Proposed Public Utility Installation (Low Voltage Underground Power Cable) and Filling and Excavation of Land at Government Land in D.D. 123, Tai Tseng Wai, Yuen Long

Ecological Assessment

PREPARED FOR

CLP Power

DATE

14 June 2024

REFERENCE

0734244

DOCUMENT DETAILS

DOCUMENT TITLE	Proposed Public Utility Installation (Low Voltage Underground Power Cable) and Filling and Excavation of Land at Government Land in D.D. 123, Tai Tseng Wai, Yuen Long
DOCUMENT SUBTITLE	Ecological Assessment
PROJECT NUMBER	0734244
Date	14 June 2024
Version	1.0
Author	Pang, Lau
Client name	CLP Power

DOCUMENT HISTORY

				ERM APPROVAL TO ISSUE		
VERSION	REVISION	AUTHOR	REVIEWED BY	NAME	DATE	COMMENTS
Version	1.0	Virginia Lau, Mike Pang	Raymond Chow	Terence Fong	14.06.2024	

SIGNATURE PAGE

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Ecological Assessment

0734244

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ACRONYMS AND ABBREVIATIONS

Acronyms	Description
CA	Conservation Area
EcoIA	Ecological Impact Assessment
EIA	Environmental Impact Assessment
EIAO	Environmental Impact Assessment Ordinance
EIAO-TM	Environmental Impact Assessment Ordinance - Technical Memorandum
ERM	ERM-Hong Kong, Limited
LV	Low Voltage
SA	Study Area
WCA	Wetland Conservation Area

1. INTRODUCTION

CLP Power Hong Kong Limited has commissioned ERM-Hong Kong, Limited (ERM) to undertake ecological survey and ecological impact assessment for the "Proposed Public Utility Installation (Low Voltage Underground Power Cable) and Filling and Excavation of Land at Government Land in D.D. 123, Tai Tseng Wai, Yuen Long" ("the Project"). The objective of the Project is to improve the electricity supply reliability at Tai Tseng Wai. CLP is proposing low voltage (LV) cable laying near Tai Tseng Wai which is located close to the Mai Po Inner Deep Bay Ramsar Site and is situated within a Conservation Area (CA) and Wetland Conservation Area (WCA).

This Ecological Impact Assessment (EcoIA) provides detailed information regarding the ecology of the Study Area, which is defined as a 300m radius from the Project Site, i.e. proposed cable route (see ***Figure 1.1***). The ecological impact assessment is based on literature review as well as the recent verification ecological baseline survey, with particular attention paid to the habitat adjacent to the proposed cable route.

Figure 1.1

Project Site and Study Area

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2. ENVIRONMENTAL LEGISLATION AND GUIDELINES

Reference has been made to the *Technical Memorandum on Environmental Impact Assessment Process* (EIAO-TM) issued under the *Environmental Impact Assessment Ordinance* (EIAO) in the evaluation of potential ecological impacts, particularly *Annex 8 Criteria for Evaluating Ecological Impact* and *Annex 16 Guidelines for Ecological Assessment.* The following Guidance Notes have also been taken to account:

- GN 6/2023 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 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);
- Technical Circular (Works) No. 4/2020 Tree Preservation.

3. LITERATURE REVIEW

A desktop review was conducted to search for relevant scientific papers, reports and previous Environmental Impact Assessment (EIA) reports for the purpose of identifying any available ecological information, including habitats and species of conservation concern in the area. Based on recent aerial photos and relevant previous studies, habitats and species of conservation importance recorded previously were identified. General studies (if any), which may not necessarily focus on the Study Area and Project Site, was also reviewed and relevant information was extracted from the report(s).

3.1 SITE OF CONSERVATION IMPORTANCE

The Study Area, situated within Tai Tseng Wai, falls within a Conservation Area (CA), Mai Po Inner Deep Bay Ramsar Site and Wetland Conservation Area (WCA) (See ***Figure 3.1***).

3.1.1 MAI PO INNER DEEP BAY RAMSAR SITE

Mai Po Inner Deep Bay has been designated as a Ramsar Site in 1995 under the Ramsar Convention. The Ramsar Site covers about 1500ha of wetland with high diversity of habitats, including intertidal mudflats backed by mangal, tidal shrimp ponds (gei wais), fishponds and reedbeds. The mangal is the largest in Hong Kong while the reedbed is the largest in Hong Kong and Guangdong Province.

Management of the Mai Po Inner Deep Bay Ramsar Site is determined by a management plan maintained by Agriculture, Fisheries and Conservation Department. The management plan divided the Ramsar Site into a number of zones to determine the management actions for the area. The entire proposed cable route is laid along the Ramsar Site, as shown in ***Figure 3.1***.

3.1.2 WETLAND CONSERVATION AREA (WCA)

Fishponds continuous and adjoining to the Deep Bay Area are designated under TPB PG-No. 12C as the WCA, with the aim of protecting the integrity of the Deep Bay wetland ecosystem. Any development in the WCA should normally comply with the "No-Net-Loss in Wetland" principle. Other than permitted essential conservation or infrastructural works, no developments involving pond filling or other works detrimental to the ecological function of the wetland are allowed within the WCA.

The western portion of the Study Area and a small section of the proposed cable route overlapped with WCA. (***Figure 3.1***).

3.1.3 CONSERVATION AREA (CA)

The large areas of continuous fishponds (both active and abandoned) within the Study Area are zoned as CA under the Approved Lau Fau Shan & Tsim Bei Tsui OZP S/YL-LFS/11 (***Figure 3.1***). Majority of the proposed cable route falls within this zone.

The planning intention of this zone is to conserve the ecological value of wetland and fish ponds which form an integral part of the wetland ecosystem in the Deep Bay Area. The

"no-net-loss in wetland" principle is adopted for any change in use within this zone. The primary intention is to discourage new development unless it is required to support the conservation of the ecological integrity of the wetland ecosystem or the development is an essential infrastructure project with overriding public interest.

There is a general presumption against development in this zone. In general, only developments that are needed to support the conservation of the existing natural landscape or scenic quality of the area or are essential infrastructure projects with overriding public interest may be permitted.

3.2 PREVIOUSLY RECORDED SPECIES OF CONSERVATION IMPORTANCE

A literature review has been conducted to characterise the existing ecological conditions of the Project Site and Study Area and to identify habitats and species of conservation concern in the area. A number of relevant studies including but not limited to the followings were reviewed.

- EIA – 149/2008 - residential development and a Wetland Nature Reserve at Lot 1457 R.P., D.D. 123 Fung Lok Wai, (CH2M, 2008) (1)
- Approved Mai Po & Fairview Park Outline Zoning Pan S/YL-MP/6
- TPB PG-No. 12C - Application for Developments within Deep Bay Area under Section 16 of the Town Planning Ordinance
- Protection of Wetlands in Hong Kong, AFCD *(*AFCD, 2000*)* (2)
- Hong Kong Biodiversity, an AFCD Biodiversity Newsletter (AFCD, 2007) (3)
- Mai Po Inner Deep Bay Ramsar Site Management Plan (AFCD, 2011) (4)
- Monthly Waterbird Monitoring Summer Report 2017-2023 (HKBWS, 2023)(5)
- Monthly Waterbird Monitoring Winter Report 2017-2023 (HKBWS, 2023)(6)
- The Avifauna of Hong Kong(7)
- A Field Guide to the Terrestrial Mammals of Hong Kong (AFCD, 2007)(8)

(1) CH2M HILL Hong Kong Limited (CH2M) (2008). Proposed Development at Fung Lok Wai, Yuen Long
(2) AFCD (2000). Legislative Council Paper NO. CB(2) 397/00-01 (03) – Protection of Wetlands in Hong Kong. Information reviewed.
(3) AFCD (2007).Camera Trap Survey of Hong Kong Terrestrial Mammals in 2002-06. Issue no. 15, December 2007.
(4) AFCD (2011). Mai Po Inner Deep Bay Ramsar Site Management Plan.
(5) HKBWS (2023).Mai Po Inner Deep Bay Ramsar Site Summer Waterbird Monitoring Programme 2017-2023.
(6) HKBWS (2023).Mai Po Inner Deep Bay Ramsar Site Winter Waterbird Monitoring Programme 2017- 2023.
(7) Carey et. al., (2001) The Avifauna of Hong Kong. Hong Kong Bird Watching Society, Hong Kong
(8) Shek, C.T. (2007). A Field Guide to the Terrestrial Mammals of Hong Kong

- Fish farmers highlight opportunities and warnings for urban carnivore conservation (McMillan et al., 2018)[9]
- Spraints Demonstrate Small Population Size and Reliance on Fishponds for Eurasian Otter (*Lutra lutra*) in Hong Kong (McMillan et al., 2022) [10]
- A new species of firely from Hong Kong - *Pteroptyx maipo (*Yiu, 2011)[11]
- *New Species of Firefly Found in Wetland (*Law, 2010*)* [12]
- Habitat Characteristics of Fireflies in Hong Kong (Cheng et al., 2020)[13]

The ecological survey periods and surveyed flora/ fauna groups that are presented in the above studies are tabulated in ***Table 3-1***; a map showing their study areas, whenever defined, is provided in ***Figure 3.2***.

(9) McMillan, S. E., Wong, T. C., Hau, B. C. H., Yau, E. Y. H. and Bonebrake, T. C. (2019). Fish farmers highlight opportunities and warnings for urban carnivore conservation. *Conservation Science and Practice*, 1(8).

(10) McMillan, S. E., Wong, A. T. C., Tang, S. S. Y., Yau, E. Y. H., Gomersall, T., Wong, P. Y. H., …Bonebrake, T. C. (2022). Spraints Demonstrate Small Population Size and Reliance on Fishponds for Eurasian Otter (*Lutra lutra*) in Hong Kong. Conservation Science and Practice, 5(1).

(11) Yiu, V. (2011). new species of firely from Hong Kong - *Pteroptyx maipo.* Accessed at http://pdf.wenweipo.com/2010/09/23/a14-0923

(12) Law , K.M. 2010. "*Unique Worldwide: New Species of Firefly Found in Wetland", Hong Kong News, Wen Wei Po, Hong Kong.* Accessed at http://pdf.wenweipo.com/2010/09/23/a14-0923

(13) Cheng *et al.* 2020. Habitat Characteristics of Fireflies in Hong Kong. AFCD Newsletter Issue No. 26.

