

**River Park Plan**  
**for Tung Chung New Town Extension (West)**  
**(EP No. EP-519/2016)**

**September 2022**

**Environmental Permit No. EP- 519/2016**

**Tung Chung New Town Extension (West)**

**Environmental Team Leader Certification**

**Reference Document /Plan**

Document to be Certified:	River Park Plan
Date of Document:	September 2022
Date received by ETL:	5 September 2022

**Reference EP Condition**

Environmental Permit Condition: 2.19

The Permit Holder shall, no later than three months before the commencement of construction works at Tung Chung Valley, submit a River Park Plan (The Plan) to the Director for approval. The Plan shall include at least the following information:

- (i) The location of the existing channelised Tung Chung Stream, with a length of at least 415 m, to be revitalized and to form part of the River Park;
- (ii) The details of the storm attenuation and treatment ponds to be provided alongside the Tung Chung Stream, including locations of ponds, design and planting details to enhance ecological values and implementation programme;
- (iii) The design of the River Park, including details of viewing decks/board walk and passive recreation zone for appreciation of the natural environment to promote eco-education;
- (iv) The planting details of the River Park, including at least 0.5 ha of emergent planting including the larval food plant of the butterfly species Jhora Scrub Hopper, i.e. *Leersia hexandra*, to enhance ecological values; and
- (v) The implementation programme, maintenance and management arrangements and monitoring requirements.

**ETL Certification**

I hereby certify that the above reference document complies with the above referenced condition of EP-519/2016.



Daniel Sum  
Environmental Team Leader

Date: 15 September 2022

## Qualified Ecologist Certification

I hereby confirm that the Qualified Ecologist of the ET has been consulted in preparing ecological aspects of the above referenced document/plan.



Julia Chan  
Qualified Ecologist

Date: 15 September 2022

Your Ref.

By Post

Our Ref. 198377-0563

Date 15 September 2022

Sustainable Lantau Office  
Civil Engineering and Development Department  
13/F, North Point Government Offices  
333 Java Road, North Point  
Hong Kong

Attention: Mr. Gary YUNG / Ms. Carol LAM

Dear Sir / Madam,

**Agreement No. CE 59/2017 (EP)**  
**Independent Environmental Checker for Tung Chung New Town Extension – Investigation**  
**River Park Plan (EP condition 2.19)**

We refer to the River Park Plan for Tung Chung New Town Extension (West) (TCW) dated September 2022 and certified by the Environmental Team Leader of TCW on 15 September 2022. Please note we have no adverse comments on the captioned submission. The captioned submission is hereby verified in accordance with the requirement stipulated in Condition 2.19 of EP-519/2016.

Should you have any query, please feel free to contact the undersigned at 2608 7314 ([chuawo@binnies.com](mailto:chuawo@binnies.com)) or our Edward Lau at 6848 5737 ([iec.tcnte@gmail.com](mailto:iec.tcnte@gmail.com) or [lauky@binnies.com](mailto:lauky@binnies.com)).

Yours faithfully,  
for and on behalf of  
BINNIES HONG KONG LIMITED



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## **1. Project Description**

The development of Tung Chung New Town Extension (TCNTE), comprising Tung Chung East (TCE) and Tung Chung West (TCW), is a mega-scale and complex project aiming to provide land to meet the future housing economic and social development needs of Hong Kong. Due to the fact that the proposed works are geographically separated, the implementation of mega-scale Project is divided into two packages, namely TCE and TCW respectively. In accordance with the tight delivery programme, the Project will be implemented in phases under separate contracts for the developments of TCE and TCW.

## **2. Scope of Works for Tung Chung New Town Extension**

The Tung Chung New Town Extension project (the Project) comprises the following elements:

- (i) reclamation of the seabed by a non-dredged method at TCE to form a total of about 130 hectares of land;
- (ii) construction of about 4.9 kilometers of seawalls, with an eco-shoreline, three drainage box culvert outfalls, three circulation drains and a seawater intake at TCE;
- (iii) provision of infrastructure for Tung Chung Area 58, including construction of a single two-lane road with a footpath and the associated utility works;
- (iv) site formation works at TCW;
- (v) construction of the River Park including a visitor centre at TCW;
- (vi) construction of proposed open space;
- (vii) construction of sustainable urban drainage systems at TCW;
- (viii) construction of roads, footpaths, cycle tracks and the associated junction / road improvement works;
- (ix) engineering infrastructure works covering drainage, sewerage, waterworks (including a fresh water service reservoir, a salt water service reservoir and a salt water pumping station), common utility tunnels and landscaping works; and
- (x) implementation of environmental mitigation measures and environmental monitoring and audit programme for the works.

## **3. Implementation Programme**

The Contract No NL/2020/05 – Tung Chung New Town Extension – Site Formation and Infrastructure Works at Ma Wan Chung (i.e. Contract 5) at TCW has been awarded in May 2021 and is scheduled for completion in 2025. The main contractor for Contract No. NL/2020/05 is Build King – Richwell Civil Joint Venture (BKRCJV).

The Contract No NL/2020/06 – Tung Chung New Town Extension – Site Formation and Infrastructure Works at Tung Chung Valley, Phase 1 (i.e. Contract 6) at TCW has been awarded in May 2021 and is scheduled for completion in 2025. The main contractor for Contract No. NL/2020/06 is China Railway Group Limited (CREC).

The detailed design for the first phase of site formation and infrastructure works at TCE and TCW (First Phase development) has been completed, while the detailed design for the remaining phase of site formation and infrastructures works is in progress.

#### **4. Submission under EP**



The River Park will be implemented via two phases: Phase 1 which is to be implemented by Contract 6, and Phase 2 which will be implemented at later stages by subsequent works contract. This submission is prepared based on the latest information of Contract 6 according to the relevant requirements contained in the EM&A Manual, EIA Report and EP.

This River Park Plan will be further updated and submitted to EPD for approval before the commencement of works for River Park Phase 2.



Civil Engineering and Development Department  
The Government of the Hong Kong Special Administrative Region

## RIVER PARK PLAN

K	2/9/22	 Simon Mak	 Paul Chan
Rev	Date	Prepared By Environmental Officer	Approved By Project Manager

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# **1 Introduction**

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## **1.1 General**

1.1.1 China Railway Group Limited (known as CREC) was commissioned by the Civil Engineering and Development Department (CEDD) of the Government of Hong Kong Special Administrative Region (HKSAR) in May 2021 as the contractor to provide construction works for the site formation and infrastructure works at Tung Chung Valley, Phase 1 (Contract No.: NL/2020/06).

## **1.2 Project Background**

1.2.1 In mid-1996, the Government completed the Territorial Development Strategy Review (TDSR) which identified housing shortfall in the medium to long term. The TDSR also identified the North Lantau New Town (NLNT) as a strategic growth area, among other areas to meet the territorial housing demand, with a revised population target of 320,000 by 2011.

1.2.2 In 2004, the Administration formulated a concept plan for planning initiatives on Lantau (Concept Plan). The Concept Plan was then revised in mid-2007 taking into account comments collected from the public consultation (Revised Concept Plan). Under the Revised Concept Plan, Tung Chung is to remain a comprehensively planned new town for a population of 220,000 with adequate community facilities and regional facilities to serve the whole of Lantau.

1.2.3 The CEDD and the Planning Department (PlanD) jointly commissioned Agreement No. CE 32/2011(CE) - Planning and Engineering Study on the Remaining Development in Tung Chung (P&E Study) in 2012. The P&E Study aims at identifying development potentials and opportunities to extend Tung Chung into a distinct community to meet housing, social, economic, environmental and local needs. Under the P&E Study, various planning, engineering and environmental studies were carried out to formulate a development scheme to extend existing Tung Chung to Tung Chung East (TCE) and Tung Chung West (TCW).

- 1.2.4 The P&E Study adopted a three-stage Public Engagement (PE) programme to facilitate public discussions and foster consensus building. Taking into account the public views and the planning and technical assessments, the Recommended Outline Development Plans (RODPs) for TCE and TCW were finalized under the P&E Study and were endorsed in January 2015. The planned new population of TCE and TCW under the RODPs would be around 120,000 and 25,000 respectively. With the new population in TCE and TCW, the total planned population in Tung Chung will reach about 270,000 upon full development.
- 1.2.5 The development theme of Tung Chung New Town Extension (TCNTE) will pursue a sustainable and balanced approach while taking account of its strategic location and the synergy effect to make Tung Chung a regional commercial hub for retail and office developments.
- 1.2.6 The scope of works for Contract No. NL/2020/06 includes site formation and engineering infrastructure works for the development of TCW at Tung Chung Valley. The scope of the contract comprises the following principal works components:
- (a) Construction of Road L29 and L30;
  - (b) Road Improvement of Chung Mun Road and Shek Mun Kap Road;
  - (c) Site formation works for Areas 42 and 46 for public housing development;
  - (d) Construction of Common Utility Tunnel (CUT);
  - (e) Sustainable Urban Drainage System (SUDS) and provision of roadside bioswales, stormwater attenuation & treatment ponds;
  - (f) Construction of River Park and river revitalization works;
  - (g) Environmental impact mitigation measures including woodland compensation; and
  - (h) Ancillary works including associated civil, geotechnical, structural, electrical and mechanical engineering and landscaping works.

