TABLES

FIGURES

APPENDICES

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

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

2.3 Baseline Condition

2.3.1 The recorded air pollutants concentrations between 2018 and 2022 at EPD's Yuen Long Air Quality Monitoring Station were referenced to provide an indication on past ambient air pollutants level at the Proposed Development. For the purpose of evaluating the operational phase ambient air quality levels, background contributions based on EPD's PATH v2.1 concentration output file are also extracted and presented. The proposed development under current Application falls within Grids (28, 49); and (28, 50) of the PATH system, thus concentration output data in year 2025, which is available in PATH model, is presented. The extracted information is provided in **Appendix 2.1**.

2.3.2 The recorded past ambient air pollutants levels complied with the AQO limit except for 8-hour O_3 level in 2018 to 2019 and 2021 to 2022, and the annual NO_2 level from 2018 to 2019. NO_2 is mainly formed from the oxidation of nitric oxide (NO) emitted from fuel combustion. Road traffic emissions may be one of the sources for NO_2 level in Yuen Long. However, the predicted PATH future ambient air quality level including NO_2 would be lower than the AQO limit, except for 8-hour ozone. The operation of the current proposed residential development under this Application will not be an emission source.

2.4 Air Quality Impact Assessment

2.4.1 Since the proposed development is for residential use, there will be no particular air pollution sources anticipated during operation of the proposed development. Standard refuse collection point(s) will be provided and located away from residential dwellings , any existing and planned air sensitive uses of the proposed development as far as possible to minimize any potential odour nuisance. Collection of refuse will be done by licensed contractor on regular basis. Since the proposed residential development is still in early planning stage, the exhaust location of the carpark has not yet been determined. The proposed carpark will be designed and operated to meet the requirements in EPD's ProPECC PN 2/96 on Control of Air Pollution in Car Parks. The exhaust (if any) of the proposed car park shall be located away from any nearby ASRs including the air-sensitive uses of the proposed development as far as possible. The potential air quality impacts affecting the proposed development are identified and discussed below.

Vehicular Emissions

2.4.2 Vehicular emissions from the adjacent roads could be a potential source of air pollution affecting the proposed development.

2.4.3 The road network in the vicinity of the Subject Site includes only Local Distributor (LD) (e.g. Kam Pok Road East), and rural road (e.g. Kam Pok Road and Castle Peak Road –

Tam Mei) and an Expressway (e.g. San Tin Highway). Confirmation from TD concerning the road types are provided in **Appendix 2.2** for reference.

2.4.4 According to **Table 2.1**, a buffer distance of >20m is required between the kerb side of an expressway/primary distributor/trunk road and the air sensitive uses. For District Distributor (DD) and LD, the required buffer distances are >10m and >5m, respectively.

2.4.5 Based on Transport Department (TD)'s confirmation, San Tin Highway is an Expressway. As the proposed development is located more than 20m from San Tin Highway (an Expressway), there shouldn't be any air quality concern. Castle Peak Road – Tam Mi and Kam Pok Road are both classified as a rural road based on TD's view. According to Chapter 3, Volume 2 of Transport Planning and Design Manual (TPDM) issued by Transport Department (TD), District Distributors (DDs) are Roads Linking Districts to the Primary Distributor Roads. In light of this, the nature of Castle Peak Road – Tam Mei is more or less similar to a DD road as it is connecting to San Tin Highway, which is an Expressway. As for Kam Pok Road, according to the TPDM, Local Distributors (LDs) are Roads within Districts linking developments to the District Distributor Roads. Since Kam Pok Road is connecting various developments to Castle Peak Road – Tam Mei (RR/DD road type) via Kam Pok Road East (LD road type), and that Kam Pok Road has similar road hierarchy unction with Kam Pok Road East (LD road type), its nature is more or less similar to the LD road from traffic engineering point of view. As the proposed development is located more than 10m away from Castle Peak Road – Tam Mi (DD) and more than 5m away from Kam Pok Road (LD), these buffer distances have already complied with the requirement set out in the HKPSG. The Subject Site is adjacent to existing Kam Pok Road East as well as an access road connecting to the vehicular entry of the proposed development to west. A setback of more than 5m from edge of Kam Pok Road East (the nearest local distributor) and from the road edge of the access road, has been incorporated into the design to avoid adverse air quality impact due to vehicular emissions (**Figure 2.1** refers). Please also refer to **Appendix 2.2** for the road classification confirmed with Transport Department. It is understood that the concerned access road will be a private road thus there is no particular road classification. However, the access road is for access to the Subject Site. According to Chapter 3, Volume 2 of Transport Planning and Design Manual (TPDM) issued by Transport Department (TD), Rural Roads are defined as roads connecting the smaller centres of population or popular recreation areas with major road networks. As advised by Project Traffic Consultant, since the concerned access road will be connecting to Kam Pok Road East, which has been classified as a LD road by TD, and the proposed development (with small centres of population), and the access road connecting to the vehicular entry of the proposed development has similar road function with Kam Pok Road East, it is considered as LD road from traffic engineering point of view. 5m buffer distance is required between the kerb side of Kam Pok Road and the proposed development, as well as between the kerb side of the concerned access road and the proposed development. The access road located to the west of the Subject Site is a no-through road with dead end near the vehicular entry of the proposed development. Since adequate setback distance has been allowed from this access road as discussed above, there will be no adverse vehicular emission impact as a result.

2.4.6 In view of the above, the vehicular emissions impact from the respective roads is considered insignificant. The Subject Site has incorporated adequate setback distance and can satisfy the above-mentioned buffer distance requirement set out in HKPSG, no adverse air quality impact on the proposed development is therefore anticipated.

Other Odour Sources

2.4.7 Based on the desktop review and site surveys conducted in July 2022 and September 2023, no particular air and odour emission sources were identified within 200m radius from the proposed development. The site survey route is indicated in **Figure 2.4**. During the site visit, no particular odour source was detected, and no odour source from the nearby nullahs, including Ngau Tam Mei Drainage Channel and its subsidiary nullahs, and nearby ponds was identified. Ngau Tam Mei Drainage Channel and the nearest nullah are ~140 m and ~4 m respectively from the Subject Site. There are existing ponds within adjacent to the Subject Site. It is noted that a separate EIA study including air and odour impact assessment will also be carried out for the proposed development later on. Since the proposed development constitutes a designated project under the EIAO, a site survey on the area within 500 m from the proposed project site boundary will also be conducted during the EIA stage, as well as a detailed AQIA.

2.4.8 A sewage pumping station (SPS) is proposed at the southeast of the Subject Site as shown in **Figure 2.2**. It may give rise to odour impact. Details of the design of the SPS are not available at this stage, which will be subject to the detailed design stage. The proposed SPS will be underground in the basement and within an enclosed building structure. Thus, no adverse odour impact is anticipated from the SPS. The exhaust point will be equipped with a deodorizer to ensure the exhaust will be deodorized before entering the atmosphere. The exhaust point of the SPS should be designed to direct away from nearby sensitive users. The current design has allowed a separation distance of not less than 15m between the exhaust point of SPS and the nearby sensitive users, as shown in **Figure 2.2**. Reference has been made to previous approved project, "Outlying Island Sewerage Stage 2 – Upgrading of Cheung Chau Sewage Collection, Treatment and Disposal Facilities (Application No. EIA-219/2013)" [1]. According to that project, the odour impact assessment conducted for the Pak She SPS (with a capacity of 42,336 m^3/day) has revealed that sensitive receivers with a separation distance varying from 1m up to 68m could meet the relevant criteria for odour level after the implementation of odour removal filtering system (with efficiency of 99%). Furthermore, according to the Project Profile for "Public Housing Development at Lin Cheung Road Site – Temporary Sewage Pumping Station and Associated Sewer Pipes" (Application No. DIR-239/2014), an odour survey was conducted at existing Cheung Sha Wan Sewage Pumping Station (with design capacity of 456,863 m^3/day), which was reported to be equipped with odour removal filtering system with a removal efficiency of 95%. The survey found that no odour could be detected at a location ~10m away from the exhaust vent of that SPS. The exhaust height for the Pak She SPS, according to the above-mentioned EIA report, is at ground floor (~1.5m above ground level), while the above-mentioned Project Profile for Cheung Sha Wan SPS has indicated its exhaust located on G/F as well. Given the similar nature of the current proposed SPS and the relatively small capacity of the proposed SPS (less than 1,000 m^3/day), the separation distance of about 15m from the exhaust point of the proposed SPS to nearby ASRs is considered adequate. The exhaust of current proposed SPS is also expected to be located on ground floor. With the environmental conscious design, adequate separation distance, and recommended odour removal filtering system at the exhaust (with an odour removal efficiency not less than 95%) (removal efficiency of above-mentioned SPS EIA refers), no adverse odour impact from the SPS to the proposed development and other nearby air sensitive receivers is expected. The design of the SPS shall follow the guidelines stipulated in

[1] Outlying Island Sewerage Stage 2 - Upgrading of Cheung Chau Sewage Collection, Treatment and Disposal Facilities (EIA-219/2013)", Sections 3.4, 3.9.4 to 3.9.6, Figure 3.4.

Environmental Guidance Note for Sewage Pumping Stations which is not a Designated Project published by EPD.

Industrial Emissions

2.4.9 A review of chimney locations based on EPD's register was carried out. No chimneys were identified within the assessment area. Additional chimney surveys were also conducted in July 2019, August 2019, September 2019, March 2020, June 2020, July 2022 and September 2023 to verify the findings. As no chimneys were identified within the assessment area, no adverse air quality impact on the proposed development related to chimney emissions is anticipated. It is noted that a separate EIA study including air and odour impact assessment will also be carried out for the proposed development later on. A site survey on the area within 500 m from the proposed project site boundary will also be conducted during the EIA stage, as well as a detailed AQIA.

2.5 Construction Dust Impact

2.5.1 During construction phase of proposed development, there may be potential construction dust impact. The nearest sensitive receivers will be surrounding village houses/ residential developments such as existing village houses to the east, Merry Garden, Man Yuen Chuen, Royal Camellia, Greenery Garden, Meister House (**Figure 2.3** refers). The separation distances between site boundary to the nearest air sensitive receivers (ASRs) at above-mentioned locations varied from 8m to over 116m.

2.5.2 The major air quality impact of concern during the construction phase will be the potential fugitive dust emission during site formation stage of proposed development such as excavation and filling works to the proposed formation level as well as construction of proposed wetland area. The major dust emission sources during the construction phase of the proposed development are expected to arise from construction activities such as:

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

2.5.3 The current concerned development site is still at its very early planning stage, many construction details are not yet available. It is expected that phased construction should be considered during the earth works in site formation stage with a view to minimize the active works area, although details of construction and its phasing will only available in later detailed design stage. Thus, construction works should be under control and significant construction dust impact is not anticipated. It is noted the proposed development will be subject to a separate Environmental Impact Assessment (EIA) study including a construction phase impact assessment under the EIA Ordinance later on. Concurrent projects, if any, will also be identified and assessed accordingly. Subject to the said assessment results, relevant mitigation measures will be proposed for implementation to alleviate construction dust impact. The need for the implementation of a construction dust monitoring and audit program is subject to the findings of the EIA study to be conducted in future. Subject to recommendations in the EIA study, this project will follow statutory requirement and an EM&A program during the construction stage will be considered in later detailed design stage to ensure that the nearby ASRs will not be subject to adverse constructional air quality impact. As such, no adverse construction phase impact on the local area due to the proposed development is anticipated.

Other Pollutants Sources

2.5.4 The Air Pollution Control (Fuel Restriction) Regulation controls the fuel to be used by the construction plants such as liquid fuel with a sulphur content not exceeding 0.005% by weight and a viscosity not more than 6 centistokes at 40°C, such as Ultra Low Sulphur Diesel should be used. In addition, emissions from all the regulated machines within construction site will be controlled under the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation. Only approved or exempted Non-road Mobile Machinery with a proper label will be allowed to be used at construction site. As such, emissions due to construction equipment will be under control and are unlikely to be significant.

Mitigation Measures for Fugitive Dust Emission

2.5.5 Fugitive dust emission arising from construction activities can be effectively suppressed by incorporating proper mitigation measures into work procedures through contractual clauses, good site management, and close monitoring by the resident engineers. The contractor shall be required to follow the requirements of the Air Pollution Control (Construction Dust) Regulations. The recommended dust mitigation measures are described below.

General Site Management

2.5.6 Appropriate working methods should be devised and arranged to minimise dust emissions and to ensure any installed control system and/or measures are operated and/or implemented in accordance with their design merits. No free falling of construction debris should be allowed, which should be let down by hoist or enclosed tunnel to the ground; immediately before leaving the construction site, all vehicles shall be washed to remove any dust materials from its body and wheels; provide site hoarding along site boundary which is next to a road or other public area; higher site hoardings shall be provided for works areas in close proximity to the nearby ASRs (e.g. residential dwelling near Man Yuen Chuen); relocate / arrange dusty construction activities away from the areas close to the ASRs as far as possible; provide effective dust screens, sheeting, or netting to enclose any scaffolding built around the perimeter of a building; prevent placing dusty material storage piles near ASRs; minimizing exposed surface and properly cover stockpile as far as possible and apply frequent watering when working close to the ASRs to supress dust emission; and to explore the flexibility of providing electric power supply for on-site machinery as far as practicable to minimized aerial emissions.

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

Vehicles and Unpaved Site Roads

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

Material Stockpiling and Handling

2.5.9 The amount of stockpiling should be minimised where possible. Construction material or debris should be covered and stored inside enclosed areas. Other control measures

such as enclosed or semi-enclosed windboard should be used, where applicable, to minimise dust emission. Regular watering is needed at areas such as storage piles, where there could be potential dust emission.

Concrete Batching Plant

2.5.10 It should be noted that no concrete batching plant is anticipated to be required for the construction of the proposed development at this stage. Should a concrete batching plant be required, in advance of the operation of the plant, a separate assessment shall be conducted and a specified process licence shall be obtained from the authority, which will give guidelines on dust mitigation measures required as terms and conditions, and its implementation will be controlled through the specified process licence.

2.5.11 With the adaptation of good practices as mentioned above, it is expected that emission of fugitive construction dust can be minimized and kept at an acceptable level, and adverse air quality impact is unlikely to occur. The proposed development will be the subject of a separate EIA study under the EIA Ordinance, relevant monitoring and audit requirement will be reviewed accordingly. Subject to recommendations of the EIA study, this project will follow statutory requirement and an EM&A programme will be considered in later detailed design stage.

2.6 Conclusion

2.6.1 Adequate peripheral setback from the site boundary should be incorporated into the layout of the proposed development to alleviate the potential vehicular emissions impacts. The proposed development should meet the buffer distance requirements set out in the HKPSG for the proposed uses within the Subject Site. No unacceptable air quality impacts due to vehicular emission are then expected. The proposed SPS will be designed to incorporate mitigation measures such as deodorizers, with a 15m buffer distance between the exhaust point of the SPS and the ASRs. In addition, as no industrial chimney emission sources were identified within 200m from the Subject Site boundary, no unacceptable air quality impacts due to industrial emissions are anticipated. Best practices have been proposed to mitigate construction phase fugitive dust emission. Since the proposed development constitutes a DP, an AQIA is required separately to demonstrate the compliance of the criteria stipulated in the EIAO-TM.

NSR	Predicted Road Traffic Noise Level, $L_{10\ (1\text{-hour})}$, dB(A) [1] (Unmitigated)
E24	50 - 59
E25	50 - 59
E26	50 - 59
E27	51 - 58
E28	53 - 59
E29	53 - 61
E30	53 - 62
E31	54 - 62
E32	54 - 62
E33	54 - 62
E34	57 - 63
E35	52 - 61
E36	53 - 61
E37	53 - 61
E38	56 - 61
E39	58 - 64
E40	58 - 66
E41	58 - 66
E42	54 - 65
E43	53 - 64
E44	53 - 65
E45	53 - 64
E46	53 - 65
E47	53 - 66
E48	53 - 67
E49	53 - 68
E50	53 - 68

Notes:
[1] Bolded and underlined values exceed the noise criteria of 70dB(A).

3.5.5 While there are noise exceedances identified at a few NSRs, provision of the following boundary wall/mitigation measures are already incorporated into the design due to other fixed noise sources. As such, these proposed noise mitigation measures are also incorporated and presented in below mitigated scenario for road traffic noise assessment in order to alleviate noise levels to comply with the noise criteria:

- A noise barrier of 10.1m high (i.e. 15.2mPD) along a portion of the southwestern boundary of the Subject Site;
- A noise barrier of 9.4m high (i.e. 14.5mPD) along a portion of the southwestern boundary of the Subject Site;
- A noise barrier of 6.9m high (i.e. 12.0mPD) along the southwestern corner of the Subject Site;
- A noise barrier of 5.5m high (i.e. 10.6mPD) along the eastern boundary of the Subject Site;
- A noise barrier of 5.1m high (i.e. 10.2mPD) along a portion of the western boundary of the Subject Site;
- A noise barrier of 4.8m high (i.e. 9.9mPD) along a portion of the southwestern and southern boundary of the Subject Site; and
- Single aspect design has been incorporated, in terms of fixed windows, blank facades, and placing non-noise-sensitive uses along the facades, for the

southern façades (directly facing Kam Pok Road East) of residential blocks at the southwest of the Subject Site, i.e. all the Unit Type C residential blocks.

3.5.6 The boundary wall/mitigation measures shield the line of sight from the NSRs to the noise sources. The location and extent of the proposed mitigation measures are indicated in **Figure 3.5**, which are adequate to mitigate road traffic noise. The layout plan showing the single aspect design of the Unit Type C residential blocks is present in **Appendix 1.1**.

3.5.7 Under the mitigated scenario, those NSRs with identified noise exceedances and those units with single aspect design incorporated, have been assessed to check noise compliance. As seen in the results table, there is no exceedance of the noise criteria at these NSRs. The summary of the road traffic noise impact assessment results is presented in **Table 3.3**, and the details are presented in **Appendix 3.3**.

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

NSR	Predicted Road Traffic Noise Level, $L_{10\ (1\text{-hour})}$, dB(A) (Mitigated)
B05	53 - 67
B06	53 - 68
B07	54 - 70
C01	55 - 61
C02	50 - 59
C03	50 - 59
C04	50 - 59
C05	50 - 59
C06	50 - 59
C07	50 - 59
C08	50 - 60
C09	50 - 60
C10	52 - 61
C11	53 - 62
C12	57 - 63
Remark: Only those NSRs with identified noise exceedances and those units with single aspect design incorporated, have been assessed.	

3.6 Conclusion

3.6.1 Noise impacts due to road traffic within 300m radius from the Subject Site have been assessed following the CRTN. With the implementation of the proposed noise mitigation measures in terms of noise barriers and single aspect design, the predicted road traffic noise levels at NSRs within the Subject Site would comply with the relevant noise criteria. With the provision of the recommended mitigation measures, as outlined in Section 3.5.5 above, no adverse or unacceptable traffic noise impact on the proposed development is anticipated.

C_{PD} is the path difference for mitigated scenario only.

4.6 Prediction and Evaluation of Noise Impacts

Industrial Noise Assessment Results

4.6.1 Based on the assumptions mentioned above and information of noise sources in **Section 4.3**, noise level estimation for the selected APs at the Subject Site has been conducted. Noise mitigation measures and higher barriers are also proposed to alleviate potential industrial noise, which have already been incorporated in the design of the layout, and considered in the noise assessment:

- Single aspect design for the southern façades (directly facing potential industrial noise sources S4 and S5) of residential blocks at the southwest of the Subject Site, such that there would be direct line of sight from sensitive uses of those residential blocks to the potential noise sources;
- Setback of residential blocks from the site boundary, behind the non-noise-sensitive clubhouse, at the southeast of the Subject Site near the site entrance;
- A noise barrier of 10.1m high (i.e. 15.2mPD) along a portion of the southwestern boundary of the Subject Site;
- A noise barrier of 9.4m high (i.e. 14.5mPD) along a portion of the southwestern boundary of the Subject Site;
- A noise barrier of 6.9m high (i.e. 12.0mPD) along the southwestern corner of the Subject Site;
- A noise barrier of 5.5m high (i.e. 10.6mPD) along the eastern boundary of the Subject Site;
- A noise barrier of 5.1m high (i.e. 10.2mPD) along a portion of the western boundary of the Subject Site;
- A noise barrier of 4.8m high (i.e. 9.9mPD) along a portion of the southwestern and southern boundary of the Subject Site; and
- Single aspect design has been incorporated, in terms of fixed windows, blank facades, and placing non-noise-sensitive uses along the facades, for the southern façades (directly facing Kam Pok Road East) of residential blocks at the southwest of the Subject Site, i.e. all the Unit Type C residential blocks.

4.6.2 The locations and extents of the noise barriers and acoustic fin are indicated in **Figure 4.6**. With the proposed mitigation measures incorporated in the layout, the calculated industrial noise levels at all APs comply with the noise criteria. With provision of the recommended mitigation measures above, no adverse or unacceptable industrial noise impact on the proposed development is anticipated.

4.6.3 The predicted industrial noise levels at the APs are summarised in **Table 4.3**. The details are presented in **Appendix 4.2**. Cross sections showing the lines of sight from some APs to NS with the presence of the proposed noise barrier are presented in **Appendix 4.3**.

