

ARUP

By Hand and Email (tpbsubmission@pland.gov.hk)
9 September 2026

The Secretary
Town Planning Board
15/F, North Point Government Offices
333 Java Road
North Point
Hong Kong

t
f

arup.com

Our ref 312796/00/WLL/ PLML/YVL/05865

Dear Sir/ Madam.

**Application for Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Temporary Educational Institution (Teaching Farm) and Associated Excavation of Land for a Period of Three Years at Various Lots in D.D. 16, Wo Tong Pui, Tai Po, New Territories
(Planning Application No. A/NE-LT/794)**

Submission of Further Information

We refer to the comments received from various Government departments between 19 August 2026 and 1 September 2026 regarding the captioned s.16 Planning Application.

We are pleased to submit our Responses to Comments table (Appendix A) and supplementary information (Appendices B to E) for your consideration. The further information submitted involves only editorial changes, minor change in the proposed scheme and technical clarification without any material change.

The softcopy of the Further Information will be uploaded to the hyperlink provided by the Town Planning Board.

We sincerely seek favourable consideration from the Town Planning Board to agree to this s.16 Application.

Should you have any queries, please contact the undersigned or our Ms. Minnie LAW at [REDACTED] or Ms. Vienne LUNG at [REDACTED].

Yours faithfully,


Wai-Lam LEE
Director of Planning

d
e

Enc - Appendices A-E
cc - Client
- Sha Tin, Tai Po and North District Planning Office – Mr. Kevin LAU (Senior Town Planner/Tai Po 1) (Email: kkwlaupland.gov.hk)
- Sha Tin, Tai Po and North District Planning Office – Mr. Nicol YU (Town Planner/Tai Po 1) (Email: nwkyupland.gov.hk)

Appendix A

Responses-to-Comments table

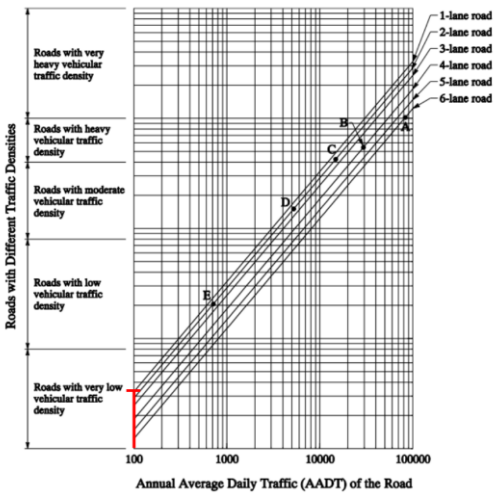
Proposed Temporary Educational Institution (Teaching Farm) and Associated Excavation of Land for a Period of 3 Years in
“Recreation” Zone, Various Lots in D.D. 16, Wo Tong Pui, Tai Po

Planning Application No. A/NE-LT/794

Responses to Comments – Departmental Comments (September 2026)

COMMENTS FROM RELATED DEPARTMENTS	2
1. Civil Engineering and Development Department, Geotechnical Engineering Office, dated 19 August 2026	2
2. Environmental Protection Department, dated 19 August 2026	3
3. Environmental Protection Department, dated 20 August 2026	4
4. Planning Department, District Planning Office/Shau Tin, Tai Po and North, dated 20 August 2026	5
5. Planning Department, District Planning Office/Shau Tin, Tai Po and North, dated 24 August 2026	6
6. Planning Department, District Planning Office/Shau Tin, Tai Po and North, dated 27 August 2026	6
7. Planning Department, District Planning Office/Shau Tin, Tai Po and North, dated 28 August 2026	9
8. Lands Department, District Lands Office/Tai Po, dated 20 August 2026	10
9. Agriculture, Fisheries and Conservation Department, Farm Management and Biosecurity Section, dated 1 September 2026	11

COMMENTS FROM RELATED DEPARTMENTS

No.	Comments	Responses
1.	Civil Engineering and Development Department, Geotechnical Engineering Office, dated 19 August 2026 GEO, CEDD has the following comments on the submitted Appendix F Geotechnical Planning Review Report: 1. Section 4.3.7 – Please provide justification to support the traffic density of the vehicular access road as low.	Please be advised that the access road within the City University of Hong Kong (CityUHK) Farm (i.e. the Application Site) strictly provides local access to Block 15 (Dairy Barn) and Block 17 (Accommodation Block) and does not function as a public thoroughfare. The road within the no-build zone is a private access road for vehicle to visit the dairy farm. The expected frequency of visit will be no more than 10 times a day. With reference to Figure 4.1 of Highway Slope Manual, the vehicular and pedestrian traffic density is expected to be very low/ low to fulfill the traffic density of “road with low vehicular or pedestrian traffic density” under Group 4 facilities in Table 2.2 of GEO Report No. 138. 

No.	Comments	Responses
2.	Environmental Protection Department, dated 19 August 2026 EPD has the following comments on the submitted Appendix D Environmental Assessment: <u>Noise</u> 1. Table 2.2: Compared to the pre-submission received in May 2026, the remark “The proposed Block 16 will be uncovered structures on ground floor.” has been added for the Pre-Treatment Facilities in Table 2.2. Please clarify the design and address whether there is any potential fixed noise impact on the nearby Noise Sensitive Receivers (NSR) from the proposed uncovered Pre-Treatment Facilities. <u>Water Quality</u> 1. Please review the header of Table 4.6. 2. Figure 4.3: Please review the description “Provide 20mins retention to 10% of maximum runoff a 1-2 year rainstorm” as it seems not quite tally with description in paragraph 4.5.7 and also Figure 3-1 of Appendix E Drainage and Sewerage Impact Assessment. Please also clarify if “1-2 year rainstorm” should read as “1-in-2-year rainstorm”. <u>Waste Management Implications</u> 1. Section 5.2.24: please review if the average general refuse generated per day should be 0.28m³. 2. Table 5.7: please review if the estimated waste quantity to be reused on site for inert C&D materials and non-inert C&D materials should be 778m³ and 141m³ respectively; and suggest to revise the title of row 3 as “Estimated Waste Quantity to be reused on-site” .	Noted. Please refer to the responses below and Appendix B for the replacement pages of the updated Environmental Assessment (EA). The potential fixed noise impact arising from the proposed wastewater pre-treatment facility and dry-wet separators have been assessed and the assessment results have been supplemented in Section 2.4. The facilities are low-height structures located at ground level and are screened by intervening buildings and terrain from nearby NSRs. Please be advised that the header of Table 4.6 has been updated as “Wastewater and Sewerage Loading Estimations”. Noted, Figure 4.3 has been updated and aligned with the latest Figure 3-1 of the Drainage and Sewerage Impact Assessment. The description in Paragraph 4.5.8 has been updated in accordance with the proposed stormwater management as illustrated in Figure 4.3. Noted and updated accordingly. The average general refuse generated per day should be 0.28m³. Noted and updated accordingly. The estimated waste quantity to be reused on site for inert C&D materials and non-inert C&D materials should be 778m³ and 141m³ respectively. The title of row 3 is updated accordingly.

No.	Comments	Responses
3.	Environmental Protection Department, dated 20 August 2026 EPD has the following comments on the submitted Appendix D Environmental Assessment: <u>Air Quality</u> 1. Section 3.1.1: Please confirm whether the Development Bureau Technical Circular (Works) are applicable to this project. According to the RtC, they are expected to be removed, but remains in the list of applicable legislations, standards and guidelines. 2. Table 3.3: - please confirm if CO is measured in Tai Po AQMS in 2025. If not, please indicate with "-"; and - please revise the last sentence of note [3] to read "Number of exceedances allowed per calendar year under the AQOs is shown in ().". 3. Table 3.4 to 3.5 and Section 3.2.5: Please confirm whether annual FSP for grid 37,49 exceeded AQO and update the text accordingly. 4. Table 3.6 and Figure 3.1: - the last comment was not addressed properly. The ASRs should be drawn at the locations closest to the site, especially for larger structures such as ASR17; and - please measure the distances without rounding to the nearest 10m. 5. Section 3.5.1: - please demonstrate, using a figure, that the required buffer distance is met for all buildings with air sensitive uses; and	Noted. Please refer to the responses below and Appendix B for the replacement pages of the updated EA. Noted, the Development Bureau Technical Circular (Works) have been removed from the list. Noted, it has been updated accordingly with "-" indicated. Noted, it has been updated accordingly. Noted, please be advised that the annual FSP for grid 37,49 does not exceed AQO and the text has been updated accordingly. Noted, Table 3.6 and Figure 3.1 have been updated accordingly. Noted, the distances in Table 3.6 have been updated accordingly without rounding to the nearest 10m. Noted, Figure 3.2 has been supplemented to demonstrate the buffer distance from road to buildings with air sensitive uses.

No.	Comments	Responses
	- please justify the 5m setback is adequate (e.g., with Transport Department’s confirmation that the road class is local distributor or below). 6. Section 3.5.14 & RtC #11 (Page 14 of the RtC Table): Please clarify where “Attachment A” is provided. 7. Section 3.5 & RtC #12 (Pages 14-15 of the RtC Table): Please provide further information, such as the reliability of the proposed system, to justify that odour will be better managed.	Noted, please be advised that the following road classification have been confirmed by Transport Department (TD): • Hang Kai Lane (Local Distributor or below) • Ngau Kwu Leng Path (Local Distributor or below). Please refer to Appendix C for the confirmation email from TD on road type classification. Please be advised that “Attachment A”- “Micro-Nano Deodorization Technology Description” of the Responses-to-Comments (RtC) during the pre-submission stage does not form part of the Environmental Assessment Report and is attached for reference only to justify the proposed removal efficiency. Please refer to Appendix D for the “Micro-Nano Deodorization Technology Description” for reference. Please refer to Appendix D for the “Micro-Nano Deodorization Technology Description” for further information on the proposed system for odour control.
4.	Planning Department, District Planning Office/Shau Tin, Tai Po and North, dated 20 August 2026 DPO/STN, PlanD has the following comments on the submitted Supporting Planning Statement: 1. Section 5.1.3 – Please clarify if there are any missing words after “the Proposed Development will further facilitate teaching and learning of veterinarian study in Hong Kong, with the aim to become the”.	The Sentence in Section 5.1.3 has been updated as “the Proposed Development will further facilitate teaching and learning of veterinarian study in Hong Kong, with the aim to become a leading veterinary education and research institution in the region.” Please refer to Appendix E for the replacement pages of the updated Supporting Planning Statement.

No.	Comments	Responses
5.	Planning Department, District Planning Office/Shu Tin, Tai Po and North, dated 24 August 2026 DPO/STN, PlanD has the following comments on the submitted Supporting Planning Statement: 1. Section 4.4.2 – It is noted that the tree treatment proposal as proposed (the number of trees to be felled, the number of new trees to be planted for compensation, and the number of trees to be transplanted) does not tally with the information provided in Section 7 of Appendix B Tree Survey and Landscape Proposal. Please clarify.	Please be advised that the tree treatment proposal of Section 4.4.2 of the Supporting Planning Statement has been rectified. Please refer to Appendix E for the replacement pages of the updated Supporting Planning Statement.
6.	Planning Department, District Planning Office/Shu Tin, Tai Po and North, dated 27 August 2026 DPO/STN, PlanD has the following comments on the submitted Supporting Planning Statement: 1. Please advise on the increase from 57 to 100 cows, including: (i) the reasons for the increase; and (ii) whether there are any local or international standards/assumptions justifying the ratio of veterinary students/researchers to cows. 2. Please advise on the details of the cows to be raised in the farm, including but not limited to place of origin of cow and types of cows.	The increase in herd size supports the expanding educational, clinical, and research requirements of the Bachelor of Veterinary Medicine (BVM) and postgraduate programmes. Rather than following a fixed student-to-cow ratio, the herd size is calibrated to ensure students receive adequate practical exposure to herd health, clinical procedures, reproduction, and welfare assessment across multiple year groups while maintaining normal replacement cycles and high welfare standards. The capacity aligns with international benchmarks for veterinary teaching institutions. Having said, this, please note that the BVM student cohort has increased from 12 students admitted in 2017 to 45 students admitted in 2026 and is expected to increase to 80 students over the coming decade. The teaching herd consists of Jersey dairy cattle. In addition to dairy management education, the farm utilises Wagyu and Angus genetics to produce beef-cross offspring, contributing to local food

No.	Comments	Responses
	3. Please advise the reasons of selecting dairy cows to be raised on the Site for teaching and research purposes. 4. Please advise: (i) if there is any justification behind the proposed number of beds of on-site accommodation; and (ii) whether the proposed number of beds is sufficient to accommodate caretakers staying overnight at the Site. 5. Please advise: (i) the proposed number of staff/students to be working/learning on-site in day time and overnight; (ii) the proposed maximum number of staff and students to be accommodate at the Site; and (iii) the estimated number of staff/students entering/leaving the Site by time period.	sustainability and livestock research. The latter will also have an important role in teaching. Cattle are sourced locally or imported under strict biosecurity protocols and government health certifications. When CityUHK was provided a letter of reasonable assurance for accreditation of a veterinary degree program in 2016 by the Australasian Veterinary Boards Council (AVBC) the AVBC advised that since no cattle farms were present in Hong Kong, a University cattle farm would be necessary for students to be able to achieve Day one competencies in ruminant practice. Dairy cattle provide a comprehensive, year-round platform for veterinary training in systemic medicine, surgery, reproductive technology, nutritional management, and preventive epidemiology. They serve as a primary model for teaching production animal medicine, biosecurity, and food safety under professional supervision The proposed 10-bed accommodation is strictly operational and educational. It enables veterinary students participating in early morning farm operations (such as 6:00 AM milking shifts) to stay overnight on-site, eliminating early morning transit challenges. Farm staff maintain permanent off-site residences; however, the facility provides essential short-term resting space for staff, clinicians, and students undertaking overnight animal care, calving supervision, or hourly welfare checks. The number of staff and students working and learning on-farm varies considerably from day to day depending on the teaching activities. On a day when there are no teaching activities, the farm is run by a core team comprising of 10 staff. On a day when Bachelor of Veterinary Medicine (BVM) students are present, it is proposed that up to 60 students and 10 staff be authorized to be present on-site at any one time.

No.	Comments	Responses
	6. Please advise the estimated traffic flow generated during the construction period of the farm expansion works. 7. Please note that the Town Planning Board Secretariat has received a number of public comments on the application, and some of which expressed concerns on animal welfare issues. The applicant shall take note and response to those public comments as appropriate. The public comments are available at the Planning Enquiry Counters of the Planning Department (i.e. 17/F, North Point Government Offices, 333 Java Road, North Point, Hong Kong or 14/F, Sha Tin Government Offices, 1 Sheung Wo Che Road, Sha Tin, New Territories).	On days when no BVM teaching activities are present, the farm also can provide pre-arranged tours to local school children and the community, which is important for community outreach. It is proposed that the maximum group size does not exceed 40 visitors at any one time. As mentioned in Section 3.4.2 of the submitted Environmental Assessment, "With reference to other similar scale projects, there is likely to be around two dump trucks per trip during the site formation stage." CityUHK prioritises animal welfare in all operational and educational activities. The proposed development is an educational upgrade, not a commercial intensification. The expanded facilities incorporate modern, welfare-centric infrastructure—including automated manure removal robots, optimised space allowances, enhanced ventilation, and state-of-the-art health monitoring systems. While clinical practice in Hong Kong includes companion animals, comprehensive veterinary education requires rigorous training in production animal health, biosecurity, food safety, and zoonotic disease control. Training veterinarians locally to international standards ensures Hong Kong retains expertise in public health and food security. The increased herd size provides the necessary clinical baseline to deliver this essential training within upgraded, world-class welfare facilities. To establish a veterinary programme in Hong Kong, the programme needed to be internationally accredited by the Royal College of Veterinary Surgeons (RCVS) and/or the Australian Veterinary Boards Council (AVBC). In order for veterinarians to be registered in HK they must hold a veterinary degree that is accredited by the RCVS and/or AVBC. Both of these bodies require that veterinary graduates must be omniscient, meaning that they must have expertise in all major veterinary

