

Appendix 3

Ecological Impact Assessment

Proposed Residential Development(s) with Retail, Public Vehicle Park and Social Welfare Facilities at Various Lots in D.D. 11 and Adjoining Government Land , Fung Yuen, Tai Po, New Territories

Ecological Impact Assessment

15 September 2025

Project No.: 0616883

Document details	The details entered below are automatically shown on the cover and the main page footer. PLEASE NOTE: This table must NOT be removed from this document.
Document title	Proposed Residential Development(s) with Retail, Public Vehicle Park and Social Welfare Facilities at Various Lots in D.D. 11 and Adjoining Government Land , Fung Yuen, Tai Po, New Territories
Document subtitle	Ecological Impact Assessment
Project No.	0616883
Date	15 September 2025
Version	03
Author	Various
Client Name	-

Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
Draft	00	Various	Mike Pang	Terence Fong	15.08.2022	-
	01	Various	Mike Pang	Terence Fong	25.10.2023	AFCD
	02	Various	Mike Pang	Terence Fong	30.5.2025	-
	03	Various	Mike Pang	Terence Fong	15.9.2025	

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Ecological Impact Assessment



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1. INTRODUCTION

1.1 Project Background

This S.12A application is to seek the Town Planning Board's approval for the proposed amendments to the Draft Tai Po Outline Zoning Plan No. S/TP/31 ("the OZP") for the proposed development at various lots in D.D. 11 and adjoining Government Land in Fung Yuen, Tai Po, New Territories ("the Development Site").

The proposed development will include residential development(s) with supporting retail and public vehicle park facilities in Area (A); and a social welfare complex comprising a Residential Care Home for the Elderly ("RCHE") and a Day Care Unit ("DCU") for the Elderly in Area (B).

The Applicant submitted an s.12A Planning Application (No. Y/TP/38) to TPB in 2022 to rezone the current western portion of the "CDA(1)" zone to "R(B)13" zone to enable a proposed residential development with retail facilities and public vehicle park, and a relaxation of the maximum building height restriction of the "G/IC" zone from 2 storeys to 8 storeys to the south of the "CDA(1)" zone for a proposed 8-storey Social Welfare Complex. While tremendous effort has been put to address and resolve the comments from Planning Department and relevant Government departments during circulation of the application, it is noted that majority of the Government departments have no further adverse comment on the technical assessments attached to Application No. Y/TP/38 since almost 3 years efforts being put by the Applicant & consultancy team.

Taking into account comments received from relevant Government departments and in order to achieve a wholistic planning scheme for the entire "CDA(1)" zone, the Applicant has put forward to include the CDA(1) Future Phase proposed in Application No. Y/TP/38 into the Development Site of this Application. The Proposed Development Proposal in this Application is largely the same as that under Application No. Y/TP/38. The Development Site of this Application is solely formed by the previous development sites, i.e. Area (A), Area(B) and the "CDA(1)" Future Phase. The total GFA, PR, building height, no. of units and estimated population of the Development Proposal is almost exactly the same as that under Application No. Y/TP/38.

To support this planning application, ERM was appointed by the applicant to undertake a baseline ecological survey of the Development Site and assess the potential ecological impacts arising from the proposed development.

1.2 Scope of Works

This Ecological Impact Assessment (EcoIA) has been prepared in support of the proposed amendments to the OZP for the Development Site. The EcoIA presents the findings of the ecological baseline surveys and evaluates the ecological value of the Fung Yuen Development Site (hereinafter refer to as the Development Site) and the areas within 100m from the boundary of the Development Site (hereinafter refer to as the Surrounding Study Area; for a clearer presentation, the Surrounding Study Area in this report does not include the Development Site unless otherwise specified). Potential ecological impacts are predicted based on the evaluation, with measures proposed to mitigate impacts on important habitats, flora and fauna species.

2. LEGISLATIVE REQUIREMENTS AND EVALUATION CRITERIA

Reference has been made to the *Technical Memorandum on Environmental Impact Assessment Process* (EIAO-TM) issued under the EIAO in the evaluation of potential ecological impacts, particularly *Annex 8 Criteria for Evaluating Ecological Impact* and *Annex 16 Guidelines for Ecological Assessment*. Annex 16 of the EIAO-TM sets out the general approach and methodology for assessment of ecological impacts arising from a project or proposal, to allow a complete and objective identification, prediction and evaluation of the potential ecological impacts. Annex 8 recommends the criteria that can be used for evaluating ecological impacts.

The following Guidance Notes have also been taken to account.

- GN 6/2010 *Some Observations on Ecological Assessment from the Environmental Impact Assessment Ordinance Perspective*,
- GN 7/2023 *Ecological Baseline Survey for Ecological Assessment*, and
- GN 10/2023 *Methodologies for Terrestrial and Freshwater Ecological Baseline Surveys*.

In addition, the following legislation and guidelines provide the framework for conducting ecological surveys and the protection of species and habitats of ecological importance for ecological impact assessment in Hong Kong:

- *Forests and Countryside Ordinance* (Cap. 96),
- *Town Planning Ordinance* (Cap. 131),
- *Wild Animals Protection Ordinance* (Cap. 170),
- *Protection of Endangered Species of Animals and Plants Ordinance* (Cap. 586),
- *Hong Kong Planning Standards and Guidelines Chapter 10* (HKPSG),
- PRC Regulations and Guidelines,
- China Red Data Book of Endangered Species, and
- *IUCN Red List* Categories and Criteria.

The *Forests and Countryside Ordinance* (Cap. 96) prohibits felling, cutting, burning or destroying of trees and growing plants in forests and plantations on Government land. The subsidiary Forestry Regulations prohibit the picking, felling or possession of listed rare and protected plant species. The list of protected species in Hong Kong which comes under the Forestry Regulations was last amended on 11 June 1993 under the Forestry (Amendment) Regulation 1993 made under Section 3 of the *Forests and Countryside Ordinance*.

The *Town Planning Ordinance* (Cap. 131) provides for the designation of areas such as “Coastal Protection Areas”, “Sites of Special Scientific Interest (SSSIs)”, “Green Belt” and “Conservation Area” to promote conservation or protection or protect significant habitat. Chapter 10 of HKPSG covers planning considerations relevant to conservation. This chapter details the principles of conservation, the conservation of natural landscape and habitats, historic buildings, archaeological sites and other antiquities. It also addresses the issue of enforcement. The appendices list the legislation and administrative controls for conservation, other conservation related measures in Hong Kong, and Government departments involved in conservation.

Under the *Wild Animals Protection Ordinance* (Cap. 170) designated wild animals are protected from being hunted, whilst their nests and eggs are protected from destruction and removal. All birds and most mammals including all cetaceans are protected under this Ordinance, as well as certain reptiles, amphibians and invertebrates. The Second Schedule of the Ordinance that lists all the animals protected was last revised in June 1997.

The *Protection of Endangered Species of Animals and Plants Ordinance* (Cap. 586) was enacted to align Hong Kong to control regime with the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). With effect from 1 December 2006, it replaces the Animals and

Plants (Protection of Endangered Species) Ordinance (Cap. 187). The purpose of the Protection of Endangered Species of Animals and Plants Ordinance is to restrict the import and export of species listed in CITES Appendices so as to protect wildlife from overexploitation or extinction. The Ordinance is primarily related to controlling trade in threatened and endangered species and restricting the local possession of them.

Chapter 10 of the *HKPSG* covers planning considerations relevant to conservation. This chapter details the principles of conservation, the conservation of natural landscape and habitats, historic buildings, archaeological sites and other antiquities. It also addresses the issue of enforcement. The appendices list the legislation and administrative controls for conservation, other conservation related measures in Hong Kong and Government departments involved in conservation.

In 1988 the Peoples' Republic of China (PRC) ratified the Wild Animal Protection Law, which lays down basic principles for protecting wild animals. The Law prohibits killing of protected animals, controls hunting, and protects the habitats of wild animals, both protected and non-protected. The Law also provides for the creation of lists of animals protected at the state level, under Class I and Class II. There are 96 animal species in Class I and 156 in Class II. Class I provides a higher level of protection for animals considered to be more threatened.

China Red Data Book of Endangered Species is a joint publication of China National Environmental Protection Agency (NEPA) and the Endangered Species Scientific Commission, PRC (ESSC). The first four volumes of this series cover China's vertebrates (i.e. aves, pisces, amphibia, reptilian and mammalia). The criteria of categories of species included in these volumes are 'extinct', 'extirpated', 'endangered', 'vulnerable', 'indeterminate' and 'rare'. These categories are basically based on the criteria set out by the IUCN Species Survival Commission (IUCN-SSC) for its global Red List. However, there are some important differences. The category "Extirpated" includes those species which experts believe have been lost from China, although they may be secure in the other countries. The use of the category "Rare" has been discontinued by the IUCN-SSC, however, it is used here for those species that have always been rare in China but are not necessary to be vulnerable or endangered.

The International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species provides taxonomic, conservation status and distribution information on taxa that have been evaluated using the IUCN Red List Categories and Criteria. This system is designed to determine the relative risk of extinction, and the main purpose of the IUCN Red List is to catalogue and highlight those taxa that are facing a higher risk of global extinction. The IUCN Red List also includes information on taxa that are either close to meeting the threatened thresholds or that would be threatened were it not for an ongoing taxon-specific conservation programme.

3. ECOLOGICAL BASELINE CONDITIONS

3.1 Recognised Sites of Conservation Importance

Three recognised sites of conservation importance were identified in the vicinity of the Surrounding Study Area and Development Site. Details of the sites are discussed below, and their locations are shown in **Figure 3.1**.

3.1.1 Fung Yuen Valley Site of Special Scientific Interest (SSSI)

Fung Yuen Valley SSSI is located approximately 300m to the north of the Development Site. Fung Yuen Valley SSSI was designated in February 1980 owing to its outstanding butterfly community. More than 200 butterfly species have been recorded since systematic surveys commenced in 2002. The forested ravines are the breeding site of some rare butterflies such as Common Birdwing *Troides helena*, Golden Birdwing *Troides aeacus* and White Dragontail *Lamproptera curius*.

3.1.2 Fung Yuen Butterfly Reserve

Fung Yuen Butterfly Reserve was set up in 2005 and is currently managed by Tai Po Environmental Association (TPEA). TPEA obtained funding from the Environment and Conservation Fund (ECF) and land from various owners, who licensed its landholding in the SSSI at nominal rent to the TPEA to manage the Reserve proactively for butterfly conservation, under a Pilot Conservation Management Agreement Project. It is located approximately 300m from the north of the Development Site.

3.1.3 Pat Sin Leng Country Park

Pat Sin Leng Country Park covers 3,125 hectares of natural terrain in the Northeastern New Territories. Near Lau Shui Heung Reservoir and Hok Tau Reservoir, there are profuse plantations and wooded valleys with both native and exotic flora species. The catchment forests provide important habitat to avian species such as Hwamei *Garrulax canorus* and Common Kingfisher *Alcedo atthis*, as well as mammal species such as Chinese Pangolin *Manis pentadactyla* and Leopard Cat *Prionailurus benegalensis*. It is located ~1,000m from the north of the Development Site.

3.2 Literature Review

A literature review was conducted to determine the existing ecological conditions within the Surrounding Study Area and to identify habitat resources and species of potential importance. The literature reviewed included:

- Porcupine! (Newsletter of Department of Ecology & Biodiversity, University of Hong Kong) ⁽¹⁾;
- Hong Kong Biodiversity (Agriculture, Fisheries and Conservation Department Newsletters) ⁽²⁾;
- The Avifauna of Hong Kong ⁽³⁾;
- Annual Reports of Hong Kong Bird Watching Society ⁽⁴⁾;
- Hong Kong Amphibians and Reptiles ⁽⁵⁾;
- A Field Guide to the Amphibians of Hong Kong ⁽⁶⁾;

(1) Newsletter of Department of Ecology & Biodiversity, University of Hong Kong

(2) Agriculture, Fisheries and Conservation Department Newsletters (2002 – 2012). *Hong Kong Biodiversity*. Issues 1 - 22

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

(4) Hong Kong Bird Watching Society (1990 -2000). Annual Reports

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

(6) AFCD (2005). *A Field Guide to the Amphibians of Hong Kong*. Friends of Country Park.

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- Field Guide to the Dragonflies of Hong Kong ⁽⁷⁾;
- Field Guide to Butterfly Watching in Hong Kong ⁽⁸⁾;
- Gymnosperms and Angiosperms of Hong Kong ⁽⁹⁾;
- Orchidaceae of Hong Kong ⁽¹⁰⁾;
- Planning Application for Residential and Agricultural Development within “CDA (1)” Zone at Fung Yuen Tai Po (the 2000 Planning Study) ⁽¹¹⁾;
- Preparation of Five-Year Management Plan for Butterfly Conservation in Fung Yuen Valley Site of Special Scientific Interest (the Fung Yuen Valley SSSI Study) ⁽¹²⁾;
- Environmental Assessment for Pilot Project for Public-Private Partnership Conservation Scheme, Sha Lo Tung Valley, Tai Po (the SLT PPP Pilot Study) ⁽¹³⁾;
- Ecological Assessment for General Building Plans Submission for Tai Po, N.T., T.P.T.L. No. 183 ⁽¹⁴⁾; and
- Ecological Impact Assessment in Support of a Section 12A Application for Residential Development at Fung Yuen 2018 ⁽¹⁵⁾.

The latest study which covered the current Development Site was conducted in September and October 2018 to investigate the potential ecological impacts owing to the proposed residential development at a similar location to the current Development Site but without the southern portion near Ting Kok Road. The 2018 ⁽⁸⁾ study concluded that the Development Site was dominated by grassland and shrubland-grassland habitats, both of low ecological value. Flora and fauna species of conservation importance recorded within the current Surrounding Study Area from the above-mentioned relevant studies are indicated on **Figure 3.1**.

3.3 Survey Methodology

In order to obtain a set of updated data to verify the collected information and fill information gaps from the literature review in **Section 3.2**, a focused baseline field surveys were undertaken in September and October 2021, and additional surveys were conducted in April and May 2025, to collect up-to-date baseline information of the flora and major fauna groups of the Development Site and Surrounding Study Area. A summary of the ecological surveys conducted are shown in **Table 3.1**.

-
- (7) Wilson, K.D.P. (2004). *Field Guide to the Dragonflies of Hong Kong*. Friends of Country Park.
- (8) Yiu V (2004). *Field Guide to the butterflies of Hong Kong*. Friends of Country Park.
- (9) 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: 21-136.
- (10) Siu L P (2000). Orchidaceae of Hong Kong. *Memoirs of the Hong Kong Natural History Society*. 23: 137-147.
- (11) City Planning Consultants Ltd.(2000). *Planning Application for Residential and Agricultural Development within “CDA (1)” Zone at Fung Yuen Tai Po*.
- (12) Asia Ecological Consultants Ltd (2008). *Preparation of Five-Year Management Plan for Butterfly Conservation in Fung Yuen Valley Site of Special Scientific Interest*. Final Report for AFCD.
- (13) ERM (August 2008). *Environmental Assessment Report for Pilot Project for Public-Private Partnership Conservation Scheme, Sha Lo Tung Valley, Tai Po*. Report for Sha Lo Tung Development Company Ltd.
- (14) ERM (2009). *Ecological Assessment for General Building Plans Submission for Tai Po, N.T., T.P.T.L. No. 183*.
- (15) ERM (2018). *Ecological Impact Assessment in Support of a Section 12A Application for Residential Development at Fung Yuen*. Report for Cheung Kong (Holdings) Limited.

Table 3.1 Summary of Ecological Baseline Surveys

Survey Type	Methodology
Habitat and Vegetation	Habitat mapping and vegetation identification through ground truthing in major habitats.
Bird	Quantitative (point count method) and qualitative survey including day and night surveys
Mammal	Qualitative (active searching along the survey transect); including day and night surveys
Herpetofauna	Quantitative (active searching along the survey transect) and qualitative including day and night surveys
Butterfly	Quantitative (point count method) and qualitative survey; including only day surveys
Dragonfly	Quantitative (point count method) and qualitative survey; including only day surveys
Firefly*	Quantitative (direct observation along the survey transect) and qualitative during dusk and night surveys
Aquatic fauna	Active searching in watercourse during day surveys

Note: * - Firefly survey was only conducted in additional surveys in April and May 2025 due to the updates of *EIAO-TM* and *Guidance Notes*

The ecological surveys aimed at establishing a general ecological profile of the Development Site and Surrounding Study Area and describing the characteristics of each habitat identified. The methodology for the terrestrial ecological surveys made reference to the technical guidelines of ecological assessment in *Annex 16* of *EIAO-TM* and the related *Guidance Notes* (*GN 6/2010*, *GN 7/2023* and *GN 10/2023*).

Details of the methodologies employed in the ecological surveys undertaken for the assessment are provided below.

3.3.1 Habitat and Vegetation Surveys

Field surveys focused on habitat and vegetation within the Development Site and the Surrounding Study Area. Special attention was given to plant species of conservation importance. The aim of the surveys was to record ecological data within the Development Site and the Surrounding Study Area and establish the ecological profile.

Habitats were mapped based on aerial photos, previous studies and 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 paid to rare or protected species. Nomenclature and conservation status of plant species follow Xing *et al.* (2000)⁽¹⁶⁾, Wu and Lee (2000)⁽¹⁷⁾, Siu (2000)⁽¹⁸⁾, AFCD (2003)⁽¹⁹⁾ and AFCD (2004)⁽²⁰⁾.

3.3.2 Wildlife Surveys

Wildlife surveys included day-time and night-time surveys. Qualitative and quantitative data were recorded from transects and using the point count method (**Figure 3.2**).

(16) 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: 21-136.

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

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

(19) AFCD (2003). Rare and Precious Plants of Hong Kong. Power Digital Printing Co. Ltd.

(20) AFCD (2004). Check List of Hong Kong Plants. Hong Kong Herbarium.

Mammals

As most mammals occurred at low densities, all sightings, tracks, and signs of mammals (including droppings) were actively searched. Nomenclature for mammals follows AFCD (2006)⁽²¹⁾. No quantification of abundance of mammals was made, due to the difficulties in translating sights and tracks (e.g. burrows) to actual abundance. Bat detector was used during night surveys to detect echolocation calls of foraging bats. Bats were then identified as far as possible according to the recorded echolocation call patterns.

Birds

The bird communities of the identified habitats within the Development Site and the Surrounding Study Area were surveyed using transects/ point count method subject to the on-site conditions. Five minutes were spent counting birds at each sampling point, and all birds seen or heard within 30m of each point were counted and identified to species level where possible. Birds flying directly overhead at each sampling point (e.g. birds of prey, swifts and swallows, corvids) were also included in the sampling point records. Signs of breeding (e.g. nests, recently fledged juveniles) within the Surrounding Study Area and the Development Site were also recorded, if any. Observations were made using 8x binoculars. Bird species encountered outside counting points but within the Hong Kong Study Area were also recorded to produce a complete species list. Ornithological nomenclature in this report follows AFCD's Hong Kong Biodiversity Online Database⁽²²⁾.

Herpetofauna

Herpetofauna surveys were conducted through direct observation and active searching in all representative habitat types along survey transects and in potential hiding places such as among leaf litter, inside holes and under stones and logs within the Development Site and the Surrounding Study Area. Auditory detection of species-specific calls was also used to survey frogs and toads. During the surveys, all reptiles and amphibians sighted and heard were recorded.

Nomenclature used for reptiles and amphibians follows Karsen *et al* 1998⁽²³⁾, AFCD (2005)⁽²⁴⁾, and AFCD (2006)⁽²⁵⁾ while the status follows AFCD's Hong Kong Biodiversity Online Database⁽²⁶⁾.