## 1.3 Environmental Permit Requirements

1.3.1 According to Clause 2.19 of the Environmental Permit No. EP-519/2016, “The Permit Holder shall, no later than 3 months before the commencement of construction works at Tung Chung Valley, submit 3 hard copies and 1 electronic copy of the River Park Plan (The Plan) to the Director of Environmental Protection for approval. The Plan shall include at least the following information:

- the location of the existing channelised Tung Chung Stream, with a length of at least 415m, to be revitalized and to form part of the River Park (Section 2.2 of this Plan)
- the details of the Stormwater Attenuation and Treatment Ponds to be provided alongside the Tung Chung Stream, including locations of ponds, design and planting details to enhance ecological values and implementation programme (Section 4 of this Plan)
- the design of the River Park, including details of viewing decks / boardwalk and passive recreation zone for appreciation of the natural environment to promote eco-education (Section 2.3 and 2.4 of this Plan);
- the planting details of the River Park, including at least 0.5 ha of emergent planting including the larval food plant of the butterfly species Jhora Scrub Hopper (*Aeromachus jhora*), i.e. *Leersia hexandra*, to enhance ecological values (Section 3 of this Plan); and
- the implementation programme, maintenance and management arrangements and monitoring requirements. (Section 5 and 6 of this Plan)

## 1.4 Purpose of the River Park Plan

1.4.1 This submission (The River Park Plan) is to fulfil the requirements under Clause 2.19 of the Environmental Permit No. EP-519/2016.

## 1.5 Scope of the River Park Plan

1.5.1 The scope of this submission is on Phase 1 of River Park comprising the implementation of River Park (Phase 1) (River Revitalization Section) and Stormwater Attenuation and Treatment Ponds (SATPs) A01, A02, A04, A05 and A07. This submission will be updated in future to include Phase 2 of River Park which comprises the implementation of River Park (Phase 2) (Habitat Preservation Section) and SATPs A03 and A06.

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## 2 River Park Design

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### 2.1 River Park

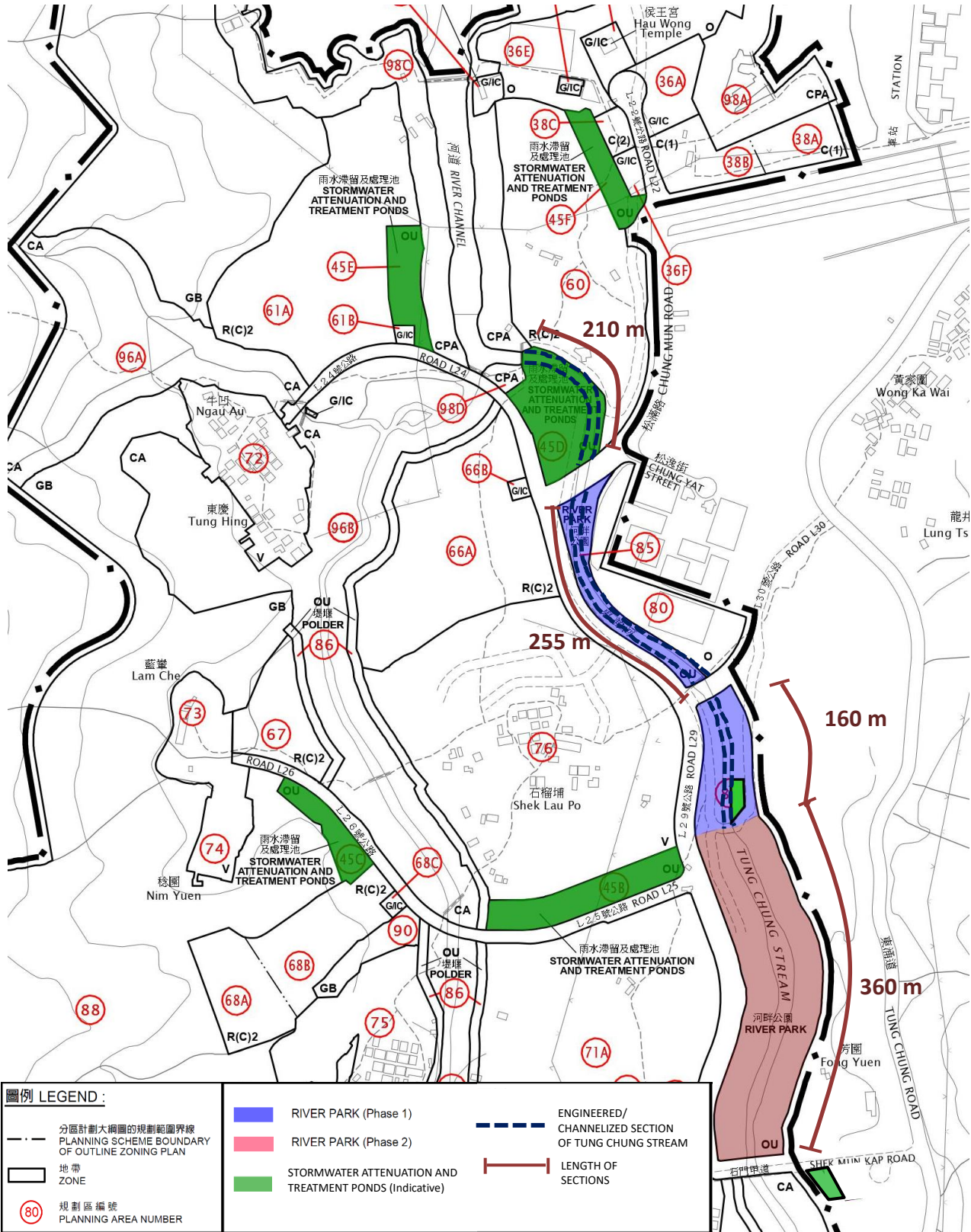
- 2.1.1 Tung Chung Stream is one of the few relatively large rivers in Hong Kong that still preserves its natural setting from its headwater to the estuary. The lower course of the River comprises two main tributaries: the Eastern Shek Mun Kap Stream and the Western Mok Ka Stream.
- 2.1.2 Approximately 625m in length and about 15m in width of Tung Chung Stream in the northeast of Shek Lau Po is channelized during the development of Tung Chung New Town in the 1990's. The ecological value of this engineered section is limited as it has been channelized. This engineered section has also undermined the ecological connection between the upstream natural section of Tung Chung Stream and the estuary further downstream. In order to restore the ecological connection between the upstream and downstream of Tung Chung Stream, existing channelized section of Tung Chung Stream upstream of Chung Mun Road to the northeast of Shek Lau Po will be revitalized. On the other hand, the section of Tung Chung Stream to the immediate upstream up to Shek Mun Kap (approximately 360m long) is still in its natural status and should be preserved. River Park will be implemented at the channelized section of Tung Chung Stream and the section upstream till Shek Mun Kap Road.
- 2.1.3 The River Park would occupy an area of approximately 3.3 ha along a total length of 775m. It will be located at Tung Chung Stream covering a large portion of the channelized section (415m in length) together with the immediate upstream natural section alongside Fong Yuen area up to Shek Mun Kap Road (360m in length).
- 2.1.4 The River Park will be implemented in two phases with Phase 1 to be implemented under this contract (NL/2020/06). Phase 2 will be implemented at later stages under subsequent works contract.
- River Park Phase 1 (River Revitalization Section) – The section of the channelized section of Tung Chung Stream upstream of Chung Mun Road to the northeast of Shek Lau Po (about 415m).
  - River Park Phase 2 (Habitat Preservation Section) – The immediate upstream natural section of the channelized section of Tung Chung Stream alongside Fong Yuen area up to Shek Mun Kap Road which is under design stage currently and the commencement of construction is targeted to be in 2024 (about 360m).
- 2.1.5 The habitat preservation section will be implemented in River Park Phase 2. An updated River Park Plan providing necessary information about River Park Phase 2 will be submitted to relevant authorities before the commencement of works for River Park Phase 2.

- 2.1.6 **Diagram 1** shows the location and proposed extent of the River Park Phases 1 and 2. River Park Phase 1 will be constructed under Contract No. NL/2020/06 (i.e. Contract 6). Phase 2 will be implemented at later stage by subsequent works contract.
- 2.1.7 The design theme of River Park is Preservation First + Ecological Enhancement “ECO TRAIL”. It aims to provide a connection between wildlife habitats and human being. Visitors are connected to the wildlife within Tung Chung Valley by walking on the boardwalk and viewing deck going along the River Park as shown in **Diagram 2**. In addition, the Park will allow varieties of both water-friendly culture and activities to take place to enhance the diversity and dynamic of the journey. The River Park will promote eco-education by setting up viewing decks / boardwalk, passive recreation zone for appreciation of natural environment. It will also help to prevent massive infrastructures within the park areas to avoid impacts due to construction and human disturbance. Though there will be visitors during the operation phase, the River Park will be for the restoration of the stream and also enhancing the ecology, and thus the design will be conservation-orientated with the visitor access limited to certain areas. It is not expected that there will be disturbance from the operation of the River Park on Tung Chung Stream.

## 2.2 River Revitalization Section

- 2.2.1 The channelized section of Tung Chung Stream is located to the northeast of Shek Lau Po. Revitalization includes removing the hard edges of the channel and utilizing large, smooth river pebbles to stabilise the embankments, and to allow feature aquatic planting to approach close to the water's edge allowing visitors a tactile relationship with the water.
- 2.2.2 The total length of channelized section of Tung Chung Stream is approx. 625m, in which approx. 415m is within River Park Phase 1, shown in **Diagram 1**.
- 2.2.3 For the existing channelized section of the River, it would be reconstructed by using natural materials of a channel without obstacles for movement of aquatic fauna and providing suitable habitats, while still maintaining sufficient drainage capacity.
- 2.2.4 Some of the existing disturbed areas of the Tung Chung Stream within the proposed River Park will form interactive activities zones to promote the water-friendly culture.
- 2.2.5 The River Park design aims at creating a sense of place for the River Park. The design intention is to keep the area as natural appearance as possible and ecologically functioned.
- 2.2.6 For the disturbed / urbanized riverside areas of low ecological value (the western bank of the natural section, and both sides of the channelized section), amenity enhancement can be achieved by landscape planting and preservation of existing trees, which would facilitate recreational function of the River Park at the same time. Trees unavoidably to be removed will be compensated in appropriate locations to mitigate the landscape impacts.





