

Appendix 8: Ecological Impact Assessment

To Amend the Notes of the “Comprehensive Development to include Wetland Restoration Area” Zone for a Proposed Comprehensive Development at Wo Shang Wai, Yuen Long, Lots 77 and 50 S.A in DD101

Ecological Impact Assessment

Profit Point Enterprises Limited

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Disclaimer

1 INTRODUCTION

1.1 Background

This application is made under section 12A of the Town Planning Ordinance, to rezone the Application Site on the approved Mai Po and Fairview Park Outline Zoning Plan (“OZP”) No. S/YL-MP/8. The rezoning application aims to increase the plot ratio (“PR”) from 0.4 (i.e. maximum permissible PR on the OZP) to 1.3, with a maximum building height (“BH”) adjusted to not more than 10-storeys and not exceeding +42mPD by amending the Notes of the current “Other Specified Uses (Comprehensive Development to include Wetland Restoration Area)” (“OU(CDWRA)”) zone.

The Applicant, Profit Point Enterprises Limited, proposes to increase the development intensity, and revise the layout and form of the housing developments in the Application Site, in response to the drastic changes in the development site context and planning circumstances of the area.

The Application Site is located at Wo Shang Wai, Yuen Long. It is generally bounded by Castle Peak Road – Mai Po and San Tin Highway to the east, fishponds to the north, residential developments, namely Royal Palms and Palm Springs to the south, and Wo Shang Wai Village to the southeast.

The EcolA presented here in support of the S.12A planning application of a revised residential scheme is based on the findings of ecological surveys conducted between April 2024 – January 2025, together with review of latest 12-months EM&A reports (December 2023 – November 2024). The assessment is derived from the results of literature review and ecological surveys conducted within the Application Site and within 500m of its boundary.

1.2 Key Relevant Amendment under Current Application

No changes are proposed at the implemented WRA and at the interface (boundary) between the residential portion and the WRA.

Proposed changes in layout of the internal road, landscaping and number of houses (not abutting the WRA) are not anticipated to have any impact on the WRA and the wetlands in the Wetland Conservation Area (WCA), and these are not discussed.

Key amendments which might have potential implication to the findings of the approved Ecological Impact Assessment (EIA) mainly involve those proposed at the houses immediately facing the WRA and the stepped design. These comprise:

- Detached/semi-detached houses abutting the WRA increase from 2-storey (+16.80mPD) to 3-storey (+21mPD)
- Stepped design from 3-storey houses abutting the WRA, 8 to 10-storeys (+35mPD to +42mPD) in the middle and 6-storeys buildings (+28mPD) along the southern boundary

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LEGISLATION AND STANDARDS

Environmental legislation, guidelines, standards and references listed below have been referred during the preparation of this EcolA.

- Environmental Impact Assessment Ordinance (EIAO) (Cap. 499)
- Country Parks Ordinance (Cap. 208)
- Forests and Countryside Ordinance (Cap. 96)
- Wild Animals Protection Ordinance (Cap. 170)
- Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586)
- Town Planning Ordinance (Cap. 131)
- EIAO Technical Memorandum (EIAO-TM) Annex 8 – Criteria for Evaluating Ecological Impact
- EIAO-TM Annex 16 – Guidelines for Ecological Assessment
- EIAO Guidance Note (GN) No.3 – Flexibility and Enforceability of Mitigation Measures Proposed in an Environmental Impact Assessment Report (GN 3/2010)
- EIAO GN 6/2010 – Some Observations on Ecological Assessment from the Environmental Impact Assessment Ordinance Perspective
- EIAO GN 7/2023 – Ecological Baseline Survey for Ecological Assessment
- EIAO GN 10/2023 – Methodologies for Terrestrial and Freshwater Ecological Baseline Surveys
- The International Union for Conservation of Nature (IUCN) Red List of Threatened Species.

3 BASELINE CONDITIONS

3.1 Application Site and Assessment Area

The Assessment Area (AA) for this EcolA includes all areas within 500m distance from the boundary of the Application Site. The Application in this assessment refers to the area within the Site Boundary, whereas AA refers to the area within the 500m radius but excluding the Application Site.

Currently, the Application Site comprises mainly the completed Wetland Restoration Area (WRA) under approved EIA (AEIAR-120/2008) and the residential component where site formation works have been in progress. The residential portion includes paved haul road, regularly managed grassy with unwanted plant species (mainly *Leucaena leucocephala*), temporary internal drainage channel, with retained trees scattered within the site.

3.2 Recognized Sites of Conservation Importance

3.2.1 Mai Po Inner Deep Bay Ramsar Site

The Mai Po Inner Deep Bay Ramsar Site is of particular significance for migratory waterbirds including a number of globally threatened species and was recognized as such in 1995 through the designation as a Ramsar Site. The core area of the Ramsar Site comprises Mai Po Nature Reserve and much of the intertidal mudflats, which are protected further by being included in the Mai Po Marshes and Inner Deep Bay Sites of Special Scientific Interest (SSSIs). The Ramsar Site lie to the west about 70-80m from the closest point of the implemented WRA (**Figure 1**) and it is separated from the Application Site by Palm Springs. The nearest 12-storey and 18-storey buildings at the western portion of Application Site will be approximately 130m and 160m away from the Ramsar Site.

3.2.2 Wetland Conservation Area (WCA)

Wetlands mainly the fishponds continuous and adjoining to the Deep Bay Area are designated under TPB PG-No.12C, as the Wetland Conservation Area (WCA) with the planning intention of protecting the integrity of the Deep Bay wetland ecosystem. Any development within the WCA should comply with the principle of "No-Net-Loss in Wetland". The Application Site abuts the WCA.

3.2.3 Wetland Buffer Area (WBA)

The Wetland Buffer Area (WBA) is also designated under TPB PG-No. 12C to include a buffer of about 500m on the landward side of the WCA. Developments within the WBA are required to demonstrate that ecological impacts on the WCA will be minimized and any negative ecological impacts will be fully mitigated through positive measures. Residential developments which seek to replace existing open storage areas and/or include pond restoration projects should normally be given sympathetic consideration by the Board. The Application Site lies within the WBA.

3.2.4 Site of Special Scientific Interest (SSSI)

The Mai Po Village SSSI contains 5.3 ha of fung shui woodland located to the east of Mai Po Village. This site was designated an SSSI in 1979 on the basis of an egretty containing several hundred pairs of Little Egret, Cattle Egret and Chinese Pond Heron. Egrets no longer breed within the boundaries of the SSSI. The Mai Po Village Egretty in recent years has been recorded opposite to this SSSI, at the intercept of Tam Kon Chau Road and Castle Peak Road.

3.2.5 Egrettries

Two active egrettries lie within potential foraging distance of breeding egrets (Young 1993), including Mai Po Village egrettry (approximately 620m from the Application Site) and Mai Po Lung egrettry (approximately 1.3km from the Application Site).

4 Literature Review

4.1 Approved Environmental Impact Assessment Report (AEIAR-120/2008)

The WRA was proposed in AEIAR-120/2008 as mitigation to compensate for the loss of wetland habitats in accordance with “No-net-loss in Wetland” principle under Town Planning Board Guideline 12B (TPB PG-No. 12B). Implementation of the WRA followed the approved Wetland Restoration and Creation Scheme (WRCS). The wetland area was consolidated into a single unit and located immediately adjacent to the Wetland Conservation Area (WCA), which reduced fragmentation of wetland habitat and maximised ecological connectivity with existing wetland habitats in the WCA. The WRA also serves to buffer the WCA from potential impacts created by the residential component of the Project.

Table 1 Total Number of Species and Number of Species of Conservation Importance recorded within the Project Area

No. of Species / Fauna Group	Mammals	Birds*	Amphibians	Reptiles	Butterflies	Odonates
Number of Species of Conservation Importance	2 [^]	14 (19)	0	0	1	1
Total Number of Species recorded	5	49	5	1 [#]	21	18

* Number in parentheses indicates the number of wetland-dependent or wetland-associated species

[#] Considered to be escaped individual

[^] Not considered as species of conservation importance in AEIAR-120/2008

Mammals

A total of five mammal species were recorded within the Project Area. One bat species, Japanese Pipistrelle, which is considered to be Very Common (AFCD 2020) in Hong Kong, was recorded during night-time surveys. All bat species are protected in Hong Kong under Cap. 170; however, no bat roosts were present within the Project Area. Four small mammal species were recorded by trapping; Musk Shrew, House Mouse, Ryukyu Mouse and Brown Rat. These are common and widespread in Hong Kong, especially in anthropogenic habitats except for Ryukyu Mouse, which is assessed as Rare (AFCD 2020) due to restricted distribution in Hong Kong but has been recorded nearby from Mai Po Nature Reserve. None of them were considered as species of conservation importance in AEIAR-120/2008, based on the low occurrence and low number of individuals recorded.

Birds

A total of 54 bird species were recorded within the Project Area. Of these, 14 species are of conservation importance: Black-crowned Night Heron (0.2 mean per survey; 4 = maximum number recorded), Chinese Pond Heron (1.3; 4), Eastern Cattle Egret (1.3; 14), Grey Heron (0.1; 2), Great Egret (Y = species recorded outside the transect surveys), Little Egret (5.5; 48), Great Cormorant (0.5; 5), Black Kite (1.2; 5), Little Ringed Plover (0.1; 1), Oriental Pratincole (Y), Pacific Swift (Y), Zitting Cisticola (0.1; 1), Red-billed Starling (0.9; 15) and White-shouldered Starling (0.1; 2). Black-crowned Night Heron, Chinese Pond Heron, Eastern Cattle Egret, Great Egret and Little Egret are common in Hong Kong, with winter, migrant and breeding populations (HKBWS 2021). Grey Heron is common mainly in the Deep Bay area, with highest numbers in winter. Great Cormorant is an abundant winter visitor, mainly in the Deep Bay area. Black Kite is common and widespread in Hong Kong, with increased numbers in winter. Little Ringed Plover is common and present all year in lowland areas near water. Oriental Pratincole is a passage migrant, common in spring and uncommon in autumn, to lowland areas of New Territories. Pacific Swift is uncommon spring passage migrant and summer visitor. Zitting Cisticola is common passage migrant and winter visitor to grassy and reedmarsh areas. Red-billed Starling is an abundant winter visitor to open-country areas, mainly in the northwest New Territories. White-shouldered Starling is a locally common passage migrant and breeding species, and uncommon winter visitor to open-country and village edge habitats mainly in the northwest New Territories.

Herpetofauna

Five amphibian species were recorded within the Project Area; Asian Common Toad, Ornate Pigmy Frog, Paddy Frog, Günther's Frog and Brown Tree Frog. All are common and widespread in Hong Kong. None are species of conservation importance.

One reptile was recorded within the Project Area, Chinese Striped Terrapin which is not considered to be native to Hong Kong and was therefore considered to be an escape.

Butterflies

A total of 21 butterfly species were recorded within the Project Area. All are Common in Hong Kong (AFCD 2020), except Common Jay, Yellow Orange Tip and Danaid Egg-fly which are Uncommon. Only Danaid Egg-fly is of Local Concern (Fellowes et al. 2002).

Odonates

A total of 18 odonate species were recorded within the Project Area. All are common and widespread species in Hong Kong (AFCD 2020). Only Scarlet Basker is of Local Concern (Fellowes et al. 2002).

4.2 Latest 12-months EM&A Reports (December 2023 – November 2024) – Ecology

Mott MacDonald Hong Kong Ltd. ("MMHK") has been commissioned to conduct Environmental Monitoring and Audit (EM&A) for both pre-construction and construction phases of the Proposed Comprehensive Development. A summary of EM&A requirements for ecology is presented in **Table 2** below.

Table 2 Total Number of Species and Number of Species of Conservation Importance recorded within the Project Area

Parameters	Locations	Frequencies
Birds	Within the Project Area and Assessment Area of 500m	Weekly
Dragonflies & Butterflies	Within the Project Area and Assessment Area of 500m	Once per month (Mar, Sep-Nov); Twice per month (Apr-Aug)
Herpetofauna	Within the Project Area and Assessment Area of 500m	Daytime: Once per month (Apr-Nov); Night-time: Once per month (Mar-Aug)
Water quality of WRA	WRA	In situ: Monthly Laboratory Testing: Every six months (end of wet season and end of dry season)
Site Inspection	Within the Project Area and Assessment Area of 500m	Weekly

The latest monitoring findings indicated that the WRA, has induced ecological gain within the Project Area). The total number of mammals, birds, amphibians, reptiles, butterflies and odonates species and those of conservation importance recorded within Assessment Area (excluding WRA) and WRA, for the 12 months between December 2023 to November 2024 are summarised in **Table 3** and **Table 4** respectively below. Compared to **Table 1**, all fauna group have been recorded increase in total number of species and species of conservation importance, utilising the WRA.

Table 3 Total Number of Species and Number of Species of Conservation Importance recorded within Study Area (excluding WRA) between December 2023 – November 2024

Fauna Group	Species of Conservation Importance	Total no. of species recorded
Mammals	1	1
Birds*	31 (40)	80
Amphibians	0	3
Reptiles	0	2
Butterflies	1	14

Odonates	0	18
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* Number in parentheses indicates the number of species of conservation importance and/or wetland-dependent.

Table 4 Total Number of Species and Number of Species of Conservation Importance recorded within WRA between December 2023 – November 2024

Fauna Group	Species of Conservation Importance	Total no. of species recorded
Mammals	3	4
Birds*	28 (36)	75
Amphibians	1	7
Reptiles	3	6
Butterflies	3	26
Odonates	1	31

* Number in parentheses indicates the number of species of conservation importance and/or wetland-dependent.

5 Ecological Surveys

Surveys conducted are summarised in the table below. Survey transects and flightline vantage points are presented in **Figure 2**.

