Prepared by

Ramboll Hong Kong Limited

PROPOSED SCHOOL AT VARIOUS LOTS IN D.D. 94, 98 & 100 AND ADJOINING GOVERNMENT LAND, KWU TUNG SOUTH, NEW TERRITORIES

ENVIRONMENTAL ASSESSMENT

Date	**January 2026**
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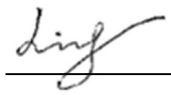
Signed	
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CHAPTERS

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1. INTRODUCTION

1.1 Project Background

1.1.1 The applicants, Global King Investment Limited, Winpost (HK) Investment Limited and Rand Development Limited, seek to rezone the current "Agriculture" zoning with a minor portion of "Green Belt" of the Application Site as outlined in the approved Kwu Tung South Outline Zoning Plan No. S/NE-KTS/22.

1.1.2 Ramboll Hong Kong Limited is commissioned to conduct the environmental assessment based on the information regarding the proposed scheme.

1.2 Application Site and its Environs

1.2.1 The Application Site is situated along the Sheung Yue River which separate the Application Site into 2 portions (West and East Portions). It is bounded by Sheung Shui Hang Tau Village Sitting Out Area No.2 to the North and Po Shu Garden to the East.

1.2.2 **Figure 1.1** also shows the location and the environs of the Proposed Development.

1.3 Proposed Development

1.3.1 Under the current application, the Application Site is proposed for an International School development. Details of the proposed development schedule are summarised in **Table 1.1** below and the layout plan is shown in **Appendix 1.1**.

1.3.2 The buildings within Proposed Development (excepting for the student and staff dormitory) will be equipped with central ventilation system, and it will not rely on openable window for ventilation under normal circumstances. While a portion of the Proposed Development along proposed Public Road falls within the 5m buffer distance, it is confirmed by Project Architect that there will be no air sensitive uses including openable window, fresh air intake of mechanical ventilation/ centralized air-conditioning system nor outdoor recreational facilities within the buffer area. Adequate buffer distance is to be provided between the fresh air intake of the building and the kerb of the proposed Public Road.

Table 1.1 Development Schedule of the Proposed Development

Portions Located	West	East
Site Area (m^2)	~92,616	~35,616
Total GFA (m^2)	~126,850	~44,150
No. of Blocks	18	6
No. of Classrooms	76	65
No. of Students	1,600	1,400
No. of Staff (Including Teaching and Non-Teaching)	338	295
No. of Student/ Staff who can Live in the Accommodation	2,243	0

Completion Year	2036

1.4 Key Environmental Issues and Study Approach

1.4.1 Key Environmental issues and concerns as identified for the Project include:

Noise

1.4.2 This section assesses the road traffic noise and potential industrial noise impacts on the noise sensitive uses of the Proposed Development. Practical mitigation measures are proposed to mitigate the potential noise impacts, where necessary.

1.4.3 Site visit was conducted on 15 August 2025 to identify whether there is any potential industrial noise source in the vicinity (i.e. 300m) of the Application Site. No industrial activities are identified in the vicinity.

Air Quality

1.4.4 For the construction phase, the potential air quality impacts would be caused by the dust emissions generated during construction activities. For the operation phase, the potential air quality impacts arising from the vehicular emissions of the nearby roads, and the chimney emissions (if any) of the nearby industrial activities should be addressed.

Land Contamination

1.4.5 The historical landuse and existing condition have been studied for the purpose to identify if there is/was any potentially land contaminating activity held onsite, and actions recommended to be taken afterwards. A land contamination appraisal is included in Section 4.

Waste Management

1.4.6 The potential waste management issues in connection with construction and operation of the Proposed Development will be discussed at Section 5. Waste management Practices and mitigation measures will be recommended in order to alleviate the impacts, where necessary.

Water Quality

1.4.7 The potential water quality impact in connection with construction and operation of the Proposed Development will be discussed at Section 6. On-site sewage treatment plant is proposed. Water quality control measures and mitigation measures will be recommended in order to alleviate the impacts, where necessary.

2. NOISE IMPACT ASSESSMENT

2.1 Introduction

2.1.1 This section assesses the potential industrial noise and road traffic noise impacts on the noise sensitive uses of the Proposed Development. Practical mitigation measures are proposed to mitigate the potential noise impacts, where necessary.

2.2 Representative Noise Sensitive Receivers (NSRs)

2.2.1 There are a number of temporary structures, village houses, and low-rise residential buildings within 300m of the Proposed Development. The representative NSRs for the construction phase were identified as given in **Table 2.1**. The relative location and distance between the representative NSRs and the Subject Site can be referred to **Figure 2.1**.

Table 2.1 Summary of Representative NSRs

NSR ID	Description	Land Use	Distance from the Project Boundary
N1	Temporary Structure	Residential	~5m
N2	Temporary Structure	Residential	~43m
N3	564 HANG TAU Village House	Residential	~15m
N4	561 HANG TAU Village House	Residential	~3m
N5	Temporary Structure	Residential	~9m
N6	Temporary Structure	Residential	~16m
N7	Temporary Structure	Residential	~7m
N8	Temporary Structure	Residential	~43m
N9	Temporary Structure	Residential	~14m
N10	Temporary Structure	Residential	~4m
N11	Temporary Structure	Residential	~7m
N12	Temporary Structure	Residential	~7m
N13	Temporary Structure	Residential	~10m

2.3 Review on Road Traffic Noise

2.3.1 As mentioned in Section 1.2, the tentative completion year of Proposed Development is Year 2036. Meanwhile, the San Tin Section of Northern Metropolis Highway is targeted to be commissioning in or before 2036 according to the available information provided by Highway Department, location of the transport infrastructure is shown in **Figure 2.2**. In view of the abovementioned programme, the Project would be adjacent to Hang Tau Road (91m from the Application Site) and proposed San Tin Section of

Northern Metropolis Highway (54m from the Application Site), which are expected to be the main noise sources.

2.3.2 Most noise sensitive uses (including classroom, office, sports complex, gymnasium, retail, clinic, student shop and club) within the Proposed Development will be centrally air-conditioned and do not require opened windows as means of ventilation under normal circumstances. As such, they should unlikely be affected by road traffic noise.

2.3.3 For noise sensitive uses like student and staff dormitory, the noise sensitive facades / location of openable windows would be designed facing away from the main noise sources as practicable as possible so that the future occupants would not be subject to adverse road traffic noise impact. In addition, detailed road traffic noise impact assessment shall be conducted in next application stage in order to avoid any road traffic noise underestimation from surrounding roads.

2.4 Review on Industrial Noise

2.4.1 The Application Site is located at Kwu Tung South, and surrounded by temporal structures, village houses and open parking sites. Desktop studies and site visit (15 August 2025) have been conducted to identify the potential industrial noise sources within 300m assessment area, as shown in **Figure 2.3**. According to the observation during site visit, two open storage & parking sites for heavy machinery to the north and south of the site are identified, and no loading/unloading activities is found. Therefore, road traffic noise would be the major noise source after completion of the Approved Development. Nevertheless, similar with the section for road traffic noise impact assessment, detailed industrial noise impact assessment shall be conducted in next application stage in order to avoid any industrial noise underestimation from potential industrial sources.

Fixed Noise Sources within Proposed Development

2.4.2 In order to ensure that the fixed sources noise generated by the Proposed Development would not cause excessive impact to the neighbouring noise sensitive uses, the ventilation and air conditioning systems for the carpark, potential noise sources from the Proposed Development (e.g. public address systems (PA systems) and sports activities, plant room etc. will be carefully designed and installed to comply with relevant fixed source noise standards under Chapter 9 of HKPSG.

2.4.3 It is understood that loudspeakers of sports ground are not for continuous announcement, and of short durations in general (< 0.5min). With the proper design of the potentially noisy facilities to control and suppressed the generated noise level, such as the spectator stands designed with canopy and orientated to reduce angle of view from neighbouring noise sensitive uses to potential noise sources from Proposed Development, no adverse noise impact due to operation of the Proposed Development is anticipated.

2.5 Review on Construction Noise

Relevant Legislation, Standards & Guidelines

Statutory Requirements - Noise Control Ordinance (Cap.400)

2.5.1 Noise impacts arising from general construction activities (excluding percussive piling) conducted during the restricted hours (19:00-07:00 hours on any day and anytime on Sunday or general holiday), and percussive piling during anytime are regulated under the Noise Control Ordinance ("NCO"). The carrying out of any general construction activities involving the use of Powered Mechanical Equipment ("PME") within these restricted hours require a valid Construction Noise Permit ("CNP") issued by the Authority under the NCO.

2.5.2 The noise criteria and the assessment procedures for issuing a CNP are specified in the Technical Memorandum on Noise from Construction Work Other Than Percussive Piling ("GW-TM") issued under the NCO.

2.5.3 The use of *Specified PME* ("SPME") and/ or the carrying out of *Prescribed Construction Work* ("PCW") within a *Designated Area* ("DA") defined under the *NCO* during the restricted hours are also prohibited without a valid CNP. The relevant technical and procedural requirements are contained in the *Technical Memorandum on Noise from Construction Work in Designated Areas* ("*DA-TM*") issued under the *NCO.*

2.5.4 Within designated areas, the control of SPME and PCW are exercised through the Noise Control (Construction Work Designated Areas) Notice made under Section 8A(1) of the NCO. According to the latest Designated Area defined under the NCO [Plan No.: EPD/AN/K&NT-02 promulgated by Environment and Ecology Bureau], the Project Site is falling within the designated areas. During the construction phase, the Contractor has the responsibility to check the latest status and coverage of the designated areas at time of construction of the Project.

Practice Note for Professional Persons PN 1/24

2.5.5 It is envisaged that most construction works will be carried out between 07:00 and 19:00 on any working days except for Sundays and general holidays unless a Construction Noise Permit (CNP) is granted by the Authority for essential works during the restricted hours. Construction noise impact between 07:00 and 19:00 on any days except Sundays and general holidays shall meet the criteria in **Table 2.2**.

Table 2.2 Noise Limit for Daytime Construction Activities

Noise Sensitive Uses	0700 to 1900 hours on any day not being a Sunday nor a general holiday, L_{eq} (30 min), dB(A)
Dwellings	75
School	70 65 during examination

Analysis of Construction Activities and Sources of Noise Impact

2.5.6 Noisy construction works are usually associated with non-percussive piling and concreting works. Typical construction sequence envisaged include the following major activities:

1. Site Clearnces;
2. Construction of site hoarding;
3. Site formation;
4. Excavation and lateral support (ELS);
5. Piling and foundation works;
6. Superstructure and building works.

Noise Mitigation Measures

2.5.7 It is expected that the use of noise mitigation measures is essential, and approach of their application is elaborated as follow:

Use of Movable Noise Barriers

2.5.8 Movable noise barriers can typically achieve 5 dB(A) reduction for movable PME and 10 dB(A) for stationary ones when they are being operated. The surface density of the movable noise barriers shall be no less than 10 kg/m^2.

Use of Silencers & Noise Enclosure

2.5.9 Silencers and/or noise enclosure can provide noise attenuation of 10-20 dB(A) and hence will be applied where appropriate.

Use of Quality Powered Mechanical Equipment (QPME)

2.5.10 To reduce the noise impacts at the affected NSRs during normal daytime working hours, mitigation measure such as the use of QPME is recommended. According to the information from EPD, there are currently 15 types of QPME. As the condition and noise level of the construction plant would be assessed during the QPME application process, all QPME labelled construction plant would be well-maintenance and quieter. The contractors may adopt alternative QPME as long as it can be demonstrated that they would not result in construction noise impacts worse than those predicted in this assessment.

Adoption of Quieter Construction Method

2.5.11 With reference to quieter construction methods from EPD's website, advanced quieter construction methods have been established. Performance and practicability of the equipment has been studied and approved on different construction sites in Hong Kong, such as non-explosive chemical expansion agent for concrete removal, hydraulic crusher for concrete breaking and silent piling by press-in method, etc.

Good Site Practice

2.5.12 In order to minimise impacts on sensitive uses, the following good site practice/ control measures shall be adopted in minimising noise impacts.

1. The Contractor shall observe and comply with statutory and non-statutory requirements, guidelines and adopt the "*Code of Practice on Good Management Practice to Prevent Violation of the Noise Control Ordinance (Chapter 400) (for Construction Industry)*" published by EPD;
2. The Contractor shall submit method statements to the Architect for comment on alternative construction methods, use of equipment and noise mitigation measures intended to be implemented on-site;
3. The Contractor shall devise and execute working methods to minimise noise impact on surrounding sensitive uses, and shall provide experienced personnel with suitable training to ensure that those methods are implemented;
4. Noisy equipment and activities should be located as far away from NSRs as practicable;
5. Unused equipment should be turned off or throttled down. PME should be kept to a minimum and the parallel use of noisy equipment/ machinery should be avoided;
6. Queuing of dump trucks should be avoided besides the site entrance. Their intermittent use should be avoided between loading cycles or may be throttled down to a minimum to reduce noise;
7. Regular maintenance of all plant and equipment, and use of material stockpiles and other existing structures as effective noise barriers, where practicable;

8. Use of movable noise barriers can typically contribute to 5 dB(A) reduction for movable PME and 10 dB(A) for stationary ones when they are being operated. The surface density of movable noise barriers shall be no less than 10 kg/m^2.

Recommended Pollution Control Clauses for Construction Contracts

2.5.13 Similar to standard primary and secondary school projects, the "*Recommended Pollution Control Clauses for Construction Contracts"* as included as attachment B in the "*Final Report on Preparation of a Class Assessment Document for Standard Schools*" issued by Architectural Services Department, is recommended to form part of the construction contract to ensure that adequate construction noise control measures are in place. The followings are some highlights of applicable good practice to minimize inconvenience and noise nuisance to nearby residents or other sensitive receivers:

1. All works are to be carried out in such a manner as to cause as little inconvenience as possible to nearby residents, properties and to the public in general, and the Contractor shall be held responsible for any claims which may arise from such inconvenience;

2. In addition to requirements imposed by the *Noise Control Ordinance*, to control noise generated from equipment and activities for the purpose of carrying out any construction works other than percussive piling during the time period from 0700 to 1900 hours on any day not being a general holiday (including Sundays), the following requirements shall also be complied with:

   (i) The noise level measured at 1m from the most affected external façade of the nearby noise sensitive receivers from the construction work alone during any 30 minute period shall not exceed an equivalent sound level (Leq) of 75 dB(A); and

   (ii) The noise level measured at 1m from the most affected external façade of the nearby schools from the construction work alone during any 30 minute period shall not exceed an equivalent sound level (Leq) of 70 dB(A) [65 dB(A) during school examination periods], if any.

   The Contractor shall liaise with any affected school(s) to ascertain the exact dates and times of all examination periods during works.

   (iii) Should the limits stated in the above sub-clauses (i) and (ii) be exceeded, the construction shall stop and shall not re-commence until appropriate measures are implemented necessary for achieving compliance.

   (iv) Any stoppage or reduction in output resulting from compliance with this clause shall not entitle the Contractor from claiming extension of time for completion or any additional costs whatsoever.

3. The Contractor shall, when necessary, apply as soon as possible for a construction noise permit in accordance with the Noise Control (General) Regulations, and display the permit as required and copy to the Architect/ Engineer.

4. The Contractor shall, when necessary, substitute percussive piling by non-percussive piling means.

5. The Contractor shall ensure that all plant and equipment to be used on-site are properly maintained in good operating condition and noisy construction activities shall be effectively sound-reduced by means of silencers, mufflers, acoustic linings or shields, acoustic sheds or screens or other means, to avoid disturbance to any nearby noise sensitive receivers;

6. Before commencement of any works, the Architect/ Engineer may require the methods of working, plant equipment and sound-reducing measures to be used on the Site to be made available for trial demonstration inspection and approval to ensure that they are suitable for the project.
7. The Contractor shall devise, arrange methods of working and carry out the Works in such a manner so as to minimize noise impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these methods are implemented;
8. The Architect/ Engineer may upon application in writing by the Contractor, allow the use of equipment and the carrying out of any construction activities for any duration provided that he is satisfied with the application which, in his opinion, is considered to be of absolute necessity and adequate noise insulation has been provided to the uses affected, or of emergency nature, and not in contravention with the *Noise Control Ordinance* in any respect;
9. Measures that are to be taken to protect adjacent schools, if any, and other adjacent noise sensitive receivers, if necessary, shall include, but not be limited to, adequate noise barriers. The barriers shall be of substantial construction and designed to reduce transmission of noise (simple plywood hoarding will not be sufficient). The noise barriers shall be surmounted with baffle boxes designed to reduce transmission of noise. The barriers shall be designed to BS 5228 (1984). The location and details of the barriers shall be submitted to the Architect/ Engineer for approval before works commence adjacent to schools and other noise sensitive receivers.

2.5.14 The abovementioned noise mitigation measures will be included in the contractual clauses for implementation by the Contractor(s) during the construction stage.

2.6 Conclusion

2.6.1 As the Site is not on flat ground, site formation would be required, construction works would commence after site decanting decommissioning and demolition of the existing buildings. Construction works will normally be carried out during the daytime period of 0700-1900 due to concerns of noise impacts, unless there are unavoidable situations or overriding reasons that requires the works to be extended into the restricted hours. In such circumstances, CNPs will have to be applied for from the Authority.

2.6.2 With the recommended use of noise mitigation measures outlined in **Section 2.6**, together with inclusion of *"Recommended Pollution Control Clauses for Construction Contracts"* in works contract, construction noise impact should be minimised and under control.

2.6.3 The Contractors shall, from time to time, be reminded of noise impacts on the surrounding NSRs through adequate noise monitoring during the works so that adjustments can be made to restore the construction noise impacts back to acceptable levels.

3. AIR QUALITY IMPACT ASSESSMENT

3.1 Introduction

3.1.1 This section examines the potential air quality impacts that could arise from the construction phase and operation phase of the Project.

3.2 Environmental Legislation and Guidelines

3.2.1 The following legislation and regulations provide the standards and guidelines for evaluation of air quality impacts and the type of works that are subject to air pollution control:

- Air Pollution Control Ordinance (APCO) (Cap. 311) and the Air Quality Objectives (AQO)
- Air Pollution Control (Construction Dust) Regulation
- Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation
- Air Pollution Control (Fuel Restriction) Regulations
- Control of Air Pollution in Car Parks (ProPECC PN 2/96)
- Hong Kong Planning Standards and Guidelines (HKPSG)

Air Pollution Control Ordinance (CAP 311)

3.2.2 A set of Air Quality Objectives (AQOs) is established under the Air Pollution Control Ordinance (Cap. 311). The current AQOs that came into effect on 11 April 2025 is presented in **Table 3.1**.

Table 3.1 Hong Kong Air Quality Objectives (AQOs)

Pollutant	Averaging time	Concentration limit [i] (μg/m³)	Number of exceedances allowed per calendar year
SO_2	10-minute	500	3
	24-hour	40	3
RSP (PM_{10}) [ii]	24-hour	75	9
	Annual	30	Not applicable
FSP ($PM_{2.5}$) [iii]	24-hour	37.5	18
	Annual	15	Not applicable
NO_2	1-hour	200	18
	24-hour	120	9
	Annual	40	Not applicable
O_3	8-hour	160	9
	Peak season	100	Not applicable
CO	1-hour	30,000	0
	8-hour	10,000	0
	24-hour	4,000	0
Lead	Annual	0.5	Not applicable

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

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

3.2.3 In accordance with the EIAO-TM, odour predicted at all ASRs should meet 5 odour units (OUs) based on an averaging time of 5 seconds.

Air Pollution Control (Construction Dust) Regulation

3.2.4 Made under Section 43 of the APCO, this Regulation defines notifiable and regulatory works for achieving the purpose of dust control for a number of activities. The Regulation requires that any notifiable work shall give advance notice to EPD, and the Contractors shall ensure that the notifiable and regulatory works are carried out in accordance with the Schedule of the Regulation. Dust control and suppression measures are also provided in the Schedule.

3.2.5 The proposed construction works for the proposed Project are both regulatory and notifiable works due to activities including material stockpiling and dusty material handling as potential sources of fugitive dust emissions as detailed under Parts I to IV of the Schedule on Dust Control Requirements.

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

3.2.6 The Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation, which aims to control emissions from non-road mobile machinery (NRMMs) to improve air quality, became effective on 1 June 2015. NRMMs include non-road vehicles, as well as mobile machines and equipment (regulated machines) such as crawler cranes, excavators and air compressors.

3.2.7 Under the regulation, regulated machines have to comply with the Stage IIIA emission standards of the European Union (EU). It also requires all regulated machines sold or leased for use in Hong Kong to bear an approval or exemption label issued to them by the EPD, started from 1 September 2015. It restricts specified activities and locations including construction sites, designed waste disposal facilities and specified processes to use only NRMMs that bear an approval or exemption label issued to them by the EPD, with effect from 1 December 2015.

Air Pollution Control (Fuel Restriction) Regulations

3.2.8 The Air Pollution Control (Fuel Restriction) Regulations was 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 April 2025, the Air Pollution Control (Fuel Restriction) Regulations was amended to tighten the control requirements of liquid fuels. The Regulations does 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.

ProPECC PN2/96 - Control of Air Pollution in Car Parks

3.2.9 This practice notes include air quality guidelines required for the protection of public health and factors that should be considered in the design and operation of car parks in order to achieve the required air quality. The limits for air pollutants as recommended by the practice notes are summarised in **Table 3.2**.

Table 3.2 Limits of Air Pollutant Concentrations Inside Car Parks

Air Pollutant	Average Time	Maximum Concentration (µg/m3) [i]	Maximum Concentration (ppm)
CO	5 minutes	115,000	100
NO_2	5 minutes	1,800	1

Notes:
[i] All limits are expressed as at reference conditions of 298K and 101.325kPa.

Hong Kong Planning Standards and Guidelines (HKPSG)

3.2.10 Potential air quality impacts associated with the surrounding road carriageways and chimney emission from industrial stack shall be evaluated in accordance with the guidelines set out in HKPSG.

3.2.11 **Table 3.3** below is the extract of Table 3.1 in Chapter 9 "Environment" of HKPSG stating the recommended minimum horizontal buffer distance against pollution sources generated from road & highways and industrial areas.

