

Notification of Ecological Monitoring of Birds Exceedance

Incident Report on Action/ Limit Level Exceedance

Reference No.:	IR20230116_Species Diversity			
Project:	Contract No. SPW 07/2020 Environmental Team for Construction of Yuen Long Effluent Polishing Plant Stage 1			
Survey Dates:	2023/01/16 (daytime)			
Action level / Limit level: (For Avifauna Communities)	Method	Parameters	Action Level	Limit Level
	Transect	Abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community	Significant decline ^{1,2} in any of these parameters during the current monitoring month relative to the corresponding month during the baseline survey	Significant decline in any of these parameters for three consecutive months
		Species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community		
		Abundance of species with conservation importance only		
		Species diversity of species with conservation importance only		
	Point Count	Abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community		
		Species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community		
		Abundance of species with conservation importance only		
Species diversity of species with conservation importance only				
Measured significant decline in abundance and/or species diversity (fill in as appropriate)	Transect	Abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community	<input type="checkbox"/>	<input type="checkbox"/>
		Species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Abundance of species with conservation importance only	<input type="checkbox"/>	<input type="checkbox"/>
		Species diversity of species with conservation importance only	<input type="checkbox"/>	<input type="checkbox"/>
	Point Count	Abundance of all avifauna species (including but not limited to overwintering waterbirds) in the community	<input type="checkbox"/>	<input type="checkbox"/>
		Species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community	<input checked="" type="checkbox"/>	<input type="checkbox"/>
		Abundance of species with conservation importance only	<input type="checkbox"/>	<input type="checkbox"/>
		Species diversity of species with conservation importance only	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Action taken / to be taken ³ : (tick / circle / fill in as appropriate)	Responses: <input checked="" type="checkbox"/> Informed IEC, ER, and Contractor. <input checked="" type="checkbox"/> Reviewed monitoring data. <input checked="" type="checkbox"/> Investigated possible causes of decline and identified possible source (s) of impact. Recorded in notification. <input checked="" type="checkbox"/> Check plant, equipment, and Contractor's working methods.			

	<input type="checkbox"/> Other
Possible reason/s ⁴ for action or limit level Non-compliance: (tick / fill in as appropriate)	Findings / Evidence <input type="checkbox"/> Construction noise disturbance <input type="checkbox"/> Vibration disturbance from potential percussive piling works <input type="checkbox"/> Construction lighting/glare disturbance <input type="checkbox"/> Increased human activities <input type="checkbox"/> Construction dust disturbance <input checked="" type="checkbox"/> Others: The lower diversity during this period with respect to the baseline data could be due to the current dominance of the Great Cormorants in the community. The current dominance of this species was due to its concurrent migratory season. This dominant species could have decreased the performance of co-occurring species (Gilbert et al. 2009) ⁵ and forced them to utilize other areas outside the survey area, thus, made the area less diverse. Furthermore, low diversity index usually results from high dominance in the community as these are inversely related (Shaukat et al., 1978) ⁶ . Species diversity of species with conservation importance only for point count method has reached the limit level. However, as the exceedances were not project related, not all additional actions need to be taken.
Observations	<input checked="" type="checkbox"/> Noise levels during the daytime survey (47.4 to 61.2 dB(A)) recorded from the different point count locations during the ecological bird monitoring are low. These low noise levels are unlikely to cause significant impact to birds as behavioral response of some kind are more likely to occur at above 65.5 dBA only (Wright et al. 2010) ⁶ . <input checked="" type="checkbox"/> Environmental site audits indicated that the recommended environmental protection measures/mitigation measures to mitigate ecological impacts have been implemented. <input checked="" type="checkbox"/> Significant decrease in species diversity of all avifauna species (including but not limited to overwintering waterbirds) in the community was observed for <u>Transect/Point Count</u> survey. <input checked="" type="checkbox"/> Significant decrease in species diversity of species with conservation importance only was observed for <u>Transect/Point Count</u> survey. <input checked="" type="checkbox"/> Significant increase in species diversity of species with conservation importance only was observed for <u>Transect/Point Count</u> survey.
Conclusion	<input checked="" type="checkbox"/> Due to influences of external factors/ other threats, not Project related <input type="checkbox"/> Due to influences of construction activities under this project in the vicinity, considered to be Project related
Mitigation measures	<input checked="" type="checkbox"/> Avoidance of recognized site of conservation importance <input checked="" type="checkbox"/> Restriction of construction hours <input checked="" type="checkbox"/> Minimizing construction noise disturbance impacts through the use of noise barriers <input checked="" type="checkbox"/> Establishment of bird curtain
Attachment	Annex A – Ecological Monitoring of Birds Transect Routes and Point Count Locations Annex B – Ecological Monitoring of Birds Results the Different Transect Routes and Point Count Locations (January 2023) Annex C – Shannon Diversity Index Values in the Different Transect Routes and Point Count Locations (January 2023) Annex D – Summary of Hutcheson T-test Analyses (January 2023) Annex E – Abundance Data per Point Count Location Annex F – Noise Monitoring Results in Point Count Locations during the Ecological Monitoring of Birds (January 2023) Annex G – Site Photos showing no project-related disturbance during the Ecological Monitoring of Birds (January 2023)
Notes:	
<ol style="list-style-type: none"> 1. Significant decline in abundance determined using two-tailed t-test, $\alpha = 0.05$ 2. Significant decline in species diversity determined using the Hutcheson t-test, two-tailed 3. In accordance with Table 4.2 “Responses to Alert and Action Level for Avifauna Communities” of the Baseline Bird Survey Report 4. With reference to Table 8.34 “Summary of Potential Impacts and Mitigation Measures Requirements of the Construction of the Project” of the approved EIA Report 5. Wright, M.D., Goodman, P. and Cameron, T. 2010. Exploring behavioural responses of shorebirds to impulsive noise. Wildfowl. 60:150-167 	

