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# **Penfold Park Enhancement Project**

Implementation Plan for Ecological Mitigation Measures (Updated)

August 2023

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# **Penfold Park Enhancement Project**

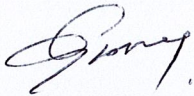
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Measures (Updated)

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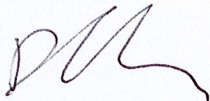
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# 1 Introduction

## 1.1 Background

A Project Profile for permission to apply directly for an Environmental Permit (EP) for the “Penfold Park Enhancement Project” (ref: PP-605/2020) was submitted under the Environmental Impact Assessment Ordinance (EIAO) on 29 June 2020. Permission was granted by the Director of Environmental Protection on 4 August 2020 (ref: DIR-275/2020), with conditions laid out in the EP (ref: EP-577/2020).

The Hong Kong Jockey Club (HKJC) has commissioned Mott MacDonald Hong Kong Limited (MMHK) as the Independent Environmental Checker (IEC) to audit the implementation of all measures recommended in the Project Profile and to oversee the environmental monitoring and auditing (EM&A) requirements of the Project. An Ecologist is also engaged for preparing relevant EP submissions and to carry out ecological monitoring before and during construction phase.

## 1.2 Purpose and Objectives of this Report

As identified in the Project Profile, the Penfold Park Egret and ardeid roost is located within the Project area and mitigation measures have been specified to protect this ecologically sensitive habitat as well as monitor the ardeid activities throughout construction phase. Accordingly, Condition 2.5 of the EP requires an Implementation Plan for Ecological Mitigation Measures to be deposited with EPD no later than one month before the commencement of construction of the Project.

According to Condition 2.5 of the EP, the requirements of this Implementation Plan for Ecological Mitigation Measures include:

- Elaborate in details the arrangement and procedures for implementation of precautionary measures to minimise the impacts to the Egret and species of conservation importance roosting/dwelling in Penfold Park, such as ardeids, Short-nose Fruit Bat (*Cynopterus sphinx*) and Reeve’s Terrapin (*Chinemys reevesii*) during construction of the Project.
- Include the phasing and scheduling of construction works, setting of Egret buffer zone, design and location of physical and noise barriers.
- Include an implementation schedule in table form to clearly list out the mitigation measures to be implemented, and the implementation party, location, timing, and environmental performance required for implementation of the mitigation measures.
- Include a regular monitoring plan, and contingency plan for abnormal event(s).

This Implementation Plan for Ecological Mitigation Measures is prepared in accordance with Condition 2.5 of the EP for the Project.

## 1.3 Roles and Responsibilities

For this Project, the roles and responsibilities of the various parties are summarised below:

### HKJC

Project Manager for the Project, with overall responsibility for the Project’s construction and operation activities.

### IEC

- Audit the implementation of all measures recommended in the Project Profile;

- Verify EP submissions and certify the monthly monitoring reports; and
- Undertake monthly site audits to check compliance of the construction activities against the requirements of the Project Profile and EP.

#### Ecologist

- Oversee all ecological requirements of the Project;
- Regularly monitor the implementation of ecological mitigation measures, in particular those to protect the egretry and species of conservation importance, during construction; and
- Provide recommendations on ecological matters and certification of relevant EP submissions and monthly monitoring reports.

#### Ecologist (egretry) representative

- Oversee the egretry monitoring team in regular egretry monitoring and surveys;
- Advise on egretry protection measures, contractor's working programme and contingency measures for abnormal events associated with the abundance of ardeids and health of the egretry; and
- Undertake monthly site inspections to check the implementation of all egretry-related mitigation measures.

#### Egretry Monitoring Team

- Carry out weekly site monitoring and monthly egretry survey and ardeid roost count and report findings in monthly monitoring report; and
- Report any important or unusual findings immediately to the Ecologist (egretry) representative for further follow up.

#### Contractor

- Implement all environmental protection measures required under the Project Profile and the required restrictions surrounding Pond C and the egretry;
- Notify all parties in advance on upcoming works programme and activities; and
- Accompany the Ecologist (egretry) representative / Ecologist / IEC / HKJC on monthly site inspections and audits and address their comments and rectify any non-compliances.



## 2 Ecological Mitigation Measures to be Implemented

### 2.1 Mitigation Measures Specified in the Project Profile

#### 2.1.1 Penfold Park Egretty and Ardeid Roost

Within 50m of the Penfold Park Egretty and Ardeid roost, construction work will only take place during the non-breeding season (i.e., September<sup>1</sup> to February inclusive). During the non-breeding season, no construction activities will be scheduled in the early morning (before 09:30) and the cessation time for construction activities will be 1 hour before sunset to avoid disturbance to roosting Ardeids. This will avoid the peak time for Ardeids returning to the roost as explained in Section 2.2.1.1 of the Project Profile). Daily sunset time should be based on the times provided by the Hong Kong Observatory. Work programming, during the Ardeid breeding season and during the winter, will be strictly controlled and should be agreed in advance with the Ecologist (egretty) representative to avoid impacts to breeding and roosting Ardeids.

**Table 1 Summary of Restrictions on Construction Activities**

Period	Works within 50m of Penfold Park Egretty	Works outside 50m of Penfold Park Egretty
During breeding season (March to August inclusive)	No construction activities permitted	Construction activities permitted between 09:30 until 19:00 with the exception of percussive foundation piling, open air concrete breaking and demolition works which are strictly prohibited during this time.
During non-breeding season (September <sup>1</sup> to February inclusive)	All construction activities permitted between 09:30 until 1 hour before sunset	All construction activities permitted between 09:30 until 19:00

The Contractor shall at all times:

- Provide protection to the Penfold Park Egretty and the large stormwater collection pond (i.e. Pond C), using site hoardings as effective physical barriers of about 2.0 metres tall as the topography allows in order to mitigate the visual impact or disturbance potentially generated by workers and external parties during construction. Pond C can only be accessed through the controlled gates on the hoarding. During the breeding season, the gates shall be locked at all times and no worker shall be allowed to enter Pond C. In the non-breeding season, under the supervision of the representative from HKJC and the main contractor, workers are allowed to enter Pond C for construction purposes only. The hoardings will be constantly maintained in good condition by the contractor;
- Use movable noise barriers and/or noise enclosures where appropriate, particularly for the construction of the new Equine Experience Centre (EEC) around the noise source and works in close distance to the egretty or roost of Ardeids;
- Ensure that works areas should be clearly demarcated;
- Ensure that construction activities are restricted to within the demarcated works areas;
- Ensure that no percussive foundation piling is permitted throughout the duration of the whole project;

<sup>1</sup> Ecologist (egretty) representative shall confirm the breeding activities in end of August before the construction activities within 50m of the Penfold Park Egretty commences in September

- Use only well-tested and regularly serviced plant machinery;
- Use silencers or mufflers of proven quality and efficacy on all machinery;
- Re-orientate or re-locate plant machinery in a direction so that the noise generated will be directed away from the egretty where feasible and/or necessary;
- Site mobile plant away from the egretty;
- Make good material stockpiles, site office panels and other in-situ structures in such a manner so as to screen off minor yet unavoidable noises as far as possible;
- Ensure that construction at Pond C is not undertaken during the breeding season.
- Ensure that construction at Pond C when undertaken during the non-breeding season is carried out in two phases such that water can be maintained at part of Pond C at all times;
- All other equipment, plant and stockpiles are established and maintained in the Contractor's compound and are at least 50m away from the Penfold Park Egretty;
- Undertake zoning of works to minimize the duration and significance of potential impact to the entire park;
- Ensure that Pond C where the egretty is located is not dewatered during breeding season (i.e. March to August inclusive);
- Implement a proper sewerage system to avoid / minimize the impacts of water pollution to the stormwater collection ponds, particularly Pond C surrounding Penfold Park Egretty; and
- Ensure that Works areas be reinstated as soon as practicable upon completion of any works.

### 2.1.2 Short-nose Fruit Bat

To minimize the potential disturbance impacts on the bat species especially the Short-nosed Fruit Bat which was found roosting under the frond of Chinese Fan-palm inside Penfold Park, Chinese Fan-palm within the park will be preserved as far as practicable.

A detailed active search for bat roost was conducted on 5 September 2022 and 14 November 2022. One bat roost with 2 Short-nosed Fruit Bats was found. Details of the bat roost survey is covered in the Detailed Bat Roost Survey Report prepared and submitted to EPD under Condition 2.4 of the EP.

### 2.1.3 Reeve's Terrapin

No specific mitigation measures were specified for Reeve's Terrapin in the Project Profile. Nevertheless, the mitigation measures recommended to minimise impacts on Pond C (i.e., phased dewatering) would also address potential impacts to any Reeve's Terrapin residing in the pond.

## 2.2 Implementation Schedule of Ecological Mitigation Measures

To facilitate checking of the implementation of ecological mitigation measures specified in the Project Profile as part of the weekly and monthly site inspections, an implementation schedule for the ecological mitigation measures specified above, as well as further details of measures covered in **Section 3** of this report, is provided in **Appendix A**.

## 3 Details of Construction Arrangements and Procedures for Ecological Mitigation

### 3.1 Construction Programme and Phasing

Construction of the Project commenced in February 2023. Taking into account the different requirements for construction works within / outside of the 50m egretry buffer zone during / outside of the breeding season (details refer to **Section 2.1.1**), the construction works areas have been divided into three zones (namely Zone A, Zone B and 50m Protection Zone) and the works programme has been phased according to non-breeding season and breeding season. Details of the programme and phasing is provided in **Appendix B**. During construction, part of the Park (either Zone A or Zone B) will remain open to the public and construction periods will be constrained by egretry mitigation measure requirements as well as existing operational requirements for horse training and horse racing activities.

### 3.2 Egretry 50m Buffer Zone

For the 50m egretry buffer zone, onsite demarcation will be provided using physical half height barrier with appropriate signage (e.g. warning, work restriction, rules) to remind construction workers of the requirements for entering the 50m egretry buffer zone.

Specifically, the following warnings will be prominently displayed within the part of the active construction works area that overlaps the 50m egretry buffer zone:

- “No entry permitted from March to August”
- “No entry permitted before 09:30 or after XX from September to February” [the ‘XX’ shall refer to the time of 1 hour before sunset]

With reference to the sunset time for 2023 provided by Hong Kong Observatory, the proposed cessation time of construction activities within the 50m egretry buffer zone during non-breeding season is shown in **Table 2**.

**Table 2 Proposed Cessation Time for Construction Activities within the 50m Egretry Buffer Zone**

Month (non-breeding season)	Reference Time of Sunset	Cessation Time of Construction Activities
January	17:51 – 18.11	16:51 – 09:30 (following day)
February	18:12 – 18.26	17:12 – 09:30 (following day)
September	18:12 – 18.41	17:12 – 09:30 (following day)
October	17:47 – 18.11	16:47 – 09:30 (following day)
November	17:38 – 17:46	16:38 – 09:30 (following day)
December	17:38 – 17:50	16:38 – 09:30 (following day)

The period of every breeding season will be monitored by the egretry monitoring team and the end of each breeding season shall be confirmed by the Ecologist (egretry) representative before the commencement of construction activities in non-breeding season.

For areas within the 50m egretry buffer zone that are outside the active construction works area (i.e. publicly accessible), signage will show ‘reminders’ to the public to keep quiet and control their dogs during the egretry breeding period from March to August.

### 3.3 Location and Design of Hoarding / Noise Barriers

Hoarding will be erected around the following areas:

- Pond C
- Demolition of existing toilet and kiosk area
- Demolition of existing RC plinths area

In addition, water-filled barriers will be used to separate the zone under construction from the rest of the Park. The locations are shown in the construction phasing plan in **Appendix B**.

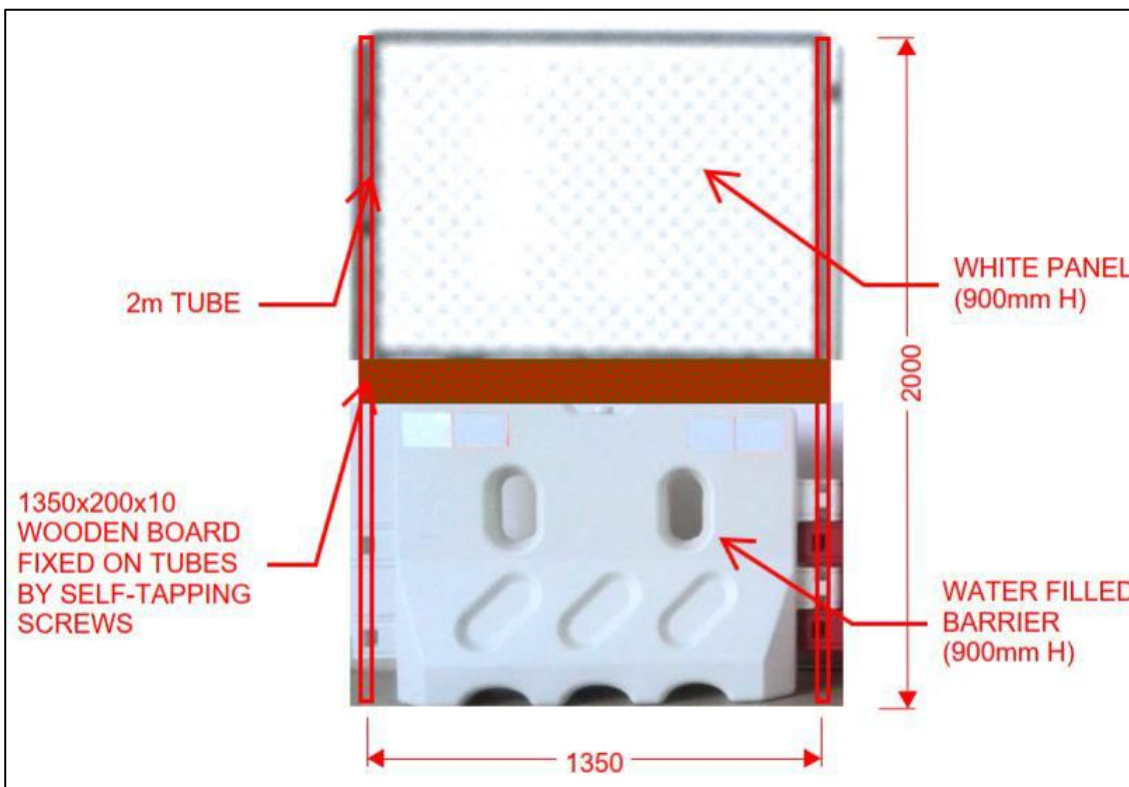
Specifically for ecological mitigation, the design requirements for the hoarding around Pond C and the noise barriers around the EEC and other noisy construction is detailed below.

