Appendix D

Environmental Assessment

Prepared for

Jade Spirit Limited, Shingo Development Limited, Tenswin Limited, Boxwin Limited, Regenteam Investments Limited

Prepared by

Ramboll Hong Kong Limited

SECTION 16 PLANNING APPLICATION FOR PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN D.D. 221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

ENVIRONMENTAL ASSESSMENT

Date	**February 2025**
Prepared by	**Coco MA** **Assistant Environmental Consultant**
Signed	
Approved by	**Calvin CHIU** **Technical Director**
Signed	
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Ramboll Hong Kong Limited

21/F, BEA Harbour View Centre
56 Gloucester Road, Wan Chai, Hong Kong

Tel: (852) 3465 2888
Fax: (852) 3465 2899
Email: hkinfo@ramboll.com

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CHAPTERS

TABLES

FIGURES

APPENDICES

1. INTRODUCTION

1.1 Background

1.1.1 A residential development (the Proposed Development) has been proposed at Sha Ha, Sai Kung (the Application Site). The Application Site is currently zoned as "Road" under the Approved Sai Kung Town Outline Zoning Plan (OZP) No. S/SK-SKT/6.

1.1.2 Ramboll Hong Kong Limited is commissioned by the Applicant to provide environmental consultancy service to prepare the Environmental Assessment (EA) based on the latest development scheme. This EA is prepared as a technical supporting document to demonstrate that the Proposed Development is environmentally acceptable by addressing potential environmental noise and air quality impact on the Proposed Development while other environmental issues are also discussed.

1.1.3 The design of master layout plan (MLP) and other technical information on the Proposed Development are provided by the Project Architect, whereas the traffic forecast is provided by the Project Traffic Consultant (MVA Hong Kong Limited).

1.2 The Application Site and Its Environs

1.2.1 The Application Site is of elongated shape, while the Development Site area is approximately 7,614m^2. It is located at Tai Mong Tsai Road.

1.2.2 Existing and planned land uses in the vicinity of the Application Site include "Village Type Development" ("V"), "Other Specified Uses" ("OU"), "Government, Institution or Community" ("G/IC"), Comprehensive Development Area ("CDA") and "Residential (Group C)" ("R(C)"). The existing and planned land uses are of low rise to medium due to the building height restriction stipulated in OZP No. S/SK-SKT/6.

1.2.3 The Application Site is generally flat and currently used as open carpark, site office with construction material storage & various workshops. Surrounding low-rise village houses are scattered to the west and north of the Application Site. To the east of the Application Site are planned OU areas with the waterfront beyond. It is noted that the WM Hotel in the OU (Commercial and Tourism Related Uses (including Hotel (1)) zone has been completed. To the south of the Application Site are the planned CDA(1) development (Approved Planning Application: A/SK-SKT/28) and an existing residential development (The Mediterranean).

1.2.4 **Figure 1.1** shows the location of the Application Site and its environment.

1.3 The Proposed Development

1.3.1 The Proposed Development consists of 3 residential towers of 10 storeys, providing a total of about 280 residential units. There are one (1) 2-storey clubhouse to be served with central air-conditioning system and not rely on openable windows for ventilation.

1.3.2 The tentative completion year is 2032.

1.3.3 The MLP of the Proposed Development is included in **Appendix 1.1**.

1.4 Appraisal of Environmental Impacts

Road Traffic Noise Impact

1.4.1 The major road traffic noise source with respect to the Application Site is arising from road carriageways to the north and west (i.e. Tai Mong Tsai Road). As observed in the survey on 07 May 2024, the noise environment is dominated by road traffic noise. Road traffic noise impact assessment has been conducted to address the potential road

traffic noise impact with necessary noise mitigation measures proposed (detailed in **Section 2**)

Railway Noise Impact

1.4.2 There is no railway or light transit railway line within the 300m assessment area so that railway noise is not a concern.

Fixed Noise Impact

1.4.3 Site survey was conducted on 07 May 2024 to identify any environmental nuisance. Various fixed noise sources are identified within the 300m assessment area, including garages, chillers and VRVs. They have been taken into account in the fixed noise impact assessment detailed in **Section 3**.

Air Quality Impact

1.4.4 Site survey was conducted on 07 May 2024 to identify any environmental nuisance within a 200m assessment area. The potential industrial and vehicular emission impact has been addressed in this context (detailed in **Section 4**).

Other Environmental Impacts

Water Quality Impact

1.4.5 During the construction phase of the Proposed Development, potential water quality impact would be arisen from the construction works of the Proposed Development. The details of the assessment and proposed mitigation measures are provided in **Section 5**. With the proposed mitigation measures provided in **Section 5,** no adverse water quality impact during construction of the project is anticipated.

1.4.6 For operation phase, there are existing drainage pipes and sewerage sewers situated in the vicinity of the Application Site along Tai Mong Tsai Road, Chuk Yeung Road, Sha Kok Mei Road, Sha Ha Road, Mei Yuen Street and Wai Man Road. Stormwater would be conveyed to Tai Mong Tsai watercourse and sewage to be discharged towards south.

1.4.7 Separate Drainage Impact Assessment (DIA) and Sewerage Impact Assessment (SIA) have been prepared to address potential drainage and sewerage impact during operation of the Proposed Development. Please refer to the separate DIA and SIA reports under this application for details.

1.4.8 According to the DIA, the existing drainage network has sufficient capacity to convey the design flow. Therefore, it is anticipated that there will be no adverse drainage problems to be carried by the Proposed Development.

1.4.9 Based on the SIA, the sewerage network will connect to the Sai Kung Sewage Pumping Station No. 2 (SKSPS2) located downstream and the sewage will be treated at Sai Kung Sewage Treatment Works (SKSTW) located at Wa Fuk Street. According to the assessment result, the SKSPS2 and SKSTW have sufficient capacity to accommodate and treat the additional sewage flows from the Proposed Development, so no capacity upgrade is required. Therefore, no adverse impact to SKSPS2 and SKSTW will be caused by the Proposed Development.

1.4.10 The Proposed Development will be connected to public drainage and sewerage system for proper discharge of treated surface runoff and effluent. ProPECC PN 2/24 will be referenced and followed. All surface runoff originated from the Application Site will be properly collected and drained via systems such as sand trap, oil interceptor, grease trap for treatment before discharge. The treated surface runoff will be discharged to the public drainage system. On the other hand, all sewage and wastewater generated onsite will be discharged to public sewerage system. There will be no wastewater

discharge to the surrounding water sensitive receivers. To minimise water quality impact from operation of the Project, discharge should comply with Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS) under the WPCO.

1.4.11 In order to avoid any adverse water quality impact induced, the following mitigation measures and Best Management Practices should be proposed and implemented:

- Stormwater management Best Management Practices (BMPs) should be implemented as appropriate to reduce runoff and control the quality of runoff.
- Good management measures such as regular road sweeping, and regular inspection, cleansing and maintenance of the screening facilities of the drainage system should be implemented to ensure normal operation of the drainage system and avoid overflow. Additional inspection and cleansing should be carried out before forecasted heavy rainfall.

1.4.12 Water quality impact may arise due to untreated surface runoff and discharge to surrounding water sensitive uses, if any. With the implementation of the above mentioned mitigation measures to connect to public drainage & sewerage system, while following ProPECC PN 2/24 (provision of sand trap, oil interceptor, grease trap, etc.) and Best Management Practices, no adverse water quality impact during operation of the project is anticipated.

Operation Phase Waste Management

1.4.13 During operation of the project, there will be waste generation from residential and clubhouse uses such as glass, metals, paper, plastics, food wastes, textile, wood, household hazardous wastes and others. Adequate waste collection/storage facilities will be provided for collection and storage of sorted recyclable wastes (glass, paper, metal, plastic) to enable recycling. Based on Waste Statistics for 2023, the per capita disposal rates of municipal solid waste, domestic waste, commercial & industrial waste are 1.44 kg/person/day, 0.89 kg/person/day and 0.55 kg/person/day (Plate 2.7 of Waste Statistics for 2023) respectively. Among domestic and commercial wastes, the recovery rates are 21% and 46% respectively (Plate 3.2 of Waste Statistics for 2023). On the basis of the Proposed Development with around 756 residential population and 19 working population, it is estimated to have around 871 kg/day of waste generation (i.e. 0.89/(1-21%) x 756 + 0.55/(1-46%) x 19) in total. These generated waste will be collected and sorted in the waste collection/storage facilities for disposal and recycling every day. Adequate waste collection/storage facilities will be provided to segregate recyclable and non-recyclable wastes to help reduce the burden of waste treatment facilities in Hong Kong. In addition, the applicant will explore in detailed design stage to collect food waste alongside these recyclable wastes mentioned above to further reduce waste generation. Moreover, generation of other types of waste (such as chemical waste, clinical waste, etc.) is not anticipated from the Project during operation phase.

Construction Phase Environmental Impact

1.4.14 The major air quality impact during construction should be fugitive dust impact in relation to dusty activity and emission from dusty materials. Best management practice and practical mitigation measures will be adopted where appropriate.

1.4.15 Construction noise is usually generated by using powered mechanical equipment. It will be controlled with reference to relevant technical memorandum. Best Management practice will be adopted where appropriate to suppress the impact.

1.4.16 For water quality aspect, during construction of the Proposed Development, water pollution is likely due to general construction activities and site runoff, sewage effluent from construction workforce and accidental spillage of chemicals. Best management practice will be adopted as mentioned in **S5.4**. ProPECC PN2/24 on construction site drainage will also be observed and followed.

1.4.17 Waste generation during construction will be sorted and handled in compliance with the Waste Disposal Ordinance and regulations.

1.4.18 With adequate mitigation measures incorporated during construction of the project, no significant construction phase environmental impact is anticipated. Further discussion on construction phase environmental impact is also included in **Section 5**.

1.5 Organization of this Report

1.5.1 The report is structured as follows:-

- **Section 2 is** a road traffic noise impact assessment;
- **Section 3** is a fixed noise impact assessment;
- **Section 4** is an air quality impact assessment;
- **Section 5** includes discussions of construction phase fugitive dust, noise, water quality and waste management; and
- **Section 6** is a concluding summary.

2. ROAD TRAFFIC NOISE IMPACT ASSESSMENT

2.1 Introduction

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

2.2 Assessment Criteria

2.2.1 Noise standards are recommended in the Hong Kong Planning Standards and Guidelines (HKPSG) for planning against noise impact from road traffic, railway and aircraft.

2.2.2 The Proposed Development comprises residential uses, carpark, clubhouse and associated plant rooms. Clubhouse will be air-conditioned and will not rely on opened window for ventilation, which is not considered as noise sensitive in nature.

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

2.3 Assessment Methodology

2.3.1 In this assessment, the potential noise impact arising from nearby existing and future road carriageways on the development has been assessed.

2.3.2 It involved the prediction of future noise impacts on Noise Sensitive Receivers (NSRs) arising from traffic flows along existing and future road carriageways situated within the vicinity of the Application Site. Calculation of predicted road traffic noise were based on the worst case peak hour traffic flows projected within a 15-year period from the target completion date (Year 2032) of the Proposed Development.

2.3.3 For worst-case scenario evaluation, the assessment year was chosen to be year 2047, which has the maximum forecasted traffic flow within the 15-year period. The year 2047 traffic forecast data is attached in **Appendix 2.1**. Endorsement from Transport Department (TD) of the traffic forecast and confirmation from project traffic consultant will be provided once available.

2.3.4 The U.K. Department of Transport's procedure "Calculation of Road Traffic Noise" (CRTN) was used to predict the hourly $L_{10(1\text{-hour})}$ noise levels generated from road traffic at selected representative NSRs. Practicable environmental mitigation measures have been recommended, where necessary. The predicted noise levels were compared with the relevant HKPSG noise standards (i.e. $L_{10(1\text{-hour})}$ 70dB(A)).

2.3.5 In this assessment, all roads within the 300m assessment area of the Application Site are assumed to be impervious surface with speed limit of 50 km/hr.

2.3.6 It is understood that the section of Tai Mong Tsai Road near to the Application Site is proposed to be widened under the Hiram's Highway Improvement Stage 2. According to the website of Highways Department, the improvement works are anticipated to be completed in 2032 (i.e. before the assessment year 2047). As confirmed by the Project Traffic Consultant, the same set of traffic data could be applied for both with or without the Hiram's Highway Stage 2 scenarios. As the proposed alignment of Hiram's Highway Stage 2 will be closer to the Proposed Development as compared to the existing alignment of Tai Mong Tsai Road, it is therefore adopted as a conservative assessment approach. The latest layout plan of Hiram's Highway Stage 2 is attached in **Appendix 2.2**. Also, a comprehensive residential development is planned at CDA(1) site to the immediate southeast of the Application Site and tentatively completed by 2028 (i.e.

before the completion of the Proposed Development). The buildings in the comprehensive residential development should provide shielding effect against noise from the southeast side. Yet, as a conservative scenario, it is assumed that there is no building in the CDA(1) site.

2.4 Noise Sensitive Receivers

2.4.1 A number of Noise Sensitive Receivers (NSRs), which are likely to be subject to adverse traffic noise impacts, were selected for the assessment. All assessment points were taken at 1.2m above the floor and 1m away from the façade of openable windows (which would be for ventilation purpose) of rooms of sensitive use (living rooms and bedrooms).

2.4.2 **Figure 2.1** illustrates the locations of the selected representative NSRs for road traffic noise impact assessment.

2.5 Road Traffic Noise Impact Assessment Result (Base Case)

2.5.1 The predicted road traffic noise levels on the representative NSRs without any noise mitigation measures has been assessed for the base case scenario as presented in **Appendix 2.3** and also summarised below.

Table 2.1 Summary of Road Traffic Noise Impact Assessment Result under Base Case Scenario

Scenario with Hiram's Highway Improvement Stage 2	Maximum Predicted Noise Level	Total Number of Exceedance	Compliance Rate
Weekday AM Peak Flow	74	160	43%
Weekday PM Peak Flow	74	155	45%
Weekend Peak Flow	75	160	43%

2.5.2 According to the assessment result, different exceedance locations are observed under the base case scenarios. In this connection, the maximum predicted noise level among the base case scenarios for every NSR at each floor has been extracted and form a combined base case.

2.5.3 The assessment result for dwellings under the combined base case scenario is presented in **Appendix 2.3**. The compliance rate is 43% and the maximum predicted noise level is 75dB(A). Noise mitigation measures are therefore recommended for the Proposed Development to attenuate the noise impact from road traffic.

2.6 Proposed Noise Mitigation Measures

2.6.1 Based on the assessment result of base case scenario, the following noise mitigation measures have been considered and incorporated into the MLP.

Fixed Glazing with or without Maintenance Window

2.6.2 For those window façades that are not necessary to serve ventilation purpose yet exposed to adverse road traffic noise, Fixed Glazing with or without Maintenance Window is proposed. The fixed glazing of not less than 8mm will be equipped with well gasketed maintenance window, if any, and a removable handle or key lock system to ensure the maintenance window remains locked except for cleaning and maintenance purpose. The intention of provision of maintenance window not for ventilation purpose will be clearly stated in sales brochure and Deed of Mutual Covenant to inform the future occupants.

Acoustic Window/ Enhanced Acoustic Balcony (Baffle Type) (AW(BT)/ EAB(BT))

2.6.3 Innovative noise mitigation measures have been explored in the past two decades. Referring to ProPECC PN5/23 for Application of Innovative Noise Mitigation Designs in Planning Private Residential Developments against Road Traffic Noise Impact issued by EPD, acoustic window and enhanced acoustic balcony have been developed as innovative noise mitigation designs (INMDs) to address road traffic noise impact. Both acoustic window (baffle type) and enhanced acoustic balcony (baffle type) comprise two layers of glass panel so that the additional panel layer in staggered position with the outer glass panel form a baffle system to reduce noise entry to indoor area. The enhanced acoustic balcony (baffle type) is equipped with additional measures within the balcony which can further improve the performance. The noise reduction effectiveness is expressed as relative noise reduction (RNR) which is the difference between (i) the IN-OUT difference of averaged noise levels of the habitable room with INMD, and (ii) that with conventional window. The reference case of AW(BT) shown in ProPECC PN5/23 is capable to achieve RNR of 6.0dB(A) for room size of 8m^2 and 7.0dB(A) for room size of 18m^2 when the noise source is fronting the window. The reference case of EAB(BT) shown in ProPECC PN5/23 is capable to achieve RNR of 8.0dB(A) for room size of 14m^2 and 9.0dB(A) for room size of 18m^2 when the noise source is fronting the balcony. The RNR can be further improved by tilting the window/balcony to a particular angle from the noise source and adding SAM (Sound Absorptive Material) at top and outer opening side of mullion.

2.6.4 The configurations of the optimised AW(BT) and EAB(BT) design are shown **Appendix 2.5**. It is anticipated the proposed AW(BT) and EAB(BT) should have at least the same sound transmission loss performance as the reference case as a conservative assumption. Further, if the room size of the Proposed Development is significantly (more than 10%) smaller than the reference case in ProPECC PN5/23, room size adjustment is conducted so that the noise reduction will be lowered.

2.7 Assessment Result with Noise Mitigation Measures (Mitigated Scenario)

2.7.1 The predicted road traffic noise effects on the selected NSRs based on the noise mitigation measures discussed above were assessed and presented in **Appendix 2.3**. With the implementation of the above recommended road traffic noise mitigation measures, full compliance with the relevant noise criterion of 70dB(A) stated in HKPSG can be achieved for the Proposed Development.

2.8 Conclusion

2.8.1 Road traffic noise impact assessment has been carried out for the Proposed Development. Noise mitigation measures including acoustic window (baffle type), enhanced acoustic balcony (baffle type) and fixed glazing with or without maintenance window are provided. The noise mitigation measures are tentative only and subject to future scheme refinement.

2.8.2 With the proposed noise mitigation measures in place, no adverse road traffic noise impact on the Proposed Development is anticipated. The feasibility of meeting relevant road traffic noise standard is demonstrated.

3. FIXED NOISE IMPACT ASSESSMENT

3.1 Introduction

3.1.1 In this assessment, potential noise impact arising from nearby fixed noise sources within the 300m assessment area of the Proposed Development at the Application Site has been assessed. Practical noise mitigation measures would be recommended, where necessary.

3.2 Identification of Fixed Noise Sources

3.2.1 Various fixed noise sources have been identified through desktop study and site surveys conducted on 07 May 2024.

3.2.2 Details of identified fixed noise sources are listed as follows:

(a) Garages

Two garages (Sing Hoi Car Beauty and Fai Tat Motor Service (HK) Co.,Ltd) are identified and located at the southwest of the Application Site. According to site survey, these garages were opened during daytime & evening period only. No nighttime operation (23:00-07:00) was observed. The operation activities of Sing Hoi Car Beauty (Source ID: G01) involve car washing, vacuuming, waxing and coating. The operation activities of Fai Tat Motor Service (HK) Co.,Ltd (Source ID: G02) involve using hand-held pneumatic tools and car repairing. Both garages were not in operation during site visit. The noise levels based on the findings in "Redevelopment of Lai Sun Yuen Long Centre at Nos.21-35 Wang Yip Street East, YLTL 362" (Approved Planning Application: A/YL/304) have been referenced. By considering the operation activities involved in these garages, Sound Power Levels (SWLs) of 87.9dB(A) (for G01) and 97.0dB(A) (for G02) have been referenced and adopted in this assessment.

(b) Hong Kong Academy

Hong Kong Academy is located at the southeast and separated by the CDA(1) site. According to the desktop review and site survey, three chillers (Source ID: H01) and two VRVs (Source ID: H02, H03) are located on the roof of Hong Kong Academy. Direct measurement is not allowed and relevant details of the identified noise sources are not available despite that request has been made to the Hong Kong Academy (see **Appendix 3.3**).

The noise level and operation mode have made referenced to the EA report of "Section 16 Planning Application for CDA Development at DD221 Sha Ha, Sai Kung" (Approved Planning Application: A/SK-SKT/28). According to the confirmation from the operator, it is understood that there are 3 chillers (with 1 standby) to serve the school operation during daytime only with no nighttime operation. Therefore, the same operation mode is assumed for VRVs, i.e. there would be no nighttime operation for both chillers and VRVs.

Given that direct noise measurement and equipment information for the chillers and VRVs are not available, their noise strength have been assumed based on referencing equipment catalogue model of similar scale (see **Appendix 3.2**). The sound pressure level (SPL) of the chiller is 59dB(A) with a reference distance of 9m. The derived SWL of the chiller is 89.1dB(A) after applying a quantity correction of + 3.0dB(A) (i.e. 2 nos of chillers). The SPL for the VRV is 63dB(A) with reference distance of 1m, which is equivalent to a SWL of 71.0dB(A).

3.2.3 Locations of the identified fixed noise sources are indicated in **Figure 3.1**

3.3 Assessment Criteria

3.3.1 Reference has been made to the "Technical Memorandum For The Assessment Of Noise From Places Other Than Domestic Premises, Public Places Or Construction Sites" (IND-TM) issued under the NCO, the airborne noise shall comply with the Acceptable Noise Level (ANL), which depends on the Area Sensitive Rating (ASR).

3.3.2 According to the IND-TM, four (4) types of areas are defined and including: Rural Area, Low Density Residential Area consisting of low-rise or isolated high-rise developments, Urban Area and Area Other Than Those Above. The Application Site is located in the Sai Kung area and surrounded by various low-rise residential developments of low density. It is therefore considered as Low Density Residential Area consisting of low-rise or isolated high-rise developments.

3.3.3 According to the Annual Traffic Census 2023, the Annual Average Daily Traffic (AADT) for Tai Mong Tsai Road was 28,400 (i.e. Station 5258) and does not act as an Influencing Factor (IF) (with AADT over 30,000). The Application Site is considered as Low Density Residential Area consisting of low-rise or isolated high-rise developments and is not affected by the IF. Therefore, ASR "A" is assigned for the entire Proposed Development. The ASR and ANLs according to IND-TM are tabulated below.

Table 3.1 Area Sensitivity Rating of NSRs

Type of Area Containing NSR	Degree to which NSR is affected by Influencing Factors (IFs)		
	Not Affected	Indirectly Affected	Directly Affected
i. Rural area, including country parks, or village type development	A	B	B
ii. Low density residential area consisting of low-rise or isolated high-rise developments	A	B	C
iii. Urban area	B	C	C
iv. Area other than those above	B	B	C

Table 3.2 Acceptable Noise Level

Time Period	ASR "A", Leq (30 min), dB(A)
Day & Evening (0700 – 2300 hours)	60
Night (2300 – 0700 hours)	50

3.4 Assessment Methodology

3.4.1 Assessment of noise impact arising from fixed noise sources has been based on standard acoustic principles and procedures given in the IND-TM. Noise impacts due to individual noise sources are calculated and logarithmically summed at each NSR to represent the overall impacts:

$$\sum PNL_i = \sum [SWL_i + C_{distance} + C_{barrier} + C_{tonality} + C_{facade}]$$

where

PNL_i	=	Predicted noise level, i.e. the overall sound pressure level arising from individual noise sources after various corrections
SWL_i	=	Sound power level of fixed noise sources
$C_{distance}$	=	Correction for distance attenuation
$C_{barrier}$	=	Correction for substantial shielding by building structure
$C_{tonality}$	=	Correction for tonality as in IND-TM, if applicable (+6dB(A) for chillers and VRVs as a conservative assumption)
C_{facade}	=	Correction (+3 dB(A)) for façade reflection at receiver

3.4.2 As a conservative approach, only horizontal separation between fixed noise sources and NSRs accounted for calculating distance correction. Also, it is assumed there is no shielding effect by any building structures as a conservative approach. Therefore, no barrier correction would be assessed.

3.5 Representative Noise Sensitive Receivers

3.5.1 A number of representative NSRs were assigned along the site boundary of the development site and assumed at the same height of the identified fixed noise sources for conservative assessment approach.

3.5.2 The clubhouse would be served by central air-conditioning and not rely on openable windows for ventilation. Only VRVs will be installed in the proposed clubhouse. The fixed noise sources of the Proposed Development will be reviewed in the future design stage. The fixed noise sources would be designed to comply with the noise criteria stipulated in the HKPSG such that the proposed noise sources would not cause adverse noise impact and mitigation measures such as acoustic louvres could be applied when necessary. Adverse fixed noise source impact is not anticipated at these locations. No assessment point is assigned to clubhouse.

3.5.3 **Figure 3.2** shows the locations of the representative NSRs for fixed noise impact assessment.

3.6 Fixed Noise Impact Assessment Result (Base Case)

3.6.1 The predicted cumulative noise level at the representative NSRs under base case scenario (i.e. no noise mitigation measures incorporated) has been calculated and summarized in **Table 3.3**. Detailed calculation is shown in **Appendix 3.1**.

3.6.2 According to the result, no noise exceedance under Base Case scenario is found.

Table 3.3 Maximum Predicted Fixed Noise Levels of the Representative NSRs (Base Case)

NSR	ASR	Noise Criteria, dB(A)	Predicted Noise Level, dB(A)
		Day and Evening Time	Day and Evening Time
N01	A	60	50
N02	A	60	56
N03	A	60	55
N04	A	60	49
N05	A	60	46

3.7 Conclusion

3.7.1 According to the result of fixed noise impact assessment, the Proposed Development would not subject to adverse fixed noise impact.

3.7.2 Furthermore, in order to ensure that the fixed noise generated by the Proposed Development would not cause excessive impact to neighbouring noise sensitive uses, the potentially noisy facilities onsite (e.g. ventilation system, plant room etc.) will be designed and installed with adequate noise mitigation measures (e.g. housed indoors, equipped with acoustic louvers) to meet relevant noise criteria as stipulated in the HKPSG.

4. AIR QUALITY IMPACT ASSESSMENT

4.1 Introduction

4.1.1 This section evaluates the air quality impact during operation of the Proposed Development. Table 3.1 in Chapter 9 of HKPSG has been referenced for provision of buffer separation from identified air pollution sources in the vicinity.

4.2 Legislative Requirements and Evaluation Criteria

Assessment Criteria

4.2.1 The principal legislation for the management of air quality in Hong Kong is the *Air Pollution Control Ordinance (APCO)* (Cap.311). The Hong Kong's Air Quality Objectives (AQOs) enacted on 1/1/2022 are listed in **Table 4.1** below.

Table 4.1 Hong Kong's Air Quality Objectives

Pollutants	Average Time	Standard [i] (μg/m³)	No. of exceedances allowed
SO_2	10-min	500	3
	24-Hour	50	3
RSP (PM_{10}) [ii]	24-Hour	100	9
	Annual	50	NA
FSP ($PM_{2.5}$) [iii]	24-Hour	50	35
	Annual	25	NA
NO_2	1-Hour	200	18
	Annual	40	NA
Ozone (O_3)	8-Hour	160	9
Carbon Monoxide (CO)	1-Hour	30,000	0
	8-Hour	10,000	0
Lead (Pb)	Annual	0.5	NA

Notes:

[i] All measurements of the concentration of gaseous air pollutants, i.e. sulphur dioxide, nitrogen dioxide, ozone and carbon monoxide, are to be adjusted to a reference temperature of 293 Kelvin and a reference pressure of 101.325 kilopascal.

[ii] Respirable suspended particulates means suspended particles in air with a nominal aerodynamic diameter of 10 μm or less.

[iii] Fine suspended particulates means suspended particles in air with a nominal aerodynamic diameter of 2.5 μm or less.

Air Pollution Control (Construction Dust) Regulation

4.2.2 Notifiable and regulatory works are under the control of Air Pollution Control (Construction Dust) Regulation. Notifiable works include site formation, reclamation, demolition, foundation and superstructure construction for buildings and road construction. Regulatory works include building renovation, road opening and resurfacing, slope stabilisation, and other activities including stockpiling, dusty material handling, excavation, concrete production, etc.

4.2.3 The proposed construction works for the Project are both regulatory works (dusty material handling and excavation) and notifiable works (site formation, clearance, foundation and superstructure construction) as detailed under Parts I to IV of the Schedule on Dust Control Requirements. Contractors and site agents are required to inform Environmental Protection Department (EPD) and adopt dust reduction

measures to minimize dust emissions, while carrying out construction works, to the acceptable level.

Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation

4.2.4 The Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation comes into operation on 1 June 2015. Under the Regulation, non-road mobile machinery (NRMMs), except those exempted, is required to comply with the prescribed emission standards. From 1 September 2015, all regulated machines sold or leased for use in Hong Kong must be approved or exempted with a proper label in a prescribed format issued by EPD. Starting from 1 December 2015, only approved or exempted NRMMs with a proper label are allowed to be used in specified activities and locations including construction sites. The Contractor is required to ensure the adopted machines or non-road vehicle under the Project could meet the prescribed emission standards and requirement.

Air Pollution Control (Fuel Restriction) Regulations

4.2.5 The Air Pollution Control (Fuel Restriction) Regulations were enacted in 1990 to impose legal control on the type of fuels allowed for use and their sulphur contents in commercial and industrial processes to reduce sulphur dioxide (SO_2) emissions. In June 2008, the Regulations were amended to tighten the control requirements of liquid fuels. The Regulations do not apply to any fuel-using equipment that is used or operated in premises used solely as a dwelling or is used or operated in or on a vessel, motor vehicle, railway locomotive or aircraft. Gaseous fuel, conventional solid fuel with a sulphur content not exceeding 1% by weight or 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 (ULSD) are permitted to be used in commercial and industrial processes.

Recommended Pollution Control Clauses for Construction Contracts

4.2.6 The Recommended Pollution Control Clauses (RPCC) are generally good engineering practice to minimize inconvenience and environmental nuisance to nearby residents and other sensitive receivers. The Contractor shall undertake environmental protection measures to reduce the environmental impacts arising from the execution of the Works and to minimise the effects on the air, noise, water quality as well as nuisance of waste within and outside the Site, on transport routes and at the loading, dredging and dumping areas.

4.3 Existing Air Quality

4.3.1 The nearest general air quality monitoring station (AQMS) to the Proposed Development is the Tseung Kwan O AQMS. The five most recent years of air quality monitoring data, 2019 to 2023, from the Tseung Kwan O general AQMS are summarized in **Table 4.2**. According to the AQMS monitoring data presented in **Table 4.2**, 24-hour average & annual average RSP concentrations, 24-hour average & annual average FSP concentrations, 1-hour average & annual average NO_2 concentrations, 10-minutes average & 24-hour average SO_2 concentrations, 1-hour average & 8-hour average CO concentrations complied with the criteria of Hong Kong's AQOs, and exceedances 8-hour average O_3 concentration were recorded in Year 2019 and 2022.

Table 4.2 EPD Air Quality Monitoring Data in Tseung Kwan O AQMS and PATH v3.0 (Grid 50, 41) (Year 2030)

Pollutant	Averaging time	Parameter	AQO (μg/m³)	Concentration [1] (μg/m³)					
				2019	2020	2021	2022	2023	PATH v3.0 in Year 2030 (50,41)
RSP (PM_{10})	24-hour	10th highest	100	60	52	50	46	50	51
	Annual	Maximum	50	29	24	24	22	24	20
FSP ($PM_{2.5}$)	24-hour	36th highest	50	30	22	22	24	25	26
	Annual	Maximum	25	17	12	13	13	15	12
NO_2	1-hour	19th highest	200	155	136	132	110	116	38
	Annual	Maximum	40	29	23	26	21	22	9
SO_2	10-minute	4th highest	500	25	18	18	12	32	22
	24-hour	4th highest	50	12	7	9	7	6	7
O_3	8-hour	10th highest	160	**185**	158	158	**167**	160	**171**
CO	1-hour	Maximum	30000	2170	1670	1750	1210	1300	518
	8-hour	Maximum	10000	1935	1411	1375	1105	996	479

Note:
[1] Bolded and underlined values exceed the relevant AQO.

4.3.2 The tentative year of completion of the Proposed Development is 2032. The year of 2030 hourly background concentrations of NO_2, RSP, FSP and SO_2 from the PATH v3.0 model has been adopted for the purpose of this assessment. The data of the assessment area for Year 2030 was extracted from the *Pollutants in the Atmosphere and the Transport over Hong Kong*-model version 3.0 (PATH v3.0) developed and released by EPD in January 2024 (Grid 50, 41).

4.4 Industrial and Marine Emission Impact

4.4.1 The Application Site is mainly surrounded by the low density residential developments and village type developments. Site survey was conducted on 07 May 2024 to identify any environmental nuisance within the 200m assessment area.

4.4.2 There is no industrial use identified within the 200m assessment area. There is no emission source such as chimney stack or any other emission like odour, smoke, identified within the same study area.

4.4.3 Given that the Proposed Development is residential, it is not considered environmental polluting in nature. There will be no chimney from the Proposed Development.

4.4.4 Also, no marine emission is identified during the site visit within the 200m assessment area. Therefore, there is no adverse air impacts due to marine emission.

4.5 Vehicular Emission Impact

4.5.1 The Application Site abuts Tai Mong Tsai Road, which is classified as rural road under the Annual Traffic Census 2023. As advised by the Project Traffic Consultant, Tai Mong Tsai Road and Wai Man Road are considered as local distributor and 5m buffer distance should be provided. However, a greater buffer distance (10m buffer distance) will be provided as a conservative approach in this assessment due to the high traffic volume of Tai Mong Tsai Road.

4.5.2 As the proposed alignment of Hiram's Highway Stage 2 will be closer to the Proposed Development as compared to the existing alignment of Tai Mong Tsai Road, the separation distance is provided according to the proposed road alignment of Tai Mong Tsai Road as a conservative approach. **Figure 4.1** shows the separation distance provided. There is no air sensitive use (openable windows of domestic premises, fresh

air intake of clubhouse, outdoor recreational area) within the buffer zone (see **Figure 4.1)** and the shortest distances between the representative air sensitive uses of the Proposed Development and the nearby road are shown in **Table 4.3**. Therefore, no adverse impact arising from vehicular emission is anticipated.

Table 4.3 Summary of Shortest Distance between Representative Air Sensitive Uses of Proposed Development and nearby Road

ID	Representative Air Sensitive Uses of Proposed Development	Vehicular Emission Source	Shortest Distance between Representative Air Sensitive Uses and Nearby Road	Required Buffer Distance
AU01	Outdoor swimming pool (outdoor recreational area)	Tai Mong Tsai Road	~12m	10m
AU02	Fresh air intake of clubhouse	Tai Mong Tsai Road	~16m	10m
AU03	Openable window of Tower 1 bedroom	Tai Mong Tsai Road	~35m	10m
AU04	Openable window of Tower 2 bedroom	Tai Mong Tsai Road	~27m	10m
AU05	Openable window of Tower 3 bedroom (nearest to Tai Mong Tsai Road)	Tai Mong Tsai Road	~20m	10m
AU06	Openable window of Tower 3 bedroom (nearest to Wai Man Road)	Wai Man Road	~36m	5m

4.5.3 A storey of basement carpark is proposed in the future development. EPD's ProPECC PN 2/96 on Control of Air Pollution in Car Parks will be observed and followed for the design and operation of carpark, such that the air quality guidelines set out in the PN are met under all conditions. The exhaust location of the proposed carpark will be designed to locate away from all existing and planned air sensitive receivers as far as practicable. According to the preliminary design during planning stage, the tentative location of the exhaust outlet is shown in **Figure 4.2**.

4.6 Conclusion

4.6.1 As confirmed in site survey, there is no chimney stack in the surrounding area (within 200m). There is also no marine emission, odour and smoke identified within the study area.

4.6.2 Buffer zone is defined with respect to Tai Mong Tsai Road and Wai Man Road. There will be no air sensitive uses, including openable windows of domestic premises, fresh air intake or outdoor recreational area located within the buffer zone as stipulated in the HKPSG.

4.6.3 Underground carpark is proposed at the Subject Site. EPD's ProPECC PN 2/96 will be observed and followed for the design and operation of carpark, so that the exhaust of the proposed carpark will be located away from all existing and planned air sensitive receivers.

4.6.4 Therefore, it is envisaged that the Proposed Development at the Application Site would not be subject to adverse air quality impact.

5. CONSTRUCTION PHASE ENVIRONMENTAL IMPACT

5.1 Introduction

5.1.1 Environmental impacts during construction of the Proposed Development would possibly include dust, noise and water quality impacts. Waste generation (including possible land contamination) is another consideration. Practicable environmental mitigation measures are recommended to reduce these impacts to acceptable ranges.

5.2 Construction Fugitive Dust Impact

5.2.1 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 such as:

- Excavation resulting in exposed ground vulnerable to air erosion;
- Earth moving, loading and unloading of excavated materials;
- Wind effect on material stockpiling; and
- Vehicle movements on haul roads and over the construction site.

5.2.2 There will be potential impacts from the criteria pollutants (e.g. nitrogen oxides (NOx), sulphur dioxide (SO2), and carbon monoxide (CO)). Emission from diesel trucks for the haulage of materials and construction plants will contain high percentage of smoke particulate and unburned hydrocarbons in comparison with petrol driven vehicles. Ultra-low sulphur diesel (ULSD) with sulphur content not exceeding 0.005% by weight will be used as fuel to minimize SO_2 emission. In all circumstances, the contractor will be required to observe all relevant regulations and maintain all equipment in good condition to avoid any excessive emission. Under the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation, only approved or exempted non-road mobile machineries (including mobile generator, air compressor, excavator, crawler crane, bulldozer and etc.) with a proper label are allowed to be used in the construction site. In addition, availability of electricity supply during construction of the project will be explored and such requirement will be specified in future contract. If available, contractor should maximise use of electricity and with least reliance of diesel fuelled equipment (e.g. for electricity powered stationary equipment such as pump instead of using generator).

5.2.3 There are different existing and planned land uses situated in the vicinity from the Application Site and considered as both Air and Noise Sensitive Receivers. **Table 5.1** and **Figure 5.1** presents the separation distance between the Development Site and the nearby sensitive receivers.

Table 5.1 Summary of Representative Air and Noise Sensitive Receivers

ID	Identified ASR/NSR	Land Use	Separation Distance for Development Site	Assessment Height (No. of Storeys)
A01	The Mediterranean	Residential	~18m to the west	7-8 storeys
A02	Sha Kok Mei Tsuen	Residential	~42m to the west	1-3 storeys
A03	Wang Kong Tsuen	Residential	~22m to the west	1-3 storeys
A04	Planned G/IC Area	Government, Institution or Community	abut on north	-
A05	Burlingame Garden	Residential	~41m to the north	~3 storeys

ID	Identified ASR/NSR	Land Use	Separation Distance for Development Site	Assessment Height (No. of Storeys)
A06	Sha Ha Village	Residential	~92m to the east	~3 storeys
A07	Planned Comprehensive Development[1]	Residential	~16m to the south	4-10 storeys
A08	WM Hotel	Hotel	~194m to the southeast	~4 storeys
A09	Hong Kong Academy	School	~242m to the south	4-5 storeys

Remark:
[1] The location of the ASR/NSR is identified by making reference to the Master Layout Plan of the Approved Section 16 Planning Application (Application No.: A/SK-SKT/28).

5.2.4 The Proposed Development is designed to erect 3 residential towers of 10 residential storeys with 1 storey of basement carpark. Therefore, excavation work is required for the Proposed Development. Site clearance work is expected to be minimal for the limited temporary structure onsite. It is estimated that about 16,730m^3 of excavated materials will be generated during excavation. As the Project is at initial planning stage, the construction programme is not available yet. Assuming a period of 1 year for site clearance and excavation, about 1 truckload per hour will be generated. In general, dump truck and mechanical equipment such as excavator, piling rig and drilling rig will be used for site clearance and excavation work. Since the area of the Application Site is small, the number of mechanical equipment operated simultaneously will be limited. It is estimated that the number of mechanical equipment of same type operated simultaneously within the Application Site will be around 3 numbers only.

