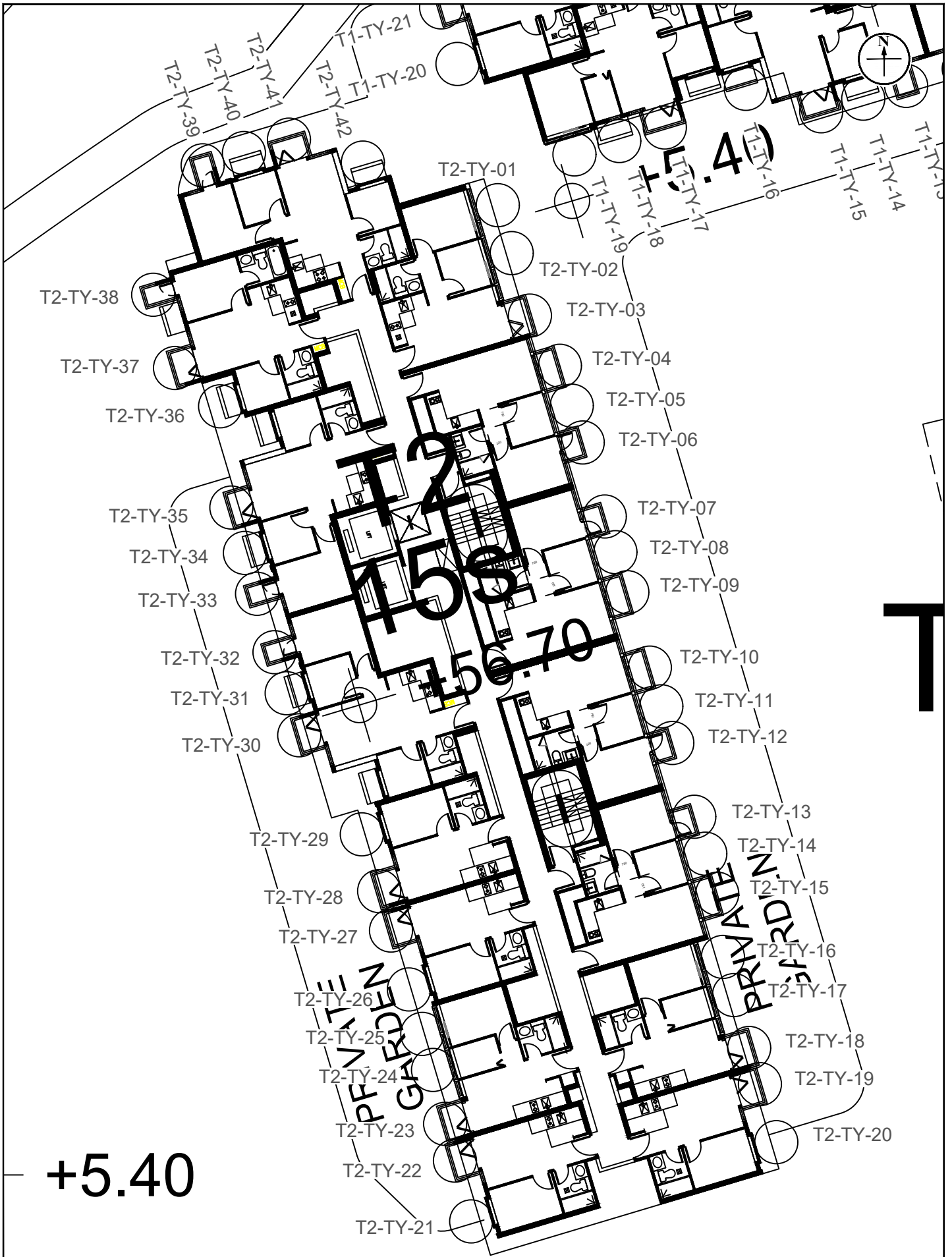


Figure: 3-1-3 (Tower 2, Sheet 3 of 13)



Title: Locations of NSRs for Road Traffic Noise Impact Assessment

Drawn by: CL

Checked by: HN

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Residential (Group D) to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.

Rev.: 3.0

Date: Sep 2024

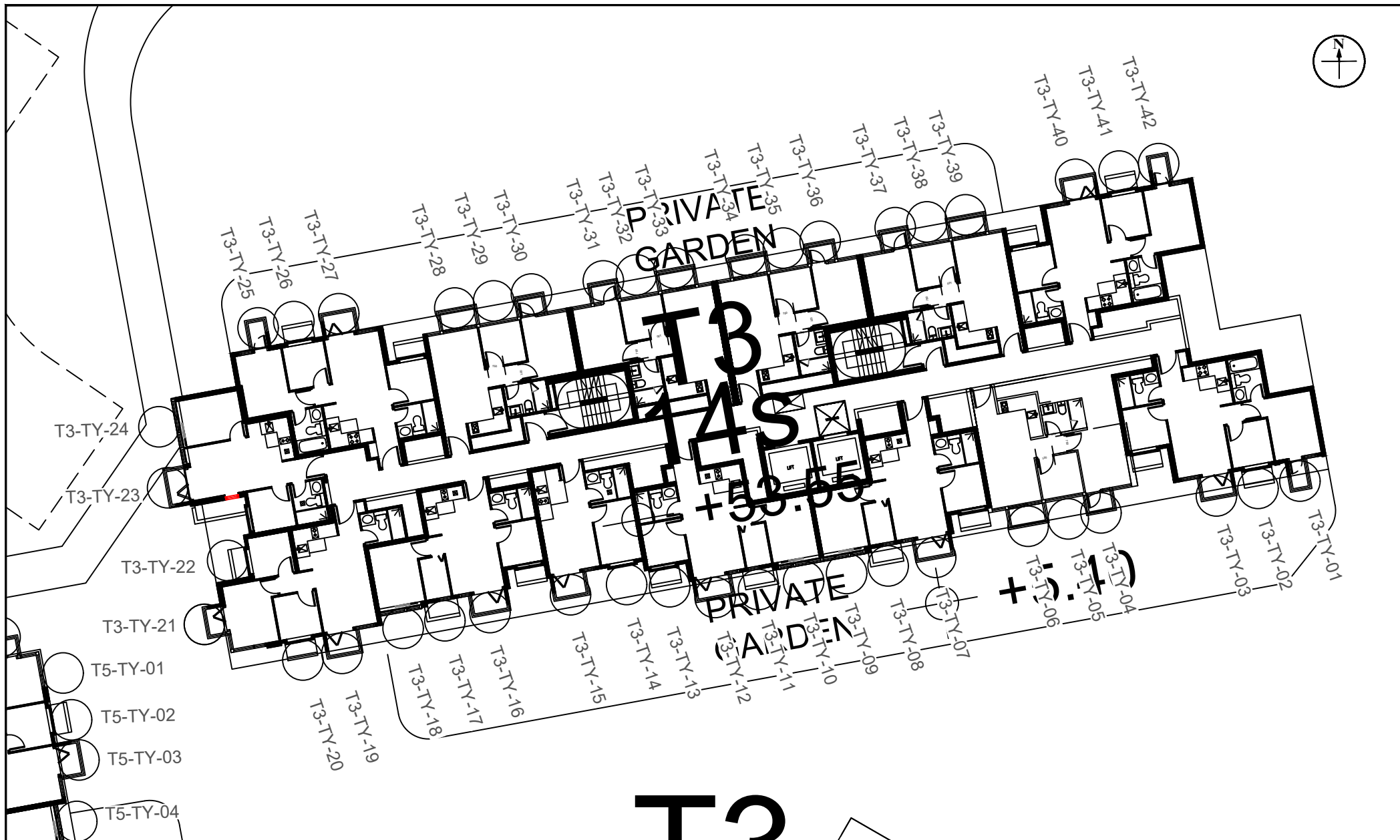


Figure: 3-1-4 (Tower 3, Sheet 4 of 13)

Title: Locations of NSRs for Road Traffic Noise Impact Assessment

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Rezoning from Residential (Group D) to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.

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Checked by: HN

Rev.: 3.0

Date: Sep 2024



Figure: 3-1-5 (Tower 5, Sheet 5 of 13)

Title: Locations of NSRs for Road Traffic Noise Impact Assessment

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Residential (Group D) to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.

RAMBOLL

Drawn by: CL

Checked by: HN

Rev.: 3.0

Date: Sep 2024

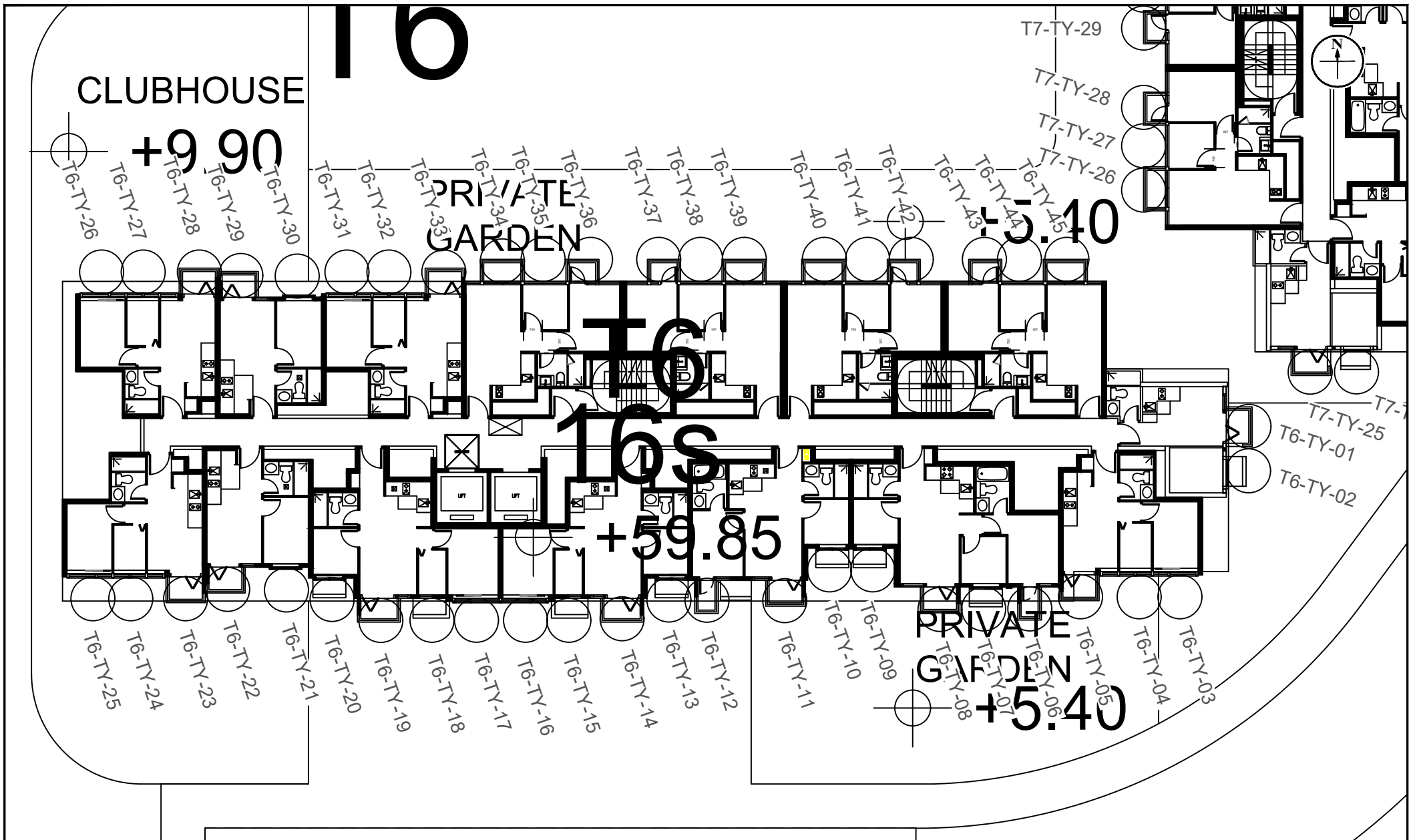


Figure: 3-1-6 (Tower 6, Sheet 6 of 13)

Title: Locations of NSRs for Road Traffic Noise Impact Assessment

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Rezoning from Residential (Group D)" to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.

RAMBOLL

Drawn by: CL

Checked by: HN

Rev.: 3.0

Date: Sep 2024

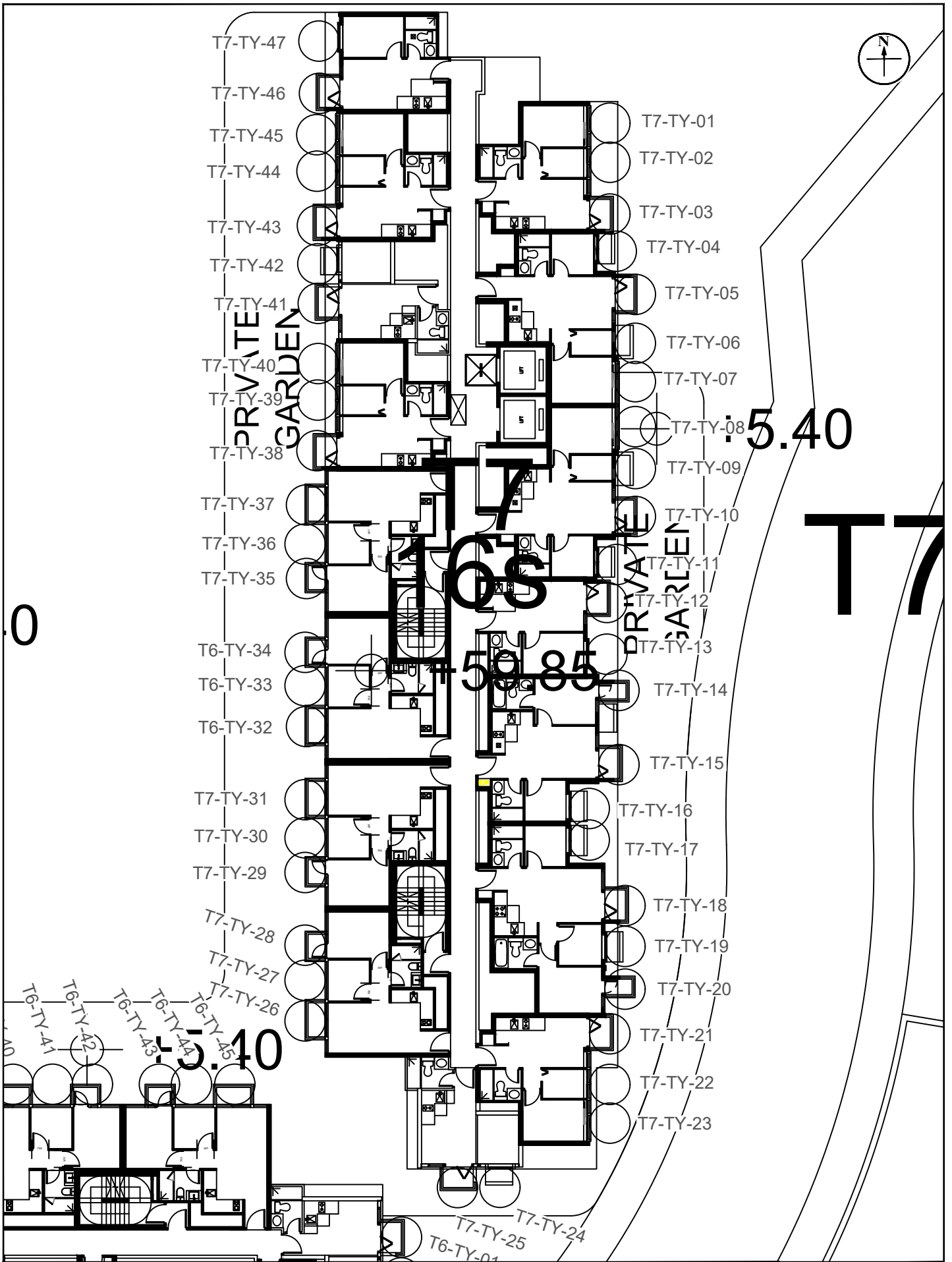


Figure: 3-1-7 (Tower 7, Sheet 7 of 13)

Title: Locations of NSRs for Road Traffic Noise Impact Assessment

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Residential (Group D) to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.

