

ISSUE NO. : Final
ISSUE DATE : June 2018
PROJECT NO. : 1450

PROJECT PROFILE

FOR

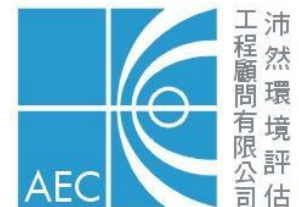
**THE DEVELOPMENT OF AFCD ANIMAL
MANAGEMENT AND ANIMAL WELFARE BUILDING
COMPLEX IN KAI TAK DEVELOPMENT**

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1. BASIC INFORMATION

1.1. Project Title

1.1.1. The Development of AFCD Animal Management and Animal Welfare Building Complex in Kai Tak Development (hereinafter named as the Project).

1.2. Purpose and Nature of The Project

1.2.1. The Agriculture, Fisheries and Conservation Department (AFCD) Animal Management Centre/Kowloon (AMC/K) site at Sung Wong Toi Road in To Kwa Wan has been planned for public housing development. The re-provisioning of the AMC/K is necessary for release of land resources in To Kwa Wan in support of Government's pledge of public housing provision.

1.2.2. In line with government's policy to develop public housing at the existing AMC/K, the Secretary for Food and Health has supported the development of a new building complex for the policy objectives of protection advancement of public health - safeguarding and promoting the welfare of animals, controlling diseases in the local animal population and enhancing the implementation of animal management initiatives.

1.3. Name of Project Proponent

1.3.1. The Project Proponent is Agriculture, Fisheries and Conservation Department.

1.4. Location and Scale of the Project

1.4.1. The Project is located at Site 3A1 in the Kai Tak Development (KTD), with a total area of about 2,344m². *Figure 1-1* shows the location of the Project. The Project site falls within an area zoned "Government, Institution or Community" (G/IC) on the approved Kai Tak Outline Zoning Plan (OZP) No. S/K22/6.

1.4.2. The Project site is located at the South Apron of the former Kai Tak Airport with Kai Fuk Road at the northeastern site boundary, a new one-way local road S20 at the northwest site boundary, and the new Central Kowloon Route (CKR) and Trunk Road T2 (T2) at the southwest site boundary. On the southeastern site boundary is the Kowloon Bay Sewage Interception Station (KBSIS) of Drainage Services Department (DSD), and Site 3A5 which will be developed into a Refuse Collection Point (RCP) is at the west of the site boundary.

1.4.3. The Animal Management and Animal Welfare Building Complex (the Building Complex) will comply with the maximum building height requirement of 80mPD as stipulated in the approved Kai Tak OZP No. S/K22/6. The indicative building layout and design drawings are shown in *Appendix 1-1*.

1.4.4. The construction floor area (CFA) of the Project is approximately 20,973m². The new Building Complex will include:

- a) the relocated AMC/K comprising quarantine centre, biter/stray animal management zone, small mammal keeping area and animal medical treatment facilities;

- b) the relocated Animal Management (Development) Division (AMDD), which includes the following:
 - i. office spaces for the Education Team (ET) and Task Force (TF) that are currently scattered at different locations;
 - ii. office spaces for the Licensing and Inspection Unit (LIU);
 - iii. facilities for the promotion of animal welfare for the ET;
 - iv. facilities for the promotion of re-homing of animals;
- c) office and disciplinary inquiry related facilities for the Veterinary Surgeons Board (VSB) Secretariat;
- d) the expanded Veterinary Laboratory Division (VLD) and Equine Disease Division (EDD) including laboratory testing area and offices; and
- e) other offices and facilities of AFCD.

1.4.5. The types of animals to be kept in the Building Complex include dogs, cats, small mammals (including rabbits, chinchillas, hamsters and gerbils), reptiles and birds (including parrots, tortoises, turtles and lizards); and the maximum number of animals to be kept is approximately 1,558. The breakdown is tabulated below:

Table 1–1 Types and Estimated Numbers of Animals

Animal Types	Maximum Numbers
Dogs	130
Cats	78
Small mammals (including rabbits, chinchillas, hamsters and gerbils)	70
Reptiles and birds including 40 parrots, 1,200 palm-size tortoises and turtles, and 40 medium size lizards	1,280

1.4.6. The Building Complex will be centrally air-conditioned with the fresh air intake to be positioned at above 20m above ground as recommended in the Environmental Review Report (ERR) for “Kai Tak Development Engineering Study cum Design and Construction of Advance Works – Investigation, Design and Construction: Further Review of Development Intensity” (December 2016) carried out by the Civil Engineering and Development Department (CEDD) to avoid adverse air quality impact arising from road vehicles. AFCD will further liaise with CEDD during detailed design stage to reconfirm the exact level of the fresh air intake to ensure that air quality will comply with the Air Quality Objectives (AQOs).

1.5. Site History

1.5.1. The former Kai Tak Airport had undergone a series of expansion and improvement projects since its first operation. In 1994, an expansion of the South Apron provided additional parking bays for aircrafts.¹

¹ Kai Tak Airport 1925 – 1998 (2013) Civil Aviation Department, HK <https://www.cad.gov.hk/english/kaitak.html>
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1.5.2. After closure of the Kai Tak Airport in 1998, the South Apron area had been temporarily occupied by the Kowloon Motor Bus (KMB) as bus parking area.²

1.5.3. The Project site is currently vacant in majority, with an abandoned public toilet partly located within the Project site.

1.6. Number and Types of Designated Project Covered by the Project Profile

1.6.1. The Project is a designated project under Item N.2, Part I of Schedule 2 of the EIA Ordinance (EIAO) (Cap. 499), “*A quarantine station, or quarantine lairage, for animals*”, which requires an environmental permit for its construction and operation.

1.6.2. This Project Profile is prepared in accordance with Annex 1 of the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM) to seek permission from the Director of Environmental Protection to apply directly for an Environmental Permit for the construction and operation of the Project under Section 5(11) of the EIAO.

1.7. Name and telephone number of contact person(s)

1.7.1. Name and telephone number of contact person are shown as follows:

Mr. CHAN Yuk Hong, Clark	Architectural Services Department Telephone: 2867 3688 Email: chanyh3@archsd.gov.hk
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² Decommissioning of the Former Kai Tak Airport Other than the North Apron (AEIAR-114/2007)
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2. OUTLINE OF PLANNING AND IMPLEMENTATION PROGRAMME

2.1. Project Team

- 2.1.1. AFCD is the project proponent, while Architectural Services Department (ArchSD) being a works agent is responsible for the management of the Project.
- 2.1.2. ArchSD has employed Allied Environmental Consultants Limited (AEC) as the Environmental Consultant to prepare a Project Profile for this Project.
- 2.1.3. Construction of the Building Complex will be carried out by contractor(s) to be employed by ArchSD at a later stage.
- 2.1.4. AFCD is responsible for the operation of the Building Complex after completion of construction works.

2.2. Project Implementation Programme

- 2.2.1. The construction works of the Project is targeted to commence in Q1 2019 for completion by Q2 2022. The Building Complex is targeted to commence operation in Q3 2022.

2.3. Concurrent Projects

- 2.3.1. During the construction period of the Project, the potential concurrent construction works in the vicinity (500 m from the Project Site) are set out below.

Table 2-1 List of Concurrent Projects

Concurrent Projects	(Tentative) Date of	
	Commencement	Completion
Improvement to Lam Wah Street Playground and Associated Open Space and Public Spaces	Jan 2019	Sep 2020
Reprovisioning of Hong Kong Post's Headquarters in the General Post Office Building to a GIC site at Wang Chin Street, Kowloon Bay	Dec 2017	Feb 2021
Kai Tak Acute Hospital (KTAH)	Apr 2021	Nov 2024
Waterfront Promenade adjacent to HKCH at Kai Tak	Dec 2017	Sep 2019
Kai Tak Development Stage 2 Infrastructure Works for Developments at the Southern Part of Former Runway	Nov 2015	2019
Kai Tak Development Stage 3 Infrastructure Works for Developments at the Southern Part of Former Runway	Nov 2015	2019
Kai Tak Development - Remaining Infrastructure Works for Developments at the Former Runway and South Apron	2018	2025
Central Kowloon Route	2018	2025
Trunk Road T2	Feb 2016	2020
Kai Tak Sports Park	Second half of 2018	2022/2023
Kowloon Bay Action Area	Q2 2015	Q4 2029
District Cooling System Phase III (Remaining Works)	2017/2018	2021/2022
Kai Tak Approach Channel and Kwun Tong Typhoon Shelter Improvement Works (Phase 2)	Mid 2019	2022

3. MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

3.1. Environmental Site Context

- 3.1.1. The Project site, located at the South Apron of the former Kai Tak Airport, is currently vacant in majority with part of an abandoned public toilet located within the Project site. The abandoned public toilet will be demolished during construction of this Project. Heavily trafficked Kwun Tong Bypass and Kai Fuk Road are fronting the Project site at the north east. Four existing liquefied petroleum gas (LPG) cum petrol filling stations and one existing petrol filling station are located at the northwest of the Project site. **Figure 3-1** presents the immediate environmental context of the Project site.
- 3.1.2. According to the approved Kai Tak OZP No. S/K22/6, the Project site falls within an area zoned G/IC. Commercial and other specified uses, such as the existing Kai Fuk Industrial Centre, and Mega Box shopping mall are located within the vicinity of Project site. The nearest existing residential development, Telford Garden, is about 579m to the east of the Project site. Planned residential developments are located at about 404m and 700m to the southwest (on the former runway of Kai Tak Airport) and to southeast (the existing Citybus Kowloon Bay Parking Site) of the Project site, respectively. **Figure 3-1** shows the adjacent land uses as referred in the abovementioned Kai Tak OZP.

3.2. Background Air Quality

- 3.2.1. The future background air quality at the Building Complex refers to the EPD's Pollutants in the Atmosphere and their Transport over Hongkong (PATH) modelling results for the nearest year to the year of operation commencement (i.e. Year 2020). The PATH model is a regional air quality model developed by EPD to simulate air quality over the Pearl River Delta Region, including Hong Kong. The model covers the whole Hong Kong area in numbers of grids with spacing of 1km x 1km for each of the grid. A study area of 500m from the Project site boundary covers 4 grids (43,33), (43,34), (44,33) and (44,34) in the PATH model. **Table 3-1** presents the details of the PATH results of the 4 grids at Year 2020, indicating that future PATH background concentrations are at levels below the respective AQOs in an area with a radius of 500m from the Project site.

Table 3–1 Future Air Pollutant Concentrations at Year 2020

Pollutants	Averaging Period	AQOs ($\mu\text{g}/\text{m}^3$)	Grid 43,33	Grid 43,34	Grid 44,33	Grid 44,34
Respirable Suspended Particulates (PM_{10}) ^[1]	24-hour (10 th Highest)	100	77	73	77	73
	Annual (Average)	50	34	32	35	32
Fine Suspended Particulates ($\text{PM}_{2.5}$) ^[2]	24-hour (10 th Highest)	75	57	54	58	55
	Annual (Average)	35	24	23	24	23
Nitrogen Dioxide (NO_2)	1-hour (19 th Highest)	200	121	118	122	109
	Annual (Average)	40	25	22	27	19

Notes:

[1] 10th highest daily and annual PM_{10} concentrations are adjusted by adding $26.5 \mu\text{g}/\text{m}^3$ and $15.6 \mu\text{g}/\text{m}^3$ respectively with reference to Guidelines on Choice of Models and Model Parameters. Same adjustment are applied to estimation of $\text{PM}_{2.5}$ as well.

[2] Since $\text{PM}_{2.5}$ is not available from PATH model outputs, 24-hour average $\text{PM}_{2.5}$ and annual average $\text{PM}_{2.5}$ are estimated by $0.75 \times \text{PM}_{10}$ and $0.71 \times \text{PM}_{10}$ respectively with reference to Guidelines on the Estimation of $\text{PM}_{2.5}$ for Air Quality Assessment in Hong Kong.

3.3. Background Odour Levels

- 3.3.1. Over the past decades, Kai Tak Approach Channel (KTAC) has been receiving large amount of organic pollutant discharges from East Kowloon. Due to poor water circulation, KTAC has been accumulating contaminated sediments on the seabed which leads to odour issues in the vicinity of KTAC. To improve the poor environmental conditions of this area, the Phase 1 improvement works under the “Kai Tak Development – Kai Tak Approach Channel and Kwun Tong Typhoon Shelter improvement works (Phase 1)” were completed in July 2014 to treat sea-bed sediments at the KTAC and Kwun Tong Typhoon Shelter (KTTS) by bioremediation, which improved the water quality and reduced the odour nuisance at KTAC and KTTS.
- 3.3.2. A comprehensive review³ was conducted by CEDD to evaluate the effectiveness of the completed mitigation measures, including localized maintenance dredging within KTAC and in-situ bio-remediation treatment of sediments at KTAC and KTTS implemented under the Phase 1 improvement works, as recommended under the Environmental Impact Assessment (EIA) for Kai Tak Development (KTD) and concluded that an Interception and Pumping (IP) Scheme could achieve similar environmental performance as the originally proposed 600m opening at former runway and meet the requirement for odour mitigation under the EIA for KTD. The IP Scheme will be implemented under Phase 2 improvement works could effectively reduce the pollutants from entering KTAC and KTTS and improve the water circulation there, which eventually suppress the formation of odour at KTAC and KTTS. To further improve the water circulation, Phase 2 improvement works are currently under design stage, and the proposed works are tentatively scheduled to commence in mid-2019 and to be completed in 2022. Since the proposed works aim to reduce odour

³ Kai Tak Development – Kai Tak Approach Channel and Kwun Tong Typhoon Shelter improvement works (Phase 2)
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nuisance at KTAC and KTTS, background odourous content will be further improved during the operation phase of the Building Complex.

- 3.3.3. Regarding the adjacent Kowloon Bay Sewage Interception Station (KBSIS) and Refuse Collection Point (RCP), the operation of the KBSIS is controlled under Environmental Permit No. EP-365/2009⁴, and is fully enclosed and provided with deodourizer; while the design of the RCP will follow the requirements of the Hong Kong Planning Standards and Guidelines (HKPSG) and the RCP will be operated by FEHD. Hence, the odour impacts arising from the operation of above facilities are not anticipated.

3.4. Air Quality

- 3.4.1. Representative air sensitive receivers (ASRs) within the 500m assessment area from the Project site boundary are presented in *Table 3-2*. *Figure 3-3* shows the location of representative ASRs.

Table 3-2 List of Representative Air Sensitive Receivers

ASR ID	ASR	Use	Shortest Horizontal Distance to Project Site Boundary (m)
ASR1	Kai Fuk Industrial Centre	Industrial	61
ASR2	Kai Tak Acute Hospital	Hospital	81
ASR3	Billion Centre	Commercial	93
ASR4	MegaBox	Commercial	159
ASR5	Zero Carbon Building	Open space	159
ASR6	Lam Wah Street Playground	Open space	254
ASR7	Hong Kong Post Central Mail Centre	Mail Centre	251
ASR8	Kowloon Bay International Trade & Exhibition Centre	Performing arts & Commercial	364
ASR9	Hong Kong Children's Hospital	Hospital	379
ASR10	Kellett School	Educational	469
ASR11	Planned Commercial Zone C(8)	Commercial	23
ASR12	Planned Commercial Zone C(1)	Commercial	64
ASR13	Planned Residential Zone R(B)4	Residential	408
ASR14	Planned Residential Zone R(B)5	Residential	404

- 3.4.2. Site 3A5 which is zoned G/IC and adjoining the Project site boundary at the west is proposed to be a Refuse Collection Point (RCP). Site 3A3 which is also zoned G/IC located at the east of the Project site boundary is the existing KBSIS, where no office nor workshop is identified. Since both of the above G/IC sites are not for active/passive recreational uses, nor amenity areas, they are not considered as ASRs.
- 3.4.3. On the other hand, the site zoned Other Specified Uses facing the north of the Project site has two existing LPG cum petrol filling stations and one existing petrol filling station. Only transient stay is expected for the drivers, which is not for the purpose of active/passive recreational uses, nor amenity area. Hence, they are also not considered as ASRs.

⁴ Control of Water Pollution at Jordan Valley Box Culvert - Sewage Pumping Station (JVBCSPS)

3.5. Noise

- 3.5.1. Kai Tak Acute Hospital (KTAH) is located at 81m from the Project site boundary. Based on the best available information, KTAH will be equipped with mechanical ventilation system and will not rely on opened windows for ventilation. Therefore, it is not considered as a representative noise sensitive receiver (NSR).
- 3.5.2. Apart from KTAH, there is no existing residential, industrial nor other types of planned area or facility fall within the 300m assessment area, thus, no NSR is identified near the proposed Building Complex.

3.6. Water Quality

- 3.6.1. With reference to the approved EIA report for the Kai Tak Multi-purpose Sports Complex (AEIAR-204/2017) (currently named as Kai Tak Sports Park), representative water sensitive receivers (WSR) were identified within the Victoria Harbour Water Control Zone. The representative WSRs are summarised in *Table 3-3* and are shown in *Figure 3-4*.

Table 3-3 List of Representative Water Sensitive Receivers

WSR ID	WSR Descriptions	Shortest Horizontal Distance to Project Site Boundary (m)
WSR 1	Kai Tak Approach Channel (KTAC)	265
WSR 2	Kai Tak Nullah (KTN)	705
WSR 3	Kwun Tong Typhoon Shelter (KTTS)	1443
WSR 4	Cooling Water Intakes for Kai Tak District Cooling System, C29A	291
WSR 5	Cooling Water Intakes for Kai Tak District Cooling System, C30	546

3.7. Land Contamination

- 3.7.1. According to the Remediation Report⁵ submitted under the Environmental Permit (EP) No. EP-285/2008 for the “Decommissioning of the Former Kai Tak Airport Other than the North Apron” which covered the Project site, the land contamination assessment and the necessary remediation works have been completed by CEDD in 2010.

3.8. Landscape and Visual Elements

- 3.8.1. Referring to the EIAO Guidance Note No. 8/2010, study area of the landscape impact assessment shall generally include all areas within 500m from the Project site boundary. For visual impact assessment, the assessment area is generally up to the visual envelope, which shall be the viewshed formed by natural/ manmade features such as existing ridgelines or built development. Since many of the areas that are far away from the Project site which are not able to detect perceptible changes from the Project due to its small building footprint and long viewing distance, the assessment focuses on areas that are relatively close to the

⁵ Remediation Report (2010) Kin Wing Construction Co. Ltd. (Contract No. KL/2008/02)
<http://www.epd.gov.hk/eia/register/english/permit/ep2852008/documents/rr/pdf/rr.pdf>

Project site and areas that are able to detect perceptible changes (i.e. area within a radius of three times of the building height), which is defined as the Zone of Visual Influence (ZVI).

- 3.8.2. According to the draft topographical survey plan, no tree was identified within the entire Project site boundary. The Project site is a vacant open land well paved with concrete, and neither special landscape features nor significant landscape element was identified.
- 3.8.3. Landscape Character Areas (LCAs) and Visual Sensitive Receivers (VSRs) during construction phase and operation phase in respect of study area of landscape and visual impact assessment (LVIA) are identified and presented in **Table 3-4**. The LCAs identified during construction phase and operation phase are shown in **Figure 3-5** and **Figure 3-6** respectively. The VSRs identified during construction phase and operation phase are shown in **Figure 3-7** and **Figure 3-8** respectively.

Table 3-4 List of Landscape Character Areas and Visual Sensitive Receivers

ID	Landscape & Visual Items during Construction Phase	ID	Landscape & Visual Items during Operation Phase
LCA1	Open Space / Vegetated Landscape	LCA1	Open Space / Vegetated Landscape
LCA2	Industrial Urban Landscape	LCA2	Industrial Urban Landscape
LCA3	Transportation Corridor Landscape	LCA3	Transportation Corridor Landscape
LCA4	Ongoing Major Development Landscape	LCA4	Development Area/ Government Land
LCA5	Kai Tak Approach Channel Landscape	LCA5	Kai Tak Approach Channel Landscape
VSR1	Billion Centre ^[1]	VSR1	Billion Centre ^[1]
VSR2	Kai Fuk Industrial Centre ^[1]	VSR2	Kai Fuk Industrial Centre ^[1]
VSR3	Hong Leong Industrial Complex ^[1]	VSR3	Hong Leong Industrial Complex ^[1]
VSR4	Po Hong Centre ^[1]	VSR4	Po Hong Centre ^[1]
VSR5	MegaBox ^[1]	VSR5	MegaBox ^[1]
VSR6	Zero Carbon Building ^[2]	VSR6	Zero Carbon Building ^[2]
		VSR7	Commercial Development ^[1]
		VSR8	Commercial Development ^[1]
		VSR9	Kai Tak Acute Hospital ^[3]
		VSR10	Public promenade ^[2]

Notes:

[1] The type of VSR is identified as occupational use.

[2] The type of VSR is identified as recreational use.

[3] The type of VSR is identified as government/ institutional/ community use.

3.9. Adjacent Hazardous Facilities

Potential Hazardous Installation

- 3.9.1. According to Section 4, Chapter 12 of the HKPSG, a Potentially Hazardous Installation (PHI) is an installation which stores hazardous materials in quantities equal to or greater than a specified threshold quantity, which varies with different substances. Based on the latest available information (including on-site survey and review of the latest Kai Tak OZP), no existing nor planned PHI, as defined in the HKPSG, is identified in the area.

Petrol Filling Stations

- 3.9.2. Petrol is categorized as Category 5 Class 1 dangerous goods. The fuel vapour is heavier than air and does not disperse easily in still air conditions. In general, petrol is considered safe when they are contained in an appropriate tank or container and only become hazardous when liquid or vapour escapes and comes in contact with an ignition source.
- 3.9.3. Since petrol weighs heavier than air, if petrol spillage occurs from aboveground dispenser, the majority of the petrol will remain in the underground storage vessel, only limited amount of petrol could be released into the air. Furthermore, petrol filling stations have installed drainage system with petrol interceptor at the site boundary. Hence, petrol spills, if any, would likely remain within the petrol filling stations.

LPG cum Petrol Filling Stations

- 3.9.4. Four LPG cum petrol filling stations are located within the vicinity of the Building Complex as shown in *Figure 3-1*. Their associated fuel gas dangerous goods risk have been assessed in the Quantitative Risk Assessment (QRA) for the Project approved by Electrical and Mechanical Services Department (EMSD); the approved Schedule 3 EIA Report for “Kai Tak Development Engineering Study cum Design and Construction of Advance Works – Investigation, Design and Construction” (AEIAR-130/2009); and the approved Environmental Review Report for “Technical Study on Increasing the Development Density in Kai Tak – Hazard Assessment (LPG Filling Stations)” (November 2014).
- 3.9.5. The separation distances between the Project site boundary and the four LPG cum petrol filling stations which have been covered in the approved QRA report are listed in *Table 3-5*. Findings and conclusion of the approved QRA are detailed in *Section 5.7*.

Table 3-5 Separation Distances between LPG cum Petrol Filling Stations and the Project Site Boundary

LPG cum Petrol Filling Stations	Separation Distance to Project Site Boundary (m)
ExxonMobil – 4 Kai Fuk Road, Kowloon Bay	93
Shell – 8 Kai Fuk Road, Kowloon Bay	30
ExxonMobil – 7 Kai Fuk Road, Kowloon Bay	103
Shell – 5 Kai Fuk Road, Kowloon Bay	142

3.10. Environmental Concern

- 3.10.1. Based on the above, the environmental concerns associated with the Building Complex include air quality, noise, water quality, sewage, waste management and land contamination, hazards to life and landscape and visual impacts. The detailed discussions on potential environmental impacts during construction and operation phases and the associated mitigation measures are presented in the following sections.

4. POTENTIAL IMPACTS ON THE ENVIRONMENT DURING CONSTRUCTION PHASE

4.1. Air Quality

4.1.1. Construction activities at the Project site will involve demolition of the existing abandoned toilet, as well as site formation works, excavation of basement carpark and plant room spaces, superstructure works, and installation of utilities and associated facilities. With the implementation of procedure, requirements and control measures as stipulated in the Air Pollution Control (Construction Dust) Regulation, significant amount of construction dust generated from the above activities are not expected. Adverse construction dust impact to the surrounding ASRs during construction phase is not anticipated.

4.2. Noise Impact

4.2.1. Construction noise will be generated from the demolition of the existing abandoned toilet, site formation works, excavation of basement for car park and plant room spaces, superstructure works, and installation of utilities and associated facilities for the Building Complex. By implementing construction noise control measures during construction phase to control the potential noise impact, adverse noise impact during construction is not anticipated.

4.3. Water Quality

4.3.1. Potential water quality impacts may arise from the discharge of construction run-off and sewage effluent generated by the workforce during the construction phase. With implementation of good site practices and appropriate recommended mitigation measures as stipulated in ProPECC Note 1/94 “Construction Site Drainage” and “Recommended Pollution Control Clauses for Construction Contracts”, adverse water quality impact during construction phase is not anticipated.

4.3.2. The construction phase of the Project will be land-based which does not involve any marine works. Therefore, it is unlikely that the Project will have any adverse water quality impact to the representative WSRs.

4.4. Waste Management

4.4.1. Wastes generated during construction phase mainly comprise Construction and Demolition (C&D) materials, chemical waste and general refuse.

C&D Materials

4.4.2. The C&D materials consist of two portions:

- Inert C&D materials (or public fill) – excavated soil, rock, rubbles, concrete, etc.
- Non-inert C&D materials (or C&D waste) – timber, bamboo scaffoldings, etc.

4.4.3. C&D materials, including inert C&D materials (or public fill) and non-inert C&D materials (or C&D waste) will be generated mainly due to site formation, demolition of the existing

abandoned toilets, excavation works and building construction. As the detailed design is not yet available, the quantities of C&D materials are estimated based on recent projects with similar project scale, i.e. with similar construction floor area (CFA). Based on the production rate of C&D materials of recent projects with similar project scale, the estimated total C&D materials will be about 37,753 tonnes. Of these, about 6,922 tones (18%) of inert C&D materials will be reused on site and 26,636 tonnes (71%) of inert C&D materials will be delivered to public fill reception facilities for subsequent reuse. The remaining 4,195 tonnes (11%) will be disposed of at landfills. Details of estimation of C&D material are in *Appendix 4-1*.

- 4.4.4. Based on the preliminary design, the Building Complex will have a basement level. According to the ground investigation result⁶, there is at least 9m fill material below the ground. Hence, land-type sediment is unlikely to be generated during construction phase.
- 4.4.5. Since disposal of C&D materials will be carried out in accordance with relevant regulations and requirements under the Waste Disposal Ordinance, adverse impact arising from waste management during construction phase of the Project is not anticipated.

General Refuse

- 4.4.6. General refuse such as waste papers, plastic packaging, food wastes, etc. will be generated by the construction workforce during construction phase of the Project. It is anticipated that quantity of general refuse to be generated every day is limited due to the small project scale. With proper on-site handling and storage as well as regular disposal of the general refuse, no adverse impact is envisaged.

Chemical Waste

- 4.4.7. Potential impacts of handling of chemical waste generated due to plant operation and maintenance, such as used cleansing fluids, solvents, lubricating oil, waste fuel, and associated chemical waste, are considered. For construction of the Building Complex, a few cubic meters of chemical waste is expected to be generated per month. With implementation of the measures including proper storage, transportation and disposal procedure, adverse waste management implication due to chemical waste is not anticipated during construction phase.

4.5. Land Contamination

- 4.5.1. In order to identify and evaluate the potential contamination impacts associated with the Project, the current and historical land uses for the Project site have been reviewed. Aerial photographs were obtained from Lands Department and site visit was carried out on 10 April 2017.
- 4.5.2. Operation of Kai Tak Airport began in Year 1925 and terminated in Year 1998¹. The Project site is located at the South Apron of the former Kai Tak Airport. Historical aerial photographs taken between Year 1982 and Year 2016, in *Appendix 4-2*, have been reviewed. From the aerial photographs, the Project site had been used as the South Apron of the

⁶ Ground Investigation: The Development of AFCD Animal Management and Animal Welfare Building Complex in Kai Tak Development (2017) *Gammon Construction Limited* (Contract No. TCC516 Works Order No. ASD012179)

former Kai Tak Airport. In addition, the Project site had been used as a temporary bus parking area of the KMB as mentioned in *Section 0*.

- 4.5.3. The Project site is located within the project boundary of the approved Environmental Impact Assessment (EIA) report for “Decommissioning of the Former Kai Tak Airport other than the North Apron” (AEIAR-114/2007) and the remediation of contaminated soil had been completed under the EP No. EP-285/2008 for the above approved EIA report. With reference to the Remediation Report⁵, no land remediation work was necessary for the Project site. See *Figure 4-1* for location of remediation as required in the Remediation Report.
- 4.5.4. In addition, spillage, leakage and fire incident records at the Project site have been obtained from the Environmental Protection Department (EPD) and the Fire Services Department (FSD). With reference to the correspondence letters from EPD dated 28 April 2017 and 8 November 2017 and FSD dated 16 May 2017 (in *Appendix 4-3*), there was no record of chemical waste producers, dangerous goods license, fire incidents, nor spillage/leakage of dangerous goods within the Project site boundary after 2009.
- 4.5.5. Site inspection was conducted on 10 April 2017 to identify any potential contamination hotspots within and adjacent to the Project site. As observed during site inspection, the Project site is a piece of vacant concrete paved flat land, with an abandoned public toilet partly located at the northeastern edge of the Project site. No apparent crack nor stain was observed on the concrete paved ground. Hence, contamination within the site is unlikely.
- 4.5.6. Petrol filling stations are found adjacent to the Project site and the nearest petrol filling station is located at approximately 30m to the north of the Project site boundary. The nearest petrol filling station and the Project site are separated with stone bund, storm water drains and road. Indirect contamination, if any, leaked from the petrol filling stations to the Project site through 30m is unlikely. As observed during the site inspection, the ground of the petrol filling stations was paved with concrete and no apparent crack and stain was observed. In addition, the road between the Project site, petrol filling stations and other surrounding areas are also well paved with concrete. Hence, contamination due to underground seepage sourced from the adjacent petrol filling stations is unlikely. Photographs showing the current land use of the Project site are in *Figure 4-2*.
- 4.5.7. Based on the above, the potential land contamination at the Project site is unlikely since the operation of former Kai Tak Airport to the completion of land decontamination in Year 2010 and until the present. Therefore, land contamination is not anticipated at the Project site. No residual impact on land contamination is expected during construction of the Project.

4.6. Hazard to Life

- 4.6.1. The construction activities of the Project and the corresponding potential external hazards on the existing LPG cum petrol filling stations are summarized in the following sections:

Movement of Large Equipment/ Construction Vehicles

- 4.6.2. One of the hazards identified is the movement of large equipment/construction vehicles during construction works leading to potential damage to the facilities/equipment of the existing LPG cum petrol filling stations near the Project site.
- 4.6.3. Based on *Section 4.5.6*, the Project site is well separated with at least 30m away from the nearest existing LPG cum petrol filling stations and its facilities/equipment. Also, the construction vehicles during the construction phase will use a dedicated access route. Therefore, the chance of vehicle crashing into the existing LPG cum petrol filling stations is negligible during construction phase.

Dropped Object from Crane Operation

- 4.6.4. Any lifting operation near or above the existing LPG cum petrol filling stations may cause damage to the LPG cum petrol filling stations during the construction phases.
- 4.6.5. Solid concrete cover is erected to avoid damage to the facilities/ equipment of the existing LPG cum petrol filling stations. With implementation of control measures, the potential for a dropped object to cause damage on the Project and the existing facilities of the adjacent LPG cum petrol filling stations is not anticipated.

General Construction Activities

- 4.6.6. General construction activities such as hot works within the Project site will increase the number of ignition sources. With implementation of appropriate measures, the potential hazard from ignition sources during construction phase is not anticipated.
- 4.6.7. Based on the above, potential external hazards arising from movement of large equipment/construction vehicles, dropped object from crane operation, and general construction activities during construction phase are not anticipated.

4.7. Landscape and Visual Impact

Landscape Resources

- 4.7.1. As mentioned in *Section 3.8.2*, since no significant landscape element is identified within the Project site boundary, no impact to landscape resource is expected due to the Project.

Landscape Character Area

- 4.7.2. The LCAs identified during construction phase in the vicinity of the Building Complex are shown in *Figure 3-5*. A few open spaces and vegetated landscape including Zero Carbon Building, Community Green Station, Lam Wah Street Playground and associated public spaces are located in the Kowloon Bay industrial area. These areas are scattered and their amenity value is medium. The sensitivity of LCA1 is medium. The region to the northeast of Kai Fuk Road is a highly developed area. It typically includes areas of industrial buildings, often in very dense arrangements with occasional open areas used for vehicle parking or open storage, comprehensively developed low-rise buildings and some vacant land. The unifying characteristics of this LCA type are their large utilitarian buildings, limited coherence of spaces, features and materials, and absence of significant vegetation cover. The landscape character area (LCA2) for this region is dominated by industrial urban

landscape and its sensitivity is low. Transportation corridor landscape (LCA3) comprises the Kwun Tong Bypass (elevated bypass expressway) and Kai Fuk Road. Few amenity plantings of low to medium amenity value are found in the central median or at the sides of the corridors. The sensitivity of this area is considered as low. The region to the southwest of Kai Fuk Road includes the Project site and its vicinity is mainly vacant concrete paved flat reclaimed land. It is a transitional landscape reserved for future development. The Landscape Character Map of Hong Kong describes this area as 'Reclamation/Ongoing Major Development Landscape'. According to overall disturbed and indeterminate status of LCA4, the sensitivity to change is low. Kai Tak Approach Channel is a semi-enclosed waterbody that collects water from the Kai Tak Nullah. Its landscape is generally inshore and aquatic. The sensitivity of LCA5 is medium.

- 4.7.3. Since the Project involves land-based construction within the Project site boundary, no magnitude of change will bring to the nearby LCAs (LCA1 to LCA5). In addition, construction of the Building Complex aligns with the current landscape character, which LCA4 is a transitional landscape reserved for future development. Hence, although some LCAs have sensitivity ratings of medium, landscape impact to the LCAs during construction phase is considered negligible.

Visual Impact

- 4.7.4. The VSRs identified during construction phase in the vicinity of the Building Complex are shown in *Figure 3-7*. The areas surrounding the Project can be grouped into two regions which are separated by Kai Fuk Road. The region to the southwest of Kai Fuk Road includes the Project site and its vicinity which is mainly a piece of vacant concrete paved flat land. No existing VSR in respect of Landscape and Visual Impact Assessment is identified in this region.
- 4.7.5. The region to the northeast side of Kai Fuk Road mainly consists of commercial office buildings and industrial buildings, which are medium to high rise buildings. VSRs (VSR1 to VSR5) will have a south eastern view of approximately 61m towards the Project site area. Viewers at medium to high levels in these buildings have open and panoramic views over the area and even out to Kai Tak Approach Channel and To Kwa Wan Typhoon Shelter in some instances. Looking towards the Project site, they have views of the vacant land of former Kai Tak Airport which deteriorates their view. Overall the value and quality of the existing view is fair to good, however, considering the activity nature of these VSRs, their sensitivity is medium. The view to the project site is partially blocked by the elevated Kwun Tong Bypass, roadside trees and KBSIS. As the VSRs could have direct view to part of the Project site, the magnitude of change and visual impact of these VSRs are considered to be medium.
- 4.7.6. Zero Carbon Building (VSR6) serves as a major recreational area in the region. Users in this VSR generally have high quality views within their recreational area but the green spaces are mainly enclosed or screen by mature planting and nearby buildings, such that their views to the Project would be restricted. Since duration of view at VSR6 is short and frequency of view is occasional, the sensitivity of this VSR is rated as medium. The view from VSR6 to the project site is partially blocked by the elevated Kwun Tong By-pass, roadside trees and Kowloon Bay Sewage Interception Station. As the VSR could have a glimpse view to part

of the Project, the magnitude of change and visual impact of these VSRs is considered to be small.

- 4.7.7. The impacts to the VSRs would be small after implementation of the mitigation measures during construction phase. Adverse landscape impact is not anticipated during the construction phase of the Project. As summarized in *Appendix 4-4*, the residual landscape and visual impacts during construction phase of the Project are considered as small or negligible.

4.8. Ecology

- 4.8.1. The Project site is a piece of concrete paved vacant flat land. The Project site is not surrounded by areas of ecological value (e.g. woodland and natural stream). Hence, adverse ecological impact is not anticipated during construction phase.

4.9. Cultural Heritage

- 4.9.1. No known site of archaeological interest and declared monument is found within 500m zone of the Project site boundary. Hence, adverse cultural heritage impact is not anticipated during construction phase.

5. POTENTIAL IMPACTS ON THE ENVIRONMENT DURING OPERATION PHASE

5.1. Gaseous Emission from Electrical & Mechanical Plant Rooms

Central Heating Equipment

- 5.1.1. A set of central heating equipment including water boilers, storage calorifier, heat exchanger and circulation pump will be installed for routine premises cleaning and staff showering in the Building Complex. Various equipment combinations and specifications will depend on the future system design. In-house solar hot water system and use of electricity will be adopted for central heating system. With the use of electrical and clean energy, adverse air quality impact arising from central heating equipment to the nearby ASRs during operation phase is not anticipated.