Odonates and Butterflies

Odonates and butterflies of different habitats within the Development Site and the Surrounding Study Area were surveyed using transect/ point count method subject to the on-site conditions. Any odonates and butterflies that were encountered were identified and counted in order to produce a complete species list. Nomenclature for butterflies in this report follows Walthew 1997⁽²⁷⁾ and Yiu 2004⁽²⁸⁾, and for odonates, nomenclature follows Wilson (2004)⁽²⁹⁾. The status follows AFCD's Hong Kong Biodiversity Online Database⁽³⁰⁾.

Fireflies

Firefly surveys were conducted through direct observation along the transects in all representative habitat types within the Development Site and the Surrounding Study Area, with particular focus on

(21) Shek, C. T. (2006) *A Field Guide To The Terrestrial Mammals Of Hong Kong*. Friends of the Country Parks and Cosmos Book Ltd.

(22) Hong Kong Online Biodiversity Database.
[<http://www.afcd.gov.hk/english/conservation/hkbiodiversity/hkbiodiversity.html>] Accessed in 2010.

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

(24) AFCD (2005). *A Field Guide to the Amphibians of Hong Kong*. Friends of Country Park.

(25) AFCD (2006). *A Field Guide to the Venomous Land Snakes of Hong Kong*. Friends of Country Park.

(26) Hong Kong Online Biodiversity Database. *Op Cit*.

(27) Walthew, G. (1997). The status and flight periods of Hong Kong butterflies Porcupine! 16: 34-37

(28) Yiu V (2004). *Field Guide to the butterflies of Hong Kong*. Hong Kong Discovery Ltd.

(29) Wilson, K.D.P. (2004). *Field Guide to the Dragonflies of Hong Kong*. Agriculture, Fisheries and Conservation Department, Friends of Country Park and Cosmos Book Ltd. Hong Kong.

(30) Hong Kong Online Biodiversity Database. *Op Ibid*.

the potential habitats such as watercourses utilized by fireflies. Surveys commenced immediately after sunset and lasted for approximately 2 hours. All fireflies observed, including adults and larvae, were quantified and identified to species level as far as possible. Nomenclature for fireflies in this report follows AFCD's Hong Kong Biodiversity Online Database ⁽³¹⁾.

Aquatic Surveys

Watercourses identified within the Development Site and the Surrounding Study Area were visited and surveyed for freshwater fish and aquatic macroinvertebrates. These were studied by direct observation and active searching by hand nets and standard field sampling techniques (e.g. kick sampling). Organisms, mostly fish and aquatic macroinvertebrates (e.g. freshwater crabs & shrimps, freshwater molluscs and aquatic insect larvae) were recorded and identified to the lowest possible taxonomic level, with their relative abundance reported. Nomenclature for fish follows Lee *et al.* (2004) ⁽³²⁾.

3.4 Ecological Survey Findings

3.4.1 Habitats and Vegetation

Nine habitat types were identified during the baseline survey, including secondary woodland, scattered woodland, grassland, shrubland-grassland, agricultural area, abandoned orchard, developed area, watercourse and artificial pond (**Figure 3.3**), while scattered woodland, grassland, shrubland-grassland, agricultural area, abandoned orchard, developed area and watercourse were present in the Development Site. Photographic records of each habitat within the Surrounding Study Area and Development Site are shown in **Appendix A1** and **Appendix A2**, respectively.

During the surveys, a total of 174 flora species were recorded. Secondary woodland was found to have the highest flora diversity, with 64 species recorded in the Surrounding Study Area. A full plant list is provided in **Appendix B. Table 3.2** summarises the area of each habitat found in the Development Site and Surrounding Study Area and the following text elaborates the flora and fauna recorded at each habitat during the ecological surveys.

Table 3.2 Habitat Types Recorded during Ecological Surveys

Habitat Type	Approximate Area (ha) in Development Site	Approximate Area (ha) in Surrounding Study Area (excluding Development Site)
Secondary Woodland	0	2.57
Scattered Woodland	0.21	0.84
Grassland	0.94	0.44
Shrubland-Grassland	1.32	1.50
Agricultural Area	0.10	0.21
Abandoned Orchard	0.19	0
Developed Area	0.49	9.22
Watercourse	0.28	0.17
Artificial Pond	0	0.22

(31) Hong Kong Online Biodiversity Database. *Op Ibid.*

(32) Virginia L.F. Lee, Samuel K. S. Lam, Franco K. Y. Ng, Tony K. T. Chan and Maria L. C. Young (2004). Field Guide to the Freshwater Fish of Hong Kong. Agriculture, Fisheries and Conservation Department, Friends of Country Park and Cosmos Book Ltd. Hong Kong

Habitat Type	Approximate Area (ha) in Development Site	Approximate Area (ha) in Surrounding Study Area (excluding Development Site)
Total	3.52	15.17

3.4.1.1 Habitats within Surrounding Study Area

Secondary Woodland

Secondary woodland was mainly found on the western side of the Surrounding Study Area which is part of a wider hillside woodland further west near Lau Hang, Fung Mei Wai and adjacent to Ting Kok Road.

A total of 64 flora species were recorded in the secondary woodland habitat. Native trees such as *Aporosa dioica*, *Celtis sinensis*, *Machilus chekiangensis* and *Sterculia lanceolate*, shrubs *Daphniphyllum calycinum* and *Maesa perlaris* were commonly found in secondary woodland. These species are all considered as common species in Hong Kong. The under-storey of this habitat was generally densely vegetated with plant species common to woodlands of Hong Kong, such as the herbs *Alocasia macrorrhizos*, *Cyclosorus parasiticus* and *Dicranopteris pedata*, and climbers *Dalbergia benthamii*, *Millettia nitida* and *Smilax china*.

One flora species of conservation importance, *Illigera celebica*, was recorded in the secondary woodland on the north-western side of the Surrounding Study Area immediately outside the boundary of Area (A) during the current survey. *Illigera celebica* is a native evergreen woody liana climber protected under Forests and Countryside Ordinance (Cap. 96) and is listed under Category 4 of the 100 Rare and Precious Plants of Hong Kong (AFCD 2003). Its recorded locations are shown in **Figure 3.3** and photos provided in **Appendix A3**.

Scattered Woodland

Patches of woodland were found scattered within Surrounding Study Area, surrounded by developed areas. Native trees such as *Celtis sinensis*, *Ficus microcarpa* and *Macaranga tanarius* var. *tomentosa*, and exotic trees such as *Acacia confusa*, *Albizia lebbbeck* and *Melia azedarach* were commonly found in the scattered woodlands. These species are all considered as common species in Hong Kong. The under-storey of this habitat was generally densely vegetated with plant species common to woodlands of Hong Kong, such as the herbs *Bidens alba* and *Panicum maximum* and climbers *Ficus pumila* and *Gynostemma pentaphyllum*. Flora species of conservation importance was not recorded in this habitat during the current survey.

Shrubland-grassland

Shrubland-grassland were found in fragmented patches that were scattered around the Surrounding Study Area. It was the third largest habitat found in the Surrounding Study Area, after developed area and secondary woodland. This habitat has a mixture of grass, shrubs and young trees, such as the herbs *Ageratum conyzoides*, *Ipomoea cairica* and *Wedelia trilobata*, climbers *Pueraria phaseoloides*, shrubs/trees *Hibiscus tiliaceus* and *Lagerstroemia speciosa*.

One flora species of conservation importance, *Mucuna championii* was recorded in Surrounding Study Area, which was identified outside the southern boundary of Area (A) of the Development Site. *Mucuna championii* is a native climber species listed in Rare and Precious Plants of Hong Kong, with status in China as "Endangered" (AFCD 2003). Its recorded locations are shown in **Figure 3.3** and photos provided in **Appendix A3**.

Grassland

Grassland were found in fragmented patches scattered on the southern area of the Surrounding Study Area. Some grasslands recorded are expected to be originated from abandoned agricultural

lands. Ruderal grass and climbers such as *Bidens alba*, *Cyperus involucratus*, *Cyrtococcum patens* and *Microstegium ciliatum* were seen to have overgrown in this habitat due to prolonged lack of farming activities. Flora species of conservation importance was not recorded in this habitat during the surveys.

Agricultural Area

A small patch of active agricultural lands was found in the eastern parts of the Surrounding Study Area. The species diversity was generally low for the recorded species. Flora species of conservation importance was not recorded in this habitat.

Developed Area

This habitat in the Surrounding Study Area consists of roads (incl. roadside plantation), recreational (e.g. playground and basketball court) and residential areas and villages. Various trees, shrubs and herbs are planted in this habitat for ornamental purpose, such as *Acacia confusa*, *Bougainvillea spectabilis*, *Cinnamomum burmannii*, *Delonix regia*, *Dyopsis lutescens*, *Murraya paniculata* and *Wedelia chinensis*. The species diversity was generally low for the recorded species. Flora species of conservation importance was not recorded in this habitat.

Watercourse

Fung Yuen Stream runs along the western side of the Fung Yuen Road. Part of the stream were within the Surrounding Study Area (**Figure 3.3**). In addition, there are semi-natural stream and channel of smaller scales scattered within the Surrounding Study Area.

A total of 10 flora species were recorded in the watercourse habitat, native herb species such as *Alternanthera sessilis*, *Commelina diffusa* and *Ludwigia adscendens* were commonly found in the natural sections and overgrown gabions of the watercourse. Flora species of conservation importance was not recorded in the watercourse.

Artificial Pond

An artificial pond was identified on the eastern side of Fung Yuen Road. Due to its artificial nature, plants that actually grow in this habitat are limited. No flora species of conservation importance was recorded.

3.4.1.2 Habitats within Development Site

In general, the habitats present in the Development Site share the same habitat conditions of the same habitat type in the Surrounding Study Area. The watercourse is semi-natural within the Development Site, with part of the banks gabion lined, notably on the side near Fung Yuen Road (mainly in Area (A) of the Development Site). When it reaches the southern end at Area (B) of the Development Site, it is completely channelised in terms of both bottom and banks.

Within Development Site, a total of seven habitat types were identified, including scattered woodland, grassland, shrubland-grassland, agricultural area, abandoned orchard, developed area and watercourse. There is no significant difference in ecological conditions between the same habitat types observed within the Development Site and the Surrounding Study Area, except that abandoned orchard is not present in the Surrounding Study Area. The details of the conditions of the abandoned orchard are discussed below.

Abandoned Orchard

Patches of abandoned orchard were found in the central part of the Development Site. This habitat consists of mainly fruit trees *Dimocarpus longan*, *Litchi chinensis* and *Syzygium jambos* and some self-seeded native trees *Macaranga tanarius* var. *tomentosa* and *Sterculia*. Herbs such as *Alocasia macrorrhizos* and *Lophatherum gracile* were also commonly found in this habitat.

In terms of flora species of conservation importance, one flora species, namely *Mucuna championii*, was recorded at the shrubland-grassland of both Area (A) and Area (B) of the Development Site (**Figure 3.3**). Details of the conservation status of *Mucuna championii* has been discussed above.

3.4.2 Wildlife

Ecological surveys for mammals (incl. bats and non-flying mammals), bird, herpetofauna, butterflies, odonate, fireflies and aquatic fauna were conducted in September to October 2021 and April to May 2025. The following sections summarise the key findings of these fauna groups, in particular any species of conservation importance recorded. The full species lists are provided in **Appendices C1-C7** and the recorded locations of species of conservation importance are shown in **Figure 3.3**.

Mammals

A total of six mammal species were recorded during the field surveys within the Development Site, including Japanese Pipistrelle *Pipistrellus abramus*, Least Pipistrelle *Pipistrellus tenuis*, Chinese Pipistrelle *Hypsugo pulveratus*, Chinese Noctule *Nyctalus plancyi*, Lesser Yellow Bat *Scotophilus kuhlii* and Himalayan Leaf-nosed Bat *Hipposideros armiger*. All bat species in Hong Kong are protected under the Wild Animals Protection Ordinance (Cap. 170); therefore, all recorded species are considered as species of conservation importance. Within the Surrounding Study Area, Japanese Pipistrelle, Least Pipistrelle, Chinese Noctule and Lesser Yellow Bat were recorded. According to AFCD's Biodiversity Database ⁽³³⁾, most of the recorded species are considered as very common, common or uncommon, and most are found widely distributed in urban and countryside areas throughout Hong Kong. Details of the mammal species of conservation importance are listed in **Table 3.3**.

Table 3.3 Mammal Species of Conservation Importance during Ecological Surveys

Mammal Species	Protection Status	Commonness & Status in HK	Recorded Habitats	
			Development Site	Surrounding Study Area
Japanese Pipistrelle <i>Pipistrellus abramus</i>	▪ Cap. 170	▪ Very Common	▪ Grassland	▪ Shrubland-Grassland
Least Pipistrelle <i>Pipistrellus tenuis</i>	▪ Cap. 170	▪ Uncommon	▪ Shrubland-Grassland	▪ Developed Area
Chinese Pipistrelle <i>Hypsugo pulveratus</i>	▪ Cap.170 ▪ Fellowes: (LC)	▪ Rare; Species of Conservation Importance	▪ Grassland ▪ Abandoned Orchard	▪
Chinese Noctule <i>Nyctalus plancyi</i>	▪ Cap.170 ▪ Fellowes: PRC (RC)	▪ Common	▪ Grassland	▪ Developed Area
Lesser Yellow Bat <i>Scotophilus kuhlii</i>	▪ Cap.170 ▪ Fellowes: (LC)	▪ Uncommon	▪ Grassland	▪ Shrubland-Grassland
Himalayan Leaf-nosed Bat <i>Hipposideros armiger</i>	▪ Cap.170 ▪ Fellowes: (LC)	▪ Very Common	▪ Shrubland-Grassland	▪

(33) AFCD. Hong Kong Biodiversity Database. Available at
<https://www.afcd.gov.hk/english/conservation/hkbiodiversity/database/search.asp>

Mammal Species	Protection Status	Commonness & Status in HK	Recorded Habitats	
			Development Site	Surrounding Study Area

Notes:

- (a) All bat species are protected under Wild Animals Protection Ordinance (Cap. 170)
- (b) Fellowes – Fellowes et al. (2002): RC = Regional Concern, PRC = Potential Regional Concern, 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.

Birds

The surveys identified 34 bird species, of which 30 were recorded within the Development Site and 21 in the Surrounding Study Area. Most of the bird species recorded are common and widespread in Hong Kong. Eight bird species of conservation importance were recorded during the ecological survey. The details of the species are shown in **Table 3.4**.

Table 3.4 Bird Species of Conservation Importance during Ecological Surveys

Bird Species	Protection Status	Recorded Habitat	
		Development Site	Surrounding Study Area
Black-crowned Night Heron <i>Nycticorax nycticorax</i>	▪ Fellowes: (LC)	▪ Watercourse	±
Chinese Pond Heron <i>Ardeola bacchus</i>	▪ Fellowes: PRC (RC)	▪ In-Flight ▪ Watercourse	▪ Watercourse ▪ Artificial Pond
Great Egret <i>Ardea alba</i>	▪ Fellowes: PRC (RC)	▪ In-Flight	±
Little Egret <i>Egretta garzetta</i>	▪ Fellowes: PRC (RC)	▪ Watercourse ▪ In-Flight	±
Black Kite <i>Milvus migrans</i>	▪ Fellowes: (RC); ▪ CITES(II); ▪ CSMPS(II); ▪ Cap.586	▪ Shrubland-Grassland	▪ In-Flight
Greater Coucal <i>Centropus sinensis</i>	▪ CSMPS(II)	▪ Shrubland-Grassland ▪ Grassland ▪ Abandoned Orchard	▪ Secondary Woodland
Crested Serpent Eagle <i>Spilornis cheela</i>	▪ Cap.586; ▪ Fellowes: (LC); ▪ CSMPS(II); ▪ CITES(II)	±	▪ Shrubland-Grassland
Grey Treepie <i>Dendrocitta formosae</i>	▪ Fellowes: LC	▪ Shrubland-Grassland	±

Notes:

- (a) All bird species are protected under Wild Animals Protection Ordinance (Cap. 170)
- (b) Fellowes – Fellowes et al. (2002): RC = Regional Concern, PRC = Potential Regional Concern, 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.
- (c) CITES (II) – Under Appendix II of Convention on International Trade in Endangered Species of Wild Fauna and Flora
- (d) CSMPS – China State Major Protection Status: Appendix II
- (e) Cap. 586 - Protected under Protection of Endangered Species of Animals and Plants Ordinance

Herpetofauna

Five reptile and five amphibian species were recorded during the surveys, of which all of these reptiles and four amphibians were recorded within the Development Site and one reptile and all of these amphibians in the Surrounding Study Area. All of the amphibian species and most of the reptile species recorded are common and widespread in Hong Kong. One reptile species of conservation importance was recorded during the ecological survey, namely Common Rat Snake. The details of the species are shown in **Table 3.5**.

Table 3.5 Reptile Species of Conservation Importance during Ecological Surveys

Reptile Species	Protection Status	Recorded Habitat	
		Development Site	Surrounding Study Area
Common Rat Snake <i>Ptyas mucosus</i>	- Cap.586; - Fellowes: PRC; - RLCV(EN); - CITES(II)	Shrubland-Grassland	=

Notes:

- (a) Fellowes – Fellowes et al. (2002): PRC = Potential Regional Concern.
- (b) RLCV - Red List of China's Vertebrate (2020): EN = Endangered.
- (c) CITES (II) – Under Appendix II of Convention on International Trade in Endangered Species of Wild Fauna and Flora
- (d) Cap. 586 - Protected under Protection of Endangered Species of Animals and Plants Ordinance

Odonates and Butterflies

A total of 16 odonate species were recorded during surveys, whereas 16 species were recorded within the Development Site and one in the Surrounding Study Area. All of the species recorded are considered as abundant and common in Hong Kong ⁽³⁴⁾. No odonate species of conservation importance was recorded.

A total of 48 butterfly species were recorded during the surveys, whereas 38 species were recorded within the Development Site and 24 in the Surrounding Study Area. Majority of these recorded species were commonly or very commonly found in Hong Kong. Three species of conservation importance were recorded in the Surrounding Study Area, namely Forget-me-not *Catochrysops strabo*, Metallic Cerulean *Jamides alecto* and White Dragontail *Lamproptera curius*. Details of the butterfly species of conservation importance are listed in **Table 3.6**.

Table 3.6 Butterfly Species of Conservation Importance during Ecological Surveys

Butterfly Species	Protection Status	Commonness & Status in HK	Recorded Habitat	
			Development Site	Surrounding Study Area
Forget-me-not <i>Catochrysops strabo</i>	-	Very Rare; Species of Conservation Concern	=	Shrubland-Grassland

(34) AFCD. Hong Kong Biodiversity Database. Available at
<https://www.afcd.gov.hk/english/conservation/hkbiodiversity/database/search.asp>

Butterfly Species	Protection Status	Commonness & Status in HK	Recorded Habitat	
			Development Site	Surrounding Study Area
Metallic Cerulean <i>Jamides alecto</i>	-	▪ Very Rare	-	Secondary Woodland
White Dragontail <i>Lamproptera curius</i>	▪ Fellowes: LC	▪ Rare	-	Secondary Woodland; Developed Area

Notes:

- (a) Fellowes – Fellowes et al. (2002): LC = Local Concern.
(b) Distribution in Hong Kong refers to AFCD database: Available at
<http://www.afcd.gov.hk/english/conservation/hkbiodiversity/database/search.asp?lang=en>.

Fireflies

During the dusk and night time ecological surveys, no firefly species were recorded in the Surrounding Study Area or within the Development Site.

Aquatic Fauna

During the ecological surveys, 15 freshwater fish and 21 freshwater invertebrate species were identified in the watercourse. No species of conservation importance were recorded within the Development Site or the Surrounding Study Area.