6. Shaukat, S.S., Khairi, M.A. and Khan, M.A., 1978. The relationship amongst dominance, diversity and community maturity in a desert vegetation. Pakistan Journal of Botany, 10(2), pp.183-196.

7. Gilbert, S.F. and Epel, D., 2009. Ecological developmental biology: integrating epigenetics, medicine, and evolution.

The box is checked to represent the statement is applicable, and vice versa

Abbreviation: ER – Engineer’s Representative, IEC – Independent Checker

Prepared by: Fenelyn Nabuab
Designation: Ecologist



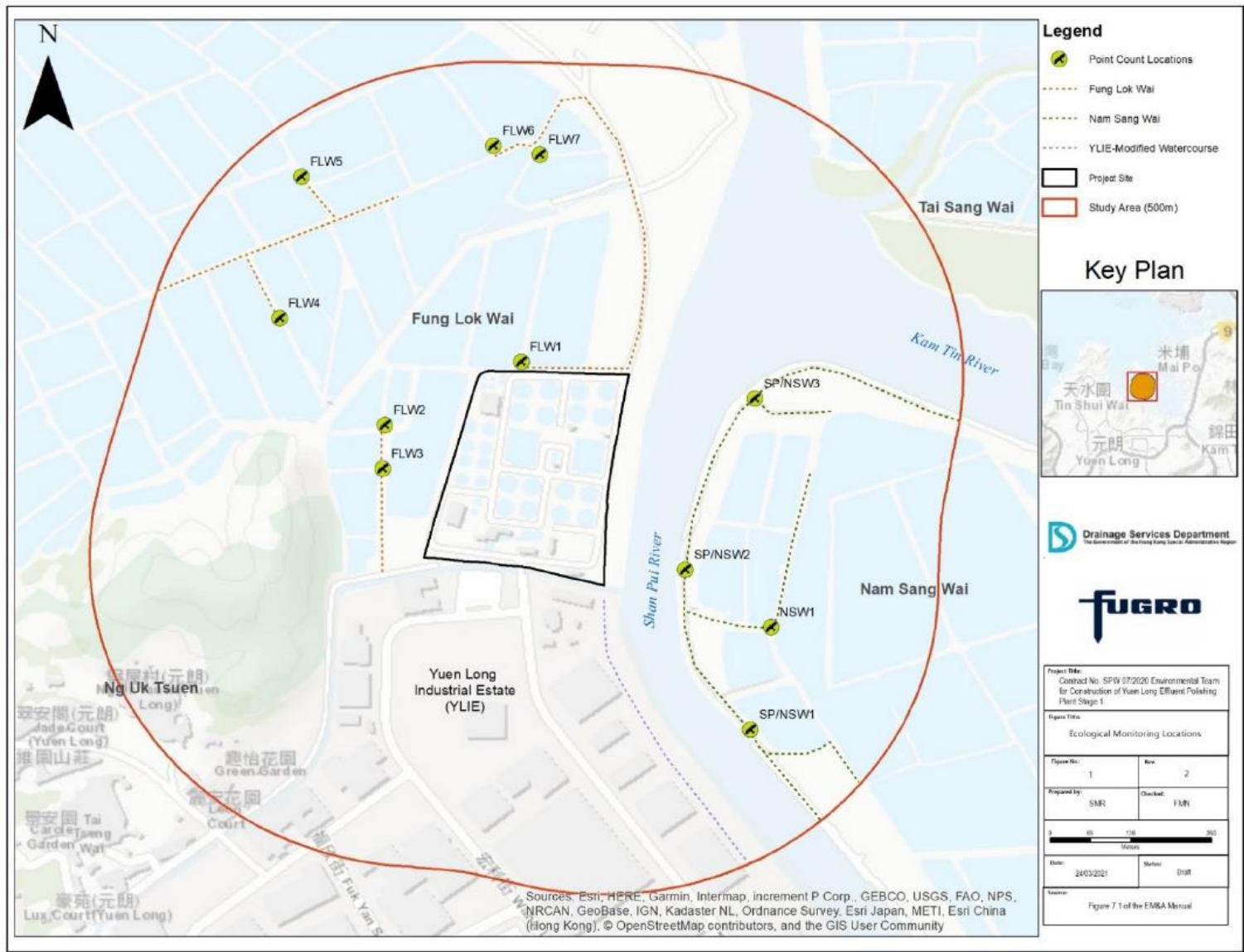
Signature:
Date (dd/mm/yyyy): 30/1/2023

Certified by: Alvin L.B. Yu
Designation: Environmental Team Leader



Signature:
Date (dd/mm/yyyy): 30/1/2023

Annex A – Ecological Monitoring of Birds Transect Routes and Point Count Locations



