

## WRA Funding Arrangement

### **1. Wetland Funding Arrangement & Maintenance and Management Responsibility**

1.1 As mentioned in Wetland Restoration Proposal (WRA), subject to the Town Planning Board (TPB) / relevant Government Department's agreement or further refinement, the Application has proposed the following approach for the long-term funding arrangement in the following.

- a. The Applicant would set up an independent **endowment** fund to own, to manage, and to operate the proposed WRA. **The endowment fund shall be specifically managed by an Investment Bank to provide a long term source of funding.** The individual owners of the residential portion would not be liable to manage and to maintain the WRA in future.
- b. Regarding the funding arrangement **for the proposed endowment fund**, the Applicant would propose to allocate an amount of approx. \$3M per annum to **the fund to** sustain the long-term operation of the proposed WRA. The amount is anticipated to cover the employment of wetland management team as well as implementation of maintenance and monitoring measures as mentioned in section 6 and 7 of Wetland Restoration Proposal. The estimated annual recurrent costs for maintenance and monitoring items that would require are illustrated in **Section 2** of this Annex for reference and the applicant is anticipated to update the detailed estimated annual recurrent costs and revise the allocation of funding per annum to sustain the long-term operation of the proposed WRA.
- c. Regarding the practical funding mechanism, we would target to source and lobby with Investment Banks after the approval from the TPB as well as subsequent approval from EPD on Environmental Permit, plan approval from Buildings Department and Lease modification / Land Exchange from Lands Department in order to secure the commercial details upon confirmation of development approaches. In line of above, the applicant targets to approach Investment Banks by approx. 1 year after the approval of TPB, subject to the procedures of subsequent approval from other Government Departments.

1.2 To ensure the long-term maintenance and management responsibility of Wetland and sustainability of funding, the applicant is anticipated to undertake the liability by provision of undertaking letter registered in land registry to be responsible for the creation, enhancement, and management of wetland area during construction phase and undertake to take sole responsibility for management in the long term with sole responsibility on funding arrangement, or until a successor can be found to the satisfaction of government department or its agents. The applicant is expected to undertake the responsibility on the further financial and legal arrangement of successor on maintenance & management responsibility of Wetland upon satisfaction of government department. The applicant would also commit that “the implementation of detail maintenance and management plans of wetland area to satisfaction of government departments” could be addressed as an approval condition of planning application to ensure the implementation of proposals.

## **2. The Maintenance and Monitoring Items to be conducted for the WRA**

2.1 The Wetland Restoration Proposal has proposed the maintenance works and monitoring items for the operation phase of the WRA, and are summarized below:

### Reedbed establishment

A period of 8-month maintenance will be allowed for the reedbed to develop. Horticultural maintenance operations (e.g. weeding, replacement planting) will be regularly provided by Contractor after completion of construction of the system. Survival of planted reedbed will be monitored during the maintenance period. Weeding will be conducted once every month during wet season and once every two months during dry season to control the growth of weeds which would compete with the Common Reed for water, nutrient and space until the plants are well established.

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### Water level maintenance

Water levels of the reedbed will be maintained at desired depths with the

recommended impermeable soil type. Under normal condition, water depth of the planting zone will be about 0.5 m in reedbed. Water depths of the reedbed will be monitored by water gauge weekly. Water level will be adjusted by pumping out excessive water by submersible pumps when necessary.

#### Vegetation management (except Reedbed)

Vegetation should be managed in accordance with the habitat targets. The vegetation management regime is adaptive and should be reviewed annually in the light of conservation priorities and targets.

#### Vegetation and habitat monitoring

Habitat monitoring will be conducted at six monthly intervals at the end of the wet season (September) and the end of the dry season (March) by monitoring the health of reedbed, coverage of submerged plant and water level of the main waterbody and reedbed, in order to inform management actions 7.1.4 Detailed vegetation surveys will be conducted in each habitat at six monthly intervals at the middle of the wet season (July/August) and the middle of the dry season (Dec/Jan).

#### Fauna monitoring

Monitoring of bird species is required in order to demonstrate success in reaching the target of the restored wetland, i.e. supporting waterbird species. Surveys will be undertaken monthly.

In addition to the bird monitoring, surveys for other fauna groups are also required to be conducted to exhibit the successfulness of the habitat condition targets. Fauna groups of dragonfly, reptile and mammal are also needed to be recorded during the monthly survey visits.

#### Fish monitoring

Monitoring of freshwater fish will be conducted by throw and drag-netting at six monthly intervals at the end of the wet season (September) and the end of the dry season (March).

#### Water quality monitoring

In-situ water quality will be measured in each sampling location once per month. Additional measurements of these parameters should also be made

in order to inform management decisions (e.g. fish re-stocking programme) and in response to unexpected events (e.g. algal blooms or fish die-offs).

In addition, every six months (at the end of the wet season and end of the dry season) water samples will be sent to a HOKLAS-accredited laboratory for analysis.

#### Action level and contingency measures

The action levels include but not limited to the absence of the monitoring targets during surveys, undesirable monitoring results, percentage of the vegetation coverage (planted and/or exotic species), and percentage variance of water depths in each zone, habitat conditions and water quality parameters.

