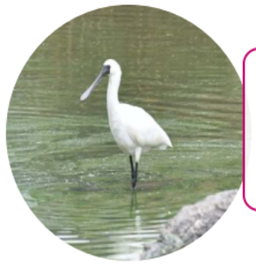
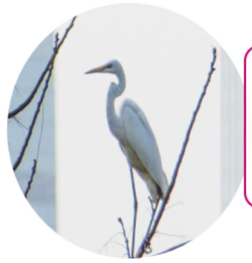
Indicator Species with High Sensitivity to Disturbances adopted in the EIA Report

Black-faced Spoonbill
黑臉琵鷺



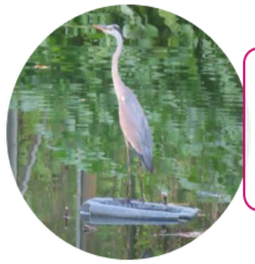
High

Great Egret
大白鷺



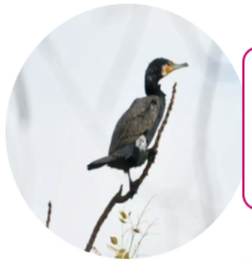
High

Grey Heron
蒼鷺



High

Great Cormorant
普通鸕鷀

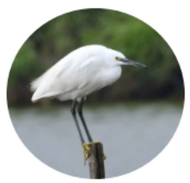


High

- If mitigation targets can be achieved for these **larger disturbance sensitive indicator species**, **similar or higher levels of enhancement for other less sensitive wildlife species can be achieved.**

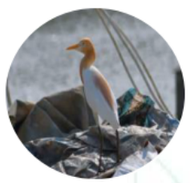
Other Species of Conservation Importance for Additional Calculations

- Additional calculations for the following species, including species **regularly occurring at / using fishpond habitats** [1] and other **non-fish-eating avifauna species** [2] :



Little Egret [1]
小白鷺

Chinese Pond Heron [1]
池鷺



Cattle Egret [2]
牛背鷺

Eurasian Teal [1] [2]
綠翅鴨

Note:
[1] Regularly occurring species in Lok Ma Chau / San Tin area, according to survey data and analysis undertaken in the LMC Spurline EIA
[2] Non-fish-eating avifauna species refers to species that does not primarily feed on fish

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索引圖

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60670882

AGREEMENT NO. 協議編號
CE 20/2021

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圖紙名稱
SAMPLE CALCULATIONS OF FUNCTIONAL VALUE

SHEET NUMBER
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Appendix 10.6

Sample Calculations on Change in Functional Value

Existing functional value in SPS WCP

Land Status [1]	Peak Density (birds/ha) [2]		Area (ha)	Functional Value*
Active/inactive pond (to be converted to Ecologically Enhanced Fishpond)	0.423	x	148.6	62.9
Abandoned / filled / wired ponds (to be converted to Ecologically Enhanced Fishpond)	0	x	100.0	
Existing brownfield / filled ponds in RDZ (to be converted to Ecologically Enhanced Fishpond) [3]	0	x	5.1	

* Any discrepancies between total and sums of individual numbers listed therein are due to rounding.
[1] The type of ponds made reference to AFCD data.
[2] Peak monthly bird count data during dry season over 2021-22 from HKBWS, or EIA Survey Data for ponds with no data available from HKBWS.
[3] Existing brownfield / filled ponds in RDZ of the Project (50% reduction in bird density) to be converted to Ecologically Enhanced Fishponds.

Functional value in SPS WCP after Enhancement

Pond Status	Peak Density* (birds/ha)		Area (ha)	Functional Value*	Total Functional Value*
Ecologically Enhanced Fishponds [1]	0.613	x	248.6	152.5	153.6
Ecologically Enhanced Fishponds in RDZ [2]	0.212	x	5.1	1.1	

* Any discrepancies between total and sums of individual numbers listed therein are due to rounding.
[1] Restoring all ponds to active pond (i.e.density = 0.423);
45% enhancement for active pond: 0.423 x 1.45 = 0.613
[2] Existing brownfield / fish ponds in RDZ to be converted to Ecologically Enhanced Fishponds. (density of active fishpond is adopted, i.e. 0.423);
50% reduction in bird density for active pond within RDZ: 0.423 x 0.5= 0.212

Black-faced Spoonbill
黑臉琵鷺

Loss in Functional Value in Impacted Area
- 14.5

Gain in functional value
+90.7

Positive Overall Changes in Functional Value
+ 76.2

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Sample Calculations on Change in Functional Value

