Planning Application for Proposed Comprehensive Development Scheme to include Wetland Restoration Proposal and Proposed Filling of Ponds/Land and Excavation of Land in "OU(CDWRA)" Zone at Various Lots in D.D. 104, North of Kam Pok Road East, Pok Wai, Yuen Long, New Territories

Preliminary Fisheries Impact Assessment

1. PRELIMINARY FISHERIES IMPACT ASSESSMENT

1.1 INTRODUCTION

1.1.1 This section presents a preliminary assessment of the potential fisheries impacts that could arise from the construction and operation of the Project, while a comprehensive fisheries impact assessment will be conducted under EIAO in the subsequent EIA stage. The baseline conditions of fisheries resources in the Study Area were established from the latest relevant literatures and field visit. Potential direct, indirect, cumulative and residual impacts on fisheries resources during the construction and operational phases of the Project have been identified and evaluated. Mitigation measures have also been recommended, where necessary.

1.2 STATUTORY REQUIREMENTS AND EVALUATION CRITERIA

1.2.1 The evaluation and methodology for conducting this FIA are outlined respectively in Annex 9 and Annex 17 of the TM-EIAO.

1.2.2 Local legislations relevant to this FIA include:

- Fisheries Protection Ordinance (Cap. 171) – promotes the conservation of fish and other forms of aquatic life within Hong Kong waters by regulating fishing practices to prevent detrimental activities to the fisheries industry. The authority may also make rules for the management and control of fishing in any fisheries protection area, including but not limited to the specification of any zone within any fisheries protection area and the prohibition of any fishing in the specified zone.
- Water Pollution Control Ordinance (Cap. 358) – aims to control water pollution in waters of Hong Kong. Water Control Zones (WCZs) are designated with individual water quality objectives to promote the conservation and best use of those waters in the public interest.

1.3 STUDY AREA

1.3.1 The study area for fisheries impact assessment includes areas within 500m distance from the boundary of the Application Site, and the areas likely to be impacted due to the construction or operation phases of the Project. Special

attention has been given to fishpond culture resources and activities, as well as any watercourses which served as water sources for fishpond areas.

1.4 ASSESSMENT METHODOLOGY

1.4.1 Collation and desktop review of available relevant fisheries baseline data, e.g. EIAs and other available relevant studies within or in the vicinity to the Study Area, were conducted. AFCD's annual reports and website provided the most updated information on the development and trends of fisheries in Hong Kong, including the latest annual fisheries production was also provided. Pond investigation through aerial photos, ground-truth surveys, and drone deployment had been conducted, to collect the latest baseline information on the ponds within the Application Site. The collated information were evaluated to identify any information gaps relating to the assessment of potential fisheries due to the proposed Project. In order to obtain the most updated status of existing fishponds within the Study Area, field visits were also conducted from August 2023 to September 2023. Impact assessment was conducted in accordance with the development plan. Potential direct and indirect, short term/long term, on-site/off-site and cumulative fisheries impacts due to the Project were identified and evaluated, where appropriate. Mitigation measures and monitoring and audit programme were recommended, where necessary.

1.4.2 The criteria and guidelines as stated in Annexes 9 and 17 of the TM-EIAO were followed for this FIA.

1.4.3 Following the collation and review of existing fisheries baseline information, relevant literatures on culture fisheries within and in vicinity of the Study Area include:

- Agriculture, Fisheries and Conservation Department (AFCD) Accredited Fish Farm Scheme Website (http://www.hkaffs.org/en/index.html);
- Agriculture, Fisheries and Conservation Department (AFCD) Annual Reports (2009 – 2022);
- Agriculture, Fisheries and Conservation Department (AFCD) website (http://www.afcd.gov.hk/english/fisheries/fish_aqu/fish_aqu.html); and
- Environmental Impact Assessment Comprehensive Development and Wetland Protection Near Yau Mei San Tsuen (Final Report). (AEIAR-189/2015)

1.5 BASELINE CONDITION

Literature Review

1.5.1 As no marine environment is located within the Study Area, impact assessment on capture fisheries and marine fish/oyster culture is not required. Pond fish culture industry is the only fisheries issue for the present study.