RAMBOLL

Drawn by: CL

Checked by: HN

Rev.: 3.0

Date: Sep 2024

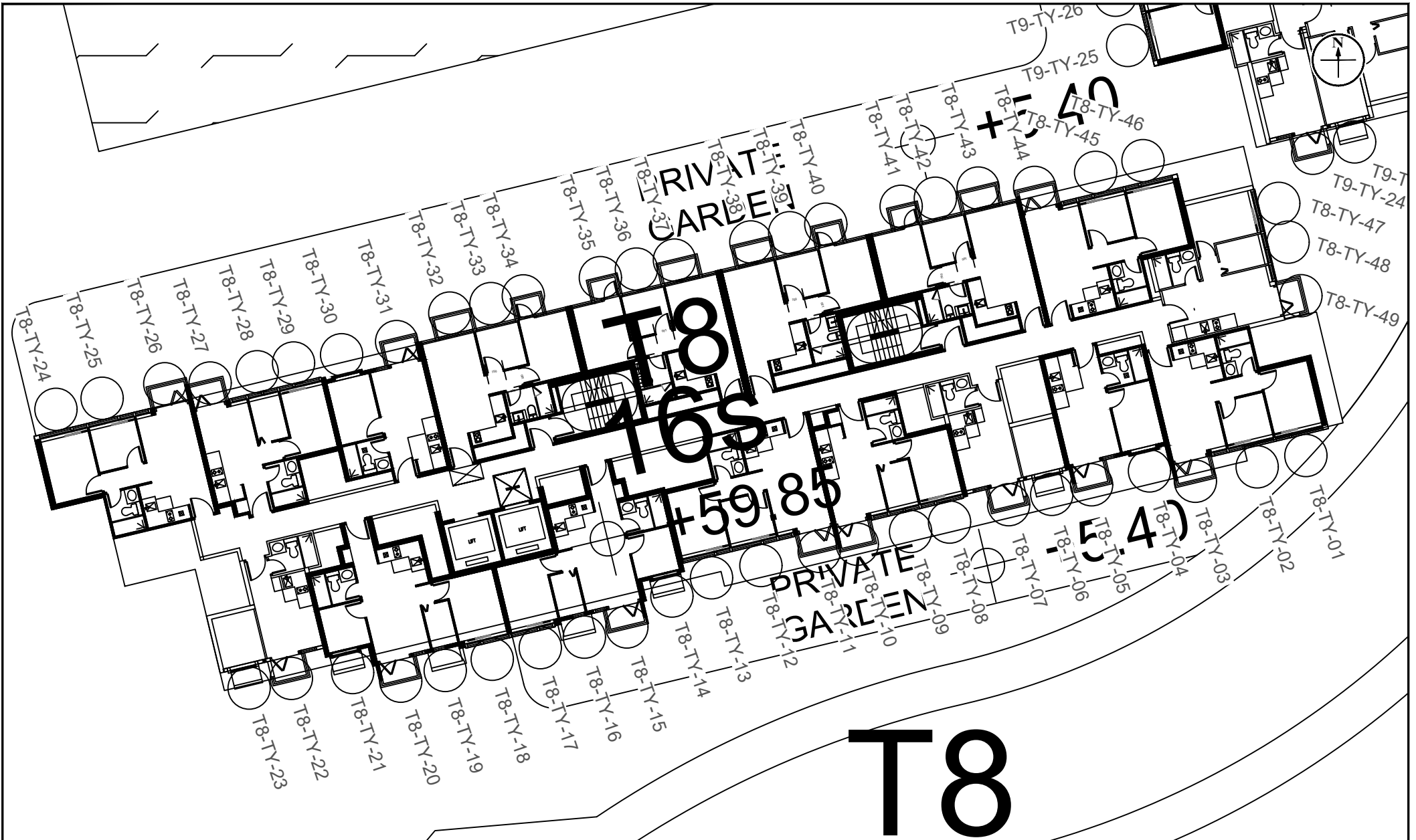


Figure: 3-1-8 (Tower 8, Sheet 8 of 13)

Title: Locations of NSRs for Road Traffic Noise Impact Assessment

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Rezoning from Residential (Group D)" to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.

RAMBOLL

Drawn by: CL

Checked by: HN

Rev.: 3.0

Date: Sep 2024

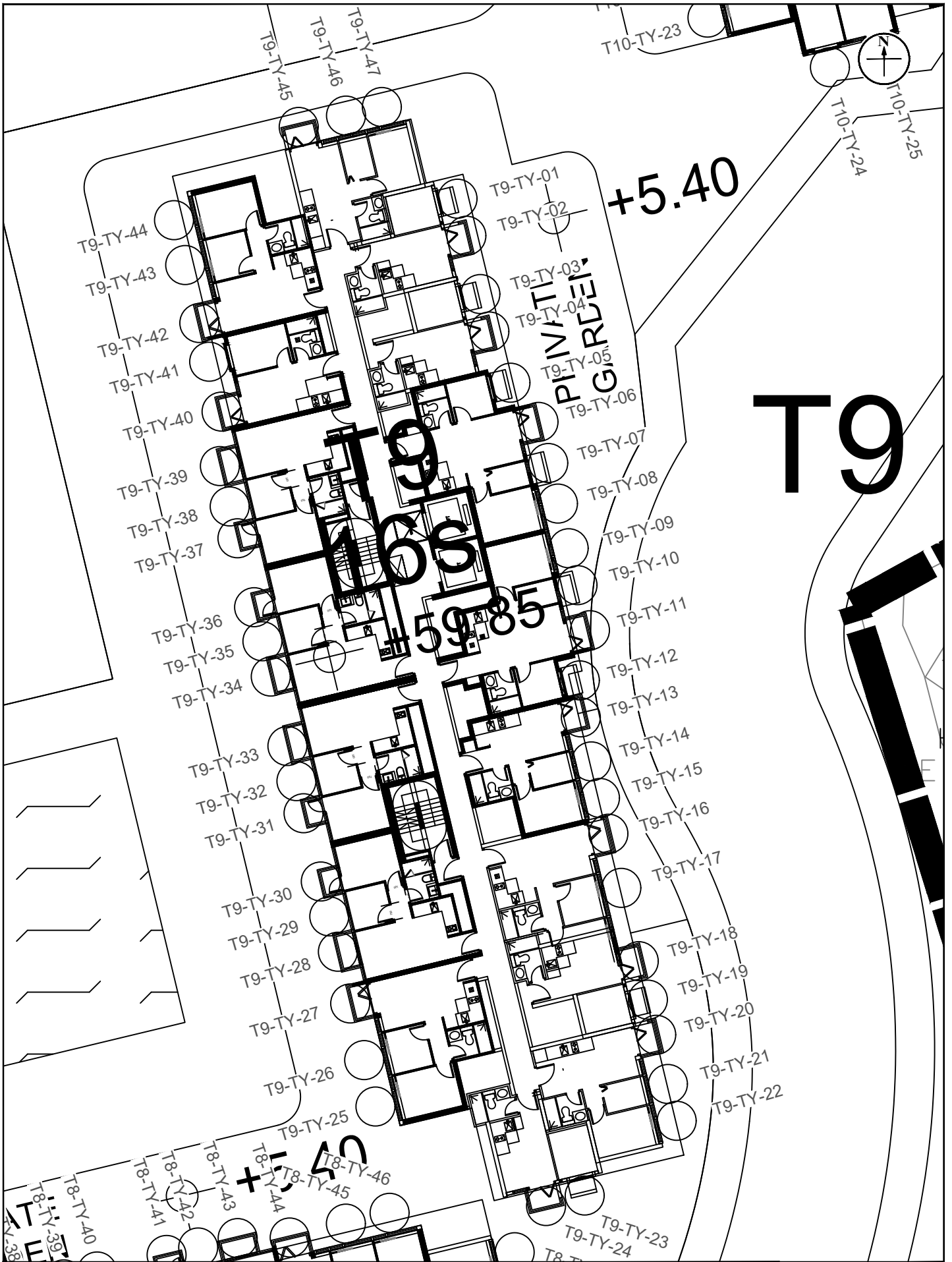


Figure: 3-1-9 (Tower 9, Sheet 9 of 13)

Title: Locations of NSRs for Road Traffic Noise Impact Assessment

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Residential (Group D) to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.

RAMBOLL

Drawn by: CL

Checked by: HN

Rev.: 3.0

Date: Sep 2024

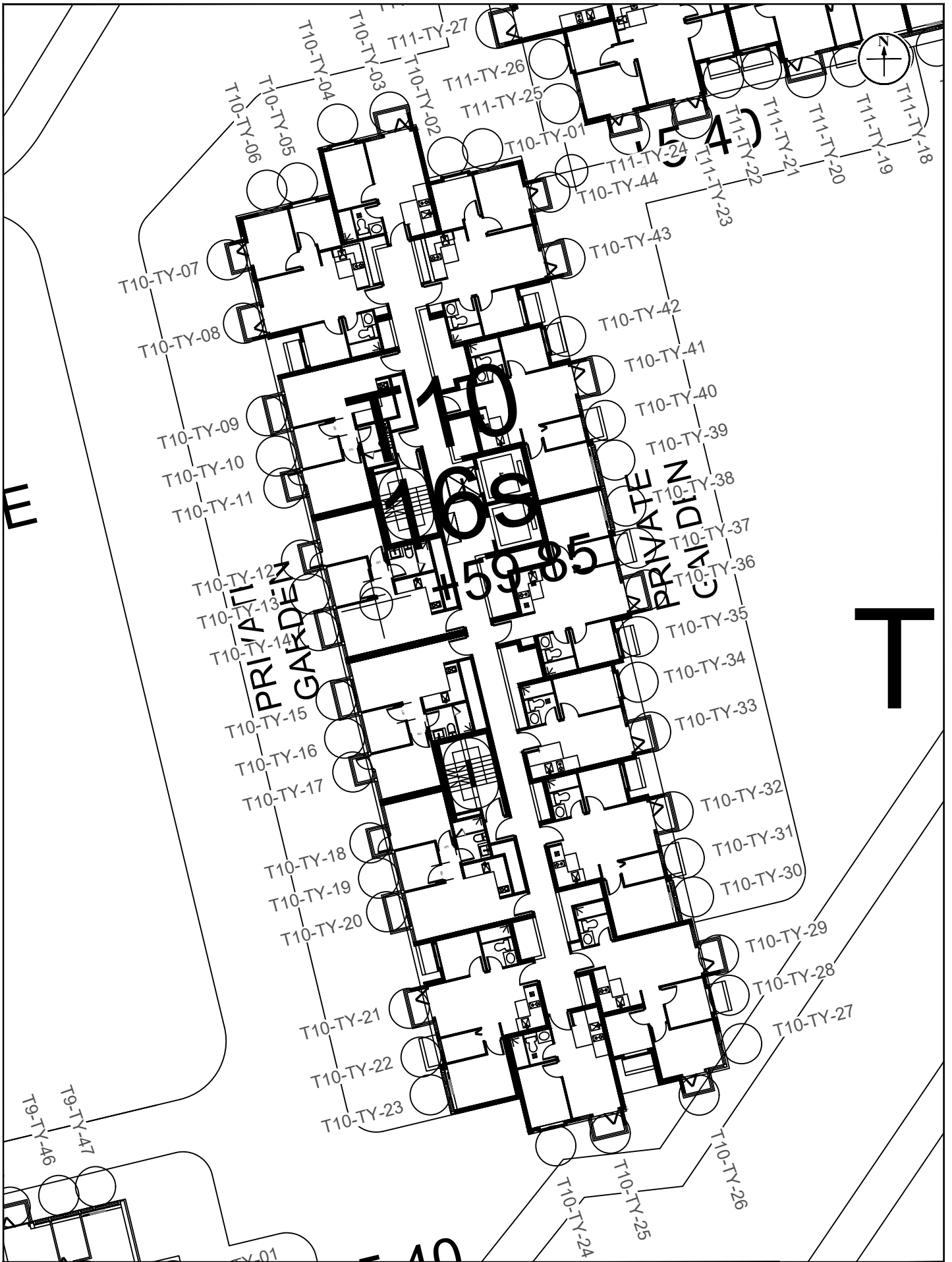


Figure: 3-1-10 (Tower 10, Sheet 10 of 13)

Title: Locations of NSRs for Road Traffic Noise Impact Assessment

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Residential (Group D) to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.

RAMBOLL

Drawn by: CL

Checked by: HN

Rev.: 3.0

Date: Sep 2024

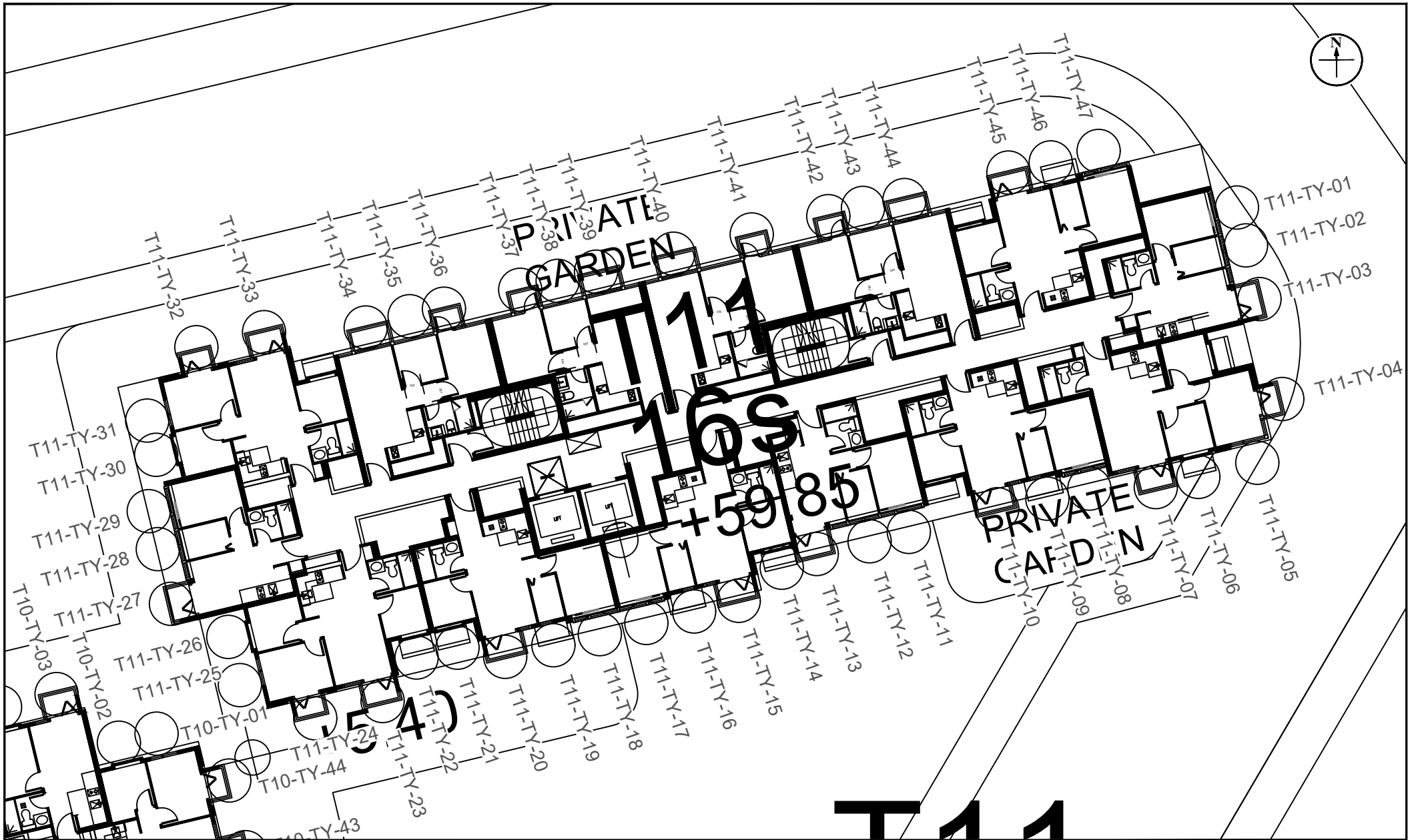


Figure: 3-1-11 (Tower 11, Sheet 11 of 13)

Title: Locations of NSRs for Road Traffic Noise Impact Assessment

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Rezoning from Residential (Group D)" to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.

