Attachment B

Revised Ecological Impact Assessment

Section 16 Planning Application for

Proposed Residential Care Homes for the Elderly in "Village Type Development" Zone at Lot No. 76 S.G & 76 S.H in D.D. 101, Mai Po, Yuen Long

Ecological Impact Assessment Report

July 2025

Ecosystems Limited
生態系統顧問有限公司

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1. INTRODUCTION

1.1.1 This Ecological Impact Assessment (“EcoIA”) is prepared in support of a Section 16 of the Town Planning Ordinance for the for Proposed Residential Care Homes for the Elderly (RCHE) at Lot No. 76 S.G & 76 S.H in D.D. 101, Mai Po, Yuen Long.

1.1.2 The Application Site is located at the junction of Castle Peak Road and Tam Kon Chau Road, halfway between Mai Po and San Tin. The site falls in an area designated as "Village Type Development" (V) according to the approved Mai Po and Fairview Park Outline Zoning Plan No. S/YL-MP/8.

1.1.3 This report provided the ecological baseline recorded from June 2023 to May 2024 and the potential ecological impact assessment on the proposed development. This report is submitted as part of the technical assessment of the application. The Application Site falls within the Wetland Buffer Area and partially within Inner Deep Bay and Shenzhen River catchment Important Area. This report evaluates the potential ecological impacts by the proposed RCHE development and recommends corresponding mitigation measures.

2. LEGISLATION & GUIDELINES

2.1 General

2.1.1 The relevant legislation and associated guidelines related to this EcoIA include:

- Forests and Countryside Ordinance (Cap. 96) and its subsidiary legislation, the Forestry Regulations (Cap. 96A);
- Wild Animals Protection Ordinance (Cap. 170);
- Environmental Impact Assessment Ordinance (Cap. 499) and the associated Technical Memoranda (TM-EIAO); and
- Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586) and its subsidiary legislation.

2.1.2 Where relevant, this EcoIA also takes into account the following guidelines and standards:

- Hong Kong Planning Standards and Guidelines (HKPSG) Chapter 10, "Conservation";
- Town Planning Board Planning Guideline No. 12C – Application for Developments Within Deep Bay Area;
- PELB Technical Circular 1/97 Works Branch Technical Circular 4/97 "Guidelines for Implementing the Policy on Off-site Ecological Mitigation Measures";
- EIAO Guidance Note No. 6/2010 - Some Observations on Ecological Assessment from the Environmental Impact Assessment Ordinance Perspective;
- EIAO Guidance Note No. 7/2023 – Ecological Baseline Survey for Ecological Assessment; and
- EIAO Guidance Note No. 10/2023 – Methodologies for Terrestrial and Freshwater Ecological Baseline Surveys.

2.1.3 This EcoIA also makes reference to the following Mainland legislation:

- List of State Protected Wild Animals, promulgated by the State Council 國家重點保護野生動物名錄;
- List of State Protected Wild Plants, promulgated by the State Council 國家重點保護野生植物名錄.

2.1.4 Other international conventions and guidelines that are relevant to this EcoIA include the followings:

- **Convention on International Trade in Endangered Species of Wild Fauna and Flora ("CITES").** This Convention regulates international trade in animal and plant species considered to be at risk from such trade. The main categories of species relevant to Hong Kong are

Appendices I and II. Species listed in Appendix I are species threatened with extinction that are or may be affected by trade; species listed in Appendix II are those that, while not necessarily under current threat of extinction, may become threatened unless trade is subject to strict regulation. Hong Kong's obligations under this Convention are enforced via the Protection of Endangered Species of Animals and Plants Ordinance. IUCN The World Conservation Union maintains, through its Species Survival Commission, a Red List of globally threatened species of wild plants and animals (see http//www.redlist.org). The Red List is considered the authoritative publication to classify species as critically endangered, endangered, vulnerable, or lower-risk.

- **The International Union for Conservation of Nature (IUCN) Red List of Threatened Species**. IUCN established the IUCN Red List of Threatened Species™, which has since evolved into the world's most comprehensive data source on the global extinction risk of species. The IUCN Red List is considered the authoritative publication to classify species into nine groups:
  - Extinct (EX) - No individuals remaining;
  - Extinct in the Wild (EW) - Known only to survive in captivity, or as a naturalized population outside its historic range;
  - Critically Endangered (CR) - Extremely high risk of extinction in the wild;
  - Endangered (EN) - Very high risk of extinction in the wild;
  - Vulnerable (VU) - High risk of extinction in the wild;
  - Near Threatened (NT) - Likely to become endangered in the near future;
  - Least Concern (LC) - Lowest risk. Does not qualify for a higher risk category.
  - Data Deficient (DD) - Knowledge of the species is inadequate to enable assessment its risk of extinction; and
  - Not Evaluated (NE) - Species not yet evaluated against the criteria.

- **The United Nations Convention on Biological Diversity.** This convention requires parties to regulate or manage biological resources important for the conservation of biological diversity whether within or outside protected areas, with a view to ensuring their conservation and sustainable use. It also requires parties to promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings. The People's Republic of China (PRC)

ratified the Convention on Biological Diversity on 5th January 1993. The HKSAR Government has stated that it is "committed to meeting the environmental objectives" of the Convention (PELB 1996).

- **Convention on the Conservation of Migratory Species of Wild Animals** (the Bonn Convention), which requires parties to protect listed threatened or endangered migratory species occurring within their boundaries.

2.2 Criteria of Evaluation Species of Conservation Importance

2.2.1 Species listed under local legislation and international conventions for conservation of flora and fauna will be given special attention. In accordance with Table 3, Annex 8 of the EIAO-TM, the ecological value of species should be assessed in terms of protection status, species distribution, and rarity. For fauna species, criteria relating to these three aspects were considered, such as being protected under Cap. 170 (except birds), Cap. 586, and/or regional/global legislations/conventions (i.e. the protection status), whether they are endemic species (i.e. species distribution and being considered rare or restricted, and highlighted in publications such as Fellowes et al. (2002)) (i.e. rarity). References were also made to those protected by law in China. Flora species are considered of conservation importance when it is protected/listed under the regional/global legislations/conventions (e.g. listed under Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586); Forestry Regulations (Cap. 96A); Category I or II protected species in mainland China; listed by IUCN (2016) or CITES), and concerned due to species distribution and rarity (e.g. considered rare by Agriculture, Fisheries and Conservation Department (AFCD) (2003, 2007); Xing et al. (2000); Wu and Lee (2000); or Siu (2000)). However, this excludes exotic weeds, escaped cultivars or captive species, vagrants and introduced species which have lower ecological value. Species which are classified by IUCN as Near Threatened (NT), Least Concern (LC), Data Deficient (DD), or Not Evaluated (NE), and not covered by any other laws/regulations/conventions are not considered of conservation importance.

2.2.2 The species identified as having conservation importance will be further categorized in accordance with their relevance to potential impacts, which will be assessed in accordance with the EIAO-TM criteria.

2.3 Impact Assessment Methodology

2.3.1 According to the data from the reviewed literature and the ecological surveys being conducted, existing wildlife uses of

various habitats with special attention to those wildlife groups and habitats with conservation importance as well as the key issues shall be investigated and described. The ecological data will form a basis to determine an optimal option in ecological perspective and evaluate how the development affects the ecology within the Study Area. The assessment will identify and quantify as far as possible the potential terrestrial and aquatic ecological impacts associated with the proposed development, both direct and indirectly, on-site, off-site, primary, secondary and cumulative ecological impacts on the wildlife groups and habitats identified such as direct loss of habitats, destruction of habitat, disturbance to wildlife, reduction of species abundance/diversity, loss of roosting, feeding and breeding grounds, reduction of ecological carrying capacity, loss in ecological linkage and function, and habitat fragmentation.

2.3.2 Other possible disturbance caused by the proposed development will also be identified, in particular the following:

a) Loss of habitats, feeding, breeding and roosting grounds of wildlife and recognized sites of conservation importance due to construction and operation phases of the proposed development;
b) Indirect ecological impacts due to changes in the water quality and hydrology, as a result of surface run-off any associated disinfection activities, temporary sewage overflow, accidental discharge of untreated sewage, etc. in the water bodies, drainage channels and other wildlife habitats in the Study Area during construction and operation phases;
c) Impacts arising from and/or associated with the proposed works e.g. direct mortality of fauna (e.g. road-kill), removal of plant species of conservation importance, barrier effect on mobile species, disturbance impacts;
d) Impacts due to increase in human activities and disturbance during the construction and operation stages of the proposed development such as increase in light intensity, noise, glare, dust and traffic;
e) Fragmentation of habitats and deterioration of environmental quality to the recognized sites of conservation importance and other ecologically important areas; and
f) Cumulative impacts due to other planned and committed concurrent development projects at or near the area.

2.3.3 Predicted impacts will be quantified as far as possible and evaluated with reference to the criteria in Annexes 8 and 16 of the EIAO-TM. Ecological impacts will be assessed in the absence of mitigation. Impacts are generally ranked as "insignificant", "minor", "moderate" or "severe".

2.3.4 Where significant negative impacts are predicted, the strategy will follow the priority of "avoid, minimize, and compensate". The construction and operational phase impacts on ecology will be assessed individually, then cumulatively, in combination with other existing, committed and proposed developments. The study team, in consultation with the client, will follow the approaches as: modifications to project design, consideration of alternative options (if any), special controls on construction methods and schedule.

2.3.5 After conducting the impact assessment from the proposed development, possible and practicable mitigation measures (such as alternative design and configuration of the Project, modification/change of construction methods, restriction of building height, provision of buffer areas, etc.) to avoid, minimize and/or compensate for the adverse ecological impacts identified during the construction and operation phases of the proposed development. The feasibility and effectiveness of the recommended mitigation measures shall be evaluated. The scope, type, location, implementation arrangement, resource requirement, subsequent management and maintenance of such measures shall be defined.

2.3.6 The acceptability of residual impacts following mitigation will be assessed. Finally, the assessment will evaluate the need for ecological monitoring and audit.

3. METHODOLOGY

3.1 Application Site and Study Area

3.1.1 The Application Site, approximately 0.84 hectares, is situated at the intersection of Castle Peak Road and Tam Kon Chau Road, midway between Mai Po and San Tin. It is encompassed by abandoned ponds, various existing villages, open storage and access roads. To the west lies the Wetland Conservation Area, while Mai Po Lo Wai is located to the south. Hop Shing Wai is positioned to the east, and Lin Barn Tsuen is situated to the north. Whereas "Study Area" refers to the area within the 500m radius from the Application Site boundary.

3.1.2 Currently unoccupied, the site is in close proximity to several open storage areas and parking facilities. Adjacent to the western boundary of the proposed San Tin Technopole, the Application Site is strategically located to serve as a focal point for innovative and technological (I&T) development. The Site also abuts the proposed SPS WCP to the immediate northwest and the WCP Management Office, a facility related to the SPS WCP, but located within the San Tin Technopole, to the immediate east. As the surrounding area undergoes future development, particularly with the implementation of the Northern Metropolis, the overall context of the Study Area will become more urbanized.

3.2 Literature Review

3.2.1 The following available literature covering the Study Area and its vicinity was reviewed:

- EIA report of Agreement No. CE 20/2021 (CE) First Phase Development of the New Territories North – San Tin / Lok Ma Chau Development Node – Investigation
- AEIAR-189/2015 - Comprehensive Development and Wetland Protection near Yau Mei San Tsuen
- The Terrestrial Biodiversity Survey conducted by HKU
- Annual reports and other publications of The Hong Kong Bird Watching Society
- Porcupine! – Newsletter of Division of Ecology & Biodiversity of University of Hong Kong
- Hong Kong Biodiversity – Newsletter of the Department of Agriculture, Fisheries and Conservation
- Mai Po Inner Deep Bay Ramsar Site Waterbird Monitoring Programme, Egretry Counts in Hong Kong, with particular reference to the Mai Po Inner Deep Bay Ramsar Site (2014 – 2022)
- AFCD publications and data

3.3 Ecological Survey Methodology

3.3.1 The baseline ecological survey programme covered a 12-month duration from June 2023 to May 2024 including dry and wet seasons. The survey items included habitat mapping, vegetation, mammal, bird, butterfly, odonate, herpetofauna and aquatic fauna. Besides, surveys on flight behavior of breeding ardeid at Mai Po Village Egretry were conducted during breeding season of 2023 (between June and August), while winter flight-line survey was conducted for 2023-2024 November 2023 to February 2024. Survey methodology of each survey item is described in the following sections.

Habitat and Vegetation

3.3.2 Habitats within the Study Area were mapped based on the latest government aerial photos and database combined with field ground-truthing. Representative areas of each habitat type were surveyed on foot. Plant species of each habitat type encountered and their relative abundance were recorded with special attention to species of conservation importance. A plant list was produced, and the dominant plant species were reported as such information is a useful indication of the habitat quality. Nomenclature of plant species follows the latest Hong Kong Plant Database available from the website of the Hong Kong Herbarium.

Terrestrial Mammal

3.3.3 Mammal surveys (including day and night-time surveys) were carried out in representative habitats within the Study Area along the transects (**Figure 3.1**). In accordance with EIAO Guidance Note No. 10/2023, as mammals in Hong Kong which are of conservation importance are mostly secretive and nocturnal, all sightings, tracks, and signs of mammals (including droppings) were actively searched within the representative habitats of the Study Area. As it is a common practice to conserve bat roost as direct impact on bat roost would affect the species population, attention was paid on bat roost location. Active search was carried out in the potential roosting locations (e.g. cave, mine, tunnel, abandoned buildings, palm trees etc.). Ultrasonic bat detector was used for locating and identifying bats after sunset and at dusk. Camera trap was installed to survey the cryptic mammals at representative location (**Figure 3.1**). Nomenclature for mammals follows that available from the Hong Kong Biodiversity Information Hub.

Avifauna

3.3.4 <u>General</u> – The avifauna of representative habitats within the Study Area were surveyed in the active period of bird activities (i.e. early morning, dusk and night-time) using transect count method (**Figure 3.1**). The presence and abundance of avifauna species at various habitats observed from survey transects were

recorded. Behaviours relating to roosting (including night roosting sites, if any), breeding (e.g., nest building) and feeding observed during the surveys were recorded. Night surveys were also conducted to record nocturnal avifauna (e.g., owls). The location(s) of any encountered avifauna species of conservation importance were recorded, along with any notable behaviours. Ornithological nomenclature in this study follows the latest Hong Kong Bird Watching Society List of Hong Kong Birds.

3.3.5 Breeding Ardeid Flight Line – Large ardeids are considered of lower flight maneuverability and hence will be more vulnerable to barrier to flight, and potential disturbance on the flight behaviours of waterbirds especially breeding ardeids from egretries are of particular concern. Flight behaviours of waterbirds of Mai Po Village Egretry was observed at vantage points adjacent to Tam Kon Chau Road and the Application Site within the Study Area between June 2023 and August 2023. Surveys were conducted in both morning and dawn and last for 2 hours monthly. The locations of the vantage points are indicated in **Figure 3.1**. The flight line surveys for the egretry were conducted simultaneously at the vantage points. Nesting ardeids were identified and their flight directions and heights were recorded.

3.3.6 Winter Flight-line – Surveys for within and near the Application Site were conducted between November 2023 and February 2024. The flight path surveys were undertaken continuously for 1.5 hours during early morning and/or before sunset from vantage points within the Study Area. The vantage point for the winter flight line survey is located to the west of the Application Site, with a wide angle of view covering the Application Site and the habitats of higher ecological value within the Wetland Conservation Area for the winter flight line surveys. Particular attention was paid to large-sized species such as waterbirds, but also included other species of conservation importance. The location of this vantage point is also shown in **Figure 3.1.**

Herpetofauna

3.3.7 Herpetofauna surveys (including day and night survey) were carried out and covered representative habitats within the Study Area along the transect (**Figure 3.1**). In accordance with the EIAO Guidance Note No. 10/2023, the activities of amphibians and reptiles are highly seasonal and are influenced by the variation of weather even on a daily basis due to their ectothermic and cryptic nature. The herpetofauna survey were conducted during their active periods. Amphibians were surveyed in day time and just after dusk, while reptiles were surveyed in both day time and night time. It is also noted from the EIAO Guidance Note No. 10/2023 that some species such as Hong Kong Newt and Brown Wood Frog mainly breed in winter, herpetofauna survey were also conducted in dry season. Particular attention was given to

streams/watercourses or other water bodies. Herpetofauna surveys were conducted through direct observation and active searching in all potential hiding places such as among leaf litter, inside holes, under stones and logs within the Study Area. During the surveys, all reptiles and amphibians sighted and heard were recorded. Nocturnal auditory detection of species-specific calls was used to survey frogs and toads during night surveys. The nomenclature follows that available from the Hong Kong Biodiversity Information Hub.

Butterfly and Odonata

3.3.8 Butterfly and Odonate surveys were conducted by transect survey (**Figure 3.1**) during daytime and under fine weather when most butterflies and dragonflies are active as stated in EIAO Guidance Note No. 10/2023, i.e. rainless or sunny and windless day. All encountered dragonflies and butterflies were recorded by species by direct observation with binoculars and their abundance will be recorded. The nomenclature follows that available from the Hong Kong Biodiversity Information Hub.

Firefly

3.3.9 Firefly survey were conducted in June 2023, between October 2023 and December 2023 and will be conducted in April 2024 and May 2024. The survey were conducted following transect and near the aquatic sampling points within the Study Area (**Figure 3.1**). The firefly survey was conducted in dusk and night-time. During the survey, any firefly observed was identified to the species level, where possible. The abundance and distribution of fireflies were recorded.

Freshwater fish and invertebrates

3.3.10 Surveys of freshwater communities were undertaken at streams/watercourses and other water bodies (either natural or man-made) within the Study Area by means of one or a combination of the following techniques: bank side observation; active searching with fish hand nets; and fish capturing using baited fish cages. The aquatic sampling locations are shown in **Figure 3.1**. All freshwater fauna found were identified to the lowest practicable taxonomic level and their abundance was recorded. The nomenclature for fish follows that available from the Hong Kong Biodiversity Information Hub.

3.3.11 Terrestrial fauna survey transects along with aquatic sampling locations and the vantage points of flight behavior of ardeids/overwintering birds are shown in **Figure 3.1**. Survey schedule of the 12-month survey programme is shown in **Table 3.1**.

Table 3.1 Ecological Survey Programme

Survey	2023							2024				
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Season	Wet					Dry					Wet	
Habitat & Vegetation		D						D				
Birds*#	D+N	D+N	D+N	D+N	D+N	D+N	D+N	D+N	D+N	D+N	D+N	D+N
Egretry Flight Line*	D	D	D									
Winter Flight Line*#						D	D	D	D			
Terrestrial Mammals#	D+N	D+N	D+N	D+N	D+N	D+N	D+N	D+N	D+N	D+N	D+N	D+N
Reptiles	D+N		D+N		D+N							D+N
Amphibians	D+N		D+N		D+N					D+N		D+N
Butterflies	D		D		D	D				D	D	
Odonates	D		D		D						D	
Fireflies#	N				N	N	N				N	N
Fish		D+N		D+N		D+N				D+N		D+N
Freshwater Invertebrates		D		D		D				D		D

Note: **D**: Day time; **N**: Night/evening time, *early morning included, #dusk included

4. ECOLOGICAL BASELINE

4.1 Literature Review

4.1.1 The Application Site and areas to its south and northeast are developed area habitats (made up of infrastructure, village areas, open storage and roads), the northeast, northern and western parts of the Study Area are mainly ponds or abandoned ponds (artificial ponds). Being dominated only by developed area, the Application Site falls within the fringe of the Wetland Buffer Area (WBA) and partially within the fringe of the Important Bird Area (IBA). The rest of the recognized sites of conservation importance within the 500m Study Area (e.g. Ramsar Site, SSSI, WCA and the proposed SPS WCP) are located outside the Application Site. The locality of the recognized sites of conservation importance within 500m are summarized in **Figure 4.1**.

Recognized Sites of Conservation Importance

4.1.2 **Mai Po Inner Deep Bay Ramsar Site (Ramsar Site)** - In 1995, Mai Po and Inner Deep Bay region was designated as a 'Wetland of International Importance' under the Ramsar Convention. The Ramsar site is a natural shallow estuarine bay and includes extensive inter-tidal mudflats, gei wais, dwarf mangroves, fish ponds and reedbed, covering an area about 1,500 hectares in the northwest New Territories.

4.1.3 The Ramsar Site is located on the East Asian-Australasian Flyway and serves as an important staging site for migratory birds, as well as supporting approximately 60,000 waterbirds during midwinter. A small part of Ramsar Site falls within the 500m Study Area at its northwest boundary (with the main area of Ramsar Site located further northeast of the Study Area), and a detached part of Ramsar Site is located to the south of the Application Site across Castle Peak Road.

4.1.4 **Deep Bay Wetland outside Ramsar Site (Priority Sites for Enhanced Conservation)** - Outside the Ramsar Site in the Deep Bay area lies a stretch of commercial fishponds and other wetland habitats. Despite being modified and utilized by humans, these wetlands are contiguous with those within the Ramsar Site and provide foraging and roosting opportunities for waterbirds and other wildlife. Recognizing that several sites of high ecological value are under private ownership, the Government promulgated the New Nature Conservation Policy (NNCP) in 2004. This policy includes the Public-Private Partnership scheme, aimed at enhancing the conservation of ecologically important sites, which are mostly privately owned. 12 priority sites with high ecological value were identified for enhanced conservation, including the Ramsar Site and the Deep Bay Wetland outside the Ramsar Site.

4.1.5 **Inner Deep Bay and Shenzhen River Catchment Important Bird Area (IBA)** –The Shenzhen River catchment and Inner Deep Bay Important Bird Area is an ecologically significant estuarine region located in the northwestern New Territories of Hong Kong. This area encompasses a rich variety of habitats, including freshwater wetlands at Mai Po and Long Valley, which features actively managed agricultural lands. The marine-coastal zone includes intertidal mudflats and dense mangrove forests, providing critical support for biodiversity. Key sites within the catchment include numerous fishponds scattered across locations such as Ma Tso Lung, Lok Ma Chau, and Tsim Bei Tsui, as well as the Mai Po Marshes Nature Reserve. On September 4, 1995, 1,500 hectares of these wetlands were designated as a Ramsar Site, recognizing their importance for migratory birds and other wildlife. The region reflects a blend of natural ecosystems and human activity, with construction sites and residential areas interspersed among the agricultural and aquaculture operations, highlighting the delicate balance between development and conservation in this vital habitat.

4.1.6 **Sites of Special Scientific Interest (SSSIs)** - "SSSIs" are either land based or marine sites which have flora, fauna, geographical or geological features of special interest. Any developments should consider the conservation importance and potential impacts on the flora and fauna species within these sites. One SSSI lies in the vicinity of the Study Area, namely Mai Po Village SSSI.

4.1.7 Mai Po Village SSSI was designated in 1979 to protect the fung shui woodland that supports Mai Po Village Egretry. However, the egretry has moved partially outside the SSSI boundary. The SSSI is now located adjacent to the southern part of the Application Site.

4.1.8 **Wetland Conservation Area (WCA)** - The Wetland Conservation Area (WCA) was designated by Town Planning Board (TPB) to conserve the ecological value of the fish ponds in the Deep Bay wetland ecosystem (TPB Guideline No. 12C). The WCA comprises existing active and abandoned fish ponds within the Deep Bay wetland system continuous with the Mai Po Inner Deep Bay Ramsar Site, while the aim is to conserve the ecological value and functions of the fish ponds as an integral part of the system. Except for permitted essential conservation or infrastructural works, no development involving pond-filling or other works detrimental to the ecological function of the wetland are allowed within the WCA. All essential works conducted within the WCA should comply with the "No-Net-Loss in Wetland" principle. The Application Site is located outside the WCA.

4.1.9 **Wetland Buffer Area (WBA)** - The Wetland Buffer Area (WBA) is approximately 500m in width and lies along the landward boundary of the WCA. The intention of the WBA is to protect the ecological integrity of wetland habitats within the WCA (TPB Guideline No. 12C). Development within the WBA causing negative impacts on the ecological value of the WCA should be avoided unless appropriate mitigation measures are implemented. However, residential or recreational developments may be approved with appropriate conditions where undesirable open storage area is removed and wetlands are restored. Such development should satisfy the "No-Net-Loss in Wetland" principle. The whole Application Site is within the WBA.

4.1.10 **Sam Po Shue Wetland Conservation Park** – SPS WCP falls within the 500m Study Area of the Application Site but located outside the Application Site. SPS WCP is the first Park to be developed under the WCPs System proposed under the Northern Metropolis Development Strategy. The Park shall be approximately 338 ha, covering fishponds and wetlands in the Lok Ma Chau, SPS and Mai Po areas. The SPS WCP shall serve multiple functions:

1) Enhance the ecological quality and biodiversity of the Northern Metropolis;
2) Compensate for ecological and fisheries impacts arising from development of San Tin Technopole, to achieve no-net-loss in ecological function;
3) Provide quality outdoor eco-education and recreation facilities for public enjoyment; and
4) Introduce ecologically friendly and modernized aquaculture in the Park.

The Park will be developed in phases, with development of Phase 1 of the park to commence in 20s26/27 the earliest for completion in 2031. The development of the entire Park is scheduled for completion by 2039 to align with the estimated time for full operation of San Tin Technopole.

4.1.11 **Egretries** - With reference to the ecological survey conducted in 2022 of the EIA study of San Tin / Lok Ma Chau Development Node (AEIAR-261/2024), the nesting and breeding activities of the Mai Po Village Egretry were recorded at the canopy of Lebbeck Tree (*Albizia lebbeck*), Candlenut Tree (*Aleurites moluccana*) and Elephant's Ear (*Macaranga tanarius var. tomentosa*), with majority of the nests recorded at the Lebbeck Tree. These trees are located at the junction of Tam Kon Chau Road, Castle Peak Road (Mai Po section) and Castle Peak Road (San Tin section). Heavy traffic and human disturbance were recorded adjacent to the egretry. The area of the MPV Egretry

recorded in 2022 during the ecological survey of the EIA is represented in **Figure 6.3** and will be reviewed in Section 6.

4.1.12 According to Anon (2022), the Mai Po Village Egretry is located within the Study Area, to the south of the Application Site. Another egretry (Mai Po Lung Egretry) is located outside the 500m Study Area. The summer report of the Egretry Counts in Hong Kong revealed that the trees of the Mai Po Village Egretry differed in the past 10 years, of which *Albizia lebbeck, Aleurites moluccana, Celtis sinensis, Ficus macrocarpa* and *Melia azedarach* are commonly recorded as the tree species involved. In addition to the nesting populations and substrate above, Mai Po Village Egretry was also found active in 2023 (AFCD unpublished data). The egretry was recorded with 107 nests of Little Egret and 8 nests of Chinese Pond Heron, 115 nests in total. The nesting populations showed a decreasing trend from 2015 to 2022 as summarized in **Table 4.1**.

Table 4.1 Nesting Populations of Ardeid from Mai Po Village Egretry between 2015 and 2022 (data extracted from Anon. 2015 – 2022, and AFCD 2023 unpublished data)

Year	Little Egret	Chinese Pond Heron	Eastern Cattle Egret	Total number of nest	Total nests (% of total in HK)
2015	104	131	1	236	16.6
2016	72	130	-	202	16.2
2017	99	140	-	239	19.2
2018	99	123	-	222	20.5
2019	91	68	-	159	9.7
2020	70	43	-	113	5.8
2021	54	8	-	62	3.4
2022	73	8	-	81	6.3
2023	107	8	-	115	NA

Environmental Impact Assessment (EIA)

4.1.13 **AEIAR-189/2015** - The flight-line surveys for ardieds of Mai Po Village Egretry had been identified in the Environmental Impact Assessment of Comprehensive Development and Wetland Protection near Yau Mei San Tsuen ("AEIAR-189/2015"). The flight-line surveys found that most of the birds departing the egretry flew west towards wetland areas around Mai Po or Tam Kon Chau. Fewer birds flew over or passed Rotal Palms towards the Project Area of the AEIAR-189/2015. No flight-line between the Mai Po Village Egretry and the Application Site of the current study was identified.

4.1.14 **AEIAR-261/2024** - In addition to the flight-line surveys conducted in AEIAR-189/2015, according to the EIA report of San Tin / Lok Ma Chau Development Node, the flightlines of active egretry at

Mai Po Village were investigated during the breeding season. The egretry surveys were conducted from March 2022 – August 2022. A peak count of 84 nests were recorded from ecological surveys. Most of the ardeids flew towards north, northwest, and west directions (more than 80% of the breeding ardeids using Flight Paths 1, 3, 4, and 5), likely traveling towards to ponds at Mai Po, San Tin, and Sam Po Shue. The recorded species of importance reported in the EIA report is summarized in **Figure 4.2**.

4.2 Ecological Survey Results

Habitat and Vegetation

4.2.1 There were 9 habitats identified and surveyed within the Study Area, namely Abandoned Pond (Artificial Pond), Pond (Artificial Pond), Developed Area (Other Urban Area), Leucaena Colony, Marsh, Mixed Woodland, Plantation (Green Urban Area), Wasteland (Other Urban Area) and Modified Watercourse. A habitat map was based on recent aerial photographs and detailed ground-truthing and is given in **Figure 4.3**. Representative photos of the Application Site and the recorded habitats are shown in **Figure 4.4** and **Figure 4.5** respectively. The area of each habitat was calculated, and these are presented in **Table 4.2**.

Table 4.2 Habitats recorded within the Application Site and the Study Area

Habitat	Application Site (ha)	Study Area (including Application Site) (ha)
Abandoned Pond (Artificial Pond)		4.31
Pond (Artificial Pond)		22.65
Developed Area (Other Urban Area)	0.84	36.28
Leucaena Colony		5.06
Marsh		1.01
Mixed Woodland		14.25
Plantation (Green Urban Area)		9.37
Wasteland (Other Urban Area)		6.52
Modified Watercourse		2.17
Total	**0.84**	**101.62**

4.2.2 **Abandoned Pond (Artificial Pond)** – The Application Site is surrounded by abandoned ponds situated to the north and southwest. These ponds were originally fish ponds that some of them have undergone natural vegetative succession over time, resulting in their abandonment. Active traditional fish farming activity was not observed in those abandoned ponds during the survey period. There were establishment of emergent aquatic macrophytes comprising predominately of *Phragmites* spp., *Alocasia macrorrhizos*, *Ipomoea cairica*; and ruderal vegetation

species such as *Brachiaria mutica*, *Mikania micrantha* and *Miscanthus floridulus*.

4.2.3 **Pond (Artificial Pond)** – Within the Study Area but outside the Application Site, ponds were identified as a significant wetland habitat type within the Wetland Conservation Area. These ponds are frequently managed and maintained, primarily characterized by open water with minimal emergent vegetation. Periodically, the active ponds are drained to facilitate fish harvesting or pond maintenance as a traditional fish farming practice. The bunds surrounding these active ponds typically lack extensive vegetation and only have sparse ruderal plant growth. However, there are also some bunds that support common grass and herb species. The flora recorded are mostly common species such as *Brachiaria mutica* and *Panicum maximum*, and trees, mostly planted fruit trees.

4.2.4 **Developed Area (Other Urban Area)** – The Developed Area within the Application Site consisted of vacant paved land. Additionally, villages were present within the developed area of the Study Area. However, this habitat had undergone extensive modification and experienced significant disruption caused by human activities. These anthropogenic factors included open storage areas, warehouses, large parking area for heavy trucks and access road. Overall, the vegetation observed in this area primarily consisted of agricultural and landscaping species including *Archontophoenix alexandrae*, *Carica papaya*, *Musa* x *paradisiaca* and weedy species such as *Bidens alba*, *Eleusine indica* and *Wedelia trilobata*.

