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For the attention of Ms. Nicole Wong

8 May 2023

Dear Ms. Wong

**Mai Po Nature Reserve Infrastructure Upgrade
Method Statement and Management Plan for the Design and Construction of the
Wooden Boardwalk (EP Condition 2.13)**

Reference is made to Environmental Team's captioned plan (Version 2.0) by email on 6 May 2023, pursuant to Condition 2.13 of the of the Environmental Permit No. EP-598/2022. We are pleased to inform you that we have no comments on the captioned plan. We hereby verify the captioned report for onward submission.

If you require further information, please do not hesitate to contact the undersigned.

Yours sincerely



Ricky Chui
Independent Environmental Checker

**Method Statement and Management
Plan for the Design and Construction
of the Wooden Boardwalk**

for

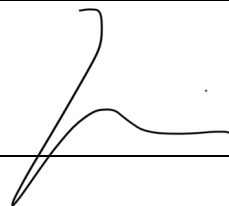
**Mai Po Nature Reserve Infrastructure Upgrade
Project**

(Environmental Permit No.: EP-598/2022)

May 2023

(Version 2.0)

Certified By Environmental Team Leader: _____



(Joan Choi)

Company: Ka Shing Management Consultancy Ltd.

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Method Statement and Management Plan (R7)

1.0 Installation of Timber Decking with Adjustable Pedestal

1. Rope off works area with barricade tape, perform site level checks and site setting out.
2. Transport required quantity of timber planks (in bundles) by diesel forklift from storage area to the works area as scheduled for each section, the timber planks then stacked and stored within works area for installation.
3. Set out and layout adjustable pedestals on existing concrete path. Secure each adjustable pedestal to the concrete path with 2 nos. of stainless-steel screws (M5x40) with plugs and rings.
4. Lay each timber joist on top of the adjustable pedestal, and secure to L-adapter once the adjustable pedestal is in place and correctly aligned.
5. Secure timber joist with decking screw (M5x20) through the holes provided on L-Adapter and into the side of the timber joists.
6. Lay the timber deck board over the timber joist and secure them with decking screw (M5x60).
7. Install timber block from the bottom of the timber deck with decking screw (M5x60).
8. Install timber curb on top of the timber block with decking screw (M5x60).
9. Secure timber fascia board to the side of the timber deck board with decking screws (M5x60).
10. For footpath where concrete levels are not even, raise the lower level with footings to obtain a level surface. Footing to be secured with 2 nos. of steel bars (150x8Ø).
11. Where footpath is located above soil: -
 - 11.1 - Remove top soil, desiccated soil and loose materials.
 - 11.2 - Position timber ground plate on clear ground, install timber peg into the ground and secure peg to the side of timber ground plate with decking grade 316 stainless-steel wooden screw (M5x60).
 - 11.3 - Set out and layout adjustable pedestals on timber ground plate. Secure each adjustable pedestal to the timber ground plate with 2 nos. of grade 316 stainless-steel wooden screws with flat washer (M5x30). see dwg. titled Decking Footpath over Compacted Soil for reference.
 - 11.4 - Proceed item 4-9.
 - 11.5 - Timber will be sawcut at dedicated workshop area before transporting to the construction area by forklift truck, all waste (i.e. sawdust, refuse and rubbish) will be separated into general waste and construction waste, and construction waste will be disposed into skips with covers, which will be cleared daily, general waste will be taken away from site by on-site staff.

11.6 - Noisy works i.e. saw cutting, will be carried out during the hours permitted by the EP only. Construction details designed as screw fixed to eliminate impact noise from hammering. Pedestal installation would require drilling into the concrete surface.