Annex B – Ecological Monitoring of Birds Results the Different Transect Routes and Point Count Locations
(January 2023)

Date (dd/mm/yyyy)	Daytime/ Night time	Season	Area	Transect/ Point Count	Point Count (Location)/ Transect Impact	Habitat	Common Name	Scientific Name	Abundance	Distribution in Hong Kong ²	Principal Status ³	Level of Concern ⁴	Protection Status in China ⁵	China Red Data Book ⁶	Red List of China's Vertebrates ¹⁰	IUCN Red List ⁷ (v.2020 -3)	Species of Conservation Importance	Wetland Dependent
16/01/2023	Daytime	Dry Season	FLW	Transect	FLW	In flight	Azure-winged Magpie	<i>Cyanopica cyanus</i>	3	Introduced	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	FLW	Transect	FLW	Pond-FLW	Black-collared Starling	<i>Gracupica nigricollis</i>	3	Common	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	FLW	Transect	FLW	Pond-FLW	Chinese Pond Heron	<i>Ardeola bacchus</i>	3	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Transect	FLW	Pond-FLW	Crested Myna	<i>Acridotheres cristatellus</i>	50	Common	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	FLW	Transect	FLW	Pond-FLW	Great Cormorant	<i>Phalacrocorax carbo</i>	3	Common	WV	PRC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Transect	FLW	Pond-FLW	Great Egret	<i>Ardea alba</i>	1	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Transect	FLW	Pond-FLW	Grey Heron	<i>Ardea cinerea</i>	1	Common	WV	PRC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Transect	FLW	Pond-FLW	House Swift	<i>Apus nipalensis</i>	3	Abundant, Common	SpM,R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	FLW	Transect	FLW	Pond-FLW	Oriental Magpie Robin	<i>Copsychus saularis</i>	2	Abundant	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	FLW	Transect	FLW	Pond-FLW	Spotted Dove	<i>Spilopelia chinensis</i>	3	Abundant	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	FLW	Transect	FLW	Pond-FLW	White Wagtail	<i>Motacilla alba</i>	1	Common	PM,WV	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	FLW	Transect	FLW	Pond-FLW	Yellow-bellied Prinia	<i>Prinia flaviventris</i>	1	Common	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW1	Pond-FLW	Chinese Bulbul	<i>Pycnonotus sinensis</i>	2	Abundant	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW1	Pond-FLW	Crested Myna	<i>Acridotheres cristatellus</i>	3	Common	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW1	Pond-FLW	Plain Prinia	<i>Prinia inornata</i>	1	Common	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW1	Pond-FLW	Spotted Dove	<i>Spilopelia chinensis</i>	1	Abundant	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW2	Pond-FLW	Crested Myna	<i>Acridotheres cristatellus</i>	2	Common	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW2	Pond-FLW	Spotted Dove	<i>Spilopelia chinensis</i>	1	Abundant	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW2	Pond-FLW	White Wagtail	<i>Motacilla alba</i>	1	Common	PM,WV	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW2	Pond-FLW	Yellow-bellied Prinia	<i>Prinia flaviventris</i>	1	Common	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW3	Pond-FLW	Black Kite	<i>Milvus migrans</i>	2	Common	R,WV	(RC)	Class II	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW3	Pond-FLW	Chinese Bulbul	<i>Pycnonotus sinensis</i>	4	Abundant	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW4	In flight	Great Cormorant	<i>Phalacrocorax carbo</i>	900	Common	WV	PRC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW4	Pond-FLW	Great Egret	<i>Ardea alba</i>	1	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW4	Pond-FLW	Little Egret	<i>Egretta garzetta</i>	7	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW5	Pond-FLW	Great Cormorant	<i>Phalacrocorax carbo</i>	5	Common	WV	PRC	-	-	LC	LC	Y	Y