#### 3.3.1 Temporary Hoarding for Pond C (Arrangement for Breeding Season in 2023)

Due to procurement and resource constraints, the main hoarding around Pond C as described in **Section 3.3.2** cannot be completed before the first breeding season in 2023, hence water-filled barriers with panels of similar height will be implemented as a temporary hoarding from March 2023 until the end of ardeid breeding season.

As shown in **Appendix B** (Stages A1 to A3), the water barriers with panels will be erected outside the 50m egretty buffer zone. The design is indicated in **Figure 3.1**.

**Figure 3.1: Proposed Arrangement for 2m Height Water Filled Barrier for Temporary Pond C Protection**



Note: Designs are indicative and may be subject to modification based on procurement and site constraints.

Water barriers will be interlocked and the ends will be attached to the railings of the bridal path to hold in position. Once the water barrier hoarding are completed, an additional layer of hoarding (typical design same as those to be implemented around Pond C as shown in **Appendix C**) will

be erected behind the water barriers for providing added visual and noise screening of the construction works in Zone A1 during the breeding season.

For the duration of the breeding season in 2023, no construction workers or the public will be allowed access to Zone A2, though public access is permitted within Zone B (including within the 50m egretty buffer radius within Zone B where there is no hoarding), which is no different from existing public accessibility. A single gantry point (up to 2m wide) will be provided for access by the egretty monitoring team for egretty survey purposes, but will be locked at all other times.

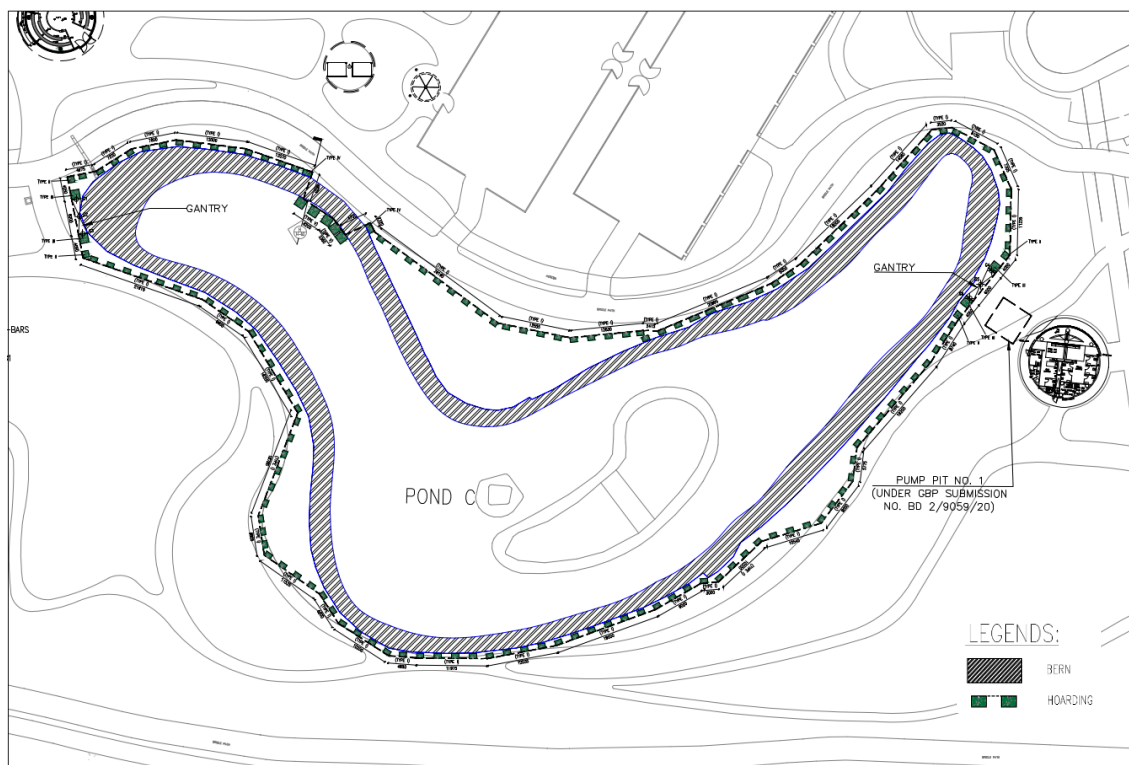
After the end of the 2023 breeding season, the main hoarding around Pond C as detailed in **Section 3.3.2** will be established as shown in **Figure 3.2** and **Appendix B** (Stages A4 onwards).

### 3.3.2 Main Hoarding for Pond C (After Breeding Season in 2023)

After the end of the breeding season in 2023, works are permitted within the 50m egretty buffer zone during the non-breeding season, hence the main hoarding for Pond C will be erected during this period to fully enclose the pond. The completed main Pond C hoarding will then remain in place to provide 360-degree protection to the egretty on all sides for the duration of the construction phase.

For the main Pond C hoarding, corrugated sheet of 2m height supported by reinforced concrete (RC) blocks and lined with acoustic canvas on the outside will be used. Two gantry points will be provided on opposite sides of Pond C for enabling controlled entry during partial pond dewatering and construction. The proposed layout is shown in **Figure 3.2**. The typical designs of the hoarding are shown in **Appendix C**.

**Figure 3.2: Proposed Layout of Hoarding around Pond C**



Note: Layouts are indicative and may be subject to modification based on site constraints.

For the two gantry points, a 6m wide gate will be provided for enabling passage of construction workers, equipment and materials during the pond relining works in non-breeding season. Pond C will only be accessed through the controlled gantry points on the hoarding. During egret

breeding season, both gantry points will be locked at all times and no worker will be allowed to enter Pond C. During non-breeding season, construction activities within Pond C will be restricted to the side that is being / has been dewatered, and only a single controlled entry point (the one closest to the dewatered area) will be used. The exact location of the gantry points may need to be slightly adjusted to suit actual site condition and works phasing.

### 3.3.3 Noise Barrier for EEC and other Noisy Construction Activities

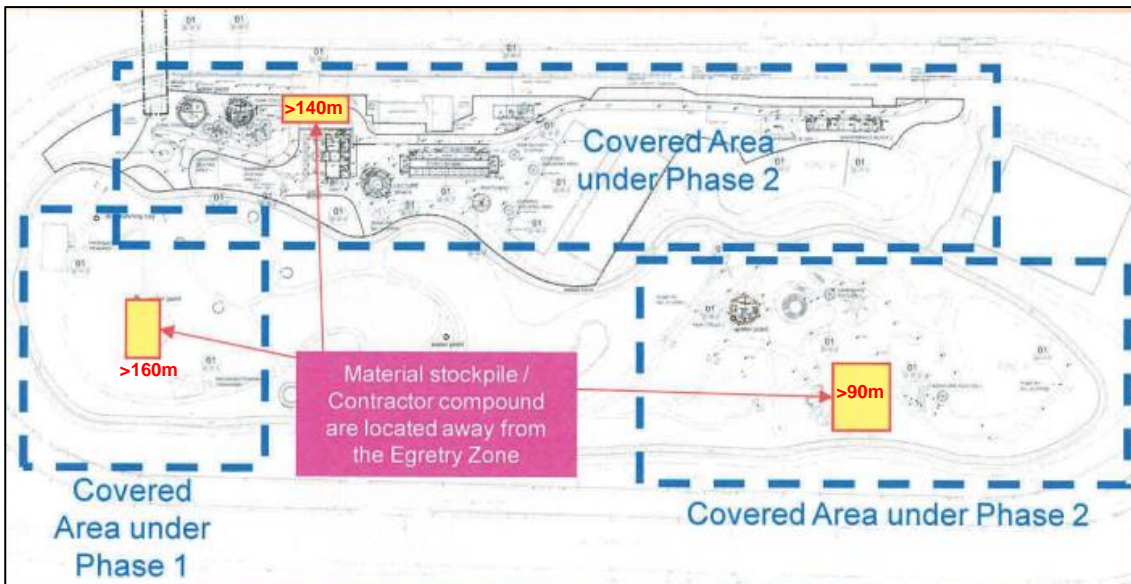
For the noise barrier for construction of EEC, the Contractor proposes to use the proprietary noise barrier 'SilentUP'. This will be erected around the works areas for EEC particularly areas with direct line of sight and close proximity to the Penfold Park Egretty. For noisy plant such as air compressor and generator, and any other noisy construction activities in close proximity to the Penfold Park Egretty, the proprietary noise barrier 'SilentCube' will be set up to enclose these noise sources where applicable.

The proposed supplier's details of both types of proprietary noise barriers are provided in **Appendix D**. The final noise barriers to be deployed may be subject to availability but will be equivalent to those indicated.

### 3.4 Material Stockpile / Contractor Compound

In addition to the hoarding and noise barriers, specific locations for the construction equipment, plant and stockpiles will be established and maintained in the Contractor's compound more than 50m away from the egretty under different phases of construction, and also away from bat roosting and potential bat roosting locations. The locations (depending on the active phase) are shown in **Figure 3.3**.

**Figure 3.3: Proposed Location of Material Stockpile / Contractor Compound Areas**



Note: the distance between the stockpile / compound and the egretty is shown in red text. Actual locations may change due to site construction arrangements but will maintain >50m away from the egretty.

### 3.5 Pond Dewatering

Notwithstanding the proposed phasing for Pond C dewatering as presented in **Section 3.1**, the following procedures will be applied during pond dewatering:

- Manual capture and temporary relocation of any fishes and aquatic fauna including Reeve's Terrapin from dewatered ponds to non-dewatered parts of the pond or to other ponds within Penfold Park, which shall be supervised by the Ecologist.
- Visual check of the dewatered area to ensure no remaining aquatic fauna present before commencement of construction activities within the dewatered pond.
- In case any reptiles or amphibians re-enter the dewatered area of the pond during construction period, they should be humanely captured and relocated to adjacent ponds.

### 3.6 Pond Relining Works

For pond relining works at Pond C, the following requirements apply to minimise disturbance to the Penfold Park Egrettry:

- Phased construction – only part of the pond will be dewatered and under construction at any time so as to maintain water at part of Pond C at all times.
- Restricted working hours – works within the 50m egrettry buffer zone are restricted to non-breeding season only and is not permitted before 09:30 or after 1 hour before sunset each day.
- Restricted access – Pond C will only be accessed through the controlled gantry points on the hoarding. Outside the allowable working hours, both gantry points will be locked at all times and no worker will be allowed to enter Pond C. During non-breeding season working hours, construction activities within Pond C will be restricted to the side that is being / has been dewatered, and only a single controlled entry point (the one closest to the dewatered area) will be used.
- The site practices outlined in the ProPECC PN1/94 'Practice Note for Professional Persons on Construction Site Drainage' will be implemented where applicable to ensure all construction runoff are well controlled.

### 3.7 Chinese Fan-palm

According to the Tree Preservation and Removal Proposal (TPRP) dated November 2022, 53 nos. of Chinese Fan-palm (*Livistona chinensis*) need to be felled within the Project area due to direct conflict with the proposed works, while 68 nos. will be preserved onsite. All Chinese Fan-palm located within the construction area that are retained shall be adequately fenced off and protected. For any Chinese Fan-palm that needs to be felled, the Contractor shall notify the Ecologist at least 1 week before the planned date for felling, and the Ecologist will carry out visual check to ensure no active bat roost before the tree is felled. Visual check shall also be conducted before any works that may cause potential impacts on the bats. If active bat roost is found, the tree shall be fenced off and protected and shall remain fenced off and protected until no observation of bat roost for 7 consecutive days, to ensure the bats has left the roost. In addition, movable noise barriers and/or noise enclosure shall be installed around noisy construction works/machinery in close vicinity to the active bat roosts, to minimize direct disturbance to the bat roosts. Pruning of Chinese Fan-palms during construction phase should be avoided unless due to operational needs and safety hazard (e.g. removal of dead fronds), and in any case should not be carried out on trees with active bat roosts. Guidelines for pruning of Chinese Fan-palms during operation phase will be covered in the Comprehensive Park Management Plan under Condition 2.6 of the EP.

## 4 Ecological Monitoring Plan

### 4.1 Ecological Site Monitoring

Weekly site monitoring will be conducted by the egretty monitoring team during the construction phase to regularly monitor the implementation of ecological mitigation measures, in particular those to protect the egretty to avoid disturbance to ardeids breeding and roosting at the egretty.

Any important findings observed during the site monitoring will be reported to HKJC and IEC and recorded in the monthly monitoring reports.

### 4.2 Monthly Egretty Survey

Egretty survey will be conducted monthly by the egretty monitoring team in the breeding season (March – August inclusive) during the construction period to determine the period of ardeid breeding and provide advice on the restriction of the construction works close to the egretty. The distribution and abundance of nests for different ardeid species, determined by the presence of incubating adults or chicks, will be recorded directly from vantage points along the edge of the egretty with the use of 8-10x binoculars.

