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**ACE-EIA Paper 1/2024**  
***For advice on 18 March 2024***

**Environmental Impact Assessment Ordinance (Cap. 499)**  
**Environmental Impact Assessment Report**

**San Tin / Lok Ma Chau Development Node**

**PURPOSE**

This paper presents the key findings and recommendations of the Environmental Impact Assessment (EIA) report for the “San Tin / Lok Ma Chau Development Node (ST/LMC DN)” (“the Project”) submitted under Section 6(2) of the Environmental Impact Assessment Ordinance (EIAO) (Application No. EIA-302/2023). The Civil Engineering and Development Department (CEDD) (“the Applicant”) and their consultants will present the EIA report at the meeting of the EIA Subcommittee.

**ADVICE SOUGHT**

2. Members’ views are sought on the findings and recommendations of the EIA report. The Director of Environmental Protection (DEP) will take into account comments from the public and the Advisory Council on the Environment in deciding whether or not to approve the EIA report under Section 8(3) of the EIAO.

**BACKGROUND**

3. The 2021 Policy Address proposed to expand ST/LMC DN into San Tin Technopole which also covers the Hong Kong-Shenzhen Innovation and Technology Park (HSITP) at the Loop. The San Tin Technopole will increase the land supply for innovation and technology (I&T) development so as to achieve industry clustering effect with economy of scale. It will also increase the housing supply to help address the housing shortage in the territory, among which some of the units can be used as talent apartments for I&T enterprises and research institutes.

4. CEDD and Planning Department (PlanD) jointly commissioned an Investigation Study (the Study) on ST/LMC DN (the Project) in October 2021 to take forward the San Tin Technopole initiative and formulate the Recommended Outline Development Plan (RODP) for San Tin Technopole. A 2-month public engagement (PE) on the RODP was carried out between 6 June and 5 August 2023.

5. Comments on various aspects of San Tin Technopole were received during the PE, such as I&T development, land use planning and urban design, transport and infrastructure, environment and ecology, and project implementation. Comments on environment and ecology were mainly related to fishponds filling, impacts on natural habitats for birds, status of the proposed Sam Po Shue Wetland Conservation Park (SPS WCP), the close proximity to the Mai Po Inner Deep Bay Ramsar Site, and the need of a revised Study Brief under the EIAO for the enlarged Project area (a summary of comments received during the PE and initial responses is in **Annex 1**).

6. Taking into account the public comments collected during the PE and the latest planning circumstances, the RODP was further refined with the exclusion of an area with minor encroachment to the Ramsar Site originally designated as I&T use. The Revised RODP (**Figure 1**) covers about 610 hectares (ha) with an intended total population of about 147,000 to 159,000 and employment of about 165,000.

7. The Applicant submitted on 6 December 2023 the EIA report for the Project for approval. The DEP, after taking advice from relevant authorities, considers that the EIA report meets the requirements of the EIA Study Brief and the Technical Memorandum on EIA Process (TM), for the purpose of its exhibition for public inspection under Section 7(4) of the EIAO.

## **NEED FOR THE PROJECT**

8. The 2013 Policy Address first stated the need to take forward further development of the New Territories North (NTN) with a view to developing a modern new town. Under the Preliminary Feasibility Study on Developing NTN, an area in ST/LMC was identified as having potential for further development. Subsequent to the Broad Land Use Concept Plan of ST/LMC promulgated in 2016 and the eight land supply options recommended by the Task Force on Land Supply in 2019, the Feasibility Study on ST/LMC DN and subsequent Investigation Study were commissioned in 2019 and 2021 respectively.

9. With the National 14<sup>th</sup> Five-Year Plan supporting Hong Kong to develop into an international I&T center, it is crucial for Hong Kong to step up and strengthen the I&T industry. Located at the heart of Northern Metropolis and in close proximity to Shenzhen (SZ)'s I&T zone in Huanggang and Futian, San Tin Technopole is strategically positioned to be a hub for clustered I&T development

that creates synergy with SZ. It will contribute to the development of the South-North dual engine (finance – I&T), and become a new community for quality, healthy and green living.

## DESCRIPTION OF THE PROJECT

10. The Project covers an area of about 610 ha. It is a designated project (DP) under Item 1<sup>1</sup>, Schedule 3 of the EIAO. The Project also covers the following individual DPs under Schedule 2 of the EIAO (**Figure 2**):

- (i) Item A.1<sup>2</sup>: Construction and operation of a new Primary Distributor Road (Road P1);
- (ii) Item A.1: Construction and operation of six new Distributor Roads (Roads D1 to D6);
- (iii) Item F.1<sup>3</sup> : Construction and operation of a new ST/LMC Effluent Polishing Plant (treatment capacity of 125,000 cum/day);
- (iv) Item F.4<sup>4</sup>: Construction and operation of a new water reclamation plant;
- (v) Item G.2<sup>5</sup> – Construction and operation of a new refuse transfer station (to be assessed under separate EIA study);
- (vi) Item H.1<sup>6</sup> – Construction and operation of two new 400 kV electricity substations (to be assessed under separate EIA study);
- (vii) Item I.1<sup>7</sup> - Revitalization of the San Tin Eastern Main Drainage Channel (STEMDC) which is located within 300 m from conservation area; and
- (viii) Item P.1<sup>8</sup> - Construction and operation of open spaces (recreational uses) which are located within Deep Bay Buffer Zone 2.

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<sup>1</sup> Item 1 of Schedule 3 –“An urban development or redevelopment project covering an area of more than 50 ha”

<sup>2</sup> Item A.1 of Part I, Schedule 2 – “A carriageway for motor vehicles that is an expressway, trunk road, primary distributor road or district distributor road”.

<sup>3</sup> Item F.1 of Part I, Schedule 2 – “sewage treatment works with an installed capacity of more than 15,000m<sup>3</sup> per day”.

<sup>4</sup> Item F.4 of Part I, Schedule 2 - “A facility for generating from sewage effluent treated by a sewage treatment plant, reclaimed water for use by the general public”.

<sup>5</sup> Item G.2 of Part I, Schedule 2 – “a refuse transfer station”.

<sup>6</sup> Item H.1 of Part I, Schedule 2 – “a 400 kV electricity substation and transmission line”.

<sup>7</sup> Item I.1 of Part I, Schedule 2 – “a drainage channel or river training and diversion works located less than 300m from the nearest boundary of an existing or planned conservation area”.

<sup>8</sup> Item P.1 of Part I, Schedule 2 –“a recreational development within Deep Bay Zone Buffer Zone 1 or 2”.

## TRANSITIONAL ARRANGEMENT OF THE TECHNICAL MEMORANDUM

11. As announced by the Chief Executive in the 2021 Policy Address, EPD conducted a review on the EIA mechanism (the Review) with a view to optimising the EIA procedures, improving the operational efficiency, and focusing more on environmental performance. As one of the four recommendations<sup>9</sup> under the Review, a new TM has been prepared to replace the previous one. We briefed the ACE Members on the review results and recommendations on the enhancement initiatives at the ACE meeting on 20 March 2023, including the new TM.

12. Based on past experience of conducting EIA studies, and in response to the development of engineering design and construction, we have adopted the following principles and directions to revise and update the technical assessment guidelines and requirements in the TM:

- (i) Establish standard practices for conducting various technical assessments in the EIA, clearly define the methods and scope of various baseline surveys and environmental assessments;
- (ii) Avoid overlapping with other environmental legislation;
- (iii) When evaluating the environmental impact of DPs, take into consideration the overall environmental conditions in Hong Kong and the improvements that would be brought by the Government's strategic plans and policies on environmental protection to make the evaluation more comprehensive and realistic; and
- (iv) Amend the text to make the requirements and guidelines for various technical assessments clearer and to avoid unnecessary misunderstandings.

13. The new TM was supported by the Legislative Council (LegCo) and became effective on 30 June 2023. Project proponents who commence EIA studies after 30 June 2023 shall follow the requirements as stipulated in the new TM. While project proponents of on-going EIA studies are encouraged to adopt the new TM, the LegCo Brief for the Review also set out the transitional arrangement which permits EIA studies in which technical assessments have already commenced and the assessment methodologies have been agreed to follow the agreed methodologies and/or the technical requirements as stated in the issued EIA study brief and the previous TM.

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<sup>9</sup> The four recommended initiatives of the Review include (1) Centralised Environmental Database; (2) Updated the List of DPs under the EIAO; (3) Updated the Requirements of Technical Assessments; and (4) Better Use of Direct Application for EP.

14. In connection with the new TM, EPD issued 2 new and 4 updated Guidance Notes to provide guidelines on carrying out technical assessments according to the requirements in the new TM. The new/updated Guidance Notes were circulated to Members in December 2023 for information and have been uploaded to the EIAO website for public access.

15. Based on the progress of the technical assessments of the Project, the Applicant followed the agreed methodologies and/or the technical requirements as stipulated in the issued EIA study brief and the previous TM for aspects including water quality, waste management, land contamination, ecology, fisheries, landscape, visual and cultural heritage impact assessments. For air quality and noise impact assessments, the Applicant followed the requirements of the new TM to achieve a more comprehensive environmental monitoring during construction and better protection to nearby sensitive receivers.