RAMBOLL

Drawn by: CL

Checked by: HN

Rev.: 3.0

Date: Sep 2024

KING...
& NEC

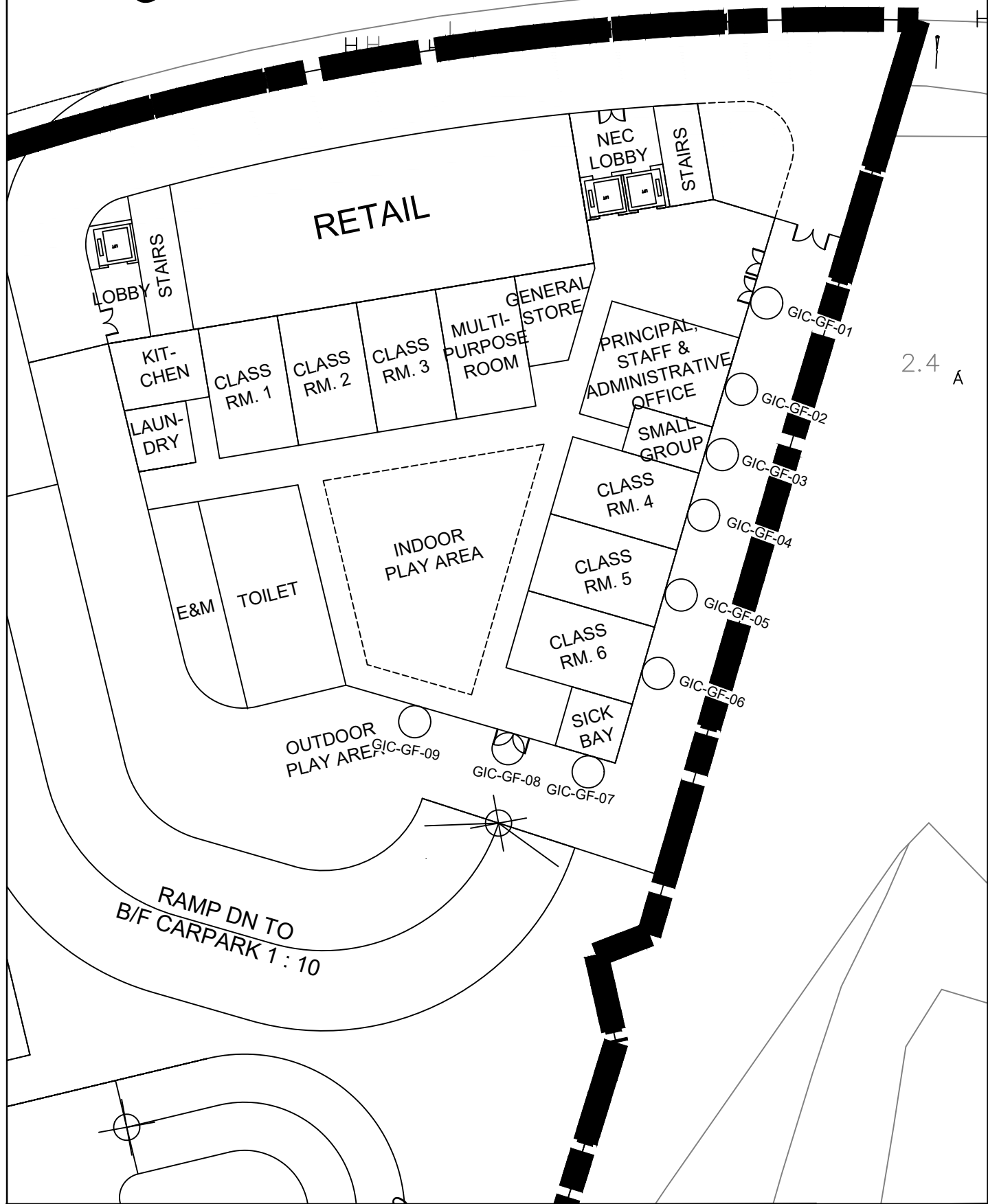


Figure: 3-1-12 (GIC G/F, Sheet 12 of 13)



Title: Locations of NSRs for Road Traffic Noise Impact Assessment

Drawn by: CL

Checked by: HN

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Residential (Group D) to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.

Rev.: 3.0

Date: Sep 2024

King
& NEC

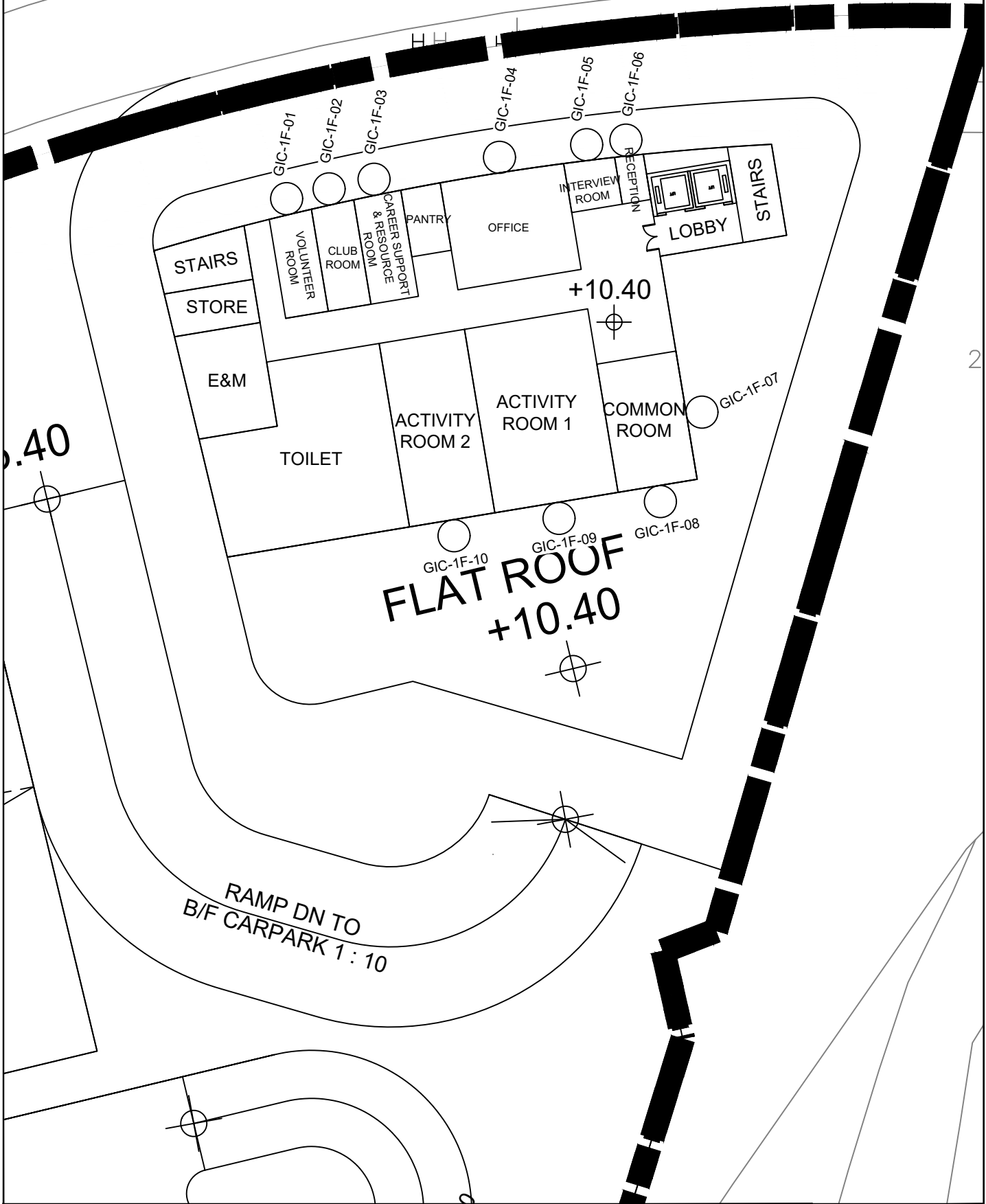


Figure: 3-1-13 (GIC 1/F, Sheet 13 of 13)

Title: Locations of NSRs for Road Traffic Noise Impact Assessment

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Residential (Group D) to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.



Drawn by: CL

Checked by: HN

Rev.: 3.0

Date: Sep 2024

Figure 3-2

Proposed Noise Mitigation Measures for Road Traffic Noise
Impact Assessment – Kindergarten of G/F

Remark: There is a solid wall in front of classrooms 1-3 and multi-purpose room.

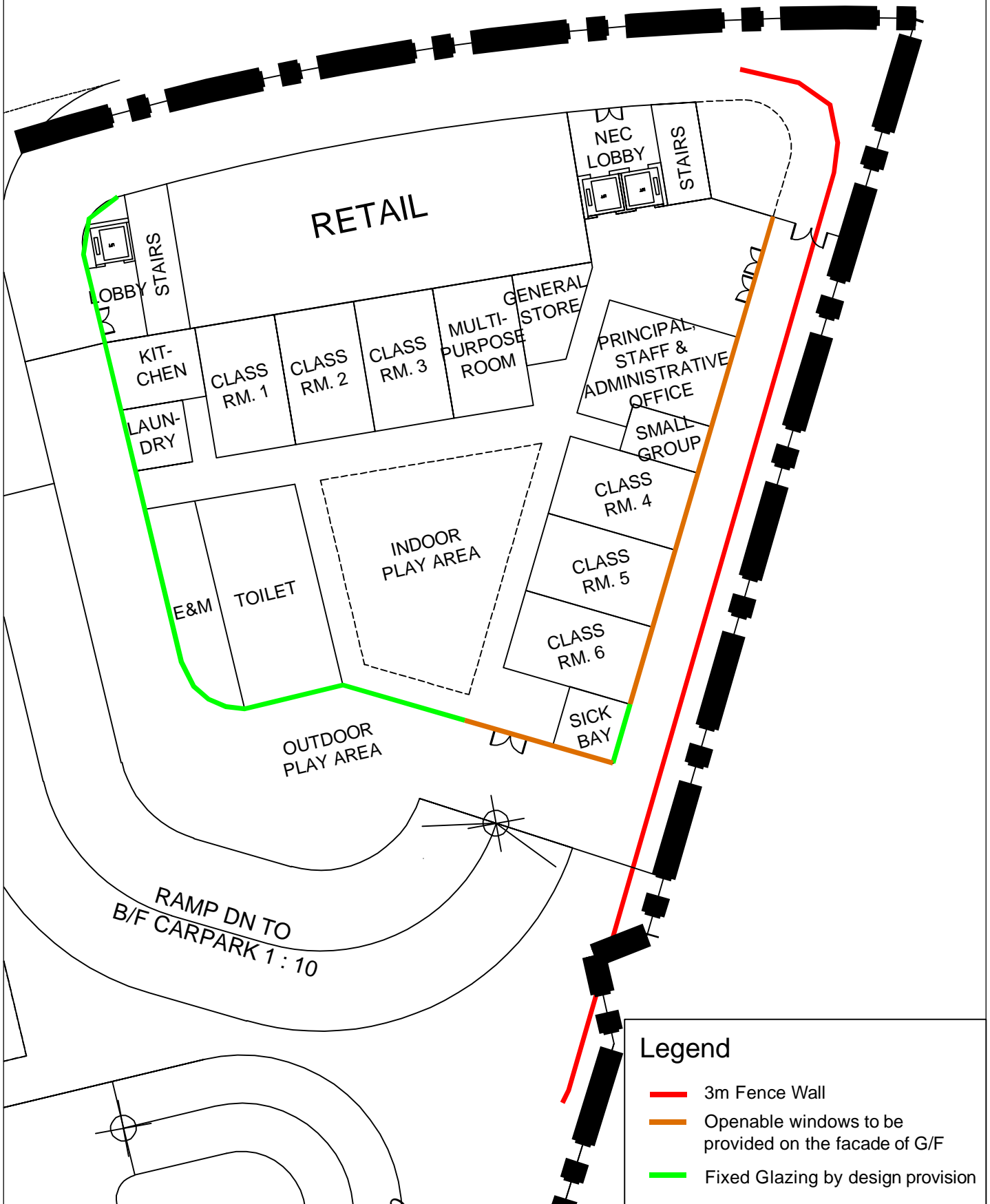


Figure: 3-2

RAMBOLL

Title: Proposed Noise Mitigation Measures for Road Traffic Noise Impact Assessment - Kindergarten on G/F

Drawn by: CL

Checked by: HN

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Rezoning from Residential (Group D) to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.

Rev.: 4.0

Date: Jan 2025

Figure 4-1

Not Used

Figure 4-2

Locations of Fixed Noise Sources

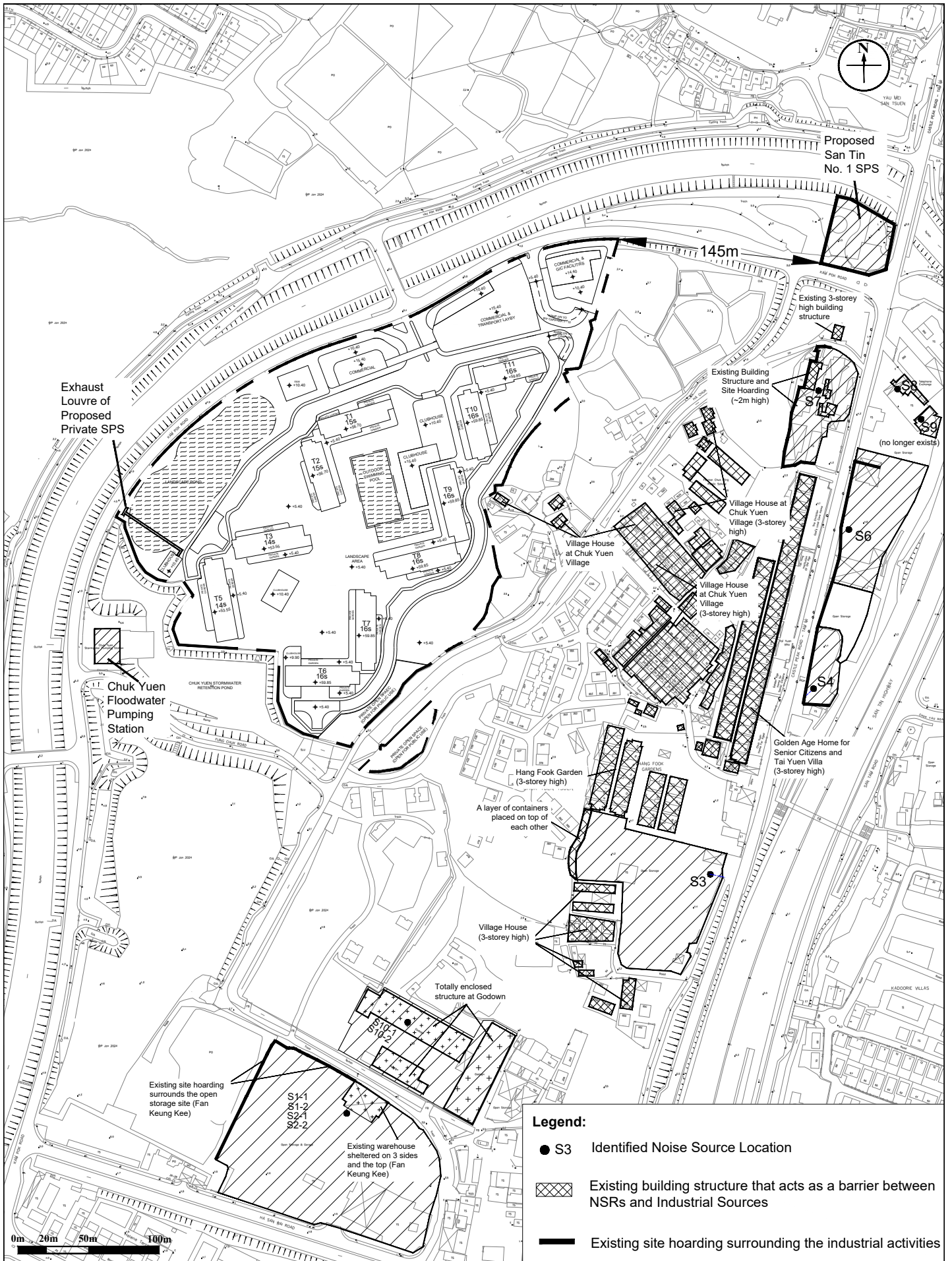


Figure: 4-2

Title: Locations of Fixed Noise Sources

RAMBOLL

Drawn by: CL

Checked by: HN

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Residential (Group D)" to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.