Existing functional value in SPS WCP

Land Status [1]	Peak Density (birds/ha) [2]		Area (ha)	Functional Value*
Active/inactive pond (to be converted to Ecologically Enhanced Fishpond)	0.292	x	148.6	61.2
Abandoned / filled / wired ponds (to be converted to Ecologically Enhanced Fishpond)	0.178	x	100.0	
Existing brownfield / filled ponds in RDZ (to be converted to Ecologically Enhanced Fishpond) [3]	0	x	5.1	

* Any discrepancies between total and sums of individual numbers listed therein are due to rounding.
[1] The type of ponds made reference to AFCD data.
[2] Peak monthly bird count data during dry season over 2021-22 from HKBWS, or EIA Survey Data for ponds with no data available from HKBWS.
[3] Existing brownfield / filled ponds in RDZ of the Project (50% reduction in bird density) to be converted to Ecologically Enhanced Fishponds.

Functional value in SPS WCP after Enhancement

Pond Status	Peak Density (birds/ha)		Area (ha)	Functional Value	Total Functional Value*
Ecologically Enhanced Fishponds [1]	0.424	x	248.6	105.4	106.1
Ecologically Enhanced Fishponds in RDZ [2]	0.146	x	5.1	0.7	

* Any discrepancies between total and sums of individual numbers listed therein are due to rounding.
[1] Restoring all ponds to active pond (i.e.density = 0.292);
45% enhancement for active pond: 0.292 x 1.45 = 0.424
[2] Existing brownfield / fish ponds in RDZ to be converted to Ecologically Enhanced Fishponds.
(density of active fishpond is adopted, i.e. 0.292);
50% reduction in bird density for active pond within RDZ: 0.292 x 0.5= 0.146

Great Egret

大白鷺

Loss in Functional Value in Impacted Area

- 44.0

Gain in functional value

+44.9

Positive Overall Changes in Functional Value

+ 0.9

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Sample Calculations on Change in Functional Value

Existing functional value in SPS WCP

Land Status [1]	Peak Density (birds/ha) [2]		Area (ha)	Functional Value*
Active/inactive pond (to be converted to Ecologically Enhanced Fishpond)	0.723	x	148.6	114.4
Abandoned / filled / wired ponds (to be converted to Ecologically Enhanced Fishpond)	0.070	x	100.0	
Existing brownfield / filled ponds in RDZ (to be converted to Ecologically Enhanced Fishpond) [3]	0	x	5.1	

* Any discrepancies between total and sums of individual numbers listed therein are due to rounding.
[1] The type of ponds made reference to AFCD data.
[2] Peak monthly bird count data during dry season over 2021-22 from HKBWS, or EIA Survey Data for ponds with no data available from HKBWS.
[3] Existing brownfield / filled ponds in RDZ of the Project (50% reduction in bird density) to be converted to Ecologically Enhanced Fishponds.

Functional value in SPS WCP after Enhancement

Pond Status	Peak Density* (birds/ha)		Area (ha)	Functional Value*	Total Functional Value*
Ecologically Enhanced Fishponds [1]	1.048	x	248.6	260.7	262.5
Ecologically Enhanced Fishponds in RDZ [2]	0.362	x	5.1	1.8	

* Any discrepancies between total and sums of individual numbers listed therein are due to rounding.
[1] Restoring all ponds to active pond (i.e.density = 0.723);
45% enhancement for active pond: 0.723 x 1.45 = 1.048
[2] Existing brownfield / fish ponds in RDZ to be converted to Ecologically Enhanced Fishponds. (density of active fishpond is adopted, i.e. 0.723);
50% reduction in bird density for active pond within RDZ: 0.723 x 0.5= 0.362

Grey Heron
蒼鷺

Loss in Functional Value in Impacted Area
- 146

Gain in functional value
+148

Positive Overall Changes in Functional Value
+2

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Sample Calculations on Change in Functional Value

Existing functional value in SPS WCP

Land Status [1]	Peak Density (birds/ha) [2]		Area (ha)	Functional Value*
Active/inactive pond (to be converted to Ecologically Enhanced Fishpond)	1.869	x	148.6	292.8
Abandoned / filled / wired ponds (to be converted to Ecologically Enhanced Fishpond)	0.150	x	100.0	
Existing brownfield / filled ponds in RDZ (to be converted to Ecologically Enhanced Fishpond) [3]	0	x	5.1	

* Any discrepancies between total and sums of individual numbers listed therein are due to rounding.
[1] The type of ponds made reference to AFCD data.
[2] Peak monthly bird count data during dry season over 2021-22 from HKBWS, or EIA Survey Data for ponds with no data available from HKBWS.
[3] Existing brownfield / filled ponds in RDZ of the Project (50% reduction in bird density) to be converted to Ecologically Enhanced Fishponds.