Table 5 Ecological Survey Programme

Survey Group	2024										2025
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	
Habitat and Flora		✓							✓		
Bird Transect Survey	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Flightline Survey	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Mammal	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Herpetofauna	✓	✓	✓	✓	✓	✓	✓				
Odonates and Butterflies	✓	✓	✓	✓	✓	✓	✓	✓			
Aquatic Fauna		✓		✓					✓	✓	
Fireflies	✓	✓	✓			✓	✓	✓			

Habitat and Flora

Habitat within the Project Area and Assessment Area was preliminarily identified by reference to recent aerial photographs and confirmed the existing habitat types by ground-truthing.

Floral survey was conducted once during the survey period. General characteristics of the floral community present in each habitat were noted for use in habitat descriptions.

Bird Transect Survey

Bird transect surveys were conducted monthly within the Application Site and Assessment Area. The surveys started during the early morning, at the period of peak bird activity, and all birds seen or heard were recorded.

Wet Season Flightline Survey

Wet season flightline surveys were conducted monthly between April and October. A vantage point (see **Figure 2**) was located at the middle of the Application Site, where is slightly elevated, allowing overview of fishponds to the north. Another vantage point was located near the Mai Po Village Egret, at the Tam Kon Chau Road.

The species, number of individuals, location of flightlines, time of observation and (relative) height above ground were recorded. Surveys commenced 15 minutes before sunrise to cover the period of maximum egret activity and lasted for two hours. Flightlines were marked onto a map.

Dry Season Flightline Survey

Dry season flightline surveys were conducted monthly between November and January. A vantage point (see **Figure 2**) was located at the middle of the Application Site, where is slightly elevated, allowing overview of fishponds to the north. Another vantage point was located near the Mai Po Village Egret, at the Tam Kon Chau Road.

The species, number of individuals, location of flightlines, time of observation and (relative) height above ground were recorded. Surveys commenced 15 minutes before sunrise to cover the period of maximum egret activity and lasted for two hours. Flightlines were marked onto a map.

Mammals

Monthly transect surveys were conducted along with herpetofauna daytime and night-time surveys. In addition to any observations of mammals, evidence of mammal activity (footprints, scats, burrows or food remains) was searched at suitable locations.

Herpetofauna

Herpetofauna surveys were conducted monthly between April and October 2024 both during the day and at night. The transects followed were the same as for terrestrial fauna survey. During the surveys all individuals seen foraging or basking in the open were recorded and appropriate microhabitats and potential refugia were inspected for more cryptic species. Hand or head torches were used as necessary during night-time surveys. Amphibians were also recorded by identification of advertising calls.

Odonates and Butterflies

Odonates and Butterflies surveys were conducted monthly between April and November 2024 along the same transect, with species mainly detected by direct observation. All species observed were identified to species level and quantified.

Aquatic fauna

Aquatic fauna surveys were conducted within the Application Site two times in wet season and two times in dry season. Aquatic fauna was identified by direct observation and active searching by nets as appropriate.

Fireflies

Firefly surveys were conducted monthly from April to June 2024 and September to November 2024, following the survey transect for terrestrial fauna. The survey was conducted shortly after dusk. During the surveys, any adult firefly observed were identified to the species level, where possible.

6 SURVEY FINDINGS

6.1 Habitats and Vegetation

The Application Site was only categorized into two habitat types, mitigation wetland (i.e. the completed WRA) and development site, which both have been modified and are under regular management. The Assessment Area was categorized into eleven habitat types, including agricultural land, drainage channel/ditch, fishpond, pond/open water, reedbed, marsh, *Leucaena* woodland, secondary woodland, plantation, managed grassland, developed area. Habitat map is presented in **Figure 3**. No flora species of conservation importance was recorded in the Application Site and 500m Assessment Area.

Table 6 Area of habitats in the Application Site and 500m Assessment Area

Habitat	Application Site (including the completed WRA)	500m Assessment Area (excluding the Application Site)
Development Site	16.00	-
Mitigation Wetland	4.74	-
Agricultural Land	-	0.20
Drainage Channel/Ditch	-	4.24
Fishpond	-	59.83
Pond/Open Water	-	4.67
Reedbed	-	10.84
Marsh	-	1.22
<i>Leucaena</i> Woodland	-	2.24
Secondary Woodland	-	0.77
Plantation	-	7.61
Managed Grassland	-	0.59
Developed Area	-	90.11
Total	20.74	182.32

6.2 Faunal Survey Findings

Bird Transect Survey

Total of 66 bird species have been recorded within the Assessment Area (excluding the Application Site); 27 of these are species of conservation importance.

Total of 42 bird species have been recorded within the Application Site, 13 of these are species of conservation importance.

Wet Season Flightline Survey

Across the seven surveys in the wet season, a total of 1041 individuals of six species (Chinese Pond Heron, Eastern Cattle Egret, Grey Heron, Great Egret, Little Egret and Great Cormorant) were recorded within a total of 14 survey hours. These were subsequently ascribed to individual flightlines over or near the Application Site. The flight paths that were used by very small proportion of the birds were not considered to be significant and were excluded from further analysis.

9 flightlines were identified from the analysis (see **Figure 4**). 3 flightlines (Flightlines No. 1, 2 and 5) were defined as major flightlines (defined here as being used by over 10% of total individuals).

The other 6 flightlines were defined as minor flightlines. Flightlines No.5, located to the west of the Application Site, had the highest usage with 400 individual birds (38.42% of total individuals).

Table 7 Summary of wet season flightline data showing number of birds using individual flightlines

Flightline No.	Total no. of Birds	Mean no. of birds per survey hour	%	Mean no. of birds by species per survey hour #					
				CPH	CE	GH	GE	LE	GC
1*	155	11.07	14.89	2.36	0.29	0.07	2.71	5.64	
2*	123	8.79	11.82	2.50	0.21	0.07	0.14	5.50	0.36
3	105	7.50	10.09	0.64	0.29	0.07	0.57	2.21	3.71
4	63	4.50	6.05	0.29			0.07	0.57	3.57
5*	400	28.57	38.42			0.07	3.36	0.07	25.07
6	65	4.64	6.24	0.36			1.93	1.86	0.50
7	34	2.43	3.27	0.07		0.07	0.64	1.36	0.29
8	19	1.36	1.83	0.57			0.71	0.07	
9	77	5.5	7.40	0.79		0.07	0.14	0.93	3.57
Grand Total	1041	74.36	100%	7.57	0.79	0.43	10.29	18.21	37.07

Notes:

- (1) * Indicates the major flightlines.
- (2) # CPH = Chinese Pond Heron; CE = Eastern Cattle Egret; GH = Grey Heron; GE = Great Egret; LE = Little Egret; GC = Great Cormorant.

Table 8 Summary of wet season flightline data showing number and percentage of birds using individual flightlines in each height category

Flightline No.	Relative Height						Grand Total	Overall % (Flightline usage)
	0 – 1X	≥1-2X	≥2-3X	≥3-4X	≥4-5X	≥5-6X		
	Approximate Height							
	0-10m	≥10-20m	≥20-30m	≥30-40m	≥40-50m	≥50-60m		
1*		71	65	13	6		155	14.89%
2*		65	34	17	7		123	11.82%
3		16	36	47	3	3	105	10.09%
4		1	3	54	5		63	6.05%
5*		14	295	91			400	38.42%
6		30	32	3			65	6.24%
7		14	12	5	1	2	34	3.27%
8		7	2	10			19	1.83%
9		7	68	1	1		77	7.40%
Grand Total		225	547	241	10	23	1041	100.00%
Overall % (Height)	0.00%	21.61%	52.55%	23.15%	2.21%	0.48%	100.00%	N/A

Notes:

- (1) * indicates the major flightlines.

Major flightlines comprised birds travelled across wetland habitats adjacent to but outside the Application Site. Flightline No.1 was the only flightline close to the Application Site. Bird individuals were observed travelling across the completed WRA (see **Figure 4**).

Dry Season Flightline Survey

Across the three surveys in the dry season, a total of 1359 individuals of six species (Black-faced Spoonbill, Chinese Pond Heron, Grey Heron, Great Egret, Little Egret and Great Cormorant) were recorded within a total of 6 survey hours. These were subsequently ascribed to individual flightlines over or near the Application Site. The flight paths that were used by very small proportion of the birds were not considered to be significant and were excluded from further analysis.

7 flightlines were identified from the analysis (see **Figure 5**). 1 flightline (Flightline No. 4) was defined as major flightline (defined here as being used by over 50% of total individuals). The other

6 flightlines were defined as minor flightlines. Flightline No.4 located to the north of the Application Site, had the highest usage with 728 individual birds (53.69% of total individuals).

Table 8 Summary of dry season flightline data showing number of birds using individual flightlines

Flightline No.	Total no. of Birds	Mean no. of birds per survey hour	%	Mean no. of birds by species per survey hour #					
				BFS	CPH	GH	GE	LE	GC
1	219	36.50	16.15	0.50		0.33	3.00	0.33	32.33
2	111	18.50	8.19					0.33	18.17
3	56	9.33	4.13					0.50	8.83
4*	728	121.33	53.69	0.50		0.33	10.33	12.67	97.50
5	21	3.50	1.55				0.17	2.17	1.17
6	85	14.17	6.27				1.17	0.33	12.67
7	136	22.67	10.03	2.67	0.50	0.33	0.67	2.50	16.00
Grand Total	1359	96.86	100%	3.67	0.50	1.00	15.33	18.83	186.67

Notes:

- (1) * Indicates the major flightlines.
- (2) # BFS = Black-faced Spoonbill; CPH = Chinese Pond Heron; GH = Grey Heron; GE = Great Egret; LE = Little Egret; GC = Great Cormorant.

Table 9 Summary of dry season flightline data showing number and percentage of birds using individual flightlines in each height category

Flightline No.	Relative Height						Grand Total	Overall % (Flightline usage)
	0 – 1X	≥1-2X	≥2-3X	≥3-4X	≥4-5X	≥5-6X		
	Approximate Height							
	0-10m	≥10-20m	≥20-30m	≥30-40m	≥40-50m	≥50-60m		
1		73	141	5			219	16.15
2			1	84	26		111	8.19
3		14	5	37			56	4.13
4*		177	534	17			728	53.69
5		9	12				21	1.55
6		56	23	6			85	6.27
7		83	53				136	10.03
Grand Total		412	769	149	26		1356	100.00
Overall % (Height)	0.00%	30.38%	56.71%	10.99%	1.92%	0.00%	100.00%	N/A

Notes:

- (1) * indicates the major flightline.

Major flightlines comprised birds travelled across wetland habitats adjacent to but outside the Application Site. Flightline No. 3 was the only flightline close to the Application Site. Bird individuals were observed travelling across the Project Area (see **Figure 5**).

Mammals

Short-nosed Fruit Bat and Japanese Pipistrelle have been recorded both within the Assessment Area and the Application Site. Both are species of conservation importance and are protected under Cap.170 in Hong Kong.

Herpetofauna

Within the Assessment Area (excluding the Application Site), a total of 5 amphibian species and 4 reptile species were recorded. None of these is species of conservation importance.

Within the Application Site, a total of 5 amphibian species and 4 reptile species were recorded. None of these is species of conservation importance.

Odonates and Butterflies

A total of 28 odonate species was recorded within the Assessment Area (excluding the Application Site). Two species of conservation importance were recorded within the AA, namely Coastal Glider and Ruby Darter, both considered to be Local Concern by Fellows et al. (2002). Within the Application Site, a total of 8 odonate species was recorded.

A total of 32 butterfly species have been recorded within the Assessment Area (excluding the Application Site). Within the Application Site, a total of 15 butterfly species was recorded.

Aquatic fauna

Exotic fish including Snakehead Murrel was observed in the drainage channels. Larvae and exuviae of a total of 10 odonate species were also observed. None of these is species of conservation importance.

Fireflies

Only one species *Pyrocoelia analis*, was recorded within the Assessment Area, with very low abundance. This is a commonly seen species in agricultural land and fishpond area in Hong Kong.

Special attention to Mai Po Bent-winged Firefly during the surveys, this species of conservation importance was not recorded.

7 EVALUATION OF HABITATS

7.1 Habitats within the Application Site

Table 9 Ecological evaluation of mitigation wetland within the Application Site

Criteria	Mitigation Wetland
Naturalness	Under management and monitoring as approved EIA mitigation measures.
Size	4.74ha, approximately one fourth of the Application Site. Loss of 0.69ha seasonal marsh and 4ha freshwater marsh/reedbed are fully compensated according to approved EIA report (AEIAR-120/2008)
Diversity	Moderate diversity of fauna
Rarity	Wetland-dependent species
Re-creatability	Could be recreated.
Fragmentation	Not fragmented.
Ecological linkage	Ecological linkage to WCA and Deep Bay
Potential value	Value could be enhanced by suitable management
Nursery/ breeding ground	Potentially breeding ground for some amphibian, reptile and odonates
Age	More than ten years. Construction works completed in November 2010 and established by October 2012.
Abundance/ Richness of wildlife	Moderate abundance of wildlife
Ecological value	MODERATE

Table 10 Ecological evaluation of development site within the Application Site

Criteria	Development Site
Naturalness	Wasteland, site formation works in progress
Size	16.0ha
Diversity	Low
Rarity	Common species
Re-creatability	Easily re-creatable.
Fragmentation	N/A
Ecological linkage	Limited ecological linkage
Potential value	N/A
Nursery/ breeding ground	Nil.
Age	Few decades
Abundance/ Richness of wildlife	Low
Ecological value	LOW

7.2 Habitats within 500m Assessment Area (excluding the Application Site)

Table 11 Ecological evaluation of fishpond within the Assessment Area

Criteria	Fishpond
Naturalness	Man-made wetland habitat
Size	59.83ha, relatively large
Diversity	Limited floral diversity. Moderate diversity of avifauna species.
Rarity	Wetland-dependent species
Re-creatability	Readily re-creatable
Fragmentation	Not fragmented.
Ecological linkage	Highly connected with Deep Bay ecosystem
Potential value	High
Nursery/ breeding ground	Wetland-dependent bird species utilising fishpond habitat, such as Little Grebe and White-breasted Waterhen have been recorded breeding.