Date (dd/mm/yyyy)	Daytime/ Night time	Season	Area	Transect/ Point Count	Point Count (Location)/ Transect Impact	Habitat	Common Name	Scientific Name	Abundance	Distribution in Hong Kong ²	Principal Status ³	Level of Concern ⁴	Protection Status in China ⁵	China Red Data Book ⁶	Red List of China's Vertebrates ¹⁰	IUCN Red List ⁷ (v.2020 -3)	Species of Conservation Importance	Wetland Dependent
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW5	Pond-FLW	Great Egret	<i>Ardea alba</i>	8	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW5	Pond-FLW	Grey Heron	<i>Ardea cinerea</i>	2	Common	WV	PRC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW5	Pond-FLW	House Swift	<i>Apus nipalensis</i>	3	Abundant, Common	SpM,R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW5	Pond-FLW	Little Egret	<i>Egretta garzetta</i>	1	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW5	Pond-FLW	Little Grebe	<i>Tachybaptus ruficollis</i>	1	Common	R	LC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW6	Pond-FLW	Chinese Pond Heron	<i>Ardeola bacchus</i>	1	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW6	Pond-FLW	Great Cormorant	<i>Phalacrocorax carbo</i>	2	Common	WV	PRC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW6	Pond-FLW	Great Egret	<i>Ardea alba</i>	4	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW6	Pond-FLW	Grey Heron	<i>Ardea cinerea</i>	1	Common	WV	PRC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW6	Pond-FLW	House Swift	<i>Apus nipalensis</i>	31	Abundant, Common	SpM,R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW6	Pond-FLW	Little Egret	<i>Egretta garzetta</i>	3	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW6	Pond-FLW	White Wagtail	<i>Motacilla alba</i>	1	Common	PM,WV	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW7	Pond-FLW	Chinese Pond Heron	<i>Ardeola bacchus</i>	2	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW7	Pond-FLW	Great Cormorant	<i>Phalacrocorax carbo</i>	12	Common	WV	PRC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW7	Pond-FLW	Great Egret	<i>Ardea alba</i>	4	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW7	Pond-FLW	Grey Heron	<i>Ardea cinerea</i>	1	Common	WV	PRC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	FLW	Point Count	FLW7	Pond-FLW	Little Egret	<i>Egretta garzetta</i>	3	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Transect	NSW	Pond-FLW	Black-collared Starling	<i>Gracupica nigricollis</i>	1	Common	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	NSW	Transect	NSW	Plantation- NSW	Chinese Bulbul	<i>Pycnonotus sinensis</i>	8	Abundant	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	NSW	Transect	NSW	Mangrove	Collared Crow	<i>Corvus torquatus</i>	2	Uncommon	R	LC	-	-	NT	VU	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Transect	NSW	Plantation- NSW	Common Tailorbird	<i>Orthotomus sutorius</i>	3	Common	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	NSW	Transect	NSW	Pond-FLW	Eastern Yellow Wagtail	<i>Motacilla tschutschensis</i>	1	Common	PM,WV	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	NSW	Transect	NSW	Pond-FLW	Eurasian Collared Dove	<i>Streptopelia decaocto</i>	1	Found in Mai Po, Tsim Bei Tsui, Fung Lok Wai	-	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	NSW	Transect	NSW	Plantation- NSW	Eurasian Tree Sparrow	<i>Passer montanus</i>	5	Abundant	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	NSW	Transect	NSW	Modified Watercourse	Great Cormorant	<i>Phalacrocorax carbo</i>	2	Common	WV	PRC	-	-	LC	LC	Y	Y

Date (dd/mm/yyyy)	Daytime/ Night time	Season	Area	Transect/ Point Count	Point Count (Location)/ Transect Impact	Habitat	Common Name	Scientific Name	Abundance	Distribution in Hong Kong ²	Principal Status ³	Level of Concern ⁴	Protection Status in China ⁵	China Red Data Book ⁶	Red List of China's Vertebrates ¹⁰	IUCN Red List ⁷ (v.2020 -3)	Species of Conservation Importance	Wetland Dependent
16/01/2023	Daytime	Dry Season	NSW	Transect	NSW	Pond-FLW	Grey Heron	<i>Ardea cinerea</i>	1	Common	WV	PRC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Transect	NSW	Modified Watercourse	Heuglin's Gull	<i>Larus fuscus</i>	6	Common	PM,WV	LC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Transect	NSW	Reedbed	Olive-backed Pipit	<i>Anthus hodgsoni</i>	2	Common	PM,WV	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	NSW	Transect	NSW	Reedbed	Plain Prinia	<i>Prinia inornata</i>	3	Common	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	NSW	Transect	NSW	Plantation-NSW	Red Turtle Dove	<i>Streptopelia tranquebarica</i>	3	Uncommon	PM	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	NSW	Transect	NSW	Plantation-NSW	Spotted Dove	<i>Spilopelia chinensis</i>	3	Abundant	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	NSW	Point Count	NSW1	Pond-NSW	Black-faced Spoonbill	<i>Platalea minor</i>	2	Common	WV	PGC	Class II	EN	EN	EN	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	NSW1	Pond-NSW	Daurian Redstart	<i>Phoenicurus aureus</i>	1	Common	WV	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	NSW	Point Count	NSW1	Pond-NSW	Eurasian Tree Sparrow	<i>Passer montanus</i>	2	Abundant	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	NSW	Point Count	NSW1	Pond-NSW	Great Cormorant	<i>Phalacrocorax carbo</i>	56	Common	WV	PRC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	NSW1	Pond-NSW	Great Egret	<i>Ardea alba</i>	1	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	NSW1	Pond-NSW	Little Egret	<i>Egretta garzetta</i>	1	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	NSW1	Pond-NSW	Spotted Dove	<i>Spilopelia chinensis</i>	2	Abundant	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Black-faced Spoonbill	<i>Platalea minor</i>	9	Common	WV	PGC	Class II	EN	EN	EN	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Black-winged Stilt	<i>Himantopus himantopus</i>	7	Common	PM	RC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Common Moorhen	<i>Gallinula chloropus</i>	6	Common	R	-	-	-	LC	LC	N	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Common Sandpiper	<i>Actitis hypoleucos</i>	4	Common	PM,WV	-	-	-	LC	LC	N	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Great Egret	<i>Ardea alba</i>	1	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Grey Heron	<i>Ardea cinerea</i>	1	Common	WV	PRC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Northern Pintail	<i>Anas acuta</i>	5	Abundant	WV	RC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Northern Shoveler	<i>Anas clypeata</i>	7	Abundant	WV	RC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Pied Avocet	<i>Recurvirostra avosetta</i>	5	Abundant	WV	RC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW1	Modified Watercourse	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	1	Common	R	-	-	-	LC	LC	N	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW1	Modified Watercourse	Yellow-bellied Prinia	<i>Prinia flaviventris</i>	3	Common	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW2	Plantation-NSW	Azure-winged Magpie	<i>Cyanopica cyanus</i>	1	Introduced	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW2	Modified Watercourse	Black-faced Spoonbill	<i>Platalea minor</i>	1	Common	WV	PGC	Class II	EN	EN	EN	Y	Y