## **CONSIDERATION OF ALTERNATIVE OPTIONS**

16. The EIA report (ref. Section 2.8) has considered and described different development options for the Project, including the land uses, general layout, road alignments, designs, construction method, sequence of works, etc. to avoid and minimise environmental impacts. The environmental benefits and dis-benefits of the options have been evaluated. The recommended options of various Project items have taken into account environmental considerations, site constraints, comments received from the public and government departments, including those received during the PE exercise on the RODP conducted by CEDD and PlanD. The key approaches adopted to avoid or minimise environmental impacts are summarised below:

### **(a) Avoidance of Impacts**

- (i) To avoid impact to recognised sites of conservation importance, the development area does not encroach onto the Ramsar Site;
- (ii) To avoid impact to the existing east-west birds' flight corridor near areas of Lok Ma Chau Loop and the proposed Sam Po Shue Wetland Conservation Park (SPS WCP), a 300 m wide non-building area (NBA) will be established along the flight corridor;
- (iii) To avoid direct impacts to egrettries, an open space zoning is proposed in the RODP to retain and protect the core area of Mai Po Lung Village (MPLV) Egretty and the development will not encroach onto the Mai Po Village (MPV) Egretty which is located to the west of the Project;
- (iv) To avoid loss of habitat connectivity for wildlife, wildlife movement corridors for non-flying mammals (e.g. Eurasian Otter) between the Loop

and the proposed SPS WCP, and between green belt areas have been incorporated in the Project (please see paragraph 30 for details);

- (v) To avoid direct impact to watercourses, the natural watercourse near the woodland habitat at Pang Loon Tei is proposed to be retained;
- (vi) To avoid encroachment and fragmentation of the mature woodland, the development area does not encroach onto the woodland habitat in Pang Loon Tei;
- (vii) To avoid massive excavation of the natural slope and mountainous area to the east/south of Project area; and
- (viii) To avoid increase in pollution loading to the Deep Bay, new sewerage network would be provided to cover existing unsewered areas within or in the vicinity of the Project area.

#### **(b) Minimisation of Impacts**

- (i) To minimise construction disturbance on the MPLV and MPV Egrettries, stringent seasonal control of construction activities during breeding period within 100 m buffer area of the egrettries, and incorporation of a 70 m wide NBA along the flight path connecting the MPLV Egrettry to the wetland habitats on the north as well as a 35 m wide NBA along the northwest of the Project boundary to preserve flight lines recorded at the MPV Egrettry would be implemented;
- (ii) To minimise impact due to direct loss of 2 night roosts, roosting substratum at suitable locations for both night roosts would be re-provisioned before their removal, and the construction activities and tree felling for both roosting sites would only be allowed in wet season (April – September);
- (iii) To minimise the disturbance impact of the Project on the proposed SPS WCP, NBA (35m-wide) and stepped building height (15mPD/35mPD) along the edge of the proposed SPS WCP would be introduced;
- (iv) To minimise the odour impact from the proposed effluent polishing plant, food waste pre-treatment facility and refuse transfer station, odour control measures such as covering the major odour sources, provision of deodourising treatment and locating the exhaust of the deodorisers away from sensitive receivers would be implemented;
- (v) To minimise construction noise, use of quieter plants and careful scheduling of construction works would be implemented;

- (vi) To minimise construction dust, good site practices including watering of exposed areas and careful scheduling of construction works would be implemented; and
- (vii) To minimise visual impacts, blue-green network, view corridors, stepped building heights, buffer zones, sensitive and aesthetic design, etc. would be established.

## **SPECIFIC ENVIRONMENTAL ASPECTS TO HIGHLIGHT**

17. The key findings of the EIA report in specific environmental aspects are summarised below.

### **Ecology**

#### ***Ecological Survey***

18. A 12-month ecological field survey covering both dry and wet seasons was conducted by the Applicant from November 2021 to October 2022 to provide ecological information concerning the Project area and the surrounding 500 m assessment area.

19. The baseline ecological survey covered 16 types of ecological habitats, avifauna, egret, roosting ardeids and great cormorants, terrestrial mammal, herpetofauna, butterfly and odonate, and freshwater community. A total of 152 avifauna species were recorded in the assessment area, 68 of which are species of conservation importance (including sensitive species such as Black-faced Spoonbill, Great Cormorant, Great Egret and Grey Heron). Other species of conservation importance including flora, mammals (e.g. bats), herpetofauna, insects and freshwater fauna were also recorded. For Eurasian Otter, which is a species of conservation importance with local concern, although it was not recorded in the baseline ecological survey, its presence within the assessment area was assumed with reference to a recent publication recording spraints (otter scats) within the assessment area in 2018 and 2019. The potential impacts on Otters arising from the Project were assessed accordingly and mitigation measures (ref. EIA report Sections 10.5.2.7 and 10.8.1.51; and paragraphs 24 and 30 below) were recommended.

#### ***Ecological Impacts***

20. After the incorporation of the avoidance and minimisation measures as mentioned in paragraph 16 above, the Project would result in unavoidable permanent loss of habitats, including direct loss of about 89 ha of fishpond habitat with “moderate” to “high” ecological values due to filling of fishponds within the

Project boundary and indirect disturbance to adjacent contiguous fishpond habitat of about 63 ha outside the Project boundary.

21. In addition, direct loss (about 28 ha) and indirect disturbance (about 8 ha) of other freshwater wetland habitats, including marsh, reed bed and semi-natural/modified watercourses, would also arise from the proposed development. These affected freshwater wetland habitats were evaluated to range from “low” to “moderate” ecological values.

22. The wetland loss and associated disturbance impact would be compensated through establishment of the SPS WCP with the details set out below.

***Active Compensation through Establishment of Sam Po Shue Wetland Conservation Park (SPS WCP)***

23. The Government will develop a SPS WCP (**Figure 3**), which is located adjacent to the west of the Project boundary, with a proposed area of approximately 338 ha to create environmental capacity for the development and the compensation of the ecological impact of this Project. Among the 338 ha, while 10 ha is reserved for supporting facilities such as visitor center and other basic infrastructure, the ecological function and capacity of 288 ha of wetlands and fisheries resources of 40 ha of fishponds will be enhanced (see paragraph 32 below) with active conservation management and modernised aquaculture respectively to compensate for the loss in wetland habitats and fisheries resources arising from the development of San Tin Technopole and to achieve no-net-loss in ecological function and capacity of the wetlands concerned. Among the 288 ha, there will be 253 ha of “ecologically enhanced fishponds” compensating for fishpond habitat loss, and 35 ha of “enhanced freshwater wetland habitat” compensating for other freshwater wetland habitat loss.

24. The proposed ecological enhancement measures for wetlands at the proposed SPS WCP include: -

- (i) increase in pond area and enhance connectivity across the proposed SPS WCP, the Deep Bay Area and the Mai Po Nature Reserve (**Figure 3**);
- (ii) physical modification of pond habitats to increase environmental carrying capacity;
- (iii) managing and sequencing pond drain-down across multiple ponds in the dry season to maximise feeding opportunities for waterbirds and other wildlife;
- (iv) providing fencing/controlling access to reduce disturbance from human activities and also prevent disturbance and predation of wildlife (e.g. Eurasian Otters) by feral dogs;



- (v) removal of existing bird scaring devices at actively managed ponds, where appropriate;
- (vi) providing artificial holts and floating platforms as specific enhancement measures for Eurasian Otters (ref. EIA report Section 10.11.3.31) under “enhanced freshwater wetland habitats” which are the key habitats for otters; and
- (vii) stocking ponds with suitable prey items (i.e. trash-fish) for target wildlife species as an additional enhancement measure before and during both the construction and operation stages where necessary.

25. In the estimation of the compensation requirement (details of the compensation requirement calculations are set out in **Annex 2**), reference has been made to relevant assumptions adopted in the approved EIA report for the Proposed Development at Fung Lok Wai, Yuen Long that the bird density of areas of typical commercially managed fishponds (i.e. active/inactive fishponds) can be increased by 45% upon the implementation of similar ecological enhancement measures. In addition, a study on drain-down effects of fishponds under an existing fishpond management agreement has shown that pond drain-down is effective in attracting high abundance and species richness of most waterbird species, with significant increase in abundance of avifauna after pond drain-down<sup>10</sup>. The Lok Ma Chau Spurline compensatory wetlands also demonstrated that bird density of wetlands can be increased by 100% or more with the implementation of trash-fish stocking.

26. The Government aims to take forward the development of San Tin Technopole in parallel with the conservation works at the proposed SPS WCP, and endeavours to achieve the over-riding principle of no-net-loss in ecological function and capacity of the wetlands concerned. As such, the development of the proposed SPS WCP will start in around 2026/2027 for completion by 2039 or earlier to tie in with the full operation of San Tin Technopole. For the site formation works of the first batch of land at San Tin Technopole targeted for commencement in late 2024, no pond filling will be involved. The EIA report recommended that pond filling works should not start until 2026/2027, and the pace of pond filling should tie in with the development progress of the SPS WCP. To this end, a working group will be formed between CEDD (as San Tin Technopole’s works agent) and the Agriculture, Fisheries and Conservation Department (AFCD) (as SPS WCP’s sponsoring department) to coordinate the progress of pond filling and SPS WCP implementation.

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<sup>10</sup> Study on pond drain-down effect (ACE-NC Paper 1/2016) showed significant increase in abundance of target waterbird species per fishpond (i.e. Cormorants, Ardeids, and Spoonbills), with at least about two-fold increase or higher.

27. The Applicant will be required to submit a Habitat Creation and Management Plan (HCMP) to provide the implementation details of the enhanced wetlands, the associated management and monitoring requirements (e.g. frequency and parameters). The ecological monitoring would focus on the abundance of key wetland bird species (e.g. Black-faced Spoonbill, Great Cormorant, Great Egret, Grey Heron, which were the target species adopted in the HCMP of the LMC Spurline project) within the impacted area under the Project and the wetland enhancement area in the proposed SPS WCP. The ecological monitoring would be conducted (1) before construction phase to establish baseline conditions, (2) at certain milestones between the commencement of pond filling and the full operation of San Tin Technopole. Details of the ecological monitoring would be formulated under the HCMP, which will serve to ensure proper implementation of the proposed enhancement measures and verify the effectiveness of the proposed measures as well as trigger appropriate follow-up actions when the abundance of key wetland bird species is lower than the mitigation target. As in other EIAs, the ecological monitoring will become part and parcel of the future EM&A requirements.