No.	Comments	Responses																
		species, including companion animals (dogs, cats, exotic pets), horses and livestock (poultry, swine and ruminants). Thus, expertise in ruminant practice is essential. Whilst many graduates of the program so far have pursued careers in small animal and exotics practice, others are working in livestock industries, including two that are working specifically with dairy cattle in overseas jurisdictions. Please note that the Dairy industry in the Chinese Mainland is the largest in the world, and some of our graduates will have important roles as consultants and specialists in the Chinese Mainland over the next two decades. Whilst as a Veterinary College we support initiatives to reduce carbon footprints globally, it will be many years before tangible reductions in the dairy industry occur globally. Whilst the proposed number of cattle on the dairy farm will increase from 56 to 100, the farm is tiny by international standards. Indeed, in the Chinese Mainland, some farms harbour tens of thousands of cattle. Our farm harbours the minimum number of cattle needed to provide veterinary education while observing high standards of animal welfare, avoiding overuse of individual cattle. Veterinarians have an ethical responsibility to provide veterinary services to all major veterinary species.																
7.	Planning Department, District Planning Office/Shia Tin, Tai Po and North, dated 28 August 2026 Please find the following comments from this Office on the submitted Supporting Planning Statement: Table 4.3.1 Key Development Parameters of the Proposed Development: ● Table 4.3.1 Key Development Parameters of the Proposed Development: <table><tr><th>Key Development Parameters</th><th>Proposed Development</th><th>Existing Development (approved under No. A/NE-LT/788)</th><th>Differences (+/-) (%)</th></tr><tr><td>Domestic GFA (about)</td><td>469m²</td><td>67m²</td><td>+402m² (±60%) (+600%)</td></tr><tr><td>Domestic PR (about)</td><td>0.03</td><td>0.007</td><td>0.023 (±23%) (+328.57%)</td></tr><tr><td>Domestic Building Height</td><td>Not more than 9.5m</td><td>Not more than 3.5m</td><td>+6m (±457%) (+171.43%)</td></tr></table>	Key Development Parameters	Proposed Development	Existing Development (approved under No. A/NE-LT/788)	Differences (+/-) (%)	Domestic GFA (about)	469m ²	67m ²	+402m ² (±60%) (+600%)	Domestic PR (about)	0.03	0.007	0.023 (±23%) (+328.57%)	Domestic Building Height	Not more than 9.5m	Not more than 3.5m	+6m (±457%) (+171.43%)	Please be advised that Table 4.3.1 of the Supporting Planning Statement has been rectified accordingly. Please refer to Appendix E for the replacement pages of the updated Supporting Planning Statement.
Key Development Parameters	Proposed Development	Existing Development (approved under No. A/NE-LT/788)	Differences (+/-) (%)															
Domestic GFA (about)	469m ²	67m ²	+402m ² (±60%) (+600%)															
Domestic PR (about)	0.03	0.007	0.023 (±23%) (+328.57%)															
Domestic Building Height	Not more than 9.5m	Not more than 3.5m	+6m (±457%) (+171.43%)															

No.	Comments	Responses
8.	Lands Department, District Lands Office/Tai Po, dated 20 August 2026 DLO/TP, LandsD has the following comments on the application: (i) The application site ("the Site") comprises of 17 Old Schedule Agricultural Lots, i.e. Lots Nos. 175 S.A ss.1, 175 S.B, 176, 179 RP, 333, 334, 335 S.B (Part), 336AB, 336C, 337 S.B, 338, 339, 340, 341, 342 RP, 345 S.A and 346 all in D.D. 16 held under the Block Government Lease which contains the restriction that no structures are allowed to be erected without the prior approval of the Government. (ii) Only 10 private lots, i.e. Lots Nos. 335 S.B (Part), 336AB, 336C, 337 S.B, 338, 339, 340, 341, 345 S.A and 346 all in D.D. 16 within the Site are covered by Short Term Waiver (STW) No. 789 to permit erection of 13 structures for the purpose of Temporary Educational Institution (Teaching Farm) use for a term of 1 year from 15.9.2020 and thereafter quarterly subject to 3 months' termination notice by either party. Education Bureau supports the continuation of the said STW at nominal fee. (iii) There are unauthorized structures on Lot No. 334 in D.D. 16 which are not included in the application. The lot owner should immediately rectify/regularize the lease breaches and LandsD reserves the rights to take necessary lease enforcement action against the breaches without further notice. (iv) There is no guarantee to the grant of a right of way to the Site or approval of the Emergency Vehicular Access thereto.	Noted. Noted. Noted, please be advised that the rectification is under arrangement. Noted.

No.	Comments	Responses
9.	Agriculture, Fisheries and Conservation Department, Farm Management and Biosecurity Section, dated 1 September 2026 1) FMB, AFCD has no comment on the application. 2) The applicant, City University of Hong Kong (CityU), is now running a dairy farm in part of the application site. A dairy licence valid until 3.6.2027, is being held by an individual, who is authorised by CityU to run the dairy farm. 3) Please note that in accordance with the Dairies Regulations (Cap. 139D), no dairy shall be maintained at any premises or place other than the premises or place specified in such licence. 4) Since the extension part of the existing farm as indicated in the application is not currently covered by the valid licence, the applicant shall not maintain a dairy in the extension part unless such extension is approved by AFCD.	Noted. Noted. Noted. Noted, should the planning application be approved by the Town Planning Board, valid license will be obtained for the extension of part of the existing farm.

(Last updated 9 September 2026)

Appendix B

Replacement Pages of the updated Environmental Assessment

7.4	Waste Management	59
7.5	Land Contamination	59

Tables

Table 2.1	Site Visit Photo Record	4
Table 2.2	Proposed Structures/ Facilities	7
Table 2.3	Key Development Parameters of the Application Site	8
Table 3.1	Hong Kong Air Quality Objectives 2025	12
Table 3.2	HKPSG Recommended Buffer Distances for Different Pollution Sources	13
Table 3.3	Concentrations of Pollutants at Tai Po AQMS (Year 2021-2025)	14
Table 3.4	Future Ambient Air Quality for Concerned PATH Grids (Year 2027)	15
Table 3.5	Future Ambient Air Quality for Concerned PATH Grids (Year 2028)	16
Table 3.6	Representative ASRs for Air Quality Assessment	17
Table 4.1	Tolo Harbour and Channel Water Control Zone Statement of Water Quality Objectives for Watercourses	27
Table 4.2	Standards for Effluents Discharged into Group A Inland Waters	30
Table 4.3	Standards for Effluents Discharged into Foul Sewers Leading into Government Sewage Treatment Plants	31
Table 4.4	River Monitoring Data	33
Table 4.5	Water Sensitivity Receivers	34
Table 4.6	Wastewater and Sewerage Loading Estimations	40
Table 5.1	Other relevant documents and information	45
Table 5.2	Inert C&D Material in Building Waste	47
Table 5.3	Summary of the Inert C&D Material During Construction Phase	47
Table 5.4	Non-inert C&D Material in Building Waste	48
Table 5.5	Summary of non-Inert C&D Material During Construction Phase	48
Table 5.6	General Refuse Generation	49
Table 5.7	Summary of Waste Generation During Construction Phase	51
Table 6.1	The Historical Land Use with Aerial Photography	55

Figures

Figure 1.1	Location of the Application Site
Figure 2.1	Existing Environment
Figure 2.2	Proposed Layout
Figure 3.1	Location of Representative Air Sensitive Receivers
Figures 3.2	Schematic diagram of Deodorization System
Figures 3.3	Photo of Micro-Nano Deodorization Chamber extracted from another Project
Figure 4.1	E. coli Level at TR12B (2015-2024)
Figure 4.2	Location of Representative Water Sensitive Receivers
Figure 4.3	Proposed Stormwater Management Diagram

1. INTRODUCTION

1.1 Project Background

- 1.1.1 The existing temporary teaching farm located at Lam Tuen, Tai Po is operated by the Jockey Club College of Veterinary Medicine and Life Sciences of the City University of Hong Kong (CityUHK) since 2022 (i.e. Farm 1.0 with a site area of about 9,330m²)¹. As Hong Kong's only working dairy farm, it is mainly for the milking of Jersey cows for veterinary students to gain hands-on experience with the cattle and for promoting One Health, public health, research into zoonotic diseases, and animal welfare.
- 1.1.2 The expansion of the existing CityUHK Farm will provide essential facilities for hands-on training in bovine medicine, animal husbandry, and farm management. Covering site area approximately 6,169m² (Farm 2.0), the expansion will include additional dairy barn, caretakers' accommodation and other supporting facilities for long-term operations.
- 1.1.3 After the expansion, CityUHK Farm (Farm 1.0 + Farm 2.0), with a total site area of 15,444m², will enhance Hong Kong's only active dairy farm in support of the city's sole veterinary medicine degree, delivering public benefits through improved public health and food safety, while strengthening Hong Kong's role as a hub for research and training in veterinary medicine and life sciences.
- 1.1.4 The Application Site (i.e. Farm1.0 + Farm 2.0) comprises Lots 175 S.A ss.1, 175 S.B, 176, 179 RP, 333, 334, 335 S.B (Part), 336AB, 336C, 337 S.B, 338, 339, 340, 341, 342 RP, 345 S.A, and 346 in D.D. 16, Wo Tong Pui, Tai Po, New Territories. Since the land is zoned for "Recreation" (REC) use in the Outline Zoning Plan (OZP), a Town Planning Town (TPB) application under Section 16 (S16) of the Town Planning Ordinance will be required to obtain approval for Proposed Temporary Educational Institution (Teaching Farm) for a Period of Three Years and Excavation of Land at the Application Site.

1.2 Objectives of this Report

- 1.2.1 This Environmental Assessment Report (EAR) aims to address the environmental issues in support of the Planning Application under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Temporary Educational Institution (Teaching Farm) for a Period of Three Years and Excavation of Land at various lots in D.D. 16 in Wo Tong Pui, Tai Po ("the Application Site" see the figure below).

1.3 Structure of this Report

- 1.3.1 The key environmental concerns of the Project would be potential odour emissions, as well as wastewater and solid waste generated from farm activities. As the anticipated increase in traffic during operation is negligible, the associated noise impact is also expected to be negligible. The potential fixed noise impact from the proposed wastewater

¹ To avoid intrusion to the surrounding "Green Belt" zone, a minor portion of the existing temporary Farm1.0 that falls within the "GB" zone (about 56m²), has been excluded from the Application Site of the subject S16 planning applications.

pre-treatment facility is anticipated to be insignificant to the nearby sensitive uses (see **Section 2.4**).

1.3.2 The structure of this EAR is as below:

- **Section 1** describes the Project background and objectives of the report;
- **Section 2** describes the surrounding site condition and preliminary design plan;
- **Section 3** evaluates the air quality/odour impacts and the mitigation measures required;
- **Section 4** evaluates the water quality impacts and the mitigation measures required;
- **Section 5** estimates the waste generated volume by the Project;
- **Section 6** reviews the potential for land contaminant; and
- **Section 7** concludes the findings.

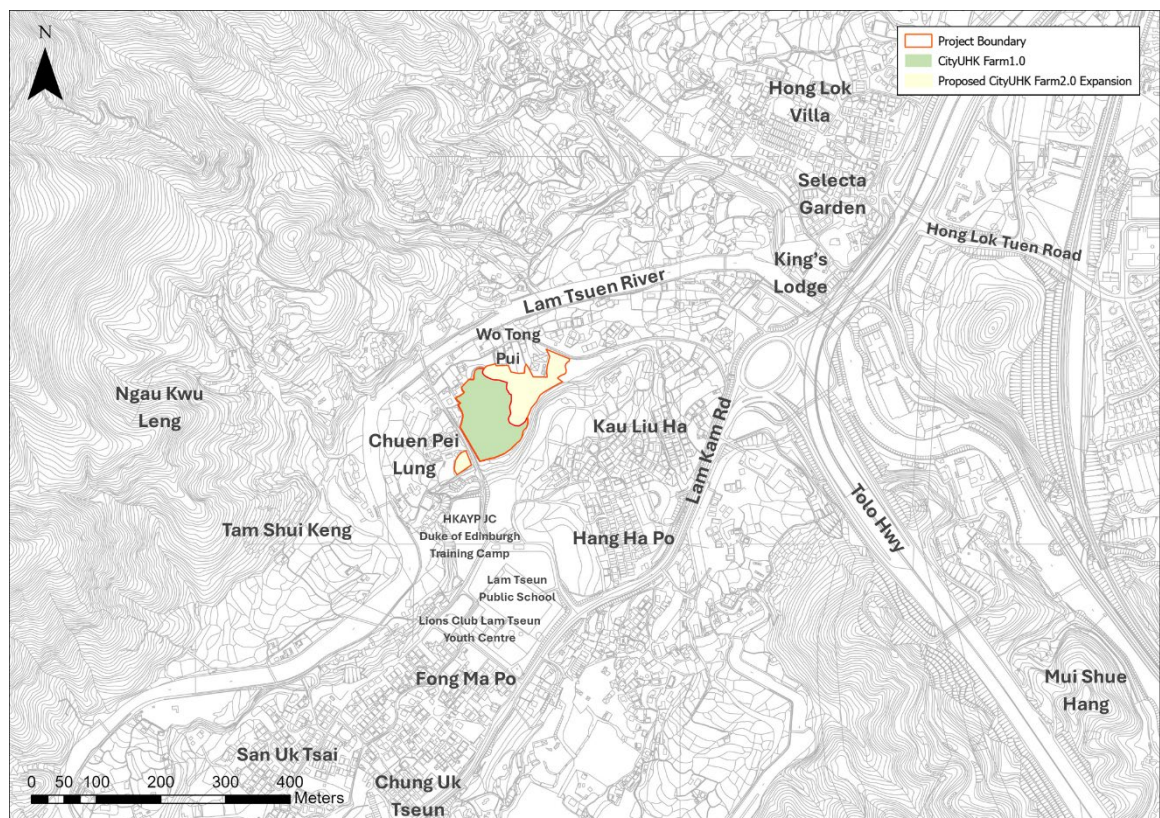


Figure 1.1 Location of the Application Site

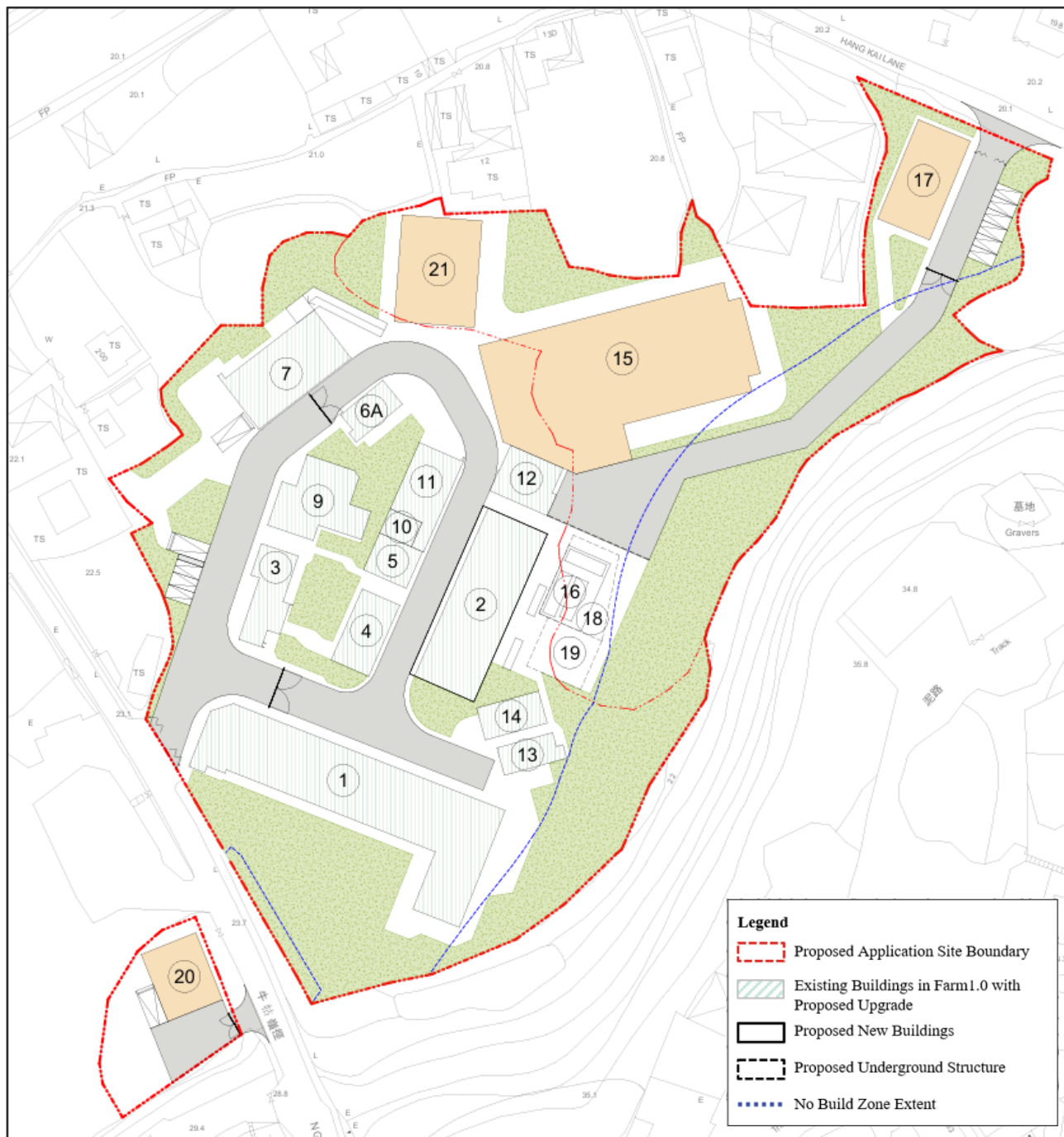


Figure 2.2 Proposed Layout

Table 2.2 Proposed Structures/ Facilities

Farm 1.0/2.0	ID	Building Block
Existing building blocks in Farm 1.0 with proposed upgrade	1	Beef Cattle Barn
	2	Young Stock Barn
	3	Main Building Block
	4	Changing Room Block
	5	Laboratory & Pharmacy ⁽¹⁾
	6A	Manure Store ⁽²⁾

Application for Planning Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Temporary Educational Institution (Teaching Farm) for a Period of Three Years and Excavation of Land at Various Lots in D.D. 16, Wo Tong Pui, Tai Po, New Territories

Key Development Uses	Parameters
No. of Loading/Unloading (L/UL) Bay	3
Tentative Completion Year	2027

Remarks:

- (1) In accordance with Building (Planning) Regulation 23(3)(b) and APP-2, uncovered outdoor facilities (about 440 m²) and underground facilities (about 460m²) are proposed to be exempted from GFA calculation.
- (2) The car parking spaces to be provided at ground floor level are not included in the GFA calculation.
- (3) Excluding 1 uncovered ground floor structures – Block 16.