5.2.5 On the other hand, there is a planned CDA(1) development (Approved Planning Application: A/SK-SKT/28) situated to the immediate southeast of the Application Site. The planned CDA(1) development is tentatively completed by year 2028. The target completion year of our Proposed Development is 2032. The construction period for a residential development is around 3 to 4 years. Concurrent construction activities are not likely held between the nearby planned CDA(1) development and our Proposed Development. Even the construction period of the planned CDA(1) development may extend, most dusty operation (foundation and excavation work) should already be completed so that the cumulative fugitive dust impact is unlikely significant.

Mitigation Measures for Fugitive Dust Emission

5.2.6 Fugitive dust emission arising from construction activities can be effectively suppressed by incorporating proper mitigation measures into work procedures through contractual clauses with reference to EPD's Recommended Pollution Control Clauses for Construction Contracts, where applicable, 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 for demolition and construction of the project. With the adoption of good practices, it is expected that emission of construction dust can be kept at an acceptable level. Mitigation measures including but not limited to the following with respect to demolition, superstructure construction of a building and hoarding should be implemented as appropriate:

5.2.7 In the case of demolition of a building

- the area at which demolition work takes place shall be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the demolition activities so as to maintain the entire surface wet;

- for any wall of the building to be demolished that abuts or fronts upon a street, service lane or other open area accessible to the public, impervious dust screens or sheeting shall be used to enclose the whole wall to a height of at least 1m higher than the highest level of the structure being demolished;
- any dusty materials remaining after a stockpile is removed shall be wetted with water and cleared from the surface of roads or streets.

- In the case of the superstructure construction of a building
  - Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting shall be provided to enclose the scaffolding from the ground floor level of the building, or if a canopy is provided at the first floor level, from the first floor level, up to the highest level of the scaffolding;
  - Any skip hoist for material transport shall be totally enclosed by impervious sheeting; and
  - Any relevant requirements set outs in Parts III and IV of Air Pollution Control (Construction Dust) Regulations shall be met.
- Except for road opening or resurfacing work, or for construction work carried out in a construction site that is completely paved or completely covered with hardcore
  - Vehicle washing facilities including a high pressure water jet shall be provided at every discernible or designated vehicle exit point;
  - The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point shall be paved with concrete, bituminous materials or hardcores;
  - Where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of not less than 2.4 m high from ground level shall be provided along the entire length of that portion of the site boundary except for a site entrance or exit. As nearest air sensitive uses are identified on north and east sides, higher hoarding is recommended along northern and eastern site boundary.

5.2.8 In particular, for ASR (i.e. Planned G/IC Area and Planned CDA (1) Development) in close proximity to the Application Site, the following control measures are suggested to minimize the potential construction impact to the nearby ASR(s).

- Higher site hoarding where practicable should be implemented where there are receptors at close proximity to the construction site and dusty activities;
- Haul road shall be away from the site boundary as much as possible;
- Dusty works or stockpiles storage should be avoided at locations near to the concerned ASRs;
- Unpaved and exposed earth should be minimized by immediate covering/ permanent paving as soon as the works have been completed.

<u>General Site Management</u>

5.2.9 The Applicant will explore to make use of electric power supply where practicably possible and as early as possible to minimize air quality impact due to use of diesel-powered equipment (e.g. generator, pump).

5.2.10 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.

5.2.11 A high standard of housekeeping shall be maintained. Any piles of materials accumulated on or around the work areas shall be cleaned up regularly. Cleaning, repair and maintenance of all plant facilities within the work areas shall be carried out in a manner that does not generate fugitive dust emissions. Prior to cleaning, the materials should be handled properly to prevent fugitive dust emission. Any exposed earth shall be properly treated by compacting or hydro seeding, within 6 months after the last construction activity.

5.2.12 Frequent mist/ water spraying should be applied on dusty areas and among dusty activities such as excavation work. 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.

5.2.13 It is also recommended that the environmental officer of the contractor should conduct regular audit to ensure that all practical mitigation measures are properly implemented onsite and there is no excessive dust emission.

Vehicles and Unpaved Site Roads

5.2.14 Dust emission from unpaved roads comes predominantly from travelling of vehicles. Areas within the site where there are regular vehicle movements should have an approved hard surface. Speed controls at an upper limit of 10km/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 extending at least 300mm over the edges of the side and tail boards. Wheel-wash troughs and hoses should be provided at exit points of the site.

Material Stockpiling and Handling

5.2.15 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. Placing dusty material storage piles near ASRs should be prevented.

5.3 Construction Noise Impact

5.3.1 During the construction phase of the proposed development, major noise impacts would be arisen from piling works, operation of Powered Mechanical Equipment (PME), and construction-related traffic.

Construction Noise Criteria

5.3.2 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). While there is no planned construction works to be carried out during the restricted hours, TM1 should be followed in case there is any need to carry out works in such time period in future.

5.3.3 With effect from 1 November 1996, 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).

5.3.4 Percussive pilling 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.

5.3.5 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 "Practice Note for Professional Persons Environmental Consultative Committee" (ProPECC) PN 1/24 "Minimizing Noise from Construction Activities" issued by EPD.

Table 5.2 Noise Limit for Daytime Construction Activities

NSR	0700 to 1900 Hours on Any Day Not Being a Sunday or General Holiday, Leq (30 min), dB(A)
All domestic premises Temporary housing accommodation Hostels Convalescences homes Homes for the aged	75
Places of public worship Courts of law Hospitals and medical clinics	70
Educational institutions (including kindergartens and nurseries)	70 (65 during examinations)

Mitigation Measures

5.3.6 Sufficient noise mitigation measures should be introduced to alleviate potential noise impacts on nearby NSRs. The Contractor(s) will be required under the contract to ensure regular maintenance of all plant and equipment, and that noise generation at source would be minimized and practicable noise mitigation measures would 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. Similarly, quieter method other than percussive piling will be adopted as far as practicable for any piling works subject to ground investigation result (which usually dictates the piling method). Movable noise barriers will also 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.

5.3.7 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.

5.3.8 The above-mentioned noise mitigation measures will be included in the contractual clauses for implementation by the contractor(s) during the construction stage. With these measures in place, construction noise due to the Proposed Development can be minimized, and no significant noise impact is anticipated.

5.4 Construction Water Quality Impact

5.4.1 During the construction phase of the Proposed Development, potential water quality impact would be arisen from the construction works of the Proposed Development. Where necessary, mitigation measures are recommended to reduce these impacts.

Relevant Legislation, Standards and Guidelines

5.4.2 The relevant legislations, standards and guidelines include:

- Water Pollution Control Ordinance (Cap. 358);
- Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS);
- ETWB Technical Circular (Works) No. 5/2005 Protection of Natural Streams/ Rivers from Adverse Impacts arising from Construction Works;
- Hong Kong Planning Standards and Guidelines (HKPSG) – Chapter 9;
- Professional Persons Environmental Consultative Committee Practice Note 2/24 "Construction Site Drainage" (ProPECC PN2/24); and
- Professional Persons Environmental Consultative Committee Practice Note 1/23 "Drainage Plans subject to Comment by the Environmental Protection Department" (ProPECC PN 1/23).

Water Pollution Control Ordinance (Cap. 358)

5.4.3 The Water Pollution Control Ordinance (WPCO) (Cap. 358) provides the major statutory framework for the protection and control of water quality in Hong Kong. According to the Ordinance and its subsidiary legislation, Hong Kong waters are divided into ten Water Control Zones (WCZs). Corresponding statements of Water Quality Objectives (WQOs) are stipulated for different water regimes (marine waters, inland waters, bathing beaches subzones, secondary contact recreation subzones and fish culture subzones) in the WCZ based on their beneficial uses. The assessment area is located

within Port Shelter WCZ. Respective WQOs should be observed. WQOs relevant to this Project are given in **Table 5.3**.

Table 5.3 Summary of Water Quality Objectives (WQOs)

Parameter	Water Quality Objective	Part/ Parts of Zone
Aesthetic Appearance	There should be no objectionable odours or discolouration of the water caused by the waste discharges; tarry residues, floating wood, articles made of glass, plastic, rubber or of any other substances should be absent; mineral oil should not be visible on the surface; surfactants should not give rise to a lasting foam; there should be no recognisable sewage-derived debris; floating, submerged and semi-submerged objects of a size likely to interfere with the free movement of vessels or cause damage to vessels should be absent; the waters should not contain substances which settle to form objectionable deposits caused by the waste discharges.	Whole Zone
Bacteria	The level of Escherichia coli should not exceed 610 per 100 mL, calculated as the geometric mean of all samples collected in one calendar year; the level of Escherichia coli should not exceed 180 per 100 mL, calculated as the geometric mean of all samples collected from March to October inclusive in one calendar year. Samples should be taken at least 3 times in a calendar month at intervals of between 3 and 14 days	Secondary Contact Recreation Subzones and Fish Culture Subzones
Colour	Waste discharges shall not cause the colour of water to exceed 50 Hazen units	Inland Waters
Dangerous Substances	Waste discharges shall not cause the concentration of dangerous substances in the water to attain such levels as to produce significant toxic effects in humans, fish or any other aquatic organisms, with due regard to biologically cumulative effects in food chains and to toxicant interactions with each other; waste discharges of dangerous substances shall not put a risk to any designated beneficial uses of the aquatic environment.	Whole Zone
5-Day Biochemical Oxygen Demand	Waste discharges shall not cause the 5-day biochemical oxygen demand to exceed 5 mg per litre.	Inland Waters
Chemical Oxygen Demand	Waste discharges shall not cause the chemical oxygen demand to exceed 30 mg per litre.	Inland Waters
Dissolved Oxygen	Waste discharges shall not cause the level of dissolved oxygen to fall below 4 mg per litre for 90% of the sampling occasions during the year; values should be calculated as the water column average (arithmetic mean of at least 3 measurements at 1 m below surface, mid-depth and 1 m above seabed). In addition, the concentration of dissolved oxygen should not be less than 2 mg per litre within 2 m of the seabed for 90% of the sampling occasions during the year.	Marine waters excepting Fish Culture Subzones
	Waste discharges shall not cause the level of dissolved oxygen to be less than 4 mg per litre.	Inland waters

Parameter	Water Quality Objective	Part/ Parts of Zone
Nutrients	Annual arithmetic mean depth-averaged total inorganic nitrogen not to exceed 0.1 mg/L	Marine waters
Unionised Ammonia	Annual arithmetic mean not to exceed 0.021 mg/L	Whole Zone
E.coli	Annual geometric mean not to exceed 610 cfu/100mL	Secondary Contact Recreation Subzones
pH	The pH of the water should be within the range of 6.5–8.5 units. In addition, waste discharges shall not cause the natural pH range to be extended by more than 0.2 units	Marine waters excepting Bathing Beach Subzones
	The pH of the water should be within the range of 6.0–9.0 units.	Other inland waters
Salinity	Change due to waste discharge not to exceed 10% of natural ambient level	Whole Zone
Temperature	Change due to waste discharge not to exceed 2°C	Whole Zone
Suspended Solids	Waste discharge not to raise the natural ambient level by 30% nor cause the accumulation of suspended solids which may adversely affect aquatic communities	Marine Waters

Technical Memorandum

5.4.4 Besides setting the WQOs, discharge of effluents into the WCZs are subject to control under the WPCO through a licensing system. The "Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters" (TM-DSS) gives guidance on the permissible effluent discharges based on the type of receiving waters (foul sewers, stormwater drains, inland and coastal waters). The limits control the physical, chemical and microbial quality of effluents. Any sewage from the proposed construction and operation activities must comply with the required discharge standards for effluents discharged into the foul sewers, inland waters and coastal waters of Port Shelter WCZ, as given in the TM-DSS.

Practice Note

5.4.5 A Professional Persons Environmental Consultative Committee Practice Note (ProPECC PN) was issued by the EPD to provide guidelines for handling and disposal of construction site discharges. The ProPECC PN 2/24 "Construction Site Drainage" provides good practice guidelines for dealing with 10 types of discharge from construction sites. These include surface run-off, groundwater, boring and drilling water, bentonite slurry, water for testing and sterilisation of water retaining structures and water pipes, wastewater from building constructions, acid cleaning, etching and pickling wastewater, and wastewater from site facilities. Practices given in the ProPECC PN 2/24 should be followed as far as possible during construction to minimise the water quality impact due to construction site drainage.

5.4.6 The ProPECC PN 1/23 "Drainage Plans subject to Comments by Environmental Protection Department" provides guidelines and practices for handling, treatment and disposal of various effluent discharges to stormwater drains and foul sewers. The design of site drainage and disposal of various site effluents generated within the new

development area should follow the relevant guidelines and practices as given in the ProPECC PN 1/23.

Source of Construction Wastewater

5.4.7 Construction activities would inevitably have the potential to generate wastewater and affect the nearby water quality. Works should be carried out in such a manner so as to minimise significant impacts on local water bodies. Activities that are likely to cause water pollution include:

- General construction activities and site runoff;
- Sewage effluent from construction workforce;
- Accidental spillage of chemicals;

General Construction activities and site runoff

5.4.8 Various types of construction activities would generate wastewater. These include general cleaning and polishing, wheel washing, dust suppression and utility installation, which would contain high concentrations of suspended solids. Without proper control, these could lead to increase in suspended solids level, as well as increase in turbidity and reduced dissolved oxygen in the nearby watercourses.

5.4.9 Wastewater would also be generated from the accumulation of solid waste such as plastic package and construction material, and sewage effluent from the construction workforce during the construction phase. If uncontrolled, these could lead to deterioration in water quality. Contaminated discharge could lead to increase in nutrient levels such as ammonia and nitrogen concentration, and lead to secondary water quality impacts including decreases in DO concentrations.

5.4.10 Construction runoff contains increased loads of sediments, other suspended solids and contaminants. The discharge of uncontrolled construction runoff could be potential blockage of drainage channels and increase suspended solids and turbidity near water bodies of project site. The pH value of the water system could be changed from the release of contaminants and result in toxic effect to water biota.

5.4.11 Potential sources of pollution include runoff and erosion from the site surfaces, drainage channels; bentonite slurries and other grouting materials; runoff from dust suppression sprays, fuel, oil and lubricants from construction vehicles and other equipment.

5.4.12 The Practice Note for Professional Persons (ProPECC PN2/24) on Construction Site Drainage provides guidelines on good practice for dealing with discharges from construction sites. 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 the standards stipulated in the TM-DSS. Pollution from contaminated run-off, wastewater discharge, etc. would impact water quality in general. With appropriate mitigation measures, however, no adverse water quality impact from general construction activities and site runoff is expected.

Sewage effluent from construction workforce

5.4.13 Sewage effluents generated by the construction workforce are characterized by high levels of BOD_5, ammonia and *E. coli* counts. If uncontrolled, these could lead to deterioration in water quality. Contaminated discharge and sewage effluent could lead to increase in nutrient levels such as ammonia and nitrogen concentration, and lead to secondary water quality impacts including decreases in DO concentrations.

5.4.14 The sewage would be collected onsite using portable chemical toilets. Sufficient portable chemical toilets should be provided in the construction site. The facility should

be serviced and cleaned by licensed contractor. No direct discharge of sewage effluent would be allowed. No adverse water quality impact from sewage effluent from construction workforce is expected.

Accidental spillage of chemicals

5.4.15 Chemicals stored on-site during construction phase such as oil, diesel and solvents may be accidentally spilt or leaked at the construction site. If left unattended, the spilt chemicals may enter the site drainage system and adversely impact stormwater drains outside the site. Site drainage would be well-maintained and good construction practices would be observed to ensure that litter, fuels and solvents are managed, stored and handled properly and do not enter the nearby water streams and coastal water, and not infiltrate into the surface soil layer. Therefore, it is expected that no adverse water quality impacts caused by accidental spillage would be generated.

Water Sensitive Receivers

5.4.16 Within the 500m assessment area (see **Figure 5.2**), there are water sensitive receives (WSRs) identified in the surrounding. The nearest WSR to the site is WSR3, which is separated 24m to the west of the site and on the opposite side of Tai Mong Tsai Road. Mitigation measures should be incorporated to avoid and minimise potential water quality impact on the water sensitive receivers.

Table 5.4 Summary of Representative Water Sensitive Receivers

WSR	Description	Nature	Approximate Horizontal Separation from Nearest Site Boundary
WSR1	Coastal Protection Area located to the northeast of the Application Site	Coastal Protection Area	~324m to the northeast
WSR2	Conservation Area in Mau Ping	Conservation Area	~341m to the north
WSR3	Watercourse near Tai Mong Tsai Road/ Wang Kong Tsuen/ Sha Kok Mei Village	Modified watercourse/ Channelized watercourse	~24m to the west
WSR4	Sha Ha Beach and area to the further east	Secondary Contact Recreation Sub-zone	~194m to the east

Mitigation Measures

General Construction Activities and Site Runoff

5.4.17 The good practice guidelines given in the ProPECC PN 2/24 in handling and disposal of construction site discharges should be followed as far as practicable 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 2/24) are also summarized in the following paragraphs which should be implemented to prevent adverse water quality impact.

- 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 sand bag 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 PN 2/24 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 the standards stipulated in the TM-DSS;
- Construction works should be arranged so that there should be no disturbance to water quality at the nearby stream. Construction site runoff should be intercepted by drains so that there will be no direct discharge without treatment into the nearby stream and other sensitive areas.
- Vehicle wheel washing facilities should be provided at every site exit such that mud, debris, etc. deposited onto the vehicle wheels or body can be washed off before leaving the site area. All the runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS;
- 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 Technical Memorandum on Effluent Standards under WPCO.

Sewage Effluent from Construction Workforce

- Portable chemical toilets will be provided to the construction workforce until permanent toilet facilities and connection to public sewerage system are implemented. Sufficient portable chemical toilets should be provided in the construction site. The portable chemical toilets should be serviced and cleaned by a licensed 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 Development for proper implementation.

Accidental Spillage of Chemicals

- 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;
- Control and disposal of chemical waste shall observe and comply with the Waste Disposal Ordinance (Cap. 354) and its subsidiary regulations, particularly the Waste Disposal (Chemical Waste) (General) Regulation;
- Chemical waste will be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes published under Waste Disposal Ordinance;
- A chemical waste producer must be registered by the Contractor if chemical waste would be produced from the construction site;
- Any maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided; and
- Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should be undertaken with the areas appropriately equipped to control these discharges.

5.5 Construction Waste Disposal

5.5.1 The principal legislation controlling waste materials in Hong Kong is the Waste Disposal Ordinance (WDO) (Cap. 354) and its subsidiary regulations including Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C) and Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N). Other relevant ordinances include Land (Miscellaneous Provisions) Ordinance (Cap. 28) and Public Health and Municipal Services Ordinance (Cap 132) – Public Cleansing and Prevention of Nuisances Regulation. Other relevant guidelines which cover how the applicant and contractor should comply with the regulations are as follows:

- Environmental Guidelines for Planning in Hong Kong (2022), Hong Kong Planning Standards and Guidelines, Hong Kong SAR Government;
- Work Branch Technical Circular (WBTC) No. 2/93, Public Dumps, Works Branch, Hong Kong Government;
- WBTC No. 2/93B, Public Filling Facilities, Works Branch, Hong Kong Government;
- WBTC No. 12/2000, Fill Management; Works Bureau, Hong Kong SAR Government;

- DEVB TCW No. 8/2010, Enhanced Specification for Site Cleanliness and Tidiness. Development Bureau, Hong Kong SAR Government;
- WBTC No. 12/2002, Specification Facilitating the Use of Recycled Aggregates. Works Bureau, Hong Kong SAR Government;
- DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials, Development Bureau, Hong Kong SAR Government;
- ETWBTC No. 19/2005, Environmental Management on Construction Sites, Hong Kong SAR Government;
- CEDD TC No. 11/2019, Management of Construction and Demolition Materials, Hong Kong SAR Government;
- Practice Note for Authorized Persons and Registered Structural Engineers – Construction and Demolition Waste (PNAP ADV-19, also known as PN for AR&RSE No. 243);
- Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes (2023);
- Guidance Notes on Tree Preservation and Removal Proposal for Building Development in Private Projects - Compliance with Tree Preservation Clause under Lease (2024);
- A Guide to the Registration of Chemical Waste Producers;
- A Guide to the Chemical Waste Control Scheme; and
- Monitoring of Solid Waste in Hong Kong 2023.

Construction Waste Impact

5.5.2 Construction activities for the Proposed Development will generate waste materials requiring appropriate management and disposal. Likely range of waste types includes:

- Inert C&D materials from demolition of existing building, site clearance and excavation work;
- Non-inert C&D materials from demolition of existing building, site clearance and excavation work;
- General refuse generated by the workforce; and
- Chemical and oily wastes due to maintenance of equipment.

Waste Management Hierarchy

5.5.3 The various waste management options are categorised in terms of preference from an environmental viewpoint. The options considered to be most preferable have the least environmental impacts and are more sustainable in the long term. The hierarchy is as follows. The waste management strategy is to avoid waste generation in the first place (i.e. in descending preference of the list below).

- Avoidance and reduction;
- Reuse of materials;
- Recovery and recycling; and
- Treatment and disposal.

5.5.4 The following section describes the best management practices in construction site to avoid or further reduce the potential environmental impacts associated with the

handling, collection and disposal of construction and chemical wastes arising from the construction of the Proposed Development.

5.5.5 The Contractor should prepare and submit a Waste Management Plan (WMP) to Architect/Engineer for approval before the commencement of any construction works based on the requirement of PNAP ADV-19. The WMP should include designation of areas for the segregation and temporary storage of materials for future use or recycling, the hierarchy for waste management on and off-site as well as a complete list of mitigation measures for handling excavated materials.

5.5.6 It will be the contractor's responsibility to ensure that only reputable licensed waste collectors are used and that appropriate measures to reduce adverse impacts, including windblown litter and dust from the transportation of these wastes, are employed. In addition, the contractor must ensure that all the necessary permits or licences required under the Waste Disposal Ordinance are obtained for the construction phase.

5.5.7 Avoidance of waste can be achieved through careful planning of works method and material consumption before ordering of materials. Material should be properly stored and protected to reduce damage and contamination to reduce waste generation as well. Non-timber formwork, or used timber, instead of virgin timber, should be adopted where possible.

5.5.8 If waste 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.

5.5.9 To minimize the generation of yard waste, the applicant and its contractor should avoid unnecessary removal or excessive pruning of trees. Preserve trees in their original locations and implement tree transplanting when on-site preservation is not feasible. Also, yard waste and shred wood should be sorted in the designated area for recycle and reuse. Yard waste should be reused on-site for a variety of purposes (e.g., decomposition and composting, recreational and decorative uses, and mulching in planting areas, etc.) before recycling and disposal. The Applicant and its contractor should consider if any yard waste is appropriate to be sent to the Yard Waste Recycling Centre in Y-Park for recycling prior to disposal at the designated landfill site. Where appropriate, the yard waste should be cut and shred in order to meet the collection requirement of the recycling outlet for processing. Guidance Notes on Tree Preservation and Removal Proposal for Building Development in Private Projects - Compliance with Tree Preservation Clause under Lease, relevant guidelines posted by EPD through EPD website and Y Park website. will be followed during the yard waste handling.

5.5.10 Used timber in good condition will be reused in other contract and construction site of the contractor to reduce the amount of timber wastes.

5.5.11 Surplus inert construction material and other non-inert C&D materials which comprises metal, timber, paper, glass, etc. shall be recycled. Recycle bins should be provided onsite and workers should be trained and encouraged to segregate recyclable and non-recyclable wastes upon disposal.

5.5.12 Any unused chemicals and those with remaining functional capacity should be recycled as far as possible. Chemical waste will be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes. Drip tray should be provided to chemical waste containers. Also, the drip tray should be clean up regularly and done before foreseeable inclement weather such as typhoon or heavy rain.

Construction Waste Disposal Measures

5.5.13 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.

5.5.14 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. The other non-inert C&D materials which comprises metal, timber, paper, glass, junk and general garbage shall be reused or recycled and, as the last resort, disposal of at landfills. Yard waste will be delivered to the Yard Waste Recycling Centre in Y-Park after sorted the yard waste for reuse onsite.

5.5.15 For general refuse (including food waste, paper, plastic bottles and aluminium cans, etc.), mitigation measures should include provision of a collection area where waste can be sorted, stored and loaded prior to removal from the site. Recyclable materials (i.e. paper, plastic bottles and aluminium cans) will be separated for recycling, in order to reduce the amount of general refuse to be disposed of at landfill.

5.5.16 The general refuse will be collected in enclosed bin to minimize environmental impact. The removal of general refuse from the site will be arranged on a daily basis or at least on every second day to minimize any potential odour impacts. Disposal of general refuse is recommended before foreseeable inclement weather such as typhoon or heavy rain.

5.5.17 The Applicant and its contractor will consider if recycling of food waste is practicable during the construction phase.

5.5.18 Non-recyclable waste will be delivered to landfills.

5.5.19 It is estimated that about 18,360m^3 of inert C&D material and 1,570m^3 of non-inert C&D material will be generated during the course of construction (including demolition and site clearance). Adequate areas for sorting and storage of segregated materials should be provided onsite. Construction wastes shall be sorted, with the inert C&D materials broken up into small pieces for delivery to public fill reception facility, and the non-inert C&D materials should be disposed of at landfill.

5.5.20 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) Regulation. Any person who produces or causes to produce chemical waste is required to register with EPD. The Applicant and its contractor will duly follow the requirement and register with EPD as a chemical waste producer.

5.5.21 Waste disposal from construction site is subject to control under the Waste Disposal Ordinance.

5.5.22 To estimate the general refuse generated during construction phase, an assumption of 50 workers per day with 0.65kg per worker per day has been made.

5.5.23 **Table 5.5** presents the estimation of waste generated during construction phase.

Table 5.5 Estimated Quantities of Waste during Construction Phase

Waste Material	Estimated Waste Generation	Proposed Disposal Method and Destination
Inert C&D Material	~18360 m^3	~0.5% (i.e. 920m^3) would be reused and the remaining (i.e. 99.5% or ~17,440m^3) would be delivered offsite to Tseung Kwan O Area 137 Fill Bank
Non-Inert C&D Material	~1570 m^3	Disposal to South East New Territories Landfill Yard waste reuse onsite and the remaining would be delivered to the Yard Waste Recycling Centre in Y-Park
General Refuse	~33 kg per day	Recyclables to recyclers; Non-recyclables to North East New Territories Landfill
Chemical Waste	Anticipated to be limited (around some hundred litres at most)	To be collected by licensed chemical waste collectors and deliver to Chemical Waste Treatment Centre

5.5.24 The Applicant and its contractor will consider if "All dump trucks engaged on-site for delivery of inert and non-inert C&D material from the site to the designated disposal location, including PFRFs, landfill etc., should be equipped with GPS or equivalent system (i.e. trip-ticket system) for tracking and monitoring of their travel routings and parking locations by the Contractor to prohibit illegal dumping and landfilling of materials" and "The data collected by GPS or equivalent system should be recorded properly for checking and analysis the travel routing and parking locations of dump truck engaged on site" are appropriate in the construction phase. The trucks used for waste transportation should be equipped with cover or enclosed containers. Disposal and transportation of C&D materials are recommended before foreseeable inclement weather such as typhoon or heavy rain.

5.5.25 Stockpiling area should be provided with covers and water spraying system to prevent materials from being wind-blown or washed away. Also, different locations should be designated to stockpile each material to enhance reuse.

5.6 Land Contamination Review

Legislations, Standards & Guidelines

5.6.1 The land contamination review has been conducted in accordance with the following legislation, standard and guidelines:

- EPD Guidance Note for Contaminated Land Assessment and Remediation.
- EPD Practice Guide for Investigation and Remediation of Contaminated Land.
- Guidance Manual for Use of Risk-Based Remediation Goals for Contaminated Land

Site Description

5.6.2 The Application Site (about 9,038m^2) is of elongated shape, while the Development Site area is approximately 7,614m^2. The Application Site is located to the south of Tai Mong Tsai Road. It is currently used as open carpark, construction material storage and various workshops. The future use of the site is medium-rise residential development. In accordance with the "Guidance Manual for Use of Risk-Based Remediation Goals (RBRGs) for Contaminated Land Management" by EPD, the

corresponding nature is determined as "Rural Residential". Identification of contamination sources, exposure pathways and receptors for the proposed Site should follow the Conceptual Site Model as illustrated in Figure B2 of the "Practice Guide for Investigation and Remediation of Contaminated Land" in order to ensure there are no additional pathways or receptors present for the Site and the appropriate Risk-Based Remediation Goals (RBRGs) can be applied.

Historic and Current Land Uses

5.6.3 Historic aerial photos taken in year 1945, 1963, 1977, 1989, 2005, 2011, 2015, 2021 and 2023 are shown in **Appendix 5.1**.

5.6.4 The Application Site was a farmland from year 1949 to 1977. In year 1989, the site was generally coved by plantation. In year 2005, the middle part of the site paved and became open carpark. In year 2011, the paved area was increased. From year 2015 till now, Application Site was consisted of plantation, construction material storage area, open car park and metal workshop.

Table 5.6 Land Use Summary on the Application Site

Year	Land Use / Description	Owner / Occupier	Source of Information	Off-site Property Affected?
1945 to 1977	The Application Site was a farmland.	No information available	Aerial Photos from Lands Department	No
1989	Part of the site remained as farmland, while the other portion was covered by plantation. Sha Kok Mei Temporary Housing Area was erected to the immediate southwest of the site.	No information available	Aerial Photos from Lands Department	No
2005	The middle part of the Application Site was paved and used as open carpark. A village house was erected within the site at the southwest portion. Wai Man Road was constructed to the east of the Application Site, while Sha Kok Mei Temporary Housing Area was demolished.	No information available	Aerial Photos and Topographic Map from Lands Department	No
2011	The Application Site was generally paved. It was used as plant nursey, open carpark and BBQ site.	No information available	Aerial Photos from Lands Department	No
2015	The Application Site was converted to site office with construction material storage area (such as the storage of tiles and bricks, steel columns, iron rod, wood, metal casing and cabinet), open car park and metal workshop. There was some plantation at the northeast and southwest of the site. WM Hotel and the Mediterranean were under construction. Hong Kong Academy was erected in year 2013.	Applicant	Aerial Photos from Lands Department	Yes It is observed that there is an approved planning application (Ref.: A/SK-SKT/28) located to the immediate southeast of the Application Site. According to the approved EA under the

Year	Land Use / Description	Owner / Occupier	Source of Information	Off-site Property Affected?
2021	No change in land use of the Application Site comparing to year 2015. WM Hotel and the Mediterranean were erected.	Applicant	Aerial Photos from Lands Department	said planning application, it is understood that there was potential land contamination issue and a metal workshop was identified as contamination hotspot. Part of the metal workshop is situated inside the A/SK-SKT/28 site and the remaining part is inside this Application Site. As such, it is considered that there is potential off-site land contamination issue.
2023	No change in land use of the Application Site comparing to year 2021.	Applicant and tenant	Aerial Photos from Lands Department	

Information from Government Departments

5.6.5 Apart from the historic aerial photos, the following Hong Kong Special Administration Region (HKSAR) Government Departments have been enquired on the latest update on the availability of land use status and records of land contamination and/or spillage of the Application Site. The summary of correspondence is tabulated in **Table 5.7** below. Copy of letters which the Consultant sent to various Government Departments and relevant replies are shown in **Appendix 5.2**.

5.6.6 Building Records Access and Viewing On-line (BRAVO) of Building Department (BD) was visited in June 2024 to obtain records for completed private buildings. There is neither records of building, structure, drainage, alternation & additions, site formation, minor works nor any existing building available at the Application Site. The captured screen of BRAVO is provided in **Appendix 5.3**.

5.6.7 As advised by Environmental Protection Department (EPD), no record of registered chemical waste producers, waste disposal record, chemical spillage accident and submission relating to land contamination assessment at the Application Site. Nevertheless, the Consultant has visited the territory-wide register of chemical waste producers (CWPs) maintained at the Territory Control Office. The register record as of 13 October 2023 has recorded 1 valid CWP at the D.D. 221, which is considered to be potentially within the Application Site. The valid CWP is Hip Hing Contracting Company and service of civil engineering construction is provided from this CWP.

5.6.8 As advised by Fire Services Department (FSD), neither records of dangerous goods license, fire incidents nor incidents of spillage/ leakage of dangerous goods were found at the Application Site.

5.6.9 As advised by Planning Department (PlanD), the Application Site falls within an area shown as 'Road' on the approved Sai Kung Town Outline Zoning Plan (OZP) (No. S/SK-SKT/6).

Table 5.7 Enquires and Responses on Land Contamination Related Records in the Application Site

Consultant's Letter Ref.	Department	Response Letter Ref.	Response Date	Summary
NWDSK221EI01_0_0003L.24	Environmental Protection Department	EP640/G1/2 PT.III	02/05/2024	EPD replied that there is no record of registered chemical waste producers, chemical spillage accident and submission relating to land contamination assessment at the Application Site. A visit to the Territorial Control Office for chemical waste producer registry inspection was performed. According to the register record as of 13/10/2023, 1 valid CWP is potentially within the Application Site.
NWDSK221EI01_0_0004L.24	Fire Services Department	(26) in FSD GR 6-5/4 R Pt.53	10/05/2024	There is no dangerous goods license, fire incidents nor incidents of spillage/ leakage of dangerous goods within the Application Site.
NWDSK221EI01_0_0002L.24	Planning Department	Email	20/05/2024	The Application Site falls within an area shown as 'Road' on the approved Sai Kung Town Outline Zoning Plan (OZP) (No. S/SK-SKT/6).
-	Lands Department	Topographic Map available from Lands Department was reviewed. The Application Site was a farmland from year 1960 to year 1977. From year 1977, the site was gradually covered by plantation. In year 2005, part of the site was paved and used as open carpark. The site was further paved and used as open carpark, plant nursery and BBQ site in year 2011. From year 2015 to year 2024, the site was converted to open carpark, site office, construction material storage area, and metal workshop. Topographic Map records generally tally with observations in aerial photos.		

Discussion and Observation

5.6.10 Based on the above, the desktop review of historic information indicates that the Application Site was used for agricultural purpose until year 1989. The Application Site was abandoned and coved by plantation until year 2005. Major change of land use was observed during year 2005 to year 2015. The Application Site was gradually paved and used as open carpark & site office with metal workshop since then.

5.6.11 A valid CWP ascertained that there would be chemical waste generated onsite. In case the chemical waste is not properly handled and stored (e.g. leakage, seepage occurs), it may possibly contaminate the soil.

5.6.12 Site visit was conducted on 07 May 2024. It is observed that the Application Site was used as construction materials and chemical storage, various workshops and open car park. The site was generally well paved. Site walkover checklist and photo records were shown in **Appendix 5.4** and **Appendix 5.5**.

5.6.13 For the machinery workshop (i.e. excluding its storage area), it was elevated with concrete floor. The workshop is used for machinery maintenance and no activity with chemical use or leakage was observed during site visit. Some ground areas are stained by paint but no crack was observed on ground. As advised by the operators, there is no leakage or accident happened before that is related to land contamination. In this connection, it is considered that no potential land contamination issue from the machinery workshop working area is anticipated.

5.6.14 For the construction materials storage area and open carpark, it is gradually paved. No stain or crack are observed during the site visit. Construction materials, including, tiles and bricks, steel columns, iron rod and wood, are stored in the storage area.

Private car and truck are observed in the open carpark. By considering the ground conditions and the nature of these areas, the risk of land contamination problem posed is unlikely.

5.6.15 By considering the nature of chemical storage, forklift repair workshop, metal workshop and storage area for machinery workshop, they are considered as potential land contamination areas (i.e. likely to be classified as site investigation (SI) area).

Table 5.8 Summary of the Potential Land Contamination Area

Site	Area Size	Description of Activities	Ground Condition	Chemical and Hazardous Substances handled	Other Observation
Forklift Repair Workshop	~125m^2	Forklift repair	Ground paved in concrete, with 1.5m^2 oil staining and spillage. Also, stained with paint.	Diesel engine oil, lubricating oil and spent oil	Welding work is identified during visit. Chemicals were stored in drums or container which placed on wooden plank or directly on ground.
Storage Area of Machinery Workshop	~25m^2	Machinery and construction material storage	Elevated with metal.	Diesel engine oil and solvent	The site is for storage purpose. No polluting activities are identified during site visit. Full of sundries, including fans, air-conditioners and iron pipes, on the ground. Chemicals, including diesel engine oil and solvent, are placed on the iron rack and storage cabinet. There is potential land contamination problem to the ground if the chemical fell on.
Metal Workshop	Inside Site: ~285m^2 Outside Site (Approved Planning Application: A/SK-SKT/28): ~2,150m^2	Storage of construction materials	Ground paved in concrete, no stain or spillage is observed.	No	Inside Site: Construction materials, such as iron rods, steel columns and electric boxes are stored in the metal workshop without land contamination issue. No polluting activities are identified inside site during site visit. Outside Site (Approved Planning Application: A/SK-SKT/28): The routine operation of the metal workshop area outside the Application Site included cutting iron rods, welding works and loading/unloading, which would involve use of both fuel-based and electricity-based engines and machines including electricity generators. Drums of engine oil, spent oil and lubricating oil were placed directly on ground or place on a wooden plank. Without proper management of diesel engine oil, spent oil and lubricating oil, our application site may be contaminated though underground dispersion.
Chemical Storage Area	~20m^2	Chemical storage	Ground paved in concrete, with 15m^2 oil staining and spillage. Also, stained with paint.	Chemical waste, diesel engine oil, lubricating oil, turpentine, paint oil and tinner	Chemical are stored in the storage cabinets

5.6.16 Chemical storage, forklift repair workshop, metal workshop, storage area for machinery workshop are identified as the key potential contamination areas.

Therefore, land contamination issues may arise within these areas (chemical storage and workshops except machinery workshop) and would be addressed during the SI. As this application is still in the early planning stage, the potential contamination area will be further reviewed during the Contamination Assessment Plan (CAP). Contamination Assessment Plan (CAP), Contamination Assessment Report (CAR), Remediation Action Plan (RAP) and Remediation Report (RR) should be submitted in prior for approval from the approving authority. RR shall be prepared and submitted to EPD for approval to demonstrate that the decontamination work is adequate and is carried out in accordance with the endorsed CAP, CAR and RA after the completion of the remediation works. No development works shall be commenced before the endorsement of RR is sought from EPD.

5.7 Conclusion

5.7.1 Potential environmental impacts arising from construction activities of the Proposed Development, including dust emission, noise, water quality and waste impacts have been assessed. Potential environmental impacts are anticipated to be insignificant with the implementation of effective environmental mitigation measures. In conclusion, it is envisaged that construction phase environmental impacts arising from the Proposed Development would be insignificant.

5.7.2 Further site appraisal and soil sampling is recommended after site is cleared to determine whether the site is contaminated, and if so, the extent of the potential contamination should be revised. CAP will be prepared to cover all potentially land contaminating area within the Application Site in later stage. Subsequently, CAR and RAP will be prepared to identify the potential land contamination issued in the Application Site. Further land contamination assessment and/or remediation works (if necessary) shall completed before commencement of any construction works for the Proposed Development, in accordance with relevant guidelines issues by government departments. RR shall be prepared and submitted to EPD for approval to demonstrate that the decontamination work is adequate and is carried out in accordance with the endorsed CAP, CAR and RA after the completion of the remediation works. No development works shall be commenced before the endorsement of RR is sought from EPD.

6. CONCLUSION

6.1.1 An environmental assessment has been conducted for the Proposed Development to address the potential environmental noise, air quality, construction phase environmental impact.

6.1.2 Road traffic noise impact assessment has been carried out for the Proposed Development. With noise mitigation measures incorporated, including acoustic window (baffle type), enhanced acoustic balcony (baffle type) and fixed glazing with or without maintenance window, the Proposed Development would not be subject to adverse road traffic noise impact.

6.1.3 Fixed noise impact assessment has also been conducted. The predicted noise levels of representative NSRs would comply with the criteria as stipulated in NCO. It can be concluded that the Proposed Development would not be subject to adverse fixed noise impact. On the other hand, any potentially noisy equipment of the Proposed Development will be designed and installed with adequate noise mitigation measures to comply with the HKPSG standard.