#### ***Enhancement Measures before and during Construction Stage***

28. To minimise ecological impacts arising during the construction stage, the Applicant would implement a series of enhancement measures, which include:

- (i) Interim wetland enhancement prior to the commencement of pond filling works, e.g. restoration of abandoned ponds and active management including fish stocking at suitable ponds identified in the Inner Deep Bay area;
- (ii) Desilting of 3 selected tidal channels near Mai Po Nature Reserve; and
- (iii) Clearance of invasive and exotic mangrove species on mudflat (*Sonneratia* spp.) in the Deep Bay Area.

29. In addition to the loss of fishpond habitat, loss of about 1.7 ha of woodland would arise from the Project. To compensate for the unavoidable loss of woodland, woodland compensation would be provided based on “no net loss” and “like for like” basis or by providing a compensation area with equivalent or higher ecological function. An off-site compensatory woodland planting area has been identified near the compensatory woodland for the Development of Lok Ma Chau Loop project. A woodland compensation plan setting out the implementation details would be formulated and submitted by the Applicant prior to the commencement of construction at the woodland habitat.

### ***Provision of Wildlife Corridors***

30. Wildlife corridors have been proposed in both the northern and southern portions of the Project area (ref. EIA report Section 10.11.11; and **Figures 4a to 4c**) to facilitate movement of non-flying mammals such as Eurasian Otters. For the northern portion, the wildlife corridors will be provided in form of underpasses (across Ha Wan Tsuen East Road and San Sham Road) and aboveground corridors within the AFCD Fisheries Research Centre adjacent to the Lok Ma Chau Meander, as well as adjacent to the STEMDC. Subject to the detailed design, the underpass will be in form of a box culvert. As for the aboveground wildlife corridors adjacent to the STEMDC, water features, such as a watercourse with gabion riverbank and ledges installed along the two sides, will be provided. Also, landscaping features (e.g. dense shrubs and trees) will be provided on both sides of the wildlife corridor within the AFCD Fisheries Research Centre, which serves as a form of soft fencing to minimise disturbance from the surrounding environment (e.g. human activities, glare from artificial light and noise). For the southern portion, wildlife corridors will also be provided in form of both underpasses and aboveground corridors to ensure ecological linkage between green belts in the southern portion of the Project.

31. The EIA concluded that with the implementation of the proposed mitigation and compensation measures, no adverse residual ecological impacts is anticipated from the construction and operation of the Project.

### **Fisheries**

32. The Project would result in a loss of active fishponds (about 53 ha) and inactive fishponds (about 30 ha) within the Project boundary, which is considered to be of potentially moderate and minor impacts respectively. To compensate for the direct permanent loss of active and inactive fishponds, a fisheries enhancement area of 40 ha has been recommended within the proposed SPS WCP, with the incorporation of modernised aquaculture technologies which have been adopted in China and overseas and proven effective in improving both the yield and quality of aquaculture production (e.g. recirculating aquaculture system (RAS)). AFCD's Fisheries Research Centre will also be established under the initial phase of the Project to provide technical support to fish farmers and to ensure the proper implementation of these practices of modernised aquaculture in enhancing the actual fisheries production.

33. With the implementation of the above recommended measures, no adverse fisheries impact is anticipated from the construction and operation of the Project.

### **Noise**

34. Operational noise impacts include road traffic noise, rail noise and fixed noise sources. The EIA concluded that for rail noise and fixed noise sources, the

noise levels at sensitive receivers would meet relevant criteria and no mitigation measure is required.

35. For operational road traffic noise impact, the EIA has proposed mitigation measures including use of low noise road surfacing, vertical/cantilevered noise barriers, building orientation and provision of acoustic windows at sensitive receivers to mitigate traffic noise impact. With these mitigation measures in place, respective noise levels at sensitive receivers would meet relevant criteria.

36. For the construction noise impact, with the implementation of practical mitigation measures including the use of quieter construction methods and plants, and proper scheduling of works, construction noise arising from the Project would meet relevant criteria.

### **Air quality**

37. Vehicular emissions from open roads during the operation phase of the Project have been assessed in the EIA report. The use of biogas generated from the proposed effluent polishing plant (EPP) as a fuel for its combined heat and power (CHP) units and steam boiler has also been assessed. The key concerned air quality parameters would be nitrogen dioxide (NO<sub>2</sub>), respirable suspended particulates (RSP), fine suspended particulates (FSP) and Sulphur dioxide (SO<sub>2</sub>). The predicted cumulative air quality assessment results indicated compliance with the Air Quality Objectives (AQOs). Other non-AQO criteria pollutants (including methane, HCl, HF, formaldehyde) would also comply with the relevant standards at representative air sensitive receivers.

38. Potential odour impact from the operation of the existing pig farm in the vicinity of the Project area, proposed refuse transfer station (RTS), effluent polishing plant, food waste pre-treatment facility and sewage pumping stations have also been assessed in the EIA report. With the implementation of odour control measures, such as covering of major odour sources and provision of deodourising treatment, the EIA concludes that the predicted cumulative odour impact at most of the sensitive receivers will comply with the established criterion. Though odour exceedance was predicted at some existing village houses (close to the existing pig farm and San Tin Barrack Sewage Treatment Works), the removal of 9 livestock farms due to the implementation of the Project would bring an overall improvement and hence no adverse residual odour impact would be expected.

39. For construction phase, with the implementation of dust control measures such as good site practices, watering of exposed areas and careful scheduling of works, the construction dust impact is considered acceptable.

## **Sewerage and Water Quality**

40. Sewage generated from the Project will be collected, treated and disposed of at the new effluent polishing plant (EPP) with tertiary treatment level. Most of the treated sewage effluent generated by the Project would be further polished by the new Water Reclamation Plant for non-potable uses such as toilet flushing and irrigation; while the remaining treated sewage effluent will be discharged to the Deep Bay. The EIA concluded that water quality impact and sewerage impact would be acceptable with the implementation of the recommended mitigation measures.

## **Land contamination**

41. One of the key issues is the high background concentration of Arsenic (As) in the soil within the Project area. Based on the results of the ground investigation, land use history and the previously approved “North East New Territories New Development Areas (NENT NDA)” EIA report, it is considered that the high level of As is naturally occurring. Prior to the construction phase, re-appraisal of land contamination will be carried out to ascertain the extent of soil that will exceed the acceptable level of 571mg/kg (as derived in the NENT NDA EIA). Soil with high As concentration (i.e. over acceptable level of 571mg/kg) will be treated by appropriate method such as solidification/stabilisation method and the treated soil would be reused on-site or off-site. For the construction phase, suitable mitigation measures, including temporary covering of excavated materials, regular watering and wheel washing facilities, as well as providing protective clothing to workers, etc. will be implemented to safeguard the workers and the residents nearby.

## **Landscape and visual**

42. About 64,500 trees were found within the development boundary. It is anticipated that about 56,400 of them are in direct conflict with the footprint of the Project and will be felled or transplanted, while the remaining 8,100 nos. of them will be retained. Among the identified 17 nos. of trees of particular interest (TPI), 8 nos. are proposed to be retained in-situ and 9 nos. are proposed to be felled or transplanted subject to detailed design. Compensatory planting at a 1:1 ratio will be provided as far as practicable within the Project boundary. A tree compensatory plan would be formulated during the detailed design stage to confirm the planting location and requirement.

43. The transformation of presently predominated brownfield sites into an I&T hub and a balanced and vibrant community with proper landscape urban design treatments would result in landscape and visual improvement.

## **Cultural Heritage**

44. No site of cultural heritage (defined under Schedule 1 of the EIAO) falls within the Project boundary, hence there will be no direct impact on any site of cultural heritage. Mitigation measure is not required for the conservation and preservation of sites of cultural heritage and the relevant requirements of the EIAO-TM are met.

45. Eight archaeologically sensitive areas (ASA) are identified within the Project boundary. Among these ASA, the Mai Po Lung (North) ASA is planned to be an open space for preservation of an egret, hence no direct impact on this ASA is anticipated. For the remaining 7 ASA, direct impact is anticipated should works involving soil disturbance (e.g. site formation) be carried out. With the implementation of the following mitigation measures, the impact level is considered to be acceptable:

- (i) Archaeological Watching Brief is recommended during the construction phase at the Shek Wu Wai ASA and Mai Po Lung (South) ASA which are assessed with a moderate archaeological potential; and
- (ii) Further archaeological survey at later stage of the Project after land resumption but before construction is recommended at the remaining 5 ASA namely Hop Shing Wai ASA, Mai Po ASA, Siu Hom Tsuen (West) ASA, Siu Hom Tsuen (East) ASA and Pang Loon Tei ASA which are assessed with a high archaeological potential.

46. If antiquities or supposed antiquities under the Antiquities and Monuments Ordinance (Cap. 53) are discovered, the Applicant shall inform the Antiquities and Monuments Office (AMO) immediately and agree on the appropriate mitigation measures.

## **Other Environmental Impacts**

47. Other environmental impacts, including waste management, landfill gas hazard and hazard to life have been assessed in the EIA report. With the implementation of recommended mitigation measures, the Project will comply with relevant requirements set out in the TM.