**Diagram 1 – Layout Plan for River Park**

## 2.3 Design Details of River Park (Phase 1 “River Revitalization Section”)

- 2.3.1 Under the River Park Phase 1 “**River Revitalization Section**”, it enhances the river bed to provide ecological linkage with downstream habitat, enrich the vegetation on the existing channelized section and then upgrade the landscape value of the existing disturbed area.
- 2.3.2 **Table 2.1** describes the elements of Phase 1 “River Revitalization Section”.
- 2.3.3 There will be passive recreation zone in both Phase 1 “River Revitalization Section” and Phase 2 “Habitat Preservation Section”. Passive recreation activities include boardwalks, riverside walk, resting station, viewing platform, arboretum, etc. The indicative proposed layout and elements of River Park (both Phase 1 and Phase 2) are provided in **Diagram 2**.
- 2.3.4 The detailed design of River Park is subject to change and coordination with the operation/ maintenance authorities and stakeholders.

**Table 2.1 – Elements in the River Revitalization Section**

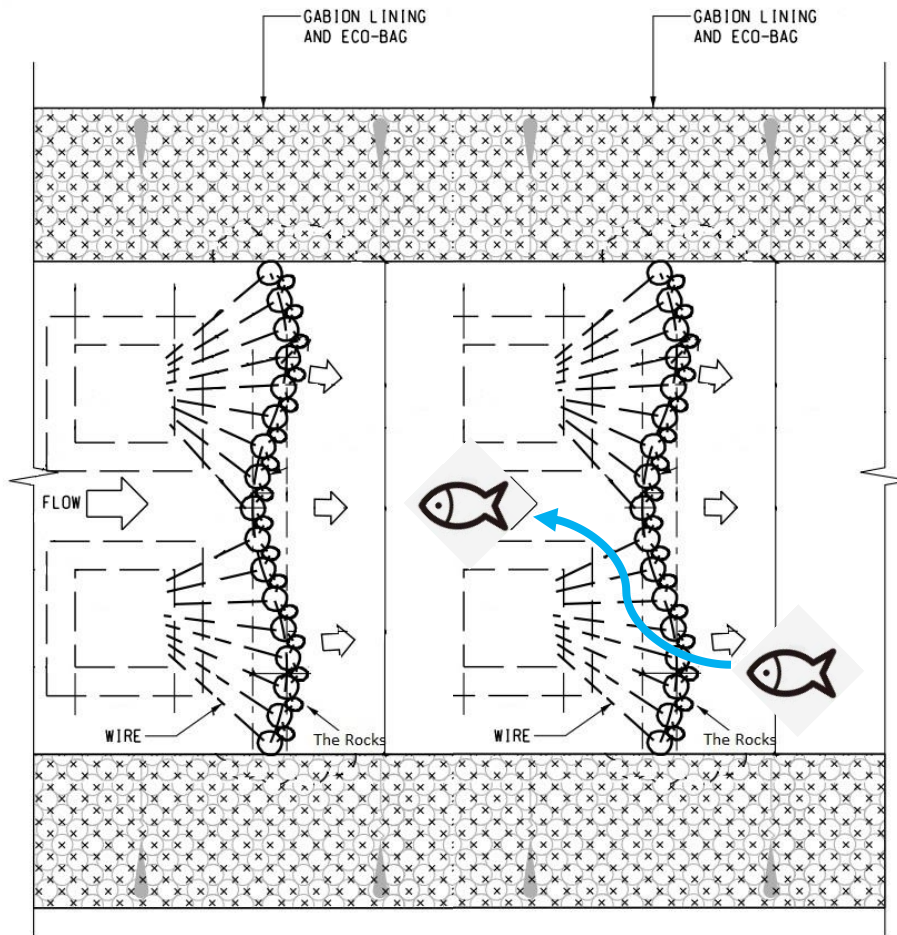
River Revitalization Section	Description
Elevated boardwalk along riverside (Riverside Walk)	<p>A boardwalk is proposed to be built along the western bank of the River Park opposite to the Visitor Centre as a walking path forming the riverside walk.</p> <p>The intention of including a boardwalk is to integrate educational resources into a leisure walking experience for community benefit, which is configured along the revitalized river section.</p> <p>In addition, these boardwalks provide an adventure role when walking through the meandering path. Typical section and elevation of boardwalk are shown in <b>Diagram 3</b> and <b>Diagram 4</b> respectively.</p>
Feature Landscape Stream Crossing (Active Water Play)	<p>River Park crossing will be located adjacent to the Visitor Centre. Stepping stone will be formed on the stream bed, as shown in <b>Diagram 2</b>. Since such river crossing method will affect the river bed, it is preferred to be considered at the existing channelized section.</p> <p>This river crossing, which function as a water friendly element to get people closer to the nature, is provided adjacent to the Visitor Centre to provide synergy for the promotion of water-friendly culture.</p>
River Park Visitor Centre (Visitor Centre)	<p>River Park Visitor Centre will be located at the southern part of River Park Phase 1, as shown in <b>Diagram 2</b> and <b>Diagram 5</b>.</p> <p>The design concept of the Visitor Centre is Flow of Experience for “<i>Start from Nature, End with Nature</i>”. It would be a physical journey and experience that starts from understanding the Nature, and ends with knowledge and physical experience of the Nature through various forms of Audio-Visual interactive activities.</p>
Stormwater Attenuation and Treatment Pond (Attenuation Pond Education)	<p>The pond (SATP A04) will be next to the proposed River Park Visitor Centre. Associated facilities such as educational signages would be provided at this SATP for educational purposes.</p>
Ecological Measures	<p>Some ecological measures like Eco Bag, Aquatic Plants and Planting on Gabion will be located along the river bank and river bed of River Park to enhance connectivity and biodiversity, shown in <b>Diagram 6</b>.</p>
Fish Ladders	<p>Some specially made granite rocks will be used for the fish ladder. The fish ladders enable fish to pass around the barriers by swimming and leaping up a series of relatively low steps into the waters on the other side, as shown in <b>Diagram 2 and 2.1</b>.</p>
Education Signage and Information Signage	<p>Education signage as a feature to promote eco-education in accordance with EP-519/2016 – Clauses 2.19 (iii) will be provided to inform the public about the development of River Park. Its perspectives are shown in <b>Diagram 7a</b> and <b>Diagram 7b</b>. Appropriate information signage will also be provided to warn the public about potential hazards within the Park and ensure visitors following general rules of the Park. The education signage and information signage will be set up along the boardwalk and visitor walkway.</p>



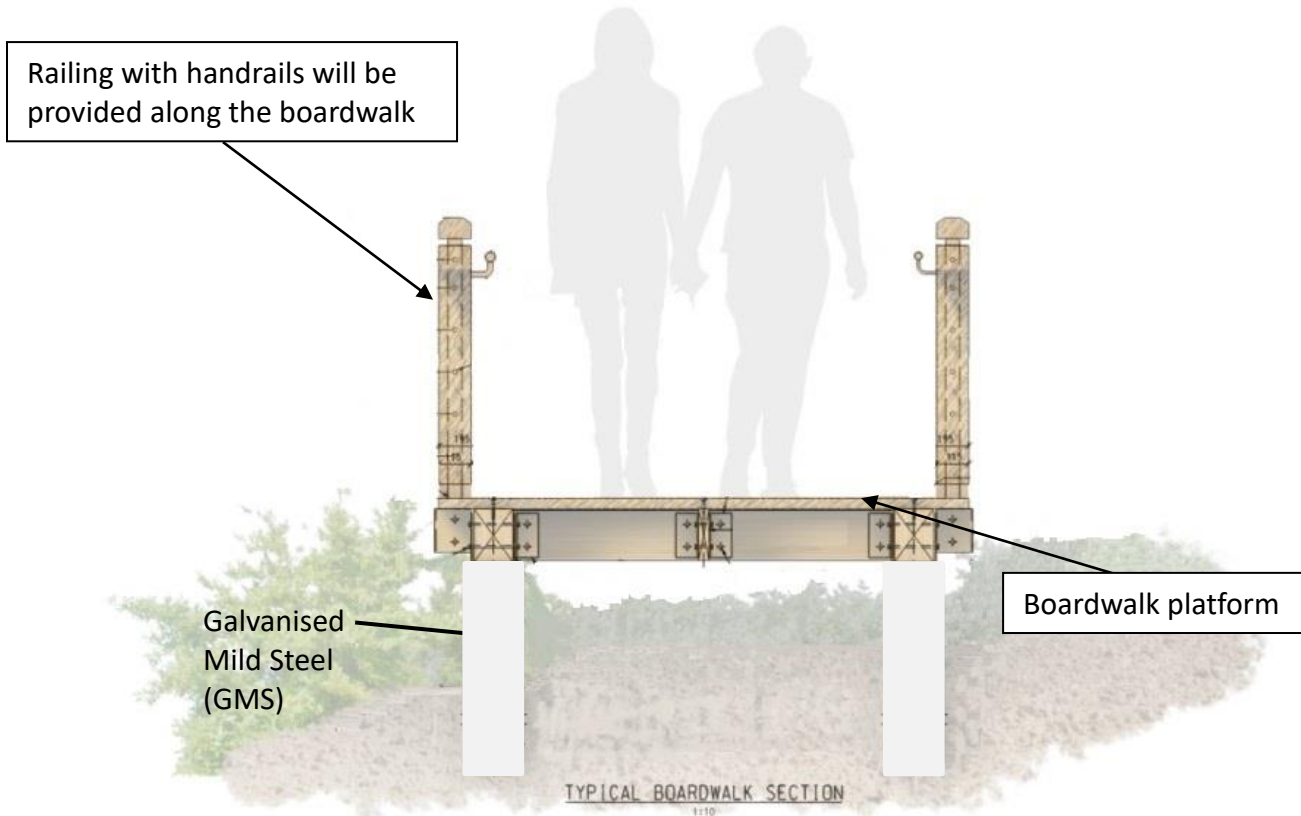


Diagram 2 – Indicative layout and features of the River Park





**Diagram 2.1 – Indicative Design of Fish Ladder**



Description
Boardwalk platform is recommended for the eco-trail.
When the visitors meander along the boardwalk, handrail would be provided, especially at the change of direction area.