Functional value in SPS WCP after Enhancement

Pond Status	Peak Density* (birds/ha)		Area (ha)	Functional Value*	Total Functional Value*
Ecologically Enhanced Fishponds [1]	2.710	x	248.6	673.8	678.6
Ecologically Enhanced Fishponds in RDZ [2]	0.935	x	5.1	4.8	

* Any discrepancies between total and sums of individual numbers listed therein are due to rounding.
[1] Restoring all ponds to active pond (i.e.density = 1.869);
45% enhancement for active pond: 1.869 x 1.45 = 2.710
[2] Existing brownfield / fish ponds in RDZ to be converted to Ecologically Enhanced Fishponds.
(density of active fishpond is adopted, i.e. 1.869);
50% reduction in bird density for active pond within RDZ: 1.869 x 0.5= 0.935

Great Cormorant
普通鸬鹚

Loss in Functional Value in Impacted Area

- 187.7

Gain in functional value

+385.8

Positive Overall Changes in Functional Value

+198.1

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Changes in Functional Value Other Species of Conservation Importance within Impacted Area

Changes in Bird Density within Impacted Areas to be Compensated by SPS WCP

Waterbird Species	Direct Impact (ha)*	Indirect Impact (ha)*	Impacted Area (ha) to be Compensated by SPS WCP	Peak Bird Density# (birds/ha)		Loss in Functional Value in Impacted Area ^
				Existing	After Project Development	
小白鷺 Little Egret	89.0	45.0 [1]	**134.0**	0.853	0.157	**-93.2**
池鷺 Chinese Pond Heron	89.0	25.8 [2]	**114.8**	0.571	0.035	**-61.6**
牛背鷺 Cattle Egret	89.0	11.5 [3]	**100.5**	0.290	0.006	**-28.6**
綠翅鴨 Eurasian Teal	89.0	37.1 [4]	**126.1**	0.230	0.013	**-27.3**

*Direct Impact: Total loss in functional value; Indirect Impact: 100% (in EZ) and 50% (in RDZ) loss in functional value

Monthly waterbird count data from Mai Po Inner Deep Bay Ramsar Site Waterbird Monitoring Programme submitted by HKBWS to AFCD were reviewed to determine the bird densities of impacted/compensation area. The type of ponds made reference to AFCD data. For areas without data from AFCD, EIA ecological survey data was used.

^ Any discrepancies between total and sums of individual numbers listed therein are due to rounding.

Note:

Indirect impact zones for the species were determined based on field survey data and analysis undertaken for the approved EIA reports (e.g. LMC Spurline, LMC Loop and FLW Development)

[1] Indirect impact zones for low-rise development: 0-20m (EZ) and 20-100m (RDZ) ; mid-to high-rise development (tall buildings/other elevated structures >+35mPD): 0-100m (EZ) and 100-400m (RDZ)

[2] Indirect impact zones for low-rise development: 0-20m (EZ) and 20-30m (RDZ) ; mid-to high-rise development (tall buildings/other elevated structures >+35mPD): 0-100m (EZ) and 100-300m (RDZ)

[3] Indirect impact zones for low-rise development: 0-20m (EZ) and 20-30m (RDZ) ; mid-to high-rise development (tall buildings/other elevated structures >+35mPD): 0-50m (EZ) and 50-100m (RDZ)

[4] Indirect impact zones for low-rise development: 0-50m (EZ) and 50-100m (RDZ) ; mid-to high-rise development (tall buildings/other elevated structures >+35mPD): 0-100m (EZ) and 100-300m (RDZ)

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Existing functional value in SPS WCP

Land Status [1]	Peak Density (birds/ha) [2]	Area (ha)	Peak Abundance*	Functional Value*
Active/inactive/wired pond (to be converted to Ecologically Enhanced Fishpond) [3]	1.788	195.6	349.7	351.6
Abandoned / filled ponds (to be converted to Ecologically Enhanced Fishpond)	0.036	53.0	1.9	
Existing brownfield / filled ponds in RDZ (to be converted to Ecologically Enhanced Fishpond) [4]	0	5.1	0	

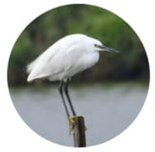
* Any discrepancies between total and sums of individual numbers listed therein are due to rounding.