## **ENVIRONMENTAL BENEFITS**

48. Key environmental benefits of the Project identified in the EIA report include :

- (i) Minimisation of Industrial/Residential (I/R) interface problems: Currently, about 126 ha of land within the Project area has been disturbed by brownfield operations. Under the Project, these brownfield sites would be converted to residential and economic uses, open space, government, institution or community facilities, etc. in accordance with the RODP. Through comprehensive planning of the area, it would help alleviate existing I/R interface problems resulting from the existing brownfield operations.
- (ii) Revitalisation of Drainage Channels: Two main drainage channels (San Tin Eastern Main Drainage Channel (STEMDC) and San Tin Western Main Drainage Channel (STWMDC)) are proposed for revitalisation. The revitalised channels would be used as green buffer or to be integrated with the public open space for public enjoyment.
- (iii) Conservation of ecological resources: The core area of the Mai Po Lung Village Egretty will be preserved and the surrounding urbanised/disturbed areas will be revitalised/enhanced with provision of open space, preservation of trees, provision of water features and planting of mature and native trees.
- (iv) Enhancement of landscape resources and visual environment: The development would integrate its surrounding settings by positioning high density developments near the future railway station in the south of San Tin Highway and transitioning to medium and low density development to the north. Design features, such as breezeways, view corridors, non-building areas, stepped building height with building height control, revitalised drainage channels, eco-interface, etc. will also be incorporated.
- (v) Removal of Existing Odour Sources: 9 livestock farms (including 7 pig farms and 2 chicken farms) in the Project area will be removed, resulting in an overall enhancement in living environment in the Project area.

## **ENVIRONMENTAL MONITORING AND AUDIT**

49. The EIA report includes an Environmental Monitoring and Audit (EM&A) Manual, which recommends an EM&A programme during the construction and operational phases of the Project. Key recommended EM&A requirements cover air quality, noise, water quality, waste management, land contamination, ecology, and landscape and visual issues. Specific ecological monitoring requirements on the proposed SPS WCP which serve as the off-site ecological compensation of the Project will be developed under the HCMP for approval by relevant Government authorities before the commencement of pond filling works.

## **PUBLIC CONSULTATION**

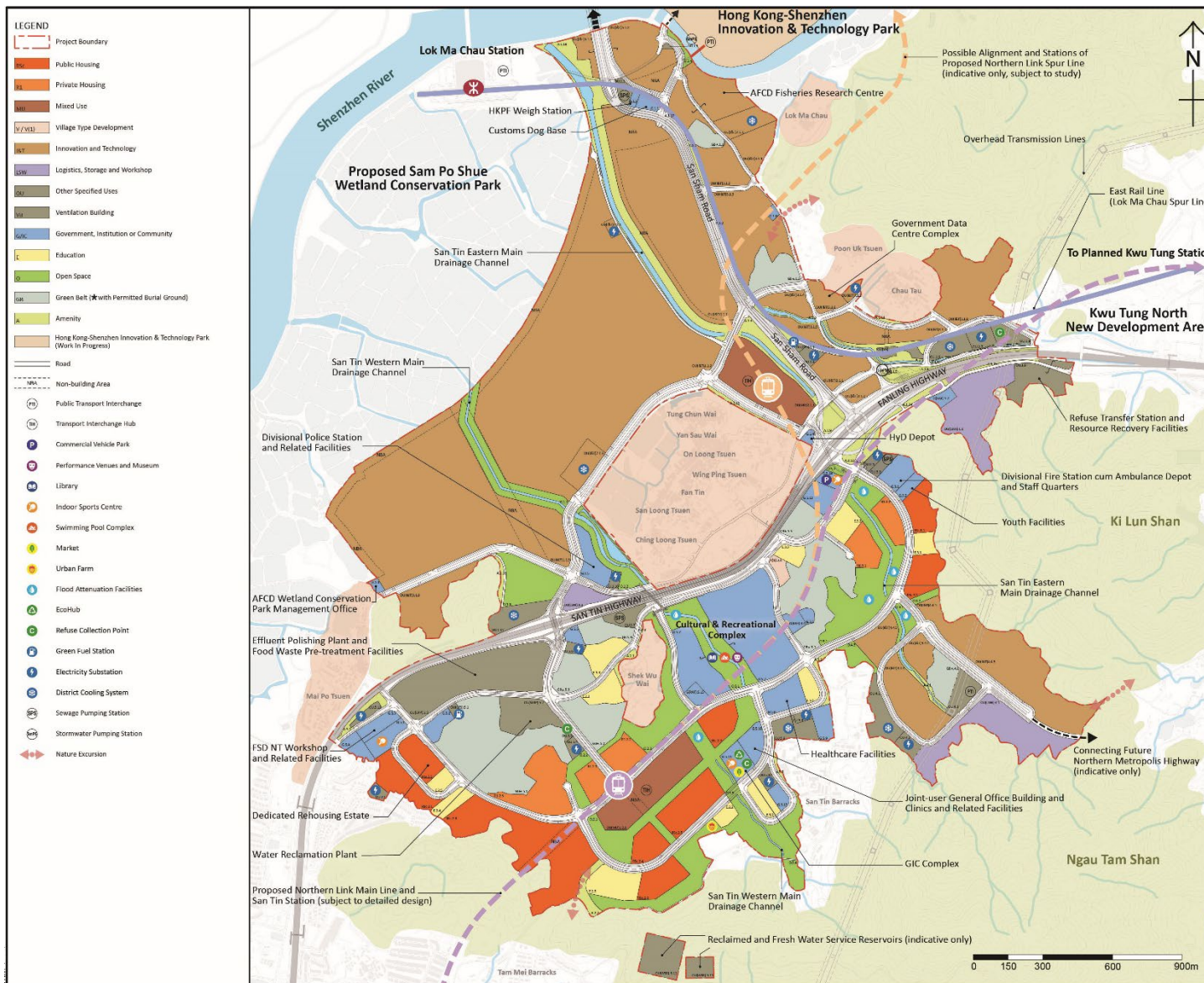
50. The Applicant has made the EIA report, EM&A Manual and Executive Summary available for public inspection under the EIAO from 2 February 2024 to 2 March 2024. During the inspection period, a total of 50 public comments were received by EPD. The main environmental concerns raised by the public are related to ecology. These main concerns would be summarised in a gist to be provided separately.

**March 2024**

**Environmental Assessment Division**

**Environmental Protection Department**





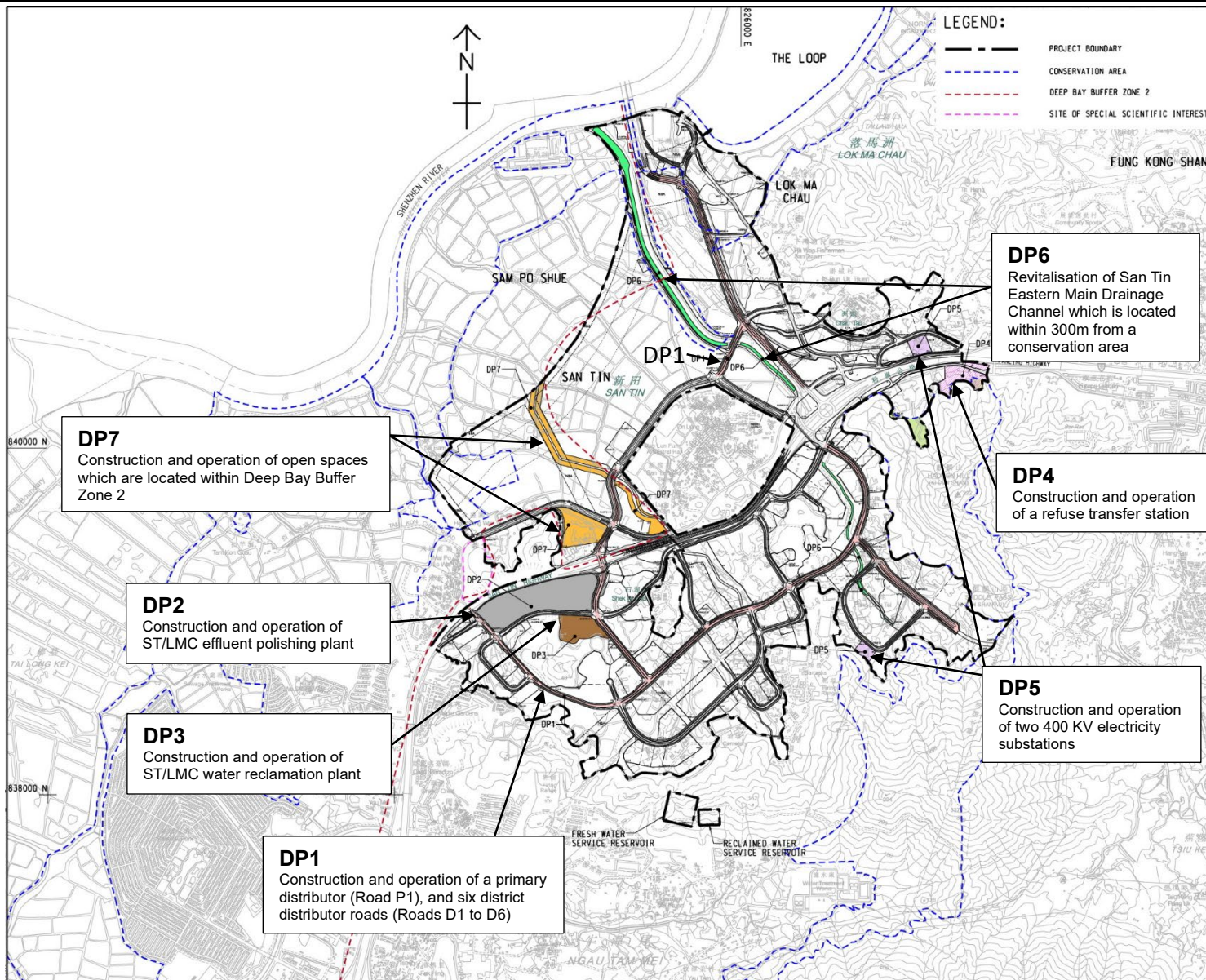
**Project Title: San Tin / Lok Ma Chau Development Node**