Date (dd/mm/yyyy)	Daytime/Night time	Season	Area	Transect/Point Count	Point Count (Location)/Transect Impact	Habitat	Common Name	Scientific Name	Abundance	Distribution in Hong Kong ²	Principal Status ³	Level of Concern ⁴	Protection Status in China ⁵	China Red Data Book ⁶	Red List of China's Vertebrates ¹⁰	IUCN Red List ⁷ (v.2020-3)	Species of Conservation Importance	Wetland Dependent
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW2	Plantation-NSW	Chinese Bulbul	<i>Pycnonotus sinensis</i>	6	Abundant	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW2	Modified Watercourse	Collared Crow	<i>Corvus torquatus</i>	1	Uncommon	R	LC	-	-	NT	VU	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW2	Modified Watercourse	Common Sandpiper	<i>Actitis hypoleucos</i>	3	Common	PM,WV	-	-	-	LC	LC	N	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW2	Modified Watercourse	Crested Myna	<i>Acridotheres cristatellus</i>	1	Common	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW2	Modified Watercourse	Great Cormorant	<i>Phalacrocorax carbo</i>	5	Common	WV	PRC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW2	Modified Watercourse	Great Egret	<i>Ardea alba</i>	4	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW2	Modified Watercourse	Little Egret	<i>Egretta garzetta</i>	2	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW3	Plantation-NSW	Azure-winged Magpie	<i>Cyanopica cyanus</i>	57	Introduced	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW3	Modified Watercourse	Black-winged Stilt	<i>Himantopus himantopus</i>	8	Common	PM	RC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW3	Modified Watercourse	Chinese Pond Heron	<i>Ardeola bacchus</i>	12	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW3	Modified Watercourse	Collared Crow	<i>Corvus torquatus</i>	1	Uncommon	R	LC	-	-	NT	VU	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW3	Modified Watercourse	Common Sandpiper	<i>Actitis hypoleucos</i>	2	Common	PM,WV	-	-	-	LC	LC	N	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW3	Modified Watercourse	Dusky Warbler	<i>Phylloscopus fuscatus</i>	1	Common	PM,WV	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW3	Modified Watercourse	Great Cormorant	<i>Phalacrocorax carbo</i>	18	Common	WV	PRC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	NSW	Point Count	SP/NSW3	Modified Watercourse	Great Egret	<i>Ardea alba</i>	3	Common	R,WV	PRC (RC)	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	YLIE	Transect	YLIE-CW	Modified Watercourse	Black-winged Stilt	<i>Himantopus himantopus</i>	2	Common	PM	RC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	YLIE	Transect	YLIE-CW	Plantation-NSW	Chinese Bulbul	<i>Pycnonotus sinensis</i>	4	Abundant	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	YLIE	Transect	YLIE-CW	Modified Watercourse	Crested Myna	<i>Acridotheres cristatellus</i>	2	Common	R	-	-	-	LC	LC	N	N
16/01/2023	Daytime	Dry Season	YLIE	Transect	YLIE-CW	Modified Watercourse	Little Egret	<i>Egretta garzetta</i>	1	Common	R	PRC (RC)	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	YLIE	Transect	YLIE-CW	Modified Watercourse	Northern Pintail	<i>Anas acuta</i>	2	Abundant	WV	RC	-	-	LC	LC	Y	Y
16/01/2023	Daytime	Dry Season	YLIE	Transect	YLIE-CW	Modified Watercourse	Northern Shoveler	<i>Anas clypeata</i>	2	Abundant	WV	RC	-	-	LC	LC	Y	Y

Notes:

(1) All wild birds are Protected under Wild Animals Protection Ordinance (Cap. 170).