11.7 - Precautionary measures during heavy rainfall - all construction works are dry fixed only, the construction requires no excavation works and wet trades will not be involved, therefore no muddy water will be generated and no pollution to rainwater during heavy rainfall. Securely fasten up onsite timber planks to prevent wash-away during heavy rainfall. Storage and works area located adjacent to Education Centre will be bunded and covered in tarpaulin to kept rainwater out. Materials and plants will be covered up in tarpaulin and raised off ground to further prevent rainwater contaminated during heavy rainfall (see fig.1). Works area will be covered up in tarpaulin, lapping over both side of existing concrete footpath (see fig.2).

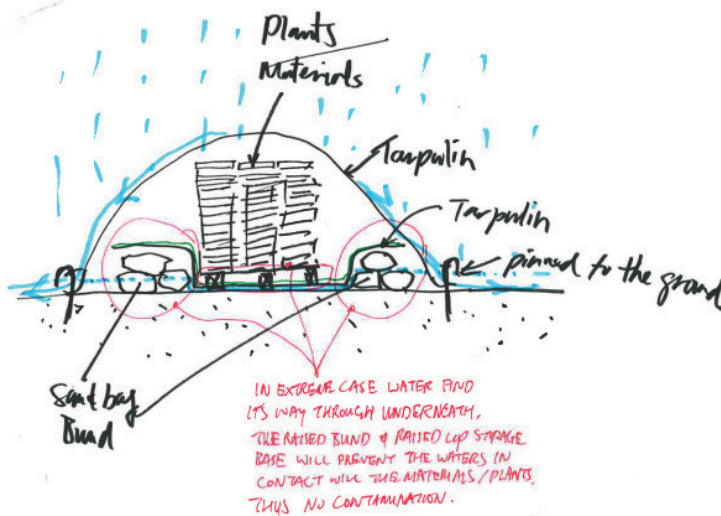


Fig.1

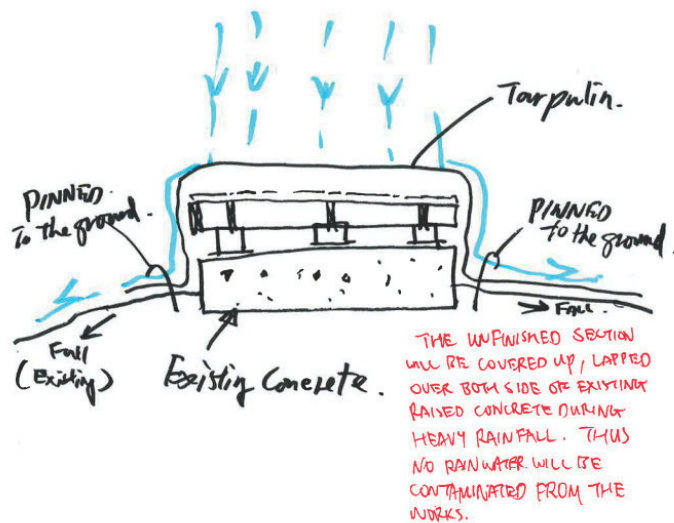


Fig. 2

11.8 - No water pollution will be generated during the pedestals and timber boardwalk installation as all installation are of dry fixed nature.

11.9 - Construction phasing plan refer to **Appendix A** while Location Plan refer to **Appendix B**.

Product information

Type of wood – Treated Radiata Pine
Expected durability – 30 years

2.0 EIA report reference:

2.2.25 The new boardwalk will be around 1.65m wide. The boardwalk for the Main Footpath (921m-long) and for Access to TH1 (66m-long) will be constructed above the existing 1.5m-wide concrete footpath, which will not be removed. The boardwalk for Access to TH2 (156m-long), for Access to TH3 (85m-long) and for the EAs (various dimensions) will be constructed above natural ground.