2.3 Tentative Construction Method and Programme

2.3.1 Minor upgrading works are proposed for the existing buildings within Farm 1.0 (Nos. 1–7, 9-14 in **Figure 2.2**). These works include the installation of separate drainage systems on the building roofs and landscaped areas (as detailed in **Section 4**), minor utilities installation works, and piping works to improve daily barn operations result to reduce the risk of odour impacts and. Except for modification works to the ramps of the existing feed store barn, no significant demolition works are proposed for the other existing buildings.

2.3.2 As shown in **Figure 2.2**, a no-building zone, as delineated by the blue line, has been designated. All buildings would be set back from the slopes to reduce landslide risk. Consequently, no slope works are proposed, thereby minimising heavy construction works under the Application Site. Furthermore, as indicated in **Table 2.3**, the proposed buildings would be limited to a maximum of three storeys. Limited car parking space (total 9) would be provided, and no basement construction is proposed. As such, heavy foundation, excavation works, and superstructure works are not anticipated. Major excavation works would mainly be required for the holding tank (No. 18 in **Figure 2.2**) and the stormwater pump pit (No. 19 in **Figure 2.2**).

2.3.3 Key construction works include:

- Site formation;
- Excavation Works;
- Foundation works;
- Superstructure works; and
- Utility construction.

2.3.4 Construction works of the Application Site is intended to be completed by 2027 tentatively.

2.4 Noise impact from Fix Noise Sources

2.4.1 As mentioned in **Section 2.2**, wastewater pre-treatment facilities and dry-wet separators, will be provided for manure handling to improve wastewater management. Under the current design as shown in **Figure 2.3**, the wastewater pre-treatment facility is proposed at Block 16, which comprises an uncovered structure located on the ground floor. Either two dry-wet separators will be installed within the existing beef cattle barn (Block 1) and young stock barn (Block 2), or one dry-wet separator will be installed within the existing Block 13. The final arrangement will be determined during the detailed design stage. For

option 2, as the separator would be within an enclosed area, the noise impact would be negligible.

2.4.2 For Option 1, the two proposed dry-wet separators would be located in a semi-enclosed area. Moreover, the wastewater pre-treatment facility will be below 2 m high and located at ground level, which is lower than the existing and proposed nearby structures, including the Young Stock Barn (Block 2), Store (Block 12), Dairy Barn (Block 15) and Accommodation Block (Block 17), which are approximately 3–9 m high. Together with the intervening terrain, these structures are expected to screen the proposed facilities from the nearby village houses. Consequently, there would be no direct line of sight between the proposed facilities and the neighbour village houses.

2.4.3 According to information provided by the farm operator, the wastewater pre-treatment facility and dry-wet separator would each have a sound pressure level (SPL) of 80 dB(A) at 1 m from the source. Based on the anticipated treatment volume, the facilities would operate for approximately 1 to 2 hours per day during the daytime only. Based on on-site noise measurements conducted early morning on 3 September 2026 at a location 1 m from a nearby village house, the prevailing background noise level (L_{90}) was recorded at 44 dB(A). This is more than 5 dB(A) below the Acceptable Noise Level (ANL) of 60 dB(A) applicable to an ASR of "A". Therefore, a noise criterion of 44 dB(A) has been adopted for the assessment of fixed noise sources.

2.4.4 The nearest noise sensitive receiver (NSR), No. 198 Hang Ha Po which is a village house, is located at least 86 m from the proposed facilities. Taking into account a distance attenuation of approximately 38.7 dB(A), 39.5 dB(A), and 40.4 dB(A) and a barrier correction of 10 dB(A), the predicted operational noise level at the nearest NSR would be approximately 35 dB(A), assuming three families operate concurrently. This is below the prevailing background noise level of 44 dB(A). Therefore, no adverse fixed noise impact is anticipated from the operation of the proposed wastewater pre-treatment facility and dry-wet separator.

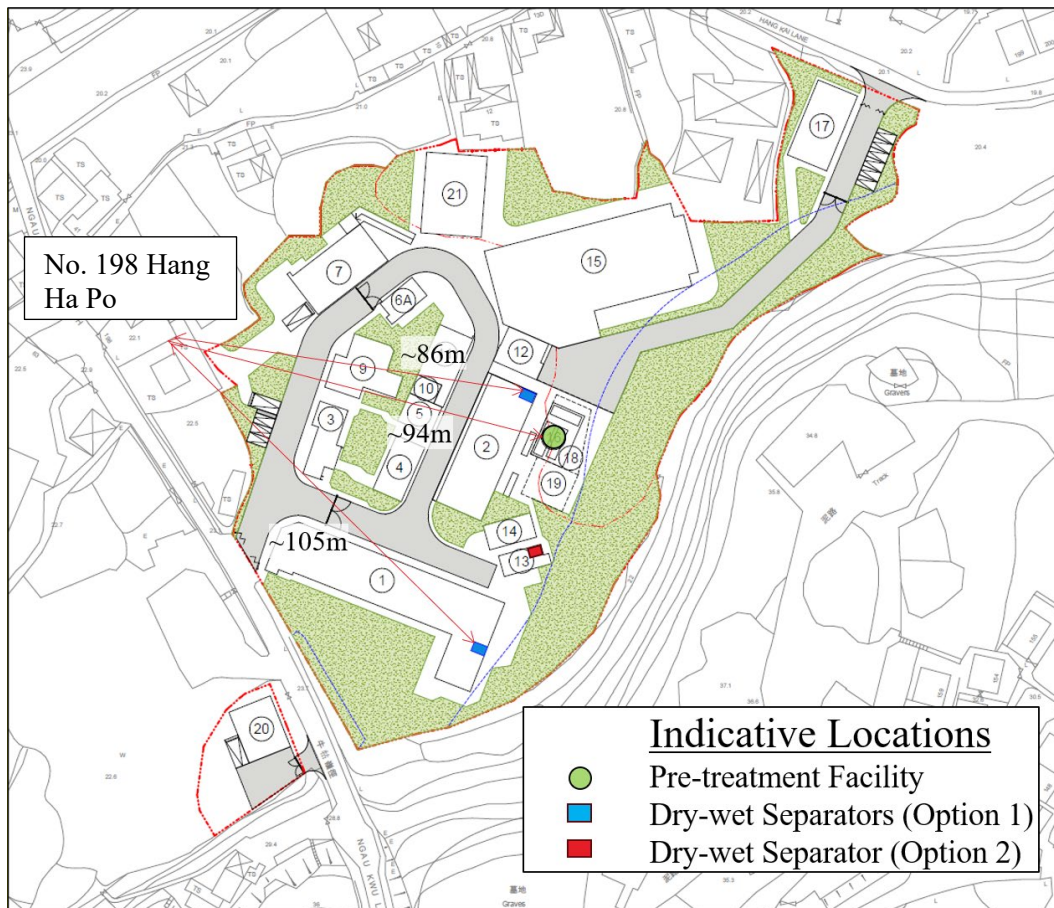


Figure 2.3 Proposed Plant Locations

2.5 Concurrent Projects

- 2.5.1 No foreseeable interaction or conflict with other development projects in the vicinity of the Application Site was identified during the preparation of this ER.

2.6 Designated Project Elements

- 2.6.1 Reclaimed water for use by general public will not be involved in the Project.
- 2.6.2 No designated project element listed in Schedule 2 and 3 of the Environmental Impact Assessment Ordinance (EIAO).

3.2 Description of the Environment

A. Existing Ambient Air Quality

3.2.1 The Application Site is located at Wo Tong Pui, positioned between Ngai Kwu Leung Path and Hange Kai Lane within Lam Tsuen, Tai Po. The nearest Air Quality Monitoring Station (AQMS) operated by EPD is the Tai Po AQMS. The latest 5-years monitoring data extracted from EPD's Smart Air Modelling Platform v2.1 (SAMP) are summarised in the below table.

Table 3.3 Concentrations of Pollutants at Tai Po AQMS (Year 2021-2025)

Pollutant	Parameter	Concentrations (µg/m ³)						Current AQOs (µg/m ³)
		2021	2022	2023	2024	2025	5-year mean	
RSP	10th Highest 24-hour	60	48	53	59	57	55	75 (9)
	Annual	26	21	25	24	24	24	30
FSP	19th Highest 24-hour	32	30	30	33	32	31	37.5 (18)
	Annual	16	14	15	16	15	15	15
NO ₂	19th Highest 1-hour	115	93	95	107	113	105	200 (18)
	10th Highest 24-hour	65	49	51	53	59	55	120 (9)
	Annual	32	27	27	28	29	29	40
SO ₂	4th Highest 10-Min	15	12	27	8	16	16	500 (3)
	4th Highest 24-hour	8	5	4	6	8	6	40 (3)
O ₃	10th Highest 8-hour	168	188	163	171	169	172	160 (9)
	Peak season	101	99	96	106	107	102	100
CO	1st Highest 1-hour	-	-	-	-	-	-	30000 (0)
	1st Highest 8-hour	-	-	-	-	-	-	10000 (0)
	1st Highest 24-hour	-	-	-	-	-	-	4000 (0)

Notes:

[1] Monitoring results exceeding the AQO are in **bold**.

[2] “-” means not measured.

[3] The 5-year mean is the average of the five yearly concentrations. Number of **exceedances** allowed **per calendar year** under the AQOs is shown in ().

3.2.2 As seen from the table above, except of FSP and O₃, no exceedance for other parameters. The annual FSP levels were in the range of 14 to 16 µg/m³, with exceedances recorded in 2021 **and** 2024. The 19th highest daily FSP levels were at a level of 30 to 33 µg/m³, and complied with AQO for all 5 years.

3.2.3 The 10th highest 8-hour O₃ concentration ranges from 163 µg/m³ to 188 µg/m³, exceeding the AQO over the past five years. The peak season O₃ concentration ranges from 96 µg/m³-107 µg/m³, averaging around 102 µg/m³ and exceeding the AQO. According to EPD's Air Quality in Hong Kong 2025 Report, O₃ is not a pollutant directly emitted from man-made sources but formed by photochemical reactions of primary pollutants such as NO_x and

volatile organic compounds (VOCs) under sunlight. As it takes several hours for these photochemical reactions to take place, O₃ recorded in one place could be attributed to VOC and NO_x emissions from places afar. Hence, O₃ is more a regional air pollution problem.

B. Future Ambient Air Quality

3.2.4

The construction phase of the Application Site is anticipated to commence in Year 2027 tentatively, while the operation is anticipated in Year 2028. The future ambient air quality in Year 2027 and 2028 is predicted by a regional air quality model named “Pollutants in the Atmosphere and their Transport over Hong Kong” (i.e. PATH v3.0). NO₂, RSP and FSP are generally considered as the key concerned pollutants for development. The committed and planned control measures to be implemented by the Hong Kong Government and Pearl River Delta Economic Zone (PRDEZ) are accounted for in PATH. The PATH grids within the 500m assessment area are shown in **Figure 3.1**. The future ambient air quality within each PATH grid in Year 2027 and 2028 is shown in the table below.

Table 3.4 Future Ambient Air Quality for Concerned PATH Grids (Year 2027)

Pollutant	Averaging Time	Proposed AQO	Data Summary	PATH v3.0 Grid in Year 2027			
				37,49	37,48	36,48	36,49
RSP	24-hour	75 (9)	10th	59.32	61.32	61.58	59.73
			Exceedance	0	0	2	1
	Annual	30	-	22.78	23.58	23.51	22.56
FSP	24-hour	37.5 (18)	19th	37.36	38.29	37.71	36.61
			Exceedance	17	20	19	16
	Annual	15	-	14.72	15.4	15.28	14.42
NO ₂	1-hour	200 (18)	19th	56.4	51.98	44.88	44.12
			Exceedance	0	0	0	0
	24-hour	120 (9)	10th	22.65	21.91	18.88	17.66
			Exceedance	0	0	0	0
	Annual	40	-	15.83	15.11	12.38	11.93
SO ₂	10-Min	500 (3)	4th	26.27	25.57	25.76	26.58
			Exceedance	0	0	0	0
	24-hour	40 (3)	4th	7.36	7.34	7.32	7.28
			Exceedance	0	0	0	0
O ₃	8-Hour	160 (9)	10th	171.96	174.31	177.57	178.68
			Exceedance	23	23	26	27
	Peak Season	100	-	119.88	119.83	122.34	122.84
CO	1-Hour	30000 (0)	1st	618.2	617.68	613.62	616.34
			Exceedance	0	0	0	0
	8-Hour	10000 (0)	1st	587.19	589.17	571.71	577.32
			Exceedance	0	0	0	0
	24-Hour	4000 (0)	1st	538.52	536.81	526.86	527.53
			Exceedance	0	0	0	0

Notes:

[1] Reference: EPD's SAMP v2.1.

[2] Concentrations exceeding the AQO are in bold.

Table 3.5 Future Ambient Air Quality for Concerned PATH Grids (Year 2028)

Pollutant	Averaging Time	Proposed AQO	Data Summary	PATH v3.0 Grid in Year 2028			
				37,49	37,48	36,48	36,49
RSP	24-hour	75 (9)	10th	59.26	61.28	61.55	59.7
			Exceedance	0	0	2	1
	Annual	30	-	22.74	23.54	23.47	22.53
FSP	24-hour	37.5 (18)	19th	37.28	38.24	37.67	36.57
			Exceedance	17	19	19	16
	Annual	15	-	14.68	15.36	15.25	14.4
NO ₂	1-hour	200 (18)	19th	54.85	51.14	43.75	42.74
			Exceedance	0	0	0	0
	24-hour	120 (9)	10th	21.9	21.36	18.45	17.17
			Exceedance	0	0	0	0
	Annual	40	-	15.38	14.71	12.1	11.66
SO ₂	10-Min	500 (3)	4th	26.27	25.57	25.76	26.58
			Exceedance	0	0	0	0
	24-hour	40 (3)	4th	7.36	7.34	7.31	7.28
			Exceedance	0	0	0	0
O ₃	8-Hour	160 (9)	10th	172.21	174.3	177.64	178.54
			Exceedance	23	23	26	27
	Peak Season	100	-	120.18	120.09	122.52	123.02
CO	1-Hour	30000 (0)	1st	618.16	617.62	613.61	616.32
			Exceedance	0	0	0	0
	8-Hour	10000 (0)	1st	586.93	588.82	571.64	577.28
			Exceedance	0	0	0	0
	24-Hour	4000 (0)	1st	538.14	536.44	526.71	527.43
			Exceedance	0	0	0	0

Notes:

[1] Reference: EPD's SAMP v2.1.

[2] Concentrations exceeding the AQO are in bold.

3.2.5 As seen from the table above, except of FSP and O₃, no exceedance for other parameters for both 2027 and 2028 future ambient air quality. The annual FSP levels were in the range of **14.4** to **15.4** µg/m³, with exceedances recorded in Grid (36, 48), Grid (37, 48) in Years 2027 and 2028. The 19th highest daily FSP levels were at a level of **36.57** to **38.29** µg/m³, and exceedance are found in Grid (36, 48) and Grid (37, 48) in Years 2027 and 2028. Exceedances of 10th highest 8-hr O₃ and the peak season O₃ concentrations are predicted in Years 2027 and 2028. As discussed in **Section 3.2.3**, O₃ is a regional air pollution problem.