4.2.5 **Leucaena Colony** – A substantial grouping of Leucaena colony was situated to the north of the Application Site within the Study Area. Fragments of this habitat were also discovered along the modified watercourse within the Study Area and the bund area of the abandoned pond to the north of Application Site. The dominant species in this habitat were self-established *Leucaena leucocephala* and *Sesbania grandiflora*, with occasional presence of other plant species such as *Bambusa sp.*, *Macaranga tanarius*, and *Ficus microcarpa*.

4.2.6 **Marsh** – A few isolated areas in the north and northwest portion of the Study Area contained marsh patches. These patches of wetland within the Wetland Conservation Area were formed due to the absence of active pond management, resulting in reduced water flow. The dominant plant species in this habitat were stands of *Phragmites australis*. Other common aquatic plant species, such as *Brachiaria mutica* and *Neyraudia reynaudiana*, were also observed. These species are widespread throughout Hong Kong.

4.2.7 **Mixed Woodland** – In the Study Area, an area of mixed woodland was discovered situated on the hill behind Mai Po Village and to the south of Castle Peak Road. This habitat initially comprised tall plantation tree species like *Acacia* spp., *Eucalyptus* spp., and *Pinus massoniana*. Over time, however, this habitat transformed into a mixed woodland as native pioneer tree species, including *Mallotus paniculatus* and *Schefflera heptaphylla*, colonized and grew to reach the uppermost parts of the tree canopies. The height of the tree canopies ranged from approximately 8 to 15 meters. The understorey of this woodland primarily consisted of shade-tolerant shrubs like *Psychotria asiatica* and *Maesa perlarius*, as well as tree seedlings. Climbing plants were also commonly found in this habitat.

4.2.8 **Plantation (Green Urban Area)** – Outside the Application Site but within the Study Area, stands of plantation were also identified along San Tin Highway, Hop Shing Wai, and to the northwest of the Application Site. This type of habitat exhibited a relatively simple composition of plant species. The canopies of these plantations were primarily made up of exotic species commonly used for landscaping and visual screening purposes, including *Eucalyptus* spp., *Acacia* spp., *Lophostemon confertus*, and *Ficus microcarpa*. Generally, the understorey vegetation was not well-developed and was dominated by weedy species such as *Bidens alba*, *Panicum maximum*, and *Wedelia trilobata*.

4.2.9 **Wasteland (Other Urban Area)** – Wasteland was recorded along the nullahs outside the Application Site. To the north of the Application Site, a significant area of wasteland was identified, encompassing a former fishpond. This habitat primarily consisted of ruderal vegetation, which supported a low diversity of plant species. The dominant species in this area were exotic plants such as *Brachiaria mutica*, *Panicum maximum*, *Mimosa pudica*, *Wedelia trilobata*. However, there were also some aquatic species, namely *Cyperus exaltatus* and *Ludwigia adscendens*, scattered at low densities. These aquatic species likely emerged due to the presence of their remaining seeds in the original soil. Additionally, scattered individuals of small *Ficus microcarpa* were found throughout this wasteland habitat.

4.2.10 **Modified Watercourse** – A series of watercourses can be observed between the ponds located outside the Application Site but within the Study Area. Generally, the beds of these watercourses were composed mainly of natural materials. These watercourses likely originated from modified streams or man-made channels that were used for fish farming in the past. The habitat in these watercourses primarily consisted of common aquatic species such as *Brachiaria mutica*, *Neyraudia reynaudiana*, and *Eichhornia crassipes*. Within and near the southern and western parts of the Application Site, several

nullahs were discovered. Unfortunately, these nullahs were subjected to pollution due to sedimentation and sewage discharge. As a result, this habitat supported a low diversity of plant species and was dominated by common ruderal species. The nullah that discharged into the abandoned pond outside the Application Site had a riparian zone dominated by *Macaranga tanarius* and *Leucaena leucocephala*.

4.2.11 **Application Site** – The Application Site consists solely of a developed area habitat that includes a vacant paved area. Surrounded by village, access road and heavy vehicle car park, the Application Site and the proximity were subjected to the disturbance generated nearby, including the traffics from Castle Peak Road – San Tin and Tam Kon Chau Road. Exotic species, such as *Bidens alba*, *Dimocarpus longan* and *Ipomoea cairica* could be found within the Application Site.

4.2.12 A full list of flora species recorded within the Study Area during survey and their relative abundance within each habitat is provided in **Appendix A**. A total of 338 plant species were recorded within the Study Area. *Aquilaria sinensis*, *Camellia* sp*., Cibotium barometz* and *Ilex graciliflora* are the 4 flora species of conservation importance recorded within the Study Area, but none were recorded within Application Site. Locations of the species of conservation importance recorded during the surveys are shown in **Figure 4.3.** Representative photos of the floral species of conservation importance were presented in **Figure 4.6**.

4.2.13 1 individual of *Aquilaria sinensis* was recorded in Mixed Woodland outside the Application Site but within the Study Area. The individual located in the Mixed Woodland is wild and is considered as species of conservation importance. *Aquilaria sinensis* is common in the lowland forests and fung shui woods of Hong Kong (Corlett *et al*. 2000) and was included in the book "Rare and Precious Plants of Hong Kong" (Hu *et al*. 2003). In south China, particularly Hong Kong, it is threatened by illegal felling and over-exploitation and is listed in Appendix II of CITES and protected under Cap. 586 Protection of Endangered Species of Animals and Plants Ordinance in Hong Kong.

4.2.14 Moreover, *Aquilaria sinensis* is included in China Plant Red Data Book (Fu and Chin 1992) and Illustration of Rare & Endangered plant in Guangdong Province (Wu and Hu 1988), and wild individuals are listed in Category II of the List of Wild Plants under State Protection (State Forestry Administration & Ministry of Agriculture 1999). It is also categorized as "Vulnerable" in China Red Data Book (Fu and Chin 1992), the Threatened Species List of China's Higher Plants (Qin *et al*. 2017) and the IUCN Red List (IUCN 2021).

4.2.15 3 nos. of *Camellia* sp. were found in mixed woodland outside Project Site but within Study Area. *Camellia* sp. is protected under Cap. 96 Forests and Countryside Ordinance in Hong Kong.

4.2.16 1 individual of *Cibotium barometz* was found in Mixed Woodland outside Application Site but within Study Area. *Cibotium barometz* is a native herb that is very common in the forests and shrublands of Hong Kong (Corlett *et al*. 2000) but is often exploited for Chinese medicinal purpose. In Hong Kong, it is protected under Cap. 586 Protection of Endangered Species of Animals and Plants Ordinance due to being listed under Appendix II of CITES and is regarded as one of the 100 "Rare and Precious Plants of Hong Kong" (Hu *et al*. 2003). In China, it is listed in Category II of the List of Wild Plants under State Protection (State Forestry Administration & Ministry of Agriculture 1999).

4.2.17 2 nos. of *Ilex graciliflora* were recorded in Mixed Woodland outside Application Site but within the Study Area. Ilex graciliflora is a common tree found in shrubland and forest in Hong Kong (Corlett et al. 2000). However, it is categorized as Endangered in IUCN Red List of Threatened Species (2021).

Mammal

4.2.18 A total of 9 mammal species were recorded within the Study Area (**Appendix B**). Only Japanese Pipistrelle was observed flying over the Application Site. All the recorded were made by sightings and also bat detectors. All bat species are protected under Cap. 170, whereas Short-nosed Fruit Bat is considered "Indeterminate" in China Red Data Book (summarized in **Table 4.11**). Roosting behaviors of these bat species were not observed.

Bird

4.2.19 A total of 71 bird species was recorded within the Study Area (**Appendix C1**), while 28 bird species were considered as species of conservation importance (summarized in **Table 4.11**). Most of the bird species of conservation importance were recorded in the wetland habitats, including ponds and abandoned ponds outside the Application Site but within the Study Area. Among the bird species of conservation importance, Besra *Accipiter virgatus*, Common Kestrel *Falco tinnunculus*, Eastern Buzzard *Buteo japonicus*, Black-winged Kite *Elanus caeruleus*, Black Kite *Milvus migrans* and Eurasian Hobby *Falco Subbuteo* were observed flying over the habitats. Representative photos of the faunal species of conservation importance were presented in **Figure 4.7**.

4.2.20 Only 9 bird species among the recorded species were found within the paved area within the Application Site, 2 of them were considered as species of conservation Importance, including Chinese Pond Heron and Little Egret. Bird species recorded in the Application Site were mostly common and widespread in

Hong Kong and are considered disturbance tolerant species. No breeding and nesting behavior were observed in the Application Site.

Mai Po Village Egretry - Breeding Ardeid Flight Line Survey

4.2.21 The survey findings confirmed that the Mai Po Village Egretry was still active in 2023. This egretry was located on roadside trees along Castle Peak Road near the junction with Tam Kon Chau Road, which was adjacent to the Application Site. During the survey period, in the proximity of the Application Site, 4 nos. of trees were observed with nests of breeding ardieds, including *Albizia lebbeck*, *Aleurites moluccana* that are located outside site and *Dimocarpus longan* located on the southeastern site boundary (with respect to Tree ID Number of T1, T4, T8, T9 and T21 in Tree Treatment Schedule and **Figure 4.8** refers), with the tree crowns covering the walkway adjacent to the Castle Peak Road – San Tin and the southeastern fringe of the Application Site boundary. The most frequent ardeid activity observed on one large-sized *Albizia lebbeck.* Both the *Albizia lebbeck* and *Aleurites moluccana* were located outside the Application Site, while 2 nos. of *Dimocarpus longan* were located on the site boundary (**Figure 4.9** referes).

4.2.22 In Mai Po Village Egretry, the breeding months in 2023 ended in August 2023. A total number of 127 flights were recorded. The majority (more than 50%) of the breeding ardeids, were observed taking flight-direction at northwest and southwest directions in Flightline E and F, flying directly towards the ponds and abandoned ponds lying within Wetland Conservation Area and Important Bird Area where have extensive wetland habitats that are favorable for the ardeids (**Figure 4.10** refers). The recorded flightline E was one of the major flightlines identified flying across the Tam Kon Chau Road along the southwestern boundary of the Application Site, which was recorded not flying over any layout of the proposed development.

4.2.23 There were also lower number of breeding ardeids flew along Castle Peak Road (San Tin) at southern (1.6% along Flightline G) and northeast (15.7% along Flightline A) direction after taking off from the egretry. Among all the recorded flights of the Mai Po Village Egretry, approximately 33% were observed flying across the Application Site along Flightline B, C and D. Only a small portion (less than 20% along Flightline C and D) of the breeding ardeids, which took a northwest and north directions towards the ponds lying within WCA outside the Application Site, would fly across the core part of the Application Site (**Figure 4.10** refers). The distribution of flight heights of each flightline are summarized in **Appendix C2**.

4.2.24 After taking off, the breeding ardeids usually climbed to the maximum heights within the recorded ranges mentioned in **Appendix C2** and took a long-distance flight. It was not observed that any breeding ardeid from the egretry landed within the Application Site or the ponds adjacent to the Application Site during the egretry flightline survey. Only less than 1% of the flights within the were recorded at heights between 5m and 10m within the Application Site, while the majority of flights were recorded at heights exceeding 10m to the maximum flying heights about 15m.

Winter Flight Line Survey

4.2.25 Regarding the winter flight-line survey, no flight line of winter migratory birds and waterbirds were observed flying across the Application Site and the proximity. Given the presence of the highly disturbed developed area surrounding the Application Site, especially the car park for the heavy vehicles to the immediate northwest of the Application Site as well as Castle Peak Road, there was no observed winter flight-line over near the Application Site as expected. Even though the Application Site is located adjacent to the ponds to its west, with the absence of wetland habitats to the areas from its northeast to south, no winter flightline of migratory birds was observed flying across the Application Site and the adjacent ponds located in the WCA.

4.2.26 Nevertheless, occasional winter flight lines without consistent flight direction were observed flying above the pond's habitats within WCA in the northwestern part of the Study Area. The recorded species of the occasional winter flight line included Great Cormorant and Little Egret, with the major flying height above 20m. No consistent flight direction could be summarized for these occasional flight lines.

Butterfly

4.2.27 17 species of butterfly were recorded within the Study Area (**Appendix D**). Among all butterfly species, only 2 species are of conservation importance, namely Swallowtail *Papilio Xuthus* and Small Cabbage White *Pieris rapae*. Only 1 individual of Swallowtail was recorded in the habitat of Developed Area and 1 individual of Small Cabbage White was recorded in the habitat of pond outside the Application Site but within Study Area, but none of them was recorded within the Application Site (summarized in **Table 4.11**).

Odonate

4.2.28 15 species of odonate were recorded within the Study Area (**Appendix E**). Among all of the odonate species, only 1 species were of conservation importance, namely Scarlet Basker

Urothemis signata. 1 individual of Scarlet Basker was recorded within the Modified Watercourse and 7 individuals were recorded within the pond habitat within the Study Area but outside the Application Site (summarized in **Table 4.11**).

Firefly

4.2.29 No firefly species was recorded during the ecological survey within the Application Site and Study Area.

Herpetofauna

4.2.30 9 species of amphibian and 8 species of reptile were recorded within the Study Area (**Appendix F & G**). Among the amphibian and reptile, the Copperhead Racer *Coelognathus radiatus* and Five-striped Blue-tailed Skink *Plestiodon elegans* are of conservation importance. However, they were recorded away from the Application Site (summarized in **Table 4.11**).

Aquatic Fauna

4.2.31 A total of 7 aquatic species were recorded within the Study Area (**Appendix H**). Large numbers of Mosquito Fish and Apple Snail were observed in the Aquatic Sampling Points. All species recorded were common in Hong Kong and no species of conservation importance were recorded within the Study Area.

4.3 Evaluation of Habitats and Species of Conservation Importance

4.3.1 The ecological importance of habitats within the Study Area as well as the Application Site was evaluated in accordance with the criteria stipulated in Annex 8 of TM-EIAO (**Tables 4.3 to 4.11**).

4.3.2 In accordance with Table 3, Annex 8 of the TM-EIAO, the ecological value of species recorded within the Study Area was assessed in terms of protection status (e.g. fauna protected under WAPO (except birds), and flora and fauna protected under regional/global legislation/conventions), species distribution (e.g. endemic), and rarity (e.g. rare or restricted). Flora and fauna species of conservation importance recorded within the 500m Study Area were evaluated and summarized according to the TM-EIAO in **Table 4.11**.

4.3.3 Species of flora and fauna with conservation importance were given special attention. In accordance with Table 3, Annex 8 of the TM-EIAO, the ecological value of species was assessed in terms of protection status, distribution, and rarity. Flora or fauna species protected by the following laws/regulations, listed under the following conventions and/or endemic to Hong Kong, were considered to be species of conservation importance. However, this excludes exotic weeds, escaped cultivars or captive species, vagrants and introduced species which have lower ecological

value. Species which are classified by IUCN as Near Threatened (NT), Least Concern (LC), Data Deficient (DD), or Not Evaluated (NE), and not covered by any other laws/regulations/conventions are not considered of conservation importance in the present study.

- The International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species;
- China Plant Red Data Book;
- China Species Red List;
- China Red Data Book of Endangered Animals;
- Category I or II protected species in mainland China;
- Threatened Species List of China's Higher Plants (Qin *et al*. 2017);
- Red List of China's Vertebrates;
- The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES);
- Forestry Regulations (Cap. 96A) which are subsidiary legislation of the Forests and Countryside Ordinance (Cap. 96);
- Wild Animals Protection Ordinance (Cap. 170) (except birds as all wild birds are protected under the ordinance but their conservation importance is not equal);
- Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586);
- PRC Wild Animal Protection Law;
- Plant species considered 'Rare' or 'Very Rare' listed by Corlett *et al*. (2000), or regarded as rare by Yip *et al.* (2010) where applicable; and
- Fauna species considered of concern in Fellowes *et al*. (2002).

Table 4.3 Evaluation of Abandoned Pond, Pond (Artificial Ponds) and Marsh within the Study Area

Criterion	Description		
	Abandoned Pond	**Pond (Artificial Ponds)**	**Marsh**
Naturalness	Man-made origin	Man-made	Mostly man-made origin. Semi-natural
Size	Relatively small within the Study Area. Not present in Application Site.	Relatively large within the Study Area. Not present in Application Site.	Very small within the Study Area and in Hong Kong wetland habitat context. Not present in Application Site.
Diversity	Low plant species diversity and structural complexity. Very low faunal diversity	Low plant species diversity and structural complexity. Moderate faunal diversity	Supports low plant diversity and low fauna diversity
Rarity	9 bird species of conservation importance	25 bird species of conservation importance; 1 butterfly species of conservation importance; 1 dragonfly species of conservation importance	6 bird species of conservation importance

Criterion	Description		
	Abandoned Pond	Pond (Artificial Ponds)	Marsh
		and 1 reptile species of conservation importance	
Re-creatability	Recreation feasible	Readily re-created	Recreation feasible
Fragmentation	No significant fragmentation	No significant fragmentation	No significant fragmentation
Ecological linkage	Linkages with other high-value habitats in Deep Bay area for those remaining active and within / closer to WCA, but not significant for those dry/overgrown, or outside WCA and isolated by developed area.		
Potential value	Value would be improved if fish farming is resumed or managed for wildlife.	Value would be improved if managed for wildlife	Value would be improved if fish farming is resumed or managed for wildlife.
Nursery/breeding ground	No significant nursery or breeding ground known	No significant nursery or breeding ground known.	No significant nursery or breeding ground known
Age	Unknown. Aerial photo revealed that in the last decade the ponds within the Study Area maintained with water coverage.	Unknown	At least a decade
Abundance/ richness of wildlife	Low to medium	Medium to high	Low to medium
Overall ecological value	Low to medium	Medium	Low to medium

Table 4.4 Evaluation of Developed Area (Other Urban Area) within the Study Area

Criterion	Description
Naturalness	Entirely man-made
Size	Large within the Application Site and Study Area
Diversity	Very low habitat complexity. Poor species diversity and structural complexity.
Rarity	10 bird species of conservation importance; 1 butterfly species of conservation importance; 1 reptile species of conservation importance.
Re-creatability	Readily re-created
Fragmentation	N/A
Ecological linkage	No significant linkages with other habitats of ecological importance
Potential value	Very Low
Nursery/breeding ground	The roadside trees of the Mai Po Village egretry is the breeding ground for the ardeids.
Age	N/A
Abundance/richness of wildlife	Low abundance and diversity of wildlife relatively to area size
Overall ecological value	Medium for the roadside trees that supported the egretries; low for the rest of the developed area

Table 4.5 Evaluation of Leucaena Colony within the Study Area

Criterion	Description
Naturalness	Dominated by *Leucaena leucocephala*
Size	Small in Study Area and Application Site.
Diversity	Very low to low flora and fauna diversity
Rarity	No species of conservation importance
Re-creatability	Readily re-created
Fragmentation	Highly fragmented by developed areas
Ecological linkage	No significant linkages with habitats of ecological significance
Potential value	Limited potential due to disturbance and high proportion of exotic species
Nursery/breeding ground	No significant nursery or breeding ground known
Age	Unknown. Likely to have been succeeded from *Leucaena leucocephala*
Abundance/richness of wildlife	Very low to low abundance and diversity of species, comprise mainly widespread and disturbance tolerant species
Overall ecological value	Very low to low

Table 4.6 Evaluation of Plantation (Green Urban Area) within the Study Area

Criterion	Description
Naturalness	Planted for amenity and visual purposes, most were in close proximity of Developed Area. Dominated by exotic species.
Size	Small in Study Area
Diversity	Low flora and fauna diversity
Rarity	1 bird species of conservation importance
Re-creatability	Readily re-created
Fragmentation	Highly fragmented by developed area and roads
Ecological linkage	No significant linkages with habitats of ecological significance
Potential value	Limited potential due to disturbance and high proportion of exotic species
Nursery/breeding ground	No significant nursery or breeding ground known
Age	Unknown. Likely to have been planted following infrastructure works
Abundance/richness of wildlife	Low abundance and diversity of species, comprise mainly widespread and disturbance tolerant species
Overall ecological value	Low

Table 4.7 Evaluation of Wasteland (Other Urban Area) within the Study Area

Criterion	Description
Naturalness	Colonising habitat on areas of bare ground or former abandoned ponds. Land has previously been adapted by anthropogenic changes and is now subject to very early stage vegetative succession.
Size	Occupies small part of the Application Site and small size within the Study Area
Diversity	Low faunal and floral diversity
Rarity	No species of conservation importance
Re-creatability	Readily re-created

Criterion	Description
Fragmentation	Limited fragmentation
Ecological linkage	No significant functional or ecological linkage with other habitats.
Potential value	Low
Nursery/breeding ground	Not known as significant nursery or breeding ground
Age	Unknown
Abundance/richness of wildlife	Low floral and faunal diversity and abundance
Overall ecological value	Low

Table 4.8 Evaluation of Modified Watercourse within the Study Area

Criterion	Description
Naturalness	Originated from modified streams or man-made channels serving the ponds during fish farming
Size	Wide sections adjacent to the Ponds in the Study Area.
Diversity	Low floral and faunal diversity
Rarity	No species of conservation importance
Re-creatability	Readily re-created
Fragmentation	Limited fragmentation
Ecological linkage	Some ecological linkage with the adjacent habitats
Potential value	Very little potential without re-engineering
Nursery/breeding ground	Not known
Age	Not known
Abundance/richness of wildlife	Low abundance and diversity of wildlife
Overall ecological value	Low

Table 4.9 Evaluation of Mixed Woodland within the Study Area

Criterion	Description
Naturalness	Semi-natural habitat dominated by self-sown exotic tree species, with some human disturbance
Size	Small size in Study Area. Not present in Application Site
Diversity	Low floral and faunal diversity
Rarity	4 floral species of conservation importance
Re-creatability	Readily re-created but trees need time to mature
Fragmentation	Highly fragmented by roadside plantations, developed areas and roads
Ecological linkage	No significant linkages with habitats of ecological significance
Potential value	Limited potential for direct increase in habitat value unless more diverse vegetative community can develop
Nursery/breeding ground	Previously the Mixed Woodland inside the SSSI boundary is the breeding ground of egrets. However, the egretry has since moved outside the SSSI boundary to the roadside plantation (Wong et al. 1999, Kwok et al. 2000).
Age	Formed within the last few decades
Abundance/richness of wildlife	Low abundance and diversity of species, comprise mainly widespread and disturbance tolerant species

Criterion	Description
Overall ecological value	Low to medium

Table 4.10 Evaluation of the Application Site

Criterion	Description
Naturalness	Man-made and highly disturbed developed area
Size	Comprised of developed area habitat only, relatively small in size when compared to adjacent habitats within Study Area
Diversity	Very low species diversity and structural complexity
Rarity	2 species of conservation importance
Re-creatability	Readily re-created
Fragmentation	No significant fragmentation
Ecological linkage	No significant functional or ecological linkage with other habitats. Availability of flying space above ground for the Mai Po Village Egretry located outside the Application Site during the breeding season.
Potential value	Limited due to high levels of human disturbance
Nursery/breeding ground	No nursery or breeding ground
Age	Paved for more than 20 years
Abundance/richness of wildlife	Very low abundance and diversity of wildlife
Overall ecological value	Very low

Table 4.11 Evaluation of Species of Conservation Importance Recorded in the Study Area

Number	Species / species groups	Location	Protection Status / Level of concern [1 2,3]	Distribution in HK [1]	Rarity [1]
Flora					
1	*Aquilaria sinensis*	Outside Application Site: Mixed Woodland	Cap. 586 Rare and Precious Plants of Hong Kong (Near threatened in China)	Widely distributed	Common
2	*Camellia* sp.	Outside Application Site: Mixed Woodland	Cap.96	-	-
3	*Cibotium barometz*	Outside Application Site: Mixed Woodland	Cap.586 Rare and Precious Plants of Hong Kong (Vulnerable in China) Wild plant under State protection (category II) CITES Appendix II	-	Very common
4	*Ilex graciliflora*	Outside Application Site: Mixed Woodland	IUCN Red List of Threatened Species (2021): Endangered	Shrubland and forest	Common
Fauna - Mammal					
1	Short-nosed Fruit Bat *Cynopterus sphinx*	Outside Application Site	China Red Data Book Status: (Indeterminate); (Cap. 170)	Widely distributed in urban & forested areas throughout Hong Kong	-
2	Japanese Pipistrelle *Pipistrellus abramus*	Outside Application Site, Within Application Site	(Cap. 170)	Widely distributed throughout Hong Kong	-
3	Least Pipistrelle *Pipistrellus tenuis*	Outside Application Site	(Cap. 170)	Widely distributed in urban & forested areas throughout Hong Kong. Widely distributed throughout Hong Kong. Recent records were found in Nam Chung, Sheung Woo Hang, Shek Pik, Shing Mun and Plover Cove Country Park	-
4	Myotis Spp.	Outside Application Site	(Cap. 170)	-	-
5	Chinese Noctule *Nyctalus plancyi*	Outside Application Site	(Cap. 170)	Fairly widely distributed in countryside areas throughout Hong Kong.	-
6	Chinese Pipistrelle *Hypsugo pulveratus*	Outside Application Site	Fellowes et al. (2002): (LC); (Cap. 170)	Record found in Tai Lam. Recent records have been found in Ting Kau and Ma On Shan.	-
7	Greater Bent-winged Bat *Miniopterus magnater*	Outside Application Site	Fellowes et al. (2002): PRC,(RC); (Cap. 170)	Data deficient.	-
8	Horsfield's Myotis *Myotis horsfieldii*	Outside Application Site	Fellowes et al. (2002): PRC,(RC); (Cap. 170)	Recent records found in Shek Kong, Fung Yuen & Nam Chung.	-
9	Lesser Bamboo Bat *Tylonycteris pachypus*	Outside Application Site	China Red Data Book Status: (Rare); Fellowes et al. (2002): (LC); (Cap. 170)	Widely distributed in forested areas throughout Hong Kong.	-
Fauna - Bird					
1	Tufted Duck *Aythya fuligula*	Outside Application Site: Abandoned Pond, Pond	Fellowes et al. (2002): LC	Found in Deep Bay area, Nam Chung, Starling Inlet	Uncommon winter visitor
2	Little Grebe *Tachybaptus ruficollis*	Outside Application Site: Abandoned Pond, Pond	Fellowes et al. (2002): LC	Found in Deep Bay area.	Common resident
3	Black-faced Spoonbill *Platalea minor*	Outside Application Site: Developed Area, Pond	Class 2 Protected Animal of China;China Red Data Book Status: (Endangered);Fellowes et al. (2002): PGC; IUCN Red List Status: ED; Red List of	Found in Deep Bay area.	Common winter visitor

Number	Species / species groups	Location	Protection Status / Level of concern [1 2,3]	Distribution in HK [1]	Rarity [1]
			China's Vertebrates: (Endangered)		
4	Yellow Bittern *Ixobrychus sinensis*	Outside Application Site: Pond	Fellowes et al. (2002): (LC)	Found in Deep Bay area, Chek Keng, Tai Long Wan.	Uncommon summer visitor and passage migrant
5	Black-crowned Night Heron *Nycticorax nycticorax*	Outside Application Site: Pond	Fellowes et al. (2002): (LC)	Widely distributed in Hong Kong.	Common resident and winter visitor
6	Chinese Pond Heron *Ardeola bacchus*	Outside Application Site: Abandoned Pond, Developed Area, Pond	Fellowes et al. (2002): PRC,(RC)	Widely distributed in Hong Kong.	Common resident
7	Eastern Cattle Egret *Bubulcus coromandus*	Outside Application Site: Pond	Fellowes et al. (2002): (LC)	Widely distributed in Hong Kong.	Resident and common passage migrant
8	Grey Heron *Ardea cinerea*	Outside Application Site: Pond	Fellowes et al. (2002): PRC	Found in Deep Bay area, Starling Inlet, Kowloon Park, Cape D'Aguilar.	Common winter visitor
9	Great Egret *Ardea alba*	Outside Application Site: Pond	Fellowes et al. (2002): PRC,(RC)	Widely distributed in Hong Kong.	Common resident and winter visitor.
10	Intermediate Egret *Egretta intermedia*	Outside Application Site: Pond	Fellowes et al. (2002): RC	Found in Deep Bay area, Tai Long Wan, Starling Inlet, Tai O, Cape D'Aguilar.	Common passage migrant
11	Little Egret *Egretta garzetta*	Outside Application Site: Pond	Fellowes et al. (2002): PRC,(RC)	Widely distributed in coastal area throughout Hong Kong.	Common resident
12	Great Cormorant *Phalacrocorax carbo*	Outside Application Site: Pond	Fellowes et al. (2002): PRC	Widely distributed in coastal areas throughout Hong Kong.	Common winter visitor
13	Black-winged Kite *Elanus caeruleus*	Outside Application Site: Pond	China Red Data Book Status: (Vulnerable);Fellowes et al. (2002): LC; Appendix 2 of CITES	Found in Ha Tsuen, Deep Bay area.	Occasional visitor
14	Eastern Imperial Eagle *Aquila heliaca*	Outside Application Site: Pond	Class 1 Protected Animal of China;China Red Data Book Status: (Vulnerable);Fellowes et al. (2002): GC;IUCN Red List Status: Vulnerable; Appendix 2 of CITES;Red List of China's Vertebrates: (Endangered)	Found in Deep Bay area, Ma Tso Lung.	Common winter visitor
15	Bonelli's Eagle *Aquila fasciata*	Outside Application Site: Developed Area	China Red Data Book Status: (Rare);Fellowes et al. (2002): (RC); Appendix 2 of CITES;Red List of China's Vertebrates: (Vulnerable)	Found in Deep Bay area, Hong Kong Island, Lamma Island, Lantau Island, Castle Peak, Sha Lo Tung	Scarce resident
16	Besra *Accipiter virgatus*	Outside Application Site: Plantation	Class 2 Protected Animal of China; Appendix 2 of CITES	Found in Tai Po Kau, Deep Bay area, Chek Lap Kok, Cheung Chau, Soko Islands.	Scarce resident
17	Black Kite *Milvus migrans*	Outside Application Site: Abandoned Pond, Developed Area, Pond	Fellowes et al. (2002): (RC); Appendix 2 of CITES	Widely distributed in Hong Kong.	Common resident and winter visitor
18	Eastern Buzzard *Buteo japonicus*	Outside Application Site: Pond	Appendix 2 of CITES	Widely distributed in Hong Kong.	Common winter visitor
19	Greater Coucal *Centropus sinensis*	Outside Application Site: Abandoned Pond, Developed Area, Marsh	Class 2 Protected Animal of China;China Red Data Book Status: (Vulnerable)	Widely distributed in Hong Kong.	Common resident
20	White-throated Kingfisher *Halcyon smyrnensis*	Outside Application Site: Pond	Fellowes et al. (2002): (LC)	Widely distributed in coastal areas throughout Hong Kong	Common resident
21	Pied Kingfisher *Ceryle rudis*	Outside Application Site: Pond	Fellowes et al. (2002): (LC)	Widely distributed in lakes and ponds throughout Hong Kong.	Uncommon resident
22	Common Kestrel *Falco tinnunculus*	Outside Application Site: Pond	Class 2 Protected Animal of China; Appendix 2 of CITES	Widely distributed in Hong Kong	Common autumn migrant and winter visitor

Number	Species / species groups	Location	Protection Status / Level of concern [1 2,3]	Distribution in HK [1]	Rarity [1]
23	Eurasian Hobby *Falco subbuteo*	Outside Application Site: Developed Area	Class 2 Protected Animal of China;Fellowes et al. (2002): (LC); Appendix 2 of CITES	Widely distributed in marshes, agricultural land and lightly wooded hills throughout Hong Kong.	Uncommon passage migrant
24	Collared Crow *Corvus torquatus*	Outside Application Site: Developed Area, Pond	Fellowes et al. (2002): LC; IUCN Red List Status: Vulnerable	Found in Inner Deep Bay area, Nam Chung, Kei Ling Ha, Tai Mei Tuk, Pok Fu Lam, Chek lap Kok, Shuen Wan, Lam Tsuen.	Uncommon resident
25	Red-billed Starling *Spodiopsar sericeus*	Outside Application Site: Pond	Fellowes et al. (2002): GC	Widely distributed in Hong Kong	Common winter visitor
26	White-shouldered Starling *Sturnia sinensis*	Outside Application Site: Developed Area, Pond	Fellowes et al. (2002): (LC)	Found in Kam Tin, Deep Bay area, Po Toi Island, Long Valley, Victoria Park, Ho Chung, Ma Tso Lung, Mui Wo, Lam Tsuen Valley.	Common passage migrant
27	Citrine Wagtail *Motacilla citreola*	Outside Application Site: Pond	Fellowes et al. (2002): LC	Found in Tsim Bei Tsui, Shuen Wan, Mai Po, Long Valley	Uncommon migrant and winter visitor
28	Ruff *Philomachus pugnax*	Outside Application Site: Pond	Fellowes et al. (2002): LC	Found in Deep Bay area, Kam Tin	Scarce passage migrant
Fauna – Butterfly					
1	Swallowtail *Papilio xuthus*	Outside Application Site: Developed Area	Rare butterfly species	Kap Lung, Ma On Shan, Tai Tam, Sha Lo Wan, Kat O, Lung Kwu Tan, Wu Kau Tang, Lung Kwu Chau	Rare
2	Small Cabbage White	Outside Application Site: Pond	Rare butterfly species	Shep Mun Kap, Fan Lau, Ngong Ping, Kam Tin, Ho Chung, Luk Keng, Tuen Mun Ash Lagoon	Rare
Fauna – Odonate					
1	Scarlet Basker *Urothemis signata*	Outside Application Site: Mixed Woodland and Pond	Fellowes et al. (2002): LC	Common in areas with abandoned fish ponds throughout Hong Kong.	Common
Fauna - Reptile					
1	Copperhead Racer *Coelognathus radiatus*	Outside Application Site: Developed Area	China Red Data Book Status: (Endangered); Fellowes et al. (2002): PRC; Red List of China's Vertebrates: (Endagered)	Widely distributed throughout Hong Kong	-
2	Five-striped Blue-tailed Skink *Plestiodon elegans*	Outside Application Site: Pond	Fellowes et al. (2002): LC	Distributed in woodlands in Tai Po Kau Nature Reserve, Tai Mo Shan Country Park and Shing Mun Country Park.	-

1: AFCD biodiversity hub (2024)
2: Wang (1998)
3. Level of Concern follows Fellowes *et al.* 2002: LC = local concern; RC = regional concern; PRC = potential regional concern; GC = global concern. Letters in parentheses indicate that the assessment is based on restrictedness in breeding and/or roosting sites rather than in general occurrence

5. IMPACT IDENTIFICATION AND PREDICTION

5.1 General

5.1.1 As shown in the design scheme, the proposed development within the Application Site consists of the followings, the layout of the building towers is shown on the habitat map in **Figure 5.1**:

- 1 mid-rise building T1 : about 30m at main roof level, max height about 33m;
- 2 nos. of low-rise building T2 & T3: about 10m at main roof level, small MEP facilities atop with max height about 15m;
- parking space;
- access road and EVA;
- landscape areas.