Proposed design

- *Boardwalk for Access to TH2 will not be constructed.*

2.2.26 Construction of the boardwalks will be carried out in sections, each up to 100m in length. The works will comprise the following:

1. Lay pre-fabricated wooden decking sections over existing concrete footpath at 2m spacing either side of the new footpath alignment, with sections for EAs and passing bays
2. Connect horizontal bracing between sections
3. Bolt the pre-fabricated wooden decking sections onto the horizontal bracing

Proposed design

- *The construction method has been streamlined to eliminate item 2&3,*
- *Please refer to method statement.*

2.2.27 The new boardwalk is intended to be installed in three phases to minimise impacts to visitors and maximise access to the reserve and MPEC through diversions. Each phase will take roughly three weeks to complete and the works will start from MPNR entrance towards MPEC. The phased construction traffic and visitor routes during construction and thereafter are shown schematically in **Appendix D2**.

Proposed design

- *The boardwalk construction further sub-divided into 6 phases at 2-3 weeks each,*
- *Please refer to method statement & FOOTPATH CONSTRUCTION PHASING drawing.*

2.2.28 For the Main Footpath and the Accesses to TH1, TH2 and TH3, the works area will include the 1.65m-wide boardwalk plus up to 1.5m on each side, i.e. $1.5\text{m} + 1.65\text{m} + 1.5\text{m} = 4.65\text{m}$ wide. As the boardwalk will be constructed in 100m lengths, the maximum works area at any one time will be $4.65\text{m} \times 100\text{m} = 465\text{m}^2$.

Proposed design

- *The Accesses to TH2 will not be constructed.*

2.2.29 The Main Footpath and Access to TH1 boardwalks will be constructed above the existing 1.5m-wide concrete footpath, which is not considered to be bare ground. Therefore, for the Main Footpath and Access to TH1, the area of bare ground will be smaller than the works area. For a typical 4.65m width of works area, 1.5m will be the existing concrete path, and 3.15m will be cleared bare ground on each side. So, for a typical 100m length, of the 465m^2 works area, $1.5\text{m} \times 100\text{m} = 150\text{m}^2$ will be the existing concrete footpath and $3.15\text{m} \times 100\text{m} = 315\text{m}^2$ will be cleared bare ground. For the Accesses to TH2 and TH3 there is no existing concrete footpath, and therefore all of the 465m^2 works area is assumed to be cleared bare ground.

Proposed design

- *No change*

2.2.30 For construction of the six EAs along the Main Footpath, the works area will be up to 2m on each side (except the side that abuts the boardwalk of the Main Footpath, which is counted as part of the Main Footpath works area). The total works area will be 299m^2 , all of which is assumed to be cleared bare ground. The largest EA will have a works area of 53.2m^2 and will be constructed next to a 100m section of new boardwalk above the main footpath, which would have cleared bare ground of 315m^2 , giving a maximum combined area of cleared bare ground of 353.2m^2 , which is less than that for a 100m section of boardwalk.

Proposed design

- *No change*

2.2.31 Bare ground could be a potential source of dust and also of muddy runoff during rainstorms. **Table 2-3**, below, and **Figure 2-3**, summarise the boardwalk areas, the works areas and the bare ground areas for the boardwalks and EAs. The total area of bare ground cleared for boardwalk construction will be $4,529.2\text{m}^2$. However, as only up to 100m length of boardwalk will be installed at a time, the maximum area of bare ground at any one time due to boardwalk installation is only 465m^2 .

Proposed design

- *No change to 2.2.31*
- *Actual Boardwalk for Access to TH2 will not be constructed, see mark-up on Table 2-3*