1.5.2 Pond fish industry of Hong Kong has long been centred in the northwest New Territories. According to AFCD (2023a), local inland fishponds covered approximately 1,129 ha in 2022. These ponds produced 2,073 tonnes of freshwater fish amounting to HK$55 million. Traditionally, primarily freshwater fish and several brackish species, such as Bighead Carp *Aristichthys nobilis*, Grass Carp *Ctenopharyngodon idellus*, Common Carp *Cyprinus carpio*, Silver Carp *Hypophthalmichthys molitrix*, Grey Mullet and Nile Tilapia *Oreochromis niloticus*, are farmed. However, in recent years, certain high-value marine species such as Giant Grouper *Epinephelus lanceolatus*, Yellowfin Seabream *Acanthopagrus latus* and Spotted Scat *Scatophagus argus* have also been cultured in brackish fishponds near to the coastline. Most ponds in Hong Kong practice polyculture of carp, tilapia and/or grey mullet.

1.5.3 In order to help local fish farms to develop, AFCD has introduced new aquaculture species (i.e. Orange-spotted spinefoot *Siganus guttatus*) to Hong Kong, and also launched the "Accredited Fish Farm Scheme" (AFFS). Under this scheme, products from registered fish farms are "accredited" by AFCD and can be marketed under the unique brand name of the scheme. The department believes that this scheme can make local aquaculture products "stand out by branding". Fish farms registered under the scheme will be inspected by AFCD officers bimonthly, checking on the farm hygiene conditions, the maintenance of management records, water quality and fish health conditions. A series of advisory leaflets and guidelines on aquaculture management, including "Good Aquaculture Practices Series 3 – Environmental Management on Pond Fish Culture" and "Good Aquaculture Practices Series 5 – Fry Health Management" have been published by Aquaculture Fisheries Division of AFCD. These publications provide guidelines on physical requirements for establishment of fish pond farms, drainage requirements, water quality, and a list of good fish pond culture practices for pond fisheries and fry management.

1.5.4 According to the data extracted from AFCD's website and AFCD's annual reports, the production of pond fish in Hong Kong has stabilised in recent years. Annual pond fish production and fish pond area in Hong Kong are listed in the **Table 1**.

Table 1 Fish Pond Area and Annual Fish Production in Hong Kong from 2009 to 2022

Year	Fish Pond Area (ha)	Annual Fish Production (Tonnes)
2022	1129	2073
2021	1130	2926

2020	1130	2516
2019	1131	2278
2018	1130	2500
2017	1132	2543
2016	1135	2543
2015	1140	2092
2014	1140	2001
2013	1150	2187
2012	1149	2244
2011	1130	2315
2010	1109	2190
2009	1120	2105

Source: AFCD (2023)

Conditions of Pond within the Study Area

1.5.5 As observed during the site visit, there were four types of pond usage within the Study Area, namely (see **Table 2**) abandoned ponds covered by overgrown vegetation (Abandoned Pond), ponds that are no longer active with no sign of management while not to the extent of being fully abandoned (Inactive Pond), ponds managed/operated by villagers (Active Pond), and flood storage pond located at Pok Wai Flood Water Pumping Station outside the Application Site but within the Study Area for controlling the quantity and quality of stormwater runoff (Flood Storage Pond). While all fishponds are considered to be abandoned and/or inactive within the Application Site with no signs of operation of traditional fishpond management were observed (i.e. continuous support and participation by fishpond operator such as the draining down of fish pond for management purposes and installation of aeration system). According to the reviewed aerial photos and site visit, several inactive fishponds are located to the southwest of the Application Site as well as outside the Study Area, while some active fishponds still could be found within the 500m Study Area (**Figure 2**).