Criteria	Fishpond
Age	Long established for decades.
Abundance/ Richness of wildlife	Abundant for wetland-dependent species.
Ecological value	MODERATE TO HIGH

Table 12 Ecological evaluation of pond/open water within the Assessment Area

Criteria	Pond/Open water
Naturalness	Man-made, derived from abandoned fishponds
Size	4.67ha
Diversity	Low to moderate
Rarity	Conservation Area for the ponds within Palm Springs, however low usage by species of conservation importance, such as Little Egret and Chinese Pond Heron.
Re-creatability	Readily re-creatable
Fragmentation	Fragmented by developed area.
Ecological linkage	Limited linkage for the ponds within Palm Springs; Pond/open water to the west of Palm Springs are connected with Deep Bay wetlands.
Potential value	Limited for ponds within Palm Springs
Nursery/ breeding ground	Wetland-dependent bird species utilising pond habitat, such as White-breasted Waterhen have been recorded breeding.
Age	Few decades after abandonment
Abundance/ Richness of wildlife	Low to moderate
Ecological value	MODERATE

Table 13 Ecological evaluation of marsh within the Assessment Area

Criteria	Marsh
Naturalness	Naturally derived from abandoned fishpond, overgrown with wetland plants
Size	1.22ha
Diversity	Low diversity
Rarity	Low
Re-creatability	Readily re-creatable
Fragmentation	Located at the fringe of continuous fishponds area, abutting village development.
Ecological linkage	Limited as much less favourable than adjacent wetland
Potential value	Could be enhanced with vegetation management or resumed into pond habitat.
Nursery/ breeding ground	Nil.
Age	at least 20 years since abandonment.
Abundance/ Richness of wildlife	Low abundance
Ecological value	LOW TO MODERATE

Table 14 Ecological evaluation of drainage channel/ditch within the Assessment Area

Criteria	Drainage Channel/Ditch
Naturalness	Man-made
Size	4.22ha, small in Hong Kong context.
Diversity	Low to moderate
Rarity	Species of conservation importance was not recorded.
Re-creatability	Readily re-creatable.
Fragmentation	Not fragmented within the fishpond area.
Ecological linkage	Linked with wetland habitats
Potential value	Could be enhanced with vegetation management.
Nursery/ breeding ground	Nil.
Age	Long established with fishponds

Criteria	Drainage Channel/Ditch
Abundance/ Richness of wildlife	Low to moderate
Ecological value	LOW TO MODERATE

Table 15 Ecological evaluation of reedbed within the Assessment Area

Criteria	Reedbed
Naturalness	Semi-natural, derived from abandoned fishponds.
Size	10.84ha
Diversity	Low floral diversity, dominated by reed; Low to moderate diversity of fauna
Rarity	Low to moderate
Re-creatability	Readily re-creatable
Fragmentation	Not fragmented.
Ecological linkage	Connected with Deep Bay wetlands.
Potential value	Could be enhanced with proper vegetation management.
Nursery/ breeding ground	Nil.
Age	Few decades after abandonment
Abundance/ Richness of wildlife	Low to moderate.
Ecological value	MODERATE

Table 16 Ecological evaluation of agricultural land within the Assessment Area

Criteria	Agricultural Land
Naturalness	Man-made
Size	0.2ha, very small patches scattered within the Assessment Area.
Diversity	Very Low
Rarity	N/A
Re-creatability	Re-creatable
Fragmentation	Fragmented by surrounding developed area
Ecological linkage	Limited to adjacent hillslope habitat
Potential value	Low
Nursery/ breeding ground	Nil.
Age	Within past few years
Abundance/ Richness of wildlife	Very Low
Ecological value	VERY LOW

Table 17 Ecological evaluation of managed grassland within the Assessment Area

Criteria	Managed Grassland
Naturalness	Man-made
Size	0.59ha, very small.
Diversity	Very low
Rarity	N/A
Re-creatability	Re-creatable
Fragmentation	Fragmented
Ecological linkage	Limited
Potential value	Very low
Nursery/ breeding ground	Nil.
Age	Past few decades.
Abundance/ Richness of wildlife	Very low
Ecological value	VERY LOW

Table 18 Ecological evaluation of *Leucaena* woodland within the Assessment Area

Criteria	<i>Leucaena</i> Woodland
Naturalness	Semi-natural, derived from wasteland, overgrown with <i>Leucaena leucocephala</i>
Size	2.24ha
Diversity	Low
Rarity	N/A
Re-creatability	Re-creatable
Fragmentation	Fragmented
Ecological linkage	Limited
Potential value	Very low, unless entirely replaced with native species through management
Nursery/ breeding ground	Nil.
Age	Past few decades.
Abundance/ Richness of wildlife	Very Low
Ecological value	VERY LOW

Table 19 Ecological evaluation of secondary woodland within the Assessment Area

Criteria	Secondary Woodland
Naturalness	Semi-natural woodland habitat, derived from <i>Fung Shui</i> woodland
Size	0.77ha, small.
Diversity	Moderate floral diversity. Faunal diversity lower than in woodlands elsewhere in Hong Kong, due to relative isolation of this patch.
Rarity	Secondary woodland is common in Hong Kong but <i>Fung Shui</i> woods and egretries are rare.
Re-creatability	Could be recreated in long-term if suitable resources are available. <i>Fung shui</i> wood would be difficult to recreate. Recolonisation by egrets would be difficult to achieve.
Fragmentation	Not fragmented within the Assessment Area, but this single block is isolated from similar habitats.
Ecological linkage	Some ecological linkage to Deep Bay via foraging egrets. Otherwise, poor linkage due to presence of villages and major road.
Potential value	Value could be enhanced by suitable management, especially if the number of breeding egrets could be increased.
Nursery/ breeding ground	Previously egretty record.
Age	Fairly old due to <i>fung shui</i> functions.
Abundance/ Richness of wildlife	Moderate abundance of wildlife, but lower than in other woodland areas.
Ecological value	MODERATE

Table 20 Ecological evaluation of plantation within the Assessment Area

Criteria	Plantation
Naturalness	Manmade habitat, mainly roadside planting.
Size	Medium within AA.
Diversity	Low to moderate.
Rarity	Species of conservation importance was not recorded.
Re-creatability	Readily re-creatable.
Fragmentation	Fragmented by developed areas.
Ecological linkage	Not connected to the fishpond areas.
Potential value	Potential ardeid roost for mature trees relatively closer to the wetland habitats.
Nursery/ breeding ground	Nil.
Age	Several decades
Abundance/ Richness of wildlife	Low to moderate
Ecological value	LOW TO MODERATE

Table 21 Ecological evaluation of developed area within the Assessment Area

Criteria	Developed Area
Naturalness	Man-made
Size	Relatively large
Diversity	Low to moderate
Rarity	Low
Re-creatability	Re-creatable
Fragmentation	N/A
Ecological linkage	Abutting Deep Bay wetland areas.
Potential value	N/A
Nursery/ breeding ground	Nil.
Age	Several decades.
Abundance/ Richness of wildlife	Low
Ecological value	VERY LOW

8 POTENTIAL ECOLOGICAL IMPACTS

The proposed changes to the project involve only the residential portion of the Project Area. However, since the WRA is designed as a mitigation measure for three target bird species, increased disturbance to the WRA which renders the site less suitable for these species could have a significant adverse impact to the WRA. Therefore, any proposed changes at the interface or to predicted disturbance levels with the WRA are evaluated.

8.1 Potential Direct Impact to the WRA

Since there are no changes proposed to the WRA or at the boundary between the residential area and WRA, no additional direct impact to the ecological function and area of the WRA is anticipated.

8.2 Potential Direct Impact to Fauna Species of Conservation Importance

Since no changes are proposed to the WRA, no additional impact is anticipated to the fauna species of conservation importance within the WRA.

The WRA has also been implemented as buffer area between the residential development and the WCA; no additional impact is anticipated to the fauna species of conservation importance in the WCA.

8.3 Potential Indirect Impact to the WRA

An increase in building height may result in higher visibility of human activities at the boundary and within the WRA. According to the approved EcolA, all of the three target bird species are considered to be species which are prone to human disturbance. Potential indirect impact to the WRA might result from human activities at the residential area of the site are primarily noise and visual disturbance.

As noted in submission of A/YL-MP/229 (accepted in Feb 2015), according to the approved Wetland Restoration and Creation Scheme (WRCS), a 2m high solid wall with buffer tree/shrub planting on the WRA-side, will delineate the WRA and the residential area. The buffer planting has been postponed due to the need to retain the existing site boundary and noise barrier and it will be completed prior to the operational phase of the Project (refer to EP-311/2008/C). No additional mitigation measure was required for postponing the buffer planting.

The total number of residential units abutting the WRA is increased from 13 to 37 in the revised MLP. However, only 3-storey detached/semi-detached houses are proposed in this location. Greater setback of these residential units from the WRA, is also expected to offset the potentially increased disturbance impact due to the increase in number of house units. Hence, no additional ecological impact is predicted. All measures to screen the WRA from the residential portion of the project included in the approved EIA are retained.

The proposed taller buildings have been considered carefully the alignment and orientation. More than 50m setback from the nearest WCA at the eastern part of Application Site is proposed while including the WRA and Palm Springs, there are more than 100m setback between the taller buildings and the WCA to the north and to the west.

In addition to the approved S16 scheme, the buffer planting between the residential portion and the WRA, will be increase from width of 2.5m to 5m. This will provide further screening effect, avoiding disturbance to the WRA, as well as the WCA fishponds to the north.

No significant adverse ecological impacts are anticipated due to the proposed amendments.

8.4 Potential Indirect Impact to Fauna Species of Conservation Importance

Since no changes are proposed to the WRA, no additional disturbance impact is anticipated to the fauna species of conservation importance in the WCA.

A 3m site hoarding will be placed between the WRA and the construction works for residential areas so that a visual barrier is maintained between the construction work and wetland habitats. Other methods to reduce sources of disturbance will be employed, including good site practice within the construction site, selection of quiet equipment to minimise noise disturbance, minimisation of night-time lighting and location of lighting away from the wetlands, and prevention of feral dogs from accessing the construction site. Implementation of the ecological mitigation measures stated, will continue to be checked as part of the EM&A procedures during the construction period. No additional disturbance impact is anticipated to the fauna species of conservation importance in the WRA.

8.5 Potential Impact to Bird Flightline

Based on the latest flightline survey findings, approximately 9 bird individuals (mainly Great Cormorant) per survey hour were recorded flying above the Application Site. However, as shown in Table 8, most of the Great Cormorant (approximately 129 individuals per survey hour) were recorded flying across the fishponds to the north of the Application Site (flightline no.1 and flightline no.4). Furthermore, during the survey, the majority of Great Cormorant was observed flying close to the Shen Zhen River, from Mai Po, across Lin Barn Tsuen fishponds, towards the north; hence, the flightline is outside the 500m Assessment Area. This observation matches with Figure 2.3 of the Strategic Feasibility Study on the Development of Wetland Conservation Parks System under the Northern Metropolis Development Strategy (AFCD 2024), major flightline across the WCPS system. Impedance of Great Cormorant flightlines is therefore not expected.

The birds using the flightline also flew over the adjacent residential development (Palm Springs) which is of a comparable height to the proposed low-rise development of the Project. Impedance of flightlines arising from the proposed amendment is not expected. As such, potential impacts to flightlines as a whole are not considered to be significant.

8.6 Potential Bird Collision Impact with Buildings

With reference to the revised MLP, the stepped design has been considered the orientation and taller buildings are situated at minimum setback of 120m from the nearest wetland habitat. Tallest 10-storey buildings (+42mPD) are all proposed in the middle (at least 150m away) and the eastern portion of the Application, as far away from the wetland habitat as possible.

The mitigation measures to avoid bird collisions (i.e. visually unobtrusive and non-reflective building materials etc.) in the approved EcolA apply here. Therefore, the potential impact of bird collision with any buildings is not anticipated.

8.7 Potential Impact to the Wetland Conservation Area

No change is proposed to the design or operation of the WRA with reference to the Wetland Restoration Plan (WPR) in the approved EIA. Access will only be required to facilitate monitoring and management. Monitoring activities will be undertaken at an appropriate time of the day to minimize the disturbance to bird activity. Routine management works (e.g. grass-cutting) will be conducted on a monthly basis to avoid the need for large scale and/or intensive vegetation management. The WRA will be secured to prevent unauthorised human access and exclude dogs from the site as far as possible. The WRA will continue to function as a buffer between the residential development and the fishponds in the WCA.

The mitigation measures to avoid night-time lighting and glare in the approved EcolA apply here. Hence, no additional impact is predicted to the wetland habitats in the WCA.

CONCLUSION

Since the proposed amendments relate to the layout of residential development and design of house units, no major ecological impact is expected to the implemented WRA and wetland habitats in the WCA.

There might be some potential for increased disturbance impact due to the increased total number of house units. However, the setback of 3-storey detached house adjacent to the implemented WRA, are expected to offset the disturbance impact. The buffer planting between the implemented WRA and the residential area will be completed prior to the operational phase of the Project. No additional impact is predicted.

No major flightlines in latest surveys is over the residential portion of the proposed development. Only one minor flightline is recorded. No impedance of flightline is expected. No additional flightline impact is predicted as the increase in building height is minimal. Hence, the findings of the approved EcolA remain valid.

There might be potential for bird collisions with taller buildings; however, the mitigation measures to avoid bird collisions with buildings in the approved EcolA apply here and no additional impact is predicted.

With the implementation of all mitigation measures, no additional ecological impact is predicted compared to the approved scheme and that the findings of the approved EcolA under planning Application No. A/YL-MP/229 remain valid.

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Appendix

Appendix A

Fauna Species recorded in EM&A reports between December 2023 – November 2024

All survey findings summarised in Appendix A are retrieved from EM&A reports by Mott MacDonald Hong Kong Ltd.