6.1.4 As confirmed in site survey, there is no air sensitive uses including openable window, fresh air intake and recreational uses within the recommended buffer zone from HKPSG. Therefore, no adverse air quality impact due to traffic is anticipated. Chimney stacks are not identified within 200m assessment area of the Application Site. There is no odour, marine and other air pollutant emission identified in the surrounding. Hence, it is unlikely to have industrial emission impact to the Proposed Development.

6.1.5 Likewise, the Proposed Development, which is residential development in nature, would unlikely induce adverse air quality impact on the surroundings.

6.1.6 With the implementation of the above-mentioned mitigation measures and Best Management Practices, no adverse water quality impact during operation of the project is anticipated.

6.1.7 Potential environmental impacts arising from construction activities of the Proposed Development, including fugitive dust emission, construction noise, construction water quality and waste impact have been qualitatively assessed. No adverse environmental impacts arising from construction activities is expected with the implementation of best management practice and relevant effective environmental mitigation measures.

6.1.8 Based on land contamination appraisal, potential risk of land contamination is present within the Application Site (i.e. chemical storage and workshops). One (1) valid CWP is observed to be potentially located onsite. Yet, since the application site is rented and shared among various companies, it is not possible to ascertain whether the chemical storage observed onsite is related to the valid CWP. Based on onsite observation, apart from chemical storage, there are forklift repair workshop, metal workshop, storage area for machinery workshop and land contamination may arise. Potential land contamination issues need to be ascertained in later stage according to the findings. A Contamination Assessment Plan (CAP) and subsequently, Contamination Assessment Report (CAR) and Remediation Action Plan (RAP) will be prepared in later stages to identify the potential land contamination issues at the Application Site. Further land contamination assessment and/or remediation works (if necessary) shall be completed before commencement of any construction works for the Proposed Development, in accordance with relevant guidelines issues by government departments. A Remediation Report (RR) shall be prepared and submitted to EPD for approval to demonstrate that the decontamination work is adequate and is carried out in accordance with the endorsed CAP, CAR and RAP after the completion of the remediation works. No

development works shall be commenced before the endorsement of RR is sought from EPD.

6.1.9 Based on the environmental assessment results, it is concluded that the Proposed Development is environmentally acceptable with the recommended measures in place and remediation work (if required) implemented.

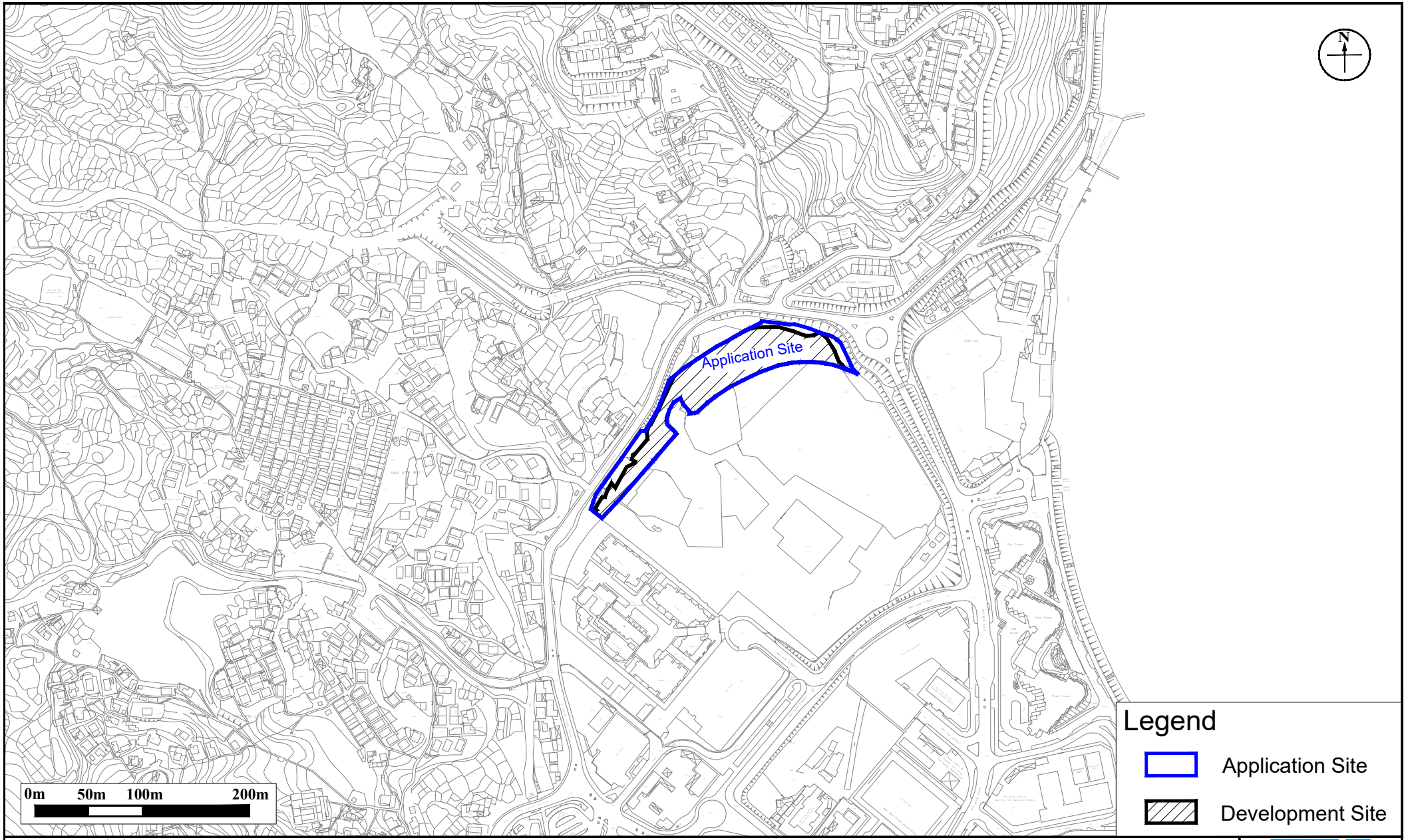

Figure: 1.1

Title: Location of the Application Site and Its Environs

Project: Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung

RAMBOLL

Drawn by:	CM
Checked by:	CC
Rev.:	1.1
Date:	Dec 2024

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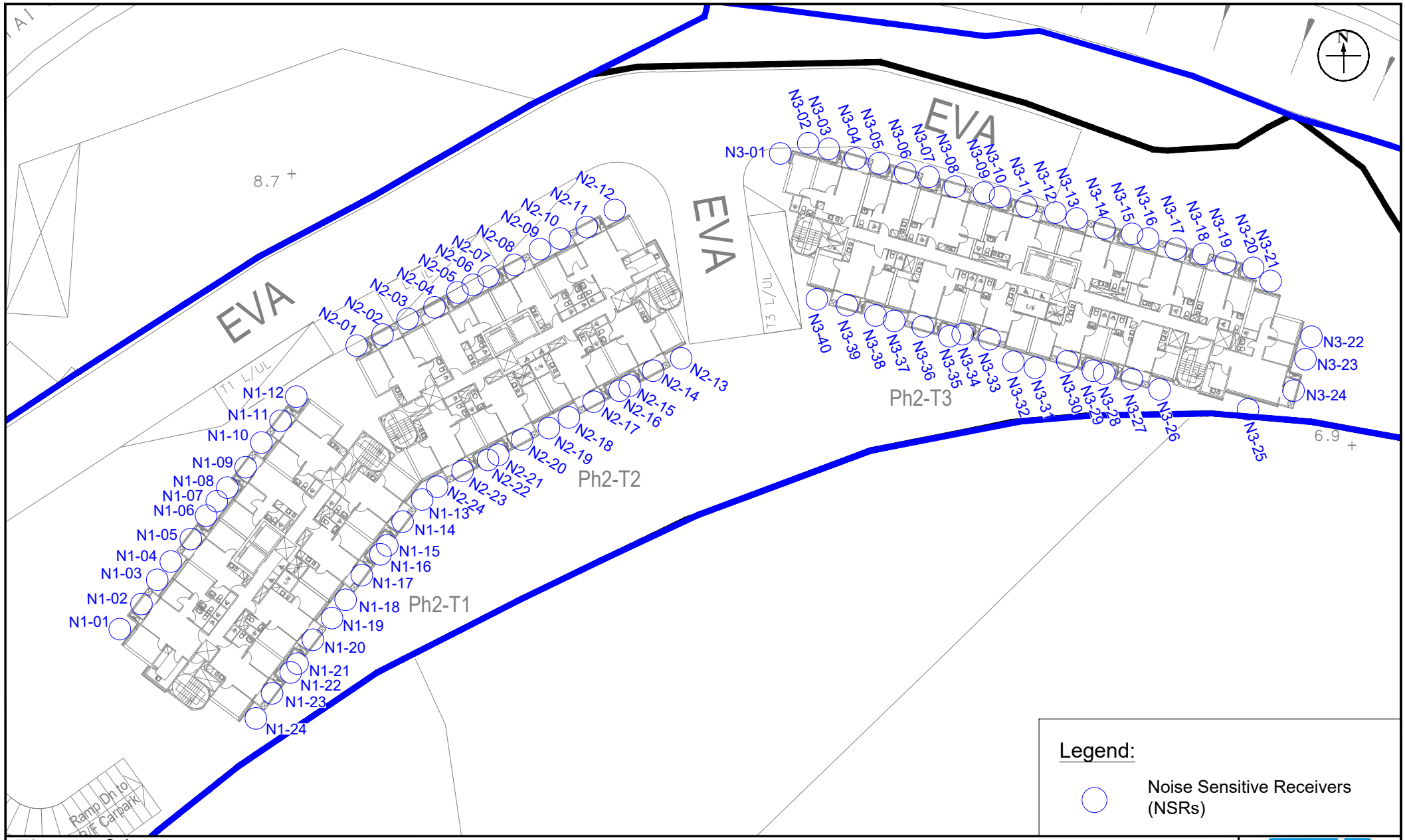

Figure: 2.1	RAMBOLL
Title: Location of Representative Noise Sensitive Receivers for Road Traffic Noise Impact Assessment (Overall)	Drawn by: CM Checked by: CC
Project: Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung	Rev.: 1.1 Date: Dec 2024

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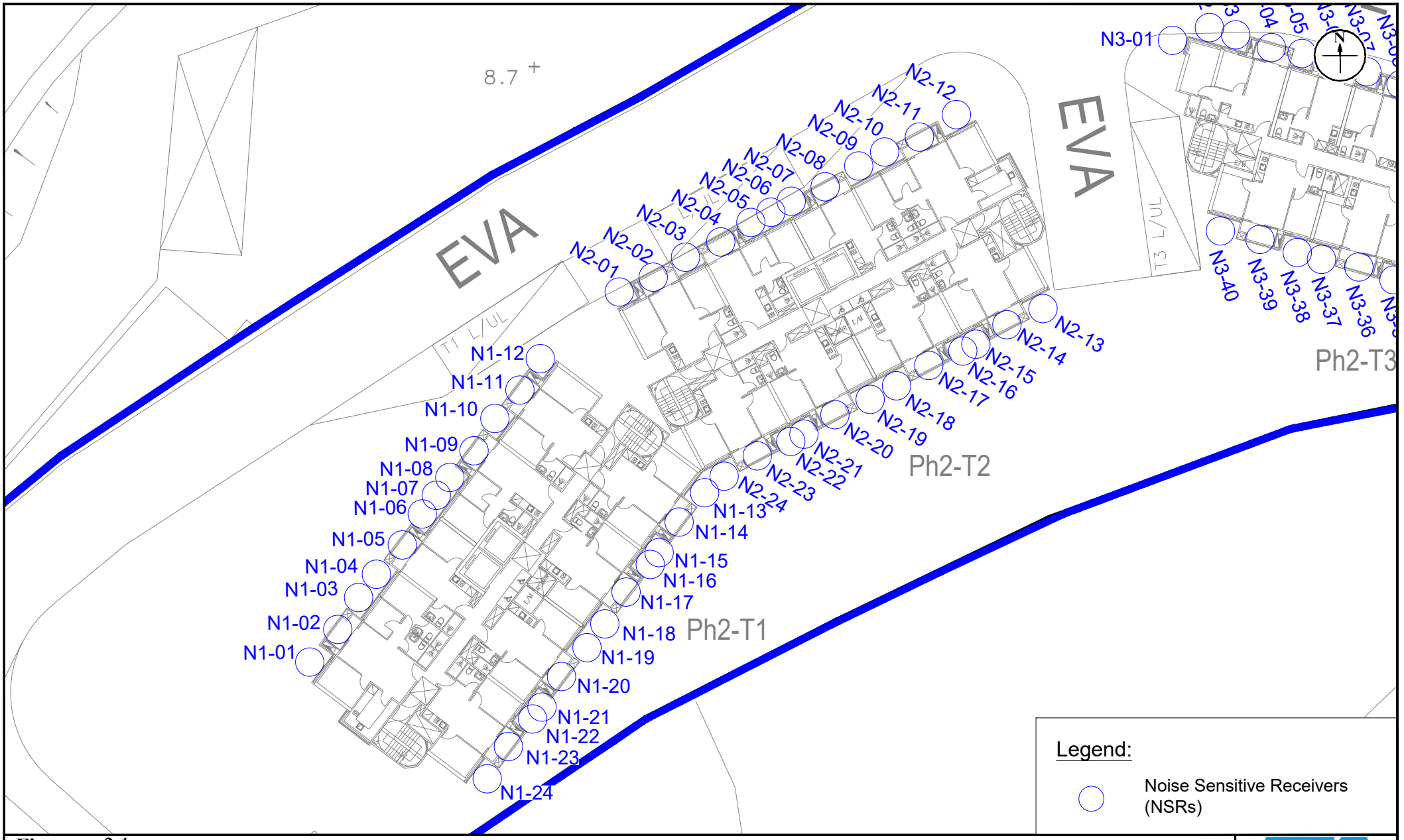

Figure: 2.1a	RAMBOLL
Title: Location of Representative Noise Sensitive Receivers for Road Traffic Noise Impact Assessment (Tower 1 to Tower 2)	Drawn by: CM Checked by: CC
Project: Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung	Rev.: 1.1 Date: Dec 2024

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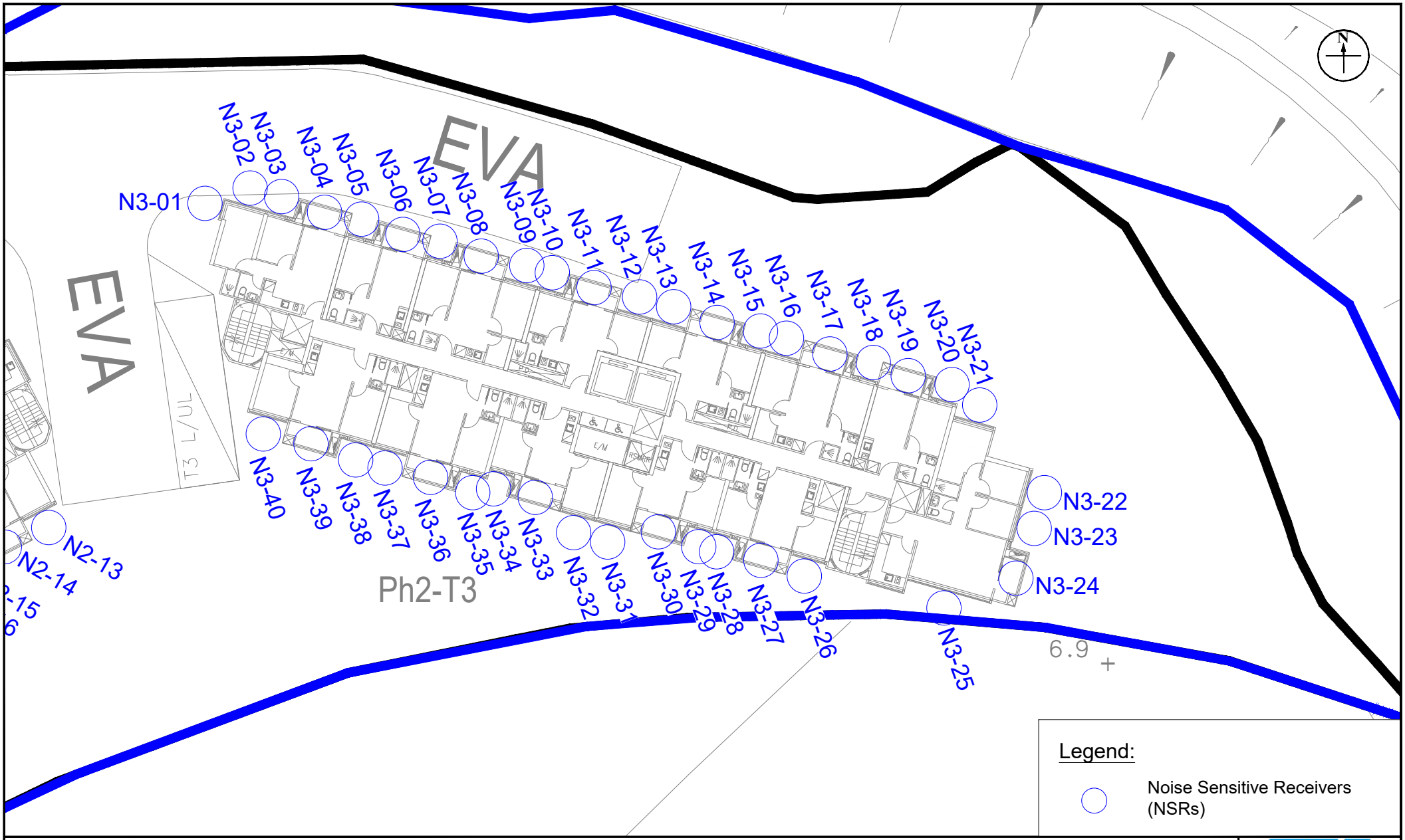

Figure: 2.1b	RAMBOLL
Title: Location of Representative Noise Sensitive Receivers for Road Traffic Noise Impact Assessment (Tower 3)	Drawn by: CM Checked by: CC
Project: Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung	Rev.: 1.1 Date: Dec 2024

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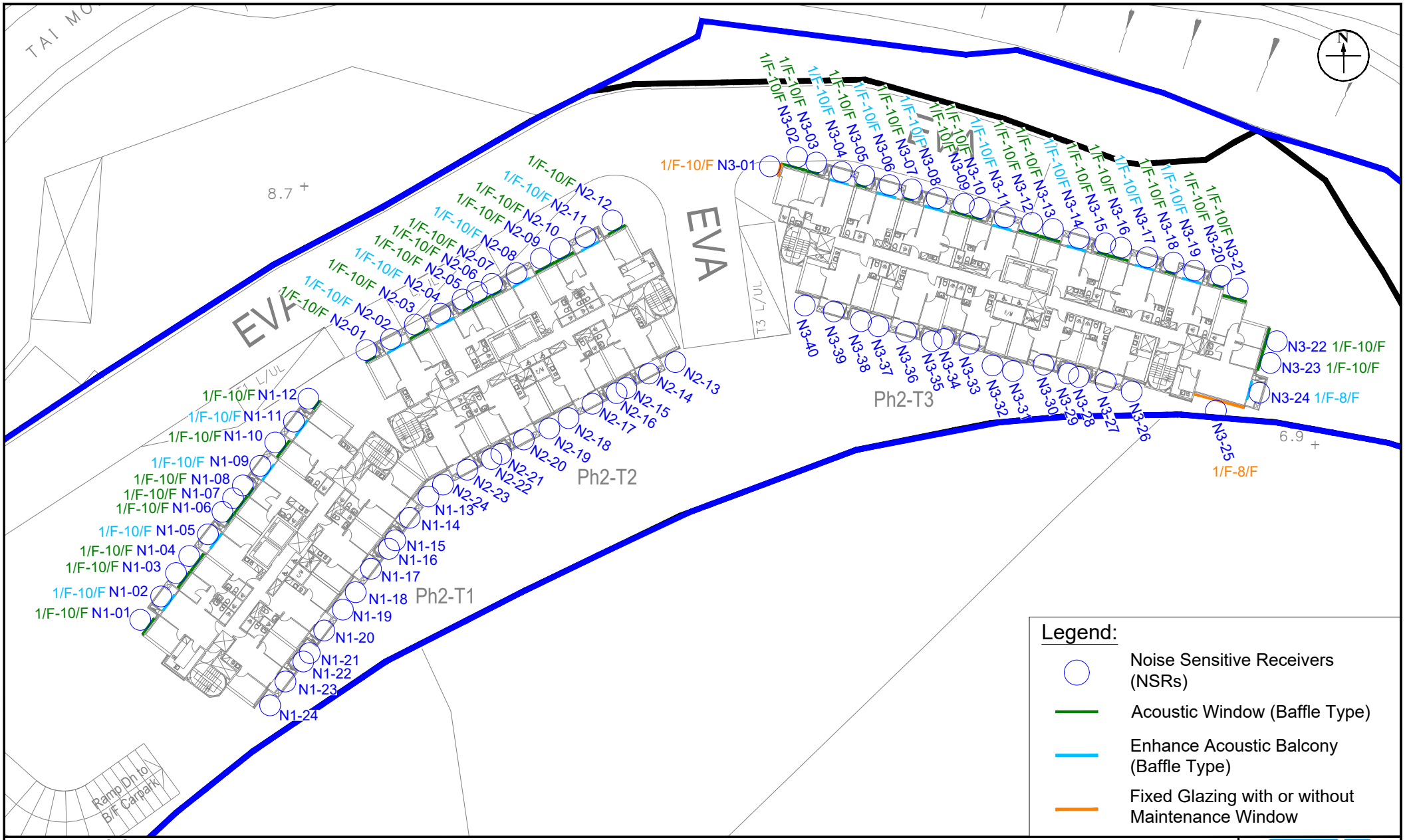

Figure: 2.2		RAMBOLL
Title: Proposed Road Traffic Noise Mitigation Measures		Drawn by: CM
		Checked by: CC
Project: Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung		Rev.: 1.1
		Date: Dec 2024

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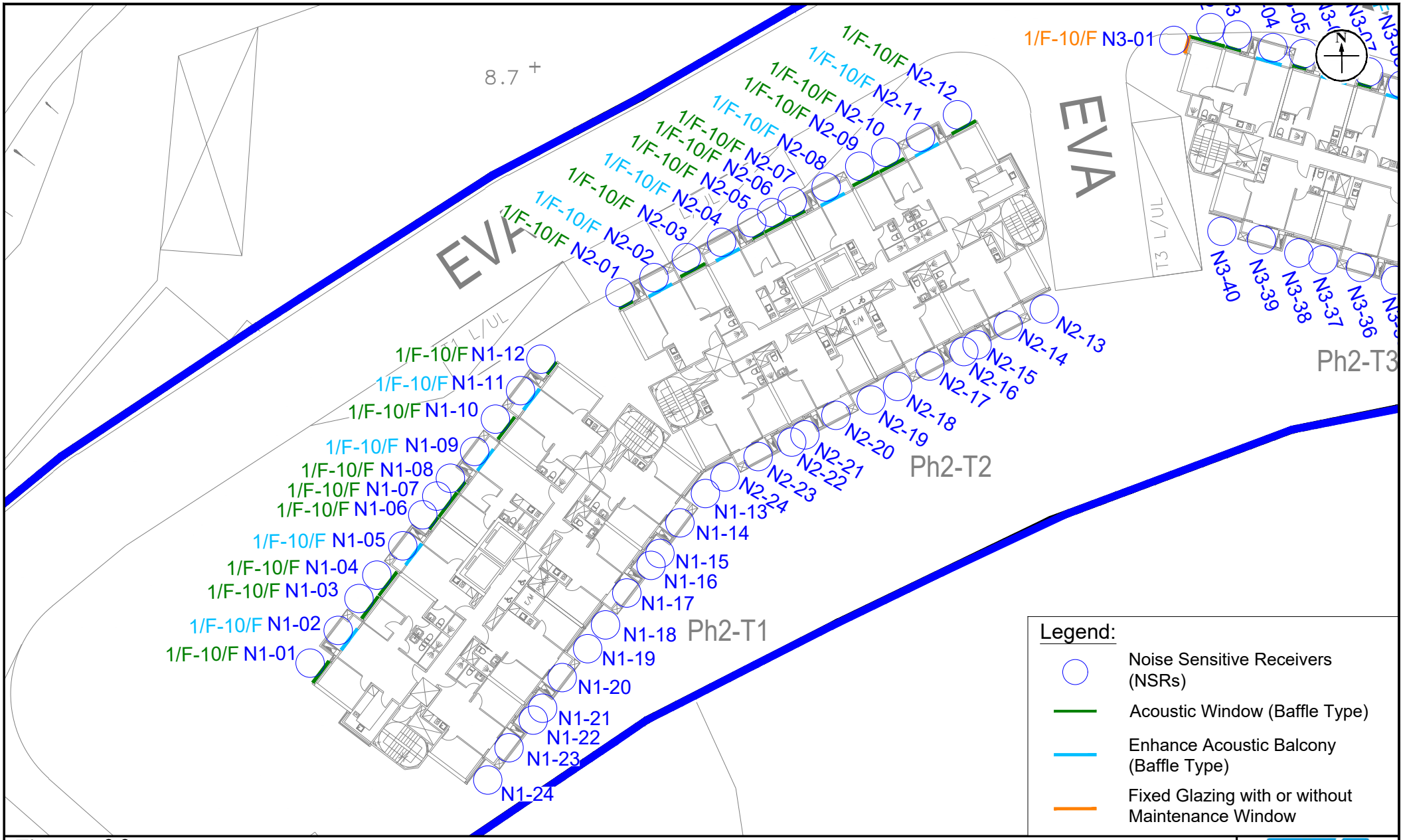

Figure:	2.2a	RAMBOLL
Title:	Proposed Road Traffic Noise Mitigation Measures	Drawn by: CM Checked by: CC
Project:	Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung	Rev.: 1.1 Date: Dec 2024

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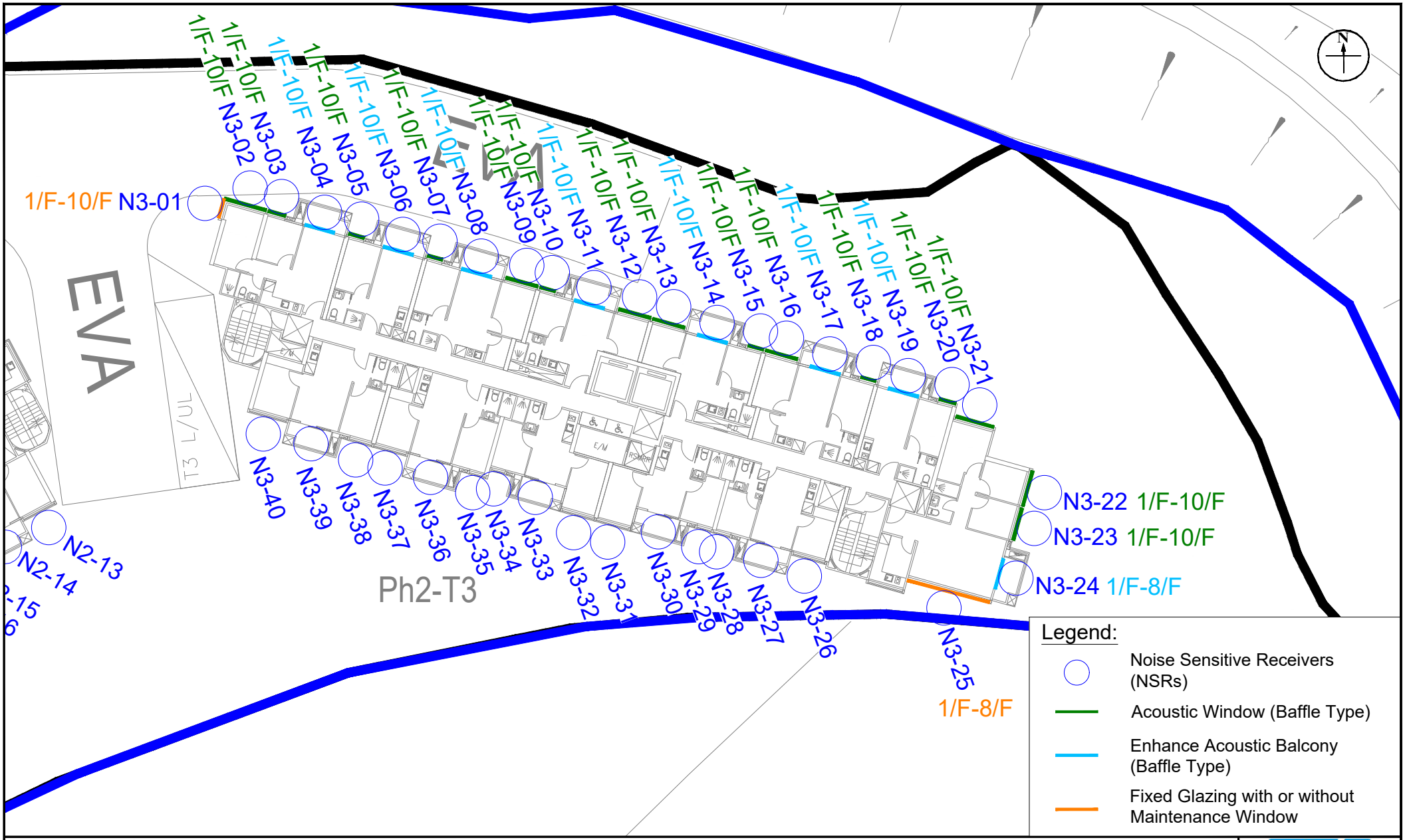

Figure: 2.2b	RAMBOLL
Title: Proposed Road Traffic Noise Mitigation Measures	Drawn by: CM Checked by: CC
Project: Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung	Rev.: 1.1 Date: Dec 2024

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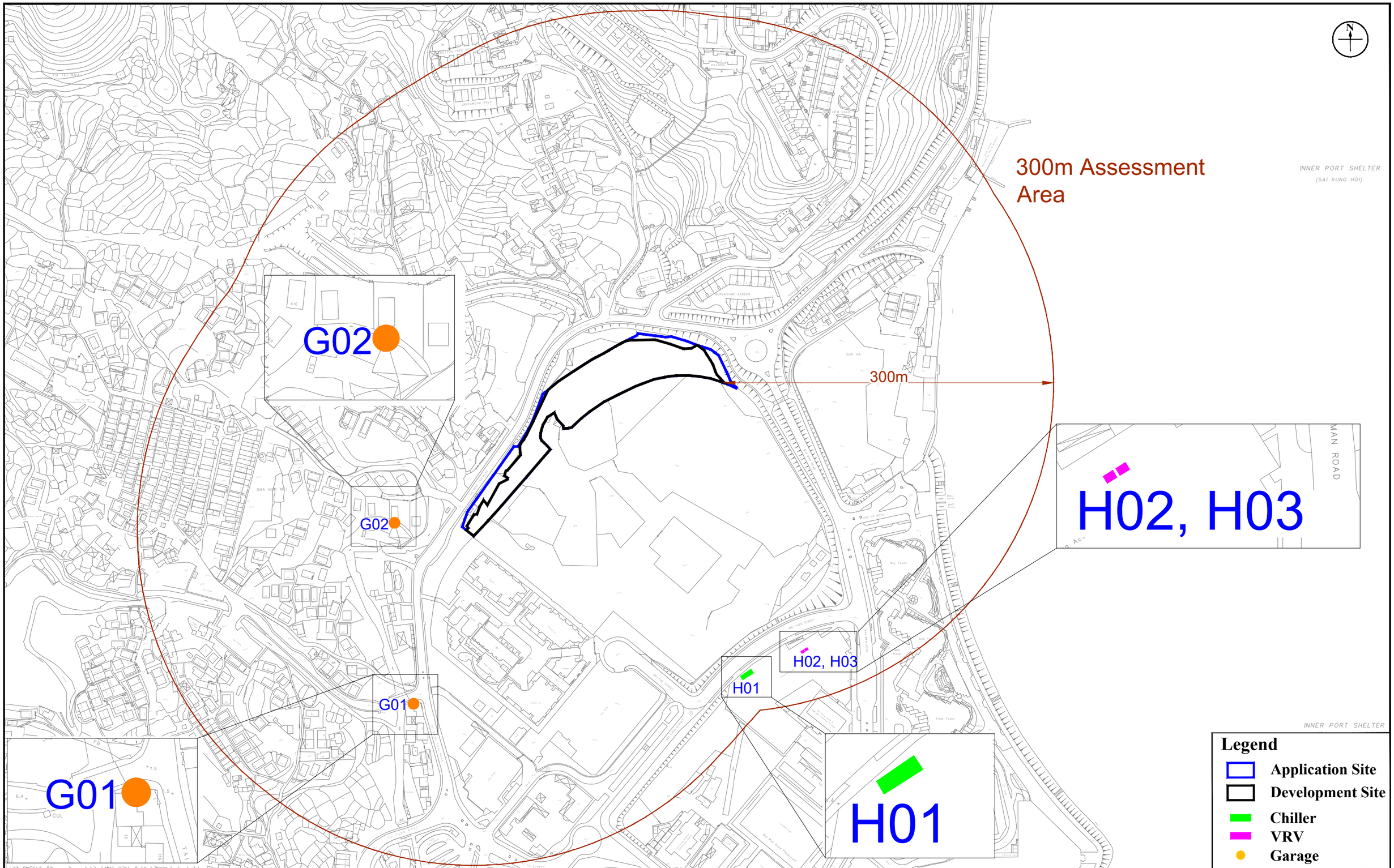

Figure: 3.1

Title: Location of Identified Fixed Noise Sources

Project: Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung

RAMBOLL

Drawn by:	CM
Checked by:	CC
Rev.:	1.1
Date:	Dec 2024

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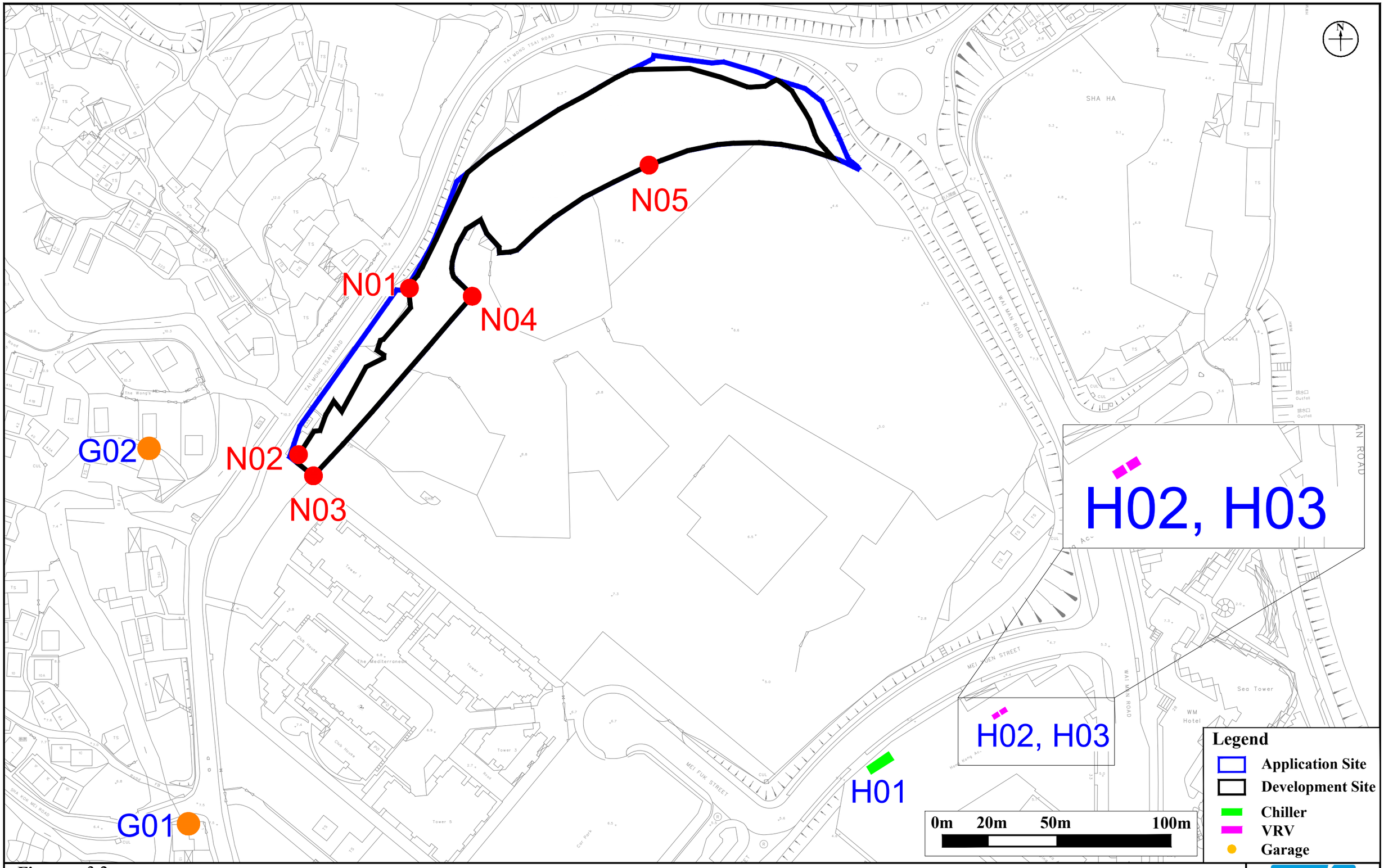

Figure: 3.2	RAMBOLL
Title: Location of Representative Noise Sensitive Receivers for Fixed Noise Impact Assessment	Drawn by: CM Checked by: CC
Project: Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung	Rev.: 1.1 Date: Dec 2024

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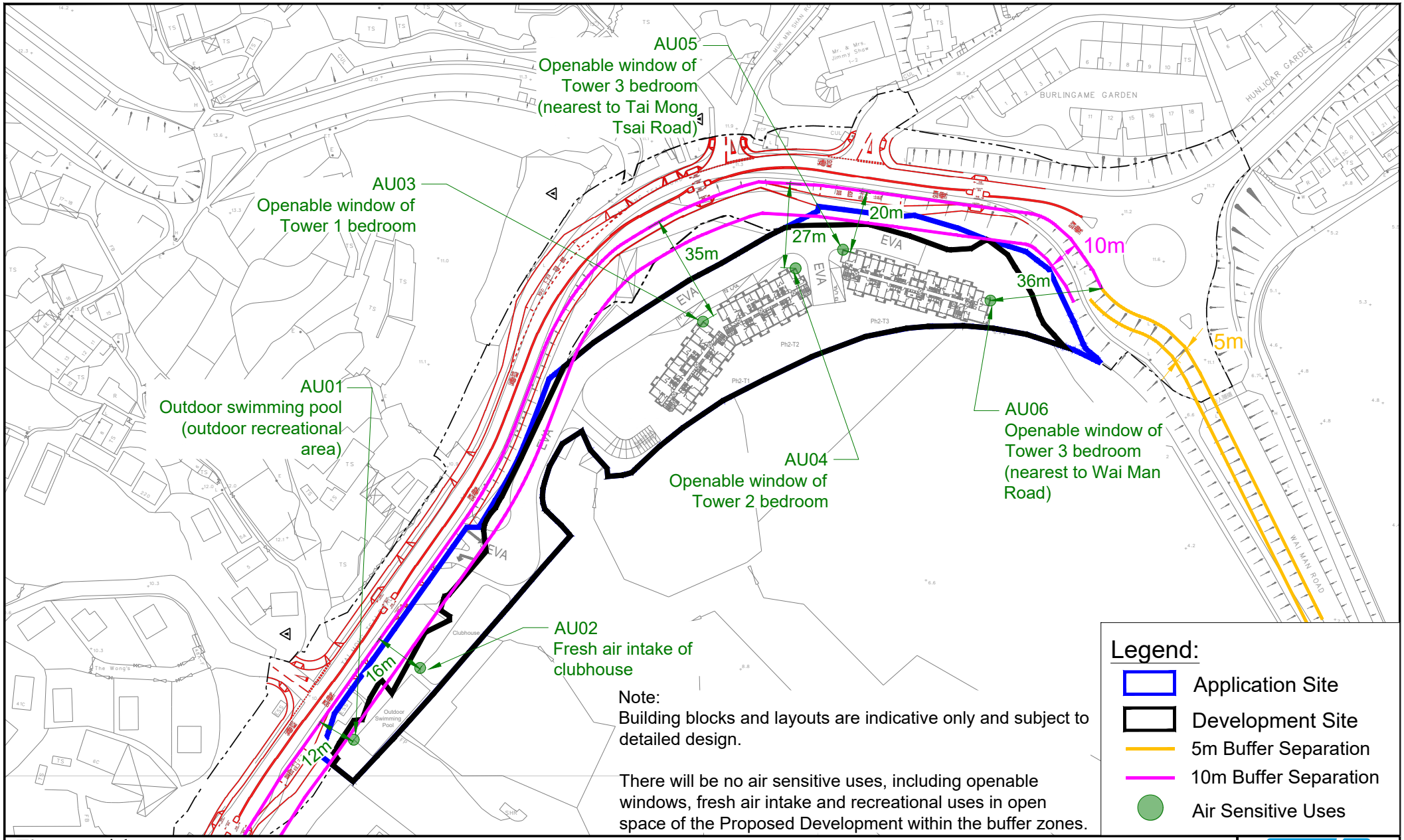