**Figure 1 Recommended Outline Development Plan of the Project**

(Based on Figure 2.1 of the EIA Report)

**Application No.: EIA-302/2023**





**Project Title: San Tin / Lok Ma Chau Development Node**

**Figure 2 Schedule 2 Designated Projects of the Project**

(Based on Figure 1.2 of the EIA Report)

**Application No.: EIA-302/2023**





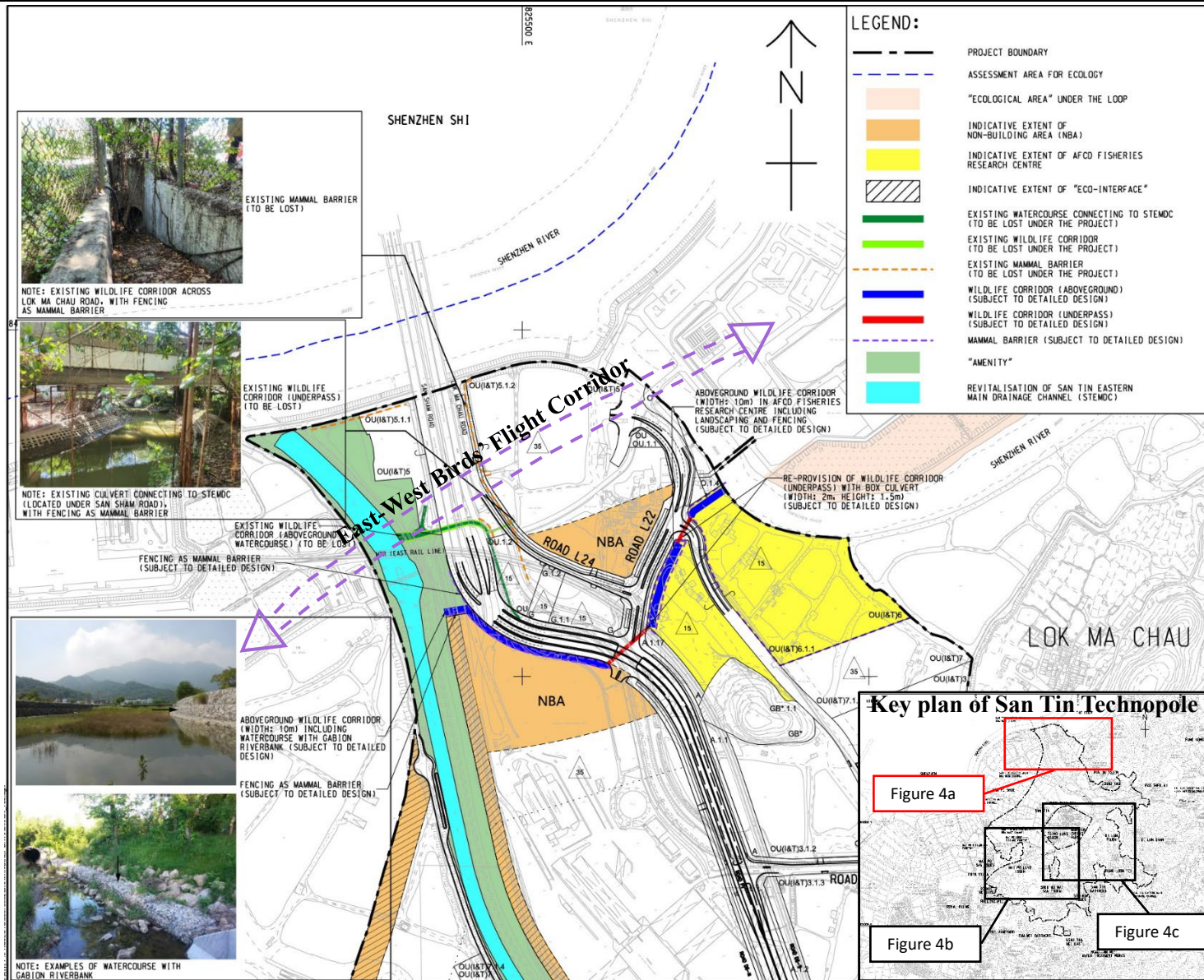
**Project Title: San Tin / Lok Ma Chau Development Node**

**Figure 3 Sam Po Shue Wetland Conservation Park**

(Based on Figure 10.12A of the EIA Report)

**Application No.: EIA-302/2023**

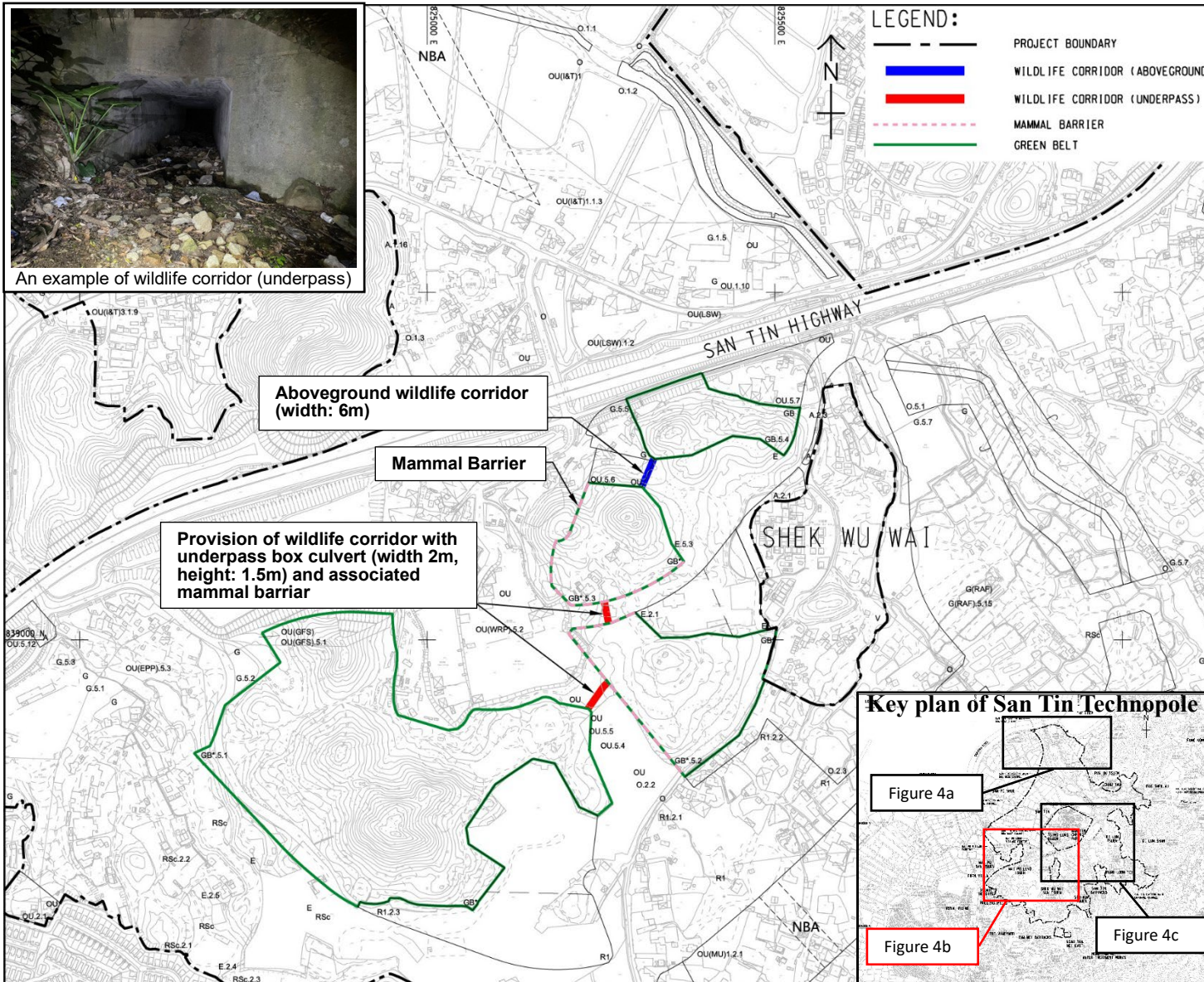




**Project Title: San Tin / Lok Ma Chau Development Node**  
**Figure 4a Wildlife Corridor in Northern Portion of Project Area**  
 (Based on Figure 10.10A of the EIA Report)