Table 2 Type of ponds within the 500m Study Area Boundary

Pond Type	**Size (ha)**	
	Study Area	**Application Site**
Abandoned Pond	3.55	1.45
Inactive Pond	7.86	3.45
Active Pond	7.56	-
Flood Storage Pond	1.03	-
Total	20	4.9

1.6 EVALUATION OF IMPACTS DURING CONSTRUCTION PHASE

Direct Impact

1.6.1 Within the Application Site, there is about a total of 4.9 ha of abandoned pond (1.45 ha) and inactive pond (3.45 ha) which have been in abandoned and/or non-actively managed status for years, and no active pond was identified. A total of 2.43 ha of abandoned pond and inactive pond will be permanently lost and converted into residential area, while 2.47 ha of abandoned pond and inactive pond will be temporarily lost during construction stage but eventually will then be transformed into an enhanced and managed Wetland Restoration Area (WRA) (**Table 3**) in accordance with the planning intention set out in the statutory town plan. The total area of these abandoned pond and inactive pond is 4.9 ha, which accounts for 0.24% of the total fish pond area in Hong Kong (base on 2022 in **Table 1.1**). For other abandoned ponds and inactive ponds immediately adjoining the Application Site boundary, they will be separated by sheet piling along the site boundary before any site formation works commences so as to retain the water level of such abandoned pond and inactive pond immediately outside the Application Site. A vertical concrete wall will also be built behind the sheeting piling within the Application Site during the construction phase to minimize the impact. In doing so, the portions of abandoned pond and inactive pond immediately outside the Application Site will be maintained throughout the construction and operational phases of the Project. Therefore, the temporary loss of portions of the abandoned pond and inactive pond immediately outside the Application Site (about 0.72 ha) is not anticipated.

1.6.2 These affected ponds are abandoned and not actively managed for fisheries production, the potential fisheries production of these ponds is considered to be very low (less than 0.5% of overall fish pond area). Furthermore, the Application Site falls within an area zoned as "other specified uses" annotated for "Comprehensive Development to include Wetland Restoration Area ("OU(CDWRA)")", which represents a collective Government's intention to provide incentive for upgrading the area through positive measures. Hence, the impact due to the permanent loss of these abandoned ponds and inactive ponds to fisheries of Hong Kong is considered to be **Insignificant**.

Table 3 Area of temporary and permanent loss of Abandoned Pond and Inactive Pond within the Application Site

Phase	Temporary Loss (ha)	Permanent Loss (ha)
Construction of Wetland Restoration Area	2.47	2.47 (transformed into enhanced wetland)
Construction of Residential Portion	2.43	2.43

Indirect Impact

1.6.3 During the construction phase, proper mitigation measures and good site practices will be provided in accordance with the Practice Notes for Professional Persons (ProPECC Note PN1/94) on construction site Drainage to control site surface run off and waste water generation. Considering the closest active fish ponds are located about 300m away from the Application Site and are being physically separated by developed area surrounding the Application Site, together with the application of good site practice, no indirect fisheries impact on nearby active ponds is anticipated.

1.7 EVALUATOIN OF IMPACTS DURING OPERATIONAL PHASE

Direct Impact

1.7.1 Considering the loss of fish pond only includes Abandoned Pond and Inactive Pond, where no Active Ponds will be resulted due to the current Project, no direct impacts on fisheries resources and operation are anticipated during operational phase.

Indirect Impact

1.7.2 During the operational phase, a proper drainage system will be provided for the proposed development to collect surface runoff for discharge to the drainage ditch. Also, domestic sewage from the proposed development will be collected by a properly designed on-site sewerage system and conveyed to the existing public Nam Sang Wai Sewage Pumping Station during the operational phase. Therefore, no indirect impact from the water quality is expected during the operational phase. Thus, no direct impact due to the Project to any nearby active fish ponds is anticipated during the operational phase.

1.8 OVERALL SUMMARY OF FISHERIES IMPACTS

1.8.1 In accordance with the TM-EIAO Annex 9 criteria, the assessment of potential fisheries impacts in the absence of mitigation within the Study Area are summarised in **Table 4**.

Table 4 Fisheries Impact on Fish Ponds within the Study Area

Criteria	Ponds within the Assessment Area
Nature of impact	No direct fisheries impact anticipated. Potential indirect water quality impacts due to construction works and construction runoff, accidental spillage and potential contamination of surface water and groundwater during construction phase.
Size of affected area	Direct Impact No loss of active fish ponds. Loss of about a total of 4.9 ha abandoned ponds

	(1.45 ha)and inactive ponds (3.45 ha) (among them 2.47 ha will be transformed into enhanced wetland) Indirect water quality impact Insignificant/no indirect impacts to fish ponds.
Loss of fisheries resources / production	No direct loss of active aquaculture production during construction and operational phases.
Destruction and disturbance of nursery and spawning grounds	N/A
Impact on fishing activity	N/A
Impact on aquaculture activity	Negligible, given no active ponds are located within assessment area.
Overall impact before mitigation	Negligible

1.9 MITIGATION MEASURES

1.9.1 According to the guidelines in Annex 17 of TM-EIAO, the general policy for alleviating fisheries impacts in order of priority are avoidance, minimization and compensation approaches to the maximum practical extent.