3.3 Air Sensitive Receivers

3.3.1 In accordance with Annex 12 of the EIAO-TM, Air Sensitive Receivers (ASRs) include domestic premises, hotel, hostel, hospital, clinic, nursery, temporary housing accommodation, school, educational institution, office, factory, shop, shopping centre,

Application for Planning Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Temporary Educational Institution (Teaching Farm) for a Period of Three Years and Excavation of Land at Various Lots in D.D. 16, Wo Tong Pui, Tai Po, New Territories

place of public worship, library, court of law, sports stadium or performing arts centre. Any other premises or places with which, in terms of duration or number of people affected, has a similar sensitivity to the air pollutants as the afforested premises and places would also be considered as a sensitive receiver.

3.3.2

Representative ASRs within the Assessment Area (i.e. 500m from the boundary of the Application Site) have been identified in the table below and shown in **Figure 3.1**. The existing ASRs are identified by means of topographic maps, aerial photos, land status plans and site inspections. No planned ASRs within the assessment area are identified according to the Approved Lam Tsuen OZP No. S/NE-LT/11.

Table 3.6 Representative ASRs for Air Quality Assessment

ASR ID	Description	Uses	No. of Storeys	Approximate Distance from Application Site (m)
Existing ASRs				
ASR01	198 Hang Ha Po	Residential	G/F	7m
ASR02	13D Ngau Kwu Leng	Residential	G/F	23m
ASR03	210 Kau Liu Ha	Residential	2/F	27m
ASR04	198 Kau Liu Ha	Residential	2/F	22m
ASR05	201 Kau Liu Ha	Residential	2/F	40m
ASR06	56 Kau Liu Ha	Residential	2/F	143m
ASR07	52 Kau Liu Ha	Residential	2/F	162m
ASR08	32 Kau Liu Ha	Residential	2/F	207m
ASR09	18 Kau Liu Ha	Residential	2/F	159m
ASR10	139 Han Ha Po	Residential	2/F	140m
ASR11	141 Hang Ha Po	Residential	2/F	114m
ASR12	155 Hang Ha Po	Residential	2/F	92m
ASR13	159 Hang Ha Po	Residential	2/F	75m
ASR14	165 Hang Ha Po	Residential	2/F	68m
ASR15	166 Hang Ha Po	Residential	2/F	66m
ASR16	41 Hang Ha Po	Residential	2/F	37m
ASR17	HKAYP JC Duke of Edinburgh Training Camp	Office	2/F	35m
ASR18	ZANZI	Open Space	G/F	20m
Planned ASRs				
PASR01	Office	Office	1/F	Within Application Site boundary
PASR02	Accommodation	Residential	2/F	Within Application Site boundary

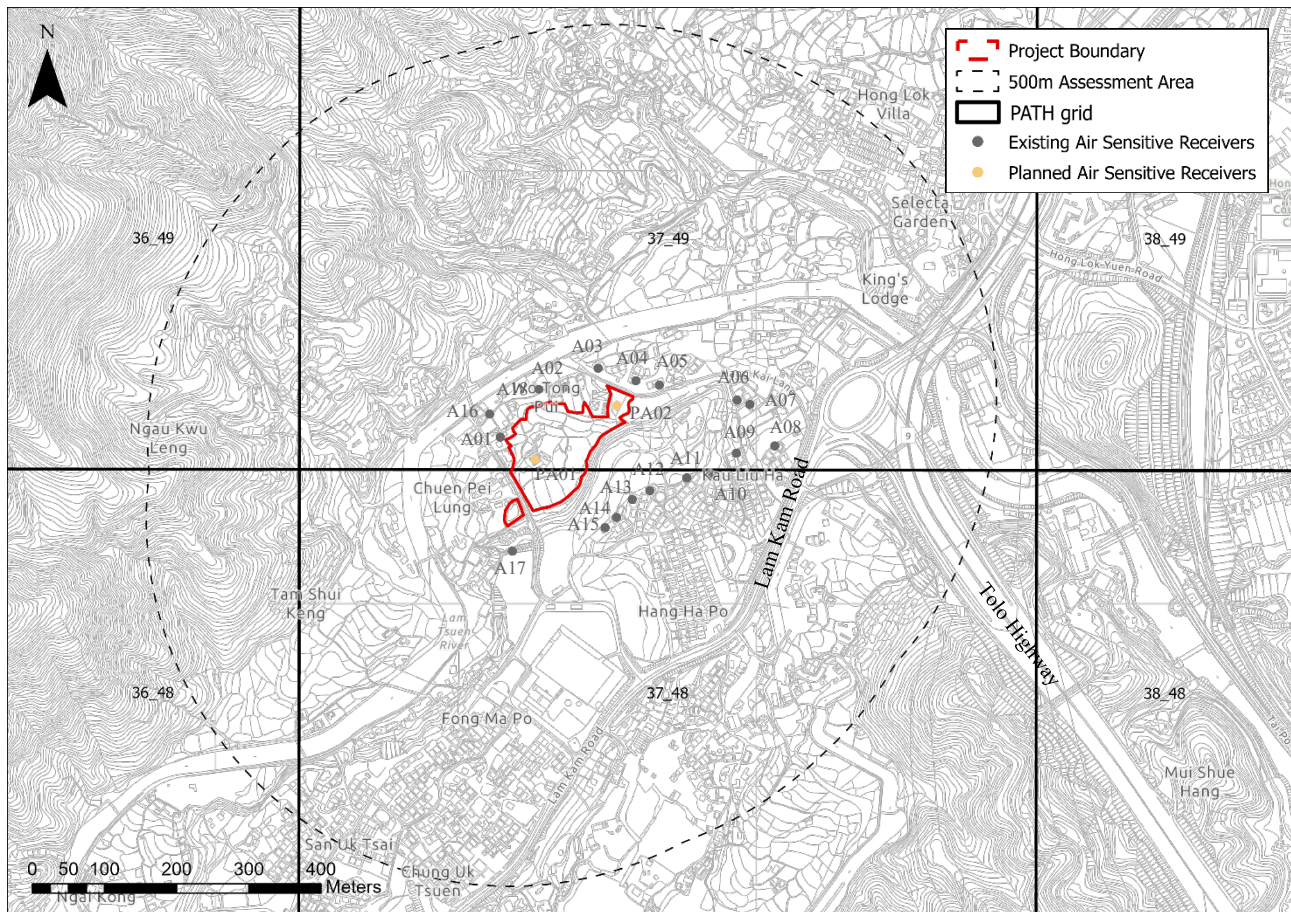


Figure 3.1 Location of Representative Air Sensitive Receivers

3.4 Construction Phase Impact Evaluation and Mitigation Measures

A. Construction Dust

- 3.4.1 Detailed construction methodology, work site area, works area phasing, and the implementation programme are not available at this stage and will be determined during the subsequent detailed design phase. As discussed in **Section 2.3**, apart from modification works to the ramps of the existing feed store barn, there would be no significant demolition of other existing buildings. In addition, as the proposed buildings will be no more than three storeys in height and will not include basements, heavy foundation works, extensive excavation, or major superstructure works are not anticipated.
- 3.4.2 In general, during the construction phase, fugitive dust will be generated from construction activities, which mainly include site clearance, soil excavation, site formation, backfilling and wind erosion of open sites. Under current design, the major excavation areas are about 2,653 m² with 1.3 m depth for major proposed buildings; 750 m² with 3.3 to 3.6 m depth for underground holding tanks/pits; and 2,000 m² with 0.6 to 1.4 m depth for piping works. With reference to other similar scale projects, there is likely to be around two dump trucks

receivers (buildings). Accordingly, the buffer distances for roads/highways and industrial areas/chimneys recommended in the HKPSG, as listed in **Table 3.2**, are satisfied.

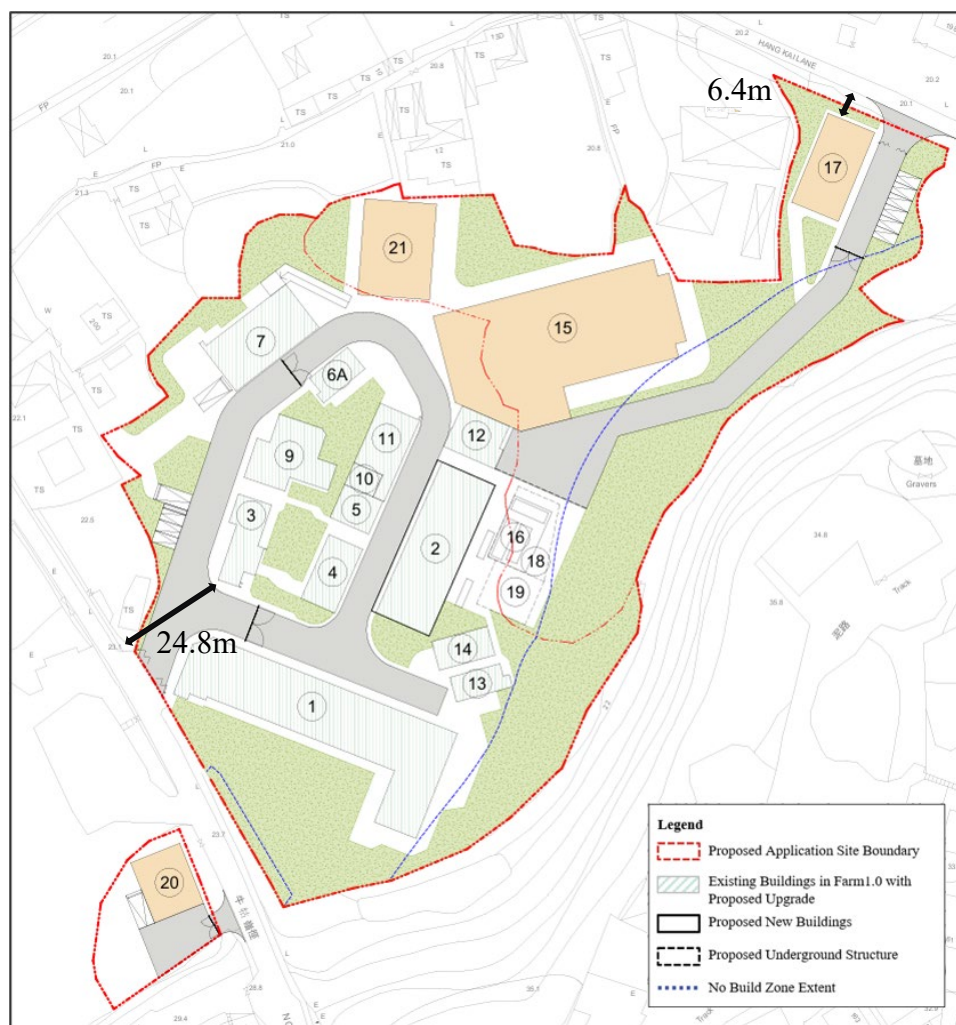


Figure 3.2 Buffer Distance from Road to Buildings with Air Sensitive Uses

- 3.5.2 According to the latest design, no chimneys are proposed within the Application Site. Farm operations will involve the use of scissor platforms and tractors, similar to the current operations at Farm 1.0. The scissor platform is electrically powered. Hence, tractor operation would be the only potential emission source. The tractor would be used to transport feed from the feed store barn to the cattle barns at a frequency of fewer than five trips per day. As a result, such emissions would be negligible.
- 3.5.3 As discussed in **Section 2.2**, all wastewater and sewage generated from Farm 1.0 and Farm 2.0 will be collected and discharged to the public sewer. Compared with the existing arrangement at Farm 1.0, this will reduce traffic associated with regular off-site tanker away. In addition, visits to the farm will be by invitation only for biosecurity reason. Consequently, restrictions on visitor numbers, together with the provision of only 17 parking spaces, indicate that any increase in traffic during future operation will be

negligible. As a result, induced traffic emissions from the Application Site would be insignificant.

B. Odour Emission

- 3.5.4 Toilet facilities are provided within the buildings of Farm 1.0, but the generated sewage is diverted to and stored in an underground sewage holding tank. This holding tank may constitute a potential source of odour emissions, particularly during sewage collection and tanker loading operations. Under the latest design, all domestic sewage generated by the Application Site will be discharged directly to the public sewer. As a result, odour impacts associated with domestic operations are expected to be negligible.

Odour emission from Manure

- 3.5.5 Odour emissions may arise from the day-to-day operation of the barns. Under the current operation of Farm 1.0, manure generated by cattle and calves is collected and transported off site by tanker on a daily basis. The primary sources of odour include manure generated by cattle and calves, manure storage areas within the farm, as well as potential odour emissions during manure collection and tanker loading operations.
- 3.5.6 According to the latest design, manure generated by cattle and calves will be properly collected via the on-site sewerage system and ultimately discharged to the public sewerage system. Prior to discharge, a dry-wet separation process will be implemented, which significantly reduces odour arising from bacterial decomposition of manure during storage. The whole process including the separator, receiving pit, and solid collection points are all situated within the plants with watertight covers. The potential odour emissions generated from the separation process would be effectively controlled.
- 3.5.7 Following removal of solid waste, the wastewater will undergo pre-treatment to meet the relevant discharge requirements before entering the public sewerage system. The solid waste and slurry generated from the pre-treatment process will be properly stored prior to off-site collection and handling. As the pre-treatment processes will be conducted within enclosed conditions, and the slurry will be placed directly into airtight transportable leakproof plastic containers, no adverse odour impact is anticipated. Moreover, the transportation of solid waste and slurry would be handled by licensed waste collectors as detailed in **Section 5**.
- 3.5.8 The proposed arrangement eliminates the need for regular manure collection by tanker, thereby reducing potential odour emissions associated with manure handling and tanker loading operations.

Odour emission from Barns

- 3.5.9 Under the current operation of Farm 1.0, cattle and calves are housed within barns rather than being allowed to graze on open farmland. The barns are equipped with mechanical

4.5 Operational Phase

A. Impact Evaluation

Sewage from Barn, Staff and Visitors

- 4.5.1 Under the current operation of Farm 1.0, sewage and wastewater generated from the barns, staff, and visitors are collected and transported off site by tanker. Under the latest design, the existing 200 mm to 225 mm diameter public sewers along Hang Kai Lane, which are located adjacent to Farm 2.0, will be utilised to convey sewage and potentially contaminated surface runoff generated from the site. Sewage arising from the proposed barns, as well as from staff and visitors of the Application Site, will be properly collected by the on-site sewerage system and discharged to the public sewerage system.
- 4.5.2 A separate wastewater discharge licence under the WPCO will be obtained for the discharges from animal wastewater. Wastewater generated from the daily operation of the three barns (i.e. cattle and calf urine and manure after removal of solid waste), together with wash-down water, will be properly collected and conveyed for pre-treatment prior to discharge to the public sewerage system. The treated effluent will comply with the discharge standards specified in **Table 4.3** and/or the requirements stipulated in the wastewater discharge licence. Under current design, the pre-treatment facility would be a small-scale sewage treatment plant with sufficient daily capacity (more than 13.12 m³/day), including an equalization tank, an anaerobic tank, and a composite moving-bed biofilm reactor (C-MBBR). The facility is designed as an integrated treatment unit with a watertight enclosure. The equalization tank, anaerobic tank and composite moving-bed biofilm reactor are housed within the unit and fully enclosed by the watertight cover of the pre-treatment facility. Detail of the pre-treatment facility will be finalised and submitted at a later stage as part of the application for the wastewater discharge licence.
- 4.5.3 Based on the current development parameters, the average dry weather flow to be generated from the Application Site is estimated to be about 13m³/day. The dry weather flows are shown in the table below. The hydraulic capacity of the sewers downstream to the proposed connections would be sufficient. A separated drainage and sewerage impact (DSIA) assessment report is submitted to ensure all sewage from the Application Site could be collected and treated before discharge. According to the SIA findings, no sewer update is needed. With proper discharges to public sewers, there should be no adverse water quality impact due to the wastewaters from the Application Site during operational phase.

Table 4.6 Wastewater and Sewerage Loading Estimations

Type		Unit Flow Factor (m ³ /day)	ADWF (m ³ /day)	
			Subtotal	Total
Animal Wastewater ^[1]		-	-	9.71
Human Wastewater	9 Staff	0.28 ^[2]	2.52	3.41
	59 Visitors	0.015 ^[3]	0.885	
Animal wastewater + Human wastewater		-	-	13.12

Application for Planning Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Temporary Educational Institution (Teaching Farm) for a Period of Three Years and Excavation of Land at Various Lots in D.D. 16, Wo Tong Pui, Tai Po, New Territories

Notes:

- [1] Total animal waste including total manure, urine and wastewater is estimated by cattle specialist.
- [2] Unit flow factor = $0.08\text{m}^3/\text{day}$ (commercial employee) + $0.2\text{m}^3/\text{day}$ (General territorial average) = $0.28\text{m}^3/\text{day}$ based on EPD's GESF Table T-2.
- [3] Unit flow factor = $0.015\text{m}^3/\text{day}$ for visitors as refer to West Kowloon Station.

4.5.4 The Laboratory & Pharmacy (No. 5 in **Table 2.2**) will be used solely for dry storage purposes, consistent with the current practice under Farm 1.0. As no wet processes are involved, no wastewater generation is anticipated.