Table A1 Mammal Species Recorded within Survey Area (excluding WRA)

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Japanese Pipistrelle	<i>Pipistrellus abraums</i>	Cap. 170	Widely distributed throughout Hong Kong.
No. of species of conservation importance			1
Total no. of species recorded			1

Notes:

- Conservation and protection status refers to Fellowes *et al.* (2002), IUCN (2024), Red List of China's Vertebrates (RLCV) (Jiang *et al.*, 2016), CSIS (2019), CITES (2024), Cap. 170 and Cap. 586.
 - Cap. 170 = Wild Animals Protection Ordinance.
- Distribution and rarity follow the data of HKBIH (AFCD, 2024).

Table A2 Mammal Species Recorded within WRA

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Short-nosed Fruit Bat	<i>Cynopterus sphinx</i>	RLCV (NT); Cap. 170	Very widely distributed in urban and countryside areas throughout Hong Kong.
Japanese Pipistrelle	<i>Pipistrellus abraums</i>	Cap. 170	Widely distributed throughout Hong Kong.
Leopard Cat	<i>Prionailurus bengalensis</i>	RLCV (VU); CSMPS (I); CITES (II); Cap. 170; Cap. 586	Widely distributed in countryside areas throughout Hong Kong, except for Lantau Island.
Eurasian Wild Pig	<i>Sus scrofa</i>	-	Very widely distributed in countryside areas throughout Hong Kong.
No. of species of conservation importance			3
Total no. of species recorded			4

Notes:

- Conservation and protection status refers to Fellowes *et al.* (2002), IUCN (2024), Red List of China's Vertebrates (RLCV) (Jiang *et al.*, 2016), CSIS (2019), CITES (2024), Cap. 170 and Cap. 586.
 - Conservation status by Red List of China's Vertebrates (RLCV) (Jiang *et al.*, 2016): NT = Near-threatened; VU = Vulnerable.
 - Protection status by CITES (2024): II = Listed in Appendix II of CITES.
 - Protection status by CSMPS (CSIS, 2019): I = Class I Protected Species in China.
 - Cap. 170 = Wild Animals Protection Ordinance.
 - Cap. 586 = Protection of Endangered Species of Animals and Plants Ordinance.
- Distribution and rarity follow the data of HKBIH (AFCD, 2024).

Table A3 Bird Species Recorded within Survey Area (excluding WRA)

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Northern Shoveler	<i>Spatula clypeata</i>	RC	Abundant winter visitor to the intertidal areas of Deep Bay typically present October to April.
Tufted Duck	<i>Aythya fuligula</i>	LC	Abundant winter visitor.
House Swift	<i>Apus nipalensis</i>	-	Locally abundant resident and passage migrant, mainly in spring. Much lower numbers now occur on migration compared with the 1980s and 1990s.
Greater Coucal	<i>Centropus sinensis</i>	CSMPS(II)	Widespread and common resident typically present in mangroves and shrub dominated closed and open-canopy habitats, usually in lowland areas.
Asian Koel	<i>Eudynamys scolopacea</i>	-	Very common resident, with increased numbers in autumn suggesting the presence of passage migrants.
Large Hawk-cuckoo	<i>Hierococcyx sparveriioides</i>	-	Common summer visitor.
Indian Cuckoo	<i>Cuculus Micropterus</i>	-	Breeding summer visitor, which is locally common but less widespread than in the past.
Eurasian Collared Dove	<i>Streptopelia decaocto</i>	-	A locally common breeding resident in the northwest New Territories with scattered records elsewhere. First recorded in 1999 and placed on Category IIB in 2007, it is slowly increasing in numbers and range.
Red Turtle Dove	<i>Streptopelia tranquebarica</i>	-	A common passage migrant, especially in autumn, and scarce winter visitor, mainly to the Deep Bay area, with occasional summer records. Numbers appear to have increased in recent years and summer records have become more frequent, but there is no evidence that breeding has occurred.
Spotted Dove	<i>Spilopelia chinensis</i>	-	Common and conspicuous resident in all anthropogenic habitats.
Eastern Water Rail	<i>Rallus indicus</i>	-	Scarce winter visitor to freshwater or brackish marsh.
Common Moorhen	<i>Gallinula chloropus</i>	-	Scarce to uncommon winter visitor, scarce at other times, in vegetated wetland habitats of the northern New Territories, though appears to be in decline due to urbanisation and more intensive management of commercial fishponds.
White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	-	Common resident in a variety of freshwater and brackish wetland habitats, though numbers are declining probably due to urbanisation of the New Territories.
Little Grebe	<i>Tachybaptus ruficollis</i>	LC	Common in open freshwater wetlands in the northwest New Territories, though declining in marginal areas probably due to increased human disturbance and draining of wetlands.
Black-winged Stilt	<i>Himantopus Himantopus</i>	RC	Common to abundant in freshwater marsh, brackish Gei Wai and commercial fishponds. Has increased greatly since winter 2005/06 and small numbers now breed in most years.
Little Ringed Plover	<i>Charadrius dubius</i>	(LC)	Present all year. Primarily an autumn passage migrant and winter visitor to fresh and brackish water wetlands but breeds in small numbers in ephemeral freshwater wetland habitat.
Common Snipe	<i>Gallinago gallinago</i>	-	Common passage migrant and winter visitor to vegetated freshwater wetlands, most numerous in autumn.
Common Sandpiper	<i>Actitis hypoleucos</i>	-	Scarce passage migrant, slightly more numerous in spring, and rare summer visitor; much declined. Occurs in vegetated freshwater wetlands.
Green Sandpiper	<i>Tringa ochropus</i>	-	Uncommon passage migrant and winter visitor, rare in summer; occurs in a wide variety of freshwater wetlands.
Marsh Sandpiper	<i>Tringa stagnatilis</i>	RC	Scarce passage migrant, slightly more numerous in spring, and rare summer visitor; much declined. Occurs in vegetated freshwater wetlands.
Wood Sandpiper	<i>Tringa glareola</i>	LC	Common migrant and winter visitor to freshwater wetlands, with some evidence of a decline in numbers.
Spotted Redshank	<i>Tringa erythropus</i>	RC	Scarce passage migrant, slightly more numerous in spring, and rare summer visitor; much declined. Occurs in vegetated freshwater wetlands.

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Whiskered Tern	<i>Chlidonias hybrida</i>	-	Common passage migrant, scarce in winter; occurs mainly in fishpond and freshwater wetland areas, but also in inshore and occasionally, offshore waters.
White-winged Tern	<i>Chlidonias leucopterus</i>	-	Passage migrant, common in spring and scarce in autumn; mostly seen over fishponds or freshwater marsh in the Deep Bay area but also occasionally in coastal waters. Numbers have possibly declined since the 1990s.
Great Cormorant	<i>Phalacrocorax carbo</i>	PRC	Abundant winter visitor to Deep Bay area and both inshore and offshore waters.
Yellow Bittern	<i>Ixobrychus sinensis</i>	(LC)	Common summer visitor and passage migrant to wetland areas primarily in the Deep Bay area, scarce in winter. Numbers of breeding birds and passage migrants have substantially decreased.
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	(LC)	Abundant passage migrant and winter visitor and uncommon breeding species. Occurs in variety of wetland habitats throughout Hong Kong.
Chinese Pond Heron	<i>Ardeola bacchus</i>	PRC (RC)	Common at a variety of freshwater and brackish wetlands across Hong Kong throughout the year; both migratory and resident populations occur.
Eastern Cattle Egret	<i>Bubulcus ibis</i>	(LC)	Present all year in vegetated fresh and brackish water wetland areas; highest numbers in the wet season, after breeding and during autumn migration.
Grey Heron	<i>Ardea cinerea</i>	PRC	Abundant winter visitor; scarce in summer. Has bred. Frequents wetlands throughout Hong Kong but concentrated in Deep Bay area.
Great Egret	<i>Ardea alba</i>	PRC (RC)	Present all year in larger and more open brackish and freshwater wetlands. Most numerous in late autumn and least in April. Migrants pass through mainly in autumn, and a large breeding population has established in Deep Bay in recent years.
Intermediate Egret	<i>Ardea intermedia</i>	RC	Common on passage but scarce at other times of year mainly in freshwater wetland areas. Appears to have increased in numbers over past 60 years.
Little Egret	<i>Egretta garzetta</i>	PRC (RC)	Present all year in a wide variety of fresh and non-freshwater wetland habitats. An influx of birds occurs in the winter months.
Black-winged Kite	<i>Elanus caeruleus</i>	LC; CSMPS(II); CITES(II); Cap.586	Common passage migrant in autumn, scarce at other times; occurs in open country habitats mainly in the northwest New Territories.
Crested Goshawk	<i>Accipiter trivirgatus</i>	CITES(II); CSMPS(II); Cap.586	Common resident in forest areas, but also hunts in open country.
Besra	<i>Accipiter virgatus</i>	CSMPS(II); CITES(II); Cap.586	Present all year. Numbers highest in autumn when passage migrants occur in diverse wooded areas and lowest in summer when it breeds in closed-canopy shrubland.
Black Kite	<i>Milvus migrans</i>	(RC); CSMPS(II); CITES(II); Cap.586	Present all year throughout Hong Kong, numbers lowest in summer and highest during autumn migration.
Eastern Buzzard	<i>Buteo japonicus</i>	CSMPS(II); CITES(II); Cap.586	Common autumn passage migrant and winter visitor, scarce in spring. Occurs in widespread areas of Hong Kong in most non-urban habitats.
White-throated Kingfisher	<i>Halcyon smyrnensis</i>	(LC); CSMPS(II)	Present all year with numbers highest in the second half. Much declined, particularly in the breeding season. Occurs mainly in Deep Bay wetlands in the winter, but in mixed shrubland and farmland habitats in the breeding season.
Common Kingfisher	<i>Alcedo atthis</i>	-	Common in autumn and winter, scarce in spring and summer; frequents a wide variety of lowland, largely freshwater wetlands, though also forages at the coast. The migrant population is probably much declined.
Pied Kingfisher	<i>Ceryle rudis</i>	(LC)	Locally uncommon resident, mainly in freshwater and brackish wetland. In decline.

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Peregrine Falcon	<i>Falco peregrinus</i>	(LC); CSMPS(II); CITES(I); Cap.586	Present all year, with the resident subspecies peregrinator breeding and birds from northerly breeding populations present in winter.
Long-tailed Shrike	<i>Lanius schach</i>	LC	Formerly a widespread and fairly common breeding species with occasional winter records. Last proven to breed in 2003 and now a scarce passage migrant and rare winter visitor.
Black-naped Oriole	<i>Oriolus chinensis</i>	-	Occurs year-round in open broadleaf woodland or forest-edge areas, most abundant during autumn passage.
Hair-crested Drongo	<i>Dicrurus hottentottus</i>	-	Common summer visitor, larger numbers on passage especially autumn, and regular in winter in low numbers. Occurs in open country areas with scattered trees or artificial perches.
Black Drongo	<i>Dicrurus macrocerus</i>	-	Common breeding resident in open-canopy shrubland and open-country with sufficient perches and nest sites.
Azure-winged Magpie	<i>Cyanopica cyanus</i>	-	Locally common breeding resident in the Deep Bay area centred around Mai Po.
Collared Crow	<i>Corvus torquatus</i>	LC; IUCN(VU)	Locally common resident.
Large-billed Crow	<i>Corvus macrorhynchos</i>	-	Largely resident, occurs throughout Hong Kong.
Japanese Tit	<i>Parus minor</i>	-	Abundant resident in diverse wooded and lightly-wooded habitats.
Chinese Bulbul	<i>Pycnonotus sinensis</i>	-	Abundant resident in nearly all habitats; HK's most widespread bird. Also occurs as a passage migrant and winter visitor.
Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	-	Abundant or common resident in nearly all habitats; Hong Kong's second most widespread bird.
Barn Swallow	<i>Hirundo rustica</i>	-	Widespread and common.
Pallas's Leaf Warbler	<i>Phylloscopus proregulus</i>	-	Uncommon to common winter visitor and passage migrant to wooded areas.
Dusky Warbler	<i>Phylloscopus fusccatus</i>	-	Common passage migrant and winter visitor to open country areas with shrubs.
Yellow-bellied Prinia	<i>Prinia flaviventris</i>	-	Common resident in grassland, reed marsh and rank or herbaceous vegetation, and thus highest densities occur in the northwest New Territories.
Plain Prinia	<i>Prinia inornate</i>	-	Locally common resident in grassy habitat mainly in the northwest New Territories.
Common Tailorbird	<i>Orthotomus sutorius</i>	-	Common widespread resident in diverse habitats of forest, shrubby grassland and landscaped urban areas.
Swinhoe's White-eye	<i>Zosterops simplex</i>	-	Widespread abundant resident.
Masked Laughingthrush	<i>Pterorhinus perspicillatus</i>	-	A common resident of anthropogenic and disturbed habitats throughout Hong Kong.
Crested Myna	<i>Acridotheres cristatellus</i>	-	Abundant and widespread resident in diverse lowland habitats.
Common Myna	<i>Acridotheres tristis</i>	-	Locally common resident population considered to derive from ex-captive birds.
Red-billed Starling	<i>Spodiopsar sericeus</i>	GC	Abundant winter visitor to open country areas though the range appears to be reducing. A few breeding records in village houses and an urban park.
White-cheeked Starling	<i>Spodiopsar cineraceus</i>	PRC	Locally common but declining winter visitor, with recent breeding records.
Black-collared Starling	<i>Gracupica nigricollis</i>	-	Common, widespread resident of lowland open-country, village and urban habitats.
White-shouldered Starling	<i>Sturnia sinensis</i>	(LC)	Locally common passage migrant and breeding species and an uncommon winter visitor to open country habitat mainly in the northwest New Territories.
Chinese Blackbird	<i>Turdus mandarinus</i>	-	Common migrant and winter visitor, scarce but increasing breeding species in northwest New Territories.
Grey-backed Thrush	<i>Turdus hortulorum</i>	-	Common winter visitor and uncommon passage migrant to diverse wooded areas.
Oriental Magpie Robin	<i>Copsychus saularis</i>	-	Abundant, widespread resident over a wide range of habitats.
Red-throated Flycatcher	<i>Ficedula albicilla</i>	-	Common passage migrant and winter visitor to open country or lightly-wooded habitats.