(2) AFCD (2021). Hong Kong Biodiversity Database.

(3) Carey et al. (2001): R=resident; WV=winter visitor; SV=summer visitor; PM=passage migrant; Sp=spring; A=autumn;

(4) Fellowes et al. (2002): GC=Global Concern; LC=Local Concern; RC=Regional Concern; PRC=Potential Regional Concern; PGC: Potential Global Concern. Letters in parentheses indicate that the assessment is on the basis of restrictedness in nesting and/or roosting sites rather than in general occurrence.

(5) List of Wild Animals Under State Protection (promulgated by State Forestry Administration and Ministry of Agriculture on 14 January 1989).

(6) Zheng, G. M. and Wang, Q. S. (1998). China Red Data Book

(7) IUCN 2021. The IUCN Red List of Threatened Species. Version 2020-3.

(9) Wetland-dependent species (including wetland-dependent species and waterbirds).

(10) Jiang et al. (2016). Red List of China's Vertebrates

Annex C – Shannon Diversity Index Values in the Different Transect Routes and Point Count Locations
(January 2023)

Annex C.1. Shannon Diversity Index Values of All Avifauna Species in the Different Transect Routes and Point Count Locations

Shannon Diversity Index Value of all Avifauna Species				
Point Count Method				
EIA Report ID	EM&A Manual ID	Jan-17	Jan-23	Remarks
P1	FLW1	1.15	1.28	+
P2	FLW2	1.48	1.33	-
P3	FLW3	0.58	0.64	+
P4	FLW4	**	0.05	+
P5	FLW5	**	1.53	+
P6	FLW6	1.13	1.05	-
P7	FLW7	1.92	1.27	-
P9	SP/NSW3	2.35	1.35	-
P10	SP/NSW2	2.68	1.97	-
P11	NSW1	1.31	0.64	-
P12	SP/NSW1	2.36	2.20	-
Transect Walk Method				
EIA Report ID	EM&A Manual ID	Jan-17	Jan-23	Remarks
Fung Lok Wai	FLW	3.20	1.37	-
Nam Sang Wai	NSW	2.12	2.43	+
YLIE-CW	YLIE-CW	0.64	1.71	+

Notes:

0 = only one species recorded; ** no species recorded; - decreased; + increased; = no change

Annex C.2. Shannon Diversity Index Values of Avifauna Species with Conservation Importance in the Different Transect Routes and Point Count Locations

Shannon Diversity Index Value of Species with Conservation Importance				
Point Count Method				
EIA Report ID	EM&A Manual ID	Jan-17	Jan-23	Remarks
P1	FLW1	0.90	**	-
P2	FLW2	0.98	**	-
P3	FLW3	0.22	0	-
P4	FLW4	**	0.05	+
P5	FLW5	**	1.30	+
P6	FLW6	0.35	1.47	+
P7	FLW7	1.56	1.27	-

Shannon Diversity Index Value of Species with Conservation Importance				
P9	SP/NSW3	2.30	1.31	-
P10	SP/NSW2	2.24	1.41	-
P11	NSW1	0.35	0.31	-
P12	SP/NSW1	2.07	1.75	-
Transect Walk Method				
EIA Report ID	EM&A Manual ID	Jan-17	Jan-23	Remarks
Fung Lok Wai	FLW	1.74	1.26	-
Nam Sang Wai	NSW	0	1.17	+
YLIE-CW	YLIE-CW	**	1.35	+

Notes:

0 = only one species recorded; ** no species recorded; - decreased; + increased; = no change

Annex D – Summary of Hutcheson T-test Analyses (January 2023)

Hutcheson T-test formula:

$$t = \frac{H_a - H_b}{\sqrt{S_{H_a}^2 + S_{H_b}^2}}$$

Annex D.1 Species Diversity of All Avifauna Species – Point Count Method

Months	January 2017	January 2023
Total	708	1251
Richness	47	27
H	2.82	1.04
S ² _H	0.003	0.002
t	25.496	
df	1735.809	
Crit	1.961	
p	0.000	
CI	0.102	0.095

Annex D.2 Species Diversity of Avifauna Species with Conservation Importance – Point Count Method

Months	January 2017	January 2023
Total	528	1110
Richness	22	13
H	2.24	0.55
S ² _H	0.003	0.002
t	25.262	
df	1112.901	
Crit	1.962	
p	0.000	
CI	0.108	0.080

Annex E – Abundance Data per Point Count Location

Annex E.1. Baseline (January 2017) abundance data (all avifauna species) per point count location