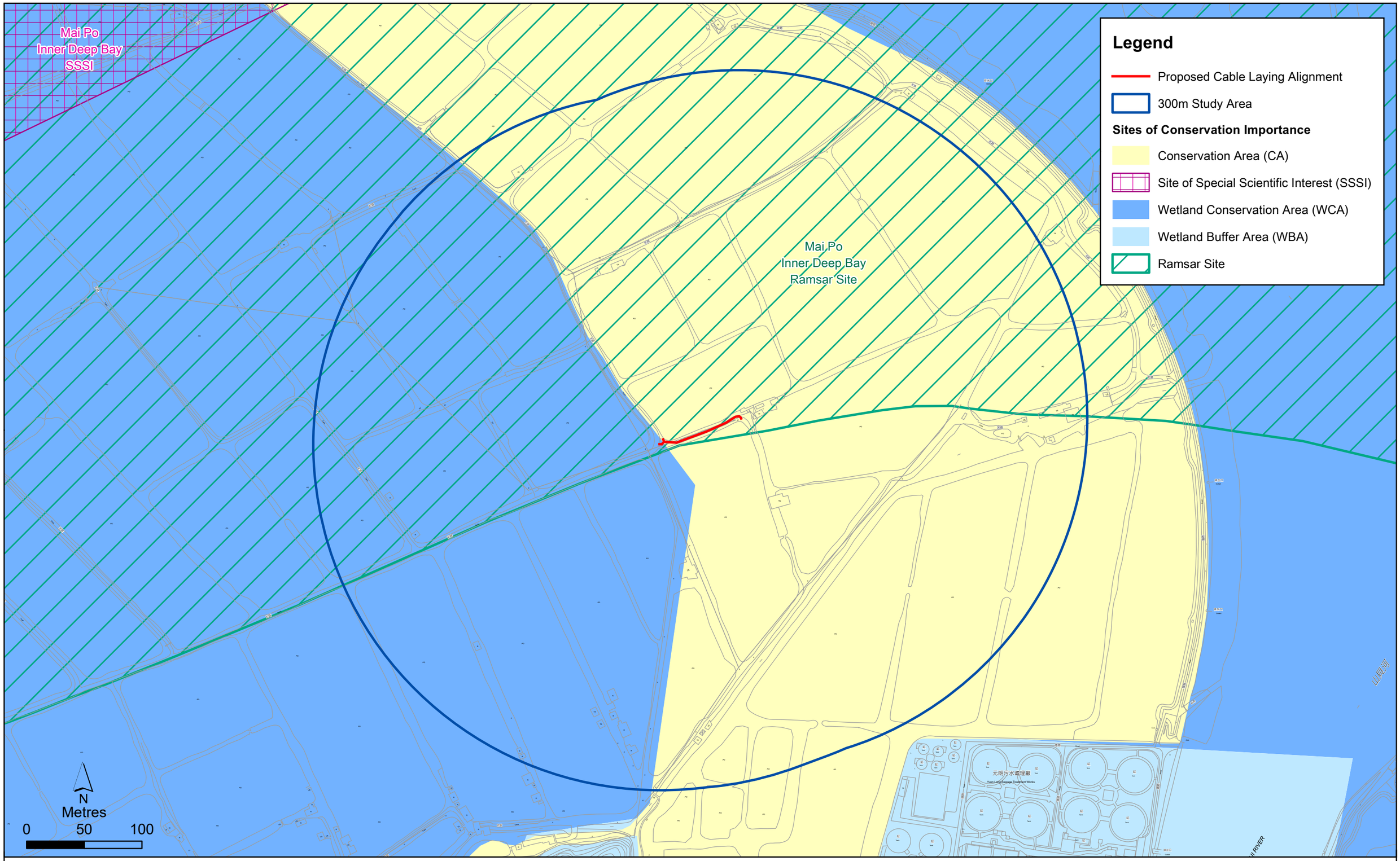

Figure 3.1

Sites of Conservation Importance

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Legend

- Proposed Cable Laying Alignment
- 300m Study Area

Study Areas from Previous Studies

- EIA-149/2008 Proposed Development at Fung Lok Wai, Yuen Long at Lot 1457 R.P. in D.D.123

Figure 3.2

Previous Study Areas of Relevant Studies

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Special attention was paid to ecologically sensitive areas, and species of conservation importance (i.e. species protected by local legislation, endemic to Hong Kong or South China, listed in international conventions for conservation of habitat/wildlife, listed in IUCN Red Data Book or those of the South China region and considered as rare in the territory or having special conservation importance by scientific studies etc.). The information gathered from the literature review was evaluated and the information gaps concerning assessment of the potential ecological impacts arising from the Project on the terrestrial environment were identified.

TABLE 3-1: PREVIOUS STUDIES RELEVANT TO THE STUDY AREA

Study	Survey Period	Flora and Fauna Groups Surveyed
AFCD, 2007	2002 – 2006	Mammals
CH2M, 2008	Jan 2001 – Dec 2001	Fauna & Flora
McMillan et al., 2019	2017-2018 (Interview survey)	Otter
McMillan et al., 2022	2018 – 2019	Otter
HKBWS, 2023	Apr 2017 – Sept 2022	Avifauna
HKBWS, 2023	Oct 2017 – Mar 2023	Avifauna
Yui,2011	N/A	Firefly

3.2.1 FLORA SPECIES OF CONSERVATION IMPORTANCE RECORDED IN PREVIOUS STUDIES

Based on the reviewed literatures, no flora species of conservation importance was reported within the Study Area.

3.2.2 FAUNA SPECIES OF CONSERVATION IMPORTANCE RECORDED IN PREVIOUS STUDIES

3.2.2.1 MAMMALS

Based on the reviewed literature, four (4) mammal species of conservation importance were recorded in the Study Area from previous surveys/ approved EIA studies. The existing Study Area overlapped with core area of Eurasian Otter population in Hong Kong[(1)], as shown in ***Figure 3.3***. In addition, historical records of otters are also present within the vicinity of fishponds in Fung Lok Wai between 1950 – 2009 based on results of an interview survey [(2)]. Details of the mammal species of conservation importance is shown in ***Table 3-1***.

(1) McMillan, S. E., Wong, A. T. C., Tang, S. S. Y., Yau, E. Y. H., Gomersall, T., Wong, P. Y. H., …Bonebrake, T. C. (2022). *Op. cit*.
(2) McMillan, S. E., Wong, T. C., Hau, B. C. H., Yau, E. Y. H. and Bonebrake, T. C. (2019). *Op. cit*.

Figure 3.3

Core area of Eurasian Otter Population in Hong Kong

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Date: 24/5/2024

TABLE 3-1: MAMMAL OF CONSERVATION IMPORTANCE RECORDED FROM PREVIOUS STUDIES

Common Name	Scientific Name	Chinese Name	Conservation Status	Previous Study
Mammal				
Eurasian Otter	*Lutra lutra*	歐亞水獺	Cap.170; Cap.586; Fellowes: RC; RLCV(EN); CSMPS(II); CITES(I)	McMillan et al. (2018 and 2022)
Small Indian Civet	*Viverricula indica*	小靈貓	Cap. 170, Cap. 586, RLCV(VU), CSMPS (II), CITES(III)	AFCD, 2007
Small Asian Mongoose	*Herpestes javanicus*	紅頰獴	Cap. 170, Cap.586, RLCV(VU), CITES(III)	AFCD, 2007
Leopard Cat	*Prionailurus bengalensis*	豹貓	Cap. 170, Cap. 586, RLCV(VU), CITES(II)	AFCD, 2007

Note:
Conservation Status:
- Cap. 170: Protected under Wild Animals Protection Ordinance
- Cap. 586: Protection of Endangered Species of Animals and Plants Ordinance
- RLCV – Red List of China's Vertebrate (2016): VU = Vulnerable, EN= Endagered
- CSMPS– China State Major Protection Status: Appendix (II)
- CITES – Under Appendix (I), Appendix (II) and Appendix (III) of Convention on International Trade in Endangered Species of Wild Flora and Fauna
- Fellowes – Fellowes et al. (2002): RC = Regional Concern.

3.2.2.2 AVIFAUNA

A significant diversity of waterbirds, both resident and migratory were recorded in wetland habitats within the Study Area, including fishponds, watercourse etc. Many of the recorded species are known to forage and roost in wetlands, with ardeid, duck and wader species being the dominant species group within the Study Area. A total of forty-seven (47) avifauna species of conservation importance were recorded in the Study Area and its vicinity from previous surveys/ approved EIA studies (i.e. vicinity of Fuk Lok Wai). All bird species are protected under the Wild Animals Protection Ordinance (Cap. 170). Details of the avifauna species of conservation importance are shown in ***Table 3-2***.

TABLE 3-2: AVIFAUNA OF CONSERVATION IMPORTANCE RECORDED FROM PREVIOUS STUDIES

Common Name	Scientific Name	Chinese Name	Conservation Status	Previous Study
Northern Pintail	*Anas acuta*	針尾鴨	Fellowes: RC	HKBWS, 2023
Eurasian Teal	*Anas crecca*	綠翅鴨	Fellowes: RC	CH2M, 2008, HKBWS, 2023
Eastern Imperial Eagle	*Aquila heliaca*	白肩鵰	Cap.586; Fellowes: GC; RLCV(EN); CSMPS(I); IUCN(VU); CITES(I)	HKBWS, 2023
Great Egret	*Ardea alba*	大白鷺	Fellowes: PRC (RC)	CH2M, 2008, HKBWS, 2023
Grey Heron	*Ardea cinerea*	蒼鷺	Fellowes: PRC	CH2M, 2008, HKBWS, 2023
Intermediate Egret	*Ardea intermedia*	中白鷺	Fellowes: RC	HKBWS, 2023
Chinese Pond Heron	*Ardeola bacchus*	池鷺	Fellowes: PRC (RC)	CH2M, 2008, HKBWS, 2023
Tufted Duck	*Aythya fuligula*	鳳頭潛鴨	Fellowes: LC	HKBWS, 2023
Eurasian Bittern	*Botaurus stellaris*	大麻鳽	Fellowes: RC	HKBWS, 2023
Eastern Cattle Egret	*Bubulcus coromandus*	牛背鷺	Fellowes: (LC)	CH2M, 2008, HKBWS, 2023
Eastern Buzzard	*Buteo japonicus*	普通鵟	Cap.586; CSMPS(II); CITES(II)	HKBWS, 2023
Striated Heron	*Butorides striata*	綠鷺	Fellowes: (LC)	CH2M, 2008, HKBWS, 2023
Dunlin	*Calidris alpina*	黑腹濱鷸	Fellowes: RC	HKBWS, 2023
Curlew Sandpiper	*Calidris ferruginea*	彎嘴濱鷸	Fellowes: RC	HKBWS, 2023
Temminck's Stint	*Calidris temminckii*	青腳濱鷸	Fellowes: LC	CH2M, 2008
Pied Kingfisher	*Ceryle rudis*	斑魚狗	Fellowes: (LC)	CH2M, 2008, HKBWS, 2023
Little Ringed Plover	*Charadrius dubius*	金眶鴴	Fellowes: (LC)	CH2M, 2008, HKBWS, 2023
Black-headed Gull	*Chroicocephalus ridibundus*	紅嘴鷗	Fellowes: PRC	HKBWS, 2023
Eastern Marsh Harrier	*Circus spilonotus*	白腹鷐	Cap.586; Fellowes: (RC); CSMPS(II); CITES(II)	HKBWS, 2023