Figure: 4.1	RAMBOLL
Title: HKPSG Vehicular Emission Buffer Distance for Nearby Road Network	Drawn by: CM Checked by: CC
Project: Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung	Rev.: 1.1 Date: Dec 2024

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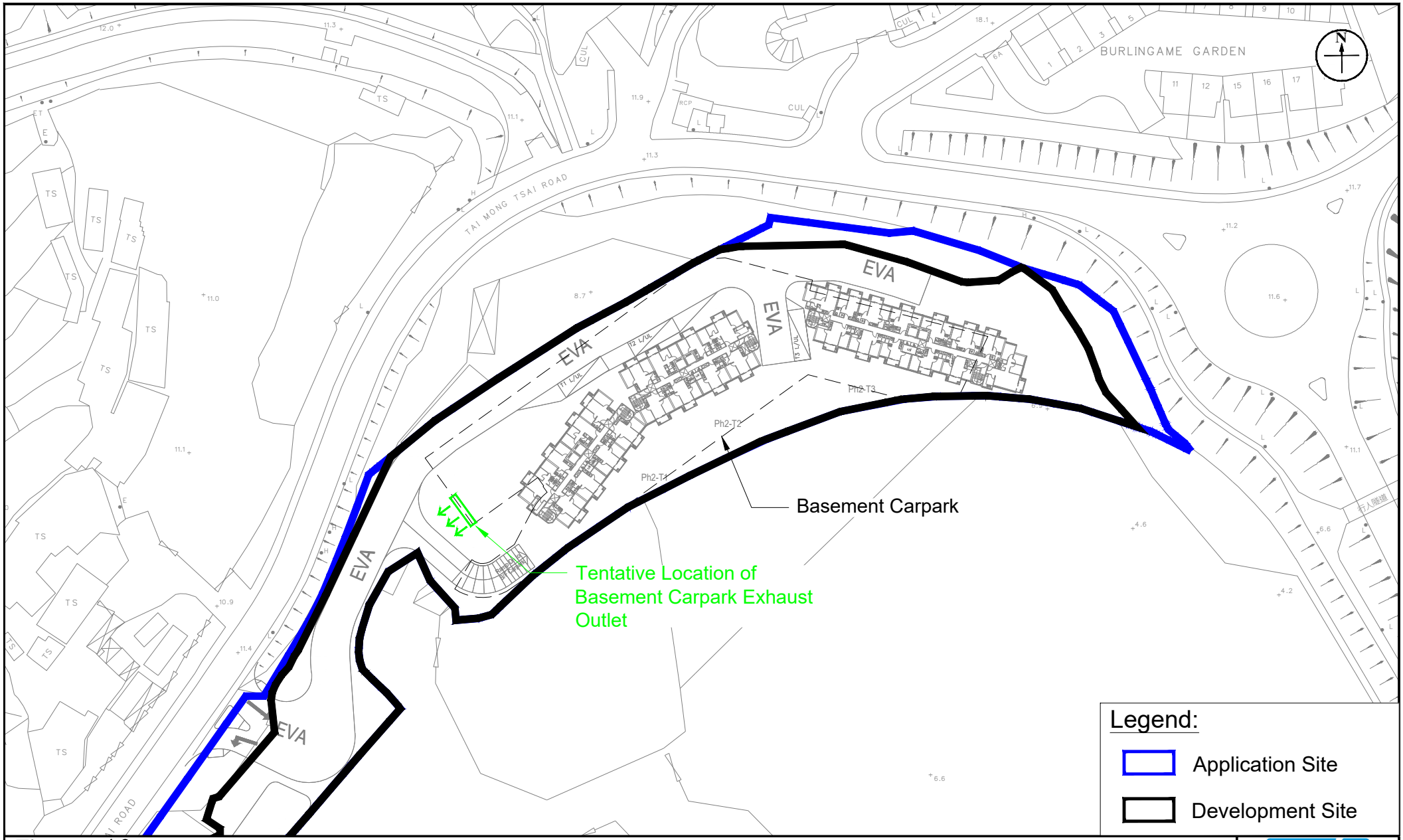

Figure: 4.2	RAMBOLL
Title: Tentative Location of the Exhaust Outlet	Drawn by: CM Checked by: CC
Project: Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung	Rev.: 1.1 Date: Dec 2024

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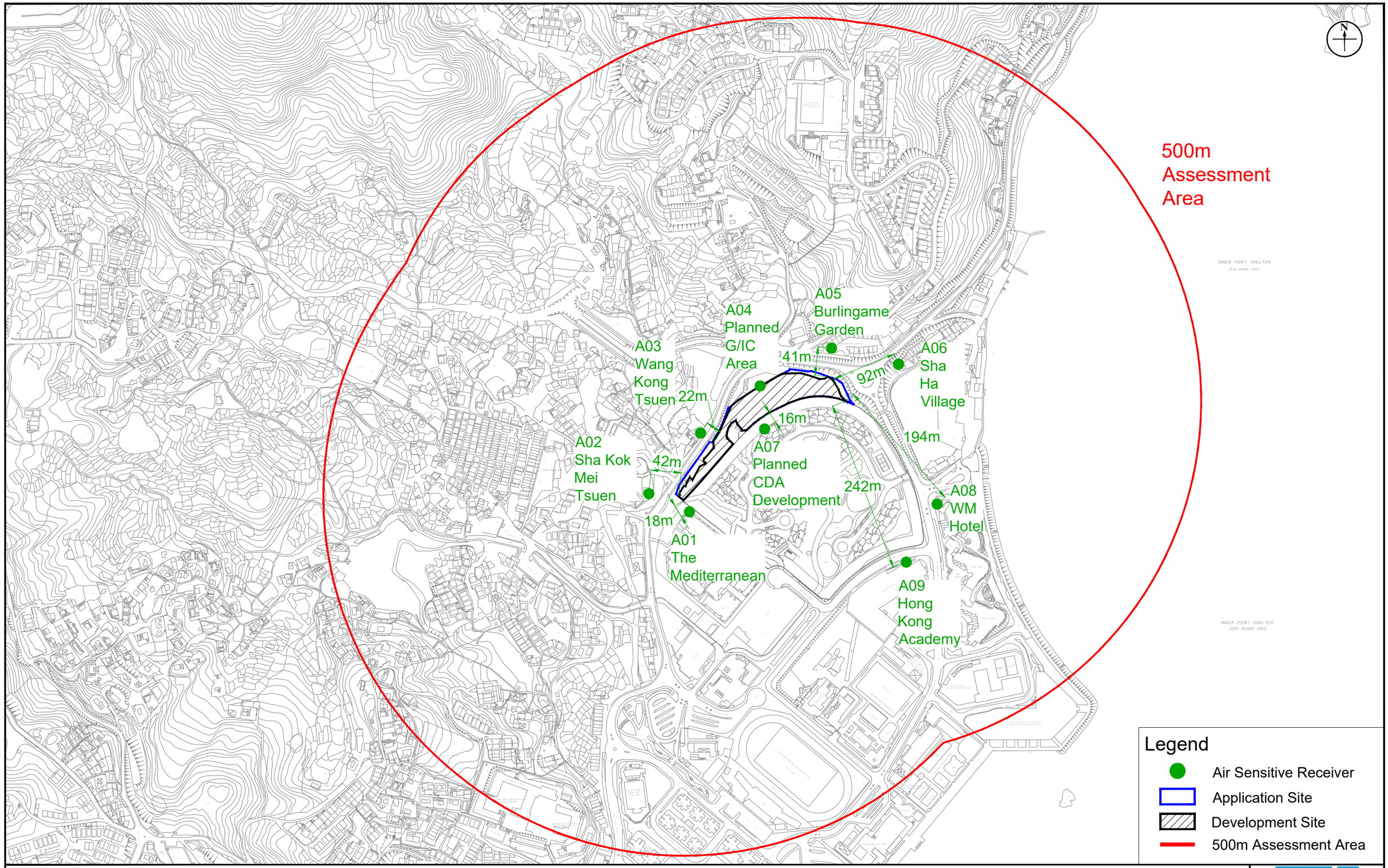

Figure: 5.1

Title: Air Sensitive Receivers (ASRs) in the Surrounding of the Application Site

Project: Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung

RAMBOLL

Drawn by:	CM
Checked by:	CC
Rev.:	1.1
Date:	Dec 2024

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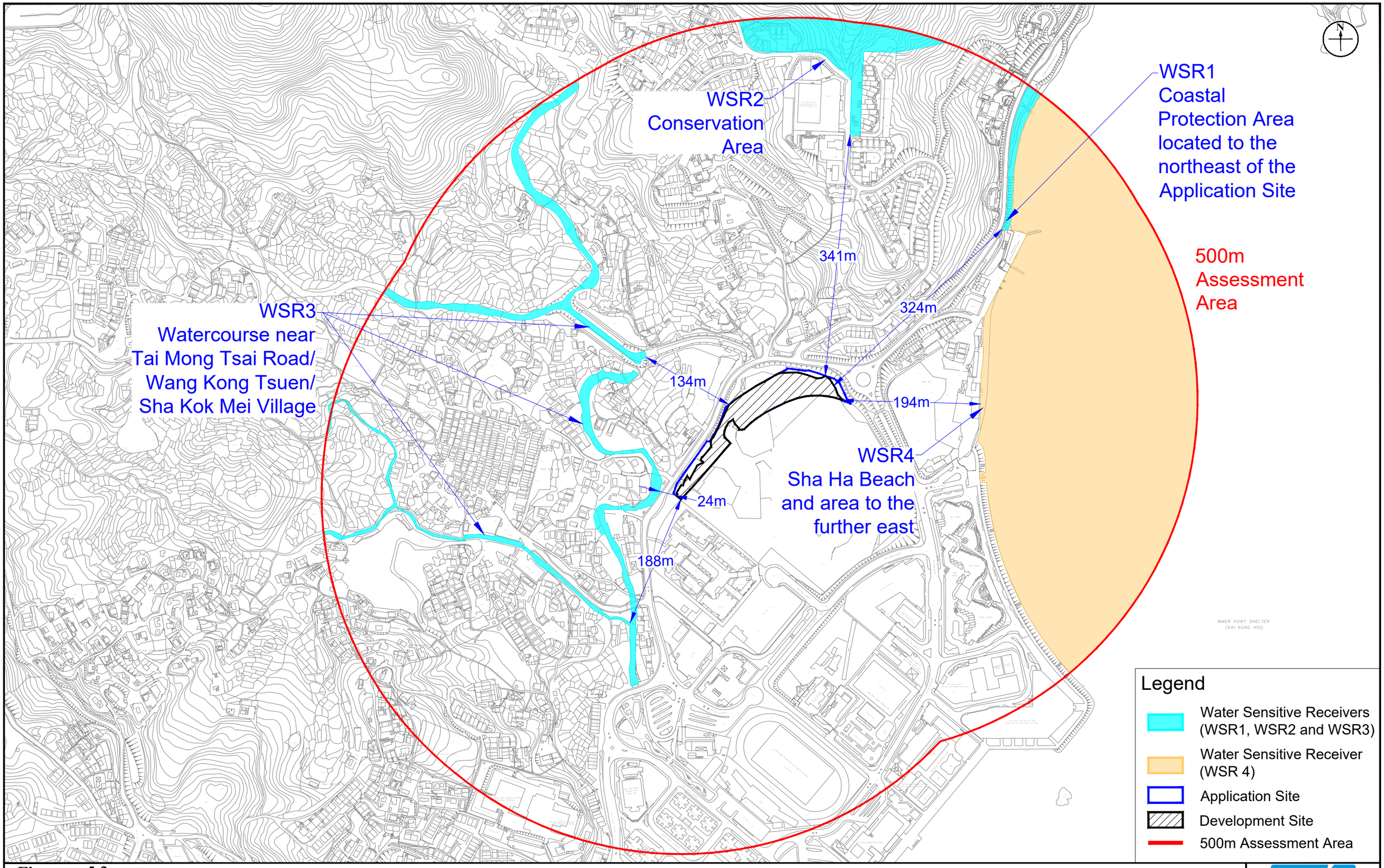
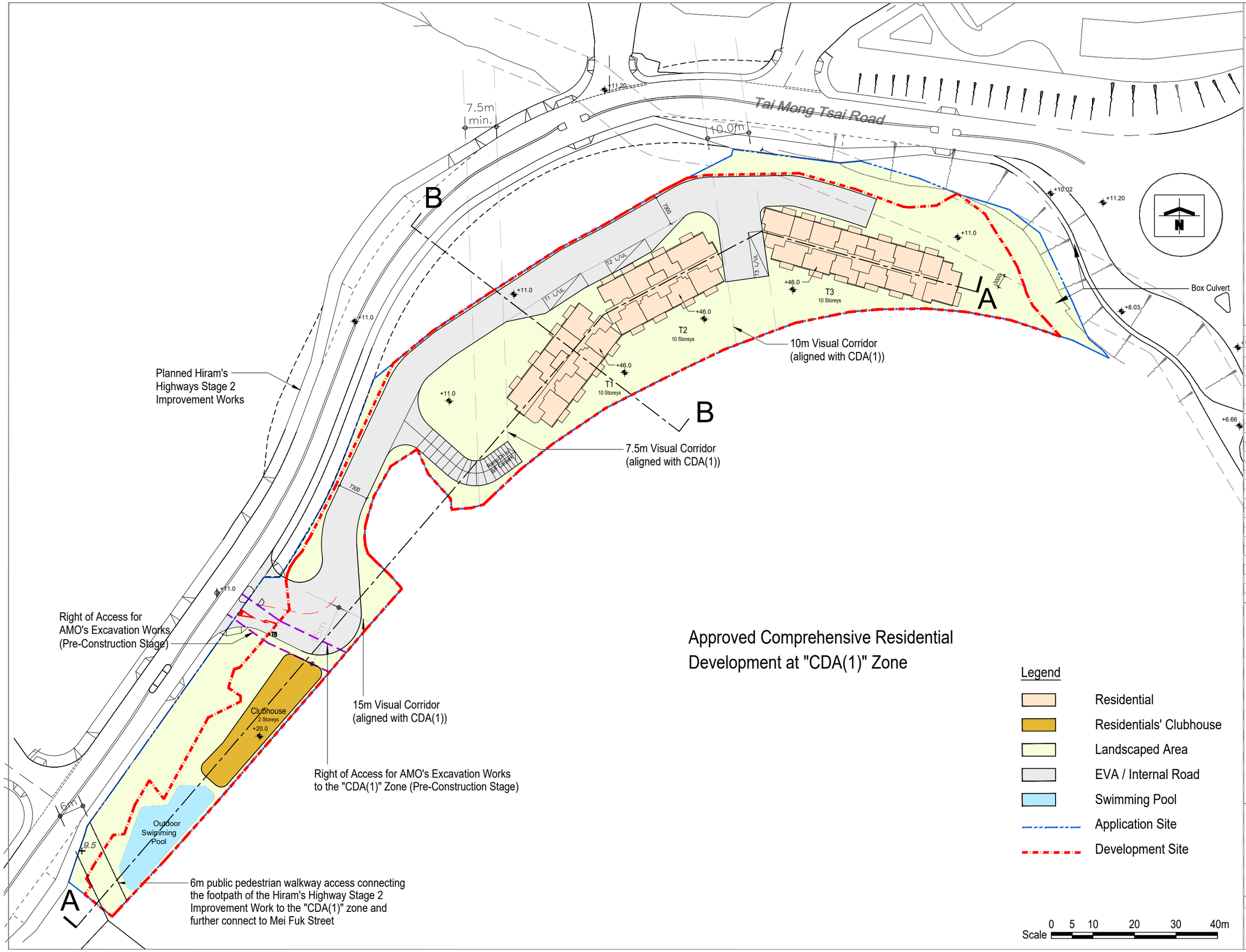


Figure: 5.2	RAMBOLL
Title: Location of Water Sensitive Receivers (WSRs)	Drawn by: CM Checked by: CC
Project: Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung	Rev.: 1.2 Date: Feb 2025

Q:\Projects\NWDSK221EI01\05 Assessments\03 Water\Fig5.2 WSR 20250217.dwg

Appendix 1.1 Master Layout Plan and Sections of the Proposed Development



Approved Comprehensive Residential Development at "CDA(1)" Zone

Legend

- Residential
- Residentials' Clubhouse
- Landscaped Area
- EVA / Internal Road
- Swimming Pool
- Application Site
- Development Site

Scale 0 5 10 20 30 40m

B.D. REFERENCE NUMBER:

NOTES

DO NOT SCALE DRAWING, FIGURED DIMENSIONS ARE TO BE FOLLOWED.
READ THIS DRAWING IN CONNECTION WITH GENERAL ARCHITECTURAL PLANS, STRUCTURAL PLANS, AND OTHER RELATED DRAWINGS. THE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY FOUND THEREIN.

REVISIONS

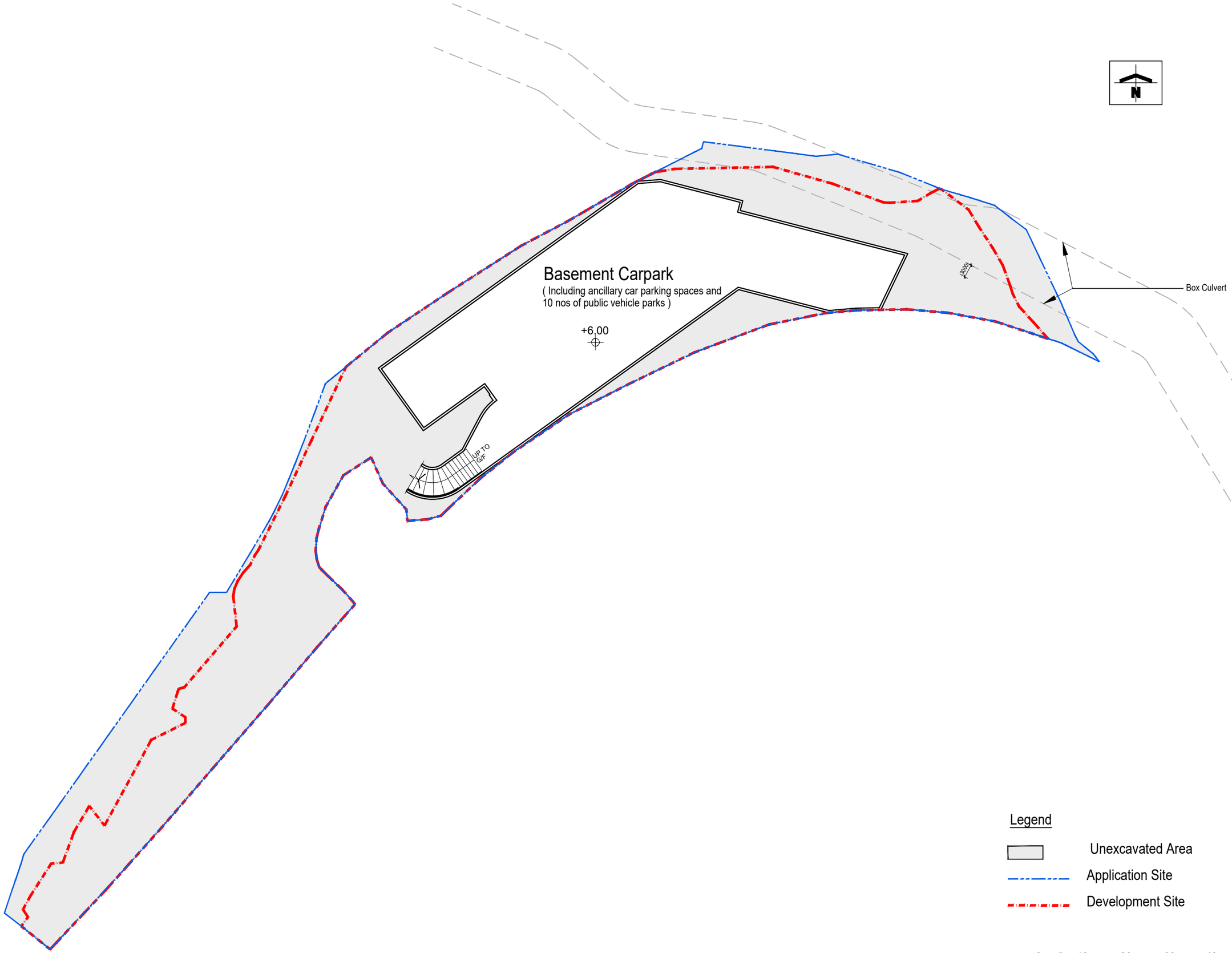
NO.	DATE	REVISED	DRAWN	CHECKED	APPROVED

PROJECT:
PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN DD 221 AND ADJOINING GOVERNMENT LAND SHA HA, SAI KUNG

TITLE:
MASTER LAYOUT PLAN

DATE: 17.09.2024 SCALE: 1:800 @ A3

MLP-01



B.D. REFERENCE NUMBER:

NOTES

DO NOT SCALE DRAWING, FIGURED DIMENSIONS ARE TO BE FOLLOWED.
READ THIS DRAWING IN CONNECTION WITH GENERAL ARCHITECTURAL PLANS, STRUCTURAL PLANS, AND OTHER RELATED DRAWINGS. THE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY FOUND THEREIN.

REVISIONS

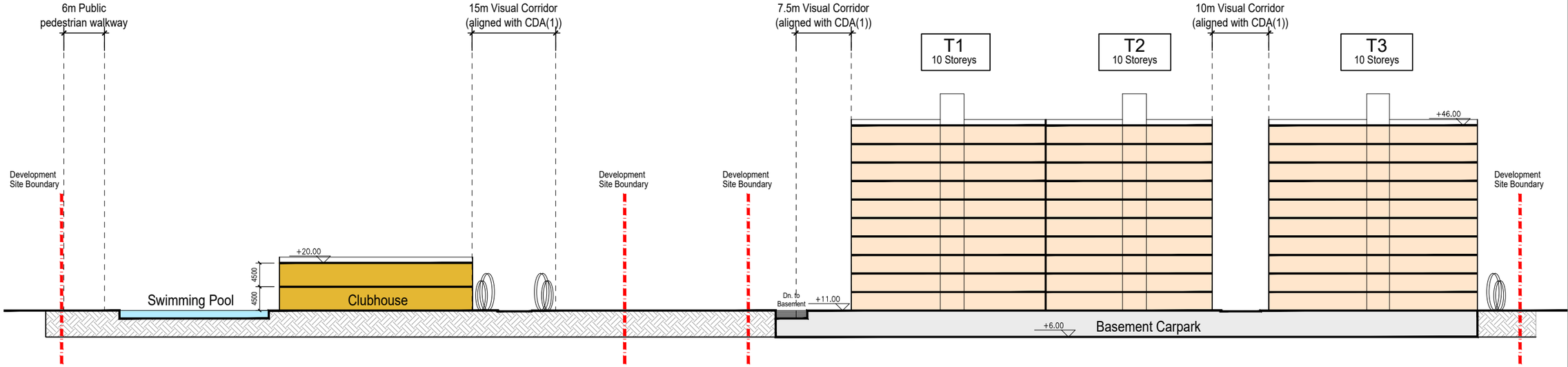
NO.	DATE	REVISED	STAFF	CHK'D	AUTH'D	APP'D

PROJECT:
PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN DD 221 AND ADJOINING GOVERNMENT LAND SHA HA, SAI KUNG

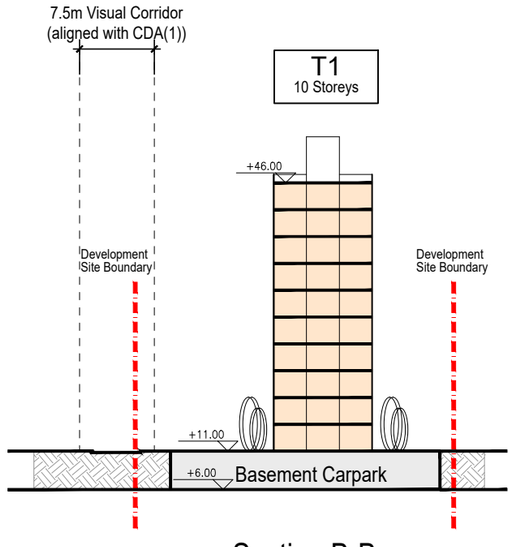
TITLE:
BASEMENT PLAN

DATE: 17.09.2024 SCALE: 1:800 @ A3

MLP–02



Section A-A



Section B-B

Legend

- Residential
- Residentials' Clubhouse
- Landscaped Area
- EVA / Internal Road
- Swimming Pool
- Application Site
- Development Site

Scale 0 5 10 20 30 40m

B.D. REFERENCE NUMBER:

NOTES
DO NOT SCALE DRAWING, FIGURED DIMENSIONS ARE TO BE FOLLOWED.
READ THIS DRAWING IN CONNECTION WITH GENERAL ARCHITECTURAL PLANS, STRUCTURAL PLANS, AND OTHER RELATED DRAWINGS. THE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY FOUND THEREIN.

REVISIONS

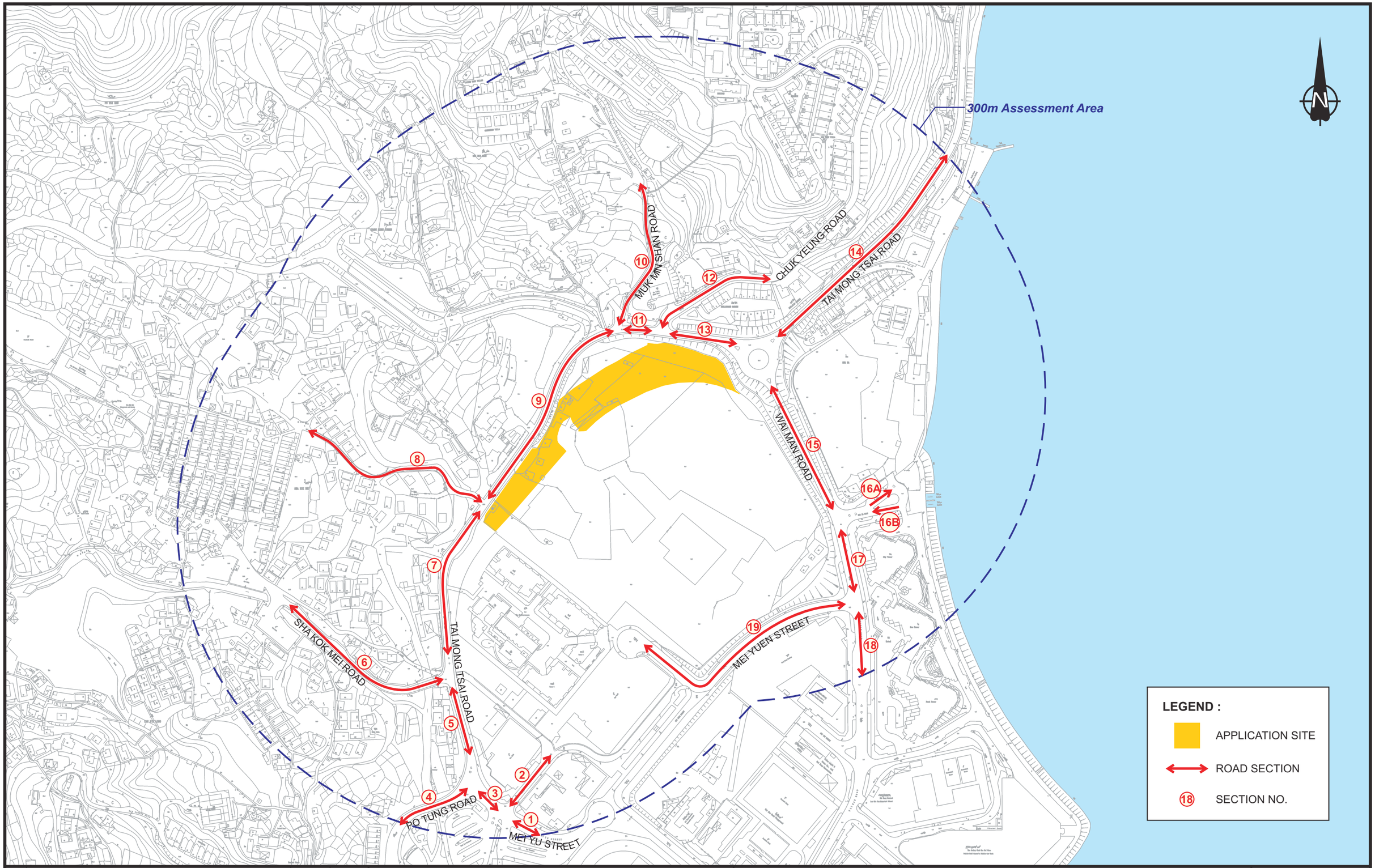
NO.	DATE	REVISED	DRAWN	CHECKED	APPROVED	AUTHORISED BY

PROJECT:
PROPOSED RESIDENTIAL DEVELOPMENT AT VARIOUS LOTS IN DD 221 AND ADJOINING GOVERNMENT LAND SHA HA, SAI KUNG

TITLE:
SECTION A-A and SECTION B-B

DATE: 17.09.2024 | SCALE: 1:800 @ A3

Appendix 2.1 Year 2047 Traffic Forecast



Rev.	Description	Checked	Date
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

Project Title

APPLICATION FOR PLANNING PERMISSION UNDER SECTION 16 OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED RESIDENTIAL DEVELOPMENT IN AREA SHOWN AS 'ROAD', VARIOUS LOTS IN D.D.221 AND ADJOINING GOVERNMENT LAND, SHA HA, SAI KUNG

Drawing Title

INDEX PLAN

Designed	Checked	Scale	Date	Drawing No.	Rev.
HZF	PTC	NTS	NOV 2024	1	-

SYSTRA MVA

CHK50791710/NIA/F1.CDR/LLH/29NOV24

Original Size : A3

Proposed Residential Development in Area shown as 'Road", Sha Ha

Year 2047 Peak-Hour Traffic Forecast

Ref. (1)	Road Name	Weekday AM Peak		Weekday PM Peak		Weekend Peak	
		Traffic Flow (Veh/hr)(2)	HV% (3)	Traffic Flow (Veh/hr)(2)	HV% (3)	Traffic Flow (Veh/hr)(2)	HV% (3)
1	Mei Yu Street	50	25%	50	10%	50	30%
2	Mei Yu Street	50	15%	50	5%	100	10%
3	Mei Yu Street	50	35%	100	10%	150	20%
4	Po Tung Road	1250	15%	1250	15%	1300	15%
5	Tai Mong Tsai Road	1300	15%	1250	15%	1300	20%
6	Sha Kok Mei Road	100	25%	200	20%	150	20%
7	Tai Mong Tsai Road	1250	15%	1250	15%	1250	20%
8	Sha Kok Mei North Road	100	20%	100	20%	150	20%
9	Tai Mong Tsai Road	1200	20%	1200	15%	1200	20%
10	Muk Min Shan Road	150	10%	150	5%	150	5%
11	Tai Mong Tsai Road	1250	15%	1200	15%	1200	20%
12	Chuk Yeung Road	100	10%	100	5%	150	5%
13	Tai Mong Tsai Road	1200	20%	1200	15%	1200	20%
14	Tai Mong Tsai Road	1300	20%	1250	15%	1350	20%
15	Wai Man Road	750	10%	550	10%	700	10%
16A	Sha Ha Road	150	5%	150	5%	150	5%
16B	Sha Ha Road	150	5%	150	5%	150	5%
17	Wai Man Road	450	15%	350	15%	450	10%
18	Wai Man Road	450	15%	350	10%	450	10%
19	Mei Yuen Street	150	10%	100	15%	100	15%

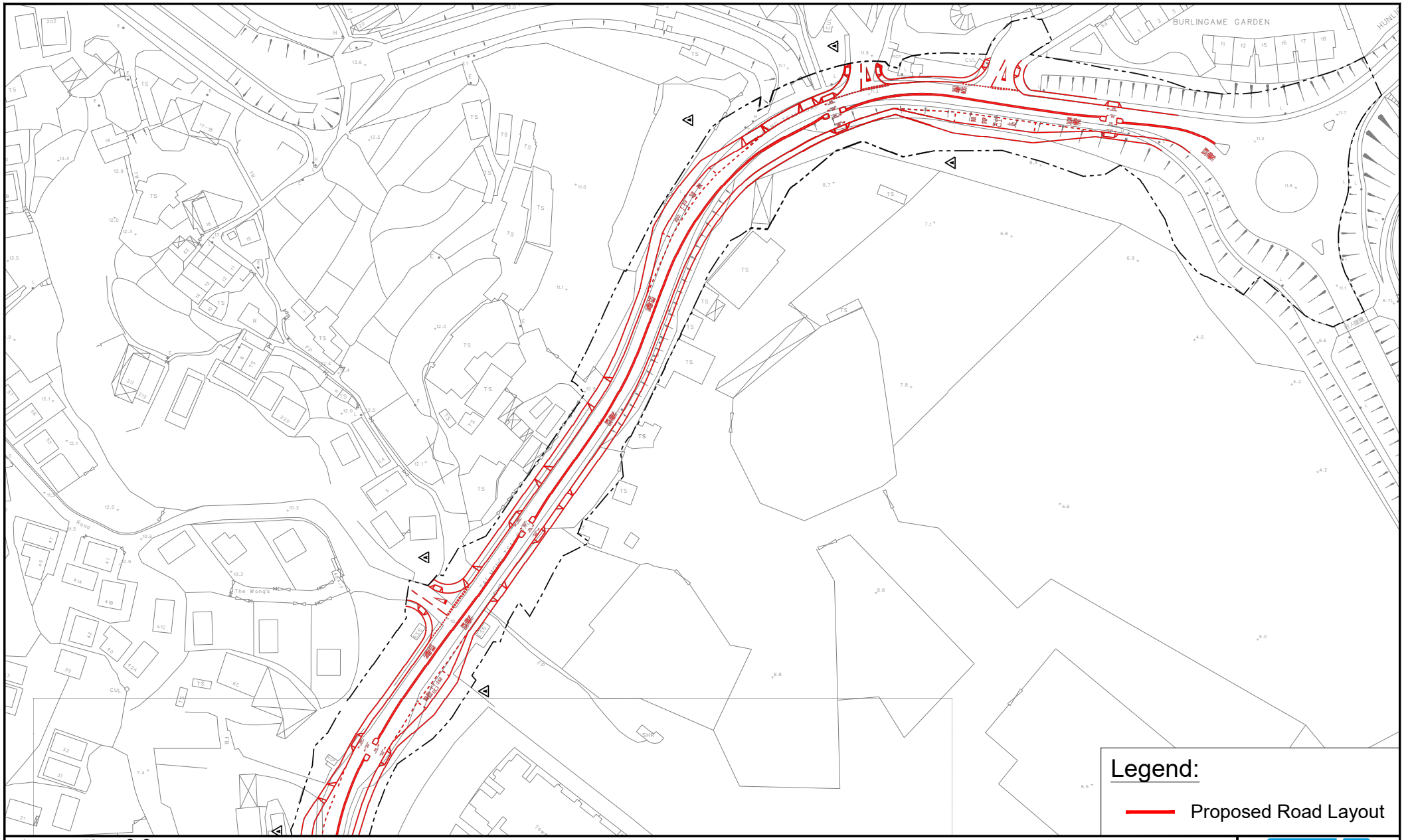
Remarks:

(1) Refer to **Drawing 1**;

(2) Traffic flows rounded up to the nearest 50;

(3) Heavy vehicles include all category of motor vehicles except private car, taxi and motorcycle; Rounded to the nearest 5%.