Surface Runoff

4.5.5 During the operational phase, the Application Site will increase the area of impermeable surfaces and hence the peak surface runoff rates. Polluting substances from the Application Site such as dust and lubricant oil deposited and accumulated on the road surfaces may be washed into the drainage system during rainfall or road surface cleaning. To manage the potentially contaminated, a specific drainage system is designed as shown in the figure below.

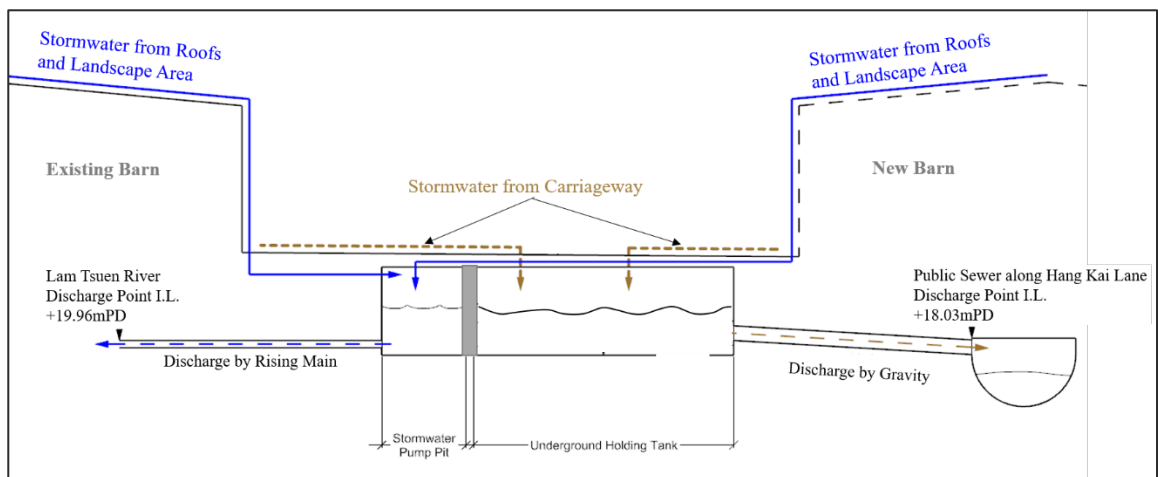


Figure 4.3 Proposed Stormwater Management Diagram

4.5.6 As shown in the DSIA, the Application Site would be divided into two catchments served by separate drainage systems. As runoff from the two catchments would be managed independently, cross-contamination is not anticipated.

4.5.7 Stormwater from roof and landscaped areas, which is not considered contaminated, will be collected separately and discharged directly to Lam Tsuen River. The separated DSIA report confirms that the downstream drainage system has sufficient capacity and that no flooding risk is anticipated due to the Application Site.

4.5.8 Runoff from carriageways and car parks, which may contain contaminants such as dust and lubricating oil, would be directed by site grading and dedicated drainage channels to the public sewer. As shown in **Figure 4.3**, an approximately 200 m^3 holding tank, providing a retention capacity equivalent to 20 minutes of runoff under the 1-in-50 years

rainfall event, would provide temporary storage during heavy rainfall events. All retained runoff would subsequently be discharged to the public sewer.

- 4.5.9 As discussed in **Section 3.5**, a deodorisation system will be installed to serve the third barn (i.e. Dairy Barn, No. 15 in **Figure 2.2**). The system does not generate wastewater; however, a small amount of water accumulation may occur due to high-pressure spraying. Under 24-hour operation, approximately 5 m³ of water per day will be used, with no more than 0.5 m³ per day expected to remain on the floor. The deodorisation chambers will be designed with an adequate floor gradient and dedicated drainage channels to direct any accumulated water to the underground holding tank and subsequently to the public sewer. No contaminated runoff from the deodorisation system will be discharged directly into the drainage system.

- 4.5.10 To prevent potential water quality impacts from non-point source runoff generated at Block 16, where the pre-treatment facility and dry-wet separator will be installed without a covering structure, Block 16 will be provided with an impermeable concrete floor, a 300 mm high perimeter curb, and edge drainage to collect surface runoff and discharge it to the public sewer. In addition, the pre-treatment facility will be a fully enclosed integrated unit, with only essential openings retained and protected by weatherproof eaves or overhangs to minimise rainwater ingress. All process nozzles, breather vents and equipment openings will be located above the finished floor level within the containment curb, with key nozzles positioned at least 0.3 m above floor level. These measures will minimise rainwater ingress during adverse weather conditions and prevent overloading or disruption of the treatment system.

- 4.5.11 With proper collection of surface runoff and implementation of best management practices, no adverse water quality impacts are anticipated during operation.

B. Mitigation Measures

Sewage from Barn, Staff and Visitors

- 4.5.12 Sewage generated from the barns, staff, and visitors will be properly collected and conveyed to the public sewerage system.
- 4.5.13 A wastewater discharge licence would be obtained for animal wastewater. Appropriate pre-treatment will be implemented to ensure compliance with the discharge standards specified in **Table 4.3** and/or the requirements of the discharge licence prior to discharge.

Pre-treatment Facility with Dry-wet Separator

- 4.5.14 The pre-treatment facility with dry-wet separator should be inspected daily by trained farm staff to ensure proper operation and identify any signs of malfunction, leakage or abnormal conditions. In the event of equipment failure, shutdown or interruption of the treatment process, wastewater will not be discharged and will instead be collected and removed by tanker for off-site treatment, following the existing Farm 1.0 operation. Any leakage or

spillage within the facility will be contained within the bunded area and directed to the public sewer via the drainage system.

4.5.15 The farm operator should prepare and implement an Emergency Response Plan covering system failure, adverse weather, flooding, power failure, chemical spills, emergency wastewater removal and notifications:

- Before forecast rainstorms, inspect and clear drainage around the facility to prevent stormwater backflow;
- The equalization tank will temporarily store wastewater pending tanker removal during emergencies; and
- If treatment is interrupted, wastewater will be withheld and tankered off-site under the existing Farm 1.0 arrangement, while the equipment supplier is contacted immediately for repairs.

Surface Runoff

4.5.16 Best Management Practices (BMPs) recommended in ProPECC PN1/23 for storm water discharge shall be implemented to ensure that surface runoff generated during the operation phase does not cause water pollution.

4.5.17 Sand traps should be installed in proximity to cattle and calf barns to prevent sand from entering the piping system.

4.5.18 The drainage system shall be inspected regularly to ensure proper operation. Dual pumps will be provided to minimise the risk of system failure.

4.5.19 No pesticides or fertilisers will be used for vegetation management. Relevant practices under the “Good Agricultural Practices for Crop Production” issued by AFCD will be observed. With the implementation of these measures, no adverse water quality impact is anticipated.

Measures within Water Gathering Ground

4.5.20 As the Application Site located within the Water Gathering Ground, it should follow the measures by Water Supplies Department (WSD) as far as applicable listed below:

- (a) No discharge of effluent or foul water into adjoining land, storm water drain, channel, stream or river course is allowed. Such foul water or effluent shall be collected and disposed of outside WGG.
- (b) Oil leakage and spillage shall be prevented within WGG at all time.
- (c) Vehicle parking spaces shall be surrounded by kerbs and drains. Drainage traps such as grease traps and petrol interceptors shall be installed at each of the drainage outlets and shall be under proper maintenance. All such drainage traps shall have sufficient capacity to ensure the proper collection and disposal of fuel and lubricants.

[1] The bulk density of general refuse is assumed to be 312kg/m³ with reference to Palanivel, T. M., & Sulaiman, H. (2014). Generation and composition of municipal solid waste (MSW) in Muscat, Sultanate of Oman. APCBEE Procedia, 10, 96-102.

- 5.2.24 It is estimated that 108m³ of general refuse will be generated during 15 months of construction period. In order words, it is 0.28 m³ per day on average.
- 5.2.25 On-site sorting shall be carried out for general refuse to recover the recyclable material such as metal, paper, timber and plastic and to be collected by the recyclers for recycling if possible.
- 5.2.26 Given the above analysis, waste impact due to the generation of general refuse from the construction phase of the proposed farm is not anticipated. However, mitigation measure as recommended in **Section 5.3** shall be implemented.

Chemical Waste

- 5.2.27 Chemical waste should be handled in accordance with the “Code of Practice on Packaging, Labelling and Storage of Chemical Wastes” published by EPD. Chemical waste containers should have the following properties:
- They are suitable for the substance that they hold and are resistant to corrosion;
 - They should be maintained in a good condition and are securely closed; and
 - Labels in English and Chinese are displayed in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation.
- 5.2.28 Apart from the containers, there are other recommended properties for the storage area of chemical waste:
- The area is clearly labelled, and the sole use is storage of chemical waste;
 - The area is enclosed on at least three sides;
 - The area has an impermeable floor and bunding. The bunding should have the capacity of 110% of the volume of the largest container stored within, or 20% by volume of the chemical waste stored in the area;
 - The area has adequate ventilation;
 - The area is covered to prevent entering of rainfall;
 - Water collected within the bund must be tested and, if necessary, disposed as chemical waste; and
 - They are arranged in a way that incompatible materials are adequately separated.
- 5.2.29 The future Contractor shall be registered as a “Chemical Waste Producer” with EPD. The chemical wastes shall be collected by a licensed chemical waste collector for subsequent

disposal at the Chemical Waste Treatment Centre (CWTC) at Tsing Yi or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.

Summary

- 5.2.30 Based on the above analysis, the waste generation during the tentative construction period is summarized in the table below.

Table 5.7 Summary of Waste Generation During Construction Phase

Waste Type	Estimated Waste Quantity	Estimated Waste Quantity to be reused	Handling Methods	Handling Methods
	m ³	m ³		
Inert C&D Materials	7,783	778	Reuse on site if possible	Disposed of at Tuen Mun Area 38 Fill Bank
Non-inert C&D Materials	1,410	141	Segregation the recyclable and recycle and reuse if possible	Disposed of at NENT
General Refuse	108	10.8	Segregation the recyclable and recycle and reuse if possible	Disposed of at NENT
Chemical Waste	A few hundred litre/kg	reuse as far as possible	Chemical Waste Collector to e.g. CWTC for Treatment	

Notes:

- [1] Assuming 10% of inert and non-inert C&D waste and general refuse will be reused on site for assessment purpose

- 5.2.31 In summary, a total of 9,301 m³ of waste may be generated during the 15 months construction period. Given that good practices as recommended in **Section 5.3** are implemented, adverse waste impact from handling, transportation or disposal of inert C&D materials, non-inert C&D materials, general refuse or chemical waste during the construction of the proposed farm is not anticipated.

B. Operational Phase

- 5.2.32 Potential waste will be generated from below sources during operation phase of the proposed farm:
- General refuse from the operator and visitor;
 - Manure and sawdust from Barns; and
 - Clinical waste.

General Refuse from the Operator and Visitor

- 5.2.33 According to Plate 2.7 of the EPD Waste Statistics for 2024, the most recent municipal solid waste (MSW) generation rate in Hong Kong is 1.40 kg/person/day. The Application

Application for Planning Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Temporary Educational Institution (Teaching Farm) for a Period of Three Years and Excavation of Land at Various Lots in D.D. 16, Wo Tong Pui, Tai Po, New Territories

7. CONCLUSION

7.1 General

- 7.1.1 The Application Site (Farm 1.0 and Farm 2.0) is not classified as a Designated Project (DP) under Schedules 2 or 3 of the Environmental Impact Assessment Ordinance (EIAO).
- 7.1.2 Under the latest design, construction works have been minimised with no slope works, only minor demolition, and no major excavation or foundation works.
- 7.1.3 The sewerage system will be upgraded to connect to the public sewerage network. In addition, a new drainage system and enhanced deodorisation management measures are proposed to improve the surrounding environmental conditions.
- 7.1.4 As the anticipated increase in traffic during operation is negligible, the associated noise impact is also expected to be negligible. Moreover, the predicted operational noise level at the nearest NSR would be approximately 35 dB(A) from the proposed pre-treatment facility with dry-wet separator. This is below the prevailing background noise level (L₉₀) of 44 dB(A). The key environmental concerns of the Project would be potential odour emissions, as well as wastewater and solid waste generated from farm activities.

7.2 Air Quality Impact

- 7.2.1 With the implementation of good construction practices, there would be no adverse air quality impacts during construction.
- 7.2.2 During operation, the Application Site complies with the HKPSG buffer distance requirements, involves no chimneys, and will generate negligible additional traffic; hence, no adverse air quality impacts are anticipated. Potential odour impacts will be minimised through the proposed sewerage arrangement and barn deodorisation system, supported by ongoing oversight from designated farm management personnel. With these measures in place, there would be no adverse odour impact.

7.3 Water Quality Impact

- 7.3.1 During construction, potential pollution sources include surface runoff, workforce sewage, and accidental chemical spillage. With the implementation of the recommended control measures, no adverse water quality impacts are anticipated.
- 7.3.2 During operation, sewage and potentially contaminated runoff will be properly collected and managed through the public sewerage and a dedicated drainage system that diverts first-flush runoff to the sewer. With these arrangements and the implementation of

Appendix C

Confirmation email from Transport Department on
road type classification

From: Hiu Fung PANG <hiufungpang@td.gov.hk>
Sent: Wednesday, September 2, 2026 3:35 PM
To: To [REDACTED]
Cc: Yanny OY LI <oiyinli@td.gov.hk>; [REDACTED]
Subject: Re: Fw: S16 Planning Application No. A/NE-LT/794

Some people who received this message don't often get email from hiufungpang@td.gov.hk. [Learn why this is important](#)

Dear Tony,

No comment please.

Regards,

Jacky Pang
E/TP3, TE/NTE, TD
Tel.: 2399 2731

----- Forwarded by Yanny OY LI/TD/HKSARG on 02/09/2026 03:15 PM -----

From: [REDACTED]
To: "oiyinli@td.gov.hk" <oiyinli@td.gov.hk>
Cc: [REDACTED]
Date: 27/08/2026 03:36 PM
Subject: S16 Planning Application No. A/NE-LT/794

Dear Ms. LI,

We refer to the captioned project in Wo Tong Pui, Tai Po. For the purpose of the Environmental Impact Assessment preparation, we would like to seek your confirmation on the road type classification of the concerned roads as listed below, as they are not indicated in the ATC.

Road Name	Road Type / Hierarchy
Hang Kai Lane	Local Distributor or below
Ngau Kwu Leng Path	Local Distributor or below

We would be most grateful if we could have your reply at your earliest convenience. Should you have any queries, please feel free to contact the undersigned.

Thank you very much.

Best Regards,

Tony Yip

Engineer | Transports Consulting

Arup

[Redacted Signature]

d
t
arup.com

f [Redacted]

Electronic mail messages entering and leaving Arup business systems are scanned for viruses and acceptability of content.

Appendix D

Micro-Nano Deodorization Technology Description

Micro-Nano Deodorization Technology Description

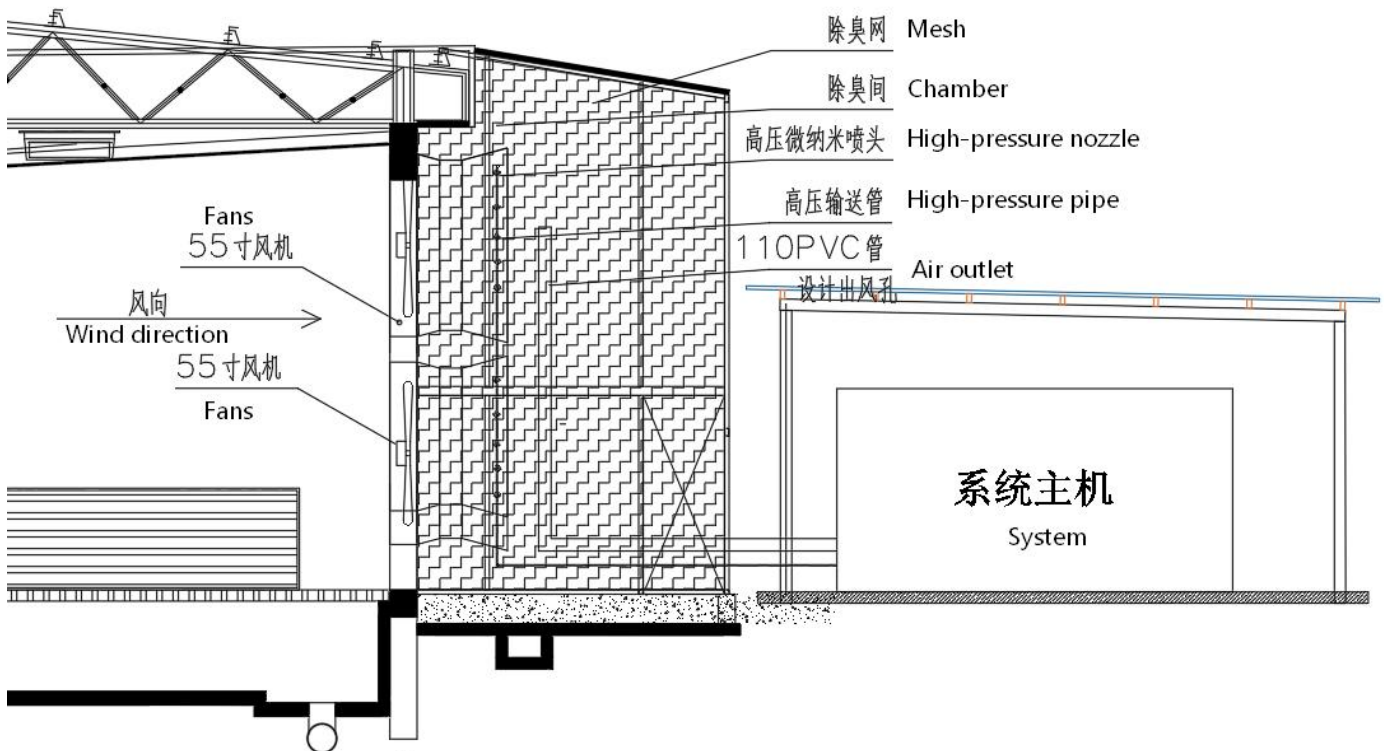


Content

1. Overall Deodorization Scheme Introduction	1
2. Introduction to the Innovativeness, Advancement, and Economic Benefits of the Micro-Nano Deodorization System ...	5
3. System Composition	6
4、Deodorization data	8

1.Overall Deodorization Scheme Introduction

1.1 Deodorization Scheme Introduction:



This project designs a micro-nano deodorization system. The entire system is designed on the exhaust side of the fan. A deodorization chamber is designed on the fan exhaust side, and a main equipment room is designed outside the deodorization chamber.