Table 3.3 Guidelines on Usage of Open Space Site

Pollution Source	Parameter	Buffer Distance	Permitted Uses
Road and Highways	Type of Road		
	Trunk Road and Primary Distributor	>20 m	Active and passive recreational uses
		3 – 20 m	Passive recreational uses
		<3 m	Amenity areas
	District Distributor	>10 m	Active and passive recreational uses
		<10 m	Passive recreational uses
	Local Distributor	>5 m	Active and passive recreational uses
		<5 m	Passive recreational uses
	Under Flyovers		Passive recreational uses
Industrial Areas	Difference in Height between Industrial Chimney Exit and the Site		
	<20 m	>200 m	Active and passive recreational uses
		5 – 200 m	Passive recreational uses
	20 – 30 m (*)	>100 m	Active and passive recreational uses
		5 – 100 m	Passive recreational uses
	30 – 40 m	>50 m	Active and passive recreational uses
		5 – 50m	Passive recreational uses
	>40 m	>10 m	Active and passive recreational uses
Construction and Earth Moving Activities	-	<50 m	Passive recreational uses
		>50 m	Active and passive recreational uses

Note:
(i) *In situations which the height of chimneys is not known, use the set of guidelines marked with an asterisk for preliminary planning purpose and refine as and when more information is available.*
(ii) *The buffer distance is the horizontal, shortest distance from the boundary of the industrial lot, the position of existing chimneys or the edge of road kerb, to the boundary of open space sites.*
(iii) *The guidelines are generally applicable to major industrial areas but NOT individual large industrial establishment which are likely to be significant air pollution sources. Consult EPD should be consulted when planning open spaces close to such establishments.*
(iv) *Amenity areas are permitted in any situation.*

3.3 Representative Air Sensitive Receivers (ASRs)

3.3.1 There are a number of temporary structures, village houses, and low-rise residential buildings within 500m of the Proposed Development. The representative ASRs for the construction phase were identified as given in **Table 3.4**. The relative location and distance between the representative ASRs and the Subject Site can be referred to **Figure 3.1**.

Table 3.4 Summary of Representative ASRs

ASR ID	Description	Type	Land Use	Distance from the Project Boundary	Assessment Height (m)
A1	Temporary Structure	Existing	Residential	~5m	1.5
A2	Proposed Temporary Warehouse with Ancillary Office at Lot 424 S.A (Part) in D.D. 94	Planned	Office	~46m	1.5
A3	Proposed Residential Development Various Lots in D.D. 94	Planned	Residential	~66m	1.5-10.5
A4	Temporary Structure	Existing	Residential	~43m	1.5
A5	Ceylon Farm Village	Existing	Recreational	~2m	1.5
A6	564 HANG TAU Village House	Existing	Residential	~15m	1.5-10.5
A7	561 HANG TAU Village House	Existing	Residential	~3m	1.5-10.5
A8	Temporary Structure	Existing	Residential	~9m	1.5
A9	Temporary Structure	Existing	Residential	~16m	1.5
A10	Temporary Structure	Existing	Residential	~7m	1.5
A11	Temporary Structure	Existing	Residential	~43m	1.5
A12	Temporary Structure	Existing	Residential	~14m	1.5
A13	Temporary Structure	Existing	Residential	~4m	1.5
A14	Temporary Structure	Existing	Residential	~7m	1.5
A15	Temporary Structure	Existing	Residential	~7m	1.5
A16	Temporary Structure	Existing	Residential	~10m	1.5

3.4 Existing Air Quality in North District

3.4.1 The nearest air quality monitoring station (AQMS) to the Proposed Development is the North AQMS. The five most recent years of air quality monitoring data, 2020 to 2024, from this station are summarized in **Table 3.5**. According to the AQMS monitoring data, exceedance in O_3 is recorded.

Table 3.5 Air Quality Monitoring Data at North AQMS

Pollutant	Averaging Time	AQO	Pollutant Concentration (µg/m3)				
			2020	2021	2022	2023	2024
RSP	10th Highest 24-hour	75 (9)	55	62	50	57	56
	Annual	30	-	25	23	27	25
FSP	19th Highest 24-hour	37.5 (18)	29	29	28	28	29
	Annual	15	-	**15**	14	**15**	**16**
NO2	19th Highest 1-hour	200 (18)	112	135	115	116	114
	10th Highest 24-hour	120 (9)	54	70	58	58	56
	Annual	40	-	36	31	30	29
SO2	4th Highest 10-Min	500 (3)	19	18	27	27	18
	4th Highest 24-hour	40 (3)	8	7	7	7	7
O_3	10th Highest 8-hour	160 (9)	**166**	**187**	**197**	**164**	**169**
	Peak season	100	-	97	98	95	**101**
CO	1st Highest 1-hour	30000 (0)	1830	2150	1710	2390	1710
	1st Highest 8-hour	10000 (0)	1238	1550	1304	1231	1311
	1st Highest 24-hour	4000 (0)	1022	1213	994	1001	988

Notes:
(a) *Bolded values exceed the relevant AQO.*
(b) *Data extracted from EPD's Smart Air Modelling Platform (SAMP v2.1).*
(c) *Numbers in brackets is the number of exceedances allowed per calendar year.*

3.4.2 Apart from the air quality monitoring data, a set of background levels from PATH v3.0 ("Pollutants in the Atmosphere and their Transport over Hong Kong") is also reviewed. As the tentative years of the completion of the Proposed Development is Year 2036, the background air quality predicted by PATH v3.0 for Year 2035 in Grid 32,52 and 33,52 is summarized in **Table 3.6**. With respect to the future background air quality predicted by PATH v3.0 in **Table 3.6**, all values are below the relevant AQOs except O_3.

Table 3.6 Year 2035 Background Annual Average Concentrations (Level L1) of the Air Pollutants from PATH v3.0

Pollutant	Averaging Time	AQO	Data Summary	PATH v3.0 Grid in Year 2035					
				32,53	33,53	32,52	33,52	32,51	33,51
RSP	24-hour	75 (9)	10th	54	55	55	56	52	54
			Exceedance	0	0	0	0	0	0
	Annual	30	-	21	21	21	21	20	21
FSP	24-hour	37.5 (18)	19th	32	33	32	34	31	33
			Exceedance	8	10	8	11	8	8
	Annual	15	-	13	13	13	13	13	13
NO2	1-hour	200 (18)	19th	61	60	55	53	50	48
			Exceedance	0	0	0	0	0	0
	24-hour		10th	21	21	19	19	17	17

Pollutant	Averaging Time	AQO	Data Summary	PATH v3.0 Grid in Year 2035					
				32,53	33,53	32,52	33,52	32,51	33,51
		120 (9)	Exceedance	0	0	0	0	0	0
	Annual	40	-	12	12	11	11	10	10
SO2	10-Min	500 (3)	4th	26	26	25	26	29	27
			Exceedance	0	0	0	0	0	0
	24-hour	40 (3)	4th	7	7	7	7	7	7
			Exceedance	0	0	0	0	0	0
O3	8-Hour	160 (9)	10th	**178**	**175**	**177**	**175**	**179**	**176**
			Exceedance	24	20	23	21	24	21
	Peak Season	100	-	**120**	**120**	**120**	**120**	**122**	**120**
CO	1-Hour	30000 (0)	1st	522	523	520	522	518	519
			Exceedance	0	0	0	0	0	0
	8-Hour	10000 (0)	1st	493	492	492	491	490	489
			Exceedance	0	0	0	0	0	0
	24-Hour	4000 (0)	1st	458	459	456	457	455	455
			Exceedance	0	0	0	0	0	0

Notes:
[a] *Numbers in brackets is the number of exceedances allowed per year.*
[b] *Bolded values exceed the relevant AQO.*
[c] *Data extracted from EPD's Smart Air Modelling Platform (SAMP v2.1).*

3.5 Construction Phase

Identification of Sources

3.5.1 Major source of potential air quality impact during construction phase would be fugitive dust generated from wind erosion of the stockpiles and open sites, as well as from the following construction activities:

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

Impact Brought during Construction Phase

3.5.2 There will be potential impacts from the criteria pollutants (e.g. nitrogen oxides (NO_x), sulphur dioxide (SO_2), 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. 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 (NRMMs) (including mobile generator, air compressor, excavator, crawler crane, bulldozer and etc.) with a proper label are allowed to be used in the construction site. Exempted NRMMs shall be avoided as far as practicable to minimize the fugitive dust and gaseous emissions. Travelling of the dump trucks is another potential source of construction dust. As this planning application stage, there is no detailed information on the construction program; however, with reference to other similar scale projects, the number of on-site diesel/petroleum fuelled machinery (10-15 machineries) to be used for construction works (i.e. Site Clearence, Site Formation and Excavation) with an area of 128,232m^2

with a depth of about 2m. Watering the haul road and the site once per hour would be implemented to minimize the potential dust emission during the traveling of the dump trucks within the site.

3.5.3 Furthermore, there are potential concurrent projects "San Tin Section of Northern Metropolis Highway", "Proposed Temporary Warehouse with Ancillary Office", and "Proposed Residential Development in D.D. 94, Hang Tau Tai Po" within the 500m study area from the site boundary which would contribute to the cumulative impact during the construction phase. The existing/ planned concurrent projects with construction works in the vicinity are referenced from the Environmental Impact Assessment Ordinance and Outline Zoning Plan, and listed as follows:

- San Tin Section of Northern Metropolis Highway (Project Profile.: PP-683/2025; Commencement date: Not Available; Completion date: Year 2036)
- Proposed Temporary Warehouse with Ancillary Office at Lot 424 S.A (Part) in D.D. 94, Kwu Tung South, Sheung Shui, New Territories (Application No.: A/NE-KTS/548-1; Commencement date: Not Available; Completion date: Not Available)
- Proposed Residential Development at Various Lots in D.D. 94, Hang Tau Tai Po, Kwu Tung South, Sheung Shui, New Territories (Application No.: A/NE-KTS/525; Commencement date: Not Available; Completion date: Not Available)

3.5.4 With the adoption of good practices, it is expected that emission of construction fugitive dust can be kept to an acceptable level. In addition, the applicant will liaise with the relevant parties of the concurrent project, if any, to avoid any heavy dusty activities to be conducted at the same time to minimize the cumulative dust impact at the area. The location of the potential concurrent project is shown in **Figure 3.2**.

General Requirements during Construction Phase

3.5.5 The assessment criteria for aerial emission is based on the Hong Kong Air Quality Objectives (AQO) for air pollutants under *APCO* and the AQOs for the pollutants relevant to the construction phase air quality impact are listed in **Table 3.1**.

Control Measures Recommended during Construction Phase

3.5.6 Appropriate dust reduction measures should be adopted as required under the Air Pollution Control (Construction Dust) Regulation. Essential dust mitigation measures must be implemented to minimize the potential dust impact. Dust impact could be effectively mitigated by inclusion of appropriate contract clauses for dust minimisation in the work contracts. Mitigation measures may include:

- dump trucks for material transport should be totally enclosed using impervious sheeting;
- any excavated dusty materials or stockpile of dusty materials should be covered entirely by impervious sheeting or sprayed with water so as to maintain the entire surface wet, and recovered or backfilled or reinstated within 24 hours of the excavation or unloading;
- the stockpiled malodorous materials should be removed from Application Site as soon as possible, and they should be covered entirely by plastic tarpaulin sheets;
- dusty materials remaining after a stockpile is removed should be wetted with water;
- the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with e.g. concrete, bituminous materials or hardcore or similar;

- stockpile of dusty materials to be either covered entirely by impervious sheeting, placed in an area sheltered on the top and the 3 sides; or sprayed with water so as to maintain the entire surface wet;
- all dusty materials to be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty material wet;
- vehicle speed to be limited to 10 kph except on completed access roads;
- the portion of road leading only to a construction site that is within 30 m of a designated vehicle entrance or exit should be kept clear of dusty materials;
- every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites;
- the load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure that the dusty materials would not leak from the vehicle;
- the working area of excavation should be sprayed with water immediately before, during and immediately after (as necessary) the operations so as to maintain the entire surface wet; and
- use of effective dust screens, sheeting or netting to be provided to enclose dry scaffolding which may be provided 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 (maximum four floors for this Project) of the scaffolding where scaffolding is erected around the perimeter of a building under construction.

3.5.7 In addition to the dust control measures described above, dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices listed below shall be carried out to further minimize construction dust impact:

- Plan site layout so that machinery and dust causing activities (e.g. haul roads and stockpiling areas) are located away from receptors as far as possible;
- Consider connecting construction plant and equipment to mains electricity supply and avoid use of diesel generators and diesel-powered equipment as far as practicable;
- Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit;
- Implement phasing of the excavation work to avoid large scale excavation at the same time in vicinity of nearby ASRs; and
- Erect solid screens or barriers around dusty activities,etc.

3.5.8 A monitoring programme (i.e. biweekly site audit) could also be instigated to monitor the construction process in order to enforce dust controls and modify methods of works to reduce the dust emission down to an acceptable level.

3.5.9 Good site management is important for reducing potential air quality impact down to an acceptable level. As a general guidance, the contractor shall maintain high standard of site management to prevent potential emission of fugitive dust emission. Loading, unloading, handling and storage of fuel, raw materials, products, wastes or by-products should also be carried out in a manner so as to minimise the release of visible dust emission.

3.5.10 A high standard of site management 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 without generating fugitive dust emissions. The material shall be handled properly to prevent fugitive dust emission before cleaning.

3.5.11 "Recommended Pollution Control Clauses for Construction Contracts" is available on EPD website. It contains the recommended air pollution control measures to be implemented by the contractor during the construction stage.

3.6 Operational Phase

Review on Industrial Emission Impact

3.6.1 Onsite survey was conducted on 15 August 2025 to verify the presence of chimneys. There was no chimney identified within 200m from the boundary of Proposed Development. In addition, according to the latest design and available information, no chimney or other polluting uses within Proposed Development and 500m assessment area is proposed. As such, it is anticipated that the Proposed Development and existing air sensitive receivers would not be subject to adverse industrial emission impact.

Review on Vehicular Emission Impact

3.6.2 In accordance with above table as stipulated in HKPSG, the minimum requirements on the buffer distance from Proposed Public Road, Hang Tau Road and Private Roads (P1 & P2) are >5m while the buffer distance from San Tin Section of Northern Metropolis Highway is >20m.

Table 3.7 Buffer Distances between Kerb Side of Concerned Road Links and Application Site Boundary

Road Name	Road Type	Recommended Buffer Distance (m)	Shortest Horizontal Distances Between Kerb Side of Concerned Road Links and the Application Site Boundary (m)
Proposed Public Road	Local Distributor	>5m	~0m
Private Road (P1)	Local Distributor	>5m	~17m
Private Road (P2)	Local Distributor	>5m	~128m
Hang Tau Road	Local Distributor	>5m	~91m
San Tin Section of Northern Metropolis Highway	Expressway	>20m	~54m

3.6.3 As shown in **Table 3.7** and **Figure 3.3,** the recommended buffer distance requirement for Private Roads (P1 & P2), Hang Tau Road and San Tin Section of Northern Metropolis Highway in the HKPSG would be complied. For the Proposed Public Road, a portion of the application site is within 5m buffer distance, however, no air sensitive uses of Proposed Development (including fresh air intake, openable window, and open space for recreational use, etc.) would be located within 5m buffer distance. In conclusion, there would be no air sensitive uses within the above-mentioned 5m buffer zones from Proposed Public Road, Private Roads (P1 & P2) and Hang Tau Road, and 20m buffer

zones from San Tin Section of Northern Metropolis Highway. Since the recommended minimum buffer distance of the vehicular emission in the HKPSG can be met, the future residents and occupants of Proposed Development and existing air sensitive receivers will not be subjected to insurmountable vehicular emission impact.

Review on Impact from Proposed Carpark

3.6.4 Carpark has been proposed for the Proposed Development. The air quality inside the basement carpark shall satisfy the air pollutant standards as recommended by the ProPECC PN 2/96 Control of Air Pollution in Car Parks. Therefore, the mechanical ventilation system and layout the basement carpark shall be properly designed. Furthermore, the exhaust outlet of the mechanical ventilation system of the basement carpark shall also be designed by facing away from the nearest air sensitive uses as practicable as possible to ensure not to cause a nuisance to the occupants/ residents of the air sensitive uses including the surrounding developments and the Proposed Development.

Review on Odour Impact

3.6.5 F&B areas will be provided in the Proposed Development. Exhaust hoods and grease trap will be provided and the air change rate for the F&B area will be designed according to the standard of kitchen as stipulated in Building Department's Practice Note for Authorized Persons (PNAP). Potential odour emissions will be minimised as far as practicable. The following considerations recommended in EPD's *Control of Oil Fume and Cooling Odour from Restaurant and Food Business* shall be taken into account in the detailed design when positioning the exhaust outlets:

- Locate the outlet at such a place where the ventilation is good and the emissions from them can be adequately dispersed without hindrance
- Provide sufficient separation distance from any sensitive receptor in the vicinity so that the emissions will not cause, or contribute to, an odour nuisance or other type of air pollution to the public
- Ensure the emissions from the exhaust system will be directed vertically upwards, unless it can be demonstrated by an environmental professional that other direction is more advantageous in preventing emissions from causing air pollution problems
- Ensure that emissions from the exhaust system will not be restricted nor deflected by, for example, the use of plates or caps.

3.6.6 Desktop Studies and onsite survey have been conducted to identify the potential odour sources. According to the site survey conducted on 15 August 2025 (between noon to 2pm, 28.2^{o}C air temperature and 95% relative humidity) to identify the potential odour sources, there is no identifiable odour were detected in the vicinity of the Application Site. Inspection route for the odour survey is shown in **Figure 3.4**. It is anticipated that the Application Site would not be subject to adverse odour impact.

3.7 Conclusion

3.7.1 The Project is not an air pollution source. Neither will it be impacted by off-site air pollution sources.

3.7.2 As the Site can meet the HKPSG screening criteria (buffer distances) with respect to various air pollution aspects including vehicular traffic and off-site pollution sources, no specific air quality mitigation measures would be necessary.

4. LAND CONTAMINAION APPRAISAL

4.1 Scope of Work

4.1.1 The aim of this study is to assess the potential land contamination impact under the proposed development due to the previous land uses and/ or the existing operations.

4.2 Assessment Criteria

4.2.1 The following guidelines published by EPD have been followed:

- Guidance Manual for Use of Risk-Based Remediation Goals for Contaminated Land Management (RBRGs), revised in April 2023;
- Guidance Note for Contaminated Land Assessment and Remediation, revised in April 2023; and
- Practice Guide for Investigation and Remediation of Contaminated Land (EPD's Practice Guide), revised in April 2023.

4.3 Review of Historical and Current Available Information

Land Uses

4.3.1 The proposed development is located at the zone labelled as "AGR"-zoning under the approved Kwu Tung South Outline Zoning Plan No. S/NE-KTS/22.

4.3.2 Historical aerial photos of the Application Site have been reviewed to identify if any possible land contamination related activites or uses have been carried out. **Table 4.1** shows the description of each aerial photos. Besides, the aerial photo is presented in **Appendix 4.1**.

Table 4.1 Land Use Summary of the Application Site

Period/ Year	Photo No.	Flying Height (ft.)	Site Description	Off-site Land Use
1995	A51043	3000	The site was mainly a green land with some temporary structures observed. Sheung Yue River was observed.	North: Temporary storage was observed. East: It was mainly a green land with some village houses observed. South, West: It was mainly a green land with some temporary structures were observed.
2000	A51043	3000	Sheung Yue River was under diversion construction which led to out of the site boundary. No significant change in land use was observed in the remaining portions of the site.	North, East, South West: No significant change in land use was observed. Middle: Sheung Yue River was under diversion construction

Period/ Year	Photo No.	Flying Height (ft.)	Site Description	Off-site Land Use
2004	CW58299	2500	No significant change in land use was observed.	North, East, South West: No significant change in land use was observed. Middle: Diversion construction of Sheung Yue River was completed.
2011	CS32953	6000	No significant change in land use was observed.	North, East, South West, Middle: No significant change in land use was observed.
2015	CS59207	6000	No significant change in land use was observed.	North, East, South West, Middle: No significant change in land use was observed.
2020	E092056C	6900	No significant change in land use was observed.	North, East, South West, Middle: No significant change in land use was observed.
2024	E239765C	6900	No significant change in land use was observed.	North, East, South West, Middle: No significant change in land use was observed.
Summary Green land and temporary structures were observed from the aerial photos within the site. Although temporary structures are considered as potential land contamination land use, site walkover shall be conducted to identify whether site investigation is needed.				

Site Inspection and Observation

4.3.3 Site inspection to the Application Site was conducted in August 2025. The relevant photo record is shown in **Appendix 4.2**. The site walkover check is supplemented in **Appendix 4.3**.

4.3.4 Whole portion of the east of the Application site are currently inaccessible as it is locked (see Photo 1). Site re-appraisal shall be conducted when the site is accessible or in the detailed design stage.

4.3.5 Within the west of the Application site, mainly trees are observed. Village, pond and farmland are observed. Some areas are inaccessible and site re-appraisal shall be conducted when the site is accessible or in the detailed design stage.

Information from Departments of the Government of the HKSAR

4.3.6 Apart from the information reviewed, the following departments of the Government of the Hong Kong Special Administration Region (HKSAR) were enquired on the availability of landuse status and records of land contamination and/or spillage for the Application Site. The replies correspondences are shown in **Appendix 4.4**.

Table 4.2 Departmental Replies Summary

Department	Departmental Ref	Date	Summary
Environmental Protection Department	N.A. (reply through email)	27 Aug 2025	No record of reported accidents of spillage/ leakage of chemicals
Fire Services Department	(14) in FSD GR 6-5/4 R Pt.60	30 Dec 2025	1. No Dangerous Goods Licence was issued 2. 3 incident records were found. The incident records include landslide and vegetation fire which do not involve any chemical materials.

Information from Departments of the Government of the HKSAR

4.3.7 The Consultants has reviewed the registry of chemical waste producers available in the Territory Control Office on 12 August 2025 for the Subject Site. No record of chemical waste was found in the Territory Control Office.