5.1.2 Even though there are site constraints (e.g. small area, restricted site coverage due to the buffer requirements and close proximity to recognized sites of conservation importance), the layout plan still took due conservation consideration to avoid or minimize the potential ecological impacts on the flight and breeding activities of the ardeids, and provide mitigation, including but not limited to the approach of preserved air space for breeding ardeids, buildings away from the egretry where feasible, restriction on construction works and the design of extensive greenery and landscape buffers. Details are discussed in **Section 6**.

5.1.3 The potential impacts associated with the proposed development include:

- Direct habitat loss, either permanent or temporary, which may occur on-site and/or off-site, due to site formation and construction works within the Application Site or in off-site works areas;
- Direct impacts to flora and fauna species, in particular those of conservation importance, arising from mortality;
- Disturbance impacts to surrounding habitats and fauna during construction;
- Water quality impact due to construction site runoff;
- Disturbance impacts to surrounding fauna, habitats and recognized sites of conservation importance during construction phase and operation phase;
- Potential disturbance to flight-lines of breeding ardeids and other large-sized birds during their active seasons;
- Potential bird collision or road-kill; and
- Night-time light impacts.

5.2 Impact Evaluation Criteria

5.2.1 The significance of ecological impacts has been evaluated based primarily on the criteria set out in Table 1 of Annex 8 of the TM-EIAO:

- habitat quality;
- species affected;
- size/abundance of habitats/species affected;
- duration of impacts;
- regional significance;
- reversibility of impacts; and
- magnitude of environmental changes.

5.2.2 This assessment is based on the latest scheme of the proposed development submitted under the current planning application. Estimates of habitat loss and identification of areas to be affected by development have been made as accurate as possible.

5.3 Construction Phase

Direct Impact – Construction Phase Habitat Loss

5.3.1 Within the Application Site, there will be direct impact on developed area only. The estimated loss of area within the Application Site is summarized in **Table 5.1**. The ecological value of the habitat within Application Site is considered as **Very Low**.

Table 5.1 Estimated Habitat Loss and Potential Ecological Impact within the Application Site

Habitat	Ecological Value	Area size within Application Site (ha)
Developed Area	Very Low	0.84
Total		**0.84**
Potential Ecological Impact		**Insignificant**

5.3.2 The developed area within the Application Site was of **Very Low** ecological value due to the very low abundance and diversity of fauna and flora recorded. Only 2 species of conservation importance that are very common and widespread in Hong Kong, were recorded in the developed area within the Application Site. With the availability of extensive wetland habitats for the waterbird (eg. Pond and marsh) in the Wetland Conservation Area and Ramsar Site outside the Application Site. Due to the **Very Low** ecological values of the habitats within the Application Site, the potential ecological impact by the permanent loss of the developed area is considered **Insignificant**.

Fragmentation (habitats)

5.3.3 Fragmentation refers to the presence of interruptions or discontinuities in a habitat that diminish its appeal to flora and fauna or isolate populations of a species, which can ultimately

result in decreased population viability. The most noticeable examples of fragmentation occur in the form of infrastructure such as roads and rail lines, which divide habitats into smaller units. However, fragmentation can also arise from disturbances caused by nearby development, causing organisms to avoid certain areas due to secondary impacts. When these interruptions impede the movement of organisms, fragmentation has taken place.

5.3.4 Fragmentation of habitats had already existed within the Study Area during the survey period. The Application Site is only composed of developed area that are mostly paved area with trafics of trucks and vehicles, separating the abandoned ponds to the north and overgrown one located to the south of the Application Site. With the separation of the Application Site and the existing village and the disturbance, the linkage between these abandoned ponds through the Application Site was not identified during the survey period. Therefore, the ecological linkage between these abandoned ponds, wetland habitats or habitat assemblages is limited, especially the habitats adjacent to the entrance of the car park and village.

5.3.5 Regarding the Study Area, the abandoned ponds surrounding the Application Site, are still have certain degree of connectivity to the Inner Deep Bay wetland system and the Ramsar Site. This connection is due to the presence of fish pond habitats, although the Application Site itself is mostly covered in paved areas. In terms of the current application, there is a very low potential for habitat fragmentation during the construction phase as it is originally developed area. During the survey period, the Application Site only consists of habitats with **Very Low** ecological value, specifically developed areas. Due to the differences in naturalness between the Application Site originally and the surrounding abandoned ponds, as well as the existing significant human disturbance and traffics, the movement of non-flying animals such as mammals and reptiles through the Application Site and the Castle Peak Road to the south of the Application Site is severely limited.

5.3.6 The Application Site lacks substantial wetland habitats that are suitable for birds, especially waterbirds. These wetland habitats are typically occupied by species such as larger herons, ducks, waders, and the Black-faced Spoonbill, which are known to occur in significant numbers within the core wetland habitats in the WCA, Ramsar Sites, wetland outside Ramsar Sites and the Important Bird Area. However, only 2 very common and widespread species (Little Egret and Chinese Pond Heron) were recorded within the Application Site. Consequently, roosting and foraging behaviors within the Application Site by waterbirds were not observed. Moving towards the southern region of the Application Site, the situation remains unfavorable for wetland-dependent birds. The

developed areas in this direction lack the necessary wetland habitats. As a result, the connectivity between these habitats and the Inner Deep Bay wetland system is limited. The absence of wetland habitats within these areas restricts the movement and ecological linkages between them and the Inner Deep Bay wetland area, as well as the Wetland Conservation Area and Wetland Buffer Area. Furthermore, it is worth noting that the Application Site is situated completely outside the Wetland Conservation Area and Ramsar Site. This means that the site does not encompass significant wetland areas and is not expected to possess substantial ecological connections with the Inner Deep Bay wetland area. Consequently, the overall ecological linkages between the Application Site and these important wetland habitats are considered to be minimal.

5.3.7 While it is considered that potential impacts (loss of ecological linkage) on the wetland ecosystem of Ramsar Site and other recognized sites of conservation importance as a result of the proposed development is not anticipated. With the landscape elements within the site, including the buffer planting and the extensive greenery, the development edge could be soften and provide a more natural integration with the surrounding habitats. Hence, the potential impact due to habitat fragmentation is ranked as **Insignificant**.

Fragmentation (egretry flights and winter flight lines)

5.3.8 Typical flight lines are commonly used by wetland species to travel between feeding and roosting areas, as well as between feeding and breeding sites. If a development is situated along a flight lines, it can reduce the suitability of important foraging, breeding, or roosting sites by impeding movement between these areas. In some cases, this can even result in the complete abandonment of one or both sites. Additionally, structures built on or near flight lines can increase the risk of mortality due to collisions. The proposed development has the potential to fragment flight routes used by breeding ardeids at egretries, as well as other waterbird species active during winter, such as the Great Cormorant.

5.3.9 During the active breeding season, observations of flight patterns revealed that no record of flight encountered the proposed building layout of the T1 (**Figure 5.2** refers). An Ardeid Flight Zone is summarized to encompass all of the flights from the egretry recorded within the Application Site for comprehensive evaluation and on the potential impacts of fragmentation of the egretry flights and to formulate minimization of the potential impacts (**Figure 5.3** refers). Within the identified Ardeid Flight Zone, only about 2% of the recorded flights climbed at the major altitude that is comparable to the main roofs of the proposed low-rise buildings T2 and T3 (about 10m). The majority of flights within the identified

Ardeid Flight Zone, approximately 98%, were observed at heights exceeding 10 meters and climbed to the major heights of 15m or above, and about 24% of the flights were observed at height exceeding 15 meters and climbed to the major heights of 20m or above after taking off, that are all well above the heights of the main roofs of the proposed low-rise buildings T2 and T3.

5.3.10 Specifically, the maximum height of the MEP facilities atop T2 is designed to be 15 m with the main roof designed to a lower height (about 10m), is positioned to avoid flightline D (about 15m) that was recorded flying above the proposed layout of T3, and avoid flightline C (about 20m) flying above the proposed layout of T2. The fragmentation and obstruction of all flightlines are avoided overall due to the low-rise design and the strategically positioning of the towers and MEP facilities (**Figure 5.4** refers).

5.3.11 Importantly, the proportion of flight paths utilized by breeding ardeids from Mai Po Village Egretry that cross over the core area of the Application Site is relatively low (about 20%) than the rest of the direction of the flights to the core wetland habitats within WCA and Ramsar Site outside the Application Site. In the core area of the Application Site, only low-rise buildings with main roof of about 10m (15.1mPD in MLP refers) in height are proposed. Furthermore, no feeding or roosting grounds was identified within the disturbed developed area habitat in the Application Site and the adjacent abandoned ponds. As a result, the potential impacts of fragmentation by construction activities on breeding ardeids and the identified Ardeid Flight Zone during their nesting season at Mai Po Village Egretry are considered **Minor**. Contributed by the installation of facilities situated atop the residential floors of T2 and T3, the maximum heights of the MEPs reach about 15m (19.4mPD in MLP refers). The facilities on top of the roof are strategically placed to avoid the obstruction of all recorded flightline for tower T2 and T3, preserving about 65% and 80% of the roof area respectively to avoid overlapping with the recorded flightlines (**Figure 5.4** refers). The stepped design and positioning of the installation of facilities also avoid obstruction of the recorded flightlines C & D, which preserves significant airspace for ardeid flights and minimized the impacts to **Minor** to the flights of the ardeids overall.

5.3.12 No major or occasional winter flightline was identified in the proximity of the Application Site, therefore the impact to winter flightlines of the waterbird is **not anticipated**.

Indirect Impacts – Construction Noise

5.3.13 A high level of disturbance has the potential to negatively impact the quality of habitat and decrease bird utilization. In response to such disturbance, birds may either relocate to less disturbed areas within their noise tolerance or remain in the affected area if

they have become accustomed to the disturbance. This could result in a reduction in the density of wildlife, particularly in wetland habitats of higher ecological value in the surrounding vicinity. It is important to note that the sensitivity of waterbirds to noise disturbance can vary among different species, with resident birds generally being more tolerant of disturbance compared to migratory birds (Klein et al., 1995). Therefore, the noise disturbance generated by the construction activities proposed in this application is expected to have a relatively lesser impact on waterbirds that reside in the area year-round, such as resident herons and egrets, compared to migratory or overwintering waterbirds, as residents generally exhibit higher tolerance to disturbance.

5.3.14 In numerous construction projects, waterbirds have been observed to be particularly vulnerable to two main factors: 1) human activities encroaching upon wetland habitats, and 2) high levels of irregular construction noise. Typically, sudden increases in construction noise have a greater disruptive impact on waterbirds compared to a constant background noise level. While it is not anticipated that workers will intrude upon the nearby wetland beyond the Application Site, the piling works associated with the proposed development are expected to generate more disturbance compared to other construction procedures that produce less noise. Consequently, there is a potential for the waterbirds to actively avoid using the habitats in close proximity to the works area.

5.3.15 Habitats potentially impacted by the Application involve open habitats which include the Ponds to the east, Abandoned Ponds to the north and south of the Application Site, Mixed Woodland to the southeast of the Application Site.

5.3.16 The majority of ponds that are utilized by the waterbirds are located in the northwesten portion of the Study Area, that are the core wetland habitats (eg. ponds and marsh) of the waterbird within the WCA, Ramsar site and the Important Bird Area. Though isolated from the Application Site by other habitats, given the relatively higher diversity and abundance of overwintering waterbirds recorded in the wetland habitats are further to the northwest of the Application Site within the WCA, the impact from construction works with higher noise disturbance (such as piling) is considered **Moderate** for migratory/overwintering waterbirds during dry season and **Minor to Moderate** during wet season if unmitigated.

5.3.17 For potential disturbance to the Mai Po Village Egretry and due to piling works, the egretry is located adjacent to the Application Site. The potential disturbance impact to Mai Po Village Egretry would be **Moderate to Severe** if unmitigated during the breeding

season of the ardeids due to the close distance from the egretry. Mitigation such as adopting a quieter piling method and avoiding piling activities during ardeid breeding season should be considered, details will be discussed in **Section 6**. During the non-breeding seasons of the waterbirds, breeding or roosting activity was not observed in the egretry. Thus the impact from construction works within the Application Site to the Mai Po Village Egretry is considered **Insignificant** during the non-breeding seasons of the waterbird.

Indirect Impacts – Dust

5.3.18 Dust will increase during construction phase, and might temporarily reduce the abundance and distribution of fauna in habitats adjacent to the works area, including the abandoned ponds and ponds.

5.3.19 Under specific weather conditions, uncontrolled construction works can generate notable levels of dust. This dust originates from both construction vehicles and the phenomenon of wind-blown dust in the works areas. This dust has the potential to settle on nearby habitats, leading to potential damage to vegetation and subsequent impacts on fauna, including insects and birds. However, it is important to note that these effects from dust deposition are temporary and reversible. By implementing standard construction best practices, the harmful impacts can be effectively minimized. Consequently, the dust deposition impacts resulting from the proposed development within the Application Site are deemed **Insignificant**.

Indirect Impacts – Light Glare

5.3.20 If the construction site is equipped with intense lighting or floodlights, there is a possibility of night-time light impacts on nocturnal wildlife and the Mai Po Village Egretry in the surrounding area during any construction activities conducted at night. However, it is anticipated that no night-time construction works will take place within the Application Site. The construction site is expected to have minimal lighting solely for security purposes. As a result, the impacts resulting from increased night-time lighting during construction are considered to be insignificant. Nonetheless, it is advisable to implement good site practices to minimize the effects of artificial lighting and glare as much as possible. Additionally, it's worth noting that there are already existing street lights along Castle Peak Road (San Tin), Tam Kon Chau Road, the open storage, Mai Po Village and constant traffic, which serve as much closer light sources to the nocturnal fauna and the egretry. Therefore, the potential impact caused by lighting is deemed **Minor**.

Indirect Impacts – Water Quality and Site Run-off

5.3.21 During the construction phase, there is a possibility of generating surface run-off that may contain lubricants, chemicals, and pollutants. Of particular concern are water bodies such as ponds, abandoned ponds and modified watercourse. Construction run-off has the potential to harm aquatic communities, and the negative impacts on prey species could have adverse effects.

5.3.22 During periods of heavy rain, sediments have the potential to enter water bodies through run-off. This can result in increased turbidity caused by soil particles, which can obstruct the gills of aquatic organisms, and it can also lead to eutrophication due to nutrient enrichment. Consequently, the presence of sediments can have negative effects such as the reduction of aquatic macrophytes due to decreased light penetration or the proliferation of free-floating algae resulting from eutrophication. In severe cases of eutrophication, oxygen depletion can occur, leading to the degradation of aquatic communities and the animals that depend on them, such as waterbirds. These effects have been observed during the construction phase of projects but can also manifest during the operational phase.

5.3.23 Improper management of construction site run-off, inadequate stockpiling of construction materials, and mishandling of construction chemicals can indirectly affect the water quality of nearby aquatic habitats such as ponds, abandoned ponds, and modified watercourse adjacent to the Application Site. Site run-off has the potential to carry sediments, causing temporary increases in local suspended solids for a brief period. Chemical pollution, particularly from substances like oil, can have a more significant impact on aquatic species depending on the quantity released. However, it is important to note that the diversity of aquatic fauna and the ecological value of the ponds, abandoned ponds, and modified watercourse adjacent to the Application Site are considered to be of **Low** ecological value. If left unmitigated, the potential impact is categorized as **Minor**. Nevertheless, the potential impact resulting from site run-off can be minimized and controlled through the implementation of good site practices.

Impacts on Recognized Sites and Species of Conservation Importance

Recognized sites of conservation importance

5.3.24 The Application Site falls within the WBA and partially within the Important Bird Area. The nearest recognized sites are the seasonally breeding site of egrets (Mai Po Village Egretry), the proposed Sam Po Shue Wetland Conservation Park, the Mai Po Village SSSI, Ramsar Site, Deep Bay Wetland outside Ramsar Site and WCA. While other recognized sites of conservation importance (e.g. core areas of Mai Po Inner Deep Bay Ramsar Site, Mai Po Nature Reserve) are all far away and will not be affected. However, as the Application Site is only composed of

developed area habitat and is paved, no wetland habitat was found within the Application Site. Despite the Application Site falls within the WBA and partially within the IBA, the proposed development will not directly impact any wetland habitat within the WBA and no wetland loss is anticipated. The only area affected by the development is the pre-existing developed area, which had already experienced disturbance and was recorded with very low diversity and abundance of fauna.

5.3.25 The core wetland habitats within the Study Area include the ponds and marsh within Ramsar Site, Deep Bay Wetland outside Ramsar Site, WCA and IBA located at the northwest fringe of the Study Area, which are of more conservation importance and high biodiversity and are located within the core part of SPS WCP. These core areas are distinct from the Application Site and are separated by other habitats. The wetland habitats are known for supporting a higher diversity and abundance of migratory and overwintering waterbirds compared to the rest of the Study Area and the Application Site. The ponds in close proximity to the Application Site were located close to developed area and road traffics, that were recorded with very low abundance of migratory and overwintering bird in the ecological surveys and other studies. If left unmitigated, the impacts of construction disturbance on those recognized sites of conservation importance are considered **Minor to Moderate** in dry season and **Minor** during the wet season and the resident waterbird. Detailed mitigation measures can be found in **Section 6**.

5.3.26 The Application Site is near the Mai Po Village Egretry and Mai Po Village SSSI. The egretry is active typically from March to August, with breeding activity observed during this period for Chinese Pond Herons and Little Egrets in 2023 survey. The Mai Po Village SSSI was established in 1979 to safeguard the fung shui woodland that provides support to the egretry. However, the egretry has partially relocated outside the boundaries of the SSSI. Since the Proposed Development does not directly encroach upon the Mai Po Village Egretry and Mai Po Village SSSI, no direct impacts are expected in these areas. The layout of the proposed development has avoided any direct impact on the trees observed with breeding activities of the ardeids. As recommended in the Tree Treatment Schedule, the trees concerned within the Mai Po Village Egretry that were recorded in the proximity of the Application Site, *Albizia lebbeck*, *Aleurites moluccana* and *Macaranga tanarius var. tomentosa* (2025 finding) that are located outside site and *Dimocarpus longan* are recommended to be retained. Thus, the direct impact to the Mai Po Village Egretry and the SSSI is **not anticipated** by the proposed development. Details are discussed in **Section 6**.

<u>Species of conservation importance</u>

5.3.27 As the plant species of conservation importance i.e. *Aquilaria sinensis, Camellia* sp. and *Cibotium barometz* were all recorded outside the Application Site, impacts to these plant species are **not anticipated**.

5.3.28 Only 2 faunal species of conservation significance were recorded within the Application Site, which are very common and widespread in Hong Kong and are generally mobile. No breeding and roosting activities of these species were observed within the Application Site. However, within the Study Area, several bird species with noteworthy conservation importance, including but not limited to Black-faced Spoonbill, were observed to have high levels of abundance and diversity. These species were primarily observed in the wetland habitats (eg. ponds and marsh) located within the Wetland Conservation Area and Ramsar Site situated in the northwest periphery of the Study Area. This observation is consistent with expectations, as the WCA provides ample wetland habitats that are suitable for foraging activities. It is worth noting that the core wetland habitats, the continuous and extensive ponds and marsh habitats within WCA is geographically distant from the Application Site and is proposed to be separated from it by other intervening habitats.

5.3.29 The high mobility of birds allows them to access a variety of suitable habitats, particularly within the core wetland habitats of the Deep Bay Area, Ramsar Site and also the WCA. When evaluating the potential ecological impacts on these birds, crucial factors such as the size and quality of the habitats, as well as the level of disturbance in the urbanized vicinity, must be taken into account. Comparatively, the habitats within the Ramsar Site and the WCA located to the northwest of the Application Site possess higher ecological value. These areas provide more favorable conditions for bird species due to their larger size and superior habitat quality, while experiencing relatively lower levels of disturbance from urbanization. Consequently, the potential ecological impacts on these birds within the Study Area are deemed **Insignificant**.

5.3.30 The other species of conservation importance including the reptile, butterfly and dragonfly, were recorded away from the Application Site, the potential ecological impact is **not anticipated**.

5.4 Operational Phase

Direct Impacts – Operational Phase Permanent Habitat loss

5.4.1 During the operational phase, the direct impacts of the proposed development would involve the areas that are permanently occupied, which in this case align with the residential portion and correspond to the same habitats lost during the construction phase. There will be no further habitat loss during the operational

phase. The habitats being occupied during this phase are characterized by a **Very Low** ecological value for the Application Site. As a result, the potential impacts associated with the permanent loss of these habitats are considered **Insignificant**.

Fragmentation to Wetland Habitats

5.4.2 The Application Site has very limited linkages with the Wetland Conservation Area, Ramsar Site and Important Bird Area due to its location, disturbed habitats, and the lack of wetland habitat for waterbirds that normally occur in significant numbers in the Wetland Conservation Area, Ramsar Site and Important Bird Area. Referring to the Landscape Plan, The existing paved developed area in the Application Site will be covered by extensive greenery, buffering trees and tall shrubs that could soften the development edge and provided integration with the surrounding habitats, which in turns provides habitats of better quality within the Application Site than the currently paved land with vehicular access. It is considered that the impacts from fragmentation to the Inner Deep Bay wetland ecosystem as a result of this development during operational phase would be **Insignificant**.

Fragmentation to Flight-line of Waterbirds

5.4.3 As discussed in the construction phase impact, the proportion of breeding ardeids that were recorded passed through the Application Site was relatively small and due to the manoeuvrability of waterbirds. Also, the design of the tower's layout has avoided the potential impacts to the identified Ardeid Flight Zone that recorded flying over the low-rise buildings of the proposed scheme. The potential fragmentation impacts to breeding ardeids from Mai Po Village Egretry and other waterbirds from the proposed development are considered **Minor** during the operational phase. A Height Restriction Zone will be preserved for the flight line of egretry to minimize the impacts on the flight-lines of breeding ardeids (details in **section 6**).

5.4.4 Winter flight line was not identified in the proximity of the Application Site, thus, the potential ecological impact to the winter flightline of waterbirds is **not anticipated** during the operational phase.

Indirect Impacts – Human Disturbance

5.4.5 During the operational phase, there may be indirect disturbance impacts to wildlife in the surrounding habitats due to an increased in human activity caused by residents inside the Application Site. The proposed development is however located in an area with high disturbance, and as such the surroundings have already been inhabited by species tolerant of human disturbance, especially the area in the proximity of the entrance of the car park and open storage.

5.4.6 Although there are Abandoned Ponds of **Low to Medium** ecological value in close proximity to the Application Site, they will be physically separated from the buildings of the proposed development by roads situated outside the Application Site boundaries and the landscape buffer. Moreover, the majority of human activities associated with the proposed development for the elderly will primarily occur indoors, with the landscape areas of the Application Site serving to screen any noise generated by RCHE houses. The current design of the development does not include dedicated paths or roads that would provide residents with direct access to habitats of higher ecological value, ensuring the preservation of nearby sensitive habitats. Additionally, RCHE residential development inherently has lower disturbance impacts compared to other undesirable uses that are targeted for replacement, as outlined in the TPB PG 12-C guidelines.

5.4.7 The presence of the proposed RCHE development may lead to more foot traffic and recreational activities nearby. Sounds from human activities, such as stationary social gatherings or maintenance work may potentially have **Minor** impacts during operational phase if left untreated. Landscape planting will be created around the perimeter of the Application Site. This landscape planting will consist of trees, tall shrubs and vegetation planted along the edges, serving as a buffer to mitigate potential noise, traffic, and other human disturbances. It will also act as a protective barrier between the proposed development and neighboring land uses, providing an additional layer of separation and aesthetic enhancement. During the operational phase of the proposed development, the landscape planting is beneficial to the surrounding habitats and environment. As a result, it is expected that human disturbance to the surrounding habitats will be **Insignificant** after the implement of the landscape planting and design. Details are discussed in **section 6**.

Indirect Impacts – Water Quality

5.4.8 Possible indirect effects on the water quality of nearby water bodies may arise from surface runoff and pollution events resulting from the development and its associated infrastructure. Nonpoint pollution, including stormwater runoff from hard surfaces, roads, and landscape areas, has the potential to impact the local aquatic environment in various ways. The extent of these impacts depends on the type and quantity of pollutants. Furthermore, heightened stormwater runoff could potentially lead to increased siltation, particularly if there are areas with exposed soils.

5.4.9 In the case of the proposed residential development for the elderly, the presence of pollutants on road surfaces would be minimal, and the occurrence of extensive bare ground areas is unlikely.

Additionally, the drainage system within the Application Site includes built-in structures such as sand traps, which aid in isolating and capturing sediment and pollutants. Point pollution is not a concern since the sewerage system will collect all domestic effluent and organic waste. As a result, any potential changes in water quality are expected to have **Insignificant** impacts.

Indirect Impacts – Light Glare and Artificial Lighting

5.4.10 There is a potential indirect impact on birds inhabiting adjacent habitats and the breeding ardeid of Mai Po Village Egretry from light flare emitted by the buildings. The reflection of bright light in certain situations could deter birds from the area, creating a barrier effect. The corresponding minimization approaches are outlined in **Section 6**. It is worth noting that existing lighting sources from Castle Peak Road (San Tin), Tam Kon Chau Road, the developed area, and the open storage within the Application Site already expose fauna in the vicinity to lighting. As a result, the potential influence of new lighting on the fauna is considered **Minor** if left untreated. Additionally, the landscape buffer along the boundary of the Application Site will help screen out some of the lower-level artificial lights, including the direction to the ponds and the egretry, to further minimize the potential ecological impacts of light flare and artificial lighting to **Insignificant** level.

Indirect Impacts – Bird Collision

5.4.11 The risk of bird collisions becomes more significant when buildings feature extensive reflective glass facades, as nearby flying birds can become disoriented by the reflected image of the sky or the surrounding environment. However, since the proposed residential development will not have an extensive glass facade, the potential impact of bird collisions is considered **Minor**.

Impacts on Recognized Sites and Species of Conservation Importance

Recognized sites of conservation importance

5.4.12 Despite the Application Site being situated within the Wetland Buffer Area, Important Bird Area and in close proximity to the Wetland Conservation Area, the proposed development will not compromise the ecological integrity of the wetlands within the WCA or cause direct habitat loss within it. Only a small portion of developed area that is already subjected to disturbance in the WBA will be affected, and this loss is deemed minor during construction phase. During the operational phase, potential impacts such as noise and human disturbance on the recognized sites are considered **Minor**, as the residential areas will be shielded by landscape planting and noise barriers and also the nature of residential care home for elderly.

5.4.13 Presently, the Mai Po Village Egretry is already experiencing disturbance caused by vehicle traffic along Castle Peak Road, Tam Kon Chau Road and the traffics within the paved area within Application Site. Comparatively, according to the latest Landscape Proposal, there are no any buildings or facilities within the area under or close to the tree crowns of trees involved in the Mai Po Village Egretry during the operational phases of the Proposed Development. Although there will be some limited activity in the open area, these areas are not situated near the current position of the egretry. Considering the relatively stationary nature of the residents' activities, the potential ecological impacts on the recognized site of conservation importance during the operational phase are considered as **Minor**.

5.4.14 The nearby recognized sites also include the proposed Sam Po Shue Wetland Conservation Park, Mai Po Village SSSI, and the Ramsar Site, alongside the Deep Bay Wetland, which lies outside the Ramsar Site. Other significant conservation sites, such as the core areas of the Mai Po Inner Deep Bay Ramsar Site and the Mai Po Nature Reserve, are situated at a considerable distance and will not be affected by the proposed development. Core wetland habitats within the Study Area include ponds and marshes located within the Ramsar Site, the Deep Bay Wetland outside the Ramsar Site, and the WCA in the northwest. These areas are of greater conservation significance and are distinctly separated from the Application Site by other habitats. Wetland habitats are known to support higher diversity and abundance of migratory and overwintering waterbirds compared to the Application Site. As the nature of the proposed RCHE development for the elderly is not expected to generate significant impacts on those habitats at the fringe of the recognized sites of conservation importance, the potential ecological impacts on the recognized site of conservation importance during the operational phase are considered as **Minor**.

Species of conservation importance

5.4.15 Due to existing human activities in the Study Area, the fauna in that area have become accustomed to human disturbance. Therefore, no additional ecological impacts are anticipated beyond those already evaluated, particularly during the operational phase.

6. AVOIDANCE, MINIMIZATION AND MITIGATION OF EOLOGICAL IMPACTS

6.1 General

6.1.1 According to the principles in the TM-EIAO Annex 16 and EIAO Guidance Note 3/2010, ecological impacts on important habitats

and the associated wildlife caused by the proposed Project should be avoided, minimized and mitigated where practicable.

6.1.2 As explained in sections above, the proposed development has taken due consideration on protecting the surrounding ecological resources via developing a layout plan and landscape plan which could avoid and minimize the potential impacts as far as possible as well as balance the various site constraints. The avoidance and minimizations achieved by the layout plan and landscape plan are explained in this section.