Any unusual survey findings will be reported immediately to assess any negative impact arising from the construction.

### 4.3 Monthly Ardeid Roost Count

Ardeid roost count will be conducted monthly by the egretty monitoring team in the non-breeding season (September – February inclusive) during the construction period to monitor the protection of the ardeid roost at the Penfold Park. Survey will commence one hour before sunset. The abundance of ardeids of each species will be recorded from vantage points along the edge of the ardeid roost with the use of 8-10x binoculars.

Any unusual survey findings will be reported immediately to assess any negative impact arising from the construction.

### 4.4 Site Inspection and Audit

The Ecologist, Ecologist (egretty) representative and the IEC will conduct monthly site inspection and audit to monitor the implementation of all environmental mitigation measures and to provide advice on additional measures (if necessary) to ensure adequate protection of the egretty (e.g. the cessation time for construction works) and bat roosts, and adequate performance of the other environmental protection measures.



## 5 Contingency Plan for Abnormal Events

### 5.1 Scope of Contingency Plan

Contingency actions will be implemented to deal with any of the following events if they arise:

- Significant decrease in number of nests;
- Unusual mortality of ardeids adults and/or chicks;
- Decline in condition of nesting and/or roosting trees
- Shift in period of breeding season

### 5.2 Significant Decrease in Number of Nests

Species composition and number of nests vary in every breeding season. Results from monthly egretty surveys in the first year of construction period will be compared with the record in last year as reported by Hong Kong Bird Watching Society. If when considering comparable data, the number of nests significantly decrease by 20%, the effectiveness of mitigation measures shall be reviewed and further investigation of any causes will be undertaken by the egretty monitoring team. Recommendation of remedial actions and/or additional mitigation measures for any causes identified related to the Project will be advised by the Ecologist (egretry) representative within 2 working days.

### 5.3 Unusual Mortality of Ardeids Adults and/or Chicks

Breeding performance (i.e., hatching and fledging success) also indicates the health of an egretty, which might be affected by disturbance, unusual weather conditions, food availability, pollution or other impacts. This will be monitored during ecological weekly monitoring, monthly monitoring survey and site check by the Ecologist (egretry) representative. Any mortality of ardeids adults and/or chicks will be reported by the egretty monitoring team immediately and investigation of causes will be undertaken by the Ecologist (egretry) representative. Recommendation of remedial actions and/or additional mitigation measures for any causes identified related to the Project will be advised by the Ecologist (egretry) representative within 2 working days.

### 5.4 Decline in Condition of Nesting and/or Roosting Trees

Condition of nesting and/or roosting trees is directly associated with the healthiness of the egretty/roost. Potential damage are expected under severe weather conditions (e.g. typhoons). The condition of trees will be checked after typhoon or strong monsoon signal, if any. Recommendation of remedial actions will be advised by the Ecologist (egretry) representative within 2 working days.

### 5.5 Shift in Period of Breeding Season

The period of breeding season may vary every year. Breeding season at Penfold Park Egretry was noted with earlier start from mid-March during the surveys in 2020. The start and end of breeding activities at Penfold Park Egretry will be monitored by the egretty monitoring team during the weekly site monitoring. Any breeding activities earlier than March and/or later than August will be reported immediately. All construction activities should follow the requirements for breeding season until the Ecologist (egretry) representative confirms the end of breeding season.

## **A. Implementation Schedule of Ecological Mitigation Measures during Construction Phase**

## Appendix A – Implementation Schedule of Ecological Mitigation Measures during Construction Phase

**Table A.1 Mitigation Measures Specified in the Project Profile**

Ref. in Project Profile	Mitigation Measures / Good Site Practices	Implementation Agent	Location	Timing	Environmental Performance Required
4.1.1	<p><u>Construction Period within 50m range of the Penfold Park Egretty and Roost of Ardeids</u></p> <ul style="list-style-type: none"> <li>Construction works will only take place during non-breeding season (i.e. September<sup>1</sup> to February inclusive);</li> <li>No construction activities will be scheduled in the early morning (before 09:30); and</li> <li>Cessation time for construction activities will be 1 hour before sunset. The sunset time of every working day should refer to the Hong Kong Observatory.</li> </ul>	Contractor	Within 50m range the Penfold Park Egretty and Roost of Ardeids	Throughout construction phase	Avoid adversely affecting nesting / breeding and roosting ardeids
4.1.1	<p><u>Construction Period outside 50m range of the Penfold Park Egretty and Roost of Ardeids</u></p> <ul style="list-style-type: none"> <li>During Breeding Season (March to August), construction activities permitted between 09:30 until 19:00 with the exception of percussive foundation piling, open air concrete breaking and demolition works which are strictly prohibited during this time; and</li> <li>During non-breeding season (i.e. September<sup>1</sup> to February inclusive), all construction activities permitted between 09:30 until 19:00.</li> </ul>	Contractor	Outside the 50m range of the Penfold Park Egretty and Roost of Ardeids	Throughout construction phase	Avoid adversely affecting nesting / breeding and roosting ardeids
4.1.1	<p><u>Works within the Large Pond (Pond C) - General</u></p> <ul style="list-style-type: none"> <li>Provide protection to the Penfold Park Egretty and Pond C, using site hoardings as effective physical barriers of about 2.0 metres tall as the topography allows in order to mitigate the visual impact or disturbance potentially generated by workers and external parties during construction;</li> <li>Pond C can only be accessed through the controlled gates on the hoarding; and</li> <li>The hoarding will be constantly maintained in good condition by the contractor.</li> </ul>	Contractor	Around the perimeter of Pond C	Throughout construction phase	Provide visual screening to minimise visual disturbance to the egretty and minimise human presence around the pond
4.1.1	<p><u>Works within Pond C - During Breeding Season (March to August)</u></p> <ul style="list-style-type: none"> <li>Pond C where the egretty is located will not be dewatered</li> <li>The gates shall be locked at all times and no worker is allowed to enter Pond C.</li> </ul>	Contractor	At Pond C	During March to August	Avoid adversely affecting nesting / breeding ardeids

<sup>1</sup> Ecologist (egretty) representative shall confirm the breeding activities in end of August before the construction activities within 50m of the Penfold Park Egretty commences in September.

## Appendix A – Implementation Schedule of Ecological Mitigation Measures during Construction Phase

Ref. in Project Profile	Mitigation Measures / Good Site Practices	Implementation Agent	Location	Timing	Environmental Performance Required
4.1.1	<p><u>Works within Pond C - During Non-Breeding Season (September to February)</u></p> <ul style="list-style-type: none"> <li>Construction at Pond C will be carried out by two phases such that water can be maintained at part of the pond at all times;</li> <li>Under the supervision of the representative from HKJC and the main contractor, workers are only allowed to enter Pond C for construction purpose.</li> </ul>	Contractor / HKJC representative	At Pond C	During September to February	Avoid adversely affecting roosting ardeids and minimise disturbance to the egretty
4.1.1	<p><u>Bats</u></p> <ul style="list-style-type: none"> <li>A detailed active search for bat roost should be conducted before the commencement of construction to ensure no active bat roost will be directly affected by the construction</li> </ul>	Ecologist employed by the Project Proponent	Whole construction site	Before commencement of construction	Avoid directly affect bat roost
4.1.1	<p><u>General</u></p> <ul style="list-style-type: none"> <li>Use of movable noise barrier and/or noise enclosure where appropriate, particularly for the construction of the new EEC around the noise source and works in close distance to the egretty or roost of ardeids;</li> <li>Works areas should be clearly demarcated;</li> <li>Construction activities will be restricted within the demarcated works areas;</li> <li>No percussive foundation piling for the whole project;</li> <li>Use of only well-tested and regularly serviced plant machineries during construction;</li> <li>Use of silencers or mufflers of proven quality and efficacy on all machineries;</li> <li>Re-orienting or re-tilting the plant machineries where feasible and necessary in a direction so that the noise generated will be directed away from the egretty;</li> <li>Siting mobile plants away from the egretty;</li> <li>Making good those material stockpiles, site office panels and other in-situ structures in such a manner so as to screen off minor yet unavoidable noises as far as possible;</li> <li>Equipment, plant and stockpiles will be established and maintained in the Contractor's compound at least 50m away from the Penfold Park Egretty;</li> <li>Zoning of works to minimize the duration and significance of potential impact to the entire park;</li> <li>Implementing proper sewerage system to avoid / minimize the impacts of water pollution to the stormwater collection ponds, particularly Pond C surrounding Penfold Park Egretty; and</li> <li>Works areas should be reinstated as soon as practicable upon completion of works.</li> </ul>	Contractor	Whole construction site	Throughout construction phase	Minimise disturbance to the egretty

## Appendix A – Implementation Schedule of Ecological Mitigation Measures during Construction Phase

**Table A.2 Details of Measures Specified in the Implementation Plan for Ecological Mitigation Measures**

Ref. in Implementation Plan	Mitigation Measures / Good Site Practices	Implementation Agent	Location	Timing	Environmental Performance Required																		
3.2	<p><u>Egretry 50m Buffer Zone</u></p> <ul style="list-style-type: none"> <li>Onsite demarcation will be provided using physical half height barrier with appropriate signage (e.g. warning, work restriction, rules) to remind construction workers of the requirements for entering the 50m egretry buffer zone.</li> <li>The following warnings will be prominently displayed within the part of the active construction works area that overlaps the 50m egretry buffer zone: <ul style="list-style-type: none"> <li>“No entry permitted from March to August”</li> <li>“No entry permitted before 09:30 or after XX from September to February” [the ‘XX’ shall refer to the time of 1 hour before sunset]</li> </ul> </li> </ul> <p>With reference to the sunset time for 2023, the proposed cessation time of construction activities within the 50m egretry buffer zone during non-breeding season is shown in the table below.</p> <p><b>Table 2 Proposed Cessation Time for Construction Activities within the 50m Egretry Buffer Zone</b></p> <table border="1"> <thead> <tr> <th>Month (non-breeding season)</th> <th>Reference Time of Sunset</th> <th>Cessation Time of Construction Activities</th> </tr> </thead> <tbody> <tr> <td>January</td> <td>17:51 – 18.11</td> <td>16:51 – 09:30 (following day)</td> </tr> <tr> <td>February</td> <td>18:12 – 18.26</td> <td>17:12 – 09:30 (following day)</td> </tr> <tr> <td>September</td> <td>18:12 – 18.41</td> <td>17:12 – 09:30 (following day)</td> </tr> <tr> <td>October</td> <td>17:48 – 18.11</td> <td>16:48 – 09:30 (following day)</td> </tr> <tr> <td>November</td> <td>17:38 – 17:46</td> <td>16:38 – 09:30 (following day)</td> </tr> </tbody> </table>	Month (non-breeding season)	Reference Time of Sunset	Cessation Time of Construction Activities	January	17:51 – 18.11	16:51 – 09:30 (following day)	February	18:12 – 18.26	17:12 – 09:30 (following day)	September	18:12 – 18.41	17:12 – 09:30 (following day)	October	17:48 – 18.11	16:48 – 09:30 (following day)	November	17:38 – 17:46	16:38 – 09:30 (following day)	Contractor	Within the 50m egretry buffer zone	Throughout construction phase	Minimise disturbance to the egretry
Month (non-breeding season)	Reference Time of Sunset	Cessation Time of Construction Activities																					
January	17:51 – 18.11	16:51 – 09:30 (following day)																					
February	18:12 – 18.26	17:12 – 09:30 (following day)																					
September	18:12 – 18.41	17:12 – 09:30 (following day)																					
October	17:48 – 18.11	16:48 – 09:30 (following day)																					
November	17:38 – 17:46	16:38 – 09:30 (following day)																					

## Appendix A – Implementation Schedule of Ecological Mitigation Measures during Construction Phase

Ref. in Implementation Plan	Mitigation Measures / Good Site Practices	Implementation Agent	Location	Timing	Environmental Performance Required
	<p>December 17:38 – 17:50 16:38 – 09:30 (following day)</p> <hr/> <ul style="list-style-type: none"> <li>The period of every breeding season will be monitored by the egret monitoring team and the end of each breeding season shall be confirmed by the Ecologist (egret) representative before the commencement of construction activities in non-breeding season.</li> <li>For areas within the 50m egret buffer zone that are outside the active construction works area (i.e. publicly accessible), signage will show 'reminders' to the public to keep quiet and control their dogs during the egret breeding period from March to August.</li> </ul>				
3.3	<p><u>Hoarding</u></p> <ul style="list-style-type: none"> <li>Hoarding will be erected around Pond C, the demolition of existing toilet and kiosk area, and demolition of the existing RC plinths area.</li> <li>Water-filled barriers will be used to separate the zone under construction from the rest of the Park.</li> <li>For the temporary Pond C hoarding (during breeding season in 2023), interlocking water-filled barriers with white panels of 2m height and attached to the railings of the bridal path will be used. The hoarding type for Pond C (as per <b>Figure 3.3</b>) will also be erected behind the water barrier hoarding. A single gantry point (up to 2m wide) will be provided for access by the egret monitoring team for egret survey purposes, but will be locked at all other times. This temporary hoarding will be removed after the main Pond C hoarding is erected (after breeding season in 2023).</li> <li>For the main Pond C hoarding (after breeding season in 2023), corrugated sheet of 2m height supported by reinforced concrete (RC) blocks and lined with acoustic canvas on the outside will be used. Two gantry points will be provided on opposite sides of Pond C for enabling controlled entry during partial pond dewatering and construction. For the two gantry points, a 6m wide gate will be provided for enabling passage of construction workers, equipment and materials during the pond relining works in non-breeding season.</li> <li>Pond C will only be accessed through the controlled gantry points on the hoarding. During egret breeding season, both gantry points will be locked at all times and no worker will be allowed to enter Pond C. During non-breeding season, construction activities within Pond C will be restricted to the side that is being / has been dewatered, and only a</li> </ul>	Contractor	Around Pond C / demolition areas for existing toilet and kiosk area / demolition areas for existing RC plinths area	Throughout construction phase	Minimise disturbance to the egret