1.2 Micro-Nano Deodorization Principle Introduction:

The micro-nano deodorization system adopts a dual-system treatment process.

Process One: Main Treatment Process Introduction of the Micro-Nano Deodorization System:

Step 1: Purify the system intake water to ensure the water used in the deodorization system meets system requirements.

Step 2: The purified water is processed by the nano-molecular water generator to produce nano-molecular water, which is stored in a water tank.

Step 3: Simultaneously, the air compressor draws in and compresses air to the pressure required by the equipment.

Step 4: The air compressor delivers the compressed air to a refrigerated air dryer for cooling and drying treatment.

Step 5: The treated air is delivered to an industrial oxygen generator to produce oxygen with a purity above 90% using PSA (Pressure Swing Adsorption) technology.

Step 6: The processed oxygen is delivered to an ozone generator to produce ozone.

Step 7: The nano-molecular water and ozone are combined via an air-water mixer to generate micro-nano molecular active oxygen.

Step 8: The micro-nano molecular and ozone mixture is atomized through nozzles at the fan exhaust outlet, combining with the odorous gases to achieve deodorization.

Process Two: Auxiliary Treatment Process Introduction of the Micro-Nano Deodorization System:

Mixed Gas Line Treatment Process: Weak ozone and plasma gas form a mixed gas, which is conveyed by the fan through a $\phi 110\text{mm}$ gas pipeline. The mixed gas is then delivered via $\phi 50\text{mm}$ branch pipes to the fan exhaust outlet, where it combines with odorous gases to achieve deodorization.

1.3 Main Technical Introduction of the Electrolytic Micro-Nano Decomposition Deodorization System::

(1) Micro-nano molecular water has a larger specific surface area. Over 60% of pig house odors are ammonia gas, which is highly soluble in water. Micro-nano molecular water's larger specific surface area increases the contact area between water and odorous gases, leading to more complete reactions. Reaction formula: $\text{NH}_3 + \text{H}_2\text{O} \rightleftharpoons \text{NH}_3 \cdot \text{H}_2\text{O}$

(2) Micro-nano molecular water encapsulates ozone for combined deodorization action. The

microbubbles in micro-nano molecular water encapsulate ozone, achieving more thorough gas-liquid mixing, increasing the amount of ozone mixed into the micro-nano molecular water, and extending ozone retention time within it. Ozone has strong oxidizing properties. Ozone oxidation utilizes direct oxidation by ozone (O₃) and degradation of odor components by hydroxyl radicals (·OH) generated from ozone decomposition. Ozone is a strong oxidant that selectively reacts with electron-donating organic groups. Regarding hydroxyl radicals (·OH), they react much faster with organic compounds (organic odor molecules), by several orders of magnitude compared to ozone. Hydroxyl radicals (·OH) primarily interact with organic matter through three main mechanisms: hydrogen abstraction from organic atoms to produce carbon-centered radicals, electrophilic addition to double bonds or aromatic rings, and electron transfer reactions (gaining electrons from organic substituents), thereby achieving deodorization.

Ozone deodorization chemical formulas include:

Ammonia	Ammonia (NH ₃)	$2\text{NH}_3 + 3\text{O}_3 \rightarrow \text{N}_2 + 3\text{H}_2\text{O} + 3\text{O}_2$	Nitrogen, water
Sulfur Compounds	(H ₂ S)	$\text{H}_2\text{S} + \text{O}_3 \rightarrow \text{H}_2\text{O} + \text{SO}_2$	Sulfur dioxide, water
	(CH ₃ SH)	$\text{CH}_3\text{SH} + \text{O}_3 \rightarrow \text{CH}_3\text{OH} + \text{H}_2\text{O}$	Methanol, sulfur dioxide, etc.
Volatile Organic Acids	CH ₅ H ₁₀ O ₂	$\text{CH}_5\text{H}_{10}\text{O}_2 + \text{O}_3 \rightarrow \text{R}-\text{COOH} + \text{aldehydes/ketones etc}$	Shorter-chain organic acids, aldehydes, ketones, CO ₂
Phenols & Indoles	(p-Cresol)	Complex reaction, ozone attacks benzene ring, no single overall equation. Initial step: $\text{C}_7\text{H}_8\text{O} + \text{O}_3 \rightarrow \text{C}_6\text{H}_6\text{O}_2(\text{catechol}) + \text{products}$	Catechol, organic acids, etc., eventually mineralized CO ₂ and water

Hydroxyl radical ($\cdot\text{OH}$) deodorization chemical formulas include:

Ammonia	NH_3	$\text{NH}_3 + \cdot\text{OH} \rightarrow \text{NH}_2\cdot + \text{H}_2\text{O}$ $\text{NH}_2\cdot + \cdot\text{OH} \rightarrow \dots \rightarrow \text{N}_2/\text{NO}_3^-$	Hydrogen abstraction first generates amino radical, eventually oxidized to (N_2) or (NO_3^-) complex process.
Sulfur Compounds	(H_2S)	$\text{H}_2\text{S} + \cdot\text{OH} \rightarrow \text{HS}\cdot + \text{H}_2\text{O}$ $\text{HS}\cdot + \cdot\text{OH} \rightarrow \dots \rightarrow \text{SO}_4^{2-}$	Hydrogen abstraction generates mercapto radical, eventually completely oxidized to sulfate (SO_4^{2-}) and water
	(CH_3SH)	$\text{CH}_3\text{SH} + \cdot\text{OH} \rightarrow \text{CH}_2\text{SH} + \text{H}_2\text{O}$ $\text{CH}_3\text{SH} + \cdot\text{OH} \rightarrow \text{CH}_3\text{S} + \text{H}_2\text{O}$	Attacks S-H or C-H bonds, generates radical intermediates, eventually mineralized to CO_2 、 SO_4^{2-} 和 H_2O 。
Volatile Organic Acids	$\text{CH}_3\text{CH}_2\text{COOH}$	$\text{CH}_3\text{CH}_2\text{COOH} + \cdot\text{OH} \rightarrow \text{R}\cdot + \text{H}_2\text{O}$ $\text{R}\cdot + \text{O}_2 \rightarrow \dots$	Hydrogen abstraction from alkyl chain generates organic radical, leading to chain scission, oxidation, eventually mineralized to CO_2 and H_2O
Phenols & Indoles	$\text{C}_6\text{H}_5\text{N}$	$\text{C}_6\text{H}_5\text{N} + \cdot\text{OH} \rightarrow \text{hydroxyl adducts}$	Attacks aromatic ring, hydroxyl addition, ring opening, generates small organic acids (e.g., oxalic, formic acid), eventually mineralized.

(3) Deodorization can also be achieved during the instant of micro-nano bubble atomization spray rupture. Micro-nano bubbles are injected into water via a micro-nano bubble generator. The mixture is sprayed through atomizing nozzles at the fan exhaust end. The kinetic energy and the explosive energy released upon bubble rupture break the chemical bonds inside pollutants, degrading them and fundamentally removing unpleasant odors.

(4) An interception screen is installed outside the fan outlet to further ensure deodorization effect. Odors in pig houses can adhere to particles like dust, hair, and aerosols. These particles are carried by airflow and discharged through the fan exhaust. The interception screen at the fan outlet increases deodorization reaction time and effectively intercepts particles and post-reaction mixtures, further ensuring the deodorization effect.

2. Introduction to the Innovativeness, Advancement, and Economic Benefits of the Micro-Nano Deodorization System

The Micro-Nano Deodorization System develops an innovative solution with independent intellectual property rights to address the challenge of odor control in large-scale livestock farms. The following provides a technical analysis and value proposition from several core dimensions:

I. Innovative Breakthroughs:

1. Multi-Technology Synergistic Innovation Mechanism:

The system creatively integrates four major technological modules: electrochemical water treatment, micro-nano atomization, ozone oxidation, and physical interception, breaking through the limitations of traditional single-mode treatment. It pioneers a five-step process chain: "Water Purification - Electrolytic Activation - Nano-Recombination - Ozone Coupling - Atomization Cracking," achieving full-process treatment from molecular-level decomposition to physical retention of pollutants.

2. Micro-Nano Bubble Composite Enhancement Technology:

- (1) Innovative micro-nano bubble steady-state maintenance technology achieves high specific surface area.
- (2) Gas-liquid dual-phase turbulent flow mixers achieve a breakthrough ozone dissolution rate exceeding

85%.

II. Advanced Features:

1. Three-Dimensional Synergistic Purification Mechanism:

- (1) Physical Dissolution: High capture efficiency of NH_3 by micro-nano droplets.
- (2) Chemical Oxidation: High $\cdot\text{OH}$ radical yield rate, effective removal of organic odors.
- (3) Mechanical Interception: High interception efficiency of the screen, increases deodorization reaction time, pressure loss $< 20\text{Pa}$.

III. Highlighted Practical Value:

1. Economic Operation and Maintenance Advantages:

- (1) Lower water consumption compared to traditional spray deodorization.
- (2) Lower power consumption compared to traditional spray deodorization.

IV. Technical Sophistication Analysis:

1. Core Technological Innovation:

- (1) Micro-Nano Bubble Steady-State Generator: Employs coupled swirl shear and pressure release technology, achieving high bubble generation density.

2. Interdisciplinary Application:

Integrates theories from fluid mechanics, electrochemistry, environmental engineering, and other disciplines, resulting in three key technological breakthroughs:

- (1) Theoretical model for enhanced gas-liquid interface mass transfer.
- (2) Quantitative control equations for micro-bubble cavitation effects.
- (3) Optimization algorithms for multi-phase flow field synergy.

3. System Composition

The system mainly consists of a water filtration system, air compressor, oxygen generator, ozone generation system, gas-liquid mixing system, micro-nano generation system, and controller.

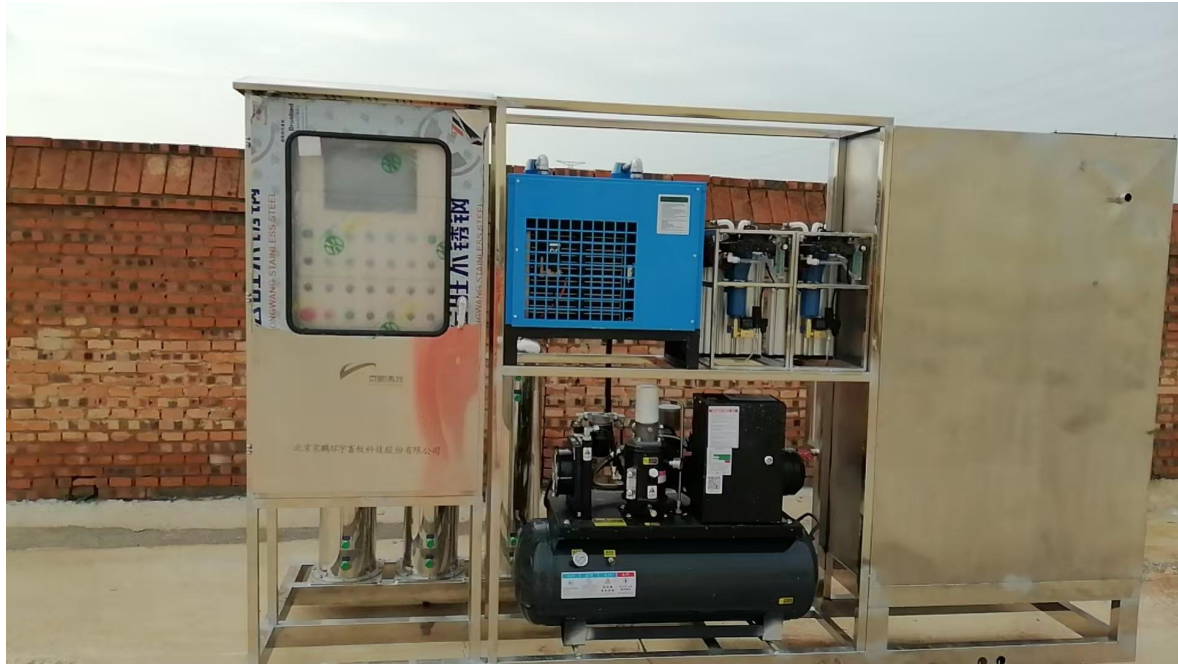


Figure 1 Micro-Nano Deodorization Main Unit



Figure 2 Micro-Nano Deodorization Chamber

4、Deodorization data

Gas Type	Pre-Treatment Concentration	Post-Treatment Concentration	Deodorization Efficiency	Testing Equipment
Ammonia (PPM)	4-6	0.4-0.8	75-90%	
Methane (%LEL)	0.5-0.63	0.05-0.17	73%-90%	

5.Schematic Diagram of the Deodorization Room and Negative Pressure Fan



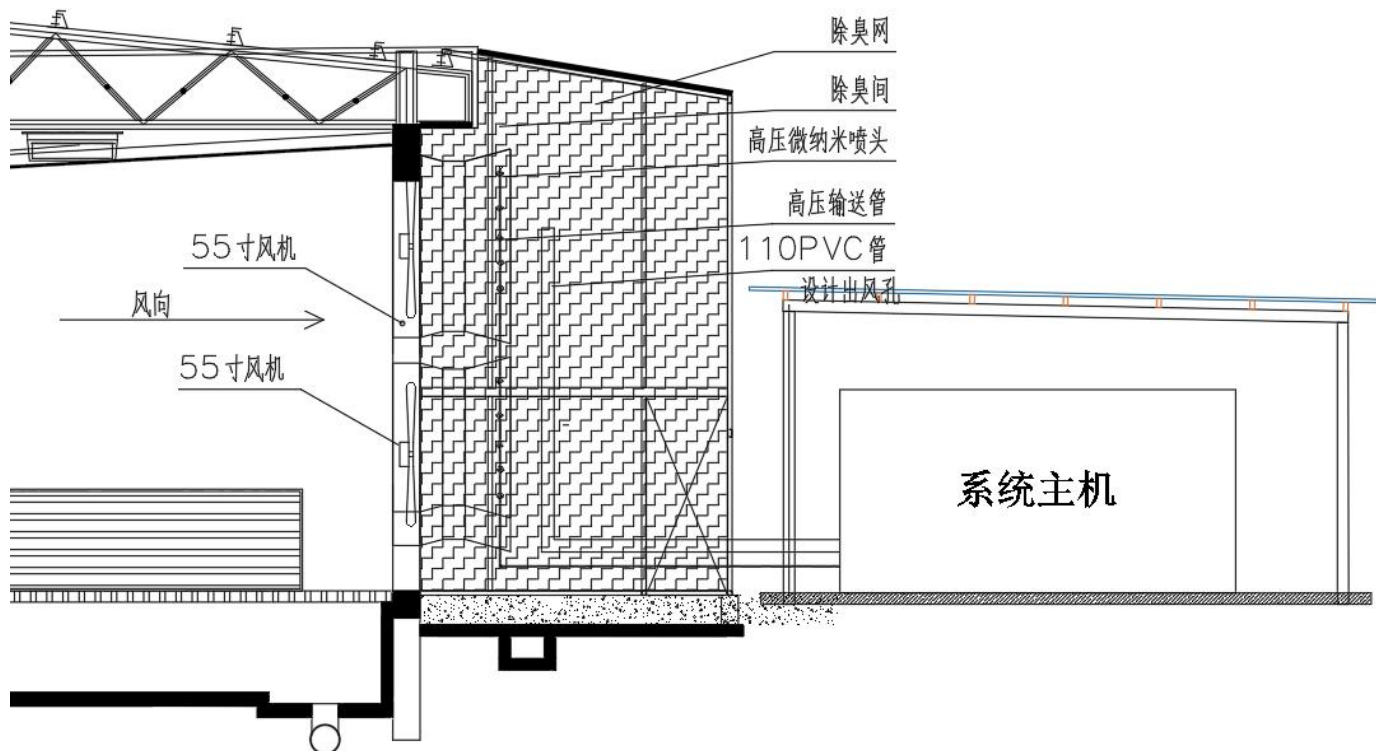
微纳米除臭系统方案说明

目 录

1 除臭整体方案介绍.....	1
1.1 除臭方案介绍.....	1
1.2 微纳米除臭原理介绍.....	1
2 微纳米除臭系统创新性、先进性、经济性介绍	4
3 设备照片	6
4 除臭效果.....	10