6.1.3 The potential impacts arising from the construction and operation of the proposed development have then been assessed in accordance with EIAO requirements in previous sections. Since the development layout plan has already achieved avoidance and minimization as far as possible, it was found that most of the potential ecological impacts are of **Low** or **Insignificant** levels. For the remaining impacts found significant if without mitigation (such as the disturbance raised from piling), specific ecological mitigation measures are discussed in this section.

6.2 Avoidance

Avoidance of direct impact on wetland habitats and recognized sites of conservation importance

6.2.1 Although the Application Site falls within the WBA, there is no wetland habitat within the Site. Thus, the development would not result in any loss in wetland and is in line with the TPB PG-NO. 12C "No-net-loss in wetland" principle. The Application has also avoided most of the recognized sites of conservation importance in the area, including the Ramsar Site, WCA, Deep Bay Wetland outside Ramsar Site, Mai Po Village Egretry and Mai Po Village SSSI. The proposed development has avoided the habitats that are favorable for the birds within Inner Deep Bay and Shenzhen River Catchment Important Bird Area, including the estuarine area comprising of freshwater wetland, marine-coastal (intertidal mudflats and mangroves) and man-made (aquaculture fish ponds, tidal shrimp ponds (gei wai) and oyster farms) habitats.

Avoidance of habitats with high ecological value

6.2.2 The proposed development has avoided the habitats with significant ecological importance, including ponds, woodlands and natural watercourses. As a result, no direct impact on wetland habitats within the Ramsar Site, WCA and IBA is anticipated from the proposed development. The only area that will be affected is the habitat of developed area, which is of **Very Low** ecological value and has already been disturbed or altered by human activities. Besides, under the proposed development, there will be planting areas surrounding the buildings in all directions, and will provide a managed environment with high proportion greening

when compared with the current condition. The proposed development is thus also in line with the TPB PG-NO. 12C on replacing undesirable land use.

Avoidance of direct impact on Mai Po Village Egretry

6.2.3 The layout of the proposed development has been designed to maintain as much distances as possible with the on the trees where recorded with breeding activities of ardeids in Mai Po Village Egretry, and the landscape design has also avoided any direct impact to those trees (**Figure 6.4** and **Figure 6.4a** refer). As outlined in the Tree Treatment Schedule, all the trees within the Mai Po Village Egretry will be retained, including the *Albizia lebbeck*, *Aleurites moluccana*, *Dimocarpus longan* and *Macaranga tanarius var. tomentosa* (with respect to Tree ID Number of T1, T4, T8, T9 and T21 in Tree Treatment Schedule and **Figure 4.8** refers). Therefore, direct impact on the Mai Po Village Egretry is avoided as a result of the proposed development. With reference to the Landscape Master Plan, in consideration of the actual condition and requirement during construction, removal of existing structure, such as hoarding and raised planter wall are necessary, which shall have impact to the existing trees currently attaching to these structures, so that some trees, especially on the South-eastern side should be removed. To minimize the potential indirect impact and disturbance to the adjacent habitat of the breeding ardeid, it is proposed to plant a group of new trees at the South-eastern side before removal of certain nos. of existing trees (most of the trees are *Macaranga tanarius var. tomentosa*, which are very common native species in the proximity, **Figure 6.4** refers).

Avoidance and restriction of pruning of trees at the Mai Po Village Egretry

6.2.4 During the construction phase, strict measures will be implemented to avoid any encroachment into the trees at the Mai Po Village Egretry. To minimize disturbance to breeding ardeids, tree crown pruning will be avoided whenever possible; if necessary, such pruning will be carried out outside of the breeding season (March – late September). Any potential pruning will be limited to overgrown branches that could interfere with construction activities, ensuring that the integrity of the habitat is maintained while allowing for the safety of project execution.

6.3 Minimization

Minimizing impacts to breeding ardeid flight lines by Provision of Height Restriction Zone

6.3.1 It was found from the ecological survey that among all the recorded flights of the Mai Po Village Egretry, only limited proportion of breeding ardeid flightlines (approximately 33%) would fly across the Application Site, and the potential obstruction

of flightlines is completely avoided. These flightlines could be summarized as an Ardeid Flight Zone covering the northeastern part of the Application Site as mentioned in **Section 5** (**Figure 5.2**). This Ardeid Flight Zone encompassed all recorded flights within the Application Site. In addition, only about 2% of the recorded flights climbed at the major altitude comparable to the main roof of the proposed low-rise building T2 and T3 (about 10m). The majority of flights within the identified Ardeid Flight Zone, approximately 98%, were observed at heights exceeding 10 meters and climbed to the major heights of 15m or above, and about 24% of the flights were observed at height exceeding 15 meters and climbed to the major heights of 20m or above after taking off. To minimize disturbances to the flights of breeding ardeids from the Mai Po Village egretry, the height of building structures within the ardeid flight zone should be limited. A Hight Restriction Zone for building structures, covering the Ardeid Flight Zone within the Application Site, is thus established (**Figure 6.1**).

6.3.2 Adjustments to the building layout have therefore been made to accommodate the Height Restriction Zone. For buildings within the Height Restriction Zone, their rooftop would be limited to about 10m in height. There will be some necessary ancillary facilities on the rooftop, but those ancillary facilities would be located on the far side from the egretry and the maximum height would not exceed 15m, to achieve a stepping configuration. The design of these buildings ensures the preservation of sufficient air space, allowing for unobstructed sight lines and space for escalation for ardeids flying through the Application Site. The positioning of those facilities is also strategically arranged to avoid any obstruction of the recorded flightlines C and D. Building T1 is the only mid-rise building of the present application and is located completely outside the Height Restriction Zone (which represents the Ardeid Flight Zone across the Application Site as shown in **Figure 6.1**). These design considerations could avoid impacts on most of the breeding ardeid flights from the Mai Po Village egretry across the Application Site. By preserving this air space, the impacts to the egretry's flight line can be minimized to an acceptable level.

6.3.3 The proposed Height Restrict Zone has optimized the available space to prevent impacts on the identified flight zone and has included measures to reduce any potential effects to an acceptable level. It draws on the mitigation strategies outlined in Agreement No. CE 20/2021 (CE) for the first phase of development in the New Territories North – San Tin / Lok Ma Chau Development Node (**Figure 6.2**). This includes ensuring adequate separation between the building layout of the current application site and the Mai Po Village Egretry. The continuity and integrity of the mitigation plan from the EIA have been carefully incorporated into the latest design scheme to prevent any

obstruction of flight paths resulting from the proposed development. A flight corridor located above the proposed height restriction zone in this application, along with the designated non-building area in the Technopole EIA, will help preserve essential airspace for breeding ardeids traveling north from the Mai Po Village Egretry to key wetland habitats in the WCA.

Separation of the buildings from nesting trees to minimize impacts on breeding ardeids of Mai Po Village Egretry

6.3.4 In addition to the heights of the buildings, space have also been preserved between buildings and the trees utilized by the breeding ardeids of the Mai Po Village Egretry, to further minimize potential ecological impacts.

6.3.5 The proposed development only comprises three buildings. Two are low-rise buildings within the Height Restriction Zone. For Building T1, the only mid-rise building in the present application, it is located outside the Height Restriction Zone. All three buildings maintain certain distances to the 3 nesting tree groups of Mai Po Village Egretry adjacent to the Application Site as identified in the 2022 ecological survey under Technopole EIA (i.e. Agreement No. CE 20/2021 (CE) for the First Phase Development of the New Territories North – San Tin / Lok Ma Chau Development Node – Investigation). Meanwhile. The distances from the two proposed low-rise buildings, i.e. T2 and 3, to the three tree groups are comparable to the government facilities proposed under the Technopole EIA in the G/IC(1) zone immediately to the northeast of the Application Site boundary (**Figure 6.3** refers). And the separation distances from Building T3 to the egretry tree groups are also larger than the two low-rises. Within those area of separation between the buildings and the nesting trees of the Mai Po Village Egretry, no building structure is positioned. Potential ecological impacts to the Mai Po Village Egretry are minimized.

Provision of wetland and visual buffer

6.3.6 It is mentioned in the TPB PG-NO. 12C that for project abutting WCA, wetland and visual buffer should be provided to minimize the potential ecological impacts to the WCA. For the present Application Site, however, only a short section (about 45m in length) on its northwestern side boundary lies immediately adjacent to WCA (Figure 6.4b refers). There are also a section on its northern boundary and another section on its northwestern side boundary locating close to WCA (separated from WCA by a strip of WBA area). The remaining site boundary sections are not facing WCA direction.

6.3.7 The areas of WCA near the northwestern site boundary is an access road for heavy vehicles leading to a parking lot, with an abandoned pond further northward, while the area of WCA

adjacent to and near the northwestern site boundary is an elongated pond with vertical pond bund composed of concrete and bricks lying right next Tam Kon Chau Road. In between these two ponds it is a paved area falling within WBA and currently used as parking lot for heavy vehicles, that is with high disturbance. As mentioned in sections above, the ecological survey did not record breeding ardeids from Mai Po Village Egetry utilized these two ponds. Furthermore, these ponds, as found in the ecological survey for the present Application Site, had low diversity and low abundance of avifauna. Only 1 bird species of conservation concern was recorded in the pond lying between Tam Kon Chau Road and the parking lot, while 5 concerned species was found on the abandoned pond to the north of the site but with very low abundance. Furthermore, no winter flight lines were observed over these two ponds, so that the migratory bird usage of these ponds were limited. With reference to other case of planning application located adjacent to the WCA, the WCA areas near/adjacent to the Application Site are much less ecologically sensitive when compared with other WCA areas reported by recently approved planning applications near WCA.

6.3.8 Even though less ecologically sensitive in this case, a wetland and visual buffer is proposed to fulfill the requirements of TPB PG-NO. 12C, which encompasses the planting of native tree planting as well as landscape pond with native wetland planting, along the northwestern and northern sections, as well as part of the northeastern section, of application site boundary (**Figure 6.4b** refers), while still balancing the separation between the buildings and the egretry locating at the opposite side of the site (**Figure 6.4** and **Figure 6.4a** refer) (i.e. the Southeast side of site boundary). The length of this buffer reaches over 100 meters, which is more than 2 times the approximate length (45m) of Application Site boundary that is directly abutting the WCA. The landscape design (i.e. planting of native tree species and the provisions of pond with native wetland plants) further promotes ecological values of the future development site by providing ecological resources for birds, dragonflies, and butterflies. With this wetland and visual buffer in place, there will be a buffering distance of about 12m to 25m for the nearest waterbodies (i.e. the two abandoned ponds with very low ecological value as mentioned above) from the proposed low to mid-rise buildings of Residential Care Home for the Elderly. This will further distance the development from nearby abandoned ponds, replace the original degraded use of the site, and enhance the overall ecological and rural character, and thus in line with the intent of TPB PG-No. 12C.

6.3.9 The buffer native tree planting area will be generally 10m in width, and expanding to about 12m width where possible (including the part abutting the abandoned pond outside the Application Site),

with proposed landscape planting of native tall vegetation (4m – 6m) facing the WCA, included but not limited to the species of *Bambusa glaucescens, Cinnamomum burmannii and Sterculia lanceolata*.

6.3.10 The landscape pond with native wetland planting and the Application Site are being designed to enhance ecological value and rural character alongside improving amenity value. The landscape pond with native wetland plants would be natural water bodies about 30m in length with soil bottoms, and up to about 1m in depth where applicable. It will include native wetland plants (like C*yperus malaccensis, Fimbristylis sieboldii, Ludwigia hyssopifolia, Phragmites australis* and *Phragmites karka*) to support any potential fauna using aquatic environments where applicable. Additionally, taller (about 4m) native bamboo species (like *Bambusa glaucescens*) will offer habitats and buffer for small birds such as warblers and prinias, fostering diverse ecological resources within the wetland and visual buffer.

6.3.11 To support conservation efforts, the selection of plant species for other open landscape area within the development will also prioritize native species, especially those benefit local wildlife and species with high ecological functions, ensuring the landscape area supports the local biodiversity effectively. This design is thus deemed enough to buffer the two abandoned ponds in WCA from the proposed development of low to mid-rise buildings of Residential Care Home for the Elderly and to enhance the ecological and rural characters in the proximity, preserving the integrity of the greenery but also ensures a smoother transition between developed and natural areas, soften the form of the built environment including the proposed boundary areas through the use of green measures, maximize the greenery incorporated within the overall landscape design plan and maximise opportunities for the planting of new native trees and other native plants, at the same time strikes a balance between minimization of disturbance to the egretry and that to the WCA.

Landscape Area and Buffer as a building setback

6.3.12 The planned landscape planting around the edges of the Application Site will create a setback from the surrounding habitats (see **Figure 6.4**), including but not limited to the ponds and the Mai Po Village Egretry. This landscaped area will not only act as a buffer, shielding the surrounding environment from potential noise, traffic, and other disturbances originating from the Application Site during the operational phase, but also promote visual integration with the adjacent wetlands.

Setting up of 100m Work Restrict Zone

6.3.13 A 100m Work Restrict Zone for the egretry will be adopted during their breeding season (March to late-September, to be verified

during the construction period) (see **Figure 6.5**). The 100m Work Restrict Zone already covers all buildings and nearly all area within the Application Site. Only quieter works (Plastering, masonry, installation etc.) are allowed during the breeding season in the Work Restriction Zone.

Site Hoarding and Good Site Practices

6.3.14 As part of the construction phase, site hoarding will be erected along the site boundary before any construction work, to shield the work activities inside the Site and to reduce disturbance impacts to the adjacent recognized sites of conservation importance. By implementing general good site practices in conjunction with the hoarding, efforts will be made to minimize potential disturbances to wildlife residing in nearby areas and mitigate potential ecological impacts on recognized sites of conservation importance.

Orientation of Flood Light and Light Glare reduction by building designs

6.3.15 As a precautionary measure during the construction phase, it is advised to refrain from directing any floodlights towards the ecologically sensitive area, such as the WCA and the Mai Po Village Egretry. To address potential light glare impacts during the operational phase, various minimization approaches can be implemented. These include but not limited to the installation of internal blinds, window film and shades within residential units, and the consideration of aesthetic preferences where feasible.

Continuous Site Monitoring and Auditing Exercise

6.3.16 There will be continuous site monitoring and auditing exercise during construction phase of the proposed development to ensure the effectiveness of the mitigation measures for the protection of the adjacent ponds.

6.3.17 To minimise the contamination of wastewater discharge, accidental chemical spillage and construction site run-off, the below general good practices should be adopted:

- The good site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" should be followed to minimize surface runoff;
- Surface run-off from construction sites should be discharged into storm drains via adequately designed sand / silt removal facilities such as sand traps, silt traps and sedimentation basins;
- Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites should be covered with tarpaulin or similar fabric during rainstorms;

- Good construction and site management practices should be observed to ensure that litter, fuels and solvents do no enter the storm water drains;
- Chemical toilets should be provided within the construction site and properly maintained. All effluent discharged from the construction site should comply with the standards stipulated in the "Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters" (TM-DSS).

6.4 Mitigation

Construction Programme and Piling Methods and for Construction Noise from Piling

6.4.1 Impact from piling on the ponds inside WCA with higher waterbird diversity and abundance are ranked as **Minor to Moderate** during wet season and **Moderate** during dry season. Mitigation would be required. The impact on the Mai Po Village Egretry was also ranked as **Moderate to Severe** and requiring mitigation. The mitigation will focus on two aspects, i.e. Piling method, construction programme and schedule.

6.4.2 There are various piling methods available, and the traditional percussive piling technique that uses a steel hammer is a major concern due to its higher noise levels and potential impact on wildlife. Mitigation measures such as the installation of noise barriers could be considered. However, if feasible, efforts will be made to avoid using the traditional percussive piling method during the foundation works of the proposed development. Instead, quieter piling methods such as hydraulic hammer, auger, and end bearing pole (e.g., bored piling) could also be considered. Bored piling involves creating a cavity using a rotary bored piling rig without the need for hammering, making it a much quieter and less disruptive method. These alternative piling methods have been successfully employed in previous cases, allowing piling works to be carried out near sensitive habitats without significant disturbance impact, as demonstrated by monitoring conducted for residential developments adjacent to the Hong Kong Wetland Park.

6.4.3 Due to the area constraints of the Application Site, phasing of the development is not feasible to be adopted as the mitigation measure for this Application. However, during the construction stage, the project proponent will strictly adhere to stringent requirements, particularly regarding piling works conducted during the breeding season of the egretries (as mentioned in Section 6.3.12). Efforts will be made to plan the piling works in a way that minimizes disturbance. Specifically, noisy construction works at buildings will be avoided during the breeding season of ardeids, which typically occurs from March to late September,

unless ecological monitoring and/or pre-construction ecological surveys confirms that the breeding activities at this egretry start later or end earlier. In addition to the confirmation of breeding activities of the ardeids, the latest boundary, condition and flight paths of the Mai Po Village Egretry and the Mai Po Lung Village Egretry (if the egretry falls within the 500m Study Area) shall be confirmed during the pre-construction survey conducted by ecologists before commencement of the construction works. The proposed mitigation regarding the egretry shall also be reviewed according to the latest findings of the pre-construction surveys. Importantly, flight lines of the egretries will not be obstructed by construction works, materials, machinery, or temporary structures during the construction stage.

6.4.4 To minimize potential disturbances to the overwintering bird population, a comprehensive planning approach during the construction phase will be implemented regarding the scheduling of noisy construction activities, such as piling. These activities will be strategically restricted to the timeframe of 1 hour after sunrise to 1 hour before sunset during October to March, when the overwintering birds are known to be more active. This timing is chosen carefully to coincide with periods when the birds have typically left their roosts in search of food and before they return in the evening for roosting. By limiting construction noise to these specific hours, that is effective to reduce stress on the bird population and ensure their foraging activities are not disrupted. Additionally, ongoing monitoring will be conducted to assess the effectiveness of these measures and adapt our strategies as needed to further protect these important species.

6.4.5 Additional information regarding the methodology and schedule of the construction works will be presented during the detailed design stage. For the feasibility of installation of noise barrier or adopting quiet piling methods (like hydraulic hammer, auger, and end bearing pole) and schedule during bird overwintering season will be reviewed during detailed design stage when GI information is available. The main goal is to propose and develop construction methods, procedures, and an implementation plan that effectively minimizes potential noise disturbances in the sensitive wetland areas within the Study Area to an acceptable level. This may involve implementing measures such as restricting piling activities for specific buildings during certain months. Prior to commencing any piling works, a detailed proposal outlining the piling methods and construction schedule will be submitted to the AFCD for review and approval to maintain an appropriate level.

Mitigation measures for the water quality impacts

6.4.6 During construction, it is strictly prohibited to directly discharge untreated construction site runoff. The recommended guidelines outlined in the Practice Notes for Professional Persons on

"Construction Site Drainage" (ProPECC PN 1/94) must be followed to control water pollution. Effective on-site management practices, including the incorporation of erosion control measures, should be implemented to minimize soil erosion. Construction site runoff must be collected and treated using screening facilities before being discharged into nearby storm drains, ensuring compliance with the terms and conditions specified in the discharge license issued under the WPCO. Further details can be found in the Environmental Assessment report.

Table 6.1 Summary of Construction Phase and Operational Phase Impacts

Impact	Sources	Receivers	Nature of impacts						Significance of ecological impact	Mitigation required
			Habitat quality	Species affected	Size / abundance	Duration	Reversibility	Magnitude		
Construction Phase										
Habitat loss	Works areas of the proposed residential care homes for the elderly	Developed Area	Very Low ecological value	Very Low abundance and diversity of wildlife	Developed Area: 0.84 ha	Construction Phase	Not reversible	Low	Insignificant overall Regional Significance on Developed Area: Insignificant	No
Fragmentation (habitats)	The Proposed Development	Adjacent wetland habitats within the recognized sites of conservation importance	Ecological value of pond: Medium; abandoned pond and marsh: Low to Medium; developed area: Very Low	Waterbirds that utilized the wetland ecosystem	Vary	Construction Phase	Not reversible	Low	Insignificant overall Regional Significance on wetland habitats and waterbirds: Insignificant	No
Fragmentation (breeding ardeid flight-lines)	Construction of high-rise buildings	Waterbirds in particular breeding ardeids of Mai Po Village Egretry	Vary with habitat types	Waterbirds in particular breeding ardeids	Recorded flights within Application Site	Temporary	Reversible	Moderate	Minor Regional Significance on breeding ardeids: Minor	Not required, the fragmentation and obstruction of all flightlines are avoided overall due to the low-rise design and the strategically positioning of the towers and MEP facilities atop. minimization approaches are included: Height Restriction Zone of major height of about 10m and maximum height of about 15m

Impact	Sources	Receivers	Nature of impacts						Significance of ecological impact	Mitigation required
			Habitat quality	Species affected	Size / abundance	Duration	Reversibility	Magnitude		
										to minimize the impacts by construction; Building separation from the Mai Po Village Egretry to minimize the impacts by construction; Avoidance of noisy construction works in ardeid breeding season (March – late September) by setting up of 100m Work Restriction zone during the breeding season of egrets, works avoiding blockage of flight line.
Fragmentation (wintering birds)	Construction works	Waterbirds in particular wintering birds	Vary with habitat types	Waterbirds species in particular wintering birds	Vary	Permanent	Not reversible	Low	No impact anticipated	No
Construction noise	Construction works	Waterbirds, egretries and the wetland areas	Vary with habitat types	Mainly waterbirds and wetland areas	Vary	Temporary	Reversible	Moderate	Moderate overall if unmitigated Moderate regional significance for migratory/overwintering waterbirds if unmitigated; Minor to Moderate during wet season; Moderate to Severe regional significance for Mai Po Village Egretry in breeding season if unmitigated Insignificant regional significance for	Consider installation of noise barrier or using quieter piling methods during detailed design stage. Details of methodology and programme of construction works should be submitted to AFCD for agreement prior any piling works. Avoidance of noisy construction works in ardeid breeding season (March – late September) by setting up of 100m Work Restriction zone during the breeding season of egrets, works avoiding noise impacts on flightline.

Impact	Sources	Receivers	Nature of impacts						Significance of ecological impact	Mitigation required
			Habitat quality	Species affected	Size / abundance	Duration	Reversibility	Magnitude		
									resident waterbirds and the non-breeding season of egretry	Setting up of hoarding around site. Scheduling of noisy construction works, limited to the late morning to early afternoon timeframe
Dust	Construction works	Sensitive habitats near the works area	Vary with habitat types	Fauna in habitats adjacent to the works area	Vary	Temporary	Reversible	Low	Insignificant overall	Not required. Standard construction best practices will be adopted as precautionary measures.
Light glare	Works area	Sensitive habitats and fauna near the works area	Vary	Nocturnal fauna	Vary	Temporary	Reversible	Insignificant	Insignificant overall	Not required. Avoid orientating any external flood light towards the wetlands in the Wetland Conservation Area and the Mai Po Village Egretry will be adopted as precautionary measures.
Water quality and site run-off	Construction works	Wetland habitats (e.g. ponds and watercourse)	Vary	Aquatic fauna and wetland dependent species	Vary	Temporary	Reversible	Moderate	Minor overall	Follow water quality mitigation measures
Impacts on recognized sites of conservation importance	Construction works	Recognized sites of conservation importance	Vary with habitat types	Fauna in the habitats, particularly the waterbirds	Vary	Temporary	Reversible	Low	No direct impact on Mai Po Village and Egretry and SSSI Minor to moderate regional significance for Ramsar Site, Deep Bay Wetland outside Ramsar Site, IBA, WCA and the proposed SPS WCP in dry season if unmitigated; Minor in wet season	Consider installation of noise barrier or using quieter piling methods during detailed design stage when GI information is available. Details of methodology and programme of construction works should be submitted to AFCD for agreement prior any piling works. Avoidance of noisy construction works in ardeid breeding season (March – late

Impact	Sources	Receivers	Nature of impacts						Significance of ecological impact	Mitigation required
			Habitat quality	Species affected	Size / abundance	Duration	Reversibility	Magnitude		
										September), setting up of noise barriers/ hoarding. Not required for the others. Standard construction best practices will be adopted as precautionary measures
Impacts on Species of conservation importance	Construction works	Species of conservation importance	Vary with habitat types	Flora and fauna of conservation importance	Vary	Temporary	Reversible	Low	Negligible for flora; Insignificant for bird recorded within site, no impacts on other fauna overall	Not required. Standard construction best practices will be adopted as precautionary measures
Operation Phase										
Habitat loss	The Proposed Development	No additional habitat loss during operational phase	Very Low	Very Low abundance and diversity of wildlife	Vary	Permanent	Not reversible	Low	Insignificant overall; Insignificant regional significance	No
Fragmentation (habitats and recognized sites of conservation importance)	The proposed development	Wetland within recognized sites of conservation importance	Ecological value of abandoned pond: low; marsh: Low to Medium; developed area: Very Low	Low abundance and diversity of wildlife	Vary	Permanent	Not reversible	Insignificant	Insignificant Insignificant regional significance	No
Breeding ardeid flightlines (Fragmentation and obstruction)	Operation of the high-rise residential buildings	Waterbirds in particular breeding ardeids and wintering birds	Vary with habitat types	Waterbirds in particular breeding ardeids and wintering birds	Recorded flights within Application Site	Permanent	Not reversible	Moderate	Minor during breeding season; Not anticipated in non-breeding season	Not required, minimization approaches are incorporated in the building layout: Height Restriction Zone of major height of about 10m and maximum height of about 15m to minimize the impacts; Strategically positioning of the towers and MEP facilities atop.

Impact	Sources	Receivers	Nature of impacts						Significance of ecological impact	Mitigation required
			Habitat quality	Species affected	Size / abundance	Duration	Reversibility	Magnitude		
										Building separation from the Mai Po Village Egretry
Human disturbance	Operation of the proposed development	Sensitive habitats near the residential area	Vary with habitat types	Terrestrial fauna including those species of conservation importance	Vary	Temporary	Reversible	Low	Insignificant overall	No
Water quality	The proposed development	Wetland habitats (e.g. ponds, watercourse)	Vary	Aquatic fauna and wetland dependent species	Vary	Temporary	Reversible	Insignificant	Insignificant overall	No
Light glare and artificial lighting	The proposed development	Sensitive habitats and fauna near the potential development area	Vary	Nocturnal fauna	Vary	Temporary	Reversible	Low	Minor overall	No, minimization approaches are included: Landscape planting proposed to be built around the boundary of the proposed development boundary, installation of internal blinds, shades and window shade, and consideration of aesthetic preferences where feasible Avoid orientating any external flood light towards the wetlands in the Wetland Conservation Area and the Mai Po Village Egretry
Bird collision	The proposed development	N/A	N/A	Birds	Vary	Permanent	Not reversible	Low	Minor overall	No
Impacts on recognized sites of conservation importance	Operations of the proposed development	Wetland habitats within the Study Area, of particular note in the proposed SPS WCP, WCA, WBA, IBA,	Vary	Wetland species	Vary	Permanent	Not reversible	Low	Minor Minor regional significance for wetland habitats	WCA wetland and visual buffer about 10m in width and 100m in length with planting of native trees and tall shrubs, and a landscape pond with wetland planting, separating the waterbodies of wetland

Impact	Sources	Receivers	Nature of impacts						Significance of ecological impact	Mitigation required
			Habitat quality	Species affected	Size / abundance	Duration	Reversibility	Magnitude		
		Ramsar Site and Deep Bay Wetland outside Ramsar Site								habitats from the development up to 25m Landscape planting is proposed to be established around the boundary of the development to screen off potential impacts
Impacts on recognized site of conservation importance	Operations of the proposed development	Mai Po Village Egretry and the SSSI	Vary	Flora and fauna	Vary	Permanent	Not reversible	Low	Minor Minor regional significance	Not required, minimization approaches are incorporated in the building layout: Height Restriction Zone of major height of about 10m and maximum height of about 15m to minimize the impacts; Building separation from the Mai Po Village Egretry
Impacts on Species of conservation importance	Operations of the proposed development	Floral and faunal species of conservation importance	Vary	Flora and fauna of conservation importance	Vary	Permanent	Not reversible	Low	No additional impact anticipated	No

7. CUMULATIVE IMPACT

7.1.1 Cumulative impacts may occur when there are concurrent projects implemented in the vicinity of the present Project, either during construction phase or operational phase. The commonest potential cumulative impacts from concurrent project mainly include habitat loss, disturbance during construction phase and disturbance during operation phase.

7.1.2 Known potential projects in the area near the Application Site include the following:

- Site Formation and Associated Infrastructural Works for the Development of Columbarium at San Tin, Yuen Long – Engineering Feasibility Study; and
- Agreement No. CE 46/2018 (HY) – Road Works in Connection with Proposed Housing / Commercial Development on Eight Sites (Package 2A) – Feasibility Study.

7.1.3 Regarding habitat loss, as the present project is located on a site dominated by **Very Low** value habitats which support **Very Low** diversity and abundance of wildlife, the loss of such habitat for the duration of the proposed development is not expected to contribute to the cumulative loss of ecological resources in the area.

7.1.4 Both proposed projects are currently in the feasibility stage, and the specific implementation timeline has not yet been determined. However, considering the scale and density of the proposed development, as well as the incorporation of the Wetland Restoration scheme, it is likely that construction of the present proposed development could commence earlier than the other two projects once approved. This would help avoid cumulative disturbance impacts that may arise from simultaneous construction activities. Therefore, it is not expected that the present proposed development would contribute significantly to the cumulative disturbance.

7.1.5 During the operational phase, it is not expected that the proposed columbarium at San Tin will have a cumulative disturbance impact on the present project, as the columbarium itself is considered to have a low level of disturbance. Although the road work associated with the project will result in increased traffic, it is anticipated that the disturbance level would not exceed that of the existing heavily utilized Castle Peak Road (San Tin), which is frequently used by heavy vehicles.

7.1.6 Known Environmental Impact Assessment study in the area near the Application Site include the following:

- San Tin / Lok Ma Chau Development Node (AEIAR-261/2024)

7.1.7 The latest mitigation plan has maximized its availability of space to avoid impacts on the flight zone identified and considered mitigation measures to mitigate the impacts on the flight zone to an acceptable level. Reference was made to the mitigation measures provided in Agreement No. CE 20/2021 (CE) First Phase Development of the New Territories North – San Tin / Lok Ma Chau Development Node – Investigation, including separation of the building layout of current Application Site and the Mai Po Village Egretry. Continuity and integrity of the of the mitigation plan of the EIA study is well considered in the latest design scheme (**Figure 6.2**) to avoid any potential cumulative impacts of obstruction of flight lines due to the proposed development of the current Application Site. A flight corridor situated above the proposed Height Restriction Zone in the current application, as well as the Non-Building Area outlined in the Technopole EIA, could preserve crucial airspace for breeding ardeids flying north from the Mai Po Village Egretry to the core wetland habitats in WCA.

7.1.8 The Sam Po Shue Wetland Conservation Park (SPS WCP) is a vital ecological initiative within the 500m study area of the Application Site, designed to enhance biodiversity, compensate for ecological and fisheries impacts, provide eco-education and recreation, and introduce ecologically friendly and modernized aquaculture. With core wetland habitats of high conservation importance located within the SPS WCP, these areas are distinct from the Application Site and host a rich diversity of migratory and overwintering waterbirds, as well as serve as foraging sites for the ardeids at the Mai Po Village Egretry. The ecological surveys conducted in the EIA study and the current application indicate that the two abandoned ponds within the SPS WCP that are directly adjacent to the Application Site, close to developed areas and roads, host relatively lower abundance and usage of these birds, with no species of conservation importance recorded under the EIA Study, and low abundance of common species (Chinese Pond Heron and Little Grebe) recorded during the ecological survey under the current application. Construction impacts on the core conservation sites including the SPS WCP are assessed to be minor, provided mitigation measures are in place. To minimize impacts on overwintering bird populations, construction activities, such as piling, will be strategically scheduled in late mornings to early afternoons during the dry season, avoiding critical foraging and roosting times. During operation phase, with measures such as landscape planting around the edges of the Application Site, avoiding orientating any external flood light towards the wetlands in the Wetland Conservation Area, installation of internal blinds, shades and window shade, and consideration of aesthetic preferences where feasible in place, the impacts to the SPS WCP are considered to be minor. This comprehensive planning approach, paired with ongoing monitoring, ensures minimal cumulative impacts on the SPS WCP.