3.5 Ecological Evaluation of Habitats in Surrounding Study Area and Development Site

In this section the ecological importance of the habitats identified within the Surrounding Study Area and Development Site are evaluated in accordance with the *EIAO-TM Annex 8* criteria. The evaluation is based upon the information presented in the previous sections including both the reviewed literature (if any) and survey findings. The ecological evaluation of each habitat type is presented in **Table 3.7** to **Table 3.21**.

3.5.1 Ecological Evaluation of Habitats in Surrounding Study Area

Table 3.7 Ecological Evaluation of Secondary Woodland in Surrounding Study Area

Criteria	Secondary Woodland (Surrounding Study Area)
Naturalness	Semi natural woodland with a mix of plantation species, disturbance confined to the edge of the habitat
Size	Approx. 2.57 ha within Surrounding Study Area
Diversity	Moderate diversity of plant species and structural complexity. Low diversity and overall low abundance of fauna species.
Rarity	One flora species of conservation importance recorded: <i>Illigera celebica</i> Fauna species of conservation importance recorded include: One bird species: Greater Coucal Two butterfly species: White Dragontail, Metallic Cerulean
Re-creatability	It may take more than 30 years for the woodland to develop to the current maturity level
Fragmentation	Fragmented by roads and buildings
Ecological Linkage	Linked to the surrounding grassland and shrubland-grassland habitat
Potential Value	Moderate, as relatively mature woodland

Criteria	Secondary Woodland (Surrounding Study Area)
Nursery/ Breeding Ground	No significant nursery or breeding ground observed
Age	Unknown
Abundance/ Richness of Wildlife	Overall relatively low for fauna species
Overall Ecological Value	Moderate

Table 3.8 Ecological Evaluation of Scattered Woodland in Surrounding Study Area

Criteria	Scattered Woodland (Surrounding Study Area)
Naturalness	Largely succeeded from plantation, receiving frequent disturbances from the adjacent developed area
Size	Approx. 0.84 ha within Surrounding Study Area
Diversity	Low to Moderate diversity of plant species and structural complexity. Low diversity and overall low abundance of fauna species.
Rarity	No flora and fauna species of conservation importance recorded
Re-creatability	It may take more than 20 years for the woodland to develop to the current maturity level
Fragmentation	Fragmented by roads and built structures.
Ecological Linkage	Limited linkage with surrounding habitats
Potential Value	Moderate, as scattered woodland has the potential to succeed to secondary woodland without disturbance
Nursery/ Breeding Ground	No significant nursery or breeding ground observed
Age	Unknown
Abundance/ Richness of Wildlife	Overall relatively low for fauna species
Overall Ecological Value	Low to Moderate

Table 3.9 Ecological Evaluation of Grassland in Surrounding Study Area

Criteria	Grassland (Surrounding Study Area)
Naturalness	Semi-natural, originated from abandoned agricultural land.
Size	Approx. 0.44 ha within Surrounding Study Area
Diversity	Low in diversity of plant species and structural complexity. Low diversity and overall low abundance of fauna species.
Rarity	No flora and fauna species of conservation importance recorded
Re-creatability	Readily re-creatable
Fragmentation	Fragmented with scattered patches
Ecological Linkage	Limited linkage with surrounding habitats such as secondary woodland and shrubland-grassland
Potential Value	Low to moderate
Nursery/ Breeding Ground	No significant nursery or breeding ground observed.
Age	Unknown
Abundance/ Richness of Wildlife	Overall very low for fauna species.

Criteria	Grassland (Surrounding Study Area)
Overall Ecological Value	Low

Table 3.10 Ecological Evaluation of Shrubland-grassland in Surrounding Study Area

Criteria	Shrubland-grassland (Surrounding Study Area)
Naturalness	Semi-natural
Size	Approx. 1.50 ha within Surrounding Study Area
Diversity	Low in diversity of plant species and structural complexity. Low diversity and overall low abundance of fauna species.
Rarity	One flora species of conservation importance recorded: <i>Mucuna championii</i> Fauna species of conservation importance recorded includes: Two bird species: Greater Coucal, Crested Serpent Eagle Two mammal species: Japanese Pipistrelle, Lesser Yellow Bat One butterfly species: Forget-me-not
Re-creatability	Readily re-creatable
Fragmentation	Fragmented by roads and buildings
Ecological Linkage	Limited linkage with surrounding secondary woodland and scattered woodland habitat.
Potential Value	Low
Nursery/ Breeding Ground	No significant nursery or breeding ground recorded.
Age	Unknown
Abundance/ Richness of Wildlife	Overall low for fauna species
Overall Ecological Value	Low

Table 3.11 Ecological Evaluation of Agricultural Area in Surrounding Study Area

Criteria	Agricultural Area (Surrounding Study Area)
Naturalness	Anthropogenic
Size	Approx. 0.21 ha within Surrounding Study Area
Diversity	Low in diversity of plant species and structural complexity. Low diversity and overall low abundance of fauna species.
Rarity	No flora and fauna species of conservation importance recorded.
Re-creatability	Readily re-creatable
Fragmentation	Only a small isolated patch within Surrounding Study Area
Ecological Linkage	Not functionally linked to any highly valued habitat in close proximity
Potential Value	Low
Nursery/ Breeding Ground	No significant nursery or breeding ground recorded.
Age	Unknown

Criteria	Agricultural Area (Surrounding Study Area)
Abundance/ Richness of Wildlife	Overall low for fauna species
Overall Ecological Value	Low

Table 3.12 Ecological Evaluation of Developed Area in Surrounding Study Area

Criteria	Developed Area (Surrounding Study Area)
Naturalness	Anthropogenic
Size	Approx. 9.22 ha within Surrounding Study Area
Diversity	Low to moderate in diversity of plant species and structural complexity. Low diversity and overall low abundance of fauna species.
Rarity	No flora species of conservation importance recorded. Fauna species of conservation importance recorded includes: Two mammal species: Chinese Noctule, Least Pipistrelle One butterfly species: White Dragontail
Re-creatability	Readily re-creatable
Fragmentation	Low
Ecological Linkage	Not functionally linked to any habitats in close proximity
Potential Value	Low
Nursery/ Breeding Ground	No significant nursery or breeding ground recorded
Age	Not applicable
Abundance/ Richness of Wildlife	Overall low for fauna species
Overall Ecological Value	Low

Table 3.13 Ecological Evaluation of Watercourse in Surrounding Study Area

Criteria	Watercourses (Surrounding Study Area)	
	Semi-Natural Watercourse	Channelised Watercourse
Naturalness	Semi-natural	Anthropogenic
Size	Approx. 0.17 ha within Surrounding Study Area	
Diversity	Low in diversity of plant species and structural complexity. Low fauna diversity.	
Rarity	No flora species of conservation importance recorded. Fauna species of conservation importance recorded includes: One bird species: Chinese Pond Heron	
Re-creatability	Re-creatable	
Fragmentation	Scattered within the Surrounding Study Area	
Ecological Linkage	Not functionally linked to any highly valued habitat in close proximity.	
Potential Value	Low to Moderate	
Nursery/ Breeding Ground	No significant nursery or breeding ground recorded.	

Criteria	Watercourses (Surrounding Study Area)	
	Semi-Natural Watercourse	Channelised Watercourse
Age	Not applicable.	
Abundance/ Richness of Wildlife	Overall low for fauna species	
Overall Ecological Value	Low to Moderate for Semi-Natural Watercourse Low for Channelised Watercourse	

Table 3.14 Ecological Evaluation of Artificial Pond in Surrounding Study Area

Criteria	Artificial Pond (Surrounding Study Area)
Naturalness	Anthropogenic
Size	Approx. 0.22 ha within Surrounding Study Area
Diversity	Very low in diversity of plant species and structural complexity. Very low fauna diversity.
Rarity	No flora species of conservation importance recorded. Fauna species of conservation importance recorded includes: One bird species: Chinese Pond Heron
Re-creatability	Readily re-creatable
Fragmentation	Not applicable
Ecological Linkage	Not functionally linked to any highly valued habitat in close proximity.
Potential Value	Low due to the artificial nature of this habitat
Nursery/Breeding Ground	No significant nursery or breeding ground recorded.
Age	Not applicable.
Abundance/Richness of Wildlife	Overall low for fauna species
Overall Ecological Value	Low

3.5.2 Ecological Evaluation of Habitats in Development Site

Table 3.15 Ecological Evaluation of Scattered Woodland in Development Site

Criteria	Scattered Woodland
Naturalness	Derived from previous lowland grassland/ shrubland through natural succession, dominated by pioneer tree species and the undesirable weed tree <i>Leucaena leucocephala</i>
Size	Approx. 0.21ha within Development Site
Diversity	Low to Moderate diversity of plant species and structural complexity. Low diversity and overall low abundance of fauna species.
Rarity	No flora and fauna species of conservation importance recorded
Re-creatability	It may take more than 20 years for the mixed woodland to develop to the current maturity level

Criteria	Scattered Woodland
Fragmentation	Fragmented by roads and buildings
Ecological Linkage	Limited linkage with surrounding shrubland-grassland habitat
Potential Value	Moderate, as scattered woodland has the potential to succeed to secondary woodland without disturbance
Nursery/Breeding Ground	No significant nursery or breeding ground observed
Age	Unknown
Abundance/Richness of Wildlife	Overall relatively low for fauna species
Overall Ecological Value	Low to Moderate

Table 3.16 Ecological Evaluation of Grassland in Development Site

Criteria	Grassland
Naturalness	Semi-natural, originated from abandoned agricultural land.
Size	Approx. 0.94ha within Development Site
Diversity	Low in diversity of plant species and structural complexity. Low diversity and overall low abundance of fauna species.
Rarity	No flora species of conservation importance recorded. Fauna species of conservation importance recorded include: One bird species: Greater Coucal Four mammal species: Japanese Pipistrelle, Chinese Pipistrelle, Chinese Noctule, Lesser Yellow Bat
Re-creatability	Readily re-creatable
Fragmentation	Fragmented with scattered patches
Ecological Linkage	Limited linkage with surrounding shrubland-grassland habitat
Potential Value	Low to moderate
Nursery/Breeding Ground	No significant nursery or breeding ground observed.
Age	Unknown
Abundance/Richness of Wildlife	Overall very low for fauna species.
Overall Ecological Value	Low

Table 3.17 Ecological Evaluation of Shrubland-grassland in Development Site

Criteria	Shrubland-grassland
Naturalness	Semi-natural
Size	Approx. 1.32ha within Development Site
Diversity	Low in diversity of plant species and structural complexity. Low to moderate diversity and overall low abundance of fauna species.

Criteria	Shrubland-grassland
Rarity	One flora species of conservation importance recorded: <i>Mucuna championii</i> Fauna species of conservation importance recorded includes: Three bird species: Greater Coucal, Black Kite, Grey Treepie Two mammal species: Least Pipistrelle, Himalayan Leaf-nosed Bat One reptile species: Common Rat Snake
Re-creatability	Readily re-creatable
Fragmentation	Fragmented by roads and buildings
Ecological Linkage	Limited linkage with surrounding scattered woodland habitat.
Potential Value	Low
Nursery/Breeding Ground	No significant nursery or breeding ground recorded.
Age	Unknown
Abundance/Richness of Wildlife	Overall low for fauna species
Overall Ecological Value	Low

Table 3.18 Ecological Evaluation of Agricultural Area in Development Site

Criteria	Agricultural Area (Surrounding Study Area)
Naturalness	Anthropogenic
Size	Approx. 0.10 ha within Development Site
Diversity	Low in diversity of plant species and structural complexity. Low diversity and overall low abundance of fauna species.
Rarity	No flora and fauna species of conservation importance recorded.
Re-creatability	Readily re-creatable
Fragmentation	Only a small isolated patch within Development Site
Ecological Linkage	Not functionally linked to any highly valued habitat in close proximity
Potential Value	Low
Nursery/ Breeding Ground	No significant nursery or breeding ground recorded.
Age	Unknown
Abundance/ Richness of Wildlife	Overall low for fauna species
Overall Ecological Value	Low

Table 3.19 Ecological Evaluation of Abandoned Orchard in Development Site

Criteria	Abandoned Orchard
Naturalness	Anthropogenic
Size	Approx. 0.19ha within Development Site
Diversity	Low in diversity of plant species and structural complexity. Low diversity and overall low abundance of fauna species.

Criteria	Abandoned Orchard
Rarity	No flora species of conservation importance recorded. Fauna species of conservation importance recorded includes: One bird species: Greater Coucal One mammal species: Abandoned Orchard
Re-creatability	Readily re-creatable
Fragmentation	Two small isolated patches within Development Site
Ecological Linkage	Linked to the watercourse and shrubland in close proximity
Potential Value	Low
Nursery/Breeding Ground	No significant nursery or breeding ground recorded.
Age	Unknown
Abundance/Richness of Wildlife	Overall low for fauna species
Overall Ecological Value	Low

Table 3.20 Ecological Evaluation of Developed Area in Development Site

Criteria	Developed Area
Naturalness	Anthropogenic
Size	Approx. 0.49ha within Development Site
Diversity	Low in diversity of plant species and structural complexity. Low diversity and overall low abundance of fauna species.
Rarity	No flora and fauna species of conservation importance recorded.
Re-creatability	Readily re-creatable
Fragmentation	Low
Ecological Linkage	Not functionally linked to any highly valued habitat in close proximity
Potential Value	Low
Nursery/Breeding Ground	No significant nursery or breeding ground recorded
Age	Not applicable
Abundance/Richness of Wildlife	Overall low for fauna species
Overall Ecological Value	Low

Table 3.21 Ecological Evaluation of Watercourse in Development Site

Criteria	Watercourse
Naturalness	Semi-natural at upper section in Area (A) to completely channelised in Area (B)
Size	Approx. 0.28ha within Development Site
Diversity	Low in diversity of plant species and structural complexity. Low fauna diversity and abundance.

Criteria	Watercourse
Rarity	No flora species of conservation importance recorded. Fauna species of conservation importance recorded includes: Three bird species: Chinese Pond Heron, Black-crowned Night Heron, Little Egret
Re-creatability	Readily re-creatable for the concrete channel; the semi-natural section can be recreated with incorporation of ecologically friendly stream design
Fragmentation	Not applicable
Ecological Linkage	Not functionally linked to any highly valued habitat in close proximity, the downstream of the watercourse linked to tidal water
Potential Value	Low to Moderate
Nursery/Breeding Ground	No significant nursery or breeding ground recorded.
Age	Not applicable
Abundance/Richness of Wildlife	Overall low for fauna species
Overall Ecological Value	Low to Moderate

3.6 Evaluation of Species of Recorded Conservation Importance

In accordance with *Annex 8* of the *EIAO-TM* the list and evaluation of the recorded species of ecological importance are provided in **Table 3.22**.

Table 3.22 Evaluation of Species of Conservation Importance Recorded within the Development Site and Surrounding Study Area

Name	Location	Conservation and/ or Protection Status	Distribution in Hong Kong	Rarity
Flora				
<i>Illigera celebica</i>	Recorded near the edge of secondary woodland on the north-western side of the Surrounding Study Area immediately outside Area (A) of the Development Site.	- Protected under Forests and Countryside Ordinance (Cap. 96) - Category 4 (AFCD, 2003)	Fung Yuen, She Shan.	Very Rare
<i>Mucuna championii</i>	Recorded in a patch of shrubland-grassland on the west of Fung Yuen Road. Also recorded inside and outside the southern end of the Development Site of Area (A) in shrubland-grassland habitat, and in shrubland-grassland habitat in Area (B) of the Development Site.	Listed in Rare and Precious Plants of Hong Kong, status in China as "Endangered"	Tai Po, Lam Tsuen Valley, Fung Yuen, Plover Cove etc.	Rare
Mammals				
Japanese Pipistrelle <i>Pipistrellus abramus</i>	Flying above the grassland habitat within the Development Site of Area (A), also in shrubland-grassland habitat outside the western boundary of the Area (A) of Development Site and the northern boundary of the Development Site of Area (B).	Protected under Cap. 170	Widely distributed throughout Hong Kong.	Very Common
Least Pipistrelle <i>Pipistrellus tenuis</i>	Recorded in the shrubland-grassland habitat in the southern part of the Area (A) of Development Site, and in the developed area outside the southern boundary of Area (B) of the Development Site	Protected under Cap. 170	Ten-something records found in Nam Chung, Sheung Wo Hang, Lin Ma Hang, Plover Cove Country Park, Yuen Long, Shek Pik, Deep Water Bay, Ho Pui and Ho Chung.	Uncommon
Chinese Pipistrelle <i>Hypsugo pulveratus</i>	Recorded in the abandoned orchard habitat within the Area (A) of Development Site and grassland habitat within the Area (B) of Development Site	- Protected under Cap. 170 - Breeding/ roosting site listed as Local Concern by Fellowes <i>et al.</i> (2002)	Only several records in the countryside areas at Ting Kau, Ma On Shan and Lin Ma Hang, and several records of stray individuals inside buildings.	Rare; Species of Conservation Concern

Name	Location	Conservation and/ or Protection Status	Distribution in Hong Kong	Rarity
Chinese Noctule <i>Nyctalus plancyi</i>	Recorded in the shrubland-grassland habitat within the Area (A) of Development Site and immediately outside the western boundary of Area (B) of the Development Site	- Protected under Cap. 170 - Potential Regional Concern by Fellowes <i>et al.</i> (2002) - Breeding/ roosting site listed as Regional Concern by Fellowes <i>et al.</i> (2002)	Fairly widely distributed in countryside areas throughout Hong Kong.	Common
Lesser Yellow Bat <i>Scotophilus kuhlii</i>	Flying above the grassland habitat within the Development Site of Area (A), also in shrubland-grassland habitat outside the southern boundary of the Development Site of Area (A).	- Protected under Cap. 170 - Breeding/ roosting site listed as Local Concern by Fellowes <i>et al.</i> (2002)	Fairly widely distributed in countryside areas throughout Hong Kong.	Uncommon
Himalayan Leaf-nosed Bat <i>Hipposideros armiger</i>	Recorded in the shrubland-grassland habitat within Area (A) of the Development Site	- Protected under Cap. 170 - Breeding/ roosting site listed as Local Concern by Fellowes <i>et al.</i> (2002)	Widely distributed in countryside areas throughout Hong Kong.	Very Common
Birds				
Black-crowned Night Heron <i>Nycticorax nycticorax</i>	Resting in watercourse habitat inside the Development Site of Area (A).	- Protected under Cap. 170 - Breeding/ roosting site listed as Local Concern by Fellowes <i>et al.</i> (2002)	Widely distributed in Hong Kong.	Common resident
Chinese Pond Heron <i>Ardeola bacchus</i>	Resting in watercourse habitat in the Development Site of Area (B) and flying over Area (A) of the Development Site. Also found in the watercourse at the northern end of the Surrounding Study Area and in the artificial pond near the eastern boundary of the Surrounding Study Area.	- Protected under Cap. 170 - Potential Regional Concern by Fellowes <i>et al.</i> (2002) - Breeding/ roosting site listed as Regional Concern by Fellowes <i>et al.</i> (2002)	Widely distributed in Hong Kong.	Common resident
Great Egret <i>Ardea alba</i>	Flying over Area (A) of the Development Site.	- Protected under Cap. 170 - Potential Regional Concern by Fellowes <i>et al.</i> (2002) - Breeding/ roosting site listed as Regional Concern by Fellowes <i>et al.</i> (2002)	Widely distributed in Hong Kong	Common resident, migrant and winter visitor