Table 4.3 Predicted Noise Levels at APs for Industrial Noise Impact Assessment

NSR	No. of Storeys	AP	Floor	Assessment Level (Ground level +1.2m)	Criteria, dB(A) [1]	Predicted Noise Level, dB(A)
A01	4	A01-01	G	6.3	50	48
		A01-11	1	10.8	50	47
		A01-21	2	15.3	50	46
		A01-22	2	15.3	50	41
		A01-31	3	19.8	50	47
		A01-32	3	19.8	50	40
		A01-33	3	19.8	50	40
A02	4	A02-11	1	10.8	50	47
		A02-21	2	15.3	50	41
		A02-22	2	15.3	50	41
		A02-32	3	19.8	50	40
		A02-33	3	19.8	50	40
A06	4	A06-21	2	15.3	50	48
		A06-22	2	15.3	50	44
		A06-32	3	19.8	50	43
		A06-33	3	19.8	50	43
B06	2	B06-15	1	10.8	50	48
		B06-16	1	10.8	50	48
B07	2	B07-02	G	6.3	50	38
		B07-03	G	6.3	50	41
		B07-13	1	10.8	50	43
		B07-14	1	10.8	50	44
		B07-15	1	10.8	50	47
		B07-16	1	10.8	50	47
C01	3	C01-11	1	9.8	50	48
		C01-13	1	9.8	50	[2]
		C01-14	1	9.8	50	[2]
		C01-21	2	14.3	50	50
C13	3	C13-11	1	9.8	50	48
		C13-12	1	9.8	50	39
		C13-13	1	9.8	50	39
		C13-14	1	9.8	50	40
		C13-21	2	14.3	50	48
		C13-22	2	14.3	50	38
		C13-23	2	14.3	50	42
		C13-24	2	14.3	50	43
E01	2	E01-02	G	6.3	50	38
		E01-03	G	6.3	50	38
		E01-12	1	10.8	50	45
		E01-13	1	10.8	50	45
		E01-14	1	10.8	50	41
E09	2	E09-04	G	6.3	50	47
		E09-14	1	10.8	50	47
		E09-15	1	10.8	50	47
E13	2	E13-02	G	6.3	50	40
		E13-12	1	10.8	50	49

NSR	No. of Storeys	AP	Floor	Assessment Level (Ground level +1.2m)	Criteria, dB(A) [1]	Predicted Noise Level, dB(A)
		E13-13	1	10.8	50	49
E19	2	E19-02	G	6.3	50	41
		E19-12	1	10.8	50	45
		E19-13	1	10.8	50	50
E22	2	E22-04	G	6.3	50	41
		E22-11	1	10.8	50	45
		E22-14	1	10.8	50	45
		E22-15	1	10.8	50	45
E41	2	E41-02	G	6.3	50	48
		E41-13	1	10.8	50	48
		E41-14	1	10.8	50	48
E42	2	E42-04	G	6.3	50	47
		E42-14	1	10.8	50	50
		E42-15	1	10.8	50	50
E43	2	E43-14	1	10.8	50	50
		E43-15	1	10.8	50	49
E44	2	E44-03	G	6.3	50	48

Remarks:

[1] To be conservative, night-time noise criteria has been referenced.

[2] Single aspect design has been adopted as a mitigation measure.

4.7 Conclusion

4.7.1 Noise impacts generated from the existing industrial noise sources within 300m radius of the Subject Site have been examined. With the implementation of the proposed noise mitigation measures in terms of noise barriers and single aspect design, no adverse industrial noise impact on the proposed development is anticipated.

5. WATER QUALITY IMPACT

5.1 Introduction

5.1.1 This assessment is to identify the potential water quality impact during the construction and operational phases of the proposed development at the Subject Site. The extent of water quality impact assessment was based on an area within 500m radius from the boundary of the Subject Site.

5.2 Assessment Criteria

Water Pollution Control Ordinance

5.2.1 The Water Pollution Control Ordinance (WPCO) provides the major statutory framework to protect and to control the 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 Project area is located within Deep Bay WCZ. Key WQOs for Inland Waters in Deep Bay WCZ is presented in Table 5.1.

Technical Memorandum

5.2.2 Discharge of effluents are subject to control under the WPCO. 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 standards for effluents discharged into the foul sewers, inland waters and coastal waters of Deep Bay WCZ, as given in the TM-DSS.

TPB PG No. 12C "Town Planning Board Guidelines for Application for Developments Within Deep Bay Area under Section 16 of Town Planning Ordinance".

5.2.3 As Deep Bay is an ecological sensitive area, a "zero discharge policy" for Deep Bay has been implemented in Deep Bay catchment. Effluents discharged into Deep Bay are required to be properly treated prior to final disposal so as not to cause net increase in pollution load to Deep Bay.

Practice Note

5.2.4 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 1/94 "Construction Site Drainage" provides good practice guidelines for dealing with 10 types of discharge from construction sites. These include surface run-off, groundwater, boring and drilling water, bentonite slurry, water for testing and sterilisation of water retaining structures and water pipes, wastewater from building constructions, acid cleaning, etching and pickling wastewater, and wastewater from site facilities. Practices given in the ProPECC PN 1/94 should be followed as far as possible during construction to minimise the water quality impact due to construction site drainage.

5.2.5 The ProPECC PN 5/93 "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 5/93. Best Management Practices (BMPs) for storm water discharge are recommended for the Project to mitigate potential adverse water quality impacts.

ETWBTC (Works) No. 5/2005 "Protection of Natural Streams/Rivers from Adverse Impacts Arising from Construction Works".

5.2.6 The Technical Circular provides an administrative framework to better protect natural streams/rivers from impacts of construction works. Construction works in adjacent to natural streams/rivers should follow the guidelines and precautionary measures given in the Technical Circular as far as possible.

Table 5.1 Key Water Quality Objectives for Inland Waters in Deep Bay Water Control Zone

Parameter	WQOs
pH range	6.0 - 9.0
Maximum 5-Day Biochemical Oxygen	5
Maximum Chemical Oxygen Demand, mg/L	30
Maximum Annual Median Suspended Solids,	20
Minimum Dissolved Oxygen, mg/L	4
Unionised Ammonia (annual mean), mg/L	0.021
E. coli (median), count/100 mL	1000

Remark: The above refers to Key WQOs for river monitoring stations in the Northwestern New Territories, River Water Quality in Hong Kong published by EPD and Statement of WQOs (Deep Bay Control Zone), Schedule of Cap 358R.

5.3 Water Sensitive Receivers

5.3.1 The Subject Site is currently mainly covered by ponds with no engineered drainage system. Currently, surface runoff within the area as well as water ponds are discharged by means of overland flow into drainage ditch to the west of the Site and without any treatment. The nullahs/drainage channels and ponds within the 500m assessment area are identified as the water sensitive receivers (WSRs) for the construction and operation phases of the Project. The Subject Site is partially inside the Wetland Buffer Area (WBA) but falls outside the Wetland Conservation Area (WCA) by about 184m. Ponds within the WBA maybe subject to direct water quality impact from the construction and operation of the Project, while the WCA is subject to indirect water quality impact from the Subject Site as they are separated by other existing uses. In accordance with Nam Sang Wai Outline Zoning Plan (OZP) S/YL-NSW/8 and Kam Tin North OZP S/YL-KTN/9, there are areas zoned as Conservation Area (CA) within the assessment area to the southeast and southwest of the Subject Site. These CA zones are indicated in **Figure 5.1.**

5.3.2 During construction of the current proposed WRA which is within Subject Site and during its establishment period, the WRA will form part of a construction site, which is not a WSR. Once the WRA has been fully functional later on, it will become a WSR. During operation, the proposed WRA will be a WSR. In case there will be any discharge from the ponds at WRA, the effluent shall comply with WPCO-TM.

5.3.3 The CA zone at the southeast is located at approximately 403m away from the Subject Site, at a higher altitude. It is also separated from the Subject Site by Kam Pok Road

East and San Tin Highway. Hence, the CA zone at the southeast is unlikely to be affected by the activities at the Subject Site which is not an identified WSR of proposed development.

5.3.4 Some of existing surrounding ponds are abandoned ponds (see **Table 5.2**), thus they may not be a valid WSR of proposed development subject to review during construction phase. Some abandoned ponds within the Subject Site will form part of a construction site and will be filled up, thus they are not WSRs of proposed development. Some of other watercourses to the further north near existing Fairview Park are located at further upstream location and are physically separated from the Subject Site by other existing developments, thus these are not identified as WSRs of proposed development. Please refer to description in **Table 5.2**.

5.3.5 For the two CA zones at the southwest, they are located more than 185m away from the Subject Site. They are adjacent to the drainage channel downstream of the Subject Site. They are subject to indirect impact arising from the activities at the Subject Site.

5.3.6 Watercourses within 500m assessment area were identified, which are also tabulated in **Table 5.2** and shown in **Figure 5.1**. Identified WSRs of proposed development for both construction and operation phases, are also presented in **Table 5.2**.

Table 5.2 Identified Watercourses and Water Sensitive Receivers

ID	Description	Type	Status	Estimated Distance to the Subject Site
Identified WSRs of Proposed Development:				
C02	Conservation Area which covers part of Tai Sang Wai and Wing Kei Tsuen	Conservation Area Zone	Existing.	185m
D01	Ngau Tam Mei Drainage Channel	Drainage Channel	Channelised	143m
P03	Ponds in Wing Kei Tsuen	Pond	Abandoned pond (WSR status subject to review)	325m
P04, P05 (part), P07, P08 (part), P10 to P12, P13 (part), P14 (part), P17 (part)	Ponds in Kam Pok Road East	Ponds	abandoned ponds (WSR status subject to review)	in vicinity and up 55m
P19	Pond near Marry Garden House / in Pok Wai Village	Pond	Abandoned pond (WSR status subject to review)	24m

ID	Description	Type	Status	Estimated Distance to the Subject Site
P20	Pond near Elite Garden / in Pok Wai Village	Pond	Abandoned pond (WSR status subject to review)	357m
P21	Pond near Pok Wai Floodwater Pumping Station	Flood storage pond	Existing	209m
P22, P25	Ponds in Tai Sang Wai	Ponds	Pond / marsh	Over 373m
P23 – P24, P26 - P27	Ponds in Tai Sang Wai	Ponds	Existing ponds	Over 297m
P28 – P30	Ponds in Wing Kei Tsuen	Ponds	abandoned ponds (WSR status subject to review)	Over 207m
P31 – P32, P33 – P35	Ponds in Wing Kei Tsuen	Ponds	Existing ponds	Over 291m
W01	Nullah along Pok Wai West Road and a small section of Pok Wai Road	Nullah	Channelised	Over 392m
W02	Drainage ditches connecting Pok Wai Tsuen to Ngau Tam Mei Drainage Channel	Drainage ditches	Existing and unpaved	Over 78m
W08	Drainage ditches near Man Yuen Chuen	Drainage ditches	Existing and unpaved	4m
WRA *	Proposed WRA within Subject Site	WRA	Proposed wetland. Only WSR when it is fully functional during its operation. *	Within Site
Watercourses Unlikely Affected (NOT Identified WSRs of Proposed Development):				
C01	Conservation Area which covers part of Kai Kung Shan	Conservation Area Zone	Existing, but at a higher altitude.	403m
P01, P02	Ponds near Ha Chuk Yuen Road	Ponds	Abandoned pond upstream location	Over 346m
P05 (part), P06, P08 (part),	Ponds within Subject Site	Ponds	Abandoned ponds form part of construction site of	within site boundary

ID	Description	Type	Status	Estimated Distance to the Subject Site
P09, P13 (part), P14 (part), P17 (part), P15, P16, P18.			proposed development & to be filled up.	
W03	Drainage ditches near Fairview Park	Drainage ditches	Channelised, but at upstream location. Physically separated by other developments.	Over 223m
W04	Nullah near Ha San Wai	Nullah	Channelised, but at upstream location. Physically separated by other developments.	Over 388m
W05	Nullah along Ha San Wai Road	Nullah	Channelised, but at upstream location. Physically separated by other developments.	Over 267m
W06	Roadside drainage ditches along both sides of San Tam Road	Drainage ditches	Channelised, but at upstream location. Physically separated by other developments.	Over 244m
W07	Roadside drainage ditches along both sides of Castle Peak Road – Tam Mi	Drainage ditches	Channelised, but at upstream location. Physically separated by other developments.	Over 158m

Remark: * Proposed WRA within Subject Site (**Figure 1.2** refers). During construction phase and during its establishment period, it will form part of a construction site, thus not a WSR. Once it is fully functional, it becomes a WSR during its operation phase.

5.4 Potential Water Quality Impact

5.4.1 The Subject Site is currently mainly covered by ponds with no engineered drainage system. Currently, surface runoffs within the area as well as water ponds are discharged by means of overland flow into drainage ditch to the west of the Site without any treatment. The potential water quality impacts during the construction phase of

the Proposed Development include filling of existing ponds, general construction activities, construction site runoff, and accidental spillage.

Construction Phase

General Construction Activities

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

5.4.3 Wastewater would also be generated from the accumulation of solid waste such as plastic package and construction material, and sewage effluent from the construction workforce during the construction phase. If uncontrolled, they could lead to deterioration in water quality.

5.4.4 The Practice Note for Professional Persons (ProPECC Note PN1/94) on Construction Site Drainage provides guidelines on good practice for dealing with discharges from construction sites. It is applicable to this study for control of site runoff and wastewater generated during the construction phase.

Filling of Existing Ponds

5.4.5 The existing ponds within Subject Site used to be commercial fishponds. Based on exiting condition, when drain-down of these existing ponds is required due to operational needs, water would be discharged into adjacent existing drainage ditches then to the existing Ngau Tam Mei Drainage Channel and without any treatment.

5.4.6 During the construction phase, construction activities will be conducted in phases. The proposed wetland restoration area (WRA) will be created first, before the construction of the residential buildings. The construction activities at the existing abandoned ponds will be scheduled to commence immediately after the dry season as far as possible when the water level is relatively low in the year. Since this project is still at early planning stage, details of construction works are subject to later detailed design stage. Key construction activities to be carried out at WRA area are tabulated below as illustration. Prior to the commencement of the construction, water from the ponds within the WRA extent will be drained to other ponds within the Subject Site for temporary storage. The construction works will be carried out in phases so to avoid discharge where possible. In case there is still water in the WRA extent, the remaining water will, with the consent of the owners of those ponds sought by the Applicant, be transferred to other ponds outside the Subject Site for temporary storage. The chance to drain pond water to the adjacent existing ditches would thus be minimized. With the proposed development, proper drainage system and screening facilities will be provided to treat surface runoff. It is expected that the water is of similar quality as when these ponds were commercial fishponds, so no adverse water quality issue is anticipated. Once the WRA has been created physically, the establishment period for the wetland and relevant planting will take a much longer time to complete in order for it to function. During which, it is still part of a construction site so it is not water quality sensitive receiver. However, in case the WRA is fully functional later on while there are still construction works at residential development portion, further mitigation measure such as intercepting drains will be provided by the contractor to divert construction runoff away from the established wetland.

Task	Description of Construction Activities
1	Vegetation clearance
2	Draining of pond water to adjacent ponds for temporary storage *
3	Reprofiling at ponds and earth works *
4	Planting and establishment period *
5	Operation of WRA

Remark: The above are key construction activities at WRA areas. Works to be carried out in phases or in pairs. Details are subject to detailed design stage later on.

5.4.7 When the WRA reprofiling and planting are completed, water will be transferred back to the WRA from the temporary storage ponds. Then, the other ponds within the Subject Site will undergo construction/reprofiling. Before the construction / reprofiling, water from the other ponds will be drained to the reprofiled WRA for temporary storage. The reprofiled ponds will be re-filled after the construction has been completed. Any spare water after the re-filling will be absorbed by soakaway mechanism and the chance to drain pond water to drainage ditches would thus be minimized. In case there is still surplus pond water, the pond water will be used on-site for the construction activities such as dust suppression and wheel washing facilities to minimize the water consumption of Project. In case there will be any discharge from the ponds during construction, the effluent shall comply with WPCO-TM.

Construction Site Runoff

5.4.8 Site runoff may cause potential water quality impacts. During construction, soil surfaces would be exposed. Site runoff would wash away the soil particles on unpaved lands and areas with the topsoil exposed. This site runoff is characterised by high concentrations of suspended solids. Release of site runoff into the water body directly or via drainage channel could lead to increase in SS levels and turbidity in the nearby water environment. Site runoff may also wash away contaminated soil particles and therefore cause water pollution.

5.4.9 Best practice as stipulated in ProPECC Note PN1/94 will be adopted by contractor. As a standard site practice, sufficient site drainage should be provided to collect site runoff for appropriate treatment before discharge. Perimeter drainage should be installed at site perimeter as well as near any watercourses passing through the construction site to avoid polluted construction site runoff from leaving the sites or entering any nearby watercourses or drainage system without appropriate treatment. Silt removal facilities with sufficient capacity, such as sedimentation tanks, should be provided on site to handle all site runoff before discharge.

5.4.10 Water pumped out from foundation piling or excavation works would also be discharged into the nearby drainage via silt removal facilities. The Contractor would be required to obtain a license from EPD for discharge to the inland waters. With the provision of adequate construction site drainage and sediment removal facilities, no unacceptable water quality impacts would be expected.

Accidental Spillage

5.4.11 Site drainage would be well-maintained and good construction practices would be observed to ensure that litter, fuels and solvents are managed, stored and handled

properly and do not enter the nearby water streams and coastal water. Therefore, it is expected that no water quality impacts caused by accidental spillage would be generated.

Sewage Effluent from Construction Workforce

5.4.12 Sewage effluents will arise from the sanitary facilities provided for the on-site construction workforce. Based on the "Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning" issued by EPD, the sewage production rate for construction workers is estimated at 0.15 m^3 per employee per day. Thus, for every 100 construction workers working simultaneously at the construction site, about 15 m^3 of sewage would be generated per day. Sewage would consist of high levels of BOD_5, Ammonia and *E. coli* counts.

5.4.13 The sewage would be collected on-site using chemical toilets and be appropriately handled by licensed contractor. No direct discharge of sewage effluent would be allowed. No adverse water quality impact from sewage effluent from construction workforce is expected.

Operation Phase

Surface runoff

5.4.14 The Subject Site is currently mainly covered by ponds with no engineered drainage system. Currently, surface runoffs within the area as well as water ponds are discharged by means of overland flow into drainage ditch to the west of the Site without any treatment.

5.4.15 During operation, there will be discharge of surface runoff from the proposed development. A proper drainage system would be provided for the proposed development to collect surface runoff for discharge to the drainage ditch. The surface runoff will be collected and then discharged via screening facility. There will be no direct discharge without treatment. Mitigation measures have been proposed in **Section 5.6**.

Sewage effluent

5.4.16 Domestic sewage from the proposed development would be a major source of water quality impact from the operational phase. Without proper arrangement, sewage may enter the nearby stromwater system or nearby water bodies, resulting in an increase in levels of pollutants such as *E. coli*, suspended solids (SS), and ammonia nitrogen (NH_3-N), etc.

5.4.17 The sewage generated from the proposed development will be collected by a properly planned sewage pumping station within Subject Site (with ADWF capacity of about 151 m3/day) to existing Nam Sang Wai Sewage Pumping Station (SPS), and will then conveyed to the existing Yuen long Sewage Treatment Works (YLSTW) via existing public sewerage network and existing public Nam Sang Wai Sewage Pumping Station during operation stage, as detailed in the separate Sewerage Impact Assessment (SIA) Report. According to the SIA, sewage generation from the Subject Site will take up about 0.3% of the design daily flow of the Nam Sang Wai SPS, and about 0.2% of YLSTW. There should be adequate capacity at the sewerage system to cater for the proposed development. Please also refer to **Figure 5.2** for the proposed sewerage system. This planned sewerage system will be in place before occupation of proposed development. With this proposed sewerage system in place, there will be no discharge of raw sewage from the proposed development. Thus, no adverse water quality impact is anticipated. Relevant design measures recommended on emergency situation of the proposed SPS have also been proposed in Section 5.6.

Operation and Maintenance of the Proposed WRA

5.4.18 Since there are already existing water ponds within the Subject Site and pond draining is required for such commercial fish ponds, it is expected that the nature of proposed WRA is of similar to existing water ponds during normal operation of WRA. Relevant measures have been proposed in **Section 5.6**.

Leakage of Oil and Grease from Vehicles

5.4.19 For the proposed roads and the underground parking areas inside the Subject Site, proper drainage system will be provided at the proposed development to follow the requirements of ProPECC PN 5/93 and runoff will be discharged via petrol interceptors (**Section 5.6.12** refers).

5.5 Mitigation Measures for Construction Phase

Filling of Existing Ponds

5.5.1 As discussed in **Sections 5.4.1** to **5.4.7**, filling of existing ponds and the WRA reprofiling works will be conducted in phases immediately after the dry season. Pond water will be drained to other ponds for temporary storage to avoid discharge where possible. With such arrangements, water will be retained in the WRA in the Subject Site. Water loss from the existing abandoned ponds due to the construction activities will be minimized as far as possible, and no discharge of water is anticipated from the construction phase of the proposed development. After the establishment period of WRA, it is fully functional. In case there are still construction works at residential development portion, further mitigation measure such as intercepting drains will be provided by the contractor to divert construction runoff away from the established wetland.

General Construction Activities

5.5.2 The site practices outlined in ProPECC PN 1/94 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. Reference should be made to relevant best practices and precautionary measures as outlined in the ETWBTC (Works) No. 5/2005 during the course of construction when working in adjacent to watercourse in order to minimize potential impact.

Wheel Washing Facilities

5.5.3 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.

5.5.4 There will be need for the Contractor to apply to the EPD for a 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 etc., can minimise water consumption and reduce the effluent discharge volume. If

Channel. There will be no direct discharge without treatment. It is recommended that the drainage system of the development should be designed in such a way that stormwater runoff should be collected and directed towards the site drainage system as far as possible. Standard stormwater drainage system such as road gullies and manhole device will also be provided along the proposed access road and internal roads to remove particles present in stormwater run-off, and discharge into the planned public drainage system. Details of the drainage system will only be available in detailed design stage. As discharge will be conveyed through standard gully grating or trash grille, there will be no uncontrolled discharge of stormwater runoff into the nearby sensitive areas.

5.6.2 As discussed earlier, the existing Subject Site is unpaved with no engineered drainage system. Surface runoffs carrying sediment laden within the area are discharged by means of overland flow into nearby drainage ditches without any treatment. With the proposed development, proper drainage system will be in place to collect and treat the surface runoff before any discharge following the existing flow regime. As pollutants contributed by non-point source are often bound or adsorbed onto particles, an effective stormwater management system will be the removal of pollution sources prior to rainstorm and the provision of standard gully grating or trash grille that collect debris or sediment. Regular cleaning and sweeping of road surface/ open areas and prior to occurrence of rainstorm is recommended in order to minimize pollutants in stormwater. Standard gully grating or trash grille that collect debris and sediments should be provided to trap pollutants in stormwater.

5.6.3 Stormwater management Best Management Practices (BMPs) as listed out in below paragraphs should be implemented as appropriate to reduce runoff and control the quality of runoff.

5.6.4 Exposed surface shall be avoided within the proposed development to minimise soil erosion, thus reduce SS in runoff. The proposed development area should be either paved or covered by plantation.

5.6.5 Preliminary screening facilities such as standard gully grating and trash grille, with spacing which is capable of screening large substances such as fallen leaves and rubbish should be provided at the inlet of drainage system. Road gullies with standard design and manhole device and should be incorporated to remove particles present in stormwater run-off. Drainage outlet of any covered car park should be connected to foul sewers via petrol interceptors or similar facilities.

5.6.6 Good management measures such as regular road sweeping, and regular inspection, cleansing and maintenance of the screening facilities of the drainage system should be implemented to ensure normal operation of the drainage system and avoid overflow. Additional inspection and cleansing should be carried out before forecasted heavy rainfall.

5.6.7 With provision of the planned drainage system and proper implementation of the BMPs, the surface runoff from the proposed development would not give rise to significant water quality impact.