## Appendix A – Implementation Schedule of Ecological Mitigation Measures during Construction Phase

Ref. in Implementation Plan	Mitigation Measures / Good Site Practices	Implementation Agent	Location	Timing	Environmental Performance Required
	single controlled entry point (the one closest to the dewatered area) will be used.				
3.3	<p><u>Noise Barriers</u></p> <ul style="list-style-type: none"> <li>The noise barrier for construction of EEC will be erected around the works areas for EEC particularly areas with direct line of sight and close proximity to the Penfold Park Egretty.</li> <li>For noisy plant such as air compressor and generator, and any other noisy construction activities in close proximity to the Penfold Park Egretty, movable noise barrier will be set up to enclose these noise sources where applicable.</li> </ul>	Contractor	Around works areas for EEC and noisy plant	Throughout construction phase	Minimise disturbance to the egretty
3.4	<p><u>Material Stockpile / Contractor Compound</u></p> <p>Construction equipment, plant and stockpiles will be established and maintained in the Contractor's compound more than 50m away from the egretty under different phases of construction, and also away from bat roosting and potential bat roosting locations.</p>	Contractor	As shown in Figure 3.4 of this report	Throughout construction phase	Minimise disturbance to the egretty and bat roosts
3.5	<p><u>Pond Dewatering</u></p> <ul style="list-style-type: none"> <li>Manual capture and temporary relocation of any fishes and aquatic fauna including Reeve's Terrapin from dewatered ponds to non-dewatered parts of the pond or to other ponds within Penfold Park, which shall be supervised by the Ecologist;</li> <li>Visual check of the dewatered area to ensure no remaining aquatic fauna present before commencement of construction activities within the dewatered pond; and</li> <li>In case any reptiles or amphibians re-enter the dewatered area of the pond during construction period, they should be humanely captured and relocated to adjacent ponds.</li> </ul>	Contractor	Ponds	Before commencement of each pond dewatering works	Avoid direct loss of fishes and aquatic fauna within the ponds
3.6	<p><u>Pond Relining Works</u></p> <ul style="list-style-type: none"> <li>Phased construction – only part of the pond will be dewatered and under construction at any time so as to maintain water at part of Pond C at all times.</li> <li>Restricted working hours – works within the 50m egretty buffer zone are restricted to non-breeding season only and is not permitted before 09:30 or after 1 hour before sunset each day.</li> <li>Restricted access – Pond C will only be accessed through the controlled gantry points on the hoarding. Outside the allowable</li> </ul>	Contractor	At Pond C	During pond relining works	Minimise disturbance to the egretty and water quality impacts

## Appendix A – Implementation Schedule of Ecological Mitigation Measures during Construction Phase

Ref. in Implementation Plan	Mitigation Measures / Good Site Practices	Implementation Agent	Location	Timing	Environmental Performance Required
	<p>working hours, both gantry points will be locked at all times and no worker will be allowed to enter Pond C. During non-breeding season working hours, construction activities within Pond C will be restricted to the side that is being / has been dewatered, and only a single controlled entry point (the one closest to the dewatered area) will be used.</p> <ul style="list-style-type: none"> <li>The site practices outlined in the ProPECC PN1/94 'Practice Note for Professional Persons on Construction Site Drainage' will be implemented where applicable to ensure all construction runoff are well controlled.</li> </ul>				
3.7	<p><u>Chinese Fan-palm</u></p> <ul style="list-style-type: none"> <li>All Chinese Fan-palm located within the construction area that are retained shall be adequately fenced off and protected;</li> <li>For any Chinese Fan-palm that needs to be felled, the Contractor shall notify the Ecologist at least 1 week before the planned date for felling, and the Ecologist will carry out visual check to ensure no active bat roost before the tree is felled. Visual check shall also be conducted before any works that may cause potential impacts on the bats;</li> <li>If active bat roost is found, the tree shall be fenced off and protected and shall remain fenced off and protected until no observation of bat roost for 7 consecutive days, to ensure the bats has left the roost. In addition, movable noise barriers and/or noise enclosure shall be installed around noisy construction works/machinery in close vicinity to the active bat roosts, to minimize direct disturbance to the bat roosts; and</li> <li>Pruning of Chinese Fan-palms during construction phase should be avoided unless due to safety hazard (e.g. removal of dead fronds), and in any case should not be carried out on trees with active bat roosts.</li> </ul>	Contractor	Chinese Fan-palms within Penfold Park	Throughout construction phase	Minimise impacts on existing / potential bat roosts

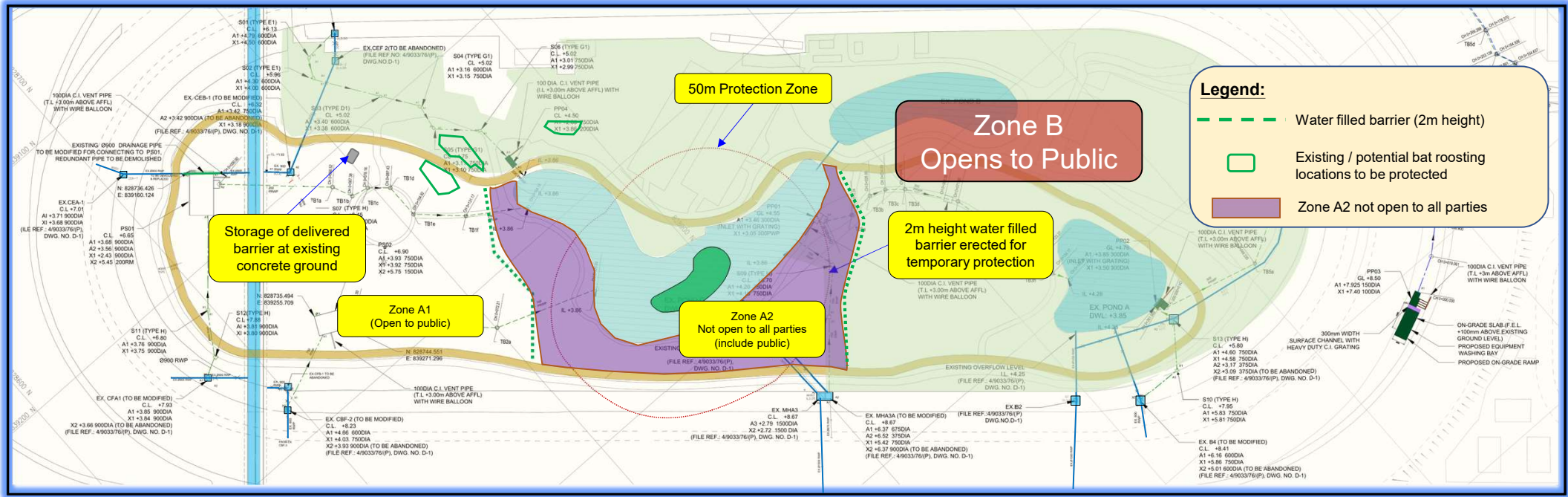


## **B. Overall Construction Programme and Phasing**

# Appendix B – Overall Construction Programme and Phasing

Note: The details may be subject to modification due to programme and site constraints

Year	2023												2024												2025										
Calendar Months	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	
Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	
Staging																																			
	off-seasons												Non-Breeding Season												off-seasons										
	Breeding Season												Breeding Season												Breeding Season										



### Major works activities:

#### General:

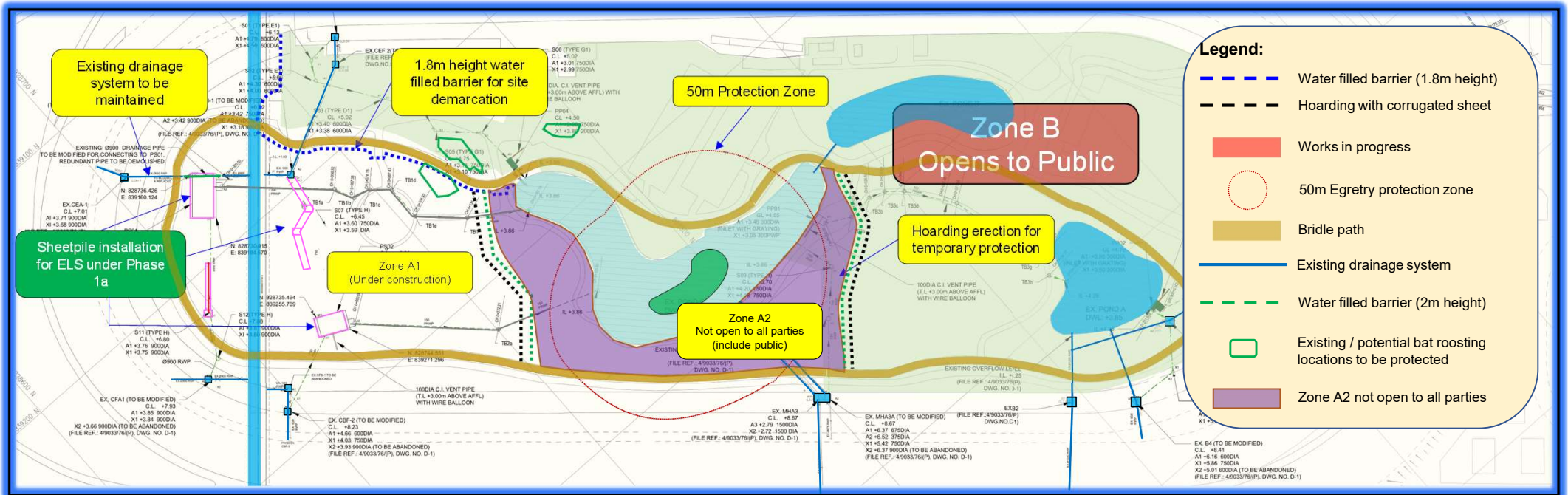
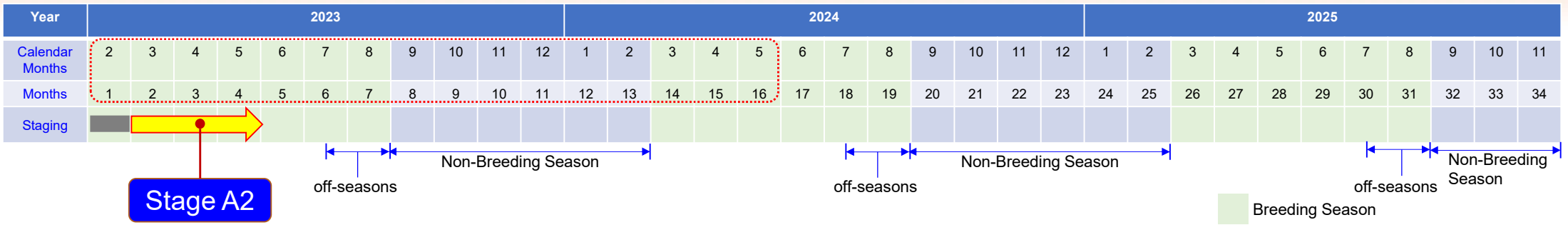
1. Preparation for commencement of construction works.
2. Install water filled barriers outside 50m Protection Zone as temporary protection for Zone A2 and Pond C.

### Key Consideration:

- Chinese Fan-palms retained will be fenced off and protected.

# Appendix B – Overall Construction Programme and Phasing

Note: The details may be subject to modification due to programme and site constraints



### Major works activities (in breeding season):

#### General

- Erect water filled barrier along the entrance and bridle path to enclose Construction Area Zone A1.
- Erect corrugated sheet hoarding behind water filled barriers at Zone A2. (same design as per approved Implementation Plan)

#### For Pond C and Zone A2:

- No other works at Pond C / within confined Zone A2.

#### For Drainage Works:

- Open cut excavation for part of the proposed drainage pipe in Zone A.
- Installation of sheetpile for ELS works of Phase 1a.
- Noisy works will be protected by movable noise barriers.