Rev.: 3.0

Date: Sep 2024

Figure 4-3

Locations of Noise Assessment Points for Fixed Noise Source
Impact Assessment

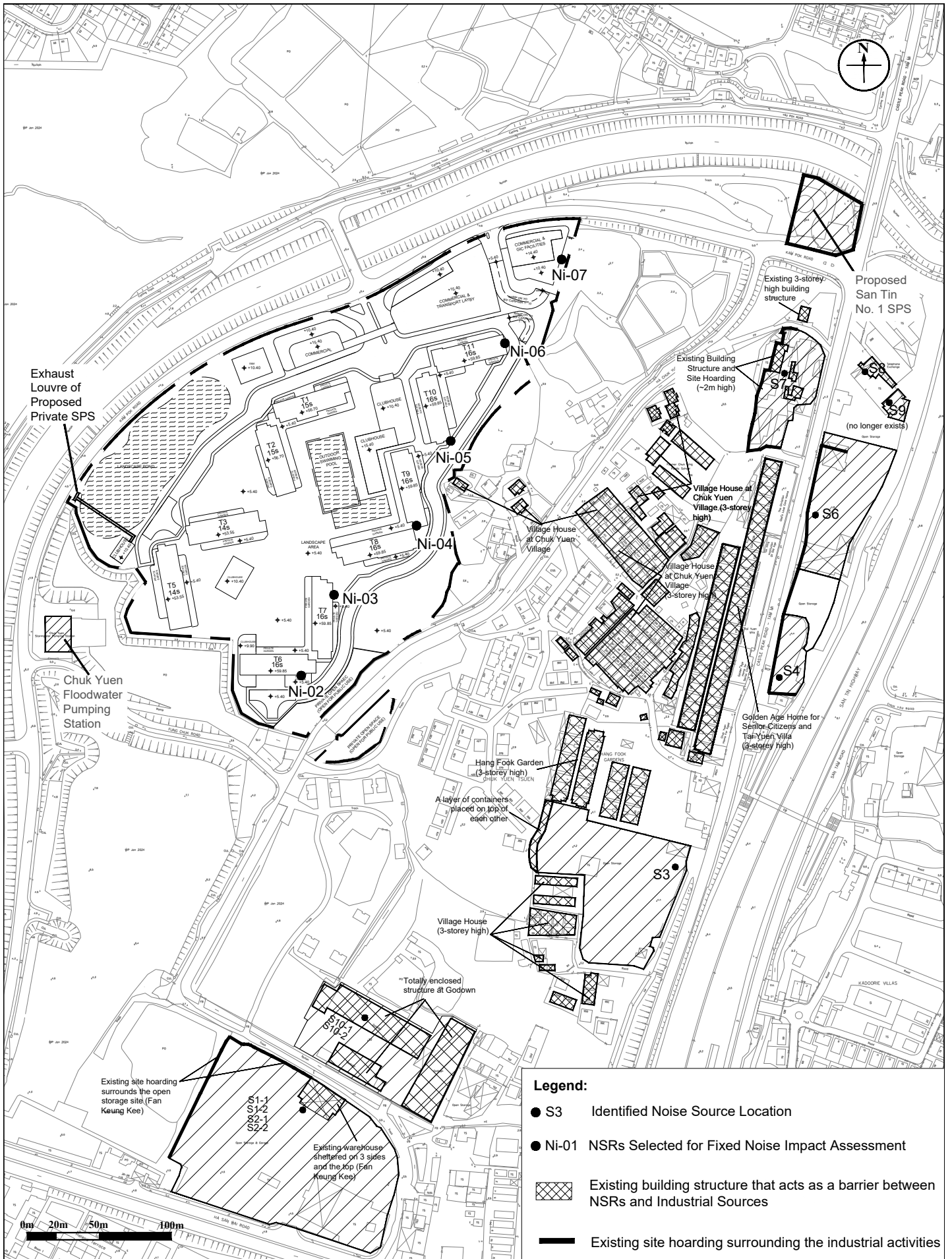


Figure: 4-3

Title: Locations of Noise Assessment Points for Fixed Noise Source Impact Assessment

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Residential (Group D) to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.

RAMBOLL

Drawn by: CL

Checked by: HN

Rev.: 3.0

Date: Sep 2024

Figure 4-4

Locations of Noise Assessment Points for the Existing Floodwater
Pumping Station and the Proposed Sewage Pumping Station

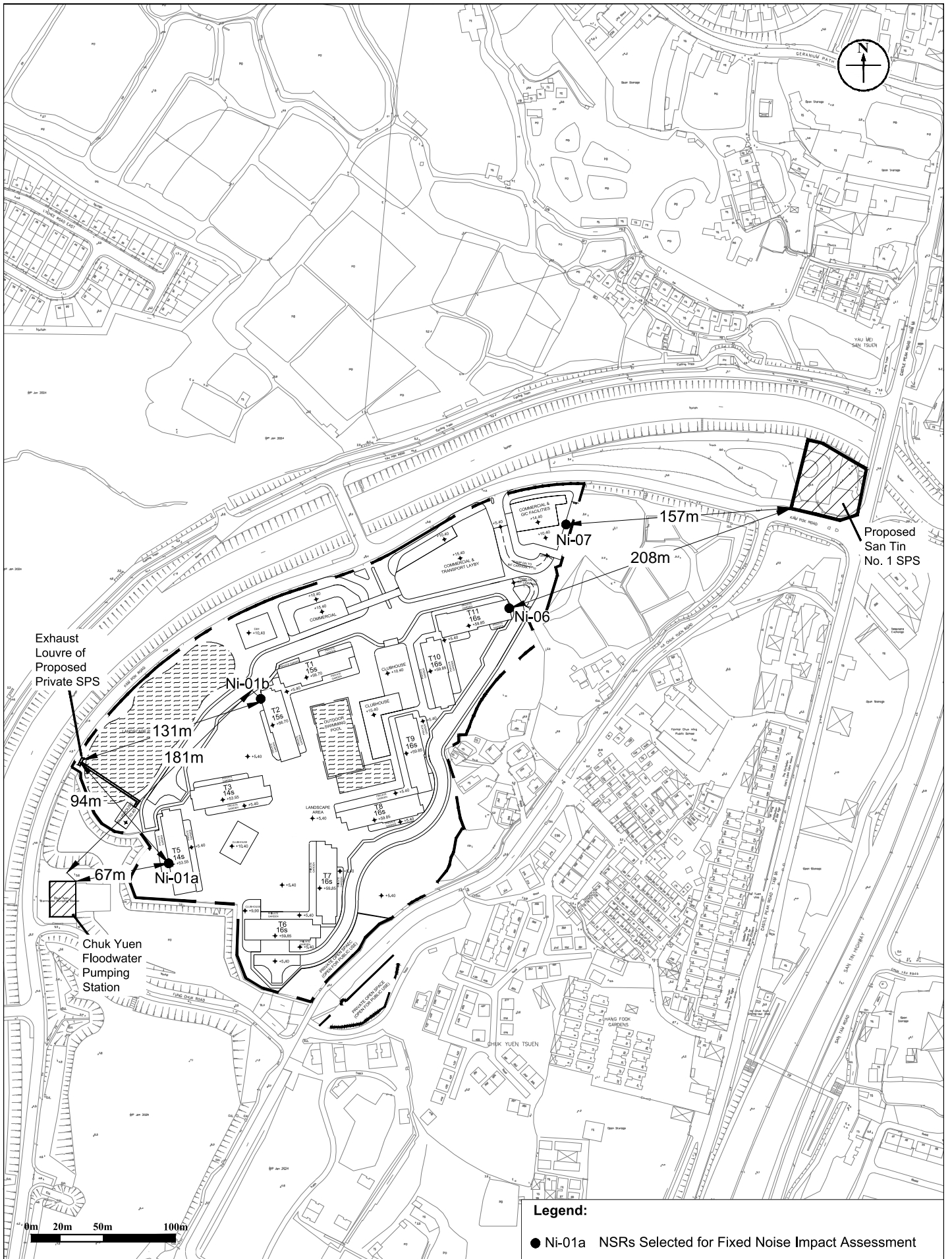


Figure: 4-4

Title: Locations of Noise Assessment Points for the Existing Floodwater Pumping Station and the Proposed Sewage Pumping Station

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Residential (Group D) to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.



Drawn by: CL

Checked by: HN

Rev.: 3.0

Date: Sep 2024

Figure 5-1

Locations of Water Sensitive Receivers during Construction and
Operation Phases

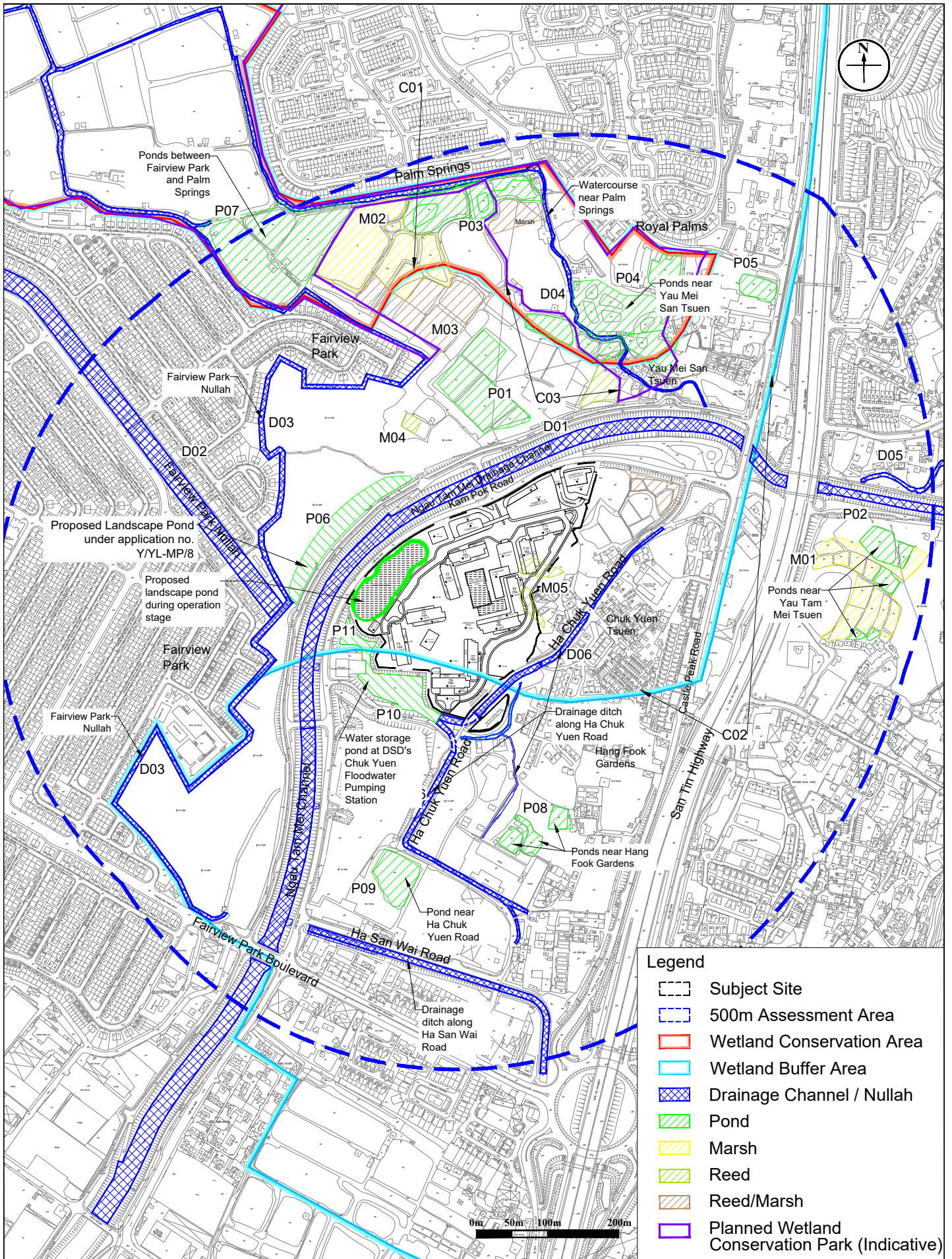


Figure: 5-1

Title: Locations of WSRs during Construction and Operation Phases

Project: S.12A Amendment of Plan Application on Mai Po & Fairview Park OZP No. Y/YL-MP/8 - Rezoning from Residential (Group D) to "Residential (Group C)1" Zone for a Proposed Residential Development at Various Lots in D.D. 104 & the adjoining G.L. in Yuen Long, N.T.