Emergency Generators

- 5.1.2. Two generators will be provided in the Building Complex for emergency use. Device specification is subject to future generators design. With proper design and selection of exhaust location, adverse air quality impact arising from emergency generators to the nearby ASRs during operation phase is not anticipated.

5.2. Potential Odour Impact

- 5.2.1. Based on the observation during site visits at the existing animal management centres, the odour from dogs is dominant over those of cats and other small animals. Major odour sources include dog keeping areas, as well as the quarantine centre, where animal activities are frequent.
- 5.2.2. The existing AMC/K is currently located at 5.6m from the nearest ASRs, i.e. the Bradbury Care and Attention Home for the Aged Blind, and the maximum number of dogs accommodated is 92. There is no odour complaint recorded for the existing AMC/K since 2009. Whereas, for the proposed Building Complex, the nearest ASR, i.e. Planned Commercial Zone C(8), is located at 23m from the Project site boundary, and the maximum number of dogs to be accommodated is 130. Comparing the two facilities, the existing AMC/K is four times nearer to the nearest ASR than the proposed Building Complex and the maximum number of dogs accommodated within the facility is comparable with slight increase in number, therefore odour nuisance arising from the proposed Building Complex is not envisaged.
- 5.2.3. An evaluation on the odour level at the exhaust of the ventilation system of the proposed Building Complex has been carried out to confirm there is no adverse odour impact from the dog keeping areas. With proper design of animal keeping area, i.e. provision of central air-conditioning system as well as odour removal filters, the total maximum predicted odour concentration at the exhausts of the Building Complex, i.e., 1.21 OU/m^3 over an averaging time of 5 seconds, is well below the criterion of 5 OU/m^3 over an averaging time of 5 seconds as stipulated in the EIAO-TM. Details of the predicted odour concentrations at the exhausts of the Building Complex are set out in *Appendix 5-1*.
- 5.2.4. With implementation of odour control measures, the potential odour impact from open-air exercise areas will only be short-term and readily dispersed at higher levels, and it is

considered that adverse odour impacts arising from the proposed Building Complex are not anticipated.

5.3. Animal Activity Noise

- 5.3.1. According to the latest preliminary project information, animal activity noise such as dog barking will arise from areas including animal licensing units, medical treatment facilities, dog and cat keeping areas and animal adoption centre.
- 5.3.2. Given that no NSR which relies on opened windows for ventilation is identified within 300m assessment area from the Project site, animal activity noise impact associated with the operation of this Project is not anticipated.

5.4. Fixed Plant Noise

- 5.4.1. Given that major electrical and mechanical (E&M) plant rooms will be housed within the concrete structure of the Building Complex, and location of air intake and exhaust louvers of the central air-conditioning system will be properly designed with adoption of necessary noise mitigation measures, fixed plant noise impact associated with the operation of this Project is not anticipated.

5.5. Sewerage and Sewage Treatment

- 5.5.1. According to the approved Schedule 3 EIA report for Kai Tak Development (KTD), the sewerage in KTD is separated into two sewerage systems, the eastern sewerage collects sewage from the eastern catchment and discharge into the Kwun Tong Preliminary Treatment Works (KTPTW), while the sewage from northwest catchment discharges into To Kwa Wan Preliminary Treatment Works (TKWPTW).
- 5.5.2. The sewage generated from the Project belongs to part of the eastern catchment that discharges into Kwun Tong Preliminary Treatment Works (KTPTW) and ultimately into Stonecutters Island Sewage Treatment Works via deep tunnels.
- 5.5.3. Sewage generated from the proposed Building Complex, including water from staff showering and cleaning of animal activity area is estimated to be $0.0289\text{m}^3/\text{s}$ (detailed estimation in *Appendix 5-2*). Since the Project is a planned development in KTD, the sewerage system of the Project will be designed for proper connection to the nearby sewerage collection network system in the KTD. The generated sewage will be discharged into the nearby trunk sewer, which is a $2.3\text{m} \times 2.5\text{m}$ box culvert, with total capacity of $7.9925\text{m}^3/\text{s}$. Hence, the estimated peak flow from the proposed Building Complex only contributes approximately 0.37% to the total capacity of the trunk sewer, which is less than one percent of the capacity of the trunk sewer.
- 5.5.4. Further, with reference to the Project Profile for “Proposed Upgrading of Kwun Tong Preliminary Treatment Works” (DIR-245/2016), the existing Kwun Tong Preliminary Treatment Works (KTPTW) will be upgraded to cater for the future design capacity of $13.13\text{m}^3/\text{s}$ with modification of civil structures. The estimated sewage generated from the Building Complex is $0.0289\text{m}^3/\text{s}$ which is only 0.22% of the total upgraded capacity of KTPTW. In this connection, adverse sewerage impact during operation of the Project is not anticipated.

5.5.5. All potential contaminated surface runoff from the uncovered area of the Project site (e.g. open-air exercise area) and the wastewater arising from cleaning of animal keeping areas will be discharged into the foul sewerage system instead of the stormwater system to prevent contamination to the public stormwater system. The veterinary testing laboratory will apply for a wastewater discharge licence under the Water Pollution Control Ordinance, and any discharge from the veterinary laboratory to the public sewerage system will comply with the requirements as stipulated in the licence. Hence, adverse water quality impact is not anticipated.

5.6. Waste Management

5.6.1. Based on observations during site inspections carried out at the existing veterinary testing laboratory in Sheung Shui, the existing AMC/K at Sung Wong Toi Road and the New Territories South Animal Management Centre in Shatin, the major types of wastes generated from the proposed Building Complex includes:

- clinical waste associated with animal medical treatment in animal management zones and testing activities in veterinary testing laboratory;
- general refuse generated in typical office operation of AFCD staff, and visitors to the future animal management zones, adoption centre and classroom;
- chemical waste produced from operation in veterinary testing laboratory; and
- special wastes including animal carcasses due to euthanasia and natural death within the Building Complex.

5.6.2. The estimated total daily amount of clinical waste generated will be subject to variations depending on seasonal factors and animal populations. Quantity of general refuse generated by visitors and staff during daily operation would not be substantial. For chemical waste generated from the operation of the proposed veterinary testing laboratory, as advised by AFCD, the estimated quantity of chemical waste generated is around 800 litres per year, which is the similar amount of chemical wastes generated from the existing Tai Lung Veterinary Laboratory in Sheung Shui with a similar scale as the proposed expanded veterinary laboratory.

5.6.3. Animal carcasses resulting from euthanasia and natural death within the Building Complex are special wastes. With proper storage and disposal controlled through an Admission Ticket System, no adverse impact is envisaged.

5.6.4. The proposed Building Complex will adopt similar existing operating procedures for waste segregation and handling for the above waste types as in the existing animal management centres and Tai Lung Veterinary Laboratory in Sheung Shui managed by AFCD. Hence, adverse waste management implication is not anticipated during operation phase.

5.7. Hazard to Life

Off-site LPG cum Petrol Filling Stations

- 5.7.1. A separate QRA for the four existing LPG cum petrol filling stations (the nearest petrol filling station at about 30m from the proposed Building Complex) has been carried out and approved by the EMSD in February 2017.
- 5.7.2. Hazardous scenarios including fireballs, BLEVE, jet fire, flash fire and pool fire have been assessed according to the meteorological conditions. The following assessment scenarios have been considered in the approved QRA:
- Base Case: Year 2022 background population in the vicinity without the population contribution from the Building Complex;
 - Maximum Population in the Complex: Year 2022 maximum population in the Building Complex only; and
 - Overall Risk Case: Year 2022 operational year with maximum population in the Building Complex.
- 5.7.3. With reference to the approved QRA, the assessment results indicated that the estimated maximum off-site individual risk levels (around 10^{-6} /year) of all LPG filling stations do not exceed 10^{-5} /year, which are in compliance with the Hong Kong Risks Guidelines. The societal risks from the LPG filling stations are all within the acceptable regions (below 10^{-5} frequency of 1 fatality per year to below 10^{-8} frequency of 1,000 fatalities per year). Thus, adverse hazard to life arising from off-site LPG cum petrol filling stations is not anticipated.

On-site Dangerous Goods Stores

- 5.7.4. Besides the off-site potential hazardous sources from LPG cum petrol filling stations mentioned in *Section 5.7.1*, the proposed dangerous goods (DG) stores located on the ground floor of the Building Complex are also identified as a potential hazardous source. The potential hazard will arise from handling and transferring of the DGs. The quantities of DGs to be stored in the future DG stores estimated by VLD and EDD of AFCD are presented in *Table 5-1* below. Ethyl alcohol and carbon dioxide will be used for decontamination and experiment in the veterinary testing laboratory and no heating process will be involved. As stipulated in the Dangerous Goods (General) Regulations (Cap 295B), the exempt quantities for ethyl alcohol and carbon dioxide are 20L and 1 cylinder, respectively. Since the estimated storage capacity of these substances will exceed the respective exempt quantities, a licensed for the proposed DG stores is required. As the types of DGs to be stored in the proposed DG stores do not belong to any of the PHI categories, no massive hazard to life impact is anticipated.

Table 5-1 Estimated Quantities of Dangerous Goods

DG Item	Category	Estimated Storage Capacity	Exempt Quantity (Cap. 295)
Carbon dioxide	2	4 cylinders	1 cylinder
Ethyl alcohol	5	150L	20L

- 5.7.5. On the other hand, the distance between the doors of the DG stores and the closest site boundary will be at least 3 meters. Vegetation and trees will be planted at the ground floor of the proposed Building Complex including the areas between DG stores and site boundary.

A sufficiently large buffer zone is thus formed to reduce initial explosive impact if any accident occurs.

- 5.7.6. With application for DG storage license and proper utilization of DG and DG stores, the risk of hazard to life is acceptable and complies with the EIAO-TM requirement. Thus, adverse hazard to life is not anticipated during operation phase.

5.8. Health Risk Management

- 5.8.1. The veterinary testing laboratory for VLD and EDD will be located at the high levels of the proposed Building Complex. Testing activities at the veterinary testing laboratory will be carried out daily. It provides official veterinary laboratory testing services in the following disciplines – microbiology and antimicrobial sensitivity testing, serology, virology, histology and molecular biology. Majority of the sample tested by VLD and EDD in the existing operating laboratory in Sheung Shui originated from various animal species such as birds and poultry, fish, dogs, cats, pigs and horses, etc. With the expansion of the VLD and EDD, the abovementioned samples will be also tested in the proposed veterinary testing laboratory in the Building Complex. As advised by AFCD, no gaseous nor odorous emission from the veterinary testing laboratory is anticipated. Potentially infectious substance would possibly be handled during sample handling and testing. With proper cleaning, treatment of exhaust air and appliance of international guideline, risk of human health due to the proposed veterinary testing laboratory is considered negligible.
- 5.8.2. On the other hand, some of animals to be kept in the future Building Complex which include dogs, cats, small mammals, reptiles and birds may be diseased and require treatment and/or euthanasia. Many infectious diseases are possible to transmit from animals to humans, including bacterial, viral and fungal infections, as well as parasite infestations. Examples are rabies from dogs and other mammals, plague, leptospirosis and viral meningitis from rodents, avian flu and atypical pneumonia from birds and poultry, salmonellosis from reptiles and other animals. The main routes of transmission are listed below.
- a) Close contact and droplet transmission
 - b) Exposure to excreta
 - c) Bite by insects such as fleas, ticks and flies
 - d) Scratch injury and bites by animals
- 5.8.3. The operation of the proposed Building Complex will strictly follow AFCD's rabies prevention protocol, hygiene and disinfection guidelines, which will ensure any risk to the local environment is minimised and controlled to international standards and practices. The same health risk management procedures have been adopted effectively in all animal management centres managed by AFCD in Hong Kong.
- 5.8.4. As mentioned in previous section, the potential human health risk would only be caused by close contact and droplet transmission, exposure to excreta, bite by insects such as fleas, ticks and flies, and scratch injury and bites by animal. Adequate buffer distance would be allowed to avoid the potential risk. Since the planned KTAH is located at about 81m from the Project site boundary, sufficient buffer distance separation has been provided between the two developments. Close contact is not considered as a concern of potential infectious disease to be spread to the adjacent planned hospital.

- 5.8.5. In addition, the Building Complex will ensure clear segregation of dirty and clean areas without cross traffic, provide proper air ventilation, implement vector control measures and waste management measures, provide staff training in infection control, strictly follow laboratory and health risk management protocols and conduct staff health surveillance. Hence, health risk issue associated with the operation of this Project is not anticipated.

5.9. Landscape and Visual Impact

Height Limitation

- 5.9.1. No new development shall result in a total development and/or redevelopment in excess of the maximum building height in terms of metres above Principal Datum (mPD) as stipulated in the OZP. As stipulated in the approved Kai Tak OZP No. S/K22/6, the maximum building height for Site 3A1 is 80mPD. Based on the latest information of the proposed Building Complex, the building height limit is complied with.

Landscape Resources

- 5.9.2. As mentioned in *Section 3.8.2*, since no significant landscape element is identified within the Project site area, no impact to landscape resource is expected due to the Project.

Landscape Character Area

- 5.9.3. The LCAs identified during operation phase in the vicinity of the proposed Building Complex is shown in *Figure 3-6*. Except the current open spaces and vegetated landscape, more sitting-out areas and new developed green zones will be included in LCA1 to establish “Green Spine” and “Green Link” in Kowloon Bay Business Area. At the same time, green areas and public open spaces within private development will be provided within Kowloon Bay Action Area. Due to similar amenity value, the sensitivity of LCA1 will remain as medium. As LCA2 for the region to the northeast side of Kai Fuk Road will still be dominated by industrial urban landscape, its sensitivity will be low. After the completion of strategic traffic networks, LCA3 will consist of Kwun Tong Bypass, Kai Fuk Road, Central Kowloon Route and Trunk Road T2. Amenity plantings will be found in the central median or at the sides of the corridors. The sensitivity of this area is rated as low to medium. The region to the southwest of Kai Fuk Road includes the Project site and its vicinity will be converted from vacant land into Kai Tak Development. Owing to its integrated usage, the sensitivity to change will be medium. As no physical change will be expected for the Kai Tak Approach Channel, the sensitivity of LCA5 will remain as medium.
- 5.9.4. Since the proposed Building Complex will be restricted inside the Project site boundary, no magnitude of change will bring to the nearby LCAs (LCA1 to LCA5). Moreover, operation of the Building Complex aligns with the current landscape character, which LCA4 will be a large scale integrated development. Hence, although some LCAs have their sensitivity of medium, landscape impact to LCAs due to the Project is considered negligible.

Visual Impact

- 5.9.5. The VSRs identified during operation phase in the vicinity of the Building Complex is shown in *Figure 3-8*. The region to the northeast side of Kai Fuk Road will consist of commercial office buildings and industrial buildings, which are existing medium to high rise

buildings. VSRs (VSR1 to VSR5) will have a south eastern view of approximately 61m towards the Project site area. Viewers at medium to high levels in these buildings have open and panoramic views over the area and even out to Kai Tak Approach Channel and To Kwa Wan Typhoon Shelter in some instances. After the completion of the Project, the view of VSRs in low and mid-levels will have a close view to the front of the Building Complex. Considering the activity nature of these VSRs, their sensitivity is medium. As the VSRs could have partial view blockage to the Project site, the magnitude of change and visual impact of these VSRs is considered to be medium.

- 5.9.6. As duration of view is short and frequency of view is occasional at VSR6, the sensitivity of this VSR is rated as medium. The view from VSR6 to the Building Complex will be partially blocked by elevated Kwun Tong By-pass, roadside trees and Kowloon Bay Sewage Interception Station. As the VSR could have a partial view to the Project, the magnitude of change and visual impact of these VSRs is considered to be medium.
- 5.9.7. With reference to the approved Kai Tak OZP, the region to the southwest and south of Kai Fuk Road are zoned “Commercial” and are the planned KTAH, respectively. Since frequency of view for people inside the potential commercial developments (VSR7 to VSR8) are occasional, their sensitivity is medium. On the other hand, owing to higher frequency of view and relative long duration of view, the sensitivity of Kai Tak Acute Hospital (VSR9) is medium to high. As the VSRs in this area could enjoy the seashore without blockage induced from the Building Complex, the magnitude of change and visual impact for VSR7 to VSR9 is considered to be slight.
- 5.9.8. To enable a seamless and integrated planning, the waterfront promenade adjoining nearby commercial area and hospital sites at Kai Tak Development Area will be developed for passive recreation and pedestrian circulation. It will attract office workers, residents and workers from outside, as well as from the immediate neighbourhood. The sensitivity of VSR10 is rated as medium. Waterfront walkway in the public promenade provides visitors close-up views of the former runway and Kai Tak Cruise Terminal, which are the new landmarks of East Kowloon. As the Building Complex will be located behind the future promenade and will not obstruct panoramic views of the former runway and the Cruise Terminal, the magnitude of change and visual impact for VSR 10 is considered negligible.
- 5.9.9. After implementation of mitigation measures, the glare impact on human or animal is not anticipated, and residual landscape and visual impact and during operation stage would be negligible. Summary of residual landscape and visual impacts during operation phase of the Project is in *Appendix 5-3*.

5.10. Ecology

- 5.10.1. The Project site is a piece of concrete paved vacant flat land and not surrounded by areas of ecological value (eg. woodland and natural stream). Hence, adverse ecological impact is not expected during the operation phase. As adverse ecological impact is not anticipated during operation phase, no mitigation measure is required.

5.11. Cultural Heritage

- 5.11.1. No known site of archaeological interest and declared monument is found within 500m from the Project site boundary. Hence, cultural heritage impact arising from operation of the

Project is not anticipated. As adverse cultural heritage impact is not anticipated during operation phase, no mitigation measure is required.

6. ENVIRONMENTAL PROTECTION MEASURES TO BE INCORPORATED IN THE DESIGN AND FURTHER ENVIRONMENTAL IMPLICATIONS DURING CONSTRUCTION PHASE

6.1. Air Quality

6.1.1. In spite of minimal construction dust impact to the surrounding ASRs, the Contractor will be obliged to follow the procedures, requirements and control measures under the Air Pollution Control (Construction Dust) Regulation. The following dust suppression measures will be implemented to minimise fugitive dust impact:

- any excavated dusty material will be entirely covered by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;
- any dusty materials remaining after a stockpile is removed will be wetted with water and cleared from the surface of roads or streets;
- the load of dusty materials on a vehicle leaving a construction site will be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle;
- where practicable, vehicle washing facilities with high pressure water jet will be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point will be paved with concrete, bituminous materials or hardcore;
- when there are open excavation and reinstatement works, hoarding of not less than 2.4m high will be provided as far as practicable along the site boundary with provision for public crossing. Good site practice will also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;
- the portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit will be kept clear of dusty materials;
- any area that involves demolition activities will be sprayed with water or dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet;
- where a scaffolding is erected along the perimeter of a building under construction, effective dust screens, sheeting or netting will be provided to enclose the scaffolding from the ground floor level of the building, or a canopy will be provided from the first floor level up to the highest level of the scaffolding; and
- any skip hoist for material transport will be totally enclosed by impervious sheeting.

6.2. Noise Impact

6.2.1. To control potential noise impact, construction noise control practices which are listed below will be implemented by the Contractor:

- use of Powered Mechanical Equipment (PME) in the open areas of the Project site will be limited so as to minimize construction noise, and to avoid parallel operation and unnecessary idling;
- apply direct noise mitigation measures, such as movable and temporary noise barrier and enclosure for the noisy operating PME;
- use of quiet plant associated with the construction works as prescribed in British Standard “Noise Control on Construction and Open Sites, BS5228: Part 1: 2009” which contains the Sound Power Levels (SWLs) for specific quiet PME; and
- follow the requirements of the “Recommended Pollution Control Clauses” which will be included in the Construction Contract.

6.3. Water Quality

6.3.1. The Contractor is required to implement good site practices and appropriate recommended mitigation measures as stipulated in ProPECC Note 1/94 “Construction Site Drainage” and “Recommended Pollution Control Clauses for Construction Contracts” to control construction site discharges.

6.4. Waste Management

C&D Materials

6.4.1. During the construction phase, in accordance with the requirements set out in ETWB TCW No. 19/2005 Environmental Management on Construction Sites, the contractor has to submit for approval an Environmental Management Plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert C&D materials (or public fill). Inert C&D materials (or public fill) will be reused on-site as filling materials or transferred to public fill facilities or recycling facilities as appropriate while non-inert C&D materials (or C&D waste) will be disposed of at landfills. Non-timber formwork, metal site hoardings and signboards will be used so that these materials can be recycled or reused in other projects. With regard to Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N), the contractor has to separate the inert portion from non-inert C&D materials (or C&D waste) on site for disposal at appropriate facilities. The disposal of inert C&D materials (or public fill) and non-inert C&D materials (or C&D waste) at public fill reception facilities and landfills respectively will be control through a trip ticket system, in accordance with DEVB TCW No. 6/2010 Trip-ticket System for Disposal of Construction and Demolition Material. The abovementioned mitigation measures will be incorporated in the contractor’s technical specification.

6.4.2. Provided that the C&D materials generated from the Project is properly handled, stored, recycled as far as possible, and that they will be disposed of in accordance with relevant regulations and requirements under the Waste Disposal Ordinance, adverse impact arising from waste management during construction phase of the Project is not anticipated.

General Refuse

- 6.4.3. General refuse will have to be temporarily stored in enclosed bins or compaction units separated from excavated and inert C&D materials to minimize odour nuisance and it will be collected on a regular basis. The Contractor will employ a licensed waste collector to remove general refuse from the site to WENT or NENT Landfill through West Kowloon Transfer Station. With proper on-site handling and storage as well as regular disposal of the wastes, no adverse impact is envisaged.

Chemical Waste

- 6.4.4. Chemical wastes will be temporarily stored at the designated chemical waste storage area prior to collection by a licensed chemical waste collector. Chemical waste management measures will be implemented during construction phase to minimize the waste management implication. These include:

- The Contractor will be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the “Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes”;
- Good quality containers compatible with the chemical wastes will be used, and incompatible chemicals will be stored separately;
- Appropriate labels will be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc; and
- The Contractor will employ a licensed chemical waste collector to transport and dispose of the chemical wastes at the approved Chemical Waste Treatment Centre or other licensed treatment facilities, according to the Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C).

- 6.4.5. Adverse waste management implication due to chemical waste is not anticipated during construction phase.

6.5. Land Contamination

- 6.5.1. As no land contamination is expected, no mitigation work or test will be necessary.

6.6. Hazard to Life

Movement of Large Equipment/ Construction Vehicles

- 6.6.1. As a dedicated access route will be used for the construction vehicles, the chance of vehicle crashing into the existing LPG cum petrol filling stations is negligible during construction phases.

Dropped Object from Crane Operation

- 6.6.2. To prevent the occurrence of dropped object from crane operation, the lifting equipment operation procedure will be specified in the contractor’s method statement to ensure that any

lifting operation over the Project site boundary should be strictly minimized. If such lifting operation cannot be avoided, lifting activities will be assessed, controlled, and closely supervised by contractors and qualified operation staff.

General Construction Activities

- 6.6.3. To eliminate any potential hazard from ignition, the ignition sources during the construction phase will be confined within the site, and work permit system for hot work activities within the Project site will be specified in the contractor's method statement.

6.7. Landscape and Visual Impact

Landscape Resources

- 6.7.1. As no impact to landscape resource is expected due to the Project, no mitigation measure is required during construction phase.

Landscape Character Area

- 6.7.2. As landscape impact to the LCAs during construction phase is considered negligible, no mitigation measure is required.

Visual Impact

- 6.7.3. Mitigation measures will be implemented to minimize the visual impact during the construction phase. Measures such as coverage of temporary stockpile of excavated and building materials, erection of hoardings with outlook matching with surrounding landscape and minimization of any night time glaring are proposed to mitigate potential visual impacts.

6.8. Ecology

- 6.8.1. As adverse ecological impact is not anticipated during construction phase, no mitigation measure is required.

6.9. Cultural Heritage

- 6.9.1. As adverse cultural heritage impact is not anticipated during construction phase, no mitigation measure is required.

7. ENVIRONMENTAL PROTECTION MEASURES TO BE INCORPORATED IN THE DESIGN AND FURTHER ENVIRONMENTAL IMPLICATIONS DURING OPERATION PHASE

7.1. Gaseous Emission from Electrical & Mechanical Plant Rooms

Central Heating Equipment

- 7.1.1. As adverse air quality impact arising from central heating equipment to the nearby ASRs during operation phase is not anticipated, no mitigation measure is required.

Emergency Generators

- 7.1.2. To diminish potential air quality impact arising from emergency generators, all outlets of exhaust connected to pump rooms, plant rooms and gen set rooms will be designed in accordance with the Air Pollution Control (Furnaces, Oven and Chimneys) (Installation and Alteration) Regulations (Cap. 311A) and prior approval from the Director of Environmental Protection will be sought if applicable.

7.2. Potential Odour Impact

- 7.2.1. The new Building Complex will unlikely cause adverse odour impact to the nearby ASRs due to the following reasons:
- The Building Complex will adopt a full-enclosure design, equipped with central air-conditioning system to provide a well-mixed and stable environment. Animal keeping areas in the Building Complex will also be enclosed and equipped with central air-conditioning system with a minimum air change rate of 10 air changes per hour (ACH), and odour removal filters will be installed at the exhaust of the ventilation system.
 - The provision of odour removal filters of at least 85% efficiency, such as activated carbon filter, High Efficiency Particulate Air (HEPA) filter, Nano-Confined Catalytic Oxidation (NCCO) filter/reactor, or equivalent, will effectively remove odorous smell from emitting to the atmosphere. The odour removal system will be properly maintained to ensure that the above said odour removal efficiency could be achieved throughout the operation of the Building Complex. Given that odour removal filters with odour removal efficiency of more than 85% have been proven to be effective in removing odour at other concerned facilities such as sewage treatment works, it is considered by installation of the odour removal filters with proper maintenance, adverse odour impacts arising from the Building Complex is not anticipated.
 - Open-air exercise areas for animal will be designed such that the opening would face north towards Kwun Tong Bypass and would be away from nearby ASRs and located at higher levels of the Building Complex, so that the odour could be readily dispersed and diluted at the higher level of the Building Complex, without causing adverse odour nuisance to the nearby ASR. The open-air exercise areas will be restricted for use during office hours only, and no activity will be allowed during nighttime. The opening hours of open exercise area is 4 hours per day. Each play session is no more

than one hour in general. Each time only one dog is allowed to stay in a play area and always accompanied by one staff/the owner who will provide immediate and effective cleaning to avoid accumulation of odour emission sources. So the potential odour impact will only be short-term and readily dispersed at higher levels.

- Water points and drainage will be provided at all areas where dogs and cats are accessible within the Building Complex, in order to provide frequent and effective cleaning by the future AFCD staff, and thus avoid accumulation of odour sources.

7.3. Animal Activity Noise

- 7.3.1. Despite no NSR identified within 300m assessment area, all the areas from where dog barking will arise, including animal licensing units, medical treatment facilities, dog keeping areas and animal adoption centre, will be located within façaded rooms, served by central air-conditioning system and not relying on opened windows for ventilation, in order to well control and limit animal activities noise within the Building Complex.
- 7.3.2. Open-air exercise areas for dogs and cats are situated at semi-opened outdoor area. Activity in the open-air exercise areas is limited and short-term. The operation period will be restricted to office hours only, and no activity would be allowed during night-time. The openings of open-air exercise area for dogs and cats will face north towards Kwun Tong Bypass and at higher levels of the Building Complex which are also away from the KTAH. Office, library and classrooms within the Building Complex will be protected by internal acoustic treatment and curtain wall design. Potential noise impact from open-air exercise areas is not anticipated.

7.4. Fixed Plant Noise

- 7.4.1. Major Electrical and Mechanical (E&M) plant rooms of the Building Complex will be housed within the building envelope by concrete structure. Lift machine rooms located at the roof top will also be housed within concrete structures.
- 7.4.2. Locations of air intake and exhaust louvers of the central air-conditioning systems will be designed in the project's detail design stage, while necessary noise mitigation measures, such as acoustic silencer and louvers will be adopted, for the full compliance with fixed plant noise levels recommended in the EIAO-TM. Therefore, fixed plant noise impact associated with the operation of this Project is not anticipated.

7.5. Sewerage and Sewage Treatment

- 7.5.1. As adverse sewerage impact and water quality impact are not anticipated due to operation of the Building Complex, no mitigation measure is required during operation phase.

7.6. Waste Management

- 7.6.1. With reference to the Clinical Waste Control Scheme, all clinical wastes generated from the animal management zones and veterinary laboratory will be collected by licensed clinical waste collectors. Clinical waste from the veterinary testing laboratory will undergo treatment by disinfectant or steam sterilization when necessary, before collection by licensed clinical waste collectors. In accordance with Code of Practice for the Management

of Clinical Waste – Clinical Waste Producers and Waste Collector published under Section 35 of the Waste Disposal Ordinance (Cap. 354), the project operator will ensure proper handling of clinical waste within the producing premises, including segregation, packaging, labelling, storage, collection, transportation and disposal of clinical waste. The project operator will employ a licensed clinical waste collector to remove the clinical waste from the Building Complex.

- 7.6.2. For chemical waste, proper management procedures in accordance with the Waste Disposal (Chemical Waste) (General) Regulation and the Code of Practice of the Packaging, Labelling and Storage of Chemical Waste will be implemented. All chemical waste will be regularly collected by licensed chemical waste collectors for subsequent disposal.
- 7.6.3. Special wastes will be stored in sealed containers in a waste storage room and will be collected by licensed contractors to be disposed of at landfills. The disposal of these wastes is controlled by EPD through an Admission Ticket System in accordance with the Waste Disposal Ordinance (Cap. 354).
- 7.6.4. General refuse will be stored in covered refuse containers, and will be removed from the site on regular basis to minimize odour, pest and litter impacts. To promote recycling of waste paper, aluminium cans and plastic bottles, the recycling bins (such as those available from EPD) will be clearly labelled and placed at convenient locations. The recyclable materials will then be collected by reliable waste recycling agents on a regular basis.
- 7.6.5. With adoption of similar existing operating procedures for waste segregation and handling for the above waste types as in the existing animal management centres and Tai Lung Veterinary Laboratory in Sheung Shui managed by AFCD, adverse waste management implication from waste is not anticipated during operation phase.

7.7. **Hazard to Life**

Off-site LPG cum Petrol Filling Stations

- 7.7.1. Since both individual risk and societal risk meet the requirement as stipulated in the EIAO-TM and the HKPSG, thus no mitigation measure is required.

On-site Dangerous Goods Stores

- 7.7.2. A license will be applied for the DG storage in accordance with the Dangerous Goods Ordinance (Cap. 295), and the following items will be followed, including but not limited to:
- Stores and doors constructed of fire resisting materials;
 - Adequate ventilation provided by natural or mechanical ventilation;
 - Fire dampers installation at compartment walls of DG store;
 - For Cat. 5 DG, door sill of at least 300mm above the floor level with 100% retaining capacity of the proposed storage;

- Proper warning signage and identification; and
- Firefighting equipment.

7.7.3. Ethyl alcohol and carbon dioxide will be well-isolated and prevented from the fluctuating environment in the DG stores. Sufficient ventilation will be provided in the DG stores to avoid accumulation of the volatile ethyl alcohol within DG stores. Drip containers will be provided for collecting the ethyl alcohol in case of leakage. Carbon dioxide-containing gas cylinders will be regularly inspected by licensed contractors to ensure that the gas cylinders are in good condition. Release of pressurized gas due to rupture or damage of gas cylinders will be confined within the laboratory and DG stores. Smoking and hot works will be prohibited in the veterinary laboratory and DG stores. Staff will be well-trained to properly handle the DGs and utilization of emergency toolkits if spillage of DGs occurs. Loading and unloading of DGs will be carried out within the Project site. Based on the above, the risk of ignition of the concerned DGs is low and therefore it is unlikely to pose on-site hazard to life risk.

7.8. Health Risk Management

7.8.1. According to Biosafety in Microbiological and Biomedical Laboratory published by U.S. Centers for Disease Control and Prevention (CDC), abatement of environmental microbial contamination by ordinary cleaning procedures is adequate to hamper environmental transmission. Apart from conventional sterilisation, laboratory tests will be conducted in biological safety cabinet (BSC) equipped with HEPA filters to provide personnel, sample and environmental protection. Exhaust air from laboratories will also pass through HEPA filter prior to discharge to the atmosphere. The exhaust location of BSC will be located away from the KTAH as far as practicable. Infectious microorganisms and hazardous biological materials in the proposed veterinary laboratory will be handled and contained according to the safety precaution procedures with reference to the “Laboratory Biosafety Manual” publicized by World Health Organization (WHO). Specific air pressure will be also applied at the laboratory testing rooms to prevent cross-contamination of biological substances. General operation in the proposed veterinary testing laboratory will be similar to that in the Tai Lung Veterinary Laboratory in Sheung Shui. In this connection, risk of human health due to the proposed veterinary testing laboratory is considered negligible.

7.8.2. The operation of the proposed Building Complex will strictly follow the AFCD's rabies prevention protocol, hygiene and disinfection guidelines, which will ensure any risk to the local environment is minimised and controlled to international standards and practices. The same health risk management procedures have been adopted effectively in all animal management centres managed by AFCD in Hong Kong. The general disease prevention procedures are summarised below:

- All animals imported and quarantined at animal management centres must have also passed the health check by veterinarians from country of origin and presented with a valid health certificate and vaccination record issued by private veterinarian and endorsed by the official veterinarian from country of origin prior to arrival.
- All animals admitted to the animal management centres will be examined by the AFCD's Veterinary Officer for the signs of diseases. Animals suspected to be diseased will be segregated for further examination/treatment/ethanized depends on the

severity, prognosis and animal welfare aspects.

- Dogs and cats under quarantine will be housed individually to prevent the potential spread of diseases.
- Parasite preventions (for fleas and ticks) will be applied to dogs and cats admitted to the centre
- No direct contact between general public and stray animals will be allowed in the centre.
- Access to animals under quarantine are restricted to owners or appointed representatives only under the escort of animal management centres' staff.
- Personal protective equipment such as gowns, gloves are provided to the visitors. Visitors are required to disinfect their hands and any possible contamination prior leaving the quarantine center.
- All rooms will be cleaned twice daily and disinfected when animals are moved out.
- Centre staff will conduct regular checks (at least twice daily) on the animals.
- If the animal displays signs of Rabies during the quarantine period, a rabies investigation will be carried out by the Department and the carcass will be disposed of at the Department's discretion.
- Animals in the centre displaying any signs of diseases will be examined by the Veterinary Officer.
- Staff experiencing syndromes and signs of diseases will be advised not to have contact with the animals and seek medical attention.

7.8.3. Besides, with reference to *Guideline for Standards of Care in Animal Shelters* published by the Association of Shelters Veterinarians, animal keeping areas in the proposed Building Complex will be equipped with separate air circulation from the rest of the facility, such as offices, education facilities, meeting rooms, laboratory, to avoid cross-contamination of zoonotic diseases among animals and humans.

7.8.4. Moreover, the entrances and exits of the proposed Building Complex will be located away from the adjacent planned hospital, such that the cross traffic will be avoided between animals/staff and hospital subjects, vector and airborne transmission of pathogens, environmental contamination by waste, etc.

7.8.5. In addition, the Building Complex will ensure clear segregation of dirty and clean areas without cross traffic, provide proper air ventilation, implement vector control measures and waste management measures, provide staff training in infection control, strictly follow laboratory and health risk management protocols and conduct staff health surveillance. Hence, health risk issue associated with the operation of this Project is not anticipated.

7.9. Landscape and Visual Impact

Landscape Resources

7.9.1. As no impact to landscape resource is expected due to the Project, no mitigation measure is required during operation phase.

7.9.2. Various types of trees will be planted on the ground floor and rooftop, of the proposed Building Complex. The types of vegetation planted will make reference to the recommendations in the "Kai Tak Development Urban Design Guidelines and Manual for the GIC Sites". According to the "Kai Tak Development Urban Design Guidelines and

Manual for the GIC Sites”, the total greenery areas of this Project will cover at least 30% of the Project site area, which includes at least 20% greening of the site area at pedestrian zone (e.g. G/F, vertical greening) and 20% greening of the roof area. This is beneficial to the value of Landscape Resource in the Project site during operation phase.

Landscape Character Area

- 7.9.3. As landscape impact to LCAs due to the Project is considered negligible, no mitigation measure is required during operation phase.