Sewage effluent

5.6.8 With provision of properly planned sewer system, a SPS is proposed within the Subject Site so that sewage would be collected and conveyed to existing Nam Sang Wai Sewage Pumping Station, which will then be conveyed to the existing Yuen long Sewage Treatment Works via existing public sewerage network and existing public Nam Sang Wai Sewage Pumping Station during operation stage. The proposed SPS has a design ADWF of about 151 m3/day. As there will be no direct discharge of sewage

to nearby area , no adverse water quality impact is anticipated from sewage generated by the operation of the proposed development. Drainage in covered carparks, covered transport interchange, covered loading and unloading area should be connected to foul sewer via petrol interceptors in accordance with ProPECC PN 5/93. With the provision of the proposed sewerage system, no associated water quality impact is anticipated.

5.6.9 As discussed above, sewage from the Subject Site will be collected by proposed sewers and SPS for discharge into public sewerage system. Detailed design of the proposed SPS is only available during later detailed design stage. In case of emergency situation during operation of the proposed SPS, it is proposed that adequate spare parts for the plant will have to be made readily available as well as provision of duty & standby pumps to ensure the operation of the SPS. In addition, measures have also been proposed for emergency such as qualified personnel will be hired to inspect the plant condition and carry out maintenance on a regular basis; equalization tank to provide temporarily storage; and tank away will be provided in case of prolonged outage of SPS for disposal at designated DSD's sewage treatment works. Moreover, twin sewer is proposed in case of maintenance of one of the sewers. With these measures in place, it is considered that the proposed SPS will unlikely cause any adverse water quality impact.

Operation and Maintenance of the Proposed WRA

5.6.10 Since there are already existing water ponds within the Subject Site and pond draining is required for such commercial fish ponds, it is expected that the nature of proposed WRA is of similar to existing water ponds. Under normal operation, there will be no discharge from the proposed WRA. Should draining of the WRA is inevitable (e.g. for maintenance purpose or excessive water), the water should be temporarily drained to adjacent ponds so as to avoid discharge. Water in the WRA can also be temporarily drained to adjacent ponds, with the consent of the owners of those ponds sought by the future management party of the Proposed Development, so that discharge of water can be minimized as far as possible. In case there will be any discharge from the ponds during construction, the effluent shall comply with WPCO-TM.

5.6.11 Currently, there is also discharge of surface runoff at the Subject Site as well as existing ponds, which is directly discharged and untreated. During operation stage, there will be proper drainage system at proposed development to collect and direct surface runoff towards the site drainage system as far as possible. Screening facilities such as standard gully grating and trash grille, with spacing which is capable of screening off large substances such as fallen leaves and rubbish should be provided at the inlet of drainage system/ discharge points. Thus, there will be no direct discharge of surface runoff without treatment, which may affect the WRA. Furthermore, there should be regular cleaning and sweeping of road surface/ open areas as well as prior to occurrence of rainstorm to minimize exposure of pollutants to stormwater.

Leakage of Oil and Grease from Vehicles

5.6.12 Drainages for the proposed roads and the underground parking areas should be connected to foul sewer via petrol interceptors while drainage serving open space should be connected to stormwater drain via screening facilities in accordance with EPD's Practice Note PN 5/93 in order to avoid oil and grease from entering the drainage system.

5.7 Conclusion

5.7.1 Surface runoff of stormwater, sewage effluent from the proposed development, and oil leakage from vehicles would be the major sources of water quality impact during

the operation of the proposed development. Proper stormwater drainage system with standard screening facilities will be provided to convey the collected drainage to the Ngau Tam Mei Drainage Channel. For the proposed WRA, there will be no discharge under the normal operation. Any maintenance works should be scheduled to be conducted during the dry season or immediately after the dry season as far as possible when the water level is the lowest in the year.

5.7.2 For the filling and reprofiling of the existing abandoned ponds, the construction activities should be conducted in phases to avoid water discharge.

5.7.3 The sewage generated from the proposed development will be collected by proposed sewers and SPS for discharge into public sewerage system to existing Nam Sang Wai Sewage Pumping Station, and will then conveyed to the existing Yuen long Sewage Treatment Works via existing public sewerage network and existing public Nam Sang Wai Sewage Pumping Station during operation stage. This planned sewerage system will be in place before occupation of proposed development. With this proposed sewerage system in place, there will be no discharge of raw sewage from the proposed development. Thus, no adverse water quality impact is anticipated. Relevant design measures recommended on emergency situation of the proposed SPS, have also been proposed.

5.7.4 Provided that mitigation measures such as BMP and provision of appropriately designed drainage and sewerage systems are implemented, adverse water quality impact from the operation of the proposed development is not anticipated.

Figures

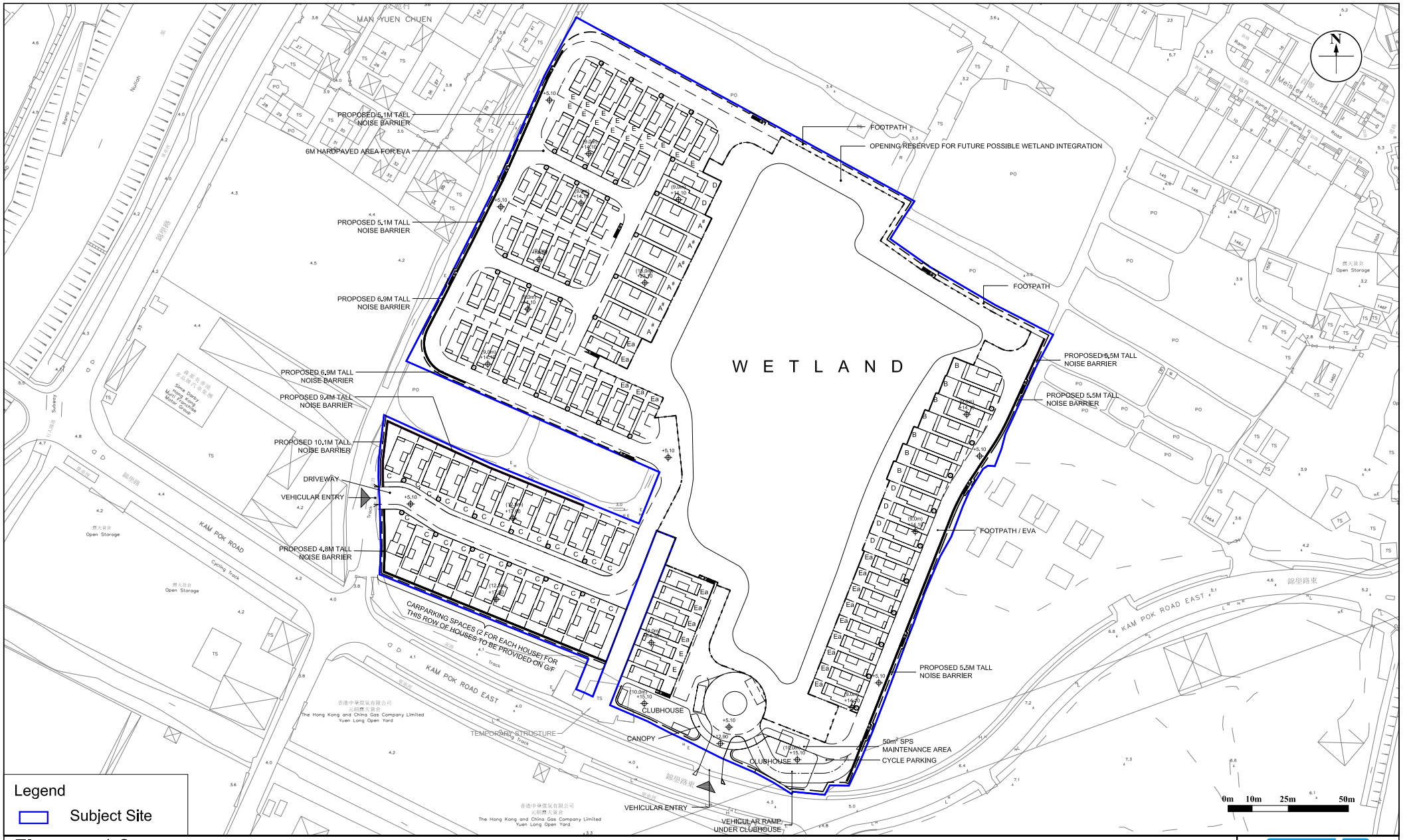

Figure: 1.2

Title: Master Layout Plan of the Development

Project: Planning Application for Proposed Comprehensive Development Scheme to include Wetland Restoration Proposal and Proposed Filling of Ponds/Land and Excavation of Land in "OU(CDWRA)" Zone at Various Lots in D.D. 104, North of Kam Pok Road East, Pok Wai, Yuen Long, New Territories

RAMBOLL

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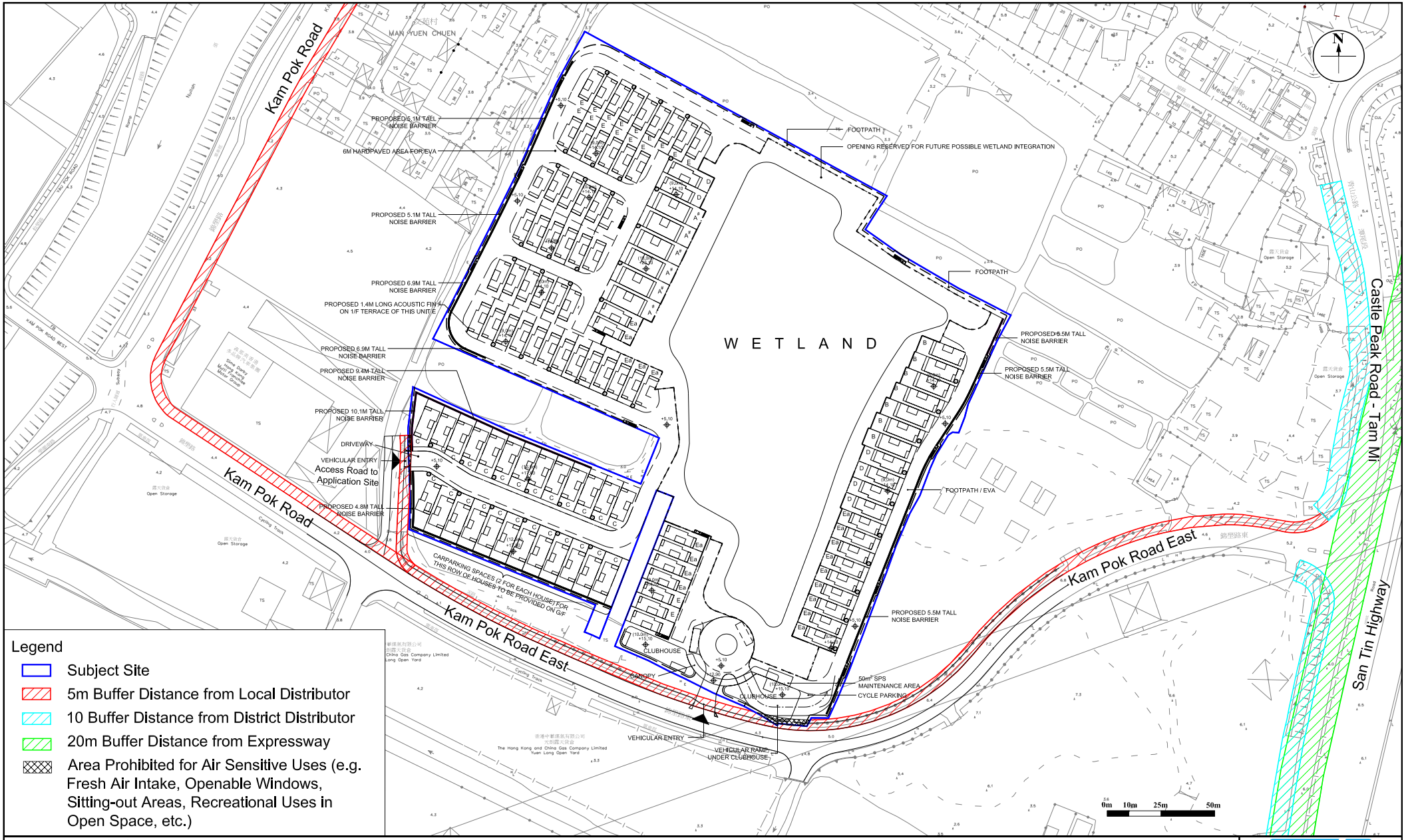
Rev.:	3.0
Date:	Sep 2023



Legend

- Subject Site
- 5m Buffer Distance from Local Distributor
- 10 Buffer Distance from District Distributor
- 20m Buffer Distance from Expressway
- Area Prohibited for Air Sensitive Uses (e.g. Fresh Air Intake, Openable Windows, Sitting-out Areas, Recreational Uses in Open Space, etc.)

Figure: 2.1

Title: Buffer Distance between Subject Site and the nearby Road Network

Project: Planning Application for Proposed Comprehensive Development Scheme to include Wetland Restoration Proposal and Proposed Filling of Ponds/Land and Excavation of Land in "OU(CDWRA)" Zone at Various Lots in D.D. 104, North of Kam Pok Road East, Pok Wai, Yuen Long, New Territories

RAMBOLL

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Rev.:	3.0
Date:	Sep 2023

Q:\PROJECTS\FDBNPWWREA00\04 DELIVERABLES\01 EA REPORT\01 FIGURES\R8923_V3.0\SOURCES\FIGURE 2.1 BUFFER DISTANCE BETWEEN SUBJECT SITE AND THE NEARBY ROAD NETWORK.DWG

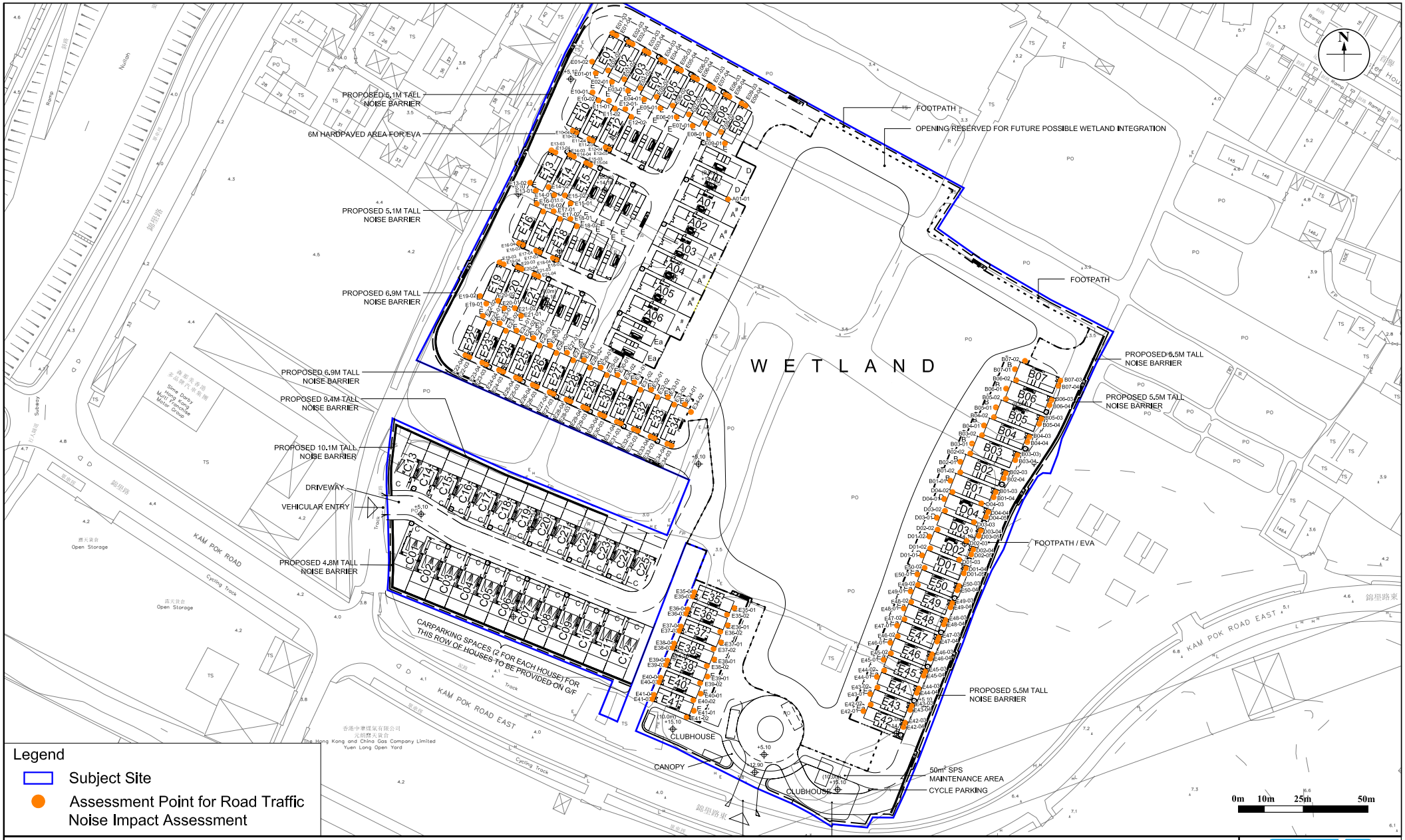

Figure: 3.1

Title: Representative Noise Sensitive Receivers and Assessment Points for Road Traffic Noise Impact Assessment (Ground Floor)

Project: Planning Application for Proposed Comprehensive Development Scheme to include Wetland Restoration Proposal and Proposed Filling of Ponds/Land and Excavation of Land in "OU(CDWRA)" Zone at Various Lots in D.D. 104, North of Kam Pok Road East, Pok Wai, Yuen Long, New Territories

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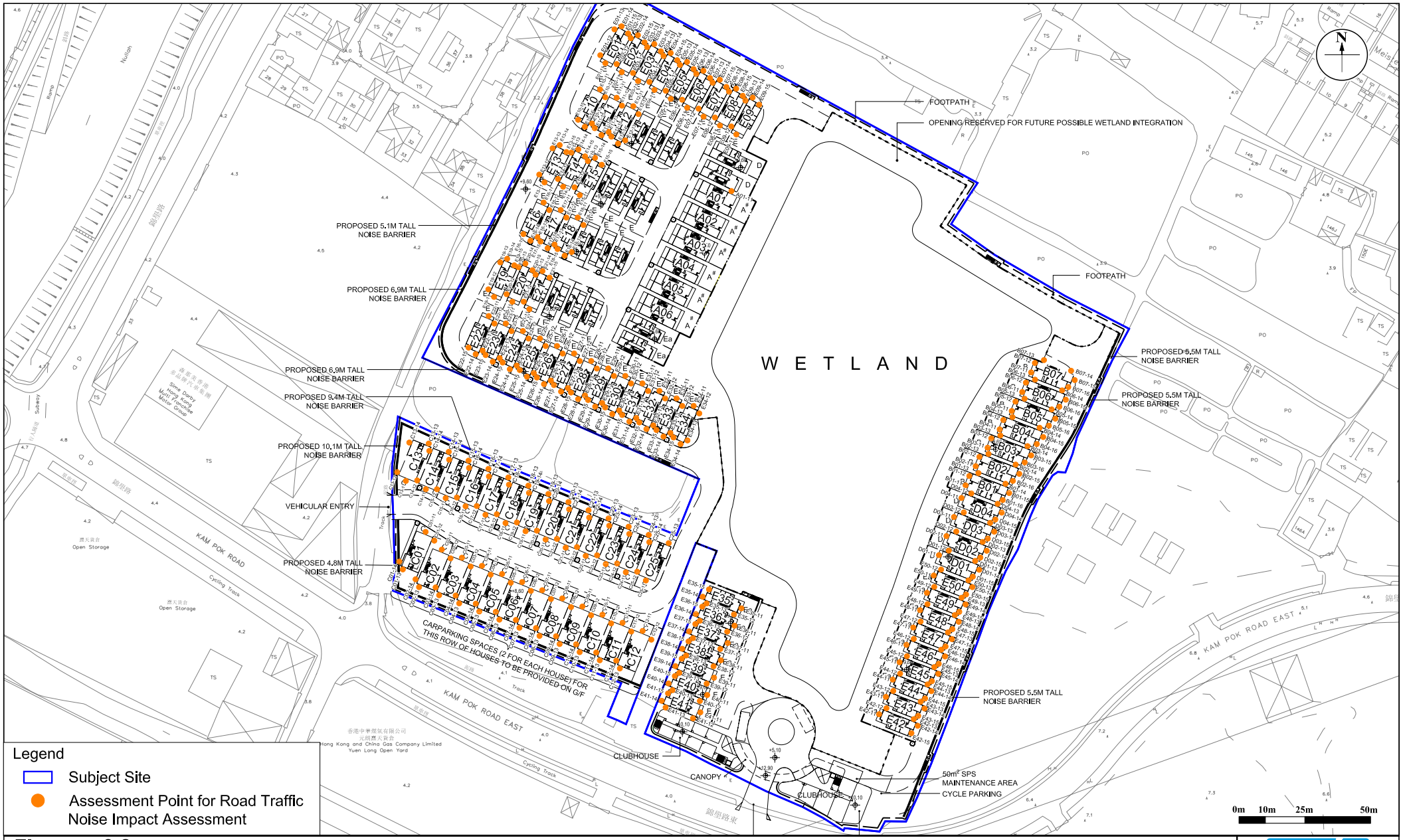

Figure: 3.2

Title: Representative Noise Sensitive Receivers and Assessment Points for Road Traffic Noise Impact Assessment (First Floor)

Project: Planning Application for Proposed Comprehensive Development Scheme to include Wetland Restoration Proposal and Proposed Filling of Ponds/Land and Excavation of Land in "OU(CDWRA)" Zone at Various Lots in D.D. 104, North of Kam Pok Road East, Pok Wai, Yuen Long, New Territories