1 除臭整体方案介绍

1.1 除臭方案介绍：



本项目设计微纳米除臭系统，整套系统设计在风机排风侧，风机排风侧设计除臭间，除臭间外设计主机设备间。

1.2、微纳米除臭原理介绍：

微纳米除臭系统采用双系统处理流程。

流程一、微纳米除臭系统主要处理流程介绍：

第一步：对系统进水进行水质净化处理，确保除臭系统用水符合系统要求；

第二步：净化水经纳米小分子发生器制备成纳米小分子水，小分子水储存在水罐中；

第三步：同时空压机吸收空气并压缩，压缩至设备所需压力。

第四步：空压机将压缩空气输送至冷干机，将压缩空气冷却干燥处理；

第五步：将处理后的空气输送至工业制氧机，通过 PSA 变压吸附制氧技术制备 90%以上纯度的氧气；

第六步：将处理后的氧气输送至臭氧发生器，制备臭氧；

第七步：纳米小分子水与臭氧经气水混合器结合产生微纳米小分子活性氧；

第八步：微纳米小分子及臭氧混合液通过雾化喷头喷出，在风机排风口雾化并与臭气结合，达到除臭目的。

流程二、微纳米除臭系统辅助处理流程介绍：

混合气体线路处理流程：弱臭氧和等离子气体形成混合气体，并由风机输送至 $\Phi 110\text{mm}$ 气路管道，混合气体再由 $\Phi 50$ 支管送至风机排风口，与臭气结合，达到除臭目的。

三、电解微纳米分解除臭系统主要技术介绍：

(1) 微纳米小分子水比表面积更大。猪舍臭气中有 60%以上都是氨气，氨气极溶于水，微纳米小分子水比表面积更大，增加了水与臭气的接触面积，反应更加充分，反应公式： $\text{NH}_3 + \text{H}_2\text{O} \rightleftharpoons \text{NH}_3 \cdot \text{H}_2\text{O}$ 。

(2) 微纳米小分子水包裹臭氧，共同作用进行除臭。微纳米小分子水的微纳米气泡包裹臭氧，使得气液混合更加充分，增加臭氧在微纳米小分子水中的混合量，同时增加了臭氧在微纳米小分子水中的存留时间，臭氧有强氧化性，臭氧氧化是利用臭氧 (O_3) 的直接氧化和臭氧分解生成羟基自由基 ($\cdot\text{OH}$) 降解去除臭气成分。臭氧是一种强氧化剂，可选择性地与负电子的有机基团发生反应。对于羟基自由基 ($\cdot\text{OH}$)，它与有机化合物 (有机臭气分子) 反应更快，比臭氧高几个数量级。羟基自由基 ($\cdot\text{OH}$) 主要通过三种主要机制与有机物相互作用，包括从有机物原子中提取氢产生碳中心自由基，在双键或芳香环上添加亲电基团，

以及电子转移反应（从有机取代基获得电子），从而达到除臭效果。

臭氧除臭化学式有：

氨气	氨 (NH ₃)	$2\text{NH}_3 + 3\text{O}_3 \rightarrow \text{N}_2 + 3\text{H}_2\text{O} + 3\text{O}_2$	氮气、水
含硫化 化合物	硫化氢 (H ₂ S)	$\text{H}_2\text{S} + \text{O}_3 \rightarrow \text{H}_2\text{O} + \text{SO}_2$	二氧化硫、水
	甲硫醇 (CH ₃ SH)	$\text{CH}_3\text{SH} + \text{O}_3 \rightarrow \text{CH}_3\text{OH} + \text{H}_2\text{O}$ 等(多步反应)	甲醇、二氧化硫等
挥发性 有机酸	异戊酸 (CH ₅ H ₁₀ O ₂)	$\text{CH}_5\text{H}_{10}\text{O}_2 + \text{O}_3 \rightarrow \text{R} - \text{COOH}$ (短链酸) + 醛/酮等	更短链的有机酸、 醛、酮、CO ₂
酚类与 吡啶类	对甲酚 (p-Cresol)	反应复杂，臭氧攻击苯环，无单一 总反应式。初级步骤： $\text{C}_7\text{H}_8\text{O} + \text{O}_3 \rightarrow \text{C}_6\text{H}_6\text{O}_2$ (邻苯二酚) + 产物	邻苯二酚、有机酸 等，最终矿化为CO ₂ 和水

羟基自由基（·OH）除臭化学式有：

氨气	氨 (NH ₃)	$\text{NH}_3 + \cdot\text{OH} \rightarrow \text{NH}_2\cdot + \text{H}_2\text{O}$ 后续: $\text{NH}_2\cdot + \cdot\text{OH} \rightarrow \dots \rightarrow \text{N}_2 / \text{NO}_3^-$	首先夺氢生成氨基自由 基，最终可氧化为氮气（ N ₂ ）或硝酸根（NO ₃ ⁻ ）， 过程复杂。
----	----------------------	--	--

含硫化 合物	硫化氢 (H ₂ S)	$\text{H}_2\text{S} + \cdot\text{OH} \rightarrow \text{HS}\cdot + \text{H}_2\text{O}$ 后续: $\text{HS}\cdot + \cdot\text{OH} \rightarrow \dots \rightarrow \text{SO}_4^{2-}$	先夺氢生成巯基自由基，最终被彻底氧化为硫酸根 (SO ₄ ²⁻) 和水。
	甲硫醇 (CH ₃ SH)	$\text{CH}_3\text{SH} + \cdot\text{OH} \rightarrow \text{CH}_2\text{SH} + \text{H}_2\text{O}$ 等或 $\text{CH}_3\text{SH} + \cdot\text{OH} \rightarrow \text{CH}_3\text{S} + \text{H}_2\text{O}$	攻击硫氢键或碳氢键，生成自由基中间体，最终矿化为CO ₂ 、SO ₄ ²⁻ 和H ₂ O。
挥发性 有机酸	异戊酸 (CH ₄ H ₉ COH)	$\text{CH}_4\text{H}_9\text{COH} + \cdot\text{OH} \rightarrow \text{R}\cdot + \text{H}_2\text{O}$ (夺氢) 后续: $\text{R}\cdot + \text{O}_2 \rightarrow \dots$	从烷基链上夺氢，生成有机自由基，进而发生断链、氧化，最终矿化为CO ₂ 和H ₂ O。
酚类与 吡啶类	吡啶 (C ₈ H ₇ N)	$\text{C}_8\text{H}_7\text{N} + \cdot\text{OH} \rightarrow \text{羟基加成物}$	攻击芳香环，发生羟基加成，开环，生成小分子有机酸（如草酸、甲酸），最终矿化。

(3) 微纳米气泡雾化喷出破裂瞬间亦可达到除臭效果。通过微纳米气泡发生装置在水中注入微纳米气泡，在风机排风端通过雾化喷头喷出，动能和气泡破裂释放的爆炸能作用，断裂了污染物内部的化学键，完成对污染物的降解，能够从根源上去除难闻的异味。

(4) 风机出口外侧设置拦截网，进一步保证除臭效果。猪舍中臭气会附着在粉尘、猪毛、气溶胶等颗粒物上，颗粒物在气流带动下，通过风机排风口排出，风机口设置拦截网，可增加除臭反应时间、并有效拦截颗粒物及臭气反应

后混合物，进一步保证除臭效果。

2、微纳米除臭系统创新性、先进性、经济性介绍

微纳米除臭系统针对规模化养殖场臭气治理难题，开发出一套具有自主知识产权的创新解决方案。以下从几个核心维度进行技术解析与价值阐述：

一、创新性突破：

1. 多技术协同创新机制：

系统创造性整合电化学水处理、微纳米雾化、臭氧氧化与物理拦截四大技术模块，

突破传统单一治理模式的局限性。首创"水净化-电解活化-纳米重组-臭氧耦合-雾化裂解"五步法工艺链，实现污染物从分子级分解到物理截留的全流程治理。

2. 微纳米气泡复合增效技术：

(1) 创新微纳米气泡稳态维持技术，比表面积高。

(2) 通过气液双相湍流混合器实现臭氧溶解率突破 85%。

二、先进性特征：

1. 三维协同净化机理：

(1) 物理溶解：微纳米雾滴对 NH_3 的捕获效率高。

(2) 化学氧化： $\cdot\text{OH}$ 自由基产率高，对有机臭气进行有效去除。

(3) 机械截留：拦截网截留效率高，增加除臭反应时间，压损 $<20\text{Pa}$ 。

三、实用价值凸显：

1. 经济运维优势：

(1) 对比传统喷淋除臭耗水量低。

(2) 对比传统喷淋除臭耗电量低。

四、科技含量解析：

1. 核心技术创新

(1) 微纳米气泡稳态发生器：采用旋流剪切和压力释放耦合技术，气泡发生密度高。

2. 交叉学科应用：

融合流体力学、电化学、环境工程等多学科理论，形成 3 项关键技术突破：

(1) 气液界面传质强化理论模型。

(2) 微气泡空化效应定量控制方程。

(3) 多相流场协同优化算法。

3、系统组成

该系统主要由水质过滤系统、空压机、制氧机、臭氧制备系统、气液混合系统、微纳米发生系统、以及控制器等组成。

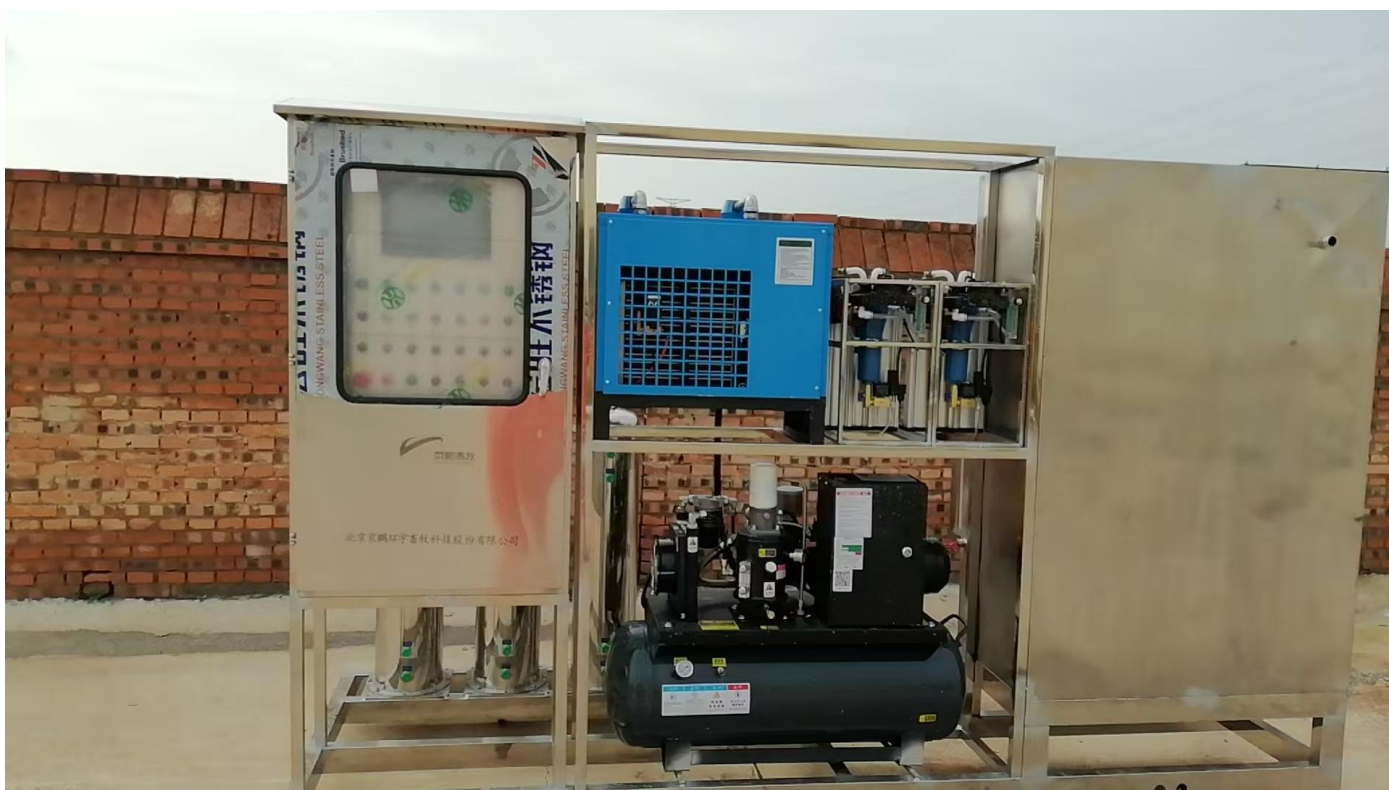


图 1 微纳米除臭主机



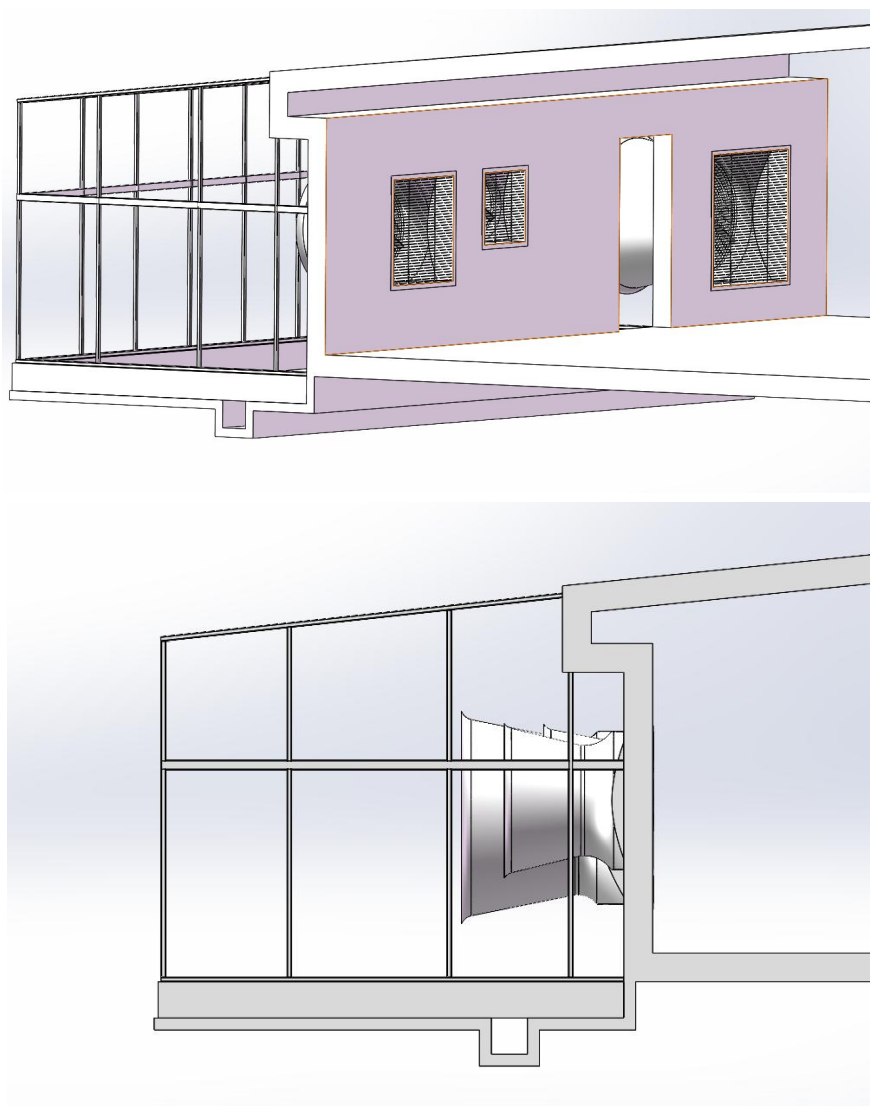
图 2 微纳米除臭间图片

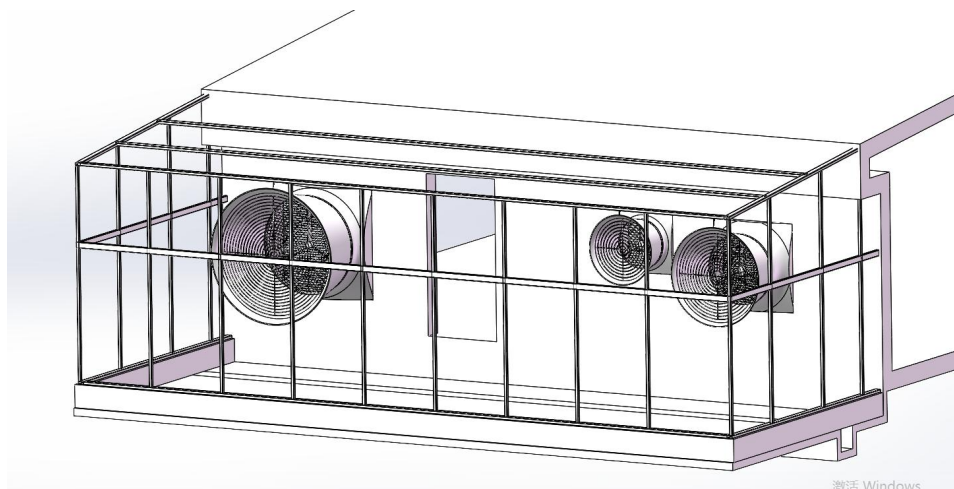
5、除臭效果

气体种类	除臭前浓度	除臭后浓度	除臭效率	测试设备
氨气 (PPM)	4-6	0.4-0.8	75-90%	

甲烷(%LEL)	0.5-0.63	0.05-0.17	73%-90%	
----------	----------	-----------	---------	---

5. 除臭间和负压风机示意图





Appendix E

Replacement Pages of the updated
Supporting Planning Statement

Executive Summary

This Planning Statement is submitted under Section 16 of the Town Planning Ordinance (Cap.131) in support of the Proposed Temporary Educational Institution (Teaching Farm) for a Period of Three Years and Excavation of Land at various lots in D.D. 16 in Wo Tong Pui, Tai Po (“the Application Site”).