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Daurian Redstart	<i>Phoenicurus aureoreus</i>	-	Common winter visitor to lightly wooded areas.
Amur Stonechat	<i>Saxicola stejnegeri</i>	-	Common passage migrant and winter visitor to open country areas.
Eurasian Tree Sparrow	<i>Passer montanus</i>	-	An abundant resident, commensal with humans and found in all lowland anthropogenic habitats, especially in active farmland, around fishponds and in city parks.
Scaly-breasted Munia	<i>Lonchura punctulate</i>	-	Locally common resident in open country grassland, farmland, wetland and waste ground. Largely restricted to the lowland northern New Territories.
White-rumped Munia	<i>Lonchura striata</i>	-	Common in lightly wooded urban fringe and village edge habitats, largely resident but aggregations occur in seeding grassland and rice fields.
Eastern Yellow Wagtail	<i>Motacilla tschutschensis</i>	-	Common passage migrant and winter visitor.
White Wagtail	<i>Motacilla alba</i>	-	Common passage migrant and winter visitor
Olive-backed Pipit	<i>Anthus hodgsoni</i>	-	Common winter visitor and passage migrant to wooded, semi-wooded and open-country habitats with wooded areas nearby.
Little Bunting	<i>Emberiza pusilla</i>	-	Uncommon from November to April with weak passage in autumn and spring.
Black-faced Bunting	<i>Emberiza spodocephala</i>	-	Common passage migrant and winter visitor to a diverse range of vegetated often damp open-country areas. Generally, the commonest and most widespread bunting in Hong Kong. Numbers have declined however, especially in spring.
No. of species of conservation importance			31
No. of species of conservation importance and/or wetland-dependent			40
Total no. of species recorded			80

Notes:

- Conservation and protection status refers to Fellowes *et al.* (2002), IUCN (2024), Red List of China's Vertebrates (RLCV) (Jiang *et al.*, 2016), CSIS (2019), CITES (2024), Cap. 170 and Cap. 586.
 - Conservation status by Fellowes *et al.* (2002): GC = Global Concern; 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.
 - Conservation status by IUCN (2024): VU = Vulnerable.
 - Protection status by CITES (2024): I = Listed in Appendix I of CITES; II = Listed in Appendix II of CITES.
 - Protection status by CSMPS (CSIS, 2019): II = Class II Protected Species in China.
 - Cap. 586 = Protection of Endangered Species of Animals and Plants Ordinance.
- Status in Hong Kong follows the data of the latest version of The Avifauna of Hong Kong (HKBWS, 2024).
- Species considered as of wetland-dependent in this study are indicated in bold type.

Table A4 Bird Species Recorded within WRA

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Savanna Nightjar	<i>Caprimulgus affinis</i>	-	Locally common resident in grassland and open country, with some seasonal movements.
Greater Coucal	<i>Centropus sinensis</i>	CSMPS(II)	Widespread and common resident typically present in mangroves and shrub dominated closed and open-canopy habitats, usually in lowland areas.
Asian Koel	<i>Eudynamis scolopaceus</i>	-	Very common resident, with increased numbers in autumn suggesting the presence of passage migrants.
Plaintive Cuckoo	<i>Cacomantis merulinus</i>	-	Locally fairly common summer visitor, scarce passage migrant and winter visitor, with some individuals likely to be resident. Occurs in lowland rural areas of mixed habitats, often in agricultural areas.
Large Hawk-cuckoo	<i>Hierococcyx sparverioides</i>	-	Common summer visitor
Indian Cuckoo	<i>Cuculus Micropterus</i>	-	Breeding summer visitor, which is locally common but less widespread than in the past.
Eurasian Collared Dove	<i>Streptopelia decaocto</i>	-	A locally common breeding resident in the northwest New Territories with scattered records elsewhere. First recorded in 1999 and placed on Category IIB in 2007, it is slowly increasing in numbers and range.
Red Turtle Dove	<i>Streptopelia tranquebarica</i>	-	A common passage migrant, especially in autumn, and scarce winter visitor, mainly to the Deep Bay area, with occasional summer records. Numbers appear to have increased in recent years and summer records have become more frequent, but there is no evidence that breeding has occurred.
Spotted Dove	<i>Spilopelia chinensis</i>	-	Common and conspicuous resident in all anthropogenic habitats.
Common Moorhen	<i>Gallinula chloropus</i>	-	Scarce to uncommon winter visitor, scarce at other times, in vegetated wetland habitats of the northern New Territories, though appears to be in decline due to urbanisation and more intensive management of commercial fishponds.
White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	-	Common resident in a variety of freshwater and brackish wetland habitats, though numbers are declining probably due to urbanisation of the New Territories.
Little Grebe	<i>Tachybaptus ruficollis</i>	LC	Common in open freshwater wetlands in the northwest New Territories, though declining in marginal areas probably due to increased human disturbance and draining of wetlands.
Black-winged Stilt	<i>Himantopus Himantopus</i>	RC	Common to abundant in freshwater marsh, brackish Gei Wai and commercial fishponds. Has increased greatly since winter 2005/06 and small numbers now breed in most years.
Greater Painted-snipe	<i>Rostratula benghalensis</i>	LC	Present all year in areas of freshwater marsh and wet agriculture; numbers in winter are higher due to presence of migrants from the north.
Pintail/Swinhoe's Snipe	<i>Gallinago stenura megala</i>	LC for Swinhoe's Snipe	-
Common Snipe	<i>Gallinago gallinago</i>	-	Common passage migrant and winter visitor to vegetated freshwater wetlands, most numerous in autumn.

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Common Sandpiper	<i>Actitis hypoleucos</i>	-	Scarce passage migrant, slightly more numerous in spring, and rare summer visitor; much declined. Occurs in vegetated freshwater wetlands.
Green Sandpiper	<i>Tringa ochropus</i>	-	Uncommon passage migrant and winter visitor, rare in summer; occurs in a wide variety of freshwater wetlands.
Wood Sandpiper	<i>Tringa glareola</i>	LC	Common migrant and winter visitor to freshwater wetlands, with some evidence of a decline in numbers.
Common Greenshank	<i>Tringa nebularia</i>	RC	Abundant passage migrant and common winter visitor to Deep Bay area, with scattered records elsewhere.
Whiskered Tern	<i>Chlidonias hybrida</i>	-	Common passage migrant, scarce in winter; occurs mainly in fishpond and freshwater wetland areas, but also in inshore and occasionally, offshore waters.
Great Cormorant	<i>Phalacrocorax carbo</i>	PRC	Abundant winter visitor to Deep Bay area and both inshore and offshore waters.
Yellow Bittern	<i>Ixobrychus sinensis</i>	(LC)	Common summer visitor and passage migrant to wetland areas primarily in the Deep Bay area, scarce in winter. Numbers of breeding birds and passage migrants have substantially decreased.
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	(LC)	Abundant passage migrant and winter visitor and uncommon breeding species. Occurs in variety of wetland habitats throughout Hong Kong.
Chinese Pond Heron	<i>Ardeola bacchus</i>	PRC (RC)	Common at a variety of freshwater and brackish wetlands across Hong Kong throughout the year; both migratory and resident populations occur.
Eastern Cattle Egret	<i>Bubulcus ibis</i>	(LC)	Present all year in vegetated fresh and brackish water wetland areas; highest numbers in the wet season, after breeding and during autumn migration.
Grey Heron	<i>Ardea cinerea</i>	PRC	Abundant winter visitor; scarce in summer. Has bred. Frequents wetlands throughout HK but concentrated in Deep Bay area.
Purple Heron	<i>Ardea purpurea</i>	RC	Present all year in vegetated wetlands almost exclusively in the Deep Bay area. Most numerous during autumn passage. Peak counts have decreased since the early 1980s.
Great Egret	<i>Ardea alba</i>	PRC (RC)	Present all year in larger and more open brackish and freshwater wetlands. Most numerous in late autumn and least in April. Migrants pass through mainly in autumn, and a large breeding population has established in Deep Bay in recent years.
Intermediate Egret	<i>Ardea intermedia</i>	RC	Common on passage but scarce at other times of year mainly in freshwater wetland areas. Appears to have increased in numbers over past 60 years.
Little Egret	<i>Egretta garzetta</i>	PRC (RC)	Present all year in a wide variety of fresh and non-freshwater wetland habitats. An influx of birds occurs in the winter months.
Black-winged Kite	<i>Elanus caeruleus</i>	LC; CSMPS(II); CITES(II); Cap.586	Common passage migrant in autumn, scarce at other times; occurs in open country habitats mainly in the northwest New Territories.
Crester Goshawk	<i>Accipiter trivirgatus</i>	CITES(II); CSMPS(II); Cap.586	Common resident in forest areas, but also hunts in open country.
Besra	<i>Accipiter virgatus</i>	CSMPS(II); CITES(II); Cap.586	Present all year. Numbers highest in autumn when passage migrants occur in diverse wooded areas and lowest in summer when it breeds in closed-canopy shrubland.

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Eastern Marsh Harrier	<i>Circus spilonotus</i>	LC; CSMPS(II); CITES(II); Cap.586	Common winter visitor and passage migrant, most numerous in autumn. Mainly occurs in Deep Bay area wetlands.
Black Kite	<i>Milvus migrans</i>	(RC); CSMPS(II); CITES(II); Cap.586	Present all year throughout Hong Kong, numbers lowest in summer and highest during autumn migration.
Eastern Buzzard	<i>Buteo japonicus</i>	CSMPS(II); CITES(II); Cap.586	Common autumn passage migrant and winter visitor, scarce in spring. Occurs in widespread areas of Hong Kong in most non-urban habitats.
White-throated Kingfisher	<i>Halcyon smyrnensis</i>	(LC); CSMPS(II)	Present all year with numbers highest in the second half. Much declined, particularly in the breeding season. Occurs mainly in Deep Bay wetlands in the winter, but in mixed shrubland and farmland habitats in the breeding season.
Common Kingfisher	<i>Alcedo atthis</i>	-	Common in autumn and winter, scarce in spring and summer; frequents a wide variety of lowland, largely freshwater wetlands, though also forages at the coast. The migrant population is probably much declined.
Pied Kingfisher	<i>Ceryle rudis</i>	(LC)	Locally uncommon resident, mainly in freshwater and brackish wetland. In decline.
Common Kestrel	<i>Falco tinnunculus</i>	CSMPS(II); CITES(II); Cap.586	Common passage migrant in autumn, uncommon winter visitor, scarce passage migrant in spring and very rare in summer; occurs in open country areas.
Long-tailed Shrike	<i>Lanius schach</i>	-	Occurs year-round in open broadleaf woodland or forest-edge areas, most abundant during autumn passage.
Hair-crested Drongo	<i>Dicrurus hottentottus</i>	-	Common summer visitor, larger numbers on passage especially autumn, and regular in winter in low numbers. Occurs in open country areas with scattered trees or artificial perches.
Black Drongo	<i>Dicrurus macrocercus</i>	-	Common breeding resident in open-canopy shrubland and open-country with sufficient perches and nest sites.
Red-billed Blue Magpie	<i>Urocissa erythroryncha</i>	-	Common resident, particularly in shrubland, forest edge, large parks and the urban fringe.
Collared Crow	<i>Corvus torquatus</i>	LC; IUCN(VU)	Locally common resident.
Large-billed Crow	<i>Corvus macrorhynchos</i>	-	Largely resident, occurs throughout Hong Kong.
Japanese Tit	<i>Parus minor</i>	-	Abundant resident in diverse wooded and lightly-wooded habitats.
Chinese Bulbul	<i>Pycnonotus sinensis</i>	-	Abundant resident in nearly all habitats; Hong Kong's most widespread bird. Also occurs as a passage migrant and winter visitor.
Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	-	Abundant or common resident in nearly all habitats; Hong Kong's second most widespread bird.
Barn Swallow	<i>Hirundo rustica</i>	-	Widespread and common.
Yellow-browed Warbler	<i>Phylloscopus inornatus</i>	-	Common and widespread winter visitor and passage migrant.
Dusky Warbler	<i>Phylloscopus fuscatus</i>	-	Common passage migrant and winter visitor to open country areas with shrubs.