RAMBOLL

Drawn by:	CL
Checked by:	HN
Rev.:	3.0
Date:	Sep 2023

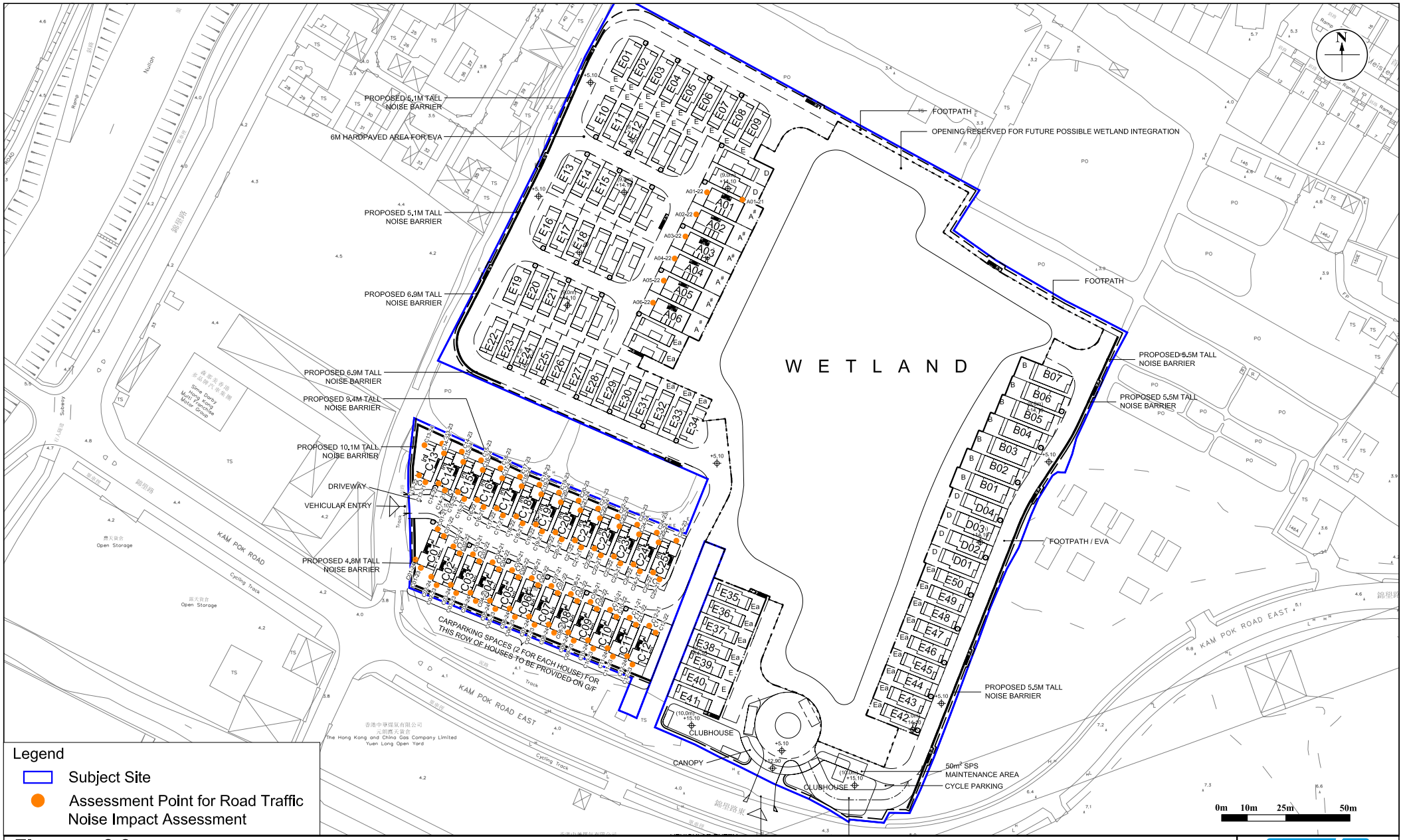

Figure: 3.3

Title: Representative Noise Sensitive Receivers and Assessment Points for Road Traffic Noise Impact Assessment (Second Floor)

Project: Planning Application for Proposed Comprehensive Development Scheme to include Wetland Restoration Proposal and Proposed Filling of Ponds/Land and Excavation of Land in "OU(CDWRA)" Zone at Various Lots in D.D. 104, North of Kam Pok Road East, Pok Wai, Yuen Long, New Territories

RAMBOLL

Drawn by:	CL
Checked by:	HN
Rev.:	3.0
Date:	Sep 2023

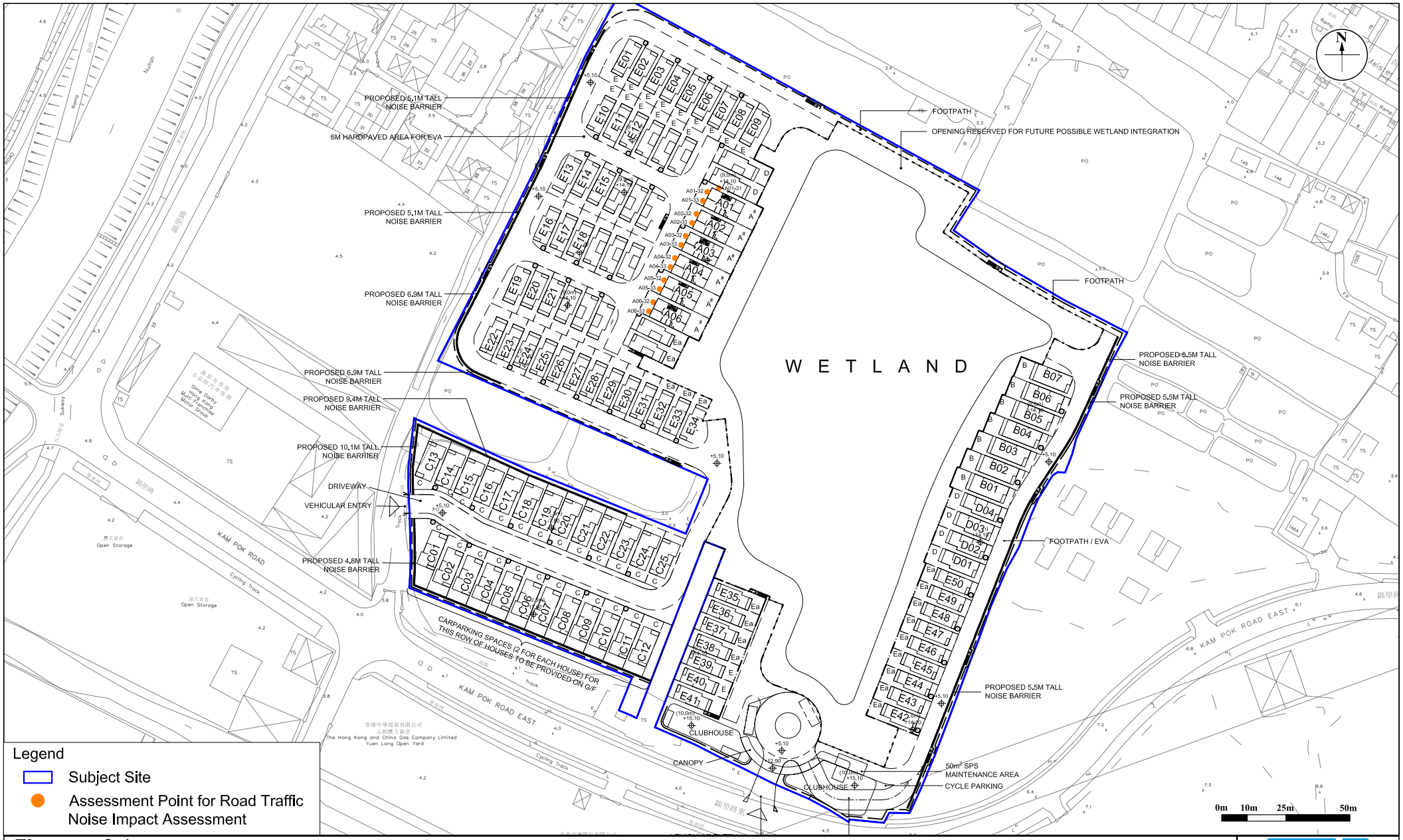

Figure: 3.4

Title: Representative Noise Sensitive Receivers and Assessment Points for Road Traffic Noise Impact Assessment (Third Floor)

Project: Planning Application for Proposed Comprehensive Development Scheme to include Wetland Restoration Proposal and Proposed Filling of Ponds/Land and Excavation of Land in "OU(CDWRA)" Zone at Various Lots in D.D. 104, North of Kam Pok Road East, Pok Wai, Yuen Long, New Territories

RAMBOLL

Drawn by:	CL
Checked by:	HN
Rev.:	3.0
Date:	Sep 2023

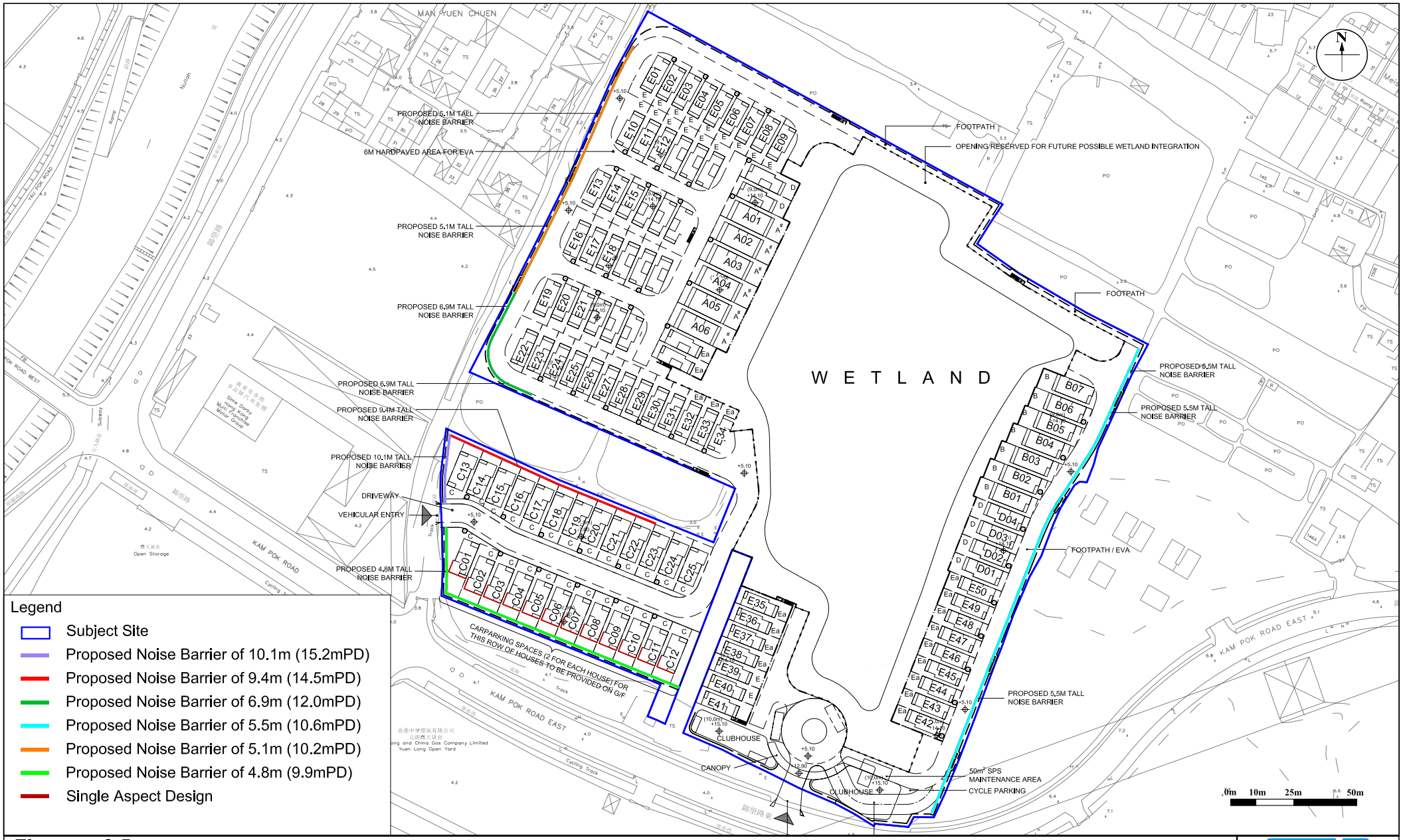

Figure: 3.5

Title: Proposed Mitigation Measures for Traffic Noise Impact Assessment

Project: Planning Application for Proposed Comprehensive Development Scheme to include Wetland Restoration Proposal and Proposed Filling of Ponds/Land and Excavation of Land in "OU(CDWRA)" Zone at Various Lots in D.D. 104, North of Kam Pok Road East, Pok Wai, Yuen Long, New Territories

RAMBOLL

Drawn by:	CL
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Rev.:	3.0
Date:	Sep 2023

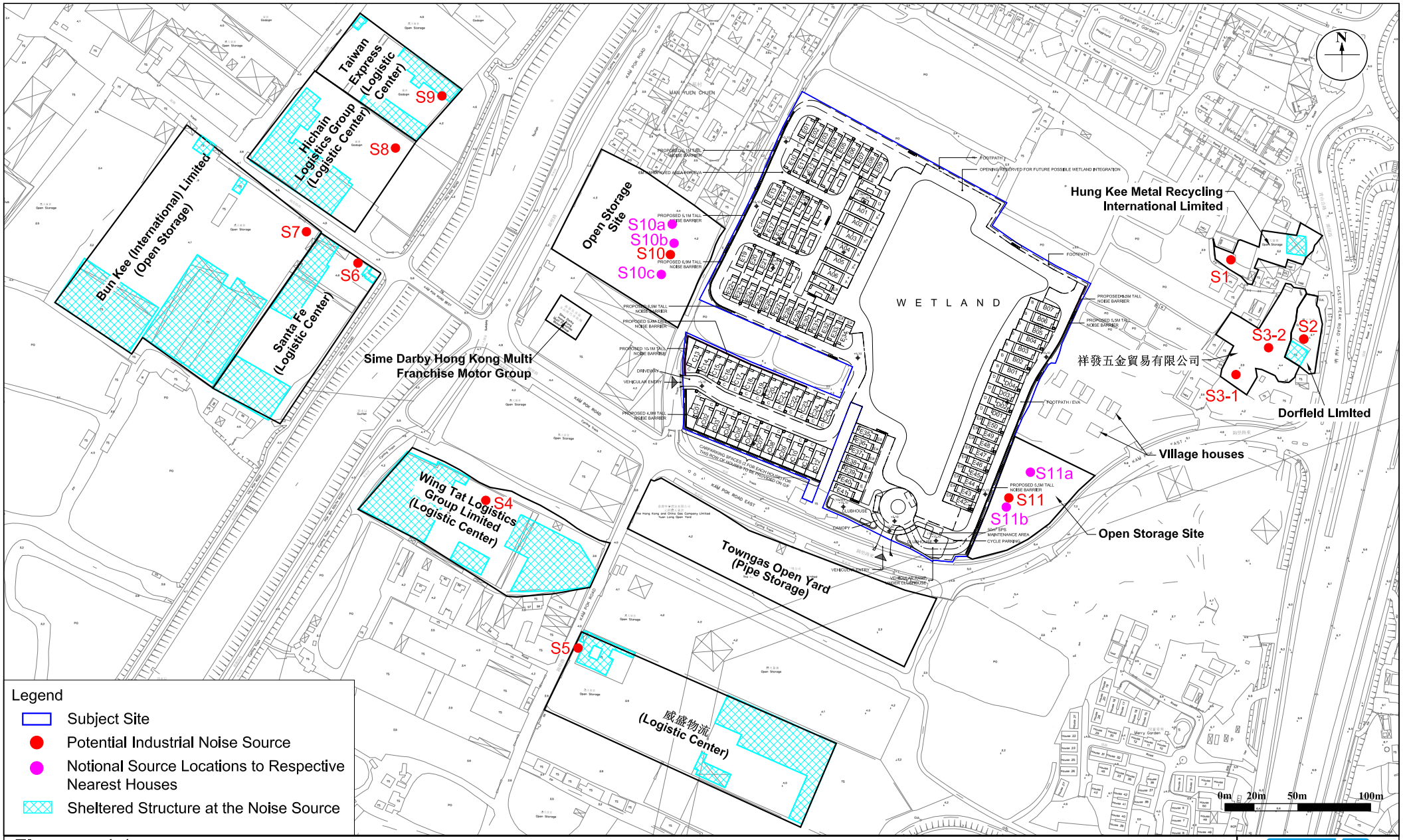

Figure: 4.1

Title: Location of Potential Industrial Noise Sources

Project: Planning Application for Proposed Comprehensive Development Scheme to include Wetland Restoration Proposal and Proposed Filling of Ponds/Land and Excavation of Land in "OU(CDWRA)" Zone at Various Lots in D.D. 104, North of Kam Pok Road East, Pok Wai, Yuen Long, New Territories

RAMBOLL

Drawn by:	CL
Checked by:	HN
Rev.:	3.0
Date:	Sep 2023

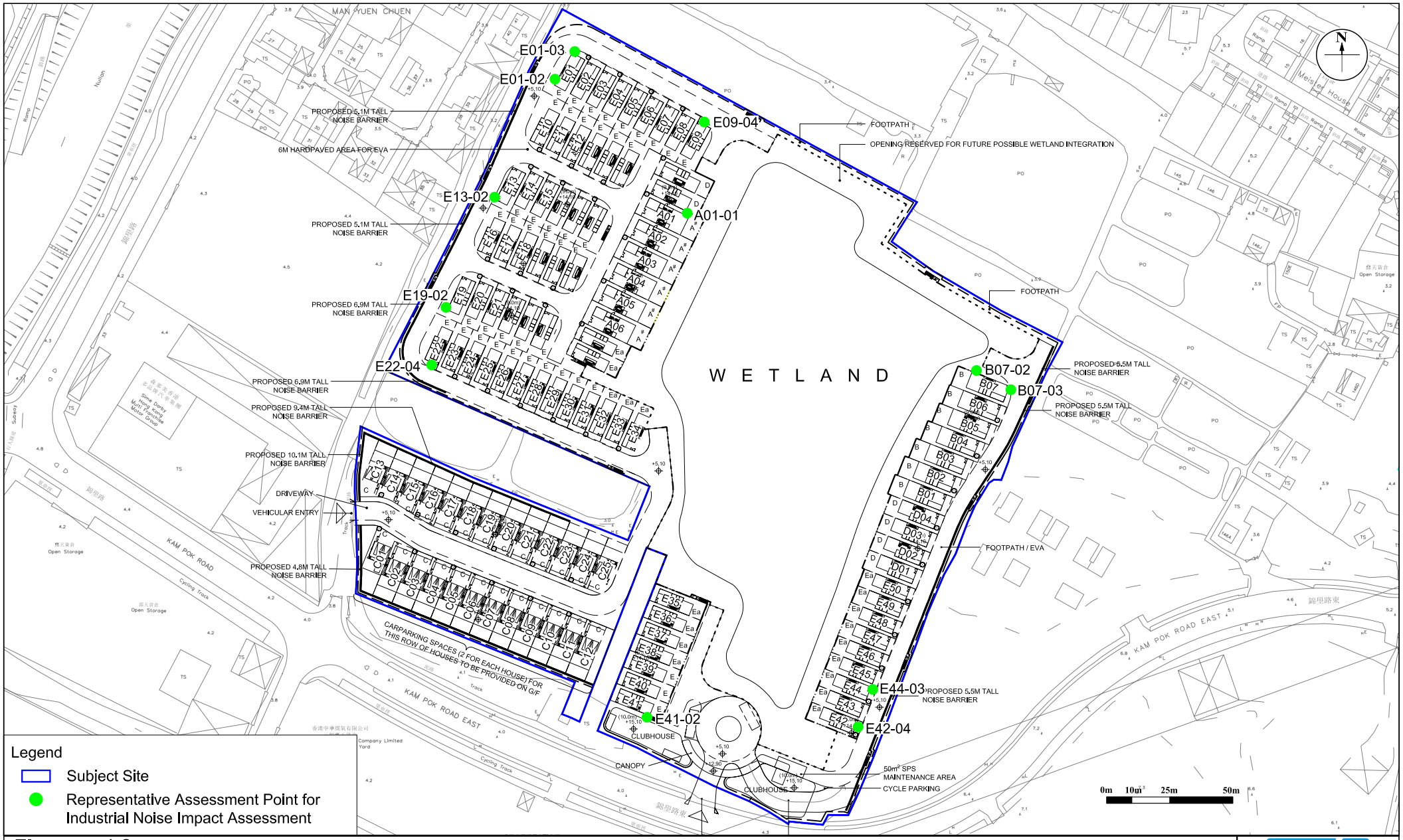

Figure: 4.2

Title: Representative Assessment Points for Industrial Noise Impact Assessment (Ground Floor)

Project: Planning Application for Proposed Comprehensive Development Scheme to include Wetland Restoration Proposal and Proposed Filling of Ponds/Land and Excavation of Land in "OU(CDWRA)" Zone at Various Lots in D.D. 104, North of Kam Pok Road East, Pok Wai, Yuen Long, New Territories

RAMBOLL

Drawn by:	CL
Checked by:	HN
Rev.:	3.0
Date:	Sep 2023

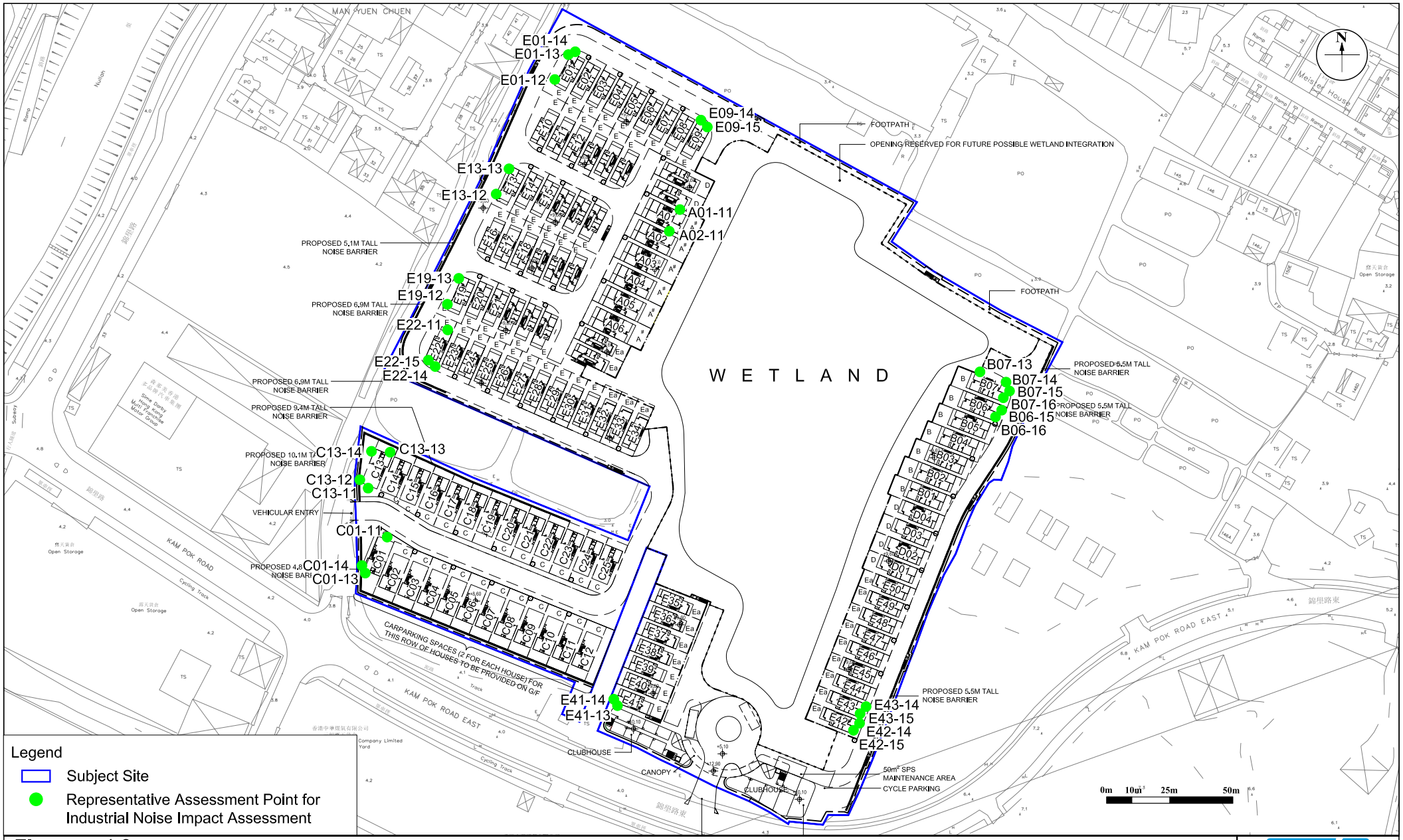

Figure: 4.3

Title: Representative Assessment Points for Industrial Noise Impact Assessment (First Floor)