RAMBOLL

Drawn by: CL

Checked by: HN

Rev.: 3.0

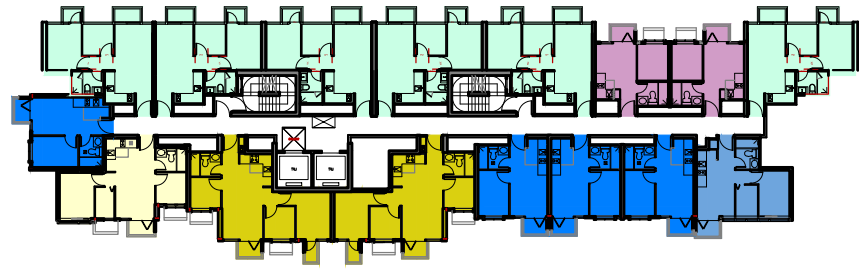
Date: Sep 2024

Appendix

Appendix 3–1

Typical Internal Layout Plan

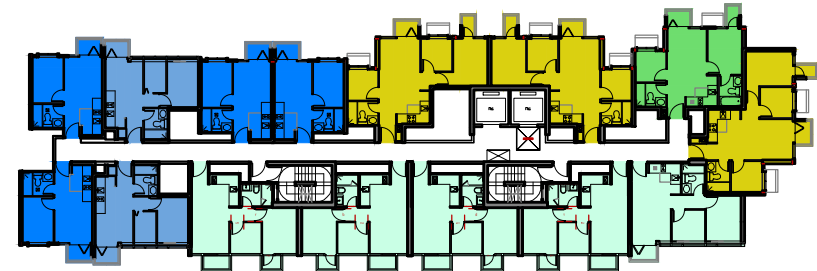
TOWER 1



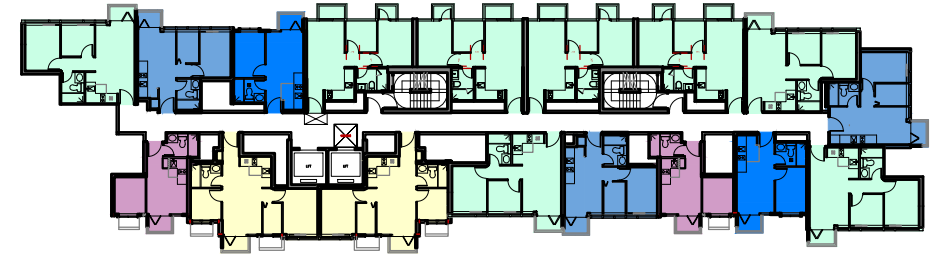
TOWER 7



TOWER 2



TOWER 8



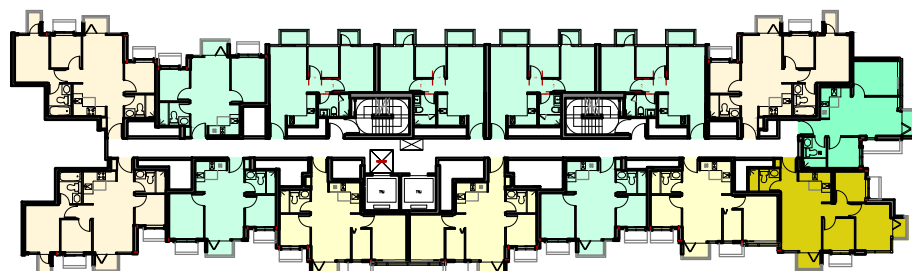
TOWER 3



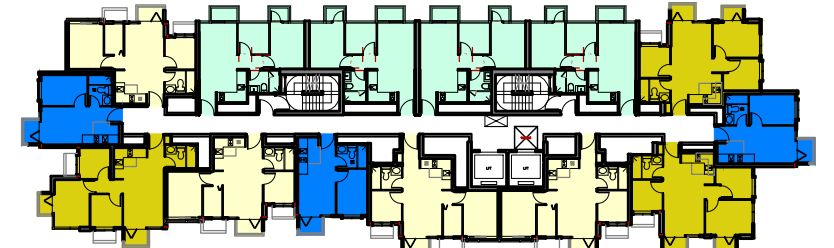
TOWER 9



TOWER 5



TOWER 10

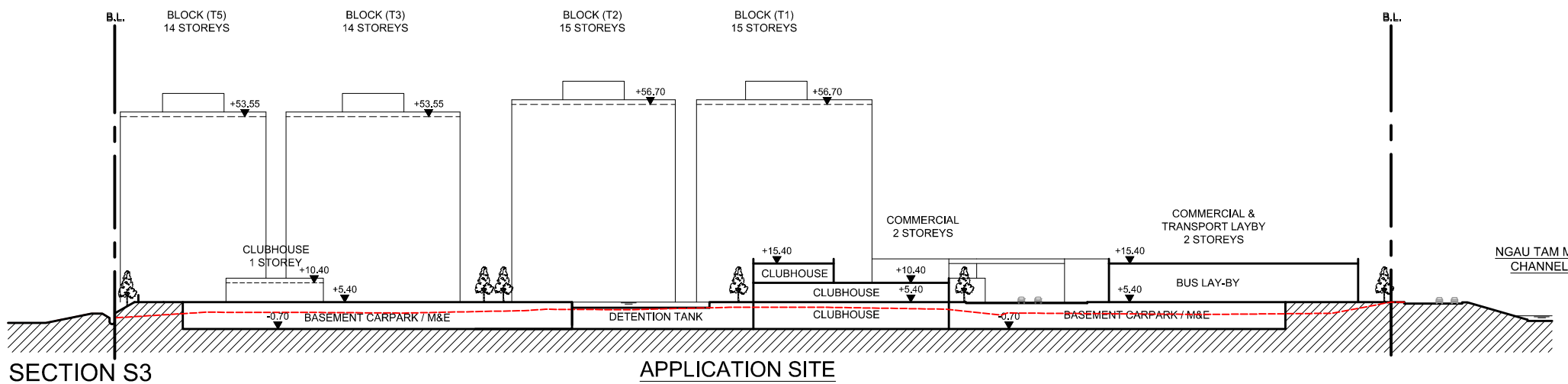
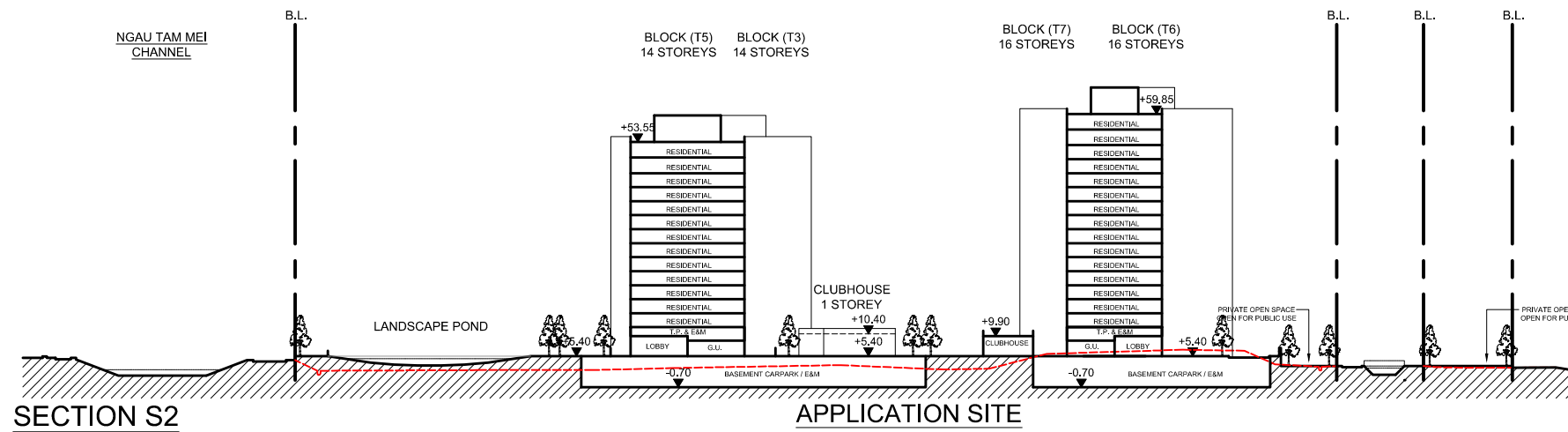
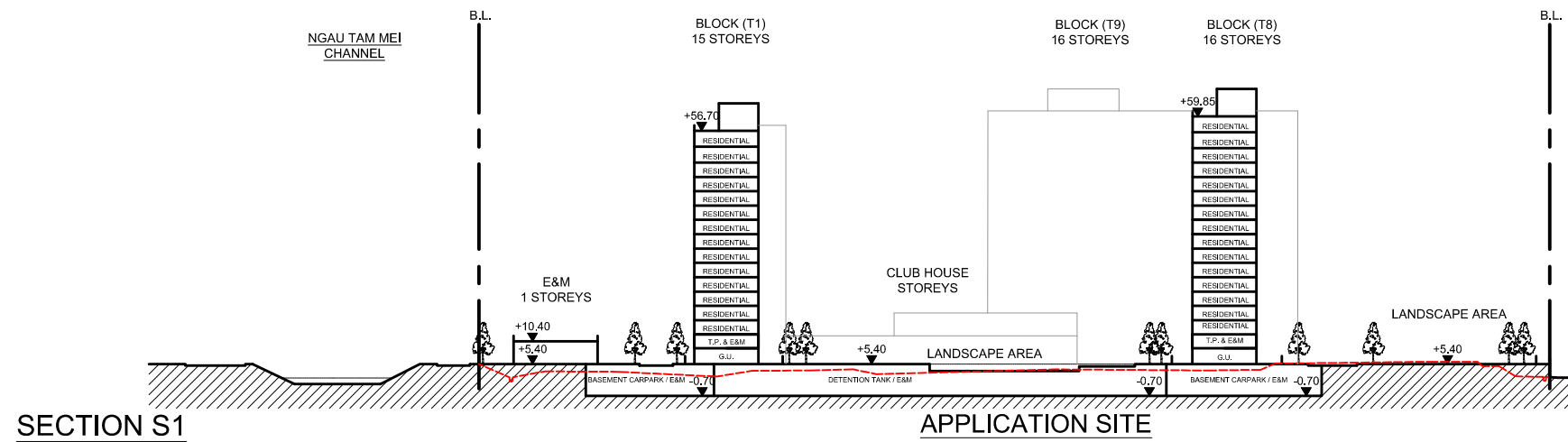


TOWER 6



TOWER 11

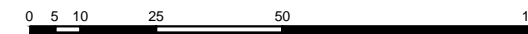




LEGEND

--- EXISTING SITE LEVEL Previous Submission Level dated on June 2023

Remark: 1. All spot levels marked on building structures (including towers and clubhouse) refer to the main roof levels.
2. No. of storeys marked on plan excludes basement floor / refuge floor.



B.D. REF. :

F.S.D. REF. :

REVISIONS :

NO.	DESCRIPTION	DATE

NOTE:
DETAIL DESIGN INCLUDING BARRIER FREE ACCESS, F.S. REQUIREMENT, STRUCTURAL REQUIREMENT, ETC. TO BE DETERMINED IN GBP STAGE.

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PROJECT :
SECTION 12A PLANNING APPLICATION FOR REZONING FROM 'RESIDENTIAL (GROUP D)' TO 'RESIDENTIAL (GROUP C) 1' ZONE FOR A PROPOSED RESIDENCE DEVELOPMENT AT VARIOUS LOTS IN D.D. 104 AND THE ADJOINING GOVERNMENT LAND IN YUEN LONG, THE NEW TERRITORIES