8. CONCLUSIONS

8.1.1 Information on the ecological baseline conditions of the Application Site was collected through literature review and surveys, and they were integrated into this EcoIA to support technical aspect of the Application.

8.1.2 Within the Application Site, only developed area of 0.84ha will be lost directly. Due to the **Very Low** ecological values of the habitat and the site is currently subjected to disturbance from traffics and human activities nearby, the potential ecological impact due to loss of habitat within the Application Site is considered **Insignificant**. Even though the Application Site falls within Wetland Buffer Area, no wetland habitat will be directly impacted by the Proposed Development, which is in line with Town Planning Board Guidelines No. 12C (TPB PG-No. 12C).

8.1.3 A 100m Works Restriction Zone is established from the Mai Po Village Egretry. Restriction of works would be implemented within the 100m area, where noisy construction activities shall be avoided during the ardeid breeding season. The impact by noisy constriction works to the migratory birds will also be minimized by the implementation of scheduling in dry season. The proposed development layout is designed to maximize distance from trees associated with ardeid breeding activities in the Mai Po Village Egretry, with landscape design avoiding any direct impacts on these trees. During construction, strict measures will prevent encroachment on the trees. To minimize disturbance to breeding ardeids, tree crown pruning will be avoided unless necessary.

8.1.4 The operational nature of the proposed development is Residential Care Homes for the Elderly, where human activities are mostly indoor. Given the separation distances between the proposed buildings and the Mai Po Village Egretry, the impacts on it from the proposed development are considered **Minor**. A Height Restriction Zone is proposed within the Application Site for the identified Ardeid Flight Zone, covering all recorded flight lines. Adjustments to the building layout have been made to accommodate the Height Restriction Zone, only low-rise building is allow within the Height Restriction Zone, preserving sufficient airspace for breeding ardeids to fly through the Application Site unobstructed. The proposed development includes a WCA wetland and visual buffer about 10m in width and 100m in length, composed of landscape planting areas with native trees and tall shrubs, and a landscape pond with native wetland planting which will screen potential impacts to the WCA. The naturalness of the proximity of the Application Site could also be greatly improved.

8.1.5 The planning application would satisfy the requirements listed in TPB PG-No. 12C i.e. no-net-loss in wetland area or function at any scale and the provision of wetland and visual buffer for the WCA. This EcolA

demonstrates that the proposed development would not have significant disturbance impacts to the surroundings habitats and any recognized site of conservation importance.

9. REFERENCES

AEIAR-189/2015. 2015. Comprehensive Development and Wetland Protection near Yau Mei San Tsuen

AEIAR-261/2024. 2024. San Tin / Lok Ma Chau Development Node

AECOM. 2024. Environmental Impact Assessment Report of San Tin / Lok Ma Chau Development Node according to the ESB-340/2021 Study Brief

AFCD. 2003. *Rare and Precious Plants of Hong Kong. Hong Kong*: Friends of the Country Parks: Cosmos Books Ltd.

AFCD. 2007. *Flora of Hong Kong*. Agriculture, Fisheries and Conservation Department, Hong Kong.

AFCD. 2021. Hong Kong Biodiversity Database. Available at: https://www.afcd.gov.hk/english/conservation/hkbiodiversity/database/search.php

Anon, 2012. Summer 2012 Report: Egretry Counts in Hong Kong with particular reference to the Mai Po Inner Deep Bay Ramsar Site. Report by The Hong Kong Bird Watching Society to the Agriculture, Fisheries and Conservation Department, Hong Kong Special Administrative Region Government.

Anon, 2013. Summer 2013 Report: Egretry Counts in Hong Kong with particular reference to the Mai Po Inner Deep Bay Ramsar Site. Report by The Hong Kong Bird Watching Society to the Agriculture, Fisheries and Conservation Department, Hong Kong Special Administrative Region Government.

Anon, 2014. Summer 2014 Report: Egretry Counts in Hong Kong with particular reference to the Mai Po Inner Deep Bay Ramsar Site. Report by The Hong Kong Bird Watching Society to the Agriculture, Fisheries and Conservation Department, Hong Kong Special Administrative Region Government.

Anon, 2015. Summer 2015 Report: Egretry Counts in Hong Kong with particular reference to the Mai Po Inner Deep Bay Ramsar Site. Report by The Hong Kong Bird Watching Society to the Agriculture, Fisheries and Conservation Department, Hong Kong Special Administrative Region Government.

Anon, 2016. Summer 2016 Report: Egretry Counts in Hong Kong with particular reference to the Mai Po Inner Deep Bay Ramsar Site. Report by The Hong Kong Bird Watching Society to the Agriculture, Fisheries and Conservation Department, Hong Kong Special Administrative Region Government.

Anon, 2017. Summer 2017 Report: Egretry Counts in Hong Kong with particular reference to the Mai Po Inner Deep Bay Ramsar Site. Report by The Hong Kong Bird Watching Society to the Agriculture, Fisheries and Conservation Department, Hong Kong Special Administrative Region Government.

Anon, 2018. Summer 2018 Report: Egretry Counts in Hong Kong with particular reference to the Mai Po Inner Deep Bay Ramsar Site. Report by The Hong Kong Bird Watching Society to the Agriculture, Fisheries and Conservation Department, Hong Kong Special Administrative Region Government.

Anon, 2020. Summer 2019 Report: Egretry Counts in Hong Kong with particular reference to the Mai Po Inner Deep Bay Ramsar Site. Report by The Hong Kong Bird Watching

Society to the Agriculture, Fisheries and Conservation Department, Hong Kong Special Administrative Region Government.

Anon, 2021 Summer 2020 Report: Egretry Counts in Hong Kong with particular reference to the Mai Po Inner Deep Bay Ramsar Site. Report by The Hong Kong Bird Watching Society to the Agriculture, Fisheries and Conservation Department, Hong Kong Special Administrative Region Government.

Anon, 2022 Summer 2021 Report: Egretry Counts in Hong Kong with particular reference to the Mai Po Inner Deep Bay Ramsar Site. Report by The Hong Kong Bird Watching Society to the Agriculture, Fisheries and Conservation Department, Hong Kong Special Administrative Region Government.

B&V 2021. Yuen Long Barrage Scheme. EIA Register No.: AEIAR-228/2021

Carey, G.J., Chalmers, M.L., Diskin, D.A., Kennerley, P.R., Leader, P.J., Leven, M.R., Lewthwaite, R. W., Melville, D.S., Turbull, M. and Young, L. 2001. *The Avifauna of Hong Kong*. Hong Kong Bird Watching Society, Hong Kong.

Chan, A., Cheung J., Sze P., Wong A., Wong, E. & Yau, E. 2011. A Review of the Local Restrictedness of Hong Kong Butterflies. *Hong Kong Biodiversity* 21: 1-12.

Chan, K.F., Cheung K.S., Ho C.Y., Lam F.N., Tang W.S., Lau W.N. & Bogadek A. 2005b. *Field Guide to the Amphibians of Hong Kong*. AFCD

Chan, K.F., Cheung K.S., Ho C.Y., Lam F.N., Tang W.S., Tse M.L. 2006. *A Field Guide to the Venomous Land Snakes of Hong Kong*. AFCD

Chan, A. Cheung, J., Sze, P., Wong, A., Wong, E. and Yau, E. 2011. A review of the local restrictedness of Hong Kong Butterflies. *Hong Kong Biodiversity* 21: 1-12.

Cheng, T.-y. 1965. On a new fish of the genus *Gobiopterus* from Kwangtung, China. *Acta Zootaxonomica Sinica, 2*(2), 173–177.

Fellowes, J.R., Lau, M.W.N., Dudgeon, D., Reels, G.T., Ades, G.W.J., Carey, G.J., Chan, B.P.L., Kendrick, R.C., Lee, K.S., Leven, M.R., Wilson, K.D.P. and Yu, Y.T. 2002. Wild animals to watch: Terrestrial and freshwater fauna of conservation concern in Hong Kong. *Memoirs of the Hong Kong Natural History Society* 25: 123-159.

Jiang, Z.G., Jiang, J.P., Wang, Y.Z., Zhang, E., Zhang, Y.Y., Li, L.L., Xie, F., Cai, B., Cao, L., Zheng, G.M., Dong, L., Zhang, Z.W., Ding, P., Luo, Z.H., Ding, C.Q., Ma, Z.J., Tang, S.H., Cao, W.X., Li, C.W., Hu, H.J., Ma, Y., Wu, Y., Wang, Y.X., Zhou, K.Y., Liu, S.Y., Chen, Y.Y., Li, J.T., Feng, Z.J., Wang, Y., Wang, B., Li, C., Song, X.L., Cai, L., Zang, C.X., Zeng, Y., Meng, Z.B., Fang, H.X., and Ping, X.G., 2016. Red List of China's Vertebrates. *Biodiversity Science,24* (5), 500-551.

Karsen, S.J., Lau M.W.N. & Bogadek A. 1998. *Hong Kong Amphibians and Reptiles*. Urban Council, Hong Kong.

Shek, C.T. 2006. *A Field Guide to the Terrestrial Mammals of Hong Kong*. AFCD

Siu, L.P.G. 2000. Orchidaceae of Hong Kong. *Memoirs of the Hong Kong Natural History Society* 23: 137-148.

Tam, T.W., Leung, K.K.., Kwan, B.S.P., Wu, K.K.Y., Tang, S.S.H., So, I.W.Y., Cheng, J.C.Y.,

Yuen, E.F.M., Tsang, Y.M., & Hui, W.L. 2011. *The Hong Kong Dragonflies*. AFCD, Friends of Country Park and Cosmos Books Ltd. Hong Kong. P.367.

Wang S., Zheng G.M. and Wang Q.S. (1998) China Red Data Book of Endangered Animals: Aves.

Welch G. (2015) Systematic List 2013. Hong Kong Bird Report 2013: 24 – 242.

Wong L.S., R. Corlett, L. Young and J.S.Y. Lee 1992. Comparative Feeding Ecology of Little Egrets on Intertidal Mudflats in Hong Kong, South China. The International Journal of Waterbird Biology, Vol. 23, No. 2 (2000), pp.214-225.

Wu, S.H., Lee T.C. 2000. Pteridophytes of Hong Kong. *Memoirs of the Hong Kong Natural History Society* 23: 5-20.

Xing, F.W., Ng S.C., Chau L.K.C. 2000. Gymnosperms and angiosperms of Hong Kong. *Memoirs of the Hong Kong Natural History Society* 23: 21-13.

Figures

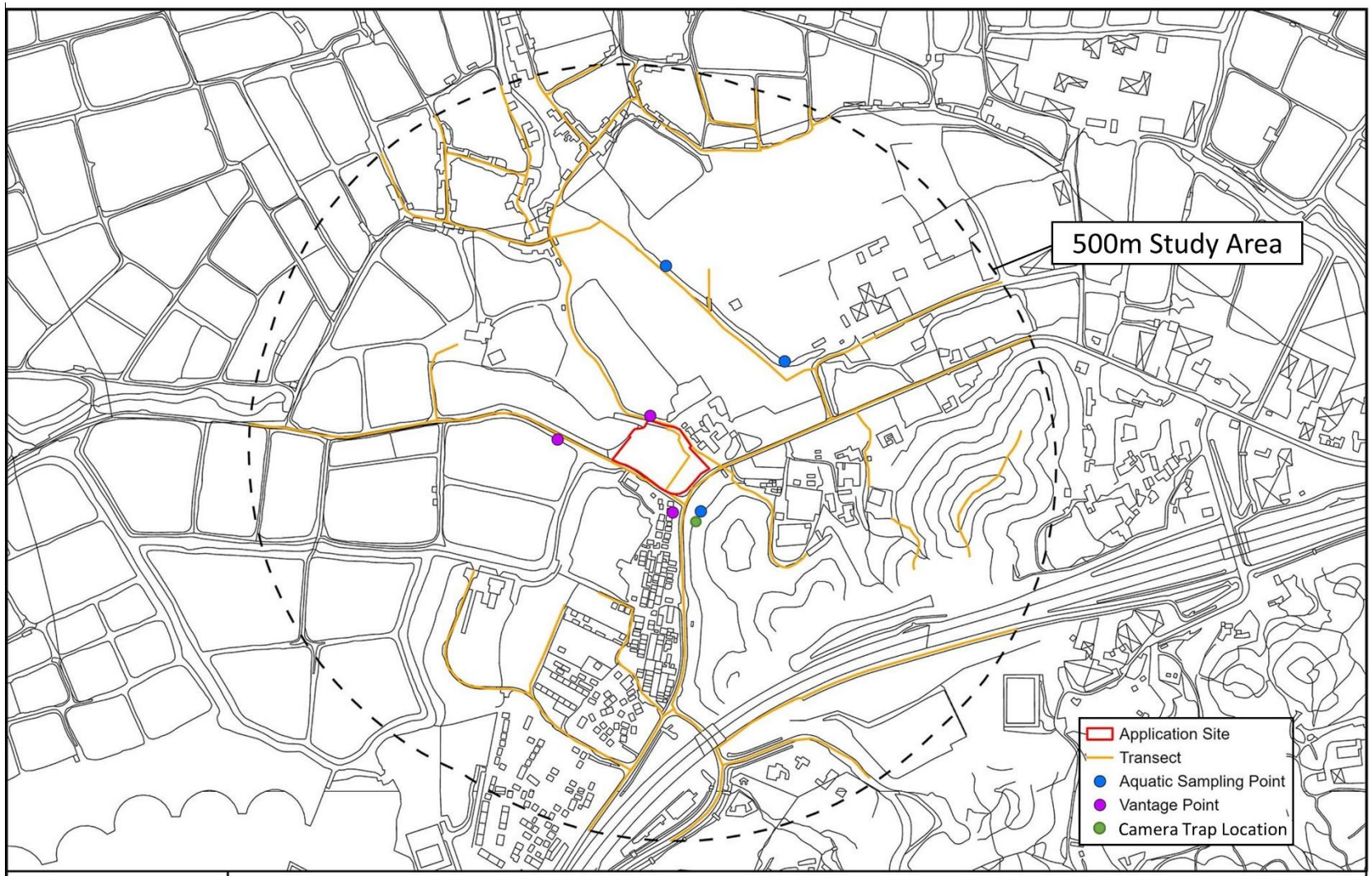

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Figure 3.1 Terrestrial Transect, Camera Trap Location and the Aquatic Sampling Points within Application Site and Study Area

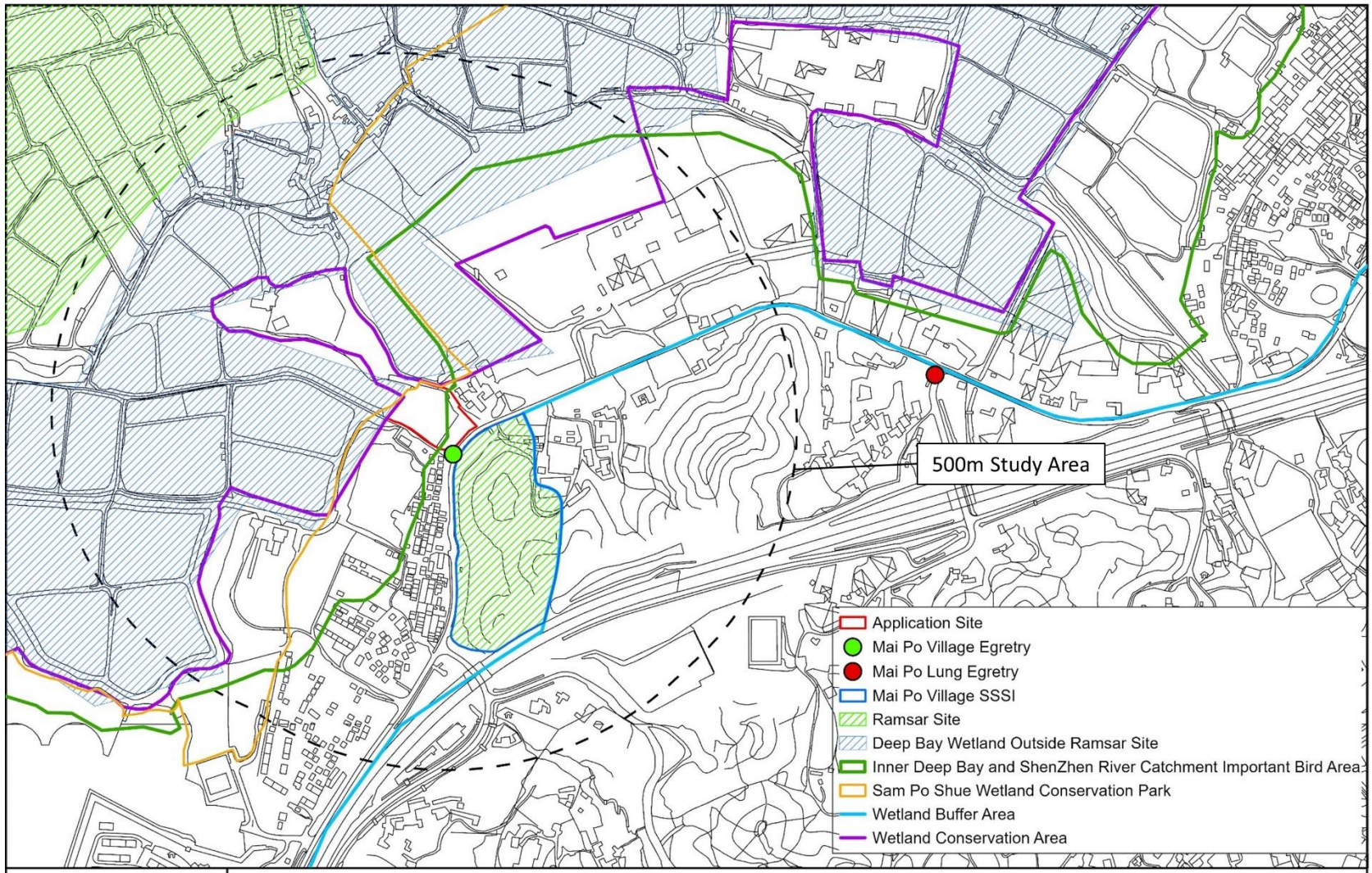

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Figure 4.1 Recognized Site of Conservation Importance within 500m Study Area

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Figure 4.2 Species of Conservation Importance Recorded in San Tin / Lok Ma Chau Development Node EIA within the 500m Study Area

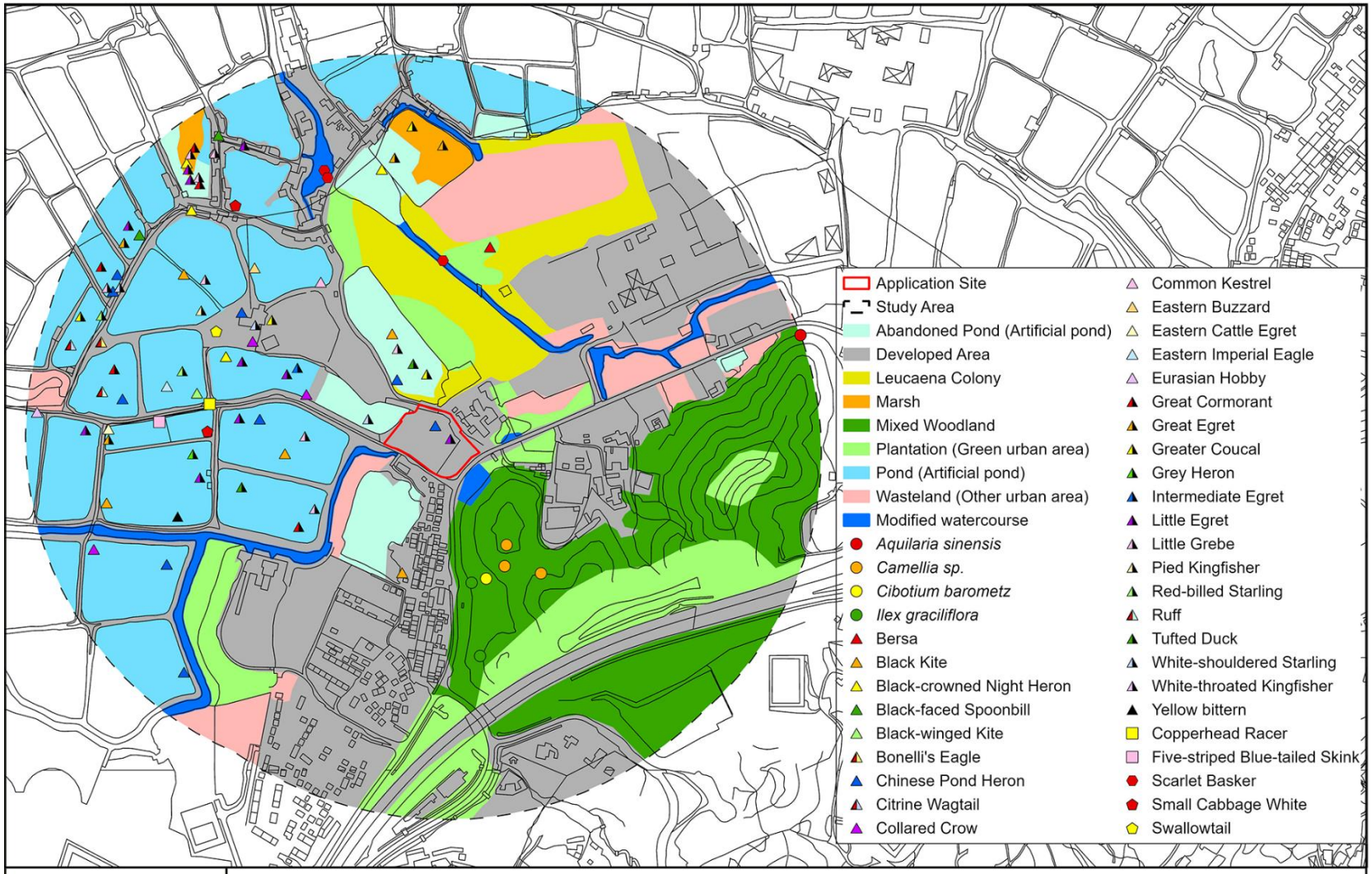

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Figure 4.3 Habitat Map and the Recorded Species of Conservation Importance within 500m Study Area

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Figure 4.4 Representative Photos of the Application Site

Abandoned Pond

Developed Area

Pond

Marsh

Modified Watercourse

Wasteland

Plantation

Leucaena Colony

Mixed Woodland

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Figure 4.5 Representative Photos of Habitats within Study Area

Aquilaria sinensis

Camellia sp.

Cibotium barometz

Ilex graciliflora

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Figure 4.6 Floral Species of Conservation Importance Recorded within 500m Study Area

Chinese Pond Heron

Little Grebe

Tufted Duck

White-shouldered Starling

Eastern Buzzard

Little Egret

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Figure 4.7 Recorded Faunal Species of
Conservation Importance within 500m Study Area

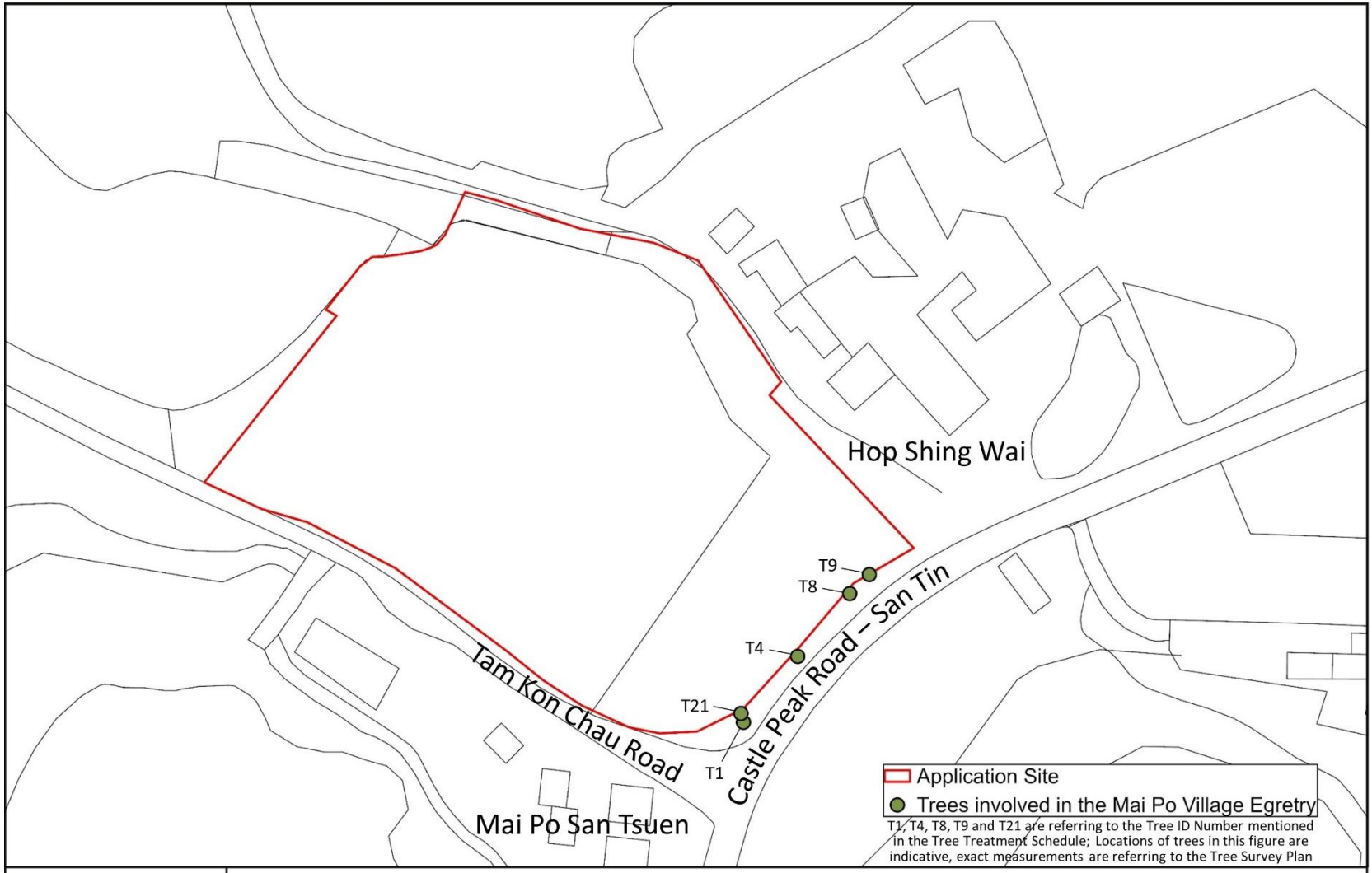

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Figure 4.8 Trees Involved in the Mai Po Village Egretry



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Figure 4.9 Representative Photos of Mai Po Village Egretry

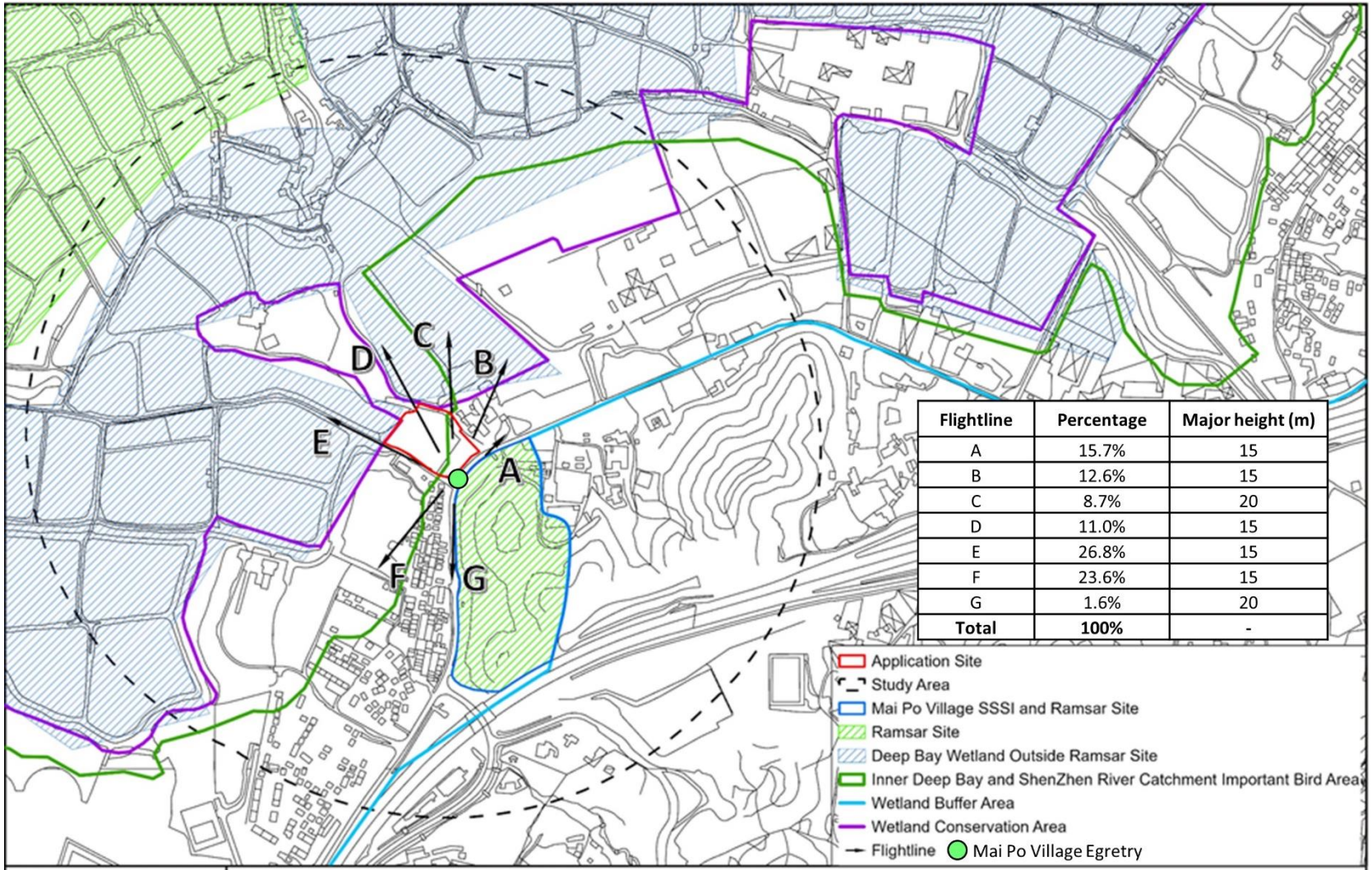

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Figure 4.10 Recorded Flightlines of Mai Po Village Egretry