Project: Planning Application for Proposed Comprehensive Development Scheme to include Wetland Restoration Proposal and Proposed Filling of Ponds/Land and Excavation of Land in "OU(CDWRA)" Zone at Various Lots in D.D. 104, North of Kam Pok Road East, Pok Wai, Yuen Long, New Territories

RAMBOLL

Drawn by:	CL
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Rev.:	3.0
Date:	Sep 2023

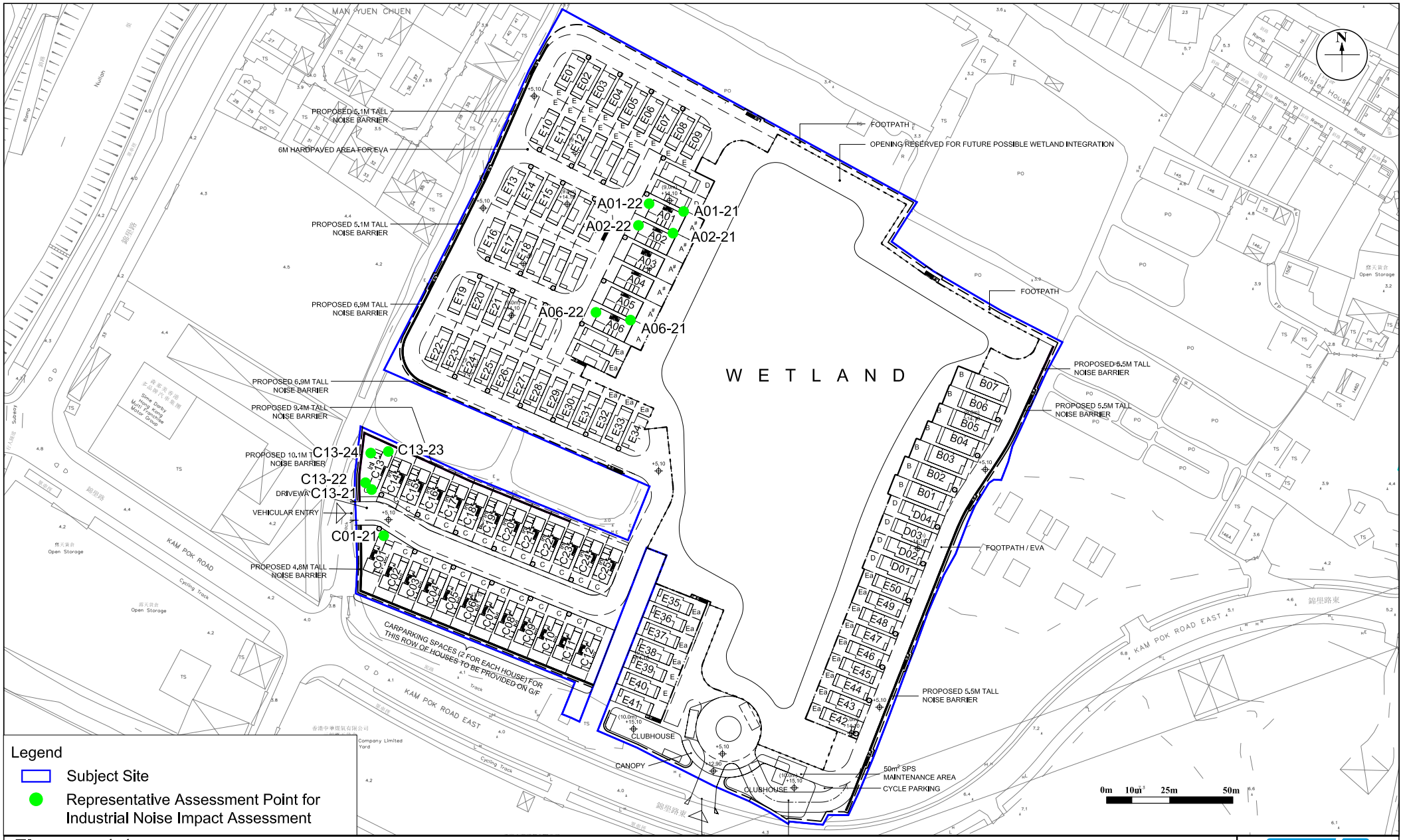

Figure: 4.4

Title: Representative Assessment Points for Industrial Noise Impact Assessment (Second Floor)

Project: Planning Application for Proposed Comprehensive Development Scheme to include Wetland Restoration Proposal and Proposed Filling of Ponds/Land and Excavation of Land in "OU(CDWRA)" Zone at Various Lots in D.D. 104, North of Kam Pok Road East, Pok Wai, Yuen Long, New Territories

RAMBOLL

Drawn by:	CL
Checked by:	HN
Rev.:	3.0
Date:	Sep 2023

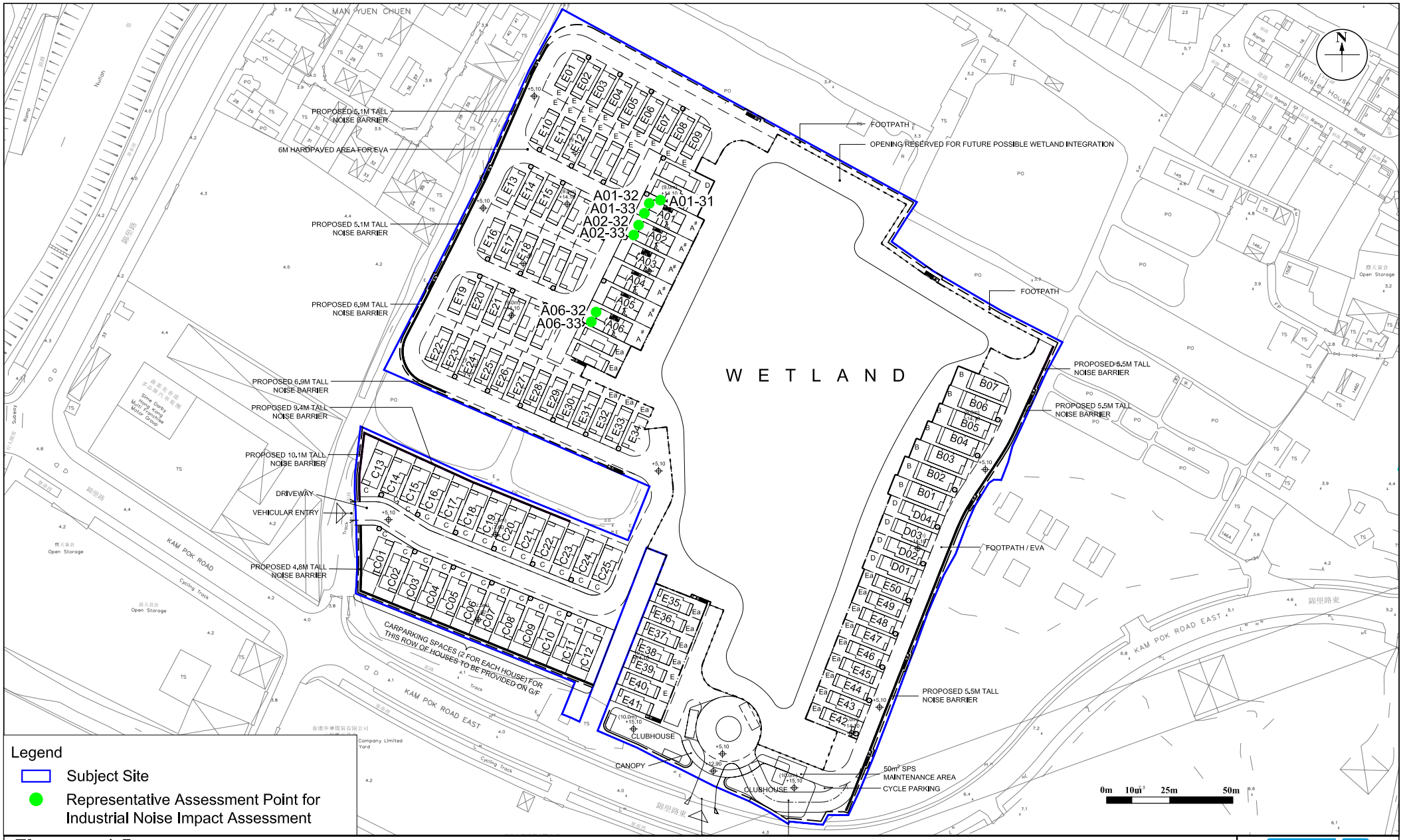

Figure: 4.5

Title: Representative Assessment Points for Industrial Noise Impact Assessment (Third Floor)

Project: Planning Application for Proposed Comprehensive Development Scheme to include Wetland Restoration Proposal and Proposed Filling of Ponds/Land and Excavation of Land in "OU(CDWRA)" Zone at Various Lots in D.D. 104, North of Kam Pok Road East, Pok Wai, Yuen Long, New Territories

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Drawn by:	CL
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Rev.:	3.0
Date:	Sep 2023

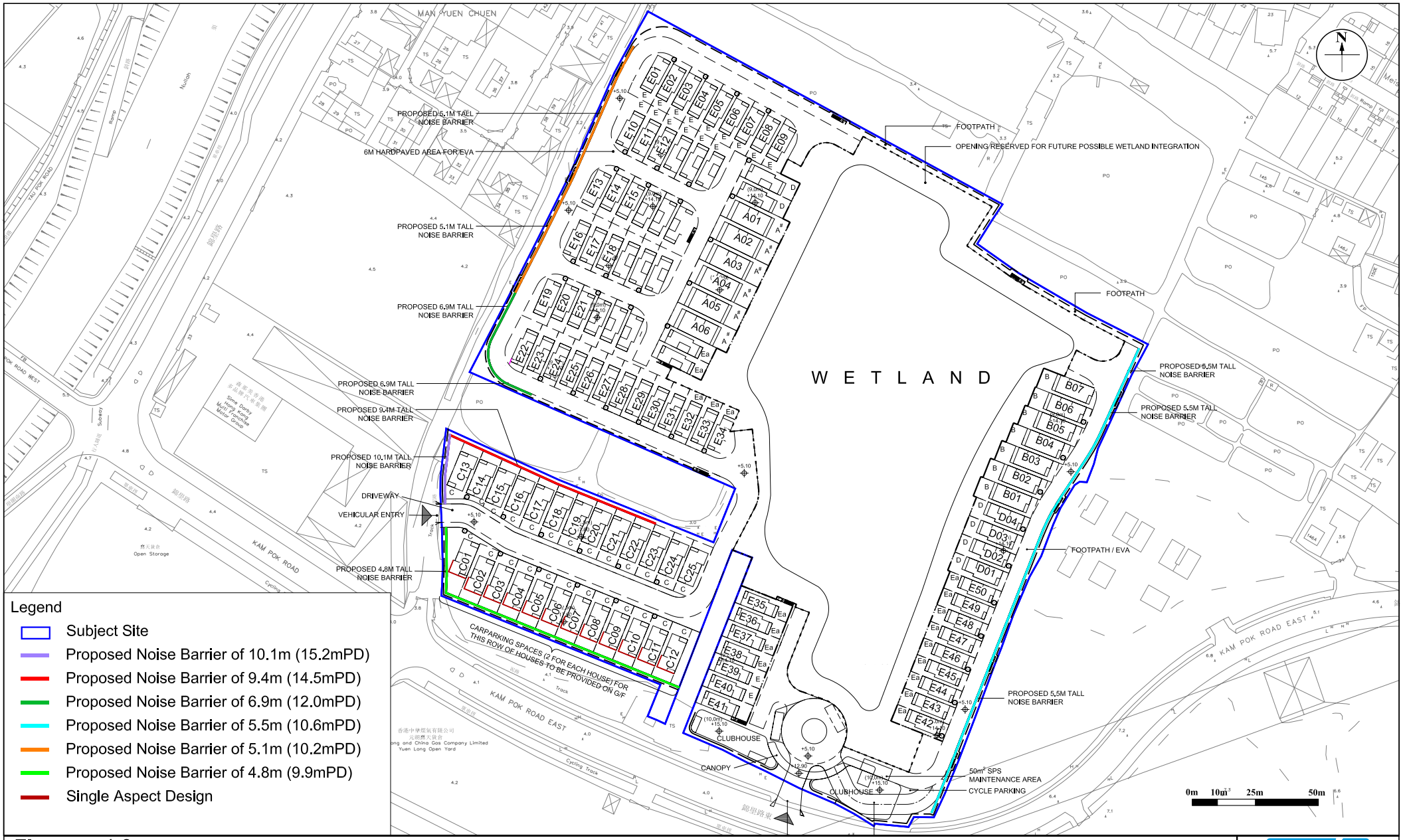

Figure: 4.6

Title: Proposed Mitigation Measures for Industrial Noise Impact Assessment

Project: Planning Application for Proposed Comprehensive Development Scheme to include Wetland Restoration Proposal and Proposed Filling of Ponds/Land and Excavation of Land in "OU(CDWRA)" Zone at Various Lots in D.D. 104, North of Kam Pok Road East, Pok Wai, Yuen Long, New Territories

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Drawn by:	CL
Checked by:	HN
Rev.:	3.0
Date:	Sep 2023

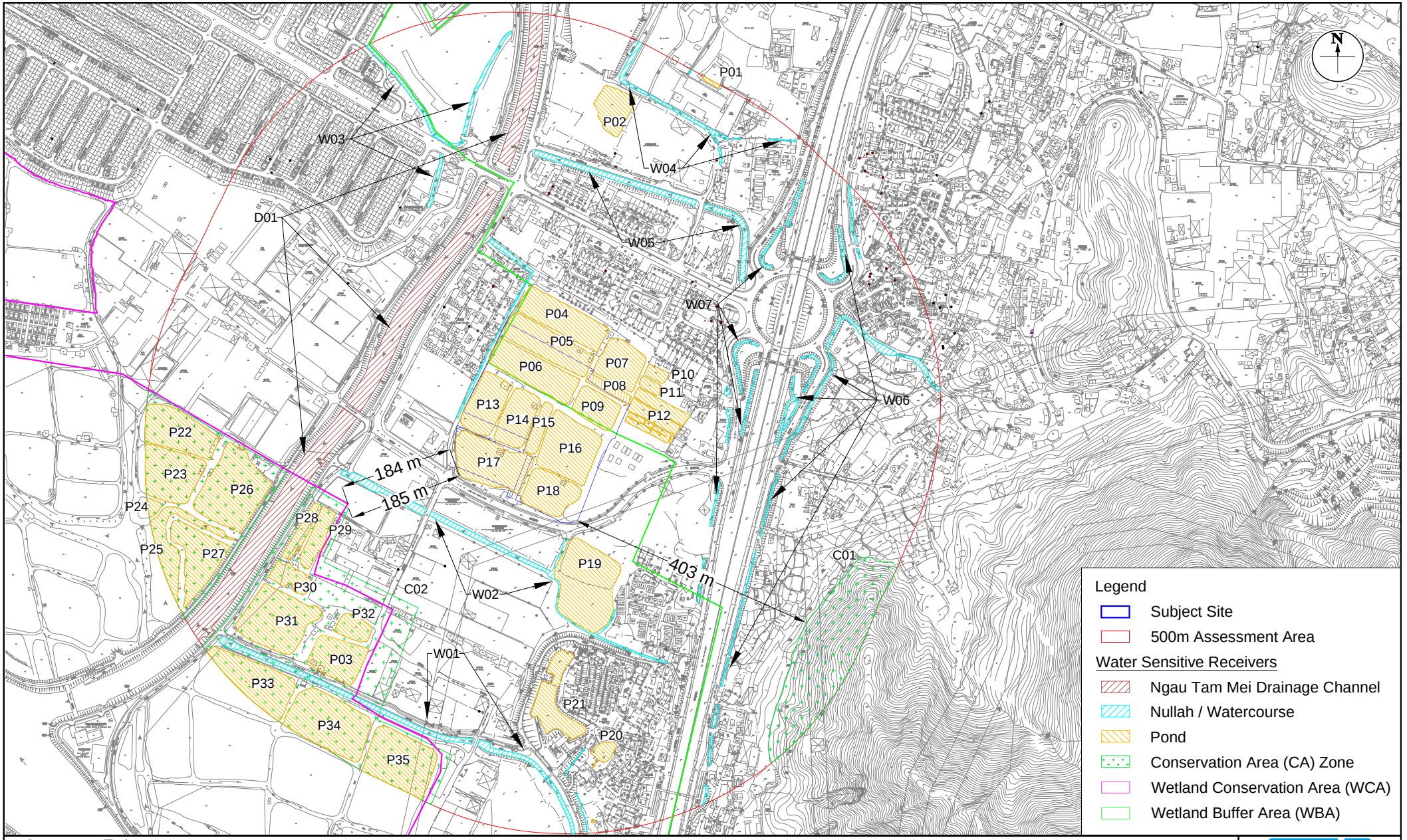

Figure: 5.1

Title: Location of Water Sensitive Receivers

RAMBOLL

Drawn by: CL

Checked by: HN

Project: Planning Application for Proposed Comprehensive Development Scheme to include Wetland Restoration Proposal and Proposed Filling of Ponds/Land and Excavation of Land in "OU(CDWRA)" Zone at Various Lots in D.D. 104, North of Kam Pok Road East, Pok Wai, Yuen Long, New Territories

Rev.: 3.0

Date: Sep 2023

Q:\PROJECTS\FDBNPWWREA00\04 DELIVERABLES\01 EA REPORT\01 FIGURES\R8923_V3.0\SOURCES\FIGURE 5.1 LOCATION OF WSRS.DWG

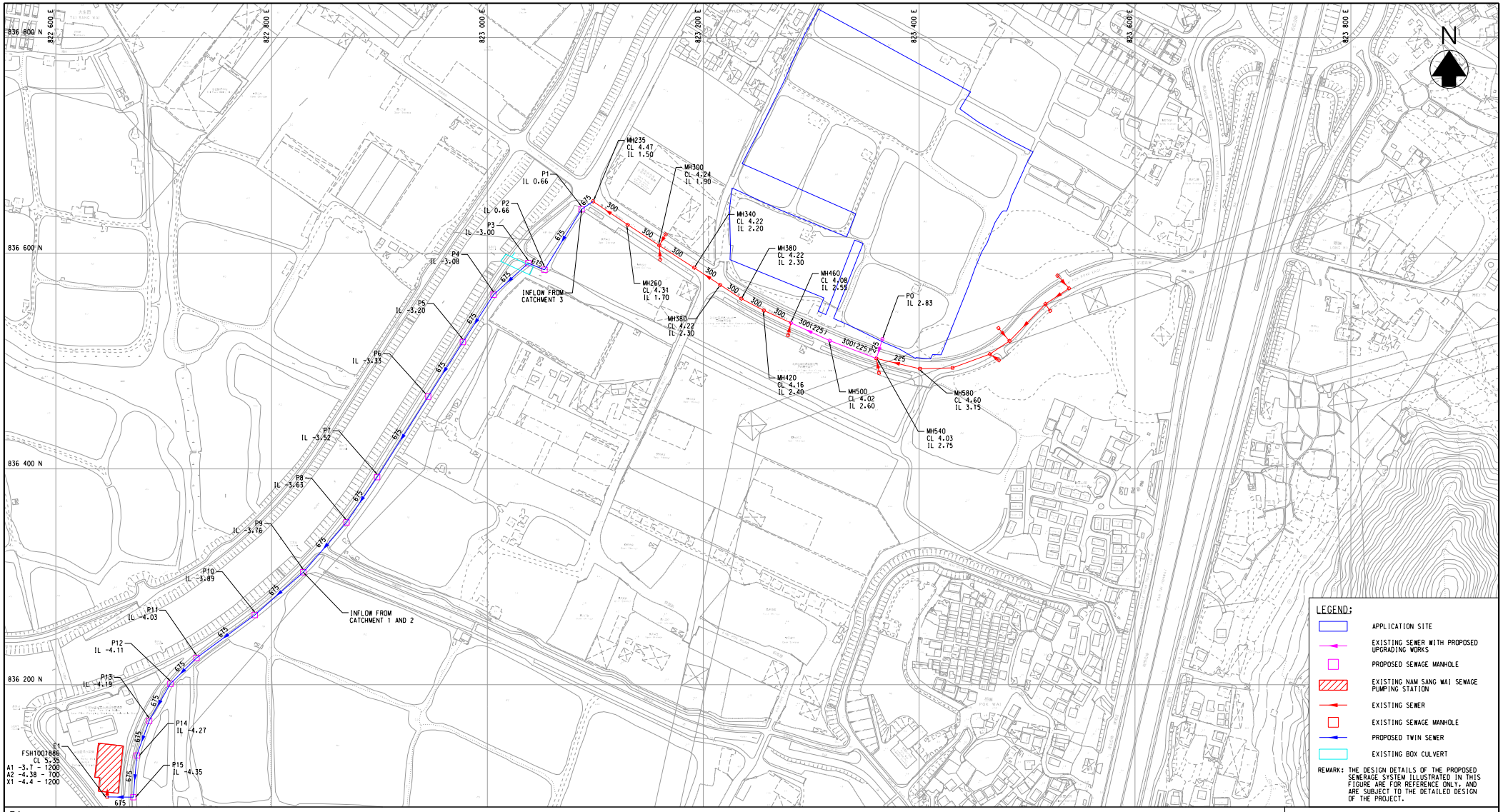

Figure: 5.2

RAMBOLL

Title: PROPOSED SEWERAGE SYSTEM FOR THE APPLICATION SITE

Drawn by: CL

Checked by: NH

Project: PLANNING APPLICATION FOR PROPOSED COMPREHENSIVE DEVELOPMENT SCHEME TO INCLUDE WETLAND RESTORATION PROPOSAL IN "OU(CDWRA)" ZONE AT NORTH OF KAM POK ROAD EAST, POK WAI, YUEN LONG, NEW TERRITORIES