4.3.8 Hence, potential land contamination due to chemical spill is not expected within the Subject Site.

4.4 Conclusion

4.4.1 A site appraisal, in the form of desktop review and site walkover, had been carried out in August 2025 to identify the past and current potentially contaminating land uses within the Application Site. Based on the desktop study and site appraisal, some areas of the Application site are inaccessible and therefore, site re-appraisal shall be conducted when the site is accessible or in the detailed design stage.

5. WASTE MANAGEMENT

5.1 Introduction

5.1.1 This section presents the management and disposal strategy of the wastes generated from the construction work and operational phase. The options for waste minimization, reuse, recycling, collection, transport and disposal of wastes arising from the construction, demolition work and operational phase have been examined. Where appropriate, procedures for waste reduction and management are considered and environmental control measures for avoiding and minimising the potential impacts are recommended.

5.2 Legislation

5.2.1 The following legislations and guidelines are relevant to the handling, treatment and disposal of waste in HKSAR and references were made in assessing the potential impacts and their avoidance or mitigation:

- *Waste Disposal Ordinance (Cap. 354);*
- *Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C);*
- *Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N); and*
- *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)*
- *Monitoring of Solid Waste in Hong Kong 2023*
- *Administrative Guidance – Management Framework for Construction and Demolition Waste (or any prevailing applicable guideline)*
- *Land (Miscellaneous Provisions) Ordinance (Cap 28)*
- *Code of Practices and Guidelines for Asbestos Control and Handling; and*
- *ProPECC PN2/97 Handling of Asbestos Containing Materials in Building*

Other relevant documents and guidelines that are applicable to waste management and disposal include:

- *Development Bureau Technical Circular (Works) No. 8/2010 - Enhanced Specification for Site Cleanliness and Tidiness;*
- *ETWB TCW No. 22/2003A - Additional Measures to Improve Site Cleanliness and Control Mosquito Breeding on Construction Sites;*
- *Development Bureau Technical Circular (Works) No. 6/2010 - Trip-ticket System for Disposal of Construction and Demolition Materials;*
- *WBTC No. 19/2001 - Metallic Site Hoardings and Signboards;*
- *Works Bureau Technical Circular No. 12/2000 - Fill Management;*
- *Works Branch Technical Circular No. 2/93 - Public Dumps;*
- *Works Branch Technical Circular No. 2/93B - Public Filling Facilities;*
- *Project Administration Handbook for Civil Engineering Works;*
- *Public Health and Municipal Services Ordinance (Cap. 132);*
- *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes; and*
- *A Guide to the Chemical Waste Control Scheme*

5.3 Assessment Methodology

5.3.1 Although the Proposed Development is not a designated project under EIAO, the assessment of the potential waste management implications during the construction and operation phases of the Project has been conducted in accordance with Annexes 7 and 15 of the EIAO-TM, including the following tasks:

- Estimation of the types and quantities of the wastes generated;
- Evaluation of opportunities for waste reduction and re-use;
- Identification of disposal options for each type of wastes;
- Assessment of potential environmental impacts arising from the wastes management with respect of potential hazards, air and odour emissions, noise, wastewater discharge, and public transport; and
- Assessment of the impacts caused by handling, collection, transportation and re-use /disposal of wastes.

5.3.2 Prior to considering the disposal options for various types of waste, opportunities for reducing waste generation, on-site or off-site reuse and recycling have been evaluated. Measures which can be taken in the planning and design phases (e.g. by modifying the design approach) and in the construction phase for maximizing waste reduction have been separately considered. Practices to promote segregation of waste materials are additionally considered for advancing the waste management efficiency.

5.3.3 After considering the opportunities for reducing waste generation and maximizing reuse, the types and quantities of the waste required to be disposed of have been estimated and the disposal options for each type of waste have been described. The disposal method recommended for each type of waste has been taken into account the result of the assessment. The impacts caused by handling (including stockpiling, labelling, packaging and storage), collection and reuse / disposal of waste have been addressed and appropriate mitigation measures have been proposed.

5.4 Identification and Evaluation of Potential Impact during Construction Stage

5.4.1 The construction activities to be carried out for the proposed Project would generate a variety of wastes that can be divided into distinct categories based on their composition and ultimate method of disposal. The identified waste types include:

- Construction and Demolition (C&D) materials;
- Chemical waste; and
- General refuse.

5.4.2 It is anticipated that the majority of C&D materials will be generated from the following key construction activities:

- Demolition of existing building or structures;
- Site Clearance;
- Excavation for construction;
- Site formation works;
- Building construction and superstructure works

C&D Materials

5.4.3 C&D materials comprise mainly of unwanted materials, including excavation for foundation of the Proposed Development, surplus materials generated from the

construction works of the Proposed Development. C&D materials may comprise different types of materials, including:

- Inert C&D materials (also known as public fill, including soil, rock debris, rubble earth, concrete, etc.) do not decompose and are suitable to reuse as filling materials for land reclamation and site formation. Inert C&D materials could be reused on-site as filling materials. For those inert C&D materials that cannot be reused on-site should be delivered to Public Fill Reception Facilities for beneficial reuse in other projects.

- Non-inert C&D materials (also known as C&D waste, including bamboo, timber, paper, metal, glass, plastic, packaging wastes, etc.). Non-inert C&D materials should be reused or recycled. For those timber and woody materials at predominantly rural area of Application Site anticipated during site clearance, should be sent to Yard Waste Recycling Centre in Y-Park for recycling. For those non-inert C&D materials that cannot be reused or recycled, they should be disposed of at designated landfill sites as last resort.

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

5.4.5 Inert C&D materials should be re-used on-site (e.g for backfilling) if it is practical and/or delivered to Public Fill Reception Facilities for beneficial reuse in other projects or other CEDD designated public fill reception facilities. Non-inert C&D materials (i.e. C&D waste) should be re-used or recycled. For those that cannot be reused or recycled, they should be disposed of at designated landfill sites as last resort.

5.4.6 The Contractor(s) should be responsible for ensuring that all on-site wastes will be collected by waste collectors which successfully applied for a billing account under Construction Waste Disposal Charging Scheme and appropriate measures should be undertaken to minimise adverse impacts to the surrounding environment, such as dust generation. The Contractor(s) must also ensure that all necessary waste disposal permits have been obtained before actions.

5.4.7 Prior to disposal of non-inert C&D materials, it is recommended that wood, steel, glass and other metals will be collected separately for re-use and/or recycling and inert C&D materials utilized as fill materials to minimize the quantity of waste to be disposed of at the Public Fill Reception Facilities and landfill.

5.4.8 If the total quantity of C&D materials generated from the Project is estimated to be over 50,000 m^3, a Construction and Demolition Material Management Plan (C&DMMP), including areas described in PNAP ADV-19 is required to be prepared by the Contractor. The purpose of the C&DMMP is to actively seek to minimise generation of C&D materials and to reuse inert materials generated, including rock, as far as possible. The C&DMMP shall be submitted to the Project Proponent for agreement.

Chemical Waste

5.4.9 Construction plant and equipment will require regular maintenance and servicing, which would generate waste such as solvents, lubrication oil and fuel, etc. Chemical wastes arising during the construction phase may pose serious environmental, health and safety hazards if not stored and disposed of in an appropriate manner.

5.4.10 It is difficult to quantify the amount of chemical wastes as it will solely depend on the contractor's on-site maintenance practice and the quantities of plant and vehicles utilized at the construction site. Nevertheless, it is anticipated that the quantity of chemical waste such as lubrication oil and solvent produced from equipment maintenance would be small and less than hundred litres per month. The quantity of chemical waste to be generated would be quantified in the Waste Management Plan as part of the Environmental Management Plan to be prepared by the contractor.

5.4.11 The contractor is required to register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.

5.4.12 Storage, handling, transport and disposal of chemical waste should be arranged in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Waste published by the EPD. Chemical wastes such as wasted solvents, lubrication oil and fuel, etc. will need special handling and storage arrangements and should be collected by licensed chemical waste collectors for subsequent disposal and appropriate treatment at licensed waste disposal facilities, for example the Chemical Waste Treatment Facility Centre (CWTC) in Tsing Yi. Mitigation and control requirements for chemical waste are provided in the "Recommended Pollution Control Clauses for Construction Contracts" available in EPD website mentioned the handling, storage and disposal of chemical wastes. With good management and site particles, adverse environmental impacts should not result.

General Refuse

5.4.13 Throughout the construction stage, the workforce would generate general refuse comprising food scraps, waste paper, empty containers, etc. Release of general refuse into watercourses or marine waters should not be permitted as introduction of these wastes is likely to have detrimental effects on water quality in the area. Effective collection of site wastes would be required to prevent waste materials being blown around by wind, flushed or leached into the marine environment, and odour nuisance. The work sites may also attract pests and vermin if the waste storage area is not well maintained and cleaned regularly. Disposal of refuse at sites other than approved waste transfer or disposal facilities can also result in similar impacts. The number of work force to be employed for the site is around 200. Based on the generation rate of 0.65kg/person/day, the estimated total refuse generated per day (maximum) would be about 130kg/day.

5.4.14 Food waste is the main source of generating unpleasant odour and causing environmental hygiene concerns. In order to reduce the amount of general refuse to be disposed into the landfill, the food waste would be collected separately for recycling and the recycling bins should be placed in prominent places to promote waste separation at-source.

Asbestos Containing Materials

5.4.15 Asbestos was widely used in the construction industry prior to the early 1980s for fireproofing, thermal and electrical insulation as well as in sound absorption materials. However, asbestos is currently recognized as hazardous materials, due to its etiological effects on human respiratory system.

5.4.16 According to the Geoinfo Map, the Application Site was mainly a natural terrain in 1982 and there are no buildings were built before 1980s, so it can be deduced that ACM are not presented within the Application Site.

5.4.17 Preliminary quantity estimation of construction waste involved and disposal method is summarised in the **Table 5.1**.

Table 5.1 Summary of Estimated Construction Waste and Disposal Method

Waste Material Type		(a) Estimated Quantity Generated (b) Quantity to be Disposed Off-site (c) Quantity of Waste Material for On-site Reuse or Recycling	Handling Arrangement/ Disposal Destination
Inert C&D Materials	Excavation for site formation	(a) 203,200 m^3 (with 80% of site area (i.e. 101,6000 m^2) and depth of 2m for site formation) (b) ~197,100 m^3 (c) ~6,100 m^3	To be reused or recycled on site or in other projects; and delivered to Public Fill Reception Facilities for other beneficial reuse, subject to the designation by the Public Fill Committee according DEVB TC(W) No. 6/2010.
	Site clearance, site formation works, construction of new buildings and infrastructures	(a) ~59,850 m^3 (b) ~59,550 m^3 (c) ~380 m^3	
Non-inert C&D Materials	Site clearance, site formation works, construction of new buildings and infrastructures	(a) ~8,550 m^3 (b) ~5,700 m^3 (c) ~2,850 m^3	To be reused, recycled or disposed of at landfill as the last resort, subject to agreement with the relevant section of the EPD.
Chemical Waste	-	Less than hundred litres/month	For treatment at licensed facilities
General Refuse	-	130 kg/day (Assuming there are 200 workers at any one time with generation rate of 0.65 kg per worker per day)	Recyclable materials (i.e. paper, plastic bottles, aluminium cans and food waste) will be collected separately for recycling, remainders will be sent to Refuse Transfer Station for compaction and then disposed of at NENT landfill

Remark: The above estimated quantities are subject to the detailed design stage.

5.5 Waste Disposal and Mitigation Measures

5.5.1 Waste generated by construction activities should be properly sorted and certain waste management requirements must be followed to minimize the impacts arising because of the generation, storage, handling, transport and disposal of wastes. Good site management and control can prevent the generation of significant amounts of "mixed waste". For unavoidable wastes, reuse, recycling and optimal disposal are most practical when segregation occurs on the construction site, categorized as follows:

- Inert C&D materials for reuse on-site or delivering to Public Fill Reception Facilities for beneficial reuse at other projects;
- Non-inert C&D materials for reuse or recycle or disposal at landfill as last resort;
- Chemical waste for treatment at licensed facilities; and
- General refuse for disposal at landfill.

C&D Material

5.5.2 Proper storage and site practices should be adopted to minimize the damage to, or contamination of, C&D materials that may reduce their recyclability and suitability for delivered to Public Fill Reception Facilities for beneficial reuse in other projects. The inert C&D materials shall be reused in earth filling, reclamation or site formation works. The non-inert C&D materials shall be reused or recycled and, as the last resort, disposed of at landfills.

5.5.3 Appropriate measures should also be employed to minimize windblown litter and dust during transportation by either covering trucks with tarpaulin or transporting wastes in enclosed containers. Waste should only be disposed at licensed sites. Resident site staff and the contractors should develop procedures to ensure that illegal disposal of waste does not occur. In addition, waste storage areas within the Project should be well maintained and cleaned regularly to prevent cross-contamination. The delivery of inert C&D materials and non-inert C&D materials to public fill reception facilities/sorting facilities/recycling facilities respectively through a trip-ticket system, while general refuse will be disposed of at landfill.

Chemical Waste and Control

5.5.4 Chemical wastes generated from the construction activities, vehicle and plant maintenance should be disposed of in strict compliance with the Waste Disposal (Chemical Waste) (General) Regulations.

5.5.5 During construction phase, the contractor which would regularly produce chemical waste, if any, shall register with EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosives, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The operator shall use a licensed collector to transport and dispose of the chemical wastes generated at the Chemical Waste Treatment Centre (CWTC) at Tsing Yi, or other licenced facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.

5.5.6 The Contractor shall observe and comply with the Waste Disposal (Chemical Waste) (General) Regulation.

5.5.7 The Contractor shall apply for registration as chemical waste producer under the Waste Disposal (Chemical Waste) (General) Regulation when chemical waste is expected to

be produced. All chemical waste shall be properly stored, labelled, packaged and collected in accordance with the Regulation.

General Refuse

5.5.8 For general refuse, mitigation measures should include provision of a collection area where waste can be sorted, stored and loaded prior to removal from the site during construction phase.

5.5.9 In additional, with the implementation of the recommended mitigation measures in the "Recommended Pollution Control Clauses for Construction Contracts" available in EPD website, the potential environmental impacts resulting from the storage, handling and transportation of inert C&D materials, non-inert C&D materials, chemical wastes and general site wastes would be minimal. Below are the examples of the relevant measures:-

5.5.10 Waste Minimisation

- The Contractor shall submit to the Engineer for approval a waste management plan with appropriate mitigation measures including the allocation of an area for waste segregation and shall ensure that the day-to-day site operations comply with the approved waste management plan.
- The Contractor shall minimise the generation of waste from his work. Avoidance and minimisation of waste generation can be achieved through changing or improving design and practices, careful planning and good site management.
- The Contractor shall ensure that different types of wastes are segregated on-site and stored in different containers, skips or stockpiles to facilitate reuse/recycling of waste and, as the last resort, disposal at different outlets as appropriate.
- The reuse and recycling of waste shall be practised as far as possible.
- The Contractor shall record the amount of wastes generated, recycled and disposed of (including the disposal sites).
- The Contractor shall use a trip ticket system for the delivery of C&D materials to any designated Public Fill Reception Facilities.
- Training shall be provided for workers about the concepts of site cleanliness and appropriate waste management procedure, including waste reduction, reuse and recycling.
- 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 for tracking and monitoring of their travel routings and parking locations by the Contractor to prohibit illegal dumping and landfilling of materials.
- 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.

Waste Nuisance Control

5.5.11 The Contractor shall not permit any sewage, waste water or effluent containing sand, cement, silt or any other suspended or dissolved material to flow from the Site onto any adjoining land or allow any waste matter (or refuse) which is not part of the final product from waste processing plants to be deposited anywhere within the Site (or onto any adjoining land). He shall arrange removal of such matter from the site (or any building erected or to be erected thereon) in a proper manner to the satisfaction of the Engineer in consultation with the Director of Environmental Protection.

5.6 Identification and Evaluation of Potential Impact during Operational Phase

5.6.1 During operational phase, since the use of the Proposed Development is educational. Disposal of chemical waste is anticipated for science laboratory lessons. Therefore, general refuse and chemical waste are the waste generated during the operation of the proposed development.

General Refuse

5.6.2 Around 1,998 kg/day for non-domestic portion (with 3,000 students and 632 staffs assumed, domestic waste amount = number of staff assumed x daily commercial & industrial waste per capita) (with the assumption based on the latest data (Year 2023) from Plate 2.7 at EPD's "Monitoring of Solid Waste in Hong Kong", at which the amount of commercial & industrial waste is 0.55 kg/person/day).

5.6.3 Release of general refuse into watercourses or marine waters should not be permitted as introduction of these wastes is likely to have detrimental effects on water quality in the area. Effective collection of site wastes is suggested to prevent waste materials being blown around by wind and odour nuisance.

5.6.4 For other general waste such as metal, paper, plastic and glass, recycling bins for each type of wastes will be placed to reduce waste disposal amount. Also, the waste collection frequency is recommended to be at least once a week to reduce chances of hygiene issue.

5.6.5 For wastes such as leftover, an adequate number of enclosed waste containers will be provided to avoid over-spillage of waste. Also, leftover will be placed in bags and stored in enclosed containers. Rather than disposing the food waste to the designated landfill directly, the project proponent is recommended to deliver the food waste to Organic Resources Recovery Centre (ORRC) to reduce the pressure on the existing landfill. Therefore, the chances of odour nuisance and hygiene issue are reduced.

Chemical Waste

5.6.6 School laboratory which would regularly produce chemical waste, if any, shall register with EPD as a Chemical Waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosives, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The operator shall use a licensed chemical collector to transport and dispose of the chemical wastes generated at the Chemical Waste Treatment Centre at Tsing Yi, or other licenced facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.

5.7 Conclusion

5.7.1 Waste generated during construction works and operational phase have been qualitatively evaluated. With these waste managements in place, the waste generated from the construction work and operation of the proposed development would be properly controlled and no adverse waste management impact is anticipated.

6. WATER QUALITY IMPACT ASSESSMENT

6.1 Construction Phase

6.1.1 The management and mitigation strategy of the sewage generated from the construction work of the Proposed Development would be addressed. Where appropriate, environmental control measures for avoiding and minimizing the potential impacts are recommended. **Figure 6.1** shows the water sensitive receivers (WSR) which are ponds and natural stream within the 500m study area of the Subject Site. The potential Water Quality Impact (WQI) during the construction and operation phase of the Proposed Development is addressed in the following section. The information of each WSR is also discussed in **Table 6.1**.

Table 6.1 Information of Water Sensitive Receivers

ID	Description	Type	Status
W1	Kwu Tung Reservoir	Reservoir	Active
W2	Sheung Yue River	River	Active
W3	2 Ponds	Pond	Active
W4	Tam Shui Hang	River	Active

6.2 Legislations, Standards and Guidelines

6.2.1 The key legislations, standards and guidelines applicable to construction and operation phase water quality impacts include:

- Water Pollution Control Ordinance (WPCO) (Cap. 358);
- Technical Memorandum for Effluents Discharged into Drainage and Sewerage Systems Inland and Coastal Waters (TM-DSS)
- ProPECC PN 1/23 Drainage Plans subject to Comment by the Environmental Protection Department – Building (Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines)
- ProPECC PN 2/24 Construction Site Drainage
- 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);
- Water Quality Objectives

<u>Water Pollution Control Ordinance (Cap. 358)</u>

6.2.2 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 Deep Bay WCZ.

Technical Memorandum

6.2.3 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 Deep Bay WCZ, as given in the TM-DSS. Group D discharge standard is considered relevant to this Project.

Practice Note

6.2.4 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, wastewater from concrete batching and/or precast concrete casting, wheel washing 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.

6.2.5 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.

ETWB Technical Circular (Works) No. 5/2005 Protection of Natural Streams/Rivers from Adverse Impacts Arising from Construction Works

6.2.6 ETWB Technical Circular (Works) No. 5/2005 provides an administrative framework to better protect all natural streams/rivers from the impacts of construction works. The procedures promulgated under this Circular aim to clarify and strengthen existing measures for protection of natural streams/rivers from government projects and private developments. The guidelines and precautionary mitigation measures given in the ETWB TC (Works) No. 5/2005 should be followed as far as possible to protect the inland watercourse at or near the Project area during the construction phase.

Hong Kong Planning Standards and Guidelines (HKPSG)

6.2.7 Section 5 in Chapter 9 of HKPSG "Environment" provides policy objectives for planning against water pollution, guidelines for potentially water polluting uses and guidelines for water sensitive uses to achieve and maintain water bodies quality to be used for their legitimate purpose, provide adequate public sewerage, wastewater treatment and wastewater disposal facilities and aim at safeguarding community health and welfare. The guidelines given in Chapter 9 of HKPSG should be followed as far as possible to maintain water quality and against water pollution.

Water Quality Objectives

6.2.8 The Water Pollution Control Ordinance (WPCO) 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) and four supplementary WCZs under the Water Pollution

Control Ordinance (WPCO) (Cap. 358). Each WCZ has a designated set of statutory Water Quality Objectives (WQOs) designed to protect the inland and/or marine environment and its users. The Subject Site is located in the Deep Bay WCZ. The corresponding WQOs are summarised in the table below. 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 each WCZ based on their beneficial uses.