Name	Location	Conservation and/ or Protection Status	Distribution in Hong Kong	Rarity
Little Egret <i>Egretta garzetta</i>	Resting in watercourse habitat in the Development Site of Area (A) and flying over the Area (A) of Development Site.	- Protected under Cap. 170 - Potential Regional Concern by Fellowes <i>et al.</i> (2002) - Breeding/ roosting site listed as Regional Concern by Fellowes <i>et al.</i> (2002)	Widely distributed in coastal area throughout Hong Kong	Common resident
Black Kite <i>Milvus migrans</i>	Flying above the shrubland-grassland habitat inside the Development Site of Area (A) and soaring above the Surrounding Study Area.	- Protected under Cap. 170 - Breeding/ roosting site listed as Regional Concern by Fellowes <i>et al.</i> (2002) - Listed under Appendix II of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES (II)) - Listed under China State Major Protection Status: Appendix II (CSMPS(II)) - Protected under Cap. 586	Widely distributed in Hong Kong.	Common resident
Greater Coucal <i>Centropus sinensis</i>	Recorded in shrubland-grassland, grassland and abandoned orchard habitats within the Development Site of Area (A), also found in secondary woodland habitat at the western part of the Surrounding Study Area.	- Protected under Cap. 170 - Listed under China State Major Protection Status: Appendix II (CSMPS(II))	Widely distributed in Hong Kong.	Common resident

Name	Location	Conservation and/ or Protection Status	Distribution in Hong Kong	Rarity
Crested Serpent Eagle <i>Spilornis cheela</i>	Recorded in the shrubland-grassland habitat near the northern boundary of Surrounding Study Area	- Protected under Cap. 170 - Breeding/ roosting site listed as Local Concern by Fellowes <i>et al.</i> (2002) - Listed under Appendix II of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES (II)) - Listed under China State Major Protection Status: Appendix II (CSMPS(II)) - Protected under Cap. 586	Widely distributed in shrublands on hillsides throughout Hong Kong.	Common resident
Grey Treepie <i>Dendrocitta formosae</i>	Observed in the shrubland-grassland habitat of Area (A) of the Development Site	- Protected under Cap. 170 - Local Concern by Fellowes <i>et al.</i> (2002)	Found in Sai Kung, Luk Keng, Tai Po Kau, Tai Tam Reservoir, Ho Chung, Hong Kong University, Lam Tsuen, Hok Tau.	Locally common resident
Reptiles				
Common Rat Snake <i>Ptyas mucosus</i>	Observed near the edge of the shrubland-grassland habitat in Area (A) of Development Site	- Potential Regional Concern by Fellowes <i>et al.</i> (2002) - Listed under Red List of China's Vertebrate (2020): Endangered - Listed under Appendix II of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES (II)) - Protected under Cap. 586	Widely distributed throughout Hong Kong.	-
Butterflies				
Forget-me-not <i>Catochrysops strabo</i>	Recorded in shrubland-grassland habitat at the northern end of the Surrounding Study Area.	Species of Conservation Concern (AFCD)	Pui O, Tai Po Kau, Fung Yuen, Shing Mun, Sha Lo Wan	Very Rare
Metallic Cerulean <i>Jamides alecto</i>	Recorded in secondary woodland habitat at the western side of the Surrounding Study Area.	-	Victoria Peak, Fung Yuen, Chuen Lung, Mui Wo	Very Rare

Name	Location	Conservation and/ or Protection Status	Distribution in Hong Kong	Rarity
White Dragontail <i>Lamproptera curius</i>	Recorded in secondary woodland and developed area habitat at the western part of the Surrounding Study Area.	Local Concern by Fellowes et al. (2002)	Widely distributed in throughout Hong Kong.	Rare

4. IMPACT ASSESSMENT

4.1 Identification of Potential Ecological Impacts

In view of the current ecological conditions, the potential ecological impacts associated with the proposed development during construction and operational phases are listed below.

4.1.1 Direct Impacts

- Direct loss of habitat and vegetation resulted from land take for the construction activities of the proposed development.
- Direct impacts on flora and fauna species of conservation importance

4.1.2 Indirect Impacts

- Potential impacts on the Fung Yuen Stream and associated wildlife owing to unmanaged disturbance to the riparian vegetation, construction runoff and watercourse diversion.
- Impacts on the surrounding habitats and associated wildlife owing to physical disturbances due to unmanaged or poorly managed human activities and disturbance, inappropriate storage or dumping of construction materials.
- Impacts to the surrounding habitats and associated wildlife during operation phase owing to increase in population, travel, noise and human activities.

4.2 Impact Evaluation

4.2.1 Direct Impact

4.2.1.1 Habitat Loss

In order to prevent flooding in the upstream and mid-stream section of the existing watercourse within the Development Site under extreme flood events, most of the flow from the existing 3.6m x 2.5m box culvert will be intercepted by the proposed 4m x 3m to 4m x 3.5m box culvert under extreme condition (**Appendix D1**). In view of that, the proposed 4m x 3m box culvert will be interfaced with the existing watercourse, the existing watercourse will be disconnected locally at the location of interface (i.e. immediate downstream of Control point 2, **Appendix D2**) so that the existing watercourse will be divided into an upper section and a lower section. As a result of diversion, the section between the proposed 1,650mm pipe (which will be connected with 4m x 3m box culvert) and the proposed 1050mm pipe (**Appendix D1**), would be dried out and considered as habitat loss for watercourse. The total loss of watercourse habitat resulted from diversion and provision of box culvert will be about <0.01ha. Besides, all potential works will have at least 3m setback distance from the watercourse as such habitat loss for watercourse will be limited to the area for provision of box culvert.

The habitat to be lost to the proposed residential development are scattered woodland, grassland, shrubland-grassland, agricultural area, abandoned orchard, developed area and watercourse. The affected habitats have low/low to moderate flora and low fauna species diversity and low in wildlife abundance. Impact severity of loss of such habitats are assessed in in **Table 4.1**.

Table 4.1 Direct Habitat Loss Identified due to Development

Habitat	Area	Overall Ecological Value	Overall Ecological Impact
Scattered Woodland	Approx. 0.21ha	Low to Moderate	Low to Moderate. The size of affected habitat is small. The affected habitat has an overall low to moderate flora and low fauna species diversity and low in wildlife abundance.
Grassland	Approx. 0.94ha	Low	Low. The affected habitat has an overall low flora and fauna species diversity and low in wildlife abundance.
Shrubland-Grassland	Approx. 1.32ha	Low	Low. The affected habitat has an overall low flora and low to moderate fauna species diversity and low in wildlife abundance.
Agricultural Area	Approx. 0.10ha	Low	Low. The size of affected habitat is small. The affected habitat has an overall low flora and fauna species diversity and low in wildlife abundance.
Abandoned Orchard	Approx. 0.19ha	Low	Low. The affected habitat has an overall low flora and fauna species diversity and low in wildlife abundance.
Developed Area	Approx. 0.49ha	Low	Low. The affected habitat has an overall low flora and fauna species diversity and low in wildlife abundance.
Watercourse	Approx. <0.01ha	Low to moderate	Low. The size of affected habitat is small, also it has an overall low flora and fauna species diversity and low in wildlife abundance.

4.2.1.2 Direct Impacts on Flora and Fauna Species of Conservation Importance

According to the latest draft Master Layout Plan (see **Figure 4.1**), the concerned rare climber species *Mucuna championii* recorded at the southern edge of Area (A) and in Area (B) within the Development Site would not be affected by the proposed development as the recorded location will not be encroached by the residential development or the Social Welfare Complex, and the identified individuals will be preserved.

Direct impact to fauna species of conservation importance, i.e. Japanese Pipistrelle, Least Pipistrelle, Chinese Pipistrelle, Chinese Noctule, Lesser Yellow Bat, Himalayan Leaf-nosed Bat, Black Kite, Black-crowned Night Heron, Little Egret, Great Egret, Chinese Pond Heron, Greater Coucal, Grey Treepie and Common Rat Snake is anticipated to be of low significance in view of the very low numbers recorded (one/two individual(s) for each species), their being highly mobile species and the availability of similar habitats in close vicinity of the Development Site.

As assessed above, direct impacts on flora and fauna species of conservation importance due to the proposed residential development is considered to be of **low** in the absence of mitigation measures.

4.2.2 Indirect Impact

4.2.2.1 Indirect Impacts on Fung Yuen Stream

Under the proposed drainage system, the existing watercourse will be divided into an upper section and lower section (**Appendix D1**). The upper section of the existing watercourse will be connected to the proposed 4m x 3m box culvert via a proposed 1,650mm diameter pipe whilst the lower section of the existing stream course will serve to receive part of flow from the existing culvert, flow from the

existing 1800 drain and runoff from the Development Site so that the watercourse habitat can be maintained while the flooding condition at the Development Site can be improved. Therefore, indirect impact induced by drainage works to the aquatic species inhabited in the Fung Yuen Stream is considered to be **low**.

Construction runoff from the future construction site may contain loads of suspended solids and contaminants. Potential sources of water pollution from site runoff may include:

- Runoff and erosion of exposed bare soil and earth, drainage channels and stockpiles,
- Uncontrolled discharge of wastewater generated from concrete washing and sewage generated from on-site work force,
- Release of cement materials with rain wash,
- Wash water from dust suppression sprays and vehicle wheel washing facilities, and
- Fuel, oil, and lubricant from maintenance of construction vehicles and mechanical equipment.

Water pollution could be substantial if construction runoff is allowed to discharge into the Fung Yuen Stream without mitigation, resulting in adverse impacts through physical and biological disruption of its aquatic ecosystem, although most recorded aquatic fauna (e.g. Mosquito Fish, Mozambique Tilapia and Apple Snail) in the stream have relatively high tolerance to deteriorated water quality. In the absence of mitigation measures, the impact is considered to be **low to moderate** to the stream ecosystem due to its semi-natural status.

It is considered that the consequential impacts during operation of the proposed residential development on the local area are much lower. The sewage to be generated by the proposed development will be collected to a sewage treatment plant to be constructed with the development. All sewage from the residential development will be treated to the discharge standard stipulated under Water Pollution Control Ordinance (WPCO) by the sewerage treatment plant prior to discharge. Hence, indirect hydrological and water quality impacts on the surrounding watercourse during operational phase would be **low**.

4.2.2.2 Indirect Impacts on Other Habitats (Construction Phase)

The shrubland-grassland, grassland, agricultural land, developed area and watercourse adjacent to the Development Site are among the other habitats to be indirectly impacted by the project, due to the potential spillover of development-induced disturbance arising from the proposed development. Disturbance-sensitive species which use these habitats could be impacted as well, as the disturbance would make the habitats no longer suitable to them. Potential sources of disturbance accrued from the proposed development are two-fold, namely, increased human activities, noise, glare and dust during the construction phase and the impact of noise and glare during the operational phase.

Dust, waste generation glare and noise disturbance are predicted to occur during the construction phase, which may arise from the activities such as passage of vehicles along access road and set-up of site hoarding. Although some of the fauna inhabiting the area are mobile and able to move to the other similar habitats nearby, they would still be negatively affected by the proposed development to some extent, and the impact is considered to be **low to moderate** without mitigation measures.

4.2.2.3 Indirect Impacts on Other Habitats (Operational Phase)

Compared to the construction phase, noise impacts at the operation stage of the project would be considerably reduced. At this time the main source of disturbance would be from the increased glare as a result of lighting during night time and the slightly increased human population in the area, potentially leading to increased disturbance to nearby habitats. However, as the Development Site is surrounded by existing residential areas, wildlife in this area are already habituated to the relatively high levels of human activities; the increase in human activities is limited. Additionally, since the Development Site is closed to extensive existing artificial lighting (such as road lights for Fung Yuen

Road and nearby villages residential developments), nocturnal species would have already adapted to the environment or otherwise avoided the area. Therefore, no significant additional glare impact is predicted. In the absence of mitigation measures, the disturbance impact on the adjacent habitats and their associated wildlife during the operational phase is predicted to be **low**.

Disturbance to the Fung Yuen Valley SSSI and associated wildlife is not anticipated, as the shortest distance between the Development Site and Fung Yuen Valley SSSI is approximately 300 meters apart.

4.3 Mitigation Measures

4.3.1 General

In accordance with the guidelines in the *EIAO-TM* Annex 16 on ecological impact assessment, the policy adopted in this EcolA for mitigating significant ecological impacts, in order of priority, is as follows.

Avoidance: Potential impacts should be avoided to the maximum extent practicable by adopting suitable alternatives;

Minimisation: Unavoidable impacts should be minimised by taking appropriate and practicable measures such as constraints on intensity of works operations or timing of works operations; and

Compensation: The loss of important species and habitats may be provided for elsewhere as compensation. Enhancement and other conservation measures should always be considered whenever possible.

4.3.2 Avoidance

The proposed development will be limited to scattered woodland, grassland, shrubland-grassland, agricultural area, abandoned orchard, developed area and watercourse habitats which have low and low to moderate ecological value. All potential works will have at least 3m setback distance to the watercourse within the Development Site so that direct impact to the watercourse has been largely avoided. Only small part of the watercourse (<0.01ha) will be diverted and provided with box culvert. Direct impacts on flora species of conservation importance, *Mucuna championii* has been also avoided by careful disposition of the residential building of the proposed development as shown in the MLP.

To avoid potential trampling impacts due to the workers, flexible fence should be erected around the identified *Mucuna championii* within the Development Site during the construction phase. The fenced off exclusion zone should have a buffer distance of at least 0.5m between the fence and the identified *Mucuna championii*. Regular checks on the exclusion zone should be conducted to ensure the fence is in good condition.

4.3.3 Minimisation

To minimise the disturbance of the construction works to the surrounding habitats and associated wildlife, it is recommended that good construction practices are implemented to reduce the potential impacts during the construction phase. In particular, indirect water impact on any aquatic fauna during the construction phase could easily be prevented by implementing the water control quality measures as stipulated in ETWB TCW No. 5/2005.

The following measures are recommended to minimise the potential ecological impacts arise from the proposed development.

4.3.3.1 Good Construction Practices

- Avoid any damage and disturbance, particularly those caused by filling and illegal dumping, to the surrounding habitats by proper implementation of trip ticket system;

- All construction activities will be carried out in daytime (i.e. 7:00 am to 7:00 pm) only to minimise potential impacts to wildlife inhabiting adjacent habitats;
- Direct lighting on adjacent habitats to the Development Site should be avoided, and night-time lighting will be controlled and minimised to reduce potential ecological impacts;
- Mitigation measures for air quality impact (e.g. regularly spraying dusty areas to maintain the entire surface wet, and covering stockpiles of dusty materials entirely by impervious sheeting) will be implemented to minimise the disturbance to wildlife generated from dust;
- The construction works will be carried out using Quality Powered Mechanical Equipment (QPME) to minimise the potential noise disturbance impacts; and
- The work site boundaries should be regularly checked to ensure that they are not breached and that no damage occurs to surrounding areas.

4.3.3.2 Control of Construction Runoff to the Habitats in the Proximity

- Provide sedimentation tank for settling runoff prior to discharge;
- Control measures, including implementation of excavation schedules, lining and covering of excavated stockpiles will be implemented to minimise contaminated stormwater run-off from the proposed development into the stream; and
- Provide vehicle washing facility at the main exit of the construction site and water recaptured or discharged offsite via sand traps to the drainage paths away from the nearby watercourse.

The mitigation measures relevant to protecting the watercourses including setting up buffer and adoption of water control quality measures should be reviewed and confirmed with AFCD during the next stage following approval of the S12A application.

4.3.4 Compensation

Since habitat loss due to construction within Development Site would have low/ low to moderate ecological value, also no species of conservation importance will be affected significantly, habitat compensation would not be required. However, for the loss of trees within the affected habitats especially for scattered woodland, trees will be compensated within the Development Site, following the *DEVB TCW No.04/2020 – Tree Preservation* and *LAO PN No. 2/2020 – Tree Preservation and Tree Removal Application for Building Development in Private Projects*.

4.4 Cumulative Impacts

Cumulative impacts are not anticipated, as there is no committed development to be conducted in the vicinity.

4.5 Residual Impacts

The proposed development within the Development Site will be developed into a residential area which will result in loss of scattered woodland, grassland, shrubland-grassland, abandoned orchard, agricultural area, developed area and watercourse habitats as identified in **Section 4.1**. In view of the general low/ low to moderate ecological value of the habitats and the high mobility of the recorded fauna species of conservation interest within the Development Site and Surrounding Study Area, with the implementation of the proposed mitigation measures as discussed in **Section 4.3**, no significant residual ecological impact is anticipated.

5. CONCLUSION

Overall, the habitats recorded within Development Site and Surrounding Study Area are considered to have low/low to moderate ecological value, while the seven habitats recorded within Development Site, i.e. scattered woodland, grassland, shrubland-grassland, agricultural area, abandoned orchard, developed area and watercourse, are considered to have low and low to moderate ecological value. Species of conservation importance recorded in the Development Site included a climber species *Mucuna championii*, bat species Japanese Pipistrelle, Least Pipistrelle, Chinese Pipistrelle, Chinese Noctule, Lesser Yellow Bat and Himalayan Leaf-nosed Bat, seven bird species, including Black-crowned Night Heron, Chinese Pond Heron, Great Egret, Little Egret, Black Kite, Greater Coucal and Grey Treepie and a reptile species Common Rat Snake. The potential ecological impacts to the species of conservation importance are not considered to be significant as the *Mucuna championii* will be preserved *in situ* and the recorded fauna species of conservation importance are highly mobile.

Mitigation measures during construction and operational phases are recommended to reduce the potential disturbance to the existing habitats, e.g., the Fung Yuen Stream and habitats in the proximity. Proper control of construction runoff and good construction practices are recommended to minimise the disturbances to habitats in the vicinity. With the implementation of these appropriate mitigation measures, the predicted impacts resulted from the proposed development would all be reduced to low. No adverse residual ecological impacts on the local area due to the proposed development are anticipated.

