MOTT MACDONALD

# Ocean Park Tai Shue Wan Water World Project

## Monthly EM&A Report July 2018

August 2018

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# Ocean Park Tai Shue Wan Water World Project

## Monthly EM&A Report July 2018

August 2018

**This Monthly EM&A Report for July 2018 has been reviewed and certified by the Environmental Team Leader (ETL) and verified by the Independent Environmental Checker (IEC) as having complied with the requirements as set out in the EM&A Manual in accordance with Condition 3.4 of Environmental Permit No. EP-487/2014/A.**

**Certified by:**

Gary Chow
Environmental Team Leader (ETL)
Mott MacDonald Hong Kong Limited

Date: 10 Aug 2018

**Verified by:**

Gerald Kam
Independent Environmental Checker (IEC)
Ove Arup and Partners Hong Kong Limited

Date: 10-Aug-2018

# Issue and Revision Record

| Revision | Date | Originator | Checker | Approver | Description |
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# Contents

# Executive Summary

Mott MacDonald Hong Kong Ltd. ("MMHK") has been commissioned by the Gammon Engineering & Construction Company Limited, to undertake the Environmental Team (ET) services to carry out environmental monitoring and audit (EM&A) for Ocean Park Tai Shue Wan Development Water World.

This is the 14th monthly EM&A report for the construction phase of Waterpark Main Building Works submitted under Condition 3.4 of the Environmental Permit (No. EP-487/2014/A). This report summarises the findings on EM&A during the period from 1 to 31 July 2018.

**Exceedance of Action and Limit Levels**

The summary of measured noise level (as $L_{eq}$) is presented in **Section 3**. No exceedance of Action or Limit Levels for noise levels were recorded in the Reporting Period.

**Result of Ecological Monitoring**

The plant species of conservation interest – Two numbers of *Platycodon grandifloras* was found in fence up area in the Reporting Period. No sign of construction activities was noted in the fence up area.

No ardeids nest or potential breeding activities were observed.

Details of the results are presented in **Section 4**.

**Result of Landscape and Visual Monitoring**

No non-compliance of Landscape and Visual monitoring was recorded in the Reporting Period. Details of the results are presented in **Section 5.**

**Record of Complaints**

There was no record of complaints received in the Reporting Period.

**Record of Notification of Summons and Successful Prosecutions**

There were no record of notification of summons and successful prosecution in the Reporting Period.

**Reporting Changes**

There are no reporting changes.

**Site inspection**

In the Reporting Period, joint site inspections were undertaken by the PMR, ET and the Contractor on 6, 13, 20 and 27 July 2018. Furthermore, IEC performed the site inspection and audit on 13 July 2018. During site inspection, non-compliance was not observed by the ET and IEC.

**Future Key Issues**

- Site formation for ride footing construction
- Cut soil slope and soil nail installation for Ride P1, P2, P3,P4 and P5

- Rock breaking and slope stabilization works for Ride P1 to P5
- Construction of drainage channels to slopes
- Mini pile construction
- Utilities diversion at A4
- Drainage works at PJD office and A4
- Backfilling at South Plant Room
- Construction of ride footings
- Main Building: Column and wall construction ,L3 column to Roof construction, Steel Platform for Shell A construction, B1 water tank, drainage and on grade slab. Block works and ABWF in B1, L1 and L2 Secondary structure construction; area Pool B, C, D; Roof construction. L2 on grade slab construction, L3 Slab B1-2, L3 A4-2
- South Transformer Room: ABWF
- North Plant Room : Removal of falsework, waterproofing for double slab and ABWF
- Sprial Ramp : Falsework for the RC construction.
- External Area: Laying of underground utilities
- South Plant Room – Assembly of Chimney

# 1 Introduction

## 1.1 Introduction

On 27 August 2014, the Environment Impact Assessment (EIA) Report and Environmental Monitoring and Audit (EM&A) Manual (Register No.: AEIAR-184/2014) for the "Tai Shue Wan Development at Ocean Park" (the Project) was approved and an Environmental Permit (EP) (Permit No.: EP-487/2014) was issued to the Ocean Park Corporation (Project Proponent).

The current valid EP (Permit No.: EP-487/2014/A) was issued on 10 January 2018 based on the Variation of Environmental Permit No. VEP-539/2017 which comprise variation of project boundary, location of sump pit and size of rising main. The Project location is indicated in **Appendix A**.

Mott MacDonald Hong Kong Ltd. ("MMHK") has been commissioned by Gammon Engineering & Construction Company Limited to undertake the Environmental Team (ET) services to carry out environmental monitoring and audit for the Ocean Park Tai Shue Wan Water World Project.