Table 2-3 Bare Ground Area Cleared for Boardwalk Construction

DESCRIPTION	BOARDWALK AREA			WORKS AREA			BARE GROUND AREA		
	LENGTH (m)	WIDTH (m)	AREA (m ²)	LENGTH (m)	WIDTH (m)	AREA (m ²)	LENGTH (m)	WIDTH (m)	AREA (m ²)
CONSTRUCTION OF NEW BOARDWALKS ABOVE EXISTING FOOTPATHS									
Main Footpath	921.0	1.65	1,519.7	921.0	4.65	4,282.65	921.0	3.15 [#]	2,901.2
Access to TH1	66.0	1.65	108.9	66.0	4.65	306.9	66.0	3.15 [#]	207.9
			1,628.6			4,589.6			3,109.1
CONSTRUCTION OF NEW BOARDWALKS TO ACCESS NEW TOWER HIDES									
Access to TH2	156.0	1.65	257.4	156.0	4.65	725.4	156.0	4.65	725.4
Access to TH3	85.0	1.65	140.3	85.0	4.65	395.3	85.0	4.65	395.3
			140.3			395.3			395.3
			1,120.7			1,120.7			1,120.7
CONSTRUCTION OF NEW BOARDWALKS FOR EAs									
EA No. 1*	2.0 + 3.8	1.8 + 1.8	3.6 + 6.8	6.0 + 7.8	3.8 + 3.8	22.8 + 29.6	6.0 + 7.8	3.8 + 3.8	22.8 + 29.6
EA No. 2	10.0	1.8	18.0	14.0	3.8	53.2	14.0	3.8	53.2
EA No. 3	4.4	1.0	4.4	8.4	3.0	25.2	8.4	3.0	25.2
EA No. 4*	3.2 + 4.8	1.8 + 1.8	5.8 + 8.6	7.2 + 8.8	3.8 + 3.8	27.4 + 33.4	7.2 + 8.8	3.8 + 3.8	27.4 + 33.4
EA No. 5	8.0	1.8	14.4	12.0	3.8	45.6	12.0	3.8	45.6
EA No. 6*	1.4 + 4.9	3.5 + 1.7	4.9 + 8.3	5.4 + 8.9	5.5 + 3.7	29.7 + 32.5	5.4 + 8.9	5.5 + 3.7	29.7 + 32.5
			74.6			299.4			299.4
			2,100.0			6,000.7			4,329.2
			1843.5			5284.3			3803.8

Notes:

For Construction of New Boardwalks Above Existing Footpaths, since there is an existing 1.5m wide concrete footpaths that will not be removed and does not count as bare ground, the width of bare ground area is therefore 4.65m - 1.5m = 3.15m. Thus, the works area for the Main Footpath is 4,282.65m² and for the Access to TH1 is 306.9m², but the bare ground area is 2,901.2m² and 207.9m², respectively, the difference being the area of the existing 1.5m wide concrete path.

* These EAs comprise two sections, each shown separately.

3.0 Maintenance Plan

3.1 Wooden Boardwalk

The Wooden Boardwalk will be constructed with H5 treated timber which is an outside grade and suitable for use in applications where the timber will come in contact with the ground or fresh water.

The surface of the boardwalk shall be kept clean, avoidance in accumulation of debris was addressed during the design process, i.e. sufficient space (70mm) between the edge of the deck and top rail on both sides of the boardwalk, allowing any leaves and seeds to be blown away by natural air movement. The gaps between each planks allow rainwater sufficiently drained but large enough to prevent capillary action occur in preventing water accumulation. Regular sweep away any large debris and foreign decomposable material to is recommended.

3.1.1 Cleaning: -

Sweeping (without wash water) to be performed weekly, to sweep off any dead leaves/debris and brush-away any moss (if found) from the surface of deck.

All cleaning works to be carried out during daytime by hand brush and broom only, no wash water shall be required. If necessary, use recycled rainwater without any additive and/or detergent for cleaning, carry in bucket size to the location required only. Since the dirt to be cleaned off are native to the area, they will be washed off by natural rainfall with or without the boardwalk, therefore, the water run off from cleaning of the boardwalk will not put additional pressure to nearby sensitive area. However, as precautionary measure, the water for cleaning shall be local recycled rainwater without additives/detergents, and to carry a small amount each time for the cleaning, thus not enough to run into nearby sensitive area, i.e. a bucket size amount.

As a precautionary measure, all sweeping works to ceased a minimum 1 hour before sunset to minimise disturbance to wildlife.