Application No.: EIA-302/2023





**Project Title: San Tin / Lok Ma Chau Development Node**

**Figure 4b Wildlife Corridor in Southern Portion of Project Area**

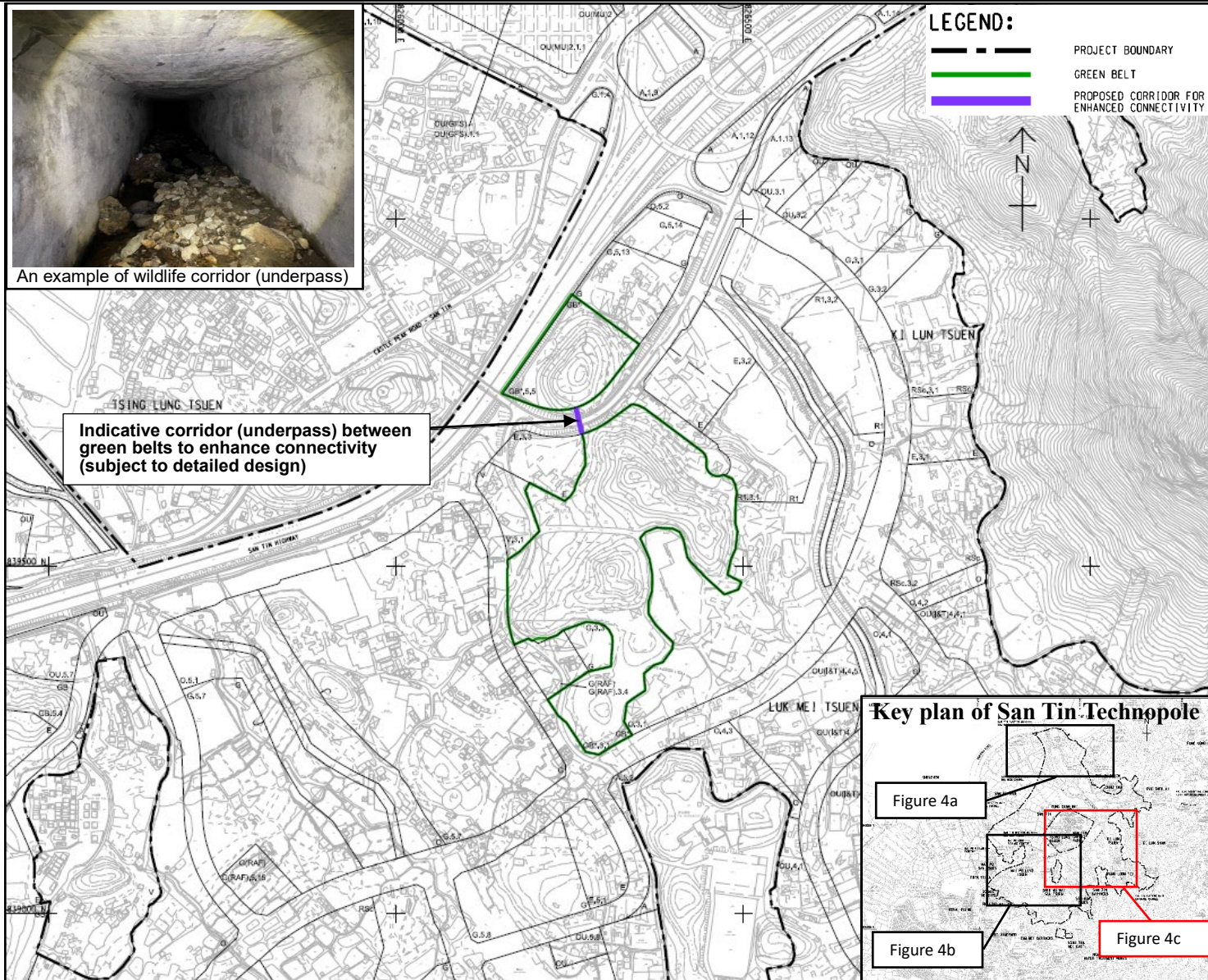
(Based on Figure 10.10B of the EIA Report)

**Application No.: EIA-302/2023**





An example of wildlife corridor (underpass)



**Project Title: San Tin / Lok Ma Chau Development Node**

**Figure 4c Wildlife Corridor in Southern Portion of Project Area**

(Based on Figure 10.10C of the EIA Report)

**Application No.: EIA-302/2023**



**Annex 1 - Summary of Comments Received during Public Engagement conducted by CEDD and PlanD, and Initial Responses**

<b>Key Issue</b>	<b>Public Concerns</b>	<b>Initial Responses</b>
Fishponds filling	<p>Information on wetland affected by the development of San Tin Technopole including their locations and area, and compensation arrangements for the loss of wetland should be provided. Some considered not acceptable to have the wetland loss of about 150 ha. The Government should demonstrate that there would be “no-net-loss in wetland” arising from the development of San Tin Technopole. Information should be provided to justify the need for affecting a large area within the Wetland Conservation Area (WCA).</p> <p>Concern on the population of Eurasian Otters and their associated habitat that would be impacted under the pond filling works under San Tin Technopole.</p>	<p>Under the Project, appropriate enhancement measures have been proposed on the loss of habitat, to compensate the loss in ecological function and capacity of wetland habitats arising from the Project, including wetland compensation measures such as consolidating smaller ponds, reprofiling pond banks, creating habitat islands, adopting modernised aquaculture, to be implemented in SPS WCP.</p> <p>No individuals of Eurasian Otter were sighted from ecological surveys under the EIA Study. Nevertheless, the study has been conducted by assuming the Eurasian Otter’s habitat is within the study area as cited in the literature review. Provision to cater for the potential population of Eurasian Otters such as wildlife corridor have been considered. The EIA report also recommended to provide five wildlife corridors as detailed in <b>Figures 4a-4c</b>.</p>
Impacts on natural habitats for birds	<p>Details for preservation of ecological corridor and bird flight path at the north of San Tin Technopole should be provided. Although the planning of San Tin Technopole would safeguard the flight path of migratory birds, it would destroy their habitats.</p>	<p>In view of the habitat loss under the Project, appropriate mitigation measures (including compensation of wetland habitats and minimisation of disturbance) have been proposed to include the wetland habitats and associated bird species.</p>

<b>Key Issue</b>	<b>Public Concerns</b>	<b>Initial Responses</b>
<p>Status of the proposed Sam Po Shue Wetland Conservation Park (SPS WCP)</p>	<p>There were views that the Government should first complete the strategic feasibility study on the development of Wetland Conservation Parks (WCPs) System being conducted by the Agriculture, Fisheries and Conservation Department (AFCD) before deciding on the scale of the Project. Some also suggested that the Government should provide more information about the proposed SPS WCP, such as its indicative boundary, intended uses, proposed conservation measures to satisfy the “no-net-loss in wetland” principle, management and financial arrangements, and future connection to the proposed Hoo Hok Wai WCP.</p>	<p>The Government will establish the SPS WCP, which will enhance the conservation of habitats, compensate and mitigate the impact to ecology and fisheries arising from the development of San Tin Technopole, as well as to ensure no-net-loss in ecological function and capacity of the wetlands concerned. More specifically, the Government will enhance the ecological and fisheries resources of the wetland concerned with active conservation management and modernised aquaculture to compensate for the loss in wetland and fisheries resources arising from the development of San Tin Technopole.</p> <p>AFCD is now conducting a strategic feasibility study on the development of WCPs System to determine the locations, extents, functions, positioning and management mode etc. of various parks proposed under the WCPs System (including SPS WCP), with completion expected in the first half of 2024. The Government expects that the construction works for the proposed SPS WCP will commence in around 2026/2027 the earliest for completion earlier than or upon the full operation of the San Tin Technopole project (tentatively in 2039). Sensible transition between the proposed SPS WCP and the proposed development would be ensured by adopting a building height profile stepping down from 75mPD to 15mPD towards the wetland, with a 35m-wide non-building area (NBA) along the wetland edge to minimise the</p>



<b>Key Issue</b>	<b>Public Concerns</b>	<b>Initial Responses</b>
		disturbance impact of the proposed development on the proposed SPS WCP. Major east-west birds' flight path is also preserved by designation of NBA and low-rise facilities.
Close proximity to the Mai Po Inner Deep Bay Ramsar Site	Interface with the Mai Po Inner Deep Bay Ramsar Site which was recognised as a Wetland of International Importance.	A piece of land of 980 m <sup>2</sup> , which is currently occupied by temporary structures and without any ponds, at the easternmost tip of the Mai Po Inner Deep Bay Ramsar Site was originally included in the RODP. While this piece of land was originally intended to be part of the proposed landscape buffer (designated as NBA) between the I&T Park and SPS WCP, in view of the concern on the encroachment onto the Ramsar Site, the project boundary has been revised to exclude the said piece of land, so that the entire project area does not encroach onto the Ramsar Site. The said piece of land will also be incorporated as part of the proposed SPS WCP and a 35m NBA buffer will also be provided at the Technopole/SPS WCP interface.
The need of a revised Study Brief under the EIAO for the enlarged Project area	Replacement of EIA Study Brief due to expansion of project boundary, which includes the adjustment of assessment period, sampling method and the assessment area for the expanded project boundary.	The EIA Study Brief (SB) of the ST/LMC DN project was issued on 30 June 2021, which covers a project area of about 340 ha. The 2021 Policy Address proposed to expand ST/LMC DN into San Tin Technopole, and the project area of ST/LMC DN project was expanded to about 610 ha to cover the fish ponds as shown in the RODP available for PE in June 2023. In this connection, CEDD sought confirmation from EPD on 22 May 2023 on the

Key Issue	Public Concerns	Initial Responses
		<p>validity of the EIA SB issued pursuant to Section 6.2 of the EIA SB. In consideration that -</p> <ul style="list-style-type: none"> <li data-bbox="1279 363 2022 596">(i) all the potential environmental issues, in particular ecological and fisheries impacts which need to be assessed in the EIA regarding the fish ponds have already covered in the Sections 3.4.10 and 3.4.11 of the EIA SB issued;</li> <li data-bbox="1279 643 2022 794">(ii) the study approach and details of the methodology such as sampling, duration and frequency of the ecological survey therein still remain valid; and</li> <li data-bbox="1279 841 2022 1074">(iii) the assessment area specified in the EIA SB, which has made reference to the project area (e.g. 500m from the project boundary for ecological impact assessment), will be expanded corresponding to the change in project area.</li> </ul> <p>EPD advised CEDD that the EIA SB issued in June 2021 remains applicable for the latest project area.</p>