Common Name	Scientific Name	Chinese Name	Conservation Status	Previous Study
Greater Spotted Eagle	*Clanga clanga*	烏鵰	Cap.586, Fellowes: GC, RLCV(EN), CSMPS(II), IUCN(VU), CITES(II)	CH2M, 2008
Collared Crow	*Corvus torquatus*	白頸鴉	Fellowes: LC, IUCN(VU)	CH2M, 2008, HKBWS, 2023
Black Bittern	*Dupetor flavicollis*	黑鳽	Fellowes: LC	HKBWS, 2023
Little Egret	*Egretta garzetta*	小白鷺	Fellowes: PRC (RC)	CH2M, 2008, HKBWS, 2023
Black-winged Kite	*Elanus caeruleus*	黑翅鳶	Cap.586; Fellowes: LC; CSMPS(II); CITES(II)	HKBWS, 2023
Peregrine Falcon	*Falco peregrinus*	遊隼	Cap.586; Fellowes: (LC); CSMPS(II); CITES(I)	HKBWS, 2023
Eurasian Coot	*Fulica atra*	骨頂雞	Fellowes: RC	HKBWS, 2023
Oriental Pratincole	*Glareola maldivarum*	普通燕鴴	Fellowes: LC	HKBWS, 2023
White-throated Kingfisher	*Halcyon smyrnensis*	白胸翡翠	Fellowes: (LC)	CH2M, 2008, HKBWS, 2023
Black-winged Stilt	*Himantopus himantopus*	黑翅長腳鷸	Fellowes: RC	HKBWS, 2023
Yellow Bittern	*Ixobrychus sinensis*	黃葦鳽	Fellowes: (LC)	HKBWS, 2023
Eurasian Wigeon	*Mareca penelope*	赤頸鴨	Fellowes: RC	CH2M, 2008
Black Kite	*Milvus migrans*	黑鳶	Cap.586; Fellowes: (RC); CSMPS(II); CITES(II)	CH2M, 2008, HKBWS, 2023
Black-crowned Night Heron	*Nycticorax nycticorax*	夜鷺	Fellowes: (LC)	CH2M, 2008, HKBWS, 2023
Western Osprey	*Pandion haliaetus*	鶚	Cap.586; Fellowes: RC; CSMPS(II); CITES(II)	CH2M, 2008 , HKBWS, 2023
Great Cormorant	*Phalacrocorax carbo*	普通鸕鷀	Fellowes: PRC	CH2M, 2008, HKBWS, 2023
Eurasian Spoonbill	*Platalea leucorodia*	白琵鷺	Cap.586; Fellowes: LC; CSMPS(II); CITES(II)	HKBWS, 2023
Black-faced Spoonbill	*Platalea minor*	黑臉琵鷺	Fellowes: PGC; RLCV(EN);	CH2M, 2008, HKBWS, 2023

Common Name	Scientific Name	Chinese Name	Conservation Status	Previous Study
			CSMPS(II); IUCN(EN)	
Great Crested Grebe	*Podiceps cristatus*	鳳頭鸊鷉	Fellowes: RC	HKBWS, 2023
Pied Avocet	*Recurvirostra avosetta*	反嘴鷸	Fellowes: RC	HKBWS, 2023
Northern Shoveler	*Spatula clypeata*	琵嘴鴨	Fellowes: RC	HKBWS, 2023
Crested Serpent Eagle	*Spilornis cheela*	蛇鵰	Cap.586; Fellowes: (LC); CSMPS(II); CITES(II)	CH2M, 2008
Red-billed Starling	*Spodiopsar sericeus*	絲光椋鳥	Fellowes: GC	CH2M, 2008, HKBWS, 2023
Little Grebe	*Tachybaptus ruficollis*	小鸊鷉	Fellowes: LC	CH2M, 2008, HKBWS, 2023
Spotted Redshank	*Tringa erythropus*	鶴鷸	Fellowes: RC	HKBWS, 2023
Wood Sandpiper	*Tringa glareola*	林鷸	Fellowes: LC	CH2M, 2008, HKBWS, 2023
Marsh Sandpiper	*Tringa stagnatilis*	澤鷸	Fellowes: RC	HKBWS, 2023
Common Redshank	*Tringa totanus*	紅腳鷸	Fellowes: RC	HKBWS, 2023

Note:
Conservation Status:
- All birds in Hong Kong are protected under Cap. 170 – Protected under Wild Animals Protection Ordinance
- Cap. 586: Protection of Endangered Species of Animals and Plants Ordinance
- Fellowes – Fellowes et al. (2002): PGC = Potential Global Concern, GC = Global Concern, PRC = Potential Regional Concern, RC = 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.
- RLCV – Red List of China's Vertebrate (2016): EN: Endangered
- CSMPS– China State Major Protection Status: Appendix (I) or Appendix (II)
- IUCN – International Union for Conservation of Nature Red List of Threatened Species (2024). EN = Endangered
- CITES – Under Appendix (I) and Appendix (II) of Convention on International Trade in Endangered Species of Wild Flora and Fauna

3.2.2.3 HERPETOFAUNA

Based on the reviewed EIA study at Fung Lok Wai[(1)], the recorded amphibian species are all common within the Study Area. Among the recorded reptile species, only Mangrove Water Sanke was recorded in the fishpond area within/adjacent to the Study Area. Details of the avifauna species of conservation importance are shown in ***Table 3-3***.

(1) CH2M HILL Hong Kong Limited (CH2M)(2008). Proposed Development at Fung Lok Wai, Yuen Long

TABLE 3-3: HERPETOFAUNA SPECIES OF CONSERVATION IMPORTANCE RECORDED FROM PREVIOUS STUDIES

Common Name	Scientific Name	Chinese Name	Conservation Status	Previous Study
Herpetofauna				
Mangrove Water Snake	*Myrrophis bennettii*	黑斑水蛇	Fellowes: LC	CH2M, 2008

Note:
Conservation Status:
- Fellowes – Fellowes et al. (2002): LC = Local Concern.

3.2.2.4 BUTTERFLY AND ODONATE

No butterfly or odonate species of conservation importance were recorded in the Study Area from previous surveys/ approved EIA studies.

3.2.2.5 AQUATIC FAUNA

No aquatic fauna species of conservation importance was recorded within the Study Area from previous surveys/ approved EIA studies.

3.2.2.6 FIREFLIES

Bent-winged Firefly *Pteroptyx maipo*, an endemic firefly was first recorded in mangrove habitat in Hong Kong Wetland Park in 2003 (14). According to AFCD(15), *Pteroptyx maipo* is the only species that depends on mangrove ecosystem. While the larvae feed on snails found on the tidal mudflats, the adults inhabit short vegetation in the vicinity. Although mangrove/ mangrove associates are distributed in many coastal areas of Hong Kong, this species is restricted to the landward fringe of the mangrove ecosystem along the shoreline of Deep Bay including Mai Po, Hong Kong Wetland Park and Sheung Pak Nai. The adult flight period of the Bent-winged Firefly is between April and September while their peak breeding season is May, August and September. While *Pteroptyx maipo* was recorded within multiple localities within the Mai Po Inner Deep Bay Ramsar Site (Yiu Vor, 2011) (16) their distribution is mainly restricted to mangrove ecosystems and their fringes as such it is unlikely that it will occur within the 300m Study Area due to a lack of mangrove habitats within the Study Area.

3.2.3 EVALUATION & IDENTIFICATION OF INFORMATION GAP

The information gathered from the literature review were evaluated to identify any information gaps. While the baseline ecological information of the Study Area was mostly

(14) Law, K.M. 2010. "*Unique Worldwide: New Species of Firefly Found in Wetland", Hong Kong News, Wen Wei Po, Hong Kong.* Accessed at http://pdf.wenweipo.com/2010/09/23/a14-0923
(15) Cheng *et al.* 2020. Habitat Characteristics of Fireflies in Hong Kong. AFCD Newsletter Issue No. 26.
(16) Yiu, V. 2011. A new species of firefly from Hong Kong – Pteroptyx maipo Ballantyne, 2011. Insect News (Hong Kong Entomological Society Newsletter), 3, 2-7.

covered and assessed in previous studies, a verification survey was conducted to verify the desktop findings in the Study Area for subsequent impact assessment.

4. VERIFICATION ECOLOGOCAL BASELINE SURVEY

The Study Area comprises an area within 300m from the cable route. With reference to the reviewed data in ***Section 3.*** It is considered that the Project Site and its vicinity have been covered and studied comprehensively by an EIA study and other research.

The previous studies and research have demonstrated a relatively high and constant use of the areas surrounding the proposed cable route by birds, esp. by waterbirds at the fishponds in Fuk Lok Wai.

In order to supplement and establish a set of project specific baseline data, a verification survey, including day and night surveys, was carried out on 24 April 2024 with particular focus on habitat and wildlife along and adjacent to the proposed cable route. A summary of the ecological baseline survey methodologies is provided in ***Table 4-1.*** Survey transects follow mainly the existing roads (***Figure 4.1*** refers), aiming to cover all types of habitats within the Study Area.

TABLE 4-1: SUMMARY OF THE ECOLOGICAL BASELINE SURVEY METHODOLOGIES

Survey Type	Methodology	Survey Date
Habitat and Vegetation	Habitat mapping and vegetation identification through ground truthing in major habitats, in order to ensure they reflected current conditions and to distinguish between habitats which could not always be reliably distinguished from aerial photos. Representative colour photos were taken for each habitat type (***Annex 1***) and any important ecological features identified.	24 April 2024
Avifauna	Quantitative (active searching along the survey transect) and Qualitative (recorded within Study Area); including day and night surveys. The presence and abundance of avifauna species at various habitats observed from transects was recorded visually and aurally. Any signs of breeding (e.g. nests, recently fledged juveniles) within the Study Area were also recorded if observed. Observations were made using 8×42 binoculars and photographic records taken, where possible (***Annex 3***).	
Mammal	Quantitative (active searching along the survey transect) and qualitative (recorded within Study Area); including day and night surveys. As mammals usually occur at low densities, in addition to direct observation, any observation of signs of mammal activity, such as tracks, scats or burrows were actively sought.	
Herpetofauna	Quantitative (active searching along the survey transect) and qualitative (recorded within Study Area); including day and night surveys. Active searching in potential hiding places such as among leaf litter, inside holes and under stones and logs were actively	

Survey Type	Methodology	Survey Date
	searched within the Study Area. Auditory detection of species specific calls was also used to survey frogs and toads.	
Butterfly and Odonates	Qualitative (recorded within Study Area) survey; including only day survey. Particular attention was given to food/ host plants for butterfly larvae and favoured habitats for both groups, such as shrubland for butterflies and streams for odonates (both adults and larvae)	
Aquatic fauna	Active searching at sizable streams and notable water bodies by direct observation for aquatic fauna, including but not limited to fish, and macroinvertebrates; including day and night surveys.	
Firefly	Qualitative (recorded within Study Area) survey; including night survey. Surveys commenced immediately after sunset and lasted for approximately 2 hours. Active searching on the potential habitats such as watercourses utilized by fireflies.	