Table 6.2 Water Quality Objectives for Deep Bay Water Control Zones

Parameters	Objectives	Sub-Zone
Aesthetic appearance	(a) Waste discharges shall cause no objectionable odours or discolouration of the water.	Whole zone
	(b) Tarry residues, floating wood, articles made of glass, plastic, rubber or of any other substances should be absent.	Whole zone
	(c) Mineral oil should not be visible on the surface. Surfactants should not give rise to a lasting foam.	Whole zone
	(d) There should be no recognisable sewage-derived debris.	Whole zone
	(e) 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.	Whole zone
	(f) Waste discharges shall not cause the water to contain substances which settle to form objectionable deposits.	Whole zone
Bacteria	(a) 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.	Secondary Contact Recreation Subzone and Mariculture Subzone (L.N. 455 of 1991)
	(b) The level of *Escherichia coli* should be zero per 100 ml, calculated as the running median of the most recent 5 consecutive samples taken at intervals of between 7 and 21 days.	Yuen Long & Kam Tin (Upper) Subzone, Beas Subzone, Indus Subzone, Ganges Subzone and Water Gathering Ground Subzones
	(c) The level of *Escherichia coli* should not exceed 1000 per 100 ml, calculated as the running median of the most recent 5 consecutive samples taken at intervals of between 7 and 21 days.	Yuen Long & Kam Tin (Lower) Subzone and other inland waters
	(d) 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.	Yung Long Bathing Beach Subzone (L.N. 455 of 1991)
Colour	(a) Waste discharges shall not cause the colour of water to exceed 30 Hazen units.	Yuen Long & Kam Tin (Upper) Subzone, Beas Subzone, Indus Subzone, Ganges Subzone and Water Gathering Ground Subzones
	(b) Waste discharges shall not cause the colour of water to exceed 50 Hazen units.	Yuen Long & Kam Tin (Lower) Subzone and other inland waters

Parameters	Objectives	Sub-Zone
Dissolved Oxygen	(a) Waste discharges shall not cause the level of dissolved oxygen to fall below 4 milligrams per litre for 90% of the sampling occasions during the year; values should be taken at 1 metre below surface.	Inner Marine Subzone excepting Mariculture Subzone
	(b) Waste discharges shall not cause the level of dissolved oxygen to fall below 4 milligrams per litre for 90% of the sampling occasions during the year; values should be calculated as water column average (arithmetic mean of at least 2 measurements at 1 metre below surface and 1 metre above seabed). In addition, the concentration of dissolved oxygen should not be less than 2 milligrams per litre within 2 metres of the seabed for 90% of the sampling occasions during the year.	Outer Marine Subzone excepting Mariculture Subzone
	(c) The dissolved oxygen level should not be less than 5 milligrams per litre for 90% of the sampling occasions during the year; values should be taken at 1 metre below surface.	Mariculture Subzone
	(d) Waste discharges shall not cause the level of dissolved oxygen to be less than 4 milligrams per litre.	Yuen Long & Kam Tin (Upper and Lower) Subzones, Beas Subzone, Indus Subzone, Ganges Subzone, Water Gathering Ground Subzones and other inland waters of the Zone
pH	(a) 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 Yung Long Bathing Beach Subzone
	(b) Waste discharges shall not cause the pH of the water to exceed the range of 6.5-8.5 units.	Yuen Long & Kam Tin (Upper and Lower) Subzones, Beas Subzone, Indus Subzone, Ganges Subzone and Water Gathering Ground Subzones
	(c) The pH of the water should be within the range of 6.0-9.0 units.	Other inland waters
	(d) The pH of the water should be within the range of 6.0-9.0 units for 95% of samples. In addition, waste discharges shall not cause the natural pH range to be extended by more than 0.5 units.	Yung Long Bathing Beach Subzone
Temperature	Waste discharges shall not cause the natural daily temperature range to change by more than 2.0 degrees Celsius.	Whole Zone
Salinity	Waste discharges shall not cause the natural ambient salinity level to change by more than 10%	Whole Zone
Suspended solids	(a) Waste discharges shall neither cause the natural ambient level to be raised by 30% nor give rise to accumulation of suspended solids which may adversely affect aquatic communities.	Marine waters
	(b) Waste discharges shall not cause the annual median of suspended solids to exceed 20 milligrams per litre.	Yuen Long & Kam Tin (Upper and Lower) Subzones, Beas Subzone, Ganges Subzone, Indus

Parameters	Objectives	Sub-Zone
		Subzone, Water Gathering Ground Subzones and other inland waters
Ammonia	The un-ionized ammoniacal nitrogen level should not be more than 0.021 milligram per litre, calculated as the annual average (arithmetic mean).	Whole Zone
Nutrients	(a) Nutrients shall not be present in quantities sufficient to cause excessive or nuisance growth of algae or other aquatic plants.	Inner and Outer Marine Subzones
	(b) Without limiting the generality of objective (a) above, the level of inorganic nitrogen should not exceed 0.7 milligram per litre, expressed as annual mean.	Inner Marine Subzone
	(c) Without limiting the generality of objective (a) above, the level of inorganic nitrogen should not exceed 0.5 milligram per litre, expressed as annual water column average (arithmetic mean of at least 2 measurements at 1 metre below surface and 1 metre above seabed).	Outer Marine Subzone
5 day biochemical oxygen demand	(a) Waste discharges shall not cause the 5-day biochemical oxygen demand to exceed 3 milligrams per litre.	Yuen Long & Kam Tin (Upper) Subzone, Beas Subzone, Indus Subzone, Ganges Subzone and Water Gathering Ground Subzones
	(b) Waste discharges shall not cause the 5-day biochemical oxygen demand to exceed 5 milligrams per litre.	Yuen Long & Kam Tin (Lower) Subzone and other inland waters
Chemical oxygen demand	(a) Waste discharges shall not cause the chemical oxygen demand to exceed 15 milligrams per litre.	Yuen Long & Kam Tin (Upper) Subzone, Beas Subzone, Indus Subzone, Ganges Subzone and Water Gathering Ground Subzones
	(b) Waste discharges shall not cause the chemical oxygen demand to exceed 30 milligrams per litre.	Yuen Long & Kam Tin (Lower) Subzone and other inland waters
Toxins	(a) Waste discharges shall not cause the toxins in water to attain such levels as to produce significant toxic carcinogenic, mutagenic or teratogenic 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.	Whole Zone
	(b) Waste discharges shall not cause a risk to any beneficial uses of the aquatic environment.	Whole Zone
Phenol	Phenols shall not be present in such quantities as to produce a specific odour, or in concentration greater than 0.05 milligrams per litre as C_6H_5OH.	Yung Long Bathing Beach Subzone
Turbidity	Waste discharges shall not reduce light transmission substantially from the normal level.	Yung Long Bathing Beach Subzone

6.3 Construction Phase Water Quality Impacts

6.3.1 Site construction activities will inevitably have the potential to generate wastewater. Such works should be carried out in such a manner to minimise potential impacts on the water quality. Pollution sources could include:

- General construction activities;
- Construction works in close proximity to inland watercourses;
- Construction runoff;
- Sewage effluent from the construction workforce; and
- Accidental spillage of chemicals.

General Construction Activities

6.3.2 Debris and rubbish generated on site shall be collected, handled and disposed of properly. All fuel tanks shall be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. Open storm water drains and culverts near the works area shall be covered to block the entrance of large debris and refuse.

Construction works in close proximity to inland watercourses

6.3.3 Construction activities such as site formation, earthwork and excavation within the Project site have the potential to impact nearby inland watercourses through the release of discharges and runoff laden with suspended solids and other pollutants. Mitigation measures should be devised and implemented for construction work that is in close proximity to natural rivers and streams, alternation or diversion of watercourses (WSR2) within or in close proximity to the project site would be conducted, in order to reduce the potential for construction site discharges polluting the receiving water quality.

Construction Runoff

6.3.4 The surface runoff from construction works areas may contain increased loads of suspended solids (SS) and contaminants. Potential sources of pollution from construction site drainage include:

- Runoff and erosion from site surfaces, drainage channels, demolition works, earth working areas and stockpiles;
- Release of any bentonite slurries, concrete washings and other grouting activities;
- Wash water from dust suppression spray facilities; and
- Fuel, oil, solvents and lubricants from maintenance of mechanical equipment.

6.3.5 Sediment laden runoff particularly from works areas subjected to excavation or earth works, if uncontrolled, may cause increased levels of suspended solids and pollutants entering the stormwater drainage system and into the marine environment.

6.3.6 Mitigation measures and good site practices outlined in ProPECC PN 1/94 should be implemented to control construction site runoff and drainage from the works area. The Contractor would also be required to apply for a discharge license under the WPCO. With implementation of the recommended mitigation measures along with compliance of the effluent standards set under TM-DSS, construction site runoff can be effectively controlled, and adverse impacts to storm drains or the marine environment is not anticipated.

Sewage effluent from the construction workforce

6.3.7 The sewage from construction workforce is expected to be handled by portable chemical toilets. To prevent additional pollution loads to the watercourse, portable chemical toilets shall be provided by licensed contractors who shall be responsible for appropriate disposal of collected sewage and maintenance of these facilities. Guidelines shall be prepared by contractor to avoid the illegal discharge of untreated sewage from the workforce. Adequate number of portable chemical toilet should be provided to ensure the sewage effluent from workforce is proper collected.

Accidental spillage of chemicals

6.3.8 All fuel tanks shall be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The contractors shall prepare guidelines of immediate clean-up actions for any spillage of oil, fuels and chemical. Only trained personnel with safety and protective equipment shall be allowed to handling the chemical spillage. Absorbent material for cleaning up the spills shall be disposed of as chemical waste.

6.4 Best Management Practices (BMPs) for Stormwater Discharge

General Construction Activities

6.4.1 The site practices outlined in ProPECC PN 2/24 Construction Site Drainage should be adopted as far as practicable to minimise the potential water quality impacts from various construction activities and construction site runoff. Extra attention should be paid for works areas which are in close proximity to the water sensitive receivers.

Wheel washing facilities

6.4.2 The wheels of all vehicles should be washed before they leave a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. A wheel washing bay should be provided at every site exit if practicable. Wash water should be recycled whenever possible to minimise the generation of wastewater and should have sand and silt removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road should be paved with backfall to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.

6.4.3 There will be need for the Contractor to apply to the EPD for a wastewater discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. 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. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning can minimise water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license.

Wastewater from solid waste

6.4.4 Debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering to the nearby watercourses. Stockpiles of cement and other construction materials should be kept covered when not being used.

6.4.5 Rubbish and litter from construction sites should also be collected to prevent spreading of rubbish and litter from the site area. It is recommended to clean up the construction waste on a regular basis for good site practice.

Construction Runoff

6.4.6 In order to meet the requirements of the Technical Memorandum standard under the Water Pollution Control Ordinance, surface runoff from construction sites should be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, and sedimentation basins.

6.4.7 Exposed slope/soil surfaces should be covered by a tarpaulin or similar material during rainstorms to prevent the washing away of construction materials into any drainage system, watercourses and inshore water. Other measures which are proposed to be implemented before, during, and after rainstorms, as appropriate, are summarized in ProPECC PN 2/24. The surface run-off from construction sites as detailed below shall also be incorporated into the construction site drainage where practicable as an integral part of good practice:

- Surface run-off from construction sites should be discharged into storm drains via adequately designed sand/ silt removal facilities such as sand traps, and sediment basins. Channels or earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries should be provided where necessary.
- Silt removal facilities, channels and manholes should be maintained, and the deposited silt and grit should be removed regularly.
- Construction work should be programmed to minimize soil excavation works in rainy seasons (April to September). If excavation in soil could not be avoided in these months, temporarily exposed slope surfaces should be covered, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds.
- Earthworks final surfaces should be well compacted, and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed.
- Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.
- Open stockpiles of construction materials (e.g., aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.
- Precautions should be taken at any time of year when rainstorms are likely; actions should be taken when rainstorms are imminent or forecasted, and during or after rainstorms.

6.5 Potential Operation Phase Water Quality Impacts

6.5.1 According to the major operation phase activities in the Proposed Development, the key potential water quality impact is due to the surface runoff and treated effluent discharge from the Proposed Development. Natural stream is identified along the western and southern boundary of Proposed Development, which will be maintained and undisturbed.

6.5.2 The management and mitigation strategy of the potential water quality impact is addressed below, with appropriate environmental control measures recommended.

6.5.3 Best practices as stated in ProPECC PN 1/23 "Drainage Plans Subject to Comment by the Environmental Protection Department" shall be followed. It states out the handling, treatment and disposal of various effluent discharges to stormwater drains and foul

sewers during the operation phase. Some examples of the recommendations listed in the ProPECC PN 1/23 are as below.

- Drainage in covered carparks should be connected to foul sewers via petrol interceptors.
- Disposal of commercial and industrial wastewater by injection into the ground (e.g. by soakaway pits) is normally not allowed.
- All wastewater collected from a restaurant kitchen, including that from basins, sinks and floor drains, should be discharged via a grease trap capable of providing at least 20 minutes retention during peak flow.

6.6 Surface Runoff Discharge

6.6.1 During operation, potential water quality impact would be the surface runoff during rainfall events which is known as non-point source of pollution. Substances such as vehicle dust, scraps and oil may be deposited on paved road surface. Fallen leaves, particles, litter from open areas/ landscape areas, which is a source of organic and nutrient pollutants, can be washed into the drainage system during heavy rainfall if it is not properly controlled. No fertilizers and pesticides will be routinely used for vegetation management. Pollutants contributed by non-point source are often bound or adsorbed onto particles, thus an effective storm water management system will be the removal of pollution sources prior to rainstorm and the provision of degritting/ screening facilities that collect sediment. As particles settle out, the associated pollutants will also settle out (then removed from stormwater).

6.6.2 Under normal condition, runoff carrying pollutants will not be generated in low rainfall intensity, but increased runoff may occur during heavy rainfall condition. The first flush flow would carry most of the pollutants and the subsequent overland flow generated from rainstorms is expected to be uncontaminated. Thus, prevention of "first flush" pollution in stormwater runoff will be an effective way in controlling pollution at source and to abate pollutants.

6.6.3 Relevant assessment on the total peak flow of stormwater of the Proposed Development and the capacity of proposed drainage system are provided in a separate Drainage Impact Assessment.

6.7 Treated Effluent from On-Site Sewage Treatment Plants

6.7.1 As discussed in Sewerage Impact Assessment (SIA), there is no public sewerage system at the vicinity of the Application Site. 2 sewage treatment plants with design capacity of 705.7 m^3/day and 380.3 m^3/day are proposed to treat the sewage generated from the proposed development.

6.7.2 The exact treatment process would be subject to later detailed design and submissions. It will be necessary for the treatment facilities to achieve the necessary discharge standards, as set out in EPD's Technical Memorandum – Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters.

6.7.3 Membrane bioreactor with ultra-filtration (MBR) is generally recommended to achieve required effluent discharge standard and sludge dewatering system will be provided and designed in accordance with the requirement in the "Guidelines for the Design of Small Sewage Treatments Plants" issued by EPD.

6.7.4 Sludge storage tank with deodorisation facilities will be provided. Exhaust fan will be located and facing away from existing and planned air sensitive uses. The sludge after having been dewatered and thickened will be tanked away to the landfill for disposal subject to confirmation with future licensed collector/contractor. As good practice for sewage treatment facilities, measures will be incorporated into the design to minimize the risk of emergency overflow from the treatment plant. These measures will include

standby pumps, secure power supplies and appropriate alarms, as well as comprehensive Operation and Maintenance procedures, to keep the facilities in good working order. Holding tank for emergency storage/retention will be included with adequate capacity (e.g. to store 6-hours of ADWF discharge) to minimise need of emergency discharge. In the event of any emergency overflow, on-call crews will follow the overflow emergency response plan and proceed with the best response to correct the problem immediately. For example, the alarm system will be activated once overflow occurs. The on-call crews will provide instant response by acknowledging the alarm, to investigate the cause of overflow and correct the problem. The alarm system will repeat until it is acknowledged. In addition, the on-call crews will ensure the standby pump is switched on and contain the overflowed sewage using temporary weirs or vacuum trucks, where applicable.

6.7.5 The treated effluent from the STP will be discharged to the Sheung Yue River.

6.7.6 Apart from the WQOs, Section 21 of the WPCO also specifies the limits to control the physical, chemical and microbial parameters for effluent discharges into drainage and sewage system at both inland and coastal waters under the TM-DSS.

6.8 Conclusion

6.8.1 Water pollution sources during the construction and operational phase of the proposed development are identified.

6.8.2 With the implementation of different measures for treating stormwater, foul water and sewage effluents from the Proposed Development before discharging to the vicinity, adverse water quality impact during the construction and operation phase is not anticipated.

7. CONCLUSION

7.1.1 The key environmental issues associated with both operation and construction phase of the Application Site are qualitatively discusses in this report.

Noise

7.1.2 Most noise sensitive uses (including classroom, office, sports complex, gymnasium, retail, clinic, student shop and club) within the Proposed Development will be centrally air-conditioned and do not require opened windows as means of ventilation under normal circumstances. As such, they should unlikely be affected by road traffic noise.

7.1.3 For noise sensitive uses like student and staff dormitory, the noise sensitive facades / location of openable windows would be designed facing away from the main noise sources as practicable as possible so that the future occupants would not be subject to adverse road traffic noise impact. In addition, detailed road traffic noise impact assessment shall be conducted in next application stage in order to avoid any road traffic noise underestimation from surrounding roads.

7.1.4 According to the observation during site visit, two open storage & parking sites for heavy machinery to the north and south of the site are identified, and no loading/unloading activities is found in the parking site. Therefore, road traffic noise would be the major noise source after completion of the Approved Development. Nevertheless, similar with the section for road traffic noise impact assessment, detailed industrial noise impact assessment shall be conducted in next application stage in order to avoid any industrial noise underestimation from potential industrial sources.

7.1.5 In order to ensure that the fixed sources noise generated by the Proposed Development would not cause excessive impact to the neighbouring noise sensitive uses, the ventilation and air conditioning systems for the carpark, potential noise sources from the Proposed Development (e.g. public address systems (PA systems) and sports activities, plant room etc. will be carefully designed and installed to comply with relevant fixed source noise standards under Chapter 9 of HKPSG.

7.1.6 With the recommended use of noise mitigation measures, together with inclusion of "*Recommended Pollution Control Clauses for Construction Contracts*" in works contract, construction noise impact should be minimised and under control.

Air Quality

7.1.7 Onsite surveys were conducted on 15 August 2025 to verify the presence of chimneys. There was no chimney identified within 200m from the boundary of Proposed Development. In addition, according to the latest design and available information, no chimney or other polluting uses within Proposed Development and 500m assessment area is proposed. As such, it is anticipated that the Proposed Development and existing air sensitive receivers would not be subject to adverse industrial emission impact.

7.1.8 The recommended buffer distance requirement for Private Roads (P1 & P2), Hang Tau Road and San Tin Section of Northern Metropolis Highway in the HKPSG would be complied. For the Proposed Public Road, a portion of the application site is within 5m buffer distance, however, no air sensitive uses of Proposed Development (including fresh air intake, openable window, and open space for recreational use, etc.) would be located within 5m buffer distance. In conclusion, there would be no air sensitive uses within the above-mentioned 5m buffer zones from Proposed Public Road, Private Roads (P1 & P2) and Hang Tau Road, and 20m buffer zones from San Tin Section of Northern Metropolis Highway. Since the recommended minimum buffer distance of the vehicular emission in the HKPSG can be met, the future residents and occupants of Proposed Development and existing air sensitive receivers will not be subjected to insurmountable vehicular emission impact.

7.1.9 Carpark has been proposed for the Proposed Development. The air quality inside the basement carpark shall satisfy the air pollutant standards as recommended by the ProPECC PN 2/96 Control of Air Pollution in Car Parks. Therefore, the mechanical ventilation system and layout the basement carpark shall be properly designed. Furthermore, the exhaust outlet of the mechanical ventilation system of the basement carpark shall also be designed by facing away from the nearest air sensitive uses as practicable as possible to ensure not to cause a nuisance to the occupants/ residents of the air sensitive uses including the surrounding developments and the Proposed Development.

7.1.10 F&B areas will be provided in the Proposed Development. Exhaust hoods and grease trap will be provided and the air change rate for the F&B area will be designed according to the standard of kitchen as stipulated in Building Department's Practice Note for Authorized Persons (PNAP). Potential odour emissions will be minimised as far as practicable.

7.1.11 Desktop Studies and onsite survey have been conducted to identify the potential odour sources. According to the site survey conducted on 15 August 2025 (between noon to 2pm, 28.2°C air temperature and 95% relative humidity) to identify the potential odour sources, there is no identifiable odour were detected in the vicinity of the Application Site. It is anticipated that the Application Site would not be subject to adverse odour impact

Land Contamination

7.1.12 A site appraisal, in the form of desktop review and site walkover, had been carried out in August 2025 to identify the past and current potentially contaminating land uses within the Application Site. Based on the desktop study and site appraisal, some areas of the Application site are inaccessible and therefore, site re-appraisal shall be conducted when the site is accessible or in the detailed design stage.

Waste Management

7.1.13 Waste generated during construction works and operational phase have been qualitatively evaluated. With these waste managements in place, the waste generated from the construction work and operation of the proposed development would be properly controlled and no adverse waste management impact is anticipated.

Water Quality

7.1.14 Water pollution sources during the construction and operational phase of the proposed development are identified.

7.1.15 With the implementation of different measures for treating stormwater, foul water and sewage effluents from the Proposed Development before discharging to the vicinity, adverse water quality impact during the construction and operation phase is not anticipated.