As part of the EM&A program, baseline monitoring for the required parameters including background noise, landscape & visual baseline review and baseline ardeid inspection were carried out between 24 October 2014 and 10 December 2014 by the environmental consultants of Ocean Park Corporation. Furthermore, the baseline monitoring report which verified by the previous IEC was submitted to EPD and endorsed in December 2014.

The previous contract (Contract No.: TSW-C004) of Site Formation and Foundation Works has been completed since 31 May 2017, the next construction phase (Contract No.: TSW-C006) for the Ocean Park Tai Shue Wan Development was handed over to Gammon Engineering & Construction Company Limited on 31 May 2017. This is 14$^{th}$ monthly EM&A report presenting the monitoring results and inspection findings for the Construction Phase of Waterpark Main Building Works during the Reporting Period from 1 to 31 July 2018.

# 2 Project Organization and Construction Progress

## 2.1 Project Organization

The project organization is shown in **Appendix B**. The responsibilities of respective parties are:

*Ocean Park Corporation*

Ocean Park Corporation is the Project Proponent and the Permit Holder of the EP for the development of the Project and will assume overall responsibility for the project. An Independent Environmental Checker (IEC) shall be employed by Ocean Park Corporation to audit the results of the EM&A works carried out by the ET.

*Environmental Protection Department (EPD)*

EPD is the statutory enforcement body for environmental protection matters in Hong Kong.

*Project Management Representative (PMR) of Ocean Park Corporation*

The PMR is responsible for overseeing the construction works and for ensuring that the works are undertaken by the Contractor in accordance with the specification and contract requirements. The duties and responsibilities of the ER with respect to EM&A are:

- Monitor the Contractors' compliance with contract specifications, including the implementation and operation of the environmental mitigation measures and their effectiveness
- Monitor Contractors', ET's and IEC's compliance with the requirements in the Environmental Permit (EP) and EM&A Manual
- Facilitate ET's implementation of the EM&A programme
- Participate in joint site inspection by the ET and IEC
- Oversee the implementation of the agreed Event / Action Plan in the event of any exceedance
- Adhere to the procedures for carrying out complaint investigation
- Liaison with the related government departments, ET, IEC, the Contractor and the other Contractors of the Project discussing regarding the cumulative impact issues.

*The Contractor*

The duties and responsibilities of the Contractor are:

- Comply with the relevant contract conditions and specifications on environmental protection
- Employ an Environmental Team (ET) to undertake monitoring, laboratory analysis and reporting of EM &A Facilitate ET's monitoring and site inspection activities
- Participate in the site inspections by the ET and IEC, and undertake any corrective actions
- Provide information / advice to the ET regarding works programme and activities which may contribute to the generation of adverse environmental impacts
- Submit proposals on mitigation measures in case of exceedances of Action and Limit levels in accordance with the Event / Action Plans

- Implement measures to reduce impact where Action and Limit levels are exceeded
- Adhere to the procedures for carrying out complaint investigation

*Environmental Team (ET)*

The ET should be employed by the Contractor to conduct the EM&A programme. The ET should be managed by the ET Leader. ET Leader should have relevant professional qualifications in environmental control and possess at least seven years' experience in EM&A. Suitably qualified professional and technical staff should be included in the ET, and resources for the implementation of the EM&A programme should be allocated in the time under the Contract, to enable fulfilment of the Project's EM&A requirements as specified in the EM&A Manual during construction of the Project. The ET shall include qualified botanist/ecologist for the ecological service and a Registered Landscape Architect for review of implementation of landscape and visual mitigation measures. The ET should report to the OPC and the duties should include:

- to monitor and audit various environmental parameters as required in the Approved EM&A Manual;
- to analyse the EM&A data, review the success of EM&A programme and the adequacy of mitigation measures implemented, confirm the validity of the EIA predictions, and identify any adverse environmental impacts arising;
- to monitor compliance with conditions in the EP, environmental protection, pollution prevention and control regulations and contract specifications;
- to audit environmental conditions on site;
- to report on the EM&A results to EPD, the ER, the IEC and Contractor or their delegated representatives;
- to recommend suitable mitigation measures to the Contractor in the case of exceedance of Action and Limit levels in accordance with the Event and Action Plans;
- to liaise with the IEC on all environmental performance matters, and ensure timely submission of all relevant EM&A pro forma for IEC's approval;
- to provide advice to the Contractor on environmental improvement, awareness and enhancement matters, etc on site;
- to adhere to the procedures for carrying out complaint investigation;
- to prepare reports on the environmental monitoring data and the site environmental conditions;
- to submit the EM&A report to Director of Environmental Protection (DEP) timely;
- to review proposals of mitigation measures from the Contractor in case of exceedance of Action and Limit levels, in accordance with the Event and Action Plan; and
- to carry out site inspection to investigate and audit the Contractor's site practice, equipment and work methodologies with respect to pollution control and mitigation measures.