Figure 4.1

Survey Transects

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Date: 30/4/2024

5. EXISTING ECOLOGICAL BASELINE

The Project site is located nearby Mai Po Inner Deep Bay Ramsar Site and within WCA and CA. Most built-up areas are concentrated on the eastern end of the Study Area. Four (4) major habitat types have been identified in the Study Area, namely semi-natural watercourse, pond, marsh, and village area. Habitats present within the Study Area are shown ***Figure 5.1***.

5.1 HABITAT AND VEGETATION

Table 5-1 summarises the area of each habitat recorded in the Study Area. The representative habitat photos are in ***Annex 1***. A total of seventy-nine (79) flora species were recorded within the Study Area. No flora species of conservation importance was recorded within the Study Area. The list of flora species recorded in the survey is provided in in ***Annex 2***. The following text elaborates the ecological conditions, flora and fauna recorded at each habitat during the ecological baseline survey.

TABLE 5-1: AREA OF EACH HABITAT IDENTIFIED IN THE STUDY AREA

Habitat	Area within Project Site, including works area (m^2)	% of Project Site	Area within Study Area (ha)	% of Study Area
Semi-natural watercourse	-	-	93 (meter)	-
Pond	-	-	24.1	73.7%
Marsh	-	-	1.2	3.7%
Village Area	160	100%	7.4	22.6%
TOTAL	**160**	**100%**	**32.8**	**100.00%**

5.1.1 HABITATS WITHIN THE STUDY AREA

5.1.1.1 WATERCOURSE

The watercourse within the Study Area is relatively small in size, concentrated into one single channel (approx. 93 meter) located at the south of Study Area. It was observed passing through the ponds and village area with flowing water.

The embankment of the watercourse is observed to be overgrown with wetland and weedy vegetation, which allows for perching and act as a refuge for birds and odonates. As there is no physical boundary between these watercourses and their neighbouring habitats (i.e. village area and pond), the vegetation composition of the riparian zone is similar to adjacent areas.

A total of nineteen (19) plant species were recorded in or along watercourse. Common and weedy species such as *Brachiaria mutica* and *Panicum maximum*, wetland herbs like *Commelina diffusa* predominate the banks and stream beds of the watercourse. Ruderal

shrubs and trees including *Lantana camara*, *Ficus hispida* and *Macaranga tanarius* var. *tomentosa* were also recorded.

No flora species of conservation importance was recorded in this habitat.

5.1.1.2 POND

Ponds refers to active and inactive fishponds that are/were used for aquaculture. This habitat is the largest habitat in the Study Area, occupying most of the total area (approx. 24.1ha; 73.7% of the total area). Most of the fishponds within the Study Area including those adjacent to the proposed cable alignment were observed to be active (***Figure 5.1***). Active fishponds are maintained with mostly open water and limited emergent vegetation. Ponds were occasionally drained to facilitate harvesting of fish or maintenance of ponds, however, these dried-out ponds were not observed near the Project Site. The composition and structure of vegetation is typical of fishponds in the Deep Bay, with simple vegetation structure and low vegetative diversity dominated by grassy vegetation.

A total of thirty-two (31) plant species were recorded in or along fishponds. Plants frequently recorded on the pond bunds are grassy and herbaceous species such as *Cynodon dactylon*, *Hedyotis corymbosa*, and *Panicum maximum*, and sometimes fruit trees such as *Morus alba* and *Carica papaya*. Most of these fishponds are active and associated with human interference. No flora species of conservation importance was recorded.

5.1.1.3 MARSH

A patch of marsh was identified within the Study Area, it was derived from inactively managed fishponds (***Figure 5.1***). This habitat occupied approximately 1.2ha which is equivalent to 3.1% of the Study Area.

There are fifteen (15) plant species recorded in this habitat (***Annex 2***). Without active management, vegetation was observed overgrown with the dominant species being marshy and wetland dependent species including *Cyclosorus interruptus, Eichhornia crassipes* and *Neyraudia reynaudiana*. Tree species such as *Macaranga tanarius var. tomentosa* and *Melia azedarach*, were occasionally recorded from the edge of marsh. No flora species of conservation importance was recorded in this habitat.

5.1.1.4 VILLAGE AREA

Village Area refers to areas occupied by village houses, and the associated small-scale orchards, access paths to fishponds and main roads close to the villages (***Figure 5.1***). This habitat is the second largest habitat in the Study Area, occupying approximately 7.4ha which is equivalent to 22.6% of the Study Area.

There are fifty-six (56) plant species recorded in this habitat (***Annex 2***). Most of the plant species recorded are commonly grown for ornamental purpose or as orchards such as *Annona squamosa, Artocarpus heterophyllus, Carica papaya, Dimocarpus longan, Litchi chinensis*, *Podocarpus macrophyllus and Sansevieria trifasciata*. No flora species of conservation importance was recorded in this habitat.

Legend

Proposed Cable Laying Alignment

300m Study Area

Species of Conservation Importance

Mammal

Japanese Pipistrelle

Avifauna

Black-crowned Night Heron

Black-winged Stilt

Chinese Pond Heron

Eastern Cattle Egret

Great Egret

Greater Coucal

Grey Heron

Little Egret

Little Grebe

Pied Kingfisher

White-shouldered Starling

White-throated Kingfisher

Habitat

Marsh

Pond

Village Area

Semi-natural Watercourse

元朗污水處理廠
Yuen Long Sewage Treatment Works

N

Metres

0 50 100

Figure 5.1

Habitat and Species of Conservation Importance Recorded in Verification Survey

ERM

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Date: 24/5/2024

5.1.2 HABITATS WITHIN THE PROJECT SITE

Works associated with the Project include the installation of LV cable within Tai Tseng Wai. The proposed alignment is located along the existing hard paved road. The Project Site, including works area, therefore is located within village area only, which is currently subject to a relatively high level of disturbance due to its being used as pedestrian access between the village area and associated fishponds. Photographic records of the Project Site are as presented in ***Annex 1***.

During the ecological baseline survey twenty-four (24) plant species recorded in this habitat (***Annex 2***). Most of the recorded species along the Project Site were self-seeded species. No flora species of conservation importance were recorded within the Project Site.

5.2TERRESTRIAL WILDLIFE

Wildlife recorded during the ecological surveys are described below in ***Section 5.2.1*** to ***Section 5.2.5***. The photo of the recorded species of conservation importance are presented in ***Annex 3***. A full list of fauna species recorded during the verification surveys for the Project is found in ***Annexes 4 – 10*** The locations of species of conservation importance in the Study Area are shown in ***Figure 5.1*****.**

5.2.1 MAMMALS

The survey identified one (1) mammal species within the Study Area. The recorded mammal species is of conservation importance, namely, Japanese Pipistrelle *Pipistrellus abramus*. Its conservation and protection status in Hong Kong are presented in ***Table 5-2*** below.

TABLE 5-2: MAMMAL SPECIES OF CONSERVATION IMPORTANCE RECORDED WITHIN THE STUDY AREA

Common Name	Scientific Name	Chinese Name	Conservation Status	Recorded Habitat
Mammal				
Japanese Pipistrelle	*Pipistrellus abramus*	東亞家蝠	Cap.170	Village Area, Pond

Note:
Conservation Status:
- Cap. 170: Protected under Wild Animals Protection Ordinance

5.2.2 AVIFAUNA

The survey identified forty (40) bird species. Most of the bird species recorded are common and widespread in Hong Kong. A total of fourteen (14) bird species of conservation importance, namely Besra *Accipiter virgatus,* Great Egret *Ardea alba,* Grey Heron *Ardea cinerea,* Chinese Pond Heron *Ardeola bacchus,* Eastern Cattle Egret *Bubulcus coromandus,* Greater Coucal *Centropus sinensis,* Pied Kingfisher *Ceryle rudis,* Little Egret *Egretta garzetta,* White-throated Kingfisher *Halcyon smyrnensis,* Black-

winged Stilt *Himantopus Himantopus,* Black Kite *Milvus migrans,* Black-crowned Night Heron *Nycticorax nycticorax,* White-shouldered Starling *Sturnia sinensi,* and Little Grebe *Tachybaptus ruficollis,* were recorded within the Study Area. Their protection and/or conservation status are presented in ***Table 5-3.*** The photo of the recorded species of conservation importance are in ***Annex 3***.

TABLE 5-3: AVIFAUNA OF CONSERVATION IMPORTANCE RECORDED WITHIN THE STUDY AREA

Common Name	Scientific Name	Chinese Name	Conservation Status	Recorded Habitat
Avifauna				
Besra	*Accipiter virgatus*	松雀鷹	Cap.586; CSMPS(II); CITES(II)	In flight
Great Egret	*Ardea alba*	大白鷺	Fellowes: PRC (RC)	Village Area, In flight, Pond
Grey Heron	*Ardea cinerea*	蒼鷺	Fellowes: PRC	Pond, In flight
Chinese Pond Heron	*Ardeola bacchus*	池鷺	Fellowes: PRC (RC)	Pond, In flight
Eastern Cattle Egret	*Bubulcus coromandus*	牛背鷺	Fellowes: (LC)	Pond, Village Area
Greater Coucal	*Centropus sinensis*	褐翅鴉鵑	CSMPS(II)	Village Area, Pond, Marsh
Pied Kingfisher	*Ceryle rudis*	斑魚狗	Fellowes: (LC)	Pond
Little Egret	*Egretta garzetta*	小白鷺	Fellowes: PRC (RC)	Pond, In flight
White-throated Kingfisher	*Halcyon smyrnensis*	白胸翡翠	Fellowes: (LC)	Pond
Black-winged Stilt	*Himantopus himantopus*	黑翅長腳鷸	Fellowes: RC	Pond
Black Kite	*Milvus migrans*	黑鳶	Cap.586; Fellowes: (RC); CSMPS(II); CITES(II)	In flight
Black-crowned Night Heron	*Nycticorax nycticorax*	夜鷺	Fellowes: (LC)	Pond, In flight
White-shouldered Starling	*Sturnia sinensis*	灰背椋鳥	Fellowes: (LC)	Village Area
Little Grebe	*Tachybaptus ruficollis*	小鸊鷉	Fellowes: LC	Pond

Common Name	Scientific Name	Chinese Name	Conservation Status	Recorded Habitat

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

5.2.3 HERPETOFAUNA

Five (5) amphibian and two (2) reptile species were recorded during the day and night survey within the Study Area. No herpetofauna species of conservation importance was recorded within the Study Area.