Visual Impact

- 7.9.4. Mitigation measures including careful aesthetic design of the building structures are proposed to mitigate potential visual impact. The Building Complex will apply mitigation measures as suggested in “Kai Tak Development Urban Design Guidelines and Manual for the GIC Sites”. The architecture and landscape features of the project are designed to provide a coherent environment with the surroundings. Trees will be planted to provide greenery effect to the Project. External surface of curtain wall will adopt non-reflective material to prevent excessive glare reflected to the surrounding receivers. As stated in *Section 5.1.1*, solar hot water system will be adopted as an alternative to utilize renewable energy. The solar collectors will be dark-coloured with a non-reflective surface to mitigate glare impacts on human or animals.

7.10. Ecology

- 7.10.1. As adverse ecological impact is not anticipated during operation phase, no mitigation measure is required.

7.11. Cultural Heritage

- 7.11.1. As adverse cultural heritage impact is not anticipated during operation phase, no mitigation measure is required.

8. SUMMARY OF POTENTIAL ENVIRONMENTAL ASPECTS AND ENVIRONMENTAL PROTECTION MEASURES

8.1.1. A summary of potential environmental aspects and the associated environmental protection measures, are tabulated below:

Table 8–1 Summary of Potential Environmental Impacts and Environmental Protection Measures

Potential Environmental Aspects	Environmental Protection Measures	Relevant Section in the Project Profile
Air	<u>Construction Phase</u> <ul style="list-style-type: none"> - Implementation of dust control measures stipulated in Air Pollution Control (Construction Dust) Regulation 	Section 6.1.1
	<u>Operation Phase</u> <ul style="list-style-type: none"> - No mitigation measure is necessary. 	Section 7.1.1
Odour	<u>Operation Phase</u> <ul style="list-style-type: none"> - Indoor animal keeping areas and activity areas will be enclosed by building envelope, served with central air-conditioning systems and equipped with deodourisation filters with at least 85% odour removal efficiency at air exhausts. - Proper maintenance of the odour removal system to ensure the targeted odour removal efficiency is maintained. - Open-air exercise areas for animals will face north towards Kwun Tong Bypass, away from ASRs and located at higher levels of the Building Complex. - Frequent cleaning of animal droppings will be carried out by future AFCD staff to eliminate odour source and to avoid odour accumulation. 	Section 7.2.1
Noise	<u>Construction Phase</u> <ul style="list-style-type: none"> - Recommended Pollution Control Clauses will be implemented to prevent violation of Noise Control Ordinance. - Proper use of PME and apply direct noise mitigation measures, such as movable and temporary noise barrier and enclosure for the noisy operating PME. - Schedule noisy construction process outside school examination periods. - Use of quiet plant associated with the construction works for specific quiet PME to reduce noise nuisance. 	Section 6.2.1
	<u>Operation Phase</u> <ul style="list-style-type: none"> - Activity in the open-air exercise area is limited and the period is restricted to office hours only. No activity would be allowed during night time. - Open-air exercise area for dogs and cats will be posited north towards Kwun Tong Bypass. - All E&M plant rooms will be housed within the building envelop and enclosed with concrete structure. - Necessary at-source mitigations will be adopted at air-conditioning units for full compliance of the relevant noise control requirements stipulated in the EIAO-TM. 	Section 7.3.2 Section 7.4.2

Potential Environmental Aspects	Environmental Protection Measures	Relevant Section in the Project Profile
Water Quality	<u>Construction Phase</u> <ul style="list-style-type: none"> - Good site practices and appropriate mitigation measures as stipulated in ProPECC Note 1/94 “Construction Site Drainage” will be followed, and surface run-off and sewage effluent will be discharged into sewerage system. 	Section 6.3.1
	<u>Operation Phase</u> <ul style="list-style-type: none"> - The existing sewerage system at the KTD and the KTPTW has adequate capacity to cater for the sewage and other wastewater generated from the Building Complex. No mitigation measure is required. 	Section 7.5.1
Waste Management	<u>Construction Phase</u> <ul style="list-style-type: none"> - Good site practices will be implemented. - C&D materials will be reused on-site. - Trip ticket system will be implemented in accordance with the DEVB TCW No. 6/2010 Trip Ticket System for Disposal of Construction and Demolition Material. - Inert C&D waste and non-inert C&D waste will be properly sorted and disposed of at appropriate facilities in accordance with the Waste Disposal (Charges for Disposal of Construction Waste Regulation (Cap. 354N). - Chemical waste will be properly handled in accordance with the “Code of Practice on the Packaging Labelling and Storage of Chemical Wastes”. - Chemical waste will be collected by the licensed chemical waste collector for transportation and disposal at designated waste disposal facility. - General refuse will be temporarily stored in enclosed bins or compaction units and removed from the site on regular basis. - Licensed waste collectors will be employed to remove refuse from the site for disposal. 	Section 6.4.1 to 6.4.5
	<u>Operation Phase</u> <ul style="list-style-type: none"> - Clinical waste generated from veterinary laboratory will be sterilized by steam before collection. - Clinical waste will be collected by licensed collectors and disposed of at designated waste disposal facility. - Waste Disposal (Chemical Waste) (General) Regulation and the “Code of Practice of the Packaging, Labelling and Storage of Chemical Waste” will be followed. - Chemical waste will be collected by licensed collectors and disposed of at designated waste disposal facility. - Special wastes will be collected by licensed waste collectors and disposed of at landfills. - General refuse will be removed from the site on regular basis - Labelled recycling bins will be provided for recycling promotion. 	Section 7.6.1 to 7.6.4
Land Contamination	<u>Construction Phase</u> <ul style="list-style-type: none"> - No mitigation measure is necessary. 	Section 6.5.1

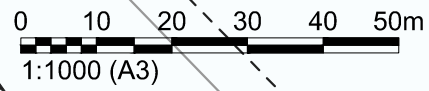
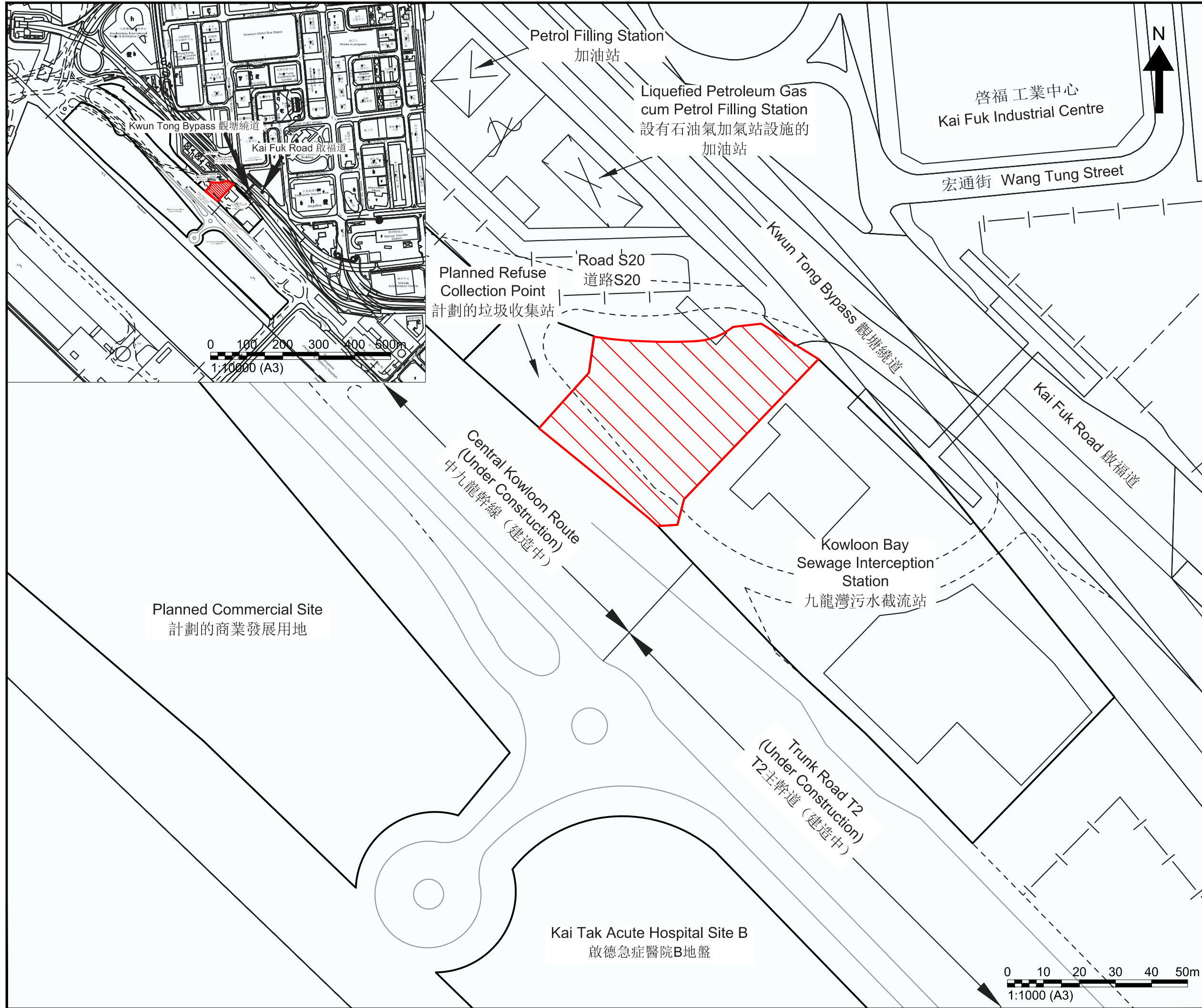
Potential Environmental Aspects	Environmental Protection Measures	Relevant Section in the Project Profile
Hazard to Life	<u>Construction Phase</u> <ul style="list-style-type: none"> - A dedicated access route will be used for construction vehicles. - Any lifting operation over the site boundary will be strictly minimized. - Any lifting (if any) will be assessed, controlled and closely supervised by Contractors and qualified operation staff. - Ignition sources will be confined within the site. 	Section 6.6.1 to 6.6.3
	<u>Operation Phase</u> <ul style="list-style-type: none"> - DG storage and handling will comply with Dangerous Goods Ordinance (Cap. 295). - Sufficient ventilation, drip containers and safety training to staff for handling of the DGs will be provided. - Gas cylinders will be regularly inspected. - Hot works and smoking at the proposed Building Complex will be prohibited. 	Section 7.7.2 and 7.7.3
Health Risk	<u>Operation Phase</u> <ul style="list-style-type: none"> - Exhaust air from laboratories will pass through HEPA filter prior to discharge to the atmosphere. - Safe handling and containment of test samples in the laboratory will be referenced to “Laboratory Biosafety Manual”. - Animal keeping areas will be equipped with separate air circulation from the rest of facility such as offices, education facilities, meeting rooms, laboratory. - Strictly follow the AFCD's rabies prevention protocol, hygiene and disinfection guidelines, which will ensure any risk to the local environment is minimised and controlled to international standards and practices. - Adequate buffer distance from the nearest hospital has been allowed to avoid close contact and thus potential infectious disease to be spread out. - Entrances and exits of the Building Complex will be located away from the Kai Tak Acute Hospital, such that the cross traffic could be avoided between animals/staff and hospital. 	Section 7.8.1 to 7.8.5
Landscape and visual impact	<u>Construction Phase</u> <ul style="list-style-type: none"> - Temporary stockpile of excavated and building materials will be covered. - Hoardings with outlook matching with surrounding landscape will be erected. - Any night time glaring will be minimized. 	Section 6.7.3
	<u>Operation Phase</u> <ul style="list-style-type: none"> - Mitigation measures as suggested in “Kai Tak Development Urban Design Guidelines and Manual for the GIC Sites” will be applied. - Design will provide a coherent environment with the surroundings - Trees will be planted to provide appropriate greenery effect to the Project - External surface of curtain wall will adopt non-reflective material - Solar collectors will be dark-coloured with a non-reflective surface. 	Section 7.9.4

9. USE OF PREVIOUSLY APPROVED EIA REPORTS


9.1.1. The following approved EIA Reports have been referred to:

- Upgrading of Quarantine Stables for the 2008 Olympic Equestrian Event (PP-310/2007)
- Decommissioning of the Former Kai Tak Airport Other than the North Apron (AEIAR-114/2007), approved with conditions on 19 December 2007.
- Kai Tak Development (AEIAR-130/2009), approved without conditions on 4 March 2009
- Trunk Road T2 (AEIAR-174/2013), approved with conditions on 19 September 2013
- Kai Tak Development - Roads D3A & D4A (AEIAR-170/2013), approved with conditions on 3 May 2013

Figure 1-1
Location of the Project Site



NOTES:

 PROJECT SITE
項目位置

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Project No. : 1450

Drawing By : DT

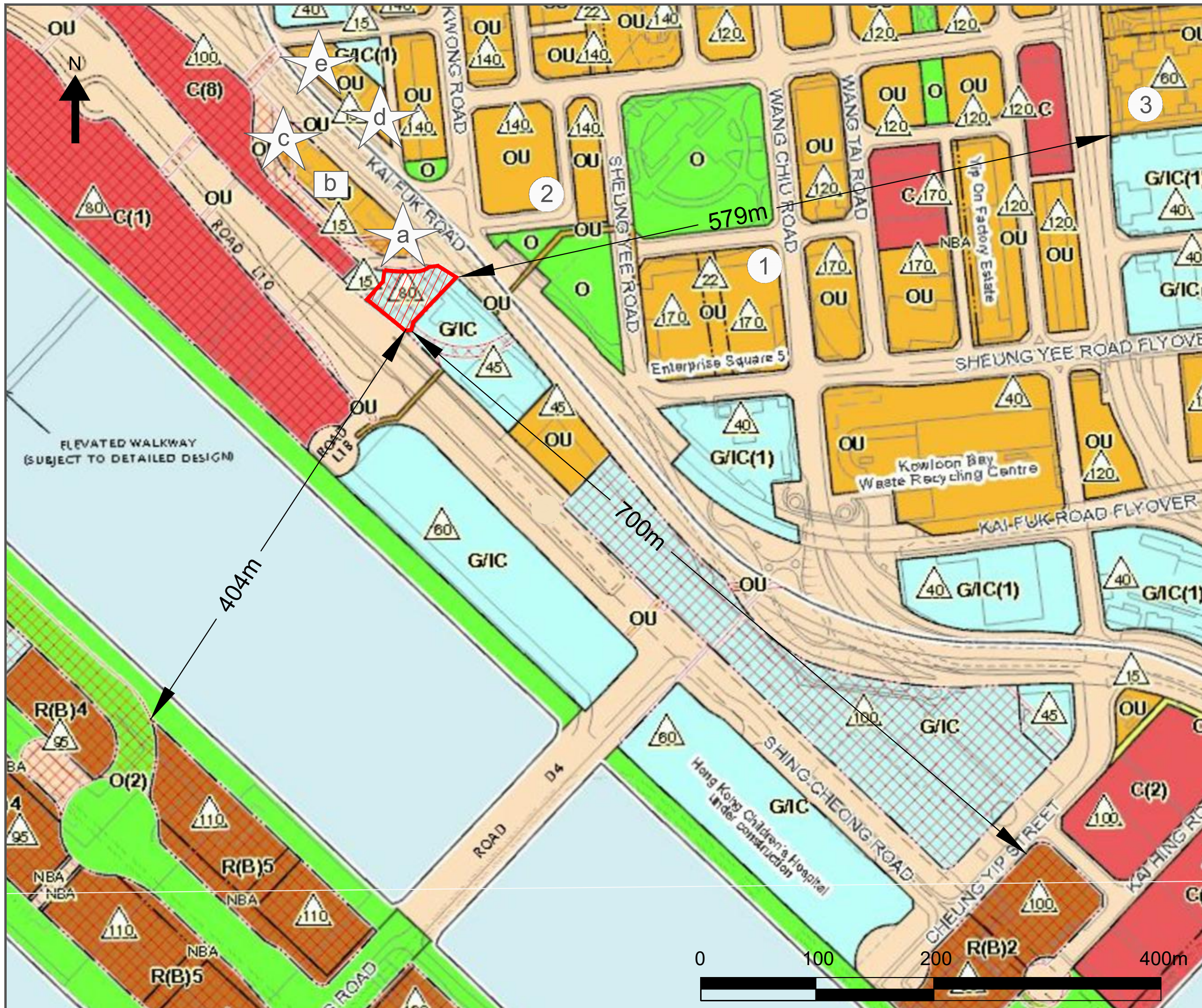
Project : THE DEVELOPMENT OF AFCD ANIMAL MANAGEMENT AND ANIMAL WELFARE BUILDING COMPLEX IN KAI TAK DEVELOPMENT
漁農自然護理署
動物管理及動物福利綜合大樓

Drawing Title : LOCATION OF THE PROJECT SITE
項目位置圖

Drawing No : FIGURE 1-1 圖1-1	Revision : 1
Scale : AS SHOWN	Date : 2 JUNE 2018

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Figure 3-1
Land Use Adjacent to the Project site



- NOTES :
- PROJECT SITE
項目位置
 - AMENDMENT ITEM UNDER S.5/S.7 OF THE TPO
根據《城市規劃條例》第5條 / 第7條作出的修訂項目
 - OPEN SPACE
休憩用地
 - GREEN BELT
綠化地帶
 - OTHER SPECIFIED USES (AMENITY)
其他指定用途 (美化市容地帶)
 - RESIDENTIAL (GROUP A)
住宅 (甲類)
 - RESIDENTIAL (GROUP B)
住宅 (乙類)
 - COMMERCIAL
商業
 - GOVERNMENT, INSTITUTION OR COMMUNITY
政府、機構或社區
 - OTHER SPECIFIED USES
其他指定用途
 - RESIDENTIAL (GROUP B)
住宅 (乙類)
 - MAXIMUM BUILDING HEIGHT (IN mPD)
最高建築物高度 (在主水平基準上若干米)
 - MAXIMUM BUILDING HEIGHT (IN NUMBER OF STOREYS)
最高建築物高度 (層樓)
 - SHELL - 8 KAI FUK ROAD, KOWLOON BAY
殼殼—九龍灣啟福道8號
 - CALTEX - KOWLOON BAY PETROL FILLING STATION
加德士—九龍灣加油站
 - EXXONMOBIL - 4 KAI FUK ROAD, KOWLOON BAY
埃索—九龍灣啟福道4號
 - EXXONMOBIL - 7 KAI FUK ROAD, KOWLOON BAY
埃索—九龍灣啟福道7號
 - SHELL - 5 KAI FUK ROAD, KOWLOON BAY
殼殼—九龍灣啟福道5號
 - MEGA BOX
啟德工業中心
 - KAI FUK INDUSTRIAL CENTRE
啟德工業中心
 - TELFORD GARDEN
德福花園

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Project No. : 1450

Drawing by : JN

Project :
THE DEVELOPMENT OF AFCD ANIMAL MANAGEMENT
AND ANIMAL WELFARE BUILDING COMPLEX IN KAI TAK
DEVELOPMENT
漁農自然護理署動物管理及動物福利綜合大樓

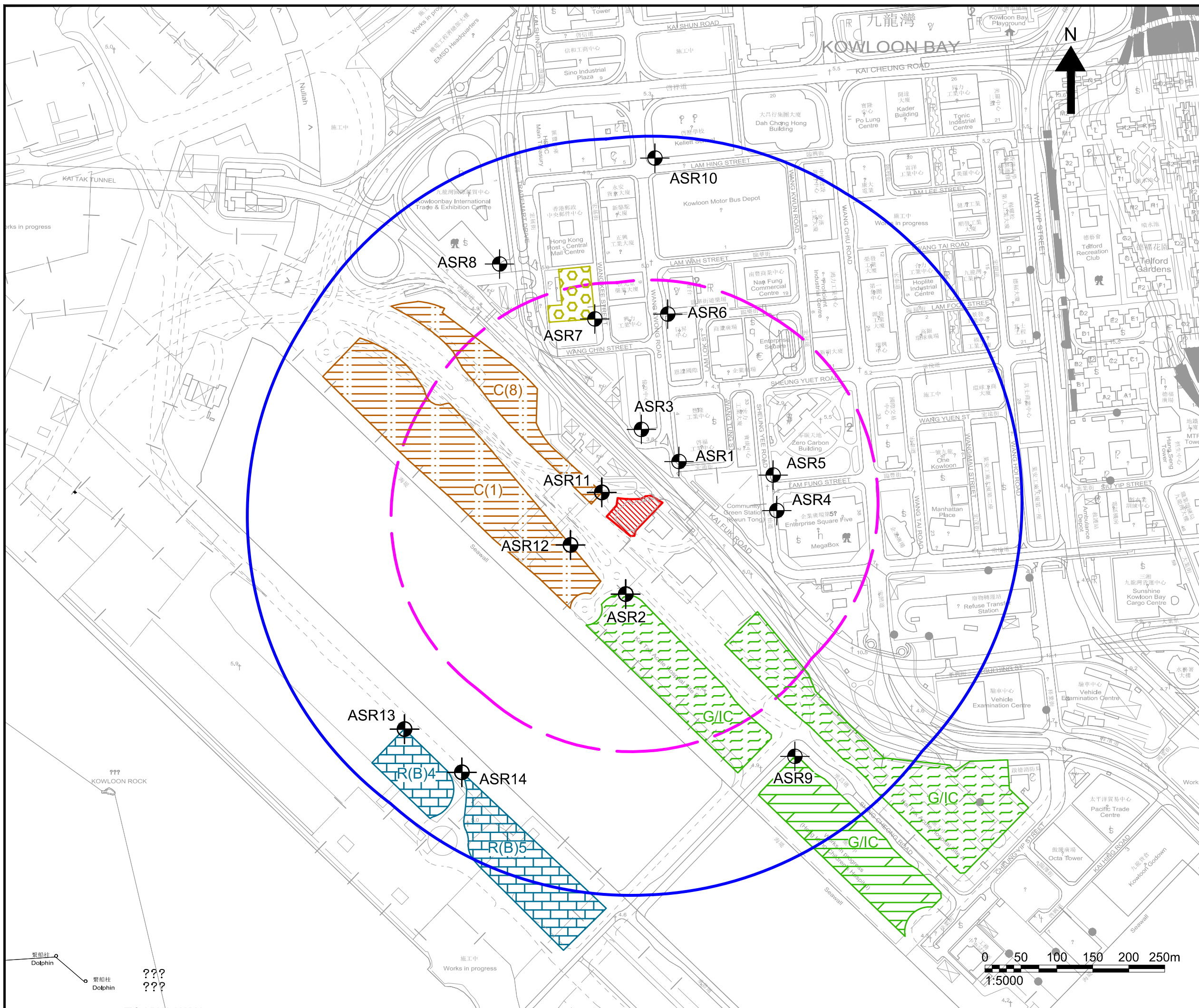
Drawing Title :
LAND USE ADJACENT TO THE PROJECT SITE
工程項目附近的土地用途狀況圖

Drawing No : FIGURE 3-1 圖3-1	Revision : 4
Scale : AS SHOWN	Date : 2 JUNE 2018

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Figure 3-2
Not in Use

Figure 3-3
Locations of Air Sensitive Receivers



- NOTES :**
- PROJECT SITE
項目位置
 - 300m NOISE ASSESSMENT AREA
三百米噪音評估範圍
 - 500m AIR ASSESSMENT AREA
五百米空氣評估範圍
 - REPRESENTATIVE AIR SENSITIVE RECEIVERS
具代表性的空氣敏感受體
 - PLANNED COMMERCIAL AREA
商業發展用地
 - PLANNED RESIDENTIAL AREA
住宅發展用地
 - KAI TAK ACUTE HOSPITAL
啟德急症醫院
 - HK CHILDREN'S HOSPITAL
香港兒童醫院
 - REPROVISIONING OF HK POST'S HEADQUARTERS
香港郵政總局的重置位置

ASR ID 編號	Location 位置	Horizontal Dist. from Project Site 與工程項目之水平距離
ASR1	Kai Fuk Industrial Centre 啟德工業中心	61m
ASR2	Kai Tak Acute Hospital 啟德急症醫院	81m
ASR3	Billion Centre 億京中心	93m
ASR4	MegaBox	159m
ASR5	Zero Carbon Building 零碳天地	159m
ASR6	Lam Wah Street Playground 蘭華街遊樂場	254m
ASR7	Hong Kong Post Central Mail Centre 香港郵政中央郵件中心	251m
ASR8	Kowloon Bay International Trade & Exhibition Centre 九龍灣國際展覽中心	364m
ASR9	Hong Kong Children's Hospital 香港兒童醫院	379m
ASR10	Kellett School 啟基學校	469m
ASR11	Planned Commercial Zone C(8) 商業(八)發展用地	23m
ASR12	Planned Commercial Zone C(1) 商業(一)發展用地	64m
ASR13	Planned Residential Zone R(B)4 住宅(乙類)4發展用地	408m
ASR14	Planned Residential Zone R(B)5 住宅(乙類)5發展用地	404m

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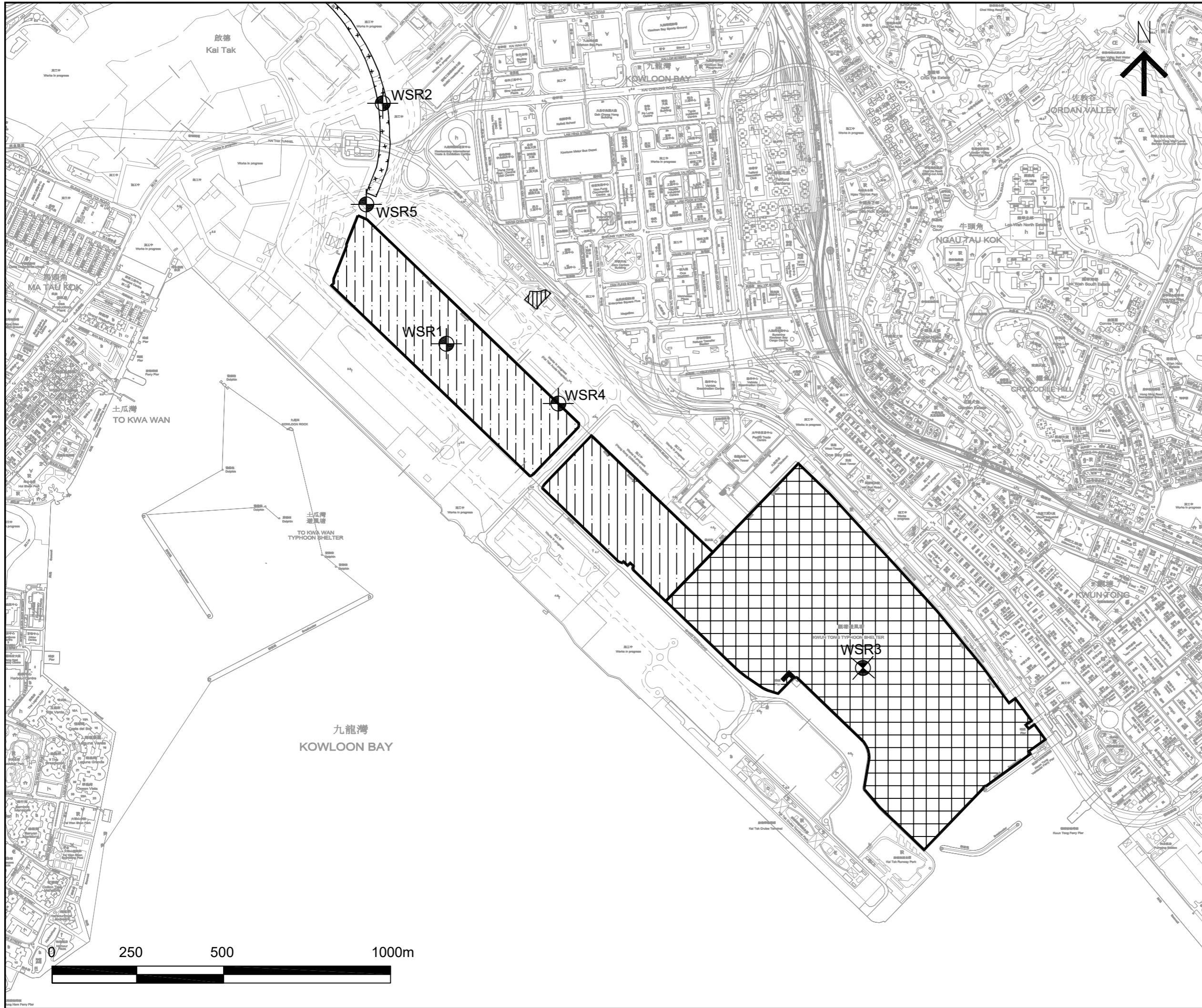
Project : THE DEVELOPMENT OF AFCD ANIMAL MANAGEMENT AND ANIMAL WELFARE BUILDING COMPLEX IN KAI TAK DEVELOPMENT
漁農自然護理署
動物管理及動物福利綜合大樓

Drawing Title : LOCATION OF AIR SENSITIVE RECEIVERS
空氣敏感受體位置圖



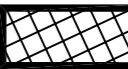
Drawing No : FIGURE 3-3 圖3-3	Revision : 4
Scale : AS SHOWN	Date : 2 JUNE 2018

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Figure 3-4
Locations of Water Sensitive Receivers



NOTES :

-  PROJECT SITE
項目位置
-  KAI TAK APPROACH CHANNEL
啟德明渠進口道
-  KAI TAK NULLAH
啟德明渠
-  KWUN TONG TYPHOON SHELTER
觀塘避風塘
-  WATER SENSITIVE RECEIVER (WSR)
水質敏感受體

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Drawing By : JN

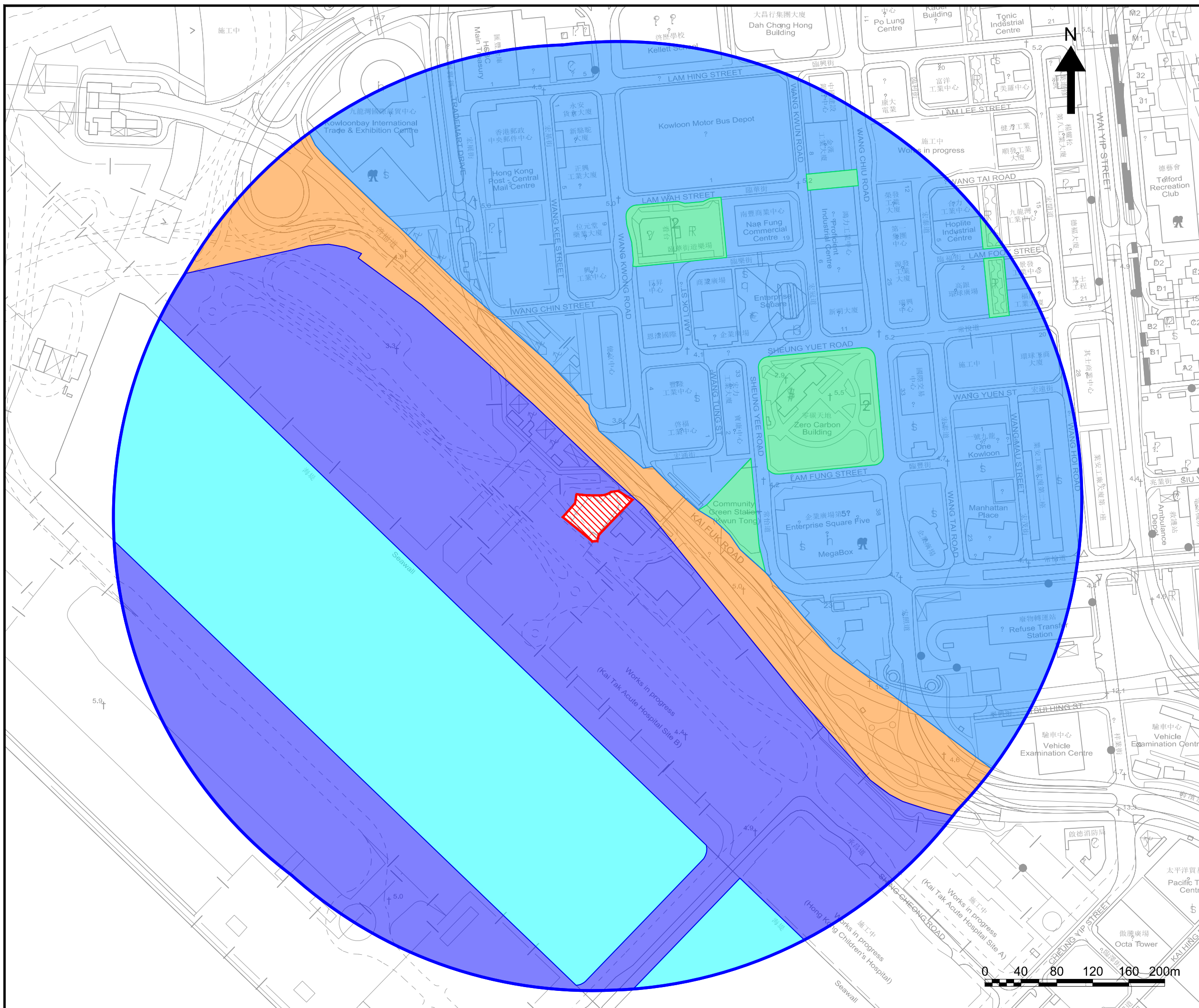
Project :
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漁農自然護理署動物管理及動物福利綜合大樓

Drawing Title :
LOCATIONS OF WATER SENSITIVE RECEIVERS
水質敏感受體位置圖

Drawing No : FIGURE 3-4 圖3-4	Revision : 4
Scale : AS SHOWN	Date : 2 JUNE 2018

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Figure 3-5
Locations of Landscape Character Areas
during Construction Phase



- NOTES :
- 500m LANDSCAPE ASSESSMENT AREA
五百米景觀評估範圍
 - PROJECT SITE
項目位置
 - LCA1 - OPEN SPACE / VEGETATED LANDSCAPE
LCA 1 — 休憩用地 / 植被景觀
 - LCA2 - INDUSTRIAL URBAN LANDSCAPE
LCA 2 — 工業城區景觀
 - LCA3 - TRANSPORTATION CORRIDOR LANDSCAPE
LCA 3 — 運輸走廊景觀
 - LCA4 - ONGOING MAJOR DEVELOPMENT LANDSCAPE
LCA 4 — 正在進行的大型發展景觀
 - LCA5 - KAI TAK APPROACH CHANNEL LANDSCAPE
LCA 5 — 啟德明渠進口道景觀

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Project No. : 1450
Drawing By : DT

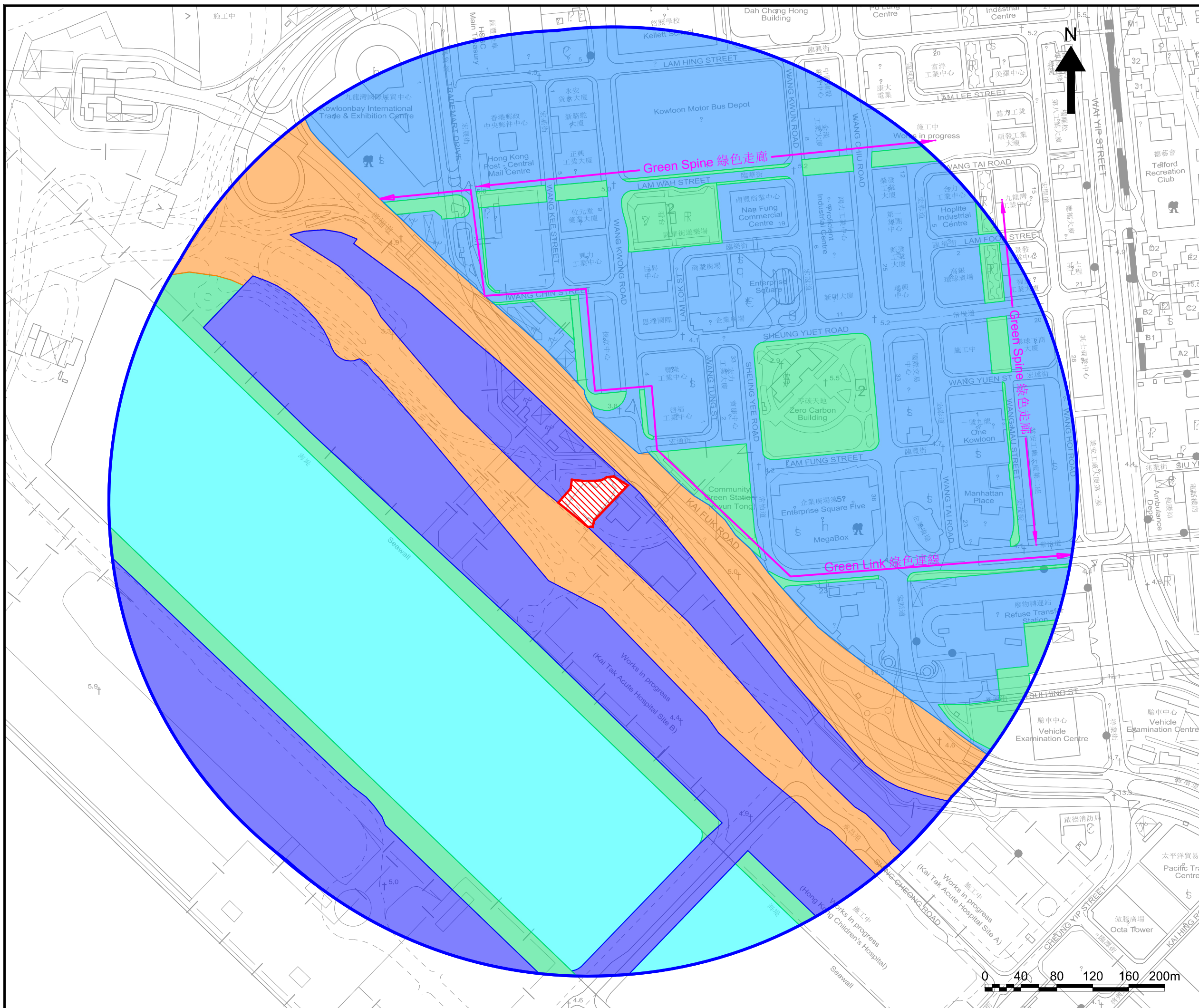
Project : THE DEVELOPMENT OF AFCD ANIMAL MANAGEMENT AND ANIMAL WELFARE BUILDING COMPLEX IN KAI TAK DEVELOPMENT
漁農自然護理署 動物管理及動物福利綜合大樓