*Independent Environmental Checker (IEC)*

- The IEC is empowered to audit the environmental performance of construction, but is independent from the management of construction works. As such, the IEC should not be in any way an associated body of the Contractor or the ET for the Project. The IEC should be employed by OPC prior to the commencement of the construction of the Project. The IEC should be a person who has relevant professional qualifications in environmental control and

at least seven years' experience in EM&A and environmental management. The duties and responsibilities of the IEC are:

- to provide proactive advice to the ER and OPC on EM&A matters related to the project;
- to review and verify the monitoring data and all submissions in connection with the EP and EM&A Manual submitted by the ET;
- to arrange and conduct regular, at least monthly site inspections of the works during the construction phase, and to carry out ad hoc inspections if significant environmental problems are identified;
- to check compliance with the agreed Event and Action Plan in the event of any exceedance;
- to check compliance with the procedures for carrying out complaint investigation;
- to check the effectiveness of corrective measures;
- to feedback audit results to the ET by signing off relevant EM&A pro forma;
- to check that mitigation measures are effectively implemented;
- to report the works conducted, and the findings, recommendations and improvements of the site inspections, after reviewing ET's and Contractor's works, the ER and OPC on a monthly basis;
- to verify the investigation result of the environmental complaint cases and the effectiveness of corrective measures;
- to verify EM&A report that has been certified by the ET leader; and
- to audit EIA recommendations and requirements against the status of implementation of environmental mitigation measures on site.

## 2.2 Construction Progress

The construction program is enclosed in **Appendix C**. In the Reporting Period, the major construction activity conducted under the Contract is summarized below:

- Site formation for ride footing construction
- Cut soil slope and soil nail installation for Ride P1, P2, P3,P4 and P5
- Rock breaking and slope stabilization works for Ride P1 to P5
- Construction of drainage channels to slopes
- Mini pile construction (Post drilling)
- Utilities diversion at A4
- Drainage works at PJD office and A4
- Backfilling at South Plant Room
- Main Building: Column and wall construction ,L3 column to Roof construction Steel platform for Shell A construction, B1 underground manhole, drainage and on grade slab. Block works and ABWF in B1, L1 and L2 Secondary structure construction; Roof construction. L2 on grade slab construction
- South Transformer Room: ABWF
- South Plant Room : Construction of wall and plinths
- North Plant Room : waterproofing for double slab and ABWF
- Sprial Ramp : Falsework for the RC construction.
- External Area: Laying of underground utilities

## 2.3 Summary of Environmental Submissions

Summaries of validity permits, licenses, and/or notifications on environmental protection for the Project are presented in **Table 1**.

**Table 1: Status of Environmental Licenses and Permits of the Project**

| Type of Permit/ License | Submission Date | Reference / License No. | Date of Issue | Date of Expiry | Status |
|---|---|---|---|---|---|
| Environmental Permit | / | EP-487/2014/A | 10-Jan-18 | N/A | Valid |
| Variation of Environmental Permit | 18-Dec-17 | VEP-539/2017 | 10-Jan-18 | N/A | Valid |
| Environmental Permit | / | EP-487/2014 | 27-Aug-14 | N/A | Superseded |
| Notification pursuant to Air Pollution Control (Construction Dust) Regulation | 15-Mar-17 | 414651 | N/A | N/A | Valid |
| Application for a Billing Account for Disposal of Construction Waste | 14-Dec-16 | Account No. 7026786 | 28-Dec-16 | N/A | Valid |
| Discharge Licence under WPCO WT00028196-2017 | 15-Mar-17 | 414650 | 29-May-17 | 31-May-22 | Valid |
| Registration as a Chemical Waste Producer (WPN: 5213-176-G2785-01) | 21-Apr-17 | 415966 | 31-May-17 | N/A | Completed |
| Construction Noise Permit under NCO GW-RS0439-17 | 26-Apr-17 | 416080 | 15-May-17 | 29-Dec-17 | Superseded |
| Construction Noise Permit under NCO GW-RS0825-17 | 8-Sep-17 | 420985 | 22-Sep-17 | 21-Mar-18 | Superseded |
| Renew Construction Noise Permit under NCO GW-RS1024-17 | 3-Nov-17 | 422922 | 21-Nov-17 | 16-May-18 | Expired |
| Renew Construction Noise Permit under NCO GW-RS0356-18 | 16-Apr-18 | 432628 | 30-Apr-18 | 16-Nov-18 | Superdeded by GW-RS0469-18 |

| Type of Permit/ License | Submission Date | Reference / License No. | Date of Issue | Date of Expiry | Status |
|---|---|---|---|---|---|
| Renew Construction Noise Permit under NCO<br><br>GW-RS0469-18 | 18-May-18 | 433713 | 04-Jun-18 | 30-Nov-18 | Valid |