5.2.4 BUTTERFLIES AND ODONATES

Nine (9) odonate and nine (9) butterfly species were recorded during the survey within the Study Area. None of them are of conservation importance.

5.2.5 AQUATIC FAUNA

Two (2) common fish species were recorded within the Study Area during survey. No aquatic fauna species of conservation importance was recorded within the Study Area.

6. ECOLOGICAL EVALUATION

In this section the ecological importance of the habitats identified within the Study Area are evaluated in accordance with the *EIAO TM Annex 8* criteria. The evaluation is based upon the information of literature review and verification ecological baseline survey presented in the ***Sections 3 – 5***.

6.1 STUDY AREA

A total of four major terrestrial habitats have been identified within the Study Area, including watercourse, marsh, pond and village area. The ecological importance evaluation of each habitat type within the Study Area is presented in ***Table 6-1*** to ***Table 6-4***.

TABLE 6-1: ECOLOGICAL EVALUATION OF WATERCOURSE

Criteria	**Watercourse**
Naturalness	Watercourse present in the Study Area is semi-natural. Given a pedestrian road nearby, anthropogenic influence is present.
Size	Approx. 93 meters within the Study Area
Diversity	Low in diversity of plant species and structural complexity. Low diversity of fauna species.
Rarity	No flora or fauna species of conservation importance recorded during the surveys.
Re-creatability	Not difficult to be re-created
Fragmentation	Not fragmented.
Ecological Linkage	No ecological linkages to adjacent fishpond habitats and other habitat.
Potential Value	Act as foraging ground for a amphibian species. Could be enhanced by reducing pollution to watercourse.
Nursery/ Breeding Ground	No significant nursery or breeding ground recorded.
Age	N/A
Abundance/ Richness of Wildlife	Low abundance and richness for fauna species.
Overall Ecological Importance	**Low to Moderate**

TABLE 6-2: ECOLOGICAL EVALUATION OF POND

Criteria	Pond
Naturalness	Anthropogenic habitat with high level of human disturbance
Size	Approx. 24.1ha within the Study Area
Diversity	Low diversity of plant species and moderate structural complexity in the riparian zones. Moderate diversity of terrestrial fauna species, especially birds.
Rarity	No flora species of conservation importance recorded during the surveys. Avifauna – Grey Heron, Pied Kingfisher, Chinese Pond Heron, Greater Coucal, Little Grebe, Great Egret, Little Egret, Black-crowned Night Heron, Eastern Cattle Egret, Black-winged Stilt, White-throated Kingfisher Mammal – Japanese Pipistrelle
Re-creatability	Re-creatable
Fragmentation	Not fragmented
Ecological Linkage	Ecologically linked to adjacent fishpond habitats
Potential Value	Ecological value could be enhanced by more ecologically friendly management methods.
Nursery/ Breeding Ground	No significant nursery or breeding ground recorded. Potential breeding ground for water bird species.
Age	N/A
Abundance/ Richness of Wildlife	Moderate abundance and richness for terrestrial fauna species, especially birds.
Overall Ecological Importance	**Moderate**

TABLE 6-3: ECOLOGICAL EVALUATION OF MARSH

Criteria	Marsh
Naturalness	Semi-natural, derived by abandoned fishpond
Size	Approx. 1.2ha within the Study Area
Diversity	Low in diversity of plant species and structural complexity. Low diversity of fauna species.

Criteria	Marsh
Rarity	No flora and fauna species of conservation importance recorded during the surveys.
Re-creatability	Re-creatable
Fragmentation	Not fragmented.
Ecological Linkage	Ecologically linked to adjacent fishpond habitats
Potential Value	Ecological value could be enhanced through active vegetation management for creating more space for wildlife hiding in particular for birds
Nursery/ Breeding Ground	No significant nursery or breeding ground recorded.
Age	N/A
Abundance/ Richness of Wildlife	Low abundance and richness for fauna species.
Overall Ecological Importance	**Low to Moderate**

TABLE 6-4: ECOLOGICAL EVALUATION OF VILLAGE AREA

Criteria	Village Area
Naturalness	Anthropogenic habitat with high level of human disturbance.
Size	Approx. 7.4ha within the Study Area
Diversity	Low in diversity of plant species, structural complexity, and low diversity of fauna species.
Rarity	No flora species of conservation importance recorded during the surveys. Fauna Species of conservation importance recorded during the surveys include Avifauna - Eastern Cattle Egret, White-shouldered Starling, Greater Coucal, Great Egret, Mammal –Japanese Pipistrelle
Re-creatability	Readily re-creatable.
Fragmentation	N/A
Ecological Linkage	Weak ecological linkage with adjacent habitats
Potential Value	Low
Nursery/ Breeding Ground	No significant nursery or breeding ground recorded.

Criteria	Village Area
Age	N/A
Abundance/ Richness of Wildlife	Low abundance and richness for fauna species.
Overall Ecological Importance	**Low**

6.2 PROJECT SITE

The Project Site, including works area, comprise of approximately 160m^2 of village area. The abundance and richness of wildlife are very low due to the small size of the Project Site and its adjacency to an existing, regularly used pedestrian access. No flora or fauna species was recorded within the Project Site during ecological baseline survey. No tree felling/ pruning will be required. The evaluation of village area within the Project Site is presented in ***Table 6-5***.

TABLE 6-5: ECOLOGICAL EVALUATION OF PROJECT SITE

Criteria	Village Area within Project Site
Naturalness	Anthropogenic habitat with high level of human disturbance.
Size	Approx. 160m^2
Diversity	Low in diversity of plant species, structural complexity, and very low diversity of fauna species.
Rarity	No flora and fauna species of conservation importance recorded during the surveys.
Re-creatability	Readily re-creatable.
Fragmentation	N/A
Ecological Linkage	Weak ecological linkage with adjacent habitats
Potential Value	Low
Nursery/ Breeding Ground	No significant nursery or breeding ground recorded.
Age	Various.
Abundance/ Richness of Wildlife	Very low abundance and richness for fauna species.
Overall Ecological Importance	**Low**

7. ECOLOGICAL IMPACT ASSESSMENT

7.1 IDENTIFICATION OF POTENTIAL ECOLOGICAL IMPACTS

In view of the current habitat conditions of the Project Site and its vicinity and their ecological values, the potential ecological impacts associated with the LV cable laying near Tai Tseng Wai (including but not limited to trench excavation, cable laying and backfilling works) during construction is predicted as follows. The potential impacts would cease immediately upon completion of the installation works, where there will be no operational impacts.

- Temporary habitat loss and habitat disturbance within the Project Site due to excavation of cable trenches;
- Indirect disturbances to the surrounding habitats and associated wildlife due to the construction works (e.g. increased human activities, generation of dust, waste and noise and inappropriate disposal of construction materials); and
- Indirect impacts (pollution) on adjacent ponds, marsh and watercourses due to construction run-off.

7.2 ASSESSMENT OF ECOLOGICAL IMPACTS IN THE ABSENCE OF MITIGATION MEASURES

In the absence of mitigation measures, the identified ecological impacts due to installation of the proposed cable along the hard-paved footpath near Tai Tseng Wai are evaluated in the following sections.

7.2.1 TEMPORARY HABITAT LOSS

Direct habitat loss arising from the Project would be limited to the cable trenches directly along the hard-paved footpath within village area, but all can be reinstated after construction works. The construction works include excavation by QPME (Quality Powered Mechanical Equipment) excavators and the hand tools, cable laying and reinstatement. The dimension of the cable trenches, which will be reinstated upon completion of construction, is approximately 80m in length, 0.3m in width and 0.55m in depth. The Project's work area will be restricted to 1m on either side of the proposed cable route, which will generally involve concrete breaking, removal of top soil layer, minimal vegetation clearance and temporary shoring if applicable. Primarily weedy species and fruit trees are present between the existing road/ paved surface and adjacent village area, which supports low diversity and low abundance of fauna. No tree felling or pruning will be involved.

In the absence of mitigation measures, the direct habitat loss caused by the Project is considered to be of **Very Low** to village area. As all the works areas will be reinstated upon completion of the cable laying, no permanent habitat loss is expected during operation of the Project. The assessment of potential direct impact on habitats within the Project Site in the absence of mitigation measures is detailed in ***Table 7-1***.

TABLE 7-1: TEMPORARY LOSS OF EXISTING HABITATS WITHIN THE PROJECT SITE

Criteria	Village Area
Habitat Quality	Low
Species	No flora and fauna species of conservation importance recorded during the surveys.
Size/Abundance	Small with a total area of 160m^2 (including works area). No tree removal and pruning will be involved.
Duration	Temporary, the works will be completed (including reinstatement) around 4 weeks
Reversibility	The trenches will be reinstated upon completion of construction
Magnitude	Very small
Overall Impact Severity	**Very Low**

7.2.2 INDIRECT DISTURBANCES TO SURROUNDING HABITATS AND ASSOCIATED WILDLIFE

The surrounding fishponds adjacent to the Project Site could be indirectly impacted by the Project, due to construction-induced disturbances arising from the Project. Increased human activities (esp. during the construction phase) and construction activities would be the main source of disturbance accrued from the proposed works. Noise, dust, waste generation, lighting and visual disturbance, which may arise from the construction activities, are predicted to occur during construction. As the cable alignment will be located along the existing pavement/ road surface as far as possible, the excavation is not expected to cause direct disturbance or the physical damages to the surrounding habitats. Disturbance during operation phase is not anticipated.

Different terrestrial ecological resources, including avifauna species of conservation importance, have been identified to be located in the vicinity of the proposed cable route. These species could be indirectly impacted by the proposed construction works.

According to the baseline ecological survey and literature review, fauna (i.e. avifauna, bats and terrestrial mammals) inhabiting the nearby area are highly mobile and able to move to the other similar habitats, which are large in area and with higher habitat quality. Furthermore, the fauna recorded in the Study Area were less susceptible to the anthropogenic disturbances. Therefore, nuisances induced by the small-scale construction work along the Project Site would not have significant impact to surrounding wildlife. As observed during the baseline survey, waterbirds in the Study Area were generally not disturbed by frequent human activity, during active operation/ management of the fishponds by fishpond operators. On the other hand, no night-time

works impacts related to noise, dust, waste generation, lighting and visual disturbance towards nocturnal fauna are anticipated. However, the excavation could pose risk to smaller fauna species such as small mammals and amphibians, where they could be trapped in open trenches.

In the absence of mitigation measures, the above-mentioned disturbance impact on surrounding habitats and associated wildlife due to noise, dust, waste generation and visual disturbance etc. caused by increased human activities is considered to be **Low to Moderate** significance.