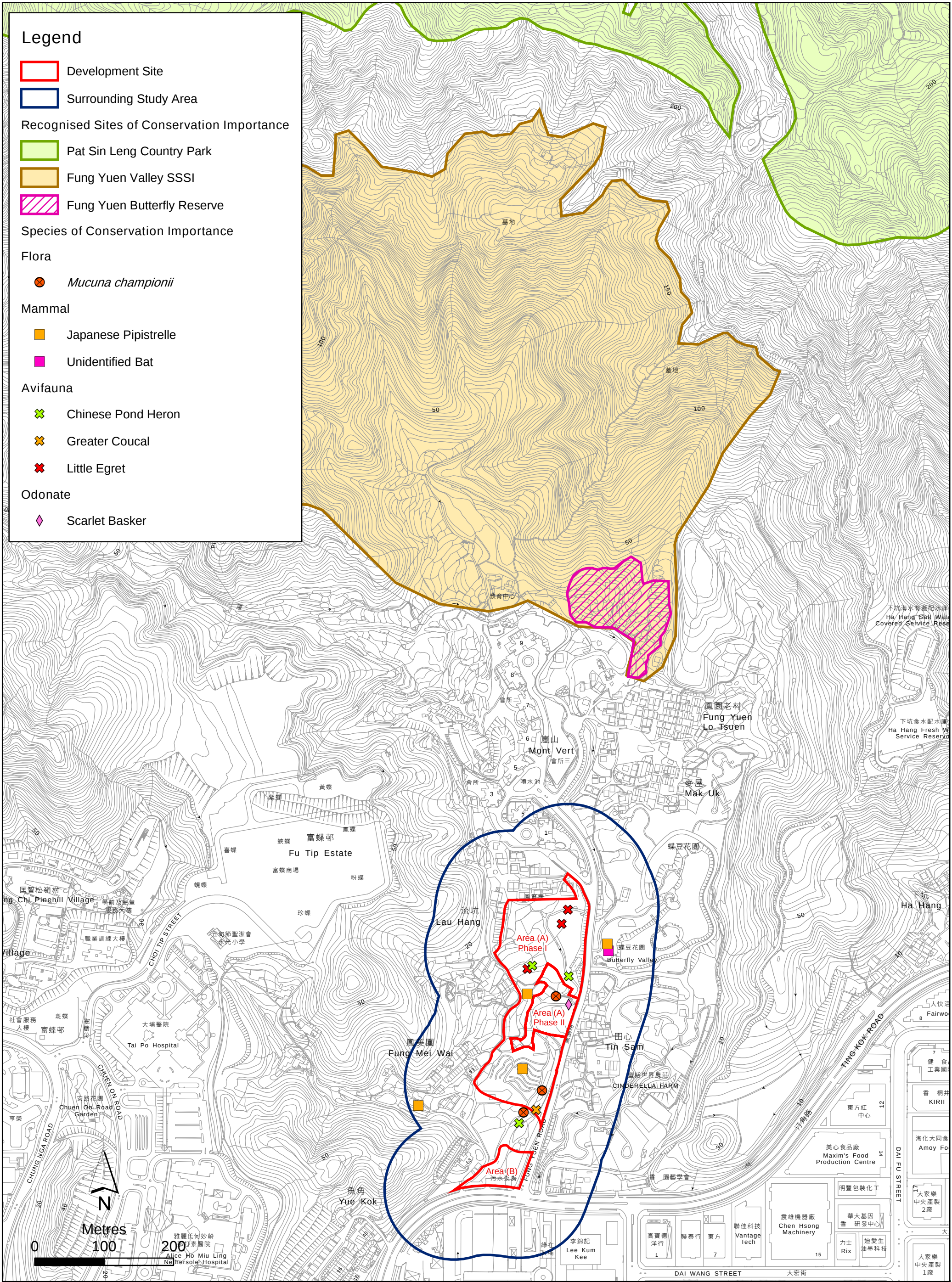


Figure 3.1

Recognised Sites of Conservation Importance and
Species of Conservation Importance Recorded from Literature Review



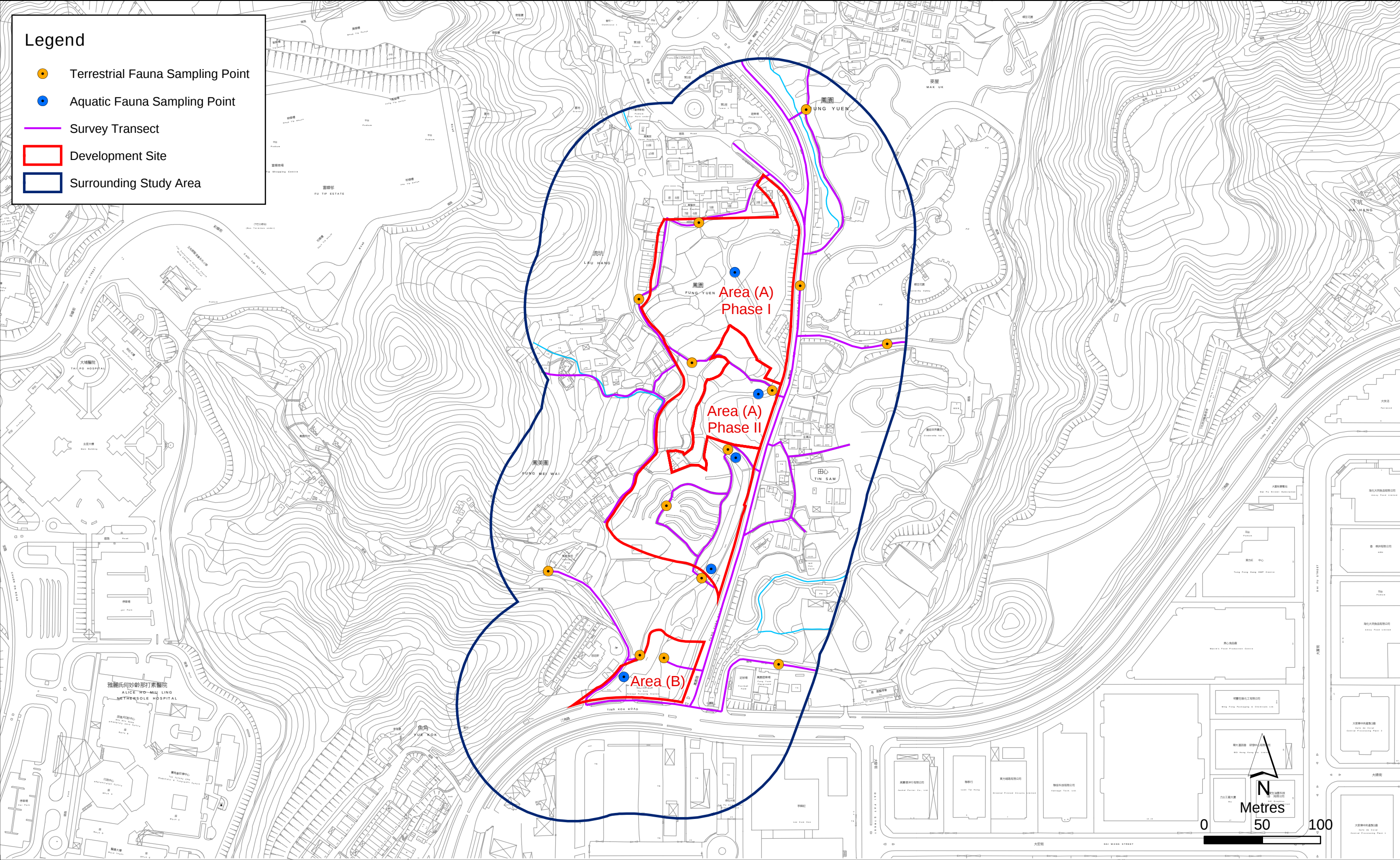
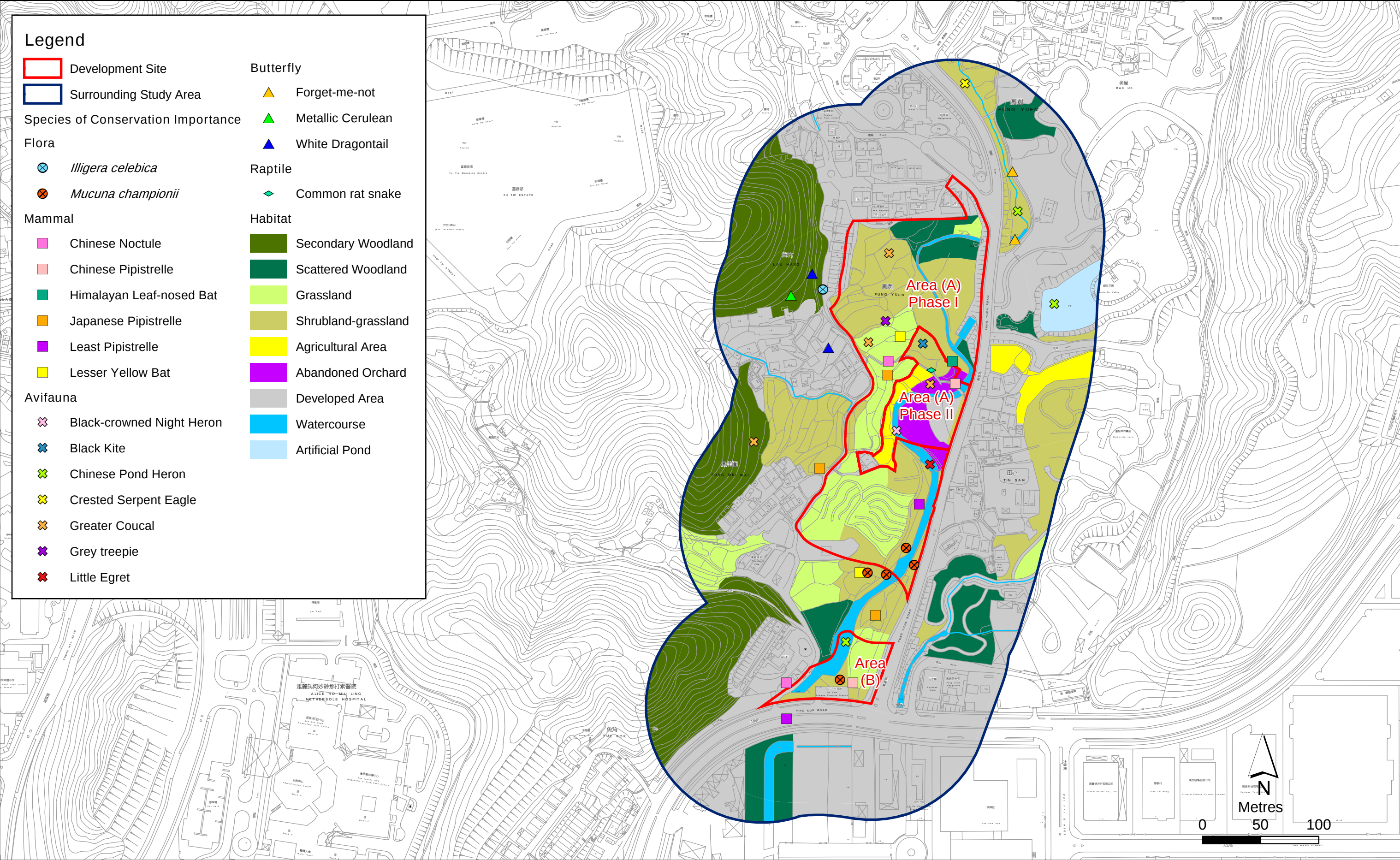


Figure 3.2

Survey Transect and Sampling Point





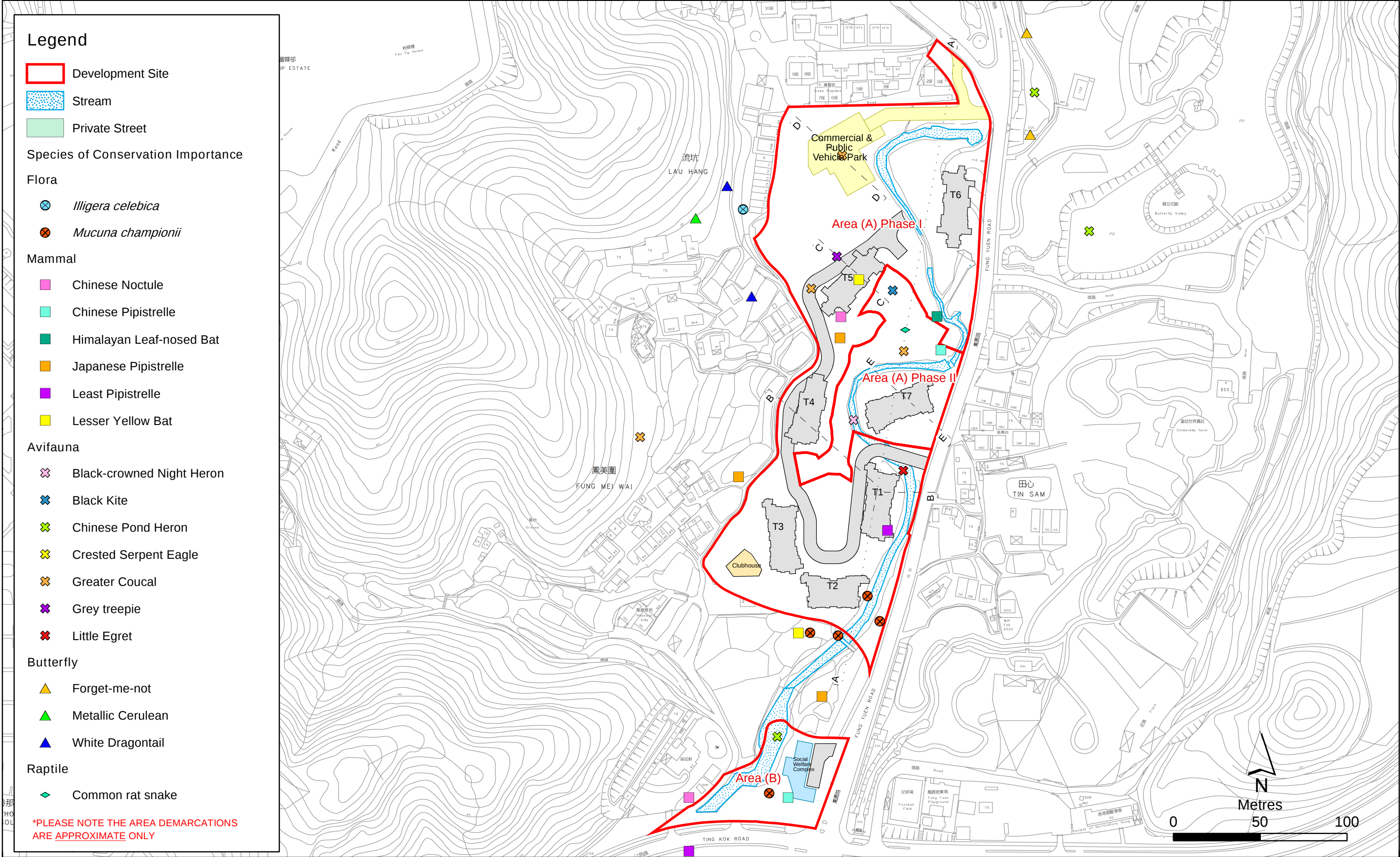


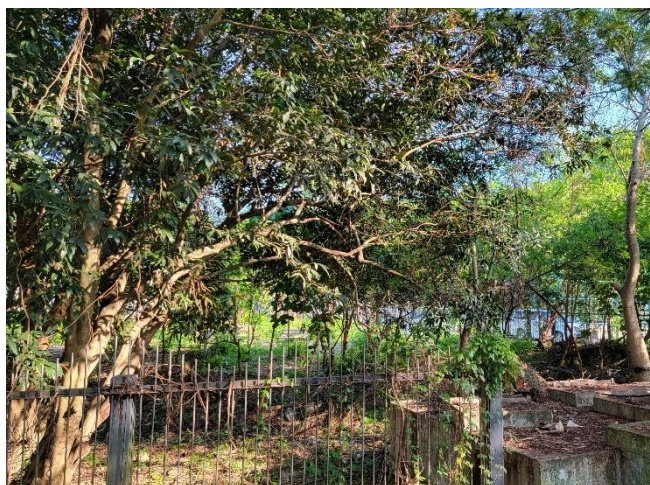
Figure 4.1
Preliminary Master Layout Plan and Location of Species of Conservation Importance



APPENDIX A1 HABITAT PHOTOS OF SURROUNDING STUDY AREA



Secondary Woodland



Scattered Woodland



Grassland



Shrubland-Grassland



Agricultural Area



Developed Area



Semi-Natural Watercourse

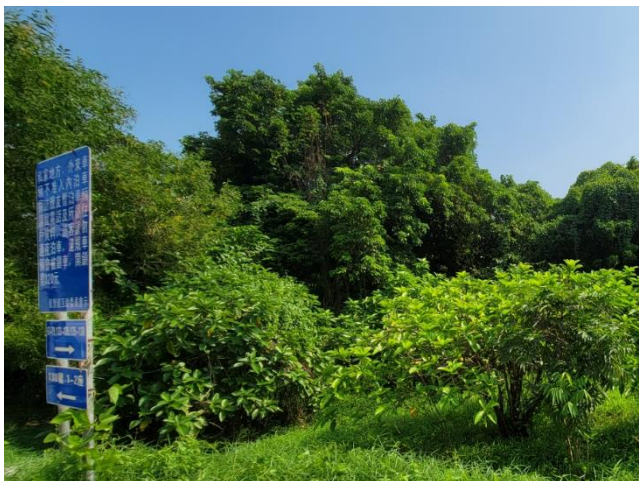


Channelised Watercourse



Artificial Pond

APPENDIX A2 HABITAT PHOTOS OF DEVELOPMENT SITE



Scattered Woodland



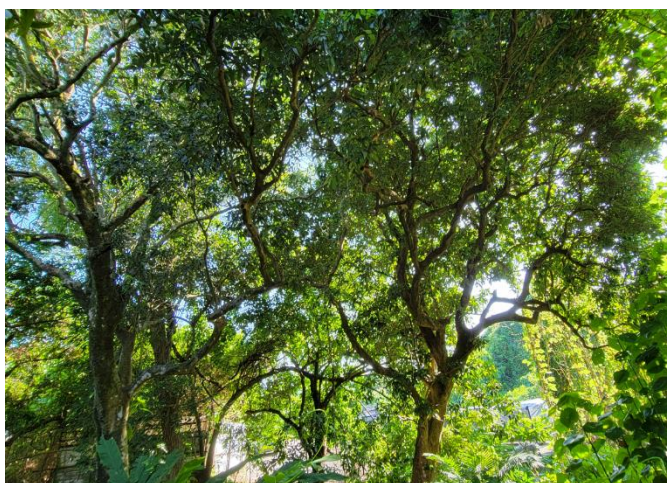
Grassland



Shrubland-Grassland



Agricultural Area



Abandoned Orchard



Developed Area



Semi-natural watercourse (Fung Yuen Stream)



Channelised watercourse (Fung Yuen Stream)

APPENDIX A3 PHOTOGRAPHIC RECORDS OF SPECIES OF CONSERVATION IMPORTANCE



Mucuna championii (climber)



Illigera celebica (climber)