Point Count Location	Common Name	Abundance
FLW1/ P1	<i>Ardea cinerea</i>	2
	<i>Egretta garzetta</i>	1
	<i>Orthotomus sutorius</i>	1
	<i>Phalacrocorax carbo</i>	5
FLW2/ P2	<i>Ardea cinerea</i>	1
	<i>Ardeola bacchus</i>	8
	<i>Copsychus saularis</i>	2
	<i>Motacilla alba</i>	1
	<i>Phalacrocorax carbo</i>	1
	<i>Prinia inornata</i>	2
	<i>Spilopelia chinensis</i>	10
<i>Tachybaptus ruficollis</i>	2	
FLW3/ P3	<i>Alcedo atthis</i>	1
	<i>Corvus torquatus</i>	2
	<i>Dicrurus macrocercus</i>	1
	<i>Phalacrocorax carbo</i>	32
	<i>Prinia flaviventris</i>	1
FLW6/ P6	<i>Acridotheres cristatellus</i>	32
	<i>Alcedo atthis</i>	1
	<i>Ardea alba</i>	2
	<i>Ardea cinerea</i>	1
	<i>Lanius cristatus</i>	1
	<i>Motacilla alba</i>	4
	<i>Phalacrocorax carbo</i>	61
	<i>Saxicola stejnegeri</i>	1
	<i>Tachybaptus ruficollis</i>	2
FLW7/ P7	<i>Ardea alba</i>	1
	<i>Ardea cinerea</i>	3
	<i>Egretta garzetta</i>	1
	<i>Gracupica nigricollis</i>	2
	<i>Himantopus himantopus</i>	2
	<i>Lanius schach</i>	1

Point Count Location	Common Name	Abundance
	<i>Phalacrocorax carbo</i>	14
	<i>Spodiopsar sericeus</i>	8
	<i>Streptopelia decaocto</i>	9
	<i>Tachybaptus ruficollis</i>	4
SP/NSW3/ P9	<i>Anas acuta</i>	1
	<i>Anas clypeata</i>	5
	<i>Anas crecca</i>	5
	<i>Ardea alba</i>	5
	<i>Ardea cinerea</i>	7
	<i>Ardeola bacchus</i>	17
	<i>Calidris temminckii</i>	1
	<i>Chroicocephalus ridibundus</i>	50
	<i>Copsychus saularis</i>	1
	<i>Egretta garzetta</i>	4
	<i>Egretta intermedia</i>	1
	<i>Himantopus himantopus</i>	3
	<i>Larus fuscus</i>	2
	<i>Numenius arquata</i>	1
	<i>Phalacrocorax carbo</i>	13
	<i>Prinia flaviventris</i>	1
	<i>Recurvirostra avosetta</i>	16
	<i>Tringa erythropus</i>	7
	<i>Tringa nebularia</i>	5
	<i>Tringa stagnatilis</i>	2
<i>Tringa totanus</i>	1	
SP/NSW2/ P10	<i>Acridotheres cristatellus</i>	30
	<i>Amaurornis phoenicurus</i>	1
	<i>Anas clypeata</i>	20
	<i>Anas crecca</i>	10
	<i>Ardea alba</i>	3
	<i>Ardea cinerea</i>	3
	<i>Ardeola bacchus</i>	4
	<i>Cyanopica cyanus</i>	8
	<i>Egretta garzetta</i>	3

Point Count Location	Common Name	Abundance
	<i>Ficedula albicilla</i>	1
	<i>Himantopus himantopus</i>	11
	<i>Larus fuscus</i>	1
	<i>Orthotomus sutorius</i>	1
	<i>Phalacrocorax carbo</i>	2
	<i>Phylloscopus inornatus</i>	2
	<i>Prinia flaviventris</i>	2
	<i>Pycnonotus jocosus</i>	15
	<i>Pycnonotus sinensis</i>	2
	<i>Recurvirostra avosetta</i>	10
	<i>Saxicola stejnegeri</i>	1
	<i>Spodiopsar sericeus</i>	5
	<i>Streptopelia orientalis</i>	1
	<i>Tringa nebularia</i>	1
	<i>Tringa stagnatilis</i>	1
	<i>Tringa totanus</i>	2
<i>Zosterops japonicus</i>	2	
NSW1/ P11	<i>Acridotheres cristatellus</i>	9
	<i>Acrocephalus bistrigiceps</i>	1
	<i>Ardea alba</i>	1
	<i>Ardea cinerea</i>	2
	<i>Ardeola bacchus</i>	1
	<i>Charadrius dubius</i>	2
	<i>Copsychus saularis</i>	2
	<i>Corvus torquatus</i>	2
	<i>Cyanopica cyanus</i>	8
	<i>Motacilla alba</i>	2
	<i>Phalacrocorax carbo</i>	80
	<i>Pycnonotus jocosus</i>	5
	<i>Spilopelia chinensis</i>	2
SP/NSW1/ P12	<i>Alcedo atthis</i>	1
	<i>Anas acuta</i>	1
	<i>Anas clypeata</i>	5
	<i>Anas crecca</i>	15

Point Count Location	Common Name	Abundance
	<i>Ardea alba</i>	3
	<i>Ardea cinerea</i>	2
	<i>Ardeola bacchus</i>	2
	<i>Calidris temminckii</i>	1
	<i>Charadrius dubius</i>	2
	<i>Egretta garzetta</i>	1
	<i>Egretta intermedia</i>	1
	<i>Halcyon smyrnensis</i>	1
	<i>Himantopus himantopus</i>	19
	<i>Motacilla alba</i>	1
	<i>Phalacrocorax carbo</i>	2
	<i>Recurvirostra avosetta</i>	12
	<i>Tringa erythropus</i>	2
	<i>Tringa nebularia</i>	1
	<i>Zosterops japonicus</i>	6
Total		708