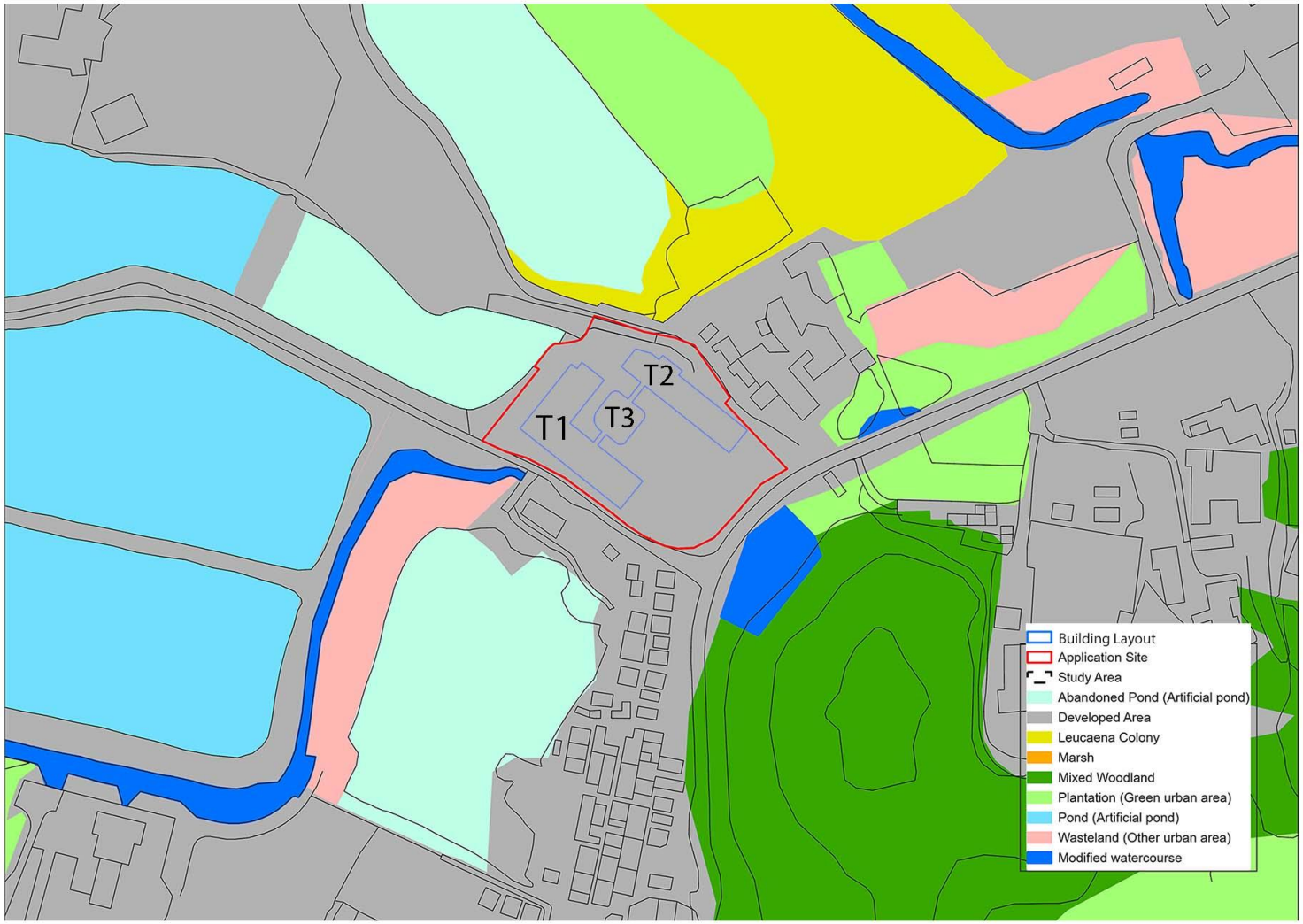

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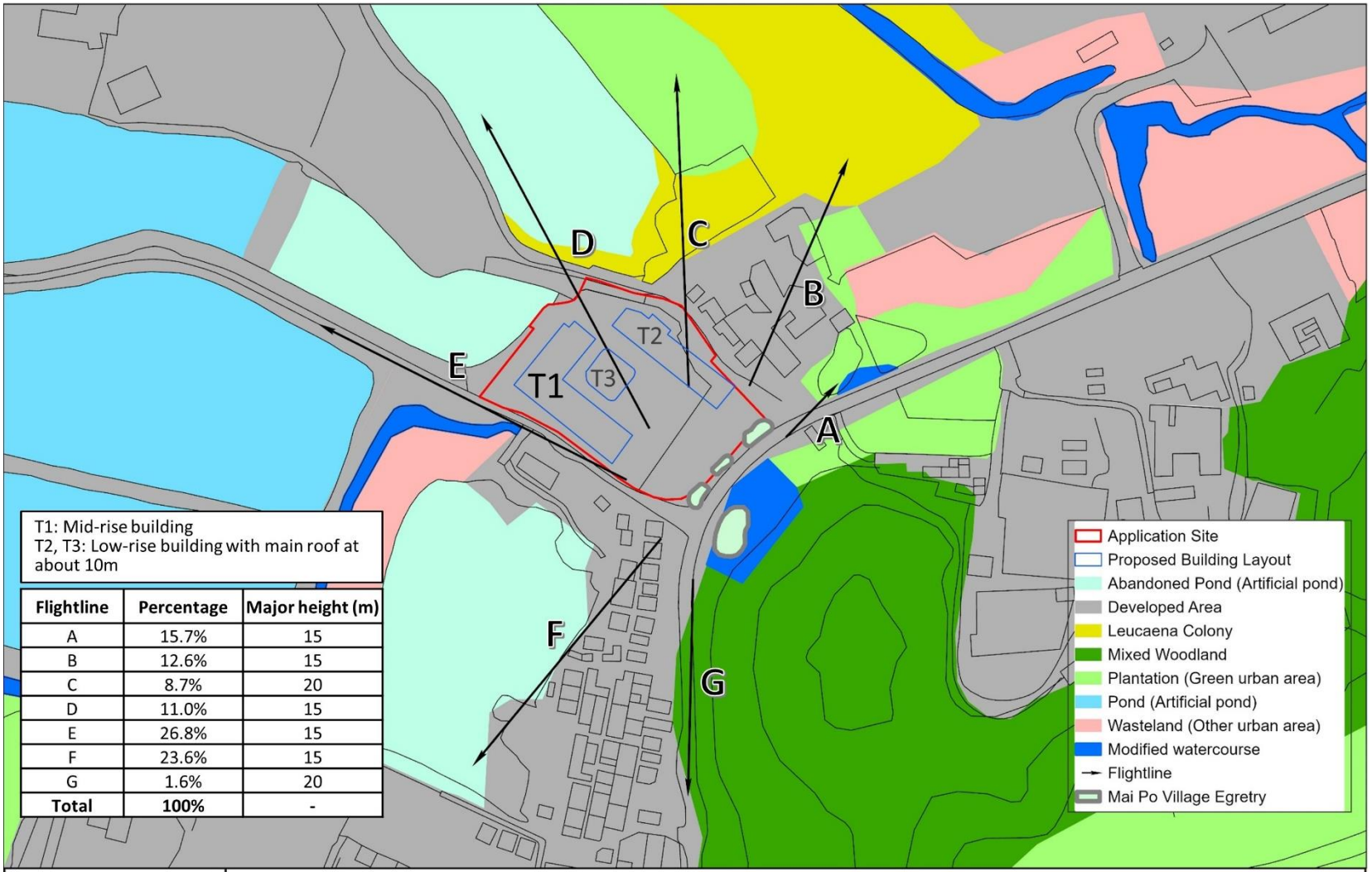
Figure 5.1 Building Layout and the Habitat Map



Flightline	Percentage	Major height (m)
A	15.7%	15
B	12.6%	15
C	8.7%	20
D	11.0%	15
E	26.8%	15
F	23.6%	15
G	1.6%	20
Total	**100%**	-

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Figure 5.2 Recorded Flightlines of the Mai Po Village Egretry and the Proposed Building Layout

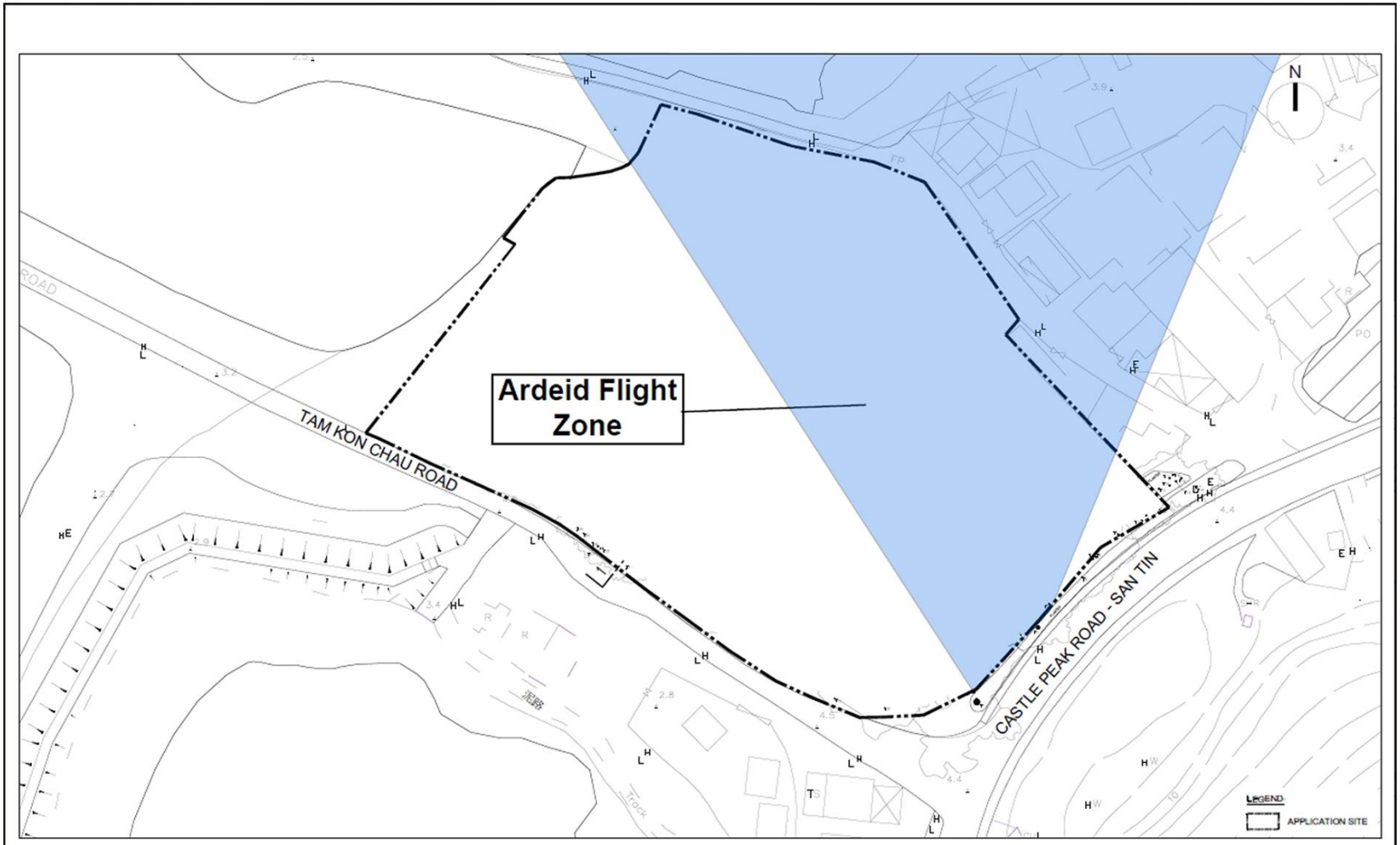

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Figure 5.3 Ardeid Flight Zone Recorded within the Application Site

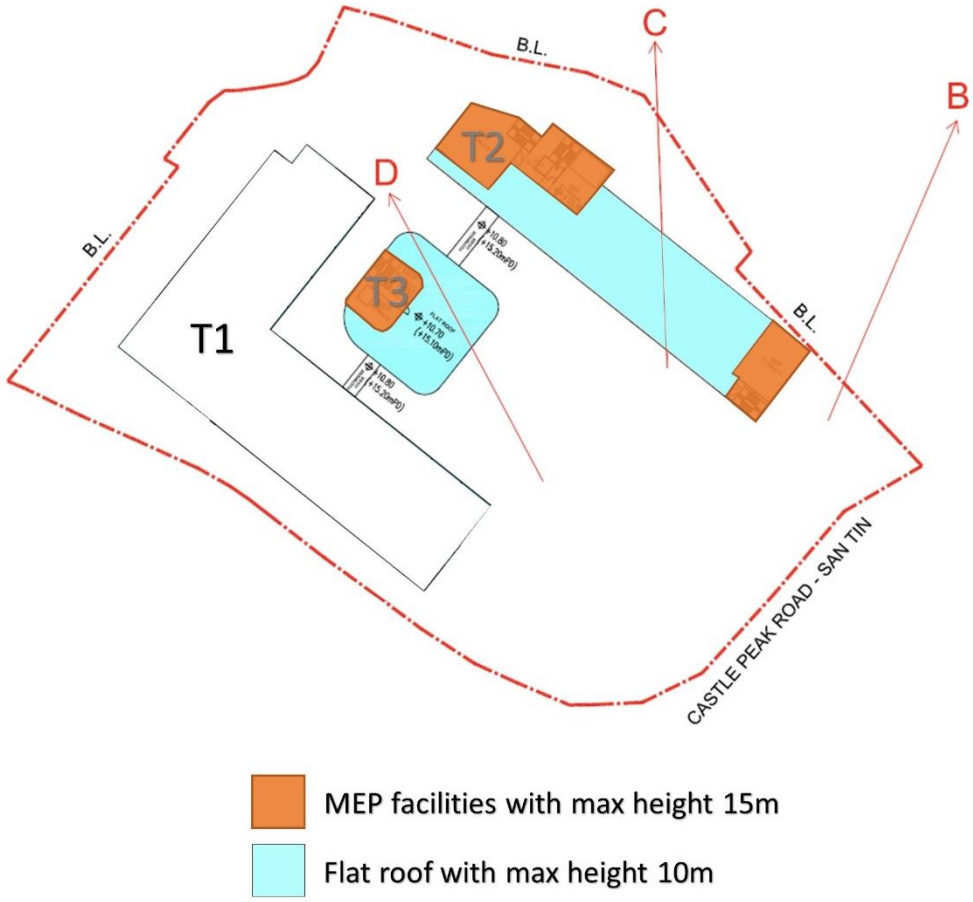

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Figure 5.4 MEP facilities Positioning to Avoid Obstruction of Flightline

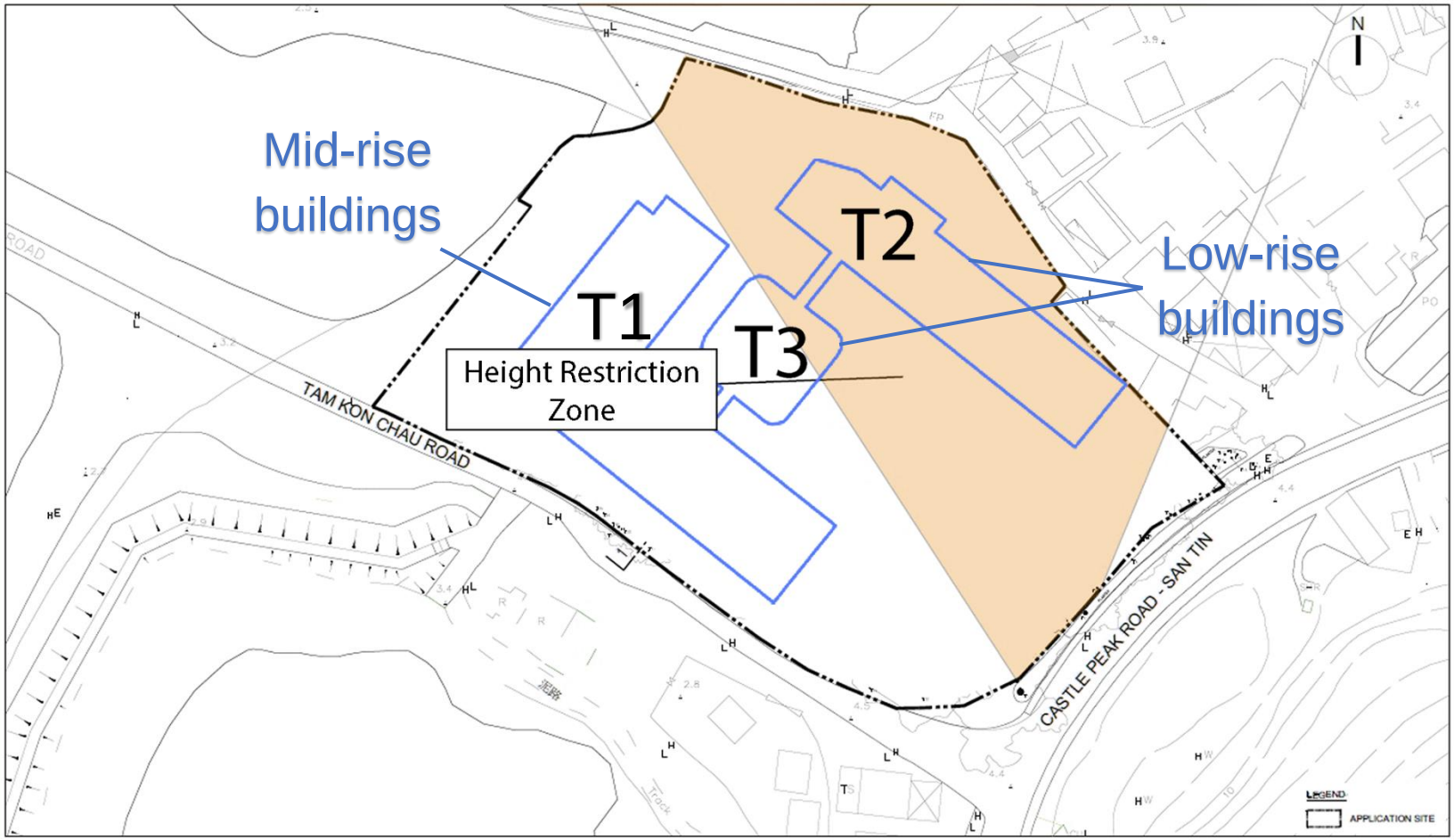

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Figure 6.1 Proposed Height Restriction Zone

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Figure 6.2 Mitigation consideration with reference to CE 20/2021 (CE)

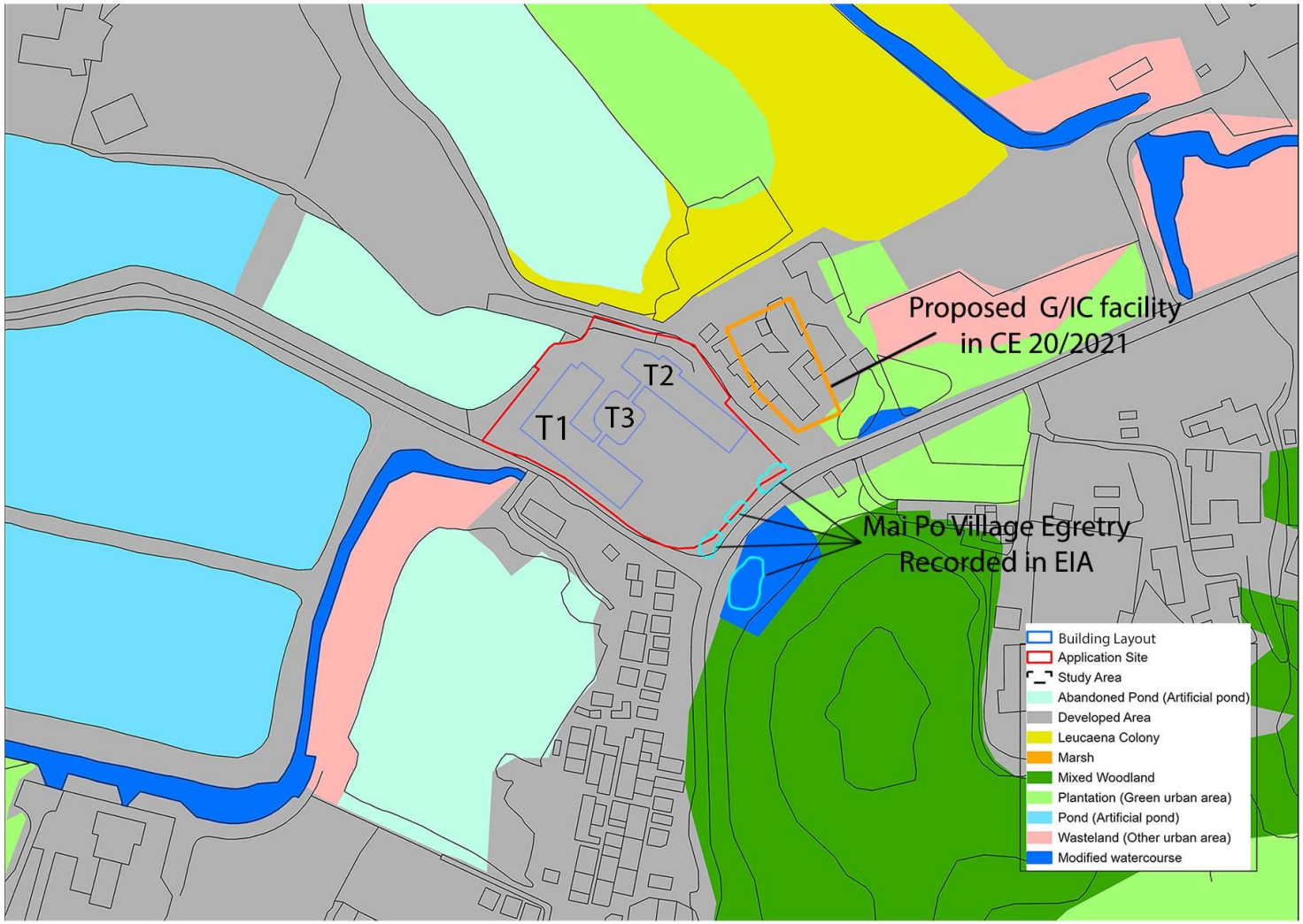

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Figure 6.3 Building Layout on Habitat Map
with Reference to CE 20/2021 EIA

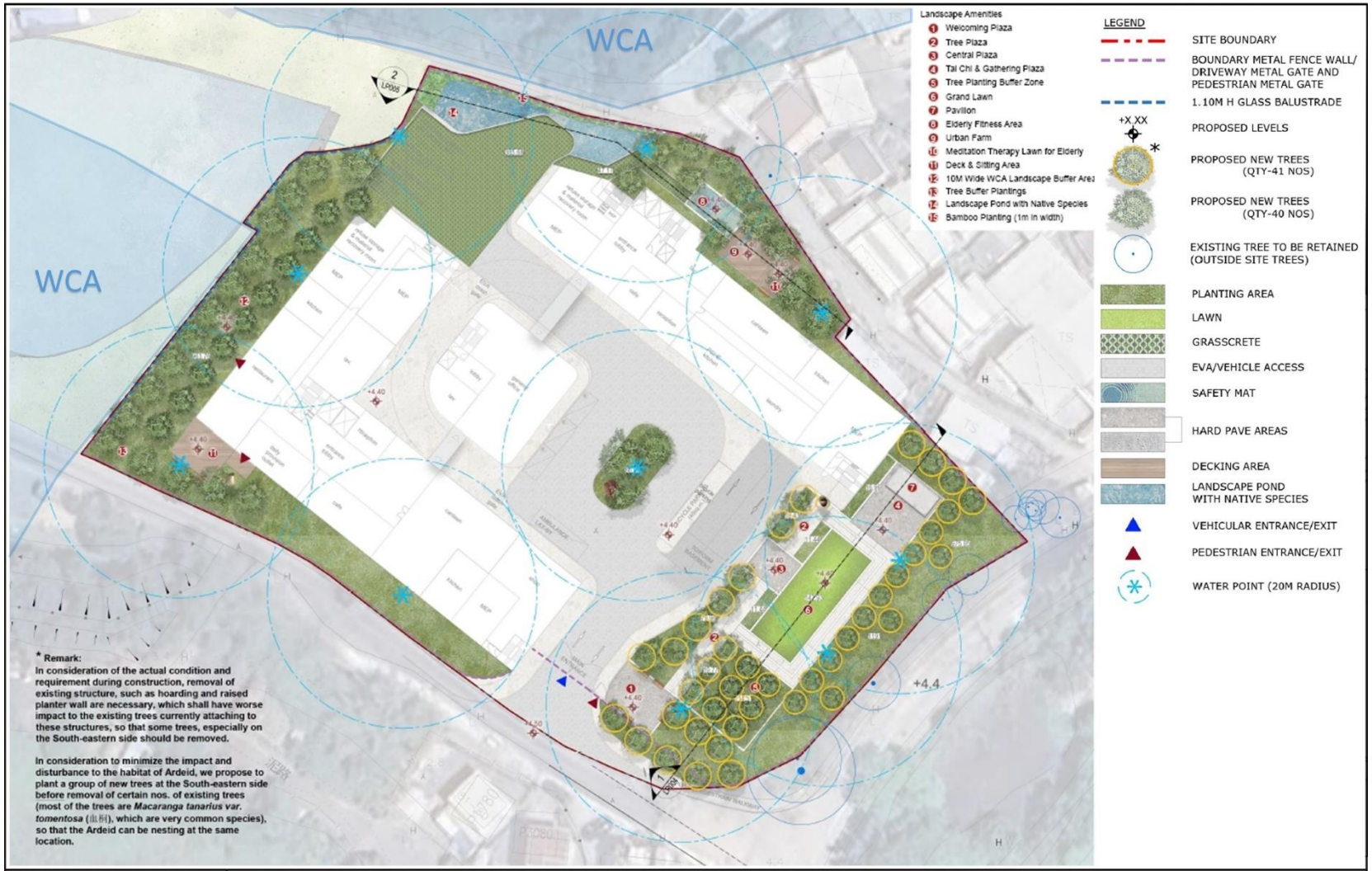

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Figure 6.4 Wetland and Visual Buffer Designed for WCA and Ecological Measures in the Landscape Master Plan

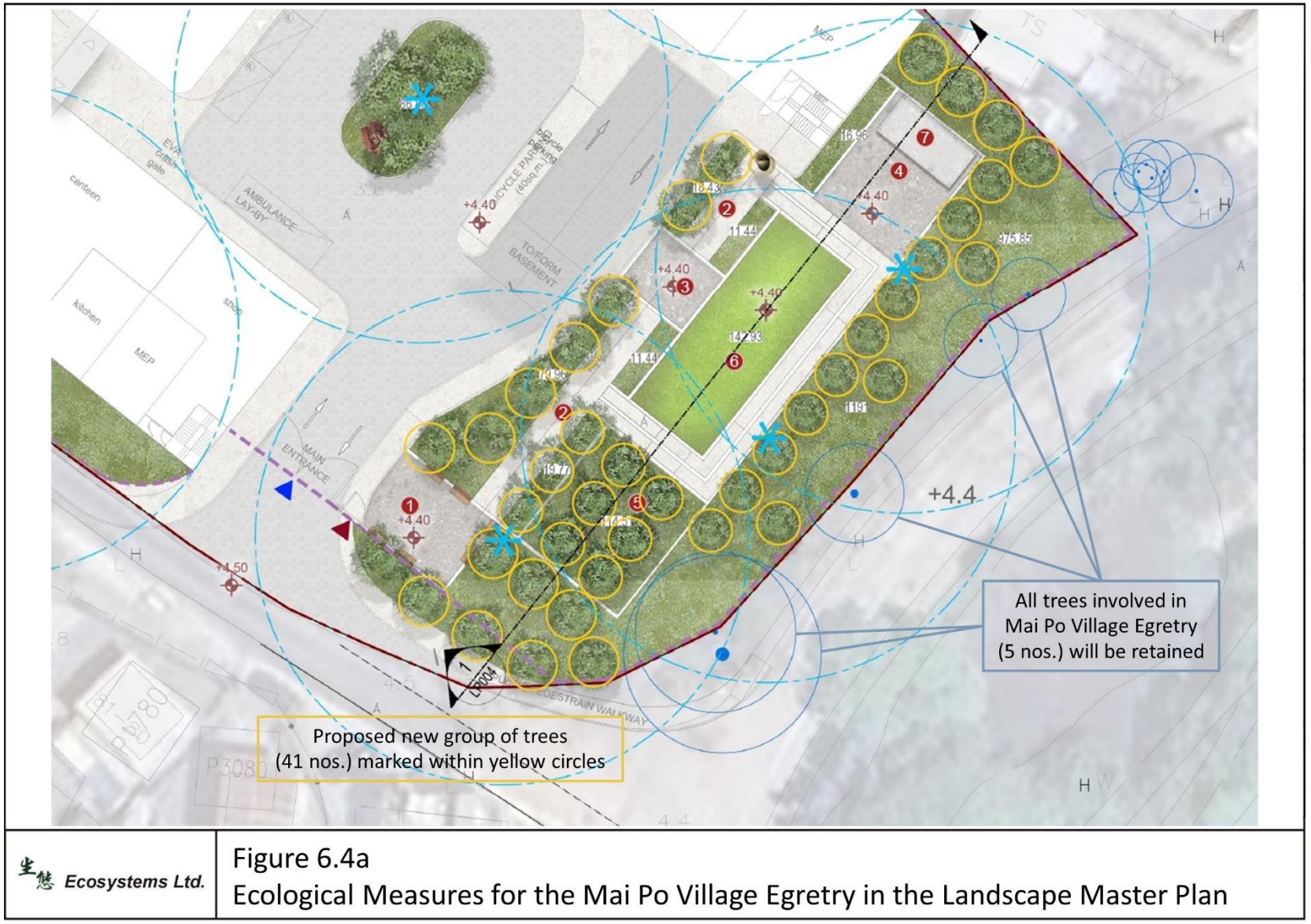

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Figure 6.4a
Ecological Measures for the Mai Po Village Egretry in the Landscape Master Plan

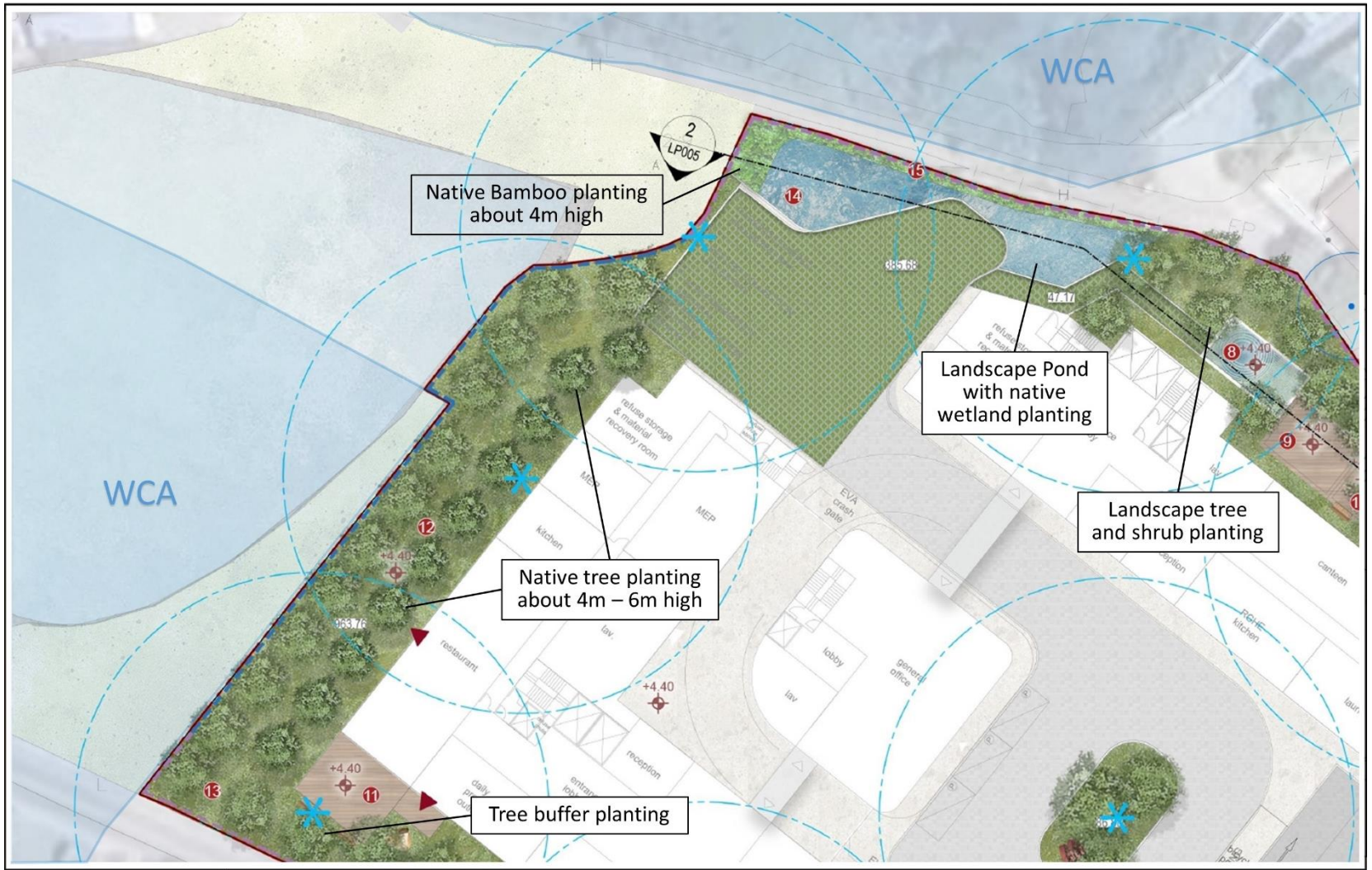

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Figure 6.4b
WCA Wetland and Visual Buffer Design in the Landscape Master Plan