Appendix 2.2 Layout Plan of Hiram's Highway Improvement Stage 2



Appendix: 2.2a

Title: Layout Plan of Hiram's Highway Improvement Stage 2

Project: Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung

RAMBOLL

Drawn by:	CM
Checked by:	CC
Rev.:	1.0
Date:	Dec 2024

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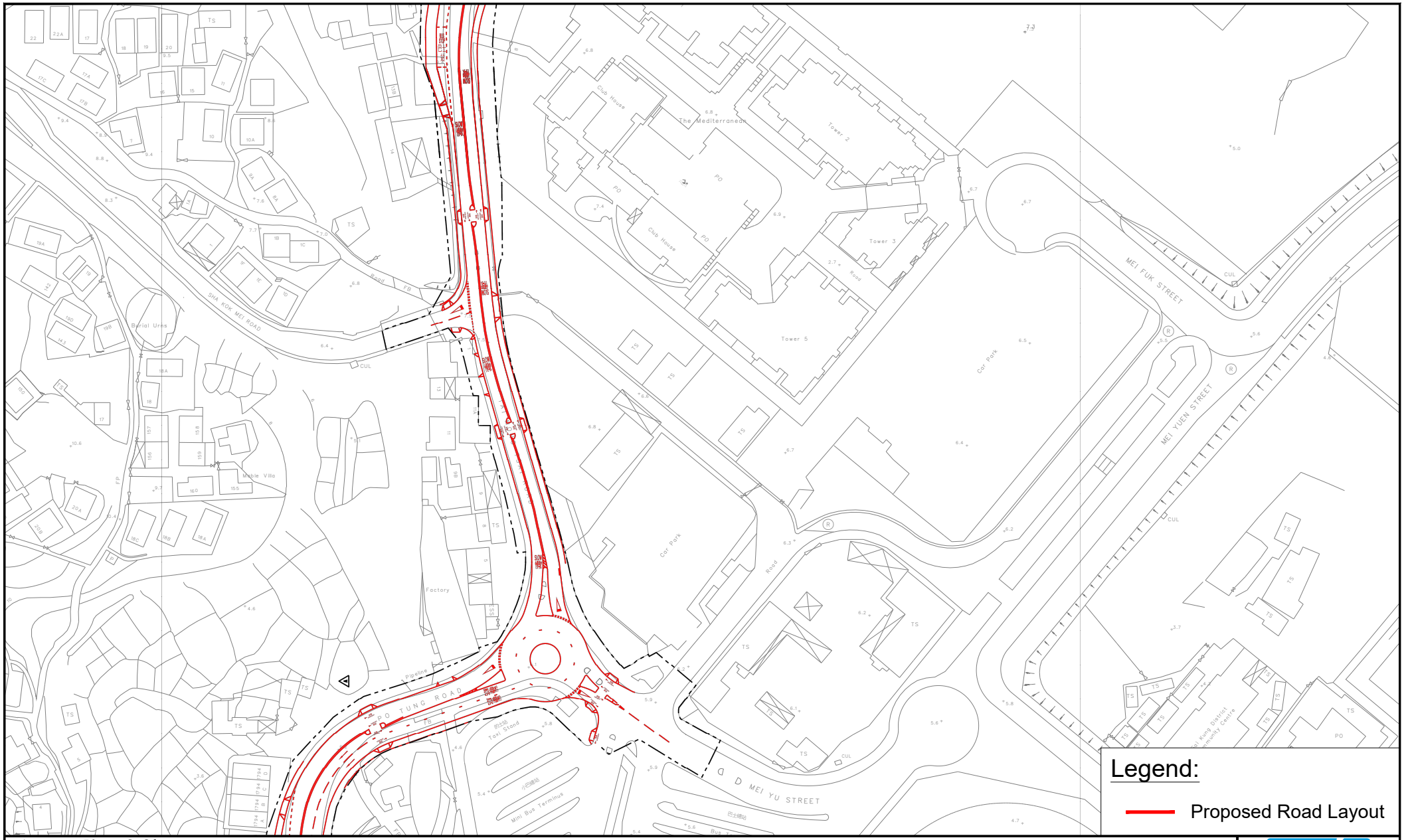

Appendix: 2.2b

Title: Layout Plan of Hiram's Highway Improvement Stage 2

Project: Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung

RAMBOLL

Drawn by:	CM
Checked by:	CC
Rev.:	1.0
Date:	Dec 2024

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Appendix 2.3 Results of Road Traffic Noise Impact Assessment

Predicted Road Traffic Noise (L10, dB(A)) at Selected Sensitive Receivers
Base Case (Weekday AM Peak Flow)

Tower 1

Floor	mPD	N1-01	N1-02	N1-03	N1-04	N1-05	N1-06	N1-07	N1-08	N1-09	N1-10	N1-11	N1-12	N1-13	N1-14	N1-15	N1-16	N1-17	N1-18	N1-19	N1-20	N1-21	N1-22	N1-23	N1-24
1/F	11.0	72	72	72	72	72	72	72	72	72	72	72	72	59	59	60	60	60	60	60	60	60	61	61	66
2/F	14.5	72	72	72	72	72	72	72	72	72	72	72	72	59	59	60	60	60	60	60	60	60	61	61	66
3/F	18.0	72	72	72	72	72	72	72	72	72	72	72	72	59	59	60	60	60	60	60	60	60	61	61	66
4/F	21.5	72	72	72	72	72	72	72	72	72	72	72	72	59	59	60	60	60	60	60	60	60	61	61	66
5/F	25.0	72	72	72	72	72	72	72	72	72	72	72	72	59	59	60	60	60	60	60	60	60	61	61	66
6/F	28.5	72	72	72	72	72	72	72	72	72	72	72	72	59	59	60	60	60	60	60	60	60	61	61	66
7/F	32.0	72	71	71	71	71	72	71	72	72	72	72	72	59	59	60	60	60	60	60	60	60	61	61	66
8/F	35.5	71	71	71	71	71	71	71	71	71	71	72	72	59	59	60	60	60	60	60	60	60	61	61	66
9/F	39.0	71	71	71	71	71	71	71	71	71	71	71	72	59	59	60	60	60	60	60	60	60	61	61	66
10/F	42.5	71	71	71	71	71	71	71	71	71	71	71	71	59	60	60	60	60	60	60	60	61	61	61	66
Max Noise Level		72	72	72	72	72	72	72	72	72	72	72	72	59	60	60	60	60	60	60	60	61	61	61	66
Exceedance		10				10		10			10			0			0			0			0		

Tower 2

Floor	mPD	N2-01	N2-02	N2-03	N2-04	N2-05	N2-06	N2-07	N2-08	N2-09	N2-10	N2-11	N2-12	N2-13	N2-14	N2-15	N2-16	N2-17	N2-18	N2-19	N2-20	N2-21	N2-22	N2-23	N2-24
1/F	11.0	73	72	72	72	72	72	72	72	72	73	73	73	63	61	61	60	60	60	60	60	59	59	59	59
2/F	14.5	73	72	72	72	72	72	72	72	72	72	73	73	63	61	61	60	60	60	60	60	59	59	59	59
3/F	18.0	72	72	72	72	72	72	72	72	72	72	72	73	63	61	61	60	60	60	60	60	59	59	59	59
4/F	21.5	72	72	72	72	72	72	72	72	72	72	72	73	63	61	61	60	60	60	60	60	59	59	59	59
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6/F	28.5	72	72	72	72	72	72	72	72	72	72	72	72	63	61	60	60	60	60	60	60	59	59	59	59
7/F	32.0	72	72	72	72	72	72	72	72	72	72	72	72	63	61	60	60	60	60	60	60	59	59	59	59
8/F	35.5	72	72	72	71	72	72	72	72	72	72	72	72	63	61	61	60	60	60	60	60	59	59	59	59
9/F	39.0	72	72	71	71	71	71	71	71	71	72	72	72	62	61	61	60	60	60	60	60	60	59	59	59
10/F	42.5	72	71	71	71	71	71	71	71	71	71	71	72	63	61	61	61	60	60	60	60	60	60	60	59
Max Noise Level		73	72	72	72	72	72	72	72	72	73	73	73	63	61	61	61	60	60	60	60	60	60	60	59
Exceedance		10			10			10		10				0			0			0			0		

Tower 3

Floor	mPD	N3-01	N3-02	N3-03	N3-04	N3-05	N3-06	N3-07	N3-08	N3-09	N3-10	N3-11	N3-12	N3-13	N3-14	N3-15	N3-16	N3-17	N3-18	N3-19	N3-20
1/F	11.0	73	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
2/F	14.5	73	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
3/F	18.0	73	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
4/F	21.5	73	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
5/F	25.0	73	74	74	74	74	74	73	73	73	73	73	73	73	73	73	73	74	74	74	74
6/F	28.5	73	74	74	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	74
7/F	32.0	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
8/F	35.5	72	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
9/F	39.0	72	73	73	73	73	73	73	73	73	73	72	73	73	73	73	73	73	73	73	73
10/F	42.5	72	73	73	72	72	72	72	72	72	72	72	72	72	72	72	72	72	73	73	73
Max Noise Level		73	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
Exceedance		10				10		10			10			10			10			10	

Floor	mPD	N3-21	N3-22	N3-23	N3-24	N3-25	N3-26	N3-27	N3-28	N3-29	N3-30	N3-31	N3-32	N3-33	N3-34	N3-35	N3-36	N3-37	N3-38	N3-39	N3-40
1/F	11.0	74	73	72	72	65	63	63	63	63	62	63	63	61	62	62	62	62	62	62	65
2/F	14.5	74	73	72	72	65	63	63	63	63	62	63	63	61	62	62	62	62	62	62	65
3/F	18.0	74	73	72	71	65	63	63	63	63	62	63	63	61	62	62	62	62	62	62	65
4/F	21.5	74	73	72	71	65	63	63	63	63	62	63	63	61	62	62	62	62	62	62	65
5/F	25.0	74	73	72	71	65	63	63	63	63	62	63	62	61	62	62	62	62	62	62	65
6/F	28.5	74	72	72	71	64	63	63	63	63	62	63	62	61	61	62	62	62	62	62	65
7/F	32.0	73	72	71	71	64	63	63	63	63	62	63	62	61	61	62	62	62	62	62	65
8/F	35.5	73	72	71	71	64	63	63	63	63	62	63	62	61	61	62	62	62	62	62	65
9/F	39.0	73	72	71	70	64	63	63	63	63	62	63	62	61	61	62	62	62	62	62	65
10/F	42.5	73	72	71	70	64	63	63	63	63	62	63	62	61	62	62	62	62	62	62	65
Max Noise Level		74	73	72	72	65	63	63	63	63	62	63	63	61	62	62	62	62	62	62	65
Exceedance		10					0			0			0			0			0		

Total no. of Flats:	280
Total no. of Exceedance:	160
Compliance Level:	43%
Max. Noise Level:	74

Notes:
71 Noise level exceed stardand of 70 dB(A)

Predicted Road Traffic Noise (L10, dB(A)) at Selected Sensitive Receivers
Base Case (Weekday PM Peak Flow)

Tower 1

Floor	mPD	N1-01	N1-02	N1-03	N1-04	N1-05	N1-06	N1-07	N1-08	N1-09	N1-10	N1-11	N1-12	N1-13	N1-14	N1-15	N1-16	N1-17	N1-18	N1-19	N1-20	N1-21	N1-22	N1-23	N1-24
1/F	11.0	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	72	72	58	58	58	59	59	59	59	59	59	60	61	65
2/F	14.5	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	72	72	58	58	58	59	59	59	59	59	59	60	61	65
3/F	18.0	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	72	72	58	58	58	59	59	59	59	59	59	60	61	65
4/F	21.5	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	71	72	58	58	58	59	59	59	59	59	59	60	61	65
5/F	25.0	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	71	72	58	58	58	59	59	59	59	59	59	60	61	65
6/F	28.5	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	71	71	58	58	58	59	59	59	59	59	59	60	61	65
7/F	32.0	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	71	71	58	58	58	58	59	59	59	59	59	60	61	65
8/F	35.5	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	71	71	58	58	58	58	59	59	59	59	59	60	61	65
9/F	39.0	70	70	70	70	70	70	70	**71**	**71**	**71**	71	71	58	58	59	59	59	59	59	59	59	60	61	65
10/F	42.5	70	70	70	70	70	70	70	70	70	70	71	71	58	59	59	59	59	59	59	59	60	60	61	65
Max Noise Level		71	71	71	71	71	71	71	71	71	71	72	72	58	59	59	59	59	59	59	59	60	60	61	65
Exceedance		8				8		9			10			0			0			0			0		

Tower 2

Floor	mPD	N2-01	N2-02	N2-03	N2-04	N2-05	N2-06	N2-07	N2-08	N2-09	N2-10	N2-11	N2-12	N2-13	N2-14	N2-15	N2-16	N2-17	N2-18	N2-19	N2-20	N2-21	N2-22	N2-23	N2-24
1/F	11.0	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	62	60	60	60	59	59	59	59	58	58	58	58
2/F	14.5	**72**	**72**	**72**	**71**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	62	60	60	60	59	59	59	59	58	58	58	58
3/F	18.0	**72**	**72**	**72**	**71**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	62	60	60	60	59	59	59	59	58	58	58	58
4/F	21.5	**72**	**72**	**71**	**71**	**71**	**71**	**71**	**72**	**72**	**72**	**72**	**72**	62	60	60	60	59	59	59	59	58	58	58	58
5/F	25.0	**72**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**72**	**72**	**72**	**72**	62	60	60	60	59	59	59	59	58	58	58	58
6/F	28.5	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**72**	**72**	62	60	60	60	59	59	59	59	58	58	58	58
7/F	32.0	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**72**	62	60	60	60	59	59	59	59	58	58	58	58
8/F	35.5	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	62	60	60	60	59	59	59	59	58	58	58	58
9/F	39.0	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	62	60	60	60	59	59	59	59	59	58	58	58
10/F	42.5	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	**71**	62	60	60	60	60	59	59	59	59	59	58	58
Max Noise Level		72	72	72	72	72	72	72	72	72	72	72	72	62	60	60	60	60	59	59	59	59	59	58	58
Exceedance		10			10			10			10			0			0			0			0		

Tower 3

Floor	mPD	N3-01	N3-02	N3-03	N3-04	N3-05	N3-06	N3-07	N3-08	N3-09	N3-10	N3-11	N3-12	N3-13	N3-14	N3-15	N3-16	N3-17	N3-18	N3-19	N3-20
1/F	11.0	**73**	**74**	**74**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**74**
2/F	14.5	**73**	**74**	**74**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**74**
3/F	18.0	**73**	**74**	**74**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**
4/F	21.5	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**
5/F	25.0	**72**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**73**
6/F	28.5	**72**	**73**	**73**	**73**	**73**	**73**	**73**	**73**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**73**	**73**	**73**	**73**
7/F	32.0	**72**	**73**	**73**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**73**
8/F	35.5	**72**	**73**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**
9/F	39.0	**71**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**
10/F	42.5	**71**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**	**72**
Max Noise Level		73	74	74	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	74
Exceedance		10				10		10			10			10			10			10		

Floor	mPD	N3-21	N3-22	N3-23	N3-24	N3-25	N3-26	N3-27	N3-28	N3-29	N3-30	N3-31	N3-32	N3-33	N3-34	N3-35	N3-36	N3-37	N3-38	N3-39	N3-40
1/F	11.0	**74**	**72**	**71**	**71**	64	62	62	62	62	62	62	62	60	61	61	61	61	61	61	65
2/F	14.5	**73**	**72**	**71**	**71**	64	62	62	62	62	62	62	62	60	61	61	61	61	61	61	65
3/F	18.0	**73**	**72**	**71**	**71**	64	62	62	62	62	62	62	62	60	61	61	61	61	61	61	65
4/F	21.5	**73**	**72**	**71**	70	64	62	62	62	62	62	62	62	60	61	61	61	61	61	61	65
5/F	25.0	**73**	**72**	**71**	70	63	62	62	62	62	62	62	62	60	61	61	61	61	61	61	65
6/F	28.5	**73**	**71**	**71**	70	63	62	62	62	62	62	62	62	60	61	61	61	61	61	61	65
7/F	32.0	**72**	**71**	70	70	63	62	62	62	62	61	62	62	60	61	61	61	61	61	61	65
8/F	35.5	**72**	**71**	70	70	63	62	62	62	62	61	62	62	60	61	61	61	61	61	61	65
9/F	39.0	**72**	**71**	70	69	63	62	62	62	62	61	62	62	60	61	61	61	61	61	61	64
10/F	42.5	**72**	**71**	70	69	63	62	62	62	62	62	62	62	60	61	61	61	61	61	61	64
Max Noise Level		74	72	71	71	64	62	62	62	62	62	62	62	60	61	61	61	61	61	61	65
Exceedance		10				0		0			0			0			0			0		

Total no. of Flats:	280
Total no. of Exceedance:	155
Compliance Level:	45%
Max. Noise Level:	74

Notes:

71 Noise level exceed stardand of 70 dB(A)

Predicted Road Traffic Noise (L10, dB(A)) at Selected Sensitive Receivers
Base Case (Weekend Peak Flow)

Tower 1

Floor	mPD	N1-01	N1-02	N1-03	N1-04	N1-05	N1-06	N1-07	N1-08	N1-09	N1-10	N1-11	N1-12	N1-13	N1-14	N1-15	N1-16	N1-17	N1-18	N1-19	N1-20	N1-21	N1-22	N1-23	N1-24
1/F	11.0	72	72	72	72	72	72	72	72	72	72	72	73	59	59	59	59	59	60	60	60	60	61	61	66
2/F	14.5	72	72	72	72	72	72	72	72	72	72	72	73	59	59	59	59	59	60	60	60	60	61	61	66
3/F	18.0	72	72	72	72	72	72	72	72	72	72	72	73	59	59	59	59	59	60	60	60	60	61	61	66
4/F	21.5	72	72	72	72	72	72	72	72	72	72	72	72	59	59	59	59	59	60	60	60	60	61	61	66
5/F	25.0	72	72	72	72	72	72	72	72	72	72	72	72	59	59	59	59	59	60	60	60	60	61	61	66
6/F	28.5	72	72	72	72	72	72	72	72	72	72	72	72	59	59	59	59	59	60	60	60	60	61	61	66
7/F	32.0	72	72	72	72	72	72	72	72	72	72	72	72	59	59	59	59	59	60	60	60	60	61	61	66
8/F	35.5	71	71	71	71	71	71	71	71	71	72	72	72	59	59	59	59	59	60	60	60	60	61	61	66
9/F	39.0	71	71	71	71	71	71	71	71	71	71	72	72	59	59	59	59	59	60	60	60	60	61	61	66
10/F	42.5	71	71	71	71	71	71	71	71	71	71	71	72	59	59	60	60	60	60	60	60	60	61	61	66
Max Noise Level		72	72	72	72	72	72	72	72	72	72	72	73	59	59	60	60	60	60	60	60	60	61	61	66
Exceedance		10				10		10			10			0			0			0			0		

Tower 2

Floor	mPD	N2-01	N2-02	N2-03	N2-04	N2-05	N2-06	N2-07	N2-08	N2-09	N2-10	N2-11	N2-12	N2-13	N2-14	N2-15	N2-16	N2-17	N2-18	N2-19	N2-20	N2-21	N2-22	N2-23	N2-24
1/F	11.0	73	72	72	72	72	72	72	72	73	73	73	73	63	61	60	60	60	60	60	59	59	59	59	59
2/F	14.5	73	72	72	72	72	72	72	72	73	73	73	73	63	61	60	60	60	60	60	59	59	59	59	59
3/F	18.0	73	72	72	72	72	72	72	72	73	73	73	73	63	61	61	60	60	60	60	59	59	59	59	59
4/F	21.5	73	72	72	72	72	72	72	72	72	73	73	73	63	61	61	60	60	60	60	59	59	59	59	59
5/F	25.0	72	72	72	72	72	72	72	72	72	72	72	73	63	61	60	60	60	60	60	59	59	59	59	59
6/F	28.5	72	72	72	72	72	72	72	72	72	72	72	73	63	61	60	60	60	60	60	59	59	59	59	59
7/F	32.0	72	72	72	72	72	72	72	72	72	72	72	72	63	61	60	60	60	60	60	59	59	59	59	59
8/F	35.5	72	72	72	72	72	72	72	72	72	72	72	72	63	61	60	60	60	60	60	59	59	59	59	59
9/F	39.0	72	72	72	71	72	72	72	72	72	72	72	72	63	61	61	60	60	60	60	60	59	59	59	59
10/F	42.5	72	71	71	71	71	71	71	71	72	72	72	72	63	61	61	61	60	60	60	60	60	60	59	59
Max Noise Level		73	72	72	72	72	72	72	72	73	73	73	73	63	61	61	61	60	60	60	60	60	60	59	59
Exceedance		10			10			10			10			0			0			0			0		

Tower 3

Floor	mPD	N3-01	N3-02	N3-03	N3-04	N3-05	N3-06	N3-07	N3-08	N3-09	N3-10	N3-11	N3-12	N3-13	N3-14	N3-15	N3-16	N3-17	N3-18	N3-19	N3-20
1/F	11.0	74	75	75	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	75
2/F	14.5	74	75	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
3/F	18.0	74	75	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
4/F	21.5	73	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
5/F	25.0	73	74	74	74	74	74	74	74	74	74	73	74	74	73	74	74	74	74	74	74
6/F	28.5	73	74	74	74	74	73	73	73	73	73	73	73	73	73	73	73	73	73	74	74
7/F	32.0	73	74	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
8/F	35.5	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
9/F	39.0	72	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
10/F	42.5	72	73	73	73	73	72	72	72	72	72	72	72	72	72	72	72	73	73	73	73
Max Noise Level		74	75	75	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	75
Exceedance		10				10		10			10			10			10			10		

Floor	mPD	N3-21	N3-22	N3-23	N3-24	N3-25	N3-26	N3-27	N3-28	N3-29	N3-30	N3-31	N3-32	N3-33	N3-34	N3-35	N3-36	N3-37	N3-38	N3-39	N3-40
1/F	11.0	74	73	72	72	65	63	63	63	63	62	63	62	61	62	62	62	62	62	62	66
2/F	14.5	74	73	72	72	64	63	63	63	63	62	63	62	61	62	62	62	62	62	62	66
3/F	18.0	74	73	72	71	64	63	63	63	63	62	63	62	61	62	62	62	62	62	62	66
4/F	21.5	74	73	72	71	64	63	63	63	63	62	63	62	61	62	62	62	62	62	62	66
5/F	25.0	74	73	72	71	64	63	63	63	63	62	63	62	61	62	62	62	62	62	62	66
6/F	28.5	74	72	72	71	64	63	63	63	63	62	63	62	61	62	62	62	62	62	62	65
7/F	32.0	73	72	71	71	64	63	63	63	63	62	63	62	61	62	62	62	62	62	62	65
8/F	35.5	73	72	71	70	64	63	63	63	63	62	62	62	61	61	62	62	62	62	62	65
9/F	39.0	73	72	71	70	64	63	63	63	63	62	63	62	61	62	62	62	62	62	62	65
10/F	42.5	73	72	71	70	64	63	63	63	63	62	63	62	61	62	62	62	62	62	62	65
Max Noise Level		74	73	72	72	65	63	63	63	63	62	63	62	61	62	62	62	62	62	62	66
Exceedance		10					0			0			0			0			0		

Total no. of Flats:	280
Total no. of Exceedance:	160
Compliance Level:	43%
Max. Noise Level:	75

Notes:
71 Noise level exceed stardand of 70 dB(A)

Predicted Road Traffic Noise (L10, dB(A)) at Selected Sensitive Receivers
Base Case (Combined Case)

Tower 1

Floor	mPD	N1-01	N1-02	N1-03	N1-04	N1-05	N1-06	N1-07	N1-08	N1-09	N1-10	N1-11	N1-12	N1-13	N1-14	N1-15	N1-16	N1-17	N1-18	N1-19	N1-20	N1-21	N1-22	N1-23	N1-24
1/F	11.0	72	72	72	72	72	72	72	72	72	72	72	73	59	59	60	60	60	60	60	60	60	61	61	66
2/F	14.5	72	72	72	72	72	72	72	72	72	72	72	73	59	59	60	60	60	60	60	60	60	61	61	66
3/F	18.0	72	72	72	72	72	72	72	72	72	72	72	73	59	59	60	60	60	60	60	60	60	61	61	66
4/F	21.5	72	72	72	72	72	72	72	72	72	72	72	72	59	59	60	60	60	60	60	60	60	61	61	66
5/F	25.0	72	72	72	72	72	72	72	72	72	72	72	72	59	59	60	60	60	60	60	60	60	61	61	66
6/F	28.5	72	72	72	72	72	72	72	72	72	72	72	72	59	59	60	60	60	60	60	60	60	61	61	66
7/F	32.0	72	72	72	72	72	72	72	72	72	72	72	72	59	59	60	60	60	60	60	60	60	61	61	66
8/F	35.5	71	71	71	71	71	71	71	71	71	72	72	72	59	59	60	60	60	60	60	60	60	61	61	66
9/F	39.0	71	71	71	71	71	71	71	71	71	71	72	72	59	59	60	60	60	60	60	60	60	61	61	66
10/F	42.5	71	71	71	71	71	71	71	71	71	71	71	72	59	60	60	60	60	60	60	60	61	61	61	66
Max Noise Level		72	72	72	72	72	72	72	72	72	72	72	73	59	60	60	60	60	60	60	60	61	61	61	66
Exceedance		10				10		10			10			0			0			0			0		

Tower 2

Floor	mPD	N2-01	N2-02	N2-03	N2-04	N2-05	N2-06	N2-07	N2-08	N2-09	N2-10	N2-11	N2-12	N2-13	N2-14	N2-15	N2-16	N2-17	N2-18	N2-19	N2-20	N2-21	N2-22	N2-23	N2-24
1/F	11.0	73	72	72	72	72	72	72	72	73	73	73	73	63	61	61	60	60	60	60	60	59	59	59	59
2/F	14.5	73	72	72	72	72	72	72	72	73	73	73	73	63	61	61	60	60	60	60	60	59	59	59	59
3/F	18.0	73	72	72	72	72	72	72	72	73	73	73	73	63	61	61	60	60	60	60	60	59	59	59	59
4/F	21.5	73	72	72	72	72	72	72	72	72	73	73	73	63	61	61	60	60	60	60	60	59	59	59	59
5/F	25.0	72	72	72	72	72	72	72	72	72	72	72	73	63	61	61	60	60	60	60	60	59	59	59	59
6/F	28.5	72	72	72	72	72	72	72	72	72	72	72	73	63	61	60	60	60	60	60	60	59	59	59	59
7/F	32.0	72	72	72	72	72	72	72	72	72	72	72	72	63	61	60	60	60	60	60	60	59	59	59	59
8/F	35.5	72	72	72	72	72	72	72	72	72	72	72	72	63	61	61	60	60	60	60	60	59	59	59	59
9/F	39.0	72	72	72	71	72	72	72	72	72	72	72	72	63	61	61	60	60	60	60	60	60	59	59	59
10/F	42.5	72	71	71	71	71	71	71	71	72	72	72	72	63	61	61	61	60	60	60	60	60	60	60	59
Max Noise Level		73	72	72	72	72	72	72	72	73	73	73	73	63	61	61	61	60	60	60	60	60	60	60	59
Exceedance		10			10			10			10			0			0			0			0		

Tower 3

Floor	mPD	N3-01	N3-02	N3-03	N3-04	N3-05	N3-06	N3-07	N3-08	N3-09	N3-10	N3-11	N3-12	N3-13	N3-14	N3-15	N3-16	N3-17	N3-18	N3-19	N3-20
1/F	11.0	74	75	75	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	75
2/F	14.5	74	75	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
3/F	18.0	74	75	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
4/F	21.5	73	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74
5/F	25.0	73	74	74	74	74	74	74	74	74	74	73	74	74	73	74	74	74	74	74	74
6/F	28.5	73	74	74	74	74	73	73	73	73	73	73	73	73	73	73	73	73	73	74	74
7/F	32.0	73	74	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
8/F	35.5	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
9/F	39.0	72	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
10/F	42.5	72	73	73	73	73	72	72	72	72	72	72	72	72	72	72	72	73	73	73	73
Max Noise Level		74	75	75	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	74	75
Exceedance		10				10		10			10			10			10			10		

Floor	mPD	N3-21	N3-22	N3-23	N3-24	N3-25	N3-26	N3-27	N3-28	N3-29	N3-30	N3-31	N3-32	N3-33	N3-34	N3-35	N3-36	N3-37	N3-38	N3-39	N3-40
1/F	11.0	74	73	72	72	65	63	63	63	63	62	63	63	61	62	62	62	62	62	62	66
2/F	14.5	74	73	72	72	65	63	63	63	63	62	63	63	61	62	62	62	62	62	62	66
3/F	18.0	74	73	72	71	65	63	63	63	63	62	63	63	61	62	62	62	62	62	62	66
4/F	21.5	74	73	72	71	65	63	63	63	63	62	63	63	61	62	62	62	62	62	62	66
5/F	25.0	74	73	72	71	65	63	63	63	63	62	63	62	61	62	62	62	62	62	62	66
6/F	28.5	74	72	72	71	64	63	63	63	63	62	63	62	61	62	62	62	62	62	62	65
7/F	32.0	73	72	71	71	64	63	63	63	63	62	63	62	61	62	62	62	62	62	62	65
8/F	35.5	73	72	71	71	64	63	63	63	63	62	63	62	61	61	62	62	62	62	62	65
9/F	39.0	73	72	71	70	64	63	63	63	63	62	63	62	61	62	62	62	62	62	62	65
10/F	42.5	73	72	71	70	64	63	63	63	63	62	63	62	61	62	62	62	62	62	62	65
Max Noise Level		74	73	72	72	65	63	63	63	63	62	63	63	61	62	62	62	62	62	62	66
Exceedance		10					0			0			0			0			0		

Total no. of Flats:	280
Total no. of Exceedance:	160
Compliance Level:	43%
Max. Noise Level:	75

Noted:

71 Noise level exceed stardand of 70 dB(A)

Predicted Road Traffic Noise (L10, dB(A)) at Selected Sensitive Receivers
Mitigated (Acoustic Window (Baffle Type), Enhanced Acoustic Balcony (Baffle Type), Fixed Glazing with or without Maintanance Window)

Tower 1

Floor	mPD	N1-01	N1-02	N1-03	N1-04	N1-05	N1-06	N1-07	N1-08	N1-09	N1-10	N1-11	N1-12	N1-13	N1-14	N1-15	N1-16	N1-17	N1-18	N1-19	N1-20	N1-21	N1-22	N1-23	N1-24
1/F	11.0	70	70	70	70	70	70	70	70	70	70	70	70	59	59	60	60	60	60	60	60	60	61	61	66
2/F	14.5	70	70	70	70	70	70	70	70	70	70	70	70	59	59	60	60	60	60	60	60	60	61	61	66
3/F	18.0	70	70	70	70	70	70	70	70	70	70	70	70	59	59	60	60	60	60	60	60	60	61	61	66
4/F	21.5	70	70	70	70	70	70	70	70	70	70	70	70	59	59	60	60	60	60	60	60	60	61	61	66
5/F	25.0	70	70	70	70	70	70	70	70	70	70	70	70	59	59	60	60	60	60	60	60	60	61	61	66
6/F	28.5	70	70	70	70	70	70	70	70	70	70	70	70	59	59	60	60	60	60	60	60	60	61	61	66
7/F	32.0	70	70	70	70	70	70	70	70	70	70	70	70	59	59	60	60	60	60	60	60	60	61	61	66
8/F	35.5	70	70	70	70	70	70	70	70	70	70	70	70	59	59	60	60	60	60	60	60	60	61	61	66
9/F	39.0	70	70	70	70	70	70	70	70	70	70	70	70	59	59	60	60	60	60	60	60	60	61	61	66
10/F	42.5	70	70	70	70	70	70	70	70	70	70	70	70	59	60	60	60	60	60	60	60	61	61	61	66
Max Noise Level		70	70	70	70	70	70	70	70	70	70	70	70	59	60	60	60	60	60	60	60	61	61	61	66
Exceedance		0				0		0			0			0			0			0			0		

Tower 2

Floor	mPD	N2-01	N2-02	N2-03	N2-04	N2-05	N2-06	N2-07	N2-08	N2-09	N2-10	N2-11	N2-12	N2-13	N2-14	N2-15	N2-16	N2-17	N2-18	N2-19	N2-20	N2-21	N2-22	N2-23	N2-24
1/F	11.0	70	70	70	70	70	70	70	70	70	70	70	70	63	61	61	60	60	60	60	60	59	59	59	59
2/F	14.5	70	70	70	70	70	70	70	70	70	70	70	70	63	61	61	60	60	60	60	60	59	59	59	59
3/F	18.0	70	70	70	70	70	70	70	70	70	70	70	70	63	61	61	60	60	60	60	60	59	59	59	59
4/F	21.5	70	70	70	70	70	70	70	70	70	70	70	70	63	61	61	60	60	60	60	60	59	59	59	59
5/F	25.0	70	70	70	70	70	70	70	70	70	70	70	70	63	61	61	60	60	60	60	60	59	59	59	59
6/F	28.5	70	70	70	70	70	70	70	70	70	70	70	70	63	61	60	60	60	60	60	60	59	59	59	59
7/F	32.0	70	70	70	70	70	70	70	70	70	70	70	70	63	61	60	60	60	60	60	60	59	59	59	59
8/F	35.5	70	70	70	70	70	70	70	70	70	70	70	70	63	61	61	60	60	60	60	60	59	59	59	59
9/F	39.0	70	70	70	70	70	70	70	70	70	70	70	70	63	61	61	60	60	60	60	60	60	59	59	59
10/F	42.5	70	70	70	70	70	70	70	70	70	70	70	70	63	61	61	61	60	60	60	60	60	60	60	59
Max Noise Level		70	70	70	70	70	70	70	70	70	70	70	70	63	61	61	61	60	60	60	60	60	60	60	59
Exceedance		0			0			0		0				0			0			0			0		

Tower 3

Floor	mPD	N3-01	N3-02	N3-03	N3-04	N3-05	N3-06	N3-07	N3-08	N3-09	N3-10	N3-11	N3-12	N3-13	N3-14	N3-15	N3-16	N3-17	N3-18	N3-19	N3-20
1/F	11.0	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
2/F	14.5	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
3/F	18.0	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
4/F	21.5	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
5/F	25.0	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
6/F	28.5	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
7/F	32.0	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
8/F	35.5	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
9/F	39.0	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
10/F	42.5	-	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Max Noise Level		0	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Exceedance		0				0		0			0			0			0			0	

Floor	mPD	N3-21	N3-22	N3-23	N3-24	N3-25	N3-26	N3-27	N3-28	N3-29	N3-30	N3-31	N3-32	N3-33	N3-34	N3-35	N3-36	N3-37	N3-38	N3-39	N3-40
1/F	11.0	70	70	70	70	-	63	63	63	63	62	63	63	61	62	62	62	62	62	62	66
2/F	14.5	70	70	70	70	-	63	63	63	63	62	63	63	61	62	62	62	62	62	62	66
3/F	18.0	70	70	70	70	-	63	63	63	63	62	63	63	61	62	62	62	62	62	62	66
4/F	21.5	70	70	70	70	-	63	63	63	63	62	63	63	61	62	62	62	62	62	62	66
5/F	25.0	70	70	70	70	-	63	63	63	63	62	63	62	61	62	62	62	62	62	62	66
6/F	28.5	70	70	70	70	-	63	63	63	63	62	63	62	61	62	62	62	62	62	62	65
7/F	32.0	70	70	70	70	-	63	63	63	63	62	63	62	61	62	62	62	62	62	62	65
8/F	35.5	70	70	70	70	-	63	63	63	63	62	63	62	61	61	62	62	62	62	62	65
9/F	39.0	70	70	70	70	64	63	63	63	63	62	63	62	61	62	62	62	62	62	62	65
10/F	42.5	70	70	70	70	64	63	63	63	63	62	63	62	61	62	62	62	62	62	62	65
Max Noise Level		70	70	70	70	64	63	63	63	63	62	63	63	61	62	62	62	62	62	62	66
Exceedance		0				0			0			0			0			0			

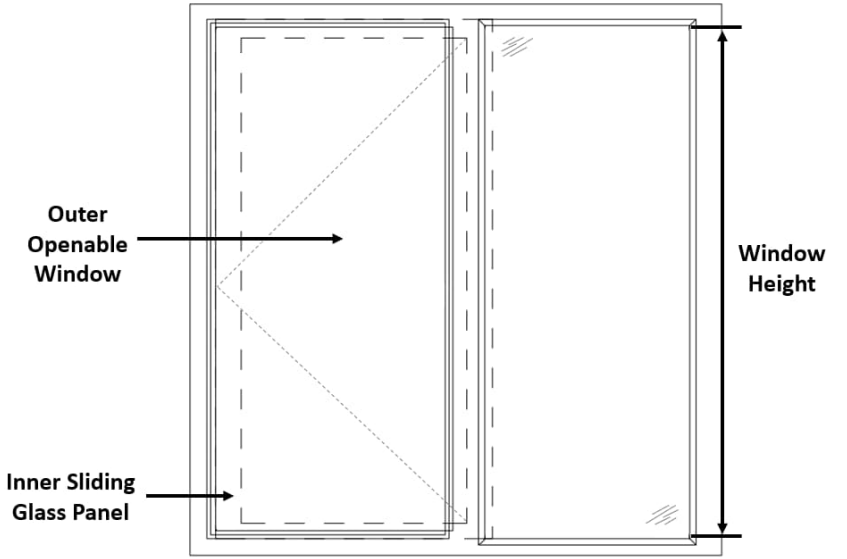
Total no. of Flats:	280
Total no. of Exceedance:	0
Compliance Level:	100%
Max. Noise Level:	70

Noted:

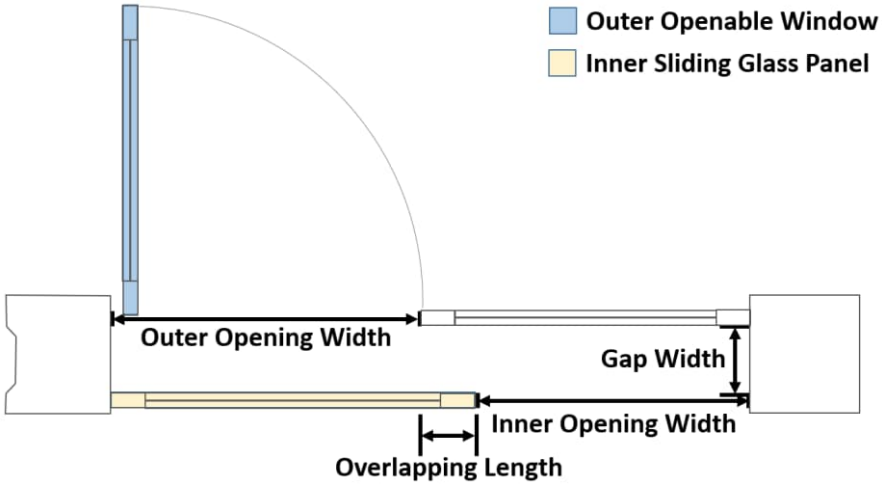
71	Noise level exceed stardand of 70 dB(A)
	Acoustic Window (Baffle Type)
	Enhanced Acoustic Balcony (Baffle Type)
-	Fixed Glazing with or without Maintenance Window

Appendix 2.4 Design of Acoustic Window (Baffle Type) and Enhanced Acoustic Balcony (Baffle Type)

(I) Possible design of "Acoustic Window (Baffle Type)" for 8m² and 18m² habitable rooms (i.e. dining room, living room or bedroom)



INTERNAL VIEW (NOT TO SCALE)



PLAN (NOT TO SCALE)

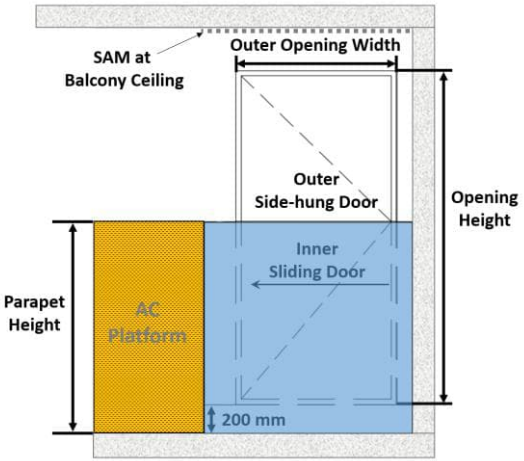
Possible Designs of "Acoustic Window (Baffle Type)" for 8m² and 18m² rooms					
Room Size (m^2)	**Room Dimensions (mm^3)**	**Inner Window Opening (mm^2)**	**Outer Window Opening (mm^2)**	**Overlapping Length (mm)**	**Gap Width (mm)**
8	**3200 (W) x 2500 (D) x 3400 (H)**	**580 (W) x 870 (H)**	**600 (W) x 870 (H)**	**≥ 100**	**100 to 175**
18	**5300 (W) x 3390 (D) x 3400 (H)**	**750 (W) x 1500 (H)**	**750 (W) x 1500 (H)**	**≥ 100**	**100 to 175**

Notes:

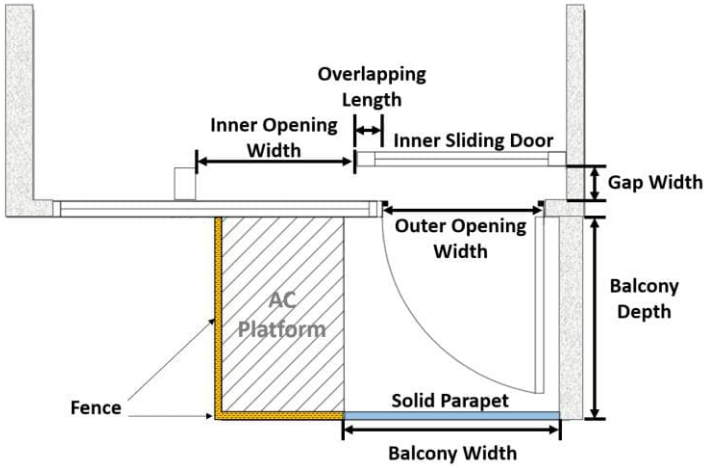
a. These are feasible designs of AW(BT) for 8m² and 18m² rooms.

b. For optimum performance of noise reduction, the air gap should have a pane-to-pane overlapping length of ≥ 100mm and a gap width between 100mm and 175mm, with the inner sliding glass panel in a closed position. The window pane shall be ≥ 6mm in thickness.