7.2.3 INDIRECT IMPACT (POLLUTION) TO ADJACENT PONDS

Site runoff from the works area may contain suspended solids and contaminants if uncontrolled. Potential sources of water pollution from uncontrolled site runoff may include runoff and erosion of exposed bare soil, earth and stockpiles, sediment released during excavation, fuel, oil, and lubricant from maintenance of construction mechanical equipment. Water pollution could be substantial if construction runoff is allowed to discharge without mitigation, resulting in adverse impacts through physical and biological disruption of the area's ecosystem. Taking into account the small scale of the construction works, in the absence of mitigation measures, the impact of potential water pollution caused by the Project is considered to be of **Low to Moderate** significance.

7.3 CUMULATIVE IMPACT

No concurrent project, of which the construction programme would have overlapped with this Project, is identified within the Study Area. And hence, cumulative impact is not anticipated for this Project.

8. MITIGATION AND PRECAUTIONARY MEASURES

Based on the ecological impacts predicted in ***Section 7***, mitigation measures to avoid, minimise or compensate (if necessary) for the potential significant impacts are detailed below. In line with the EIAO-TM, ways to avoid impacts were identified and followed wherever possible during the planning and design stage. If, despite taking all appropriate design measures of avoidance and minimisation, potential ecological impacts of greater than "**Low**" significance are still anticipated, further mitigation measures are considered necessary to reduce these impacts to an acceptable level. Moreover, to achieve a better ecological performance, precautionary measures are proposed under this project for certain potential ecological impacts that are not considered to be significant.

In order to minimise the potential disturbances arising the project, good site/ construction practice and housekeeping measures will be adopted. Mitigation measures and good construction practices are recommended below.

8.1 AVOIDANCE AND MINIMISATION

- During the planning stage, the Project Proponent has conducted site visits with contractors to minimise footprint/ impact on vegetation, tree and habitat loss at any stage of the Project. No tree felling or pruning will be caused by the Project.
- The cable laying work will be constructed section by section. The trench will be backfilled with soil stocking before moving to next section.
- The construction period for about three to four weeks, and is recommended to be scheduled out of the wintering season of migratory birds.
- The relevant statutory requirements for the construction activities will be complied with.

8.2 MITIGATION FOR INDIRECT DISTURBANCES TO SURROUNDING HABITATS AND ASSOCIATED WILDLIFE

- All construction activities will be carried out in daytime hours (i.e. 8:00 am to 5:00 pm) only, which is at least one hour after sunrise and over one hour before sunset;
- The construction works would be carried out using QPME excavators and hand tools to minimise the potential impacts;
- Tree felling will be avoided during the construction works. Tree protection zone should be established where necessary to minimise damage to trees;
- The boundary of the works area will be clearly marked by temporary fence. The works area boundaries will be regularly checked to ensure that they are not breached and that no adverse impacts occur to surrounding habitat and associated wildlife;
- Contractors will check the excavation trench each day, prior to commencing work, to ensure that no mammals, reptiles or amphibians are trapped in the trench;

- Avoid use of direct lighting on ponds adjacent to alignment and controlling night-time lighting to reduce potential ecological impact. To fulfil the requirement of excavation permit, lanterns will be provided to comply with Code of Practice for the Lighting, Signing and Guarding of Road Works
- Adopt appropriate measures including controlled wastewater discharge to the nearby water bodies, in accordance with the guidelines stipulated in Environmental Protection Department (EPD)'s *Practice Note for Professional Persons on Construction Site Drainage (ProPECC PN1/94)* during the construction works to properly control site run-off and drainage and to minimise potential water quality impacts;
- In the event of rain or at any time when rainstorms are likely to happen, excavated materials and exposed surfaces within the works area should be covered by tarpaulin or by other means to avoid being washed into adjacent ponds and watercourse;
- Avoid any damage and disturbance, particularly those caused by filling and illegal dumping to the surrounding natural habitats;
- Prohibit and prevent open fires within the works area boundary during construction and provide temporary firefighting equipment in the work areas;
- Good site practice will be enforced and effective mitigation measures are required. Works site will be kept tidy at all times. Regular watering to minimise dust emissions from exposed site surfaces and construction activities would be provided. The dusty materials and the open stockpiles shall be avoided or covered fully by the tarpaulin. Accumulation of construction waste and general refuse will not be allowed; and
- Upon completion of the construction works, the works areas will be reinstated.

8.3 RESIDUAL ECOLOGICAL IMPACTS AFTER IMPLEMENTATION OF PROPOSED MITIGATION MEASURE

Table 8-1 summarises the potential ecological impacts of the project, the impacts that require mitigation, the mitigation measures to be carried out and the residual impacts after mitigation. It can be seen that with the implementation of proposed mitigation measures described above, residual impacts of the Project could be reduced to **Low/ Negligible**.

TABLE 8-1: SUMMARY OF POTENTIAL ECOLOGICAL IMPACTS, REQUIRED MITIGATION MEASURES AND POST-MITIGATION ACCEPTABILITY OF THE PROJECT

Potential Impact	Predicted Significance of Impact in Absence of Mitigation Measures	Proposed Mitigation/ Precautionary Measures	Residual Impact
Direct Habitat Loss (Developed Area)	**Very Low**	• Not required	**Very Low**
Indirect Disturbances to Surrounding Habitats and Associated Wildlife	**Low to Moderate**	• The construction period will be between three to four weeks, which will avoid the wintering season of migratory birds. • All construction activities will be carried out in daytime hours (i.e. 8:00 am to 5:00 pm) only, which is at least one hour after sunrise and over one hour before sunset; • The construction works would be carried out using QPME excavators and hand tools; • The boundary of the works area will be clearly marked by temporary fence. The works area boundaries will be regularly checked to ensure that they are not breached and that no adverse impacts occur to surrounding habitat and associated wildlife; and • Contractors will check the excavation trench each day, prior to commencing work, to ensure that no mammals, reptiles or	**Low/ Negligible**

Potential Impact	Predicted Significance of Impact in Absence of Mitigation Measures	Proposed Mitigation/ Precautionary Measures	Residual Impact
		amphibians are trapped in the trench. • Avoid use of direct lighting on ponds adjacent to alignment and controlling night-time lighting to reduce potential ecological impact. To fulfil the requirement of excavation permit, lanterns will be provided to comply with Code of Practice for the Lighting, Signing and Guarding of Road Works	
Indirect Impact (Pollution) to Adjacent Ponds	**Low to Moderate**	• Adopt appropriate measures including controlled wastewater discharge to the nearby water bodies, in accordance with the guidelines stipulated in Environmental Protection Department (EPD)'s Practice Note for Professional Persons on Construction Site Drainage (ProPECC PN1/94) during the construction works to properly control site run-off and drainage and to minimise potential water quality impacts; • In the event of rain or at any time when rainstorms are likely to happen, excavated materials and exposed surfaces within the works area should be covered by tarpaulin or by other means;	**Low/ Negligible**

Potential Impact	Predicted Significance of Impact in Absence of Mitigation Measures	Proposed Mitigation/ Precautionary Measures	Residual Impact
		• Avoid any damage and disturbance, particularly those caused by filling and illegal dumping to the surrounding natural habitats; and • Good site practice will be enforced and effective mitigation measures are required. Works site will be kept tidy at all times. Regular watering to minimise dust emissions from exposed site surfaces and construction activities would be provided. The dusty materials and the open stockpiles shall be avoided or covered fully by the tarpaulin. Accumulation of construction waste and general refuse will not be allowed.	
Cumulative Impact	**Not anticipated**	• Not required	**Not anticipated**

9. SUMMARY OF ECOLOGICAL IMPACT ASSESSMENT

The main terrestrial ecological resources recorded within the proposed construction works section of the Study Area comprise of semi-natural watercourse, pond, marsh, village area and their associated wildlife, where the Project Sites will be restricted to hard-paved footpath in village area near Tai Tseng Wai. Majority of the habitat within the Study Area is considered to be anthropogenic with frequent disturbance from fishpond operation and human activity from village area. The ecological value of the habitats is considered to be low to moderate for watercourse and marsh; moderate for pond and low for village area.

The village area within the Project Site is considered to have a low level of ecological value, given that the habitat nature is anthropogenic with intensive human disturbance. The Project Site support a very low diversity of flora and fauna species, where the proposed cable route has also been designed to avoid any tree felling and tree pruning. In the absence of mitigation measures, the temporary habitat loss within Project Site is considered to be of **Very Low** significance. The potential indirect disturbances to surrounding habitat and associated wildlife is considered to be of **Low to Moderate** significance, and indirect impact (pollution) on adjacent ponds is considered to be **Low to Moderate**.

In order to mitigate for the potential ecological impacts, the proposed works will be conducted in daytime hours only and contractors will be checking the presence of wildlife in open trenches to minimise potential impact on wildlife. Good site practices and the measures in accordance with the Practice Notes for Professional Persons on "*Construction Site Drainage*" (ProPECC PN 1/94) will be applied to control surface runoff and the potential pollution to watercourse.

With the implementation of the proposed mitigation measures, residual ecological impacts of the Project would be of low/negligible significance and acceptable.

ANNEXES

Pond

Village Area

Marsh

Pond

Village Area

Watercourse (Semi-Natural)

Annex 1

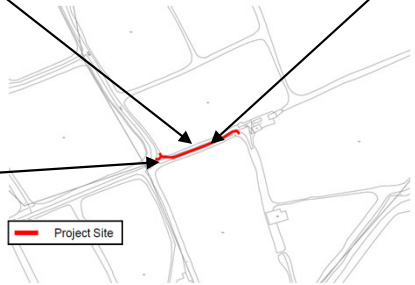
DATE: 14/06/2024

Representative Photos of Habitats within the 300m Study Area

ERM

Village Area (Project Site)

Village Area (Project Site)



Village Area (Project Site)