Drawing Title : LOCATIONS OF LANDSCAPE CHARACTER AREAS DURING CONSTRUCTION PHASE
建造期間的景觀特色地方位置圖

Drawing No : FIGURE 3-5 圖3-5	Revision : 2
Scale : AS SHOWN	Date : 2 JUNE 2018

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Figure 3-6
Locations of Landscape Character Areas
during Operation Phase



- NOTES :
- 500m LANDSCAPE ASSESSMENT AREA
五百米景觀評估範圍
 - PROJECT SITE
項目位置
 - LCA1 - OPEN SPACE / VEGETATED LANDSCAPE
LCA 1 — 休憩用地 / 植被景觀
 - LCA2 - INDUSTRIAL URBAN LANDSCAPE
LCA 2 — 工業城區景觀
 - LCA3 - TRANSPORTATION CORRIDOR LANDSCAPE
LCA 3 — 運輸走廊景觀
 - LCA4 - DEVELOPED AREA / GOVERNMENT LAND
LCA 4 — 已發展用地 / 政府用地
 - LCA5 - KAI TAK APPROACH CHANNEL LANDSCAPE
LCA 5 — 啟德明渠進口道景觀
 - ZONE OF GREEN SPINE
綠色走廊區域
 - ZONE OF GREEN LINK
綠色連線區域

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Project No. : 1450

Drawing By : DT

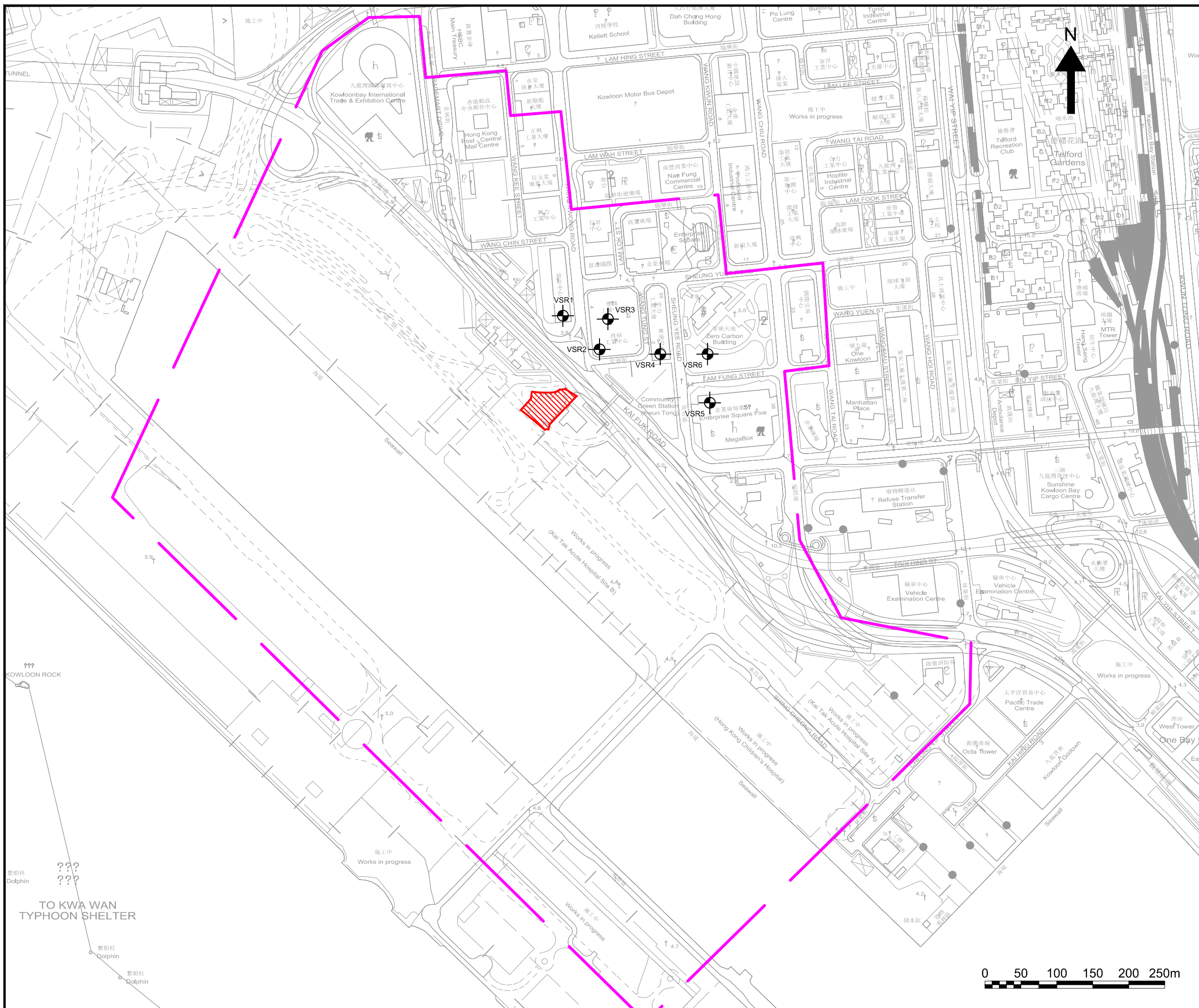
Project : THE DEVELOPMENT OF AFCD ANIMAL MANAGEMENT AND ANIMAL WELFARE BUILDING COMPLEX IN KAI TAK DEVELOPMENT
漁農自然護理署 動物管理及動物福利綜合大樓

Drawing Title : LOCATIONS OF LANDSCAPE CHARACTER AREAS DURING OPERATION PHASE
營運期間的景觀特色地方位置圖

Drawing No : FIGURE 3-6 圖3-6	Revision : 2
Scale : AS SHOWN	Date : 2 JUNE 2018

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Figure 3-7
Locations of Visual Sensitive Receivers
during Construction Phase



NOTES :

- ZONE OF VISUAL INFLUENCE
視域
- PROJECT SITE
項目位置
- REPRESENTATIVE VISUAL SENSITIVE RECEIVERS
具代表性的視覺敏感受體

ID 編號	NAME OF VSR 視覺敏感受體名稱
VSR1	BILLION CENTRE 億京中心
VSR2	KAI FUK INDUSTRIAL CENTRE 啟福工業中心
VSR3	HONG LEONG INDUSTRIAL COMPLEX 豐隆工業中心
VSR4	PO HONG CENTRE 寶康中心
VSR5	MEGABOX
VSR6	ZERO CARBON BUILDING 零碳天地

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Project No. : 1450

Drawing By : DT

Project : THE DEVELOPMENT OF AFCD ANIMAL MANAGEMENT AND ANIMAL WELFARE BUILDING COMPLEX IN KAI TAK DEVELOPMENT
漁農自然護理署動物管理及動物福利綜合大樓

Drawing Title : LOCATIONS OF VISUAL SENSITIVE RECEIVERS DURING CONSTRUCTION PHASE
建造期間的視覺敏感受體位置圖

Drawing No : FIGURE 3-7 圖3-7	Revision : 3
Scale : AS SHOWN	Date : 2 JUNE 2018

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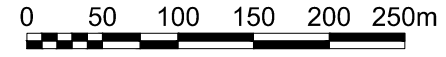
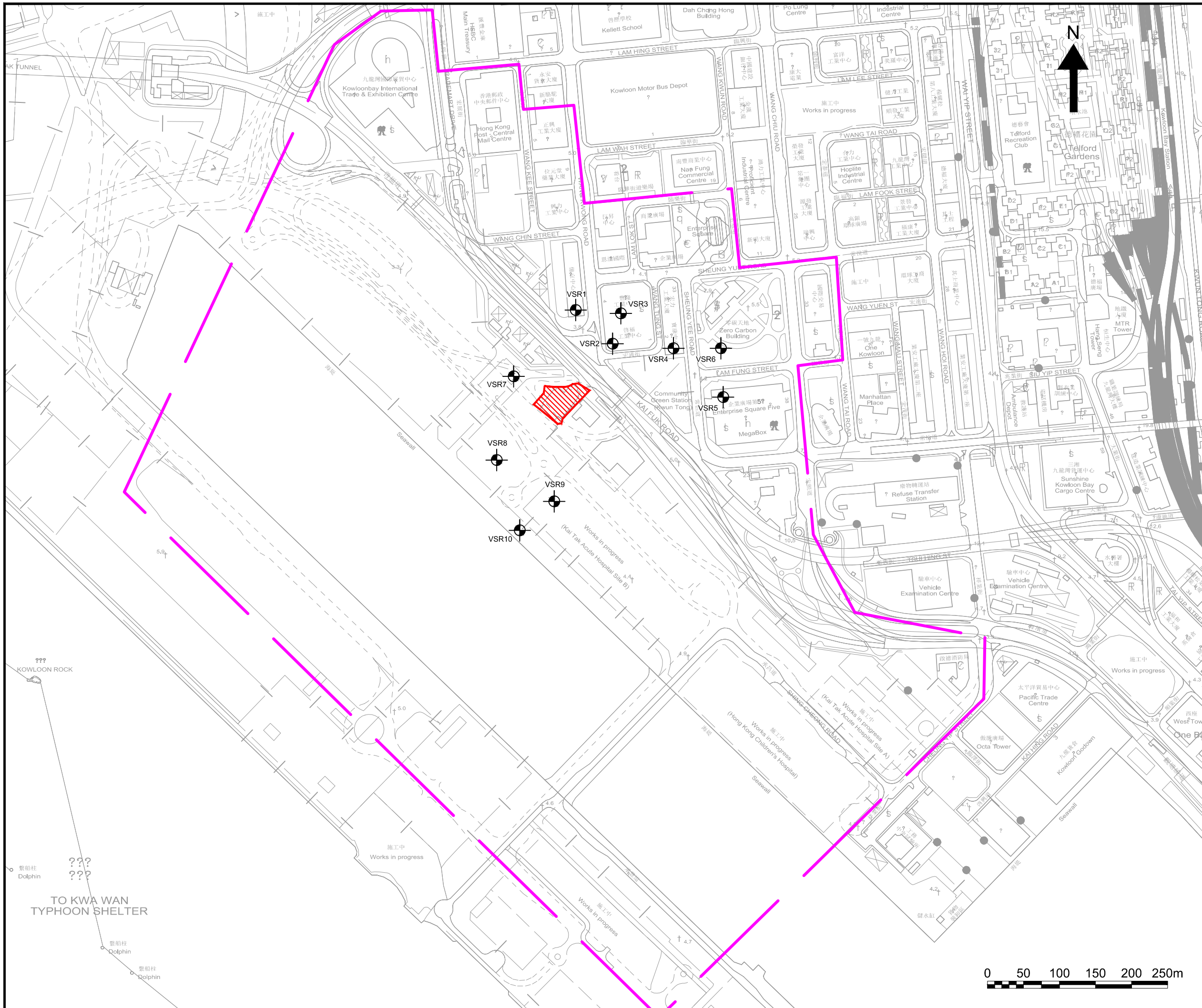


Figure 3-8
Locations of Visual Sensitive Receivers
during Operation Phase



NOTES :

- ZONE OF VISUAL INFLUENCE
視域
- PROJECT SITE
項目位置
- REPRESENTATIVE VISUAL SENSITIVE RECEIVERS
具代表性的視覺敏感受體

ID 編號	NAME OF VSR 視覺敏感受體名稱
VSR1	BILLION CENTRE 億京中心
VSR2	KAI FUK INDUSTRIAL CENTRE 啟福工業中心
VSR3	HONG LEONG INDUSTRIAL COMPLEX 豐隆工業中心
VSR4	PO HONG CENTRE 寶康中心
VSR5	MEGABOX
VSR6	ZERO CARBON BUILDING 零碳天地
VSR7	COMMERCIAL DEVELOPMENT 商業發展用地
VSR8	COMMERCIAL DEVELOPMENT 商業發展用地
VSR9	KAI TAK ACUTE HOSPITAL 啟德急症醫院
VSR10	PUBLIC PROMENADE 公共海濱長廊

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Project No. : 1450

Drawing By : DT

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漁農自然護理署 動物管理及動物福利綜合大樓

Drawing Title : LOCATIONS OF VISUAL SENSITIVE RECEIVERS DURING OPERATION PHASE
營運期間的視覺敏感受體位置圖

Drawing No : FIGURE 3-8 圖3-8	Revision : 3
Scale : AS SHOWN	Date : 2 JUNE 2018

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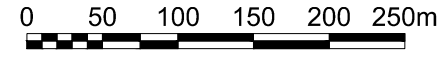
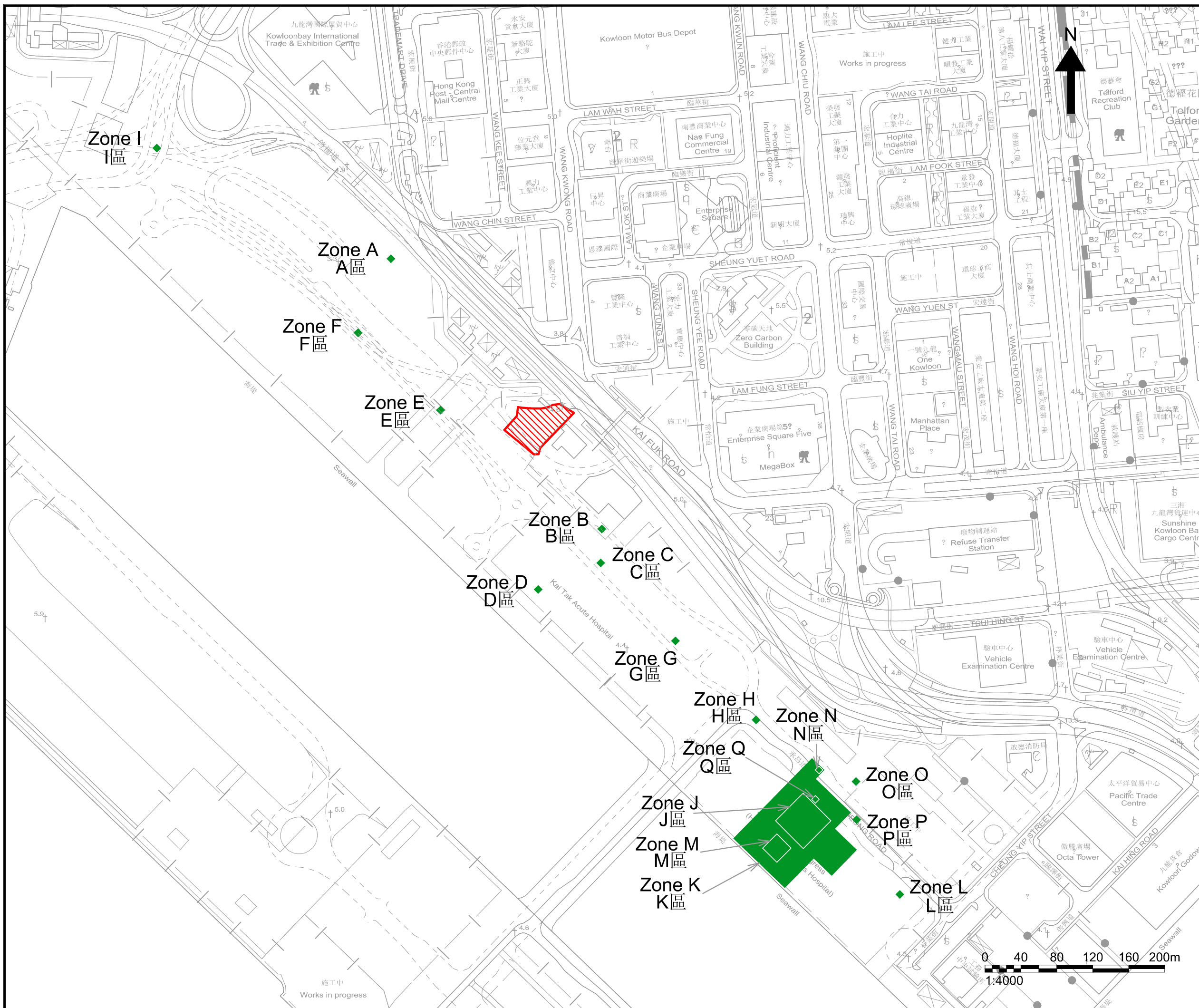


Figure 4-1
Locations of Remediation Zones



NOTES:

- PROJECT SITE
項目位置
- REMEDIATION ZONE
整治區

Ref: Remediation Report by Kin Wing Construction Co. Ltd in 2010
 參考: 建築工程有限公司於二零一零年所發佈的整治報告

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 Drawing By : DT
 Project : THE DEVELOPMENT OF AFCD ANIMAL MANAGEMENT AND ANIMAL WELFARE BUILDING COMPLEX IN KAI TAK DEVELOPMENT
 漁農自然護理署 動物管理及動物福利綜合大樓

Drawing Title : LOCATIONS OF REMEDIATION ZONES
 整治位置圖

Drawing No : FIGURE 4-1 圖4-1	Revision : 2
Scale : AS SHOWN	Date : 2 JUNE 2018

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Figure 4-2
Site Inspection Photos



Photo A
A 圖



Photo B
B 圖



Photo C
C 圖



Photo D
D 圖

NOTES :

 Site Boundary
工程項目邊界

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Drawing by: DT

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ANIMAL MANAGEMENT AND ANIMAL
WELFARE BUILDING COMPLEX IN KAI
TAK DEVELOPMENT
漁農自然護理署
動物管理及動物福利綜合大樓

Drawing Title :

SITE INSPECTION PHOTOS FOR
INVESTIGATION OF LAND
CONTAMINATION (10 APRIL 2017)
土地污染調查的實地考查照片紀錄

Drawing No :
FIGURE 4-2 圖 4-2

Revision :
2

Scale :
NTS

Date :
2 JUNE 2018

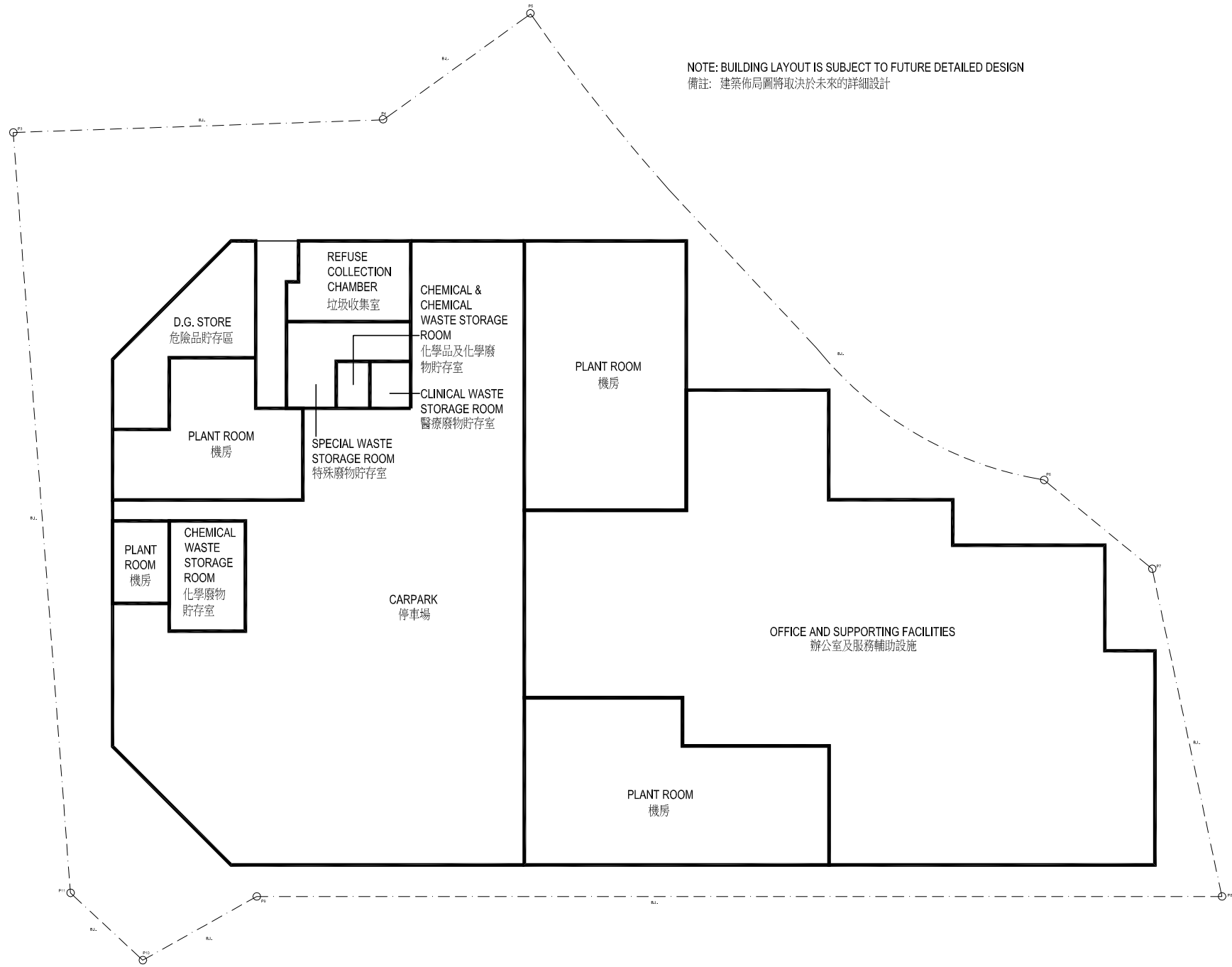
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Project No.: 1450

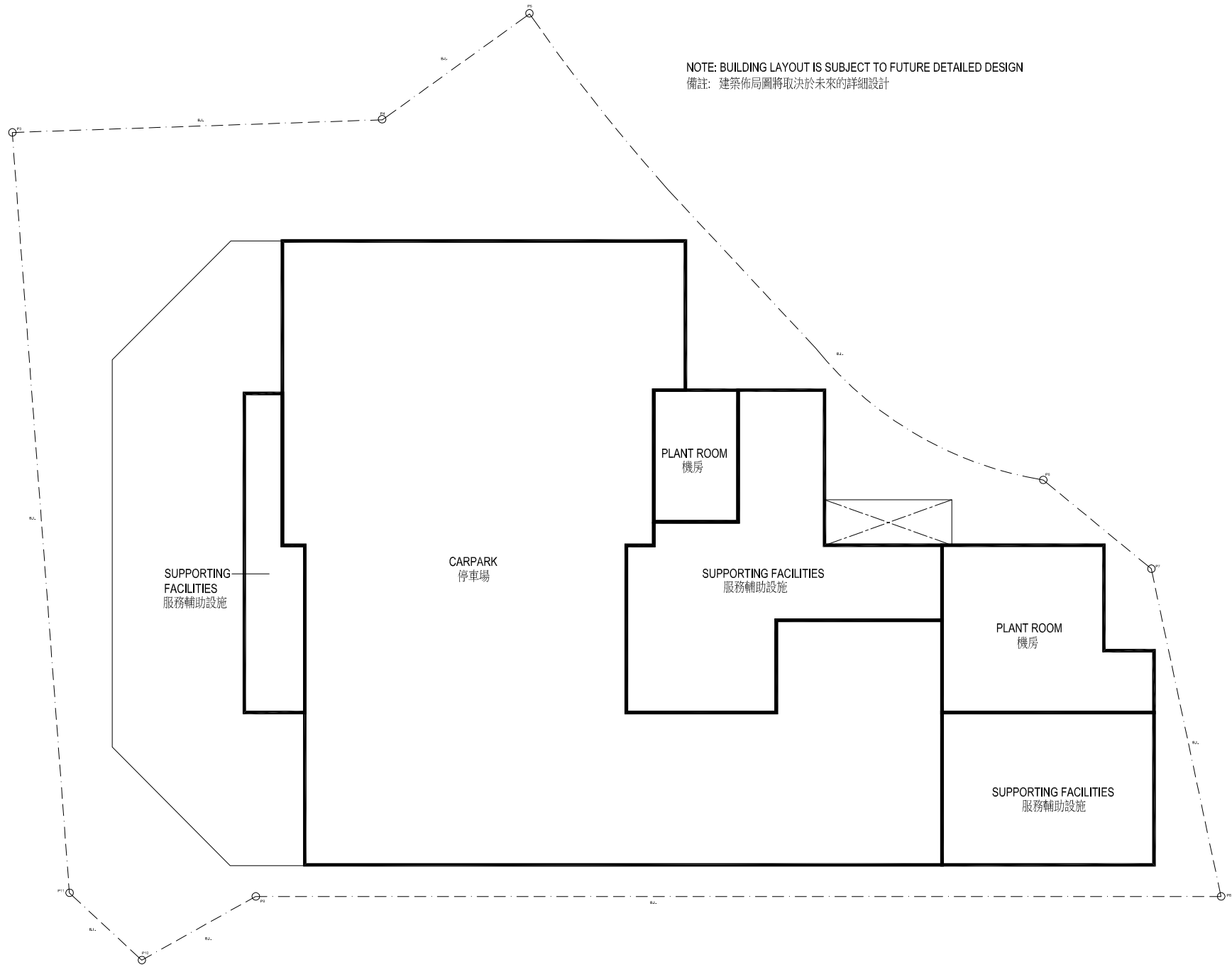
The Development of AFCD Animal Management and Animal Welfare Building Complex in Kai Tak Development
Project Profile

Appendix 1-1 Indicative Building Layout

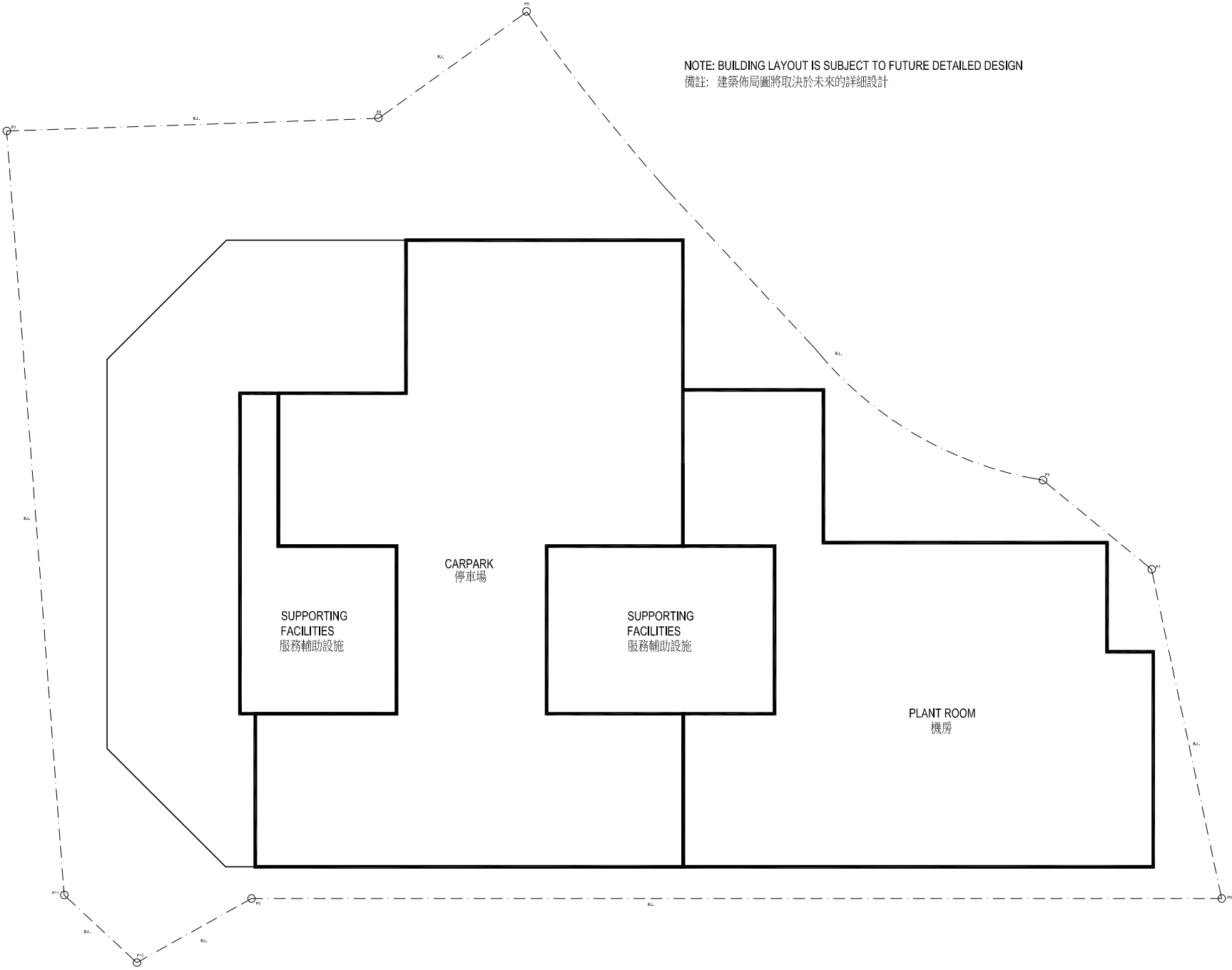
NOTE: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN
備註: 建築佈局圖將取決於未來的詳細設計



NOTE: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN
備註：建築佈局圖將取決於未來的詳細設計



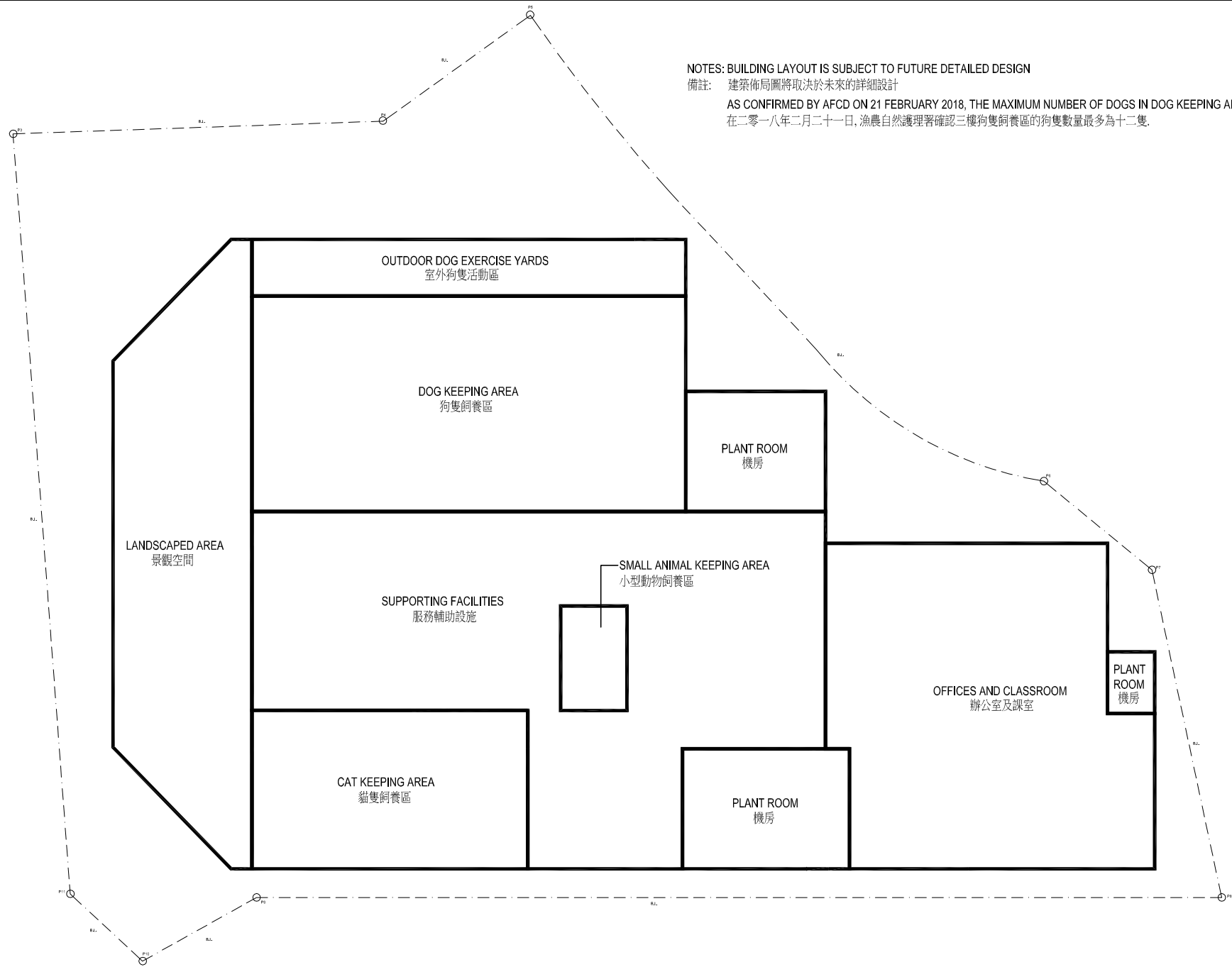
NOTE: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN
備註：建築佈局圖將取決於未來的詳細設計



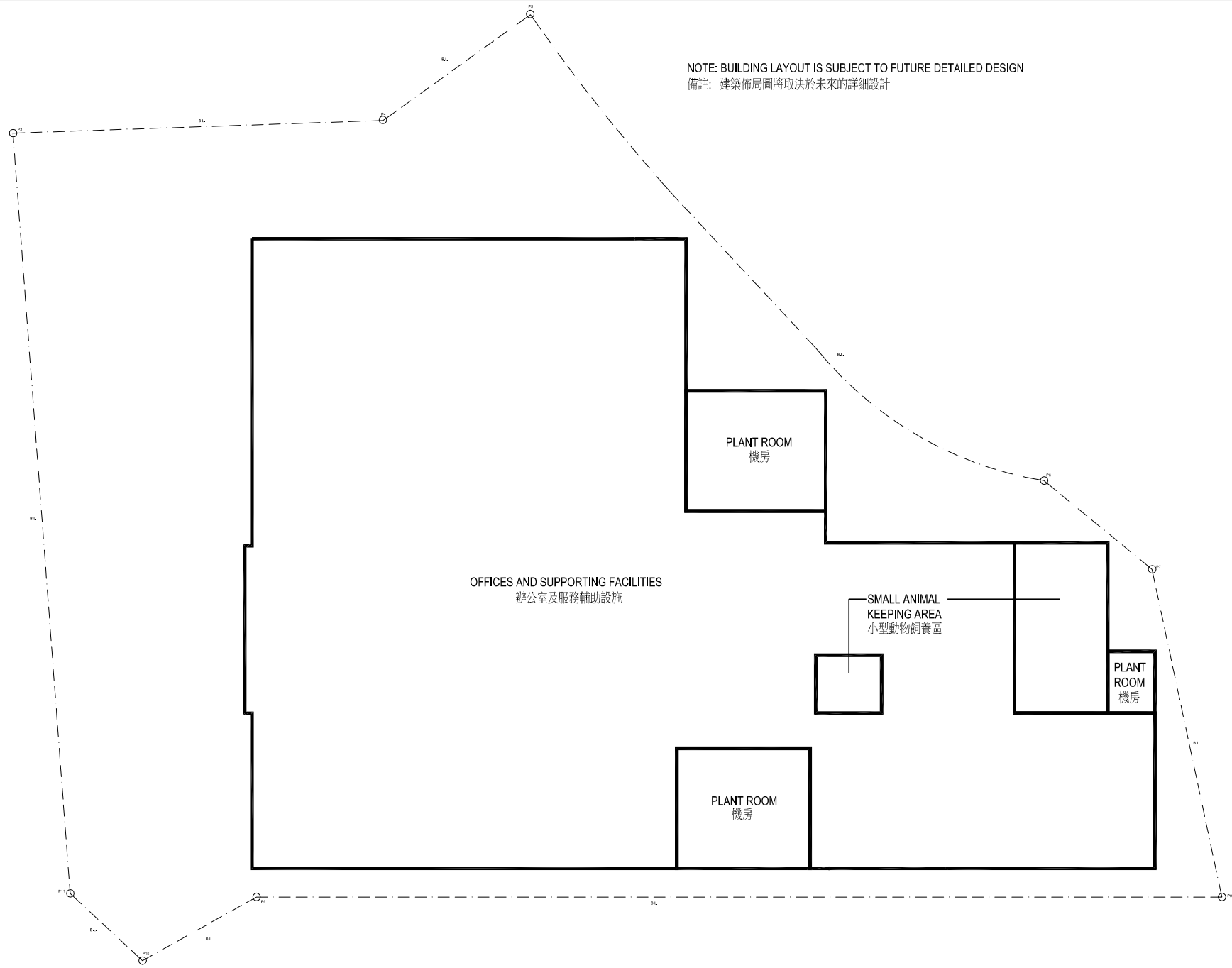
NOTES: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN

備註：建築佈局圖將取決於未來的詳細設計

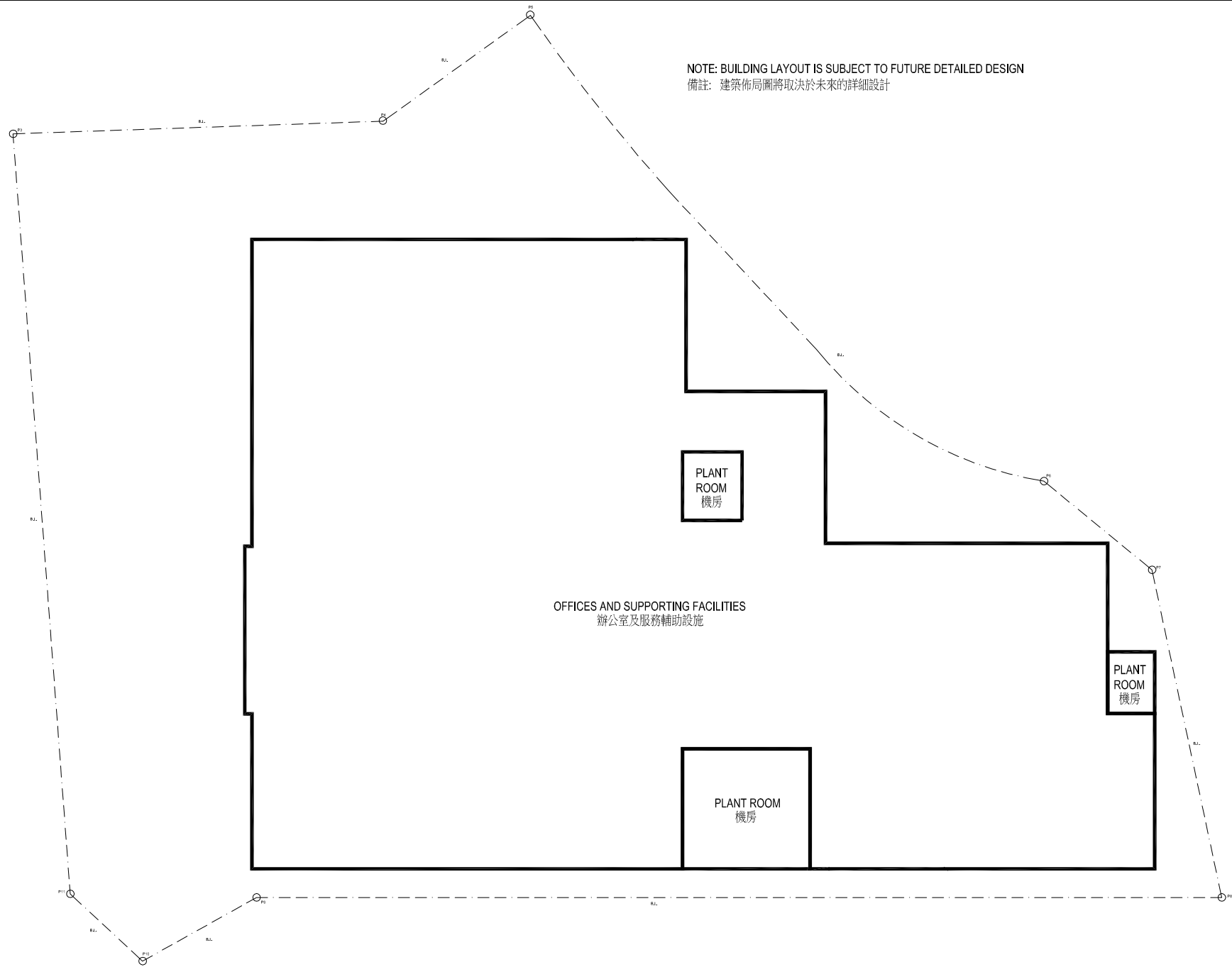
AS CONFIRMED BY AFCD ON 21 FEBRUARY 2018, THE MAXIMUM NUMBER OF DOGS IN DOG KEEPING AREAS AT 3/F WILL BE 12.
在二零一八年二月二十一日，漁農自然護理署確認三樓狗隻飼養區的狗隻數量最多為十二隻。



NOTE: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN
備註: 建築佈局圖將取決於未來的詳細設計



NOTE: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN
備註: 建築佈局圖將取決於未來的詳細設計

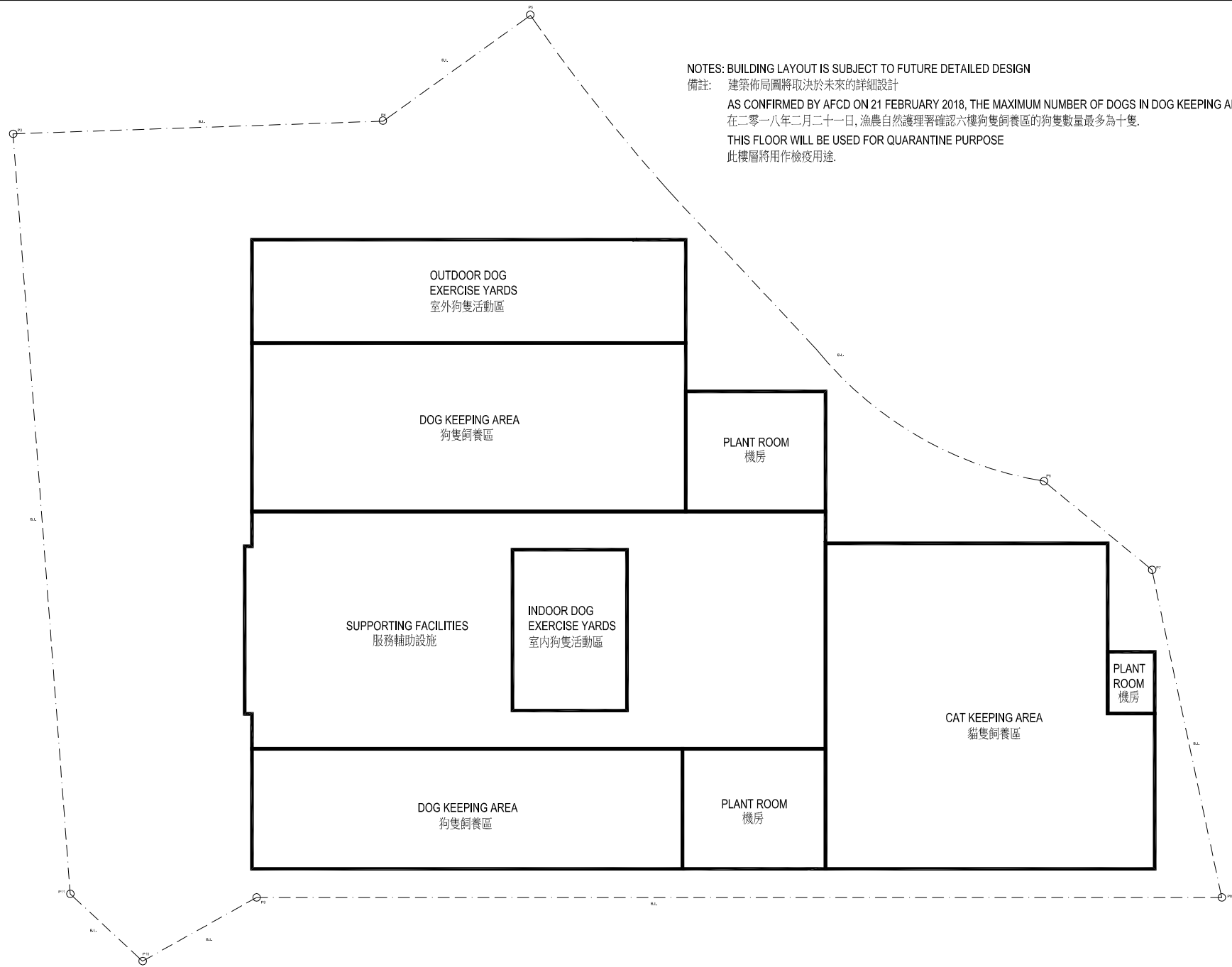


NOTES: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN

備註：建築佈局圖將取決於未來的詳細設計

AS CONFIRMED BY AFCD ON 21 FEBRUARY 2018, THE MAXIMUM NUMBER OF DOGS IN DOG KEEPING AREAS AT 6/F WILL BE 10.
在二零一八年二月二十一日，漁農自然護理署確認六樓狗隻飼養區的狗隻數量最多為十隻。

THIS FLOOR WILL BE USED FOR QUARANTINE PURPOSE
此樓層將用作檢疫用途。

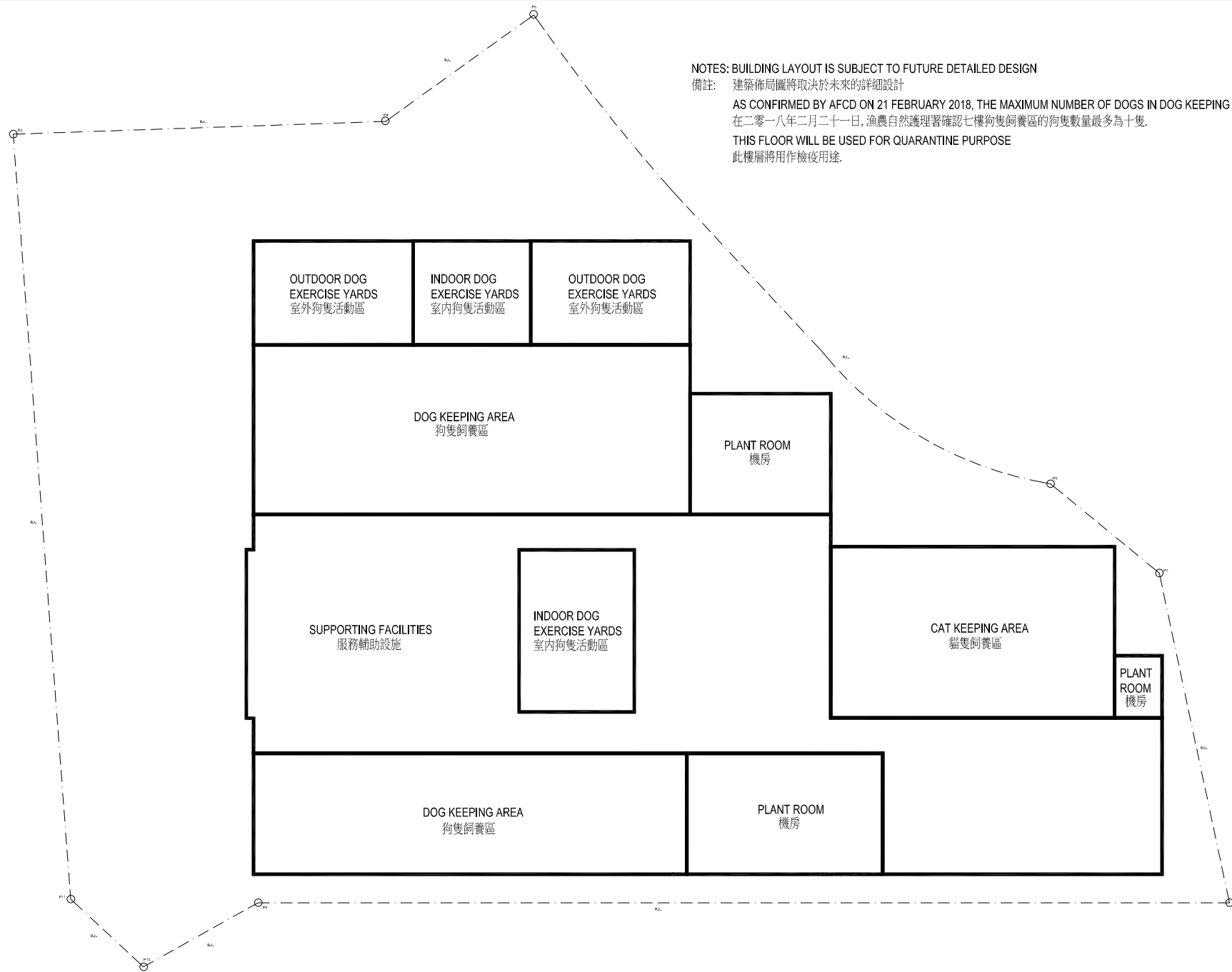


NOTES: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN

備註：建築佈局圖將取決於未來的詳細設計

AS CONFIRMED BY AFCD ON 21 FEBRUARY 2018, THE MAXIMUM NUMBER OF DOGS IN DOG KEEPING AREAS AT 7/F WILL BE 10.
在二零一八年二月二十一日，漁農自然護理署確認七樓狗隻飼養區的狗隻數量最多為十隻。

THIS FLOOR WILL BE USED FOR QUARANTINE PURPOSE
此樓層將用作檢疫用途。

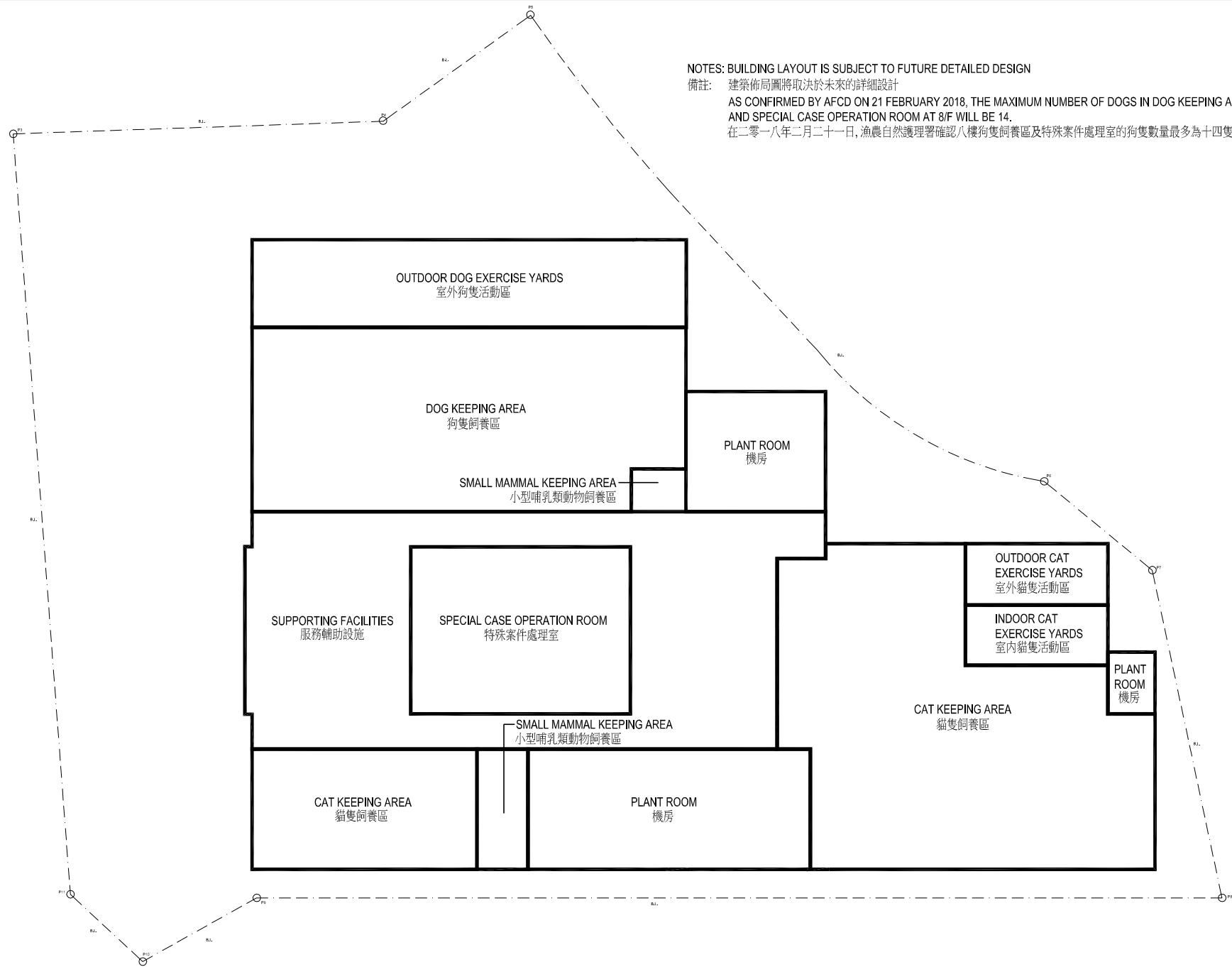


NOTES: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN

備註：建築佈局圖將取決於未來的詳細設計

AS CONFIRMED BY AFCD ON 21 FEBRUARY 2018, THE MAXIMUM NUMBER OF DOGS IN DOG KEEPING AREA AND SPECIAL CASE OPERATION ROOM AT 8/F WILL BE 14.

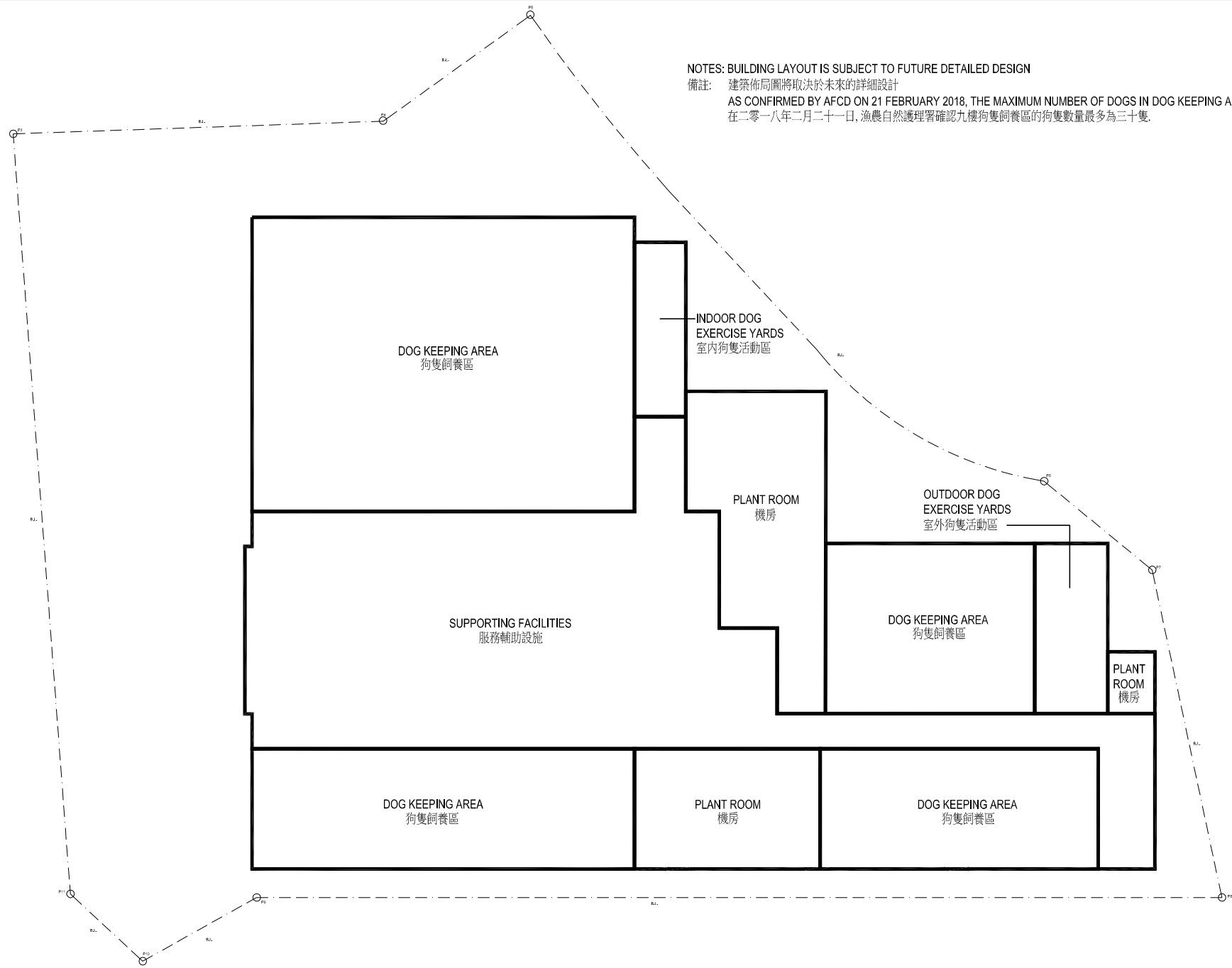
在二零一八年二月二十一日，漁農自然護理署確認八樓狗隻飼養區及特殊案件處理室的狗隻數量最多為十四隻。



NOTES: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN

備註：建築佈局圖將取決於未來的詳細設計

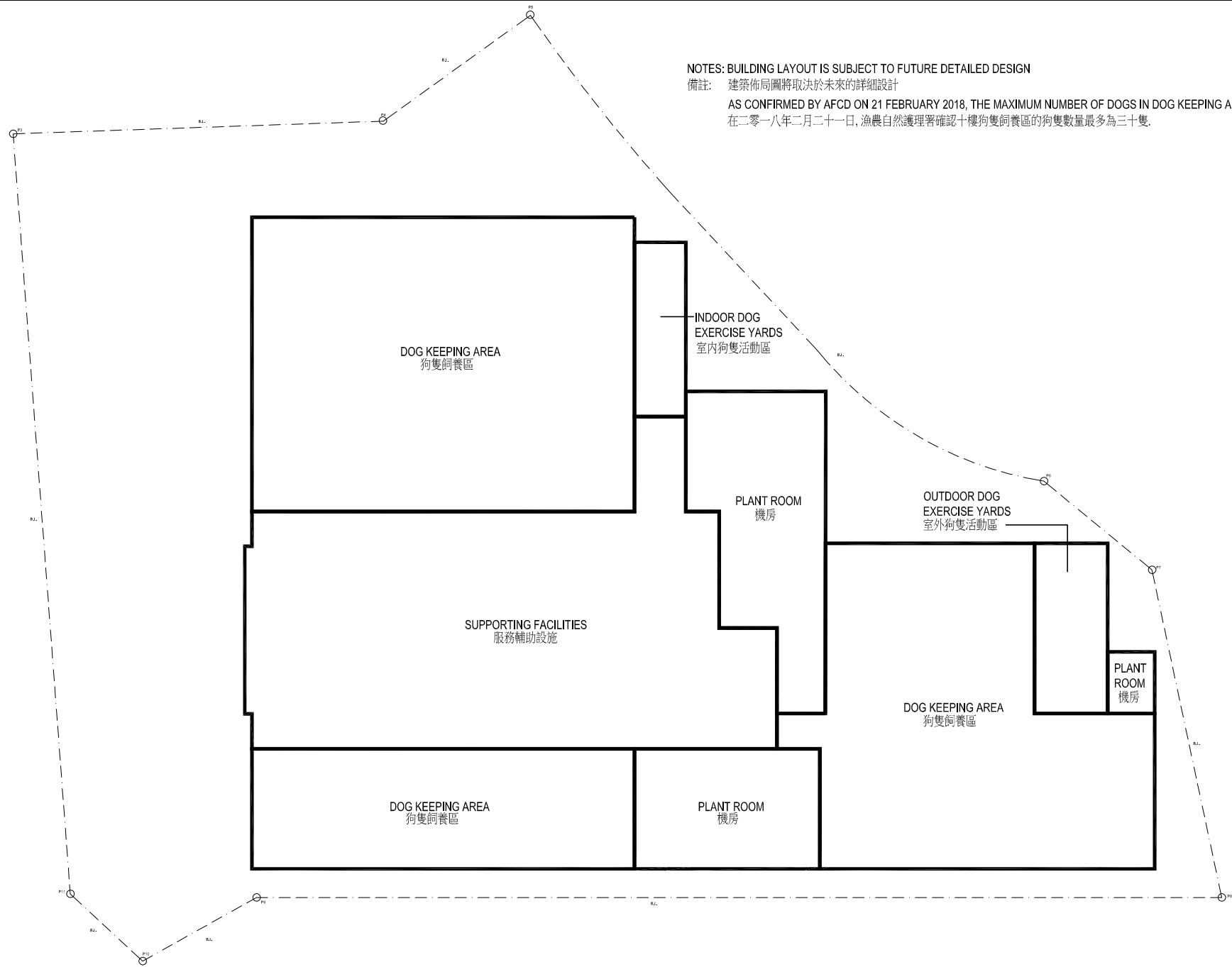
AS CONFIRMED BY AFCD ON 21 FEBRUARY 2018, THE MAXIMUM NUMBER OF DOGS IN DOG KEEPING AREAS AT 9/F WILL BE 30.
在二零一八年二月二十一日，漁農自然護理署確認九樓狗隻飼養區的狗隻數量最多為三十隻。



NOTES: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN

備註：建築佈局圖將取決於未來的詳細設計

AS CONFIRMED BY AFCD ON 21 FEBRUARY 2018, THE MAXIMUM NUMBER OF DOGS IN DOG KEEPING AREAS AT 10/F WILL BE 30.
在二零一八年二月二十一日，漁農自然護理署確認十樓狗隻飼養區的狗隻數量最多為三十隻。

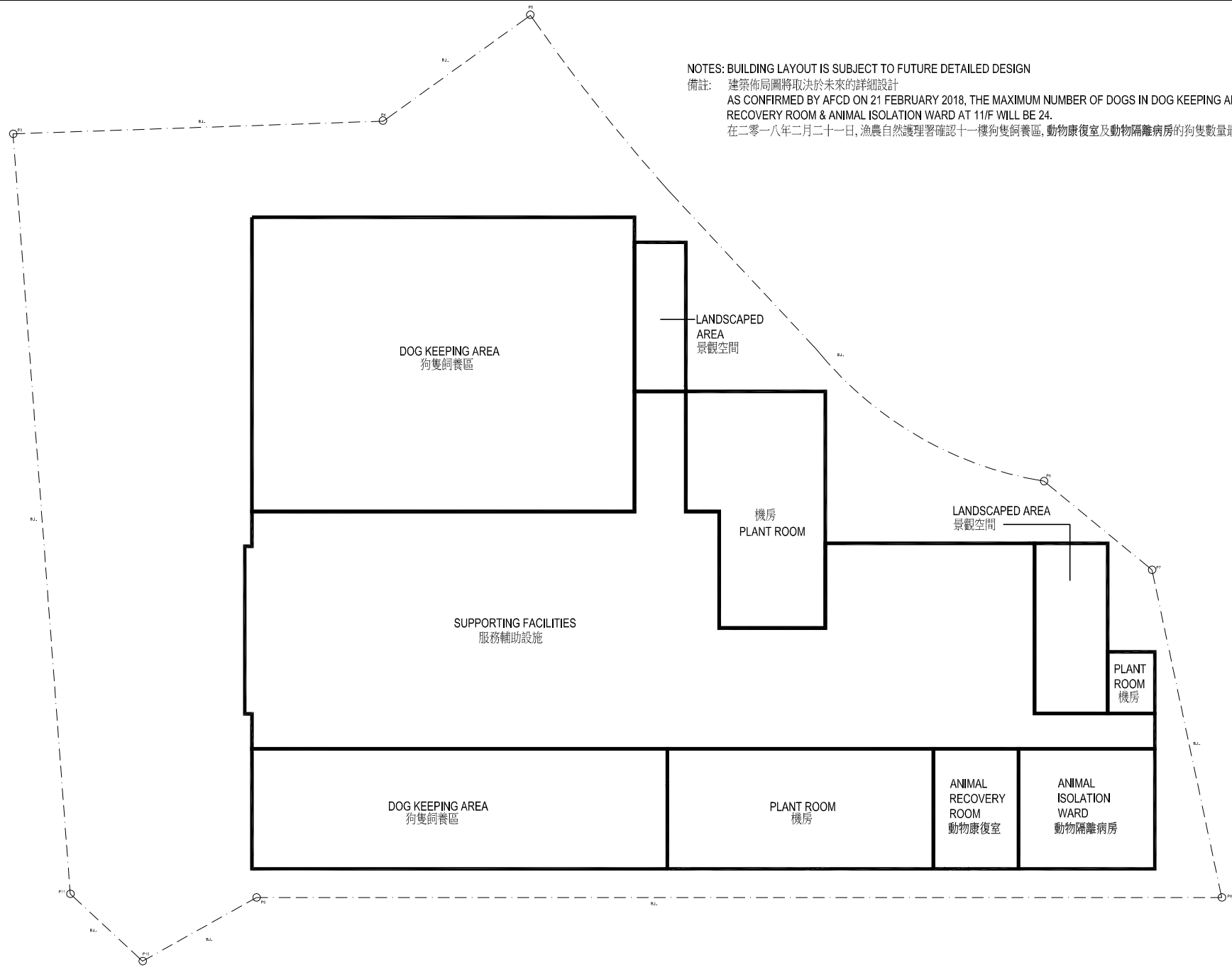


NOTES: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN

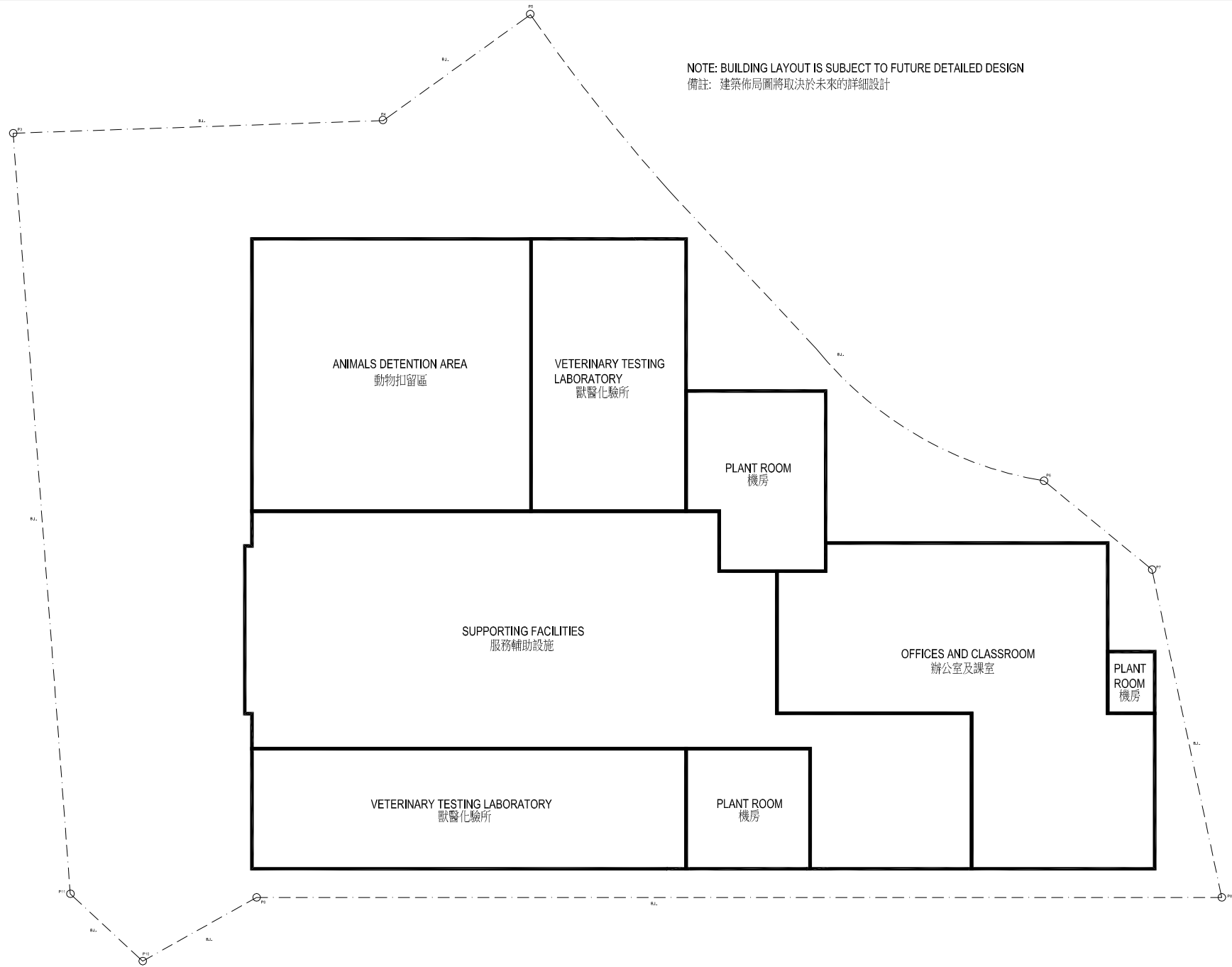
備註: 建築佈局圖將取決於未來的詳細設計

AS CONFIRMED BY AFCD ON 21 FEBRUARY 2018, THE MAXIMUM NUMBER OF DOGS IN DOG KEEPING AREAS, ANIMAL RECOVERY ROOM & ANIMAL ISOLATION WARD AT 11/F WILL BE 24.