(II) Possible designs of "Enhanced Acoustic Balcony (Baffle Type)" in 14m^2 and 18m^2 habitable rooms (i.e. dining room, living room or bedroom)



EXTERNAL VIEW (NOT TO SCALE)



PLAN (NOT TO SCALE)

Fence (≥ 70% Permeability) Solid Parapet

Possible Designs of "Enhanced Acoustic Balcony (Baffle Type)" for 14m^2 and 18m^2 rooms								
Room size (m^2)	**Room Dimensions (mm^3)**	**Balcony Width (mm)**	**Balcony Depth (mm)**	**Parapet Height (mm)**	**Inner Opening (mm^2)**	**Outer Opening (mm^2)**	**Overlapping Length (mm)**	**Gap Width (mm)**
14	**3400 (W) x 4100 (D) x 3100 (H)**	**≥ 1440**	**≥ 1300**	**≥ 1450**	**1025 (W) x 2210 (H)**	**1150 (W) x 2210 (H)**	**≥ 100**	**100**
18	**5300 (W) x 3390 (D) x 3400 (H)**	**≥ 2055**	**≥ 1300**	**≥ 1450**	**1150 (W) x 2210 (H)**	**1150 (W) x 2210 (H)**	**≥ 100**	**100**

Notes:
1. These are feasible designs of EAB for 14m^2 and 18m^2 rooms. The room with EAB should meet the natural lighting and ventilation requirements in regulations 30 & 31 of the Building (Planning) Regulations (B(P)R). The AC platform should comply with the requirements under Appendix B of Code of Practice on Access for External Maintenance 2021 (AfEM Code), and balconies for residential buildings should comply with the criteria and conditions set out in Joint Practice Note (JPN) 1 for application of exemption from gross floor area and/or site coverage under the B(P)R.
2. SAM at balcony ceiling refers to sound absorptive material of noise reduction coefficient ≥ 0.7. It is an essential feature to attain the basic noise reduction performance in Annex B.
3. Comparable noise performance is anticipated should the AC platform be replaced by balcony with solid parapet.

Appendix 2.5 Estimation of Road Traffic Sound Attenuation of Acoustic Window (Baffle Type) and Enhanced Acoustic Balcony (Baffle Type)

Road Traffic Noise Impact Assessment

Acoustic Window (Baffle Type) and Acoustic Door (Baffle Type)

Summary Table of Major Parameters of Reference Case and Maximum Sound Attenuation Available

Name	Outer opening width, mm	Outer opening height, mm	Outer opening area, m^2	Air gap, mm	Overlapping length, mm	MPA Applied	Solid Parapet Applied	Acoustic Ceiling Applied	Room Area, m^2	Maximum Noise Reduction Available, dB(A)
Acoustic Window (Baffle Type)										
AW-PN	600	870	0.5	100	100	No	-	-	8.0	6.0
Enhanced Acoustic Balcony (Baffle Type)										
EAB-PN	1150	2210	2.5	100	100	No	Yes	Yes	14.0	8.0
									18.0	9.0

Note:

MPA: Micro Perforated Absorber

Solid Parapet: Minimum 1440mm (W), 1450mm (H) for room area of 14m^2 or minimum 2055mm (W) x 1450mm (H) for room area of 18m^2 parallel to door opening

SAM: Sound Absoptive Material

Acoustic Ceiling: Balcony ceiling to be covered by SAM

Road Traffic Noise Impact Assessment

Acoustic Window (Baffle Type) and Enhanced Acoustic Balcony (Baffle Type)

Table of Major Parameters, Room Size and Sound Attenuation Adjustment of "Proposed Case for Proposed Development" and "Corresponding Reference Case"

					Proposed Development								Reference Case											
Tower	Room	Opening	NSRs	Case	Outer opening area, m^2	Air gap, mm	Overlapping length, mm	MPA applied?	SAM and Pelmet applied	Solid Parapet Applied	Acoustic Ceiling applied	Room area (RA), m^2	Outer opening width, mm	Outer opening height, mm	Outer opening area, m^2	Air gap, mm	Overlapping length, mm	MPA applied?	Room area (RAref), m^2	Ref. sound attenuation, dB(A)	Room Size Adjustment: 10xlog(RA / RAref) (adjust downward only), dB(A)	Adjusted sound attenuation, dB(A)	Maximum possible sound attenuation, dB(A)**	Maximum noise reduction adopted, dB(A)*
1	BR	W	N1-01	AW-PN	**0.5**	100	100	No	No	-	-	7.00	600	870	**0.5**	100	100	No	8.00	6.0	-0.6	5.4	5.4	**1.7**
1	LIV	D	N1-02	EAB-PN	**2.5**	100	100	No	No	Yes	Yes	18.00	1150	2210	**2.5**	100	100	No	18.00	9.0	0.0	9.0	9.0	**1.6**
1	BR	W	N1-03	AW-PN	**0.5**	100	100	No	No	-	-	4.30	600	870	**0.5**	100	100	No	8.00	6.0	-2.7	3.3	3.3	**1.6**
1	BR	W	N1-04	AW-PN	**0.5**	100	100	No	No	-	-	6.80	600	870	**0.5**	100	100	No	8.00	6.0	-0.7	5.3	5.3	**1.6**
1	LIV	D	N1-05	EAB-PN	**2.5**	100	100	No	No	Yes	Yes	12.40	1150	2210	**2.5**	100	100	No	14.00	8.0	-0.5	7.5	7.5	**1.6**
1	BR	W	N1-06	AW-PN	**0.5**	100	100	No	No	-	-	6.30	600	870	**0.5**	100	100	No	8.00	6.0	-1.0	5.0	5.0	**1.7**
1	BR	W	N1-07	AW-PN	**0.5**	100	100	No	No	-	-	6.20	600	870	**0.5**	100	100	No	8.00	6.0	-1.1	4.9	4.9	**1.6**
1	BR	W	N1-08	AW-PN	**0.5**	100	100	No	No	-	-	4.10	600	870	**0.5**	100	100	No	8.00	6.0	-2.9	3.1	3.1	**1.7**
1	LIV	D	N1-09	EAB-PN	**2.5**	100	100	No	No	Yes	Yes	16.00	1150	2210	**2.5**	100	100	No	18.00	9.0	-0.5	8.5	8.5	**1.7**
1	BR	W	N1-10	AW-PN	**0.5**	100	100	No	No	-	-	6.20	600	870	**0.5**	100	100	No	8.00	6.0	-1.1	4.9	4.9	**1.8**
1	LIV	D	N1-11	EAB-PN	**2.5**	100	100	No	No	Yes	Yes	15.70	1150	2210	**2.5**	100	100	No	18.00	9.0	-0.6	8.4	8.4	**1.9**
1	BR	W	N1-12	AW-PN	**0.5**	100	100	No	No	-	-	7.40	600	870	**0.5**	100	100	No	8.00	6.0	0.0	6.0	6.0	**2.1**
2	BR	W	N2-01	AW-PN	**0.5**	100	100	No	No	-	-	7.40	600	870	**0.5**	100	100	No	8.00	6.0	0.0	6.0	6.0	**2.2**
2	LIV	D	N2-02	EAB-PN	**2.5**	100	100	No	No	Yes	Yes	15.70	1150	2210	**2.5**	100	100	No	18.00	9.0	-0.6	8.4	8.4	**2.0**
2	BR	W	N2-03	AW-PN	**0.5**	100	100	No	No	-	-	6.20	600	870	**0.5**	100	100	No	8.00	6.0	-1.1	4.9	4.9	**1.9**
2	LIV	D	N2-04	EAB-PN	**2.5**	100	100	No	No	Yes	Yes	16.00	1150	2210	**2.5**	100	100	No	18.00	9.0	-0.5	8.5	8.5	**1.9**
2	BR	W	N2-05	AW-PN	**0.5**	100	100	No	No	-	-	4.20	600	870	**0.5**	100	100	No	8.00	6.0	-2.8	3.2	3.2	**1.9**
2	BR	W	N2-06	AW-PN	**0.5**	100	100	No	No	-	-	6.20	600	870	**0.5**	100	100	No	8.00	6.0	-1.1	4.9	4.9	**1.9**
2	BR	W	N2-07	AW-PN	**0.5**	100	100	No	No	-	-	6.30	600	870	**0.5**	100	100	No	8.00	6.0	-1.0	5.0	5.0	**2.0**
2	LIV	D	N2-08	EAB-PN	**2.5**	100	100	No	No	Yes	Yes	12.40	1150	2210	**2.5**	100	100	No	14.00	8.0	-0.5	7.5	7.5	**2.0**
2	BR	W	N2-09	AW-PN	**0.5**	100	100	No	No	-	-	6.80	600	870	**0.5**	100	100	No	8.00	6.0	-0.7	5.3	5.3	**2.2**
2	BR	W	N2-10	AW-PN	**0.5**	100	100	No	No	-	-	4.30	600	870	**0.5**	100	100	No	8.00	6.0	-2.7	3.3	3.3	**2.3**
2	LIV	D	N2-11	EAB-PN	**2.5**	100	100	No	No	Yes	Yes	18.00	1150	2210	**2.5**	100	100	No	18.00	9.0	0.0	9.0	9.0	**2.3**
2	BR	W	N2-12	AW-PN	**0.5**	100	100	No	No	-	-	7.00	600	870	**0.5**	100	100	No	8.00	6.0	-0.6	5.4	5.4	**2.6**
3	BR	W	N3-02	AW-PN	**0.5**	100	100	No	No	-	-	7.40	600	870	**0.5**	100	100	No	8.00	6.0	0.0	6.0	6.0	**4.2**
3	BR	W	N3-03	AW-PN	**0.5**	100	100	No	No	-	-	5.50	600	870	**0.5**	100	100	No	8.00	6.0	-1.6	4.4	4.4	**4.1**
3	LIV	D	N3-04	EAB-PN	**2.5**	100	100	No	No	Yes	Yes	16.30	1150	2210	**2.5**	100	100	No	18.00	9.0	0.0	9.0	9.0	**3.9**
3	BR	W	N3-05	AW-PN	**0.5**	100	100	No	No	-	-	6.00	600	870	**0.5**	100	100	No	8.00	6.0	-1.2	4.8	4.8	**3.9**
3	LIV	D	N3-06	EAB-PN	**2.5**	100	100	No	No	Yes	Yes	12.50	1150	2210	**2.5**	100	100	No	14.00	8.0	-0.5	7.5	7.5	**3.7**
3	BR	W	N3-07	AW-PN	**0.5**	100	100	No	No	-	-	6.00	600	870	**0.5**	100	100	No	8.00	6.0	-1.2	4.8	4.8	**3.7**
3	LIV	D	N3-08	EAB-PN	**2.5**	100	100	No	No	Yes	Yes	13.50	1150	2210	**2.5**	100	100	No	14.00	8.0	0.0	8.0	8.0	**3.6**
3	BR	W	N3-09	AW-PN	**0.5**	100	100	No	No	-	-	6.10	600	870	**0.5**	100	100	No	8.00	6.0	-1.2	4.8	4.8	**3.6**
3	BR	W	N3-10	AW-PN	**0.5**	100	100	No	No	-	-	4.70	600	870	**0.5**	100	100	No	8.00	6.0	-2.3	3.7	3.7	**3.5**
3	LIV	D	N3-11	EAB-PN	**2.5**	100	100	No	No	Yes	Yes	12.30	1150	2210	**2.5**	100	100	No	14.00	8.0	-0.6	7.4	7.4	**3.5**
3	BR	W	N3-12	AW-PN	**0.5**	100	100	No	No	-	-	4.80	600	870	**0.5**	100	100	No	8.00	6.0	-2.2	3.8	3.8	**3.6**
3	BR	W	N3-13	AW-PN	**0.5**	100	100	No	No	-	-	4.80	600	870	**0.5**	100	100	No	8.00	6.0	-2.2	3.8	3.8	**3.5**
3	LIV	D	N3-14	EAB-PN	**2.5**	100	100	No	No	Yes	Yes	12.30	1150	2210	**2.5**	100	100	No	14.00	8.0	-0.6	7.4	7.4	**3.5**
3	BR	W	N3-15	AW-PN	**0.5**	100	100	No	No	-	-	4.70	600	870	**0.5**	100	100	No	8.00	6.0	-2.3	3.7	3.7	**3.6**
3	BR	W	N3-16	AW-PN	**0.5**	100	100	No	No	-	-	6.10	600	870	**0.5**	100	100	No	8.00	6.0	-1.2	4.8	4.8	**3.7**
3	LIV	D	N3-17	EAB-PN	**2.5**	100	100	No	No	Yes	Yes	13.60	1150	2210	**2.5**	100	100	No	14.00	8.0	0.0	8.0	8.0	**3.7**
3	BR	W	N3-18	AW-PN	**0.5**	100	100	No	No	-	-	6.00	600	870	**0.5**	100	100	No	8.00	6.0	-1.2	4.8	4.8	**3.8**
3	LIV	D	N3-19	EAB-PN	**2.5**	100	100	No	No	Yes	Yes	12.40	1150	2210	**2.5**	100	100	No	14.00	8.0	-0.5	7.5	7.5	**3.9**
3	BR	W	N3-20	AW-PN	**0.5**	100	100	No	No	-	-	6.00	600	870	**0.5**	100	100	No	8.00	6.0	-1.2	4.8	4.8	**4.1**
3	BR	W	N3-21	AW-PN	**0.5**	100	100	No	No	-	-	7.70	600	870	**0.5**	100	100	No	8.00	6.0	0.0	6.0	6.0	**4.0**
3	BR	W	N3-22	AW-PN	**0.5**	100	100	No	No	-	-	5.10	600	870	**0.5**	100	100	No	8.00	6.0	-2.0	4.0	4.0	**2.8**
3	BR	W	N3-23	AW-PN	**0.5**	100	100	No	No	-	-	5.10	600	870	**0.5**	100	100	No	8.00	6.0	-2.0	4.0	4.0	**1.9**
3	LIV	D	N3-24	EAB-PN	**2.5**	100	100	No	No	Yes	Yes	23.70	1150	2210	**2.5**	100	100	No	18.00	9.0	0.0	9.0	9.0	**1.2**

Remark

*The actual sound attenuation to be adopted is not more than the adjusted sound attenuation shown in this table as a conservative approach

**The presented sound attenuation figures represent the maximum sound attenuation of different NSRs after considering room size adjustment.

Appendix 2.6 Proposed Road Traffic Noise Mitigation Measures Schedule

Proposed Road Traffic Noise Mitigation Measures Schedule

Tower 1

Tower	NSR	Floor	Noise Mitigation Measures
1	N1-01	1/F-10/F	Acoustic Window (Baffle Type)
	N1-02	1/F-10/F	Enhanced Acoustic Balcony (Baffle Type)
	N1-03	1/F-10/F	Acoustic Window (Baffle Type)
	N1-04	1/F-10/F	Acoustic Window (Baffle Type)
	N1-05	1/F-10/F	Enhanced Acoustic Balcony (Baffle Type)
	N1-06	1/F-10/F	Acoustic Window (Baffle Type)
	N1-07	1/F-10/F	Acoustic Window (Baffle Type)
	N1-08	1/F-10/F	Acoustic Window (Baffle Type)
	N1-09	1/F-10/F	Enhanced Acoustic Balcony (Baffle Type)
	N1-10	1/F-10/F	Acoustic Window (Baffle Type)
	N1-11	1/F-10/F	Enhanced Acoustic Balcony (Baffle Type)
	N1-12	1/F-10/F	Acoustic Window (Baffle Type)

Tower 2

Tower	NSR	Floor	Noise Mitigation Measures
2	N2-01	1/F-10/F	Acoustic Window (Baffle Type)
	N2-02	1/F-10/F	Enhanced Acoustic Balcony (Baffle Type)
	N2-03	1/F-10/F	Acoustic Window (Baffle Type)
	N2-04	1/F-10/F	Enhanced Acoustic Balcony (Baffle Type)
	N2-05	1/F-10/F	Acoustic Window (Baffle Type)
	N2-06	1/F-10/F	Acoustic Window (Baffle Type)
	N2-07	1/F-10/F	Acoustic Window (Baffle Type)
	N2-08	1/F-10/F	Enhanced Acoustic Balcony (Baffle Type)
	N2-09	1/F-10/F	Acoustic Window (Baffle Type)
	N2-10	1/F-10/F	Acoustic Window (Baffle Type)
	N2-11	1/F-10/F	Enhanced Acoustic Balcony (Baffle Type)
	N2-12	1/F-10/F	Acoustic Window (Baffle Type)

Proposed Road Traffic Noise Mitigation Measures Schedule

Tower 3

Tower	NSR	Floor	Noise Mitigation Measures
3	N3-01	1/F-10/F	Fixed Glazing with or without Maintenance Window
	N3-03	1/F-10/F	Acoustic Window (Baffle Type)
	N3-04	1/F-10/F	Enhanced Acoustic Balcony (Baffle Type)
	N3-05	1/F-10/F	Acoustic Window (Baffle Type)
	N3-06	1/F-10/F	Enhanced Acoustic Balcony (Baffle Type)
	N3-07	1/F-10/F	Acoustic Window (Baffle Type)
	N3-08	1/F-10/F	Enhanced Acoustic Balcony (Baffle Type)
	N3-09	1/F-10/F	Acoustic Window (Baffle Type)
	N3-10	1/F-10/F	Acoustic Window (Baffle Type)
	N3-11	1/F-10/F	Enhanced Acoustic Balcony (Baffle Type)
	N3-12	1/F-10/F	Acoustic Window (Baffle Type)
	N3-13	1/F-10/F	Acoustic Window (Baffle Type)
	N3-14	1/F-10/F	Enhanced Acoustic Balcony (Baffle Type)
	N3-15	1/F-10/F	Acoustic Window (Baffle Type)
	N3-16	1/F-10/F	Acoustic Window (Baffle Type)
	N3-17	1/F-10/F	Enhanced Acoustic Balcony (Baffle Type)
	N3-18	1/F-10/F	Acoustic Window (Baffle Type)
	N3-19	1/F-10/F	Enhanced Acoustic Balcony (Baffle Type)
	N3-20	1/F-10/F	Acoustic Window (Baffle Type)
	N3-21	1/F-10/F	Acoustic Window (Baffle Type)
	N3-22	1/F-10/F	Acoustic Window (Baffle Type)
	N3-23	1/F-10/F	Acoustic Window (Baffle Type)
	N3-24	1/F-8/F	Enhanced Acoustic Balcony (Baffle Type)
	N3-25	1/F-8/F	Fixed Glazing with or without Maintenance Window

Appendix 3.1 Result of Fixed Noise Impact Assessment

Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung
Detailed Calculation of Fixed Source Noise Impact Assessment

NSR	x	y
N01	846096.2	827595.9

Source	Source ID	x	y	Day and Evening Time SWL, dB(A)	Quantity Correction, dB(A)	Shortest Distance from Noise Source to NSR, m	Distance Attenuation, dB(A)	Tonality Correction, dB(A)	Façade Correction, dB(A)	Day and Evening Time SPL, Leq (30min) dB(A)
Sing Hoi Car Beauty	G01	845999.2	827360.8	87.9	0.0	254	-56	0	3	34.8
Fai Tat Motor Service (HK) Co., Ltd	G02	845982.0	827525.5	97.0	0.0	134	-51	0	3	49.4
Hka chillers (Ref: ACDS 080)	H01	846302.6	827387.2	86.1	3.0	293	-57	6	3	40.7
Hka VRVs (Ref: RUCYQ22BB)	H02	846353.8	827408.3	71.0	0.0	319	-58	6	3	21.9
Hka VRVs (Ref: RUCYQ22BB)	H03	846357.1	827410.3	71.0	0.0	320	-58	6	3	21.9
									Predicted SPL, dB(A)	**50**
									eptable Noise Level for ASR "A", dB(A)	**60**

* No night time operation for all noise source

Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung
Detailed Calculation of Fixed Source Noise Impact Assessment

NSR	x	y
N02	846047.5	827522.8

Source	Source ID	x	y	Day and Evening Time SWL, dB(A)	Quantity Correction, dB(A)	Shortest Distance from Noise Source to NSR, m	Distance Attenuation, dB(A)	Tonality Correction, dB(A)	Façade Correction, dB(A)	Day and Evening Time SPL, Leq (30min) dB(A)
Sing Hoi Car Beauty	G01	845999.2	827360.8	87.9	0.0	169	-53	0	3	38.3
Fai Tat Motor Service (HK) Co., Ltd	G02	845982.0	827525.5	97.0	0.0	66	-44	0	3	55.7
Hka chillers (Ref: ACDS 080)	H01	846302.6	827387.2	86.1	3.0	289	-57	6	3	40.9
Hka VRVs (Ref: RUCYQ22BB)	H02	846353.8	827408.3	71.0	0.0	327	-58	6	3	21.7
Hka VRVs (Ref: RUCYQ22BB)	H03	846357.1	827410.3	71.0	0.0	329	-58	6	3	21.6
									Predicted SPL, dB(A)	**56**
									eptable Noise Level for ASR "A", dB(A)	**60**

* No night time operation for all noise source

Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung
Detailed Calculation of Fixed Source Noise Impact Assessment

NSR	x	y
N03	846054.1	827513.5

Source	Source ID	x	y	Day and Evening Time SWL, dB(A)	Quantity Correction, dB(A)	Shortest Distance from Noise Source to NSR, m	Distance Attenuation, dB(A)	Tonality Correction, dB(A)	Façade Correction, dB(A)	Day and Evening Time SPL, Leq (30min) dB(A)
Sing Hoi Car Beauty	G01	845999.2	827360.8	87.9	0.0	162	-52	0	3	38.7
Fai Tat Motor Service (HK) Co., Ltd	G02	845982.0	827525.5	97.0	0.0	73	-45	0	3	54.7
Hka chillers (Ref: ACDS 080)	H01	846302.6	827387.2	86.1	3.0	279	-57	6	3	41.2
Hka VRVs (Ref: RUCYQ22BB)	H02	846353.8	827408.3	71.0	0.0	318	-58	6	3	22.0
Hka VRVs (Ref: RUCYQ22BB)	H03	846357.1	827410.3	71.0	0.0	320	-58	6	3	21.9
									Predicted SPL, dB(A)	**55**
									eptable Noise Level for ASR "A", dB(A)	**60**

* No night time operation for all noise source

Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung
Detailed Calculation of Fixed Source Noise Impact Assessment

NSR	x	y
N04	846123.8	827592.4

Source	Source ID	x	y	Day and Evening Time SWL, dB(A)	Quantity Correction, dB(A)	Shortest Distance from Noise Source to NSR, m	Distance Attenuation, dB(A)	Tonality Correction, dB(A)	Façade Correction, dB(A)	Day and Evening Time SPL, Leq (30min) dB(A)
Sing Hoi Car Beauty	G01	845999.2	827360.8	87.9	0.0	263	-56	0	3	34.5
Fai Tat Motor Service (HK) Co., Ltd	G02	845982.0	827525.5	97.0	0.0	157	-52	0	3	48.1
Hka chillers (Ref: ACDS 080)	H01	846302.6	827387.2	86.1	3.0	272	-57	6	3	41.4
Hka VRVs (Ref: RUCYQ22BB)	H02	846353.8	827408.3	71.0	0.0	295	-57	6	3	22.6
Hka VRVs (Ref: RUCYQ22BB)	H03	846357.1	827410.3	71.0	0.0	296	-57	6	3	22.6
									Predicted SPL, dB(A)	**49**
									eptable Noise Level for ASR "A", dB(A)	**60**

* No night time operation for all noise source

Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung
Detailed Calculation of Fixed Source Noise Impact Assessment

NSR	x	y
N05	846201.4	827649.9

Source	Source ID	x	y	Day and Evening Time SWL, dB(A)	Quantity Correction, dB(A)	Shortest Distance from Noise Source to NSR, m	Distance Attenuation, dB(A)	Tonality Correction, dB(A)	Façade Correction, dB(A)	Day and Evening Time SPL, Leq (30min) dB(A)
Sing Hoi Car Beauty	G01	845999.2	827360.8	87.9	0.0	353	-59	0	3	31.9
Fai Tat Motor Service (HK) Co., Ltd	G02	845982.0	827525.5	97.0	0.0	252	-56	0	3	44.0
Hka chillers (Ref: ACDS 080)	H01	846302.6	827387.2	86.1	3.0	282	-57	6	3	41.1
Hka VRVs (Ref: RUCYQ22BB)	H02	846353.8	827408.3	71.0	0.0	286	-57	6	3	22.9
Hka VRVs (Ref: RUCYQ22BB)	H03	846357.1	827410.3	71.0	0.0	286	-57	6	3	22.9
									Predicted SPL, dB(A)	**46**
									eptable Noise Level for ASR "A", dB(A)	**60**

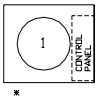
* No night time operation for all noise source

Appendix 3.2 Reference Equipment Catalogue

CONDENSER FAN

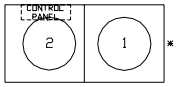
FAN POSITION NUMBER & CYCLING SEQUENCE

ACDS 010



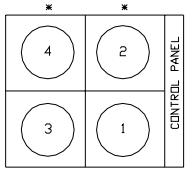
Base Fans	1

ACDS 020, 030



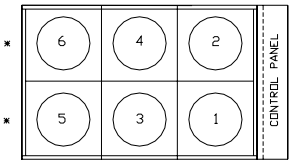
Base Fans	1
Stage 2	2

ACDS 040, 050, 060



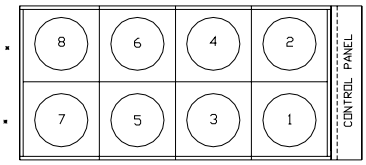
	System 1	System 2
Base Fans	4	2
Stage 2	3	1

ACDS 065, 070, 080



	System 1	System 2
Base Fans	**6**	5
Stage 2	4	3
Stage 3	2	1

ACDS 095



	System 1	System 2
Base Fans	8	7
Stage 2	6	5
Stage 3	2, 4	1, 3

∗Coil Header

SOUND PRESSURE DATA

STANDARD UNIT

Model	Octave Band (Hz)								Total dB (A)
	63	125	250	500	1K	2K	4K	8K	
ACDS 010	26	31	41	45	46	44	41	36	51
ACDS 020	29	34	44	52	52	52	48	41	58
ACDS 030	29	34	43	49	49	49	44	39	55
ACDS 040	31	37	46	51	53	54	48	42	58
ACDS 050	31	37	46	52	52	52	47	42	58
ACDS 060	31	37	46	52	52	53	48	42	58
ACDS 065	33	38	48	53	54	53	49	44	59
ACDS 070	33	38	48	53	54	53	49	44	59
ACDS 080	33	38	48	53	54	53	49	44	59
ACDS 095	34	39	49	54	55	54	50	44	60

Note: Unit Sound Pressure Level (Lp) @ 30 FT [9m] (free field), ± 2 dB tolerance.

ELECTRICAL DATA

Model	Power Supply	Standard Unit				Each Compressor			Condenser Fan Motors		
	V-Ph-Hz	RLA	MCA	MFS	Max. Inrush	Qty	RLA	LRA	Qty	HP	FLA/Mtr
ACDS 010	400/3/50	24.8	28	32	114	2	10.8	100	1	1.5	3.2
ACDS 020	400/3/50	42.7	47	63	182	1 1	17.6 18.7	147 158	2	1.5	3.2
ACDS 030	400/3/50	61.8	68	80	246	1 1	24.6 30.8	170 215	2	1.5	3.2
ACDS 040	400/3/50	88.0	93	100	227	4	18.8	158	4	1.5	3.2
ACDS 050	400/3/50	123.6	131	150	308	2 2	24.6 30.8	170 215	4	1.5	3.2
ACDS 060	400/3/50	139.6	148	175	323	4	31.7	215	4	1.5	3.2
ACDS 065	400/3/50	146.0	154	175	328	4	31.7	215	6	1.5	3.2
ACDS 070	400/3/50	161.4	172	200	381	2 2	30.7 40.4	215 260	6	1.5	3.2
ACDS 080	400/3/50	182.8	193	225	402	4	40.9	260	6	1.5	3.2
ACDS 095	400/3/50	198.8	210	250	476	4	43.3	320	8	1.5	3.2

Note: MCA - Minimum Circuit Amps
FLA – Full Load Amps
MFS - Maximum Fuse Size
LRA - Locked Rotor Amps
RLA - Running Load Amps

室外机阵容

室外机																						
型号			RUXYQ8BB	RUXYQ10BB	RUXYQ12BB	RUXYQ14BB	RUXYQ16BB	RUXYQ18BB	RUXYQ20BB	RUXYQ22BB	RUXYQ24BB	RUXYQ26BB	RUXYQ28BB	RUXYQ30BB	RUXYQ32BB	RUXYQ34BB	RUXYQ36BB	RUXYQ38BB	RUXYQ40BB	RUXYQ42BB	RUXYQ44BB	RUXYQ46BB	RUXYQ48BB
匹数		HP	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
组合方式			——	——	——	——	——	——	——	——	RUXYQ10BB RUXYQ14BB	RUXYQ12BB RUXYQ14BB	RUXYQ8BB RUXYQ20BB	RUXYQ8BB RUXYQ22BB	RUXYQ10BB RUXYQ22BB	RUXYQ12BB RUXYQ22BB	RUXYQ14BB RUXYQ22BB	RUXYQ18BB RUXYQ20BB	RUXYQ18BB RUXYQ22BB	RUXYQ20BB RUXYQ22BB	RUXYQ22BB RUXYQ22BB	RUXYQ10BB RUXYQ14BB RUXYQ22BB	RUXYQ12BB RUXYQ14BB RUXYQ22BB
电源			三相 380V 50Hz														三相 380V 50Hz					三相 380V 50Hz	
额定制冷容量*1		kW	22.4	28.0	33.5	40.0	45.0	50.4	56.5	61.5	68.0	73.5	78.9	83.9	89.5	95.0	101.5	106.9	111.9	118.0	123.0	129.5	135.0
额定制热容量*2		kW	25.0	31.5	37.5	45.0	50.0	56.5	63.0	69.0	76.5	82.5	88.0	94.0	100.5	106.5	114.0	119.5	125.5	132.0	138.0	145.5	151.5
额定耗电量	制冷	kW	4.70	6.71	8.10	9.88	11.80	12.80	14.70	17.30	16.6	18.0	19.4	22.0	24.0	25.4	27.2	27.5	30.1	32.0	34.6	33.9	35.3
	制热	kW	5.24	6.72	8.48	10.50	12.10	13.30	15.30	17.00	17.2	19.0	20.5	22.2	23.7	25.5	27.5	28.6	30.3	32.3	34.0	34.2	36.0
风扇风量		m^3/min	162	175	185	223	280	271	271	271	175+223	185+223	162+271	162+271	175+271	185+271	223+271	271+271	271+271	271+271	271+271	175+223+271	185+223+271
机器尺寸(H×W×D)		mm	1657×930×765			1657×1240×765					1657×930×765+1657×1240×765						1657×1240×765+1657×1240×765					1657×930×765 + 1657×1240×765 + 1657×1240×765	
运转音*3	正面运转音	dB(A)	53	54	56		57	58	59	60	58	59	60	61			62			63		62	63
	四面运转音	dB(A)	56	57	59		60	61	62	63	61	62	63	64			65			66		65	66
夜间静音运转		dB(A)	40														43					45	
室内/外机配管连接口管径*4	液管	mm	Φ9.5	Φ9.5	Φ12.7 ☆	Φ12.7	Φ12.7	Φ15.9 ☆	Φ15.9 ☆	Φ15.9 ☆	Φ15.9	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1
	气管	mm	Φ19.1	Φ22.2 ☆	Φ25.4	Φ25.4	Φ28.6 ☆	Φ28.6	Φ28.6	Φ28.6	Φ28.6	Φ31.8	Φ31.8	Φ31.8	Φ31.8	Φ31.8	Φ38.1	Φ38.1	Φ38.1	Φ38.1	Φ38.1	Φ38.1	Φ38.1
室外机配管连接口管径*4	液管	mm	Φ9.5	Φ9.5	Φ9.5 ☆	Φ12.7	Φ12.7	Φ12.7 ☆	Φ12.7 ☆	Φ12.7 ☆							——					——	
	气管	mm	Φ19.1	Φ25.4 ☆	Φ25.4	Φ25.4	Φ25.4 ☆	Φ28.6	Φ28.6	Φ28.6							——					——	
重量		kg	189	196	196	250	280	300	300	300	446	446	489	489	496	496	550	600	600	600	600	746	746
冷媒	名称		R410A														R410A					R410A	
	自带填充量	kg	8.4	8.6	8.7	11.1	11.1	15.6	15.6	15.6	8.6+11.1	8.7+11.1	8.4+15.6	8.4+15.6	8.6+15.6	8.7+15.6	11.1+15.6	15.6+15.6				8.6+11.1+15.6	8.7+11.1+15.6
运转范围	制冷	℃DB	-15 ~ 54 ℃DB														-15~54℃DB					-15~54℃DB	
	制热	℃DB	-25 ~ 27 ℃DB														-25~27℃DB					-25~27℃DB	
最小线路电流*6	MCA	A	16.1	18.0	20.1	24.4	26	34.8	39.6	43.6	40.2	44	46.1	59.7	61.6	63.7	68	69.6	78.4	83.2	87.2	85.7	87.6
最大熔丝电流*6	MFA	A	20	20	25	32	32	40	50	50	50	50	63	80	80	80	80	80	100	100	100	100	100

室外机																							
型号			RUXYQ50BB	RUXYQ52BB	RUXYQ54BB	RUXYQ56BB	RUXYQ58BB	RUXYQ60BB	RUXYQ62BB	RUXYQ64BB	RUXYQ66BB	RUXYQ68BB	RUXYQ70BB	RUXYQ72BB	RUXYQ74BB	RUXYQ76BB	RUXYQ78BB	RUXYQ80BB	RUXYQ82BB	RUXYQ84BB	RUXYQ86BB	RUXYQ88BB
匹数		HP	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88
组合方式			RUXYQ8BB RUXYQ20BB RUXYQ22BB	RUXYQ10BB RUXYQ20BB RUXYQ22BB	RUXYQ10BB RUXYQ22BB RUXYQ22BB	RUXYQ12BB RUXYQ22BB RUXYQ22BB	RUXYQ14BB RUXYQ22BB RUXYQ22BB	RUXYQ20BB RUXYQ20BB RUXYQ20BB	RUXYQ18BB RUXYQ22BB RUXYQ22BB	RUXYQ20BB RUXYQ22BB RUXYQ22BB	RUXYQ22BB RUXYQ22BB RUXYQ22BB	RUXYQ12BB RUXYQ12BB RUXYQ22BB RUXYQ22BB	RUXYQ12BB RUXYQ14BB RUXYQ22BB RUXYQ22BB	RUXYQ12BB RUXYQ16BB RUXYQ22BB RUXYQ22BB	RUXYQ12BB RUXYQ18BB RUXYQ22BB RUXYQ22BB	RUXYQ10BB RUXYQ22BB RUXYQ22BB RUXYQ22BB	RUXYQ12BB RUXYQ22BB RUXYQ22BB RUXYQ22BB	RUXYQ14BB RUXYQ22BB RUXYQ22BB RUXYQ22BB	RUXYQ16BB RUXYQ22BB RUXYQ22BB RUXYQ22BB	RUXYQ18BB RUXYQ22BB RUXYQ22BB RUXYQ22BB	RUXYQ20BB RUXYQ22BB RUXYQ22BB RUXYQ22BB	RUXYQ22BB RUXYQ22BB RUXYQ22BB RUXYQ22BB
电源			三相 380V 50Hz														三相 380V 50Hz						
额定制冷容量*1		kW	140.4	146.0	151.0	156.5	163.0	169.5	173.4	179.5	184.5	190.0	196.5	201.5	206.9	212.5	218.0	224.5	229.5	234.9	241.0	246.0
额定制热容量*2		kW	157.0	163.5	169.5	175.5	183.0	189.0	194.5	201.0	207.0	213.0	220.5	225.5	232.0	238.5	244.5	252.0	257.0	263.5	270.0	276.0
额定耗电量	制冷	kW	36.7	38.7	41.3	42.7	44.5	44.1	47.4	49.3	51.9	50.8	52.6	54.5	55.5	58.6	60.0	61.8	63.7	64.7	66.6	69.2
	制热	kW	37.5	39.0	40.7	42.5	44.5	45.9	47.3	49.3	51.0	51.0	53.0	54.6	55.8	57.7	59.5	61.5	63.1	64.3	66.3	68.0
风扇风量		m^3/min	162+271+271	175+271+271	175+271+271	185+271+271	223+271+271	271+271+271	271+271+271	271+271+271	271+271+271	185+185+271+271	185+223+271+271	185+280+271+271	185+271+271+271	175+271+271+271	185+271+271+271	223+271+271+271	280+271+271+271	271+271+271+271	271+271+271+271	271+271+271+271
机器尺寸(H×W×D)		mm	1657×930×765 + 1657×1240×765 + 1657×1240×765				1657×1240×765 + 1657×1240×765 + 1657×1240×765					1657×930×765 + 1657×930×765 + 1657×1240×765 + 1657×1240×765	1657×930×765 + 1657×1240×765 + 1657×1240×765 + 1657×1240×765					1657×1240×765 + 1657×1240×765 + 1657×1240×765 + 1657×1240×765					
运转音*3	正面运转音	dB(A)	63		64				65		66		65		66		65			66			
	四面运转音	dB(A)	66		67				68		69		68		69		68			69			
夜间静音运转		dB(A)	45														46						
室内/外机配管连接口管径*4	液管	mm	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ19.1	Φ22.2	Φ22.2	Φ22.2	Φ22.2	Φ22.2
	气管	mm	Φ38.1	Φ38.1	Φ38.1	Φ41.3	Φ41.3	Φ41.3	Φ41.3	Φ41.3	Φ41.3	Φ44.5	Φ44.5	Φ44.5	Φ44.5	Φ44.5	Φ44.5	Φ44.5	Φ44.5	Φ44.5	Φ44.5	Φ44.5
室外机配管连接口管径*4	液管	mm	——														——						
	气管	mm	——														——						
重量		kg	789	796	796	796	850	900	900	900	900	992	1046	1076	1096	1096	1096	1150	1180	1200	1200	1200
冷媒	名称		R410A									R410A											
	自带填充量	kg	8.4+15.6+15.6	8.6+15.6+15.6	8.6+15.6+15.6	8.7+15.6+15.6	11.1+15.6+15.6	15.6+15.6+15.6				8.7+8.7+15.6+15.6	8.7+11.1+15.6+15.6		8.7+15.6+15.6+15.6	8.6+15.6+15.6+15.6	8.7+15.6+15.6+15.6	11.1+15.6+15.6+15.6		15.6+15.6+15.6+15.6		
运转范围*5	制冷	℃DB	-15~54℃DB									-15~54℃DB											
	制热	℃DB	-25~27℃DB									-25~27℃DB											
最小线路电流*6	MCA	A	89.7	101.2	105.2	107.3	111.6	113.2	122	126.8	130.8	127.4	131.7	133.3	142.1	148.8	150.9	155.2	156.8	165.6	170.4	174.4
最大熔丝电流*6	MFA	A	100	125	125	125	125	125	140	140	160	160	160	160	160	200	200	200	200	200	200	200

备注:
*1 室内温度: 27℃DB, 19℃WB / 室外温度: 35℃DB
*2 室内温度: 20℃DB / 室外温度: 7℃DB, 6℃WB
*3 四面运转音是按照 GB18837 要求进行四点测试得到的值，正面运转音为公司内部测量值，在实际安装状态下，因为周围噪音及反射的原因，一般高于样本登载值
*4 室内/外机配管连接口管径与室外机配管连接口管径不同时 (☆标识处)，要进行变径处理，以室内/外机配管连接口管径为主
*5 在-15 ~ -5℃DB进行制冷运转时，需满足以下条件
a. 室内机连接率不超过100%
b. 根据室内/室外温度的不同，必须开启的室内机最小额定制冷量如右表所示
*6 根据MCA来选择电气配管线规格，根据MFA来选择熔丝或空气开关

Sound level measured at 1m from the unit.