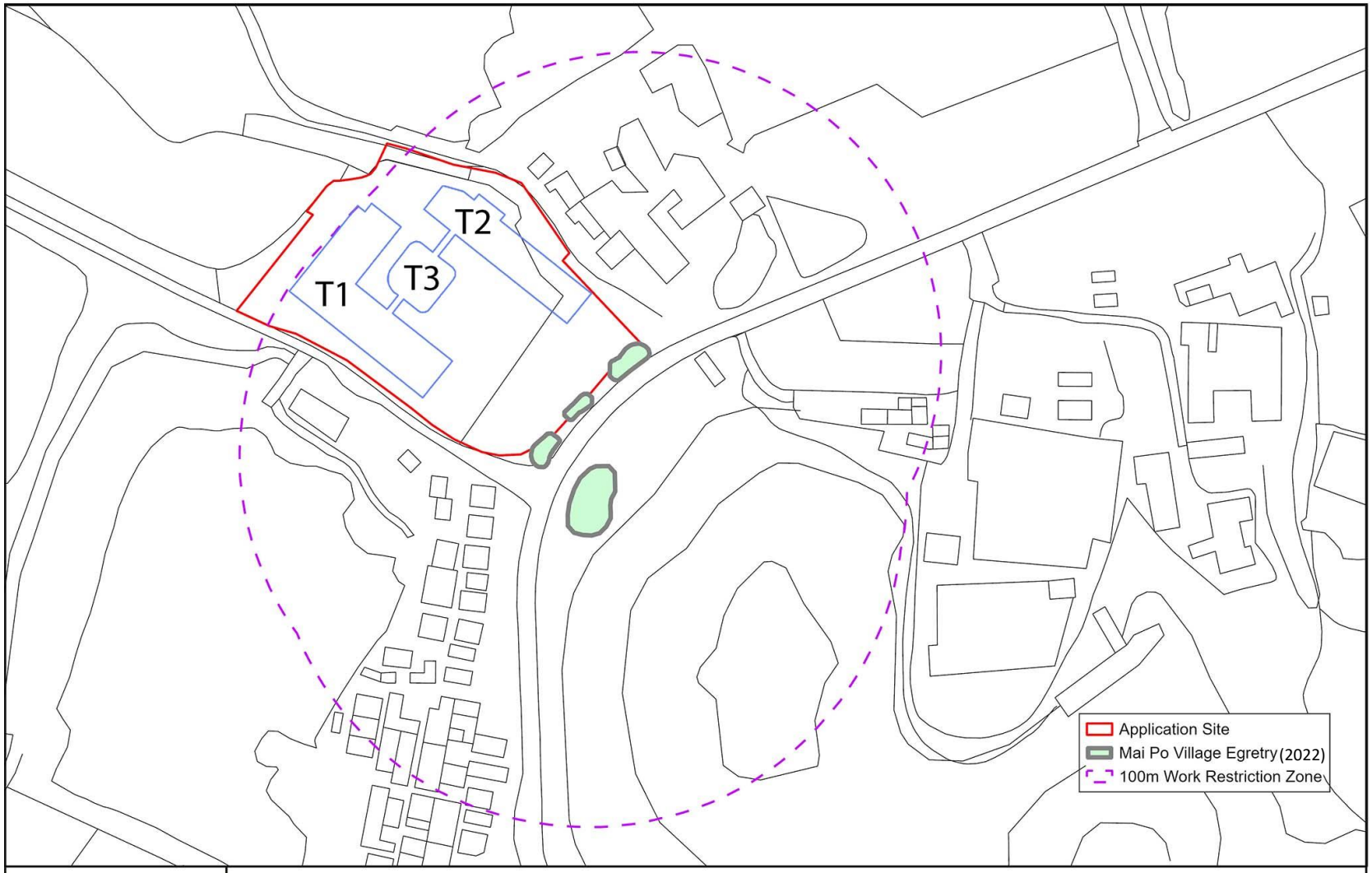

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Figure 6.5 100m Work Restriction Zone from Mai Po Village Egretry

Appendices

Appendix A Relative Abundance of Plant Species Recorded within the Study Area

Scientific name	Growth form	Origin	Rarity in Hong Kong[1]	Protection/Conservation status[2 3 4 5 6 7 8 9 10]	Application Site	Relative Abundance outside Application Site but within Study Area								
					DA	AP	DA	LC	PO	PL	MA	MW	Wa	MWa
Abrus precatorius	Climber	Native	Common											
Acacia auriculiformis	Tree	Exotic	-						S			S		O
Acacia confusa	Tree	Exotic	-				S			O		O		O
Achyranthes aspera	Herb	Native	Common										S	
Adiantum flabellulatum	Herb	Native	Very common									S		
Ageratum conyzoides	Herb	Exotic	Common		S		S					S		
Ageratum houstonianum	Herb	Exotic	Common				S					S	S	
Alangium chinense	Tree	Native	Common							S		S	S	
Albizia lebbeck	Tree	Exotic	-				S					S		
Aleurites moluccana	Tree	Exotic	-							S				
Allium fistulosum	Herb	Exotic	-				O							
Alocasia macrorrhizos	Herb	native	Very common		S	C	S	C	S	O	S	O	S	O
Aloe vera	Herb	Exotic	-				S							
Alternanthera paronychioides	Herb	Exotic	-						S					
Alternanthera philoxeroides	Herb	Exotic	Common						S					O
Alternanthera sessilis	Herb	native	Common						S					S
Amaranthus spinosus	Herb	Exotic	Common				S		S				S	
Amaranthus viridis	Herb	native	Very common						S				S	
Annona squamosa	Tree	Exotic	-				S		S					
Anredera cordifolia	Climber	Exotic	Restricted						S					
Apluda mutica	Herb	Native	Very common			S				S				

Scientific name	Growth form	Origin	Rarity in Hong Kong[1]	Protection/Conservation status[2 3 4 5 6 7 8 9 10]	Application Site	Relative Abundance outside Application Site but within Study Area								
					DA	AP	DA	LC	PO	PL	MA	MW	Wa	MWa
Aporusa dioica	Tree	Native	Very common							S		O		
Aquilaria sinensis	**Tree**	**Native**	**Common**	**Cap. 586 Rare and Precious Plants of Hong Kong (Near threatened in China) China Plant Red Data Book (Vulnerable) Illustrations of Rare & endangered plant in Guangdong Province Wild plant under State protection (category II) Threatened Species List of China's Higher Plants (Vulnerable, endemic species) IUCN Red List (Vulnerable) CITES Appendix II**								**S**		
Araucaria heterophylla	Tree	Exotic	-	IUCN Red List (Vulnerable)			S							
Archidendron lucidum	Tree	native	Common									S		
Archontophoenix alexandrae	Tree	Exotic	-				S							
Ardisia crenata	Shrub	native	Common									S		
Ardisia lindleyana	Shrub	native	Common									S		
Ardisia quinquegona	Shrub	native	Very common									O		
Areca catechu	Tree	Exotic	-				S							
Artocarpus heterophyllus	Tree	Exotic	-			S	O							
Aster subulatus	Herb	Exotic	-					S	S	S				
Asystasia micrantha	Herb	Exotic	-			S	S					S	S	
Averrhoa carambola	Tree	Exotic	-				S		S					
Baeckea frutescens	Tree	Native	Very common									S		
Bambusa spp.	Tree	Exotic	-							O	S	S		

Scientific name	Growth form	Origin	Rarity in Hong Kong[1]	Protection/Conservation status[2 3 4 5 6 7 8 9 10]	Application Site	Relative Abundance outside Application Site but within Study Area								
					DA	AP	DA	LC	PO	PL	MA	MW	Wa	MWa
Bauhinia purpurea	Tree	Exotic	-											
Bauhinia variegata	Tree	Exotic	-									S		
Begonia cucullata var. *hookeri*	Herb	Exotic	-				S							
Bidens alba	Herb	Exotic	Very common		C	O		O	S	O	O	S	C	C
Bidens pilosa	Herb	Exotic	Very common									S		S
Blechnum orientale	Herb	Native	Very common			S				S		S		
Boehmeria nivea	Shrub	Exotic	Restricted				S		S					
Bombax ceiba	Tree	Exotic	-				S							
Bothriochloa bladhii	Herb	Native	Very common				S						S	
Bothriochloa ischaemum	Herb	Native	Common										S	
Bougainvillea spectabilis	Climber	Exotic	-							S		S		
Brachiaria mutica	Herb	Exotic	Common			C			O		O		C	O
Brassica oleracea var. *albiflora*	Herb	Exotic	-				O							
Brassica rapa var. *chinensis*	Herb	Exotic	-				S							
Breynia fruticosa	Shrub	Native	Very common									S		
Bridelia tomentosa	Shrub	Native	Very common					S	S	S		O		O
Broussonetia papyrifera	Tree	Native	Very common		S	O	S					S		
Brucea javanica	Shrub	Native	Common						S			S		
Byttneria grandifolia	Climber	Native	Very common									S		
Calliandra haematocephala	Shrub	Exotic	-				S					s		
Callipteris esculenta	Herb	Native	Common									S		
***Camellia* spp.**	**Tree**	**Native**	**-**	**Cap.96**								**S**		
Canna indica	Herb	Exotic	-				S							

Scientific name	Growth form	Origin	Rarity in Hong Kong[1]	Protection/Conservation status[2 3 4 5 6 7 8 9 10]	Application Site	Relative Abundance outside Application Site but within Study Area							
					DA	AP	DA	LC	PO	PL	MA	MW	Wa	MWa
Capsicum annuum	Herb	Exotic	-				S							
Cardamine flexuosa	Herb	Native	Common				S		S					
Carica papaya	Tree	Exotic	-				C		S					
Caryota maxima	Tree	Exotic	-											
Caryota mitis	Tree	Exotic	-				S					S		
Cassytha filiformis	Climber	Native	Very common									S		
Castanopsis fissa	Tree	Native	Common									S		
Casuarina equisetifolia	Tree	Exotic	Rare				S			O		S		
Catharanthus roseus	Shrub	Exotic	-				S							
Celosia argentea	Herb	Native	Very common		S									
Celtis sinensis	Tree	Native	Common				S	S	S	O	S	O	S	S
Cenchrus echinatus	Herb	Exotic	Common										S	
Chloris barbata	Herb	Native	Very common				O		S				O	S
Choerospondias axillaris	Tree	Native	Common				S					S		
Chrysopogon aciculatus	Herb	Native	Very common										S	
Chukrasia tabularia	Tree	Exotic	-							S				
Cibotium barometz	**Herb**	**Native**	**Very common**	**Cap.586 Rare and Precious Plants of Hong Kong (Vulnerable in China) Wild plant under State protection (category II) CITES Appendix II**								**S**		
Cinnamomum burmannii	Tree	Native	-									S		
Cinnamomum camphora	Tree	Native	Common	Wild plant under State protection (category II) (1)			S			O				
Cinnamomum parthenoxylon	Tree	Native	Common									S		

Scientific name	Growth form	Origin	Rarity in Hong Kong[1]	Protection/Conservation status[2 3 4 5 6 7 8 9 10]	Application Site	Relative Abundance outside Application Site but within Study Area							
					DA	AP	DA	LC	PO	PL	MA	MW	Wa	MWa
Citrus maxima	Tree	Exotic	-	-			S							
Citrus reticulata	Tree	Exotic	-	Wild plant under State protection (category II)			S							
Citrus sinensis	Tree	Exotic	-											
Clausena lansium	Tree	Exotic	-				S		S			S		
Clerodendrum inerme	Shrub	Native	Common				S						S	
Cocculus orbiculatus	Climber	Native	Common									S		
Cocos nucifera	Tree	Exotic	-				S							
Colocasia esculenta	Herb	Exotic	-				O		S					
Commelina diffusa	Herb	Native	Common						S				S	C
Conyza canadensis	Herb	Exotic	Very common		S		S							
Conyza sumatrensis	Herb	Exotic	-										S	
Corchorus capsularis	Herb	Exotic	Common						S					
Crassocephalum crepidioides	Herb	Exotic	Common				S						S	
Crateva unilocularis	Tree	Exotic	-											
Cratoxylum cochinchinense	Tree	native	Very common							S		O		
Cucurbita moschata	Climber	Exotic	-				S							
Cuscuta chinensis	Herb	Native	Common			S		S						
Cyathula prostrata	Herb	Native	Common				S		S					
Cycas revoluta	Tree	Exotic	-	Wild plant under State protection (category II)			S							
Cyclosorus interruptus	Herb	Native	Common			S					S			
Cyclosorus parasiticus	Herb	Native	Very common									S		
Cynodon dactylon	Herb	native	Very common					S	S			S	S	
Cyperus compressus	Herb	native	Very common										S	

Scientific name	Growth form	Origin	Rarity in Hong Kong[1]	Protection/Conservation status[2 3 4 5 6 7 8 9 10]	Application Site	Relative Abundance outside Application Site but within Study Area								
					DA	AP	DA	LC	PO	PL	MA	MW	Wa	MWa
Cyperus difformis	Herb	native	Very common										O	
Cyperus exaltatus	Herb	native	Restricted						S				S	
Cyperus imbricatus	Herb	Native	Common			S								
Cyperus involucratus	Herb	Exotic	Restricted											S
Cyperus iria	Herb	Native	Common						O				O	
Cyperus malaccensis var. *brevifolius*	Herb	Native	Common											S
Cyperus odoratus	Herb	Exotic	Rare						S				S	O
Cyperus pilosus	Herb	Native	Common											S
Cyperus rotundus	Herb	Native	Very common			S			S					
Cyrtococcum patens	Herb	Native	Very common			O			S	S		S		
Dactyloctenium aegyptium	Herb	Native	Common										S	
Dalbergia benthamii	Climber	Native	Common	Cap. 586 CITES Appendix II								S		
Dalbergia hancei	Climber	Native	Common	Cap. 586 CITES Appendix II								S		
Delonix regia	Tree	Exotic	-		S		S							
Desmos chinensis	Shrub	Native	Common									C		
Dianella ensifolia	Herb	Native	Very common									S		
Dicliptera chinensis	Herb	Native	Restricted						S					
Dicranopteris pedata	Herb	native	Very common			S				S		S		
Dieffenbachia seguine	Herb	Exotic	-										S	S
Digitaria longiflora	Herb	Native	Very common						S					
Dimocarpus longan	Tree	Exotic	Restricted	China Plant Red Data Book (Vulnerable) Wild plant under State protection (category II) Threatened Species List	O		O		S	S		S	S	

Scientific name	Growth form	Origin	Rarity in Hong Kong[1]	Protection/Conservation status[2 3 4 5 6 7 8 9 10]	Application Site	Relative Abundance outside Application Site but within Study Area								
					DA	AP	DA	LC	PO	PL	MA	MW	Wa	MWa
				of China's Higher Plants (Vulnerable)										
Dioscorea bulbifera	Climber	Native	Common									S		
Dioscorea fordii	Climber	Native	Common									S		
Diospyros morrisiana	Tree	Native	Very common									S		
Dracaena draco	Tree	Exotic	-				S							
Drosera burmannii	Herb	Native	Restricted									S		
Dunbaria fusca	Climber	Native	Restricted				S		S					
Duranta erecta	Climber	Exotic	-							S		S		
Dypsis lutescens	Shrub	Exotic	-				S						S	
Echinochloa colona	Herb	native	Very common				S						S	
Echinochloa crusgalli	Herb	native	Common										S	S
Echinochloa glabrescens	Herb	native	-				S		S					
Eclipta prostrata	Herb	Native	Common						S			S	O	
Eichhornia crassipes	Herb	Exotic	Common			C					O			O
Elaeocarpus chinensis	Tree	Native	Common							S		S		
Elaeocarpus sylvestris	Tree	Native	Very common									S		
Eleusine indica	Herb	Native	Very common			O	S	S					O	S
Emilia sonchifolia	Herb	Native	Very common			S								
Epipremnum aureum	Climber	Exotic	-				S					S		
Equisetum debile	Herb	Native	Restricted											
Eragrostis pilosa var. *imberbis*	Herb	Native	-					S						
Eragrostis tenella	Herb	Native	Very common							S		S		
Eriobotrya japonica	Tree	Exotic	-				S					S		

Scientific name	Growth form	Origin	Rarity in Hong Kong[1]	Protection/Conservation status[2 3 4 5 6 7 8 9 10]	Application Site	Relative Abundance outside Application Site but within Study Area								
					DA	AP	DA	LC	PO	PL	MA	MW	Wa	MWa
Eucalyptus camaldulensis	Tree	Exotic	-							S				
Eucalyptus citriodora	Tree	Exotic	-									S		
Euphorbia hirta	Herb	Exotic	Very common			S			S	O			S	
Euphorbia hypericifolia	Herb	Native	Common											
Euphorbia thymifolia	Herb	Native	Very common											
Eurya loquaiana	Shrub	Native	Restricted									S		
Eurya nitida	Shrub	Native	Very common									O		
Ficus benjamina	Tree	Exotic	-											
Ficus elastica	Tree	Exotic	-				S	S	S				S	
Ficus hirta	Shrub	Native	Common									O		
Ficus hispida	Shrub	Native	Very common			S			S	S		C		O
Ficus microcarpa	Tree	Native	Common			S	S	S		O		O		
Ficus pumila	Climber	Native	Very common									S		O
Ficus religiosa	Tree	Exotic	Common											
Ficus subpisocarpa	Tree	Native	-						S					S
Ficus variegata var. *chlorocarpa*	Tree	Native	Common					S				S		S
Ficus virens var. *sublanceolata*	Tree	Native	Common				S					S		
Fimbristylis ferruginea	Herb	Native	Common										S	
Fimbristylis polytrichoides	Herb	Native	-			S			S				S	
Glochidion eriocarpum	Shrub	Native	Very common									S		
Gnaphalium pensylvanicum	Herb	Native	-						S					
Gnaphalium polycaulon	Herb	Native	Common						S					
Gomphrena celosioides	Herb	Native	Restricted										S	

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					DA	AP	DA	LC	PO	PL	MA	MW	Wa	MWa
Grewia biloba	Shrub	Native	Common									S		
Hedychium coronarium	Herb	Exotic	-											S
Hedyotis corymbosa	Herb	Native	Very common						S				S	
Heterosmilax japonica	Climber	Native	Common									S		
Hydrocotyle verticillata	Herb	Exotic	-											
Hylocereus undatus	Herb	Exotic	-											
Hymenocallis littoralis	Herb	Exotic	-											
Ilex asprella	Shrub	Native	Very common									C		
Ilex rotunda	Tree	Exotic	Common									O		
Ilex graciliflora	**Tree**	**Native**	**Common**	**IUCN Red List of Threatened Species (2021): Endangered [6]**								**S**		
Imperata cylindrica	Herb	Native	Very common						S	S			S	S
Ipomoea aquatica	Herb	Exotic	Very common			S	S		S				S	
Ipomoea batatas	Herb	Exotic	-			S								
Ipomoea cairica	Climber	Exotic	Very common		O	O	S	O	S	S	O	S	O	C
Ipomoea nil	Climber	Exotic	Common				S			S		S	S	
Ipomoea triloba	Herb	Native	-					O			S		S	S
Ixora chinensis	Shrub	Native	Restricted				S			S				
Juniperus chinensis cv. *Kaizuca*	Tree	Exotic	-											
Kalanchoe pinnata	Herb	Exotic	Common											S
Kyllinga aromatica	Herb	Exotic	Common										S	S
Kyllinga nemoralis	Herb	Native	Very common						S					
Lagerstroemia speciosa	Tree	Exotic	-							S				

Scientific name	Growth form	Origin	Rarity in Hong Kong[1]	Protection/Conservation status[2 3 4 5 6 7 8 9 10]	Application Site	Relative Abundance outside Application Site but within Study Area								
					DA	AP	DA	LC	PO	PL	MA	MW	Wa	MWa
Lantana camara	Shrub	Exotic	Very common									S	S	
Lemmaphyllum microphyllum	Herb	Native	Common									S		
Lepidium virginicum	Herb	Native	Restricted						S					
Leptochloa chinensis	Herb	Native	Very common				S		S					
Leucaena leucocephala	Tree	Exotic	Common		O	S	O	C	O	S	S	S	S	O
Ligustrum sinense	Tree	Native	Common				S					O		
Limnophila aromatica	Herb	Native	Restricted			S								
Liquidambar formosana	Tree	Native	Common							S		S		S
Liriope spicata	Herb	Native	Very common									S		
Litchi chinensis	Tree	Exotic	Restricted	China Plant Red Data Book (Vulnerable) Threatened Species List of China's Higher Plants (Endangered)			O		S	S		S		
Litsea glutinosa	Tree	Native	Very common									O		
Litsea rotundifolia var. *oblongifolia*	Shrub	Native	Very common									O		
Livistona chinensis	Tree	Exotic	-				S							
Lonicera japonica	Climber	Native	Restricted				S							
Lonicera macrantha	Climber	Native	Common									S		
Lophostemon confertus	Tree	Exotic	-							O		S		
Ludwigia adscendens	Herb	Native	Common										S	
Ludwigia erecta	Herb	Exotic	-			C					S			S
Ludwigia hyssopifolia	Herb	Native	-						S				S	S
Ludwigia octovalvis	Herb	Native	Common			S							S	O
Lycopersicon esculentum	Herb	Exotic	-				O							

Scientific name	Growth form	Origin	Rarity in Hong Kong[1]	Protection/Conservation status[2 3 4 5 6 7 8 9 10]	Application Site	Relative Abundance outside Application Site but within Study Area								
					DA	AP	DA	LC	PO	PL	MA	MW	Wa	MWa
Lygodium japonicum	Herb	Native	Very common					S				S		
Lygodium scandens	Herb	Native	Common							S		S		
Macaranga tanarius var. *tomentosa*	Tree	Native	Common		O	O	C	C	O	O		C	S	O
Machilus breviflora	Tree	Native	Very common									S		
Machilus chekiangensis	Tree	Native	Very common									O		
Mallotus paniculatus	Tree	Native	Very common							S		O		
Malvastrum coromandelianum	Shrub	Native	Common						S				S	
Malvaviscus penduliflorus	Shrub	Exotic	-											
Mangifera indica	Tree	Exotic	-				S		S	S		S		
Manihot esculenta	Shrub	Exotic	-						S			S		
Melaleuca cajuputi subsp. cumingiana	Tree	Exotic	-							O		S		
Melastoma malabathricum	Shrub	Native	Common									S		O
Melia azedarach	Tree	Exotic	Common		S				S	O		O		S
Melinis repens	Herb	Exotic	Very common							S		S	S	
Melodinus suaveolens	Climber	Native	Common							S		S		
Merremia hederacea	Climber	Native	Restricted										S	
Microcos nervosa	Shrub	Native	Common			S		S	S	S		C		
Microstegium ciliatum	Herb	Native	Very common			S						S		
Mikania micrantha	Herb	Exotic	Very common		O	C		C	O	O	S	S	O	O
Mimosa pudica	Herb	Exotic	Very common					O						
Miscanthus floridulus	Herb	Native	Common			O						S	S	S

Scientific name	Growth form	Origin	Rarity in Hong Kong[1]	Protection/Conservation status[2 3 4 5 6 7 8 9 10]	Application Site	Relative Abundance outside Application Site but within Study Area								
					DA	AP	DA	LC	PO	PL	MA	MW	Wa	MWa
Miscanthus sinensis	Herb	Native	Very common									S		
Morus alba	Tree	Native	Common							S				
Murraya paniculata	Tree	Exotic	-				S							
Musa x paradisiaca	Herb	Exotic	-			S	O		S	S		S		O
Mussaenda pubescens	Climber	Native	Very common									S		
Nelumbo nucifera	Herb	Exotic	-	Wild plant under State protection (category II)										S
Neyraudia reynaudiana	Herb	Native	Very common			O					O		S	O
Nymphaea tetragona	Herb	Exotic	-											S
Ocimum basilicum	Herb	Exotic	Very rare											
Oxalis corniculata	Herb	Native	Very common				S		S	S		S		
Paederia scandens	Climber	Native	Very common		S	S	O	S	S		S	S	O	O
Panicum ciliare Retz.	Herb	Native	Very common				S							
Panicum maximum	Herb	Exotic	Common		O	O	S	S	S	O			O	O
Panicum paludosum	Herb	Exotic	Common						S				S	S
Panicum repens	Herb	Native	Very common				S						O	S
Parthenocissus dalzielii	Climber	Exotic	-		S									S
Paspalum conjugatum	Herb	Native	Common			S			S			S	S	
Paspalum urvillei	Herb	Exotic	Common						S					
Passiflora edulis	Climber	Exotic	-				S							
Passiflora foetida	Climber	Exotic	Very common		O		S	S		S				S
Peltophorum pterocarpum	Tree	Exotic	-						S	S				
Pennisetum alopecuroides	Herb	Native	Common					S						

Scientific name	Growth form	Origin	Rarity in Hong Kong[1]	Protection/Conservation status[2 3 4 5 6 7 8 9 10]	Application Site	Relative Abundance outside Application Site but within Study Area								
					DA	AP	DA	LC	PO	PL	MA	MW	Wa	MWa
Pennisetum purpureum	Herb	Exotic	Very common			O			S		S		S	C
Persicaria barbata	Herb	Native	Common						S					O
Persicaria chinensis	Herb	Native	Common			C			S		S			
Persicaria hydropiper	Herb	Native	Common	-										S
Persicaria perfoliatum	Herb	Native	Common				S						S	
Phragmites australis	Herb	Native	Very common			O					C		S	S
Phragmites vallatorius	Herb	Native	Very common										S	
Phyllanthus cochinchinensis	Shrub	Native	Very common									S		
Phyllanthus emblica	Tree	Native	Very common							S		S		
Phyllanthus reticulatus	Shrub	Native	Common							S		S		
Physalis angulata	Herb	Native	Restricted				S			S				
Pinus elliottii	Tree	Exotic	-							S		O		
Pinus massoniana	Tree	Native	Common	China Plant Red Data Book (Endangered)								S		
Plantago major	Herb	Native	Very common						S				S	
Platycladus orientalis	Tree	Exotic	-				S							
Polyspora axillaris	Shrub	Native	Very common									O		
Portulaca oleracea	Herb	Native	Very common						S				S	
Pouzolzia zeylanica	Herb	Native	Common				S							
Praxelis clematidea	Herb	Exotic	Very common											O
Psidium guajava	Tree	Exotic	Common				S		S			S		
Psychotria asiatica	Tree	Native	Very common							S		O		
Pteridium aquilinum var. *latiusculum*	Herb	Native	Common						S			S		

Scientific name	Growth form	Origin	Rarity in Hong Kong[1]	Protection/Conservation status[2 3 4 5 6 7 8 9 10]	Application Site	Relative Abundance outside Application Site but within Study Area								
					DA	AP	DA	LC	PO	PL	MA	MW	Wa	MWa
Pteris biaurita	Herb	Native	Common							S				
Pteris semipinnata	Herb	Native	Very common							S		S		
Pteris vittata	Herb	Native	Very common									O		
Pueraria lobata var. *montana*	Climber	Native	Common						S				S	
Pueraria lobata var. *thomsonii*	Climber	Exotic	-						S					
Pueraria phaseoloides	Climber	Native	Very common		O				S			S		O
Punica granatum	Shrub	Exotic	-				S							
Pycreus polystachyos	Herb	Native	Very common										S	
Ranunculus sceleratus	Herb	Native	Restricted				O							
Raphanus sativus	Herb	Exotic	-				S					S		
Rhodomyrtus tomentosa	Shrub	Native	Very common									S		
Rhus chinensis	Tree	Native	Common									O		
Rhus succedanea	Shrub	Native	Common							S		O		
Ricinus communis	Shrub	Exotic	Restricted								S	S		S
Roystonea regia	Tree	Exotic	-				S							
Rumex trisetifer	Herb	Native	Common				S		S					
Saccharum officinarum	Herb	Exotic	-				S							S
Salix babylonica	Tree	Exotic	-				S							
Sapindus saponaria	Tree	Native	Restricted				S					S		
Sapium discolor	Tree	Native	Very common					S				S		
Sapium sebiferum	Tree	Native	Common				S		S	O		O	S	S
Schefflera arboricola	Climber	Exotic	-									S		
Schefflera heptaphylla	Tree	Native	Very common									C		

Scientific name	Growth form	Origin	Rarity in Hong Kong[1]	Protection/Conservation status[2 3 4 5 6 7 8 9 10]	Application Site	Relative Abundance outside Application Site but within Study Area								
					DA	AP	DA	LC	PO	PL	MA	MW	Wa	MWa
Scoparia dulcis	Herb	Exotic	Common									S	S	
Senna alata	Shrub	Exotic	-				S							
Sesbania cannabina	Herb	Exotic	Common		S				S		S		O	
Setaria pumila	Herb	Native	Very common				S					S		
Sida rhombifolia	Shrub	Native	Common						S	S				
Siegesbeckia orientalis	Herb	Native	Common				S							
Smilax china	Climber	Native	Very common									S		
Solanum americanum	Herb	Exotic	Very common						S	S			S	
Solanum torvum	Shrub	Exotic	Common				S			S		S	S	S
Solena amplexicaulis	Climber	Native	Very common				S							
Sonchus oleraceus	Herb	Exotic	Very common						S				S	
Sonneratia caseolaris	Tree	Exotuc	-						S					S
Spathodea campanulata	Tree	Exotic	-				S							
Spermacoce stricta	Herb	Native	Restricted					S						
Spilanthes paniculata	Herb	Native	Common						S					
Stellaria media	Herb	Native	Common											
Stephania longa	Climber	Native	Common				S							
Sterculia lanceolata	Tree	Native	Very common							S		C		
Strophanthus divaricatus	Climber	Native	Common									S		
Syngonium angustatum	Herb	Exotic	-									S		
Syngonium auritum	Herb	Exotic	-									S		
Syzygium cumini	Tree	Exotic	-						S			S		
Syzygium hancei	Tree	Native	Common									O		

Scientific name	Growth form	Origin	Rarity in Hong Kong[1]	Protection/Conservation status[2 3 4 5 6 7 8 9 10]	Application Site	Relative Abundance outside Application Site but within Study Area								
					DA	AP	DA	LC	PO	PL	MA	MW	Wa	MWa
Syzygium jambos	Tree	Exotic	Common					S		S		O	S	
Tadehagi triquetrum	Shrub	Native	Very common									O		
Tarenaya hassleriana	Herb	Exotic	-				S							
Telosma cordata	Climber	Exotic	-							S				
Tetradium glabrifolium	Tree	Native	Common									S		
Trema tomentosa	Shrub	Native	Common							S		S		
Tridax procumbens	Herb	Exotic	Very common				S							
Typha angustifolia	Herb	Exotic	Rare			O								
Vernonia cinerea	Herb	Native	Very common						S					
Vitis vinifera	Climber	Exotic	-		S									
Wedelia trilobata	Herb	Exotic	Common		O			C	O		S	S		
Youngia japonica	Herb	Native	Very common						S	S				
Zanthoxylum avicennae	Tree	Native	Common						S			S		
Zanthoxylum nitidum	Climber	Native	Very common							S		S		
Zanthoxylum scandens	Climber	Native	Common									S		
Zingiber officinale	Herb	Exotic	-											
Total number of species recorded in each habitat					**21**	**42**	**103**	**28**	**92**	**70**	**20**	**153**	**77**	**61**

Notes:
1. Corlett *et al*. (2000). Hong Kong vascular plants: distribution and status.
2. International Union of Conservation for Nature. (2019). The IUCN Red List of Threatened Species. Version 2019-2.
3. Convention on International Trade in Endangered Species of Wild Flora and Fauna (2020). Appendices I, II and III.
4. Qin *et al*. (2017). Threatened Species List of China's Higher Plants.
5. Fu & Chin (1992). China Plant Red Data Book – Rare and Endangered Plants.
6. Wu *et al*. (1988). Illustration of Rare & endangered plant in Guangdong Province.
7. Hu *et al*. (2003). Rare and Precious Plants of Hong Kong.
8. Cap. 586 Protection of Endangered Species of Animals and Plants Ordinance.
9. State Forestry Administration & Ministry of Agriculture. (1999). List of Wild Plants under State Protection (Part 1).
10. Cap. 96 Forests and Countryside Ordinance.