3.1.2 Inspection: -

Inspection for the whole footpath to be carried out every 3 months, include visual inspection to screw fixings, uneven surface, edges of ramps. Check for damages and tear and wear to timber planks.

3.1.3 Repair: -

If uneven surface is found, place warning sign and rope off the area in question, open up planks to inspect pedestal, replace and adjust pedestal if damage is found, reinstall timber planks, replace if damage was found.

All repair works to be carried out during daytime by hand tools and cordless electric drill, as a precautionary measure, all repair works to ceased a minimum 1 hour before sunset to minimise disturbance to wildlife. No-wet trade would be required for repair and maintenance for the boardwalk.

3.2 Existing concrete footpath beneath

3.2.1 Cleaning and Inspection: -

- Visual Inspection to be carried out every 3 months, the concrete surface below the boardwalk can be viewed from both sides of the boardwalk.
- For safety, any inspector shall be accompanied by least one other person, attention shall be made to avoid disturbing any animals underneath the boardwalk, as well as spotting for animal attacks.
- Where situation allows, clear any debris for better inspection to avoid excessive accumulation.
- If necessary, use recycled rainwater without any additive and/or detergent for cleaning, carry in bucket size to the location required only. Since the dirt to be cleaned off are native to the area, they will be washed off by natural rainfall with or without the boardwalk, therefore, the water run off from cleaning of the boardwalk will not put additional pressure to nearby sensitive area. However, as precautionary measure, the

water for cleaning shall be local recycled rainwater without additives/detergents, and to carry a small amount each time for the cleaning, thus not enough to run into nearby sensitive area, i.e. a bucket size amount.

- All works to be carried out during daytime by hand tools, as a precautionary measure, all works to be ceased a minimum 1 hour before sunset to minimise disturbance to wildlife.