### Key Consideration:

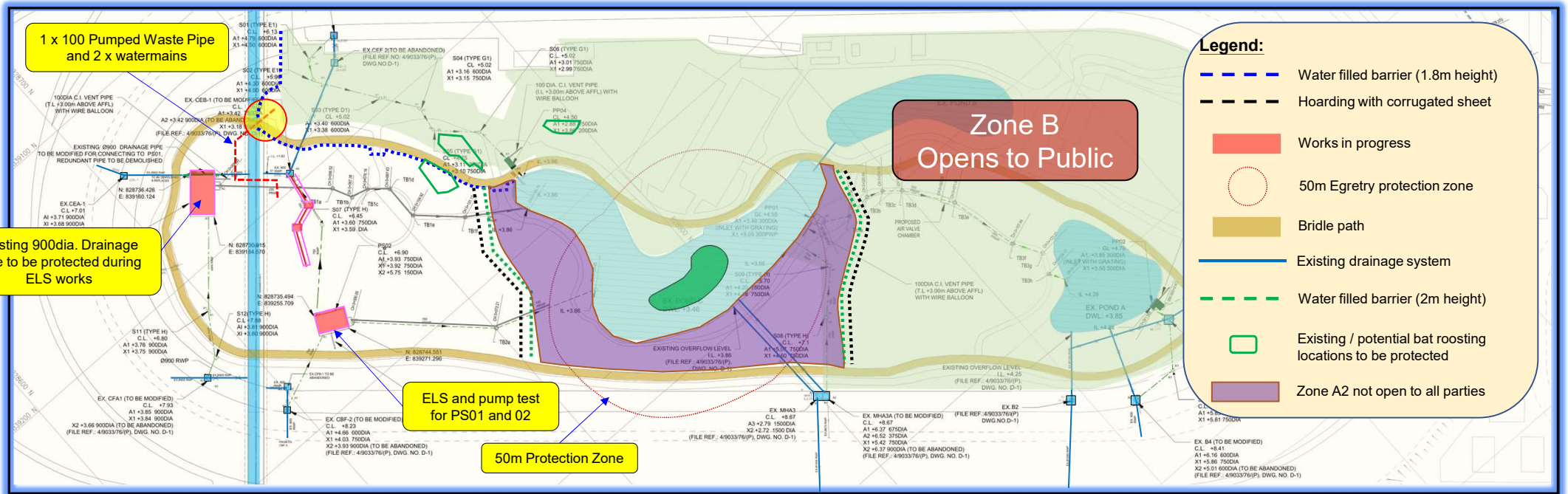
- Excavation for PS01 and PS02 will commence after installation of sheet pile and pumping test.
- No works at Pond C / within Confined Zone A2 during the breeding season.
- Works across bridle path will not commence at this stage.
- Chinese Fan-palms retained will be fenced off and protected.

# Appendix B – Overall Construction Programme and Phasing

Note: The details may be subject to modification due to programme and site constraints

Year	2023												2024												2025											
Calendar Months	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11		
Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34		
Staging	[Grey bar with yellow arrow pointing to months 5-7]												[Grey bar]												[Grey bar]											
	Non-Breeding Season												Non-Breeding Season												Non-Breeding Season											
	off-seasons												off-seasons												off-seasons											
	Breeding Season												Breeding Season												Breeding Season											

**Stage A3**



### Major works activities (in breeding season and off-seasons):

#### For Pond C and Zone A2:

- No other works at Pond C / within confined Zone A2.

#### For Drainage Works:

- ELS works and substructure construction for PS01, PS02 under Phase 1a
- Protection to the existing 900 drainage pipe at PS01
- Laying new drainage pipe
- Works across bridle path will commence in off-seasons
- Noisy works will be protected by movable noise barriers.

#### For Plumbing and Drainage:

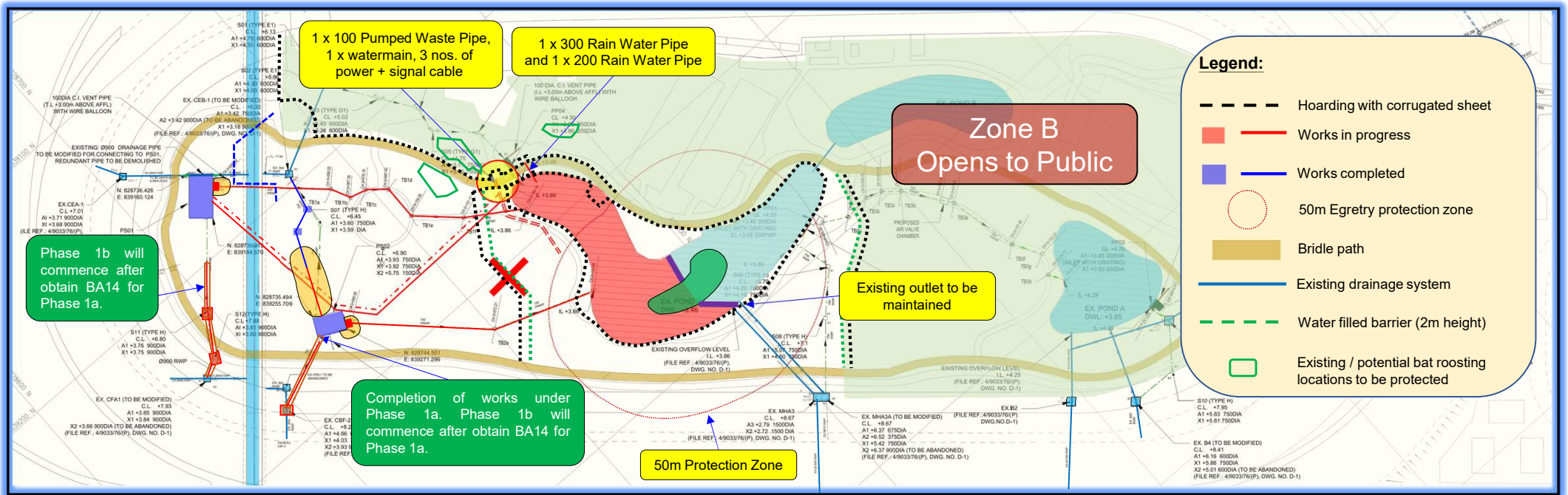
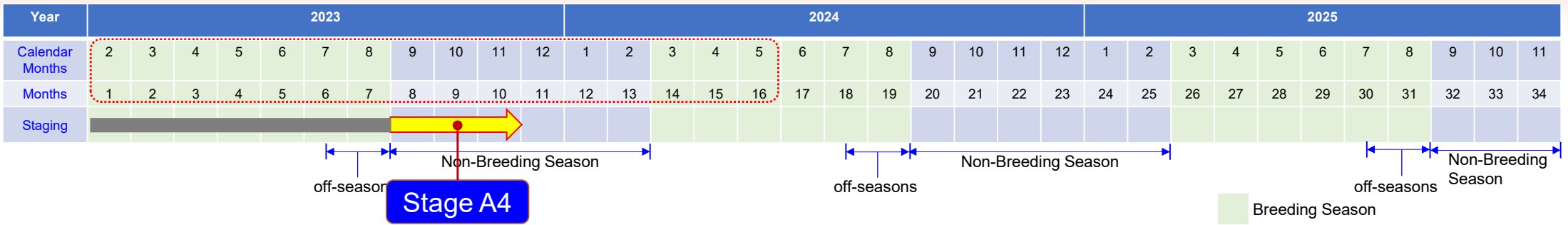
- Laying watermains, waste water pipe and drainage pipe across bridle path.

### Key Consideration:

- No works at Pond C / within Confined Zone A2 during the breeding season.
- The bridle path is proposed to close during off-seasons (i.e. mid July to end August).

# Appendix B – Overall Construction Programme and Phasing

Note: The details may be subject to modification due to programme and site constraints



### Major works activities (in non-breeding season):

#### For Pond C:

1. Relocating 1.8m height water filled barrier to another side of the bridle path.
2. Erection of perimeter hoarding for Pond C.
3. Remove left side 2m height water filled barrier and hoarding.
4. Install temporary concrete block wall to isolate the pond into 2 zones.
5. Install temporary drainage system to divert the existing drainage to isolated Pond C.
6. Dewatering of Pond C.

#### For Drainage Works:

1. Construction of structure for PS01, PS02, and associated drainage pipe under Phase 1a completed and carry out T&C.
2. Obtain BA14 for Phase 1a.
3. Excavation for drainage works under Phase 1b commence.
4. Install power and signal cables to the Admin Building.
5. Laying ducts for power and signal cable for drainage system in Zone A.
6. Construction of Pump Pits.
7. T&C for drainage works under Phase 1b, and apply for BA14
8. Noisy works will be protected by movable noise barriers.

#### Key Consideration:

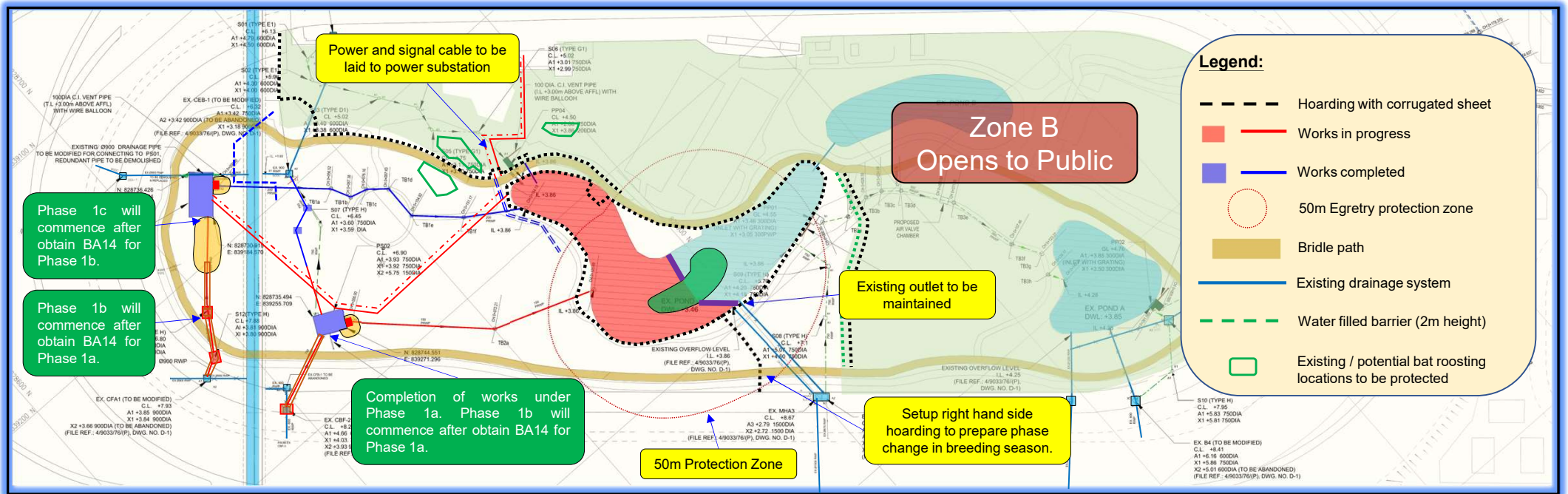
- Resources is focusing on Pond C which is the critical activities and half of Pond C upgrading works is required to be completed with this non-breeding season.

# Appendix B – Overall Construction Programme and Phasing

Note: The details may be subject to modification due to programme and site constraints

Year	2023												2024												2025																					
Calendar Months	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11												
Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34												
Staging	off-seasons												Non-Breeding Season												off-seasons											Non-Breeding Season										

**Stage A5**



### Major works activities (in non-breeding season):

#### For Pond C (cont'd):

1. Remove existing E&M equipment including fountain features.
2. Remove existing RC slab.
3. Re-profile Pond C and construct new RC slab.
4. Install new / existing inlet drainage pipes.
5. Install fountain features and other E&M equipment.
6. Remove the temporary concrete block
7. Setup right hand side hoarding to prepare phase change in breeding season.

#### For Drainage Works:

1. Construction of structure for PS01, PS02, and associated drainage pipe under Phase 1a completed and carry out T&C.
2. Obtain BA14 for Phase 1a.
3. Excavation for drainage works under Phase 1b commence.
4. Install power and signal cables to the Admin Building.
5. Laying ducts for power and signal cable for drainage system in Zone A.
6. Construction of Pump Pits.
7. T&C for drainage works under Phase 1b, and apply for BA14.
8. Installation of MEP items for PS01, PS02 and pump pits.
9. Modification of manholes
10. Noisy works will be protected by movable noise barriers.

#### For Soft and Hard Landscape

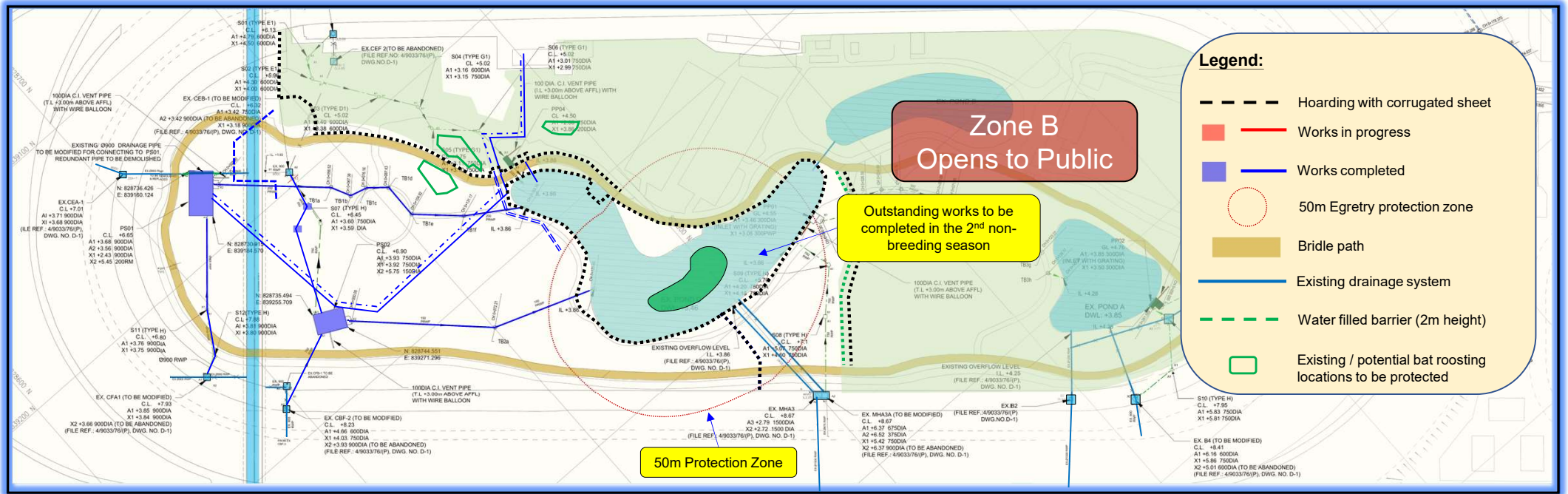
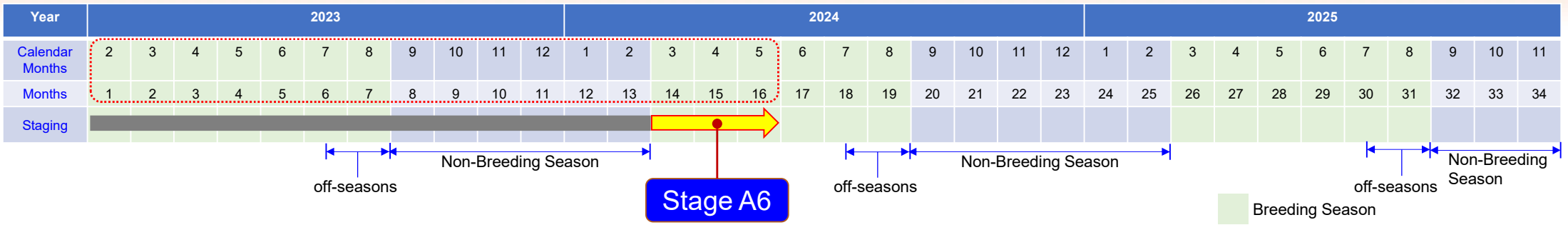
1. Installation of park furniture.
2. Installation of irrigation system.
3. Laying pavement blocks.
4. Installation of MEP items.