APPENDIX B RELATIVE ABUNDANCE OF PLANT SPECIES RECORDED WITHIN DEVELOPMENT SITE AND SURROUNDING STUDY AREA

Appendix B Presence of Plant Species Recorded Within the Study Area

Species Name	Chinese Name	Origin ¹	Growth Form	Commonness ²	Conservation Status ³	Development Site										Habitat ³						Study Area			
						SW	GR	SH-GR	AG	AO	DA	WC	SWL	SW	GR	SH-GR	AG	DA	WC	AP					
<i>Acacia confusa</i>	台灣相思	E	Tree	Widely cultivated in Hong Kong	-										++	+++					+++				
<i>Acacia mangium</i>	大葉相思，馬占相思	E	Tree	Widely cultivated in Hong Kong	-										+										
<i>Adiantum capillus-veneris</i>	鐵線蕨	N	Herb	-	-										+										
<i>Ageratum conyzoides</i>	藿香薊，勝紅薊	E	Herb	Naturalized and widely distributed in Hong Kong	-			++	++										++						
<i>Aglaia odorata</i>	米仔蘭	E	Shrub/Tree	Cultivated	-														++						
<i>Alangium chinense</i>	八角楓	N	Shrub/Tree	Common in Hong Kong	-	+									++										
<i>Albizia lebeck</i>	大葉合歡	E	Tree	Cultivated in Hong Kong	-												++								
<i>Alchornea trevioides</i>	紅背山麻桿	N	Shrub	Common in Hong Kong	-						+				+										
<i>Allium tuberosum</i>	韭	E	Herb	Cultivated	-			++																	
<i>Alocasia macrorrhizos</i>	海芋	N	Herb	Common in Hong Kong	-			+++	+		+	+			++	++									
<i>Alternanthera sessilis</i>	蓮子草，蝦蟇菜	N	Herb	Common in Hong Kong	-																			++	
<i>Amaranthus viridis</i>	野苋	N	Herb	Common in Hong Kong	-			+++														+			
<i>Aporosa dioica</i>	銀紫	N	Tree	Common in Hong Kong	-				++						+++										
<i>Araucaria cunninghamii</i>	南洋杉，花旗杉	E	Tree	Cultivated in gardens	-																	+			
<i>Archidendron lucidum</i>	亮葉銀耳環	N	Tree	Common in Hong Kong	-										++										
<i>Archontophoenix alexandrae</i>	假檳榔	E	Tree	Commonly cultivated	-																++				
<i>Artocarpus heterophyllus</i>	菠蘿蜜	E	Tree	Cultivated	-												++								
<i>Averrhoa carambola</i>	楊桃	E	Tree	Cultivated	-										+										
<i>Bambusa ventricosa</i>	佛肚竹	E	Bamboo	Victoria Peak, Tai Po and gardens (cultivated)	-																+				
<i>Bauhinia</i> sp.	羊蹄甲屬	-	Tree	-	-			+																	
<i>Benincasa hispida</i>	冬瓜	E	Herb	Cultivated	-																	+			
<i>Bidens alba</i>	白花鬼針草	E	Herb	Naturalized and widely distributed in Hong Kong	-	+		+++	++			++				++	+++								
<i>Bischofia javanica</i>	秋楓	N	Tree	Common in Hong Kong	-				+						++										
<i>Blechnum orientale</i>	烏毛蕨	N	Herb	-	-										+										
<i>Boehmeria nivea</i>	芋麻	E	Shrub	Common in Hong Kong, either wild or in cultivation	-			+	+++					+++											
<i>Bombax ceiba</i>	木棉	E	Tree	Cultivated	-				+							+									
<i>Bougainvillea spectabilis</i>	簕牡蠣	E	Climber/Shrub	Cultivated in gardens of as a pot plant	-												+++					+++			
<i>Brassica chinensis</i>	白菜，青菜	E	Herb	Cultivated	-					+									+						
<i>Breynia fruticosa</i>	黑面神	N	Shrub	Common in Hong Kong	-			++	+						+										
<i>Bridelia tomentosa</i>	土蜜樹，逼迫仔	N	Shrub/Tree	Common in Hong Kong	-	+						+			++										
<i>Broussonetia papyrifera</i>	構樹	N	Tree	Common in Hong Kong	-										+										
<i>Byttneria aspera</i>	刺果藤	N	Climber	Common in Hong Kong	-		+																		
<i>Caesalpinia crista</i>	華南雲實，假老虎藨	N	Climber	Common in Hong Kong	-											++									
<i>Calamus tetradactylus</i>	白藤	N	Climber	Common in Hong Kong	RLCHP: VU											++									
<i>Calliandra haematocephala</i>	朱纓花，紅絨球	E	Shrub	Cultivated in gardens	-																	++			
<i>Callistemon viminalis</i>	串錢柳	E	Tree	Cultivated	-																	++			
<i>Merremia umbellata</i> subsp. <i>Orientalis</i>	山豬菜	N	Climber	Common in Hong Kong	-										+										
<i>Cansjera rheedii</i>	山柑藤	N	Climber/Shrub	Aberdeen, Deep Water Bay, New Territories, Lantau Island	-											+++									
<i>Carica papaya</i>	番木瓜	E	Tree	Cultivated	-																		++		
<i>Carmona microphylla</i>	基及樹，福建茶	E	Shrub	Cultivated	-																		++		
<i>Castanopsis fissa</i>	戴明雜	N	Tree	Common in Hong Kong. Also widely planted	-																	+			
<i>Celtis sinensis</i>	朴樹	N	Tree	Common in Hong Kong and widely planted	-				++			+	+	+++	+++										
<i>Cerbera manghas</i>	海芒果	N	Tree	Common in Hong Kong	-																	++			
<i>Cinnamomum burmannii</i>	陰香	N	Tree	Common in Hong Kong. Also cultivated	-							++			++							+++			
<i>Cinnamomum camphora</i>	樟	N	Tree	Common in Hong Kong. Also cultivated	-										+										
<i>Citrus reticulata</i>	桔	E	Tree	Cultivated	-							+							+						
<i>Clausena lansium</i>	黃皮	E	Tree	Cultivated	-			+															+		
<i>Cleome rutidosperma</i>	印度白花菜	E	Herb	Cultivated	-							++										+			
<i>Clerodendrum fortuneatum</i>	鬼燈籠，白花燈籠	N	Shrub	Common in Hong Kong	-				++																
<i>Clerodendrum japonicum</i>	鵝桐	E	Shrub	Cultivated	-			+																	
<i>Cocculus orbiculatus</i>	木防己	N	Climber	Common in Hong Kong	-			+	+						+										
<i>Codiaeum variegatum</i>	變葉木，灑金榕	E	Shrub	Cultivated	-																	+++			
<i>Colocasia esculenta</i>	芋	N	Herb	Cultivated or wild	-									++											
<i>Commelina diffusa</i>	節節草	N	Herb	Common in Hong Kong	-																		+++		
<i>Cordia dichotoma</i>	破布木	N	Tree	Stanley, Garden Rd., Lai Chi Kok, Tai Po, Lam Tsuen, Ma On Shan, Tai Mo Shan, Sai Kung (Tai Long), Sha Tau Kok, Lantau Island	-				++																

Appendix B Presence of Plant Species Recorded Within the Study Area

Species Name	Chinese Name	Origin ¹	Growth Form	Commonness ²	Conservation Status ³	Development Site								Habitat ³		Study Area								
						SW	GR	SH-GR	AG	AO	DA	WC	SWL	SW	GR	SH-GR	AG	DA	WC	AP				
<i>Cratogeomys cochinchinense</i>	黃牛木	N	Shrub/Tree	Common in Hong Kong	-								+++											
<i>Cyclosorus interruptus</i>	間斷毛蕨	N	Herb	-	-	++		++								+								
<i>Cyclosorus parasiticus</i>	華南毛蕨	N	Herb	-	-								++											
<i>Cyperus distans</i>	疏穗莎草	N	Herb	Common in Hong Kong	-		++																	
<i>Cyperus involucreatus</i>	風車草	E	Herb	Cultivated or naturalized	-											++								
<i>Cyrtococcum patens</i>	弓果黍	N	Herb	Common in Hong Kong	-	+	+	++					++		++									
<i>Dalbergia benthamii</i>	兩廣黃檀	N	Climber	Common in Hong Kong	-								++											
<i>Daphniphyllum calycinum</i>	牛耳楓	N	Shrub	Common in Hong Kong	-								++											
<i>Delonix regia</i>	鳳凰木	E	Tree	Cultivated	-						+++									+++				
<i>Desmos chinensis</i>	假鷹爪	N	Climber/Shrub	Common in Hong Kong	-								+++											
<i>Dianella ensifolia</i>	山菅蘭	N	Herb	Common in Hong Kong	-														+					
<i>Dicranopteris pedata</i>	芒萁	N	Herb	-	-								++											
<i>Dimocarpus longan</i>	龍眼，桂圓	E	Tree	Cultivated	RLCHP: VU; Wild plant under State protection (category II)*					+++				++					++					
<i>Drymaria cordata</i>	荷蓮豆	N	Herb	Tsui Hang, Mui Tsz Lam, Mau Ping, Chung Mei, Tai Mo Po Kau, Ng Tung Chai, Tai Mo Shan, Lin Fa Shan	-																+			
<i>Dyopsis lutescens</i>	散尾葵	E	Shrub	Cultivated	-																+++			
<i>Eucalyptus robusta</i>	大葉桉，大葉有加利	E	Tree	Cultivated	-			+																
<i>Ficus hispida</i>	對葉榕	N	Shrub/Tree	Common in Hong Kong	-	+++	+	+++				+	+	+++										
<i>Ficus microcarpa</i>	細葉榕	N	Tree	Common in Hong Kong. Also widely cultivated	-			+			++	+	++	+++										
<i>Ficus pumila</i>	薛荔	N	Climber	Common in Hong Kong	-									+										
<i>Ficus variegata</i>	青果榕	N	Tree	Common in Hong Kong	-								+											
<i>Flueggea virosa</i>	白飯樹	N	Shrub	Tai Tam, Ngau Chi Wan, Fanling, Po Leng, Tai Po, Butterfly Hill	-	+++																		
<i>Gynostemma pentaphyllum</i>	絞股藍	N	Climber	Tai Mo Shan, Ng Tung Chai, Tsz Mun Tin	-									+										
<i>Hedyotis hedysotidea</i>	牛白藤	N	Climber/Shrub	Common in Hong Kong	-								++											
<i>Heteropanax fragrans</i>	幌傘樹，火通木	E	Tree	Cultivated	-															++				
<i>Hibiscus sabdariffa</i>	玫瑰茄，洛神花	E	Shrub	-	-		++												+					
<i>Hibiscus tiliaceus</i>	黃槿	N	Tree	Hong Kong Island, Shek O, Ma Liu Shui, Mai Po, Leung Shuen Wan Chau (Tall Island)	-												++							
<i>Hylocereus undatus</i>	量天尺，霸王花，火龍果	E	Herb	Cultivated	-		+																	
<i>Illigera celebica</i>	寬瓣青藤，青藤	N	Evergreen woody liana cl	Fung Yuen, She Shan	Protected under Forests and Country-side Ordinance (Cap. 96); Category 4 (AFCD, 2003)								+											
<i>Ipomoea batatas</i>	番薯	E	Herb	Cultivated	-				++										++	+				
<i>Ipomoea cairica</i>	五爪金龍	E	Herb	Common in Hong Kong	-		+	++								+								
<i>Ipomoea triloba</i>	三裂葉薯，三裂葉牽牛	E	Herb	Naturalized in Hong Kong	-	++									++									
<i>Jasminum sambac</i>	茉莉花	E	Shrub	Cultivated	-			++			+													
<i>Kyllinga brevifolia</i>	短葉水蜈蚣	N	Herb	Common in Hong Kong	-																+			
<i>Kyllinga nemoralis</i>	單穗水蜈蚣	N	Herb	Common in Hong Kong	-					++		++												
<i>Kyllinga polyphylla</i>	水蜈蚣	E	Herb	Victoria Park, Tsui Hang, Tai Po Kau	-							+++									++			
<i>Lagerstroemia speciosa</i>	大花紫薇	E	Tree	Cultivated	-			++									++							
<i>Lantana camara</i>	馬纓丹	E	Shrub	Naturalized in Hong Kong	-		+	+++					++											
<i>Leucaena leucocephala</i>	銀合歡	E	Shrub/Tree	Cultivated or naturalized	-	+++		++++						++++										
<i>Ligustrum sinense</i>	山指甲	E	Shrub/Tree	Common in Hong Kong and widely cultivated	-			+			++													
<i>Liquidambar formosana</i>	楓香	N	Tree	Common in Hong Kong. Also widely planted	-			+																
<i>Liriope spicata</i>	山麥冬，麥門冬	N	Herb	Common in Hong Kong	-								+											
<i>Litchi chinensis</i>	荔枝	E	Tree	Cultivated	RLCHP: EN*	+++				++++										+				
<i>Lonicera japonica</i>	金銀花，忍冬	N	Climber	Tai Tam	-																+			
<i>Lophatherum gracile</i>	淡竹葉	N	Herb	Common in Hong Kong	-			+		++														
<i>Ludwigia adscendens</i>	水龍	N	Herb	Lai Chi Kok, Tai Po, Lam Tsuen, Mui Tsz Lam, Wu Kau Tang, Lantau Island	-			++														++		
<i>Ludwigia hyssopifolia</i>	草龍	N	Herb	Tai Lam Chung	-		+					++												
<i>Ludwigia octovalvis</i>	毛草龍	N	Herb	Hong Kong Island, Tai Po, Mai Po, Sheung Shui, Sai Kung, Lantau Island, Po Toi	-		+++																	
<i>Ludwigia perennis</i>	細花丁香蓼	N	Herb	Sha Tin, Mai Mo Shan	-		++																	
<i>Lagodium japonicum</i>	海金沙	N	Climber/Herb	-	-	+	++	++			+		++											
<i>Macaranga tanarius var. tomentosa</i>	血桐	N	Tree	Common in Hong Kong	-	++		++		++	+		++	++++										
<i>Macuilus chekiangensis</i>	浙江潤楠	N	Tree	Common in Hong Kong	-								+++											

Appendix B Presence of Plant Species Recorded Within the Study Area

[illegible]

Appendix B Presence of Plant Species Recorded Within the Study Area

Species Name	Chinese Name	Origin ¹	Growth Form	Commonness ²	Conservation Status ³	Development Site								Habitat ³								Study Area							
						SW	GR	SH-GR	AG	AO	DA	WC	SWL	SW	GR	SH-GR	AG	DA	WC	AP									
<i>Syngonium podophyllum</i>	合果芋	E	Herb	-	-									++															
<i>Syzygium jambos</i>	蒲桃	E	Tree	Cultivated & naturalized	-					++	+																		
<i>Syzygium levcinei</i>	山蒲桃	0	0	Common in Hong Kong	-			+																					
<i>Tagetes erecta</i>	萬壽菊	E	0	Cultivated	-															++									
<i>Tetracera asiatica</i>	錫葉藤	N	Climber	Common in Hong Kong	-									++															
<i>Tetradium glabrifolium</i>	棟葉吳茱萸	N	Tree	Hong Kong Island, Sai Kung, Tai Po, Bride's Pool, Lantau Island	-								+																
<i>Vitex negundo</i> var. <i>cambabfolia</i>	牡荊	N	Shrub/Tree	Wong Nai Chung Gap, Quarry Bay, Fung Yuen, Lo Wu, Lantau Island	-			++																					
<i>Wedelia chinensis</i>	蟛蜞菊	N	Herb	Common in Hong Kong	-			++												+++									
<i>Wedelia trilobata</i>	三裂葉蟛蜞菊	E	Herb	Naturalized and widely cultivated	-													+++											
<i>Zanthoxylum nitidum</i>	兩面針	N	Climber/Shrub	Common in Hong Kong	-									++															
<i>Zea mays</i>	玉蜀黍	E	Herb	Cultivated	-				+										+										
<i>Zehneria japonica</i>	老鼠拉冬瓜	N	Herb	Tai Mo Shan, Tai Po, Tai Po Kau, Kap Lung	-									+	+														
						TOTAL	15	30	44	5	8	23	10	64	22	8	9	7	41	10	0								

Notes:

1. Origin of plant species refers to AFCD (2012). Check List of Hong Kong Plants 2012. Agriculture, Fisheries and Conservation Department, HKSAR, Hong Kong.

2. Commonness follows:

- 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: 21-136.
- KFBG (2003) Flora of Hong Kong - Pteridophyta. Kadoorie Farm and Botanic Garden, Hong Kong
- AFCD (2003) Rare and Precious Plants of Hong Kong. Agriculture, Fisheries and Conservation Department, HKSAR, Hong Kong.
- AFCD (2007) Flora of Hong Kong Vol. 1. Edited by Hong Kong Herbarium, Agriculture, Fisheries and Conservation Department & South China Botanical Garden, Chinese Academy of Sciences
- AFCD (2008) Flora of Hong Kong Vol. 2. Edited by Hong Kong Herbarium, Agriculture, Fisheries and Conservation Department & South China Botanical Garden Chinese Academy of Sciences
- AFCD (2009) Flora of Hong Kong Vol. 3. Edited by Hong Kong Herbarium, Agriculture, Fisheries and Conservation Department & South China Botanical Garden Chinese Academy of Sciences
- AFCD (2011) Flora of Hong Kong Vol. 3. Edited by Hong Kong Herbarium, Agriculture, Fisheries and Conservation Department & South China Botanical Garden Chinese Academy of Sciences

Conservation status follows:

- AFCD (2003) Rare and Precious Plants of Hong Kong. Agriculture, Fisheries and Conservation Department, HKSAR, Hong Kong.
- Cap. 96A: Forestry Regulations, the subsidiary legislation of Forests and Countryside Ordinance (Cap. 96).
- Cap. 586: Protection of Endangered Species of Animals and Plants Ordinance
- CPRDB: Fu and Jin (1992) China Plant Red Data Book
- IUCN: International Union for Conservation of Nature Red List of Threatened Species (2017). NT = Near threatened, VU = Vulnerable.

3. Habitats: SWL = Secondary Woodland, SW = Scattered Woodland, GR = Grassland, SH-GR = Shrubland-grassland, AG = Agricultural Area, AO = Abandoned Orchard, DA = Developed Area, WC = Watercourse, AP = Artificial Pond

4. Indicative symbol “+” was used to indicate that a species is cultivated and is not considered as a species of conservation importance based on the new EIAO-TM guidelines

APPENDIX C RELATIVE ABUNDANCE OF WILDLIFE SPECIES RECORDED WITHIN DEVELOPMENT SITE AND SURROUNDING STUDY AREA

Appendix C1 Presence of Mammal Species Recorded Within the Study Area

Item No.	Common Name	Scientific Name	Chinese Name	Conservation Status ¹	Commonness ²	Habitat ³														
						Development Site							Surrounding Study Area							
						SW	GR	SH-GR	AG	AO	DA	WC	SWL	SW	GR	SH-GR	AG	DA	WC	AP
1	Japanese Pipistrelle	<i>Pipistrellus abramus</i>	東亞家蝠	Cap.170	Widely distributed throughout Hong Kong.		✓									✓				
2	Least Pipistrelle	<i>Pipistrellus tenuis</i>	小伏翼	Cap.170	Ten-something records found in Nam Chung, Sheung Wo Hang, Lin Ma Hang, Plover Cove Country Park, Yuen Long, Shek Pik, Deep Water Bay, Ho Pui and Ho Chung.			✓										✓		
3	Chinese Pipistrelle	<i>Hypsugo pulveratus</i>	灰伏翼	Cap.170; Fellowes: (LC)	Only several records in the countryside areas at Ting Kau, Ma On Shan and Lin Ma Hang, and several records of stray individuals inside buildings.		✓			✓										
4	Chinese Noctule	<i>Nyctalus plancyi</i>	中華山蝠	Cap.170; Fellowes: PRC (RC)	Fairly widely distributed in countryside areas throughout Hong Kong.		✓											✓		
5	Lesser Yellow Bat	<i>Scotophilus kuhlii</i>	中黃蝠	Cap.170; Fellowes: (LC)	Fairly widely distributed in countryside areas throughout Hong Kong.		✓									✓				
6	Himalayan Leaf-nosed Bat	<i>Hipposideros armiger</i>	大蹄蝠	Cap.170; Fellowes: (LC)	Widely distributed in countryside areas throughout Hong Kong.			✓												
TOTAL						0	4	2	0	1	0	0	0	0	0	2	0	2	0	0

Notes:

1. Conservation and Protection Status:

a. Cap. 170 – Protected under Wild Animals Protection Ordinance

b. Fellowes – Fellowes *et al.* (2002): RC = Regional Concern, PRC = Potential Regional Concern, 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.
2. Commonness as per AFCD database: Available at <https://bih.gov.hk/en/home/index.html>
3. Habitats: SWL = Secondary Woodland, SW = Scattered Woodland, GR = Grassland, SH-GS = Shrubland-Grassland, AG = Agricultural Area, AO = Abandoned Orchard, DA = Developed Area, WC = Watercourse, AP = Artificial Pond
4. References:

AFCD. 2025. Hong Kong Biodiversity Information Hub. Accessed from <<https://bih.gov.hk/en/home/index.html>> in May 2025.

Fellowes *et al.* 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.

Ministry of Ecology and Environment of the People's Republic of China, and Chinese Academy of Sciences. 2023. Red List of China’s Vertebrates.