3.2.2 Repair: -

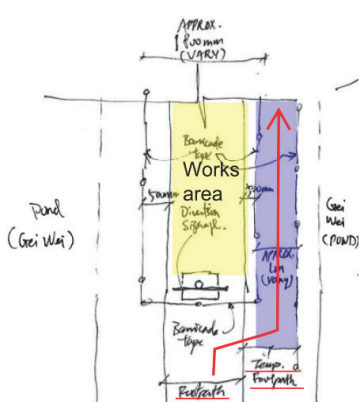
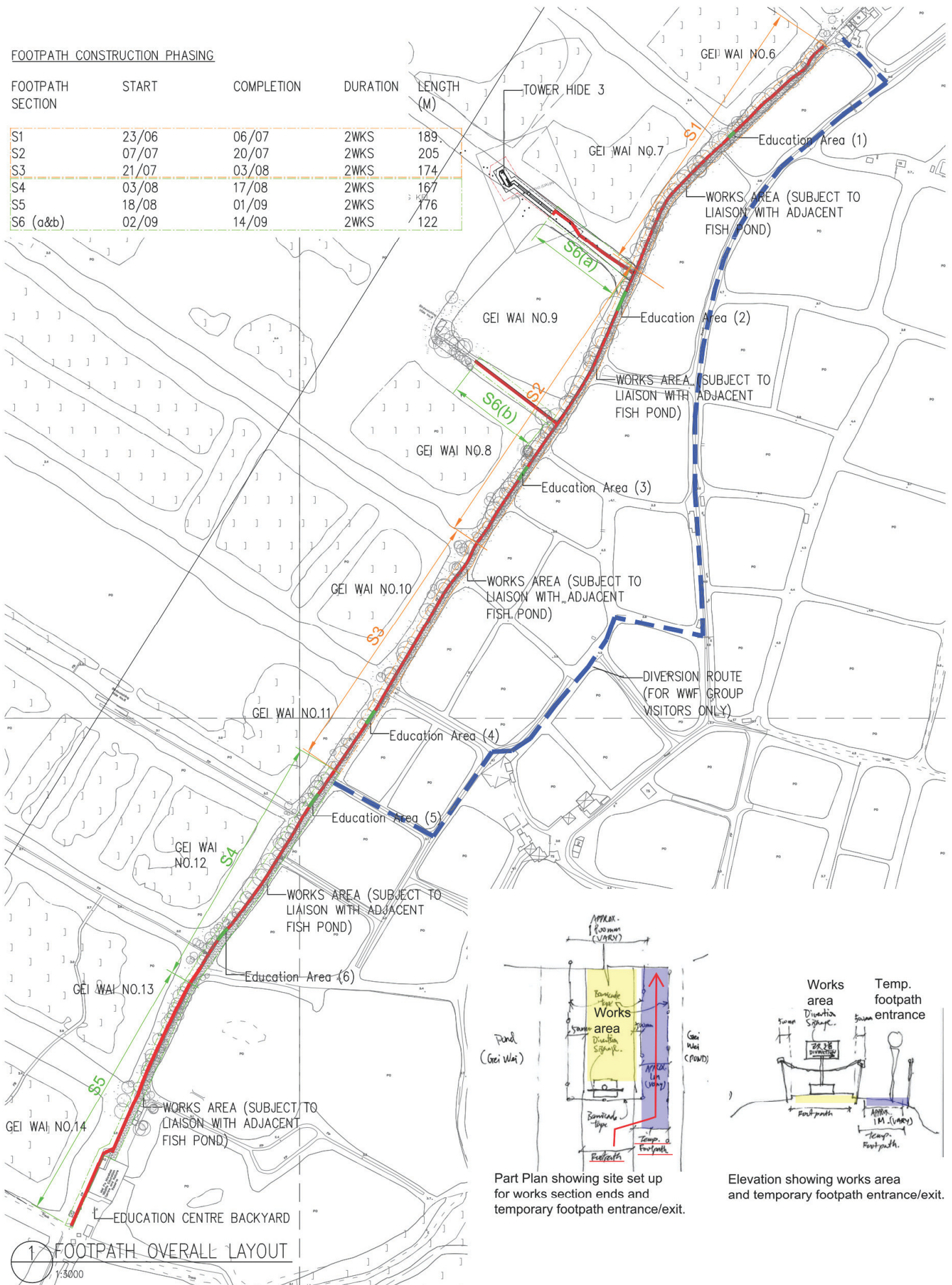
If damage is found, place warning sign and rope off the area in question, open up planks to inspect concrete surface, clear debris, replace and adjust pedestal if damage is found, reinstall timber planks, replace if damage was found.

All works to be carried out during daytime by coreless electric drill and hand held tools, as a precautionary measure, all works to be ceased a minimum 1 hour before sunset to minimise disturbance to wildlife.

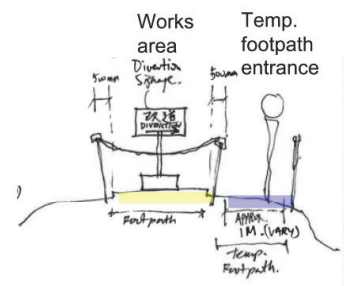
Appendix A - Footpath construction Phase Plan

FOOTPATH CONSTRUCTION PHASING

FOOTPATH SECTION	START	COMPLETION	DURATION	LENGTH (M)
S1	23/06	06/07	2WKS	189
S2	07/07	20/07	2WKS	205
S3	21/07	03/08	2WKS	174
S4	03/08	17/08	2WKS	167
S5	18/08	01/09	2WKS	176
S6 (a&b)	02/09	14/09	2WKS	122