Rev: 6.1

Date: Aug 2023

User : liu45022

Plot date : 9/11/2023

File : Y:\Daily Work\20230911A\Figure2.1.dgn

Appendix 2.1

Background Air Quality

Statistics of Past Ambient Air Quality (Yuen Long Monitoring Station)

Pollutants	Concentration (μg/m^3) [1][2] Averaging Periods																		
Averagin Periods	10 min[3][4]				1 Hour				Daily 8 Hour moving average				24 Hour					1 Year	
Statistics	AQO	4th	Max	No. of Ex	AQO	19th	Max	No. of Ex	AQO	10th	Max [5]	No. of Ex	AQO	4th	10th / 36th	Max	No. of Ex	AQO	Mean [6]
Sulphur Dioxide, SO_2																			
2018	**500**	52	70	0									**50**	16		20	0		8
2019		42	53	0										11		12	0		5
2020	Not to be	26	27	0									Not to be	10		11	0		5
2021	exceeded	-	-	-		n.a.				n.a.			exceeded	14	n.a.	15	0	n.a.	9
2022	more than	21	36	0									more than	7		7	0		4
5-year average =	3 times per	35	50	-									3 times per	13		15	-		7
PATH in Year 2025 (28,49)	year	54	54	0									year	12		19	0		3
PATH in Year 2025 (28,50)		54	54	0										13		19	0		3
Respirable Suspended Particulates, RSP																			
2018													**100**	-	75	121	4		37
2019														-	83	125	2		37
2020													Not to be	-	77	97	0		30
2021		n.a.				n.a.				n.a.			exceeded	-	73	109	1	**50**	30
2022													more than	-	56	81	0		25
5-year average =													9 times per	-	77	113	-		33
PATH in Year 2025 (28,49)													year	-	67	91	0		27
PATH in Year 2025 (28,50)														-	69	96	0		28
Fine Suspended Particulates, FSP																			
2018													**50**	-	34	80	5		20
2019														-	34	81	5		20
2020													Not to be	-	28	44	0		16
2021		n.a.				n.a.				n.a.			exceeded	-	31	75	3	**25**	17
2022													more than	-	31	64	5		16
5-year average =													35 times	-	32	70	-		18
PATH in Year 2025 (28,49)													per year	-	25	73	10		15
PATH in Year 2025 (28,50)														-	27	78	10		16
Nitrogen Dioxide, NO_2																			
2018					**200**	150	231	3											43
2019						161	193	0											44
2020					Not to be	135	170	0											32
2021	n.a.				exceeded	148	206	1		n.a.				n.a.				**40**	40
2022					more than	122	149	0											37
5-year average =					18 times	143	190	-											39
PATH in Year 2025 (28,49)					per year	117	178	0											16
PATH in Year 2025 (28,50)						123	184	0											18
Ozone, O_3																			
2018									**160**	162	249	10							43
2019										200	310	25							53
2020									Not to be	154	234	8							43
2021	n.a.				n.a.				exceeded	178	286	14	n.a.					n.a.	49
2022									more than	194	309	22							52
5-year average =									9 times per	178	278	-							48
PATH in Year 2025 (28,49)									year	216	257	57							92
PATH in Year 2025 (28,50)										218	258	60							91
Carbon Monoxide, CO																			
2018							1720	0			1574	0							
2019							2150	0			1903	0							
2020							1530	0			1279	0							
2021	n.a.				**30000**	n.a.	2090	0	**10000**	n.a.	1591	0		n.a.				n.a.	
2022							1700	0			1519	0							
5-year average =							1838	-			1573	-							
PATH in Year 2025 (28,49)							949	0			859	0							
PATH in Year 2025 (28,50)							952	0			865	0							

Notes:

(1) Measured at 293 K and 101.325 kPa (one atmosphere)

(2) Value in red exceeds the AQO

(3) 10-min average SO2 levels were calculated based on stability classes in the corresponding PATH grid(s)

(4) " - " denotes no data available

(5) Max. daily 8h moving average for O_3

(6) Arithmetic mean

Appendix 3.3

Road Traffic Noise Impact Assessment Results – Mitigated Scenario

Predicted Results of Road Traffic Noise Impact Assessment for Year 2040 - Mitigated Scenario (Peak Hour during Morning)

NSR	AP ID	Floor	Level, mPD	Predicted Mitigated Noise Level, L10(1-hour), dB(A)
B05	B05-01	G/F	6.3	53.2
	B05-02	G/F	6.3	53.2
	B05-03	G/F	6.3	59.4
	B05-04	G/F	6.3	59.2
	B05-11	1/F	10.8	56.1
	B05-12	1/F	10.8	56.2
	B05-13	1/F	10.8	57.8
	B05-14	1/F	10.8	64.0
	B05-15	1/F	10.8	67.4
	B05-16	1/F	10.8	67.3
B06	B06-01	G/F	6.3	53.3
	B06-02	G/F	6.3	52.5
	B06-03	G/F	6.3	64.3
	B06-04	G/F	6.3	61.3
	B06-11	1/F	10.8	56.1
	B06-12	1/F	10.8	56.2
	B06-13	1/F	10.8	58.5
	B06-14	1/F	10.8	67.6
	B06-15	1/F	10.8	68.2
	B06-16	1/F	10.8	67.5

NSR	AP ID	Floor	Level, mPD	Predicted Mitigated Noise Level, L10(1-hour), dB(A)
B07	B07-01	G/F	6.3	54.3
	B07-02	G/F	6.3	62.6
	B07-03	G/F	6.3	68.2
	B07-04	G/F	6.3	67.8
	B07-11	1/F	10.8	56.1
	B07-12	1/F	10.8	58.3
	B07-13	1/F	10.8	66.2
	B07-14	1/F	10.8	68.6
	B07-15	1/F	10.8	69.9
	B07-16	1/F	10.8	69.6

Remark: With regards to the above, relevant noise mitigation measures such as noise barriers were also proposed due to fixed noise sources, thus the above figures have taken into account such proposed noise mitigation measures. Only the NSRs whose noise levels have exceeded the noise criteria have been presented in the table to show compliance. For other NSRs, their noise level under unmitigated scenario can already comply with relevant noise criteria.

NSR	AP ID	Floor	Level, mPD	Predicted Mitigated Noise Level, L10(1-hour), dB(A)
C01	C01-11	1/F	9.8	56.8
	C01-12	1/F	9.8	55.2
	C01-13	1/F	9.8	Fixed window
	C01-14	1/F	9.8	Fixed window
	C01-21	2/F	14.3	60.5
	C01-22	2/F	14.3	59.0
	C01-23	2/F	14.3	Fixed window
	C01-24	2/F	14.3	Fixed window
C02	C02-11	1/F	9.8	54.8
	C02-12	1/F	9.8	49.9
	C02-13	1/F	9.8	Fixed window
	C02-14	1/F	9.8	Fixed window
	C02-21	2/F	14.3	58.5
	C02-22	2/F	14.3	57.1
	C02-23	2/F	14.3	Fixed window
	C02-24	2/F	14.3	Fixed window
C03	C03-11	1/F	9.8	55.4
	C03-12	1/F	9.8	49.8
	C03-13	1/F	9.8	Fixed window
	C03-14	1/F	9.8	Fixed window
	C03-21	2/F	14.3	58.8
	C03-22	2/F	14.3	57.5
	C03-23	2/F	14.3	Fixed window
	C03-24	2/F	14.3	Fixed window
C04	C04-11	1/F	9.8	55.5
	C04-12	1/F	9.8	49.8
	C04-13	1/F	9.8	Fixed window
	C04-14	1/F	9.8	Fixed window
	C04-21	2/F	14.3	58.8
	C04-22	2/F	14.3	57.5
	C04-23	2/F	14.3	Fixed window
	C04-24	2/F	14.3	Fixed window

NSR	AP ID	Floor	Level, mPD	Predicted Mitigated Noise Level, L10(1-hour), dB(A)
C05	C05-11	1/F	9.8	55.6
	C05-12	1/F	9.8	49.7
	C05-13	1/F	9.8	Fixed window
	C05-14	1/F	9.8	Fixed window
	C05-21	2/F	14.3	58.9
	C05-22	2/F	14.3	57.4
	C05-23	2/F	14.3	Fixed window
	C05-24	2/F	14.3	Fixed window
C06	C06-11	1/F	9.8	55.6
	C06-12	1/F	9.8	49.7
	C06-13	1/F	9.8	Fixed window
	C06-14	1/F	9.8	Fixed window
	C06-21	2/F	14.3	59.1
	C06-22	2/F	14.3	57.8
	C06-23	2/F	14.3	Fixed window
	C06-24	2/F	14.3	Fixed window
C07	C07-11	1/F	9.8	55.8
	C07-12	1/F	9.8	50.0
	C07-13	1/F	9.8	Fixed window
	C07-14	1/F	9.8	Fixed window
	C07-21	2/F	14.3	59.3
	C07-22	2/F	14.3	58.1
	C07-23	2/F	14.3	Fixed window
	C07-24	2/F	14.3	Fixed window
C08	C08-11	1/F	9.8	56.2
	C08-12	1/F	9.8	49.6
	C08-13	1/F	9.8	Fixed window
	C08-14	1/F	9.8	Fixed window
	C08-21	2/F	14.3	59.7
	C08-22	2/F	14.3	58.8
	C08-23	2/F	14.3	Fixed window
	C08-24	2/F	14.3	Fixed window

NSR	AP ID	Floor	Level, mPD	Predicted Mitigated Noise Level, L10(1-hour), dB(A)
C09	C09-11	1/F	9.8	56.8
	C09-12	1/F	9.8	50.0
	C09-13	1/F	9.8	Fixed window
	C09-14	1/F	9.8	Fixed window
	C09-21	2/F	14.3	60.3
	C09-22	2/F	14.3	59.7
	C09-23	2/F	14.3	Fixed window
	C09-24	2/F	14.3	Fixed window
C10	C10-11	1/F	9.8	57.5
	C10-12	1/F	9.8	52.3
	C10-13	1/F	9.8	Fixed window
	C10-14	1/F	9.8	Fixed window
	C10-21	2/F	14.3	61.2
	C10-22	2/F	14.3	60.4
	C10-23	2/F	14.3	Fixed window
	C10-24	2/F	14.3	Fixed window
C11	C11-11	1/F	9.8	57.7
	C11-12	1/F	9.8	52.7
	C11-13	1/F	9.8	Fixed window
	C11-14	1/F	9.8	Fixed window
	C11-21	2/F	14.3	61.8
	C11-22	2/F	14.3	60.6
	C11-23	2/F	14.3	Fixed window
	C11-24	2/F	14.3	Fixed window
C12	C12-11	1/F	9.8	57.4
	C12-12	1/F	9.8	58.1
	C12-13	1/F	9.8	Fixed window
	C12-14	1/F	9.8	Fixed window
	C12-21	2/F	14.3	62.5
	C12-22	2/F	14.3	62.6
	C12-23	2/F	14.3	Fixed window
	C12-24	2/F	14.3	Fixed window

Remark 1: With regards to the above, relevant noise mitigation measures such as noise barriers were also proposed due to fixed noise sources, thus the above figures have taken into account such proposed noise mitigation measures. Only the NSRs whose noise levels have exceeded the noise criteria have been presented in the table to show compliance. For other NSRs, their noise level under unmitigated scenario can already comply with relevant noise criteria.

Remark 2: For C01 - C12, the proposed internal layout design with fixed glazing has been incorporated.

Appendix 4.2

Industrial Noise Impact Assessment Results

Industrial Noise Impact Assessment

Assessment Point (AP)					Noise Source (NS)				Distance from NS to AP, m [1]	Corrections, dB(A)		Unmitigated Noise Level, dB(A) [2][3][4]	Consider for Path Difference?	Barrier Height, mPD	Horizontal Distance from AP to Barrier,	Horizontal Distance from NS to Barrier,	NS level (1m above ground	Slant Distance from AP to Barrier,	Slant Distance from Barrier to NS,	Distance from AP to NS, m [C]	Path Differenc e, m	Path Difference Correction,	Mitigated Noise Level, dB(A) [7]
ID	Floor	x	y	Height , mPD	ID	x	y	SWL, dB(A)		Distance	Façade												
A01-01	G	823356	836744	6.3	S1	823601	836709	91.4	247.6	-55.9	3.0	39	N	-	-	-	-	-	-	-	-	-	39
					S3-1	823605	836630	96.8	273.4	-56.7	3.0	43	N	-	-	-	-	-	-	-	-	-	43
					S3-2	823627	836649	99.0	287.3	-57.2	3.0	45	N	-	-	-	-	-	-	-	-	-	45
										Total SPL, dB(A) [4]:		48									Total SPL, dB(A) [4]:		48
B07-02	G	823471	836682	6.3	S1	823601	836709	91.4	133.3	-50.5	3.0	44	Y	10.6	29.6	103.7	4.2	29.9	103.9	133.3	0.5	15.3	29
					S2	823652	836655	94.9	182.5	-53.2	3.0	45	Y	10.6	24.7	157.8	4.7	25.1	158.0	182.5	0.5	15.1	30
					S3-1	823605	836630	96.8	143.4	-51.1	3.0	49	Y	10.6	23.8	119.6	4.9	24.2	119.7	143.4	0.5	15.4	33
					S3-2	823627	836649	99.0	159.7	-52.1	3.0	50	Y	10.6	24.4	135.3	4.9	24.8	135.5	159.7	0.5	15.2	35
										Total SPL, dB(A) [4]:		54									Total SPL, dB(A) [4]:		38
B07-03	G	823485	836674	6.3	S1	823601	836709	91.4	122.0	-49.7	3.0	45	Y	10.6	10.9	111.1	4.2	11.7	111.2	122.0	1.0	18.0	27
					S2	823652	836655	94.9	168.0	-52.5	3.0	45	Y	10.6	8.6	159.4	4.7	9.6	159.5	168.0	1.1	18.5	27
					S3-1	823605	836630	96.8	128.0	-50.1	3.0	50	Y	10.6	8.2	119.8	4.9	9.3	119.9	128.0	1.2	18.8	31
					S3-2	823627	836649	99.0	144.9	-51.2	3.0	51	Y	10.6	8.5	136.4	4.9	9.5	136.5	144.9	1.1	18.6	32
					S11a	823464	836563	99.0	112.9	-49.1	3.0	53	Y	10.6	29.1	83.8	7.4	29.4	83.9	112.9	0.4	14.1	39
										Total SPL, dB(A) [4]:		57									Total SPL, dB(A) [4]:		41
E01-02	G	823304	836797	6.3	S8	823027	836786	91.4	277.0	-56.8	3.0	38	Y	10.2	10.2	266.8	5.7	10.9	266.8	277.0	0.8	16.9	21
					S9	823059	836822	92.5	246.0	-55.8	3.0	40	Y	10.2	9.6	236.4	5.7	10.4	236.5	246.0	0.8	17.1	23
					S10	823217	836734	99.0	107.4	-48.6	3.0	53	Y	10.2	18.3	89.1	5.2	18.7	89.3	107.4	0.6	15.6	38
										Total SPL, dB(A) [4]:		54									Total SPL, dB(A) [4]:		38
E01-03	G	823312	836808	6.3	S8	823027	836786	91.4	285.5	-57.1	3.0	37	Y	10.2	12.8	272.7	5.7	13.4	272.7	285.5	0.6	16.1	21
					S9	823059	836822	92.5	253.0	-56.1	3.0	39	Y	10.2	11.9	241.1	5.7	12.5	241.2	253.0	0.7	16.4	23
					S10	823217	836734	99.0	120.3	-49.6	3.0	52	Y	10.2	25.4	94.9	5.2	25.7	95.1	120.3	0.4	14.6	38
										Total SPL, dB(A) [4]:		53									Total SPL, dB(A) [4]:		38
E09-04	G	823363	836780	6.3	S1	823601	836709	91.4	248.7	-55.9	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S3-1	823605	836630	96.8	284.6	-57.1	3.0	43	N	-	-	-	-	-	-	-	-	-	43
					S3-2	823627	836649	99.0	295.2	-57.4	3.0	45	N	-	-	-	-	-	-	-	-	-	45
										Total SPL, dB(A) [4]:		47									Total SPL, dB(A) [4]:		47
E13-02	G	823280	836751	6.3	S4	823089	836544	94.4	281.2	-57.0	3.0	40	Y	10.2	22.8	258.4	4.6	23.1	258.5	281.2	0.4	14.3	26
					S6	823001	836707	98.0	282.0	-57.0	3.0	44	Y	10.2	7.8	274.2	5.6	8.7	274.3	282.0	1.0	17.9	26
					S8	823027	836786	91.4	255.3	-56.1	3.0	38	Y	10.2	6.7	248.6	5.7	7.8	248.7	255.3	1.1	18.4	20
					S9	823059	836822	92.5	232.2	-55.3	3.0	40	Y	10.2	6.5	225.7	5.7	7.6	225.7	232.2	1.1	18.5	22
					S10a	823217	836734	99.0	64.9	-44.2	3.0	58	Y	10.2	8.5	56.4	5.2	9.4	56.6	64.9	1.1	18.3	39
										Total SPL, dB(A) [4]:		58									Total SPL, dB(A) [4]:		40
E19-02	G	823261	836707	6.3	S4	823089	836544	94.4	236.5	-55.5	3.0	42	Y	12.0	23.7	212.8	4.6	24.4	212.9	236.5	0.8	17.1	25
					S6	823001	836707	98.0	259.4	-56.3	3.0	45	Y	12.0	9.9	249.5	5.6	11.4	249.5	259.4	1.6	20.0	25
					S7	822966	836729	95.7	295.5	-57.4	3.0	41	Y	12.0	9.5	286.0	5.1	11.1	286.1	295.5	1.7	20.0	21
					S8	823027	836786	91.4	246.7	-55.8	3.0	39	Y	12.0	8.9	237.8	5.7	10.6	237.8	246.7	1.8	20.0	19
					S9	823059	836822	92.5	232.2	-55.3	3.0	40	Y	12.0	8.8	223.4	5.7	10.5	223.5	232.2	1.8	20.0	20
					S10b	823219	836721	99.0	44.3	-40.9	3.0	61	Y	12.0	8.9	35.4	5.2	10.6	36.0	44.3	2.3	20.0	41
										Total SPL, dB(A) [4]:		61									Total SPL, dB(A) [4]:		41
E22-04	G	823255	836684	6.3	S4	823089	836544	94.4	217.0	-54.7	3.0	43	Y	12.0	8.1	208.9	4.6	9.9	209.0	217.0	1.9	20.0	23
					S6	823001	836707	98.0	254.7	-56.1	3.0	45	Y	12.0	10.8	243.9	5.6	12.2	244.0	254.7	1.5	19.7	25
					S7	822966	836729	95.7	292.5	-57.3	3.0	41	Y	12.0	11.0	281.5	5.1	12.4	281.6	292.5	1.5	19.7	22
					S8	823027	836786	91.4	249.7	-55.9	3.0	38	Y	12.0	12.6	237.1	5.7	13.8	237.2	249.7	1.3	19.2	19
					S9	823059	836822	92.5	239.7	-55.6	3.0	40	Y	12.0	13.8	225.9	5.7	14.9	226.0	239.7	1.2	18.9	21
					S10c	823210	836699	99.0	47.6	-41.5	3.0	60	Y	12.0	12.0	35.6	5.2	13.3	36.2	47.6	1.9	20.0	40
										Total SPL, dB(A) [4]:		61									Total SPL, dB(A) [4]:		41