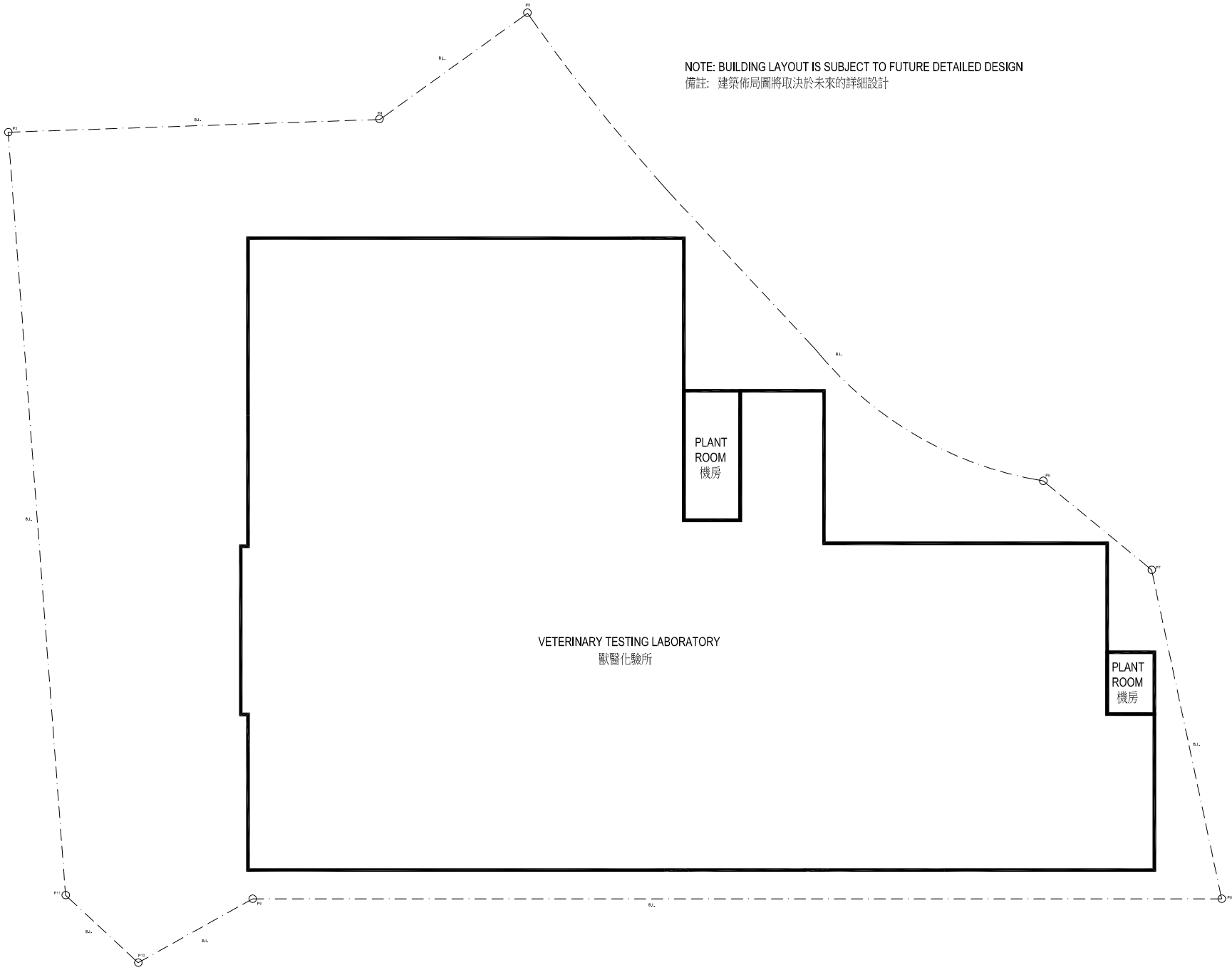
在二零一八年二月二十一日, 漁農自然護理署確認十一樓狗隻飼養區, 動物康復室及動物隔離病房的狗隻數量最多為二十四隻。



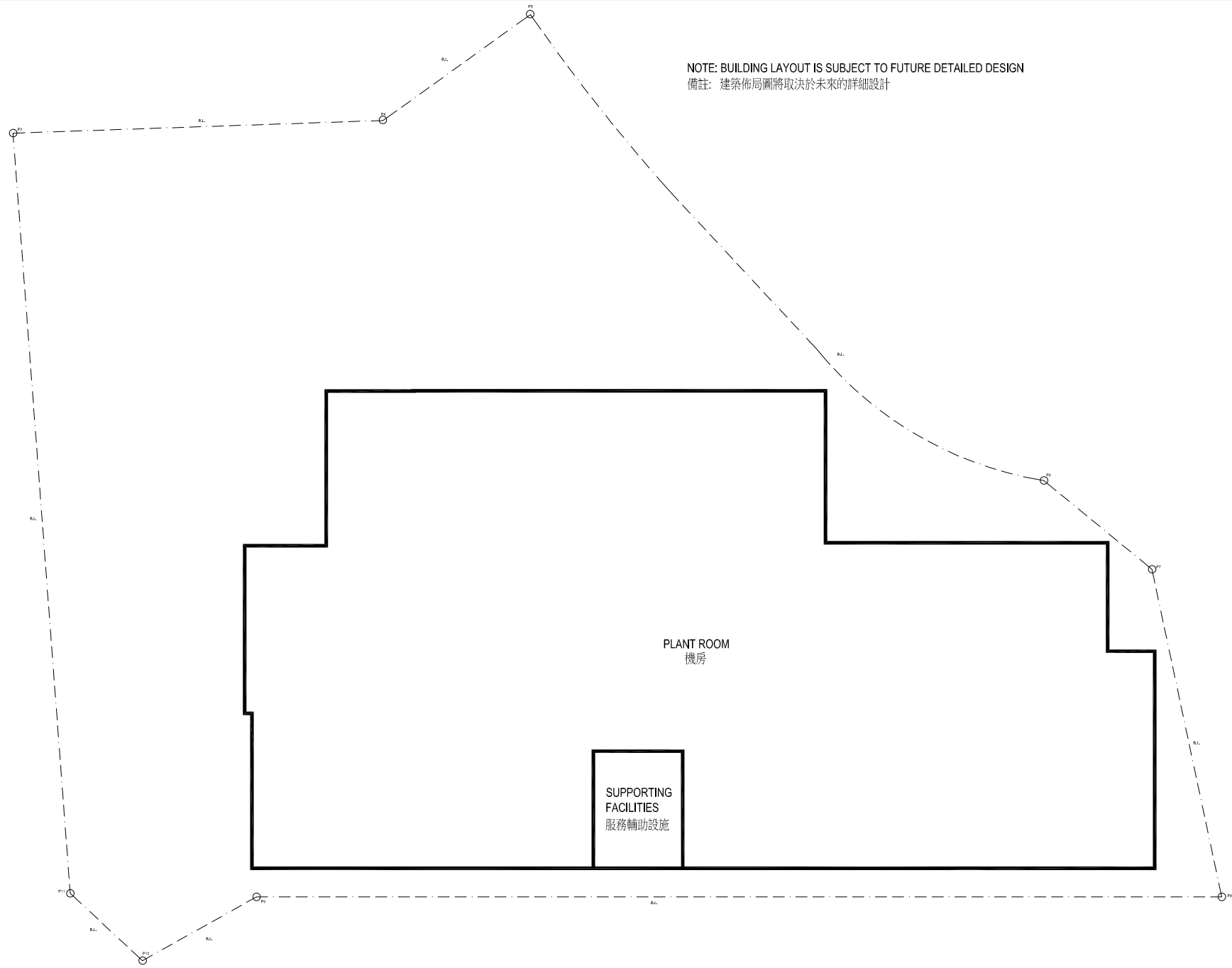
NOTE: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN
備註：建築佈局圖將取決於未來的詳細設計



NOTE: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN
備註: 建築佈局圖將取決於未來的詳細設計



NOTE: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN
備註: 建築佈局圖將取決於未來的詳細設計



Project No.: 1450

The Development of AFCD Animal Management and Animal Welfare Building Complex in Kai Tak Development
Project Profile

Appendix 4-1 Estimation of C&D Materials

1450 The Development of AFCD Animal Management and Animal Welfare Building Complex in Kai Tak Development
Estimation of C&D Material

Table 1. Quantity Estimation of C&D Material for Various Projects with Similar Nature

ID	Project Name	PWP No.	CFA (m ²)	Quantity of C&D Material (tonnes)			Quantity of C&D Material per CFA (tonnes/m ²)			Source / Remark
				Reused	Inert	Non-inert	Reused	Inert	Non-inert	
1	Construction of West Kowloon Government Offices	74KA	89180	9340	173680	21020	0.10	1.95	0.24	[1]
2	Reprovisioning of Food and Environmental Hygiene Department Sai Yee Street Environmental Hygiene offices-cum-vehicle depot at Yen Ming Road, West Kowloon Reclamation Area	182GK	27713	15650	14150	5880	0.56	0.51	0.21	[2]
3	Sports centre at Choi Wing Road, Kwun Tong	289RS	10357	5500	12000	2500	0.53	1.16	0.24	[3]
4	Relocation of New Territories West Regional Office and Water Resources Education Centre of Water Supplies Department to Tin Shui Wai	117KA	12888	1350	18640	1260	0.10	1.45	0.10	[4]
Average							0.33	1.27	0.20	[5]

Source / Remark:

[1] <http://www.legco.gov.hk/yr14-15/english/fc/pwsc/papers/p15-12e.pdf>

[2] <http://www.legco.gov.hk/yr14-15/english/fc/pwsc/papers/p15-04e.pdf>

[3] <http://www.legco.gov.hk/yr15-16/english/fc/pwsc/papers/p16-18e.pdf>

[4] <http://www.legco.gov.hk/yr14-15/english/fc/pwsc/papers/p15-15e.pdf>

[5] To present a general scenario, average quantity value of reused/inert/non-inert construction waste per CFA is adopted for further quantity projection.

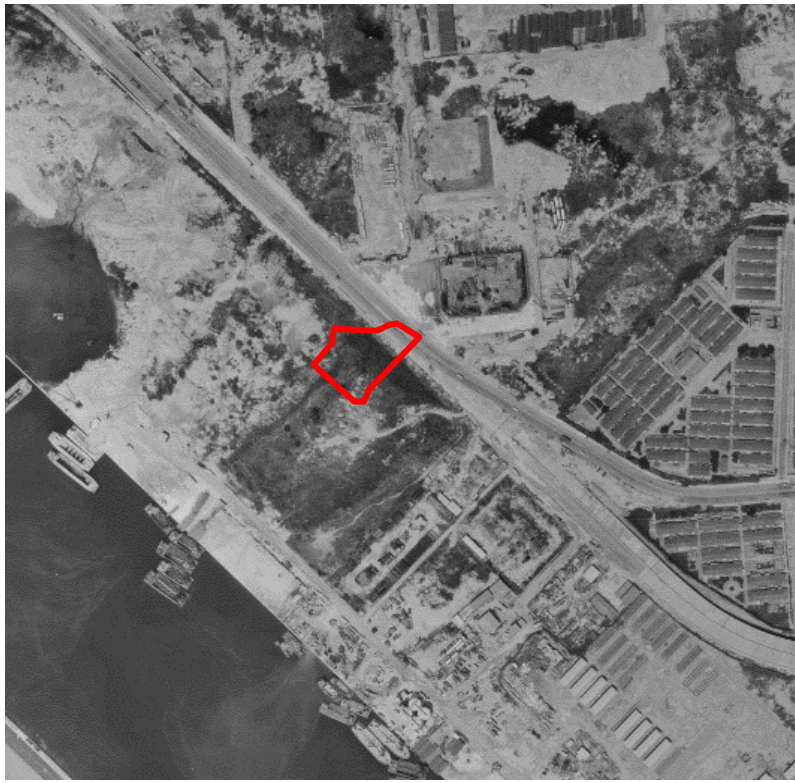
Calculation 1. Quantity Estimation of C&D Material for the Building Complex

(A)	Construction Floor Area of the Building Complex =	20,973 m ²	<u>Remarks</u> As provided by the Architect on 14 February 2018
(B)	Total Quantity of Reused C&D Material by the Building Complex =	6,922 tonnes	(A) × (I)
(C)	Total Quantity of Inert C&D Material by the Building Complex =	26,636 tonnes	(A) × (II)
(D)	Total Quantity of Non-Inert C&D Material by the Building Complex =	4,195 tonnes	(A) × (III)
(E)	Total weight of C&D material produced by the Building Complex =	37,753 tonnes	(B) × (C) × (D)

Project No.: 1450

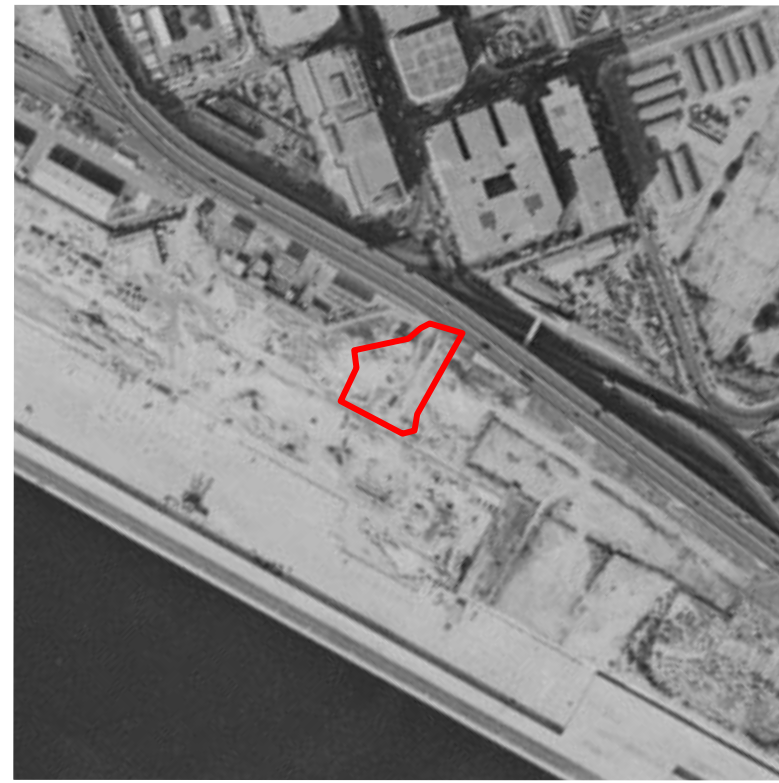
The Development of AFCD Animal Management and Animal Welfare Building Complex in Kai Tak Development
Project Profile

Appendix 4-2 Historical Aerial Photos



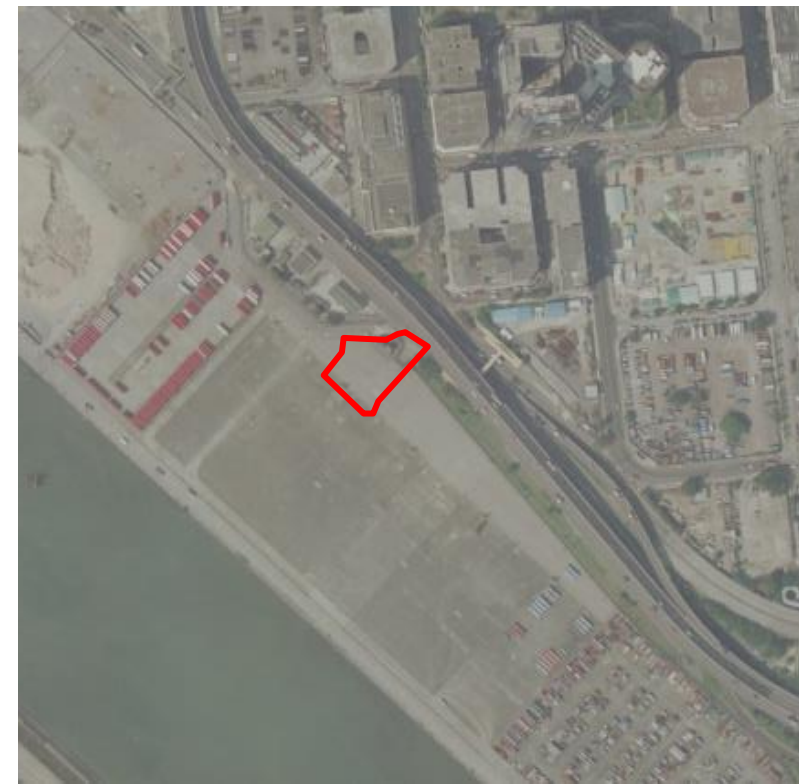
6th October 1982
Under reclamation

1982年10月6日
正進行填海工程



11th November 1992
Land reclamation had been completed. The project site was an open area, which was under construction of the South Apron of the former Kai Tak Airport. The site was properly maintained with good housekeeping.

1992年11月11日
填海工程經已完成，項目位置是一塊正在興建前啟德機場南面停機坪的空地，而且被妥善維護及擁有良好的內務管理。



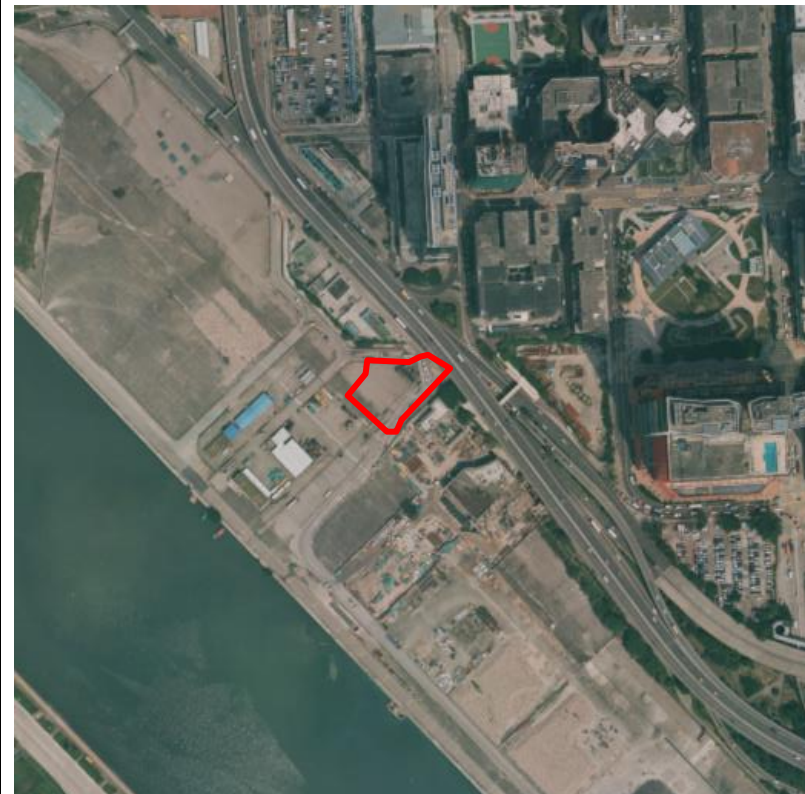
9th October 2002
Vacant site was paved with concrete.

2002年10月9日
空置用地被混凝土鋪蓋。



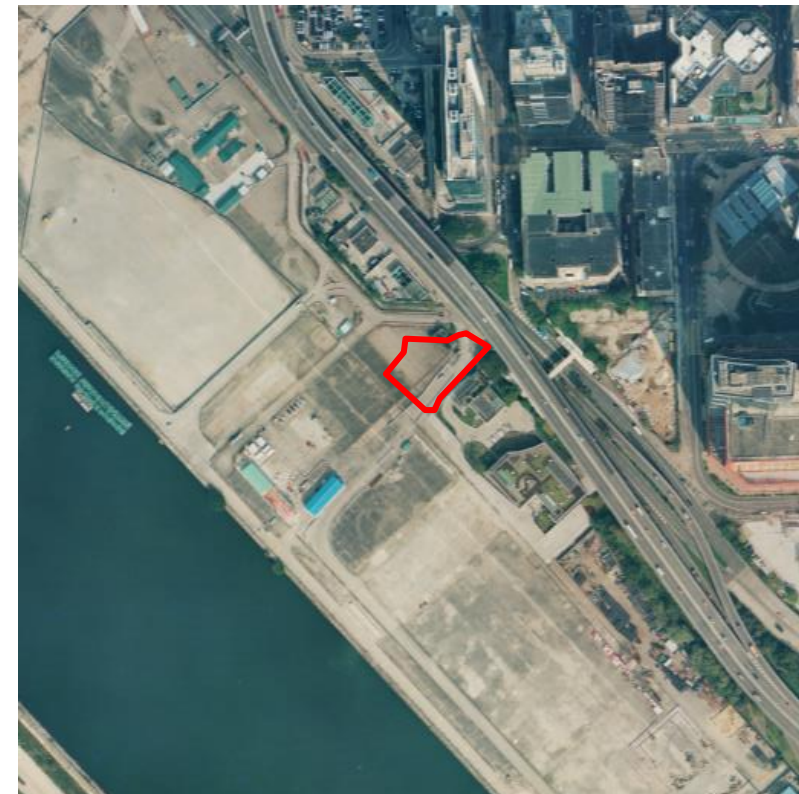
2nd November 2009
The vacant land remained well-paved.

2009年11月2日
空置用地仍然被混凝土完整覆蓋。



28th September 2012
The vacant land remained well-paved.

2012年9月28日
空置用地仍然被混凝土完整覆蓋。



8th January 2016
The vacant land remained well-paved.

2016年1月8日
空置用地仍然被混凝土完整覆蓋。

NOTES :

 Project Site
項目位置

Consultant



Allied Environmental Consultants Limited
ACOUSTICIANS & ENVIRONMENTAL ENGINEERS

Project No. : 1450

Drawing by: DT

Project : DEVELOPMENT OF AFCD ANIMAL MANAGEMENT AND ANIMAL WELFARE BUILDING COMPLEX IN KAI TAK DEVELOPMENT
漁農自然護理署
動物管理及動物福利綜合大樓

Drawing Title :

HISTORICAL AERIAL PHOTOS
歷年航空照片

Drawing No :
APPENDIX 4-2 附錄 4-2

Revision :
4

Scale :
NTS

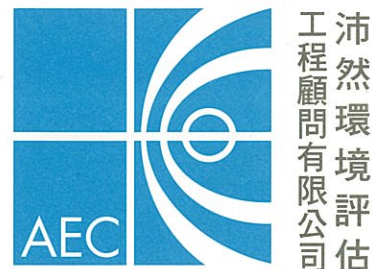
Date :
2 JUNE 2018

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Appendix 4-3
Correspondence from EPD and FSD

Allied Environmental Consultants Limited
Acousticians & Environmental Engineers

19/F., Kwan Chart Tower, 6 Tonnochy Road, Wan Chai, Hong Kong
Tel.: (852) 2815 7028 Fax: (852) 2815 5399 Email: info@aechk.com



Our Ref: 1450/17-0003

12 April 2017

By Fax

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)
Eastern
5/F, Nan Fung Commercial Centre,
19 Lam Lok Street, Kowloon Bay,
Kowloon

Attn: Mr. TANG Wai Kuen, Samuel

Dear Sir,

**DEVELOPMENT OF AFCD ANIMAL MANAGEMENT AND ANIMAL WELFARE BUILDING COMPLEX IN
KAI TAK DEVELOPMENT (PROGRAMME NO. 187GK)
REQUEST FOR INFORMATION - HISTORICAL RECORDS OF CHEMICAL SPILLAGE / LEAKAGE AT THE
PROJECT SITE**

We are currently undertaking an Environmental Impact Assessment (EIA) study for the captioned project on behalf of Architectural Services Department (Please refer to the acceptance letter as attached) and preparing Project Profile for application of Environmental Permit (EP).

In order to facilitate the environmental assessments, we would be grateful if historical records of chemical spillage / leakage starting from 2009 to present concerning the Project Site, as shown in the enclosed figure, can be provided.

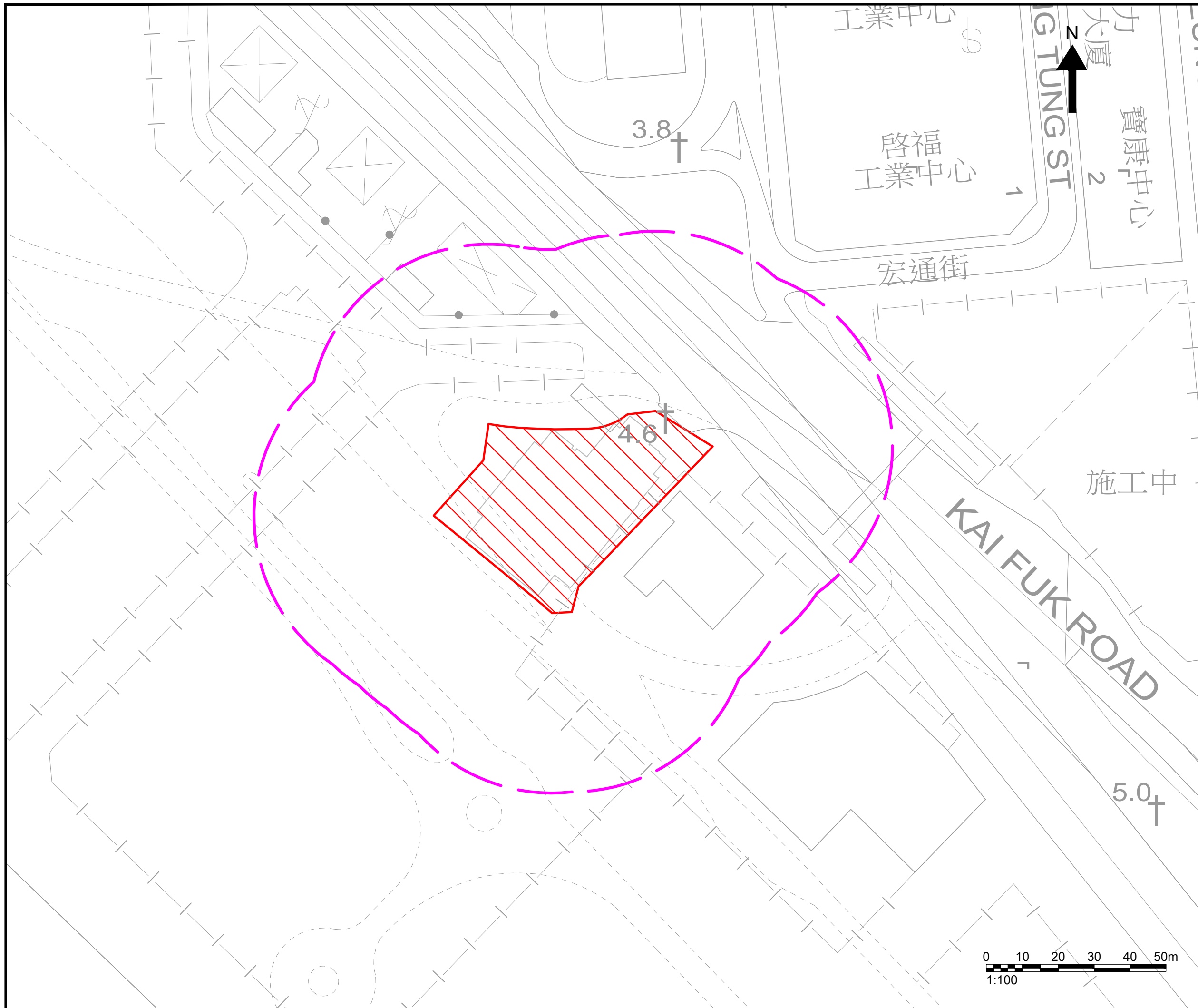
Due to tight programme of the captioned project, it is highly appreciated if your reply on the above request could be available by 27 April 2017. A nil return is also required.

Your kind attention is much appreciated. Should you have any queries, please do not hesitate to contact the undersigned or Ms. Joanne Ng at 2815-7028.


Yours sincerely,


HO Tin Kit
Principal Consultant
Allied Environmental Consultants Limited
HTK/ jn
Encl.

ArchSD (Attn: Ms. Susana Chan PM354 / Mr. Nick Yau PMB3)



NOTES:

 PROJECT SITE AREA

 50m ASSESSMENT AREA

Consultant



Allied Environmental Consultants Limited
ACOUSTICIANS & ENVIRONMENTAL ENGINEERS

Project No. : 1450

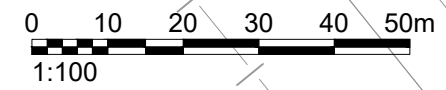
Drawing By : DAVID TSANG

Project : THE DEVELOPMENT OF AFCD ANIMAL MANAGEMENT AND ANIMAL WELFARE BUILDING COMPLEX IN KAI TAK DEVELOPMENT

Drawing Title : SITE LAYOUT PLAN

Drawing No : FIGURE A	Revision : 0
Scale : AS SHOWN	Date : 12 APRIL 2017

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本署編號
Our Ref:
來函檔號 () in EP650/G1/4
Your Ref:
電話 1450/17-0003
Tel. No.: 2117 7527
圖文傳真
Fax No.: 2756 8588
電子郵件
E-Mail:
網址
Homepage: <http://www.epd.gov.hk/>

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)
5th Floor, Nan Fung Commercial Centre,
19 Lam Lok Street, Kowloon Bay,
Kowloon, Hong Kong.



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

By Fax only
Fax : 2815 5399
28 Apr 2017

Allied Environmental Consultants Limited
19/F Kwan Chart Tower,
6 Tonnochy Road,
Wan Chai, Hong Kong
(Attn : HO Tin-kit)

Dear TK,

AFCD Animal Management and Animal Welfare Building Complex in Kai Tak
Request for Information of
Registered Chemical Waste Producers and Chemical Spillage Accident

I refer to your letter dated 12 Apr 2017.

According to our record, there was a contractor registered as chemical waste producer in 2010 within the site boundary. The reported chemical waste involved during registration was spent lubricating oil.

However, we do not keep record of chemical spillage / leakage and you may like to approach other relevant authorities / organizations for such record.

If you need any further information, please contact me at 2117 7527.

Yours faithfully,

(Benson LEE)

Environmental Protection Officer
Regional Office (East)

本署檔號
 Our Ref: () in EP650/G1/4
 來函檔號
 Your Ref: 1450/17-0003
 電話
 Tel. No.: 2117 7527
 圖文傳真
 Fax No.: 2756 8588
 電子郵件
 E-Mail:
 網址
 Homepage: <http://www.epd.gov.hk/>

Environmental Protection Department
Environmental Compliance Division
Regional Office (East)
 5th Floor, Nan Fung Commercial Centre,
 19 Lam Lok Street, Kowloon Bay,
 Kowloon, Hong Kong.



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

By Fax only
Fax : 2815 5399
 8 Nov 2017

Allied Environmental Consultants Limited
 19/F Kwan Chart Tower,
 6 Tonnochy Road,
 Wan Chai, Hong Kong
 (Attn : HO Tin-kit)

Dear TK,

AFCD Animal Management and Animal Welfare Building Complex in Kai Tak
Request for Information of
Registered Chemical Waste Producers and Chemical Spillage Accident

Further to our letter dated 28 Apr 2017 for the captioned, I would like to clarify that the registered chemical waste producer mentioned in the letter of 28 Apr 2017 was within your 50m assessment area but not within the site boundary of the captioned project.

If you need any further information, please contact me at 2117 7527.

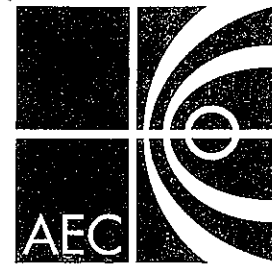
Yours faithfully,

(Benson LEE)

Environmental Protection Officer
 Regional Office (East)

Allied Environmental Consultants Limited
Acousticians & Environmental Engineers

19/F., Kwan Chart Tower, 6 Tonnochy Road, Wan Chai, Hong Kong
Tel.: (852) 2815 7028 Fax: (852) 2815 5399 Email: info@aechk.com



沛然環境評估
工程顧問有限公司

Our Ref: 1450/17-0005

12 April 2017

By Fax

Fire Service Management Group
Room 921, 9th floor, North Wing,
Fire Service Headquarter Building,
1 Hong Chong Road,
Kowloon

Dear Sir/ Madam,

**DEVELOPMENT OF AFCD ANIMAL MANAGEMENT AND ANIMAL WELFARE BUILDING
COMPLEX IN KAI TAK DEVELOPMENT (PROGRAMME NO. 187GK)
REQUEST FOR INFORMATION - HISTORICAL RECORDS OF DANGEROUS GOODS
REGISTRATION AND SPILLAGE / LEAKAGE AT THE PROJECT SITE**

We are currently undertaking an Environmental Impact Assessment (EIA) study for the captioned project on behalf of Architectural Services Department (Please refer to the acceptance letter as attached) and preparing Project Profile for application of Environmental Permit (EP).

In order to facilitate the environmental assessments, we would be grateful if the following historical records from 2009 to present concerning the Project site, as shown in the enclosed figure, can be provided:

- (i) Current and past registration of dangerous goods records; and
- (ii) Historical records of chemical spillage / leakage

Due to tight programme of the captioned project, it is highly appreciated if your reply on the above request could be available by 27 April 2017. A nil return is also required.

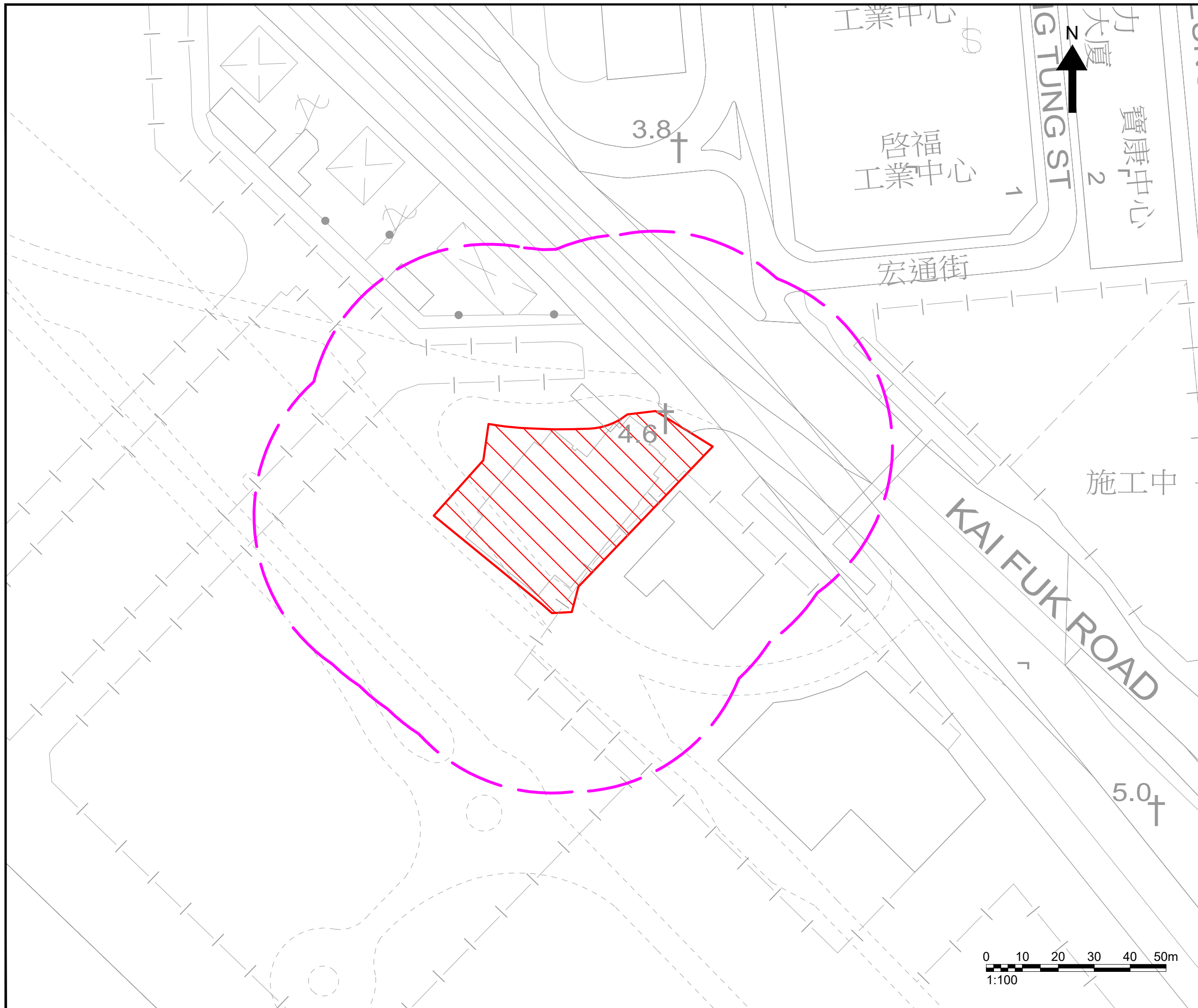
Your kind attention is much appreciated. Should you have any queries, please do not hesitate to contact the undersigned or Ms. Joanne Ng at 2815-7028.

Yours sincerely,


HO Tin Kit
Principal Consultant
Allied Environmental Consultants Limited
HTK/ jn
Encl.


Cc. ArchSD (Attn: Ms. Susana Chan PM354 / Mr. Nick Yau PMB3)





NOTES:

 PROJECT SITE AREA

 50m ASSESSMENT AREA

Consultant



Allied Environmental Consultants Limited
ACOUSTICIANS & ENVIRONMENTAL ENGINEERS

Project No. : 1450

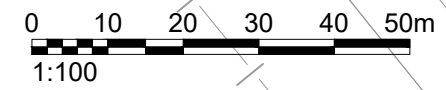
Drawing By : DAVID TSANG

Project : THE DEVELOPMENT OF AFCD ANIMAL MANAGEMENT AND ANIMAL WELFARE BUILDING COMPLEX IN KAI TAK DEVELOPMENT

Drawing Title : SITE LAYOUT PLAN

Drawing No : FIGURE A	Revision : 0
Scale : AS SHOWN	Date : 12 APRIL 2017

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消防處
香港九龍尖沙咀東部康莊道1號
消防總部大廈



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

本處檔號 OUR REF. : (75) in FSD GR 6-5/4 R Pt. 15
來函檔號 YOUR REF. : 1450/17-0005
電子郵件 E-mail : hkfsdenq@hkfsd.gov.hk
圖文傳真 FAX NO. : 2739 5879
電話 TEL NO. : 2733 7741

16 May 2017

Allied Environmental Consultants Limited
19/F.,
Kwan Chart Tower,
6 Tonnochy Road,
Wan Chai, Hong Kong.
(Attn: Mr. HO Tin-kit, Principal Consultant)

Dear Mr. HO,

**Development of AFCD Animal Management and Animal Welfare Building
Complex in Kai Tak Development (Programme No. 187GK)
Request for Information of Dangerous Goods & Incident Records**

I refer to your letter of 12.4.2017 regarding the captioned request and reply below in response to your questions:-

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

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

Yours sincerely,

(CHEU Yu-kok)
for Director of Fire Services

Appendix 4-4
Summary of Residual Landscape & Visual Impacts
during Construction Phase

ID	Name	Unmitigated Construction Impacts	Landscape Mitigation Measures	Mitigated Construction Impacts
LCA1	Open Space / Vegetated Landscape	Negligible	Section 6.7.3	Negligible
LCA2	Industrial Urban Landscape	Negligible	Section 6.7.3	Negligible
LCA3	Transportation Corridor Landscape	Negligible	Section 6.7.3	Negligible
LCA4	Ongoing Major Development Landscape	Negligible	Section 6.7.3	Negligible
LCA5	Kai Tak Approach Channel Landscape	Negligible	Section 6.7.3	Negligible
VSR1	Billion Centre	Moderately adverse	Section 6.7.3	Small
VSR2	Kai Fuk Industrial Centre	Moderately adverse	Section 6.7.3	Small
VSR3	Hong Leong Industrial Complex	Moderately adverse	Section 6.7.3	Small
VSR4	Po Hong Centre	Moderately adverse	Section 6.7.3	Small
VSR5	MegaBox	Moderately adverse	Section 6.7.3	Small
VSR6	Zero Carbon Building	Slightly adverse	Section 6.7.3	Negligible

Project No.: 1450

The Development of AFCD Animal Management and Animal Welfare Building Complex in Kai Tak Development
Project Profile

Appendix 5-1 Odour Evaluation

1. INTRODUCTION

- 1.1.1. In order to ensure the emission of odorous smell to the atmosphere of the Building Complex (measured at the exhaust louvers and/or at site boundary) could be of minimal level, an evaluation is carried out to examine the predicted odour level and to compare with the 50U/m³ standard as stipulated in the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM).
- 1.1.2. The key items presented in this proposal include the followings:
- Methodology of odour sampling and olfactometry analysis to determine odour concentration of odour sources in an existing Animal Management Centre (AMC), which is in operation under similar conditions and settings to the proposed Building Complex of the Project;
 - Prediction of the odour concentration at the future exhaust points, based on the results of odour sampling in an existing AMC, also in the consideration of number of dogs in proposed building complex, room volume of the confined dog keeping areas, air-conditioned conditions with fresh air intake air change rate, and the proposed odour removal system.