DRAWING TITLE :
INDICATIVE SECTIONS

DATE : FEB 2025 PAPER SIZE : A3

SCALE : 1:1500 DRAWN : AIL

PROJECT NO. : 767

DWG. NO. : (767)S16-S-01

Appendix 3–2

Predicted Traffic Flow Forecast Data

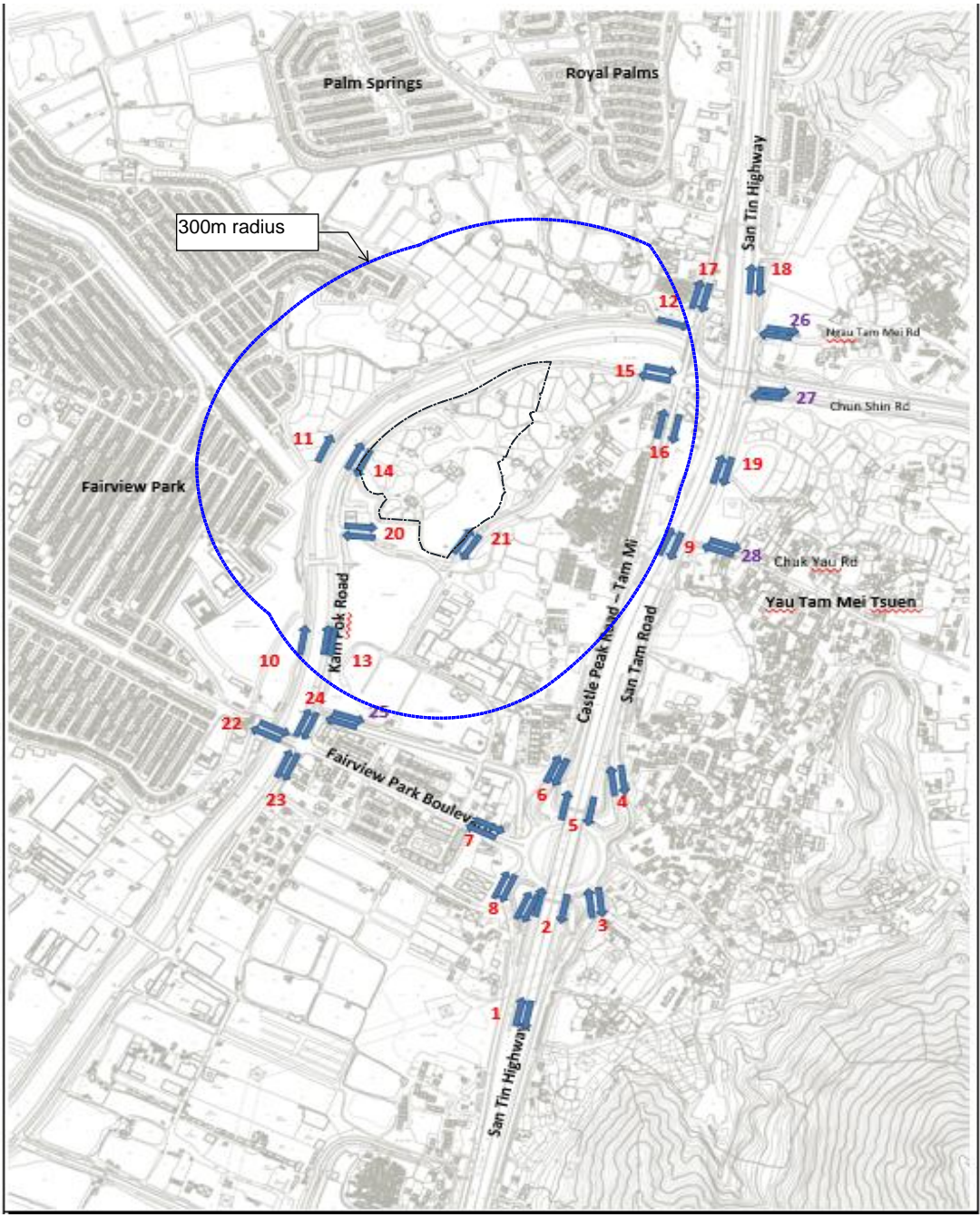
Year 2046 Traffic Forecast for NIA

Road Link	Road Name	Direction	2023 AM		2046 AM (w/o Dev)		2046 AM (w Dev)		2023 PM		2046 PM (w/o Dev)		2046 PM (w Dev)	
			Veh/hr	HV%	Veh/hr	HV%	Veh/hr	HV%	Veh/hr	HV%	Veh/hr	HV%	Veh/hr	HV%
1	San Tin Highway	NB	3160	36%	4330	36%	4410	35%	2470	40%	3880	40%	3940	40%
		SB	2780	38%	3930	38%	4040	37%	2740	39%	3690	39%	3740	39%
2	San Tin Highway - Slip Road	NB	750	28%	1550	20%	1630	20%	830	22%	1600	17%	1650	18%
		SB	950	25%	1450	21%	1560	21%	530	30%	930	23%	980	23%
3	San Tam Road	NB	320	42%	970	22%	980	22%	230	35%	600	21%	610	20%
		SB	820	27%	1670	19%	1670	19%	670	40%	1350	27%	1350	26%
4	San Tam Road	NB	340	30%	380	30%	380	30%	290	24%	350	23%	350	23%
		SB	490	25%	590	24%	590	24%	340	25%	470	22%	470	22%
5	San Tin Highway - Slip Road	NB	390	42%	890	26%	920	25%	350	45%	650	31%	660	31%
		SB	430	48%	740	35%	760	35%	580	29%	830	25%	840	25%
6	Castle Peak Road - Tam Mi	NB	350	36%	460	33%	570	30%	300	36%	430	31%	500	30%
		SB	470	28%	590	26%	740	24%	240	47%	340	39%	400	37%
7	Fairview Park Boulevard	EB	800	12%	820	12%	820	12%	630	20%	710	20%	710	20%
		WB	550	20%	580	21%	580	21%	690	14%	780	14%	780	14%
8	Castle Peak Road - Tam Mi	NB	360	39%	610	29%	610	29%	230	56%	450	37%	450	37%
		SB	210	45%	430	30%	430	30%	190	52%	440	31%	440	31%
9	San Tin Highway	NB	3300	35%	4310	32%	4340	32%	2900	40%	4090	34%	4100	34%
		SB	3250	38%	3780	37%	3810	37%	3370	38%	4270	35%	4280	35%
10	Yau Pok Road	NB	10	0%	10	0%	10	0%	10	0%	10	0%	10	0%
11	Yau Pok Road	NB	10	41%	20	19%	20	19%	0	0%	10	13%	10	13%
12	Yau Pok Road	NB	10	90%	60	25%	60	25%	20	0%	50	7%	50	7%
13	Kam Pok Road	NB	30	39%	50	27%	70	25%	40	12%	60	11%	70	12%
		SB	60	34%	100	26%	120	24%	70	7%	90	9%	100	10%
14	Kam Pok Road	NB	30	37%	50	27%	70	25%	30	16%	60	15%	70	15%
		SB	70	17%	120	16%	140	15%	60	6%	90	6%	100	7%
15	Kam Pok Road	EB	50	14%	110	12%	290	14%	50	10%	90	10%	170	16%
		WB	50	19%	130	14%	270	15%	80	10%	170	10%	260	13%
16	Castle Peak Road - Tam Mi	NB	310	24%	410	22%	520	21%	300	16%	420	15%	500	16%
		SB	440	13%	560	13%	710	13%	250	20%	350	18%	420	18%
17	Castle Peak Road - Tam Mi	NB	330	17%	430	16%	470	16%	340	11%	450	11%	460	11%
		SB	440	11%	530	11%	560	11%	300	17%	400	16%	420	16%
18	San Tam Road	NB	130	9%	150	8%	150	8%	110	1%	120	1%	120	1%
		SB	240	7%	270	7%	270	7%	190	10%	220	10%	220	10%
19	San Tam Road	NB	40	25%	40	26%	40	26%	20	25%	20	25%	20	25%
		SB	110	28%	120	28%	120	28%	50	28%	60	28%	60	28%
20	Fung Chuk Road	EB	10	22%	10	20%	10	20%	10	22%	10	17%	10	17%
		WB	30	25%	30	25%	30	25%	20	25%	20	24%	20	24%
21	Ha Chuk Yuen Road	NB	10	22%	10	20%	10	20%	10	23%	10	17%	10	17%
		SB	30	25%	30	25%	30	25%	20	30%	20	24%	20	24%
22	Fairview Park Boulevard	EB	750	8%	840	8%	840	8%	560	10%	630	10%	630	10%
		WB	630	1%	710	1%	710	1%	860	1%	970	1%	970	1%
23	Kam Pok Road	NB	80	4%	100	5%	120	7%	100	7%	140	7%	150	8%
		SB	90	17%	130	16%	160	15%	50	8%	70	9%	80	11%
24	Kam Pok Road	NB	50	28%	70	24%	90	24%	80	4%	110	5%	120	6%
		SB	140	3%	180	5%	200	6%	90	6%	120	7%	130	8%
25	Ha San Wai Road	EB	30	18%	40	17%	40	17%	40	19%	50	18%	50	18%
		WB	50	23%	60	21%	60	21%	40	18%	50	18%	50	18%
26	Ngau Tam Mei Road	EB	70	21%	70	22%	70	22%	140	14%	160	13%	160	13%
		WB	150	12%	170	12%	170	12%	100	9%	110	9%	110	9%
27	Chun Shin Road	EB	70	21%	80	22%	80	22%	40	8%	40	7%	40	7%
		WB	80	23%	90	23%	90	23%	30	13%	30	10%	30	10%
28	Chuk Yau Road	EB	130	23%	150	23%	150	23%	100	11%	110	11%	110	11%
		WB	110	22%	120	23%	120	23%	100	14%	110	14%	110	14%

Year 2046 Traffic Forecast Data During Peak Hours

Two-ways Flows:

Road No.	Direction	2023 AM		2046 AM (with dev)		2023 PM		2046 PM (with Dev)		Speed of road (km/hr)	Road material
		Veh/hr	HV%	Veh/hr	HV %	Veh/hr	HV%	Veh/hr	HV %		
1	two-ways	5940	36.7%	8450	36.1%	5210	39.9%	7680	39.5%	100	Pervious
2	two-ways	1700	26.4%	3190	20.2%	1360	25.4%	2630	19.5%	50	Bitumen
3	two-ways	1140	31.4%	2650	20.3%	900	38.4%	1960	24.6%	50	Bitumen
4	two-ways	830	27.2%	970	26.7%	630	24.7%	820	22.8%	50	Bitumen
5	two-ways	820	45.4%	1680	29.7%	930	35.2%	1500	27.8%	50	Bitumen
6	two-ways	820	31.4%	1310	26.3%	540	40.7%	900	32.7%	50	Bitumen
7	two-ways	1350	15.0%	1400	15.5%	1320	16.7%	1490	16.6%	50	Bitumen
8	two-ways	570	41.4%	1040	29.6%	420	54.6%	890	33.7%	50	Bitumen
9	two-ways	6550	36.7%	8150	34.2%	6270	38.8%	8380	34.3%	100	Pervious
13	two-ways	90	35.8%	190	24.5%	110	8.9%	170	10.9%	50	Bitumen
14	two-ways	100	23.0%	210	18.7%	90	9.1%	170	10.5%	50	Bitumen
15	two-ways	100	16.6%	560	14.7%	130	9.8%	430	14.3%	50	Bitumen
16	two-ways	750	17.8%	1230	16.5%	550	17.8%	920	17.1%	50	Bitumen
17	two-ways	770	13.5%	1030	13.2%	640	14.2%	880	13.8%	50	Bitumen
18	two-ways	370	7.5%	420	7.4%	300	6.8%	340	6.6%	50	Bitumen
19	two-ways	150	27.2%	160	27.5%	70	27.1%	80	27.3%	50	Bitumen
20	two-ways	40	24.3%	40	23.8%	30	24.0%	30	21.7%	50	Bitumen
21	two-ways	40	24.3%	40	23.8%	30	27.6%	30	21.7%	50	Bitumen
22	two-ways	1380	4.9%	1550	4.9%	1420	4.4%	1600	4.4%	50	Bitumen
23	two-ways	170	11.3%	280	11.7%	150	7.3%	230	9.0%	50	Bitumen
24	two-ways	190	10.0%	290	11.4%	170	5.5%	250	6.9%	50	Bitumen
25	two-ways	80	21.0%	100	19.2%	80	18.6%	100	18.0%	50	Bitumen
26	two-ways	220	14.7%	240	14.6%	240	11.8%	270	11.4%	50	Bitumen
27	two-ways	150	22.0%	170	22.4%	70	10.3%	70	8.4%	50	Bitumen
28	two-ways	240	22.6%	270	23.0%	200	12.5%	220	12.2%	50	Bitumen



Road Index Plan

Henry Ng

From: Kinox Kin Chun WONG <kinchunwong@td.gov.hk>
Sent: Wednesday, April 13, 2022 5:17 PM
To: Ho, Siu Nam Steven
Cc: Ku, Cheuk Ning Magdalene; Ming Yip TSE
Subject: [EXTERNAL] RE: RE: Re: FW: RE: Fairview R(D) - Traffic Forecasts for noise assessment

Dear Steven,

Please ignore previous email.

In accordance with HKPSG Chapter 8 Section 3.3, please note the road types as follows:

- Kam Pok Road: Rural Road
- Ha Chuk Yuen Road: Single Track Access Road
- Fung Chuk Road: Single Track Access Road

Regards,
Kinok Wong
E/B,TD

From: Kinok Kin Chun WONG/TD/HKSARG
To: "Ho, Siu Nam Steven" <Steven.SN.Ho@aecom.com>
Cc: "Ku, Cheuk Ning Magdalene" <Magdalene.Ku@aecom.com>, Ming Yip TSE <mingyiptse@td.gov.hk>
Date: 13/04/2022 12:25 PM
Subject: RE: [EXTERNAL] RE: Re: FW: RE: Fairview R(D) - Traffic Forecasts for noise assessment
TENTW/EB

Dear Steven,

According to TIS, it was noted that Kam Pok Road, Ha Chuk Yuen Road, and Fung Chuk Road are Local Distributor.

Regards,
Kinok Wong
E/B,TD

From: "Ho, Siu Nam Steven" <Steven.SN.Ho@aecom.com>
To: Kinok Kin Chun WONG <kinchunwong@td.gov.hk>
Cc: Ming Yip TSE <mingyiptse@td.gov.hk>, "Ku, Cheuk Ning Magdalene" <Magdalene.Ku@aecom.com>
Date: 12/04/2022 07:13 PM
Subject: RE: [EXTERNAL] RE: Re: FW: RE: Fairview R(D) - Traffic Forecasts for noise assessment

Appendix 3–3

Unmitigated Road Traffic Noise Assessment Results

Tower 8

Floor	mPD	T8-01	T8-02	T8-03	T8-04	T8-05	T8-06	T8-07	T8-08	T8-09	T8-10	T8-11	T8-12	T8-13	T8-14	T8-15	T8-16	T8-17	T8-18	T8-19	T8-20	T8-21	T8-22	T8-23	T8-24
G/F	6.6	61	60	60	59	59	59	59	59	59	58	59	58	58	58	58	58	57	57	56	56	56	55	53	
1/F	13.1	61	60	60	59	59	59	59	59	59	59	59	58	58	58	58	58	57	57	57	56	56	55	53	
2/F	16.2	61	60	60	60	60	59	59	59	59	59	59	58	58	58	58	58	57	57	57	57	56	55	53	
3/F	19.4	62	61	61	60	60	60	59	59	59	59	59	59	59	59	59	58	58	57	57	57	56	56	54	
5/F	22.5	62	61	61	60	60	60	59	59	59	59	59	59	59	59	59	59	59	57	57	57	56	56	54	
6/F	25.7	63	62	61	61	61	61	60	60	60	60	59	59	59	59	59	59	59	58	58	57	57	56	54	
7/F	28.8	63	62	62	61	61	61	60	60	60	60	60	59	59	59	59	59	59	58	58	58	57	57	54	
8/F	32.0	64	62	62	62	61	61	60	60	60	60	60	60	60	60	60	60	59	58	58	58	57	56	54	
9/F	35.1	64	63	63	62	62	62	60	60	60	60	60	60	60	60	60	60	60	59	59	58	58	57	54	
10/F	38.3	65	63	63	62	62	62	61	61	61	61	61	61	60	60	60	60	60	59	59	59	59	58	54	
11/F	41.4	65	63	63	62	62	62	61	61	61	61	61	61	60	60	60	60	60	59	59	59	59	58	54	
12/F	44.6	65	64	63	63	63	62	61	61	61	61	61	61	61	61	61	60	60	59	59	59	59	58	54	
13/F	47.7	65	64	63	63	63	63	61	61	61	61	61	61	61	61	61	61	61	59	59	59	59	58	54	
15/F	50.9	65	64	64	63	63	63	61	61	61	61	61	61	61	61	61	61	61	60	60	60	59	58	54	
16/F	54.0	65	64	64	63	63	63	61	61	61	61	61	61	61	61	61	61	61	60	60	60	59	58	54	
17/F	57.5	66	64	64	63	63	63	61	61	61	61	61	61	61	61	61	61	61	60	60	60	59	58	54	
Max. Noise Level		66	64	64	63	63	63	61	61	61	61	61	61	61	61	61	61	61	60	60	60	59	58	54	
No. of exceedance		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Floor	mPD	T8-25	T8-26	T8-27	T8-28	T8-29	T8-30	T8-31	T8-32	T8-33	T8-34	T8-35	T8-36	T8-37	T8-38	T8-39	T8-40	T8-41	T8-42	T8-43	T8-44	T8-45	T8-46	T8-47	T8-48	T8-49
G/F	6.6	50	49	49	48	48	48	47	47	47	47	47	47	46	46	46	46	47	47	47	47	48	49	58	60	60
1/F	13.1	51	50	50	49	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	49	59	60	60
2/F	16.2	51	51	50	50	50	49	49	49	49	49	49	49	49	48	48	48	48	48	48	48	48	49	59	60	61
3/F	19.4	51	51	51	51	51	50	50	50	50	50	50	50	50	49	49	49	49	49	49	49	49	49	60	61	61
5/F	22.5	51	51	51	51	51	51	51	51	51	51	50	50	50	50	50	50	50	50	50	50	49	49	50	60	61
6/F	25.7	52	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	49	49	50	61	62
7/F	28.8	52	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	50	49	49	50	61
8/F	32.0	52	52	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	49	49	50	62	63
9/F	35.1	52	52	52	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	49	49	50	62	63
10/F	38.3	52	52	52	52	52	52	52	52	52	52	52	52	52	51	51	51	51	51	51	50	49	49	50	63	63
11/F	41.4	52	52	52	52	52	52	52	52	52	52	52	52	51	51	51	51	51	51	51	51	49	49	50	63	64
12/F	44.6	52	52	52	52	52	52	52	52	52	52	52	52	52	51	51	51	51	51	51	50	49	49	50	63	64
13/F	47.7	52	52	52	52	52	52	52	52	52	52	52	52	52	52	51	51	51	51	51	50	50	50	63	64	64
15/F	50.9	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	51	51	50	50	50	63	64	64
16/F	54.0	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	51	50	50	64	64	64
17/F	57.5	52	52	52	52	53	52	52	53	53	53	53	53	53	53	53	53	53	53	53	52	52	52	64	64	64
Max. Noise Level		52	52	52	52	53	52	52	53	53	53	53	53	53	53	53	53	53	53	52	52	52	64	64	64	
No. of 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

Tower 9

Floor	mPD	T9-01	T9-02	T9-03	T9-04	T9-05	T9-06	T9-07	T9-08	T9-09	T9-10	T9-11	T9-12	T9-13	T9-14	T9-15	T9-16	T9-17	T9-18	T9-19	T9-20	T9-21	T9-22	T9-23	T9-24
G/F	6.6	55	56	57	57	58	59	59	59	59	59	59	59	59	59	59	59	60	60	60	60	61	61	59	58
1/F	13.1	56	57	57	58	58	59	59	59	60	60	60	60	60	60	60	60	60	60	60	61	61	61	59	59
2/F	16.2	57	57	58	58	58	59	60	60	60	60	60	60	60	60	60	61	61	61	61	61	61	62	60	59
3/F	19.4	57	58	58	58	59	60	60	60	60	60	60	60	60	60	61	61	61	61	61	61	61	62	60	59
5/F	22.5	58	58	59	59	60	60	60	61	61	61	61	61	61	61	61	61	61	61	61	61	62	62	61	60
6/F	25.7	58	59	59	59	60	61	61	61	61	61	61	61	61	61	61	61	62	62	62	62	62	63	61	61
7/F	28.8	59	59	60	60	61	61	62	62	62	62	62	62	62	62	62	62	62	62	62	62	63	63	62	61
8/F	32.0	60	60	60	60	61	62	62	62	62	62	62	62	62	62	62	62	62	62	62	63	63	63	62	62
9/F	35.1	60	60	60	60	61	62	62	62	62	62	62	62	62	62	62	62	62	62	62	63	63	64	63	62
10/F	38.3	60	61	61	61	62	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	64	64	63	62
11/F	41.4	61	61	61	61	62	63	63	63	63	63	63	63	63	63	63	63	63	64	64	64	64	64	63	63
12/F	44.6	61	61	61	61	62	63	63	63	63	63	63	63	63	63	63	63	64	64	64	64	64	65	65	63
13/F	47.7	61	61	61	61	62	63	63	63	63	63	63	63	63	63	63	64	64	64	64	64	64	65	65	63
15/F	50.9	61	61	61	61	62	63	63	63	64	64	64	63	63	63	64	64	64	64	64	64	64	65	65	63
16/F	54.0	61	61	61	61	62	63	63	64	64	64	64	64	64	64	64	64	64	64	64	64	64	65	65	63
17/F	57.5	61	61	62	61	62	63	63	64	64	64	64	64	64	64	64	64	64	64	64	64	64	65	65	63
Max. Noise Level		61	61	62	61	62	63	63	64	64	64	64	64	64	64	64	64	64	64	64	64	64	65	65	63
No. of 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