Industrial Noise Impact Assessment

Assessment Point (AP)					Noise Source (NS)				Distance from NS to AP, m [1]	Corrections, dB(A)		Unmitigated Noise Level, dB(A) [2][3][4]	Consider for Path Difference?	Barrier Height, mPD	Horizontal Distance from AP to Barrier,	Horizontal Distance from NS to Barrier,	NS level (1m above ground	Slant Distance from AP to Barrier,	Slant Distance from Barrier to NS,	Distance from AP to NS, m [C]	Path Differenc e, m	Path Difference Correction,	Mitigated Noise Level, dB(A) [7]
ID	Floor	x	y	Height , mPD	ID	x	y	SWL, dB(A)		Distance	Façade												
E41-02	G	823340	836544	6.3	S4	823089	836544	94.4	251.2	-56.0	3.0	41	N	-	-	-	-	-	-	-	-	-	41
					S5	823153	836442	98.5	213.6	-54.6	3.0	47	N	-	-	-	-	-	-	-	-	-	47
										Total SPL, dB(A) [4]:		48									Total SPL, dB(A) [4]:		48
E42-04	G	823424	836540	6.3	S1	823601	836709	91.4	245.0	-55.8	3.0	39	Y	10.6	18.4	226.6	4.2	18.9	226.7	245.0	0.6	15.9	23
					S2	823652	836655	94.9	254.7	-56.1	3.0	42	Y	10.6	11.6	243.1	4.7	12.4	243.2	254.7	0.8	17.3	24
					S3-1	823605	836630	96.8	202.1	-54.1	3.0	46	Y	10.6	11.6	190.5	4.9	12.4	190.5	202.1	0.9	17.4	28
					S3-2	823627	836649	99.0	230.5	-55.3	3.0	47	Y	10.6	11.9	218.6	4.9	12.7	218.6	230.5	0.8	17.3	29
					S11b	823447	836539	99.0	23.0	-35.2	3.0	67	Y	10.6	8.2	14.8	7.4	9.3	15.1	23.0	1.4	19.4	47
										Total SPL, dB(A) [4]:		67									Total SPL, dB(A) [4]:		47
E44-03	G	823430	836555	6.3	S1	823601	836709	91.4	230.6	-55.3	3.0	39	Y	10.6	17.2	213.4	4.2	17.7	213.5	230.6	0.6	16.1	23
					S2	823652	836655	94.9	243.1	-55.7	3.0	42	Y	10.6	11.0	232.1	4.7	11.8	232.1	243.1	0.9	17.5	25
					S3-1	823605	836630	96.8	190.5	-53.6	3.0	46	Y	10.6	10.9	179.6	4.9	11.7	179.7	190.5	0.9	17.6	29
					S3-2	823627	836649	99.0	218.6	-54.8	3.0	47	Y	10.6	11.3	207.3	4.9	12.1	207.3	218.6	0.9	17.5	30
					S11	823449	836546	99.0	21.1	-34.5	3.0	67	Y	10.6	7.7	13.4	7.4	8.8	13.8	21.1	1.5	19.7	48
										Total SPL, dB(A) [4]:		68									Total SPL, dB(A) [4]:		48
A01-11	1	823353	836746	10.8	S1	823601	836709	91.4	250.7	-56.0	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S3-1	823605	836630	96.8	276.7	-56.8	3.0	43	N	-	-	-	-	-	-	-	-	-	43
					S3-2	823627	836649	99.0	290.5	-57.3	3.0	45	N	-	-	-	-	-	-	-	-	-	45
										Total SPL, dB(A) [4]:		47									Total SPL, dB(A) [4]:		47
A02-11	1	823349	836737	10.8	S1	823601	836709	91.4	253.8	-56.1	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S3-1	823605	836630	96.8	277.1	-56.9	3.0	43	N	-	-	-	-	-	-	-	-	-	43
					S3-2	823627	836649	99.0	291.8	-57.3	3.0	45	N	-	-	-	-	-	-	-	-	-	45
										Total SPL, dB(A) [4]:		47									Total SPL, dB(A) [4]:		47
B06-15	1	823481	836666	10.8	S1	823601	836709	91.4	128.0	-50.1	3.0	44	Y	10.6	11.4	116.6	4.2	11.4	116.7	128.0	0.2	11.4	33
					S2	823652	836655	94.9	170.9	-52.7	3.0	45	Y	10.6	8.7	162.2	4.7	8.7	162.3	170.9	0.1	9.8	35
					S3-1	823605	836630	96.8	128.9	-50.2	3.0	50	Y	10.6	8.2	120.7	4.9	8.2	120.9	128.9	0.1	10.5	39
					S3-2	823627	836649	99.0	147.3	-51.4	3.0	51	Y	10.6	8.6	138.7	4.9	8.6	138.9	147.3	0.1	10.1	40
					S11	823464	836563	99.0	104.3	-48.4	3.0	54	Y	10.6	24.3	80.0	7.4	24.3	80.1	104.3	0.1	8.4	45
										Total SPL, dB(A) [4]:		57									Total SPL, dB(A) [4]:		48
B06-16	1	823479	836663	10.8	S1	823601	836709	91.4	131.2	-50.4	3.0	44	Y	10.6	13.1	118.1	4.2	13.1	118.3	131.2	0.2	11.3	33
					S2	823652	836655	94.9	173.2	-52.8	3.0	45	Y	10.6	10.0	163.2	4.7	10.0	163.3	173.2	0.1	9.8	35
					S3-1	823605	836630	96.8	130.6	-50.3	3.0	49	Y	10.6	9.4	121.2	4.9	9.4	121.3	130.6	0.1	10.5	39
					S3-2	823627	836649	99.0	149.5	-51.5	3.0	50	Y	10.6	9.8	139.7	4.9	9.8	139.8	149.5	0.1	10.1	40
					S11	823464	836563	99.0	101.3	-48.1	3.0	54	Y	10.6	24.6	76.7	7.4	24.6	76.7	101.3	0.1	8.5	45
										Total SPL, dB(A) [4]:		57									Total SPL, dB(A) [4]:		48
B07-13	1	823472	836681	10.8	S1	823601	836709	91.4	132.1	-50.4	3.0	44	Y	10.6	27.8	104.3	4.2	27.8	104.4	132.1	0.2	11.7	32
					S2	823652	836655	94.9	181.1	-53.2	3.0	45	Y	10.6	23.2	157.9	4.7	23.2	158.0	181.1	0.1	9.9	35
					S3-1	823605	836630	96.8	141.9	-51.0	3.0	49	Y	10.6	22.3	119.6	4.9	22.3	119.8	141.9	0.1	10.5	38
					S3-2	823627	836649	99.0	158.3	-52.0	3.0	50	Y	10.6	22.8	135.5	4.9	22.8	135.6	158.3	0.1	10.1	40
										Total SPL, dB(A) [4]:		54									Total SPL, dB(A) [4]:		43
B07-14	1	823483	836677	10.8	S1	823601	836709	91.4	123.0	-49.8	3.0	45	Y	10.6	14.5	108.5	4.2	14.5	108.7	123.0	0.2	11.6	33
					S2	823652	836655	94.9	170.3	-52.6	3.0	45	Y	10.6	11.7	158.6	4.7	11.7	158.7	170.3	0.1	9.9	35
					S3-1	823605	836630	96.8	130.8	-50.3	3.0	49	Y	10.6	11.2	119.6	4.9	11.2	119.8	130.8	0.1	10.5	39
					S3-2	823627	836649	99.0	147.3	-51.4	3.0	51	Y	10.6	11.5	135.8	4.9	11.5	136.0	147.3	0.1	10.1	40
										Total SPL, dB(A) [4]:		54									Total SPL, dB(A) [4]:		44

Industrial Noise Impact Assessment

Assessment Point (AP)					Noise Source (NS)				Distance from NS to AP, m [1]	Corrections, dB(A)		Unmitigated Noise Level, dB(A) [2][3][4]	Consider for Path Difference?	Barrier Height, mPD	Horizontal Distance from AP to Barrier,	Horizontal Distance from NS to Barrier,	NS level (1m above ground	Slant Distance from AP to Barrier,	Slant Distance from Barrier to NS,	Distance from AP to NS, m [C]	Path Differenc e, m	Path Difference Correction,	Mitigated Noise Level, dB(A) [7]
ID	Floor	x	y	Height , mPD	ID	x	y	SWL, dB(A)		Distance	Façade												
B07-15	1	823484	836674	10.8	S1	823601	836709	91.4	122.6	-49.8	3.0	45	Y	10.6	11.3	111.3	4.2	11.3	111.5	122.6	0.2	11.5	33
					S2	823652	836655	94.9	168.5	-52.5	3.0	45	Y	10.6	8.9	159.6	4.7	8.9	159.7	168.5	0.1	9.9	35
					S3-1	823605	836630	96.8	128.3	-50.2	3.0	50	Y	10.6	8.5	119.8	4.9	8.5	119.9	128.3	0.1	10.6	39
					S3-2	823627	836649	99.0	145.3	-51.2	3.0	51	Y	10.6	8.8	136.5	4.9	8.8	136.7	145.3	0.1	10.1	41
					S11	823464	836563	99.0	112.3	-49.0	3.0	53	Y	10.6	29.3	83.0	7.4	29.3	83.1	112.3	0.1	8.3	45
										Total SPL, dB(A) [4]:		57									Total SPL, dB(A) [4]:		47
B07-16	1	823482	836671	10.8	S1	823601	836709	91.4	125.8	-50.0	3.0	44	Y	10.6	13.0	112.8	4.2	13.0	112.9	125.8	0.2	11.5	33
					S2	823652	836655	94.9	170.7	-52.6	3.0	45	Y	10.6	10.2	160.5	4.7	10.2	160.6	170.7	0.1	9.9	35
					S3-1	823605	836630	96.8	129.7	-50.3	3.0	50	Y	10.6	9.7	120.0	4.9	9.7	120.2	129.7	0.1	10.5	39
					S3-2	823627	836649	99.0	147.3	-51.4	3.0	51	Y	10.6	10.0	137.3	4.9	10.0	137.5	147.3	0.1	10.1	40
					S11	823464	836563	99.0	109.2	-48.8	3.0	53	Y	10.6	29.5	79.7	7.4	29.5	79.8	109.2	0.1	8.4	45
										Total SPL, dB(A) [4]:		57									Total SPL, dB(A) [4]:		47
C01-11	1	823237	836616	9.8	S6	823001	836707	98.0	253.1	-56.1	3.0	45	N	-	-	-	-	-	-	-	-	-	45
					S7	822966	836729	95.7	294.0	-57.4	3.0	41	N	-	-	-	-	-	-	-	-	-	41
					S8	823027	836786	91.4	270.7	-56.6	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S9	823059	836822	92.5	272.7	-56.7	3.0	39	N	-	-	-	-	-	-	-	-	-	39
					S10c	823210	836699	99.0	87.9	-46.9	3.0	55	Y	15.2	32.9	55.0	5.2	33.3	55.9	87.9	1.3	19.3	36
										Total SPL, dB(A) [4]:		56									Total SPL, dB(A) [4]:		48
C01-13	1	823229	836601	9.8	S4	823089	836544	94.4	150.8	-51.6	3.0	46	[9]	-	-	-	-	-	-	-	-	-	-
					S5	823153	836442	98.5	176.3	-52.9	3.0	49	[9]	-	-	-	-	-	-	-	-	-	-
					S6	823001	836707	98.0	250.7	-56.0	3.0	45	[9]	-	-	-	-	-	-	-	-	-	-
					S7	822966	836729	95.7	291.9	-57.3	3.0	41	[9]	-	-	-	-	-	-	-	-	-	-
					S8	823027	836786	91.4	273.5	-56.7	3.0	38	[9]	-	-	-	-	-	-	-	-	-	-
					S9	823059	836822	92.5	278.4	-56.9	3.0	39	[9]	-	-	-	-	-	-	-	-	-	-
					S10c	823210	836699	99.0	99.6	-48.0	3.0	54	[9]	-	-	-	-	-	-	-	-	-	-
										Total SPL, dB(A) [4]:		56									Total SPL, dB(A) [4]:		[9]
C01-14	1	823227	836604	9.8	S4	823089	836544	94.4	150.7	-51.6	3.0	46	[9]	-	-	-	-	-	-	-	-	-	-
					S5	823153	836442	98.5	178.4	-53.0	3.0	48	[9]	-	-	-	-	-	-	-	-	-	-
					S6	823001	836707	98.0	248.3	-55.9	3.0	45	[9]	-	-	-	-	-	-	-	-	-	-
					S7	822966	836729	95.7	289.4	-57.2	3.0	41	[9]	-	-	-	-	-	-	-	-	-	-
					S8	823027	836786	91.4	270.5	-56.6	3.0	38	[9]	-	-	-	-	-	-	-	-	-	-
					S9	823059	836822	92.5	275.2	-56.8	3.0	39	[9]	-	-	-	-	-	-	-	-	-	-
					S10c	823210	836699	99.0	96.5	-47.7	3.0	54	[9]	-	-	-	-	-	-	-	-	-	-
										Total SPL, dB(A) [4]:		56									Total SPL, dB(A) [4]:		[9]
C13-11	1	823230	836635	9.8	S4	823089	836544	94.4	167.5	-52.5	3.0	45	Y	15.2	4.2	163.3	4.6	6.8	163.7	167.5	3.0	20.0	25
					S5	823153	836442	98.5	207.6	-54.3	3.0	47	N	-	-	-	-	-	-	-	-	-	47
					S6	823001	836707	98.0	239.6	-55.6	3.0	45	Y	15.2	3.7	235.9	5.6	6.5	236.1	239.6	3.0	20.0	25
					S7	822966	836729	95.7	280.0	-56.9	3.0	42	Y	15.2	3.8	276.2	5.1	6.6	276.4	280.0	3.0	20.0	22
					S8	823027	836786	91.4	252.8	-56.1	3.0	38	Y	15.2	4.4	248.4	5.7	7.0	248.6	252.8	2.7	20.0	18
					S9	823059	836822	92.5	253.2	-56.1	3.0	39	Y	15.2	5.3	247.9	5.7	7.6	248.1	253.2	2.4	20.0	19
					S10c	823210	836699	99.0	67.2	-44.5	3.0	57	Y	15.2	10.2	57.0	5.2	11.5	57.8	67.2	2.2	20.0	37
										Total SPL, dB(A) [4]:		58									Total SPL, dB(A) [4]:		48
C13-12	1	823226	836638	9.8	S4	823089	836544	94.4	166.7	-52.4	3.0	45	Y	15.2	0.6	166.1	4.6	5.4	166.4	166.7	5.2	20.0	25
					S5	823153	836442	98.5	209.5	-54.4	3.0	47	Y	15.2	1.9	207.6	4.9	5.7	207.9	209.5	4.1	20.0	27
					S6	823001	836707	98.0	235.4	-55.4	3.0	46	Y	15.2	0.5	234.9	5.6	5.4	235.1	235.4	5.1	20.0	26
					S7	822966	836729	95.7	275.7	-56.8	3.0	42	Y	15.2	0.5	275.2	5.1	5.4	275.4	275.7	5.1	20.0	22
					S8	823027	836786	91.4	248.2	-55.9	3.0	39	Y	15.2	0.5	247.7	5.7	5.4	247.9	248.2	5.1	20.0	19
					S9	823059	836822	92.5	248.5	-55.9	3.0	40	Y	15.2	0.6	247.9	5.7	5.4	248.1	248.5	5.0	20.0	20
					S10c	823210	836699	99.0	63.0	-44.0	3.0	58	Y	15.2	1.2	61.8	5.2	5.5	62.6	63.0	5.1	20.0	38
										Total SPL, dB(A) [4]:		59									Total SPL, dB(A) [4]:		39

Industrial Noise Impact Assessment

Assessment Point (AP)					Noise Source (NS)				Distance from NS to AP, m [1]	Corrections, dB(A)		Unmitigated Noise Level, dB(A) [2][3][4]	Consider for Path Difference?	Barrier Height, mPD	Horizontal Distance from AP to Barrier,	Horizontal Distance from NS to Barrier,	NS level (1m above ground	Slant Distance from AP to Barrier,	Slant Distance from Barrier to NS,	Distance from AP to NS, m [C]	Path Differenc e, m	Path Difference Correction,	Mitigated Noise Level, dB(A) [7]
ID	Floor	x	y	Height , mPD	ID	x	y	SWL, dB(A)		Distance	Façade												
C13-13	1	823238	836649	9.8	S6	823001	836707	98.0	244.2	-55.8	3.0	45	Y	15.2	11.2	233.0	5.6	12.4	233.1	244.2	1.4	19.5	26
					S7	822966	836729	95.7	283.9	-57.1	3.0	42	Y	15.2	11.3	272.6	5.1	12.5	272.8	283.9	1.4	19.5	22
					S8	823027	836786	91.4	251.8	-56.0	3.0	38	Y	15.2	12.4	239.4	5.7	13.5	239.6	251.8	1.3	19.2	19
					S9	823059	836822	92.5	249.1	-55.9	3.0	40	Y	15.2	13.9	235.2	5.7	14.9	235.4	249.1	1.2	18.8	21
					S10c	823210	836699	99.0	57.5	-43.2	3.0	59	Y	15.2	4.6	52.9	5.2	7.1	53.9	57.5	3.4	20.0	39
										Total SPL, dB(A) [4]:		59									Total SPL, dB(A) [4]:		39
C13-14	1	823231	836650	9.8	S4	823089	836544	94.4	177.0	-53.0	3.0	44	Y	15.2	5.1	171.9	4.6	7.4	172.2	177.0	2.7	20.0	24
					S5	823153	836442	98.5	221.7	-54.9	3.0	47	Y	15.2	13.8	207.9	4.9	14.8	208.2	221.7	1.3	19.0	28
					S6	823001	836707	98.0	236.9	-55.5	3.0	45	Y	15.2	3.7	233.2	5.6	6.5	233.4	236.9	3.0	20.0	25
					S7	822966	836729	95.7	276.7	-56.8	3.0	42	Y	15.2	3.8	272.9	5.1	6.6	273.1	276.7	3.0	20.0	22
					S8	823027	836786	91.4	245.5	-55.8	3.0	39	Y	15.2	4.2	241.3	5.7	6.8	241.5	245.5	2.8	20.0	19
					S9	823059	836822	92.5	243.6	-55.7	3.0	40	Y	15.2	4.7	238.9	5.7	7.2	239.0	243.6	2.6	20.0	20
					S10c	823210	836699	99.0	53.9	-42.6	3.0	59	Y	15.2	10.9	43.0	5.2	12.2	44.1	53.9	2.4	20.0	39
										Total SPL, dB(A) [4]:		60									Total SPL, dB(A) [4]:		40
E01-12	1	823304	836797	10.8	S8	823027	836786	91.4	276.9	-56.8	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S9	823059	836822	92.5	246.0	-55.8	3.0	40	N	-	-	-	-	-	-	-	-	-	40
					S10a	823217	836734	99.0	107.3	-48.6	3.0	53	Y	10.2	18.3	89.0	5.2	18.3	89.1	107.3	0.2	10.8	43
										Total SPL, dB(A) [4]:		54									Total SPL, dB(A) [4]:		45
E01-13	1	823309	836807	10.8	S8	823027	836786	91.4	282.8	-57.0	3.0	37	N	-	-	-	-	-	-	-	-	-	37
					S9	823059	836822	92.5	250.6	-56.0	3.0	40	N	-	-	-	-	-	-	-	-	-	40
					S10a	823217	836734	99.0	117.6	-49.4	3.0	53	Y	10.2	21.8	95.8	5.2	21.8	95.9	117.6	0.1	10.6	42
										Total SPL, dB(A) [4]:		53									Total SPL, dB(A) [4]:		45
E01-14	1	823312	836808	10.8	S8	823027	836786	91.4	285.6	-57.1	3.0	37	N	-	-	-	-	-	-	-	-	-	37
					S9	823059	836822	92.5	253.2	-56.1	3.0	39	N	-	-	-	-	-	-	-	-	-	39
										Total SPL, dB(A) [4]:		41									Total SPL, dB(A) [4]:		41
E09-14	1	823362	836781	10.8	S1	823601	836709	91.4	250.2	-56.0	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S3-1	823605	836630	96.8	286.1	-57.1	3.0	43	N	-	-	-	-	-	-	-	-	-	43
					S3-2	823627	836649	99.0	296.7	-57.4	3.0	45	N	-	-	-	-	-	-	-	-	-	45
										Total SPL, dB(A) [4]:		47									Total SPL, dB(A) [4]:		47
E09-15	1	823364	836778	10.8	S1	823601	836709	91.4	247.0	-55.9	3.0	39	N	-	-	-	-	-	-	-	-	-	39
					S3-1	823605	836630	96.8	282.5	-57.0	3.0	43	N	-	-	-	-	-	-	-	-	-	43
					S3-2	823627	836649	99.0	293.3	-57.3	3.0	45	N	-	-	-	-	-	-	-	-	-	45
										Total SPL, dB(A) [4]:		47									Total SPL, dB(A) [4]:		47
E13-12	1	823280	836752	10.8	S4	823089	836544	94.4	282.6	-57.0	3.0	40	N	-	-	-	-	-	-	-	-	-	40
					S6	823001	836707	98.0	282.8	-57.0	3.0	44	N	-	-	-	-	-	-	-	-	-	44
					S8	823027	836786	91.4	255.8	-56.2	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S9	823059	836822	92.5	232.4	-55.3	3.0	40	N	-	-	-	-	-	-	-	-	-	40
					S10	823217	836734	99.0	65.8	-44.4	3.0	58	Y	10.2	9.4	56.4	5.2	9.4	56.6	65.8	0.2	12.4	45
										Total SPL, dB(A) [4]:		58									Total SPL, dB(A) [4]:		49
E13-13	1	823286	836762	10.8	S4	823089	836544	94.4	293.4	-57.3	3.0	40	N	-	-	-	-	-	-	-	-	-	40
					S6	823001	836707	98.0	289.6	-57.2	3.0	44	N	-	-	-	-	-	-	-	-	-	44
					S8	823027	836786	91.4	259.7	-56.3	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S9	823059	836822	92.5	234.5	-55.4	3.0	40	N	-	-	-	-	-	-	-	-	-	40
					S10a	823217	836734	99.0	73.9	-45.4	3.0	57	Y	10.2	10.5	63.4	5.2	10.5	63.6	73.9	0.2	12.0	45
										Total SPL, dB(A) [4]:		57									Total SPL, dB(A) [4]:		49