Contingency measure include the review of management regime and other factors, the use of freshwater supply to maintain water levels within target depth if required. The water from the fresh water supply will be used to replenish the fishponds during dry seasons, ensuring that the fish have access to sufficient water for sustainable living. Effort of removal of exotic species and the replenishment of the planted flora species within the WRA will be placed if the habitat condition is considered unsatisfactory when necessary. Detail could be referred to the WRP.

### **3. Estimation of Annual Cost for Maintenance and Monitoring in WRA**

- 3.1 A Maintenance and Management Plan (MMP) was prepared to satisfy the requirement of the approval condition (g) of RNTPC Paper No. A/YL/MP/229C dated 27.2.2015 for the Proposed Comprehensive Development at Wo Shang Wai, Yuen Long: Detailed Design and Implementation. The MMP with estimate annual recurrent costs was prepared to comply with the approval condition, which aims to provide an overview of the implementation details and also to supplement the approved Wetland Restoration and/or Creation Scheme regarding the post-implementation maintenance and management requirements.
- 3.2 A review was made on the “Maintenance and Management Plan of a Proposed Comprehensive Development at Wo Shang Wai, Yuen Long”, in particular the cost on maintenance and monitoring, as reference for the cost estimation of the

present WRA.

- 3.3 The table below is the estimated annual cost for the WRA of the present Project. The estimated annual cost for Wo Shang Wai is about \$1.1M as stated in its MMP. The habitats proposed by Wo Shang Wai are similar with the present WRA, mainly Open Water with different depth, Reeds, and other pondside habitats. Given that Wo Shang Wai wetland is only about two times of the present WRA, the estimated about \$3M i.e. about 3 times of the estimated annual cost for Wo Shang Wai, should be more than sufficient for annual maintenance and monitoring.

**Table 3.1 The summary of the estimated annual recurrent costs for the WRA of the present Project**

<b>Items</b>	<b>Annual cost (HK\$)</b>
<b>1. Wetland Management Team Staff Cost</b>	
Conservation manager and field officer staff costs	700,000
<b>Staff Costs Total</b>	<b>700,000</b>
<b>2. Landscape Contractor Package Costs for Habitat Management</b>	
2.1 Worker Salaries	200,000
2.2 Equipment	200,000
2.3 Materials (Plant material, Fish, lime, peanut residue)	200,000
2.4 Facility repair	200,000
<b>Contractor Package Total</b>	<b>800,000</b>
<b>3. Cost for Ecological Monitoring</b>	
Fauna and flora monitoring, HOKLAS-accredited lab test, maintenance and calibration for equipment	
3.1 Plant and habitat mapping	60,000
3.2 Bird	150,000
3.3 Mammal (by camera trap)	90,000
3.4 Herpetofauna	90,000
3.5 Terrestrial invertebrate (Dragonfly & Butterfly)	90,000
3.6 Fish	80,000
3.7 Aquatic invertebrate	80,000
3.8 Water quality (by HKOLAS)	110,000
<b>Ecological Monitoring Costs Total</b>	<b>750,000</b>
<b>4. Administration Costs</b>	
Office related charge (rental, electricity, water fee etc.)	450,000
<b>Administration Costs Total</b>	<b>450,000</b>
<b>Total (Staff Cost + Contractor Package Costs + Ecological Monitoring Costs + Administration Costs)</b>	<b>2,700,000</b>
10% contingency	270,000
<b>Grand Total</b>	<b>2,970,000</b>

#### **4. Funding for General Maintenance and Management Strategy in the Wetland Restoration Proposal of the Current Application**

- 4.1 The proposed cost of \$3M per annum for the maintenance and management of the WRA for the current application is based on consideration of the specific requirements and needs of the WRA. To ensure the proposed wetland area could be implemented and operated in accordance with the proposed long-term management, it is essential to have a mechanism to provide funding to support the cost involved and the management works to be implemented.
- 4.2 The proposed cost for the long-term operation of the current proposed WRA has an amount of approximately \$3M per annum. This cost includes the necessary funding to support the staff, contractor package costs, ecological monitoring costs, and administration costs required for the project as stated in **Section 3**.
- 4.3 As mentioned in **Table 3.1**, the estimated annual recurrent costs for the WRA is about HK\$3M. This cost includes the staff cost, contractor package costs, ecological monitoring costs, and administration costs for the eight habitats in the WRA. The current proposed WRA is expected to have 6 habitats/elements, including the Shallow Water Zone, Middle Water Zone, Deep Water Zone, Wood Log, Island, and Submerge Plant. The habitats component as stated in the Wo Shang Wai MMP shares similar content with the habitat composition of the WRA of the current application, including but not limited to the reeds and the water zones of different depths. However, the habitats/elements of the WRA of the current application are expected to require less intensive works for the general maintenance, management, and monitoring, as the size of the present WRA is smaller than that in Wo Shang Wai project. Thus, the cost proposed for the WRA of \$3M per annum is deemed more than enough to support these necessary management and monitoring activities.
- 4.4 In summary, the proposed cost of \$3M per annum is a well-considered estimate that accounts for the essential management and monitoring activities required for the success of the wetland restoration project. It reflects the ongoing nature of the project and has been determined based on careful consideration of the project's specific needs.

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