[1] The type of ponds made reference to AFCD data.

[2] Peak monthly bird count data during dry season over 2021-22 from HKBWS, or EIA Survey Data for ponds with no data available from HKBWS.

[3] The bird scaring devices at wired ponds have no impact on the usage of this less disturbance sensitive species, therefore wired ponds are grouped as the same category of active/inactive ponds.

[4] Existing brownfield / filled ponds in RDZ of the Project (50% reduction in bird density) to be converted to Ecologically Enhanced Fishponds.



Little Egret
小白鷺

Functional value in SPS WCP after Enhancement

Pond Status	Peak Density (birds/ha)*	Area (ha)	Projected Peak Abundance*	Total Functional Value*
Ecologically Enhanced Fishponds [1]	2.593	248.6	644.6	649.2
Ecologically Enhanced Fishponds in RDZ [2]	0.894	5.1	4.6	

* Any discrepancies between total and sums of individual numbers listed therein are due to rounding.

[1] Restoring all ponds to active pond (i.e. density = 1.788); with 45% enhancement by conversion into ecologically enhanced fishpond (1.788 x 1.45 = 2.593).

[2] Existing brownfield / filled ponds in RDZ to be converted to Ecologically Enhanced Fishponds. (density of active fishpond is adopted, i.e. 1.788); with 50% reduction in bird density for active pond within RDZ (1.788 x 0.5= 0.894).

Loss in Functional Value in Impacted Area

- 93.2

Gain in functional value

+297.6

Positive Overall Changes in Functional Value

+ 204.4

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Sample Calculations on Change in Functional Value

Existing functional value in SPS WCP

Land Status [1]	Peak Density (birds/ha) [2]	Area (ha)	Peak Abundance*	Functional Value*
Active/inactive/wired pond (to be converted to Ecologically Enhanced Fishpond) [3]	0.742	195.6	145.1	158.4
Abandoned / filled ponds (to be converted to Ecologically Enhanced Fishpond)	0.250	53.0	13.3	
Existing brownfield / filled ponds in RDZ (to be converted to Ecologically Enhanced Fishpond) [4]	0	5.1	0	

* Any discrepancies between total and sums of individual numbers listed therein are due to rounding.

[1] The type of ponds made reference to AFCD data.

[2] Peak monthly bird count data during dry season over 2021-22 from HKBWS, or EIA Survey Data for ponds with no data available from HKBWS.

[3] The bird scaring devices at wired ponds have no impact on the usage of this less disturbance sensitive species, therefore wired ponds are grouped as the same category of active/inactive ponds.

[4] Existing brownfield / filled ponds in RDZ of the Project (50% reduction in bird density) to be converted to Ecologically Enhanced Fishponds.

Functional value in SPS WCP after Enhancement

Pond Status	Peak Density (birds/ha)*	Area (ha)	Projected Peak Abundance*	Total Functional Value*
Ecologically Enhanced Fishponds [1]	1.076	248.6	267.5	269.4
Ecologically Enhanced Fishponds in RDZ [2]	0.371	5.1	1.9	

* Any discrepancies between total and sums of individual numbers listed therein are due to rounding.

[1] Restoring all ponds to active pond (i.e. density = 0.742); with 45% enhancement by conversion into ecologically enhanced fishpond (0.742 x 1.45 = 1.076).

[2] Existing brownfield / filled ponds in RDZ to be converted to Ecologically Enhanced Fishponds.(density of active fishpond is adopted, i.e. 0.742); with 50% reduction in bird density for active pond within RDZ (0.742 x 0.5= 0.371)