**Diagram 3 – Typical Section of Boardwalk Platform**

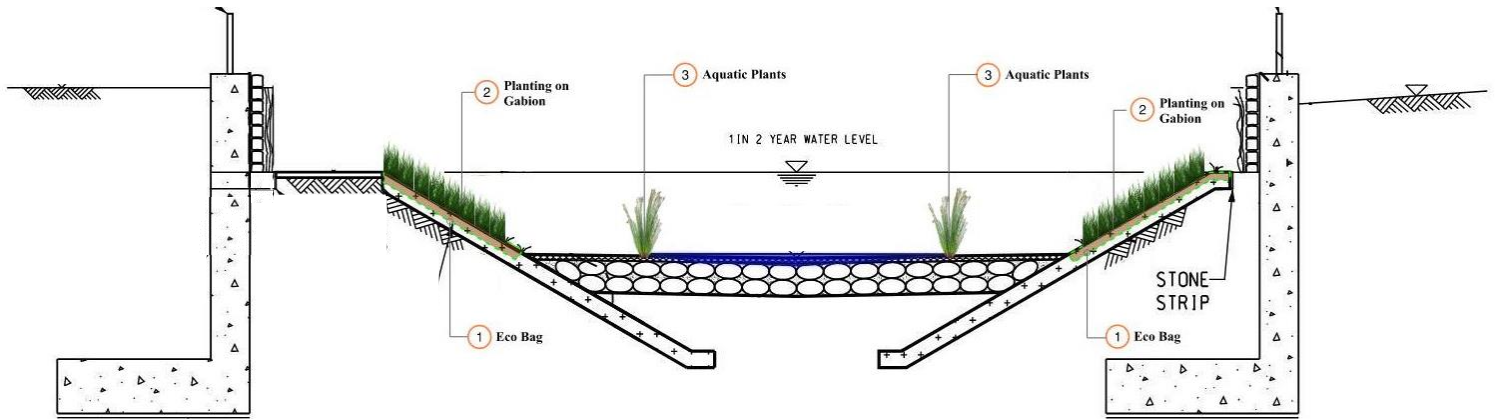


**Diagram 4 – Elevation of Boardwalk**



**Diagram 5 – Indicative Design of the Visitor Centre**





**TYPICAL SECTION FOR REVITALIZATION OF EXISTING TRAPEZOIDAL CHANNEL**



**1 Eco Bag**

- Packed with soil and seed
- Stabilize soil and allow vegetation to grow



**2 Planting on Gabion**

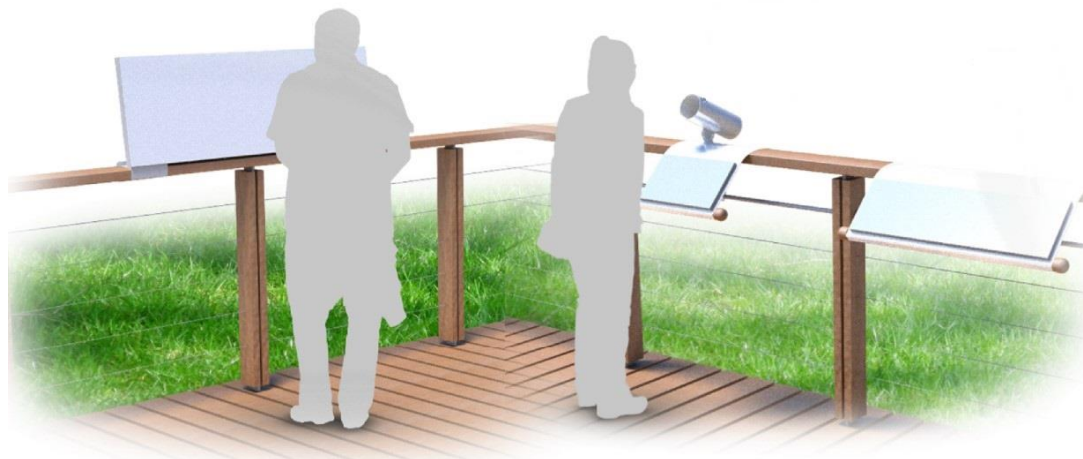
- Planting on ecobag/biolog fixed on top or modify the gabion to install planting pits



**3 Aquatic Plants**

- Will be planted on edges of pools
- Provide food sources and hiding place for aquatic life

**Diagram 6 – River Park Ecological Measures for Connectivity and Biodiversity Enhancement**



**Diagram 7a – Education Signage Perspective**



**Diagram 7b – Reference Image of Education Signage**

## **2.4 River Park (Phase 2 “Habitat Preservation Section”)**

- 2.4.1 The habitat preservation section is to respect the existing natural environment to promote eco-education. It will minimize alternations / changes of the vegetation in particular the riparian vegetation to preserve existing habitats and the larval food plant for the rare butterfly species Jhora Scrub Hopper (*Aeromachus jhora*). In addition, it will accommodate the passive facilities like viewing platform and boardwalk to engage visitors’ maximum appreciation of the natural environment.
- 2.4.2 As mentioned in paragraph 2.1.4 that the habitat preservation section will be implemented as River Park Phase 2, which will be implemented in later stage under subsequent works contract, this Section will be updated in future submission.

### 3 Planting Design of River Park

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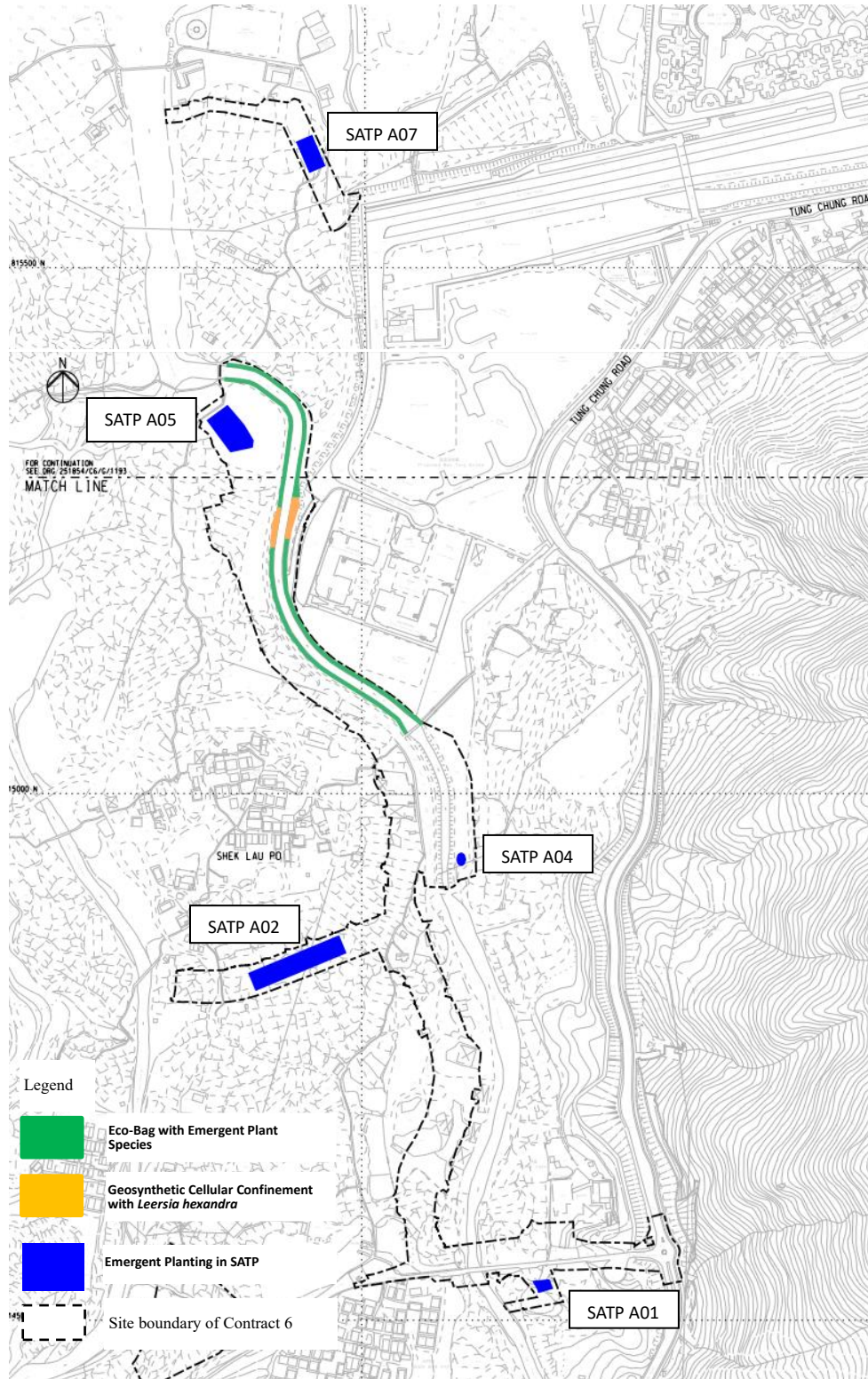
- 3.1.1 Suitable nectar plants as well as butterfly larval food plants such as *Leersia hexandra* (李氏禾) will be one of the key theme planting in the River Park. The photos of *Leersia hexandra* are shown in **Diagram 8**. While *Leersia hexandra* is the larval food plant of the rare butterfly species Jhora Scrub Hopper (*Aeromachus jhora*), provision of suitable nectar plants could effectively attract adult butterflies of various species to areas designed as butterfly garden and along walking trail.
- 3.1.2 As per the requirement of EP-519/2016 (Clause 2.19(iv)), at least 0.5ha of emergent planting including *Leersia hexandra* shall be included to enhance the ecological values of the River Park. Under River Park Phase 1, approximately 0.667 ha of emergent planting (within which 288 sq. meters of *Leersia hexandra*) will be planted along the riverside and in Stormwater Attenuation and Treatment Ponds as shown in the highlighted area in **Diagram 9**. SATP A01, A02, A04, A05 and A07 includes the emergent planting under Phase 1 of River Park. The emergent planting for River Park Phase 2 will be reviewed by subsequent works contract. Please refer to **Table 3.2** for the proposed size of emergent planting in River Park (Phase 1). For *Leersia hexandra*, which is a wild species not commercially available in the market, the transplanting of healthy stock of *Leersia hexandra* to temporary nursery will be carried out and propagated by the Contractor. As existing patches of *Leersia hexandra* varies in size in the wild, a reasonable turf size following GS Clause 3.27 is anticipated through successful transplant and propagation by the Contractor. Please refer to **Diagram 10** for more details regarding the translocation proposal for *Leersia hexandra*.
- 3.1.3 Shrubs, herbs and native trees will be planted throughout Phase 1 of the River Park. The proposed plants species are selected with consideration of the accessibility for planting, future maintenance, and the ecological linkage with other existing habitats. The examples list of recommended species to be planted throughout Phase 1 of the River Park, in which comments from the relevant department and interest groups are incorporated, are shown in **Table 3.1** and the examples of the emergent plant species proposed for planting in Phase 1 of the River Park are shown in **Table 3.2**. The Landscape Designer of the River Park should make reference to the recommended plant list when designing the landscape and the contractor will make early arrangement for the availability and sufficient quantity of suitable plant species. *Leersia hexandra* will be included in the emergent planting together with other recommended plant species in the River Park as required under the requirement of EP.