Floor	mPD	T9-25	T9-26	T9-27	T9-28	T9-29	T9-30	T9-31	T9-32	T9-33	T9-34	T9-35	T9-36	T9-37	T9-38	T9-39	T9-40	T9-41	T9-42	T9-43	T9-44	T9-45	T9-46	T9-47
G/F	6.6	51	44	44	44	44	45	46	46	46	45	45	46	39	39	39	39	39	39	40	41	43	46	47
1/F	13.1	52	45	45	45	45	46	47	47	47	47	48	48	48	48	48	48	47	48	49	50	49	50	51
2/F	16.2	52	46	46	46	46	47	47	48	48	48	49	49	49	49	49	49	49	50	52	52	52	52	53
3/F	19.4	52	46	46	46	47	47	48	48	48	49	49	49	50	50	50	50	50	51	53	53	53	53	54
5/F	22.5	52	47	47	47	47	47	48	48	49	49	49	50	50	50	51	50	50	51	53	54	53	54	55
6/F	25.7	5																						

Tower 10

Floor	mPD	T10-01	T10-02	T10-03	T10-04	T10-05	T10-06	T10-07	T10-08	T10-09	T10-10	T10-11	T10-12	T10-13	T10-14	T10-15	T10-16	T10-17	T10-18	T10-19	T10-20	T10-21	T10-22	T10-23
G/F	6.6	55	55	55	55	55	56	55	55	55	54	54	54	53	52	52	52	52	52	52	52	54	54	55
1/F	13.1	56	53	55	55	56	56	56	56	55	55	55	54	54	54	53	53	53	53	53	53	54	55	56
2/F	16.2	56	53	56	56	56	56	56	56	55	55	55	55	54	54	54	54	53	53	53	53	55	56	56
3/F	19.4	57	54	56	57	56	57	57	56	56	55	55	55	55	55	54	54	54	54	54	54	55	56	57
5/F	22.5	57	55	57	57	57	57	57	56	56	56	55	55	55	55	55	54	54	54	54	54	54	56	57
6/F	25.7	58	56	58	58	58	58	58	57	56	56	56	56	55	55	55	55	55	55	55	55	56	58	58
7/F	28.8	58	57	59	59	58	58	58	57	57	56	56	56	56	55	55	55	55	55	55	55	57	58	59
8/F	32.0	59	57	59	59	59	59	58	58	57	57	57	56	56	56	56	56	56	56	56	56	57	59	60
9/F	35.1	59	57	59	59	59	59	59	58	57	57	57	57	56	56	56	56	56	56	56	56	58	60	60
10/F	38.3	60	58	60	60	60	60	60	60	59	58	57	57	57	57	56	56	56	56	56	56	58	60	61
11/F	41.4	60	58	60	60	60	60	60	60	59	58	58	57	57	57	57	56	56	56	56	56	58	60	61
12/F	44.6	60	58	61	60	60	60	60	60	59	58	58	58	58	57	57	57	57	57	57	57	59	61	61
13/F	47.7	60	59	61	61	61	61	60	60	59	58	58	58	58	58	57	57	57	57	57	57	59	61	61
15/F	50.9	61	59	61	61	61	61	61	61	59	58	58	58	58	58	57	57	57	57	57	57	59	61	62
16/F	54.0	61	60	62	61	61	61	61	61	59	59	58	58	58	58	57	57	57	57	57	57	59	61	62
17/F	57.5	61	60	62	62	61	62	61	60	59	58	58	58	58	58	58	57	57	57	57	58	59	61	62
Max. Noise Level		61	60	62	62	61	62	61	60	59	58	58	58	58	58	58	57	57	57	57	58	59	61	62
No. of exceedance		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Floor	mPD	T10-24	T10-25	T10-26	T10-27	T10-28	T10-29	T10-30	T10-31	T10-32	T10-33	T10-34	T10-35	T10-36	T10-37	T10-38	T10-39	T10-40	T10-41	T10-42	T10-43	T10-44	
G/F	6.6	56	57	59	60	60	59	59	59	59	59	59	59	59	58	58	58	58	57	57	57	56	
1/F	13.1	57	58	60	60	60	60	60	59	59	59	59	59	59	59	59	59	58	58	57	57	57	
2/F	16.2	57	58	60	60	60	60	60	60	59	59	59	59	59	59	59	59	59	59	58	58	57	
3/F	19.4	58	59	60	61	61	60	60	60	60	60	60	60	60	60	60	60	60	59	59	58	58	
5/F	22.5	59	59	61	61	61	61	60	60	60	60	60	60	60	60	60	60	60	59	59	59	58	
6/F	25.7	59	60	61	62	62	62	61	61	61	61	61	61	61	61	61	60	60	60	59	59	59	
7/F	28.8	60	61	62	62	62	62	62	61	61	61	61	61	61	61	61	61	61	60	60	60	60	
8/F	32.0	61	61	62	63	63	63	62	62	62	62	62	62	62	62	62	62	62	61	61	61	61	
9/F	35.1	61	62	63	63	63	63	62	62	62	62	62	62	62	62	62	62	62	61	61	61	61	
10/F	38.3	62	62	63	64	63	63	63	63	63	63	63	63	63	63	63	63	62	62	62	62	62	
11/F	41.4	62	62	63	64	64	63	63	63	63	63	63	63	63	63	63	63	62	62	62	62	62	
12/F	44.6	62	62	64	64	64	64	63	63	63	63	63	63	63	63	63	63	62	62	62	62	62	
13/F	47.7	62	63	64	64	64	64	63	63	63	63	63	63	63	63	63	63	62	62	62	62	62	
15/F	50.9	62	63	64	64	64	64	63	63	63	63	63	63	63	63	63	63	63	62	62	62	62	
16/F	54.0	63	63	64	64	64	64	63	63	63	63	63	63	63	63	63	63	63	63	62	62	62	
17/F	57.5	63	63	64	64	64	64	63	63	63	63	63	63	63	63	63	63	63	63	62	62	62	
Max. Noise Level		63	63	64	64	64	64	63	63	63	63	63	63	63	63	63	63	63	63	62	62	62	
No. of exceedance		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Tower 11

Floor	mPD	T11-01	T11-02	T11-03	T11-04	T11-05	T11-06	T11-07	T11-08	T11-09	T11-10	T11-11	T11-12	T11-13	T11-14	T11-15	T11-16	T11-17	T11-18	T11-19	T11-20	T11-21	T11-22	T11-23	T11-24	T11-25
G/F	6.6	63	63	63	63	62	61	60	58	57	57	57	57	57	57	57	57	57	57	57	56	56	56	56	55	
1/F	13.1	63	63	63	63	63	61	60	58	58	58	58	58	58	58	58	58	58	57	57	57	57	57	57	55	
2/F	16.2	64	64	64	64	63	62	61	59	59	58	58	58	58	58	58	58	58	58	58	57	57	57	57	56	
3/F	19.4	64	64	64	64	64	63	62	59	59	59	59	59	59	59	59	59	58	58	58	58	58	58	58	56	
5/F	22.5	64	64	65	65	65	63	63	60	60	60	60	60	60	60	60	60	59	59	59	59	59	58	58	57	
6/F	25.7	65	65	65	65	65	64	63	61	61	60	60	60	60	60	60	60	60	59	59	59	59	59	59	58	
7/F	28.8	65	65	65	66	66	64	64	61	61	61	61	61	61	61	61	61	61	60	60	60	60	60	60	59	
8/F	32.0	66	66	66	66	66	65	64	62	62	62	62	62	62	62	62	62	62	61	61	61	61	61	61	60	
9/F	35.1	66	66	66	67	66	65	65	62	62	62	62	62	62	62	62	62	62	61	61	61	61	61	61	60	
10/F	38.3	66	66	66	67	67	66	65	63	63	63	63	63	63	63	63	63	62	62	62	62	62	62	62	61	
11/F	41.4	66	66	66	67	67	66	65	63	63	63	63	63	63	63	63	63	62	62	62	62	62	62	62	61	
12/F	44.6	66	66	67	67	67	66	65	63	63	63	63	63	63	63	63	63	62	62	62	62	62	62	62	61	
13/F	47.7	67	67	67	68	67	66	65	63	63	63	63	63	63	63	63	63	62	62	62	62	62	62	62	60	
15/F	50.9	67	67	67	68	67	66	65	63	63	63	63	63	63	63	63	63	62	62	62	62	62	62	62	60	
16/F	54.0	67	67	67	68	68	66	66	63	63	63	63	63	63	63	63	63	62	62	62	62	62	62	62	60	
17/F	57.5	67	67	67	68	68	67	66	63	63	63	63	63	63	63	63	63	62	62	62	62	62	62	62	61	
Max. Noise Level		67	67	67	68	68	67	66	63	63	63	63	63	63	63	63	63	62	62	62	62	62	62	62	61	
No. of 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	

Floor	mPD	T11-26	T11-27	T11-28	T11-29	T11-30	T11-31	T11-32	T11-33	T11-34	T11-35	T11-36	T11-37	T11-38	T11-39	T11-40	T11-41	T11-42	T11-43	T11-44	T11-45	T11-46	T11-47
G/F	6.6	52	55	55	55	53	53	57	57	57	57	57	57	57	57	57	58	58	58	58	59	59	60
1/F	13.1	53	55	55	55	54	54	58	57	57	57	57	57	57	57	58	58	58	58	59	59	60	60
2/F	16.2	53	56	56	56	55	55	58	58	58	58	58	58	58	58	58	59	59	59	59	60	61	
3/F	19.4	53	57	57	57	56	56	59	58	58	58	58	58	58	59	59	59	59	59	60	60	61	
5/F	22.5	54	57	57	57	57	60	60	59	59	59	59	59	59	59	60	60	60	60	60	61	62	
6/F	25.7	55	58	58	58	58	61	61	60	60	60	60	60	60	60	60	60	61	61	61	61	62	
7/F	28.8	55	59	59	59	59	61	61	61	61	61	61	61	61	61	61	61	61	61	61	62	62	
8/F	32.0	56	60	60	60	60	62	62	61	61	61	61	61										

Environmental Assessment for Proposed Residential Development at Various Lots in D.D. 104, Yuen Long, N.T.

Appendix 3-3 Road Traffic Noise Impact Assessment - unmitigated scenario

Kindergarten

Floor	mPD	GIC-GF-01	GIC-GF-02	GIC-GF-03	GIC-GF-04	GIC-GF-05	GIC-GF-06	GIC-GF-07	GIC-GF-08	GIC-GF-09
G/F	6.6	70	69	69	68	68	68	65	62	61

Remarks:

(1) GIC-GF-07 is the location of sickbay, it adopts a noise standard for domestic premise as it does not involve any clinical or diagnostical activity nor educational use.

(2) NAPs assigned at the corridor and entrance at G/F such as GIC-GF-01, GIC-GF-08 and GIC-GF-09. These are not NSRs according to current layout and the results of these NAPs are for reference only.

NEC

Floor	mPD	GIC-1F-01	GIC-1F-02	GIC-1F-03	GIC-1F-04	GIC-1F-05	GIC-1F-06	GIC-1F-07	GIC-1F-08	GIC-1F-09	GIC-1F-10
1/F	11.6	69	69	69	69	70	70	67	66	63	62

Remark: mPD refers to 1.2m above floor level.

Appendix 3–4

Mitigated Road Traffic Noise Assessment Results

Environmental Assessment for Proposed Residential Development at Various Lots in D.D. 104, Yuen Long, N.T.

Appendix 3-4 Road Traffic Noise Impact Assessment - mitigated scenario

Kindergarten (With a 3m Fence Wall)

Floor	mPD	GIC-GF-01	GIC-GF-02	GIC-GF-03	GIC-GF-04	GIC-GF-05	GIC-GF-06	GIC-GF-07	GIC-GF-08	GIC-GF-09
G/F	6.6	59	59	59	59	59	59	65	56	56

Remarks:

- (1) GIC-GF-07 is the location of sickbay, it adopts a noise standard for domestic premise as it does not involve any clinical or diagnostical activity nor educational use.
- (2) the current presented predicted noise results at NAP GIC-GF-07, is based on the unmitigated result given that there is no noise exceedance
- (3) NAPs assigned at the corridor and entrance at G/F such as GIC-GF-01, GIC-GF-08 and GIC-GF-09. These are not NSRs according to current layout and the results of these NAPs are for reference only.

NEC (With a 3m Fence Wall)

Floor	mPD	GIC-1F-01	GIC-1F-02	GIC-1F-03	GIC-1F-04	GIC-1F-05	GIC-1F-06	GIC-1F-07	GIC-1F-08	GIC-1F-09	GIC-1F-10
1/F	11.6	69	69	69	69	70	70	67	66	63	62

Remark: mPD refers to 1.2m above floor level.

Appendix 4–1

Field Visit Record

Appendix 4-1A Recent Field Visit Records of Industrial Activities

Date	Observation/ Remark
26 Feb., 2009 (Thur.)	Identification of industrial site locations.
30 Mar., 2009 (Mon.)	Identification of industrial site locations.
10 Jul., 2009 (Fri.)	No specific noisy operations at the industrial sites.
21 Jul., 2009 (Tue.)	No specific noisy operations at the industrial sites except at S9, where a lorry was leaving the site. Industrial sites were found to be closed around 7:00pm.
30 Jul., 2009 (Thur.)	No specific noisy operations at the industrial sites.
21 Aug., 2009 (Fri.)	Industrial sites were found to be closed around 07:00pm.
03 Nov., 2009 (Tue.)	No specific noisy operations at identified industrial sites during the site visit.
23 Dec., 2009 (Wed.)	Fan Keung Kee - General operation of the workshop, loading of forklift, lifting activity by a mobile crane, and movement of a lorry. Enclosed godown - Loading and unloading using forklift and movement of lorry.
05 March 2010 (Fri.)	No specific noisy operations at the industrial sites.
26 May 2010 (Wed.)	Operation activities observed were same as those identified in the previous site visits. Industrial sites were found to be closed around 7:00pm.
12 Jul., 2010 (Mon.)	Site visit in the afternoon. No specific noisy operations at the industrial sites.
26 Aug., 2010 (Thur.)	Site visit was conducted during night-time (23:00 on 26 Aug 2010 to 03:00 on the following day). All identified industrial sites were found to be closed and there was no night-time operation at these industrial sites.
29 Oct., 2010 (Fri.)	Operation activities observed were same as those identified in the previous site visits
10 Dec., 2010 (Fri.)	Operation activities observed were same as those identified in the previous site visits.
05 Mar., 2011	No specific noisy operations at the industrial sites.
25 May, 2011	Industrial sites were found to be closed around 7:00pm. Operation activities observed were same as those identified in the previous site visits.
28 Jul., 2011	Operation activities observed were same as those identified in the previous site visits.
21 Sept., 2011	Operation activities observed were same as those identified in the previous site visits.
12 Oct., 2011	Operation activities observed were same as those identified in the previous site visits

Date	Observation/ Remark
31 Jan., 2012	Operation activities observed were same as those identified in the previous site visits.
09 Aug., 2012	Operation activities observed were same as those identified in the previous site visits. Industrial sites were found to be closed around 7:00pm.
16 Aug., 2012	Operation activities observed were same as those identified in the previous site visits.
24 Aug., 2012	Operation activities observed were same as those identified in the previous site visits
07 Sept., 2012	Operation activities observed were same as those identified in the previous site visits
14 Nov., 2012	Operation activities observed were same as those identified in the previous site visits.
07 Feb., 2013	Operation activities observed were same as those identified in the previous site visits. Industrial sites were found to be closed around 7:00pm.
08 Feb., 2013	No specific noisy operations at the industrial sites.
22 Feb., 2013	Operation activities observed were same as those identified in the previous site visits. Site visit was conducted during night-time (23:00 on 22 Feb., 2013 to 03:00 on the following day). All identified industrial sites were found to be closed and there was no night-time operation at these industrial sites.
15 Apr., 2013	Operation activities observed were same as those identified in the previous site visits. Industrial sites were found to be closed around 7:00pm.
24 Apr., 2013	Operation activities observed were same as those identified in the previous site visits.
06 May, 2013	Operation activities observed were same as those identified in the previous site visits.
31 May, 2013	Site visit was conducted during night-time (23:00 on 31 May, 2013). The identified industrial sites were found to be closed and there was no night-time operation at the industrial sites.
18 Oct., 2013	Operation activities observed were same as those identified in the previous site visits. Industrial sites were found to be closed around 7:00pm.
24 Oct., 2013	Operation activities observed were same as those identified in the previous site visits.
26 Feb., 2014	Operation activities observed were same as those identified in the previous site visits. Industrial sites were found to be closed around 7:00pm.
04 Aug., 2014	Operation activities observed were same as those identified in the previous site visits.
26 Sep., 2014	Operation activities observed were same as those identified in the previous site visits. Industrial sites were found to be closed around 7:00pm.
17 Apr., 2015	Operation activities observed were same as those identified in the previous site visits.
07 Jan., 2019	S9 no longer existed while other Operation activities observed were same as those identified in the previous site visits
15 Jan., 2019	Operation activities observed were same as those identified in the previous site visits.
22 Jan., 2019	Operation activities observed were same as those identified in the previous site visits.
16 Jul., 2019	Operation activities observed were same as those identified in the previous site visits.