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Oriental Reed Warbler	<i>Acrocephalus orientalis</i>	-	Passage migrant, common in autumn, uncommon in spring, and scarce to rare in winter and summer. Mainly occurs in reed marsh and tall grass associated with wetlands.
Yellow-bellied Prinia	<i>Prinia flaviventris</i>	-	Common resident in grassland, reed marsh and rank or herbaceous vegetation, and thus highest densities occur in the northwest New Territories.
Plain Prinia	<i>Prinia inornate</i>	-	Locally common resident in grassy habitat mainly in the northwest New Territories.
Common Tailorbird	<i>Orthotomus sutorius</i>	-	Common widespread resident in diverse habitats of forest, shrubby grassland and landscaped urban areas.
Swinhoe's White-eye	<i>Zosterops simplex</i>	-	Widespread abundant resident.
Masked Laughingthrush	<i>Pterorhinus perspicillatus</i>	-	A common resident of anthropogenic and disturbed habitats throughout Hong Kong.
Crested Myna	<i>Acridotheres cristatellus</i>	-	Abundant and widespread resident in diverse lowland habitats.
Common Myna	<i>Acridotheres tristis</i>	-	Locally common resident population considered to derive from ex-captive birds.
Black-collared Starling	<i>Gracupica nigricollis</i>	-	Common, widespread resident of lowland open-country, village and urban habitats.
Chinese Blackbird	<i>Turdus mandarinus</i>	-	Common migrant and winter visitor, scarce but increasing breeding species in northwest New Territories.
Grey-backed Thrush	<i>Turdus hortulorum</i>	-	Common winter visitor and uncommon passage migrant to diverse wooded areas.
Oriental Magpie Robin	<i>Copsychus saularis</i>	-	Abundant, widespread resident over a wide range of habitats.
Siberian Rubythroat	<i>Calliope calliope</i>	CSMPS(II)	Common winter visitor and passage migrant to open- and closed-canopy shrubland, reed marsh, mangrove edge and open country areas with shrubs.
Red-throated Flycatcher	<i>Ficedula albicilla</i>	-	Common passage migrant and winter visitor to open country or lightly-wooded habitats.
Daurian Redstart	<i>Phoenicurus auroreus</i>	-	Common winter visitor to lightly wooded areas.
Amur Stonechat	<i>Saxicola stejnegeri</i>	-	Common passage migrant and winter visitor to open country areas.
Fork-tailed Sunbird	<i>Aethopyga christinae</i>	-	Abundant resident species in diverse wooded habitats.
Scaly-breasted Munia	<i>Lonchura punctulate</i>	-	Locally common resident in open country grassland, farmland, wetland and waste ground. Largely restricted to the lowland northern New Territories.
Eastern Yellow Wagtail	<i>Motacilla tschutschensis</i>	-	Common passage migrant and winter visitor.
White Wagtail	<i>Motacilla alba</i>	-	Common passage migrant and winter visitor

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Olive-backed Pipit	<i>Anthus hodgsoni</i>	-	Common winter visitor and passage migrant to wooded, semi-wooded and open-country habitats with wooded areas nearby.
Little Bunting	<i>Emberiza pusilla</i>	-	Uncommon from November to April with weak passage in autumn and spring.
No. of species of conservation importance			28
No. of species of conservation importance and/or wetland-dependent			36
Total no. of species recorded			75

Notes:

1. Conservation and protection status refers to Fellowes *et al.* (2002), IUCN (2024), Red List of China's Vertebrates (RLCV) (Jiang *et al.*, 2016), CSIS (2019), CITES (2024), Cap. 170 and Cap. 586.
 - a. Conservation status by 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.
 - b. Conservation status by IUCN (2024): VU = Vulnerable.
 - c. Protection status by CITES (2024): II = Listed in Appendix II of CITES.
 - d. Protection status by CSMPs (CSIS, 2019): II = Class II Protected Species in China.
 - e. Cap. 586 = Protection of Endangered Species of Animals and Plants Ordinance.
2. Status in Hong Kong follows the data of the latest version of The Avifauna of Hong Kong (HKBWS, 2024).
3. Species considered as of wetland-dependent in this study are indicated in bold type.

Table A5 Amphibian Species Recorded within Survey Area (excluding WRA)

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Asian Common Toad	<i>Duttaphrynus melanostictus</i>	-	Widely distributed in Hong Kong.
Asiatic Painted Frog	<i>Kaloula pulchra</i>	-	Widely distributed in Hong Kong.
Brown Tree Frog	<i>Polypedates megacephalus</i>	-	Widely distributed throughout Hong Kong.
No. of species of conservation importance			0
Total no. of species recorded			3

Notes:

- Conservation and protection status refers to Fellowes *et al.* (2002), IUCN (2024), Red List of China's Vertebrates (RLCV) (Jiang *et al.*, 2016), CSIS (2019), CITES (2024), Cap. 170 and Cap. 586.
- Status in Hong Kong follows the data of HKBIH (AFCD, 2024).

Table A6 Amphibian Species Recorded within WRA

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Asian Common Toad	<i>Duttaphrynus melanostictus</i>	-	Widely distributed in Hong Kong.
Asiatic Painted Frog	<i>Kaloula pulchra</i>	-	Widely distributed in Hong Kong.
Ornate Pigmy Frog	<i>Microhyla fissipes</i>	-	Widely distributed in Hong Kong.
Paddy Frog	<i>Fejervarya multistriata</i>	-	Widely distributed throughout Hong Kong.
Chinese Bullfrog	<i>Hoplobatrachus chinensis</i>	PRC; RLCV (EN); CSMPS (II)	Widely distributed in Hong Kong.
Günther's Frog	<i>Sylvirana guentheri</i>	-	Widely distributed throughout Hong Kong.
Brown Tree Frog	<i>Polypedates megacephalus</i>	-	Widely distributed throughout Hong Kong.
No. of species of conservation importance			1
Total no. of species recorded			7

Notes:

- Conservation and protection status refers to Fellowes *et al.* (2002), IUCN (2024), Red List of China's Vertebrates (RLCV) (Jiang *et al.*, 2016), CSIS (2019), CITES (2024), Cap. 170 and Cap. 586.
 - Conservation status by Fellowes *et al.* (2002): PRC = Potential Regional Concern.
 - Conservation status by Red List of China's Vertebrates (RLCV) (Jiang *et al.*, 2016): EN = Endangered; NT = Near-threatened.
 - Protection status by CSMPS (CSIS, 2019): II = Class II Protected Species in China.
- Status in Hong Kong follows the data of HKBIH (AFCD, 2024).

Table A7 Reptile Species Recorded within Survey Area (excluding WRA)

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Bowring's Gecko	<i>Hemidactylus bowringii</i>	-	Distributed throughout Hong Kong.
Checkered Keelback	<i>Fowlea flavipunctata</i>	-	Widely distributed in streams in the New Territories and Lantau Island.
No. of species of conservation importance			0
Total no. of species recorded			2

Notes:

1. Conservation and protection status refers to Fellowes *et al.* (2002), IUCN (2024), Red List of China's Vertebrates (RLCV) (Jiang *et al.*, 2016), CSIS (2019), CITES (2024), Cap. 170 and Cap. 586.
2. Status in Hong Kong follows the data of HKBIH (AFCD, 2024).

Table A8 Reptile Species Recorded within WRA

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Long-tailed Skink	<i>Eutropis longicaudata</i>	-	Widely distributed throughout Hong Kong.
Four-clawed Gecko	<i>Gehyra mutilata</i>	RLCV (VU)	Widely distributed throughout Hong Kong.
Bowring's Gecko	<i>Hemidactylus bowringii</i>	-	Distributed throughout Hong Kong.
Common Rat Snake	<i>Ptyas mucosus</i>	PRC; RLCV (EN); CITES (II); Cap. 586	Widely distributed throughout Hong Kong.
Many-banded Krait	<i>Bungarus multicinctus</i>	PRC; RLCV (VU); IUCN (VU)	Common and widely distributed in Hong Kong.
Checkered Keelback	<i>Fowlea flavipunctata</i>	-	Widely distributed in streams in the New Territories and Lantau Island.
No. of species of conservation importance			3
Total no. of species recorded			6

Notes:

1. Conservation and protection status refers to Fellowes *et al.* (2002), IUCN (2024), Red List of China's Vertebrates (RLCV) (Jiang *et al.*, 2016), CSIS (2019), CITES (2024), Cap. 170 and Cap. 586.
 - a. Conservation status by Fellowes *et al.* (2002): PRC = Potential Regional Concern.
 - b. Conservation status by IUCN (2024): VU = Vulnerable.
 - c. Conservation status by Red List of China's Vertebrates (RLCV) (Jiang *et al.*, 2016): EN = Endangered; VU = Vulnerable.
 - d. Protection status by CITES (2024): II = Listed in Appendix II of CITES.
 - e. Cap. 586 = Protection of Endangered Species of Animals and Plants Ordinance.
2. Status in Hong Kong follows the data of HKBIH (AFCD, 2024).

Table A9 Odonate Species Recorded within Survey Area (excluding WRA)

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Wandering Midget	<i>Agriocnemis pygmaea</i>	-	Widely distributed in marshes, abandoned paddy fields and weedy pond margins throughout Hong Kong.
Orange-tailed Sprite	<i>Ceriagrion auranticum</i>	-	Widely distributed in weedy ponds, marshes, abandoned fields or grasslands adjacent to waters.
Common Bluetail	<i>Ischnura senegalensis</i>	-	Widely distributed in all wetland habitats except fast flowing rivers throughout Hong Kong.
Common Flangetail	<i>Ictinogomphus pertinax</i>	-	Widely distributed in ponds and still water throughout Hong Kong.
Asian Pintail	<i>Acisoma panorpoides</i>	-	Widely distributed in marshes and weedy ponds throughout Hong Kong.
Asian Amberwing	<i>Brachythemis contaminata</i>	-	Widely distributed in weedy ponds and sluggish streams.
Crimson Darter	<i>Crocothemis servilia</i>	-	Widely distributed in cultivated areas, ponds and marshes throughout the New Territories.
Coastal Glider	<i>Macrodiplax cora</i>	LC	Frequents marshes and ponds with dense vegetation, especially adjacent to coastal areas.
Russet Percher	<i>Neurothemis fulvia</i>	-	Found in marshes, cultivated areas, streams, tanks and irrigation feeders, sometimes even found in nearly dried out marshy areas. Widely distributed throughout Hong Kong.
Pied Percher	<i>Neurothemis tullia</i>	-	Favours marshes and abandoned rice paddies. Widely distributed throughout Hong Kong.
Green Skimmer	<i>Orthetrum sabina</i>	-	Widely distributed in all wetland habitats throughout Hong Kong.
Wandering Glider	<i>Pantala flavescens</i>	-	Widely distributed all over Hong Kong.
Pied Skimmer	<i>Pseudothemis zonata</i>	-	Widely distributed in woodlands adjacent to reservoirs, sluggish streams, ponds, tanks and marshes throughout Hong Kong.
Variiegated Flutterer	<i>Rhyothemis variegata</i>	-	Widely distributed in marshes, ponds and tanks throughout Hong Kong.
No. of species of conservation importance			1
Total no. of species recorded			14

Notes:

- Conservation and protection status refers to Fellowes *et al.* (2002), IUCN (2024), Red List of China's Vertebrates (RLCV) (Jiang *et al.*, 2016), CSIS (2019), CITES (2024), Cap. 170 and Cap. 586.
 - Conservation status by Fellowes *et al.* (2002): LC = Local Concern.
- Status in Hong Kong follows the data of HKBIH (AFCD, 2024).

Table A10 Odonate Species Recorded within WRA

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Orange-tailed Midget	<i>Agriocnemis femina</i>	-	Widely distributed in disused paddy fields, marshes, ditches and weedy ponds margins.
Wandering Midget	<i>Agriocnemis pygmaea</i>	-	Widely distributed in marshes, abandoned paddy fields and weedy pond margins throughout Hong Kong.
Orange-tailed Sprite	<i>Ceriagrion auranticum</i>	-	Widely distributed in weedy ponds, marshes, abandoned fields or grasslands adjacent to waters.
Common Bluetail	<i>Ischnura senegalensis</i>	-	Widely distributed in all wetland habitats except fast flowing rivers throughout Hong Kong.
Blue Sprite	<i>Pseudagrion microcephalum</i>	LC	Found in lowland streams and ponds; often perches on aquatic plants just above the water surface. Population scattered all over Hong Kong and established in Hong Kong Wetland Park.
Orange-faced Sprite	<i>Pseudagrion rubriceps</i>	-	Widely distributed in ponds and weedy margins of slow flowing streams.
Yellow Featherlegs	<i>Copera marginipes</i>	-	Widely distributed in lowland streams, ditches, and weedy margins of pond throughout Hong Kong.
Pale-spotted Emperor	<i>Anax guttatus</i>	-	Widely distributed in ponds and sluggish streams throughout Hong Kong.

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Common Flangetail	<i>Ictinogomphus pertinax</i>	-	Widely distributed in ponds and still water throughout Hong Kong.
Asian Pintail	<i>Acisoma panorpoides</i>	-	Widely distributed in marshes and weedy ponds throughout Hong Kong.
Blue Dasher	<i>Brachydiplax chalybea</i>	-	Widely distributed in marshes and weedy ponds throughout Hong Kong.
Asian Amberwing	<i>Brachythemis contaminata</i>	-	Widely distributed in weedy ponds and sluggish streams.
Crimson Darter	<i>Crocothemis servilia</i>	-	Widely distributed in cultivated areas, ponds and marshes throughout the New Territories.
Blue Percher	<i>Diplacodes trivialis</i>	-	Widespread, especially in late summer, when it can be found almost everywhere in Hong Kong.
Forest Chaser	<i>Lyriothemis elegantissima</i>	-	Frequents marshes beside woodlands. Widespread throughout Hong Kong.
Russet Percher	<i>Neurothemis fulvia</i>	-	Found in marshes, cultivated areas, streams, tanks and irrigation feeders, sometimes even found in nearly dried out marshy areas. Widely distributed throughout Hong Kong.
Pied Percher	<i>Neurothemis tullia</i>	-	Favours marshes and abandoned rice paddies. Widely distributed throughout Hong Kong.
Red-faced Skimmer	<i>Orthetrum chrysis</i>	-	Widely distributed in pools and marshy areas adjacent to flowing streams throughout Hong Kong.
Green Skimmer	<i>Orthetrum sabina</i>	-	Widely distributed in all wetland habitats throughout Hong Kong.
Wandering Glider	<i>Pantala flavescens</i>	-	Widely distributed all over Hong Kong.
Pied Skimmer	<i>Pseudothemis zonata</i>	-	Widely distributed in woodlands adjacent to reservoirs, sluggish streams, ponds, tanks and marshes throughout Hong Kong.
Ruby Darter	<i>Rhodothemis rufa</i>	LC	Widely distributed in ponds and marshes with dense floating plants.
Variiegated Flutterer	<i>Rhyothemis variegata</i>	-	Widely distributed in marshes, ponds and tanks throughout Hong Kong.
Evening Skimmer	<i>Tholymis tillarga</i>	-	Widely distributed in marshes, weedy ponds and tanks throughout Hong Kong.
Saddlebag Glider	<i>Tramea virginia</i>	-	Widely distributed in trees adjacent to ponds and lakes throughout Hong Kong.
Scarlet Basker	<i>Urothemis signata</i>	LC	Common in areas with abandoned fishponds throughout Hong Kong.
No. of species of conservation importance			3
Total no. of species recorded			26

Notes:

- Conservation and protection status refers to Fellowes *et al.* (2002), IUCN (2024), Red List of China's Vertebrates (RLCV) (Jiang *et al.*, 2016), CSIS (2019), CITES (2024), Cap. 170 and Cap. 586.
 - Conservation status by Fellowes *et al.* (2002): LC = Local Concern.
- Status in Hong Kong follows the data of HKBIH (AFCD, 2024).