Appendix C2 Maximum Count of Bird Species Recorded Within the Study Area

Item No.	Common Name	Scientific Name	Chinese Name	Conservation Status ¹	Distribution in Hong Kong ²	Habitat ³																
						Development Site						Surrounding Study Area										
						SW	GR	SH-GR	AG	AO	DA	WC	IF	SWL	SW	GR	SH-GR	AG	DA	WC	AP	IF
1	House Swift	<i>Apus nipalensis</i>	小白腰雨燕	-	Abundant spring migrant and common resident. Widely distributed in Hong Kong.			1					5									
2	Greater Coucal	<i>Centropus sinensis</i>	褐翅鴉鵂	CSMPS(II)	Common resident. Widely distributed in Hong Kong.		1	1		1												
3	Asian Koel	<i>Eudynamys scolopaceus</i>	噪鵂	-	Common resident. Widely distributed in Hong Kong.	1											1					
4	Plaintive Cuckoo	<i>Cacomantis merulinus</i>	八聲杜鵑	-	Passage migrant and common visitor. Widely distributed in open area throughout Hong Kong.			1				1										
5	Large Hawk-cuckoo	<i>Hierococcyx sparveriioides</i>	大鷹鵂	-	Locally common spring and summer visitor. Widely distributed in woodland throughout in Hong Kong.	1																
6	Spotted Dove	<i>Spilopelia chinensis</i>	珠頸斑鳩	-	Abundant resident. Widely distributed in Hong Kong.		2	2			1			1			1		3			
7	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	白胸苦惡鳥	-	Common resident. Widely distributed in wetland throughout Hong Kong.	1						1		1								
8	Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	夜鷺	Fellowes: (LC)	Common resident and migrant. Widely distributed in Hong Kong.							1										
9	Chinese Pond Heron	<i>Ardeola bacchus</i>	池鷺	Fellowes: PRC (RC)	Common resident. Widely distributed in Hong Kong.							1	2								1	
10	Great Egret	<i>Ardea alba</i>	大白鷺	Fellowes: PRC (RC)	Common resident, migrant and winter visitor. Widely distributed in Hong Kong.								1									
11	Little Egret	<i>Egretta garzetta</i>	小白鷺	Fellowes: PRC (RC)	Common resident, migrant and winter visitor. Widely distributed in coastal area throughout Hong Kong.							1	1									
12	Crested Serpent Eagle	<i>Spilornis cheela</i>	蛇鵂	Cap.586; Fellowes: (LC); CSMPS(II); CITES(II)	Common resident. Widely distributed in shrublands on hillsides throughout Hong Kong.												1					
13	Black Kite	<i>Milvus migrans</i>	黑鳶	Cap.586; Fellowes: (RC); CSMPS(II); CITES(II)	Common resident and winter visitor. Widely distributed in Hong Kong.			1									1					
14	Long-tailed Shrike	<i>Lanius schach</i>	棕背伯勞	-	Common resident. Widely distributed in open areas throughout Hong Kong.												1					
15	Red-billed Blue Magpie	<i>Urocissa erythrorhyncha</i>	紅嘴藍鵲	-	Common resident. Widely distributed in woodland edges throught Hong Kong.									2								
16	Grey Treepie	<i>Dendrocitta formosae</i>	灰樹鵲	Fellowes: LC	Locally common resident. Found in Sai Kung, Luk Keng, Tai Po Kau, Tai Tam Reservoir, Ho Chung, Hong Kong University, Lam Tsuen, Hok Tau.			2														
17	Large-billed Crow	<i>Corvus macrorhynchos</i>	大嘴烏鴉	-	Common resident. Widely distributed in Hong Kong.			1														
18	Japanese Tit	<i>Parus minor</i>	遠東山雀	-	Common resident. Widely distributed in Hong Kong.	1		2						2								
19	Chinese Bulbul	<i>Pycnonotus sinensis</i>	白頭鵲	-	Abundant resident. Widely distributed in Hong Kong	2											1		2			
20	Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	紅耳鵲	-	Abundant resident. Widely distributed in Hong Kong	2	2	5		1		2					3		5			
21	Barn Swallow	<i>Hirundo rustica</i>	家燕	-	Abundant passage migrant and uncommon winter visitor. Widely distributed in Hong Kong.	1		2											6			
22	Yellow-bellied Prinia	<i>Prinia flaviventris</i>	黃腹鷦鶯	-	Common resident. Widely distributed in Hong Kong			1									1					
23	Common Tailorbird	<i>Orthotomus sutorius</i>	長尾縫葉鶯	-	Common resident. Widely distributed in Hong Kong	1	1	1									1		2			
24	Swinhoe's White-eye	<i>Zosterops simplex</i>	暗綠繡眼鳥	-	Abundant resident. Widely distributed in Hong Kong		2	2		1		1							2			
25	Masked Laughingthrush	<i>Pterorhinus perspicillatus</i>	黑臉噪鵂	-	Abundant resident. Widely distributed in shrubland throughout Hong Kong	6		11	4	2		2					1					
26	Crested Myna	<i>Acridotheres cristatellus</i>	八哥	-	Abundant resident. Widely distributed in Hong Kong														1			
27	Common Myna	<i>Acridotheres tristis</i>	家八哥	-	Locally common resident. Found in Mai Po, Sheung Uk Tsuen, Sheung Shui, Kam Tin, Shek Kong, Ping Shan, Mong Tseng			2											3			
28	Black-collared Starling	<i>Gracupica nigricollis</i>	黑領椋鳥	-	Common resident. Widely distributed in Hong Kong	3	2	1									1		4		4	
29	Oriental Magpie Robin	<i>Copsychus saularis</i>	鵲鴝	-	Abundant resident. Widely distributed in Hong Kong	2	1	1				3		2			1		2			
30	Scarlet-backed Flowerpecker	<i>Dicaeum cruentatum</i>	朱背啄花鳥	-	Common resident. Widely distributed in wooded area throughout Hong Kong			2														
31	Fork-tailed Sunbird	<i>Aethopyga christinae</i>	叉尾太陽鳥	-	Common resident and winter visitor. Widely distributed in Hong Kong					4												
32	Eurasian Tree Sparrow	<i>Passer montanus</i>	樹麻雀	-	Abundant resident. Widely distributed in Hong Kong		15	15	6	2									10			
33	White Wagtail	<i>Motacilla alba</i>	白鵲鴿	-	Resident, common passage migrant and winter visitor. Widely distributed in Hong Kong							1										
34	Olive-backed Pipit	<i>Anthus hodgsoni</i>	樹鵲	-	Common passage migrant and winter visitor. Widely distributed in Hong Kong							1										

Appendix C2 Maximum Count of Bird Species Recorded Within the Study Area

Item No.	Common Name	Scientific Name	Chinese Name	Conservation Status ¹	Distribution in Hong Kong ²	Habitat ³																
						Development Site								Surrounding Study Area								
						SW	GR	SH-GR	AG	AO	DA	WC	IF	SWL	SW	GR	SH-GR	AG	DA	WC	AP	IF
TOTAL						11	8	19	2	6	1	11	4	5	0	0	12	0	11	0	2	0

Notes:

1. Conservation and Protection Status:

a. Cap. 170: Protected under Wild Animals Protection Ordinance, all birds in Hong Kong are protected under Cap. 170

b. Cap. 586: Protection of Endangered Species of Animals and Plants Ordinance

c. Fellowes – Fellowes et al. (2002): LC = Local Concern, PRC = Potential Regional Concern, RC = Regional 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.

d. CSMPS – China State Major Protection Status: Appendix II

e. CITES – Under Appendix (I), Appendix (II) or Appendix (III) of Convention on International Trade in Endangered Species of Wild Flora and Fauna
2. Distribution as per AFCD database. Available at <https://bih.gov.hk/en/home/index.html>:
3. Habitats: SWL = Secondary Woodland, SW = Scattered Woodland, GR = Grassland, SH-GS = Shrubland-Grassland, AG = Agricultural Area, AO = Abandoned Orchard, DA = Developed Area, WC = Watercourse, AP = Artificial Pond, IF = In-Flight
4. References:

AFCD. 2025. Hong Kong Biodiversity Information Hub. Accessed from <<https://bih.gov.hk/en/home/index.html>> in May 2025.

Fellowes *et al.* 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.

Ministry of Ecology and Environment of the People's Republic of China, and Chinese Academy of Sciences. 2023. Red List of China’s Vertebrates.

Zheng, G. M. and Wang, Q. S. (1998). China Red Data Book of Endangered Animals: Aves. Science Press, Beijing, pp 1–346.

Appendix C3 Relative Abundance of Amphibian Species Recorded Within the Study Area

Item No.	Common Name	Scientific Name	Chinese Name	Conservation and Protection Status	Rarity in Hong Kong ¹	Distribution in Hong Kong ²	Habitat ^{3/4}																
							Development Site							Surrounding Study Area									
							SW	GR	SH-GR	AG	AO	DA	WC	SWL	SW	GR	SH-GR	AG	DA	WC	AP		
1	Asian Common Toad	<i>Duttaphrynus melanostictus</i>	黑眶蟾蜍	-	Least Concern	Widely distributed in HK						+	++++	+	+								
2	Marbled Pigmy Frog	<i>Microhyla pulchra</i>	花姬蛙	-	Least Concern	Widely distributed in HK																+	+
3	Günther's Frog	<i>Sylvirana guentheri</i>	沼蛙	-	Least Concern	Widely distributed throughout HK							++		+								+
4	Brown Tree Frog	<i>Polypedates megacephalus</i>	斑腿泛樹蛙	-	Least Concern	Widely distributed throughout Hong Kong		+					+		+								
5	Greenhouse Frog	<i>Eleutherodactylus planirostris</i>	溫室蟾	-	-	Widely distributed throughout Hong Kong							+							+			
TOTAL							0	1	0	0	0	1	4	1	3	0	0	0	1	1	2		

Notes:

1. Rarity as per AFCD. 2009. The Proposed Action Plan for the Conservation of Amphibians in Hong Kong (NCSC 4/09). Annex 1.
2. Distribution as per AFCD database. Available at <https://bih.gov.hk/en/home/index.html>
3. Habitats: SWL = Secondary Woodland, SW = Scattered Woodland, GR = Grassland, SH-GS = Shrubland-Grassland, AG = Agricultural Area, AO = Abandoned Orchard, DA = Developed Area, WC = Watercourse, AP = Artificial Pond
4. Relative abundance: +: Scarce (1-5), ++: Uncommon (6-20), +++: Common (20 - 50), ++++: Abundant (>50)
5. References:
AFCD. 2025. Hong Kong Biodiversity Information Hub. Accessed from <<https://bih.gov.hk/en/home/index.html>> in May 2025.
AFCD. 2009. The Proposed Action Plan for the Conservation of Amphibians in Hong Kong (NCSC 4/09). Annex 1. Accessed from <http://www.epd.gov.hk/epd/textonly/english/boards/advisory_council/files/ncsc_paper04_2009.pdf> in Sep 2014
Fellowes *et al.* 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.
Ministry of Ecology and Environment of the People's Republic of China, and Chinese Academy of Sciences. 2023. Red List of China’s Vertebrates.

Appendix C4 Maximum Count of Reptile Species Recorded Within the Study Area

Item No.	Common Name	Scientific Name	Chinese Name	Conservation and Protection Status ¹	Distribution in Hong Kong ²	Habitat ³														
						Development Site					Surrounding Study Area									
						SW	GR	SH-GR	AG	AO	DA	WC	SWL	SW	GR	SH-GR	AG	DA	WC	AP
1	Red-eared Slider	<i>Trachemys scripta elegans</i>	巴西龜	-	Widely distributed and commonly found in reservoirs or ponds in urban parks							2								
2	Changeable Lizard	<i>Calotes versicolor</i>	變色樹蜥	-	Widely distributed throughout Hong Kong						1									
3	Long-tailed Skink	<i>Eutropis longicaudata</i>	長尾南蜥	-	Widely distributed throughout Hong Kong			1												
4	Bowring's Gecko	<i>Hemidactylus bowringii</i>	原尾蜥虎	-	Distributed throughout Hong Kong						1							2		
5	Common Rat Snake	<i>Ptyas mucosus</i>	滑鼠蛇	Cap.586; Fellowes: PRC; RLCV(EN); CITES(II)	Widely distributed throughout Hong Kong			1												
TOTAL						0	0	2	0	0	2	1	0	0	0	0	0	1	0	0

Notes:

1. Conservation and Protection Status:

a. Cap. 586: Protection of Endangered Species of Animals and Plants Ordinance

b. Fellowes – Fellowes et al. (2002): PRC = Potential Regional 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.

c. RLCV – Red List of China’s Vertebrate (2020): EN = Endangered

d. CITES – Under Appendix (I), Appendix (II) or Appendix (III) of Convention on International Trade in Endangered Species of Wild Flora and Fauna
2. Distribution as per AFCD database. Available at <https://bih.gov.hk/en/home/index.html>
3. Habitats: SWL = Secondary Woodland, SW = Scattered Woodland, GR = Grassland, SH-GS = Shrubland-Grassland, AG = Agricultural Area, AO = Abandoned Orchard, DA = Developed Area, WC = Watercourse, AP = Artificial Pond
4. References:

AFCD. 2025. Hong Kong Biodiversity Information Hub. Accessed from <<https://bih.gov.hk/en/home/index.html>> in May 2025.

Fellowes *et al.* 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.

Ministry of Ecology and Environment of the People's Republic of China, and Chinese Academy of Sciences. 2023. Red List of China’s Vertebrates.

Zhao, E. 1998. China Red Data Book of Endangered Animals: Amphibia and Reptilia. Science Press. Beijing, China. 330pp.

Appendix C5 Maximum Count of Butterfly Species Recorded Within the Study Area

Item No.	Common Name	Scientific Name	Chinese Name	Consevation/ Protection Status ¹	Rarity in Hong Kong ²	Distribution in Hong Kong ²	Habitat ³														
							Development Site							Surrounding Study Area							
							SW	GR	SH-GR	AG	AO	DA	WC	SWL	SW	GR	SH-GR	AG	DA	WC	AP
1	Formosan Swift	<i>Borbo cinnara</i>	袖弄蝶	-	Common	Widely distributed throughout Hong Kong.			1		1										
2	Unidentified Swift	<i>Pelopidas sp.</i>	穀弄蝶屬	-	-	-		3			3										
3	Common Hedge Blue	<i>Acytolepis puspa</i>	鉗灰蝶	-	Common	Widely distributed throughout Hong Kong.							2								
4	Forget-me-not	<i>Catochrysops strabo</i>	咖灰蝶	-	Very Rare; Species of Conservation Concern	Pui O, Tai Po Kau, Fung Yuen, Shing Mun, Sha Lo Wan.													2		
5	Lime Blue	<i>Chilades lajus</i>	紫灰蝶	-	Common	Widely distributed throughout Hong Kong.		1		1											
6	Metallic Cerulean	<i>Jamides alecto</i>	素雅灰蝶	-	Very Rare	Victoria Peak, Fung Yuen, Chuen Lung, Mui Wo.								1							
7	Dark Cerulean	<i>Jamides bochus</i>	雅灰蝶	-	Common	Widely distributed throughout Hong Kong.	2	3	4					10					20		
8	Transparent 6-line Blue	<i>Nacaduba kurava</i>	古樓娜灰蝶	-	Common	Widely distributed throughout Hong Kong.					2										
9	Pale Grass Blue	<i>Pseudozizeeria maha</i>	酢漿灰碟	-	Very Common	Widely distributed throughout Hong Kong.		1		1			5				8		1		
10	Lesser Grass Blue	<i>Zizina otis</i>	毛眼灰蝶	-	Common	Widely distributed throughout Hong Kong.		1	1												
11	Slate Flash	<i>Rapala manea</i>	燕灰蝶	-	Common	Widely distributed throughout Hong Kong.													1		
12	Plum Judy	<i>Abisara echerius</i>	蛇目褐蛺蝶	-	Very Common	Widely distributed throughout Hong Kong.								1							
13	Common Tiger	<i>Danaus genutia</i>	虎斑蝶	-	Common	Widely distributed throughout Hong Kong.					5			5							
14	Common Indian Crow	<i>Euploea core</i>	幻紫斑蝶	-	Common	Widely distributed throughout Hong Kong.	1		2		4			5		2			5		
15	Blue-spotted Crow	<i>Euploea midamus</i>	藍點紫斑蝶	-	Very Common	Widely distributed throughout Hong Kong.		1													
16	Blue-spotted Crow	<i>Euploea midamus</i>	藍點紫斑蝶	-	Very Common	Widely distributed throughout Hong Kong.			1												
17	Indian Fritillary	<i>Argyreus hyperbius</i>	斐豹蛱蝶	-	Common	Widely distributed throughout Hong Kong.					2										
18	Angled Castor	<i>Ariadne ariadne</i>	波蛱蝶	-	Common	Widely distributed throughout Hong Kong.		1	1												
19	Rustic	<i>Cupha erymanthis</i>	黃襟蛱蝶	-	Very Common	Widely distributed throughout Hong Kong.		5	2				1	3					3		
20	Common Mapwing	<i>Cyrestis thyodamas</i>	網絲蛱蝶	-	Common	Widely distributed throughout Hong Kong.							1								
21	Gaudy Baron	<i>Euthalia lubentina</i>	紅斑翠蛱蝶	-	Uncommon	Widely distributed throughout Hong Kong.		1													
22	White-edged Blue Baron	<i>Euthalia phemius</i>	尖翅翠蛱蝶	-	Common	Widely distributed throughout Hong Kong.													1		
23	Great Egg-fly	<i>Hypolimnas bolina</i>	幻紫斑蛱蝶	-	Common	Widely distributed throughout Hong Kong.		5	1		2				1						
24	Peacock Pansy	<i>Junonia almana</i>	美眼蛱蝶	-	Common	Widely distributed throughout Hong Kong.													2		
25	Lemon Pansy	<i>Junonia lemonias</i>	蛇眼蛱蝶	-	Common	Wu Kau Tang, Shan Liu, Shui Long Wo, Tong Fuk, Pak Tam Chung.			1												
26	Common Archduke	<i>Lexias pardalis</i>	小豹律蛱蝶	-	Suspected species	Widely distributed throughout Hong Kong.								1							
27	Common Sailer	<i>Neptis hylas</i>	中環蛱蝶	-	Very Common	Widely distributed throughout Hong Kong.			1				1	1			1				
28	Five-dot Sergeant	<i>Parathyma sulpitia</i>	殘鐐綠蛱蝶	-	Common	Widely distributed throughout Hong Kong.							2						1		
29	Dark Evening Brown	<i>Melanitis phedima</i>	睇暮眼蝶	-	Uncommon	Widely distributed throughout Hong Kong.			1												
30	Dark-brand Bush Brown	<i>Mycalesis mineus</i>	小眉眼蝶	-	Very Common	Widely distributed throughout Hong Kong.						1									
31	South China Bush Brown	<i>Mycalesis zonata</i>	平頂眉眼蝶	-	Common	Widely distributed throughout Hong Kong.		5		1	2										
32	Common Five-ring	<i>Ypthima baldus</i>	雙眼蝶	-	Very Common	Widely distributed throughout Hong Kong.	3	1	1												
33	Tailed Jay	<i>Graphium agamemnon</i>	統帥青鳳蝶	-	Common	Widely distributed throughout Hong Kong.			1										1		
34	Common Bluebottle	<i>Graphium sarpedon</i>	青鳳蝶	-	Very Common	Widely distributed throughout Hong Kong.	1		1												
35	White Dragontail	<i>Lamproptera curius</i>	燕鳳蝶	LC	Rare	Widely distributed throughout Hong Kong.								27							
36	Chinese Peacock	<i>Papilio bianor</i>	碧鳳蝶	-	Common	Widely distributed throughout Hong Kong.													1		
37	Great Mormon	<i>Papilio memnon</i>	美鳳蝶	-	Very Common	Widely distributed throughout Hong Kong.	5	2			1	1							1		
38	Paris Peacock	<i>Papilio paris</i>	巴黎翠鳳蝶	-	Very Common	Widely distributed throughout Hong Kong.							1						1		
39	Common Mormon	<i>Papilio polytes</i>	玉帶鳳蝶	-	Very Common	Widely distributed throughout Hong Kong.		4	2		4	1	2	2					3		
40	Spangle	<i>Papilio protenor</i>	藍鳳蝶	-	Very Common	Widely distributed throughout Hong Kong.					1										
41	Five-bar Swordtail	<i>Pathysa antiphates</i>	綠鳳蝶	-	Common	Widely distributed throughout Hong Kong.							1								

Appendix C5 Maximum Count of Butterfly Species Recorded Within the Study Area

Item No.	Common Name	Scientific Name	Chinese Name	Consevation/ Protection Status ¹	Rarity in Hong Kong ²	Distribution in Hong Kong ²	Habitat ³																		
							Development Site							Surrounding Study Area											
							SW	GR	SH-GR	AG	AO	DA	WC	SWL	SW	GR	SH-GR	AG	DA	WC	AP				
42	Lemon Emigrant	<i>Catopsilia pomona</i>	遷粉蝶	-	Common	Widely distributed throughout Hong Kong.		1	2			2													
43	Three-spot Grass Yellow	<i>Eurema blanda</i>	聚黃粉蝶	-	Common	Widely distributed throughout Hong Kong.	1	2	5			3			5		2						15		
44	Common Grass Yellow	<i>Eurema hecabe</i>	寬邊黃粉蝶	-	Very Common	Widely distributed throughout Hong Kong.			1	1															
45	Painted Jezebel	<i>Delias hyparete</i>	優越斑粉蝶	-	Uncommon	Widely distributed throughout Hong Kong.	1																		
46	Red-base Jezebel	<i>Delias pasithoe</i>	報喜斑粉蝶	-	Very Common	Widely distributed throughout Hong Kong.																	2		
47	Great Orange Tip	<i>Hebomoia glaucippe</i>	鶴頂粉蝶	-	Common	Widely distributed throughout Hong Kong.								1											
48	Indian Cabbage White	<i>Pieris canidia</i>	東方菜粉蝶	-	Very Common	Widely distributed throughout Hong Kong.	1	6	2	1	1				2	4		20				3			
TOTAL							8	17	19	5	14	3	10		12	2	2	3	0		17	0		0	

Notes:

1. Conservation and Protection Status:

a. Fellowes - Fellowes et al. (2002): LC = Local Concern.
2. Distribution in Hong Kong refers to AFCD database:

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
3. Habitats: SWL = Secondary Woodland, SW = Scattered Woodland, GR = Grassland, SH-GS = Shrubland-Grassland, AG = Agricultural Area, AO = Abandoned Orchard, DA = Developed Area, WC = Watercourse, AP = Artificial Pond
4. References:

AFCD. 2025. Hong Kong Biodiversity Information Hub. Accessed from <https://bih.gov.hk/en/home/index.html> in May 2025.