- *Araucaria heterophylla, Casuarina equisetifolia, Citrus reticulata, Cycas revoluta, Cyperus odoratus, Dimocarpus longan, Litchi chinensis, Ocimum basilicum, Nelumbo nucifera, Typha angustifolia* are exotic to Hong Kong and not considered of conservation importance, despite being listed as endangered in IUCN Red List, listed as endangered or vulnerable in Threatened Species List of China's Higher Plants, listed as vulnerable in China Plant Red Data Book, listed under Category II in the List of Wild Plants under State Protection (Part 1) and/or considered rare by Corlett *et al* (2000).
- *Cinnamomum camphora* and *Pinus massoniana* are cultivated therefore not considered species of conservation importance, despite being listed as endangered in China Plant Red Data Book and/or being listed under Category II in the List of Wild Plants under State Protection (Part 1).
- *Dalbergia* spp. are listed under Appendix II of CITES and protected under Cap. 586 Protection of Endangered Species of Animals and Plants Ordinance in Hong Kong as species in this genus is facing threat due to the overexploitation for its valuable wood (known as rosewood). In the current study, *Dalbergia benthamii* and *Dalbergia hancei* were recorded. As the recorded Dalbergia are climber which is not relevant to the timber exploitation. In addition, these species are common in Hong Kong and considered as "common" by Corlett et al. (2000). Thus, it is not considered as species of conservation importance in the current Study.

Abbreviations:

- Habitats: AP: Abandoned Pond (Artificial Pond); DA: Developed Area (Other Urban Area); LC: Leucaena Colony; Po: Active Pond (Artificial Pond); Pl: Plantation (Green Urban Area); MA: Marsh; MW: Mixed Woodland; Wa: Wasteland (Other Urban Area); MWa: Modified Watercourse
- Relative abundance: C = Common; O = Occasional; S = Scarce

Appendix B Relative Abundance of Mammal Species Recorded within the Study Area

Common Names[1]	Scientific Names[1]	Rarity and Distribution in Hong Kong[1]	Conservation status[1]	Study Area	Application Site
Short-nosed Fruit Bat	***Cynopterus sphinx***	**Widely distributed in urban & forested areas throughout Hong Kong.**	**China Red Data Book Status: (Indeterminate); (Cap. 170)**	✓	
Japanese Pipistrelle	***Pipistrellus abramus***	**Widely distributed throughout Hong Kong.**	**(Cap. 170)**	✓	
Least Pipistrelle	***Pipistrellus tenuis***	**Recent records were found in Nam Chung, Sheung Woo Hang, Shek Pik, Shing Mun and Plover Cove Country Park.**	**(Cap. 170)**	✓	✓
Myotis Spp.	**-**	**-**	**(Cap. 170)**	✓	
Chinese Noctule	***Nyctalus plancyi***	**Fairly widely distributed in countryside areas throughout Hong Kong.**	**(Cap. 170)**	✓	
Chinese Pipistrelle	***Hypsugo pulveratus***	**Record found in Tai Lam. Recent records have been found in Ting Kau and Ma On Shan.**	**Fellowes et al. (2002): (LC); (Cap. 170)**	✓	
Greater Bent-winged Bat	***Miniopterus magnater***	**Data deficient.**	**Fellowes et al. (2002): PRC,(RC); (Cap. 170)**	✓	
Horsfield's Myotis	***Myotis horsfieldii***	**Recent records found in Shek Kong, Fung Yuen & Nam Chung.**	**Fellowes et al. (2002): PRC,(RC); (Cap. 170)**	✓	
Lesser Bamboo Bat	***Tylonycteris pachypus***	**Widely distributed in forested areas throughout Hong Kong.**	**China Red Data Book Status: (Rare); Fellowes et al. (2002): (LC); (Cap. 170)**	✓	

Keys:
✓ = presence

Notes:
1. AFCD (2024). Hong Kong Biodiversity Database.
- **Species in bold are considered of conservation importance.**

Appendix C1 Abundance of Bird Species Recorded within the Study Area

Common Names[1]	Scientific Names[1]	Rarity and Distribution in Hong Kong[1]	Conservation status[1,2]	Application Site	Study Area (Including the Application Site)								
				DA	AP	DA	LC	Ma	MW	MWa	Pl	Wa	Po
Tufted Duck	*Aythya fuligula*	Abundant winter visitor. Found in Deep Bay area, Nam Chung, Starling Inlet.	Fellowes et al. (2002): LC		22								49
Little Grebe	*Tachybaptus ruficollis*	Common resident. Found in Deep Bay area.	Fellowes et al. (2002): LC		5	2		1					45
Black-faced Spoonbill	*Platalea minor*	Common winter visitor. Found in Deep Bay area.	China Red Data Book Status: EN; IUCN Red List: EN; Fellowes et al. (2002): PGC; List of Wild Animals under State Priority Conservation: Class I; Red List of China's Vertebrates: EN			6							6
Yellow Bittern	*Ixobrychus sinensis*	Uncommon summer visitor and common passage migrant. Found in Deep Bay area, Chek Keng, Tai Long Wan.	Fellowes et al. (2002): (LC)										2
Black-crowned Night Heron	*Nycticorax nycticorax*	Common resident and migrant. Widely distributed in Hong Kong.	Fellowes et al. (2002): LC		1	10		3					12
Chinese Pond Heron	*Ardeola bacchus*	Common resident. Widely distributed in Hong Kong.	Fellowes et al. (2002): PRC	3	1	2							39
Eastern Cattle Egret	*Bubulcus coromandus*	Resident and common passage migrant. Widely distributed in Hong Kong.	Fellowes et al. (2002): LC										13
Grey Heron	*Ardea cinerea*	Common winter visitor. Found in Deep Bay area, Starling Inlet, Kowloon Park, Cape D'Aguilar.	Fellowes et al. (2002): PRC										18
Great Egret	*Ardea alba*	Common resident, migrant and winter visitor. Widely distributed in Hong Kong.	Fellowes et al. (2002): PRC					1					24
Intermediate Egret	*Ardea intermedia*	Resident and passage migrant. Found in Deep Bay area, Tai Long Wan, Starling Inlet, Tai O, Cape D'Aguilar.	Fellowes et al. (2002): RC										19
Little Egret	*Egretta garzetta*	Common resident, migrant and winter visitor. Widely distributed in coastal area throughout Hong Kong.	Fellowes et al. (2002): PRC	20	1	20		1					55
Great Cormorant	*Phalacrocorax carbo*	Common winter visitor. Widely distributed in coastal areas throughout Hong Kong.	Fellowes et al. (2002): PRC			4		1					28

Common Names[1]	Scientific Names[1]	Rarity and Distribution in Hong Kong[1]	Conservation status[1,2]	Application Site	Study Area (Including the Application Site)								
				DA	AP	DA	LC	Ma	MW	MWa	Pl	Wa	Po
Black-winged Kite	***Elanus caeruleus***	**Uncommon visitor. Found in Ha Tsuen, Deep Bay area.**	**China Red Data Book Status: VU; Fellowes et al. (2002): LC; Cap. 586; List of Wild Animals under State Priority Conservation: Class II; CITES: Appendix II**										**1**
Eastern Imperial Eagle	***Aquila heliaca***	**Common winter visitor. Found in Deep Bay area, Ma Tso Lung.**	**China Red Data Book Status: VU; IUCN Red List: VU; Fellowes et al. (2002): GC; Cap. 586; List of Wild Animals under State Priority Conservation: Class I; Red List of China's Vertebrates: EN; CITES: Appendix II**										**1**
Bonelli's Eagle	***Aquila fasciata***	**Uncommon resident. Found in Deep Bay area, Hong Kong Island, Lamma Island, Lantau Island, Castle Peak, Sha Lo Tung.**	**China Red Data Book Status: Rare; IUCN Red List: LC; Fellowes et al. (2002): (RC); Cap. 586; List of Wild Animals under State Priority Conservation: Class II; Red List of China's Vertebrates: VU; CITES: Appendix II**			**1**							
Besra	***Accipiter virgatus***	**Common resident and migrant. Found in Tai Po Kau, Deep Bay area, Chek Lap Kok, Cheung Chau, Soko Islands.**	**Cap. 586; List of Wild Animals under State Priority Conservation: Class II; CITES: Appendix II**								**1**		
Black Kite	***Milvus migrans***	**Common resident and winter visitor. Widely distributed in Hong Kong.**	**Fellowes et al. (2002): (RC); Cap. 586; List of Wild Animals under State Priority Conservation: Class II; CITES: Appendix II**		**2**	**2**							**13**
Eastern Buzzard	***Buteo japonicus***	**Common winter visitor. Widely distributed in Hong Kong.**	**Cap. 586; List of Wild Animals under State Priority Conservation: Class II; CITES: Appendix II**										**2**
White-breasted Waterhen	*Amaurornis phoenicurus*	Common resident. Widely distributed in wetland throughout Hong Kong.	-			1		2					3
Common Moorhen	*Gallinula chloropus*	Common winter visitor, resident and migrant. Found in Deep Bay area, Shuen Wan, Starling Inlet.	-		3								5
Green Sandpiper	*Tringa ochropus*	Common migrant and winter visitor. Found in Deep Bay area, Shuen Wan, Long Valley, Kam Tin, Shek Kong, Ho Chung.	-										1

Common Names[1]	Scientific Names[1]	Rarity and Distribution in Hong Kong[1]	Conservation status[1,2]	Application Site	Study Area (Including the Application Site)								
				DA	AP	DA	LC	Ma	MW	MWa	PI	Wa	Po
Common Sandpiper	*Actitis hypoleucos*	Common passage migrant and winter visitor. Widely distributed in wetland area throughout Hong Kong.	-										5
Whiskered Tern	*Chlidonias hybrida*	Common passage migrant. Found in Deep Bay area, Shuen Wan, Tolo Harbour, Cape D'Aguilar, Cheung Chau.	-										2
Eurasian Collared Dove	*Streptopelia decaocto*	Locally common resident. Found in Mai Po, Tsim Bei Tsui and Fung Lok Wai.	-			18							27
Spotted Dove	*Spilopelia chinensis*	Abundant resident. Widely distributed in Hong Kong.	-	1		29	3		2		2		30
Greater Coucal	***Centropus sinensis***	**Common resident. Widely distributed in Hong Kong.**	**China Red Data Book Status: VU; List of Wild Animals under State Priority Conservation: Class II**		**1**	**2**		**3**					**4**
Asian Koel	*Eudynamys scolopaceus*	Common resident. Widely distributed in Hong Kong.	-			1							1
Plaintive Cuckoo	*Cacomantis merulinus*	Passage migrant and common visitor. Widely distributed in open area throughout Hong Kong.	-			5							
House Swift	*Apus nipalensis*	Abundant spring migrant and common resident. Widely distributed in Hong Kong.	-			14							6
White-throated Kingfisher	***Halcyon smyrnensis***	**Common resident. Widely distributed in coastal areas throughout Hong Kong**	**Fellowes et al. (2002): (LC); List of Wild Animals under State Priority Conservation: Class II**										**4**
Common Kingfisher	*Alcedo atthis*	Common passage migrant and winter visitor. Widely distributed in wetland habitat throughout Hong Kong.	-		2								10
Pied Kingfisher	***Ceryle rudis***	**Common resident. Widely distributed in lakes and ponds throughout Hong Kong.**	**Fellowes et al. (2002): (LC)**										**6**
Common Kestrel	***Falco tinnunculus***	**Common autumn migrant and winter visitor. Widely distributed in Hong Kong.**	**Cap. 586; List of Wild Animals under State Priority Conservation: Class II; CITES: Appendix II**										**1**
Eurasian Hobby	***Falco subbuteo***	**Uncommon autumn passage migrant. Widely distributed in marshes, agricultural land and lightly wooded hills throughout Hong Kong.**	**Fellowes et al. (2002): (LC); Cap. 586; List of Wild Animals under State Priority Conservation: Class II; CITES: Appendix II**			**1**							

Common Names[1]	Scientific Names[1]	Rarity and Distribution in Hong Kong[1]	Conservation status[1,2]	Application Site	Study Area (Including the Application Site)								
				DA	AP	DA	LC	Ma	MW	MWa	Pl	Wa	Po
Long-tailed Shrike	*Lanius schach*	Common resident. Widely distributed in open areas throughout Hong Kong.	-			4							2
Black Drongo	*Dicrurus macrocercus*	Common summer visitor. Widely distributed in open area throughout Hong Kong.	-										6
Red-billed Blue Magpie	*Urocissa erythroryncha*	Common resident. Widely distributed in woodland edges throught Hong Kong	-			4							4
Collared Crow	***Corvus torquatus***	**Locally common resident. Found in Inner Deep Bay area, Nam Chung, Kei Ling Ha, Tai Mei Tuk, Pok Fu Lam, Chek lap Kok, Shuen Wan, Lam Tsuen.**	**IUCN Red List: VU; Fellowes et al. (2002): LC**			**1**							**6**
Large-billed Crow	*Corvus macrorhynchos*	Common resident. Widely distributed in Hong Kong	-	1		31						3	
Cinereous Tit	*Parus cinereus*	Common resident. Widely distributed in Hong Kong.	-			4		1	1		1	2	
Red-whiskered Bulbul	*Pycnonotus jocosus*	Abundant resident. Widely distributed in Hong Kong.	-	2	8	53	1	3	4		2		40
Chinese Bulbul	*Pycnonotus sinensis*	Abundant resident. Widely distributed in Hong Kong.	-			24							21
Sooty-headed Bulbul	*Pycnonotus aurigaster*	Common resident. Widely distributed in open areas thorughout Hong Kong.	-			2							
Barn Swallow	*Hirundo rustica*	Abundant passage migrant and summer visitor. Widely distributed in Hong Kong.	-	4		4		3					15
Asian House Martin	*Delichon dasypus*	Uncommon passage migrant. Widely distributed in Hong Kong.	-										1
Red-rumped Swallow	*Cecropis daurica*	Locally common passage migrant and winter visitor. Widely distributed in Hong Kong.	-										2
Dusky Warbler	*Phylloscopus fuscatus*	Abundant winter visitor and migrant. Widely distributed in shrubland and waterside vegetation throughout Hong Kong.	-		4	6							16
Yellow-browed Warbler	*Phylloscopus inornatus*	Abundant winter visitor and migrant. Widely distributed in woodland throughout Hong Kong.	-			3							

Common Names[1]	Scientific Names[1]	Rarity and Distribution in Hong Kong[1]	Conservation status[1,2]	Application Site	Study Area (Including the Application Site)								
				DA	AP	DA	LC	Ma	MW	MWa	Pl	Wa	Po
Yellow-bellied Prinia	*Prinia flaviventris*	Common resident. Widely distributed in Hong Kong.	-			5		11		7			28
Plain Prinia	*Prinia inornata*	Locally common resident. Widely distributed in grassland throughout Hong Kong.	-					1		4			13
Common Tailorbird	*Orthotomus sutorius*	Common resident. Widely distributed in Hong Kong.	-			8	1		1		2		
Swinhoe's White-eye	*Zosterops simplex*	Abundant resident. Widely distributed in Hong Kong.	-	1	6	17		1	2		3		21
Crested Myna	*Acridotheres cristatellus*	Abundant resident. Widely distributed in Hong Kong.	-	3		123	2	4	4				135
Common Myna	*Acridotheres tristis*	Locally common resident. Found in Mai Po, Sheung Uk Tsuen, Sheung Shui, Kam Tin, Shek Kong, Ping Shan, Mong Tseng.	-			37							64
Red-billed Starling	***Spodiopsar sericeus***	**Abundant winter visitor. Widely distributed in Hong Kong.**	**Fellowes et al. (2002): GC**										**100**
Black-collared Starling	*Gracupica nigricollis*	Common resident. Widely distributed in Hong Kong.	-			5		4					10
White-shouldered Starling	***Sturnia sinensis***	**Locally common passage migrant and uncommon winter visitor. Found in Kam Tin, Deep Bay area, Po Toi Island, Long Valley, Victoria Park, Ho Chung, Ma Tso Lung, Mui Wo, Lam Tsuen Valley.**	**Fellowes et al. (2002): (LC)**			**102**							**8**
Daurian Redstart	*Phoenicurus auroreus*	Common winter visitor. Widely distributed in Hong Kong.	-			3							2
Amur Stonechat	*Saxicola stejnegeri*	Common passage migrant and winter visitor. Widely distributed in open cultivated fields throughout Hong Kong.	-										4
Eurasian Tree Sparrow	*Passer montanus*	Abundant resident. Widely distributed in Hong Kong.	-	1		83	4	2	3		3		61
Scaly-breasted Munia	*Lonchura punctulata*	Abundant resident. Widely distributed in Hong Kong.	-			12							55
White Wagtail	*Motacilla alba*	Resident, common passage migrant and winter visitor. Widely distributed in Hong Kong.	-			5							16

Common Names[1]	Scientific Names[1]	Rarity and Distribution in Hong Kong[1]	Conservation status[1,2]	Application Site	Study Area (Including the Application Site)								
				DA	AP	DA	LC	Ma	MW	MWa	Pl	Wa	Po
Olive-backed Pipit	*Anthus godlewskii*	Common passage migrant and winter visitor. Widely distributed in Hong Kong.	-										2
Black-faced Bunting	*Emberiza spodocephala*	Common winter visitor and passage migrant. Widely distributed in Hong Kong.	-										4
Brown Shrike	*Lanius cristatus*	Common passage migrant. Widely distributed in open areas throughout Hong Kong.	-										1
Citrine Wagtail	***Motacilla citreola***	**Uncommon migrant and winter visitor. Found in Tsim Bei Tsui, Shuen Wan, Mai Po, Long Valley.**	**Fellowes et al. (2002): LC**										**1**
Indian Cuckoo	*Cuculus micropterus*	Locally common spring and summer visitor. Widely distributed in Hong Kong.	-			1							1
Large Hawk-Cuckoo	*Hierococcyx sparverioides*	Locally common spring and summer visitor. Widely distributed in woodland throughout in Hong Kong.	-			2							
Oriental Magpie	*Pica serica*	Common resident. Widely distributed in Hong Kong	-			7							6
Savanna Nightjar	*Caprimulgus affinis*	Uncommon resident. Widely distributed in Hong Kong.	-			1							
Ruff	***Philomachus pugnax***	**Scarce passage migrant. Found in Deep Bay area, Kam Tin.**	**Fellowes et al. (2002): LC**										**1**

Notes:
1. AFCD (2024). Hong Kong Biodiversity Database.
2. International Union of Conservation for Nature. (2024). The IUCN Red List of Threatened Species. Version 2021.
3. Fellowes et al. (2002). Wild animals to watch: Terrestrial and freshwater fauna of conservation concern in Hong Kong. For conservation status listed by Fellowes et al. (2002), letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.

- **Species in bold are considered of conservation importance.**
- The number of the abundance represents the total number of individuals recorded in surveys.

Abbreviations:
- Habitat: AP: Abandoned Pond (Artificial Pond), DA: Developed Area (Other Urban Area), LC: *Leucaena* Colony, Ma: Marsh, MW: Mixed Woodland, MWa: Modified Watercourse, Pl: Plantation (Green Urban Area), Po: Pond (Artificial Pond); Wa: Wasteland (Other Urban Area); MW: Modified Watercourse.
- Conservation Status: LC = local concern, PRC = potential regional concern, RC = regional concern, GC = global concern; Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence (Fellowes et al,. 2002).

Appendix C2 The Distribution of Flight Heights of Each Recorded Flightline

Approximate heights(h) of flights	Recorded number of flight of each Flight Line							Total recorded flights	All recorded flights (Rounded %)
	A	B	C	D	E	F	G		
5m – 10m	0	0	1	0	0	0	0	1	1%
10m – 15m	13	15	4	11	31	17	2	93	72%
15m – 20m	5	1	6	2	3	5	0	22	19%
20m – 25m	2	0	0	1	0	4	0	7	6%
25m – 30m	0	0	0	0	0	3	0	3	2%
30m < h	0	0	0	0	0	1	0	1	1%
Total recorded flights	20	16	11	14	34	30	2	127	
Total (Rounded %)	15.7%	12.6%	8.7%	11.0%	26.8%	23.6%	1.6%		

Appendix D Abundance of Butterfly Species Recorded within the Study Area

Common Names[1]	Scientific Names[1]	Rarity and Distribution in Hong Kong[1]	Conservation status[1]	Habitats within the Study Area	
				DA	Po
Pale Grass Blue	*Pseudozizeeria maha*	Very common. Widely distributed throughout Hong Kong	-	4	1
Punchinello	*Zemeros flegyas*	Common. Widely distributed throughout Hong Kong	-	2	
Blue-spotted Crow	*Euploea midamus*	Very common. Widely distributed throughout Hong Kong	-	1	1
Angled Castor	*Ariadne ariadne*	Common. Widely distributed throughout Hong Kong	-	1	4
Red Ring Skirt	*Hestina assimilis*	Common. Widely distributed throughout Hong Kong.	-		1
Great Eggfly	*Hypolimnas bolina*	Common. Widely distributed throughout Hong Kong	-	2	
Dark-brand Bush Brown	*Mycalesis mineus*	Very common. Widely distributed throughout Hong Kong	-	4	1
Red Helen	*Papilio helenus*	Very common. Widely distributed throughout Hong Kong	-	1	
Great Mormon	*Papilio memnon*	Very common. Widely distributed throughout Hong Kong	-	3	
Common Mormon	*Papilio polytes*	Very common. Widely distributed throughout Hong Kong	-	5	5
Swallowtail	***Papilio xuthus***	**Rare. Kap Lung, Ma On Shan, Tai Tam, Sha Lo Wan, Kat O, Lung Kwu Tan, Wu Kau Tang, Lung Kwu Chau**	**-**	**1**	
Lemon Emigrant	*Catopsilia pomona*	Common. Widely distributed throughout Hong Kong	-	2	
Red-base Jezebel	*Delias pasithoe*	Very common. Widely distributed throughout Hong Kong	-	15	7
Common Grass Yellow	*Eurema hecabe*	Very common. Widely distributed throughout Hong Kong	-	3	3
Great Orange Tip	*Hebomoia glaucippe*	Common. Widely distributed throughout Hong Kong	-	1	
Indian Cabbage White	*Pieris canidia*	Very common. Widely distributed throughout Hong Kong	-	5	4
Small Cabbage White	***Pieris rapae***	**Rare. Shep Mun Kap, Fan Lau, Ngong Ping, Kam Tin, Ho Chung, Luk Keng, Tuen Mun Ash Lagoon**	**-**		**1**

Notes:
1. AFCD (2024). Hong Kong Biodiversity Database.
2. The number of the abundance represents the total number of individuals recorded in surveys.

Abbreviations:
- Habitat: Habitat: DA: Developed Area (Other Urban Area); Po: Pond (Artificial Pond)

Appendix E Abundance of Odonate Species Recorded within the Study Area

Common Names[1]	Scientific Names[1]	Rarity and Distribution in Hong Kong[1,2,3]	Conservation status	Habitats within the Study Area			
				AP	DA	MW	Po
Common Evening Hawker	*Anaciaeschna jaspidea*	Common. Semi-crepuscular and gregarious; found around marshes and wet lowland agricultural areas. Population scattered in Hong Kong, but more commonly seen in the north New Territories.	-				2
Pale-spotted Emperor	*Anax guttatus*	Common. Widely distributed in ponds and sluggish streams throughout Hong Kong.	-				1
Common Bluetail	*Ischnura senegalensis*	Abundant. Widely distributed in all wetland habitats except fast flowing rivers throughout Hong Kong.	-				6
Blue Dasher	*Brachydiplax chalybea*	Common. Widely distributed in marshes and weedy ponds throughout Hong Kong.	-			2	6
Common Red Skimmer	*Orthetrum pruinosum neglectum*	Abundant. Widely distributed in slow streams, ponds, rain puddles and irrigation conduits.	-	2			2
Pied Skimmer	*Pseudothemis zonata*	Common. Widely distributed in woodlands adjacent to reservoirs, sluggish streams, ponds, tanks and marshes throughout Hong Kong.	-			2	12
Scarlet Basker	***Urothemis signata***	**Common. Common in areas with abandoned fish ponds throughout Hong Kong.**	**Fellowes et al. (2002): LC**			**1**	**7**
Variegated Flutterer	*Rhyothemis variegata arria*	Common. Widely distributed in marshes, ponds and tanks throughout Hong Kong.	-			4	2
Saddlebag Glider	*Tramea virginia*	Abundant. Widely distributed in trees adjacent to ponds and lakes throughout Hong Kong.	-				1
Asian Amberwing	*Brachythemis contaminata*	Abundant. Widely distributed in weedy ponds and sluggish streams.	-			5	14
Green Skimmer	*Orthetrum sabina sabina*	Abundant. Widely distributed in all wetland habitats throughout Hong Kong.	-				5
Wandering Glider	*Pantala flavescens*	Abundant. Widely distributed all over Hong Kong.	-	5	20	20	82
Evening Skimmer	*Tholymis tillarga*	Common. Widely distributed in marshes, weedy ponds and tanks throughout Hong Kong.	-				8
Yellow Featherlegs	*Copera marginipes*	Abundant. Widely distributded in lowland streams, ditches, and weedy margins of pond throughout Hong Kong.	-			2	
Orange-tailed Sprite	*Ceriagrion auranticum*	Abundant. Widely distributed in weedy ponds, marshes, abandoned fields or grasslands adjacent to waters.	-				2

Notes:
1. AFCD (2024). Hong Kong Biodiversity Database.
2. International Union of Conservation for Nature. (2024). The IUCN Red List of Threatened Species. Version 2021.
3. Fellowes et al. (2002). Wild animals to watch: Terrestrial and freshwater fauna of conservation concern in Hong Kong. For conservation status listed by Fellowes et al. (2002), letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.

- **Species in bold are considered of conservation importance.**
- The number of the abundance represents the total number of individuals recorded in surveys.

Abbreviations:
- Habitat: AP: Abandoned Pond (Artificial Pond); DA: Developed area (Other Urban Area); MW: Mixed Woodland; Po: Pond (Artificial Pond).
- Conservation Status: LC = local concern; Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence (Fellowes et al,. 2002).

Appendix F Relative Abundance of Amphibian Species Recorded within the Study Area

Common Names[1]	Scientific Names[1]	Rarity and Distribution in Hong Kong[1]	Conservation status[1]	Habitats within the Study Area	
				DA	Po
Spotted Narrow-mouthed Frog	*Kalophrynus interlineatus*	Widely distributed from low to moderate altitudes in northern and central New Territories.	-		1
Asiatic Painted Frog	*Kaloula pulchra*	Widely distributed in Hong Kong.	-	1	1
Ornate Pigmy Frog	*Microhyla fissipes*	Widely distributed in Hong Kong.	-	1	1
Paddy Frog	*Fejervarya limnocharis*	Widely distributed in Hong Kong.	-	2	
Gunther's Frog	*Hylarana guentheri*	Widely distributed throughout Hong Kong.	-	2	
Brown Tree Frog	*Polypedates megacephalus*	Widely distributed throughout Hong Kong.	-	2	
Greenhouse frog	*Eleutherodactylus planirostris*	Exotic	-	1	
Asian Common Toad	*Duttaphrynus melanostictus*	Widely distributed in Hong Kong.	-	1	
Butler's Pigmy Frog	*Microhyla butleri*	Widely distributed in Hong Kong.	-	1	

Keys:
Relative abundance: + = Rare, ++ = Occasional, +++ = Common

Notes:
1. AFCD (2024). Hong Kong Biodiversity Database.

Abbreviations:
- Habitat: DA: Developed area (Other Urban Area); Po: Pond (Artificial Pond).

Appendix G Reptile Species Recorded within the Study Area

Common Names[1]	Scientific Names[1]	Rarity and Distribution in Hong Kong[1]	Conservation status[1,2,3,4]	Habitats within the Study Area	
				DA	Po
Changeable Lizard	*Calotes versicolor*	Widely distributed throughout Hong Kong.	-	1	
Copperhead Racer	***Coelognathus radiatus***	**Widely distributed throughout Hong Kong.**	**China Red Data Book Status: (Endangered); Fellowes et al. (2002): PRC; Red List of China's Vertebrates: (Endagered)**	**1**	
Taiwan Kukri Snake	*Oligodon formosanus*	Widely distributed throughout Hong Kong.	-	1	
Checkered Keelback	*Xenochrophis flavipunctatus*	Widely distributed in streams in the New Territories and Lantau Island.	-	2	
Bowring's Gecko	*Hemidactylus bowringii*	Distributed throughout Hong Kong.	-	6	
Long-tailed Skink	*Eutropis longicaudata*	Widely distributed throughout Hong Kong.	-	3	
Five-striped Blue-tailed Skink	***Plestiodon elegans***	**Distributed in woodlands in Tai Po Kau Nature Reserve, Tai Mo Shan Country Park and Shing Mun Country Park.**	**Fellowes et al. (2002): LC**		**2**
Bamboo Snake	*Cryptelytrops albolabris*	Distributed in shrubland, grassland throughout Hong Kong.	-	1	

Notes:
1. AFCD (2024). Hong Kong Biodiversity Database.
2. China Red Data Book (1998).
3. Red List of China's Vertebrates (2016).
4. Fellowes et al. (2002). Wild animals to watch: Terrestrial and freshwater fauna of conservation concern in Hong Kong. For conservation status listed by Fellowes et al. (2002), letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence.

- **Species in bold are considered of conservation importance.**

Abbreviations:
- Habitat: DA: Developed Area (Other Urban Area); Po: Pond (Artificial Pond)
- Conservation Status: LC = local concern, PRC = potential regional concern, RC = regional concern, GC = global concern; Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence (Fellowes et al,. 2002).

Appendix H Relative Abundance of Aquatic Species Recorded within the Study Area

Scientific Name	Common Name	Rarity and Distribution in Hong Kong / Conservation status [1]	Relative Abundance
			Study Area
Fish			
Cyprinus carpio	Common carp	Not common in streams but occurs in many reservoirs and cultivated in fishponds as food fish.	+
Gambusia affinis	Mosquito fish	Common	+++
Oreochromis mossambicus	Mozambique tilapia	Common	++
Cirrhinus molitorella	Mud carp	Not common in streams but occurs in large numbers in many reservoirs and cultivated in fishponds as food fish.	+
Channa striata	Snakehead murrel	Uncommon	+
		Total number of fish species recorded	**5**
Invertebrates			
Pomacea canaliculata	Apple snail	-	+++
Macrobrachium nipponense	-	-	+++
		Total number of invertebrate species recorded	**2**

Keys:
Relative abundance: + = Rare, ++ = Occasional, +++ = Common

Note:
1. AFCD (2024). Hong Kong Biodiversity Database.