Figure

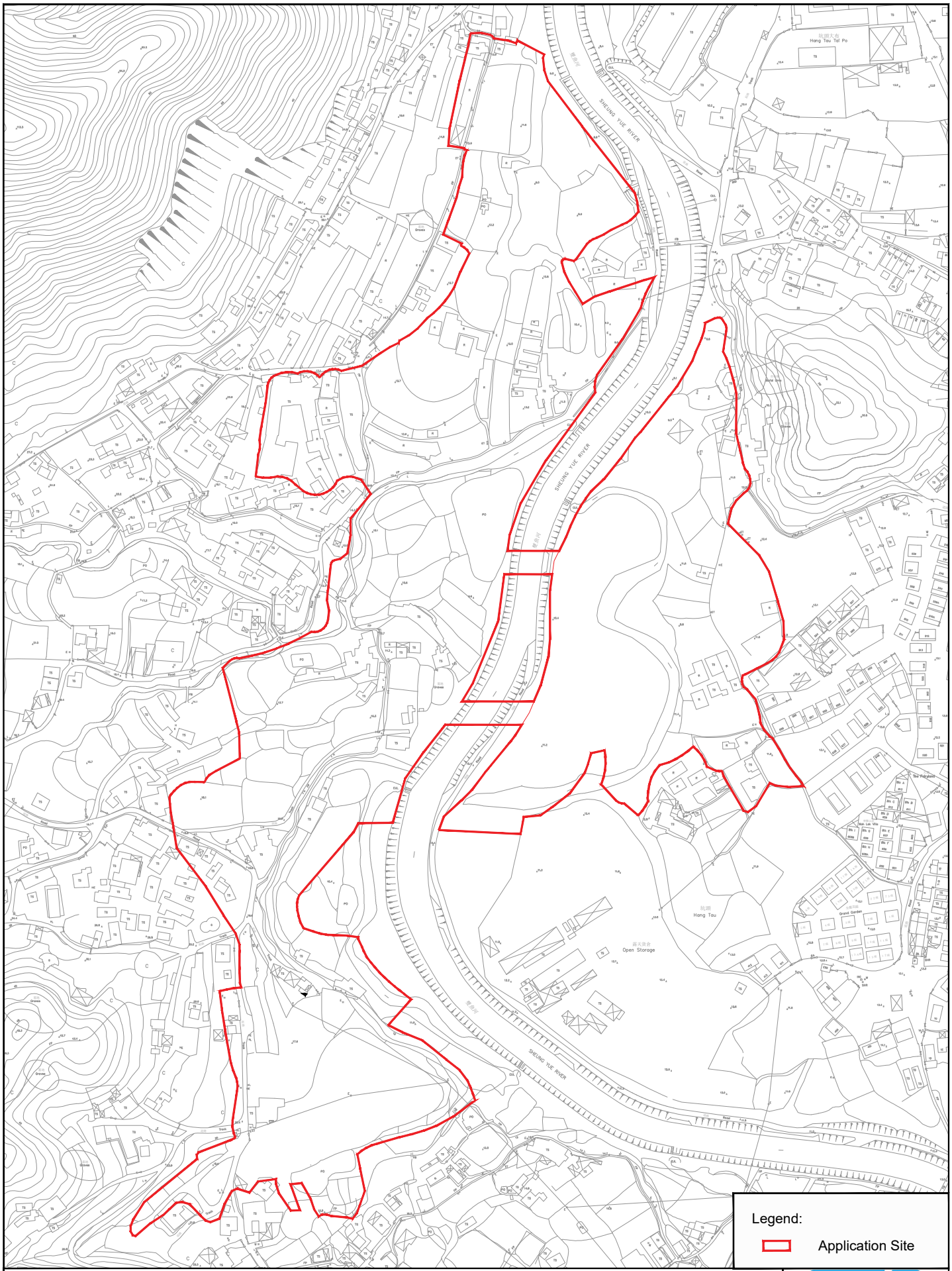

Figure: 1.1

Title: Location of the Application Site and its environs.

Project: Proposed School at Various Lots in D.D. 94, 98 & 100 and adjoining Government Land, Kwu Tung South, New Territories

RAMBOLL

Drawn by:	TL
Checked by:	TC
Rev.:	1.1
Date:	Jan 2026

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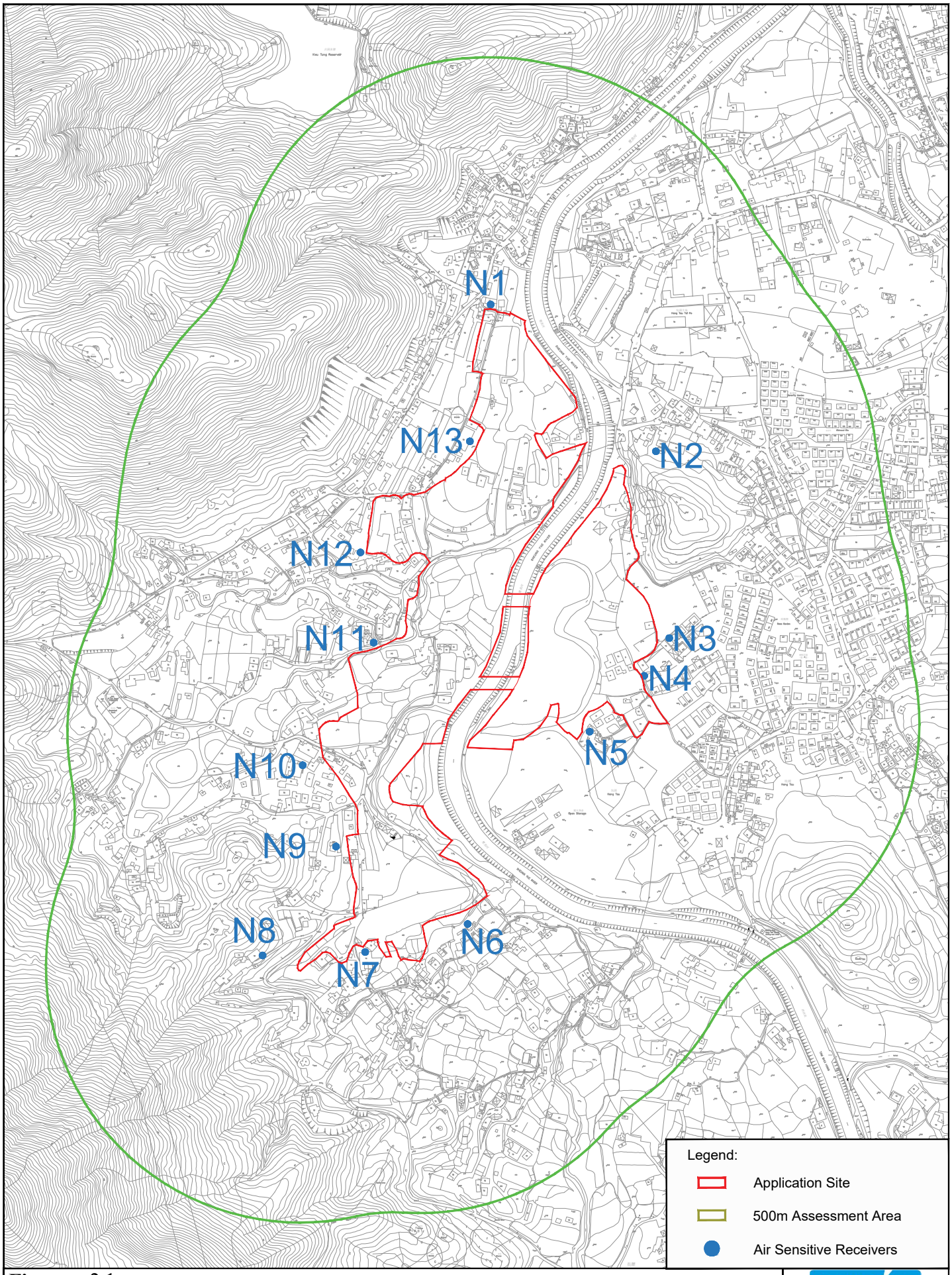

Figure: 2.1

Title: Location of Representative Noise Sensitive Receivers

Project: Proposed School at Various Lots in D.D. 94, 98 & 100 and adjoining Government Land, Kwu Tung South, New Territories

RAMBOLL

Drawn by:	TL
Checked by:	TC
Rev.:	1.1
Date:	Jan 2026

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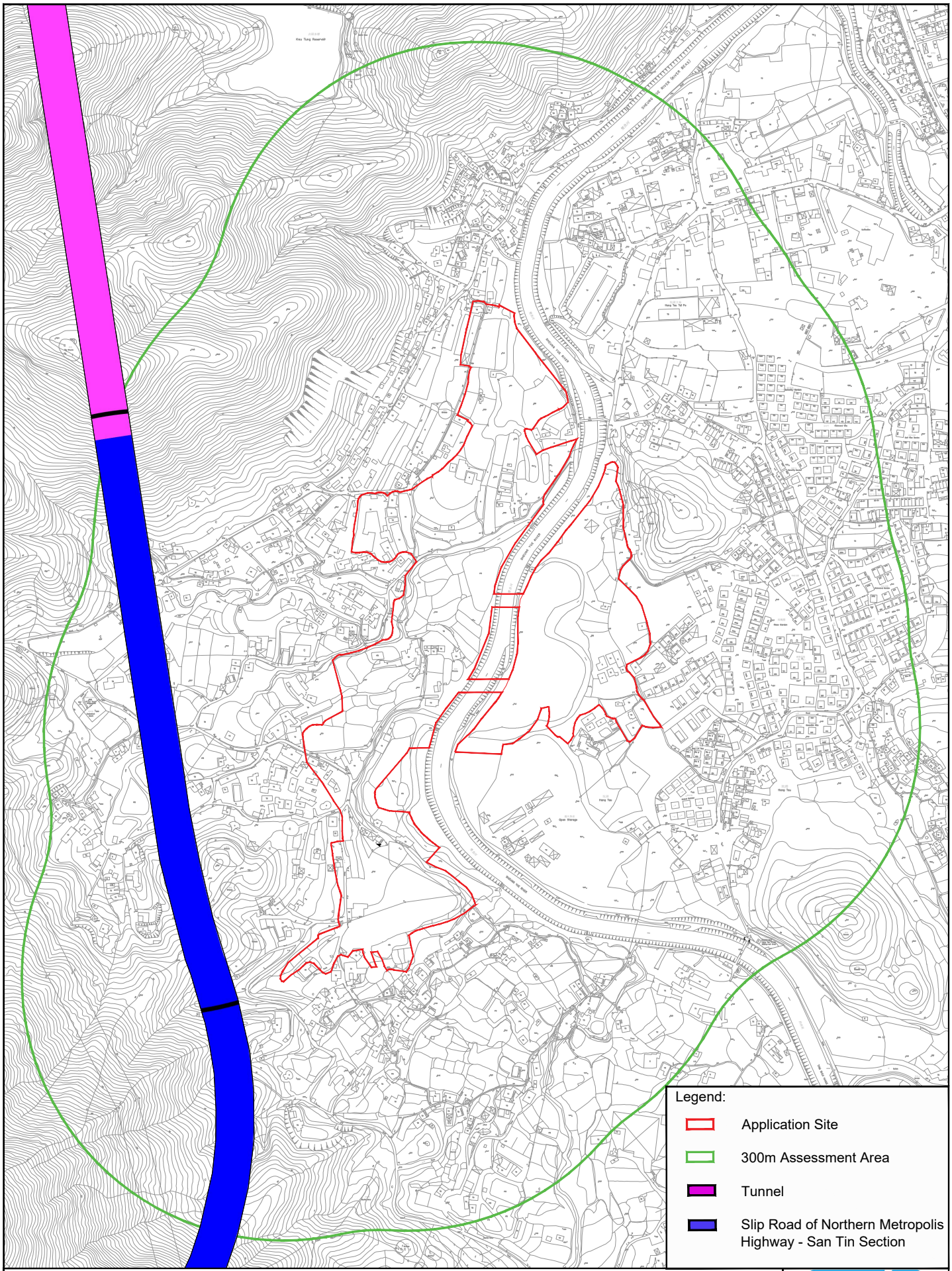

Figure: 2.2

Title: Location of Transport Infrastructure - San Tin Section of Northern Metropolis Highway

Project: Proposed School at Various Lots in D.D. 94, 98 & 100 and adjoining Government Land, Kwu Tung South, New Territories

RAMBOLL

Drawn by:	TL
Checked by:	TC
Rev.:	1.1
Date:	Jan 2026

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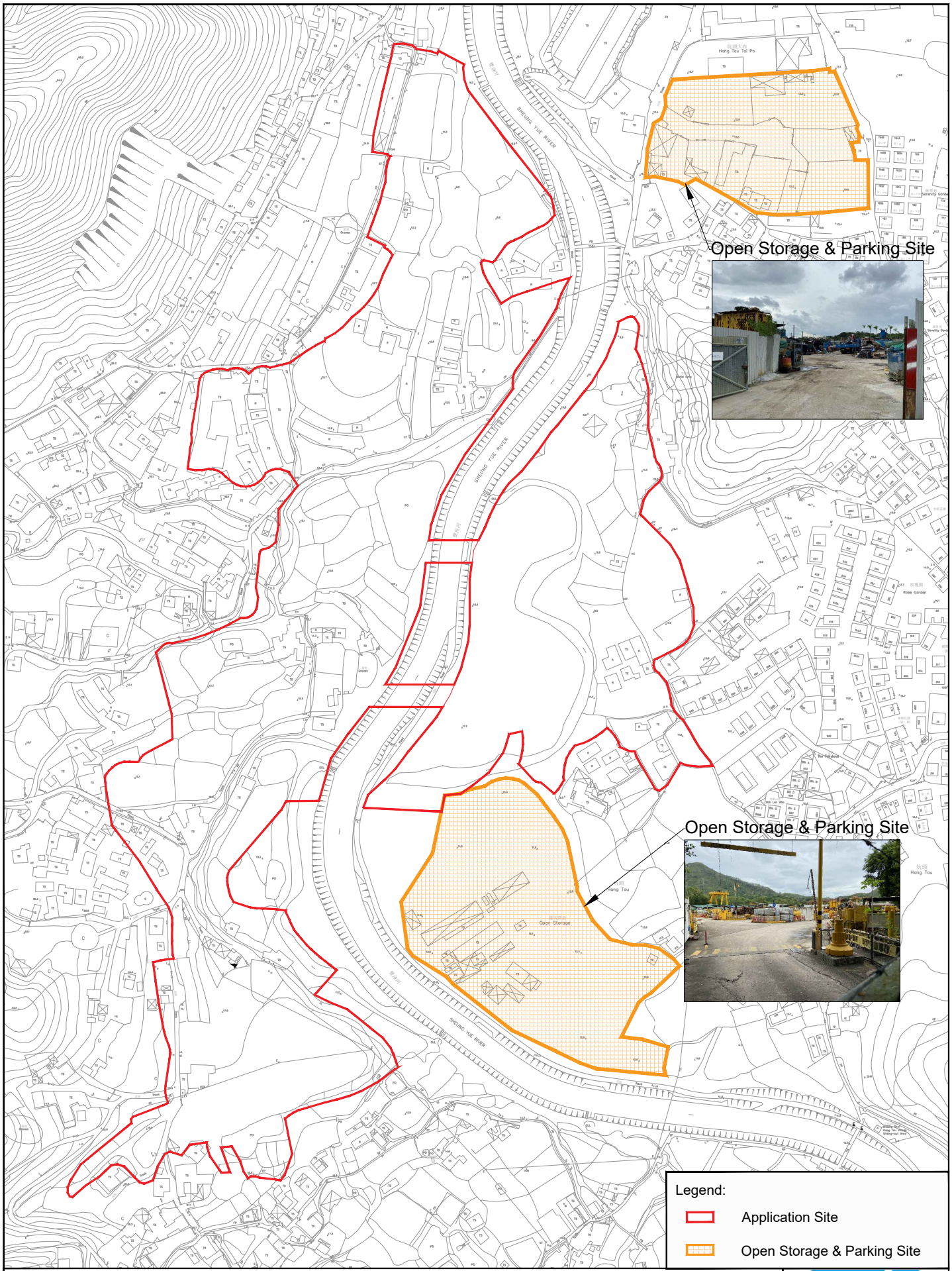

Figure: 2.3

Title: Location of Potential Industrial Sources - Open Storage & Parking Sites

Project: Proposed School at Various Lots in D.D. 94, 98 & 100 and adjoining Government Land, Kwu Tung South, New Territories

RAMBOLL

Drawn by:	TL
Checked by:	TC
Rev.:	1.1
Date:	Jan 2026

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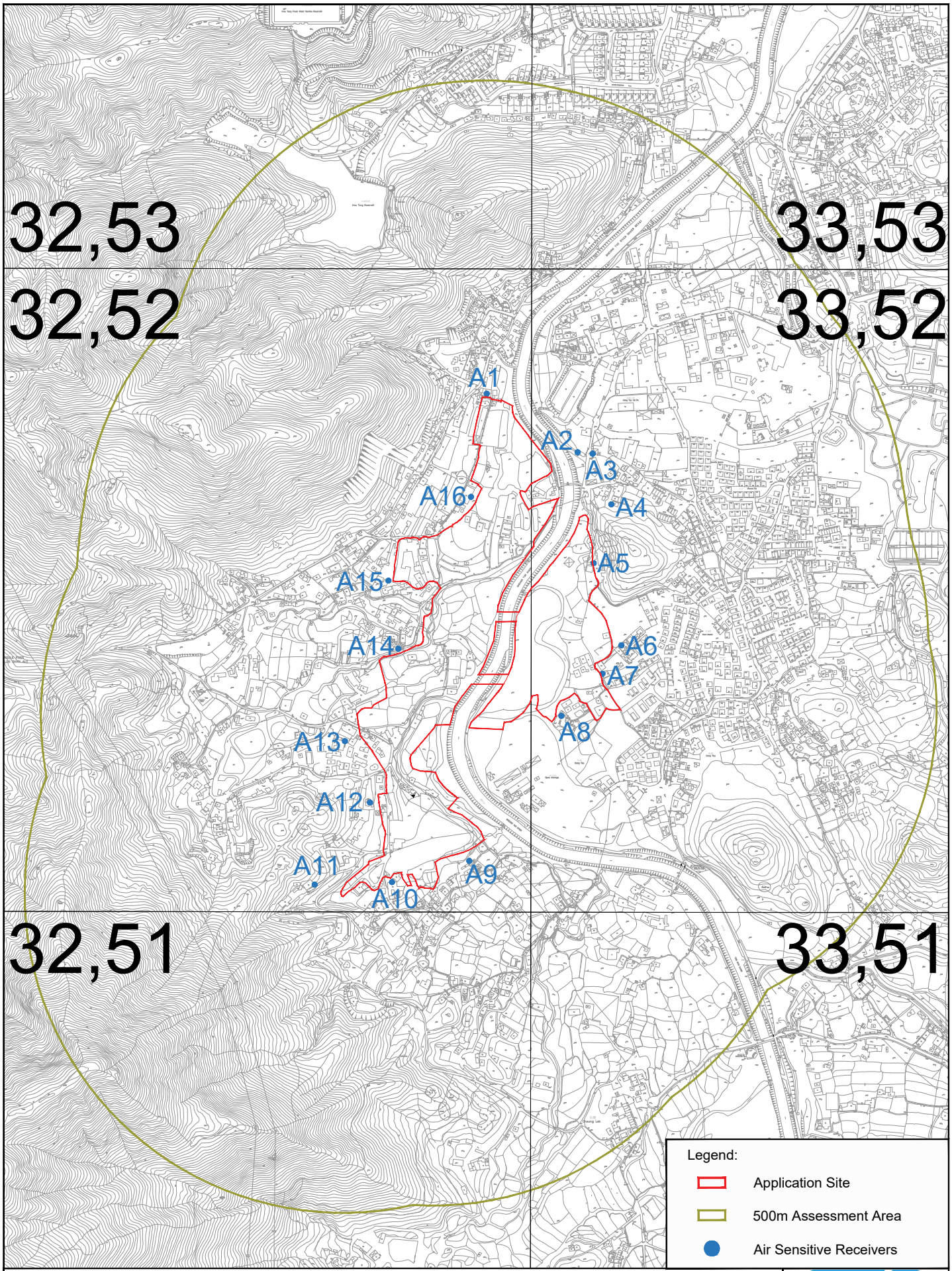

Figure: 3.1		RAMBOLL
Title: Location of Representative Air Sensitive Receivers	Drawn by:	TL
	Checked by:	TC
Project: Proposed School at Various Lots in D.D. 94, 98 & 100 and adjoining Government Land, Kwu Tung South, New Territories	Rev.:	1.1
	Date:	Jan 2026

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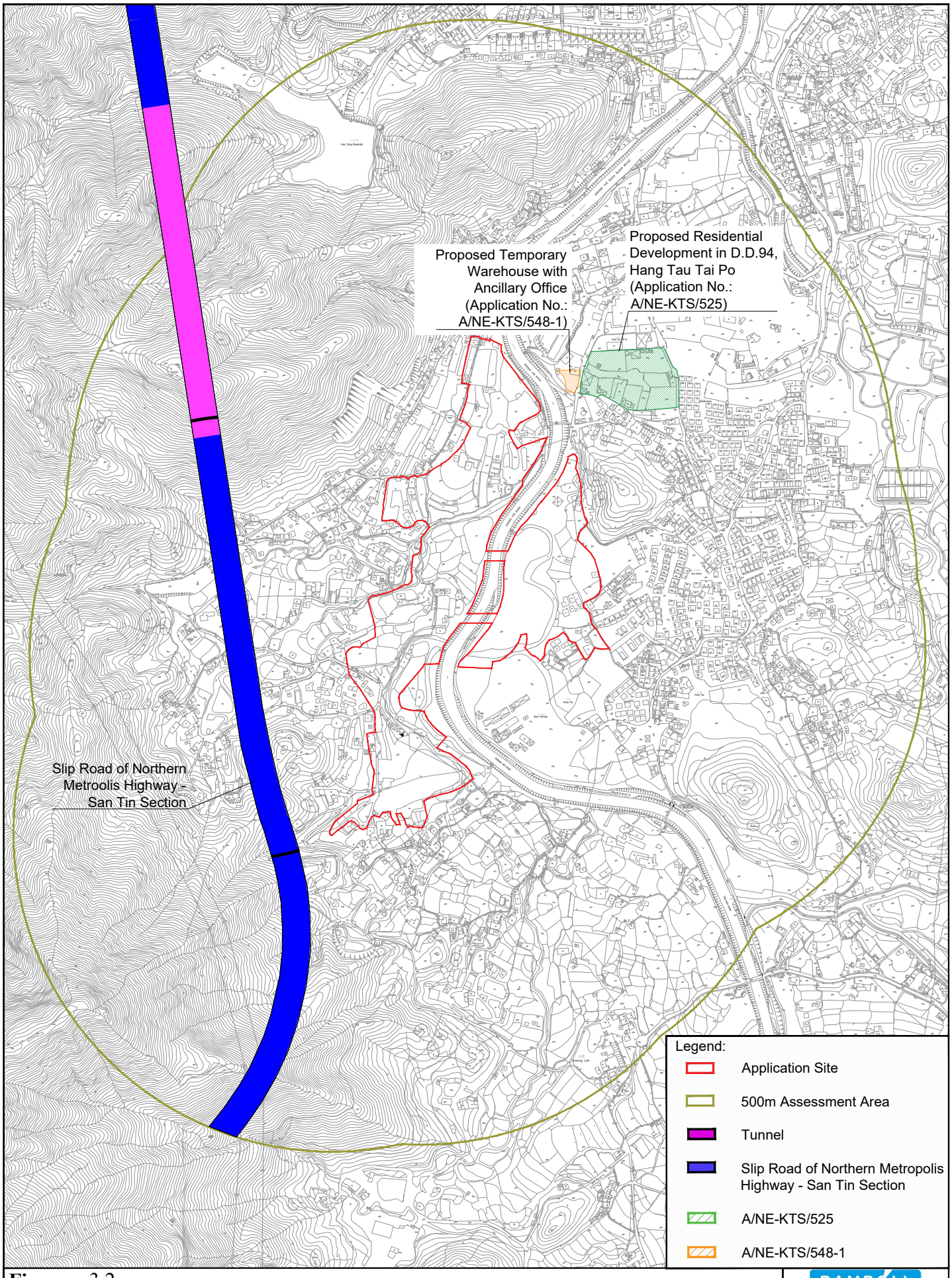