**Diagram 8 – Photos of *Leersia hexandra* to be planted throughout Phase 1 of River Park**





**Diagram 9 – Location of Emergent Planting in River Park Phase 1**

**Table 3.1 – Examples list of recommended species to be planted throughout Phase 1 of the River Park**

Scientific Name	Chinese Name
<i>Melastoma sanguineum</i>	毛茛
<i>Nephrolepis auriculata</i>	腎蕨
<i>Rhaphiolepis indica</i>	石斑木
<i>Rhodomyrtus tomentosa</i>	桃金娘
<i>Ficus pumila</i>	薜荔
<i>Sterculia lanceolata</i>	假蘋婆
<i>Viburnum odoratissimum</i>	珊瑚樹
<i>Morella rubra</i>	楊梅
<i>Syzygium hancei</i>	韓氏蒲桃
<i>Sapium sebiferum</i>	烏柏
<i>Ilex rotunda var. microcarpa</i>	小果鐵冬青
<i>Pyrus calleryana</i>	豆梨
<i>Garcinia oblongifolia</i>	嶺南山竹子
<i>Pongamia pinnata</i>	水黃皮

**Table 3.2 – Examples of the emergent plant species proposed for planting in Phase 1 of the River Park**

Scientific Name	Chinese Name	Respective Sizes (Height x Spread, mm)
<i>Juncus effusus</i>	燈心草	Herbaceous plants (200 x 200)
<i>Alternanthera sessilis</i>	蝦鉗菜	Herbaceous plants (200 x 200)
<i>Crinum asiaticum var. sinicum</i>	文殊蘭	Herbaceous plants (500 x 500)
<i>Cyperus malaccensis var. brevifolius</i>	短葉茳芏	Herbaceous plants (200 x 200)
<i>Equisetum debile</i>	筆管草	Herbaceous plants (500 x 500)
<i>Hedychium coronarium</i>	薑花	Herbaceous plants (500 x 500)
<i>Leersia hexandra</i> *	李氏禾*	Turf.**

\* Note: Under Clause 2.19 (iv) of EP (EP No. EP-519/2016), at least 0.5 ha of emergent planting including the larval food plant of the butterfly species Jhora Scrub Hopper, i.e. *Leersia hexandra*, to enhance ecological values will be planted in River Park.

\*\* Note: For *Leersia hexandra*, the Contractor shall follow contract requirement to transplant existing plants from the site and propagate the plants in a nursery for replanting in the River Park. Stocks for planting shall comply with turf as per General Specification for Civil Engineering Works (2020) Clause 3.27.



## PLANTING OF EMERGENT PLANTS INCLUDING THE LARVAL FOOD PLANT OF THE BUTTERFLY SPECIES JHORA SCRUB HOPPER, I.E. LEERSIA HEXANDRA

1. ACCORDING TO THE ENVIRONMENTAL PERMIT NO. EP-519/2016, CLAUSE 2.19 SUBMISSION OF RIVER PARK PLAN, THE PLANTINGS OF THE RIVER PARK SHALL INCLUDE AT LEAST 0.5 HA OF EMERGENT PLANTS INCLUDING THE LARVAL FOOD PLANT OF THE BUTTERFLY SPECIES JHORA SCRUB HOPPER, I.E. LEERSIA HEXANDRA, TO ENHANCE ECOLOGICAL VALUES, WITHIN THE RIVER PARK. DUE TO THE SCOPE OF THE DECHANNELIZED NATURE OF THE TUNG CHUNG STREAM, APPROX. 288 SQ.M. OF LEERSIA HEXANDRA AT THE AREA NEAR THE BRIDGE A WILL BE CARRIED OUT UNDER THE CURRENT CONTRACT 6.
2. LEERSIA HEXANDRA IS A WILD GRASS SPECIES THAT IS NOT COMMERCIALY AVAILABLE. HOWEVER, ACCORDING TO THE EIA REPORT, THERE ARE EXISTING PATCHES OF LEERSIA HEXANDRA ALONG THE UPSTREAM NATURAL SECTION OF TUNG CHUNG STREAM. THE CONTRACTOR NEED TO TRANSPLANT THE EXISTING STOCKS OF LEERSIA HEXANDRA. COLLECT THE PLANTS BEFORE CONSTRUCTION WORKS BEGIN. MAINTAIN THE PLANTS IN A HOLDING NURSERY AND PROPAGATE IF NECESSARY. REPLANT WHEN THEIR FINAL LOCATION AS INDICATED IN THE DRAWING NO. 251854/C6/RP/5031-5033 IN THE RIVER PARK IS READY.
3. A QUALIFIED BOTANIST WITH A MINIMUM 5 YEARS EXPERIENCE IN HONG KONG WITH RARE SPECIES TRANSPLANTING AND PROPAGATION SHALL BE ENGAGED TO IDENTIFY THE LEERSIA HEXANDRA WITHIN THE UPSTREAM NATURAL SECTION, AND VERIFY THE SPECIES WITH AFCD PLANT SPECIALIST IF NECESSARY. THE BOUNDARIES OF INDIVIDUAL PATCHES INTENDED FOR RETAINING AND/OR TRANSPLANTING SHALL BE SET OUT AND PROTECTED BY ROBUST FENCING. THE APPOINTMENT OF THE QUALIFIED BOTANIST SHALL BE INVOLVED IN THE LEERSIA HEXANDRA IDENTIFICATION, SPECIES COLLECTION, TRANSPLANTATION, PROPAGATION SUPERVISION, PLANTING AND POST-TRANSPLANTATION MONITORING, AND THE QUALIFICATION OF THE QUALIFIED BOTANIST SHOULD BE APPROVED BY THE PROJECT MANAGER. THE QUALIFIED BOTANIST SHALL BE FAMILIAR WITH THE LOCAL FLORA AND RARE PLANTS IN THE TUNG CHUNG VALLEY, AND LOCAL LAWS AND REGULATINGS THAT PERTAIN TO RARE PLANT PROTECTION AND ENVIRONMENTAL IMPACT ASSESSMENT ORDINANCE.
4. FOR RETAINING, THE QUALIFIED BOTANIST SHALL CARRY OUT MONTHLY PERIODIC MONITORING ON THE PLANTS AND RECOMMEND ANY MAINTENANCE OR REMEDIAL ACTIONS IF FOUND REQUIRED.
5. FOR TRANSPLANTING, THE QUALIFIED BOTANIST SHALL SUPERVISE THE WHOLE TRANSPLANTING PROCESS INCLUDING WILD STOCK IDENTIFICATION AND COLLECTION, MAINTENANCE/PROPAGATION AT HOLDING NURSERY, REPLANTING, ESTABLISHMENT AND POST-TRANSPLANT MONITORING. A MONTHLY MONITORING PHOTOGRAPHIC RECORD SHOULD BE SUBMITTED TO PROJECT MANAGER TO ENSURE THE HEALTHY CONDITION AND THE SURVIVAL RATE OF THE TRANSPLANTS OF THE LEERSIA HEXANDRA. THE MONTHLY MONITORING RECORD SUBMISSION SHOULD BE SUBMITTED WITHIN 10 WORKING DAYS AT THE END OF EACH MONTH TO THE APPROVAL OF THE PROJECT MANAGER.
6. NOTWITHSTANDING THE OPTION OF RETAINING OR TRANSPLANTING, REDUNDANT STOCKS OF LEERSIA HEXANDRA SHALL BE TRANSPLANTED AND MAINTAINED IN A HOLDING NURSERY DURING THE ESTABLISHMENT PERIOD, SO THAT IF THE RETAINED OR TRANSPLANTED STOCKS FAIL, THERE WOULD STILL BE BACKUP STOCKS FOR REINSTATEMENT.
7. WHEN THE RIVER PARK IS TO BE HANDED OVER TO ITS FUTURE MAINTENANCE AGENT, THE BACKUP STOCKS MAY ALSO BE HANDED OVER IF DEEMED NECESSARY. THE CONTRACTOR NEED TO SUBMIT A METHOD STATEMENT FOR THE EMERGENT PLANTING PLAN, WHICH PREPARED BY THE QUALIFIED BOTANIST, IDENTIFY THE LOCATION OF EXISTING LEERSIA HEXANDRA WITHIN THE UPSTREAM NATURAL SECTION, OUTLINE THE TRANSPLANTATION AND PROPAGATION OF LEERSIA HEXANDRA, DETAILS OF MAINTAINING THE PLANTS IN THE HOLDING NURSERY, CONTINGENCY PLAN IN CASE THE TRANSPLANTATION / PROPAGATION OF LEERSIA HEXANDRA IS UNSUCCESSFUL, AS WELL AS IMPLEMENTATION PROGRAMME, MAINTENANCE AND MONITORING REQUIREMENT TO THE PROJECT MANAGER AND ALL RELEVANT DEPARTMENTS APPROVAL.
8. MONITORING OF EMERGENT PLANT WITHIN RIVER PARK IS REQUIRED AS STIPULATED IN PARA. 9.11.1-2 IN THE APPROVED EIA REPORT (REGISTER NO. AEIAR -196/2016). SURVIVAL AND ESTABLISHMENT OF PLANTINGS IN THE RIVER PARK SHALL BE MONITORED QUARTERLY FOR 2 YEARS. THE MONITORING SURVEYS SHALL BE CARRIED OUT BY A QUALIFIED ECOLOGIST. SURVEY IN THE RIVER PARK WILL COMMENCE AFTER COMPLETION OF PLANTING. INDIVIDUALS OF EACH PLANTED SPECIES SHALL BE CHECKED AND PERCENTAGE OF SURVIVAL COMPUTED.