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

Appendix C6 Maximum Count of Odonate Species Recorded Within the Study Area

Item No.	Common Name	Scientific Name	Chinese Name	Consevation/ Protection Status	Rarity in Hong Kong ¹	Distribution in Hong Kong ²	Habitat ³															
							Development Site						Surrounding Study Area									
							SW	GR	SH-GR	AG	AO	DA	WC	SWL	SW	GR	SH-GR	AG	DA	WC	AP	
1	Orange-tailed Midget	<i>Agriocnemis femina oryzae</i>	杯斑小蟋	-	Abundant	Widely distributed in disused paddy fields, marshes, ditches and weedy ponds margins							1									
2	Yellow Featherlegs	<i>Copera marginipes</i>	黃狹扇蟋	-	Abundant	Widely distributed in lowland streams, ditches, and weedy margins of pond throughout Hong Kong							3									
3	Black Threadtail	<i>Prodasineura autumnalis</i>	烏齒原蟋	-	Abundant	Often perches on the plants near streams. Widely distributed in streams throughout Hong Kong							2									
4	Asian Amberwing	<i>Brachythemis contaminata</i>	黃翅蜻	-	Abundant	Widely distributed in weedy ponds and sluggish streams				1												
5	Forest Chaser	<i>Lyriothemis elegantissima</i>	華麗寬腹蜻	-	Common	Frequents marshes beside woodlands. Widespread throughout Hong Kong							1									
6	Russet Percher	<i>Neurothemis fulvia</i>	網脈蜻	-	Common	Found in marshes, cultivated areas, streams, tanks and irrigation feeders, sometimes even found in nearly dried out marshy areas. Widely distributed throughout Hong Kong				1												
7	Red-faced Skimmer	<i>Orthetrum chrysis</i>	華麗灰蜻	-	Abundant	Widely distributed in pools and marshy areas adjacent to flowing streams throughout Hong Kong							1									
8	Common Blue Skimmer	<i>Orthetrum glaucum</i>	黑尾灰蜻	-	Abundant	Widely distributed in streams, conduits, drainage channels, seepages and road gutters throughout Hong Kong			2				2									
9	Marsh Skimmer	<i>Orthetrum luzonicum</i>	呂宋灰蜻	-	Abundant	Widely distributed in abandoned paddies, marshy swampy and boggy locations		1														
10	Common Red Skimmer	<i>Orthetrum pruinosum neglectum</i>	赤褐灰蜻	-	Abundant	Widely distributed in slow streams, ponds, rain puddles and irrigation conduits			3				7									
11	Green Skimmer	<i>Orthetrum sabina sabina</i>	狹腹灰蜻	-	Abundant	Widely distributed in all wetland habitats throughout Hong Kong			1				1						2			
12	Wandering Glider	<i>Pantala flavescens</i>	黃蜻	-	Abundant	Widely distributed all over Hong Kong		20	5		4	10	50									
13	Variegated Flutterer	<i>Rhyothemis variegata arria</i>	斑麗翅蜻	-	Common	Widely distributed in marshes, ponds and tanks throughout Hong Kong							1									
14	Evening Skimmer	<i>Tholymis tillarga</i>	雲斑蜻	-	Common	Widely distributed in marshes, weedy ponds and tanks throughout Hong Kong							1									
15	Crimson Dropwing	<i>Trithemis aurora</i>	曉褐蜻	-	Abundant	Found in marshes, ponds, streams, andor even ornamental ponds in urban areas. Widely distributed throughout Hong Kong			2				3									
16	Indigo Dropwing	<i>Trithemis festiva</i>	慶褐蜻	-	Abundant	Favours sluggish sections of streams with a strong current or the small rock pools inof mountain streams. Widespread in Hong Kong							4									
TOTAL							0	2	5	2	1	1	13	0	0	0	0	0	1	0	0	

Notes:

1. Rarity as per AFCD. 2014.: Available at <http://www.afcd.gov.hk/english/conservation/hkbiodiversity/database/search.asp?lang=en>.
2. Distribution as per AFCD database. Available at <https://bih.gov.hk/en/home/index.html>
3. Habitats: SWL = Secondary Woodland, SW = Scattered Woodland, GR = Grassland, SH-GS = Shrubland-Grassland, AG = Agricultural Area, AO = Abandoned Orchard, DA = Developed Area, WC = Watercourse, AP = Artificial Pond
4. References: AFCD. 2022. Hong Kong Biodiversity Information Hub. Accessed from <<https://bih.gov.hk/en/home/index.html>> in Feb 2022.

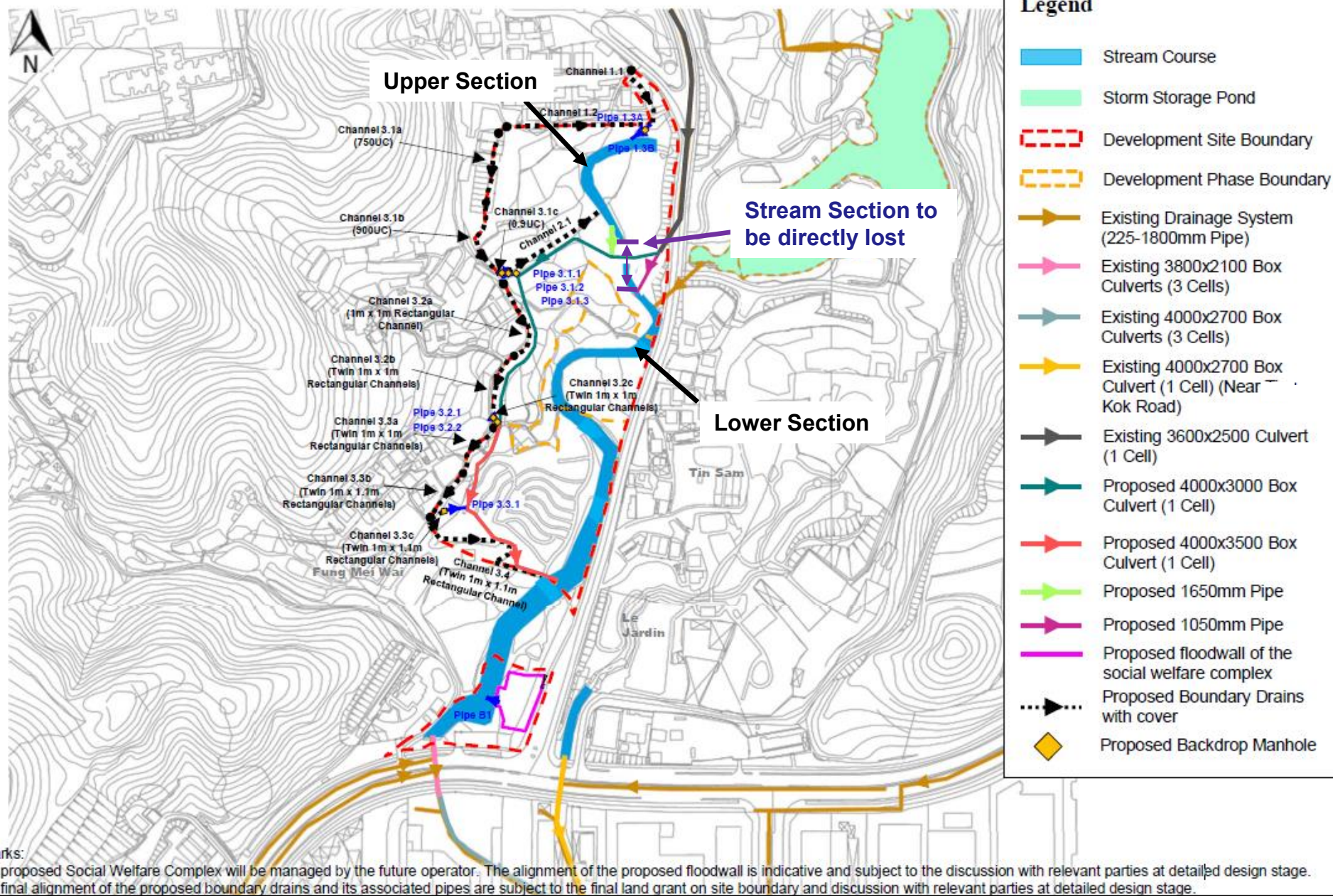
Appendix C7 Presence of Freshwater Fauna Recorded Within the Study Area

Item No.	Common Name	Scientific Name	Chinese Name	Conservation Status	Habitat ^{2/3}														
					Development Site						Surrounding Study Area								
					SW	GR	SH-GR	AG	AO	DA	WC	SWL	SW	GR	SH-GR	AG	DA	WC	AP
Freshwater Fish																			
1	Wild Carp	<i>Hemiculter leucisculus</i>	藍刀	-							+								
2	Predaceous Chub	<i>Parazacco spilurus</i>	異鱮	-							++								
3	Grey Mullet	<i>Mugil cephalus</i>	鯔	-							+++								
4	-	<i>Planiliza sp.</i>	鮫屬	-							++++								
5	Mosquito Fish	<i>Gambusia affinis</i>	食蚊魚	-							+++								
6	Guppy	<i>Poecilia reticulata</i>	孔雀花鱗	-							+								
7	Swordtail	<i>Xiphophorus hellerii</i>	劍尾魚	-							+++								
8	Jarbua Terapon	<i>Terapon jarbua</i>	細鱗鯽	-							++								
9	Mozambique Tilapia	<i>Oreochromis mossambicus</i>	莫桑比克口孵非鯽	IUCN(VU)*							++								
10	Nile Tilapia	<i>Oreochromis niloticus</i>	尼羅口孵非鯽	-							++								
11	Amur Goby	<i>Rhinogobius similis</i>	真吻鰕虎魚	-							+								
12	Spotted Scat	<i>Scatophagus argus</i>	金錢魚	-							+								
13	Dwarf Snakehead	<i>Channa gachua</i>	緣鱧	-							+								
14	Spotted Snakehead	<i>Channa maculata</i>	斑鱧	-							++								
15	-	<i>Channa sp.</i>	鱧屬	-							+								
Freshwater Invertebrates																			
1	Yellow Featherlegs (Larva)	<i>Copera marginipes</i>	黃狹扇螳（稚蟲）	-							+								
2	Indigo Dropwing (Larva)	<i>Trithemis festiva</i>	慶褐蜻（稚蟲）	-							+								
3	Mayfly (Ephemeroptera) Larva	<i>Baetidae sp.</i>	四節蜉科幼蟲	-							++++								
4	Water Boatmen	<i>Corixidae sp.</i>	划蝽	-							+								
5	Water Strider	<i>Metrocoris sp.</i>	潤黽蝽屬	-							+								
6	Water Strider	<i>Ptilomera tigrina</i>	虎紋毛足潤黽蝽	-							+								
7	Water Treader	<i>Mesoveliidae sp.</i>	水蝽	-							+								
8	Riffle Bug	<i>Rhagovelia sp.</i>	裂寬扁椿屬	-							+++								
9	Blood Worm	<i>Tanypodinae spp.</i>	長足搖蚊亞科幼蟲	-							++								
10	Black Fly Larva	<i>Simuliidae sp.</i>	蚋科幼蟲	-							++								
11	Mosquito Larva	<i>Culicidae sp.</i>	孑孓	-							++								
12	Copepod	<i>Copepoda sp.</i>	橈足綱	-							++++								
13	Ostracod	<i>Ostracoda sp.</i>	介形蟲	-							++++								
14	Freshwater Shrimp	<i>Caridina cantonensis</i>	廣東米蝦	-							+								
15	Freshwater Prawn	<i>Macrobrachium sp.</i>	沼蝦屬	-							+								
16	Mitten Crab	<i>Eriocheir sp.</i>	絨螯蟹	-							+								
17	Apple Snail	<i>Pomacea canaliculata</i>	福壽螺	-							+								
18	Freshwater Snail	<i>Clithon retropictum</i>	轉色彩螺	-							+++								
19	Freshwater Snail	<i>Thiaridae sp.</i>	淡水螺	-							+								
20	Freshwater Snail	<i>Physella acuta</i>	囊螺	-							++								
21	Flatworm	<i>Dugesiiidae sp.</i>	扁蟲	-							+								
				TOTAL	0	0	0	0	0	0	36	0	0	0	0	0	0	0	0

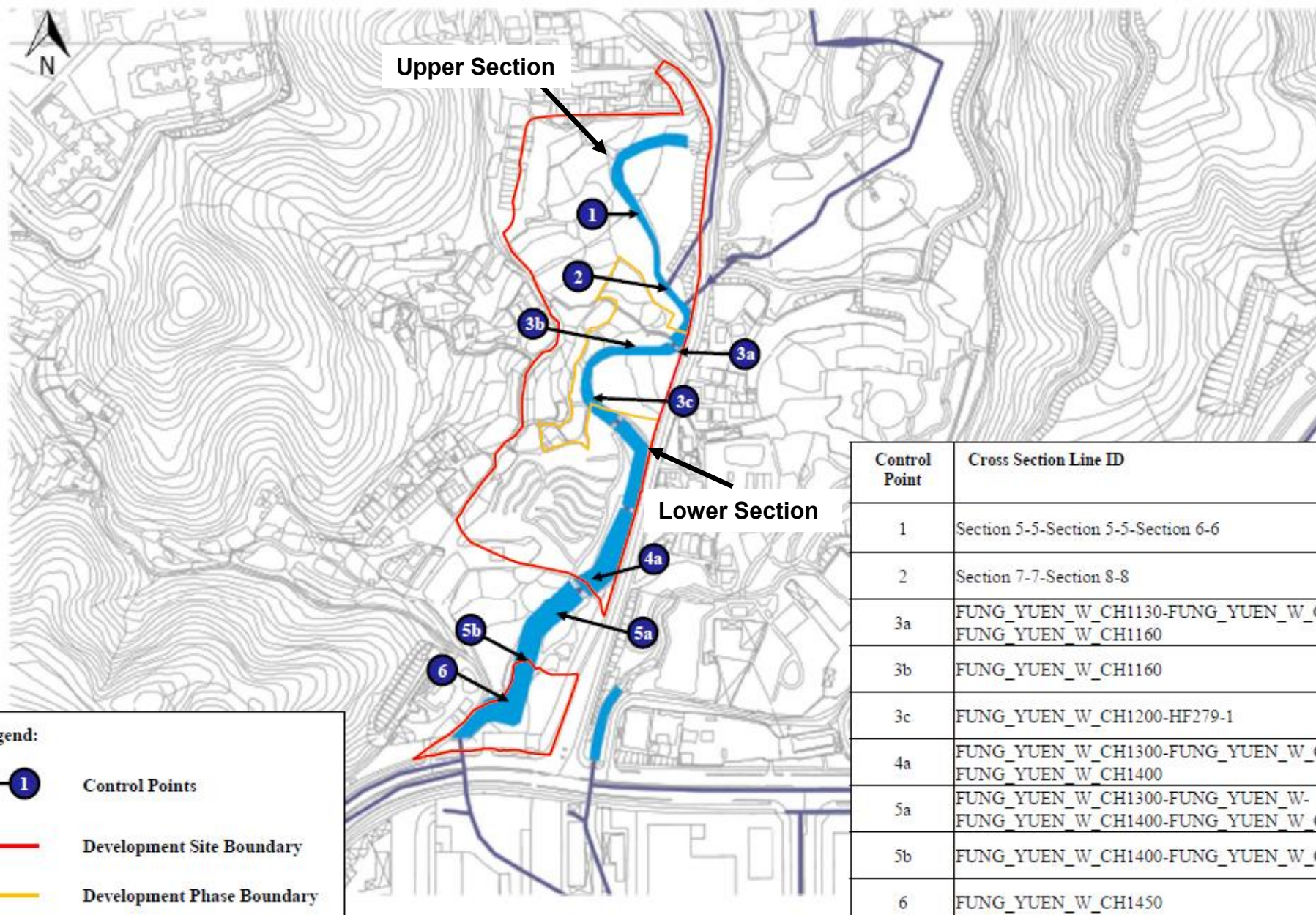
Notes:

1. Indicative symbol “*” was used to indicate that a species is considered as exotic and invasive in Hong Kong and is not considered as a species of conservation importance.
2. Habitats: SWL = Secondary Woodland, SW = Scattered Woodland, GR = Grassland, SH-GS = Shrubland-Grassland, AG = Agricultural Area, AO = Abandoned Orchard, DA = Developed Area, WC = Watercourse, AP = Artificial Pond
3. Relative abundance: +: Scarce (1-5), ++: Uncommon (6-20), +++: Common (20 - 50), ++++: Abundant (>50)
4. References:
AFCD. 2025. Hong Kong Biodiversity Information Hub. Accessed from <<https://bih.gov.hk/en/home/index.html>> in May 2025.

APPENDIX D1 PROPOSED DRAINAGE SYSTEM



APPENDIX D2 PROPOSED DRAINAGE SYSTEM



Appendix D2

Location Plan for Model Results Control Points (Extracted from Appendix E of Drainage Impact Assessment of this Study)

DATE: 15 Sep 2025

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