## Annex 2 – Details of the Compensation Requirement Calculations

### 1. Efficiency of Wetland Enhancement Measures for Pond Habitat

Reference Monitoring / Survey Data Reviewed	Wetland Enhancement Measures	Increase in Function Value / Efficiency of Measures
Monitoring data from 2016 to 2021 for Lok Ma Chau Spurline Compensatory Wetlands, <i>managed by MTRC</i>	<b>A</b> Trash-fish stocking	Bird density increased by <b>100% or more</b>
Monitoring data from 2006 to 2015 for existing fishponds under the Management Agreement Project (ACE NCSC Paper No. 1/2016), <i>managed by Hong Kong Bird Watching Society</i>	<b>B</b> Pond drain-down	Bird density increased by <b>100% or more</b>
Field survey data and analysis undertaken for the Approved Fung Lok Wai EIA Report	<b>B</b> Pond drain-down	<b>At least 45%</b> increase in functional value of typical commercial fishponds based on survey data <i>(aquaculture maintained)</i>
	<b>C</b> Configuration and re-profiling of fishponds (e.g. consolidate ponds, create habitat islands)	
	<b>D</b> Controlling access from feral dogs and human activities	

Recommended Enhancement Measures for this Project: **B C D**

Additional Measures for Further Enhancement: **A**

**Target to achieve**

at least **45%**

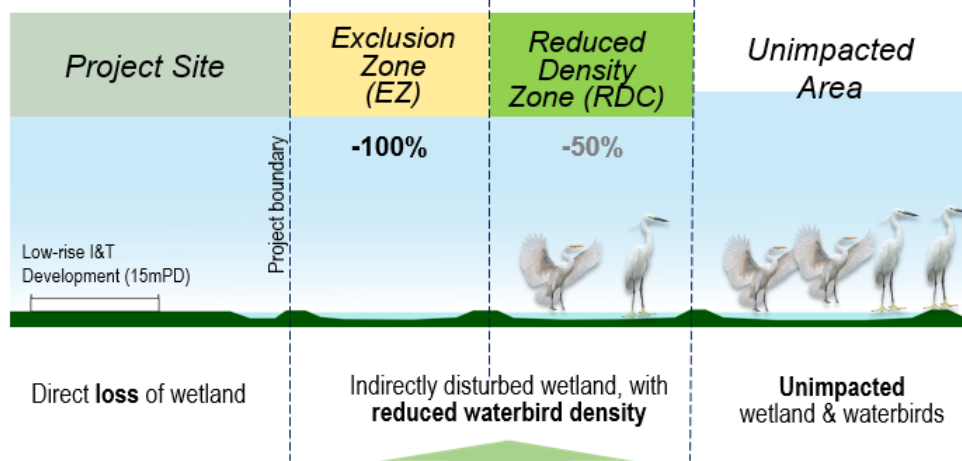
**increase in functional value** as measures adopted.

## 2. Loss in Functional Value in Impacted Area

Loss in functional value (i.e. abundance) in impacted wetland area (about 152 ha)

- For 89 ha Direct Impact: 100% loss in functional value
- For 63 ha Indirect Impact: 100% (in Exclusion Zone) and 50% (in Reduced Density Zone) loss in functional value

### Impacted Wetland Area and Loss in Functional Value



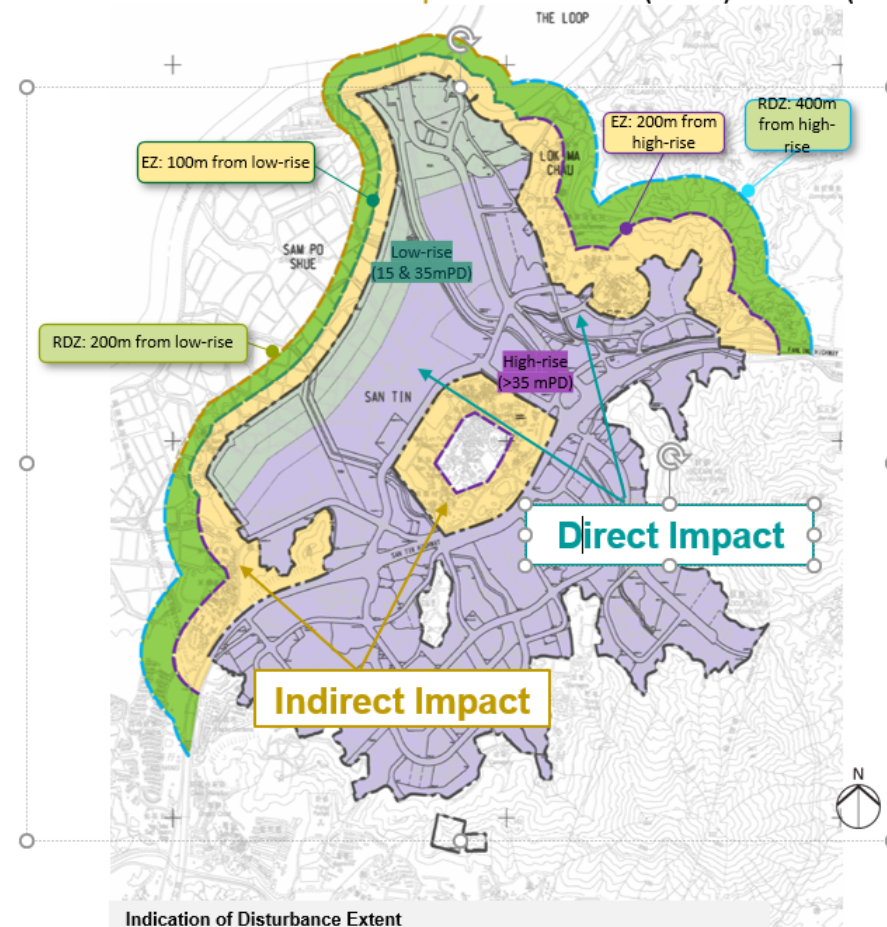
Waterbird Species	Exclusion zone distance	Max distance of reduced density	Sensitivity to disturbance
Black-faced Spoonbill*	<b>100m</b>	<b>200m</b>	<b>High</b>
Great Egret*			
Great Cormorant*			
Grey Heron*			
Little Egret*	20m	100m	Moderate-High
Chinese Pond Heron*		30m	Low
Cattle Egret			

### Indirect Impact Extent of Low-rise Development Adopted in Previous Studies [1]

\*Regularly occurring waterbirds in Lok Ma Chau / San Tin area according to survey data (2000 to 2001) undertaken for Lok Ma Chau Spurline EIA Report

[1] Field Survey data and analysis undertaken for approved Lok Ma Chau Spurline EIA Report & the approved Fung Lok Wai EIA Report

- For 89 ha **Direct Impact**: 100% loss
- For 63 ha **Indirect Impact**: 100% (in EZ) & 50% (in RDZ) loss



## Changes in Functional Value of Indicator Bird Species (Reference: Tables 10.42 and 10.43 of the San Tin / Lok Ma Chau Development Node EIA Report)

**Table 10.42 Estimated Changes in Dry Season Peak Functional Value (i.e. abundance) of Disturbance Sensitive Avifauna within the Directly and Indirectly Impacted Ponds before and after Project Implementation**

Species	Estimated functional value before Project implementation <sup>(1)</sup>	Estimated functional value after Project implementation <sup>(2)</sup>	Estimated change in functional value
Black-faced Spoonbill	17.3	2.8	-14.5
Grey Heron	157.9	12.0	-146.0
Great Egret	48.4	4.4	-44.0
Great Cormorant	208.0	20.2	-187.7

(1) Estimated based on 2021-22 peak dry-season survey density data.

(2) Assumes functional value will be zero in directly impacted ponds and ponds within EZ. Functional value in RDZ will decrease to 50% of its original functional value before Project implementation.

**Table 10.43 Estimated Overall Functional Value Change across Impacted Area and Potential Enhancement Area**

Species	Impacted Area (about 152 ha)	Enhancement Area (253ha)			Overall change in functional value
	Decrease in functional value <sup>(1)</sup>	Existing functional value <sup>(2)</sup>	Post-Project functional value <sup>(3)</sup>	Increase in functional value	
<b>Black-faced Spoonbill</b>	-14.5	62.9	153.6	+90.7	<b>+76.2</b>
<b>Grey Heron</b>	-146.0	114.4	262.5	+148.0	<b>+2.0</b>
<b>Great Egret</b>	-44.0	61.2	106.1	+44.9 <sup>(4)</sup>	<b>+0.9</b>
<b>Great Cormorant</b>	-187.7	292.8	678.6	+385.8	<b>+198.1</b>

### Great Egret

- The most disturbance sensitive species for determining the required enhancement area
- Loss in functional value = 44

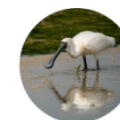
Note:

(1) As estimated in Table 10.42.

(2) Based on 2021-22 peak dry-season survey data.

(3) Actual increase in functional value is higher than 45%, as the enhancement area includes pond with existing functional value lower than typical commercial ponds (i.e., abandoned ponds, ponds wired with bird-scaring devices, as well as some areas of brownfield/filled ponds that would be converted back to pond habitat).

(4) Great Egret is the determining factor for enhancement area requirement, as this species would have the smallest proportional increase in overall functional value.