1.9.2 Direct impacts on active fish ponds have been avoided. No unacceptable adverse indirect impacts on active fish ponds are anticipated during both construction and operational phases of the Project. Proper and positive mitigation measures and good site practices as detailed in **Section 5** Water Quality Chapter that have been taken into consideration in the evaluation of construction indirect impacts are summarised below.

Avoidance

1.9.3 The proposed works will be confined within the Application Site. Active fish ponds in the vicinity have been avoided, where the nearest active fish ponds were located about 300m away from the Application Site and are being separated by developed area within the Study Area.

Minimization

1.9.4 Good site practices as outlined in ProPECC PN1/94 on Construction Site Drainage should be adopted as far as practically feasible to minimize potential water quality impacts from various construction activities and construction site runoff. With provision of the best site practices mentioned

in **Section 5** Water Quality Chapter, no adverse water quality impact on construction activities, wastewater, site runoff, accidental spillage and sewage effluent during both construction and operational phases is anticipated.

1.9.5 During the construction phase, a total of 2.47 ha of abandoned pond (1.45 ha) and inactive pond (3.45 ha) will be temporarily lost, but eventually will then be transformed into an enhanced and managed Wetland Restoration Area (WRA), as detailed in the Wetland Restoration Proposal. Besides conducting fish stocking into the proposed WRA to create a fish population to provide food sources for waterbirds and biological control of excessive aquatic weeds, opportunities for fish farming within the WRA are reserved with fish farming practice to provide a supply of fisheries production into the fish market.

1.10 RESIDUAL IMPACTS

1.10.1 There will be a total loss of about 4.9 ha abandoned pond (1.45 ha) and inactive ponds (3.45 ha) due to the implementation of the "OU(CDWRA)" zone at the Application Site (among them 2.47 ha will be transformed into enhanced wetland). With the provision of positive mitigation measures mentioned above, no unacceptable adverse impact on fisheries due to the Project during construction phase. The Project would not result in any unacceptable water quality impact on adjacent fish ponds during normal operation. Therefore, no unacceptable residual impacts on fisheries resources due to water quality deterioration are expected.

1.11 ENVIRONMENTAL MONITORING PROGRAMME

1.11.1 As no unacceptable adverse fisheries impacts are anticipated during construction or operational phases, no specific monitoring programme for fisheries is required. Regular audits should be undertaken to ensure the effectiveness of the mitigation measures and good site practices recommended during construction.

1.12 CONCLUSION

1.12.1 Information from existing information on pond culture fisheries resources and activities within the Study Area and on-site inspections have been incorporated in the current report, which have provided sufficient information on fisheries resources and activities within the Study Area. All site formation works related to the proposed development will be carried out within the Application Site. No loss of active fishponds is anticipated. The implementation of this part of "OU(CDWRA)" site will result in a total loss of about 4.9 ha abandoned ponds (1.45 ha) and inactive ponds (3.45 ha) (among them 2.47 ha will be transformed into enhanced wetland). With the implementation of positive mitigation measures on water quality control so as to minimize the impact on fisheries, the Project would not cause any

unacceptable water quality impact to adjacent fishponds or watercourses during construction and operational phases.

1.13 References

(1) Agriculture, Fisheries and Conservation Department (2023). Agriculture, Fisheries and Conservation Department Annual Report 2009-2022. https://www.afcd.gov.hk/english/publications/publications_dep/publications_dep.html Accessed on 5 September 2023.
(2) Agriculture, Fisheries and Conservation Department (2023a). Marine Fish Culture, Pond Fish Culture and Oyster Culture. http://www.afcd.gov.hk/english/fisheries/fish_aqu/fish_aqu_mpo/fish_aqu_mpo.html. Accessed on 5 September 2023.
(3) Civil Engineering and Development Department (CEDD). Environmental Impact Assessment Comprehensive Development and Wetland Protection Near Yau Mei San Tsuen (Final Report). Prepared by ENVIRON Hong Kong Limited.