## OUTLINE OF LEERSIA HEXANDRA TRANSPLANTATION

1. AS LEERSIA HEXANDRA IS A WEEDY GRASS WITH SHALLOW ROOTS AND GROW IN SWATHS, TRANSPLANTING SHOULD BE EASY AND SIMILAR TO THE USUAL HORTICULTURAL PRACTICE OF TRANSPLANTING TURF. THE QUALIFIED BOTANIST SHALL CONDUCT A SITE VISITS ALONGSIDE THE TUNG CHUNG STREAM TO INVESTIGATE THE LOCATION OF EXISTING PATCHES OF LEERSIA HEXANDRA. DETAILED SCHEDULE FOR COLLECTION OF LEERSIA HEXANDRA AND TRANSPORTATION ARRANGEMENT BETWEEN HOLDING NURSERY AND SITES SHOULD BE APPROVED BY PROJECT MANAGER.
2. HIGH QUALITY PATCHES (SHOWING HEALTHY, ROBUST GROWTH AND MINIMAL AMOUNT OF OTHER PLANTS) SHOULD BE CHOSEN FOR TRANSPLANTING IF POSSIBLE.
3. THE SOIL CONTAINING THE GRASS WOULD BE DUG UP (SAY IN SQUARES 500X500MM), WITH SUFFICIENT DEPTH (SAY 150MM) TO PROTECT THE ROOTS, KEPT IN SHADE AND MOIST, AND TRANSPORTED TO THE HOLDING NURSERY.
4. WATERTIGHT PLANTERS WITH CONTINUOUS WATER SUPPLY SHALL BE PROVIDED IN THE HOLDING NURSERY TO TEMPORARY REPLANT THE GRASS DURING THE HOLDING PERIOD.
5. THE GRASS SHOULD BE REPLANTED IN GROWING MEDIUM WITH TEXTURE AND COMPOSITION SIMILAR TO THEIR NATIVE SOIL. EXISTING SOIL ON SITE MAY BE COLLECTED FOR REUSE.
6. THE NATURAL HABITAT OF LEERSIA HEXANDRA ARE MARSHLANDS OR STREAM BANKS WITH SLOW-MOVING SHALLOW WATER. THE FINAL REPLANTING LOCATION SHOULD MIMIC ITS NATURAL GROWING ENVIRONMENT.



REFERENCE IMAGE OF  
LEERIA HEXANDRA



THE SOIL CONTAINING THE GRASS WOULD BE DUG UP



EXISTING SOIL ON SITE MAY BE  
COLLECTED FOR REUSE



COMPLETION OF PLANTING

## LEERSIA HEXANDRA TRANSPLANTING PRACTICE FOR REFERENCE

**Diagram 10 – Details of Translocation Proposal for *Leersia hexandra***



## 4 Stormwater Attenuation and Treatment Ponds

4.1.1 The Sustainable Urban Drainage System (SUDS) will be put in place in the Tung Chung Valley, which includes porous pavements, bioswales, as well as stormwater attenuation and treatment ponds. When it rains, surface runoff in the area will be collected through the drainage system, purified and treated naturally before conveying into the Tung Chung Stream. In this way, water resources and water quality will be controlled more effectively. Besides, the stormwater attenuation and treatment ponds will be built in areas of lower ecological value as far as possible and green features will be added so as to reduce the impact on the surrounding natural habitats.

### 4.1.2 Design Concept

Stormwater Attenuation and Treatment Pond systems aims to provide water quality treatment and flood alleviation. Each pond system will serve as a regional stormwater management system, treating runoff from roadways, future and existing developments and as a bonus, serve as freshwater habitats. The stormwater management strategy of the Stormwater Attenuation and Treatment Pond is described by **Diagram 11**. Indicative locations of the Stormwater Attenuation and Treatment Pond system are shown in **Diagram 12**.

### 4.1.3 Ecological Function

The stormwater attenuation and treatment ponds provide habitat for attracting aquatic invertebrates and other wildlife.

### 4.1.4 Design Features

Each set of Stormwater Attenuation and Treatment Ponds systems consist of three sections with the following primary features:

#### 1) Sedimentation Pond

- Receives the runoff from the road drainage system;
- Reduces flow velocities; and
- Allows deposition of sediment and entrained pollutants.

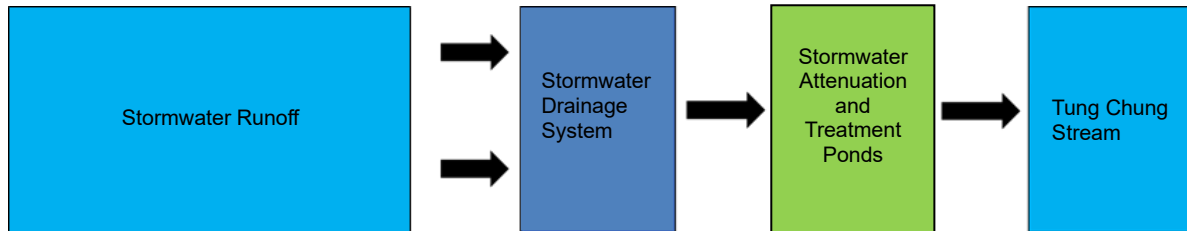
#### 2) Treatment Pond (Biofiltration Zone)

- Allows treatment action to occur while runoff travels slowly through dense wetland vegetation to remove fine particulates and encourage nutrient uptake.
- Aquatic plant species commonly found in wetlands in Hong Kong are proposed to be planted. **Diagram 14** gives some examples of these plant species. The contractor will make early arrangements for suitable plant species' availability and sufficient quantity.