Figure: 3.2

Title: Location of the Potential Concurrent Project

Project: Proposed School at Various Lots in D.D. 94, 98 & 100 and adjoining Government Land, Kwu Tung South, New Territories

RAMBOLL

Drawn by:	TL
Checked by:	TC
Rev.:	1.1
Date:	Jan 2026

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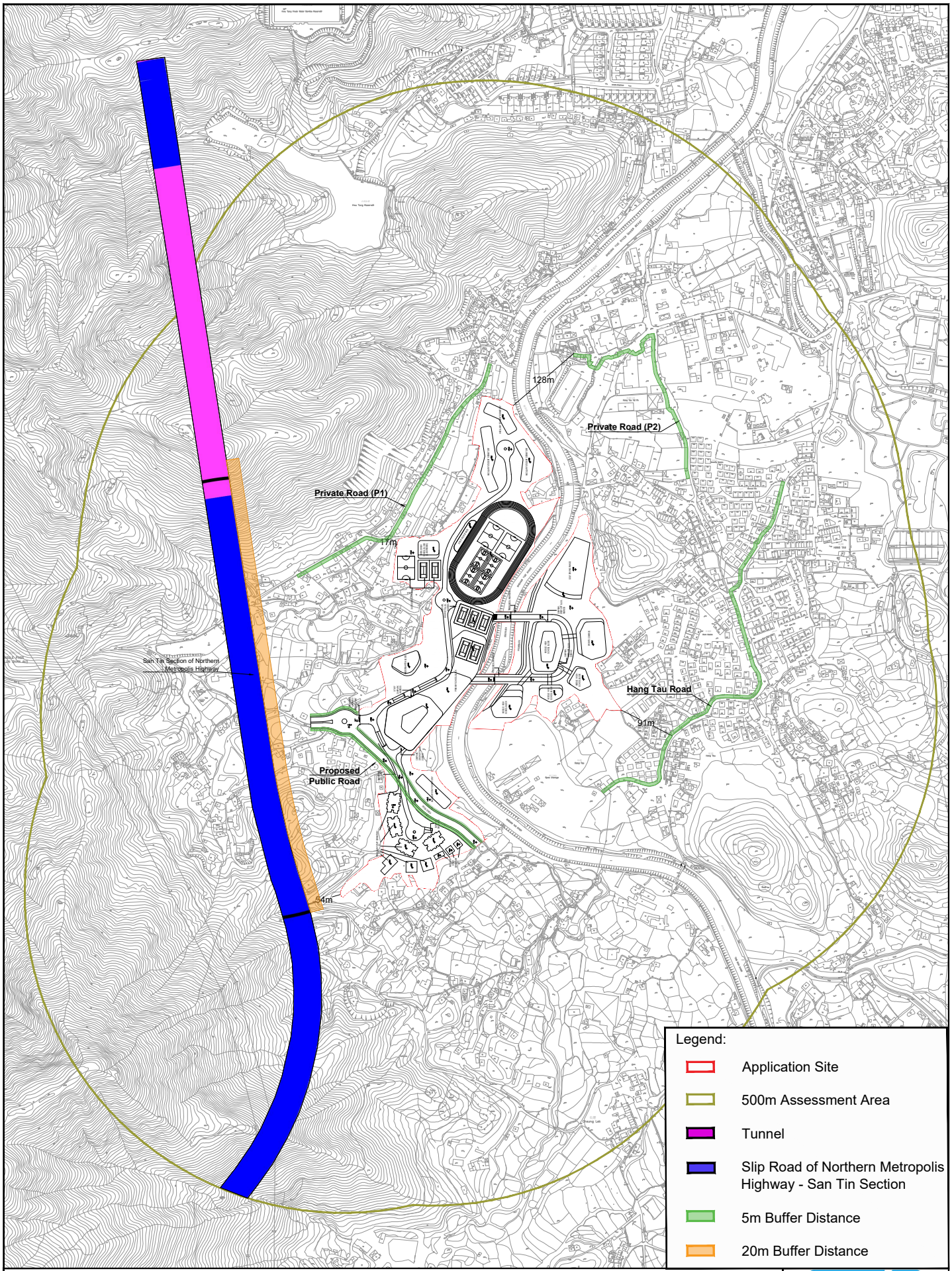

Figure:	3.3	RAMBOLL
Title:	Buffer Distances between Kerb Side of Nearest Carriageways and Application Site	Drawn by: TL Checked by: TC
Project:	Proposed School at Various Lots in D.D. 94, 98 & 100 and adjoining Government Land, Kwu Tung South, New Territories	Rev.: 1.1 Date: Jan 2026

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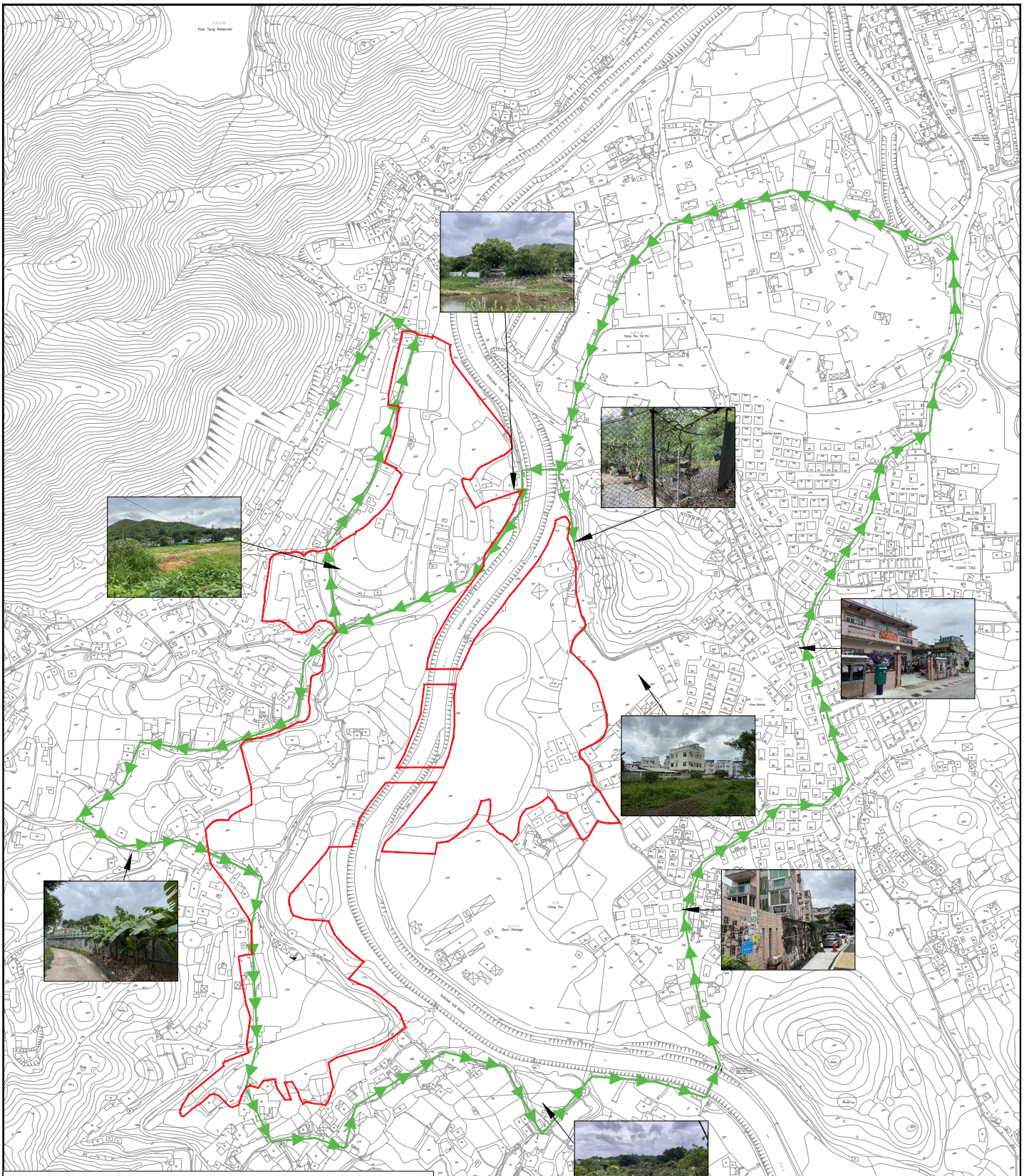

Details of Site Inspection
Date: 15 August 2025
Time: Between noon to 2 P.M.
Temperature: 28.2°C
Relative Humidity: 95%
Observation: No potential odour sources or odour were identified along the boundary of Application Site.

Legend:
- Application Site
- Inspection Route

Figure: 3.4	RAMBOLL
Title: Odour Inspection Route	Drawn by: TL
	Checked by: TC
Project: Proposed School at Various Lots in D.D. 94, 98 & 100 and adjoining Government Land, Kwu Tung South, New Territories	Rev.: 1.1
	Date: Jan 2026

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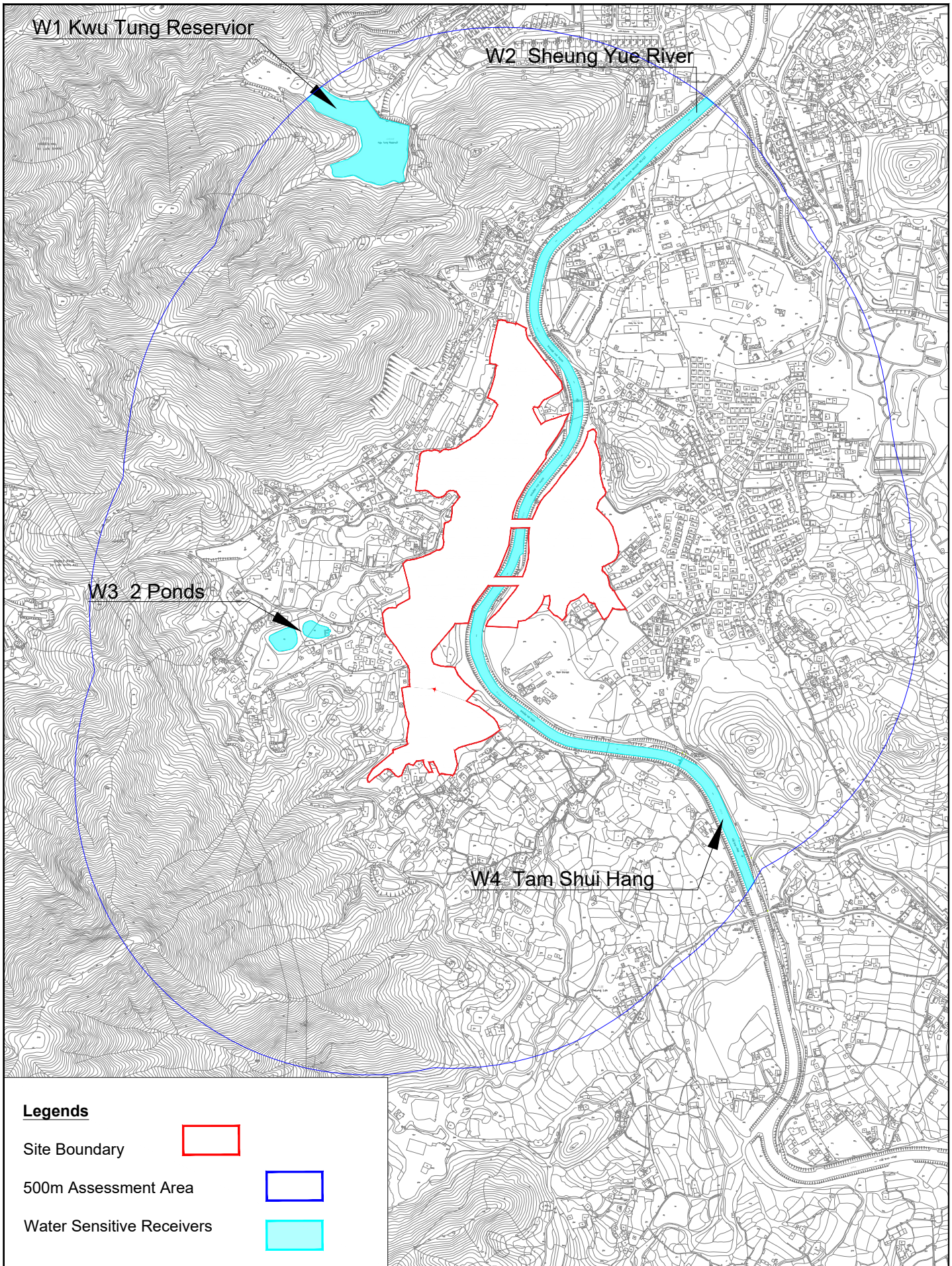

Figure: 6.1

Title: Water Sensitive Receivers

Project: Proposed School at Various Lots in D.D. 94, 98 &100 and adjoining Government Land, Kwu Tung South, New Territories

RAMBOLL

Drawn by:	SC
Checked by:	TC
Rev.:	1.1
Date:	Jan 2026

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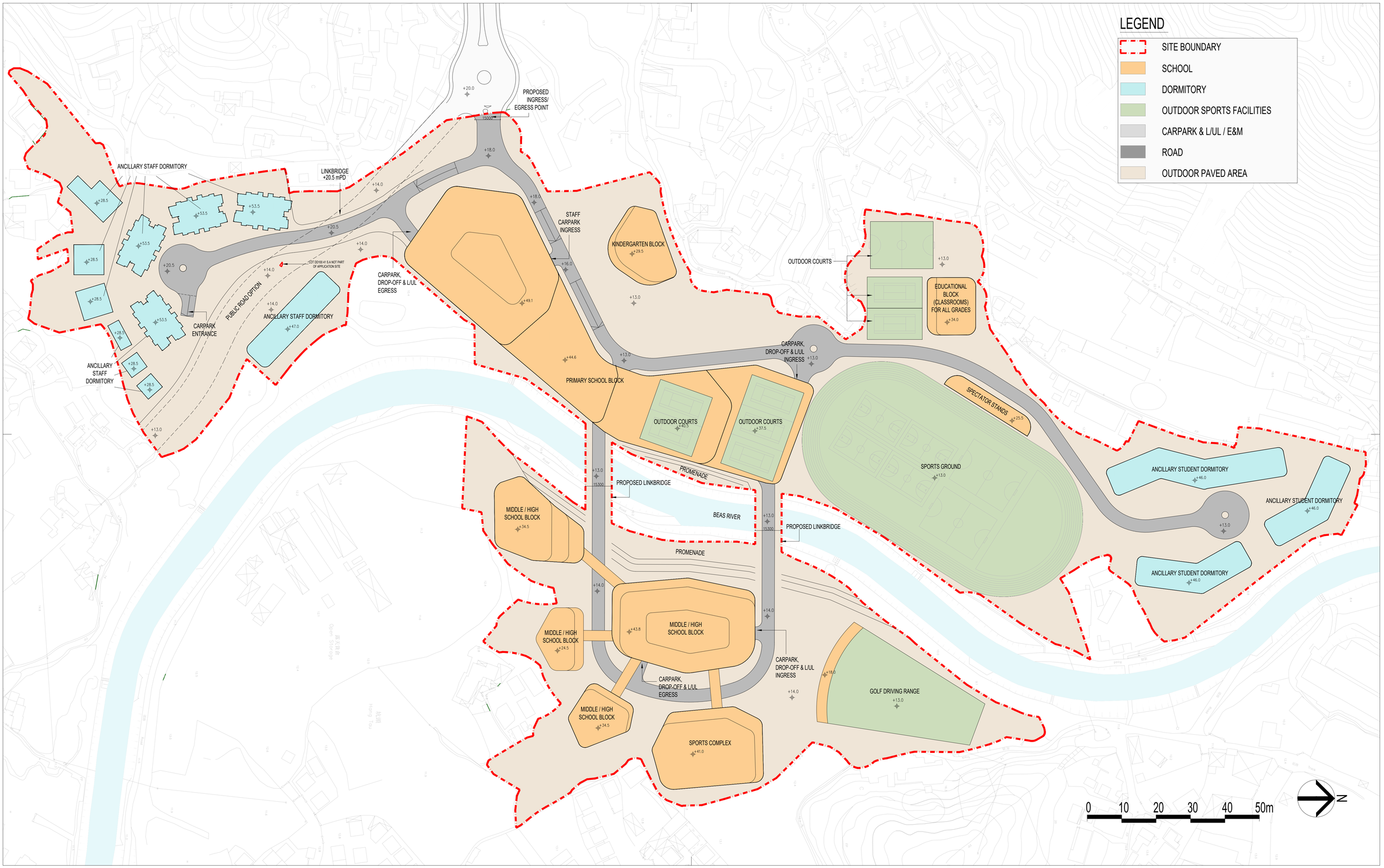
Appendix 1.1 Master Layout Plans



Rev.	Description	Drawn	Checked	Approved	Date
_	PLANNING SUBMISSION	HKO	JHK	JHY	9-2025
A	PLANNING SUBMISSION	HKO	JHK	JHY	11-2025

Rev.	Description	Drawn	Checked	Approved	Date

Check all measurements on site. Do not scale off drawings.

This drawing is to be read in conjunction with the specification and any discrepancies are to be immediately reported to the Architect.

B.D. Ref. _
F.S.D. Ref. _
D.L.O. Ref. _

Drawn HKO Date 11-2025
Checked JHK Date 11-2025
Approved JHY Date 11-2025

Cad File No. P:\JHK\25018NT\planning submission\PLOT_BD\GBP_01_

RONALD LU & PARTNERS
呂元祥建築師事務所

Project Title
PROPOSED INTERNATIONAL SCHOOL DEVELOPMENT AT KWU TUNG SOUTH

Drawing Title
FULL PHASE – MASTER LAYOUT PLAN

Project No. 25018NT
Scale 1 : 1000 Issue Date NOV 2025
Drawing No. A/GBP_01_

Drawing Purpose

LEGEND

- SITE BOUNDARY
- SCHOOL
- DORMITORY
- OUTDOOR SPORTS FACILITIES
- CARPARK & L/UL / E&M
- ROAD
- OUTDOOR PAVED AREA

UNEXCAVATED

UNEXCAVATED

CARPARK,
LAY-BY & L/UL/ E&M
+14.0

PUBLIC ROAD OPTION

+14.0

+14.0

LOT DD100 41 S.A NOT PART OF APPLICATION SITE

DORMITORY
+14.0

CARPARK,
DROP-OFF & L/UL
EGRESS

+13.0

STAFF
CARPARK
INGRESS

+16.0

CARPARK,
LAY-BY & L/UL/ E&M
+14.0

SCHOOL (KINDERGARTEN)
+13.0

OUTDOOR COURTS

+13.0

SCHOOL
(CLASSROOM)
+13.0

+13.0

+13.0

CARPARK,
LAY-BY & L/UL/ E&M
+13.0

CARPARK,
DROP-OFF & L/UL
INGRESS

+13.0

SPECTATOR STANDS +13.0

SCHOOL (SPORTS GROUND)
+13.0

DORMITORY
+13.0

+13.0

DORMITORY
+13.0

DORMITORY
+13.0

PROMENADE +9.0

PROPOSED LINKBRIDGE

SCHOOL (CLASSROOM)
+14.0

PROMENADE +9.0

PROPOSED LINKBRIDGE

+14.0

SCHOOL
(CLASSROOM)
+14.0

ANCILLARY
TUCK
SHOP
+14.0

CARPARK,
LAY-BY & L/UL
+14.0

CARPARK,
DROP-OFF & L/UL
EGRESS

CARPARK,
DROP-OFF & L/UL
INGRESS

+14.0

GOLF DRIVING RANGE
+14.0

SCHOOL (CLASSROOM)
+14.0

SCHOOL (SWIMMING POOL)
+14.0

E&M BASEMENT
BELOW AT +10.0

0 10 20 30 40 50m

N

Rev.	Description	Drawn	Checked	Approved	Date
_	PLANNING SUBMISSION	HKO	JHK	JHY	9-2025
A	PLANNING SUBMISSION	HKO	JHK	JHY	11-2025

Rev.	Description	Drawn	Checked	Approved	Date

Check all measurements on site. Do not scale off drawings.

This drawing is to be read in conjunction with the specification and any discrepancies are to be immediately reported to the Architect.