#### Key Consideration:

- Resources is focusing on Pond C which is the critical activities and half of Pond C upgrading works is required to be completed with this non-breeding season.
- Power and signal cable are required to lay outside the Zone A area for testing and commissioning. The works will be carried out by local temporary traffic arrangement to fence off the works area by water filled barrier to prevent dog access to works area.

# Appendix B – Overall Construction Programme and Phasing

Note: The details may be subject to modification due to programme and site constraints



### Major works activities (in breeding season):

#### For Pond C:

1. No other works inside Pond C during breeding season.

#### For Drainage Works:

1. Abandoned unused pipes.
2. BD Inspection and obtain OP.

#### For Soft and Hard Landscape

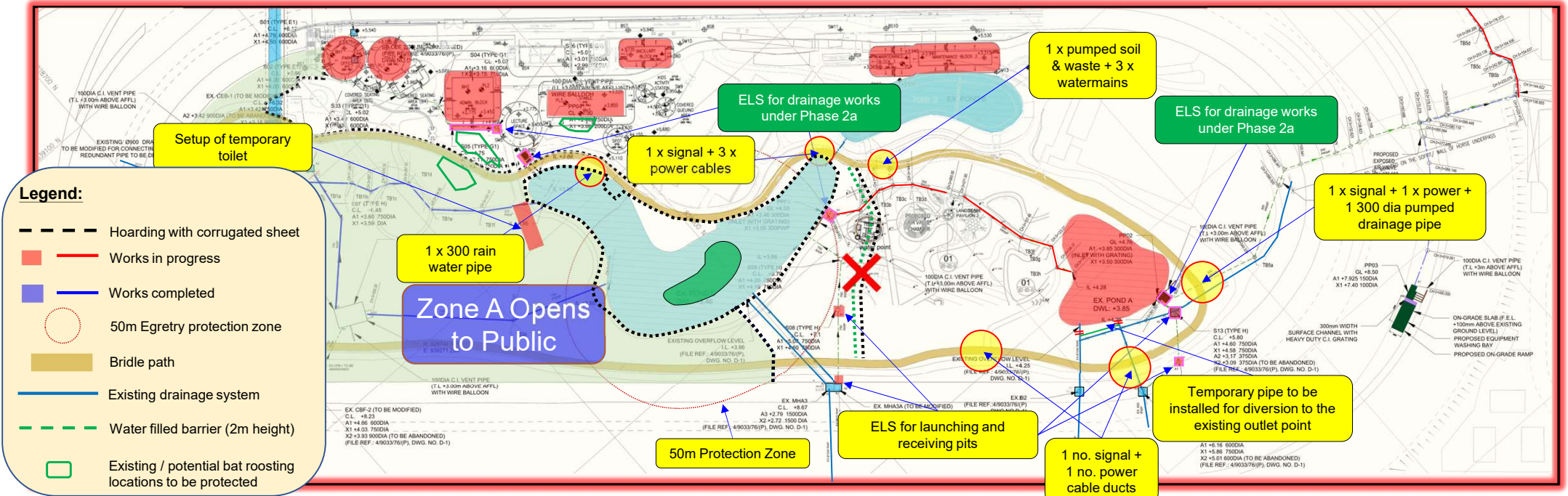
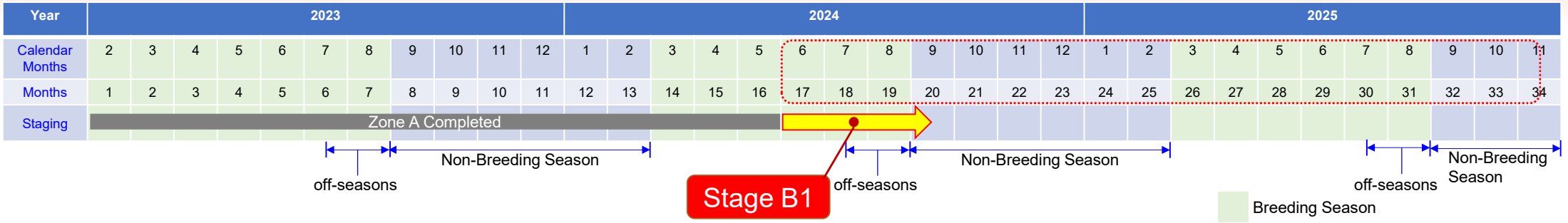
1. Relocation of existing boulders.
2. Remaining soft landscaping works.

### Key Consideration:

- Works for another half of the Pond C will be carried out during next non-breeding season.
- Apprx. 2 months is allowed for obtain OP.

# Appendix B – Overall Construction Programme and Phasing

Note: The details may be subject to modification due to programme and site constraints



### Major works activities (in breeding season and off-seasons):

#### General:

1. Remove right side 2m height water filled barrier and hoarding.
2. Setup of temporary toilet.
3. Noisy works will be protected by movable noise barriers.

#### For Pond A:

1. Install temporary pipe to divert the drainage for Pond A
2. Removal of existing slab.

#### For Drainage Works:

1. Install sheetpile for ELS works under Phase 2a.
2. Open cut for pipe laying and manhole construction.
3. ELS for launching and receiving pits for trenchless works.

#### For Plumbing and Drainage:

1. Install pipe across bridle path.

#### For Building Works

1. Site clearance and tree felling works.
2. Open cut excavation for substructure for Park Office, Park Toilet, Admin. Block, Stable, Ancillary Block, Maintenance Block 1 and 2.

#### For other works:

1. Modification of pedestrian tunnel and park entrance.

#### For Demolition of Existing Structure:

1. Erection of hoarding and noise barrier to fence off existing toilet + kiosk, and the RC plinths.

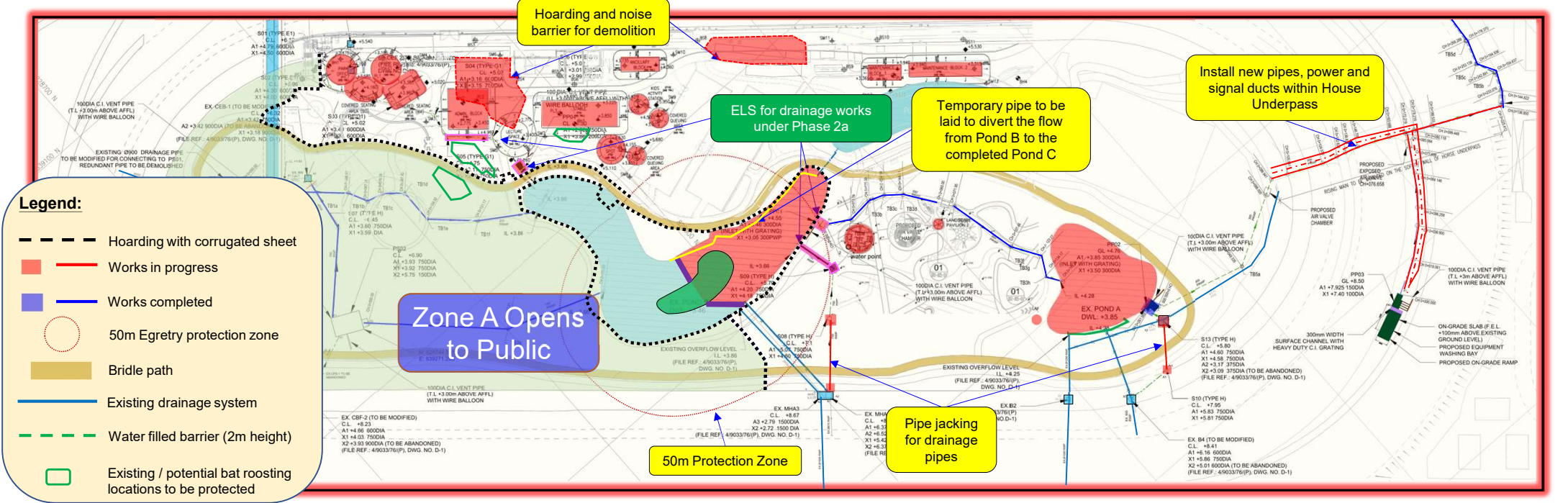
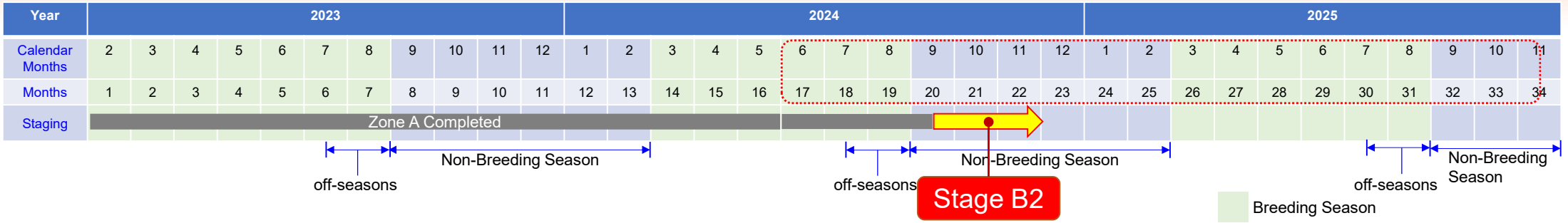
#### Key Consideration:

- The building with more MEP items, such as office and admin building will commence first.
- Trenchless for drainage pipes across Bridle Path will commence in early stage.
- The works at park entrance will be carried out during off-seasons.
- For the works across the bridle, it will be constructed during the off-seasons.
- Demolition of base slab / substructure will be carried out in non-breeding season.



# Appendix B – Overall Construction Programme and Phasing

Note: The details may be subject to modification due to programme and site constraints



### Major works activities (in non-breeding season):

- For Pond C:**
1. Install temporary concrete block wall to isolate the pond into 2 zones.
  2. Install temporary drainage system to divert the existing drainage to isolated Pond C.
  3. Divert the drainage to discharge to the completed part
  4. Dewater the remaining part of Pond C
  5. Remove existing E&M equipment including fountain features.
  6. Remove existing RC slab.
  7. Re-profile Pond C and construct new RC slab.

- For Drainage Works:**
1. Install sheetpile for ELS works under Phase 2a.
  2. Open cut for pipe laying and manhole construction.
  3. Install new pipes, power and signal cables in Horse Underpass and to the car washing bay.
  4. Pipe jacking for drainage pipes across Bridle Path.

- For Pond A:**
1. Resurfacing of Pond A.

- General:**
1. Noisy works will be protected by movable noise barriers.

- For Building Works**
1. Construction of superstructure for Park Office, Park Toilet, Admin. Block, Stable, Ancillary Block, Maintenance Block 1 and 2.
  2. Open cut excavation for the remaining substructure and superstructure.