室外干球温度 A	室内湿球温度 B	最小开启室内机的额定制冷量 C
-15° CDB≤A<-5° CDB	17° CWB<B	C > 2.2kW
	14° CWB<B< 17° CWB	C > 2.8kW
	11° CWB<B< 14° CWB	C > 3.6kW
	8° CWB<B< 11° CWB	C > 5.6kW

Appendix 3.3 Correspondence with Operator/ Owner of the Identified Fixed Noise Sources

Ref.: NWDSK221EI01_0_0009L.24.docx

By Post

8 May 2024

Management Office
Hong Kong Academy
33 Wai Man Road, Sai Kung,
New Territories, Hong Kong SAR

Dear Sir/Madam,

Planning Application for Proposed Residential Development at Sha Ha, Sai Kung – Request for Information of the Chillers, Cooling Towers and VRV at Hong Kong Academy

We are the appointed environmental consultant to assess environmental noise impact for the captioned project. The location plan of the Proposed Development with 300m noise impact study area is attached for your reference.

We would like to have some enquires regarding the fixed noise sources (e.g. chillers and varied refrigerant volume system (VRV)) of Hong Kong Academy. We would be grateful if you could provide following information for the purpose of Environmental Assessment:

- Inventory of equipment (e.g. Chillers, Cooling Towers, VRVs);
- The operation parameters of equipment:
    - Quantity (e.g. 4 nos + 2 nos standby)
    - Locations (layout / room layout plan)
    - Particulars (e.g. catalogue, brand and model, power rating, sound emission data as available)
    - Operation hours (e.g. 0800 to 2200 hours)
    - Acoustic / sound insulation measures adopted (e.g. noise enclosure, silencer, etc.)

In addition, it would be grateful if we could have your permission in carrying out on-site noise measurement at the rooftop of the building. Due to the tight programme of this project, your prompt response on or before 24 May 2024 would be very much appreciated.

Should you have any questions on this submission, please do not hesitate to contact our Ms. Coco Ma at 3465 2807 (email: cocoma@ramboll.com) or the undersigned at 3465 2831 (email: peterleung@ramboll.com).

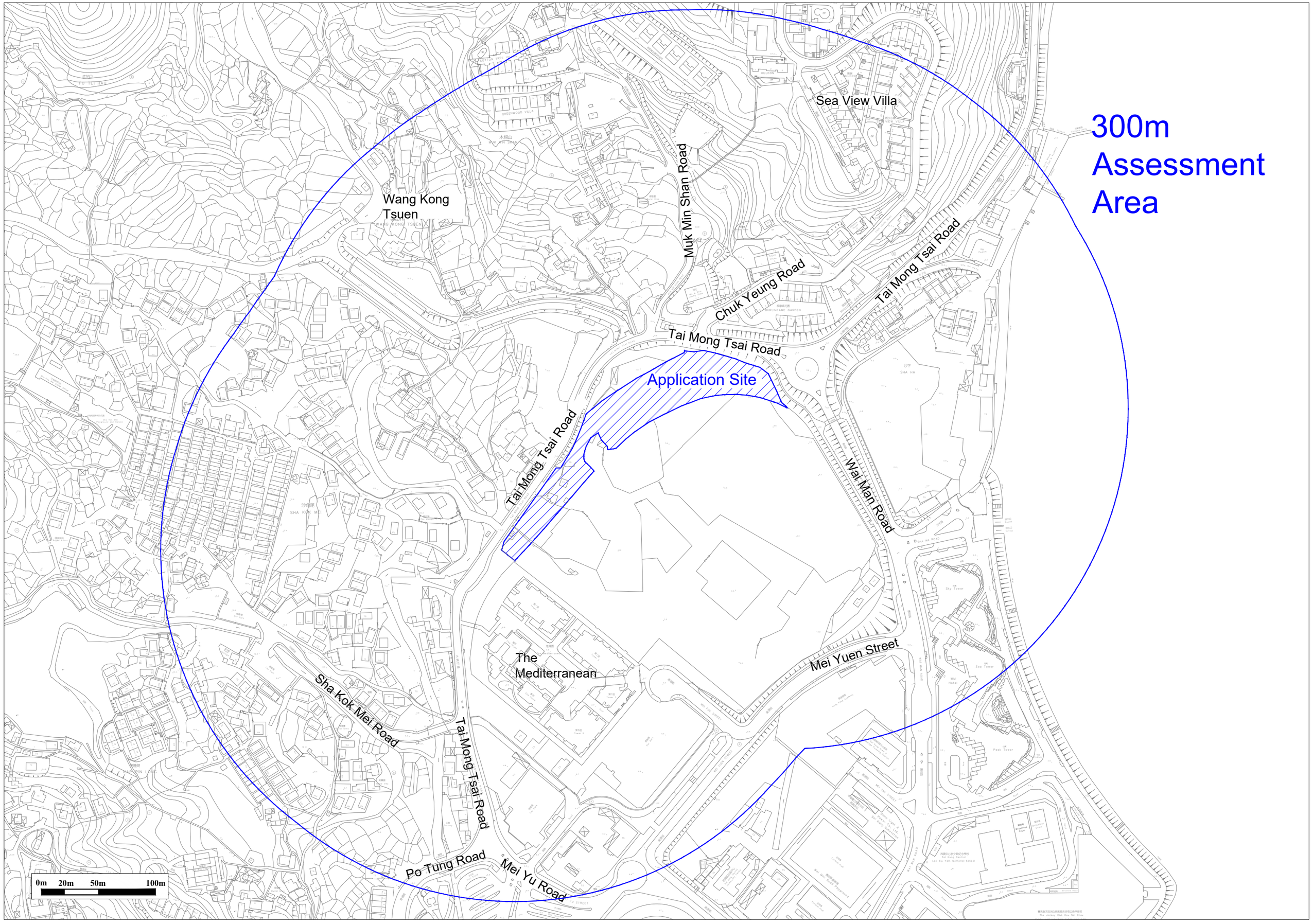
Yours faithfully,
For and on behalf of
Ramboll Hong Kong Limited

Peter Leung
Environmental Consultant

Enclosure: Location Plan of the Proposed Development

Q:\Projects\NWDSK221EI01\02 Project Management\02 Corr\NWDSK221EI01_0_0009L.24.docx

Ramboll Hong Kong Limited 英環香港有限公司
21/F, BEA Harbour View Centre, 56 Gloucester Road, Wan Chai, Hong Kong Tel: 852.3465 2888 Fax: 852.3465 2899
www.ramboll.com


300m
Assessment
Area
Application Site
Wang Kong
Tsuen
Sea View Villa
Muk Min Shan Road
Chuk Yeung Road
Tai Mong Tsai Road
Tai Mong Tsai Road
Tai Mong Tsai Road
Wai Man Road
The
Mediterranean
Mei Yuen Street
Sha Kok Mei Road
Tai Mong Tsai Road
Po Tung Road
Mei Yu Road
0m 20m 50m 100m

Coco Ma

From: Nicole Bolle <nicole.bolle@hkacademy.edu.hk>
Sent: 05 June 2024 08:49
To: Coco Ma; Peter Leung
Cc: Stephen Dare
Subject: Ref: NWDSK221EI01_0_0009L.24 HKA Request for Information

Dear Ms. Coco Ma and Mr. Peter Leung,

We received your letter titled **Planning Application for Proposed Residential Development at Sha Ha, Sai Kung - Request for Information of the Chillers, Cooling Towers and VRV at Hong Kong Academy (ref: NWDSK221EI01_0_009L.24)** dated 8th May 2024.

At this time we do not plan to provide this information as it is confidential to the school.

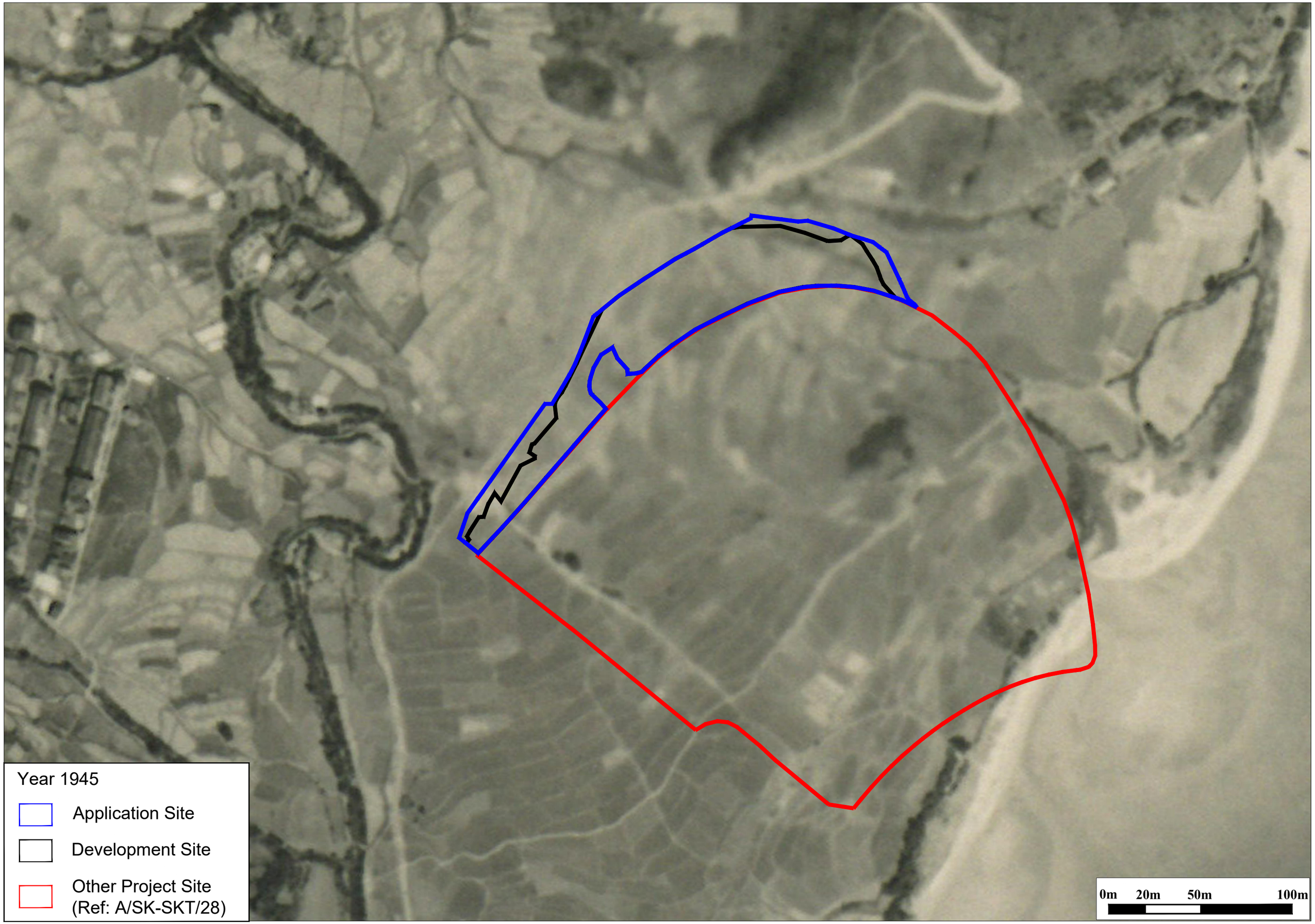
Should you have any further questions please do not hesitate to contact me at your earliest convenience.

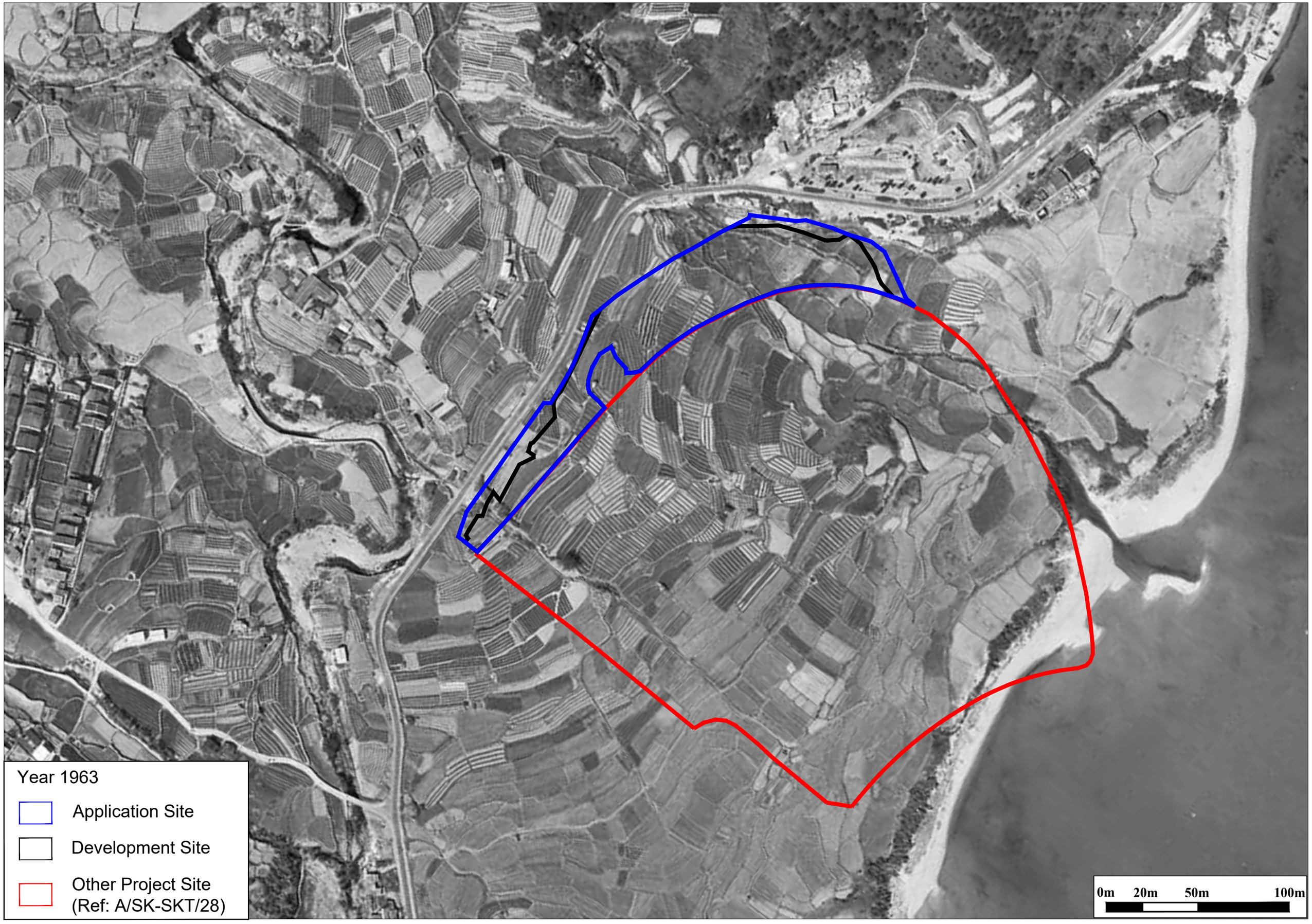
Kind Regards

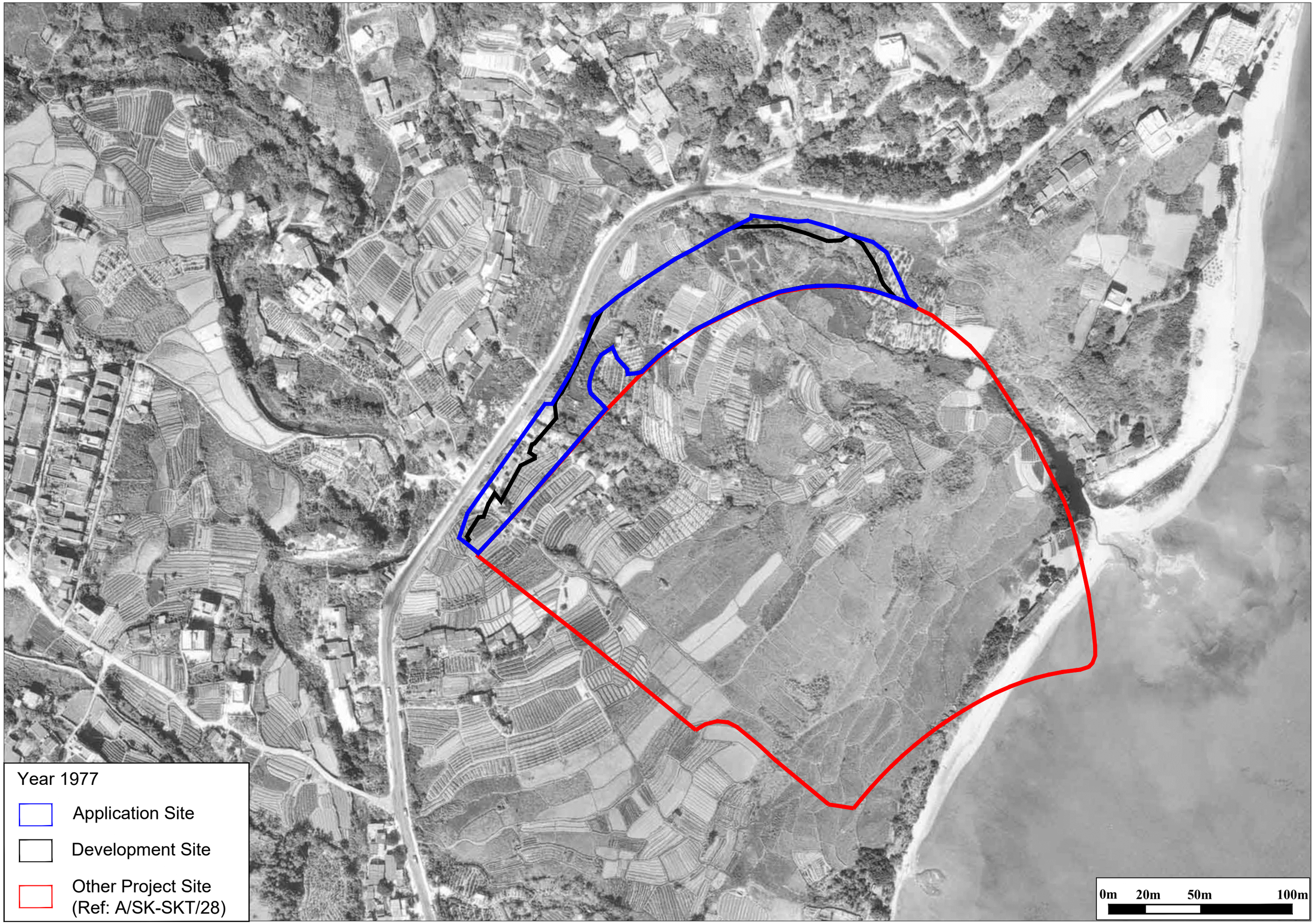
Nicole Bolle

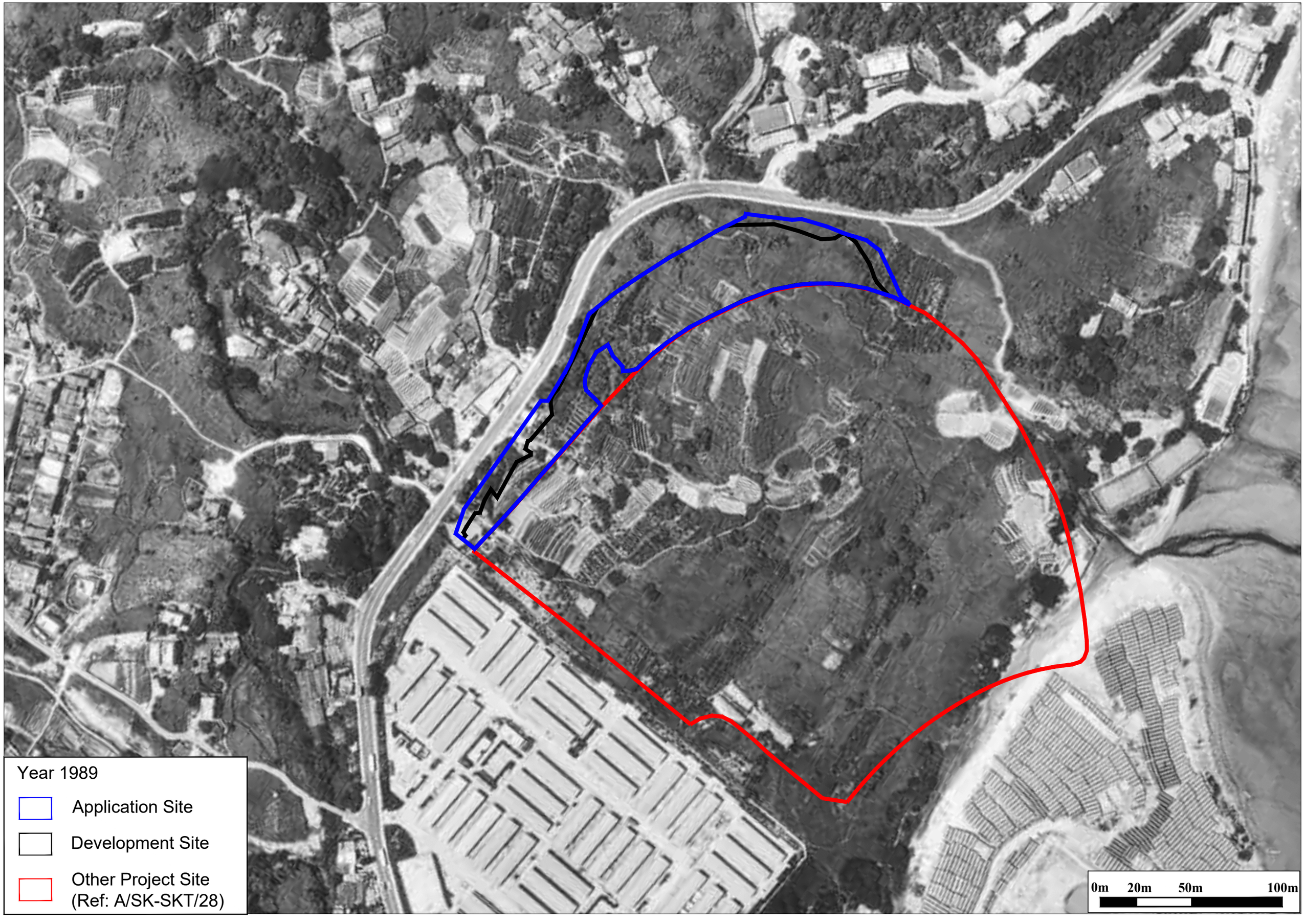
Nicole Bolle
Facilities and Operations Director
Direct +852 26551288 **General** +852 26551111
Email nicole.bolle@hkacademy.edu.hk
Address 33 Wai Man Road, Sai Kung, New Territories, Hong Kong SAR

Appendix 5.1 Historic Aerial Photo

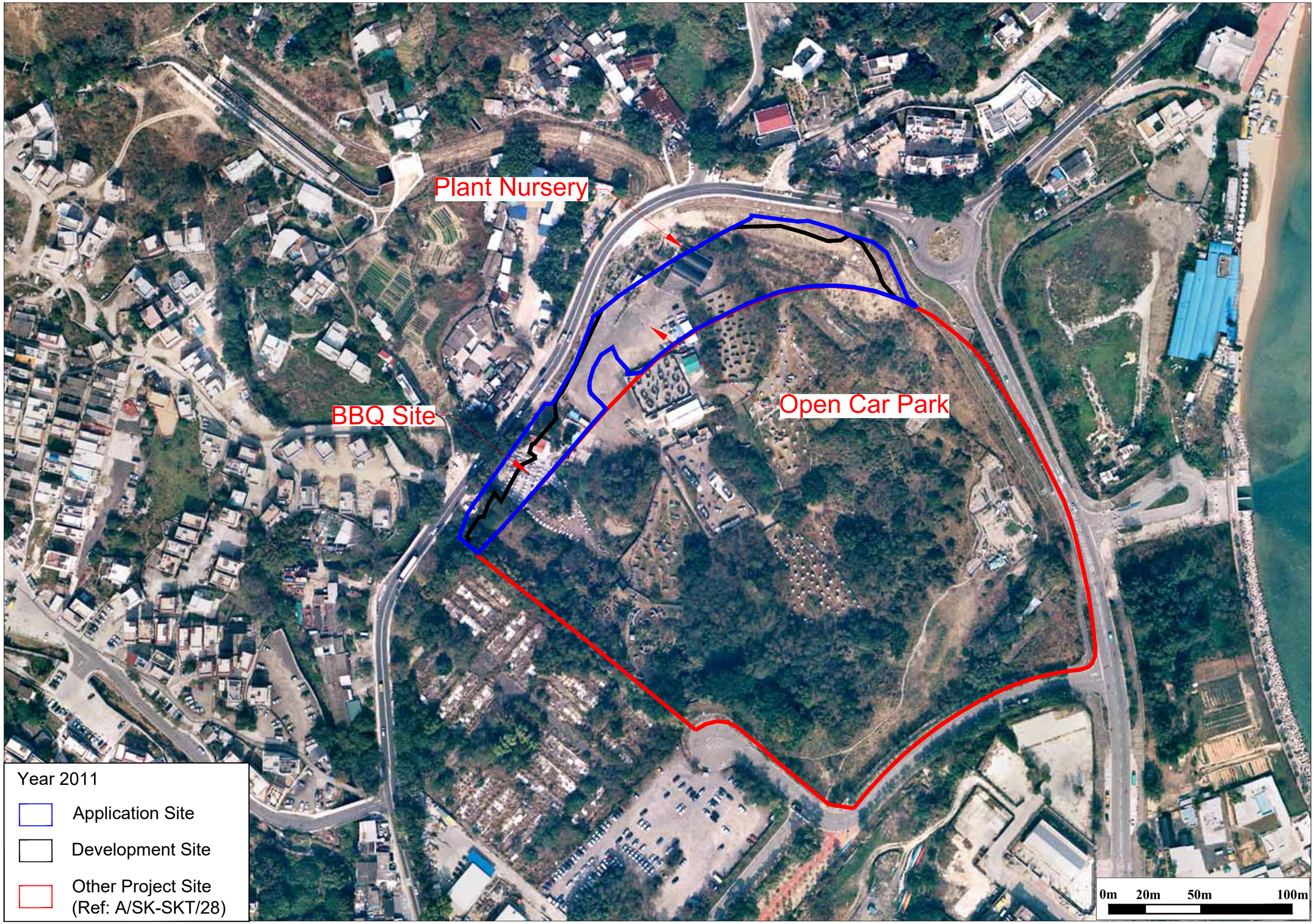

Year 1945
Application Site
Development Site
Other Project Site
(Ref: A/SK-SKT/28)
0m
20m
50m
100m

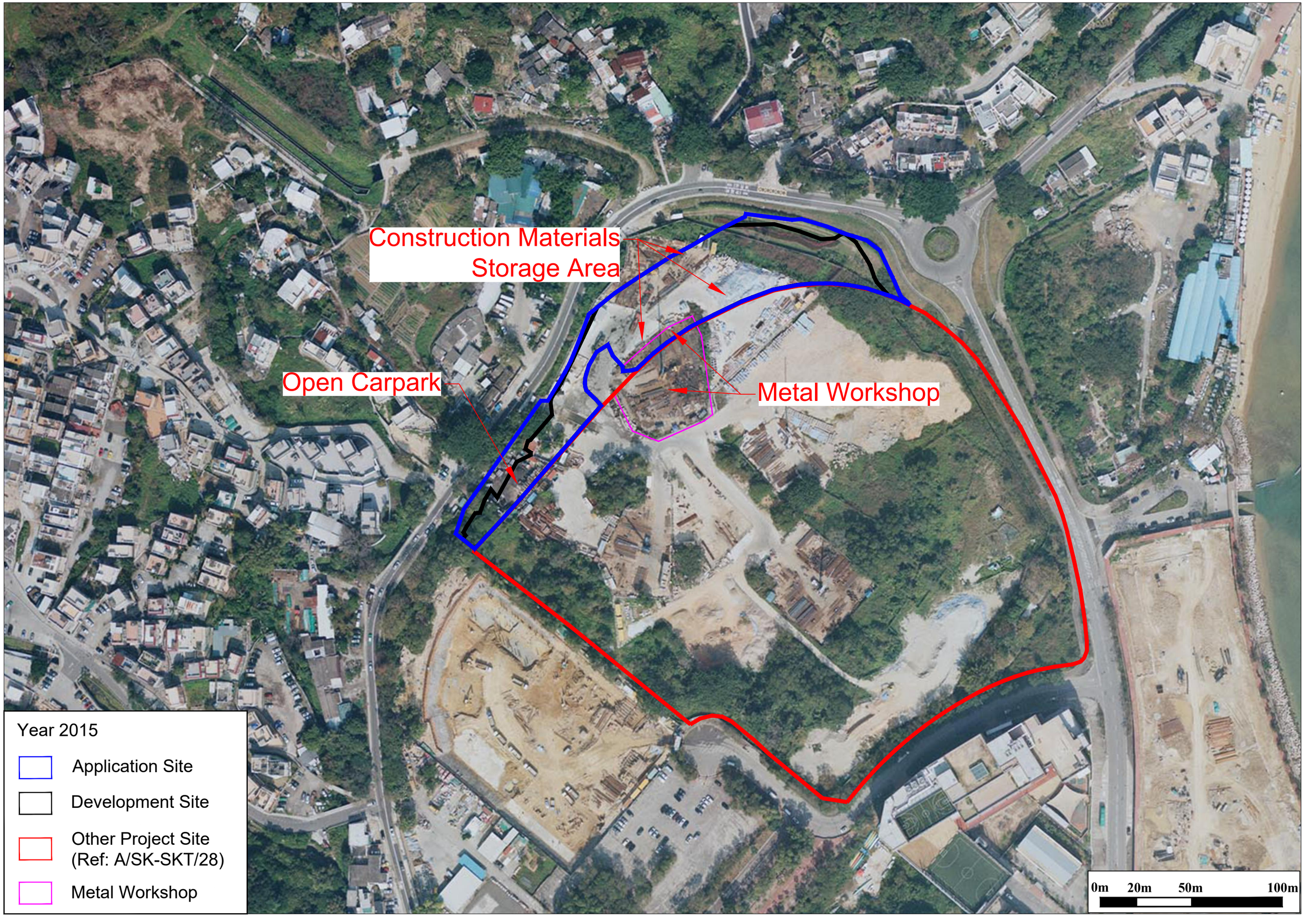

Year 1963
Application Site
Development Site
Other Project Site
(Ref: A/SK-SKT/28)
0m
20m
50m
100m

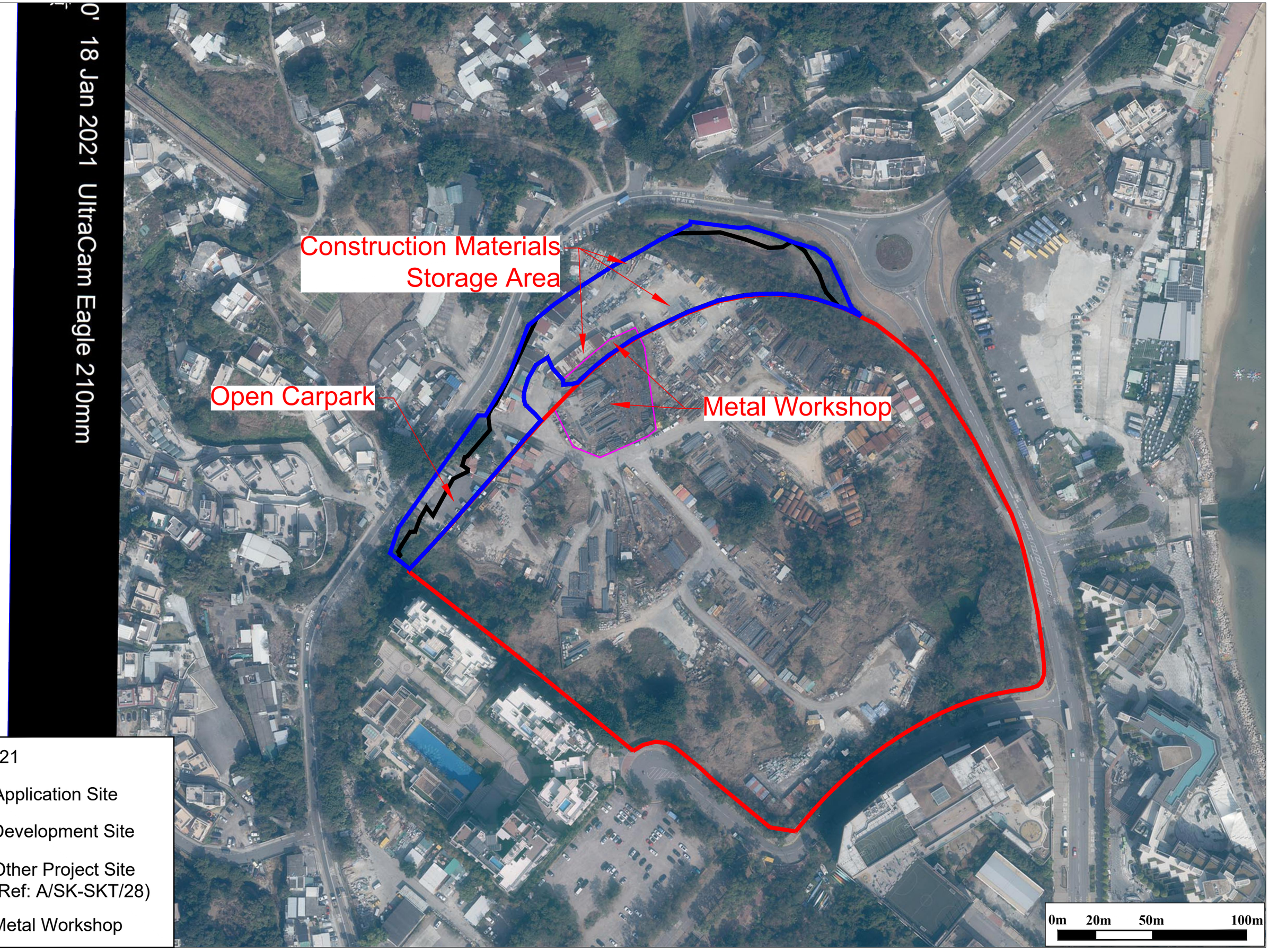

Year 1977
Application Site
Development Site
Other Project Site
(Ref: A/SK-SKT/28)
0m
20m
50m
100m

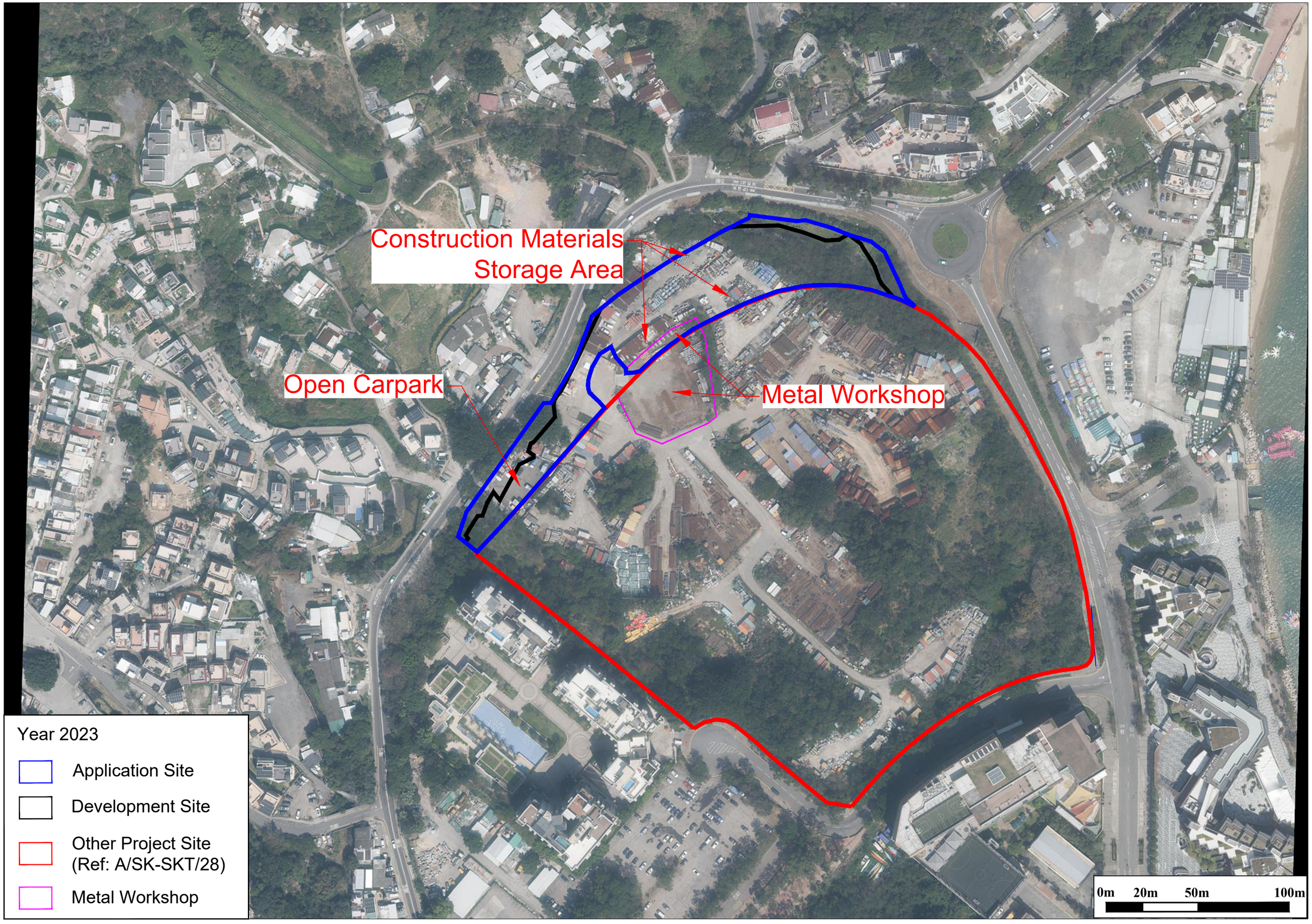

Year 1989
Application Site
Development Site
Other Project Site
(Ref: A/SK-SKT/28)
0m
20m
50m
100m


Village House
Open Car Park
Year 2005
Application Site
Development Site
Other Project Site
(Ref: A/SK-SKT/28)
0m
20m
50m
100m


Plant Nursery
BBQ Site
Open Car Park
Year 2011
Application Site
Development Site
Other Project Site
(Ref: A/SK-SKT/28)
0m
20m
50m
100m


Construction Materials
Storage Area
Open Carpark
Metal Workshop
Year 2015
Application Site
Development Site
Other Project Site
(Ref: A/SK-SKT/28)
Metal Workshop
0m
20m
50m
100m


0' 18 Jan 2021 UltraCam Eagle 210mm
Construction Materials
Storage Area
Open Carpark
Metal Workshop
Year 2021
Application Site
Development Site
Other Project Site
(Ref: A/SK-SKT/28)
Metal Workshop
0m 20m 50m 100m


Construction Materials
Storage Area
Open Carpark
Metal Workshop
Year 2023
Application Site
Development Site
Other Project Site
(Ref: A/SK-SKT/28)
Metal Workshop
0m
20m
50m
100m

Appendix 5.2 Correspondence with Various Departments

Ref.: NWDSK221EI01_0_0002L.24.docx

26 April 2024

Planning Department,
District Planning Branch,
New Territories District Planning Division,
Sai Kung & Islands District Planning Office,
15/F, Sha Tin Government Offices,
1 Sheung Wo Che Road,
Sha Tin, New Territories

By Fax (2367 2976) & Post

Dear Sir / Madam,

Re: Land Contamination Assessment Study for Planning Application for Proposed Residential Development at Sha Ha, Sai Kung

Enquiry for Land Contamination Information

We are conducting a Land Contamination Assessment Study for Planning Application at Sha Ha, Sai Kung. As required by the "Practice Guide for Investigation and Remediation of Contaminated Land" published by the Environmental Protection Department of the Government of HKSAR (EPD), information pertaining to the change of land uses/past activities/incidents/accidents at the Application Site are required as part of the vetting process.