B.D. Ref. _

F.S.D. Ref. _

D.L.O. Ref. _

Drawn HKO Date 11-2025

Checked JHK Date 11-2025

Approved JHY Date 11-2025

Cad File No. P:\JHK\25018NT\planning submission\PLOT_BD\GBP_04

RONALD LU & PARTNERS

呂元祥建築師事務所

Project Title

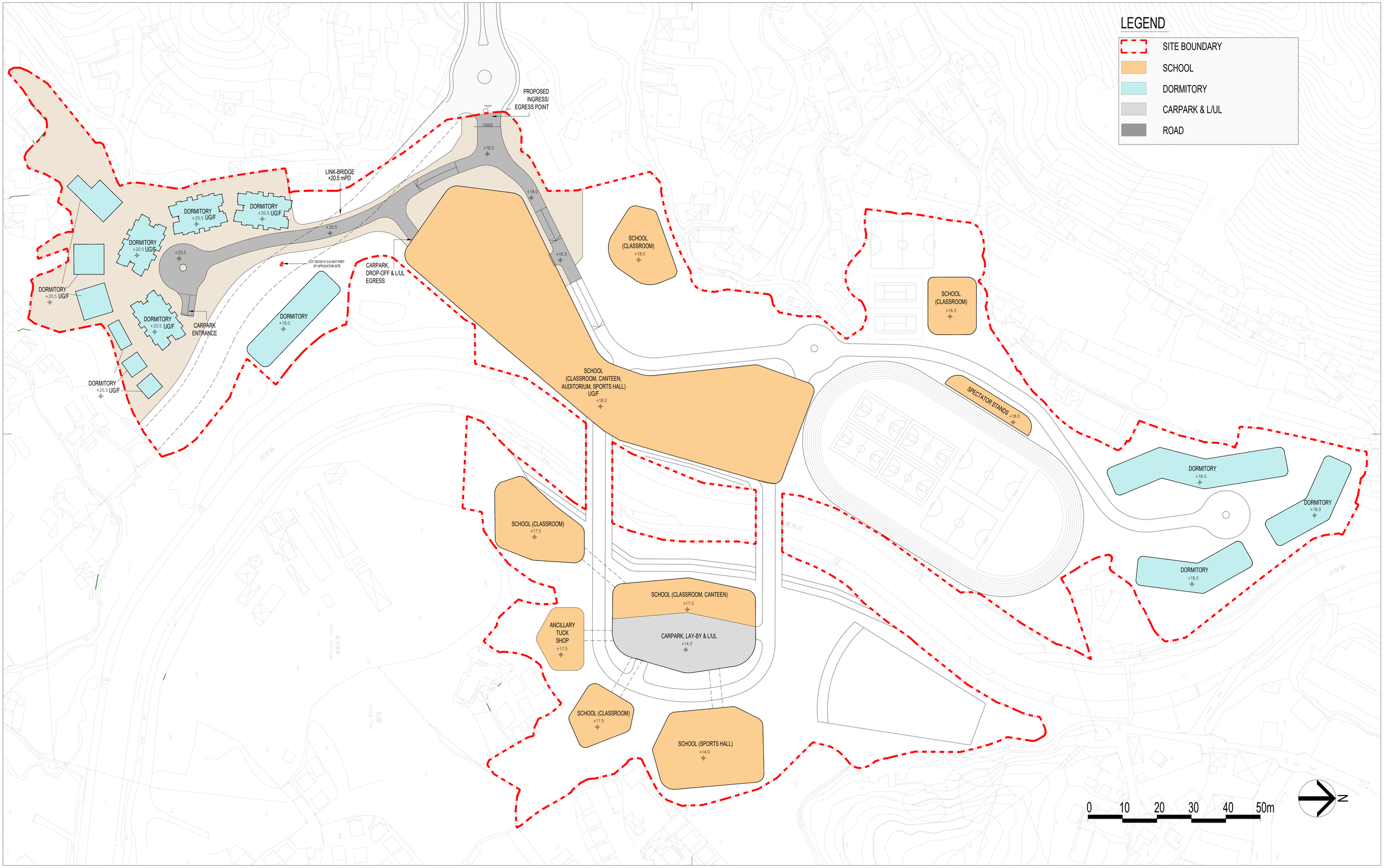
Drawing Title
FULL PHASE –
GROUND FLOOR PLAN

Project No. 25018NT

Scale 1 : 1000 Issue Date NOV 2025

Drawing No. A/ GBP_02

Drawing Purpose



Rev.	Description	Drawn	Checked	Approved	Date
_	PLANNING SUBMISSION	HKO	JHK	JHY	9-2025
A	PLANNING SUBMISSION	HKO	JHK	JHY	11-2025

Rev.	Description	Drawn	Checked	Approved	Date

Check all measurements on site. Do not scale off drawings.

This drawing is to be read in conjunction with the specification and any discrepancies are to be immediately reported to the Architect.

B.D. Ref. _
F.S.D. Ref. _
D.L.O. Ref. _
Drawn HKO Date 11-2025
Checked JHK Date 11-2025
Approved JHY Date 11-2025
Cad File No. P:\JHK\25018NT\planning submission\PLOT_BD\GBP_02

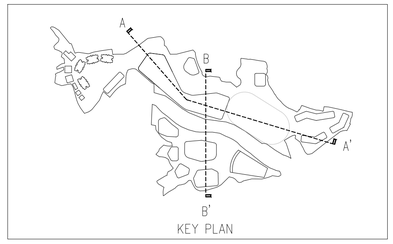
RONALD LU & PARTNERS
呂元祥建築師事務所

Project Title

Drawing Title
FULL PHASE –
FIRST FLOOR PLAN

Project No. 25018NT
Scale 1 : 1000 Issue Date NOV 2025
Drawing No. A/GBP_03

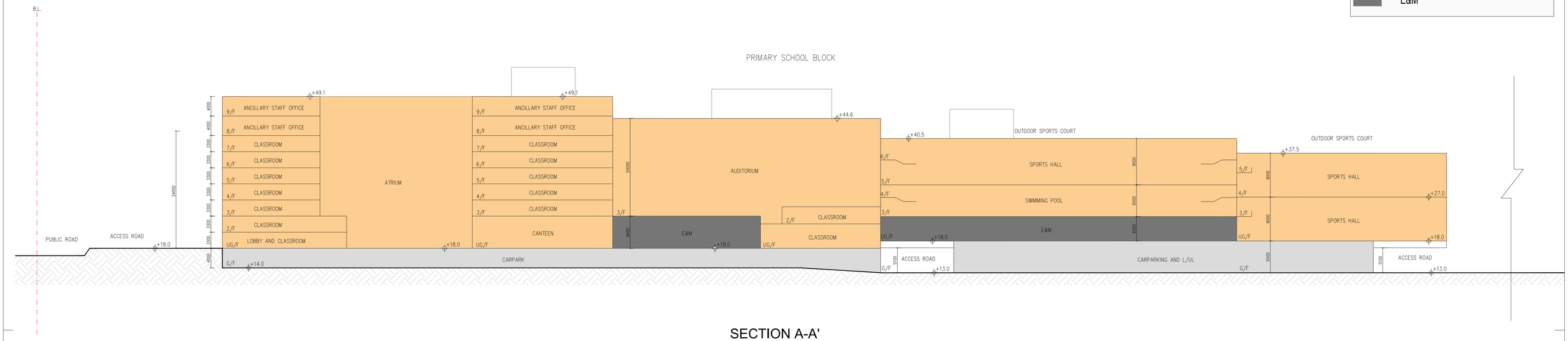
Drawing Purpose



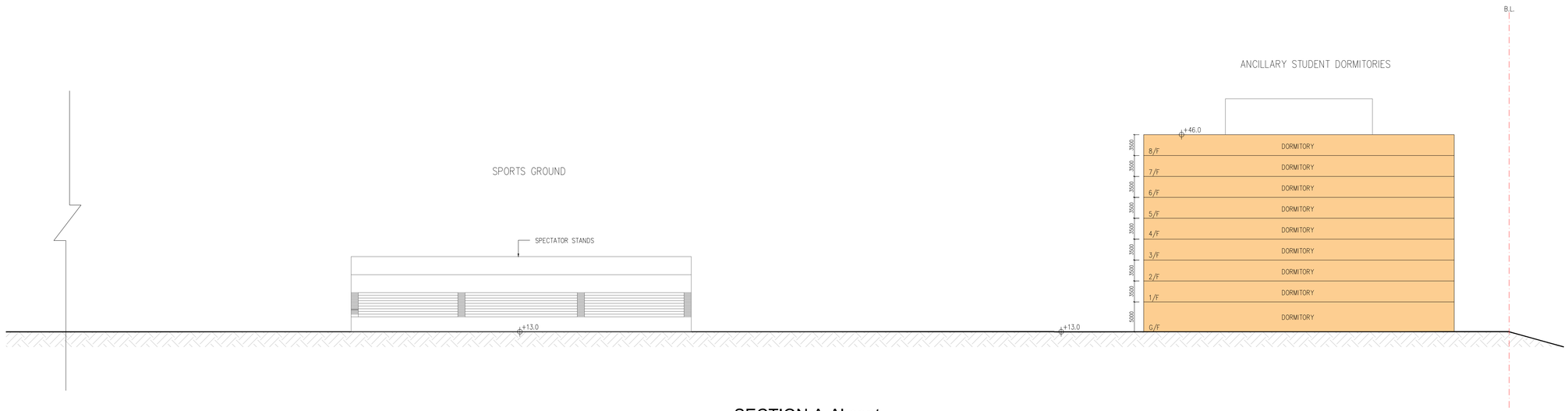
KEY PLAN

LEGEND

- SITE BOUNDARY
- SCHOOL
- DORMITORY
- OUTDOOR SPORTS FACILITIES
- CARPARK & L/UL
- E&M



SECTION A-A'



SECTION A-A' cont

Rev.	Description	Drawn	Checked	Approved	Date
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A	PLANNING SUBMISSION	HKO	JHK	JHY	11-2025

Rev.	Description	Drawn	Checked	Approved	Date

Check all measurements on site. Do not scale off drawings.

This drawing is to be read in conjunction with the specification and any discrepancies are to be immediately reported to the Architect.

B.D. Ref. _
F.S.D. Ref. _
D.L.O. Ref. _
Drawn HKO Date 11-2025
Checked JHK Date 11-2025
Approved JHY Date 11-2025
Cad File No. P:\JHK\25018NT\planning submission\PLOT_BD\GBP_05

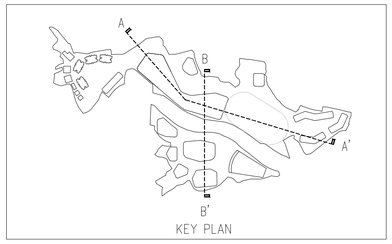
RONALD LU & PARTNERS
呂元祥建築師事務所

Project Title

Drawing Title
SECTION A-A

Project No. 25018NT
Scale 1:400 Issue Date NOV 2025
Drawing No. A/GBP_05

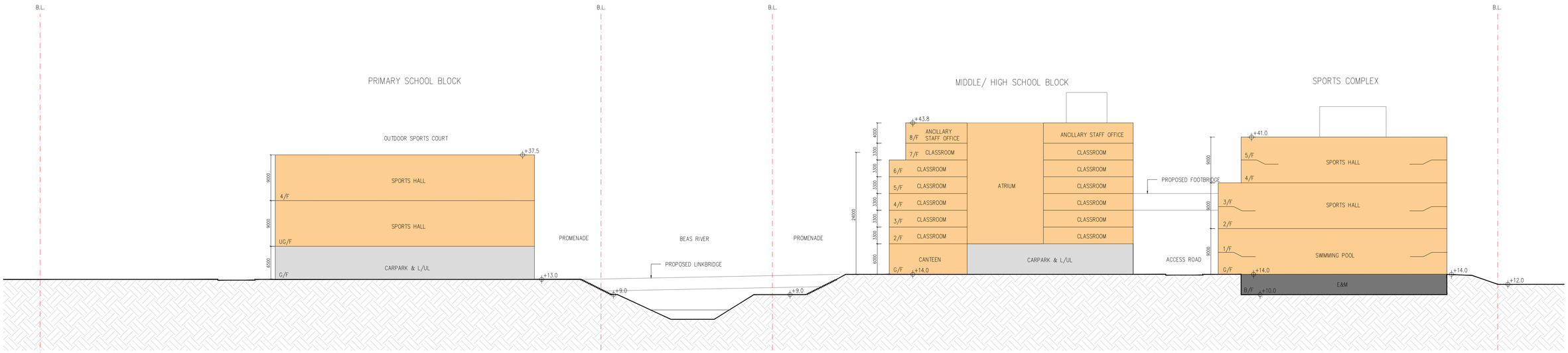
Drawing Purpose



KEY PLAN

LEGEND

- SITE BOUNDARY
- SCHOOL
- DORMITORY
- OUTDOOR SPORTS FACILITIES
- CARPARK & L/UL
- E&M



SECTION B-B'

Rev.	Description	Drawn	Checked	Approved	Date
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A	PLANNING SUBMISSION	HKO	JHK	JHY	11-2025

Rev.	Description	Drawn	Checked	Approved	Date

B.D. Ref. _
F.S.D. Ref. _
D.L.O. Ref. _
Drawn HKO Date 11-2025
Checked JHK Date 11-2025
Approved JHY Date 11-2025
Cad File No. P:\JHK\25018NT\planning submission\PLOT_BD\GBP_06

RONALD LU & PARTNERS
呂元祥建築師事務所

Project Title

Drawing Title
SECTION B-B

Project No. 25018NT
Scale 1:400 Issue Date NOV 2025
Drawing No. A/GBP_06

Drawing Purpose

Appendix 4.1 Aerial Photos

Appendix: 4.1

Title: Aerial Photo (1995 - Ref No. CN09827)

Project: Proposed International School in Kwu Tung South

RAMBOLL

Drawn by:	SC
Checked by:	TC
Rev.:	1.0
Date:	Aug 2025

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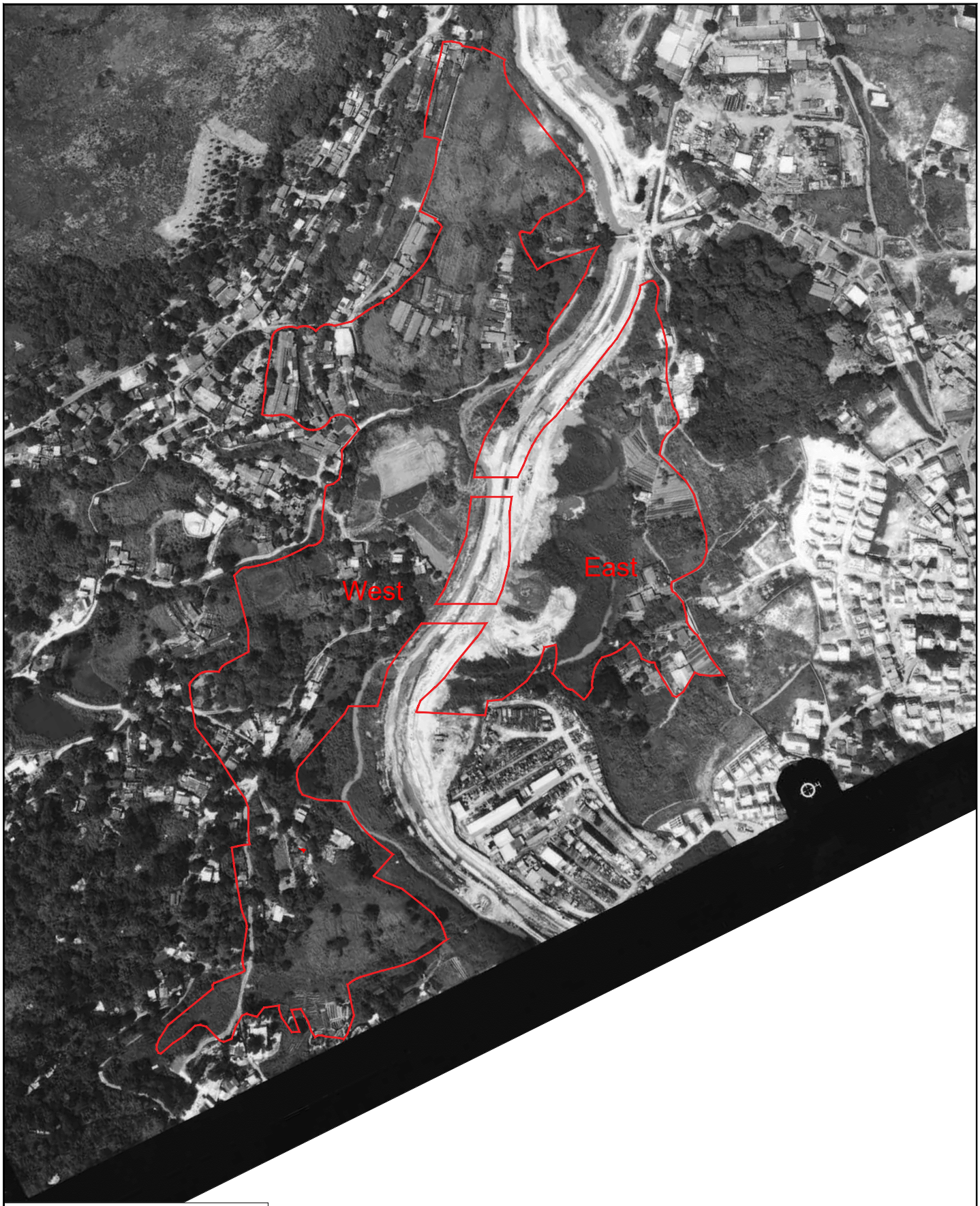


Legends

Site Boundary

Appendix: 4.1	RAMBOLL
Title: Aerial Photo (2000 - Ref No. A51043)	Drawn by: SC
	Checked by: TC
Project: Proposed International School in Kwu Tung South	Rev.: 1.0
	Date: Aug 2025

Q:\Projects\HENKTSISEI00\05 Assessments\08 Land Con\Aerial Photo\Aerial Photo.dwg

Appendix: 4.1	RAMBOLL
Title: Aerial Photo (2004 - Ref No. CW58299)	Drawn by: SC
	Checked by: TC
Project: Proposed International School in Kwu Tung South	Rev.: 1.0
	Date: Aug 2025

Q:\Projects\HENKTSISEI00\05 Assessments\08 Land Con\Aerial Photo\Aerial Photo.dwg

Appendix: 4.1

Title: Aerial Photo (2011 - Ref No. CS32953)

Project: Proposed International School in Kwu Tung South

RAMBOLL

Drawn by:	SC
Checked by:	TC
Rev.:	1.0
Date:	Aug 2025

Q:\Projects\HENKTSISEI00\05 Assessments\08 Land Con\Aerial Photo\Aerial Photo.dwg

Appendix: 4.1

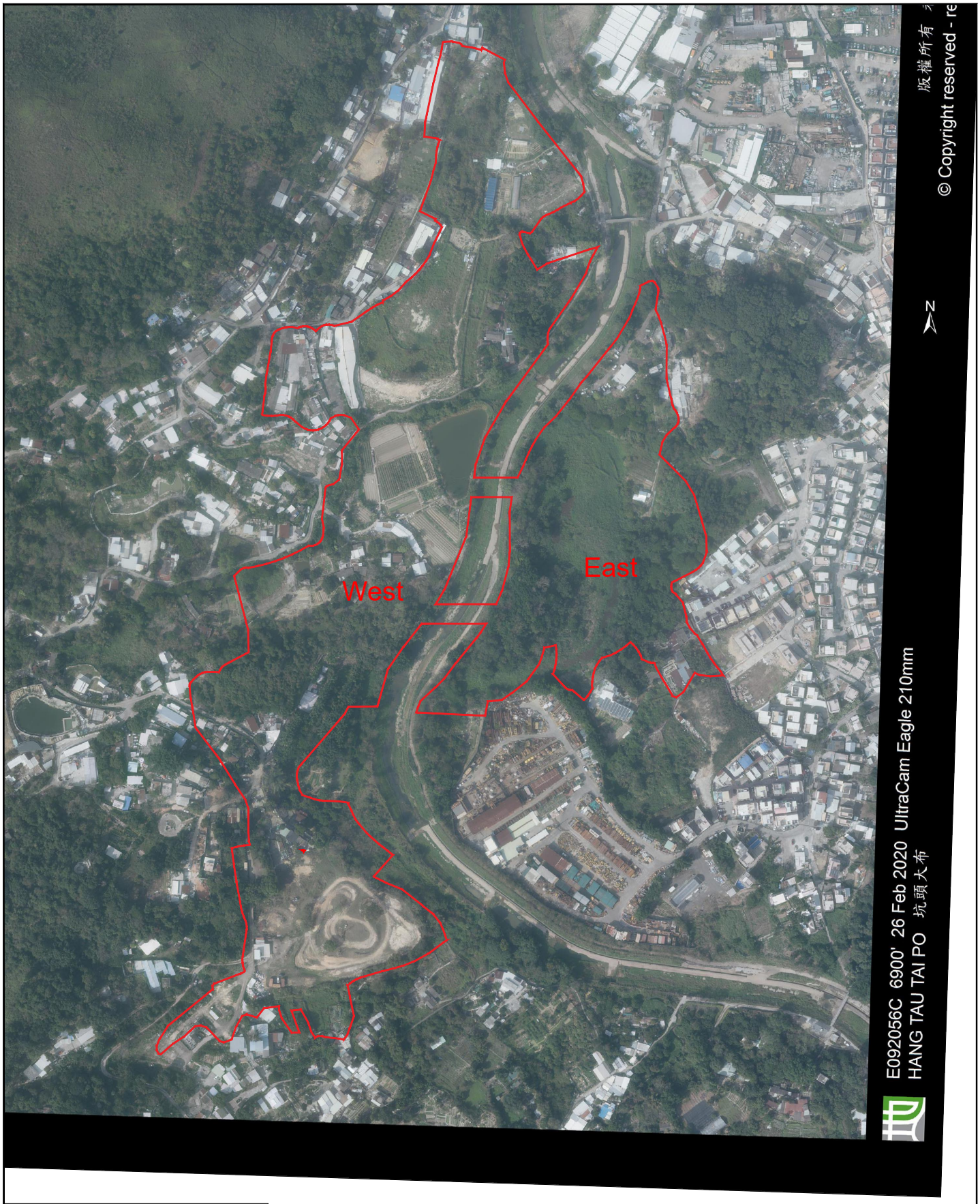
Title: Aerial Photo (2015 - Ref No. CS59207)

Project: Proposed International School in Kwu Tung South

RAMBOLL

Drawn by:	SC
Checked by:	TC
Rev.:	1.0
Date:	Aug 2025

Q:\Projects\HENKTSISEI00\05 Assessments\08 Land Con\Aerial Photo\Aerial Photo.dwg