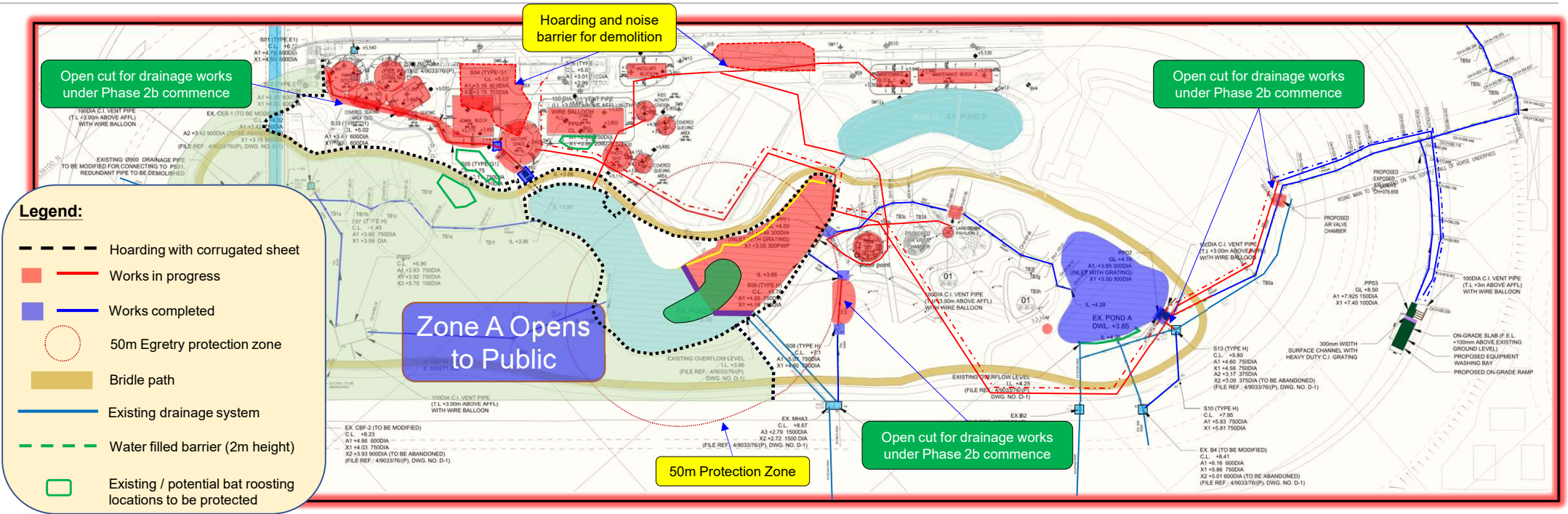
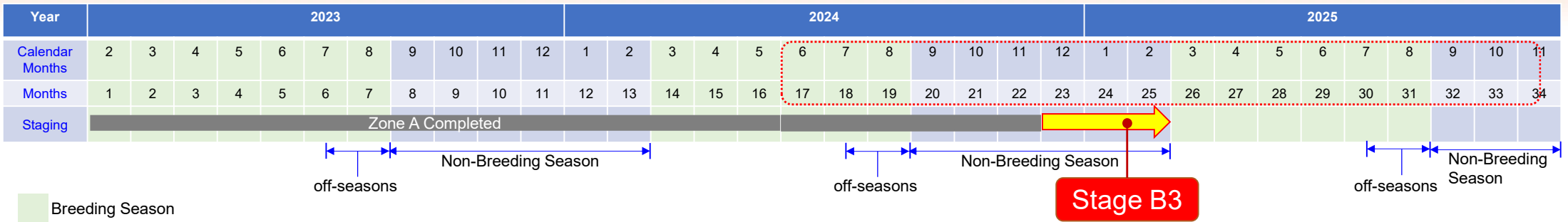
- For Demolition of Existing Structure:**
1. Removal of existing building services and ABWF items.
  2. Remove of existing steel structure.

**Key Consideration:**

- ELS and associated drainage works within the 50m protection zone will be carried out during non-breeding season.
- Upgrading works for second half of Pond C and miscellaneous works will be carried out in the 2<sup>nd</sup> non-breeding season.

# Appendix B – Overall Construction Programme and Phasing

Note: The details may be subject to modification due to programme and site constraints



### Major works activities (in non-breeding season):

#### For Pond A:

1. Install MEP items for Pond A.

#### For Pond C (cont'd):

1. Completion of new RC slab.
2. Install new / existing inlet drainage pipes.
3. Testing and commissioning of new Pond C.
4. Completion of miscellaneous works.

#### For Drainage Works:

1. ELS for drainage works and install drainage pipes under Phase 2a completed.
2. T&C for newly installed pipes
3. Obtain BA14 for Phase 2a drainage works
4. Open cut for pipe laying and manhole construction under Phase 2b.
5. Install power and signal cables.
6. Open cut excavation for PP03 at car washing bay and construct car washing bay and PP03.

#### For Building Works

1. Construction of superstructure.

#### For Demolition of Existing Structure:

1. Removal of existing RC structure.

#### General:

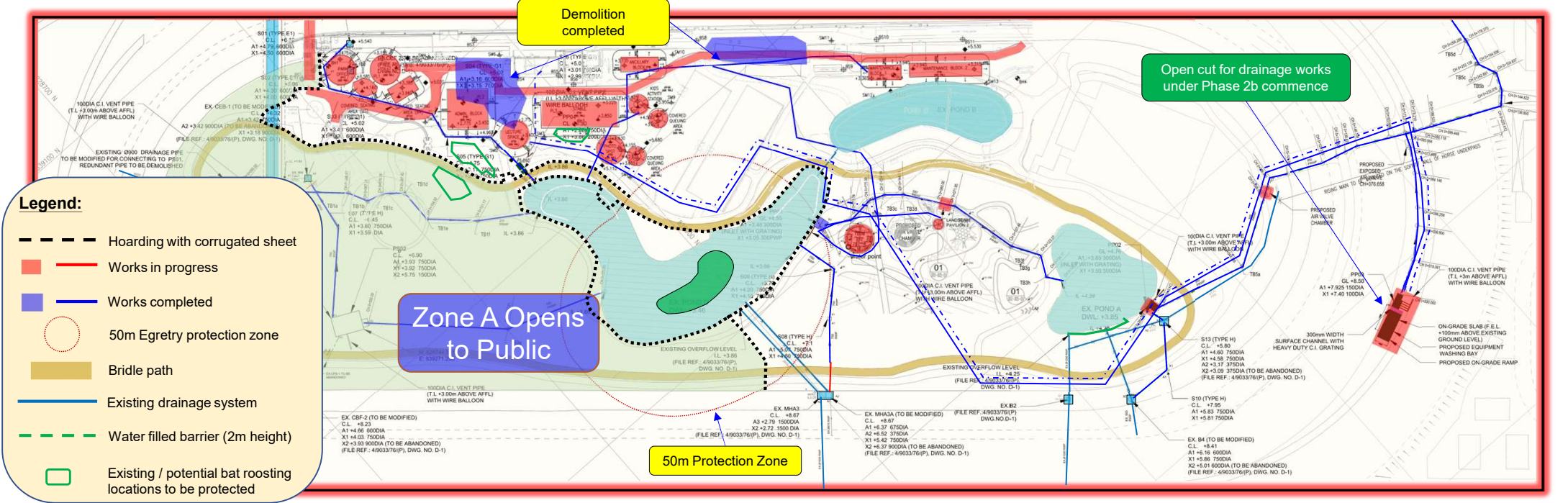
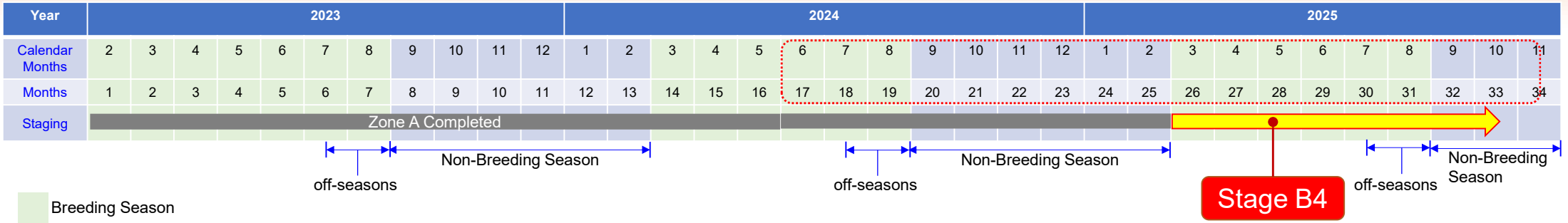
1. Noisy works will be protected by movable noise barriers.

#### Key Consideration:

- Associated drainage works within the 50m protection zone will be carried out during non-breeding season.
- Upgrading works for second half of Pond C and miscellaneous works will be carried out in the 2<sup>nd</sup> non-breeding season.

# Appendix B – Overall Construction Programme and Phasing

Note: The details may be subject to modification due to programme and site constraints



**Legend:**

- Hoarding with corrugated sheet
- Works in progress
- Works completed
- 50m Egretty protection zone
- Bridle path
- Existing drainage system
- Water filled barrier (2m height)
- Existing / potential bat roosting locations to be protected

**Major works activities (in breeding season):**

- For Pond A:**
  - Commissioning of Pond A.
- For Drainage Works:**
  - Pipe laying for the drainage works under Phase 2b.
  - Install MEP items.
  - Testing and commissioning.
- For Building Works:**
  - Installation of ABWF and MEP items.
- For Plumbing and Drainage:**
  - Testing of new pipes and connect to new buildings.
- For Soft and Hard Landscape:**
  - Enhancement of existing pedestrian tunnel.
  - Construction of new EVA.
  - Construction of footpath.
  - Installation of park furniture.
  - Installation of irrigation mains.
- For other works:**
  - Construction of car washing bay during off-season.

**General:**

- Noisy works will be protected by movable noise barriers.

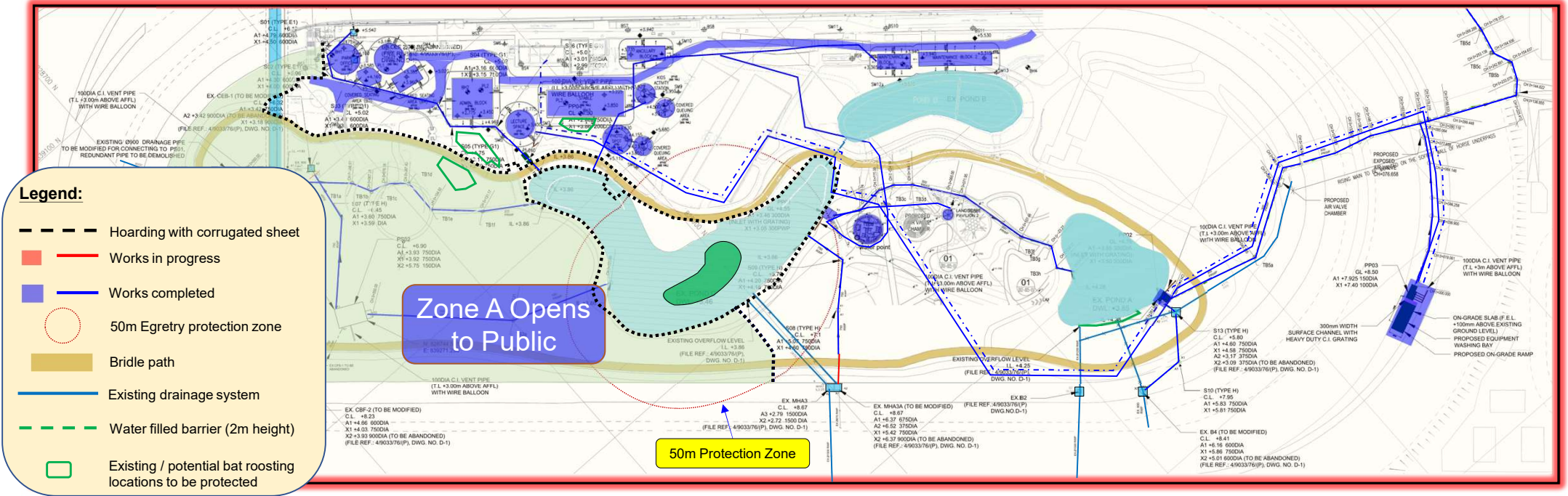
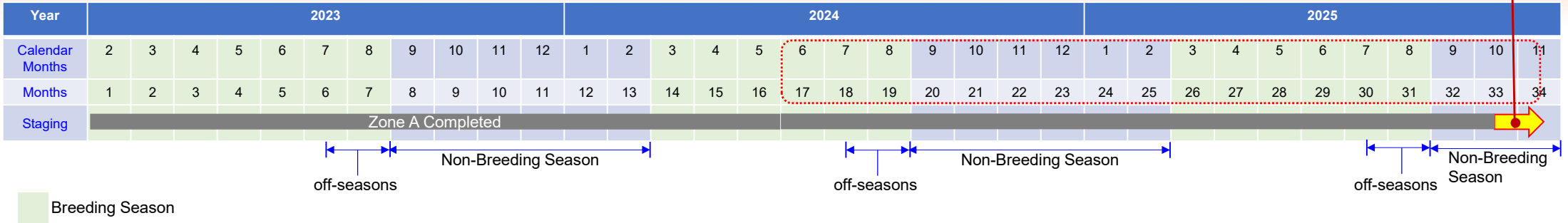
**Key Consideration:**

- For the works in adjacent to the track area, it will be constructed during the off-seasons
- Installation of ABWF and MEP items are critical.
- The EVA will be constructed once the RC structure of the buildings are completed, prior to the installation of ABWF and MEP.
- The EVA will act as the site haul road for NSC to share use for installation of ABWF and MEP items.

# Appendix B – Overall Construction Programme and Phasing

Note: The details may be subject to modification due to programme and site constraints

**Stage B5**



**Major works activities (in non-breeding season):**

- For Pond A:**
  - BD inspection and obtain OP.
- For Drainage Works:**
  - Connect the existing manholes.
  - Abandon unused pipe.
- For Building Works:**
  - FSD and BD inspection.
  - Obtain OP.
- For Soft and Hard Landscape:**
  - Remaining soft and hard landscaping works.