2. REVIEW OF ODOUR SOURCES AND SAMPLING

- 2.1.1. With reference to the recent studies, odorous gases ammonia (NH₃) and hydrogen sulphide (H₂S) inside an animal keeping building are anticipated from animal wastes mainly¹. Based on site observations during visits at the existing AMC, the smell from dogs is dominant over cats and other small animals. Therefore, odour samples were collected in areas where dogs frequently stay.

3. SAMPLING AND ANALYSIS

- 3.1.1. Odour gas samples were collected by using non-flux hood type sample method. All samples were taken at every zone and in the central corridor at approximately 1.6m above local ground level². Every odour sample was collected at the duration of at least 10 minutes. After collecting the odour gas samples, all samples were returned to the HOKLAS accredited laboratory for olfactometry analysis within 24 hours.
- 3.1.2. During the measurement in the existing AMC, a total of 24 numbers of dog was kept inside the air-conditioned confined keeping areas, with recorded average ambient temperature and relative humidity of 27.5°C and 68.8%, respectively.
- 3.1.3. Odour measurement results and elaborations on the settings inside the existing AMC are presented in *Tables 1* and *Table 2*, respectively.

¹ Measurement and analysis of ammonia, hydrogen sulphide and odour emissions from the cattle farming in Estonia, Elsevier, Biosystems Engineering 139 (2015) 48-59. Marek Maasikmets, Erik Teinemaa, Allan Kaasik, Veljo Kimmel

² Comparative odour measurements according to EN 13725 using pig house odour and n-butanol reference gas, Biosystems Engineering 143 (2016) 119-127. Nathalie C.Y. Hove, Herman Van Langenhove, Stephanie Van Weyenberg, Peter Demyer

4. PREDICTED ODOUR CONCENTRATION LEVEL

- 4.1.1. With reference to the measurement results as shown in *Table 1*, sample with the highest odour concentration of 45 OU/m³ was obtained inside the existing AMC, under the condition that all 24 dogs were kept inside the confined keeping area overnight before cleansing in the next morning, such that the odorous smell has been well-mixed with the internal room conditions.
- 4.1.2. With the highest odour concentration obtained, odour concentration levels at future exhaust louvers at the Building Complex are predicted by considering the following major adjustments (details are presented in *Table 2* and *Table 3*):
- Number of dogs in proposed building complex;
 - Room volume of confined dog keeping areas;
 - Designed air change rate (at least 10 ACH) in the future air-conditioned confined dog keeping area;
 - Efficiency of deodorizer (a minimum of 85%)
- 4.1.3. Predicted odour concentrations at exhaust with an odour removal rate of 85% were then estimated for each concerned level, as tabulated in details in the attached *Table 4*. The maximum odour concentration predicted at the exhaust is 1.21 OU/m³, considering the accumulation of simultaneous emission of the odour gas at all the proposed exhaust points on different levels of the Building Complex, as the worst case scenario.
- 4.1.4. The predicted maximum odour concentration level of 1.21 OU/m³ is far below the 50OU/m³ standard as stipulated in the EIAO-TM. In this connection, odour impact to the adjacent air sensitive receivers associated with the future operation of the Building Complex is not anticipated.

1450 The Development of AFCD Animal Management and Animal Welfare Building Complex in Kai Tak Development
Derivation of Odour Emission

Table 1. Odour Concentration in the Existing Animal Management Centre

Location	Sampling Period #	OU/m ³
Location 1	08:05 - 08:11	30
Location 2	08:05 - 08:12	45
Location 3	08:13 - 08:19	37
Location 4	08:15 - 08:21	34
Location 1	11:14 - 11:20	25
Location 2	11:21 -11:27	32
Location 3	11:29 -11:35	34
Location 4	11:38 -11:44	32

Remark: # The samples were taken before and after cleaning. Before cleaning period: 08:05 - 08:21, After cleaning period: 11:14 - 11:44.

Table 2. Information of the Existing Animal Management Centre

Maximum Odour Concentration	45	OU/m ³
No. of Dogs during Measurement	24	
Area	181	m ²
Height	2.46	m
Room Air Volume of Dog Keeping Area	445.53	m ³
Total Odour Amount	20048.74	OU
Total Odour Amount per Dog	835.36	OU

Notes:

The highest odour concentration was measured on 2 August 2017 in an existing animal management centre under an animal welfare organization.

Number of dogs during measurement was recorded on 2 August 2017.

Concerned area includes dog kennel areas, corridors and food preparation room.

Height of the concerned area in existing animal management centre were measured on 2 August 2017.

Room Air Volume of Dog Keeping Area (m³) = Area (m²) × Height (m)

Total Odour Amount (OU) = Maximum Odour Concentration in Dog Keeping Area (OU/m³) × Room Air Volume of Dog

Total Odour Amount per Dog (OU) = Total Odour Amount (OU) ÷ No. of Dogs during Measurement

Table 3. Design Parameter of the Proposed Building Complex in Kai Tak

No. of Dogs in the Proposed Building Complex	130	
Odour Removal Efficiency of Deodouriser	85%	
Maximum Odour Concentration at each floor	<5	OU/m ³
Maximum Odour Concentration	<5	OU/m ³
Odour Criteria Stipulated by the EPD	5	OU/m ³

Notes:

As confirmed by AFCD on 13 February 2018

It is assumed that the mentioned efficiency of odour removal device will be provided.

Detail calculation refer to Table 4.

Detail calculation refer to Table 4.

According to EIAO-TM Annex 4, 5 odour units shall be met based on an averaging time of 5 seconds for odour prediction assessment.

Table 4. Project Building Information and Odour Emission Estimation

Floor [1]	No. of Dog [2]	Room Air Volume of Dog Keeping Areas (m ³) [3]	Factors for Projection		Predicted Odour Concentration (OU/m ³) [6]	Odour Concentration (OU/m ³) (85% Removal) [7]	Minimum Air Change Rate [8]	Odour Concentration at Exhaust (OU/m ³) [9]
			No. of Dog [4]	Room Air Volume [5]				
3/F	12	810	0.50	0.55	12.38	1.86	10	0.19
6/F	10	1050	0.42	0.42	7.96	1.19	10	0.12
7/F	10	1050	0.42	0.42	7.96	1.19	10	0.12
8/F	14	900	0.58	0.50	12.99	1.95	10	0.19
9/F	30	1920	1.25	0.23	13.05	1.96	10	0.20
10/F	30	1920	1.25	0.23	13.05	1.96	10	0.20
11/F	24	1500	1.00	0.30	13.37	2.00	10	0.20
SUM		130				Maximum Odour Concentration		1.21

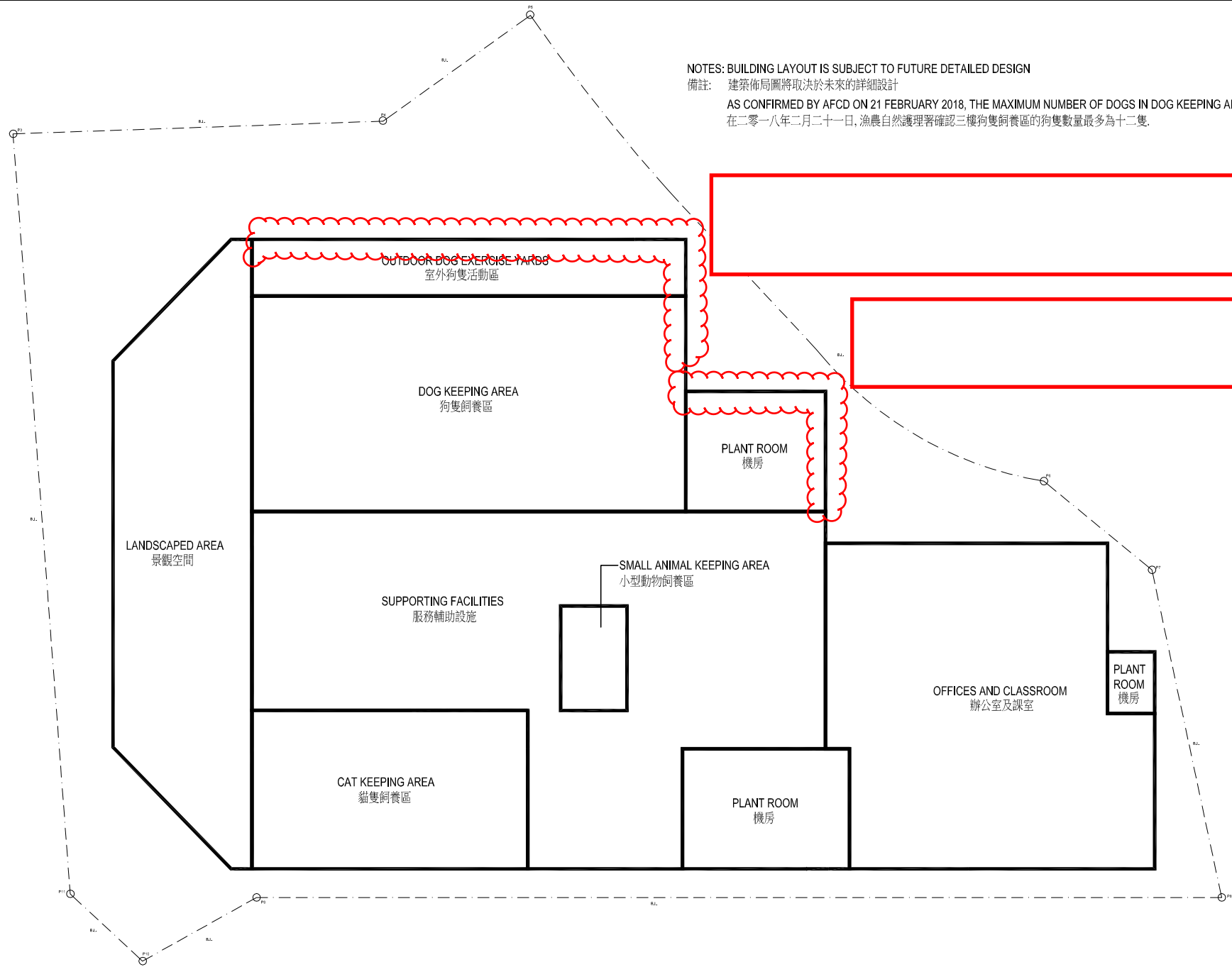
Note:

- [1] According to the layout provided from Architect on 12 February 2018, considering all exhaust from MVAC system in the proposed Building Complex, odourous emission will be anticipated on the 3/F, 6/F to 11/F only. Louver locations at corresponding floors are demonstrated as Figures attached below. Detailed information of the indicative building layout is subject to future design.
- [2] Numbers of dog at each floor was confirmed by AFCD on 21 February 2018.
- [3] 3 meters of vertical distance between false ceiling and floor and the minimum room areas of dog keeping areas (that also included special case operation room, animal isolation ward and animal recovery room) were confirmed by ArchSD on 26 February 2018. Thus, Room Air Volume of Dog Keeping Areas (m³) = Minimum Room Area at Each Floor (m²) × 3m Floor Height.
- [4] The projection factor for number of dogs is derived by dividing number of dogs in the proposed Building Complex by number of dogs in the existing AMC.
- [5] The projection factor for room air volume of dog keeping area is derived by dividing room air volume of dog keeping area in the existing AMC by room air volume of dog keeping areas in the proposed Building
- [6] Predicted Odour Concentration (OU/m³) = Maximum Odour Concentration in Table 1 (OU/m³) × (No. of Dog in the proposed Building Complex ÷ No. of Dogs in Existing AMC) × (Room Air Volume of Dog Keeping Area in Existing AMC ÷ Room Air Volume of All Keeping Area in the proposed Building Complex)
- [7] Odour Emission Rate (0% Removal) (OU/m³) = Predicted Odour Concentration (OU/m³) × (100% - 0%)
- [8] With reference to “Guidelines for Standards of Care in Animal Shelters, 2010”, the minimum air exchange flow rate is recommended to be 10 ACH.
- [9] Odour Concentration at Exhaust (OU/m³) = Odour Concentration (85% Removal) (OU/m³) × Minimum Air Change Rate

NOTES: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN

備註：建築佈局圖將取決於未來的詳細設計

AS CONFIRMED BY AFCD ON 21 FEBRUARY 2018, THE MAXIMUM NUMBER OF DOGS IN DOG KEEPING AREAS AT 3/F WILL BE 12.
在二零一八年二月二十一日，漁農自然護理署確認三樓狗隻飼養區的狗隻數量最多為十二隻。

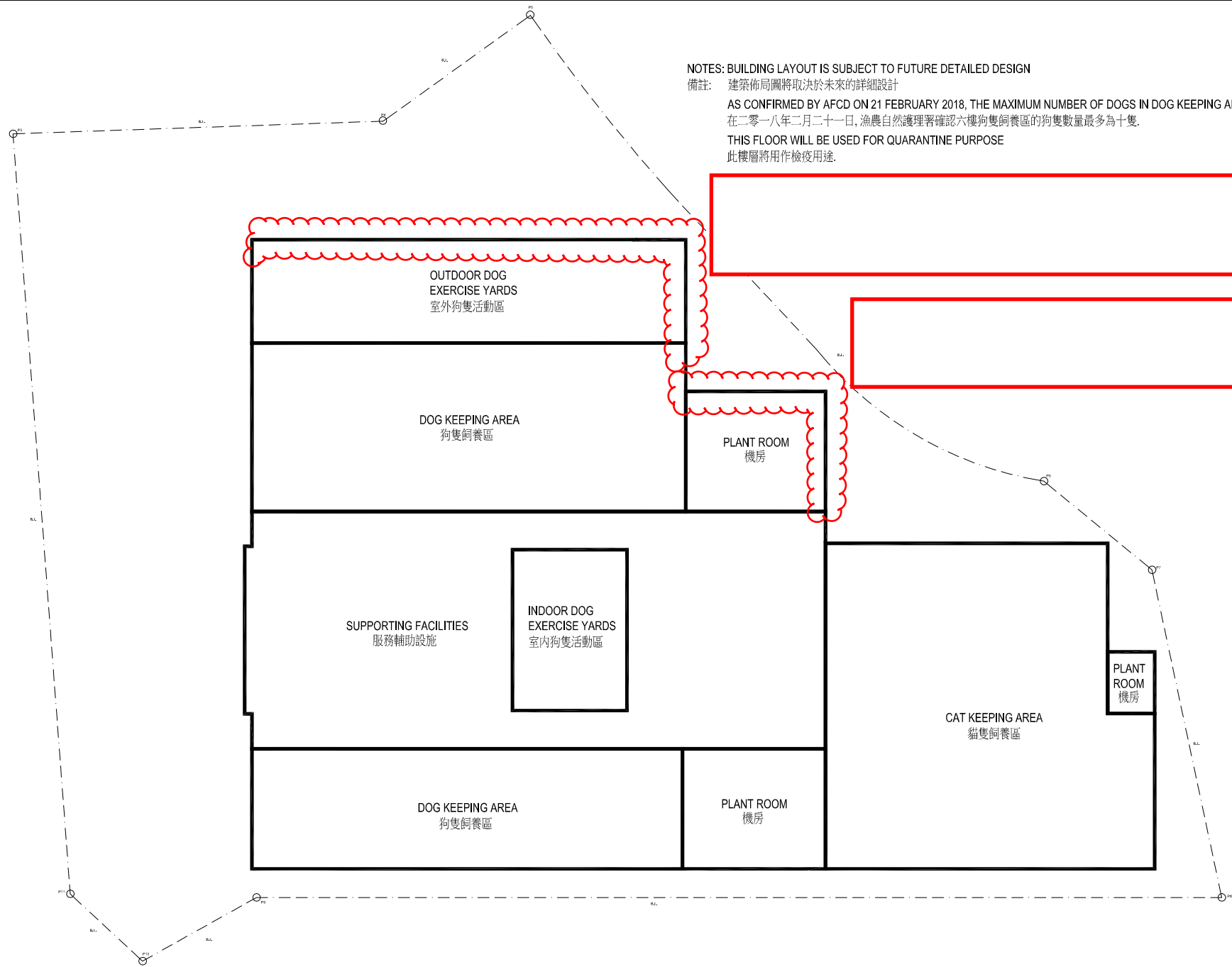


NOTES: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN

備註：建築佈局圖將取決於未來的詳細設計

AS CONFIRMED BY AFCD ON 21 FEBRUARY 2018, THE MAXIMUM NUMBER OF DOGS IN DOG KEEPING AREAS AT 6/F WILL BE 10.
在二零一八年二月二十一日，漁農自然護理署確認六樓狗隻飼養區的狗隻數量最多為十隻。

THIS FLOOR WILL BE USED FOR QUARANTINE PURPOSE
此樓層將用作檢疫用途。

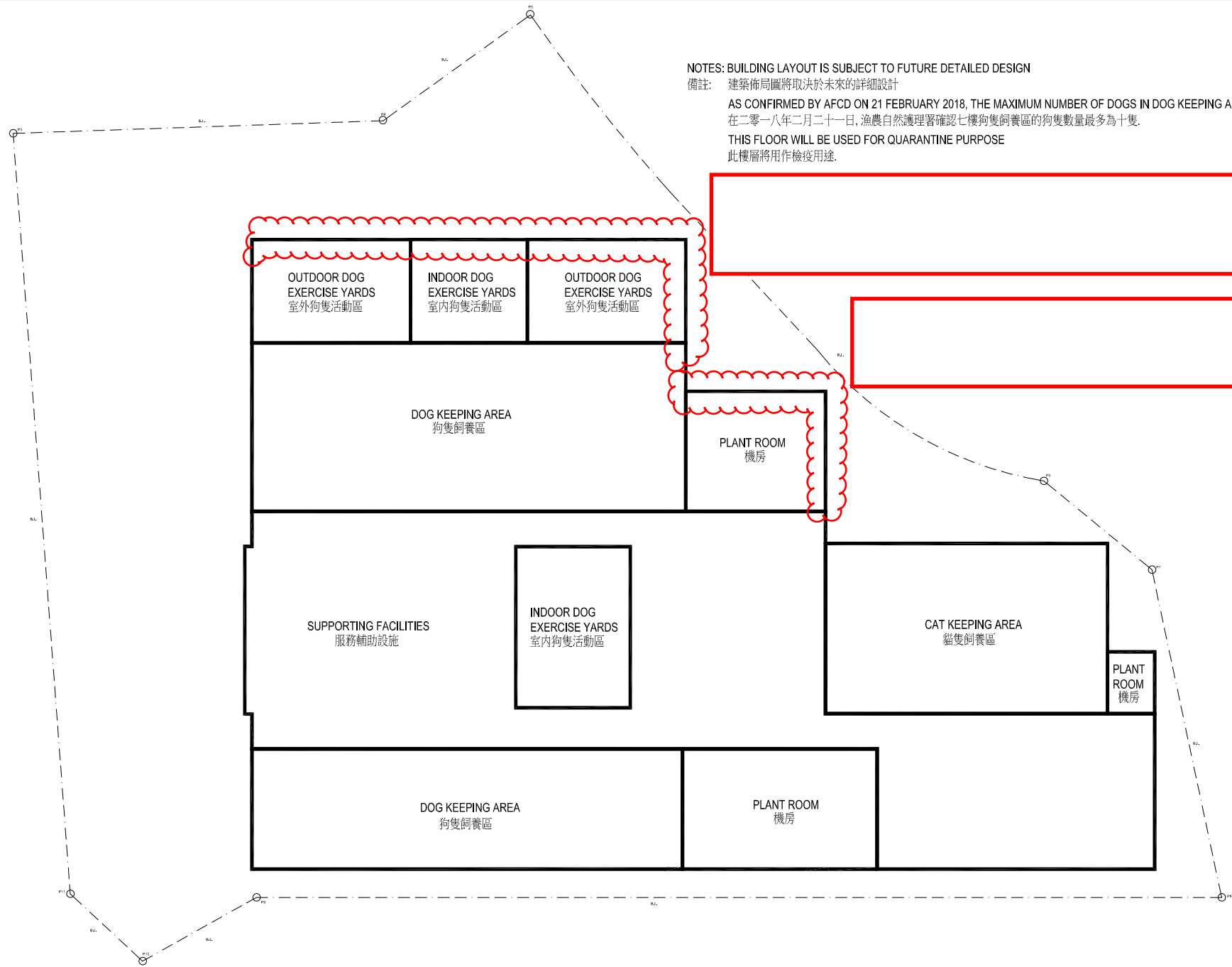


NOTES: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN

備註：建築佈局圖將取決於未來的詳細設計

AS CONFIRMED BY AFCD ON 21 FEBRUARY 2018, THE MAXIMUM NUMBER OF DOGS IN DOG KEEPING AREAS AT 7/F WILL BE 10.
在二零一八年二月二十一日，漁農自然護理署確認七樓狗隻飼養區的狗隻數量最多為十隻。

THIS FLOOR WILL BE USED FOR QUARANTINE PURPOSE
此樓層將用作檢疫用途。

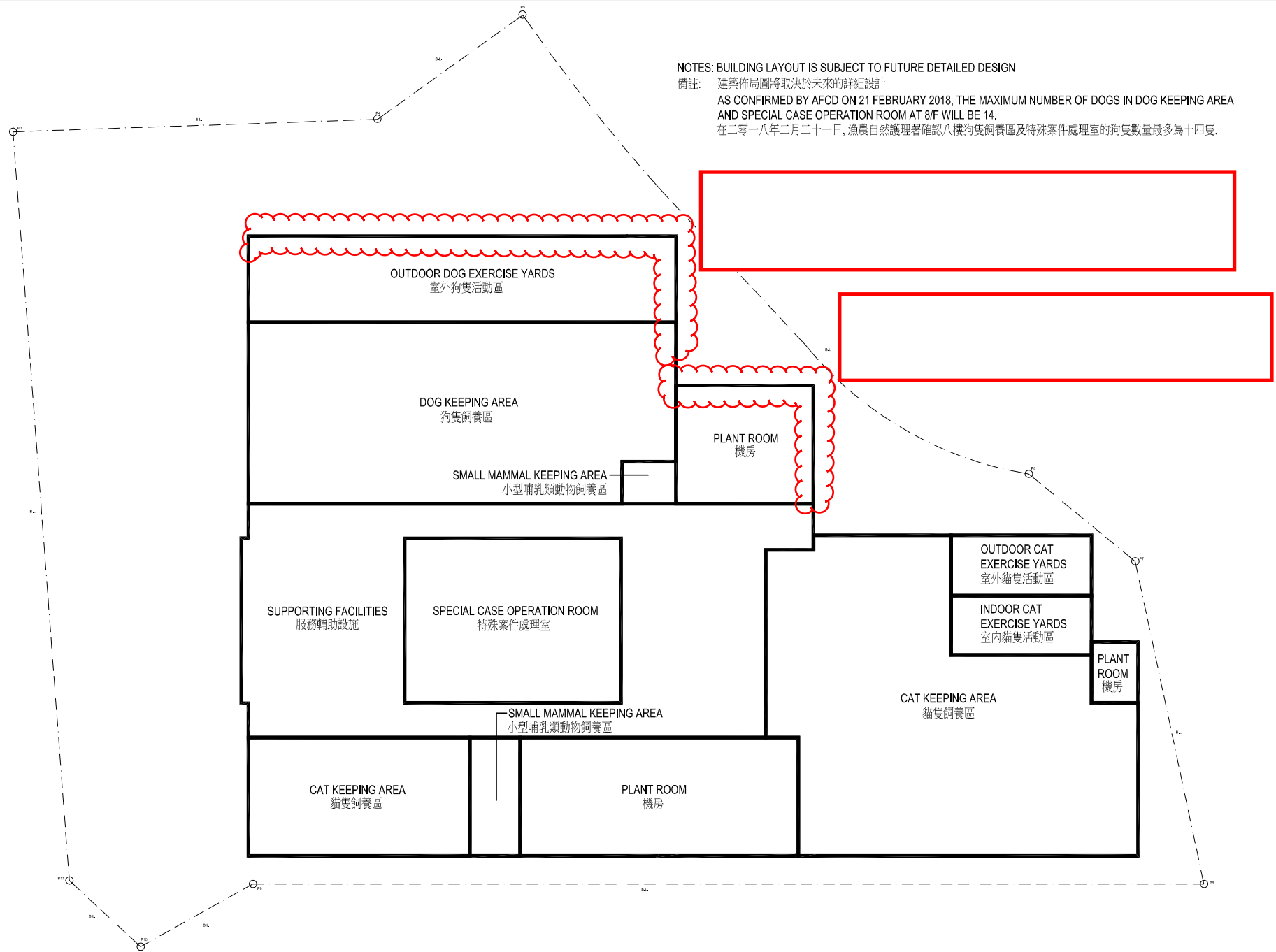


NOTES: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN

備註：建築佈局圖將取決於未來的詳細設計

AS CONFIRMED BY AFCD ON 21 FEBRUARY 2018, THE MAXIMUM NUMBER OF DOGS IN DOG KEEPING AREA AND SPECIAL CASE OPERATION ROOM AT 8/F WILL BE 14.

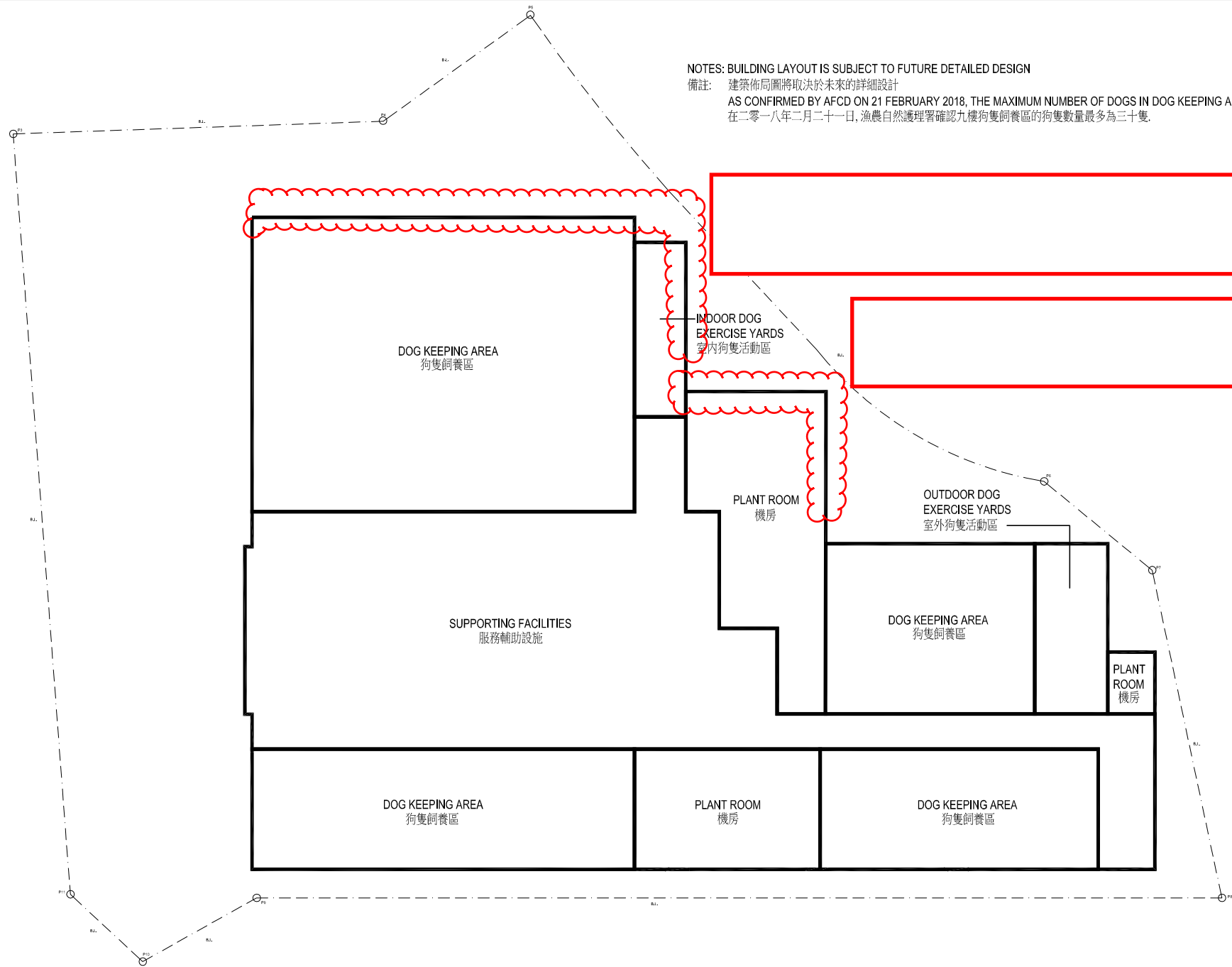
在二零一八年二月二十一日，漁農自然護理署確認八樓狗隻飼養區及特殊案件處理室的狗隻數量最多為十四隻。



NOTES: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN

備註：建築佈局圖將取決於未來的詳細設計

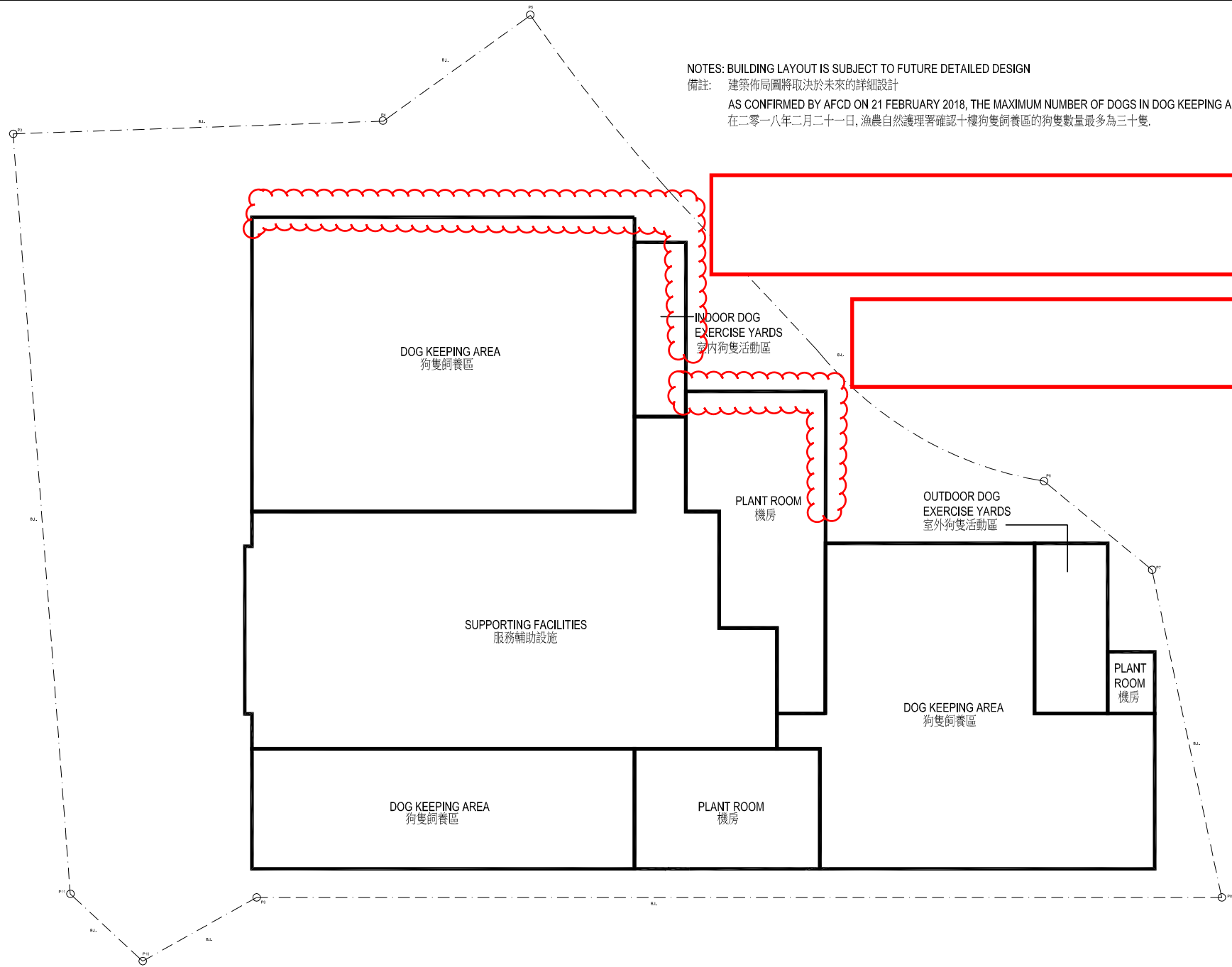
AS CONFIRMED BY AFCD ON 21 FEBRUARY 2018, THE MAXIMUM NUMBER OF DOGS IN DOG KEEPING AREAS AT 9/F WILL BE 30.
在二零一八年二月二十一日，漁農自然護理署確認九樓狗隻飼養區的狗隻數量最多為三十隻。



NOTES: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN

備註：建築佈局圖將取決於未來的詳細設計

AS CONFIRMED BY AFCD ON 21 FEBRUARY 2018, THE MAXIMUM NUMBER OF DOGS IN DOG KEEPING AREAS AT 10/F WILL BE 30.
在二零一八年二月二十一日，漁農自然護理署確認十樓狗隻飼養區的狗隻數量最多為三十隻。

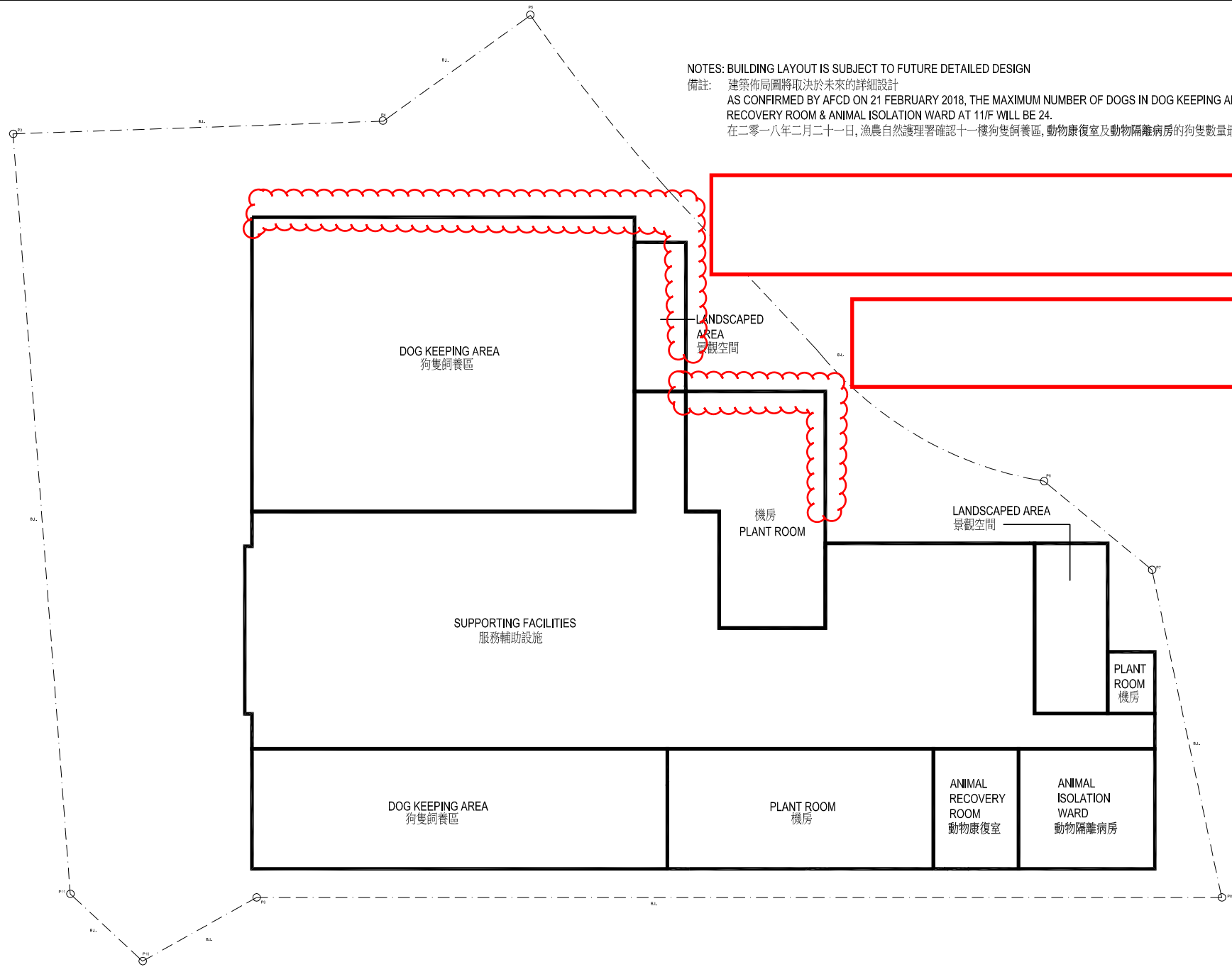


NOTES: BUILDING LAYOUT IS SUBJECT TO FUTURE DETAILED DESIGN

備註: 建築佈局圖將取決於未來的詳細設計

AS CONFIRMED BY AFCD ON 21 FEBRUARY 2018, THE MAXIMUM NUMBER OF DOGS IN DOG KEEPING AREAS, ANIMAL RECOVERY ROOM & ANIMAL ISOLATION WARD AT 11/F WILL BE 24.