Of particular interests are current and historical site information, any change on the land use, future land use and any information relating to land contamination issues of the Application Site. A location plan is enclosed for your reference.

Due to the urgency of the project, we would be much appreciated if you could provide the requested information by **13 May 2024**.

Should you have any queries, please do not hesitate to contact the undersigned at 3465 2831 (email: peterleung@ramboll.com) or our Ms. Coco Ma at 3465 2807 (email: cocoma@ramboll.com). We sincerely seek your feedback on this matter.

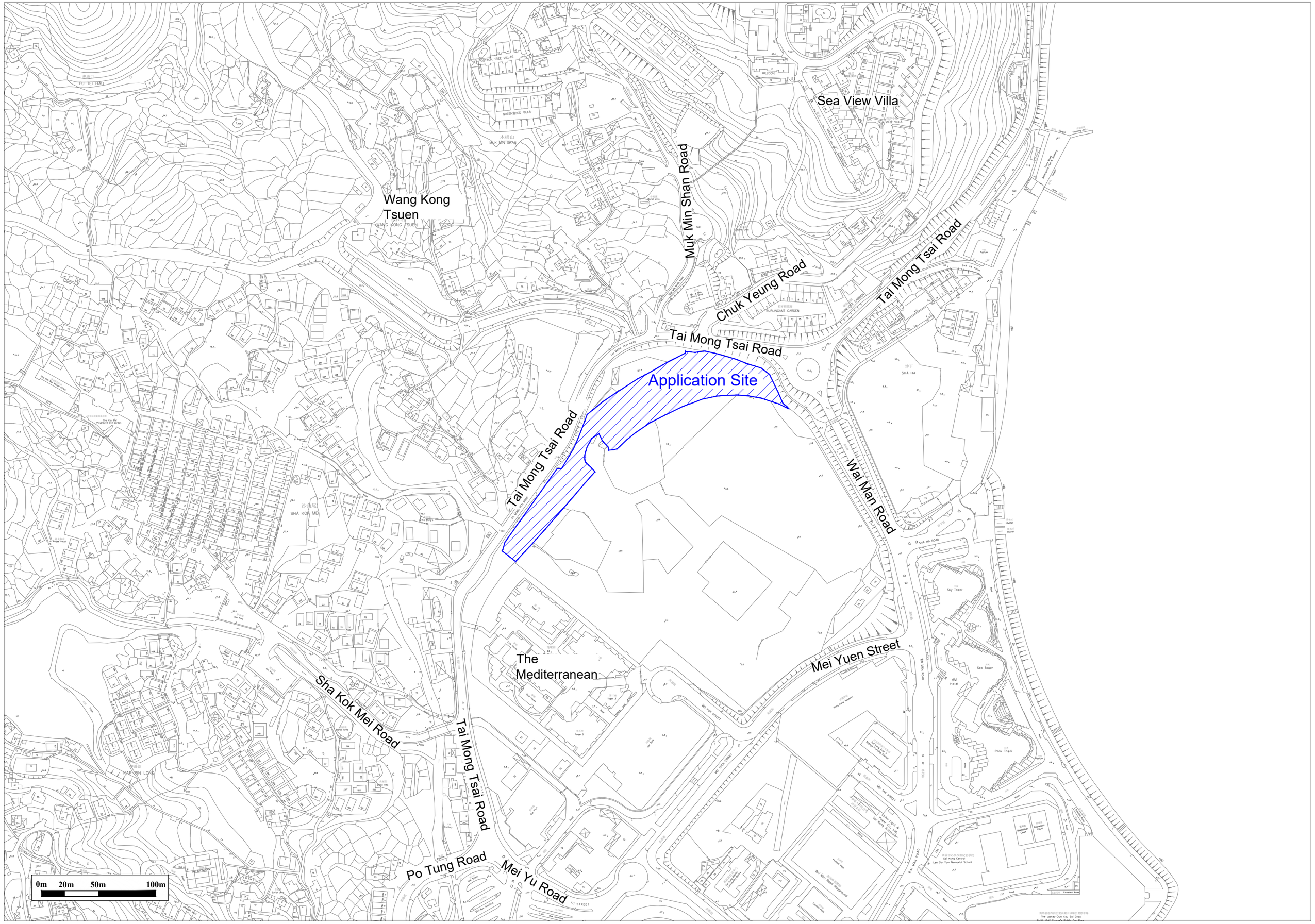
Yours faithfully,
For and on behalf of
Ramboll Hong Kong Limited

Peter Leung
Environmental Consultant

Enclosure: Location Plan of the Application Site

Q:\Projects\NWDSK221EI01\02 Project Management\02 Corr\NWDSK221EI01_0_0002L.24.docx

Ramboll Hong Kong Limited 英環香港有限公司
21/F, BEA Harbour View Centre, 56 Gloucester Road, Wan Chai, Hong Kong Tel: 852.3465 2888 Fax: 852.3465 2899
www.ramboll.com


Wang Kong Tsuen
Muk Min Shan Road
Sea View Villa
Chuk Yeung Road
Tai Mong Tsai Road
Tai Mong Tsai Road
Application Site
Tai Mong Tsai Road
Wai Man Road
The Mediterranean
Mei Yuen Street
Sha Kok Mei Road
Tai Mong Tsai Road
Po Tung Road
Mei Yu Road
0m 20m 50m 100m

RAMBOLL

Ref.: NWDSK221EI01_0_0003L.24.docx

26 April 2024

Environmental Protection Department
Environmental Compliance Division
Regional Office (East), Sai Kung
5th floor, Nan Fung Commercial Centre,
19 Lam Lok Street,
Kowloon Bay, Kowloon

By Fax (2756 8588) & Post

Dear Sir / Madam,

Re: Land Contamination Assessment Study for Planning Application for Proposed Residential Development at Sha Ha, Sai Kung

Enquiry for Land Contamination Information

We are conducting a Land Contamination Assessment Study for Planning Application at Sha Ha, Sai Kung. As required by the "Practice Guide for Investigation and Remediation of Contaminated Land" published by the Environmental Protection Department of the Government of HKSAR (EPD), information pertaining to the change of land uses/past activities/incidents/accidents at the Application Site are required as part of the vetting process.

Of particular interests is whether there are any registered chemical waste producers under your record in the Application Site, any waste disposal record, any accidental spillage record, any submission relating to land contamination assessment and any information you could provide which might be useful for our study. A location plan is enclosed for your reference.

Due to the urgency of the project, we would be much appreciated if you could provide the requested information by **13 May 2024**.

Should you have any queries, please do not hesitate to contact the undersigned at 3465 2831 (email: peterleung@ramboll.com) or our Ms. Coco Ma at 3465 2807 (email: cocoma@ramboll.com). We sincerely seek your feedback on this matter.

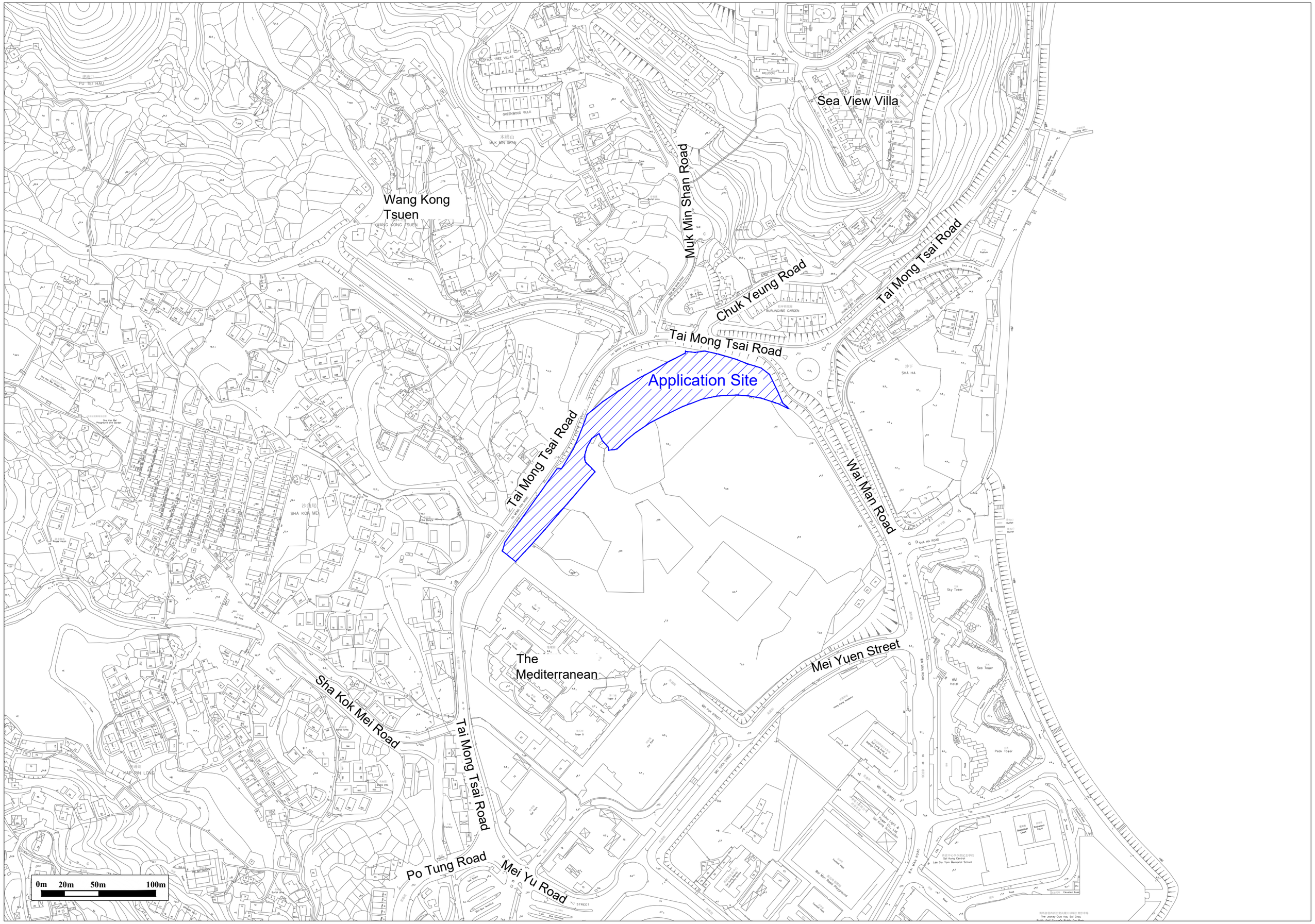
Yours faithfully,
For and on behalf of
Ramboll Hong Kong Limited

Peter Leung
Environmental Consultant

Enclosure: Location Plan of the Application Site

Q:\Projects\NWDSK221EI01\02 Project Management\02 Corr\NWDSK221EI01_0_0003L.24.docx

Ramboll Hong Kong Limited 英環香港有限公司
21/F, BEA Harbour View Centre, 56 Gloucester Road, Wan Chai, Hong Kong Tel: 852.3465 2888 Fax: 852.3465 2899
www.ramboll.com


Wang Kong Tsuen
Muk Min Shan Road
Sea View Villa
Chuk Yeung Road
Tai Mong Tsai Road
Tai Mong Tsai Road
Application Site
Tai Mong Tsai Road
Wai Man Road
The Mediterranean
Mei Yuen Street
Sha Kok Mei Road
Tai Mong Tsai Road
Po Tung Road
Mei Yu Road
0m 20m 50m 100m

本署檔號
OUR REF: EP640/G1/2 PT.III
來函檔號
YOUR REF: NWDSK221EI01_0_0003L.24.docx
電　　話
TEL. NO.: 2117 7531
圖文傳真
FAX NO : 2756 8588
電子郵件
E-MAIL: chhung@epd.gov.hk
網　　址
HOMEPAGE: http://www.epd.gov.hk

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)

5th Floor, Nan Fung Commercial Centre,
19 Lam Lok Street, Kowloon Bay,
Kowloon, Hong Kong.

環境保護署
環保法規管理科
區域辦事處(東)
香港九龍九龍灣臨樂街
十九號南豐商業中心五樓

RECEIVED
07 MAY 2024
BY:----------

By Post and Fax (3465 2899)
2 May 2024

Ramboll Hong Kong Limited
21/F, BEA Harbour View Centre
56 Gloucester Road, Wan Chai, Hong Kong
(Attn. : Peter LEUNG, Environmental Consultant)

Dear Sir / Madam,

Re: Land Contamination Assessment Study for Planning Application for Proposed Residential Development at Sha Ha, Sai Kung
Enquiry for Land Contamination Information

I refer to your letter dated 26 April 2024 requesting below information for the captioned site in Sai Kung district

- Whether there are any registered chemical waste producers under our record in the Application Site, any waste disposal record, any accidental spillage record, any submission relating to land contamination assessment

2. According to our office record, there is no relevant record within the project site as stated in your letter ref. NWDSK221EI01_0_0003L.24.docx. You are reminded that this information is not exhaustive and you are advised to check with other concerned parties / authorities responsible for handling chemical leakage / spillage incidents. You may also consider taking samples for your study of land contamination, if necessary.

3. If you have any enquiry, please contact the undersigned.

Yours faithfully,

Jack Hung

(Jack C.H. HUNG)
Regional Office (East)
Environmental Protection Department

Ramboll Hong Kong Ltd.

Project: NWDSK221EI01_0_0003L.24
Maconomy no.: 338001380

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		☐	☐
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Ref.: NWDSK221EI01_0_0004L.24.docx

26 April 2024

Fire Services Department
Corporate Strategy Command,
Corporate Services Division,
9th Floor, Fire Services Headquarters Building,
1 Hong Chong Road,
Tsim Sha Tsui East, Kowloon

By Fax (2739 5879) & Post

Dear Sir / Madam,

Re: Land Contamination Assessment Study for Planning Application for Proposed Residential Development at Sha Ha, Sai Kung

Enquiry for Land Contamination Information

We are conducting a Land Contamination Assessment Study for Planning Application at Sha Ha, Sai Kung. As required by the "Practice Guide for Investigation and Remediation of Contaminated Land" published by the Environmental Protection Department of the Government of HKSAR (EPD), information pertaining to the change of land uses/past activities/incidents/accidents at the Application Site are required as part of the vetting process.

Of particular interests are spill and incident reports (including records of fire at the Application Site) that we believe your Department might have record of. Furthermore, we would also like to know whether anywhere of the Application Site had applied or possessed license for dangerous goods storage. A location plan is enclosed for your reference.

Due to the urgency of the project, we would be much appreciated if you could provide the requested information by **13 May 2024**.

Should you have any queries, please do not hesitate to contact the undersigned at 3465 2831 (email: peterleung@ramboll.com) or our Ms. Coco Ma at 3465 2807 (email: cocoma@ramboll.com). We sincerely seek your feedback on this matter.

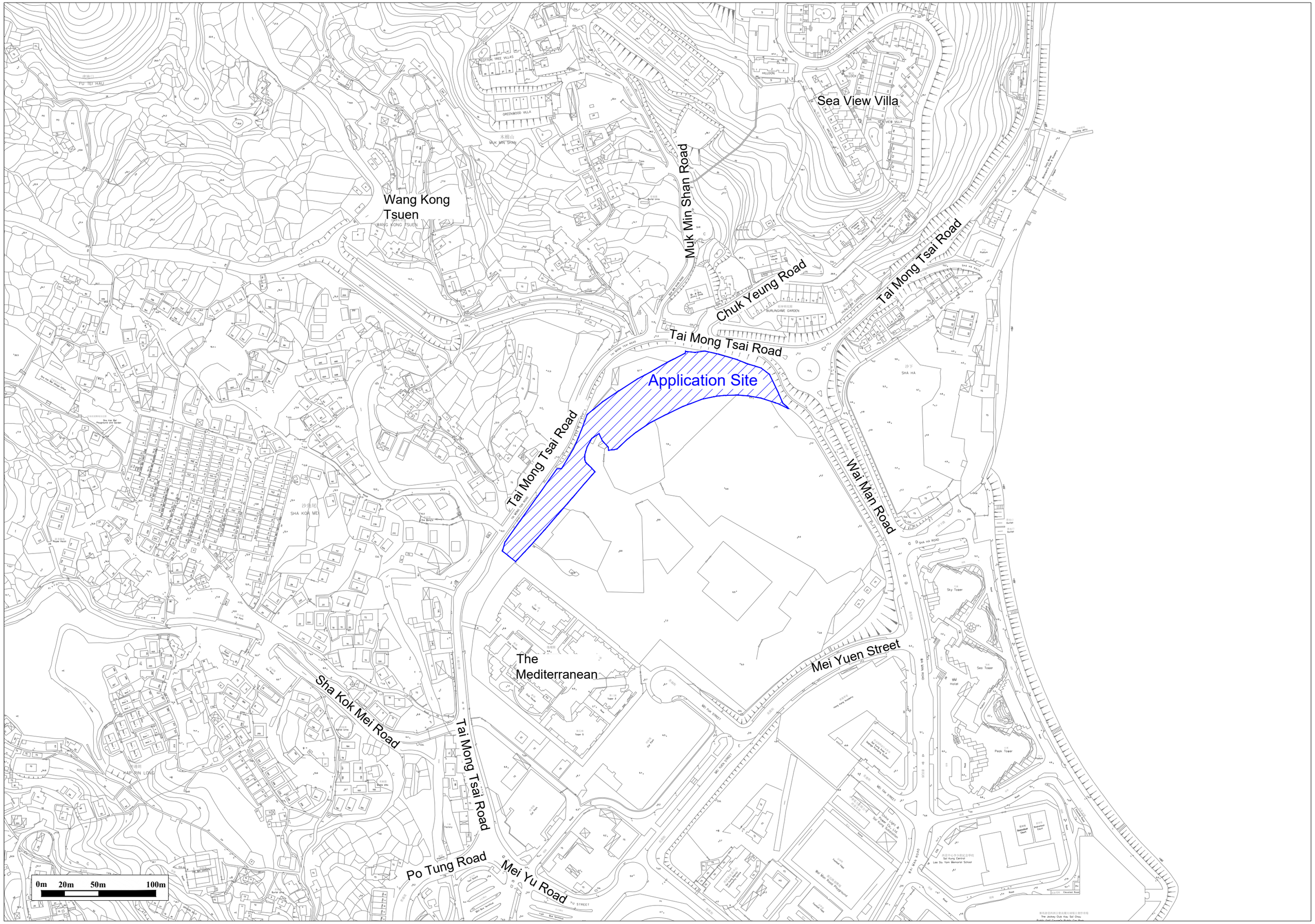
Yours faithfully,
For and on behalf of
Ramboll Hong Kong Limited

Peter Leung
Environmental Consultant

Enclosure: Location Plan of the Application Site
Appointment Letter from the Applicant

Q:\Projects\NWDSK221EI01\02 Project Management\02 Corr\NWDSK221EI01_0_0004L.24.docx

Ramboll Hong Kong Limited 英環香港有限公司
21/F, BEA Harbour View Centre, 56 Gloucester Road, Wan Chai, Hong Kong Tel: 852.3465 2888 Fax: 852.3465 2899
www.ramboll.com


Wang Kong Tsuen
Muk Min Shan Road
Sea View Villa
Chuk Yeung Road
Tai Mong Tsai Road
Tai Mong Tsai Road
Application Site
Tai Mong Tsai Road
Wai Man Road
The Mediterranean
Mei Yuen Street
Sha Kok Mei Road
Tai Mong Tsai Road
Po Tung Road
Mei Yu Road
0m 20m 50m 100m

Coco Ma

From: Matthew Long Him TAI/PLAND <mlhtai@pland.gov.hk>
Sent: 20 May 2024 14:04
To: Peter Leung
Cc: Coco Ma; Tammy Sze Nga KONG/PLAND; Benjamin Hiu Pan LEE/PLAND
Subject: Land Contamination Assessment Study for Planning Application for Proposed Residential Development at Sha Ha, Sai Kung - Enquiry for Land Contamination Information

Dear Peter,

I refer to your letter dated 26.4.2024.

The proposed application site falls within an area shown as 'Road' on the approved Sai Kung Town Outline Zoning Plan (OZP) No. S/SK-SKT/6. For the past zoning information, the previous versions of the OZP is available for public inspection at the Planning Enquiry Counters of this department.

Regards,
Matthew Tai
Town Planner/Sai Kung 3
Sai Kung and Islands District Planning Office
Planning Department
Tel: 2158 6174

消 防 處
香港九龍尖沙咀東部康莊道 1 號
消防處總部大廈

FIRE SERVICES DEPARTMENT
FIRE SERVICES HEADQUARTERS BUILDING,
No.1 Hong Chong Road,
Tsim Sha Tsui East, Kowloon,
Hong Kong.

RECEIVED
21 MAY 2024
BY:.....

本處檔號 **OUR REF.** : (26) in FSD GR 6-5/4 R Pt. 53
來函檔號 **YOUR REF.** : NWDSK221EI01_0_0004L.24.docx
電子郵件 **E-mail** : hkfsdenq@hkfsd.gov.hk
圖文傳真 **FAX NO.** : 2988 1196
電 話 **TEL NO.** : 2733 7570

10 May 2024

Ramboll Hong Kong Limited
21/F, BEA Harbour View Centre,
56 Gloucester Road,
Wanchai, Hong Kong.
(Attn: Mr. Peter LEUNG, Environmental Consultant)

Dear Mr. LEUNG,

Land Contamination Assessment Study for Planning Application for Proposed Residential Development at Sha Ha, Sai Kung
Request for Information of Dangerous Goods & Incident Records

I refer to your letter of 26.4.2024 regarding the captioned request and reply below in response to your questions:-

Please be advised that neither records of dangerous goods license, fire incidents nor incidents of spillage / leakage of dangerous goods were found in connection with the given conditions of your request at the subject location.

If you have further questions, please feel free to contact the undersigned.

Yours sincerely,

(LAI Kin-man)
for Director of Fire Services

Ramboll Hong Kong Ltd.
Project: NWDSK221EI01_0_0013L.24
Maconomy no.: 3388001382

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		☐	☐
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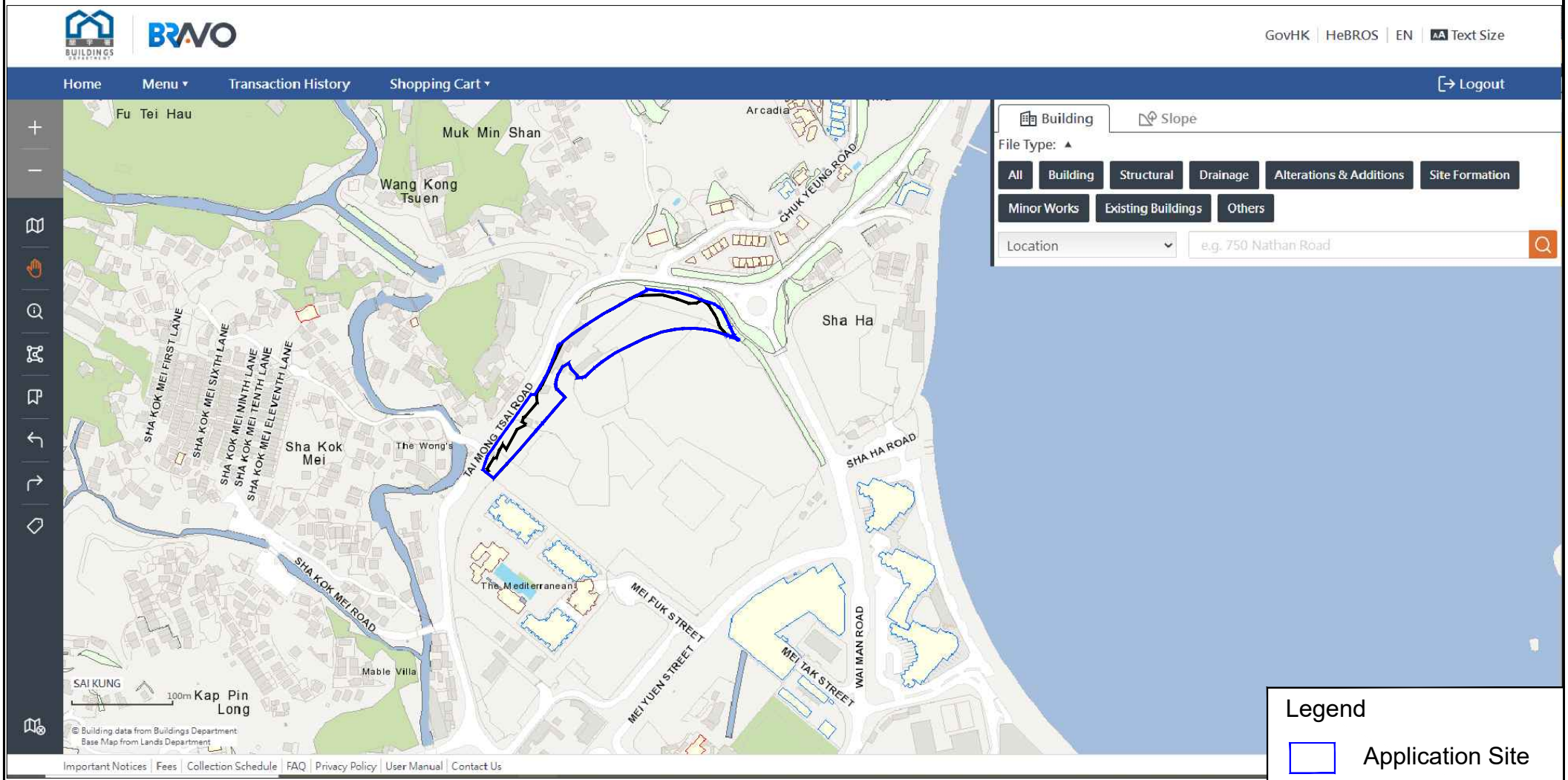
	Yes	No
Document Scan	☐	☐
Keep Hard Copy	☐	☐

Appendix 5.3 Screen Capture of BRAVO



Appendix: 5.3

Title: Screen Capture of BRAVO

Project: Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung

RAMBOLL

Drawn by:	CM
Checked by:	CC
Rev.:	1.1
Date:	Dec 2024

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Appendix 5.4 Walkover Checklist

Site Walkover Checklist

GENERAL SITE DETAILS

SITE OWNER/CLIENT	Jade Spirit Limited, Shingo Development Limited, Tenswin Limited, Boxwin Limited, Regenteam Investments Limited
PROPERTY ADDRESS	Various Lots in D.D. 221, Sha Ha, Sai Kung

PERSON CONDUCTING THE QUESTIONNAIRE

NAME	Coco Ma
POSITION	Assistant Environmental Consultant (Ramboll Hong Kong Limited)

AUTHORIZED OWNER/CLIENT REPRESENTATIVE (IF APPLICABLE)

NAME	Mr. Chan (Site Representative)
POSITION	-
TELEPHONE	-

SITE ACTIVITIES

Briefly describe activities carried out on site, including types of products/chemicals/materials handled. Obtain a flow schematic if possible.

Number of employees:	Full-time:	20
	Part-time:	-
	Temporary/Seasonal:	-
Maximum no. of people on site at any time:		20
Typical hours of operation:		8:00-18:00
Number of shifts:		-
Days per week:		6
Weeks per year:		52 (excluding statutory holiday)
Scheduled plant shut-down:		-

Detail the main sources of energy at the site:

Gas	~~Yes~~/No
Electricity	Yes/~~No~~
Coal	~~Yes~~/No
Oil	~~Yes~~/No
Other	~~Yes~~/No

SITE DESCRIPTION

This section is intended to gather information on site setting and environmental receptors on, adjacent or close to the site.

What is the total site area: Approximately 7,614m^2

What area of the site is covered by buildings (%): ~5% of temporary structure

Please list all current and previous owners/occupiers if possible.
Previous Occupiers: N/A
Current Occupiers: Applicant and third party

Is a site plan available? If yes, please attach. Yes/~~No~~ (Please refer to the attached site plan)

Are there any other parties on site as tenants or sub-tenants? Yes/~~No~~

If yes, identify those parties: Construction contractor (No name)

Describe surrounding land use (residential, industrial, rural, etc.) and identify neighbouring facilities and types of industry.

North:	Residential: Burlingame Garden, Tyburn House, Hunlicar Garden
	Carriageway: Tai Mong Tsai Road, Chuk Yeung Road, Muk Min Shan Road,
	Planned G/IC area
South:	Residential: Planned CDA(1) area, The Mediterranean
East:	Other Uses: Hung Wen Water Sport Centre with carpark
	Carriageway: Wai Man Road
West:	Residential: Wang Kong Tsuen
	Carriageway: Tai Mong Tsai Road/ Other Uses: Warehouse, Clubhouse: PADEL+ Hong Kong

Site Walkover Checklist

Describe the topography of the area (flat terrain, rolling hills, mountains, by a large body of water, vegetation, etc.).

Generally flat terrain with vegetation located at northeast and southwest

State the size and location of the nearest residential communities.

Burlingame Garden (15 houses) to the north and Wang Kong Tsuen (village houses) to the west

Are there any sensitive habitats nearby, such as nature reserves, parks, wetlands or sites of special scientific interest?

No

Questionnaire with Existing/Previous Site Owner or Occupier

Ref.		Yes/No	Notes
1.	What are the main activities/operations at the above address?	-	• Metal workshop • Material storage • Machinery and forklift repairing • Open carpark
2.	How long have you been occupying the site?	-	About 10 years
3.	Were you the first occupant on site? (If yes, what was the usage of the site prior to occupancy?)	No	Previously used as plant nursery and BBQ & war game site
4.	Prior to your occupancy, who occupied the site?	-	Villager
5.	What were the main activities/operations during their occupancy?	-	Agriculture
6.	Have there been any major changes in operations carried out at the site in the last 10 years?	Yes	Formerly plant nursery and BBQ & war game site
7.	Have any polluting activities been carried out in the vicinity of the site in the past?	No	-
8.	To the best of your knowledge, has the site ever been used as a petrol filling station/car service garage?	Yes	Part of the site is currently used as forklift repairing workshop
9.	Are there any boreholes/wells or natural springs either on the site or in the surrounding area?	No	-
10	Do you have any registered hazardous installations as defined under relevant ordinances? (If yes, please provide details.)	No	-
11.	Are any chemicals used in your daily operations? (If yes, please provide details.)	Yes	Diesel engine oil, lubricating oil
	• Where do you store these chemicals?	-	Chemical storage area and near the operation activities
12.	Material inventory lists, including quantities and locations available? (If yes, how often are these inventories updated?)	No	-
13.	Has the facility produced a separate hazardous substance inventory?	No	-

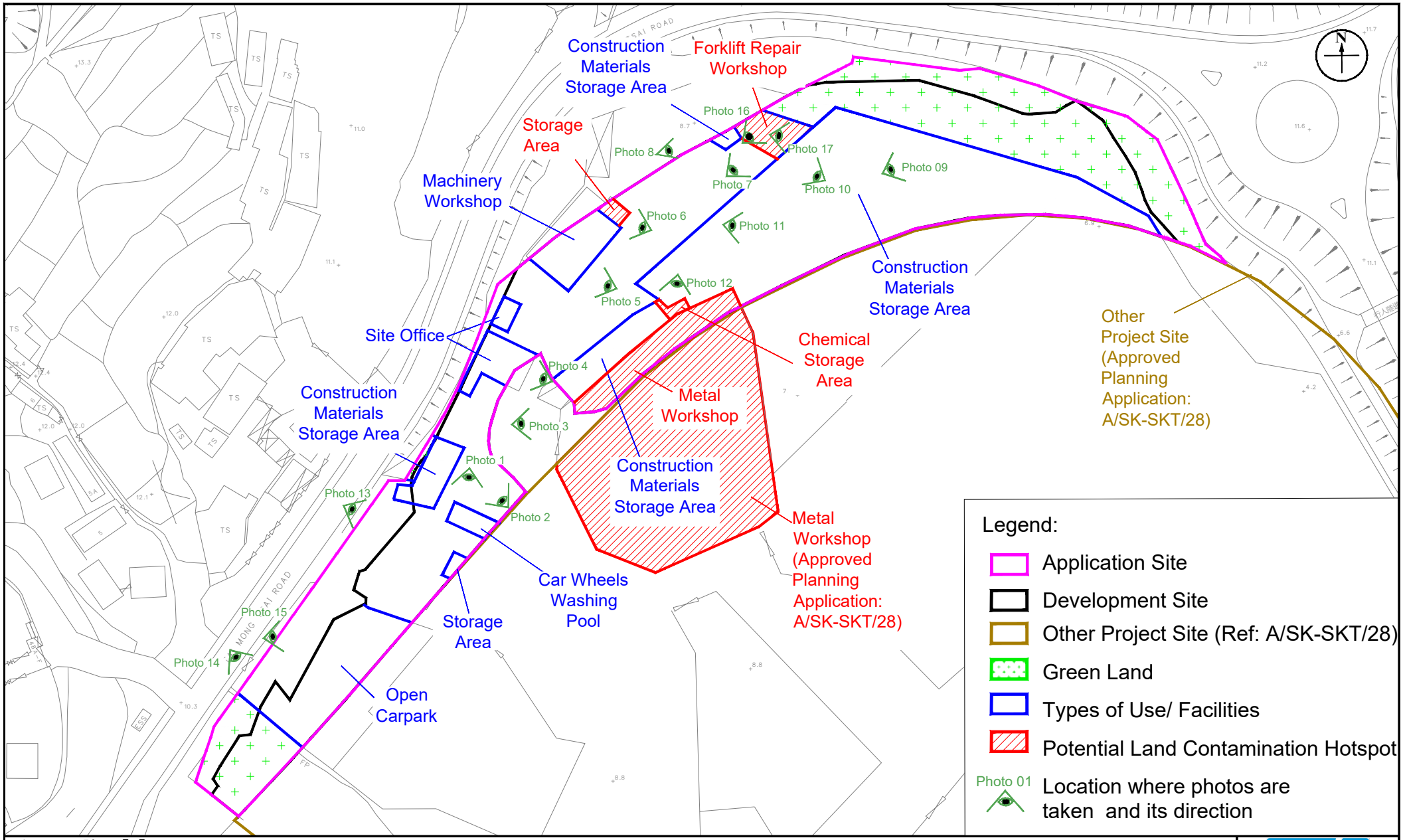
Ref.		Yes/No	Notes
14.	Have there ever been any incidents or accidents (e.g. spills, fires, injuries, etc.) involving any of these materials? (If yes, please provide details.)	No	-
15.	How are materials received (e.g. rail, truck, etc.) and stored on site (e.g. drums, tanks, carboys, bags, silos, cisterns, vaults and cylinders)?	-	Stored in drums
16.	Do you have any underground storage tanks? (If yes, please provide details.)	No	-
	▪ How many underground storage tanks do you have on site?	-	-
	▪ What are the tanks constructed of?	-	-
	▪ What are the contents of these tanks?	-	-
	▪ Are the pipelines above or below ground?	-	-
	▪ If the pipelines are below ground, has any leak and integrity testing been performed?	-	-
	▪ Have there been any spills associated with these tanks?	-	-
17.	Are there any disused underground storage tanks?	No	-
18.	Do you have regular check for any spillage and monitoring of chemicals handled? (If yes, please provide details.)	No	-
19.	How are the wastes disposed of?	-	Construction waste and chemical waste are collected by registered contractor(s)
20.	Have you ever received any notices of violation of environmental regulations or received public complaints? (If yes, please provide details.)	No	-
21.	Have any spills occurred on site? (If yes, please provide details.)	No	-
	• When did the spill occur?	-	-
	• What were the substances spilled?	-	-
	• What was the quantity of material spilled?	-	-
	• Did you notify the relevant departments of the spill?	-	-
	• What were the actions taken to clean up the spill?	-	-
	• What were the areas affected?	-	-
22.	Do you have any records of major renovation of your site or rearrangement of underground utilities, pipe work/underground tanks (If yes, please provide details.)	No	-
23.	Have disused underground tanks been removed or otherwise secured (e.g. concrete, sand, etc.)?	No	-
24.	Are there any known contaminations on site? (If yes, please provide details.)	No	-

Ref.		Yes/No	Notes
25.	Has the site ever been remediated? (If yes, please provide details.)	No	-

Observations

1.	Are chemical storage areas provided with secondary containment (i.e. bund walls and floors)?	-	Chemicals are stored inside cabinets and elevated with floor. Chemical waste is stored inside drums and elevated with pallets.
2.	What are the conditions of the bund walls and floors?	-	In good condition
3.	Are any surface water drains located near to drum storage and unloading areas?	No	-
4.	Are any solid or liquid waste (other than wastewater) generated at the site? (If yes, please provide details.)	Yes	Spent oil, used iron rod, construction waste
5.	Is there a storage site for the wastes?	Yes	The wastes are stored at designated area for collection
6.	Is there an on-site landfill?	No	-
7.	Were any stressed vegetation noted on site during the site reconnaissance? (If yes, please indicate location and approximate size.)	No	-
8.	Were any stained surfaces noted on-site during the site reconnaissance? (If yes, please provide details.)	Yes	Some of the areas were stained by paint (forklift repair workshop, machinery workshop and the chemical storage area)
9.	Are there any potential off-site sources of contamination?	Yes	Part of the metal workshop falls within the Application Site. As metal workshop is considered to be a potential contamination source, the portion outside the Application Site is therefore considered as a potential off-site contamination source.
10.	Does the site have any equipment which might contain polychlorinated biphenyls (PCBs)?	Yes	Forklifts and mechanical equipment
11.	Are there any sumps, effluent pits, interceptors or lagoons on site?	Yes	A washing pool for car wheels washing
12.	Any noticeable odours during site walkover?	No	-
13.	Are any of the following chemicals used on site: fuels, lubricating oils, hydraulic fluids, cleaning solvents, used chemical solutions, acids, anti-corrosive paints, thinners, coal, ash, oily tanks and bilge sludge, metal wastes, wood preservatives and polyurethane foam?	Yes	Fuels (diesel engine oil), lubricating oils, turpentine, paint oil, tinner, used chemical solutions (spent oil), metal wastes (used/unwanted iron rod)

Appendix 5.5 Photo Records



Appendix: 5.5

Title: Site Survey Record Plan

Project: Section 16 Planning Application for Proposed Residential Development at Various Lots in D.D. 221 and Adjoining Government Land, Sha Ha, Sai Kung

RAMBOLL

Drawn by:	CM
Checked by:	CC
Rev.:	1.2
Date:	Feb 2025

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Photo Records

	
Photo 1: Car Wheels Washing Pool	Photo 2: Construction Material Storage
	
Photo 3: Metal Workshop	Photo 4: Site Office
	
Photo 5: Machinery Workshop	Photo 6: Warehouse for Machinery Workshop

	
Photo 7: Forklift Repair Workshop	Photo 8: Construction Material Storage
	
Photo 9: Construction Material Storage	Photo 10: Construction Material Storage
	
Photo 11: Construction Material Storage	Photo 12: Chemical Storage Area

	
Photo 13: Open Area, Construction Storage Area and Car Wheels Washing Pool	Photo 14: Open Car Park
	
Photo 15: Open Car Park	Photo 16: Forklift Repair Workshop
	
Photo 17: Forklift Repair Workshop	