Annex 1

DATE: 14/06/2024

Representative Photos of Habitats within the 300m Study Area

ERM

Annex 2 Presence of Plant Species Recorded Within the Study Area

Species Name	Chinese Name	Origin[1]	Growth Form	Status in Hong Kong[2]	Study Area				Project Site
					WC	PO	VA	MA	VA
Acrostichum aureum	鹵蕨	N	Herb	Restricted	✓	✓			
Aeschynomene indica	合萌	N	Herb/Shrub	Very common		✓			
Agave americana	龍舌蘭	E	Herb	Common			✓		
Ageratum houstonianum	熊耳草	E	Herb	Common	✓				
Aglaia odorata	米仔蘭	E	Shrub/Tree	Common			✓		✓
Albizia lebbeck	大葉合歡	E	Tree	Common			✓		✓
Alocasia macrorrhizos	海芋	N	Herb	Very common	✓		✓		
Alternanthera philoxeroides	空心蓮子草, 空心莧	E	Herb	Common	✓	✓			
Ampelopsis cantoniensis	廣東蛇葡萄	N	Climber	Very common		✓			
Annona squamosa	番荔枝	E	Tree	Very common			✓		
Artocarpus heterophyllus	菠蘿蜜	E	Tree	Very common			✓		✓
Asystasia micrantha	小花十萬錯	E	Herb	Very common			✓		✓
Averrhoa carambola	楊桃	E	Tree	Common			✓		
Bacopa monnieri	假馬齒莧	N	Herb	Common		✓			
Bidens alba	白花鬼針草	E	Herb	Very common	✓	✓	✓	✓	✓
Bougainvillea spectabilis	簕杜鵑	E	Climber/Shrub	Common			✓		
Brachiaria mutica	巴拉草	E	Herb	Common	✓	✓		✓	
Bridelia tomentosa	土蜜樹	N	Shrub/Tree	Very common			✓		✓
Calliandra haematocephala	朱纓花, 紅絨球	E	Shrub	Common			✓		
Carica papaya	番木瓜	E	Tree	Common	✓		✓		✓
Celosia argentea	青葙	N	Herb	Very common		✓			
Celtis sinensis	朴樹	N	Tree	Common			✓	✓	
Chloris barbata	孟仁草	N	Herb	Very common			✓		
Citrus japonica	金橘	E	Shrub	Common			✓		✓
Citrus reticulata	桔	E	Tree	Common			✓		✓
Clausena lansium	黃皮	E	Tree	Common			✓		
Commelina diffusa	節節草	N	Herb	Common	✓	✓			
Cuscuta chinensis	菟絲子	N	Herb	Common		✓		✓	
Cyclosorus interruptus	間斷毛蕨, 毛蕨	N	Herb	Common		✓		✓	
Cynodon dactylon	狗牙根	N	Herb	Very common	✓		✓		
Dimocarpus longan	龍眼, 桂圓	E	Tree	Restricted			✓		✓
Duchesnea indica	蛇莓	N	Herb	Restricted			✓		✓
Eichhornia crassipes	鳳眼藍, 大水萍	E	Herb	Common	✓	✓		✓	
Euphorbia hirta	大飛揚草	E	Herb	Very common			✓		✓
Euphorbia thymifolia	千根草, 小飛揚	N	Herb	Very common	✓		✓		✓
Ficus hispida	對葉榕	N	Shrub/Tree	Very common		✓	✓		
Ficus microcarpa	細葉榕	N	Tree	Common		✓	✓		
Flueggea virosa	白飯樹	N	Shrub	Common			✓		
Hedyotis corymbosa	傘房花耳草	N	Herb	Very common		✓			

Annex 2 Presence of Plant Species Recorded Within the Study Area

Species Name	Chinese Name	Origin[1]	Growth Form	Status in Hong Kong[2]	Study Area				Project Site
					WC	PO	VA	MA	VA
Hibiscus rosa-sinensis	朱槿	E	Shrub	Very common			✓		✓
Hibiscus tiliaceus	黃槿	N	Tree	Very common	✓	✓			
Hylocereus undatus	量天尺, 霸王花, 火龍果	E	Herb	Common			✓		✓
Ipomoea nil	牽牛	E	Herb	Common			✓		
Ipomoea obscura	小心葉薯, 紫心牽牛	N	Herb	Common	✓	✓	✓		
Lactuca sativa	生菜, 萵苣	E	Herb	Common			✓		
Lantana camara	馬纓丹, 如意草	E	Shrub	Very common			✓	✓	
Leucaena leucocephala	銀合歡	E	Shrub/Tree	Common			✓	✓	
Lindernia crustacea	母草	N	Herb	Restricted		✓	✓		
Liriope spicata	山麥冬, 麥門冬	N	Herb	Very common		✓			
Litchi chinensis	荔枝	E	Tree	Restricted			✓		✓
Litsea glutinosa	潺槁樹	N	Tree	Very common			✓		✓
Ludwigia hyssopifolia	草龍	N	Herb	Common	✓	✓			
Macaranga tanarius var. tomentosa	血桐	N	Tree	Common		✓	✓	✓	
Mangifera indica	芒果	E	Tree	Common	✓		✓		✓
Manihot esculenta	木薯	E	Shrub	Common			✓		
Melia azedarach	苦楝	E	Tree	Common		✓	✓		✓
Melinis repens	紅毛草	E	Herb	Very common			✓		
Microcos nervosa	破布葉 , 布渣葉	N	Shrub/Tree	Common			✓		
Mikania micrantha	薇甘菊	E	Climber/Herb	Very common		✓	✓	✓	✓
Mimosa pudica	含羞草	E	Herb	Very common			✓	✓	✓
Miscanthus floridulus	五節芒	N	Herb	Common		✓		✓	
Morus alba	桑	N	Shrub/Tree	Common		✓			
Musa x paradisiaca	大蕉	E	Herb	Common			✓		✓
Neyraudia reynaudiana	類蘆	N	Herb	Common		✓			
Paederia scandens	雞矢藤	N	Herb	Very common			✓		
Panicum maximum	大黍	E	Herb	Very common	✓	✓	✓	✓	
Pennisetum purpureum	象草	E	Herb	Very common		✓			
Phragmites australis	蘆葦	N	Herb	Very common	✓	✓			
Podocarpus macrophyllus	羅漢松	N	Tree	Restricted			✓		✓
Portulaca oleracea	馬齒莧	N	Herb	Very common	✓			✓	
Psidium guajava	番石榴	E	Tree	Common			✓		
Sansevieria trifasciata	虎尾蘭	E	Herb	Common			✓		
Sesbania cannabina	田菁	E	Herb	Common	✓			✓	
Solanum torvum	水茄	E	Shrub	Common		✓	✓		
Synedrella nodiflora	金腰箭	E	Herb	Very common			✓		✓
Syzygium jambos	蒲桃	E	Tree	Common			✓		
Tridax procumbens	羽芒菊	E	Herb	Very common			✓		
Urena lobata	肖梵天花, 地桃花	N	Shrub	Common			✓		

Annex 2 Presence of Plant Species Recorded Within the Study Area

Species Name	Chinese Name	Origin[1]	Growth Form	Status in Hong Kong[2]	Study Area				Project Site
					WC	PO	VA	MA	VA
Wedelia trilobata	三裂葉蟛蜞菊	E	Herb	Common		✓	✓		
			TOTAL	**79**	**19**	**31**	**56**	**15**	**24**

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
3. Habitats: WC = Watercourse, P = Pond, M = Marsh, VA = Village Area

Grey Heron (Left) and Great Egret (Right)

Greater Coucal

Little Grebe

Great Egret

Annex 3

Representative Photos of Species of Conservation Importance Recorded

DATE: 14/06/2024

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Annex 4 Presence of Mammal Species Recorded Within the Study Area

Item No.	Common Name	Scientific Name	Chinese Name	Conservation Status[1]	Commonness[2]	Habitat[3] 300m Study Area	
						VA	PO
1	Japanese Pipistrelle	*Pipistrellus abramus*	東亞家蝠	Cap.170	Widely distributed throughout Hong Kong.	√	√
					TOTAL	**1**	**1**

Notes:

1. Conservation and Protection Status:
   a. Cap. 170 – Protected under Wild Animals Protection Ordinance
2. Commonness as per AFCD database: Available at https://bih.gov.hk/en/home/index.html
3. Habitats: VA = Village Area, PO = Pond
4. References:

AFCD. 2022. Hong Kong Biodiversity Information Hub. Accessed from <https://bih.gov.hk/en/home/index.html> in Feb 2022.

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.

Wang, S. 1998. China Red Data Book of Endangered Animals: Mammalia. Science Press. Beijing. China. 417pp.

Annex 5 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]				
						300m Study Area				
						VA	M	PO	WC	F
1	Besra	*Accipiter virgatus*	松雀鷹	Cap.586; CSMPS(II); CITES(II)	Common resident and migrant. Found in Tai Po Kau, Deep Bay area, Chek Lap Kok, Cheung Chau, Soko Islands.					1
2	Crested Myna	*Acridotheres cristatellus*	八哥	-	Abundant resident. Widely distributed in Hong Kong	1	1	1		
3	Common Myna	*Acridotheres tristis*	家八哥	-	Locally common resident. Found in Mai Po, Sheung Uk Tsuen, Sheung Shui, Kam Tin, Shek Kong, Ping Shan, Mong Tseng	1				
4	White-breasted Waterhen	*Amaurornis phoenicurus*	白胸苦惡鳥	-	Common resident. Widely distributed in wetland throughout Hong Kong.		1	1		
5	Great Egret	*Ardea alba*	大白鷺	Fellowes: PRC (RC)	Common resident, migrant and winter visitor. Widely distributed in Hong Kong	1		6		1
6	Grey Heron	*Ardea cinerea*	蒼鷺	Fellowes: PRC	Common winter visitor. Found in Deep Bay area, Starling Inlet, Kowloon Park, Cape D'Aguilar.			1		1
7	Chinese Pond Heron	*Ardeola bacchus*	池鷺	Fellowes: PRC (RC)	Common resident. Widely distributed in Hong Kong.			1		1
8	Eastern Cattle Egret	*Bubulcus coromandus*	牛背鷺	Fellowes: (LC)	Resident and common passage migrant. Widely distributed in Hong Kong.	5		1		
9	Savanna Nightjar	*Caprimulgus affinis*	林夜鷹	-	Uncommon resident. Widely distributed in Hong Kong.			1		
10	Greater Coucal	*Centropus sinensis*	褐翅鴉鵑	CSMPS(II)	Common resident. Widely distributed in Hong Kong.	1	1	2		
11	Pied Kingfisher	*Ceryle rudis*	斑魚狗	Fellowes: (LC)	Common resident. Widely distributed in lakes and ponds throughout Hong Kong.			1		
12	Large-billed Crow	*Corvus macrorhynchos*	大嘴烏鴉	-	Common resident. Widely distributed in Hong Kong.					1
13	Indian Cuckoo	*Cuculus micropterus*	四聲杜鵑	-	Locally common spring and summer visitor. Widely distributed in Hong Kong.		2			
14	Black Drongo	*Dicrurus macrocercus*	黑卷尾	-	Common autumn passage migrant and winter visitor. Widely distributed in open area throughout Hong Kong.	1				
15	Little Egret	*Egretta garzetta*	小白鷺	Fellowes: PRC (RC)	Common resident, migrant and winter visitor. Widely distributed in coastal area throughout Hong Kong.			6		2
16	Little Bunting	*Emberiza pusilla*	小鵐	-	Common passage migrant and winter visitor. Widely distributed in open area throughout Hong Kong	1	1			
17	Asian Koel	*Eudynamys scolopaceus*	噪鵑	-	Common resident. WIdely distributed in Hong Kong.			1		
18	Common Moorhen	*Gallinula chloropus*	黑水雞	-	Common winter visitor, resident and migrant. Found in Deep Bay area, Shuen Wan, Starling Inlet.			1		
19	Black-collared Starling	*Gracupica nigricollis*	黑領椋鳥	-	Common resident. Widely distributed in Hong Kong	1				
20	White-throated Kingfisher	*Halcyon smyrnensis*	白胸翡翠	Fellowes: (LC)	Common resident. Widely distributed in coastal areas throughout Hong Kong.			1		
21	Large Hawk-cuckoo	*Hierococcyx sparverioides*	大鷹鵑	-	Locally common spring and summer visitor. Widely distributed in woodland throughout in Hong Kong.					1
22	Black-winged Stilt	*Himantopus himantopus*	黑翅長腳鷸	Fellowes: RC	Common migrant and wintor visitor. Found in Deep Bay area, Long Valley, Kam Tin.			3		
23	Barn Swallow	*Hirundo rustica*	家燕	-	Abundant passage migrant and uncommon winter visitor. Widely distributed in Hong Kong.			6		
24	Scaly-breasted Munia	*Lonchura punctulata*	斑文鳥	-	Abundant resident. Widely distributed in Hong Kong	12				
25	Black Kite	*Milvus migrans*	黑鳶	Cap.586; Fellowes: (RC); CSMPS(II); CITES(II)	Common resident and winter visitor. Widely distributed in Hong Kong.					1
26	White Wagtail	*Motacilla alba*	白鶺鴒	-	Resident, common passage migrant and winter visitor. Widely distributed in Hong Kong	1		1		
27	Black-crowned Night Heron	*Nycticorax nycticorax*	夜鷺	Fellowes: (LC)	Common resident and migrant. Widely distributed in Hong Kong.			2		1
28	Japanese Tit	*Parus minor*	遠東山雀	-	Common resident. Widely distributed in Hong Kong.	1				
29	Eurasian Tree Sparrow	*Passer montanus*	樹麻雀	-	Abundant resident. Widely distributed in Hong Kong			1		