在二零一八年二月二十一日, 漁農自然護理署確認十一樓狗隻飼養區, 動物康復室及動物隔離病房的狗隻數量最多為二十四隻。



Appendix 5-2 Estimation of Sewage Generation

Table 1. Estimated Sewage Volume Produced from Daily Floor Washing in the Building Complex

Floor	Room		Area (m ²) ^[1]	Times of Washing ^[2]	Thickness of Washing Water (mm) ^[3]	Estimated Volume of Sewage Produced (m ³)
G	Special Waste Storage Room	(b)	13	2	20	0.52
	Supporting Facilities	(b)	9	2	20	0.36
3	Dog Keeping Area	(a)	262	2	20	10.48
	Cat Keeping Area	(a)	127	2	20	5.08
	Small Animal Keeping Area	(a)	22	2	20	0.88
	Supporting Facilities	(b)	43	2	20	1.72
	Outdoor Dog Exercise Yards	(b)	59	2	20	2.36
4	Small Animal Keeping Area	(a)	50	2	20	2.00
6	Dog Keeping Area	(a)	320	2	20	12.80
	Cat Keeping Area	(a)	212	2	20	8.48
	Indoor Dog Exercise Yards	(b)	54	2	20	2.16
	Outdoor Dog Exercise Yards	(b)	121	2	20	4.84
	Supporting Facilities	(b)	16	2	20	0.64
7	Dog Keeping Area	(a)	320	2	20	12.80
	Cat Keeping Area	(a)	115	2	20	4.60
	Indoor Dog Exercise Yards	(b)	54	2	20	2.16
	Outdoor Dog Exercise Yards	(b)	121	2	20	4.84
	Supporting Facilities	(b)	13	2	20	0.52
8	Dog Keeping Area	(a)	193	2	20	7.72
	Cat Keeping Area	(a)	277	2	20	11.08
	Small Mammal Keeping Area	(a)	22	2	20	0.88
	Outdoor Dog Exercise Yards	(b)	101	2	20	4.04
	Supporting Facilities	(b)	45	2	20	1.80
	Special Case Detention Room	(b)	105	2	20	4.20
9	Dog Keeping Area	(a)	600	2	20	24.00
	Outdoor Dog Exercise Yards	(b)	32	2	20	1.28
	Indoor Dog Exercise Yards	(b)	24	2	20	0.96
	Supporting Facilities	(b)	54	2	20	2.16
10	Dog Keeping Area	(a)	600	2	20	24.00
	Outdoor Dog Exercise Yards	(b)	32	2	20	1.28
	Indoor Dog Exercise Yards	(b)	24	2	20	0.96
	Supporting Facilities	(b)	6	2	20	0.24
11	Dog Keeping Area	(a)	425	2	20	17.00
	Supporting Facilities	(b)	76	2	20	3.04
	Animal Isolation Ward	(b)	28	2	20	1.12
	Animal Recovery Room	(b)	28	2	20	1.12
12	Animal Detention Area	(b)	217	2	20	8.68
Total Volume of Sewage Produced for Keeping Areas (m ³ /day) (a)						141.80
Total Volume of Sewage Produced for All Animal-Staying Area (m ³ /day) (a)+(b)						192.80

Remarks:

[1] Quantity of area is referred to layout plan (as CAD file) provided by the Architect sent on 12 February 2018.

[2] According to the information provided by AFCD on 26 April 2017, rooms are cleaned twice daily and disinfected when animals are left. It is assumed that all animals will leave their rooms everyday and thus rooms will be cleaned twice a day for a conservative estimation.

[3] According to Provision of a Poultry Slaughtering Centre in Sheung Shui (AEIAR-142/2009) Clause 5.6.10, the conservative flow rate for floor washing is 0.02m³/m²/day per wash (20mm per m² per wash) to allow for the use of high-pressure water sprays and disinfectant sprays.

Table 2. Breakdown of Operation Staff

	Monday - Friday (5 Days) ^[2]	
	Day-time	Night-time
Animal Management Centre/Kowloon (AMC/K) Staff ^[1]	185	65
Animal Management (Development) Division (AMDD) Staff (Education Unit + Task Force) ^[1]	174	6
Veterinary Surgeons Board (VSB) Staff ^[1]	65	0
Veterinary Laboratory Division Staff (include both EDD and ARM) ^[3]	23	0
Management, security and cleansing staff ^[1]	75	10
Sub-Total (Staff) :	522	81
Total (Staff) :	603	

Remarks:

[1] Information provided by ArchSD sent on 26 January 2017.

[2] There will be the largest amount of staff working in the Building Complex during weekdays (Monday to Friday) instead of weekends (Saturday and Sunday). Total number of operation staff working on weekdays is adopted as a conservative estimation.

[3] Information provided by ArchSD sent on 4 October 2017.

Table 3. Estimation of Sewage Discharge from Kwun Tong Sewerage Catchment 1 (C1)

UPSTREAM - Kwun Tong Sewerage Catchment 1 (C1)						
Catchment	PVS	Population Description	Estimated Population [a]	Category	UFF (m ³ /day) [a]	Total Average Sewage Discharge (m ³ /day) [b]
1	101	Usual Residents - Permanent Housing	15,436		0.19	2932.84
		Usual Residents - Other Housing	35		0.175	6.13
		Mobile Residents	602		0.19	114.38
		Full-time School Places	2,133		0.04	85.32
		Manufacturing	2,050	J1	0.53	1086.50
		Electricity, Gas and Water	0	J2	0.33	0.00
		Transport, Storage and Communication	2,766	J3	0.18	497.88
		Wholesale and Retail Trades	1,919	J4	0.28	537.32
		Import / Export Trades	11,901	J5	0.08	952.08
		Financing, Insurance, Real Estate and Businss Services	2,644	J6	0.08	211.52
		Agriculture and Fishing	0	J7	0.08	0.00
		Mining and Quarrying	0	J8	0.08	0.00
		Construction	2,289	J9	0.23	526.47
Hotels, Restaurants and Boarding Houses	2,210	J10	1.58	3491.80		
Community, Social and Personal Services	10,382	J11	0.28	2906.96		
Public Administration	111	J12	0.08	8.88		
1	102	Usual Residents - Permanent Housing	4,220		0.19	801.80
		Usual Residents - Other Housing	75		0.175	13.13
		Mobile Residents	164		0.19	31.16
		Full-time School Places	747		0.04	29.88
		Manufacturing	2	J1	0.53	1.06
		Electricity, Gas and Water	0	J2	0.33	0.00
		Transport, Storage and Communication	72	J3	0.18	12.96
		Wholesale and Retail Trades	86	J4	0.28	24.08
		Import / Export Trades	18	J5	0.08	1.44
		Financing, Insurance, Real Estate and Businss Services	53	J6	0.08	4.24
		Agriculture and Fishing	2	J7	0.08	0.16
		Mining and Quarrying	0	J8	0.08	0.00
		Construction	75	J9	0.23	17.25
Hotels, Restaurants and Boarding Houses	70	J10	1.58	110.60		
Community, Social and Personal Services	420	J11	0.28	117.60		
Public Administration	95	J12	0.08	7.60		
1	103	Usual Residents - Permanent Housing	9,332		0.19	1773.08
		Usual Residents - Other Housing	68		0.175	11.90
		Mobile Residents	343		0.19	65.17
		Full-time School Places	1,748		0.04	69.92
		Manufacturing	3	J1	0.53	1.59
		Electricity, Gas and Water	0	J2	0.33	0.00
		Transport, Storage and Communication	148	J3	0.18	26.64
		Wholesale and Retail Trades	94	J4	0.28	26.32
		Import / Export Trades	45	J5	0.08	3.60
		Financing, Insurance, Real Estate and Businss Services	56	J6	0.08	4.48
		Agriculture and Fishing	8	J7	0.08	0.64
		Mining and Quarrying	0	J8	0.08	0.00
		Construction	151	J9	0.23	34.73
Hotels, Restaurants and Boarding Houses	45	J10	1.58	71.10		
Community, Social and Personal Services	795	J11	0.28	222.60		
Public Administration	69	J12	0.08	5.52		
1	104	Usual Residents - Permanent Housing	0		0.19	0.00
		Usual Residents - Other Housing	0		0.175	0.00
		Mobile Residents	0		0.19	0.00
		Full-time School Places	0		0.04	0.00
		Manufacturing	0	J1	0.53	0.00
		Electricity, Gas and Water	0	J2	0.33	0.00
		Transport, Storage and Communication	0	J3	0.18	0.00
		Wholesale and Retail Trades	0	J4	0.28	0.00
		Import / Export Trades	0	J5	0.08	0.00
		Financing, Insurance, Real Estate and Businss Services	0	J6	0.08	0.00
		Agriculture and Fishing	0	J7	0.08	0.00
		Mining and Quarrying	0	J8	0.08	0.00
		Construction	0	J9	0.23	0.00
Hotels, Restaurants and Boarding Houses	0	J10	1.58	0.00		
Community, Social and Personal Services	0	J11	0.28	0.00		
Public Administration	0	J12	0.08	0.00		
1	105	Usual Residents - Permanent Housing	52,079		0.19	9895.01
		Usual Residents - Other Housing	28		0.175	4.90
		Mobile Residents	1,844		0.19	350.36
		Full-time School Places	6,760		0.04	270.40
		Manufacturing	21	J1	0.53	11.13
		Electricity, Gas and Water	17	J2	0.33	5.61
		Transport, Storage and Communication	843	J3	0.18	151.74
		Wholesale and Retail Trades	841	J4	0.28	235.48
		Import / Export Trades	241	J5	0.08	19.28
		Financing, Insurance, Real Estate and Businss Services	482	J6	0.08	38.56
		Agriculture and Fishing	18	J7	0.08	1.44
		Mining and Quarrying	0	J8	0.08	0.00
		Construction	777	J9	0.23	178.71
Hotels, Restaurants and Boarding Houses	661	J10	1.58	1044.38		
Community, Social and Personal Services	3,545	J11	0.28	992.60		
Public Administration	48	J12	0.08	3.84		

Note:

[a] Referenced from the approved Schedule 3 EIA of KTD Appendix 16.2A-3 and Appendix 16.2B-2 (Scenario: Ultimted Scenario + 10%)

[b] Average Sewage Discharge = Estimated Population x Unit Flow Factor

UPSTREAM - Kwun Tong Sewerage Catchment 1 (C1)						
Catchment	PVS	Population Description	Estimated Population [a]	Category	UFF (m³/day) [a]	Total Average Sewage Discharge (m³/day) [b]
1	304	Usual Residents - Permanent Housing	4,397		0.19	835.43
		Usual Residents - Other Housing	20		0.175	3.50
		Mobile Residents	145		0.19	27.55
		Full-time School Places	684		0.04	27.36
		Manufacturing	28	J1	0.53	14.84
		Electricity, Gas and Water	0	J2	0.33	0.00
		Transport, Storage and Communication	113	J3	0.18	20.34
		Wholesale and Retail Trades	289	J4	0.28	80.92
		Import / Export Trades	181	J5	0.08	14.48
		Financing, Insurance, Real Estate and Business Services	234	J6	0.08	18.72
		Agriculture and Fishing	0	J7	0.08	0.00
		Mining and Quarrying	0	J8	0.08	0.00
		Construction	84	J9	0.23	19.32
1	305	Hotels, Restaurants and Boarding Houses	362	J10	1.58	571.96
		Community, Social and Personal Services	491	J11	0.28	137.48
		Public Administration	9	J12	0.08	0.72
		Usual Residents - Permanent Housing	28,398		0.19	5395.62
		Usual Residents - Other Housing	509		0.175	89.08
		Mobile Residents	1,038		0.19	197.22
		Full-time School Places	4,050		0.04	162.00
		Manufacturing	14	J1	0.53	7.42
		Electricity, Gas and Water	0	J2	0.33	0.00
		Transport, Storage and Communication	515	J3	0.18	92.70
		Wholesale and Retail Trades	632	J4	0.28	176.96
		Import / Export Trades	171	J5	0.08	13.68
		Financing, Insurance, Real Estate and Business Services	627	J6	0.08	50.16
Agriculture and Fishing	11	J7	0.08	0.88		
Mining and Quarrying	0	J8	0.08	0.00		
Construction	485	J9	0.23	111.55		
Hotels, Restaurants and Boarding Houses	406	J10	1.58	641.48		
Community, Social and Personal Services	2,613	J11	0.28	731.64		
Public Administration	45	J12	0.08	3.60		
SUM			188,238		SUM	52,007

Note:

[a] Referenced from the approved Schedule 3 EIA of KTD Appendix 16.2A-3 and Appendix 16.2B-2 (Scenario: Ultimate Scenario + 10%)

[b] Average Sewage Discharge = Estimated Population x Unit Flow Factor

Table 4. Estimation of Sewage Discharge from Kai Tak Development Catchment 1 (T1)

UPSTREAM - Kai Tak Development Catchment 1 (T1) (Involves Catchment G & L)							
Catchment	Sub-Planning Area & No.	Population Description	Estimated Population [a]	Category	UFF (m³/day) [a]	Total Average Sewage Discharge (m³/day) [b]	
G	1A - 1	RS - Public Rental Housing	(Residents)	14,300		0.175	2502.50
			(Employee)	435		0.35	152.25
G	1A - 2	E - Secondary School	(Teachers)	70		0.025	1.75
			(Students)	1,200		0.025	30.00
G	1A - 3	E - Primary School	(Teachers)	70		0.025	1.75
			(Students)	1,400		0.025	35.00
G	1A - 4	E - Primary School	(Teachers)	70		0.025	1.75
			(Students)	1,400		0.025	35.00
G	1B - 1	RS - Public Rental Housing	(Residents)	20,700		0.175	3622.50
			(Employee)	163		0.35	57.05
G	1B - 2	E - Primary School	(Teachers)	70		0.025	1.75
			(Students)	1,400		0.025	35.00
G	1B - 3	E - Secondary School	(Teachers)	70		0.025	1.75
			(Students)	1,200		0.025	30.00
G	1B - 4	E - Primary School	(Teachers)	70		0.025	1.75
			(Students)	1,400		0.025	35.00
G	1G - 1	R2	(Residents)	2,022		0.3	606.60
			(Employee)	46		0.35	16.10
G	1H - 1	R2	(Residents)	1,383		0.3	414.90
			(Employee)	31		0.35	10.85
G	1H - 2	R2	(Residents)	1,525		0.3	457.50
			(Employee)	34		0.35	11.90
G	1H - 3	R2	(Residents)	1,365		0.3	409.50
			(Employee)	31		0.35	10.85
G	1I - 1	R2	(Residents)	1,404		0.3	421.20
G	1I - 2	R2	(Residents)	1,484		0.3	445.20
G	1I - 3	R2	(Residents)	1,628		0.3	488.40
G	1J - 1	G - Divisional Police Station	(Employee)	70		0.35	24.50
G	1J - 3	G - Indoor Recreation Cente, Major Library	(Employee)	55		0.35	19.25
L	1E - 1	OU - Mixed Use	(Residents)	1,819		0.37	673.03
			(Employee)	3,420		0.35	1197.00
SUM				60,335		SUM	11752

Note:

[a] Referenced from the approved Schedule 3 EIA of KTD Appendix 16.2A-3 and Appendix 16.2B-2 (Scenario: Ultimated Scenario + 10%)

[b] Average Sewage Discharge = Estimated Population x Unit Flow Factor

Table 5. Estimation of Sewage Discharge from Kwun Tong Sewerage Catchment 2 (C2)

UPSTREAM - Kwun Tong Sewerage Catchment 2							
Catchment	PVS	Population Description	Estimated Population [a]	Category	UFF (m³/day) [a]	Total Average Sewage Discharge (m³/day) [b]	
2	106	Usual Residents - Permanent Housing	43,931		0.19	8346.89	
		Usual Residents - Other Housing	773		0.175	135.28	
		Mobile Residents	1,754		0.19	333.26	
		Full-time School Places	7,917		0.04	316.68	
		Manufacturing	108	J1	0.53	57.24	
		Electricity, Gas and Water	0	J2	0.33	0.00	
		Transport, Storage and Communication	1,409	J3	0.18	253.62	
		Wholesale and Retail Trades	1,490	J4	0.28	417.20	
		Import / Export Trades	1,244	J5	0.08	99.52	
		Financing, Insurance, Real Estate and Businss Services	2,123	J6	0.08	169.84	
		Agriculture and Fishing	16	J7	0.08	1.28	
		Mining and Quarrying	0	J8	0.08	0.00	
		Construction	1,022	J9	0.23	235.06	
2	108	Hotels, Restaurants and Boarding Houses	1,145	J10	1.58	1809.10	
		Community, Social and Personal Services	4,914	J11	0.28	1375.92	
		Public Administration	9	J12	0.08	0.72	
		Usual Residents - Permanent Housing	67,100		0.19	12749.00	
		Usual Residents - Other Housing	600		0.175	105.00	
		Mobile Residents	3,388		0.19	643.72	
		Full-time School Places	15,365		0.04	614.60	
		Manufacturing	29	J1	0.53	15.37	
		Electricity, Gas and Water	21	J2	0.33	6.93	
		Transport, Storage and Communication	1,399	J3	0.18	251.82	
		Wholesale and Retail Trades	1,884	J4	0.28	527.52	
		Import / Export Trades	479	J5	0.08	38.32	
		Financing, Insurance, Real Estate and Businss Services	1,210	J6	0.08	96.80	
Agriculture and Fishing	20	J7	0.08	1.60			
Mining and Quarrying	0	J8	0.08	0.00			
Construction	1,216	J9	0.23	279.68			
2	109	Hotels, Restaurants and Boarding Houses	1,275	J10	1.58	2014.50	
		Community, Social and Personal Services	6,680	J11	0.28	1870.40	
		Public Administration	184	J12	0.08	14.72	
		Usual Residents - Permanent Housing	26,819		0.19	5095.61	
		Usual Residents - Other Housing	323		0.175	56.53	
		Mobile Residents	1,282		0.19	243.58	
		Full-time School Places	8,475		0.04	339.00	
		Manufacturing	0	J1	0.53	0.00	
		Electricity, Gas and Water	0	J2	0.33	0.00	
		Transport, Storage and Communication	1,258	J3	0.18	226.44	
		Wholesale and Retail Trades	861	J4	0.28	241.08	
		Import / Export Trades	1,867	J5	0.08	149.36	
		Financing, Insurance, Real Estate and Businss Services	3,441	J6	0.08	275.28	
Agriculture and Fishing	10	J7	0.08	0.80			
Mining and Quarrying	0	J8	0.08	0.00			
Construction	793	J9	0.23	182.39			
2	114	Hotels, Restaurants and Boarding Houses	330	J10	1.58	521.40	
		Community, Social and Personal Services	3,332	J11	0.28	932.96	
		Public Administration	1,078	J12	0.08	86.24	
		Usual Residents - Permanent Housing	21,824		0.19	4146.56	
		Usual Residents - Other Housing	192		0.175	33.60	
		Mobile Residents	805		0.19	152.95	
		Full-time School Places	5,153		0.04	206.12	
		Manufacturing	7	J1	0.53	3.71	
		Electricity, Gas and Water	0	J2	0.33	0.00	
		Transport, Storage and Communication	349	J3	0.18	62.82	
		Wholesale and Retail Trades	268	J4	0.28	75.04	
		Import / Export Trades	80	J5	0.08	6.40	
		Financing, Insurance, Real Estate and Businss Services	244	J6	0.08	19.52	
Agriculture and Fishing	0	J7	0.08	0.00			
Mining and Quarrying	0	J8	0.08	0.00			
Construction	292	J9	0.23	67.16			
2	114	Hotels, Restaurants and Boarding Houses	117	J10	1.58	184.86	
		Community, Social and Personal Services	1,862	J11	0.28	521.36	
		Public Administration	71	J12	0.08	5.68	
		SUM	249,838			SUM	61,382

Note:

[a] Referenced from the approved Schedule 3 EIA of KTD Appendix 16.2A-3 and Appendix 16.2B-2 (Scenario: Ultimted Scenario + 10%)

[b] Average Sewage Discharge = Estimated Population x Unit Flow Factor

Table 6. Estimation of Sewage Discharge from Kwun Tong Sewerage Catchment 3 (C3)

UPSTREAM - Kwun Tong Sewerage Catchment 3						
Catchment	PVS	Population Description	Estimated Population [a]	Category	UFF (m ³ /day) [a]	Total Average Sewage Discharge (m ³ /day) [b]
3	111	Usual Residents - Permanent Housing	0		0.19	0.00
		Usual Residents - Other Housing	0		0.175	0.00
		Mobile Residents	0		0.19	0.00
		Full-time School Places	143		0.04	5.72
		Manufacturing	1,205	J1	0.53	638.65
		Electricity, Gas and Water	0	J2	0.33	0.00
		Transport, Storage and Communication	7,853	J3	0.18	1413.54
		Wholesale and Retail Trades	4,825	J4	0.28	1351.00
		Import / Export Trades	20,151	J5	0.08	1612.08
		Financing, Insurance, Real Estate and Business Services	9,901	J6	0.08	792.08
		Agriculture and Fishing	0	J7	0.08	0.00
		Mining and Quarrying	0	J8	0.08	0.00
		Construction	5,268	J9	0.23	1211.64
		Hotels, Restaurants and Boarding Houses	1,202	J10	1.58	1899.16
		Community, Social and Personal Services	3,597	J11	0.28	1007.16
Public Administration	400	J12	0.08	32.00		
SUM			54,545		SUM	13,118

Note:

[a] Referenced from the approved Schedule 3 EIA of KTD Appendix 16.2A-3 and Appendix 16.2B-2 (Scenario: Ultimate Scenario + 10%)

[b] Average Sewage Discharge = Estimated Population × Unit Flow Factor

Table 7. Estimation of Sewage Discharge from Kai Tak Development Catchment 3 (T3)

Concerned Catchment - Kai Tak Development Catchment 3 (Involves Catchment E)						
Catchment	Sub-Planning Area & No.	Population Description	Estimated Population [a]	Category	UFF (m ³ /day) [a]	Total Average Sewage Discharge (m ³ /day) [b]
E	1N - 1	G - EMSD Headquarters (Employee)	2,500		0.35	875.00
E	1N - 2	G - District Cooling System Plant (Employee)	10		0.35	3.50
E	1O - 1	OU - Trade Mart and Commercial Development (Employee)	9,768		0.35	3418.80
E	1O - 2	OU - Petrol Filling Station / LPG Filling Station (Employee)	20		0.35	7.00
E	3A - 2	OU - Petrol Filling Station / LPG Filling Station (Employee)	30		0.35	10.50
SUM			12,328		SUM	4315

Note:

[a] Referenced from the approved Schedule 3 EIA of KTD Appendix 16.2A-3 and Appendix 16.2B-2 (Scenario: Ultimate Scenario + 10%)

[b] Average Sewage Discharge = Estimated Population × Unit Flow Factor

Table 8. Estimation of Sewage Discharge from the Building Complex

Building Complex within Concerned Catchment (Ref Code: Kai Tak Development 3 / Catchment E)					
Population Description		Estimated Population	Category	Unit Flow Factor (UFF) (m ³ /day)	Total Average Sewage Discharge (m ³ /day)
		[1][2]		[3][4][5][6][7][8]	[9]
Animal Management and Animal Welfare Building Complex	(Employee)	603	J11 Community, Social & Personal	0.28	168.84
	(Employee)	52	Staff Showering	0.05	2.60
	(Animal Occupancy Areas)	-	Floor Washing	192.80	192.80
SUM					364.24

Remarks:

- [1] According to Table 2, the maximum number of employee working in the Building Complex is 603.
- [2] According to information provided by ArchSD sent on 31 Mar 2017, the total staff population having shower during worktime on a daily basis for AMC/K, AMDD, and VSB are 40, 12, and 0 people respectively. According to information confirmed by AFCD VLD and EDD on 12 October 2017, laboratory staff will only take shower if he/she is contaminated when conducting lab test. Since this situation is rare to occur, therefore the total staff population having shower during worktime on a daily basis for VLD and EDD is assumed to be 0.
- [3] Reference from Table T-2 of Guidelines for Estimating Sewage Flows for Sewerage Infrastructure Planning.
- [4] Unit flow factor for staff in the Building Complex is the sum of UFF for commercial employee (0.080 m³/day) and UFF for commercial activities of the trade (J11 commercial, social & personal services) (0.200 m³/day).
- [5] According to LEED 2009 for New Construction and Major Renovations, the baseline shower flow rate is 0.0095m³/min (5.5 bar) for each showerhead.
- [6] According to BEAM Plus for New Buildings Appendix 8.6, the shower duration is 5 minutes.
- [7] According to information provided by ArchSD sent on 31 Mar 2017, the showering frequency for employee from AMC/K and AMDD is once per day.
- [8] According to Table 1, estimated sewage produced due to floor washing twice per day for all animal-staying area is 192.80m³/day.
- [9] Average Sewage Discharge = Estimated Population x UFF

Table 9. Estimated Average Dry Weather Flow for the Sewerage Catchment and Contributor

Catchment / Sewage Contributor	Stream Location	Catchment Ref. No.	Average Dry Weather Flow (ADWF) (m ³ /day) ^[1]	Population ^[1]	Contributing Population	Peaking Factor ^[2]
Catchment 1	Upstream	C1	52007	188238	192620	
Kai Tak Development 1	Upstream	T1	11752	60335	43524	
Catchment 2	Upstream	C2	61382	249838	227341	
Catchment 3	Upstream	C3	13118	54545	48586	
Kai Tak Development 3	Current	T3	4315	12328	15981	
Animal Management and Animal Welfare	Concerned	T3	364	655	1349	
Total			142938	565939	529401	

Remarks:

- [1] Average dry weather flows contributed from Catchment 1, Kai Tak Development 1, Catchment 2, Catchment 3 and Kai Tak Development 3 are referenced from Table 3, Table 4, Table 5, Table 6 and Table 7 respectively.
- [2] Peaking factor is calculated according to EPD's Guideline for Estimating Sewage Flows for Sewerage Infrastructure Planning (Version 1.0) for population more than 50,000: $MAX(7.3/N^{0.15}, 2.4)$, in condition that population is the valid population which sewage enter into the same part of trunk sewer, including population from both upstream and the proposed development; where N is contributing population in thousands; and
Contributing Population = Calculated Total Average Flow / 0.27.

Table 10. Estimated ADWF and PWWF from the Building Complex to the Trunk Sewer

	Average Dry Weather Flow (ADWF) (m ³ /day) ^[1]	Peaking Factor ^[2]	Peak Wet Weather Flow (PWWF) (m ³ /day)	PWWF (m ³ /s) ^[3]
Animal Management and Animal Welfare	364.24	2.85	1038.09	0.0289

Remarks:

- [1] According to Table 8, the ADWF generated from the proposed development is 364.24m³/day.
- [2] According to Table 9, the calculated peak factor is 2.85.
- [3] As advised by ArchSD, the daytime operation hour would be 8:00am to 6:00pm. Thus, it is assumed that sewage is discharged within 10 hours as a conservative estimation.
- [4] Reference from the approved Schedule 3 EIA of Kai Tak Development (EIA-157/2008) Table 16.20
- [5] The velocity is calculated using the Colebrook-White Formula stated in Sewerage Manual Part I published by DSD.

Calculation 1.

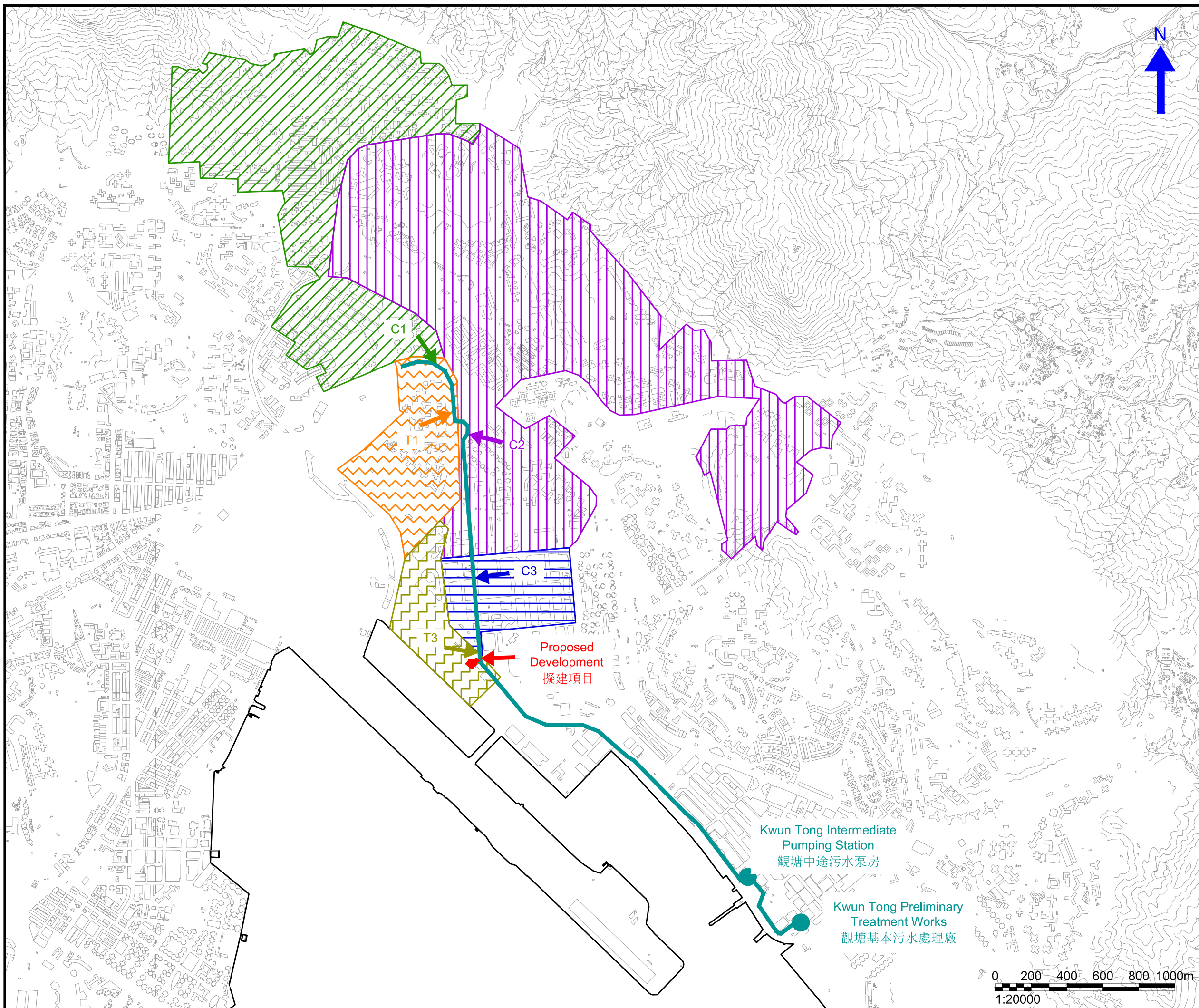
Estimated Utilization of Trunk Sewer due to Animal Management and Animal Welfare Building C Remark
 = PWWF of Animal Management and Animal Welfare Building Complex (m³/s) / Maximum Capac **[1]**
 = 0.0289 / 7.9925 X 100%
 = 0.3616%
 < 0.37%

Remarks:

- [1] According to Table 10 and Table 11, the PWWF generated from Animal Management and Animal Welfare Building Complex is 0.0289m³/day, and the maximum capacity of the trunk sewer is 7.9925m³/s.

Table 11. Property of Trunk Sewer

	Height (m) ^[4]	Width (m) ^[4]	Mean Velocity (m/s) ^[5]	Maximum Capacity of Sewer (m ³ /s)
Trunk Sewer	2.30	2.50	1.39	7.9925



NOTES :

- PROJECT SITE
項目位置
- KWUN TONG SEWERAGE CATCHMENT 1 (C1)
觀塘污水收集網絡一 (C1)
- KWUN TONG SEWERAGE CATCHMENT 2 (C2)
觀塘污水收集網絡二 (C2)
- KWUN TONG SEWERAGE CATCHMENT 3 (C3)
觀塘污水收集網絡三 (C3)
- KAI TAK DEVELOPMENT CATCHMENT 1 (T1)
啟德污水收集網絡一 (T1)
- KAI TAK DEVELOPMENT CATCHMENT 3 (T3)
啟德污水收集網絡三 (T3)
- DISCHARGE POINT OF SEWAGE FLOW
污水流排放點
- EXISTING TRUNK SEWER
現有的箱形暗渠

Consultant

Allied Environmental Consultants Limited
ACQUISITION & ENVIRONMENTAL ENGINEERS

Project No. : 1415
Drawing By : DT

Project :
THE DEVELOPMENT OF AFCD ANIMAL MANAGEMENT AND ANIMAL WELFARE BUILDING COMPLEX IN KAI TAK DEVELOPMENT
漁農自然護理署
動物管理及動物福利綜合大樓

Drawing Title :
LOCATION OF SEWERAGE CATCHMENTS AREA AND TRUNK SEWER
污水收集網絡與箱形暗渠的位置圖

Drawing No : APPENDIX 5-2	Revision : 1
Scale : AS SHOWN	Date : 2 JUNE 2018

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Appendix 5-3
Summary of Residual Landscape & Visual Impacts during
Operation Phase

ID	Name	Unmitigated Operation Impacts	Recommended Landscape Mitigation Measures	Mitigated Operation Impacts	
				Operation Day 1	Operation Year 10
LCA1	Open Space / Vegetated Landscape	Negligible	Section 7.9.4	Negligible	Negligible
LCA2	Industrial Urban Landscape	Negligible	Section 7.9.4	Negligible	Negligible
LCA3	Transportation Corridor Landscape	Negligible	Section 7.9.4	Negligible	Negligible
LCA4	Development Area/ Government Land	Negligible	Section 7.9.4	Negligible	Negligible
LCA5	Kai Tak Approach Channel Landscape	Negligible	Section 7.9.4	Negligible	Negligible
VSR1	Billion Centre	Moderately adverse	Section 7.9.4	Slightly adverse	Negligible
VSR2	Kai Fuk Industrial Centre	Moderately adverse	Section 7.9.4	Slightly adverse	Negligible
VSR3	Hong Leong Industrial Complex	Moderately adverse	Section 7.9.4	Slightly adverse	Negligible
VSR4	Po Hong Centre	Moderately adverse	Section 7.9.4	Slightly adverse	Negligible
VSR5	MegaBox	Moderately adverse	Section 7.9.4	Slightly adverse	Negligible
VSR6	Zero Carbon Building	Moderately adverse	Section 7.9.4	Slightly adverse	Negligible
VSR7	Commercial Development	Slightly adverse	Section 7.9.4	N/A (Under planning or construction)	Negligible
VSR8	Commercial Development	Slightly adverse	Section 7.9.4	N/A (Under planning or construction)	Negligible
VSR9	Kai Tak Acute Hospital	Slightly adverse	Section 7.9.4	N/A (Under construction)	Negligible
VSR10	Public promenade	Negligible	Section 7.9.4	Negligible	Negligible