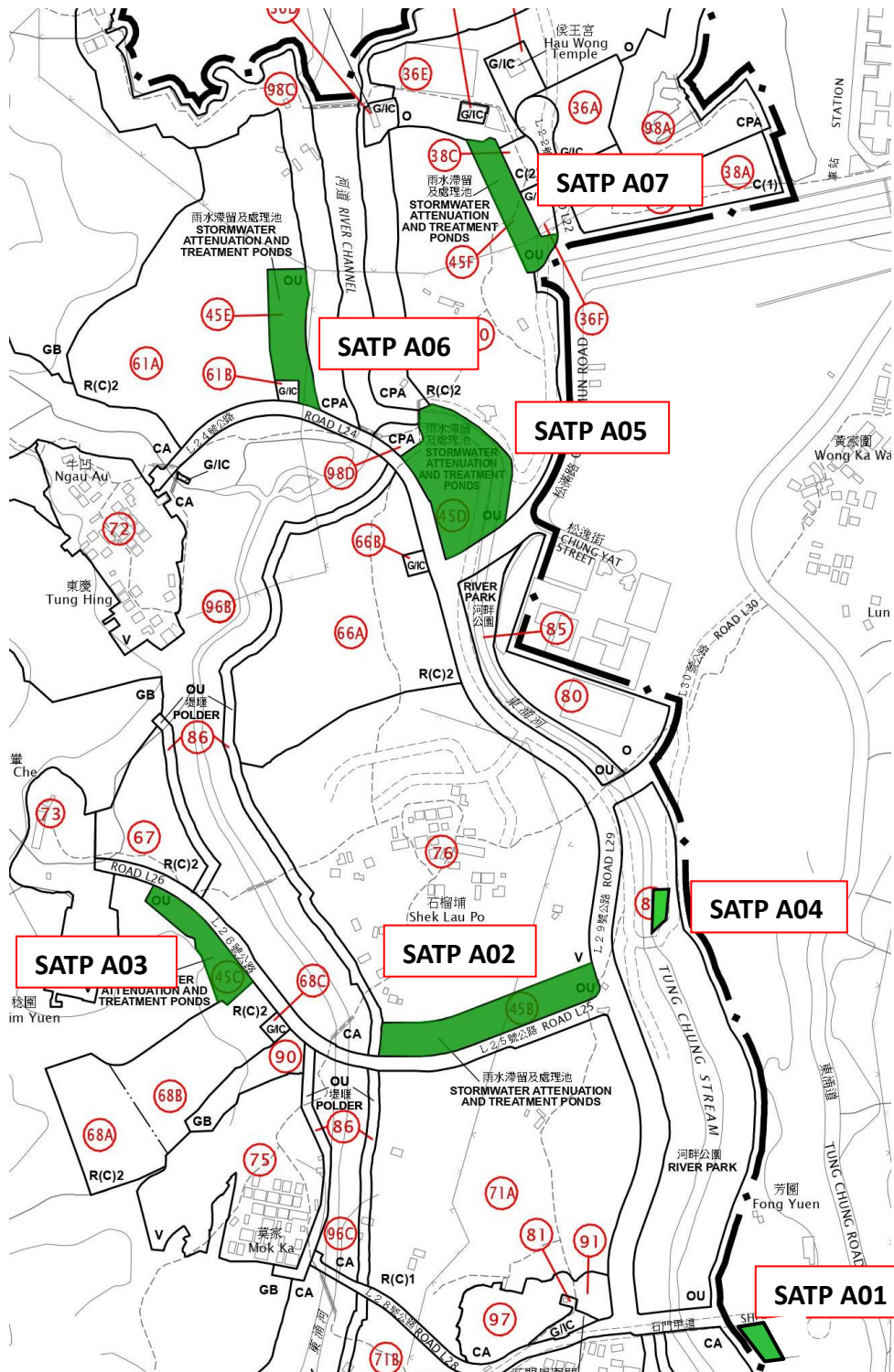
3) Attenuation Pond

- Receives treated runoff from the treatment pond (Biofiltration Zone) for discharge into the Tung Chung Stream.

Examples of these features of proposed stormwater attenuation and treatment pond are shown in **Diagram 13 and 13.1**.



**Diagram 11 – Philosophy for the Proposed Stormwater Attenuation & Treatment Ponds**

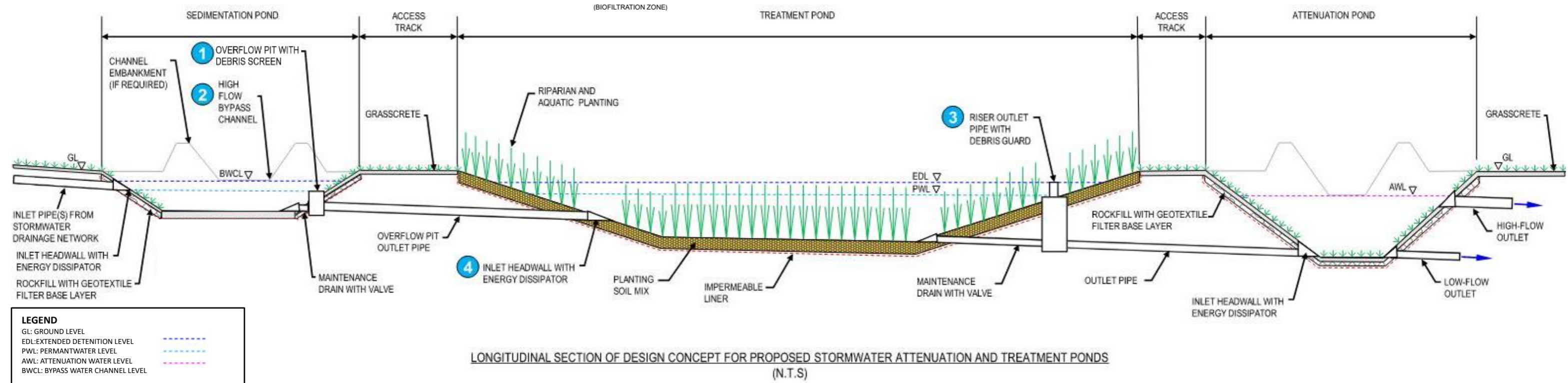


**Diagram 12 – Location plan of Stormwater Attenuation and Treatment Ponds**

Note 1: SATPs A01, A02, A04, A05 and A07 will be implemented under Phase 1 of River Park (Contract 6) and SATPs A03 and A06 will be implemented under Phase 2 of River Park (Subsequent works contract)

Note 2: Layout of SATP A04 is adjusted due to site constraints for other facilities within the River Park including Visitor Centre, emergency vehicular access, sump pump, etc.





Example of Overflow Pit with Debris Screen  
(Ref. 1 - Figure 4.7)



Example of High Flow Bypass Channel  
(Ref. 1 - Figure 10.2)



Example of Riser Outlet Pipe  
(Ref. 1 - Figure 10.11)



Example of Inlet Headwall w/ Energy Dissipator  
(Ref. 2 - Figure 28.3)

Ref. 1: Engineering Procedures for Active Beautiful Clean Water Design Features, Singapore, PUB, 2011  
Ref. 2: The SuDS Manual, UK, CIRIA, 2015

**Diagram 13 – Design Concepts and Features of Stormwater Attenuation & Treatment Pond**





**Sedimentation Pond**



**Treatment Pond (Biofiltration Zone)**



**Attenuation Pond**

**Diagram 13.1 – Examples of the three major zones/ pond (i.e. Sedimentation Pond, Treatment Pond (Biofiltration Zone) and Attenuation Pond)**





*Alternanthera sessilis*  
蝦鉗菜



*Crinum asiaticum var. sinicum*  
文殊蘭



*Juncus effusus*  
燈心草

**Diagram 14 – Examples of Plant Species in Treatment Pond (Biofiltration Zone) of Stormwater Attenuation & Treatment Ponds**

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## 5 Implementation Programme

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5.1.1 As mentioned before, the River Park will be implemented in 2 phases. Phase 1 of River Park is included in this Contract NL/2020/06 while Phase 2 of River Park will be implemented in a separate subsequent work contract.

5.1.2 The programme for implementing Phase 1 and Phase 2 River Park are summarized in the following table:

**Table 4 - Programme for implementing Phase 1 and Phase 2 River Park**

River Park	Tentative Time of Commencement	Tentative Time of Completion
Phase 1 Works	2022	2025
Phase 2 Works	2024	2028

5.1.3 The implementation schedules of the River Park (Phase 1) and Stormwater Attenuation and Treatment Ponds are given in **Appendix A**.

5.1.4 The construction programme for the Stormwater Attenuation and Treatment Ponds are summarized in the following table:

**Table 5 – Construction Programme for the Stormwater Attenuation and Treatment Ponds under Contract NL/2020/06**

SATP	Tentative Time of Commencement	Tentative Time of Completion
A01	2023	Early 2025
A02	2022	Early 2025
A04	2023	Early 2025
A05	2023	Early 2025
A07	2022	Early 2025

## 6 Maintenance, Management and Monitoring

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### 6.1 Maintenance and Management Responsibility

- 6.1.1 The maintenance and management responsibility of the proposed River Park are taken into account of the future management and maintenance of the works, as per DEVB TCW No. 6/2015 “Maintenance of Vegetation and Hard Landscape Features”.
- 6.1.2 Under the current provision, it is agreed that Drainage Services Department (DSD) will be the maintenance and management agent for the routine operations of River Park.
- 6.1.3 In this regard, DSD will be the maintenance and management department for all the proposed works within the River Park and the River Park Visitor Centre. The River Park will be handed over to DSD as soon as the respective phase mentioned in **Section 5** is completed.
- 6.1.4 DSD will be the maintenance and management department for Stormwater Attenuation and Treatment Ponds. The Stormwater Attenuation and Treatment Ponds of A01, A02, A04, A05, A07 are under River Park Phase 1, while A03 and A06 are under River Park Phase 2 (see **Diagram 12**). The maintenance and management works includes inlets, outlets, drains, sump pumps and irrigation points.

### 6.2 Maintenance Requirements

- 6.2.1 Maintenance is required for the River Park to ensure that revitalization, habitat conservation and eco-educational performance of Tung Chung Stream could be sustained. Common problems are encountered in some of the watercourses in Hong Kong include aggradation / erosion, overgrowth of vegetation, and weed / exotic species invasion. Suitable maintenance measures tailored for and specific to Tung Chung Stream, taking into account the ecological design and function of the river, are needed and shall be provided to avoid compromising other functions (e.g. hydraulic). In order to ensure the hydraulic function of Tung Chung Stream, desilting works shall also be carried out by DSD annually or whenever it is considered necessary. Please refer to **Appendix B** on the maintenance schedule for River Park (Phase 1).

## 6.3 Monitoring Requirements

- 6.3.1 Apart from the maintenance and management works mentioned above, in order to ensure habitat preservation of the River Park and ecological condition of Tung Chung Stream, long-term monitoring of emergent plant inside River Park Phase 1 and also Tung Chung Stream are required (see **Table 6.1**).

### *Monitoring of Emergent Plant inside the River Park*

- 6.3.2 Planting of emergent plant species including the larval food plant of the rare butterfly species Jhora Scrub Hopper (*Aeromachus jhora*), i.e. *Leersia hexandra*, should be provided in the future River Park. Survival and establishment of planted emergent plants in the future River Park will be monitored quarterly for 2 years. The monitoring surveys shall be carried out by a qualified botanist and ecologist. Survey in the future River Park will commence three months after completion of planting. Selected individuals of each planted species will be checked and percentage survival computed. Supplementary planting will be recommended when necessary. Wildlife use of the planted vegetation will be monitored.