Annex E.2. Impact monitoring (January 2023) abundance data (all avifauna species) per point count location

Location	Common Name	Abundance
FLW1/ P1	<i>Acridotheres cristatellus</i>	3
	<i>Prinia inornata</i>	1
	<i>Pycnonotus sinensis</i>	2
	<i>Spilopelia chinensis</i>	1
FLW2/ P2	<i>Acridotheres cristatellus</i>	2
	<i>Motacilla alba</i>	1
	<i>Prinia flaviventris</i>	1
	<i>Spilopelia chinensis</i>	1
FLW3/ P3	<i>Milvus migrans</i>	2
	<i>Pycnonotus sinensis</i>	4
FLW4/ P4	<i>Ardea alba</i>	1
	<i>Egretta garzetta</i>	7
	<i>Phalacrocorax carbo</i>	900
FLW5/ P5	<i>Apus nipalensis</i>	3
	<i>Ardea alba</i>	8

Location	Common Name	Abundance
	<i>Ardea cinerea</i>	2
	<i>Egretta garzetta</i>	1
	<i>Phalacrocorax carbo</i>	5
	<i>Tachybaptus ruficollis</i>	1
FLW6/ P6	<i>Apus nipalensis</i>	31
	<i>Ardea alba</i>	4
	<i>Ardea cinerea</i>	1
	<i>Ardeola bacchus</i>	1
	<i>Egretta garzetta</i>	3
	<i>Motacilla alba</i>	1
	<i>Phalacrocorax carbo</i>	2
FLW7/ P7	<i>Ardea alba</i>	4
	<i>Ardea cinerea</i>	1
	<i>Ardeola bacchus</i>	2
	<i>Egretta garzetta</i>	3
	<i>Phalacrocorax carbo</i>	12
SP/NSW3/ P9	<i>Actitis hypoleucos</i>	2
	<i>Ardea alba</i>	3
	<i>Ardeola bacchus</i>	12
	<i>Corvus torquatus</i>	1
	<i>Cyanopica cyanus</i>	57
	<i>Himantopus himantopus</i>	8
	<i>Phalacrocorax carbo</i>	18
	<i>Phylloscopus fuscatus</i>	1
SP/NSW2/ P10	<i>Acridotheres cristatellus</i>	1
	<i>Actitis hypoleucos</i>	3
	<i>Ardea alba</i>	4
	<i>Corvus torquatus</i>	1
	<i>Cyanopica cyanus</i>	1
	<i>Egretta garzetta</i>	2
	<i>Phalacrocorax carbo</i>	5
	<i>Platalea minor</i>	1
	<i>Pycnonotus sinensis</i>	6
NSW1/ P11	<i>Ardea alba</i>	1
	<i>Egretta garzetta</i>	1
	<i>Passer montanus</i>	2

Location	Common Name	Abundance
	<i>Phalacrocorax carbo</i>	56
	<i>Phoenicurus aureus</i>	1
	<i>Platalea minor</i>	2
	<i>Spilopelia chinensis</i>	2
SP/NSW1/ P12	<i>Actitis hypoleucos</i>	4
	<i>Amaurornis phoenicurus</i>	1
	<i>Anas acuta</i>	5
	<i>Anas clypeata</i>	7
	<i>Ardea alba</i>	1
	<i>Ardea cinerea</i>	1
	<i>Gallinula chloropus</i>	6
	<i>Himantopus himantopus</i>	7
	<i>Platalea minor</i>	9
	<i>Prinia flaviventris</i>	3
	<i>Recurvirostra avosetta</i>	5
	Total	

Annex F – Noise Monitoring Results in Point Count Locations during the Ecological Monitoring of Birds
(January 2023)

Frequency and Period	Location	Day time (16/1/2023)	
		Start Time	L _{Aeq} (30 min) dB(A)
Monthly in concurrence with the ecological monitoring of birds	FLW1/ P1	10:50	55.3
	FLW2/ P2	10:10	61.2
	FLW3/ P3	10:14	56.3
	FLW4/ P4	09:13	54.2
	FLW5/ P5	09:15	53.7
	FLW6/ P6	09:43	53.4
	FLW7/ P7	09:36	47.4
	SP/NSW3/ P9	08:28	55.4
	SP/NSW2/ P10	08:18	53.6
	NSW1/ P11	07:54	56.7
	SP/NSW1/ P12	07:50	47.8

Annex G – Site Photos showing no project-related disturbance during the Ecological Monitoring of Birds
(January 2023)



Annex G.1. Flock of Great Cormorants in Fung Lok Wai, far north of the Project Site.



Annex G.2. Flock of Great Cormorants in Fung Lok Wai, far north of the Project Site.