Industrial Noise Impact Assessment

Assessment Point (AP)					Noise Source (NS)				Distance from NS to AP, m [1]	Corrections, dB(A)		Unmitigated Noise Level, dB(A) [2][3][4]	Consider for Path Difference?	Barrier Height, mPD	Horizontal Distance from AP to Barrier,	Horizontal Distance from NS to Barrier,	NS level (1m above ground	Slant Distance from AP to Barrier,	Slant Distance from Barrier to NS,	Distance from AP to NS, m [C]	Path Differenc e, m	Path Difference Correction,	Mitigated Noise Level, dB(A) [7]
ID	Floor	x	y	Height , mPD	ID	x	y	SWL, dB(A)		Distance	Façade												
E19-12	1	823261	836708	10.8	S4	823089	836544	94.4	237.8	-55.5	3.0	42	Y	12.0	24.4	213.4	4.6	24.4	213.5	237.8	0.2	11.0	31
					S6	823001	836707	98.0	259.9	-56.3	3.0	45	Y	12.0	13.9	246.0	5.6	14.0	246.1	259.9	0.1	10.5	34
					S7	822966	836729	95.7	296.0	-57.4	3.0	41	Y	12.0	13.7	282.3	5.1	13.8	282.4	296.0	0.1	10.5	31
					S8	823027	836786	91.4	246.8	-55.8	3.0	39	Y	12.0	13.6	233.2	5.7	13.7	233.3	246.8	0.1	10.6	28
					S9	823059	836822	92.5	232.1	-55.3	3.0	40	Y	12.0	14.2	217.9	5.7	14.3	218.0	232.1	0.1	10.6	30
					S10b	823219	836721	99.0	44.5	-41.0	3.0	61	Y	12.0	13.6	30.9	5.2	13.7	31.6	44.5	0.8	17.1	44
										Total SPL, dB(A) [4]:		61									Total SPL, dB(A) [4]:		45
E19-13	1	823266	836718	10.8	S4	823089	836544	94.4	248.2	-55.9	3.0	42	Y	12.0	25.7	222.5	4.6	25.7	222.6	248.2	0.2	10.8	31
					S6	823001	836707	98.0	264.7	-56.5	3.0	45	N	-	9.3	-	-	-	-	-	-	-	45
					S7	822966	836729	95.7	300.0	-57.5	3.0	41	N	-	8.9	-	-	-	-	-	-	-	41
					S8	823027	836786	91.4	248.1	-55.9	3.0	39	N	-	8.2	-	-	-	-	-	-	-	39
					S9	823059	836822	92.5	231.2	-55.3	3.0	40	N	-	8.1	-	-	-	-	-	-	-	40
					S10b	823219	836721	99.0	47.2	-41.5	3.0	60	Y	10.2	8.2	39.0	5.2	8.2	39.3	47.2	0.3	13.7	47
										Total SPL, dB(A) [4]:		61									Total SPL, dB(A) [4]:		50
E22-11	1	823261	836698	10.8	S6	823001	836707	98.0	260.2	-56.3	3.0	45	Y	12.0	14.9	245.3	5.6	14.9	245.4	260.2	0.1	10.4	34
					S7	822966	836729	95.7	297.0	-57.5	3.0	41	Y	12.0	14.4	282.6	5.1	14.4	282.7	297.0	0.1	10.5	31
					S8	823027	836786	91.4	250.3	-56.0	3.0	38	Y	12.0	13.6	236.7	5.7	13.7	236.8	250.3	0.1	10.5	28
					S9	823059	836822	92.5	237.4	-55.5	3.0	40	Y	12.0	13.5	223.9	5.7	13.6	224.0	237.4	0.1	10.6	29
					S10	823216	836713	99.0	47.7	-41.6	3.0	60	Y	12.0	13.7	34.0	5.2	13.8	34.7	47.7	0.7	16.7	44
										Total SPL, dB(A) [4]:		61									Total SPL, dB(A) [4]:		45
E22-14	1	823256	836683	10.8	S4	823089	836544	94.4	217.7	-54.8	3.0	43	Y	12.0	8.5	209.2	4.6	8.6	209.3	217.7	0.2	12.1	31
					S6	823001	836707	98.0	256.2	-56.2	3.0	45	Y	12.0	12.1	244.1	5.6	12.2	244.2	256.2	0.1	10.7	34
					S7	822966	836729	95.7	294.0	-57.4	3.0	41	Y	12.0	12.4	281.6	5.1	12.5	281.6	294.0	0.1	10.7	31
					S8	823027	836786	91.4	251.3	-56.0	3.0	38	Y	12.0	12.8	238.5	5.7	12.9	238.6	251.3	0.1	10.6	28
					S9	823059	836822	92.5	241.2	-55.6	3.0	40	Y	12.0	13.0	228.2	5.7	13.1	228.3	241.2	0.1	10.7	29
					S10	823216	836713	99.0	50.0	-42.0	3.0	60	Y	12.0	13.0	37.0	5.2	13.1	37.6	50.0	0.7	16.4	44
										Total SPL, dB(A) [4]:		60									Total SPL, dB(A) [4]:		45
E22-15	1	823254	836686	10.8	S4	823089	836544	94.4	217.2	-54.7	3.0	43	Y	12.0	8.7	208.5	4.6	8.8	208.7	217.2	0.2	12.0	31
					S6	823001	836707	98.0	253.3	-56.1	3.0	45	Y	12.0	12.1	241.2	5.6	12.2	241.2	253.3	0.1	10.7	34
					S7	822966	836729	95.7	290.9	-57.3	3.0	41	Y	12.0	12.4	278.5	5.1	12.5	278.6	290.9	0.1	10.7	31
					S8	823027	836786	91.4	247.8	-55.9	3.0	39	Y	12.0	12.8	235.0	5.7	12.9	235.1	247.8	0.1	10.6	28
					S9	823059	836822	92.5	237.5	-55.5	3.0	40	Y	12.0	13.0	224.5	5.7	13.1	224.6	237.5	0.1	10.7	29
					S10	823216	836713	99.0	46.3	-41.3	3.0	61	Y	12.0	13.0	33.3	5.2	13.1	34.0	46.3	0.7	16.8	44
										Total SPL, dB(A) [4]:		61									Total SPL, dB(A) [4]:		45
E41-13	1	823329	836549	10.8	S4	823089	836544	94.4	239.5	-55.6	3.0	42	N	-	-	-	-	-	-	-	-	-	42
					S5	823153	836442	98.5	205.7	-54.3	3.0	47	N	-	-	-	-	-	-	-	-	-	47
										Total SPL, dB(A) [4]:		48									Total SPL, dB(A) [4]:		48
E41-14	1	823327	836551	10.8	S4	823089	836544	94.4	238.1	-55.5	3.0	42	N	-	-	-	-	-	-	-	-	-	42
					S5	823153	836442	98.5	205.8	-54.3	3.0	47	N	-	-	-	-	-	-	-	-	-	47
										Total SPL, dB(A) [4]:		48									Total SPL, dB(A) [4]:		48
E42-14	1	823425	836542	10.8	S1	823601	836709	91.4	243.6	-55.7	3.0	39	Y	10.6	18.2	225.4	4.2	18.2	225.5	243.6	0.39	14.3	24
					S2	823652	836655	94.9	253.6	-56.1	3.0	42	Y	10.6	11.6	242.0	4.7	11.6	242.0	253.6	0.03	6.9	35
					S3-1	823605	836630	96.8	200.9	-54.1	3.0	46	Y	10.6	11.5	189.4	4.9	11.5	189.5	200.9	0.59	15.9	30
					S3-2	823627	836649	99.0	229.3	-55.2	3.0	47	Y	10.6	11.9	217.4	4.9	11.9	217.5	229.3	0.61	16.0	31
					S11b	823447	836539	99.0	22.5	-35.1	3.0	67	Y	10.6	9.4	13.1	7.4	9.4	13.5	22.5	0.90	17.6	49
										Total SPL, dB(A) [4]:		67									Total SPL, dB(A) [4]:		50

Industrial Noise Impact Assessment

Assessment Point (AP)					Noise Source (NS)				Distance from NS to AP, m [1]	Corrections, dB(A)		Unmitigated Noise Level, dB(A) [2][3][4]	Consider for Path Difference?	Barrier Height, mPD	Horizontal Distance from AP to Barrier,	Horizontal Distance from NS to Barrier,	NS level (1m above ground	Slant Distance from AP to Barrier,	Slant Distance from Barrier to NS,	Distance from AP to NS, m [C]	Path Differenc e, m	Path Difference Correction,	Mitigated Noise Level, dB(A) [7]
ID	Floor	x	y	Height , mPD	ID	x	y	SWL, dB(A)		Distance	Façade												
E42-15	1	823422	836539	10.8	S1	823601	836709	91.4	247.3	-55.9	3.0	39	Y	10.6	21.2	226.1	4.2	21.2	226.1	247.3	0.02	6.1	32
					S2	823652	836655	94.9	257.0	-56.2	3.0	42	Y	10.6	13.4	243.6	4.7	13.4	244.1	257.0	0.53	15.4	26
					S3-1	823605	836630	96.8	204.3	-54.2	3.0	46	Y	10.6	13.4	190.9	4.9	13.4	191.1	204.3	0.19	11.6	34
					S3-2	823627	836649	99.0	232.7	-55.3	3.0	47	Y	10.6	13.8	218.9	4.9	13.8	219.1	232.7	0.17	11.2	35
					S11	823447	836539	99.0	24.8	-35.9	3.0	66	Y	10.6	10.0	14.8	7.4	10.0	15.5	24.8	0.67	16.4	50
										Total SPL, dB(A) [4]:		66										Total SPL, dB(A) [4]:	50
E43-14	1	823427	836548	10.8	S1	823601	836709	91.4	237.2	-55.5	3.0	39	Y	10.6	17.7	219.5	4.2	17.7	219.6	237.2	0.80	17.1	22
					S2	823652	836655	94.9	248.3	-55.9	3.0	42	Y	10.6	11.3	237.0	4.7	11.3	237.1	248.3	0.06	8.3	34
					S3-1	823605	836630	96.8	195.7	-53.8	3.0	46	Y	10.6	11.2	184.5	4.9	11.2	184.6	195.7	0.08	8.9	37
					S3-2	823627	836649	99.0	224.0	-55.0	3.0	47	Y	10.6	11.6	212.4	4.9	11.6	212.4	224.0	0.04	7.6	39
					S11	823449	836546	99.0	21.7	-34.7	3.0	67	Y	10.6	8.1	13.6	7.4	8.1	14.5	21.7	0.93	17.8	49
										Total SPL, dB(A) [4]:		67					194.3	204.49	14.3			Total SPL, dB(A) [4]:	50
E43-15	1	823425	836546	10.8	S1	823601	836709	91.4	240.9	-55.6	3.0	39	Y	10.6	20.6	220.3	4.2	20.6	220.4	240.9	0.14	10.5	28
					S2	823652	836655	94.9	251.7	-56.0	3.0	42	Y	10.6	13.1	238.6	4.7	13.1	238.7	251.7	0.28	13.0	29
					S3-1	823605	836630	96.8	199.1	-54.0	3.0	46	Y	10.6	13.0	186.1	4.9	13.0	186.2	199.1	0.12	10.0	36
					S3-2	823627	836649	99.0	227.4	-55.1	3.0	47	Y	10.6	13.5	213.9	4.9	13.5	214.0	227.4	0.14	10.5	36
					S11	823449	836546	99.0	23.9	-35.6	3.0	66	Y	10.6	9.9	14.0	7.4	9.9	14.5	23.9	1.01	18.1	48
										Total SPL, dB(A) [4]:		66										Total SPL, dB(A) [4]:	49
A01-21	2	823355	836745	15.3	S1	823601	836709	91.4	249.1	-55.9	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S3-1	823605	836630	96.8	275.0	-56.8	3.0	43	Y	10.6	155.7	119.3	4.9	155.8	119.5	275.0	0.2	11.9	31
					S3-2	823627	836649	99.0	288.9	-57.2	3.0	45	N	-	-	-	-	-	-	-	-	-	45
					S11a	823464	836563	99.0	211.7	-54.5	3.0	47	Y	10.6	185.7	26.0	7.4	185.8	26.2	211.7	0.3	12.7	35
										Total SPL, dB(A) [4]:		50										Total SPL, dB(A) [4]:	46
A01-22	2	823341	836748	15.3	S9	823059	836822	92.5	291.7	-57.3	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S10a	823217	836734	99.0	124.7	-49.9	3.0	52	Y	10.2	74.4	50.4	5.2	74.5	50.6	124.7	0.4	14.6	37
										Total SPL, dB(A) [4]:		52										Total SPL, dB(A) [4]:	41
A02-21	2	823351	836736	15.3	S1	823601	836709	91.4	252.2	-56.0	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S3-1	823605	836630	96.8	275.4	-56.8	3.0	43	Y	10.6	156.0	119.4	4.9	156.1	119.6	275.4	0.2	11.9	31
					S3-2	823627	836649	99.0	290.2	-57.3	3.0	45	Y	10.6	157.1	133.1	4.9	157.2	133.2	290.2	0.2	11.7	33
					S11a	823464	836563	99.0	206.6	-54.3	3.0	48	Y	10.6	181.3	25.3	7.4	181.4	25.5	206.6	0.3	12.8	35
										Total SPL, dB(A) [4]:		51										Total SPL, dB(A) [4]:	41
A02-22	2	823337	836739	15.3	S9	823059	836822	92.5	290.0	-57.2	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S10a	823217	836734	99.0	119.9	-49.6	3.0	52	Y	10.2	71.5	48.3	5.2	71.7	48.6	119.9	0.4	14.7	38
										Total SPL, dB(A) [4]:		53										Total SPL, dB(A) [4]:	41
A06-21	2	823334	836702	15.3	S1	823601	836709	91.4	267.8	-56.6	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S3-1	823605	836630	96.8	280.4	-57.0	3.0	43	N	-	-	-	-	-	-	-	-	-	43
					S3-2	823627	836649	99.0	298.3	-57.5	3.0	44	N	-	-	-	-	-	-	-	-	-	44
					S11a	823464	836563	99.0	189.8	-53.6	3.0	48	Y	10.6	166.9	22.9	7.4	167.0	23.1	189.8	0.3	13.1	35
										Total SPL, dB(A) [4]:		51										Total SPL, dB(A) [4]:	48
A06-22	2	823320	836705	15.3	S9	823059	836822	92.5	286.2	-57.1	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S10b	823219	836721	99.0	102.8	-48.2	3.0	54	Y	10.2	66.3	36.5	5.2	66.5	36.8	102.8	0.5	15.5	38
										Total SPL, dB(A) [4]:		54										Total SPL, dB(A) [4]:	44
C01-21	2	823236	836616	14.3	S6	823001	836707	98.0	251.6	-56.0	3.0	45	N	-	-	-	-	-	-	-	-	-	45
					S7	822966	836729	95.7	292.5	-57.3	3.0	41	N	-	-	-	-	-	-	-	-	-	41
					S8	823027	836786	91.4	269.3	-56.6	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S9	823059	836822	92.5	271.4	-56.7	3.0	39	N	-	-	-	-	-	-	-	-	-	39
					S11b	823447	836539	99.0	224.7	-55.0	3.0	47	N	-	-	-	-	-	-	-	-	-	47

Industrial Noise Impact Assessment

Assessment Point (AP)					Noise Source (NS)				Distance from NS to AP, m [1]	Corrections, dB(A)		Unmitigated Noise Level, dB(A) [2][3][4]	Consider for Path Difference?	Barrier Height, mPD	Horizontal Distance from AP to Barrier,	Horizontal Distance from NS to Barrier,	NS level (1m above ground	Slant Distance from AP to Barrier,	Slant Distance from Barrier to NS,	Distance from AP to NS, m [C]	Path Differenc e, m	Path Difference Correction,	Mitigated Noise Level, dB(A) [7]
ID	Floor	x	y	Height , mPD	ID	x	y	SWL, dB(A)		Distance	Façade												
									Total SPL, dB(A) [4]:			50										Total SPL, dB(A) [4]:	50
C13-21	2	823231	836634	14.3	S4	823089	836544	94.4	168.4	-52.5	3.0	45	Y	15.2	5.7	162.7	4.6	5.8	163.0	168.4	0.4	14.5	30
					S5	823153	836442	98.5	207.6	-54.3	3.0	47	N	-	-	-	-	-	-	-	-	-	47
					S6	823001	836707	98.0	241.1	-55.6	3.0	45	Y	15.2	5.2	235.9	5.6	5.3	236.0	241.1	0.3	12.9	32
					S7	822966	836729	95.7	281.4	-57.0	3.0	42	Y	15.2	5.2	276.2	5.1	5.3	276.4	281.4	0.3	12.8	29
					S8	823027	836786	91.4	254.3	-56.1	3.0	38	Y	15.2	6.1	248.2	5.7	6.2	248.3	254.3	0.2	12.6	26
					S9	823059	836822	92.5	254.6	-56.1	3.0	39	Y	15.2	7.2	247.4	5.7	7.3	247.6	254.6	0.2	12.4	27
					S11b	823447	836539	99.0	236.0	-55.5	3.0	46	Y	10.6	222.0	14.0	7.4	222.0	14.4	236.0	0.4	14.3	32
									Total SPL, dB(A) [4]:			53										Total SPL, dB(A) [4]:	48
C13-22	2	823229	836637	14.3	S4	823089	836544	94.4	168.1	-52.5	3.0	45	Y	15.2	3.2	164.9	4.6	3.3	165.2	168.1	0.5	14.9	30
					S5	823153	836442	98.5	209.4	-54.4	3.0	47	Y	15.2	6.9	202.5	4.9	7.0	202.8	209.4	0.3	13.5	34
					S6	823001	836707	98.0	238.0	-55.5	3.0	45	Y	15.2	2.8	235.2	5.6	2.9	235.4	238.0	0.3	13.7	32
					S7	822966	836729	95.7	278.4	-56.9	3.0	42	Y	15.2	2.8	275.6	5.1	2.9	275.7	278.4	0.3	13.6	28
					S8	823027	836786	91.4	250.7	-56.0	3.0	38	Y	15.2	3.3	247.4	5.7	3.4	247.6	250.7	0.3	13.3	25
					S9	823059	836822	92.5	250.9	-56.0	3.0	39	Y	15.2	3.9	247.0	5.7	4.0	247.2	250.9	0.3	13.1	26
									Total SPL, dB(A) [4]:			52										Total SPL, dB(A) [4]:	38
C13-23	2	823238	836650	14.3	S6	823001	836707	98.0	243.4	-55.7	3.0	45	Y	15.2	10.4	233.0	5.6	10.4	233.2	243.4	0.2	12.4	33
					S7	822966	836729	95.7	283.1	-57.0	3.0	42	Y	15.2	10.5	272.6	5.1	10.5	272.8	283.1	0.2	12.2	29
					S8	823027	836786	91.4	251.1	-56.0	3.0	38	Y	15.2	11.5	239.6	5.7	11.5	239.8	251.1	0.2	12.2	26
					S9	823059	836822	92.5	248.4	-55.9	3.0	40	Y	15.2	8.1	240.3	5.7	8.1	240.4	248.4	0.2	12.4	27
					S10c	823210	836699	99.0	56.9	-43.1	3.0	59	Y	15.2	4.6	52.3	5.2	4.7	53.2	56.9	1.0	18.2	41
									Total SPL, dB(A) [4]:			59										Total SPL, dB(A) [4]:	42
C13-24	2	823231	836649	14.3	S4	823089	836544	94.4	176.3	-52.9	3.0	44	Y	15.2	4.8	171.5	4.6	4.9	171.9	176.3	0.4	14.5	30
					S5	823153	836442	98.5	221.0	-54.9	3.0	47	Y	15.2	13.0	208.0	4.9	13.0	208.2	221.0	0.3	13.1	34
					S6	823001	836707	98.0	236.8	-55.5	3.0	45	Y	15.2	3.5	233.3	5.6	3.6	233.5	236.8	0.3	13.4	32
					S7	822966	836729	95.7	276.6	-56.8	3.0	42	Y	15.2	3.6	273.0	5.1	3.7	273.2	276.6	0.3	13.2	29
					S8	823027	836786	91.4	245.6	-55.8	3.0	39	Y	15.2	3.9	241.7	5.7	4.0	241.9	245.6	0.3	13.1	25
					S9	823059	836822	92.5	243.9	-55.7	3.0	40	Y	15.2	4.5	239.4	5.7	4.6	239.5	243.9	0.3	13.0	27
					S10c	823210	836699	99.0	54.4	-42.7	3.0	59	Y	15.2	7.1	47.3	5.2	7.2	48.4	54.4	1.1	18.4	41
									Total SPL, dB(A) [4]:			60										Total SPL, dB(A) [4]:	43
A01-31	3	823346	836749	19.8	S1	823601	836709	91.4	258.9	-56.3	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S3-1	823605	836630	96.8	285.3	-57.1	3.0	43	N	-	-	-	-	-	-	-	-	-	43
					S3-2	823627	836649	99.0	299.1	-57.5	3.0	44	N	-	-	-	-	-	-	-	-	-	44
									Total SPL, dB(A) [4]:			47										Total SPL, dB(A) [4]:	47
A01-32	3	823341	836748	19.8	S9	823059	836822	92.5	291.7	-57.3	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S10a	823217	836734	99.0	124.8	-49.9	3.0	52	Y	10.2	83.4	41.4	5.2	84.0	41.7	124.8	0.9	17.4	35
									Total SPL, dB(A) [4]:			52										Total SPL, dB(A) [4]:	40
A01-33	3	823339	836744	19.8	S9	823059	836822	92.5	290.9	-57.3	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S10a	823217	836734	99.0	122.5	-49.8	3.0	52	Y	10.2	80.8	41.7	5.2	81.4	42.0	122.5	0.9	17.4	35
									Total SPL, dB(A) [4]:			52										Total SPL, dB(A) [4]:	40
A02-32	3	823337	836739	19.8	S9	823059	836822	92.5	290.0	-57.2	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S10a	823217	836734	99.0	119.9	-49.6	3.0	52	Y	10.2	78.9	41.0	5.2	79.5	41.3	119.9	0.9	17.5	35
									Total SPL, dB(A) [4]:			53										Total SPL, dB(A) [4]:	40
A02-33	3	823335	836736	19.8	S9	823059	836822	92.5	289.3	-57.2	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S10a	823217	836734	99.0	117.9	-49.4	3.0	53	Y	10.2	77.6	40.3	5.2	78.2	40.6	117.9	0.9	17.6	35
									Total SPL, dB(A) [4]:			53										Total SPL, dB(A) [4]:	40

Industrial Noise Impact Assessment

Assessment Point (AP)					Noise Source (NS)				Distance from NS to AP, m [1]	Corrections, dB(A)		Unmitigated Noise Level, dB(A) [2][3][4]	Consider for Path Difference?	Barrier Height, mPD	Horizontal Distance from AP to Barrier,	Horizontal Distance from NS to Barrier,	NS level (1m above ground	Slant Distance from AP to Barrier,	Slant Distance from Barrier to NS,	Distance from AP to NS, m [C]	Path Differenc e, m	Path Difference Correction,	Mitigated Noise Level, dB(A) [7]
ID	Floor	x	y	Height , mPD	ID	x	y	SWL, dB(A)		Distance	Façade												
A06-32	3	823320	836705	19.8	S9	823059	836822	92.5	286.2	-57.1	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S10b	823219	836721	99.0	102.8	-48.2	3.0	54	Y	10.2	68.0	34.8	5.2	68.7	35.2	102.8	1.0	18.2	36
										Total SPL, dB(A) [4]:		54									Total SPL, dB(A) [4]:		43
A06-33	3	823318	836701	19.8	S9	823059	836822	92.5	286.1	-57.1	3.0	38	N	-	-	-	-	-	-	-	-	-	38
					S10b	823219	836721	99.0	101.6	-48.1	3.0	54	Y	12.0	65.0	36.6	5.2	65.5	37.3	101.6	1.1	18.4	35
										Total SPL, dB(A) [4]:		54									Total SPL, dB(A) [4]:		43

Notes:

[1] The shortest horizontal distance is adopted in the calculation for unmitigated scenario to represent the worst-case scenario.

[2] Assessment is not conducted for NS with no line of sight to the AP (i.e. completely shielded by building structures, or AP is completely not facing the NS), or the whole area of the NS is located more than 300m away from the AP.

[3] Unmitigated Noise Level = Sound Power Level of Noise Source + Distance Correction + Façade Correction

[4] Values in red exceed the night-time noise criteria of 50 dB(A). Site visits were carried out and that the above fixed noise sources had no night-time operation. To be conservative, night-time noise criteria has been referenced.

[5] Path difference is considered for AP exceeding the noise criteria, and with noise barrier proposed between its line of the sight to the NS.

[6] The path difference correct is calculated by Maekawa Equation and capped at 20 dB(A).

[7] Mitigated Noise Level = Unmitigated Noise Level - Path Distance Correction

[8] Line of sight is completely blocked by proposed acoustic fin.

[9] Single aspect design has been adopted as a mitigation measure.
For noise sources at S10 and S11, which are in adjacent to the Subject Site, corresponding notional source locations (i.e. S10a to S10c and S11a to S11b) with respective to their nearest representative NSR locations, are then derived and adopted for the purpose of noise assessmen