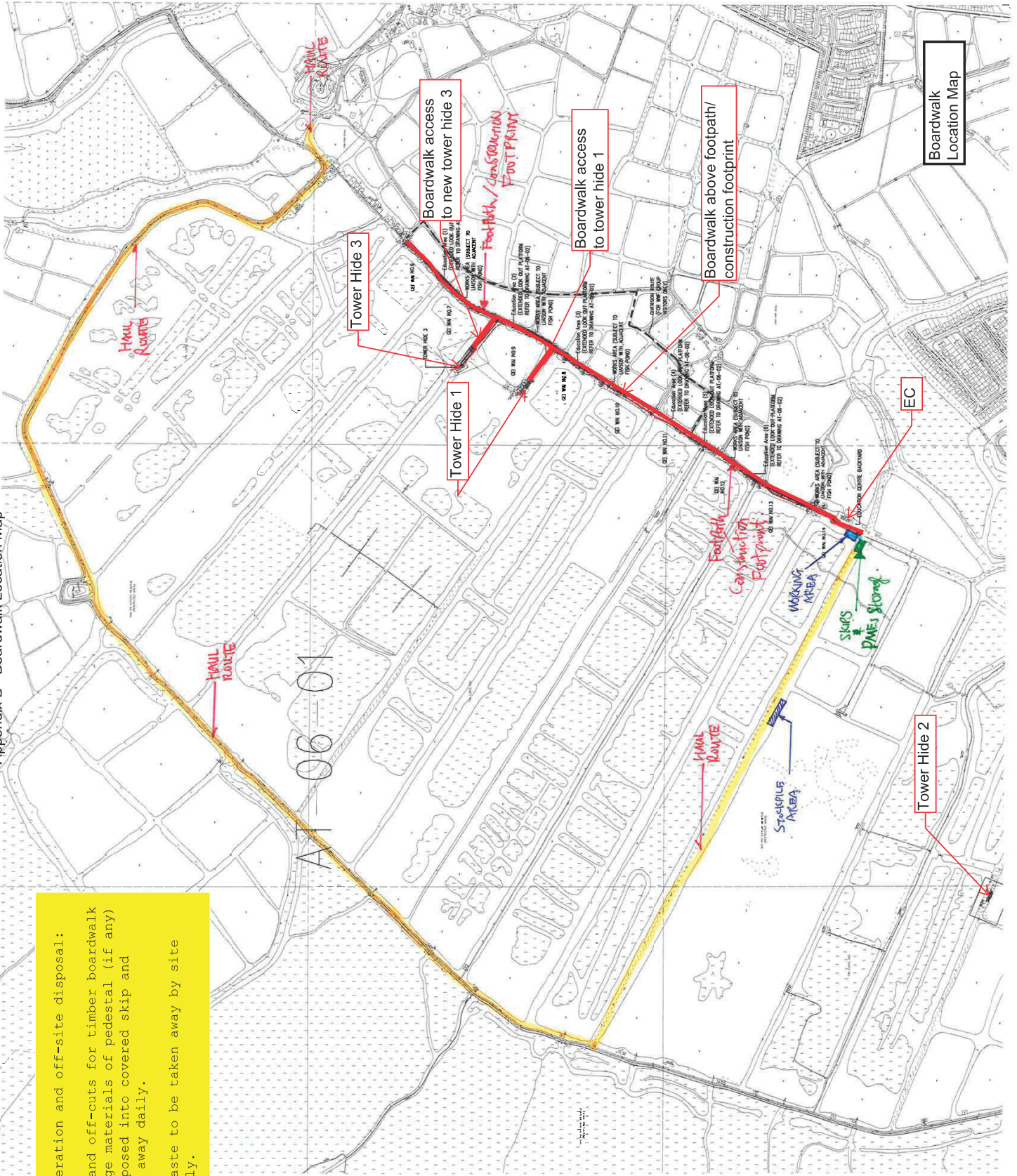
Part Plan showing site set up for works section ends and temporary footpath entrance/exit.



Elevation showing works area and temporary footpath entrance/exit.

Appendix B - Boardwalk Location Map

Waste generation and off-site disposal:
 Saw-dust and off-cuts for timber boardwalk and package materials of pedestal (if any) to be disposed into covered skip and transport away daily.
 General waste to be taken away by site staff daily.



Boardwalk Location Map