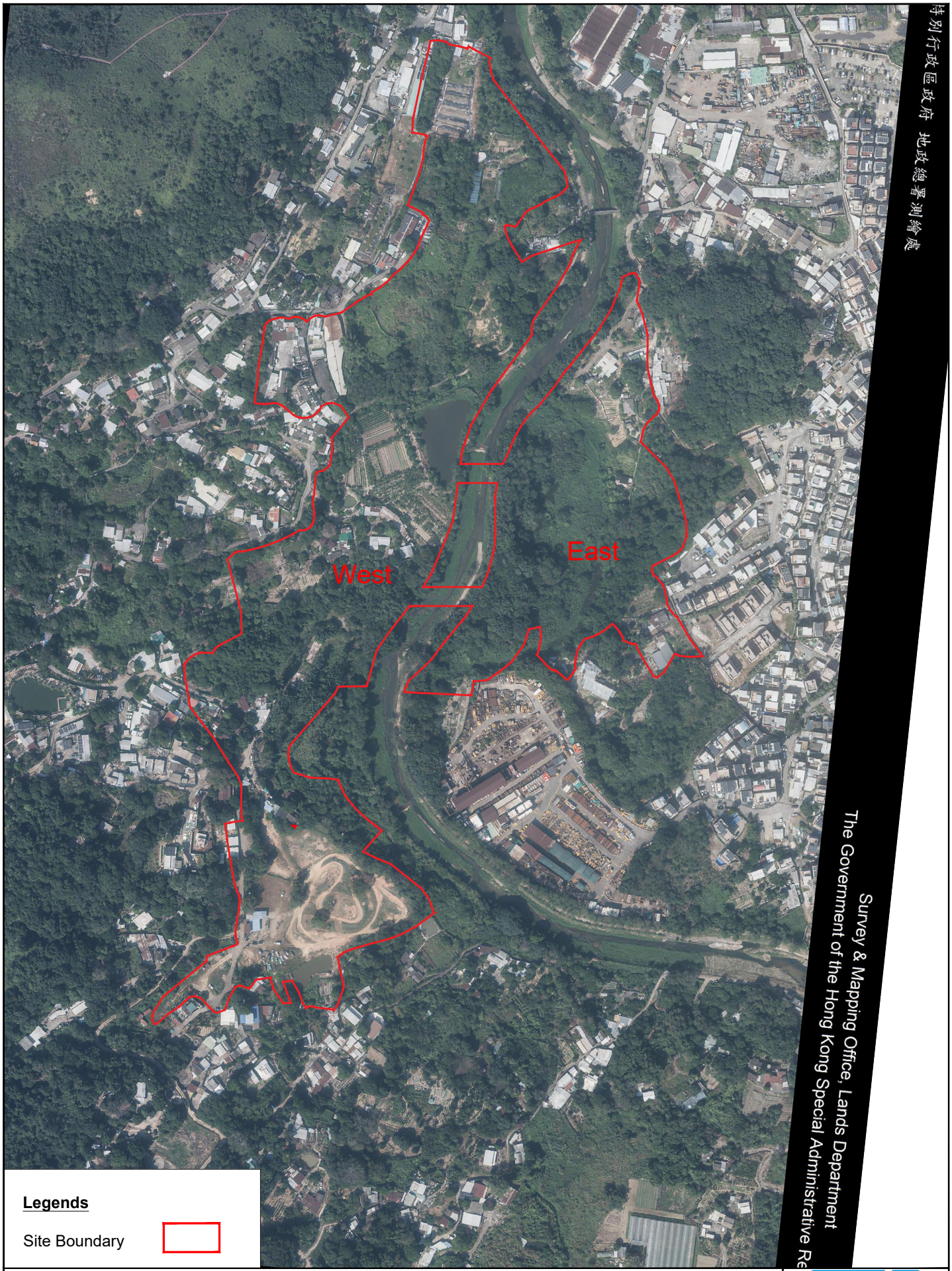


Legends

Site Boundary

Appendix: 4.1	RAMBOLL
Title: Aerial Photo (2020 - Ref No. E092056C)	Drawn by: SC
	Checked by: TC
Project: Proposed International School in Kwu Tung South	Rev.: 1.0
	Date: Aug 2025

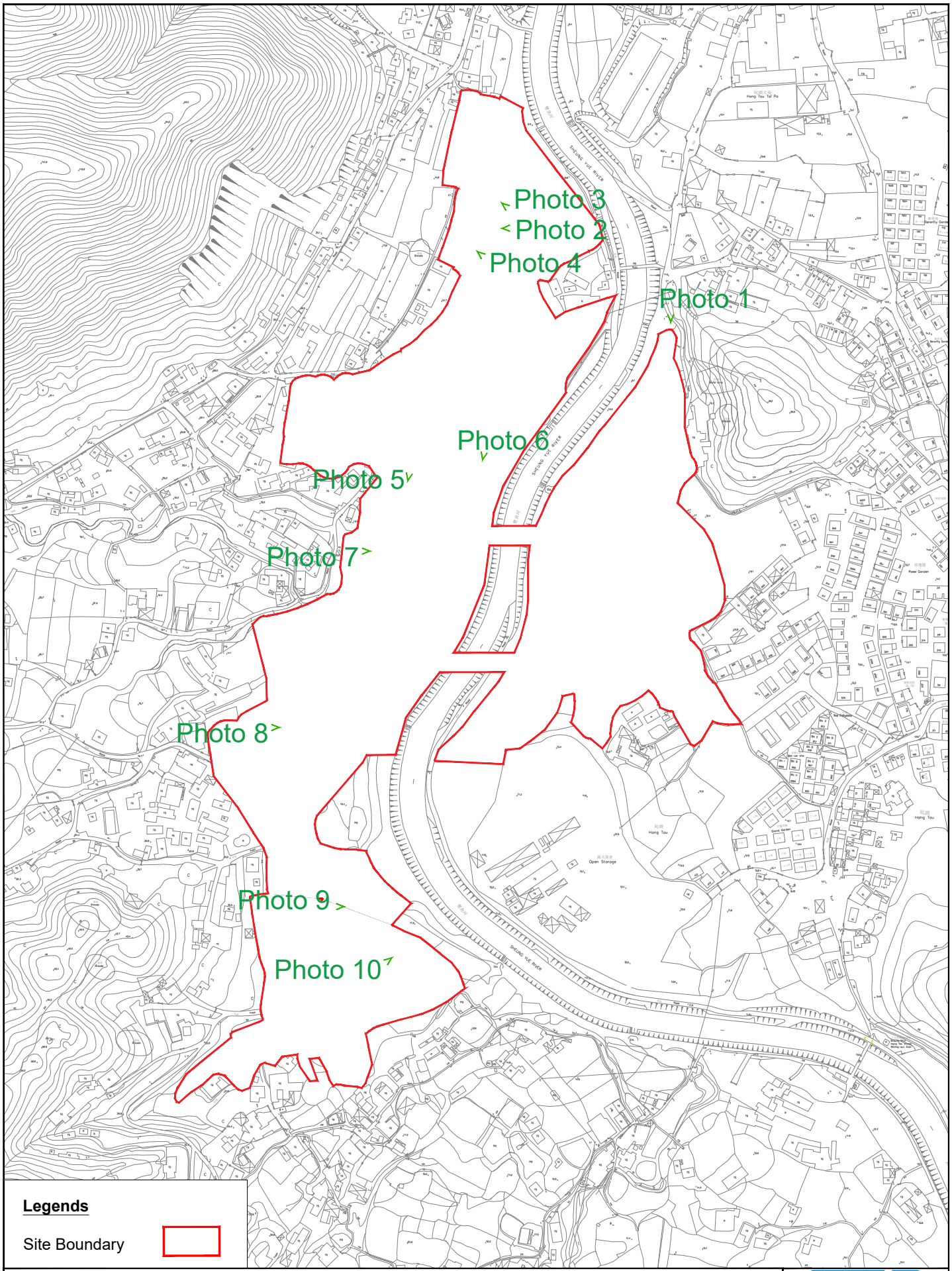
Q:\Projects\HENKTSISEI00\05 Assessments\08 Land Con\Aerial Photo\Aerial Photo.dwg



Appendix: 4.1	RAMBOLL
Title: Aerial Photo (2024 - Ref No. E239765C)	Drawn by: SC
	Checked by: TC
Project: Proposed International School in Kwu Tung South	Rev.: 1.0
	Date: Aug 2025

Q:\Projects\HENKTSISEI00\05 Assessments\08 Land Con\Aerial Photo\Aerial Photo.dwg

Appendix 4.2 Photo Records for Site Visit



Appendix: 4.2	RAMBOLL
Title: Photo Records for Site Visit	Drawn by: SC
	Checked by: TC
Project: Proposed International School in Kwu Tung South	Rev.: 1.1
	Date: Jan 2026

Q:\Projects\HENKTSISEI00\05 Assessments\08 Land Con\Site Visit Photo Record\Photo Location.dwg

Photo 1: The site cannot be accessed.

Photo 2: There are mainly trees. Village houses are observed

Photo 3: Village house is observed.

Photo 4: Village house is observed.

Photo 5: Farm land is observed.

Photo 6: The pond is observed

Photo 7: Farm land is observed

Photo 8: Many trees are observed

Photo 9: Many trees are observed.

Photo 10: Many trees are observed.

Appendix 4.3 Site walkover checklist

Annex C1

Reference from Annex C1 Site Walkover Checklist of Practice Guide for Investigation and Remediation of Contaminated Land (EPD, August 2011, Revised in April 2023)

Site Walkover Checklist

GENERAL SITE DETAILS

SITE OWNER/CLIENT	Global King Investment Limited, Winpost (HK) Investment Limited and Rand Development Limited
PROPERTY ADDRESS	Various Lots in DD94, DD98 & DD100 and Adjoining Government Land, Kwu Tung South, New Territories

PERSON CONDUCTING THE QUESTIONNAIRE

NAME	Sally Chiu
POSITION	Assistant Environmental Consultant (Ramboll Hong Kong Ltd.)

AUTHORIZED OWNER/CLIENT REPRESENTATIVE (IF APPLICABLE)

NAME	
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:	N/A
	Part-time:	N/A
	Temporary/Seasonal:	N/A
Maximum no. of people on site at any time:		N/A
Typical hours of operation:		N/A
Number of shifts:		N/A
Days per week:		N/A
Weeks per year:		N/A
Scheduled plant shut-down:		N/A

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: About 128,232m^2

What area of the site is covered by buildings (%): 0%

Please list all current and previous owners/occupiers if possible.

Is a site plan available? If yes, please attach. ~~Yes~~/No

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

If yes, identify those parties:

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

North: Rural

South: Rural

East: Residential: Grand Garden; Po Shu Garden

West: Rural

Annex C1 – Site Walkover Checklist

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

Flat terrain with vegetation

State the size and location of the nearest residential communities.

Grand Garden (~50m to the east); Po Shu Garden (~80m to the east)

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.		
1.	What are the main activities/operations at the above address?	Storage
2.	How long have you been occupying the site?	N/A
3.	Were you the first occupant on site? (If yes, what was the usage of the site prior to occupancy?)	N/A
4.	Prior to your occupancy, who occupied the site?	NA
5.	What were the main activities/operations during their occupancy?	NA
6.	Have there been any major changes in operations carried out at the site in the last 10 years?	NA
7.	Have any polluting activities been carried out in the vicinity of the site in the past?	NA
8.	To the best of your knowledge, has the site ever been used as a petrol filling station/car service garage?	NA
9.	Are there any boreholes/wells or natural springs either on the site or in the surrounding area?	NA
10	Do you have any registered hazardous installations as defined under relevant ordinances? (If yes, please provide details.)	NA
11.	Are any chemicals used in your daily operations? (If yes, please provide details.)	NA
	• Where do you store these chemicals?	
12.	Material inventory lists, including quantities and locations available? (If yes, how often are these inventories updated?)	NA
13.	Has the facility produced a separate hazardous substance inventory?	NA
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	NA

	on site (e.g. drums, tanks, carboys, bags, silos, cisterns, vaults and cylinders)?	
16.	Do you have any underground storage tanks? (If yes, please provide details.)	No
	▪ How many underground storage tanks do you have on site?	NA
	▪ What are the tanks constructed of?	NA
	▪ What are the contents of these tanks?	NA
	▪ Are the pipelines above or below ground?	NA
	▪ If the pipelines are below ground, has any leak and integrity testing been performed?	NA
	▪ Have there been any spills associated with these tanks?	NA
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.)	NA
19.	How are the wastes disposed of?	NA
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?	NA
	• What were the substances spilled?	NA
	• What was the quantity of material spilled?	NA
	• Did you notify the relevant departments of the spill?	NA
	• What were the actions taken to clean up the spill?	NA
	• What were the areas affected?	NA
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
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)?	NA	
2.	What are the conditions of the bund walls and floors?	-	
3.	Are any surface water drains located near to drum storage and unloading areas?	N/A	
4.	Are any solid or liquid waste (other than wastewater) generated at the site? (If yes, please provide details.)	No	
5.	Is there a storage site for the wastes?	No	
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.)	No	
9.	Are there any potential off-site sources of contamination?	No	
10.	Does the site have any equipment which might contain polychlorinated biphenyls (PCBs)?	No	
11.	Are there any sumps, effluent pits, interceptors or lagoons on site?	No	
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?	No	

Appendix 4.4 Letters Replies from Government Departments

Ref.: HENKTSISEI00_0_0001L.25.docx

22 August 2025
By Email and Post

Environmental Protection Department
Environmental Compliance Division
Regional Office (North), North

10th floor, Shatin Government Offices,
No .1 Sheung Wo Chue Road, Sha Tin, New Territories

Dear Cecilia Chan,

Request for Land Contamination Information for the Proposed International School in Kwu Tung South

We are the environmental consultant who are commissioned to conduct a land contamination assessment for the Proposed Internation School in Kwu Tung South. Location of the subject site is shown in **Figure 1.1**.

According to the "Practice Guide for Investigation and Remediation of Contaminated Land" published by Environmental Protection Department (EPD) of the HKSAR, information including site history and other available information regarding the site shall be reviewed during the site appraisal to identify potential current and historical, on and off-site activities that could result in contamination of the site.

In view of this, we would like to request for the following information for our assessment.

1. Potentially contaminating activities that have occurred at the site such as storage and handling of chemicals, oils and/or hazardous waste, on-site waste disposal, burn pits, etc;

2. Accidents, fires, explosions, spillages and any pollution incidents attributed to the site and any remediation that has occurred at the site or neighbouring areas; and

3. Any land contamination assessment that has conducted at the site or neighbouring areas.

Your reply by 5 September 2025 is highly appreciated as it would be very helpful to our assessment. Should you have any queries, please do not hesitate to contact the undersigned at [redacted] or our Ms. Sally Chiu at [redacted].

Thank you very much for your attention.

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

Tony Cheng
Senior Manager

Encl.
Figure 1.1 Location of Subject Site

Ramboll Hong Kong Limited 英環香港有限公司
[redacted]
www.ramboll.com

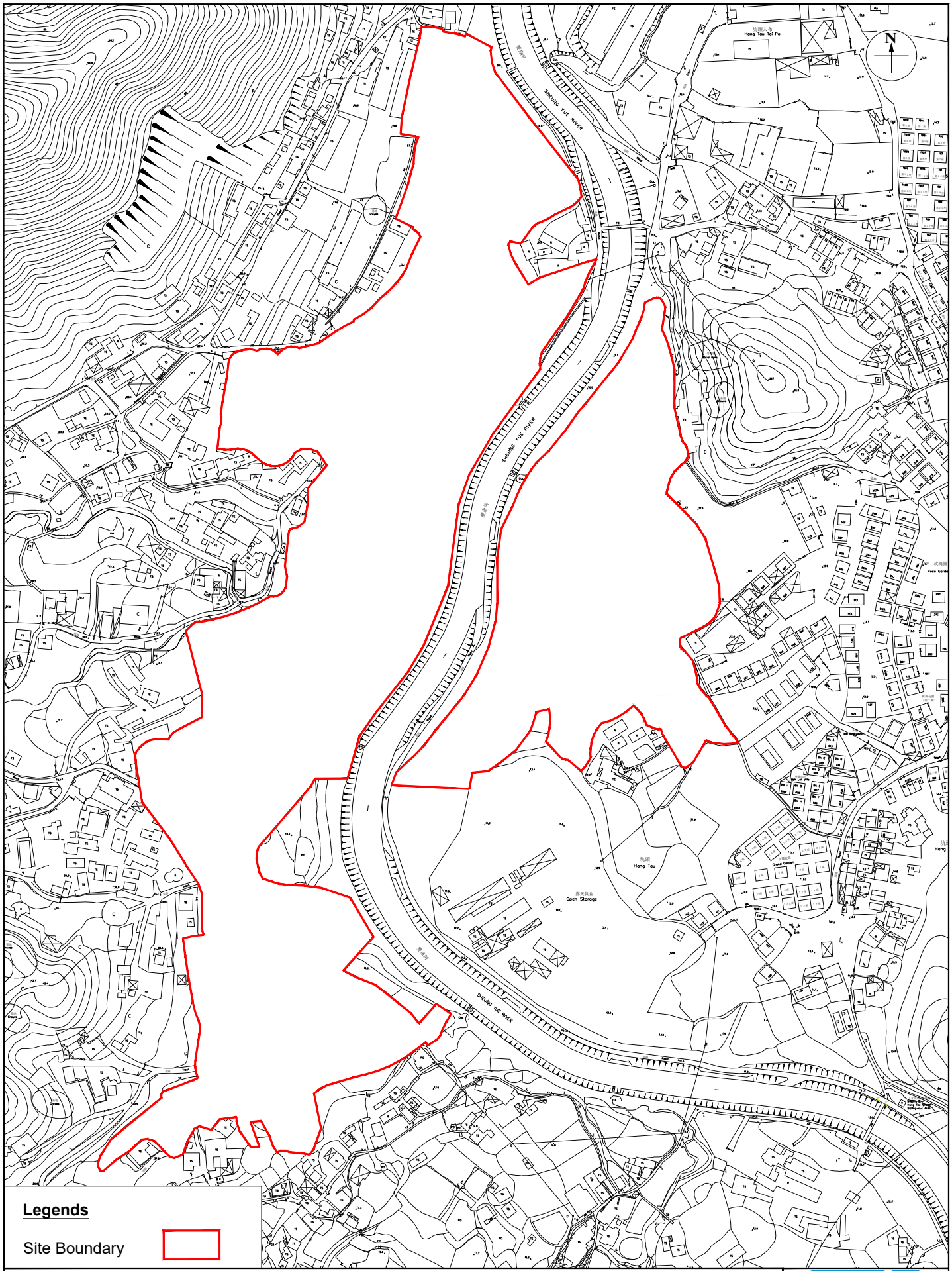


Figure: 1.1

Title: Site Location and its environs

Project: Proposed International School in Kwu Tung

RAMBOLL

Drawn by:	SC
Checked by:	TC
Rev.:	1.0
Date:	Aug 2025

Q:\Projects\HENKTSISEI00\05 Assessments\Site Boundary_250822.dwg

Sally Chiu

From: ceciliaymchan@epd.gov.hk
Sent: Wednesday, 27 August 2025 5:50 pm
To: Sally Chiu
Cc: Tony Cheng; Tony Ling
Subject: Re: Request for Land Contamination Information for the Proposed International School in Kwu Tung South

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Ms. Chiu,

I refer to your email dated 22 Aug 2025 on the captioned.

Please kindly note that his Regional Office has no record of the 3 items mentioned in your email. You may also wish to seek input from other sections of this departmenr and/or relevant departments.
Thank you.

Regards,
Cecilia CHAN
Regional Office (North) / EPD

From: "Sally Chiu" [redacted]
To: "ceciliaymchan@epd.gov.hk" <cecilia_mchan@epd.gov.hk>
Cc: "Tony Cheng" [redacted], "Tony Ling" [redacted]
Date: 22/08/2025 16:35
Subject: Request for Land Contamination Information for the Proposed International School in Kwu Tung South

Dear Cecilia,

We are the environmental consultant who are commissioned to conduct a land contamination assessment for the Proposed Internation School in Kwu Tung South. Location of the subject site is shown in **Figure 1.1**.

According to the "Practice Guide for Investigation and Remediation of Contaminated Land" published by Environmental Protection Department (EPD) of the HKSAR, information including site history and other available information regarding the site shall be reviewed during the site appraisal to identify potential current and historical, on and off-site activities that could result in contamination of the site.

In view of this, we would like to request for the following information for our assessment.

1. Potentially contaminating activities that have occurred at the site such as storage and handling of chemicals, oils and/or hazardous waste, on-site waste disposal, burn pits, etc;

2. Accidents, fires, explosions, spillages and any pollution incidents attributed to the site and any remediation that has occurred at the site or neighbouring areas; and

3. Any land contamination assessment that has conducted at the site or neighbouring areas.

Your reply by 5 September 2025 is highly appreciated as it would be very helpful to our assessment. Should you have any queries, please do not hesitate to contact the undersigned at [redacted] or our Mr. Tony Cheng at [redacted].

Thank you very much for your attention.

Kind regards

Sally Chiu

Assistant Environmental Consultant

[redacted]

[redacted]

Sally Chiu

From: ado_lea_cs@hkfsd.gov.hk
Sent: Tuesday, 30 December 2025 8:35 am
To: Sally Chiu
Cc: OE8 CS/FSD
Subject: Re: Fw: Request for Land Contamination Information for the Proposed International School in Kwu Tung South
Attachments: (14)_Pt 60_ MC-incident_appendix A.pdf

Our reference: (14) in FSD GR 6-5/4 R Pt. 60
Your reference: HENKTSISEI00_0_0002L.25.docx

Dear Ms. CHIU,

Request for Land Contamination Information for the Proposed International School in Kwu Tung South
Request for Information – Dangerous Goods Record and Records of accidents of spillage/leakage

I refer to your emails of 25.8.2025 and 29.12.2025 regarding the captioned request and reply below in response to your questions:-

1. No Dangerous Goods Licence was issued in respect of the captioned address.

2. A total of 3 incident records were found at the subject location. Please refer to Appendix A for details.

(File-Checksum-00000001)

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

Best regards,

LEE Yeung, Darwin
Assistant Divisional Officer (Legal Affairs) (Acting)
Corporate Services Division
Fire Services Department
Tel.: 2733 7896

Remark:
Lift incidents are excluded unless otherwise required.

Appendix A

Request for Land Contamination Information for the Proposed International School in Kwu Tung South

Request for Information of Dangerous Goods & Incident Records

No.	Date	Type of Incident	Address
1	14/6/2024	Landslide	Slope, Near Lamppost VD1325, Ki Lun Tsuen
2	13/3/2023	Vegetation Fire	Fenced Openground, Near Lamppost VD4493, Kwu Tung Ki Lun Tsuen
3	15/10/2022	Vegetation Fire	Openground, Near Lamppost VD4511, Ki Lun Tsuen