Annex 5 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]				
						300m Study Area				
						VA	M	PO	WC	F
30	Dusky Warbler	*Phylloscopus fuscatus*	褐柳鶯	-	Abundant winter visitor and migrant. Widely distributed in shrubland and waterside vegetation throughout Hong Kong		1	1		
31	Yellow-bellied Prinia	*Prinia flaviventris*	黃腹鷦鶯	-	Common resident. Widely distributed in Hong Kong		1	1		
32	Masked Laughingthrush	*Pterorhinus perspicillatus*	黑臉噪鸝	-	Abundant resident. Widely distributed in shrubland throughout Hong Kong	3				
33	Red-whiskered Bulbul	*Pycnonotus jocosus*	紅耳鵯	-	Abundant resident. Widely distributed in Hong Kong	5	1			
34	Chinese Bulbul	*Pycnonotus sinensis*	白頭鵯	-	Abundant resident. Widely distributed in Hong Kong	1				
35	Stejneger's Stonechat	*Saxicola stejnegeri*	黑喉石(即鳥)	-	Common passage migrant and winter visitor. Widely distributed in open fields throughout Hong Kong			1		
36	Spotted Dove	*Spilopelia chinensis*	珠頸斑鳩	-	Abundant resident. Widely distributed in Hong Kong.	3			1	
37	Eurasian Collared Dove	*Streptopelia decaocto*	灰斑鳩	-	Locally common resident. Found in Mai Po, Tsim Bei Tsui and Fung Lok Wai.	1				
38	White-shouldered Starling	*Sturnia sinensis*	灰背椋鳥	Fellowes: (LC)	Locally common passage migrant and uncommon winter visitor. Found in Kam Tin, Deep Bay area, Po Toi Island, Long Valley, Vi	1				
39	Little Grebe	*Tachybaptus ruficollis*	小鸊鷉	Fellowes: LC	Common resident. Found in Deep Bay area.			1		
40	Swinhoe's White-eye	*Zosterops simplex*	暗綠繡眼鳥	-	Abundant resident. Widely distributed in Hong Kong	2				
					TOTAL	**18**	**8**	**22**	**1**	**9**

Notes:

1. Conservation and Protection Status:
   a. All birds in Hong Kong are protected under Cap. 170 – Protected under Wild Animals Protection Ordinance
   b. Cap. 586: Protection of Endangered Species of Animals and Plants Ordinance
   c. Fellowes – Fellowes et al. (2002): LC = Local 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 I/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: M = Marsh, VA = Village Area, PO = Pond, WC = Watercourse, F = In Flight
4. References:

AFCD. 2022. Hong Kong Biodiversity Information Hub. Accessed from <https://bih.gov.hk/en/home/index.html> in Feb 2022.

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.

IUCN. (2024). The IUCN Red List of Threatened Species (Version 2022-1). Accessed from <http://www.iucnredlist.org> in Jan 2023.

Annex 6 Relative Abundance of Amphibian Species Recorded Within 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] 300m Study Area		
							VA	PO	WC
1	Günther's Frog	*Sylvirana guentheri*	沼蛙	-	Least Concern	Widely distributed throughout HK	++	++	++
2	Asiatic Painted Frog	*Kaloula pulchra*	花狭口蛙	-	Least Concern	Widely distributed throughout HK		+	
3	Asian Common Toad	*Duttaphrynus melanostictus*	黑眶蟾蜍	-	Least Concern	Widely distributed in HK	+		
4	Brown Tree Frog	*Polypedates megacephalus*	斑腿泛樹蛙	-	Least Concern	Widely distributed throughout Hong Kong	+		
5	Greenhouse Frog	*Eleutherodactylus planirostris*	溫室蟾	-	-	Widely distributed throughout Hong Kong	+		
						TOTAL	**4**	**2**	**1**

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: VA = Village Area, PO = Pond, WC = Watercourse
4. Relative abundance: +: Scarce, ++: Uncommon
5. References:

AFCD. 2022. Hong Kong Biodiversity Information Hub. Accessed from <https://bih.gov.hk/en/home/index.html> in Feb 2022.

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 2

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.

IUCN. (2024). The IUCN Red List of Threatened Species (Version 2022-1). Accessed from <http://www.iucnredlist.org> in Jan 2023.

Annex 7 Maximum Count of Reptile Species Recorded Within Study Area

Item No.	Common Name	Scientific Name	Chinese Name	Conservation and Protection Status	Distribution in Hong Kong[1]	Habitat[2] 300m Study Area VA
1	Changeable Lizard	*Calotes versicolor*	變色樹蜥	-	Widely distributed throughout Hong Kong	1
2	Bowring's Gecko	*Hemidactylus bowringii*	原尾蜥虎	-	Distributed throughout Hong Kong	1
					TOTAL	**2**

Notes:

1. Distribution as per AFCD database. Available at https://bih.gov.hk/en/home/index.html
2. Habitats: VA = Village Area
3. References:

AFCD. 2022. Hong Kong Biodiversity Information Hub. Accessed from <https://bih.gov.hk/en/home/index.html> in Feb 2022.

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.

IUCN. (2024). The IUCN Red List of Threatened Species (Version 2022-1). Accessed from <http://www.iucnredlist.org> in Jan 2023.

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

Annex 8 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] 300m Study Area			
							VA	M	PO	WC
1	Elephant Emperor	*Anax indicus*	黃斑偉蜓	-	-	Only recorded from Yuen Tung Ha. Considered as a vagrant				1
2	Blue Dasher	*Brachydiplax chalybea flavovittat*	藍額疏脈蜻	-	Common	Widely distributed in marshes and weedy ponds throughout Hong Kong	1			
3	Asian Amberwing	*Brachythemis contaminata*	黃翅蜻	-	Abundant	Widely distributed in weedy ponds and sluggish streams				3
4	Orange-tailed Sprite	*Ceriagrion auranticum ryukyusnu*	琉球橘黃蟌	-	Abundant	Widely distributed in weedy ponds, marshes, abandoned fields or grasslands adjacent to waters	1			
5	Common Bluetail	*Ischnura senegalensis*	褐斑異痣蟌	-	Abundant	Widely distributed in all wetland habitats except fast flowing rivers throughout Hong Kong	1			
6	Wandering Glider	*Pantala flavescens*	黃蜻	-	Abundant	Widely distributed all over Hong Kong			1	
7	Common Blue Jewel	*Rhinocypha perforata perforata*	三斑鼻蟌	-	Abundant	Widely distributed in fast flowing streams throughout Hong Kong	1			
8	Variegated Flutterer	*Rhyothemis variegata arria*	斑麗翅蜻	-	Common	Widely distributed in marshes, ponds and tanks throughout Hong Kong	1		1	
9	Crimson Dropwing	*Trithemis aurora*	曉褐蜻	-	Abundant	Found in marshes, ponds, streams, andor even ornamental ponds in urban areas. Widely distributed throughout Hong Kong			1	
						Total	**5**	**0**	**3**	**4**

Notes:

1. Rarity References:

AFCD. 2022. Hong Kong Biodiversity Information Hub. Accessed from <https://bih.gov.hk/en/home/index.html> in Feb 2022.

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

2.Distribution as per AFCD database. Available at https://bih.gov.hk/en/home/index.html

3. Habitats: VA = Village Area, M = Marsh, PO = Pond, WC = Watercourse

Annex 9 Maximum Count of Butterfly 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] 300m Study Area VA
1	Common Five-ring	*Ypthima baldus*	矍眼蝶	-	Very Common	Widely distributed throughout Hong Kong.	1
2	Common Mime	*Chilasa clytia*	斑鳳蝶	-	Common	Widely distributed throughout Hong Kong.	1
3	Tailed Jay	*Graphium agamemnon*	統帥青鳳蝶	-	Common	Widely distributed throughout Hong Kong.	1
4	Common Bluebottle	*Graphium sarpedon*	青鳳蝶	-	Very Common	Widely distributed throughout Hong Kong.	2
5	Paris Peacock	*Papilio paris*	巴黎翠鳳蝶	-	Very Common	Widely distributed throughout Hong Kong.	1
6	Common Mormon	*Papilio polytes*	玉帶鳳蝶	-	Very Common	Widely distributed throughout Hong Kong.	1
7	Common Grass Yellow	*Eurema hecabe*	寬邊黃粉蝶	-	Very Common	Widely distributed throughout Hong Kong.	1
8	Red-base Jezebel	*Delias pasithoe*	報喜斑粉蝶	-	Very Common	Widely distributed throughout Hong Kong.	1
9	Indian Cabbage White	*Pieris canidia*	東方菜粉蝶	-	Very Common	Widely distributed throughout Hong Kong.	3
						Total	**9**

Notes:

1. Rarity as per Hong Kong Biodiversity Information Hub. Accessed from <https://bih.gov.hk/en/home/index.html> in May 2024.

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: VA = Village Area

Annex 10 Presence of Freshwater Fauna Recorded within the Study Area

Item No.	Common Name	Scientific Name	Chinese Name	Conservation Status	Habitat[1] 300m Study Area PO
Freshwater Fish					
1	Grey Mullet	*Mugil cephalus*	鯔	-	√
2	Nile Tilapia	*Oreochromis niloticus*	尼羅口孵非鯽	-	√
				TOTAL	**2**

Notes:

1. Habitats: PO = Pond

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