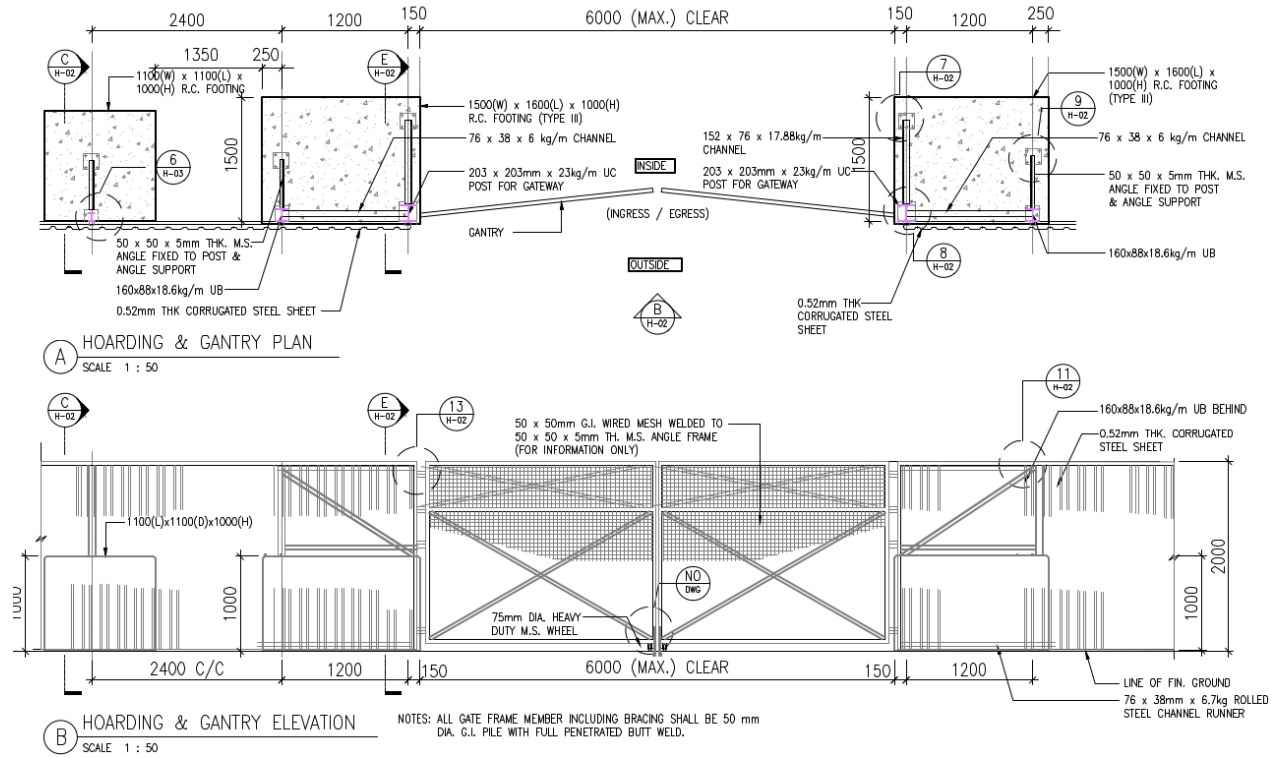
**Key Consideration:**

- Apprx. 2 months are allowed for FSD and BD inspection.

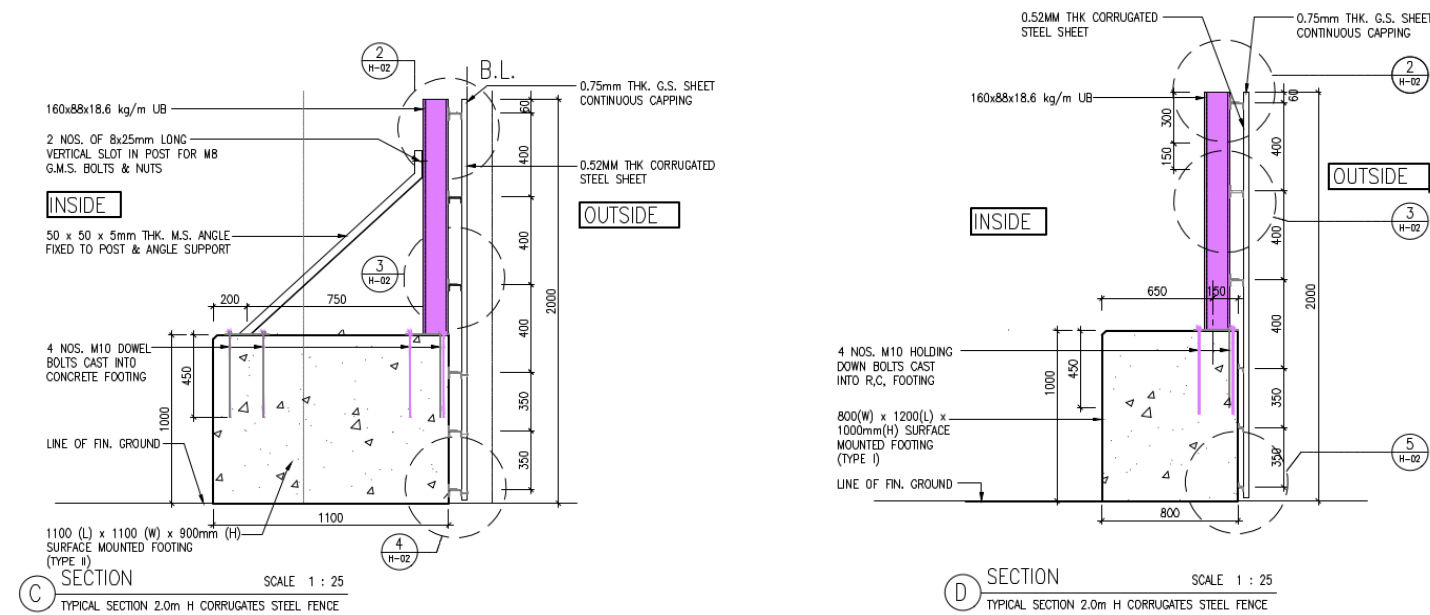
## **C. Proposed Typical Designs of Hoardings for Pond C**

# Appendix C – Proposed Typical Designs of Hoardings for Pond C

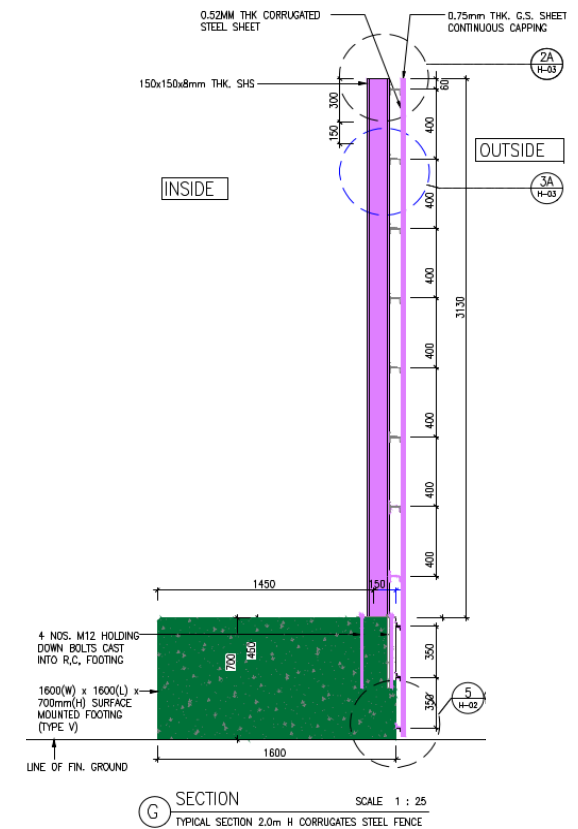
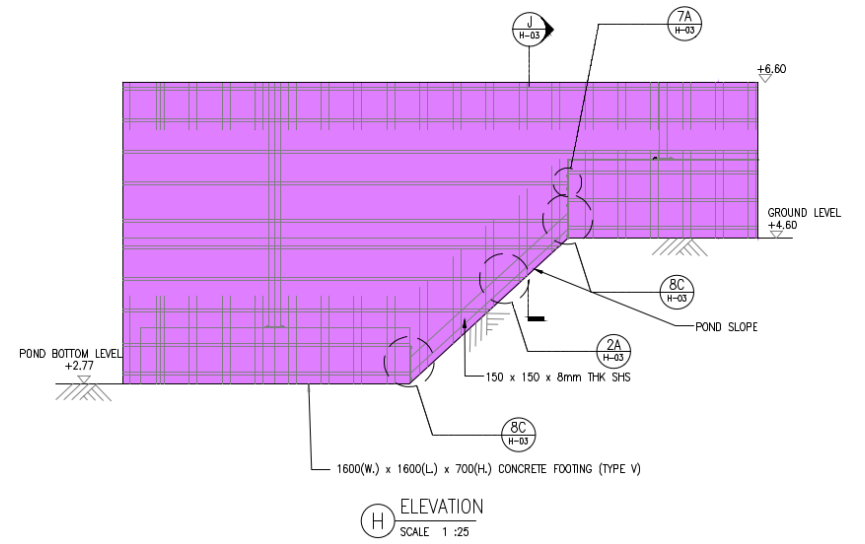
## Gantry



## Typical Hoarding around Pond C



## Section of Hoarding lowered within Pond C



Note: Designs are indicative and may be subject to modification based on procurement and site constraints.

## **D. Catalogue of Noise Barriers (Tentative)**



Acoustics Innovation

# SilentUP<sup>®</sup> Retractable Noise Barrier

PATENTED

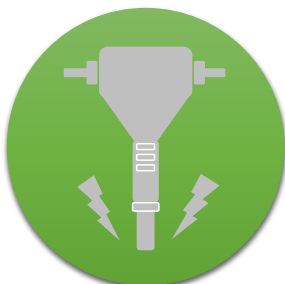


Product of Hong Kong  
**THE WORLD'S FIRST  
RETRACTABLE NOISE BARRIER**  
**27dB(A) NOISE REDUCTION\***

\* Tested with white noise source with SilentUP<sup>®</sup> STC24



Roadworks



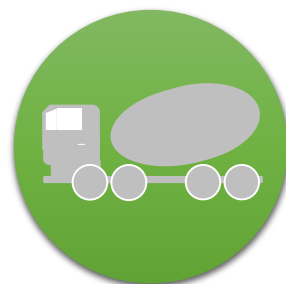
Breaking  
Drilling



Piling



Loading  
Unloading



Concreting

aihk.hk

info@aihk.hk

(852) 2702-2007

R&D Division of







## Product Description

**SilentUP®** is a patented retractable noise barrier for construction works and outdoor music events. It can be easily installed and mobilized by people without using any machines. No concrete foundation is required and the installation process is quiet enough to be conducted even at night time. The panels are installed upwards from ground level and connected by magnetic gap sealing.

Our product has been widely used in Hong Kong. Visit our website for the job references [aihk.hk/SilentUP/reference](http://aihk.hk/SilentUP/reference).

## Benefits

- ▶ Minimize noise complaints
- ▶ Quiet and manual installation
- ▶ No concrete foundation required
- ▶ Flexible construction site planning
- ▶ Facilitate Construction Noise Permit (CNP) application process

## Technical Information

SilentUP® noise barrier material conforms to the flammability requirement specifications.

BS5867-2:2008 TYPE B  
GF8624

## Product Specification

STC	18	24
Insertion Loss*	22 dB(A)	27 dB(A)
Modular Weight	5kg	8kg
Maximum Height	7m	5m
Modular Size	1m(H) x 1.35m(W)	
Standard Colour	Grey	
Panel Thickness	100mm on edges	

\* Tested with white noise source



CITF Pre-approved Product  
[citf.cic.hk](http://citf.cic.hk)

Installation videos available at

[aihk.hk/youtube](http://aihk.hk/youtube)



## Client Feedback

“Some of our contractors have used the retractable noise barriers to facilitate CNP application. They have found this innovative product useful - lightweight, easy to manoeuvre, and fit for purpose.”

**Richard Kwan**  
Environment Manager  
MTR Corporation Ltd

“We are impressed by SilentUP’s quick installation and relocation, it is definitely one of the best innovations and practicable approaches for the noise mitigation measures for the construction activities.”

**Lighting Chan**  
Environmental Compliance Support Manager,  
Leighton Asia Ltd

“We are happy with Acoustics Innovation’s professional service (SilentUP Noise Barrier) in helping us achieve our noise mitigation goals.”

**Ronald Fung**  
Project QA & Environmental Manager  
Kier - Laing O’Rourke - Kaden Joint Venture

“SilentUP is definitely a useful tool to minimize the noise pollution. We successfully obtained a CNP and most importantly no complaint has been received from the NSRs.”

**Clarence Yeung**  
Environmental Officer  
Chun Wo Construction and Engineering Co. Ltd



Acoustics Innovation

# SilentCUBE

## Movable Noise Enclosure

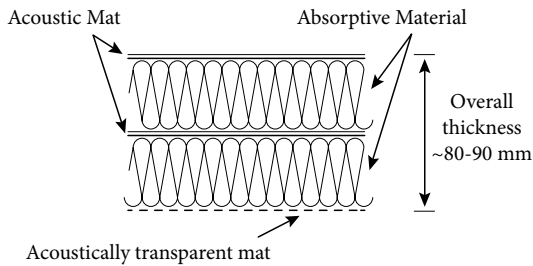
**SilentCUBE** is a movable noise enclosure for both indoor and outdoor use.

The lightweight design and user friendly installation mechanism enables contractors to quickly deploy and relocate SilentCUBE without using any specialized tools. Each CUBE can be seamlessly connected with another CUBE to accommodate larger machines.

SilentCUBE has been implemented in various construction sites, including:

- Night works conducted inside several MTR stations
- Road works at Tsuen Wan, Hoi Shing Road
- Concreting works for new office and education centre of Hong Kong Water Supplies Department in Tin Shui Wai

### Section of Acoustic Panel



### Product Specification

<b>Modular Size</b> (W) x (L)x (H)	1.5m x 1.5m x 2.2m
	2m x 2m x 2.2m
	2.5m x 2.5m x 2.2m
<b>Modular Weight</b>	~80kg
<b>Insertion Loss*</b>	18 dB(A)
<b>Surface Density</b>	3kg/m <sup>2</sup>
<b>Setup Time</b>	10 mins by 4 people
<b>Standard Colour</b>	Grey
<b>Ideal Solution for</b>	
• Hand-held Breaker	
• Vibratory Poker	
• Concrete Saw / Circular Saw, etc	
• Hammering and other PCW	

\* Tested with white noise source



SilentCUBEs seamlessly connected with good gap sealing