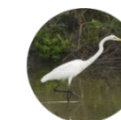
**+76.2**

Black-faced Spoonbill (黑臉琵鷺) Source: HKBWS



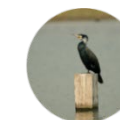
**+2.0**

Grey Heron (蒼鷺) Source: HK Wetland Park



**+0.9**

Great Egret (大白鷺) Source: HK Wetland Park

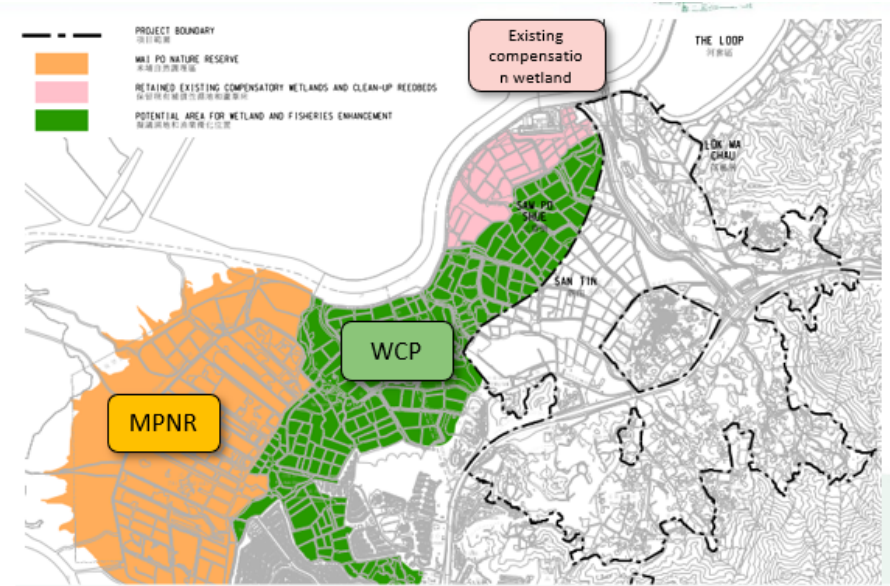
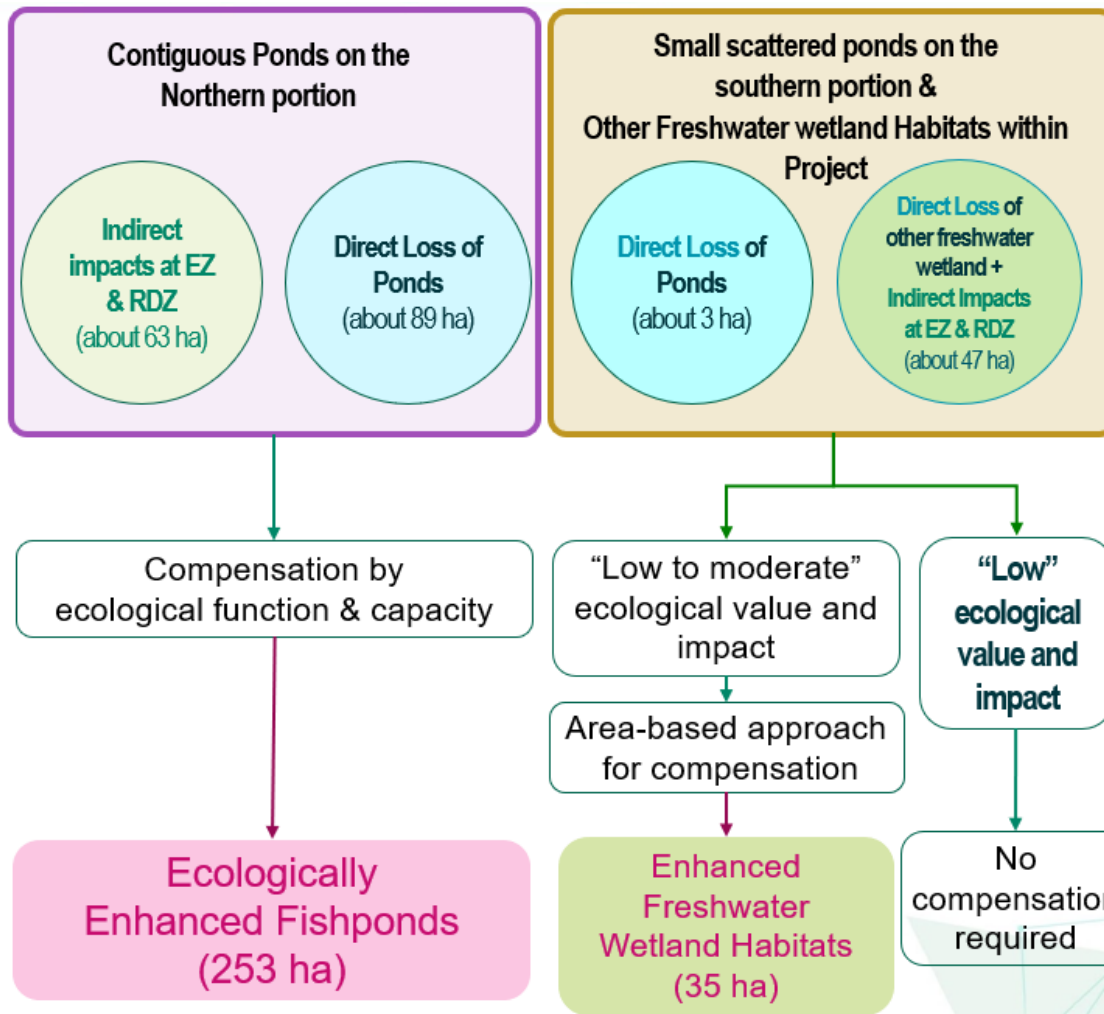


**+198.1**

Great Cormorant (普通鸕鶿) Source: HK Wetland Park

**Black-faced Spoonbill, Great Cormorant, Great Egret, Grey Heron are selected as indicator species as they are considered the most disturbance sensitive species that regularly occur in fishpond habitats**

### 3. Overview of Wetland Compensation Area



Proposed Enhancement Area in SPS WCP	
<b>Total Area available for development</b>	<b>338ha</b>
<b>Enhancement area in SPS WCP</b>	<b>328ha</b>
Ecologically Enhanced Fishponds	253ha
Enhanced Freshwater Wetland	35ha
Fisheries Enhancement Area	40ha

#### 4. Gain in Functional Value for Indicator Bird Species in Sam Po Shue Wetland Conservation Park (SPS WCP)

##### (a) Black-faced Spoonbill

Existing functional value in SPS WCP				
Land Status [1]	Peak Density [2] (birds/ha)		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	
Existing functional value in SPS WCP				62.9



Black-faced  
Spoonbill  
黑臉琵鷺

**+90.7**

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	
Functional value in SPS WCP after Enhancement					153.6

\*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 = 0.423); 45% enhancement for active pond:  $0.423 \times 1.45 = 0.613$
- [2] Existing brownfield / filled ponds in RDZ to be converted to Ecologically Enhanced Fishponds (density of active pond is adopted, i.e. 0.423); 50% reduction in bird density for active fishpond within RDZ:  $0.423 \times 0.5 = 0.212$

Loss in functional value = -14.5

Gain in functional value

**Positive Overall Changes in Functional**

**Value: +76.2**

## (b) Grey Heron

Existing functional value in SPS WCP				
Land Status [1]	Peak Density [2] (birds/ha)		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	
Existing functional value in SPS WCP				114.4

- [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.



Grey Heron

蒼鷺

**+148**

Gain in functional value

Loss in functional value = -146

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	
Functional value in SPS WCP after Enhancement					262.5

\*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:  $0.723 \times 1.45 = 1.048$   
 [2] Existing brownfield / filled ponds in RDZ to be converted to Ecologically Enhanced Fishponds (density of active pond is adopted, i.e. 0.723); 50% reduction in bird density for active fishpond within RDZ:  $0.723 \times 0.5 = 0.362$

**Positive Overall Changes in**

**Functional Value:+2**



### (c) Great Egret

Existing functional value in SPS WCP				
Land Status [1]	Peak Density [2] (birds/ha)		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	
<b>Existing functional value in SPS WCP</b>				<b>61.2</b>



Great Egret

大白鷺

**+44.9**

Gain in functional value

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	
<b>Functional value in SPS WCP after Enhancement</b>					<b>106.1</b>

- [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.

- [1] Restoring all ponds to active pond (i.e. density = 0.292); 45% enhancement for active pond:  $0.292 \times 1.45 = 0.424$
- [2] Existing brownfield / filled ponds in RDZ to be converted to Ecologically Enhanced Fishponds (density of active pond is adopted, i.e. 0.292); 50% reduction in bird density for active pond within RDZ:  $0.292 \times 0.5 = 0.146$

Loss in functional value = - 44.0

**Positive Overall Changes in**

**Functional Value: + 0.9**

### (d) Great Cormorant

Existing functional value in SPS WCP				
Land Status [1]	Peak Density [2] (birds/ha)		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	
Existing functional value in SPS WCP				292.8

\*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.

Loss in functional value = -187.7



Great  
Cormorant  
普通鸕鷀

**+385.8**

Gain in functional value

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	
Functional value in SPS WCP after Enhancement					678.6

\*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 = 1.869); 45% enhancement for active pond:  $1.869 \times 1.45 = 2.710$
- [2] Existing brownfield / filled ponds in RDZ to be converted to Ecologically Enhanced Fishponds (density of active pond is adopted, i.e. 1.869); 50% reduction in bird density for active fishpond within RDZ:  $1.869 \times 0.5 = 0.935$

**Positive Overall Changes in**

**Functional Value: +198.1**