Date	Observation/ Remark
21 Aug., 2019	Operation activities observed were same as those identified in the previous site visits.
27 Aug., 2019	Operation activities observed were same as those identified in the previous site visits.
26 Mar., 2020	Operation activities observed were same as those identified in the previous site visits.
11 May, 2021	Operation activities observed were same as those identified in the previous site visits.
16 Jun., 2021	Operation activities observed were same as those identified in the previous site visits.
09 Jul., 2021	Operation activities observed were same as those identified in the previous site visits. Open storage sites were found to be closed and no night-time operation.
8 Aug., 2022	Operation activities observed were same as those identified in the previous site visits.
26 Sep., 2023	No particular noisy operation at the open storage sites. Operation activities observed were same as those identified in the previous site visits.
3 Sep., 2024	No particular noisy operation at the open storage sites. Operation activities observed were same as those identified in the previous site visit.

Photographs of Identified Industrial Noise Sources for Industrial Noise Impact Assessment



S1-1 and S1-2



S2-1 and S2-2



S3



S4



S6



S7



S8



S9



S10-1 and S10-2

Appendix 4–2

Calculation of Fixed Noise Sources

Appendix 4-2A Fixed Noise Sources and Noise Strength Adopted in Fixed Noise Impact Assessment

Noise Source	Description *	Observed Activities/ Equipment *	Max. No. of Equipment Observed *	Measured Noise Ledvel, dB(A)	Measurement Distance, m	Distance correction, dB(A)	SWL, dB(A)	Remark
S1-1	Fan Keung Kee (sheltered warehouse)	Operating noise of the workshop	1	66	10	28	94	*
S1-2	Fan Keung Kee (open storage).	Loading and unloading using forklift	1	69	5	22	91	*
S2-1	Fan Keung Kee (for open storage of precast units)	Movement of Lorry	2	73	8	26	99	*
S2-2	Fan Keung Kee (for open storage of precast units)	Lifting of container by a mobile crane	1	69	10	28	97	*
S10-1	Totally enclosed godown	Loading and unloading using forklift	2	63	10	28	91	*
S10-2	Totally enclosed godown	Movement of Lorry	3	74	7	25	99	*
S3	Open storage site for container offices	Loading and Unloading of container office by lorry	1	57	93	47	104	**
S4	Open storage site for storage of scrap metals	Operation and movement of machine within the storage site	1	57	34	39	96	**
S6	Storage area for construction materials	Loading and unloading using forklift	1	55	29	37	93	**
S7	Open storage for vehicles	Movement of Vehicles	1	53	81	46	99	**
S8	A totally enclosed godown	Uploading/ unloading using a lorry at the entrance of the godown	1	56	81	46	102	**

Remark:

Please refer to Figure 4-2 for the location of fixed noise sources.

* Reported noise measurement and calculated Sound Power Level (SWL) for noise sources S1-1, S2-1, S2-2, S2-3, S10-1, and S10-2 as per the submitted EA Report under the Planning Application No. A/YL-MP/6 for the Application Site, which are reproduced from the approved EIA report of "Proposed Low-rise and Low-density Residential Development at Various Lots and their Adjoining Government Land in D.D. 104, East of Kam Pok Road, Mai Po, Yuen Long, N.T." (AEIAR-205/2017).

** Reported noise measurement and calculated Sound Power Level for noise sources S3 to S9, which are directly reproduced from the submitted EA report (R2838 V3.F) under the previous approved planning application no. A/YL-MP/205 for the Application Site.

With regards to the above, noise measurement (30-min.) was conducted near the identified industrial site during its operation. Sound Power Level (SWL) of the identified industrial noise source was determined based on the site measurement and general acoustic principal, which are also used for the noise calculation. The measurement was taken using Brüel & Kjaer (B&K) Precision Integration Sound Level Meter Type 2250, which complies with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1). Noise measurement was conducted during operation of the industrial noise source and the noise source had no particular tonality, impulsiveness, or intermittency identified. The weather conditions were good with calm wind condition during measurement, which satisfies the required criteria. The equipment was properly calibrated immediately prior to and following each measurement by a B&K Sound Level Calibrator Type 4321. The noise levels before and after measurement agrees to within 1.0dB.

Appendix 4-2B - Noise Impact Assessment for Proposed Scheme Due to Fixed Noise Sources (Day-time)

NSR	Noise Source ID	Industrial Activities	Sound Power Level (SWL), dB(A) #	No. of PMEs/ Unit #	Total SWL, dB(A) # (A)	Horizontal Distance from Source to Receiver, m	Dist. Corr., dB(A) (B)	Façade Corr. dB(A) (C)	Calculated Noise level, dB(A) = A + B + C	Noise Criteria	Compliance
Ni-02	S1-1	Operating noise of the workshop	94	1	94	318	-58	3	39	60	Yes
	S1-2	Loading and unloading using forklift	91	1	91	318	-58	3	36	60	Yes
	S2-1	Movement of Lorry	99	2	102	318	-58	3	47	60	Yes
	S2-2	Lifting of container by a mobile crane	97	1	97	318	-58	3	42	60	Yes
	S3	Loading and Unloading of container office by lorry	104	1	104	293	-57	3	50	60	Yes
	S10-1	Loading and unloading using forklift	91	2	94	248	-56	3	41	60	Yes
	S10-2	Movement of Lorry	99	3	104	248	-56	3	51	60	Yes
Cumulative Total @:									55	60	Yes

The above noise assessment has been based on 300m radius. Only those noise sources that are within 300m radius from the respective NSR are considered in the noise calculation. Please refer to Figure 3-5 for the NSR locations.

The above noise calculation was based on the 1/F level at the residential buildings in order to represent the worst case scenario. There are existing village houses located between the Subject Site and the fixed noise sources, no particular noise shielding effect was considered in the above noise calculation.

Sound Power Level and no. of equipment are extracted from Previous EA Report. Please refer to Annex 4-2A.

@ The cumulative noise level at the receiver point due to simultaneous operation at all the concerned industrial sites. Calculated based on general acoustic principle, and the equation = $10 \times \log ((L1/10)+(L2/10)+(L3/10)...+(Ln/10))$; where, L1, L2, L3, Ln are the respective noise level at the receiver due to individual noise source.

Appendix 4-2B - Noise Impact Assessment for Proposed Scheme Due to Fixed Noise Sources (Day-time)

NSR	Noise Source ID	Industrial Activities	Sound Power Level (SWL), dB(A) #	No. of PMEs/ Unit #	Total SWL, dB(A) # (A)	Horizontal Distance from Source to Receiver, m	Dist. Corr., dB(A) (B)	Façade Corr. dB(A) (C)	Calculated Noise level, dB(A) = A + B + C	Noise Criteria	Compliance
Ni-03	S3	Loading and Unloading of container office by lorry	104	1	104	304	-58	3	49	60	Yes
	S4	Operation and movement of machine within the storage site	96	1	96	316	-58	3	41	60	Yes
	S10-1	Loading and unloading using forklift	91	2	94	303	-58	3	39	60	Yes
	S10-2	Movement of Lorry	99	3	104	303	-58	3	49	60	Yes
Cumulative Total @:									52	60	Yes

The above noise assessment has been based on 300m radius. Only those noise sources that are within 300m radius from the respective NSR are considered in the noise calculation. Please refer to Figure 3-5 for the NSR locations.

The above noise calculation was based on the 1/F level at the residential buildings in order to represent the worst case scenario. There are existing village houses located between the Subject Site and the fixed noise sources, no particular noise shielding effect was considered in the above noise calculation.

Sound Power Level and no. of equipment are extracted from Previous EA Report. Please refer to Annex 4-2A.

@ The cumulative noise level at the receiver point due to simultaneous operation at all the concerned industrial sites. Calculated based on general acoustic principle, and the equation = $10 \times \log ((L1/10)+(L2/10)+(L3/10)...+(Ln/10))$; where, L1, L2, L3, Ln are the respective noise level at the receiver due to individual noise source.

Appendix 4-2B - Noise Impact Assessment for Proposed Scheme Due to Fixed Noise Sources (Day-time)

NSR	Noise Source ID	Industrial Activities	Sound Power Level (SWL), dB(A) #	No. of PMEs/ Unit #	Total SWL, dB(A) # (A)	Horizontal Distance from Source to Receiver, m	Dist. Corr., dB(A) (B)	Façade Corr. dB(A) (C)	Calculated Noise level, dB(A) = A + B + C	Noise Criteria	Compliance
Ni-04	S3	Loading and Unloading of container office by lorry	104	1	104	299	-57	3	50	60	Yes
	S4	Operation and movement of machine within the storage site	96	1	96	274	-57	3	42	60	Yes
	S6	Loading and unloading using forklift	93	1	93	278	-57	3	39	60	Yes
	S7	Movement of Vehicles	99	1	99	277	-57	3	45	60	Yes
Cumulative Total @:									52	60	Yes

The above noise assessment has been based on 300m radius. Only those noise sources that are within 300m radius from the respective NSR are considered in the noise calculation. Please refer to Figure 3-5 for the NSR locations. The above noise calculation was based on the 1/F level at the residential buildings in order to represent the worst case scenario. There are existing village houses located between the Subject Site and the fixed noise sources, no particular noise shielding effect was considered in the above noise calculation.

Sound Power Level and no. of equipment are extracted from Previous EA Report. Please refer to Annex 4-2A.

@ The cumulative noise level at the receiver point due to simultaneous operation at all the concerned industrial sites. Calculated based on general acoustic principle, and the equation = $10 \times \log ((L1/10)+(L2/10)+(L3/10)...+(Ln/10))$; where, L1, L2, L3, Ln are the respective noise level at the receiver due to individual noise source.

Appendix 4-2B - Noise Impact Assessment for Proposed Scheme Due to Fixed Noise Sources (Day-time)

NSR	Noise Source ID	Industrial Activities	Sound Power Level (SWL), dB(A) #	No. of PMEs/ Unit #	Total SWL, dB(A) # (A)	Horizontal Distance from Source to Receiver, m	Dist. Corr., dB(A) (B)	Façade Corr. dB(A) (C)	Calculated Noise level, dB(A) = A + B + C	Noise Criteria	Compliance
Ni-05	S4	Operation and movement of machine within the storage site	96	1	96	282	-57	3	42	60	Yes
	S6	Loading and unloading using forklift	93	1	93	259	-56	3	40	60	Yes
	S7	Movement of Vehicles	99	1	99	237	-55	3	47	60	Yes
	S8	Uploading/ unloading using a lorry at the entrance of the godown	102	1	102	293	-57	3	48	60	Yes
Cumulative Total @:									51	60	Yes

The above noise assessment has been based on 300m radius. Only those noise sources that are within 300m radius from the respective NSR are considered in the noise calculation. Please refer to Figure 3-5 for the NSR locations.

The above noise calculation was based on the 1/F level at the residential buildings in order to represent the worst case scenario. There are existing village houses located between the Subject Site and the fixed noise sources, no particular noise shielding effect was considered in the above noise calculation.

Sound Power Level and no. of equipment are extracted from Previous EA Report. Please refer to Annex 4-2A.

@ The cumulative noise level at the receiver point due to simultaneous operation at all the concerned industrial sites. Calculated based on general acoustic principle, and the equation = $10 \times \log ((L1/10)+(L2/10)+(L3/10)...+(Ln/10))$; where, L1, L2, L3, Ln are the respective noise level at the receiver due to individual noise source.

Appendix 4-2B - Noise Impact Assessment for Proposed Scheme Due to Fixed Noise Sources (Day-time)

NSR	Noise Source ID	Industrial Activities	Sound Power Level (SWL), dB(A) #	No. of PMEs/ Unit #	Total SWL, dB(A) # (A)	Horizontal Distance from Source to Receiver, m	Dist. Corr., dB(A) (B)	Façade Corr. dB(A) (C)	Calculated Noise level, dB(A) = A + B + C	Noise Criteria	Compliance
Ni-06	S4	Operation and movement of machine within the storage site	96	1	96	301	-58	3	41	60	Yes
	S6	Loading and unloading using forklift	93	1	93	247	-56	3	40	60	Yes
	S7	Movement of Vehicles	99	1	99	196	-54	3	48	60	Yes
	S8	Uploading/ unloading using a lorry at the entrance of the godown	102	1	102	252	-56	3	49	60	Yes
Cumulative Total @:									52	60	Yes

The above noise assessment has been based on 300m radius. Only those noise sources that are within 300m radius from the respective NSR are considered in the noise calculation. Please refer to Figure 3-5 for the NSR locations. The above noise calculation was based on the 1/F level at the residential buildings in order to represent the worst case scenario. There are existing village houses located between the Subject Site and the fixed noise sources, no particular noise shielding effect was considered in the above noise calculation.

Sound Power Level and no. of equipment are extracted from Previous EA Report. Please refer to Annex 4-2A.

@ The cumulative noise level at the receiver point due to simultaneous operation at all the concerned industrial sites. Calculated based on general acoustic principle, and the equation = $10 \times \log ((L1/10)+(L2/10)+(L3/10)...+(Ln/10))$; where, L1, L2, L3, Ln are the respective noise level at the receiver due to individual noise source.

Appendix 4-2B - Noise Impact Assessment for Proposed Scheme Due to Fixed Noise Sources (Day-time)

NSR	Noise Source ID	Industrial Activities	Sound Power Level (SWL), dB(A) #	No. of PMEs/ Unit #	Total SWL, dB(A) # (A)	Horizontal Distance from Source to Receiver, m	Dist. Corr., dB(A) (B)	Façade Corr. dB(A) (C)	Calculated Noise level, dB(A) = A + B + C	Noise Criteria	Compliance
Ni-07	S4	Operation and movement of machine within the storage site	96	1	96	330	-58	3	41	60	Yes
	S6	Loading and unloading using forklift	93	1	93	250	-56	3	40	60	Yes
	S7	Movement of Vehicles	99	1	99	175	-53	3	49	60	Yes
	S8	Uploading/ unloading using a lorry at the entrance of the godown	102	1	102	225	-55	3	50	60	Yes
Cumulative Total @:									53	60	Yes

The above noise assessment has been based on 300m radius. Only those noise sources that are within 300m radius from the respective NSR are considered in the noise calculation. Please refer to Figure 3-5 for the NSR locations.

The above noise calculation was based on the 1/F level at the residential buildings in order to represent the worst case scenario. There are existing village houses located between the Subject Site and the fixed noise sources, no particular noise shielding effect was considered in the above noise calculation.

Sound Power Level and no. of equipment are extracted from Previous EA Report. Please refer to Annex 4-2A.

@ The cumulative noise level at the receiver point due to simultaneous operation at all the concerned industrial sites. Calculated based on general acoustic principle, and the equation = $10 \times \log ((L1/10)+(L2/10)+(L3/10)...+(Ln/10))$; where, L1, L2, L3, Ln are the respective noise level at the receiver due to individual noise source.