Chinese Pond Heron
池鷺

Loss in Functional Value in Impacted Area
- 61.6

Gain in functional value
+111.0

Positive Overall Changes in Functional Value
+ 49.4

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階段

SCALE 比例

DIMENSION UNIT 尺寸單位

KEY PLAN
索引圖

PROJECT NO. 項目編號: 60670882

AGREEMENT NO. 協議編號: CE 20/2021

SHEET TITLE
圖紙名稱
SAMPLE CALCULATIONS OF FUNCTIONAL VALUE

SHEET NUMBER
圖紙編號
Appendix 10.6

Sample Calculations on Change in Functional Value

Existing functional value in SPS WCP

Land Status [1]	Peak Density (birds/ha) [2]	Area (ha)	Peak Abundance*	Functional Value*
Active/inactive pond (to be converted to Ecologically Enhanced Fishpond)	0.146	148.6	21.7	21.7
Abandoned / filled / wired ponds (to be converted to Ecologically Enhanced Fishpond)	0	100.0	0	
Existing brownfield / filled ponds in RDZ (to be converted to Ecologically Enhanced Fishpond) [3]	0	5.1	0	

* Any discrepancies between total and sums of individual numbers listed therein are due to rounding.

[1] The type of ponds made reference to AFCD data.

[2] Peak monthly bird count data during dry season over 2021-22 from HKBWS, or EIA Survey Data for ponds with no data available from HKBWS.

[3] Existing brownfield / filled ponds in RDZ of the Project (50% reduction in bird density) to be converted to Ecologically Enhanced Fishponds.

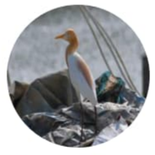
Functional value in SPS WCP after Enhancement

Pond Status	Peak Density (birds/ha)*	Area (ha)	Projected Peak Abundance*	Total Functional Value*
Ecologically Enhanced Fishponds [1]	0.212	248.6	52.7	53.1
Ecologically Enhanced Fishponds in RDZ [2]	0.073	5.1	0.4	

* Any discrepancies between total and sums of individual numbers listed therein are due to rounding.

[1] Restoring all ponds to active pond (i.e. density = 0.146); with 45% enhancement by conversion into ecologically enhanced fishpond (0.146 x 1.45 = 0.212).

[2] Existing brownfield / filled ponds in RDZ to be converted to Ecologically Enhanced Fishponds.(density of active fishpond is adopted, i.e. 0.146); with 50% reduction in bird density for active pond within RDZ (0.146 x 0.5= 0.073)



Cattle Egret
牛背鷺

Loss in Functional Value in Impacted Area
-28.6

Gain in functional value
+ 31.3

Positive Overall Changes in Functional Value
+ 2.7

Non-fish-eating avifauna species will also be benefited by the 35ha Enhanced Freshwater Wetland Habitats

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Sample Calculations on Change in Functional Value

Existing functional value in SPS WCP

Land Status [1]	Peak Density (birds/ha) [2]	Area (ha)	Peak Abundance*	Functional Value*
Active/inactive pond (to be converted to Ecologically Enhanced Fishpond)	0.362	148.6	53.7	53.7
Abandoned / filled / wired ponds (to be converted to Ecologically Enhanced Fishpond)	0	100.0	0	
Existing brownfield / filled ponds in RDZ (to be converted to Ecologically Enhanced Fishpond) [3]	0	5.1	0	

* Any discrepancies between total and sums of individual numbers listed therein are due to rounding.

[1] The type of ponds made reference to AFCD data.

[2] Peak monthly bird count data during dry season over 2021-22 from HKBWS, or EIA Survey Data for ponds with no data available from HKBWS.

[3] Existing brownfield / filled ponds in RDZ of the Project (50% reduction in bird density) to be converted to Ecologically Enhanced Fishponds.

Functional value in SPS WCP after Enhancement

Pond Status	Peak Density (birds/ha)*	Area (ha)	Projected Peak Abundance*	Total Functional Value*
Ecologically Enhanced Fishponds [1]	0.524	248.6	130.3	131.2
Ecologically Enhanced Fishponds in RDZ [2]	0.181	5.1	0.9	

* Any discrepancies between total and sums of individual numbers listed therein are due to rounding.

[1] Restoring all ponds to active pond (i.e. density = 0.362); with 45% enhancement by conversion into ecologically enhanced fishpond (0.362 x 1.45 = 0.524).

[2] Existing brownfield / filled ponds in RDZ to be converted to Ecologically Enhanced Fishponds.(density of active fishpond is adopted, i.e. 0.362); with 50% reduction in bird density for active pond within RDZ (0.362 x 0.5= 0.181)

Eurasian Teal

綠翅鴨

Loss in Functional Value in Impacted Area

-27.3

Gain in functional value

+77.5

Positive Overall Changes in Functional Value

+50.2

Non-fish-eating avifauna species will also be benefited by the 35ha Enhanced Freshwater Wetland Habitats

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