2. FIGURE

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Figure 1 Orthophoto of abandoned fish ponds within the Application Site

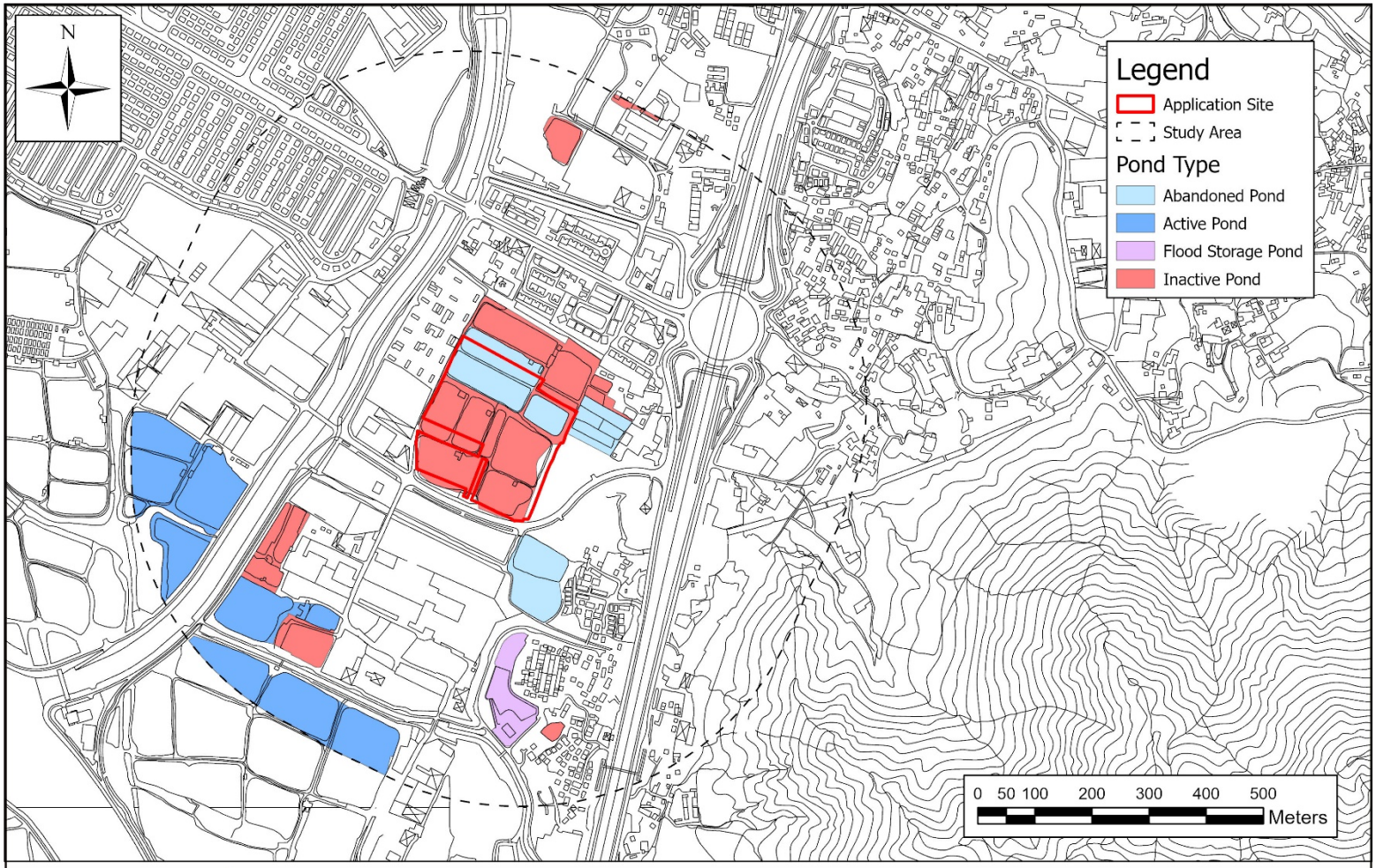

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Figure 2 Abandoned Pond, Active Pond, Flood Storage Pond, Inactive Pond