Table A11 Butterfly Species Recorded within Survey Area (excluding WRA)

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Common Straight Swift	<i>Pamara guttata</i>	-	Common
Pale Grass Blue	<i>Zizeeria maha</i>	-	Very Common
Common Hedge Blue	<i>Acytolepis puspa</i>	-	Common
Common Evening Brown	<i>Melanitis leda</i>	-	Uncommon
Dark-brand Bush Brown	<i>Mycalesis mineus</i>	-	Very Common
Common Palmfly	<i>Elymnias hypermnestra</i>	-	Common
Blue-spotted Crow	<i>Euploea midamus</i>	-	Very Common
Rustic	<i>Cupha erymanthis</i>	-	Very Common
Great Egg-fly	<i>Hypolimnias bolina</i>	-	Very Common
Common Sailer	<i>Neptis hylas</i>	-	Very Common
Common Mormon	<i>Papilio polytes</i>	-	Very Common
Spangle	<i>Papilio protenor</i>	-	Very Common
Lime Butterfly	<i>Papilio demoleus</i>	-	Uncommon
Tailed Jay	<i>Graphium agamemnon</i>	-	Common
Lemon Emigrant	<i>Catopsilia pomona</i>	-	Very Common
Common Grass Yellow	<i>Eurema hecabe</i>	-	Very Common
Red-base Jezebel	<i>Delias pasithoe</i>	-	Very Common
No. of species of conservation importance			0
Total no. of species recorded			18

Notes:

1. Conservation and protection status refers to Fellowes *et al.* (2002), IUCN (2024), Red List of China's Vertebrates (RLCV) (Jiang *et al.*, 2016), CSIS (2019), CITES (2024), Cap. 170 and Cap. 586.
2. Status in Hong Kong follows Pun (2024).

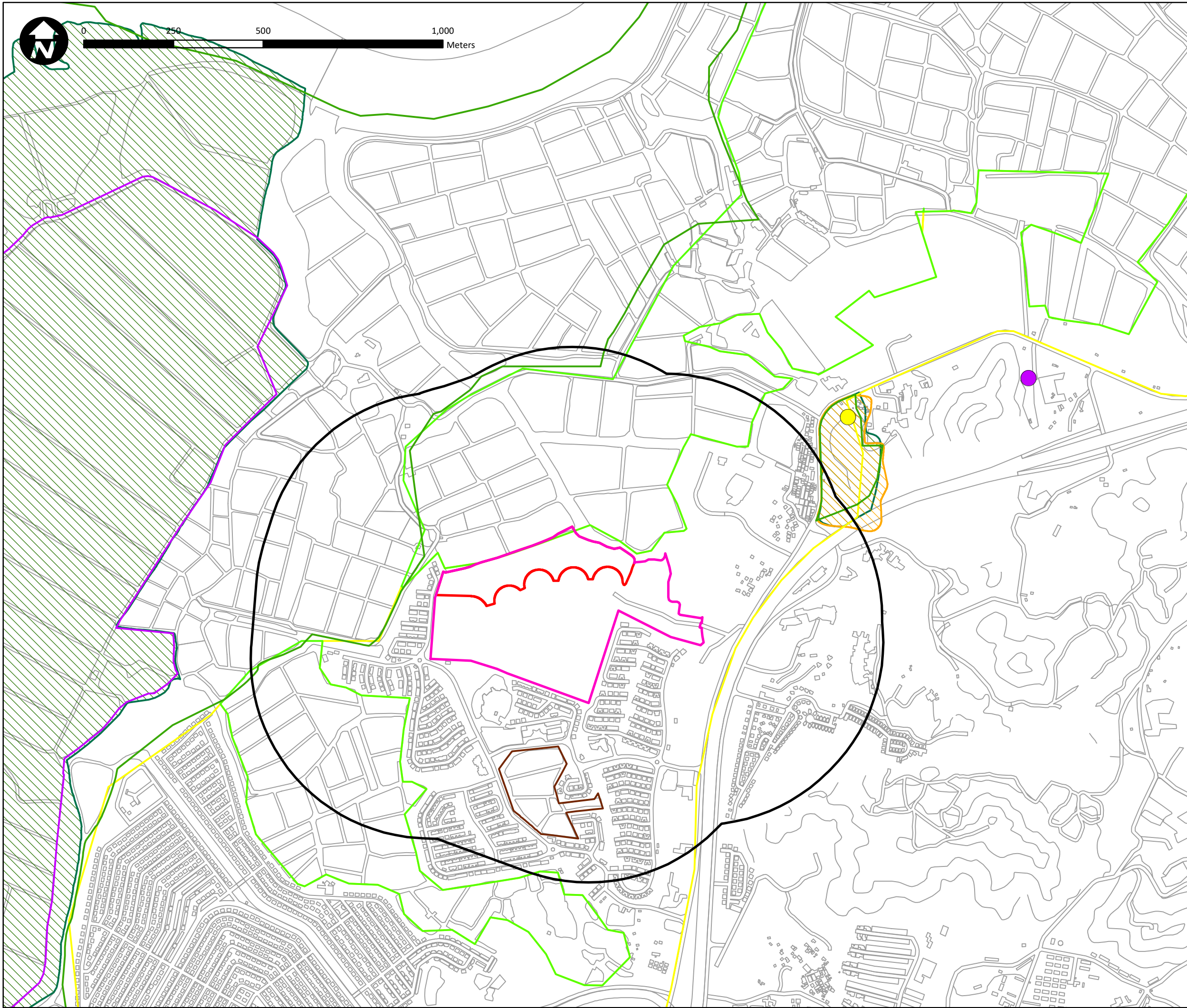
Table A12 Butterfly Species Recorded within WRA

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Common Awl	<i>Hasora badra</i>	LC	Rare
Chinese Dart	<i>Potanthus confucius</i>	-	Common
Common Straight Swift	<i>Pamara guttata</i>	-	Common
Rare Swift	<i>Pamara ganga</i>	-	Uncommon
Paintbrush Swift	<i>Baoris farri</i>	-	Rare
Silver Streak Blue	<i>Iraota timoleon</i>	-	Uncommon
Tailless Line Blue	<i>Prosotas dubiosa</i>	-	Uncommon
Pale Grass Blue	<i>Zizeeria maha</i>	-	Very Common

Common Name	Scientific Name	Conservation & Protection Status ¹	Status in Hong Kong ²
Lesser Grass Blue	<i>Zizina otis</i>	-	Common
Common Hedge Blue	<i>Acytolepis puspa</i>	-	Common
Common Evening Brown	<i>Melanitis leda</i>	-	Uncommon
Dark Evening Brown	<i>Melanitis phedima</i>	-	Common
Dark-brand Bush Brown	<i>Mycalesis mineus</i>	-	Very Common
Common Palmfly	<i>Elymnias hypermnestra</i>	-	Common
Plain Tiger	<i>Danaus chrysippus</i>	-	Uncommon
Blue-spotted Crow	<i>Euploea midamus</i>	-	Very Common
Great Egg-fly	<i>Hypolimnas bolina</i>	-	Very Common
Common Mapwing	<i>Cyrestis thyodamas</i>	-	Common
Angled Castor	<i>Ariadne ariadne</i>	-	Common
Common Archduke	<i>Lexias pardalis</i>	-	Uncommon
Common Sailer	<i>Neptis hylas</i>	-	Very Common
Common Mormon	<i>Papilio polytes</i>	-	Very Common
Paris Peacock	<i>Papilio paris</i>	-	Very Common
Common Bluebottle	<i>Graphium sarpedon</i>	-	Very Common
Tailed Jay	<i>Graphium agamemnon</i>	-	Common
Lemon Emigrant	<i>Catopsilia pomona</i>	-	Very Common
Common Grass Yellow	<i>Eurema hecabe</i>	-	Very Common
Three-spot Grass Yellow	<i>Eurema blanda</i>	-	Common
Red-base Jezebel	<i>Delias pasithoe</i>	-	Very Common
No. of species of conservation importance		1	
Total no. of species recorded		31	

Notes:

1. Conservation and protection status refers to Fellowes *et al.* (2002), IUCN (2024), Red List of China's Vertebrates (RLCV) (Jiang *et al.*, 2016), CSIS (2019), CITES (2024), Cap. 170 and Cap. 586.
 - a. Conservation status by Fellowes *et al.* (2002): LC = Local Concern.
2. Status in Hong Kong follows Pun (2024).



- Wetland Restoration Area
- Application Site
- 500m Assessment Area
- Mai Po/Inner Deep Bay Ramsar Site
- Wetland Conservation Area (WCA)
- Wetland Buffer Area (WBA)
- Mai Po Nature Reserve
- Conservation Area
- Sites of Special Scientific Interest (SSSI)**
- Mai Po Village
- Mai Po Marshes SSSI
- Egrettries**
- Mai Po Lung Egretty
- Mai Po Village Egretty

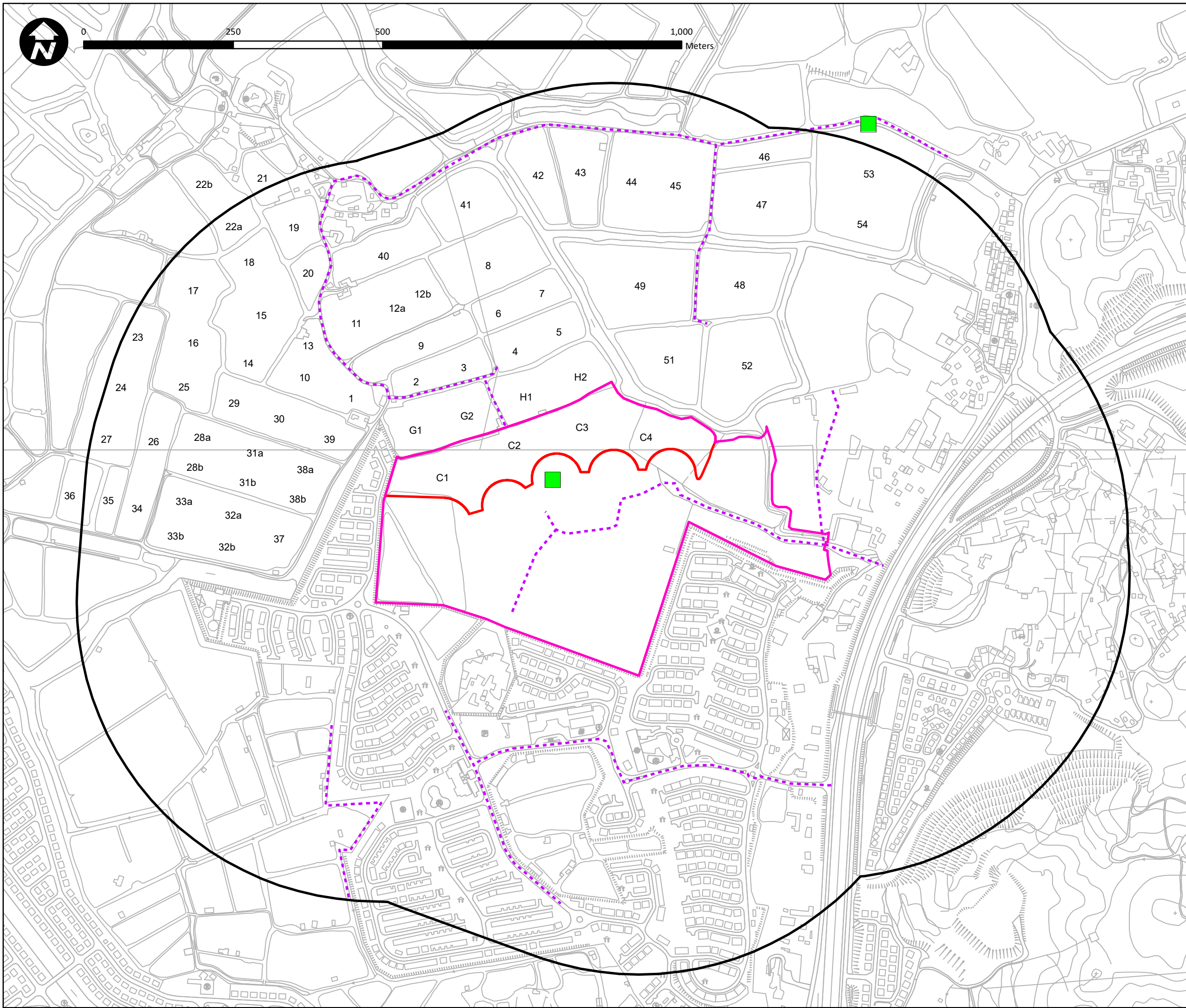
Notes.
 Pond number follows the figure in EM&A Reports.
 C1 to C4 represents Cell 1 to Cell 4 of WRA



Project Title:
 To Amend the Notes of the
 "Comprehensive Development to include
 Wetland Restoration Area" Zone for a
 Proposed Comprehensive Development
 at Wo Shang Wai, Yuen Long, Lots 77 and 50 S.A in DD101

Figure Title:
 Site of Conservation Importance

Drawn by:	PC	Scale:	1:10,000 on A3
Checked By:	MM	Date:	23 Jan 2025
Approved by:	MM		
Figure Number:	Figure 1	Revision:	0



- Wetland Restoration Area
- Application Site
- 500m Assessment Area
- - - Survey Transect
- Observation Point