### *Monitoring of Tung Chung Stream*

- 6.3.3 For protection of Tung Chung Stream and verifying the effectiveness of mitigation measures, monitoring on Tung Chung Stream is recommended for public works in or near Tung Chung Stream, including construction of River Park (together with revitalization of channelized section of Tung Chung Stream) and stormwater attenuation and treatment ponds, etc. The monitoring should include pre-construction baseline survey, construction phase monitoring and post-construction monitoring. The monitoring items should cover the environment of the stream courses, the water quality, and the stream fauna. During the works period of the river park, monitoring shall be undertaken to identify and evaluate any impacts with appropriate actions taken as required to address and minimise any adverse impact found.
- 6.3.4 As the proposed River Park will have construction works inside Tung Chung Stream for revitalizing the channelized section, pre-construction (baseline) monitoring shall be carried out on a monthly basis for a 12-month duration. The duration of baseline monitoring for Stormwater Attenuation and Treatment Ponds shall not be less than 6 months and covering wet season. The construction phase monitoring shall cover

the full construction programme on a monthly basis. The post-construction monitoring shall cover a 12-month duration after the completion on a monthly basis.

- 6.3.5 Water quality monitoring, including in situ measurements and collection of water samples for laboratory analysis, shall be conducted at each monitoring location. Dissolved Oxygen (in % saturation and mg/L), pH value, temperature, turbidity and salinity shall be measured in situ while the other parameters, including Biochemical Oxygen Demand (BOD<sub>5</sub>), Chemical Oxygen Demand (COD), oil and grease, suspended solids (SS), Total Kjeldahl Nitrogen (TKN), Total Phosphorus (TP), E. coli and Ammonia (NH<sub>3</sub>) shall be analysis at a HOKLAS accredited laboratory.
- 6.3.6 The water quality index (WQI) of Tung Chung Stream shall also be assessed during post-construction monitoring in order to monitor the overall state of the Stream. The calculation of WQI could be referenced to the latest version of River Water Quality in Hong Kong.
- 6.3.7 Action and limit levels, which should take into account the species and season, for construction phase will be established with reference to baseline survey data. The responses when triggering these limits are outlined in Table 6.2. Monitoring of stream fauna includes fish and aquatic invertebrate. Methodology should follow standard methods of direct observation and active search. The frequency should be monthly.

**Table 6.1 - Monitoring for Emergent Plant inside the River Park Phase 1 and for Tung Chung Stream**

<b>Phase</b>	<b>Methodology</b>
<b>Monitoring of Emergent Plant inside the River Park Phase 1</b>	
Post-construction (Survey to be commenced three months after completion of planting and monitoring quarterly for 2 years)	Quarterly monitoring surveys for survival and establishment of plantings (including emergent plant) in the River Park. Selected individuals of each planted species will be checked and percentage survival computed.
<b>Monitoring of Tung Chung Stream</b>	
Pre-construction (Baseline) (12-month duration for River Park and at least 6 months and covering wet season for Stormwater Attenuation and Treatment Ponds)	Monthly quantitative replicate surveys of the environment of the stream courses, the water quality, and the stream fauna using standardized methodology at the fixed points, the number of which should be determined prior to the first monitoring event.
Construction (monthly basis which cover the full construction programme)	Monthly quantitative replicate surveys of the environment of the stream courses, the water quality, and the stream fauna using standardized methodology at the fixed points determined in the pre-construction phase.
Post-construction (cover a 12-month duration after the completion)	Monthly quantitative replicate surveys of the environment of the stream courses, the water quality, and the stream fauna using standardized methodology at the fixed points determined in the pre-construction phase.

**Table 6.2 – Action and Limit Levels and Responses to Evidence of Declines in *Aquatic Fauna***

Action Level	Response	Limit Level	Response
Construction Phase			
Non-compliance of Action Level to be established after baseline monitoring, (such as reduction in taxa diversity or abundance), such that response is triggered.	Investigate cause and if cause identified as related to Project instigate remedial action to remove or reduce source of disturbance	Non-compliance of Limit Level to be established after baseline monitoring, (such as reduction in taxa diversity as well as abundance), such that Limit Level response is triggered.	Investigate cause and if cause identified as related to Project instigate further remedial action.

## 6.4 Control of Invasive Flora and Fauna Species

<b>The interval for maintenance</b>	Once a year
<b>How to remove exotic and invasive species</b>	<p><b>For invasive flora:</b></p> <p>Remove the invasive plant by hand picking before its flowering season.</p> <p><b>For invasive fauna:</b></p> <p>Capture and remove by handpicking and traps.</p>
<b>Target invasive species</b>	<p><b>Invasive flora:</b></p> <p><i>Mikania micrantha, Typha angustifolia, Ipomoea cairica, Sonneratia apetala, Cuscuta chinensis, Leucaena leucocephala, Pueraria, Cassytha, Mimosa pudica, Sesbania cannabina.</i></p> <p><b>Invasive fauna:</b></p> <p><i>Trachemys scripta elegans, Oreochromis niloticus, Pomacea canaliculata.</i></p>



## **Appendix A**

# **Implementation Schedules of River Park (Phase 1) and Stormwater Attenuation and Treatment Ponds**

Implementation Schedules of River Park (Phase 1) and Stormwater Attenuation and Treatment Ponds

Section of this Plan	Task	Objectives of the Task	Implementation Agent	Location	Implementation Stage
S.2.1 - S.2.3	River revitalization of River Park (i.e. Phase 1 of River Park)	To enhance environment, promote eco-education, and provide amenity / recreational uses	Contractor and/or DSD	Portion of the eastern branch of Tung Chung Stream which is channelized	Design and construction stages of River Park (Phase 1)
S.3	Planting of emergent plant inside River Park	To compensate for the loss of emergent plant, including <i>Leersia hexandra</i> to provide habitats for rare butterfly species Jhora Scrub Hopper ( <i>Aeromachus jhora</i> ), and for the loss of their habitats in the northern section of Fong Yuen	Contractor and/or DSD	River Park	Design, construction and operation stages of River Park
S.6.1.1 – S.6.1.3	Management of River Park	To ensure proper implementation of River Park	DSD	River Park	Operation stage of River Park
S.6.1.1 – S.6.1.3, S.6.2 and S.6.4	Maintenance of River Park	To maintain environmental/ecological performance and eco-educational and recreational functions of River Park	DSD	River Park	Operation stage of River Park
S.6.3.2	Monitoring of emergent plant inside River Park	To monitor the survival and establishment of emergent plant	Contractor and DSD (monitoring surveys by qualified botanist)	River Park	Post-construction / operation stage of River Park (survey to be commenced three months after

Section of this Plan	Task	Objectives of the Task	Implementation Agent	Location	Implementation Stage
					completion of planting and monitoring quarterly for 2 years.)
S.4	Stormwater Attenuation and Treatment Ponds	To manage flow of rainfall and alleviate flood risk, treat surface runoff before discharge to Tung Chung Stream and provide vegetated wetland and habitats for fauna for environmental/ecological enhancement	Contractor and/or DSD	Stormwater Attenuation and Treatment Ponds	Design and construction stages of Stormwater Attenuation and Treatment Ponds
S.6.1.4	Management of Stormwater Attenuation and Treatments Ponds	To ensure proper implementation of Stormwater Attenuation and Treatment Ponds	DSD	Stormwater Attenuation and Treatment Ponds	Operation stage of Stormwater Attenuation and Treatment Ponds
S.6.1.4	Maintenance of Stormwater Attenuation and Treatment Ponds	To ensure and maintain flooding protection and environmental / ecological functions	Contractor and/or DSD	Stormwater Attenuation and Treatment Ponds	Operation stage of Stormwater Attenuation and Treatment Ponds
S.6.3.3 – S.6.3.7	Monitoring of Tung Chung Stream	To protect the environmental / ecological condition of Tung Chung Stream and verify the effectiveness of mitigation measures	CEDD / ET	Tung Chung Stream in the vicinity of River Park and Stormwater Attenuation and Treatment Ponds	Pre-construction (monthly monitoring for 12 months for River Park and at least 6 months and covering wet season for SATPs), construction (monthly monitoring

Section of this Plan	Task	Objectives of the Task	Implementation Agent	Location	Implementation Stage
					for full construction programme) and post-construction / operation (monthly monitoring for 12 months) stages of River Park and Stormwater Attenuation and Treatment Ponds



## **Appendix B**

### **Maintenance Schedule for River Park Phase 1 in Operation Stage**

Maintenance Schedule for River Park Phase 1 in Operation Stage

Objectives	Frequency	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Replacement planting</b>	<b>Mar – Sept (as required)</b>												
<b>Watering</b>	<b>Daily (Depending on seasons, at least 2 to 4 times a day if there is no automatic irrigation system)</b>												
<b>Top up mulching</b>	<b>Twice a year (as required)</b>												
<b>Pruning of shrubs and groundcovers</b>	<b>General pruning after flowering (as required)</b>												
<b>Control infestation by rodents and Red Imported Fire Ants etc.</b>	<b>Check and control every month (as required)</b>												
<b>Control pest, disease, fungal growth and parasitic plants</b>	<b>Check and control every month (as required)</b>												
<b>Repair typhoon damage</b>	<b>Every time after a typhoon swept</b>												
<b>Erosion control</b>	<b>Check and control every month (as required)</b>												
<b>Tree risk assessment and management</b>	<b>Commence in Nov and complete at the end of April next year (and additional assessments as required)</b>												
<b>Irrigation system</b>	<b>Check every month</b>												
<b>Monitor invasive flora and fauna species</b>	<b>Twice a year covering both dry and wet seasons</b>												
<b>Drainage of planter</b>	<b>Check every month to avoid waterlogging</b>												
<b>Repair damages after severe rain storm events</b>	<b>After each severe rain storm</b>												

Note:

- \*- Staking and guying of trees and protective fencing of planting areas shall be removed at the end of the establishment period, unless otherwise agreed with the future maintenance party
  - #- The maintenance schedule after the establishment period is for reference only and is subject to further review by the future maintenance party
- Based on actual needs at the time of operation