The Application Site, with an area of about 15,444m², falls within the “Recreation” (“REC”) zone on the Approved Lam Tsuen Outline Zoning Plan (“OZP”) No. S/NE-LT/11. The Application Site consists of (i) the area currently used as a teaching farm (temporary educational institution under the approved planning application (No. A/NE-LT/788) (about 9,274 m²), (ii) an area immediately adjoining the existing teaching farm (about 5,579 m²) and (iii) an area across Ngau Kwu Leng Path (about 591m²). With a view to facilitate teaching and learning of veterinary medicine in Hong Kong, the Applicant aims to expand the existing temporary teaching farm (i.e. Farm1.0) with the two adjoining areas currently left vacant (i.e. Farm2.0) for a combined site development with the provision of new and upgraded facilities (i.e. the “Proposed Development”).

The existing Farm1.0 has been operated by the Jockey Club College of Veterinary Medicine and Life Sciences of the City University of Hong Kong (CityUHK) since September 2022. As Hong Kong’s only working dairy farm, it is an essential facility for veterinary students to gain hands-on experience with the cattle and for promoting one health, public health, research into zoonotic diseases, and animal welfare. With the increasing number of students enrolled in the CityUHK’s Bachelor of Veterinary Medicine (BVM) programme, expansion of the existing Farm1.0 is required to provide much-needed facilities in supporting the farm’s daily operation for teaching and learning in the coming academic years. The Proposed Development, covering the existing Farm1.0 and proposed Farm2.0, will consist of 20 blocks of buildings blocks/ structures (including 1 uncovered overground structure and 2 underground structures) with a total gross floor area (GFA) of about 4,461m². The proposed building height (BH) for non-domestic building will be ranged 3.4-9.5m, with provision of caretaker’s (including both students and staff) accommodation of 3 storeys (9.5m). Excavation of land with a depth ranging from 1.3m-3.6m is also proposed in association with the construction works of the building blocks, as well as the proposed underground facilities, and emergency vehicular access (EVA).

With the Proposed Development, the following planning merits could be achieved:

- Contributing to the development of veterinarian studies in Hong Kong
- Providing sufficient space to accommodate essential components for the farm operation
- Responding to the needs of accommodation for effective farm management
- Ensuring compatibility with the surrounding context
- Would not be bringing adverse impacts to the surrounding environment
- Having proven precedents and operational track record as an operating farm with the highest international standards

In light of the planning merits and justifications put forward, we sincerely seek favourable consideration from the Town Planning Board (TPB) on this Section 16 Application.

行政摘要

(內文如與英文版本有任何差異，應以英文版本為準)

本規劃綱領乃根據《城市規劃條例》（第 131 章）第 16 條擬備及提交，以支持有關位於大埔禾堂背丈量約份第 16 約多個地段（下稱「申請地點」）的規劃申請，擬議作臨時教育機構（教學農場）（為期三年），以及進行相關的挖土工程。

申請地點面積約 15,444 平方米，位於《林村分區計劃大綱核准圖編號 S/NE-LT/11》中劃為「康樂」的地帶。申請地點包括：(i) 現時用作教學農場的範圍（根據規劃申請（編號 A/NE-LT/788）已獲批准作臨時教育機構用途）（面積約 9,274 平方米）；(ii) 緊接現有教學農場的用地（面積約 5,579 平方米）；以及 (iii) 位於牛牯嶺徑對面的用地（面積約 591 平方米）。為促進香港獸醫學的教學與實習，申請人擬將現有的臨時教學農場（即農場 1.0）擴展至上述兩幅相鄰、目前空置的用地（即農場 2.0），以作整體發展並提供全新及升級的設施（即擬議發展）。

現有的農場 1.0 自 2022 年 9 月起由香港城市大學賽馬會動物醫學及生命科學院營運。作為香港唯一運作的奶牛場，該農場為獸醫學生提供與牛隻直接接觸的實務培訓機會，對推動同一健康、公共衛生、人畜共通病研究及動物福利均具關鍵作用。隨着香港城市大學獸醫學學士課程的學生人數持續增加，有需要擴展現有的農場 1.0，以提供所需設施支援農場在未來學年的日常營運及教學需要。擬議發展涵蓋現有農場 1.0 及擬議的農場 2.0，將包括 20 座建築物/構築物（包括 1 個露天構築物和 2 個地下結構），總樓面面積約為 4,461 平方米。擬議發展的非住宅建築物高度約從 3.4 - 9.5 米，並提供三層（約 9.5 米）的看守員（包括學生和職員）宿舍。同時，申請人亦擬議進行深度約 1.3 米至 3.6 米的挖土工程，以配合建築物施工、地下設施及緊急車輛通道（EVA）的建設。

擬議發展將就規劃方面帶來以下規劃增益：

- 促進香港獸醫學教育的發展
- 提供充足空間以容納農場運作所需的核心設施
- 回應對有效農場管理所需的住宿設施
- 確保與周邊環境的相容性
- 不會對周圍環境帶來負面影響
- 作為一個已有實際營運經驗及良好運作、並符合最高國際標準的農場

基於上述提出的規劃增益和理據，我們懇請城市規劃委員會批准是次規劃申請。

1. INTRODUCTION

- 1.1.1 This Supporting Planning Statement is submitted to the Town Planning Board (TPB) in support of the Planning Application under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Temporary Educational Institution (Teaching Farm) for a Period of Three Years and Excavation of Land at various lots in D.D. 16 in Wo Tong Pui, Tai Po (“the Application Site”).
- 1.1.2 The Application Site, with an area of about 15,444m², falls within the “Recreation” (“REC”) zone under the Approved Lam Tsuen Outline Zoning Plan (OZP) No. S/NE-LT/11. According to the covering notes of the OZP, except for temporary uses of open storage and port back-up purposes which are prohibited in areas zoned “Site of Special Scientific Interest” or “Conservation Area”, applications for temporary uses of any land or building not exceeding a period of three years can be made to the Board, notwithstanding that they are not “Column 2” uses under the Notes of the Plan.
- 1.1.3 Meanwhile, permanent residential development in excess of a maximum building height (BH) of 2 storeys (6m) and Excavation of Land in in “REC” zone requires planning permission from the TPB.
- 1.1.4 The Application Site consists of (i) the area currently used as a teaching farm (temporary educational institution under the approved planning application (No. A/NE-LT/788) (about 9,274 m²), (ii) an area immediately adjoining the existing teaching farm (about 5,579 m²) and (iii) an area across Ngau Kwu Leng Path (about 591m²). The existing temporary teaching farm (i.e. Farm1.0) has been operated by the Jockey Club College of Veterinary Medicine and Life Sciences of the City University of Hong Kong (CityUHK) since September 2022. As the Hong Kong’s only working dairy farm, it is mainly for the milking of Jersey cows for veterinary students to gain hands-on experience with the cattle and for promoting One Health, public health, research into zoonotic diseases, and animal welfare.
- 1.1.5 Under the approved planning application (No. A/NE-LT/788), the temporary teaching farm (i.e. Farm1.0) consists of a total of 13 single-storey structures of supporting facilities, including Adult Barn, Young Stock Barn, Main Building Office, Changing Room, Caretaker Quarter, Machine Store, Feed Store Barn, Transformer & Generator Room Block, Fire Service, Sprinkler System & Pump Room Blocks, Store, Sewage Treatment Unit and Micro-Filtration Unit, which was instrumental in achieving dual international accreditation of CityUHK’s Bachelor of Veterinary Medicine (BVM) programme. The planning application was approved by the RNTPC on 8.5.2026 and the planning permission will be valid for three years until 15.5.2029.
- 1.1.6 With a view to facilitating the teaching and learning of veterinary medicine in Hong Kong, the Applicant aims to upgrade the existing Farm1.0 with expansion at the two adjoining areas currently left vacant (i.e. Farm2.0), providing much-needed facilities in supporting the farm’s daily operation for more students in the coming academic years. A minor portion of the existing Farm1.0 that falls within the “Green Belt” (“GB”) zone (about 56m²), will be excluded from the Application Site.
- 1.1.7 Under the Proposed Development, Farm1.0 and 2.0 will consist of 18 overground building structures/ blocks (including 1 uncovered and 17 covered with a building height (BH)

Table 4.3.1 Key Development Parameters of the Proposed Development

Key Development Parameters		Proposed Development	Existing Development (approved under No. A/NE-LT/788)	Differences (+/-) (%)
Application Site Area (about)		15,444m ²	9,330m ²	+6,114m ² (+66%)
Total Gross Floor Area (GFA) (about) ⁽¹⁾		4,461m ²	2,715m ²	+1,746m ² (+64%)
• Non-domestic GFA (about)		3,992m ²	2,648m ²	+1,344m ² (+51%)
• Domestic GFA (about)		469m ²	67m ²	+402m ² (+600%)
Plot Ratio (PR) (about)		0.29	0.29	No change
• Non-domestic PR (about)		0.26	0.28	-0.02 (-7%)
• Domestic PR (about)		0.03	0.007	0.023 (+328.57%)
Building Height				
Non-domestic	No. of Storeys	1 storey ⁽³⁾	1 storey	No change
	Building Height	About 3.4- 9.5m ⁽³⁾	About 5.8m	+3.7m (+64%)
Domestic	No. of Storeys	Not more than 3 storeys	1 storey	+ 2 storeys
	Building Height	Not more than 9.5m	Not more than 3.5m	+6m (+171.43%)
No. of Blocks/ Structures		20 (including 1 uncovered overground structure and 2 underground structures)	13	+7
• Non-domestic		19 (including 1 uncovered overground structure and 2 underground structures)	12	+7
• Domestic		1	1	No change
Site Coverage		About 27%	Not more than 29.1%	-2.1% (-7%)
Ancillary Car Parking Provision ⁽²⁾				
No. of Car Parking Spaces		9 (Including 1 nos. accessible car parking)	3 (Including 1 nos. accessible car parking)	+6
No. of Motorcycle Parking Space		0	0	No change
No. of Loading/Unloading (L/UL) Bay		3	2	+1
Completion Year		2027 (tentative)	2022 (operation)	-

Application for Planning Permission Under Section 16 of the Town Planning Ordinance (Cap. 131) for Proposed Temporary Educational Institution (Teaching Farm) for a Period of Three Years and Excavation of Land at Various Lots in D.D. 16, Wo Tong Pui, Tai Po, New Territories

be compensated with a replanting ratio of 1:1 in terms of quantity. Upon review, a total of 113 nos. of new trees will be planted to compensate for the felling of 113 nos. of trees. 9 nos. of trees are proposed to be transplanted due to direct conflicts with the layout plan and the remaining existing trees will be retained. Please refer to **Appendix B** for the Tree Survey Report.

4.5 Traffic Arrangement and Ancillary Transport Facilities

Vehicular and Pedestrian Access

- 4.5.1 The Application Site is accessible from two proposed ingress/ egress. The first ingress/ egress is located at the south-western side of the Application Site, which connects to Ngau Kwu Leng Path. Another ingress/ egress is located at the north-eastern side of the Application Site, which connects to Hang Kai Lane.

Internal Transport Facilities

- 4.5.2 The internal transport facilities within the Application Site are provided in accordance with the high-end requirements of the Hong Kong Planning Standards and Guidelines (HKPSG). 9 nos. of parking spaces (including 1 accessible space) and 3 nos. of loading/unloading bays would be provided on the ground level. Students and site staff will mostly travel to the Site via public transport, and the farm is not intended for public visit.
- 4.5.3 Please refer to the **Appendix C** for Swept Path Analysis.

4.6 Proposed Programme

- 4.6.1 The proposed temporary teaching farm at the Application Site is intended to be completed by 2027 tentatively.

5. PLANNING JUSTIFICATIONS

5.1 Contributing to the development of veterinarian studies in Hong Kong

- 5.1.1 According to the 2025 Policy Address, the Chief Executive is committed to enhancing the quality of education in Hong Kong, fostering the all-round development of students, and providing more diverse, high-quality learning opportunities and experiences to nurture a broad pool of competent and knowledgeable talents.
- 5.1.2 The BVM degree programme of CityUHK was approved by the University Grants Committee (UGC) in 2018, which aims to educate future leaders in veterinary medicine who are equipped to advance animal health and welfare. It is the first and only professional veterinary medicine degree in Asia with dual accreditation from the Royal College of Veterinary Surgeons (RCVS) and the Australasian Veterinary Boards Council (AVBC). With the UGC's support, CityUHK is able to offer an affordable programme for local students to study veterinary medicine tailored to the local context in areas including animal welfare, aquatic animal health, emerging infectious diseases and food safety etc.
- 5.1.3 Opening in **September** 2022, the CityUHK Farm is the only active dairy farm in Hong Kong. It is a required facility under the RCVS and AVBC accreditation to fulfil the programme requirement for offering veterinary students the opportunities to gain hands-on experience in bovine medicine, animal husbandry and farm management. With the potential expansion in Farm2.0 to provide much-needed facilities, as well as upgrades and refurbishment of the existing Farm1.0, the Proposed Development will further facilitate teaching and learning of veterinarian study in Hong Kong, with the aim to become **a leading veterinary education and research institution in the region.**

5.2 Providing sufficient space to accommodate essential components for the farm operation

- 5.2.1 The BVM program has been highly successful and has expanded from 12 students enrolled in the leading cohort in 2017 to 46 students admitted in the last academic year. In the next academic year, this number will increase to 60, and the number may further increase to 80 students over the next 10 years. With the increasing number of students, a larger herd size is required to prevent overuse of the existing cattle for training. Currently, the CityUHK farm is licensed to hold 57 cows, and the number needs to increase to a total of 100 cows.
- 5.2.2 In addition, dairy cows must calve every year to continue to produce milk, however only 20 – 25 % of these calves are required as dairy replacement heifers to maintain the CityUHK Farm dairy herd. Therefore, the remaining 75 – 80% of calves bred at CityUHK Farm need to be raised as beef cattle for slaughter. Nevertheless, the existing buildings at Farm1.0 only have sufficient space for the dairy herd and dairy replacement heifers.
- 5.2.3 The Proposed Development will therefore be crucial for the provision of additional cattle housing. In particular, it will provide sufficient space to rear the surplus beef crossbred calves from the dairy herd to full slaughter weight. As part of the sustainable agriculture initiative developed by the CityUHK Farm with the assistance of Environmental Protection Department (EPD), these calves will be reared using food co-products and vegetable waste, which will otherwise enter the landfill.