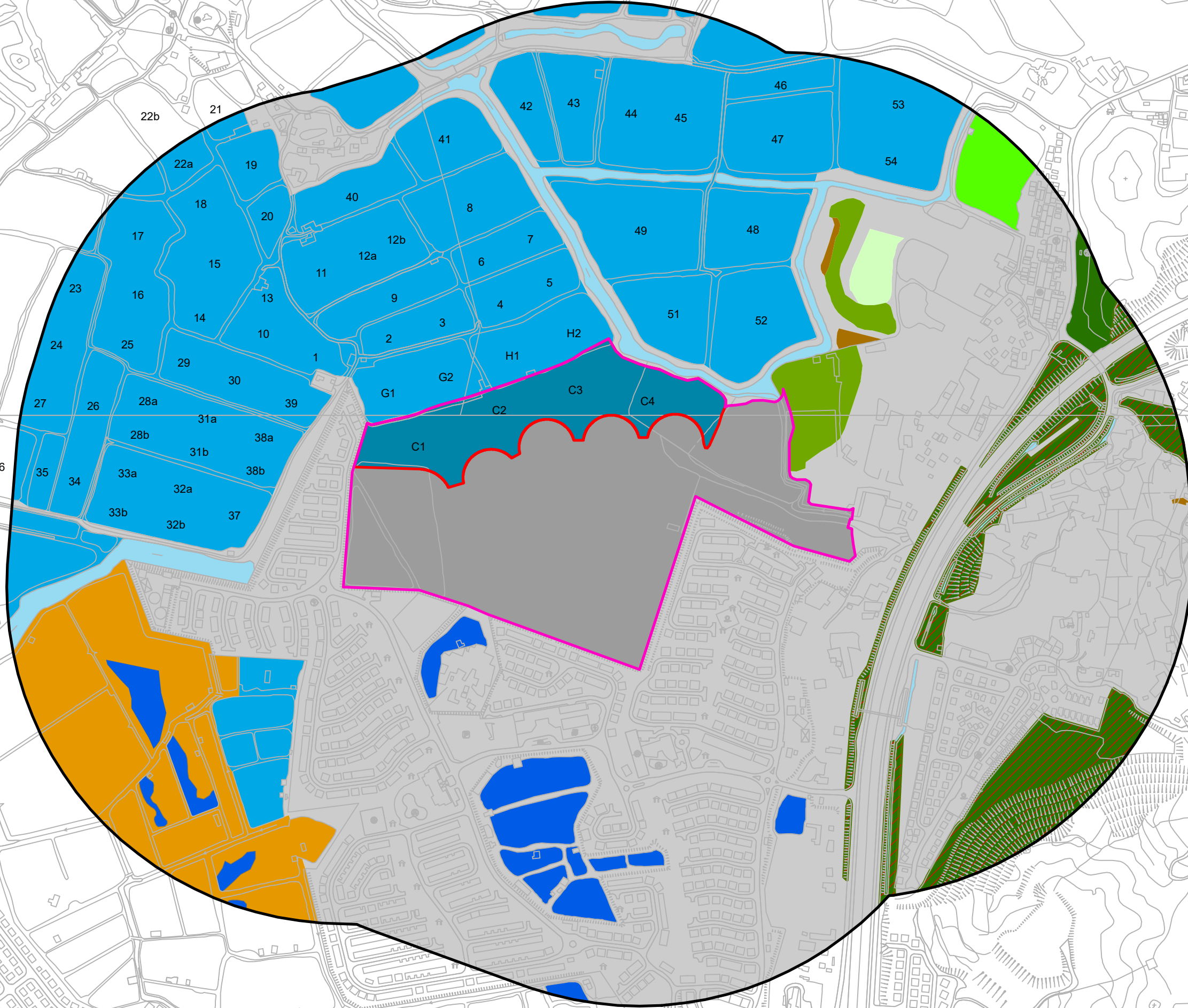
Notes.
 Pond number follows the figure in EM&A Reports.
 C1 to C4 represents Cell 1 to Cell 4 of WRA



Project Title:
 To Amend the Notes of the
 "Comprehensive Development to include
 Wetland Restoration Area" Zone for a
 Proposed Comprehensive Development
 at Wo Shang Wai, Yuen Long, Lots 77 and 50 S.A in DD101

Figure Title:
 Survey Transect and Vantage Point

Drawn by: PC	Scale: 1:6,000 on A3
Checked By: MM	Date: 23 Jan 2025
Approved by: MM	
Figure Number: Figure 2	Revision: 0



- Application Site
- Wetland Restoration Area
- 500m Assessment Area
- Habitat**
- Mitigation Wetland
- Development Site
- Fishpond
- Pond/Open Water
- Marsh
- Drainage Channel / Ditch
- Reedbed
- Agricultural Land
- Managed Grassland
- *Leucaena* Woodland
- Woodland
- ▨ Plantation
- Developed Area

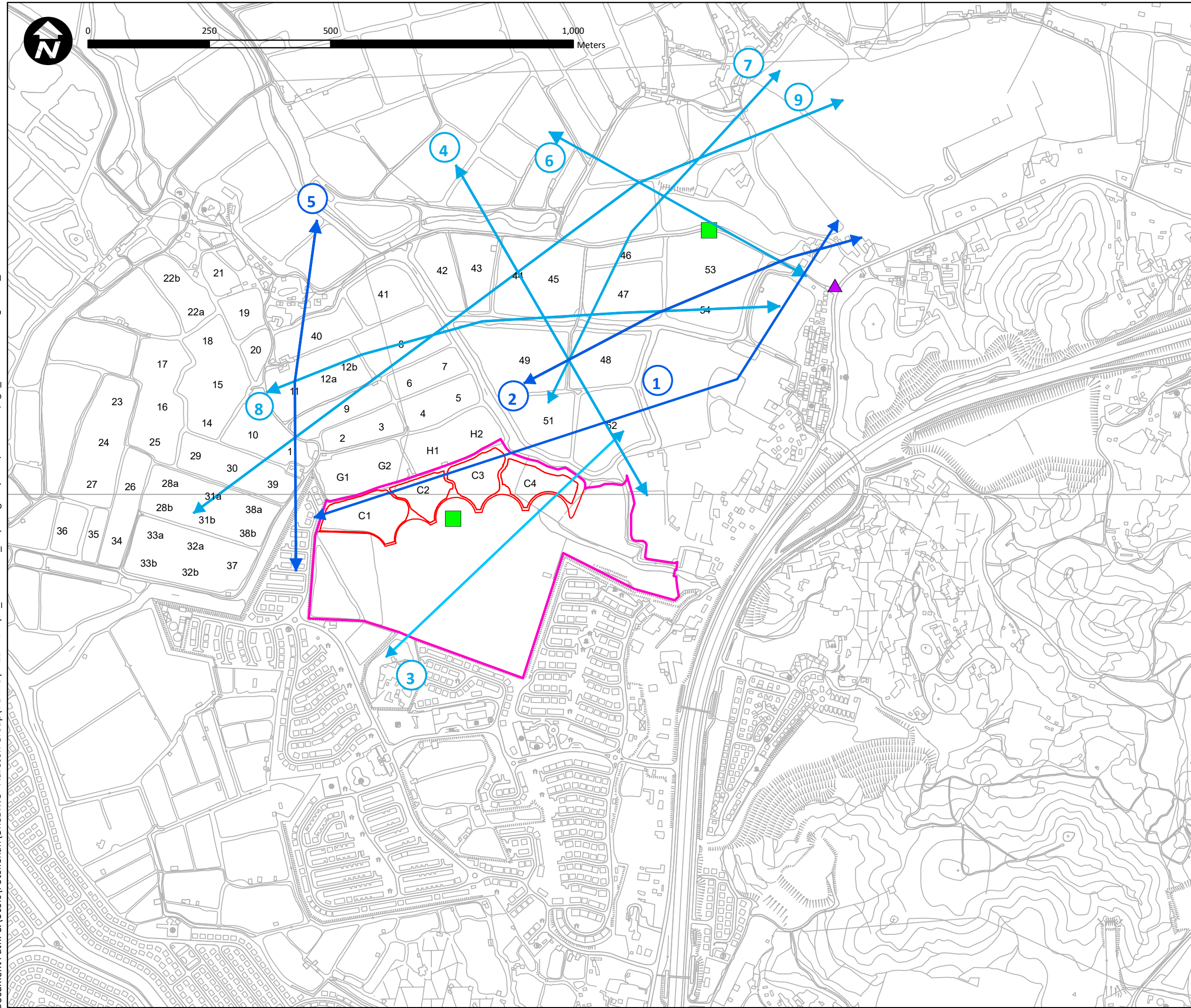
Notes.
Pond number follows the figure in EM&A Reports.
C1 to C4 represents Cell 1 to Cell 4 of WRA



Project Title:
To Amend the Notes of the
"Comprehensive Development to include
Wetland Restoration Area" Zone for a
Proposed Comprehensive Development
at Wo Shang Wai, Yuen Long, Lots 77 and 50 S.A in DD101

Figure Title:
Habitat Map

Drawn by:	PC	Scale:	1:6,000 on A3
Checked By:	MM	Date:	23 Jan 2025
Approved by:	MM		
Figure Number:	Figure 3	Revision:	0



- Project Area
- Wetland Restoration Area
- ▲ Egretry Location
- Observation Point
- ↔ Major Flightline
- ↔ Minor Flightline

Notes.
Pond number follows the figure in EM&A Reports.
C1 to C4 represents Cell 1 to Cell 4 of WRA



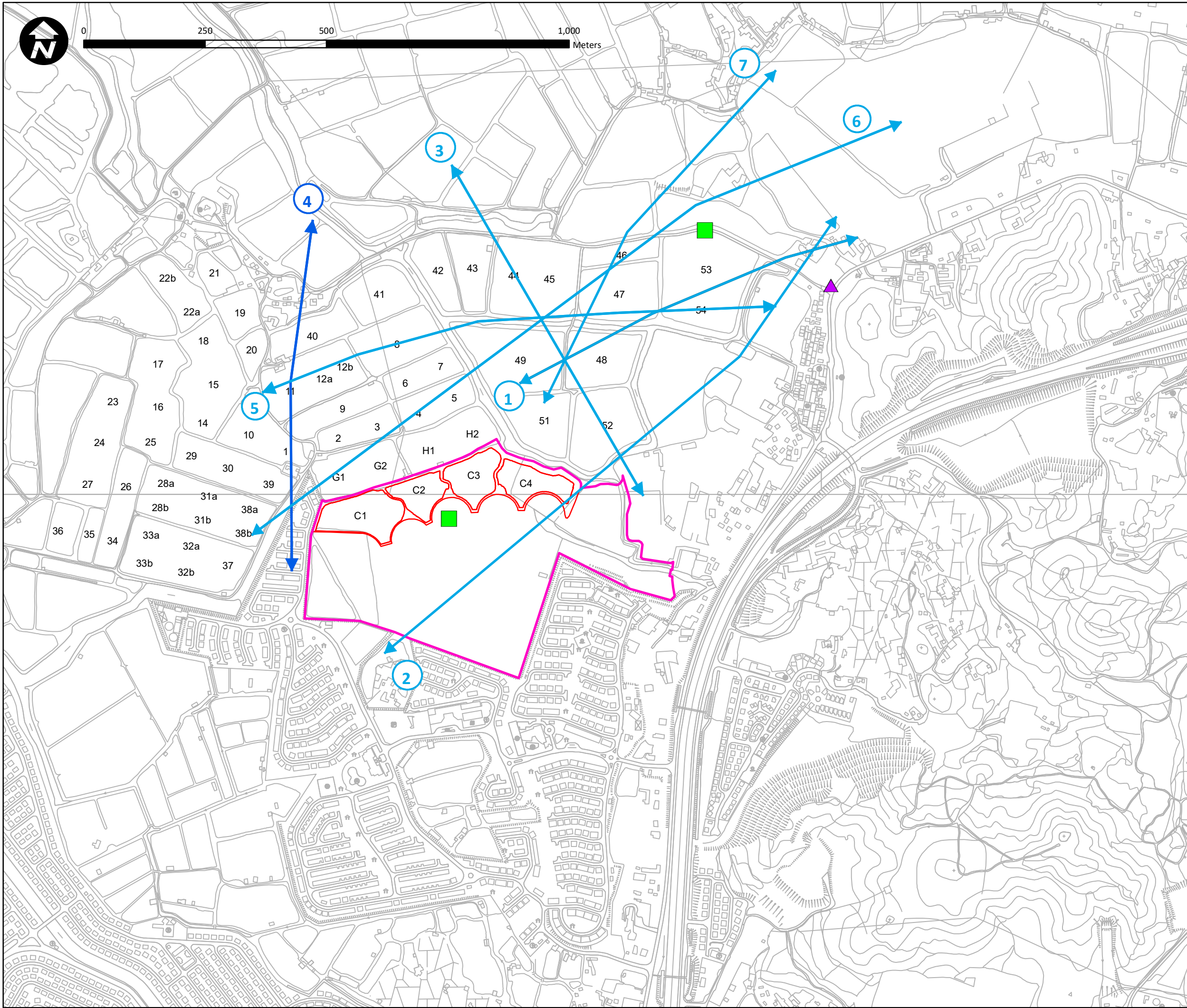
Project Title:

To Amend the Notes of the
"Comprehensive Development to include
Wetland Restoration Area" Zone for a
Proposed Comprehensive Development
at Wo Shang Wai, Yuen Long, Lots 77 and 50 S.A in DD101

Figure Title:

Flightline in Wet Season (2024)

Drawn by:	NT	Scale:	1:7,400 on A3
Checked By:	MM	Date:	23 Jan 2025
Approved by:	PJL		
Figure Number:	Figure 4	Revision:	0



- Project Area
- Wetland Restoration Area
- ▲ Egret Location
- Observation Point
- ↔ Major Flightline
- ↔ Minor Flightline

Notes.
Pond number follows the figure in EM&A Reports.
C1 to C4 represents Cell 1 to Cell 4 of WRA



Project Title:

To Amend the Notes of the
"Comprehensive Development to include
Wetland Restoration Area" Zone for a
Proposed Comprehensive Development
at Wo Shang Wai, Yuen Long, Lots 77 and 50 S.A in DD101

Figure Title:

Flightline in Dry Season (2024)

Drawn by:	NT	Scale:	1:7,400 on A3
Checked By:	MM	Date:	23 Jan 2025
Approved by:	PJL		
Figure Number:	Figure 5	Revision:	0