In accordance with the EP stipulation, the required documents submitted to EPD for retention are as listed below:

- Project Layout Plans
- Management Organization of Main Construction Companies
- Detailed Vegetation Survey Report
- Woodland Compensation Plan
- Ardeid Inspection Report
- Short-nosed Fruit Bat Inspection Report
- Baseline Monitoring Report Revision A of the Project

# 3 Construction Noise Monitoring

## 3.1 Monitoring Requirements, Frequency and Duration

Construction noise is one of the key environmental issues during the construction phase of the Project in accordance to the approved EM&A Manual. Following the requirements in the EM&A Manual, continuous noise monitoring for A-weighted levels $L_{eq}$, $L_{10}$, $L_{90}$ shall be undertaken once per week during the construction phase. Measurement of $L_{eq}$(30min) between 07:00-19:00 hours on normal weekdays.

If construction works are necessary to be carried out at other time periods, i.e. restricted time period (19:00-07:00 the next morning and whole day on public holidays) (hereinafter referred as "the restricted hours"), three consecutive $L_{eq}$(5min) measurements shall be recorded, while complying specific conditions as stipulated on the Construction Noise Permit (CNP). Supplementary information for data auditing and statistical results such as $L_{10}$ and $L_{90}$ shall also be obtained for reference. Summary of these monitoring requirements is shown in **Table 2**.

**Table 2: Noise Monitoring Parameters**

| Monitoring Station | Parameters |
|---|---|
| NM1A and NM2 | • $L_{eq(30min)}$ on normal working days (Monday to Saturday) 07:00-19:00 except public holiday;<br>• 3 sets of consecutive Leq(5min) during restricted hours i.e. 19:00 to 07:00 next day, and whole day of public holiday or Sunday when applicable, and<br>• Supplementary information for data auditing and statistical results such as $L_{10}$ and $L_{90}$ shall also be obtained for reference |

The baseline results form the basis for determining the environmental acceptance criteria for the impact monitoring. According to the approved EM&A Manual with baseline monitoring results, construction noise criterion, namely Action and Limit levels proposed are listed in **Table 3**.

**Table 3: Action and Limit Levels for Construction Noise**

| Monitoring Location | Action Level | Limit Level in dB(A) |
|---|---|---|
| NM1A and NM2 | When one or more documented complaints are received | 70 dB(A)[1,2] |

Note: 1. Acceptable noise levels for school should be reduced to 65 dB(A) during examination period
2. If works are to be carried out during restricted hours, the conditions stipulated in the CNP must be followed.

## 3.2 Monitoring Locations

Two designated noise monitoring locations as established in the EM&A Manual is shown in **Appendix D**. After the baseline monitoring, alternative location NM1A has been proposed by MMHK due to rejection of the monitoring location set up at NM1. The proposal was verified and agreed by EPD in the Baseline Monitoring Report.

The construction noise monitoring locations for the Project are shown in **Table 4** and **Appendix E**

**Table 4: Impact Monitoring locations**

| Monitoring location | Descriptions | Type of measurement |
|---|---|---|
| NM1A | Slope near Victoria Shanghai Academy (VSA) to replace NM1 of the VSA | Free field |
| NM2 | Hong Kong Juvenile Care Centre (HKJCC) | Facade |

## 3.3 Monitoring Equipment

Integrating sound level meter in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications shall be used for carrying out the noise monitoring. The sound level meter shall be checked using an acoustic calibrator. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in $ms^{-1}$. The acoustic calibrator and sound level meter to be used in the impact monitoring will be calibrated yearly.

Noise monitoring equipment used for monitoring is listed in **Table 5**.

**Table 5: Noise Monitoring Equipment**

| Equipment | Model |
|---|---|
| Integrating Sound Level Meter | Rion NL-52 |
| Calibrator | Larson Davis CAL200 |
| Portable Wind Speed Indicator | Anemometer/ Lutron AM-4201 |

## 3.4 Monitoring Methodology

### Field Monitoring

- Sound Level Meter was set up on a tripod at a height of at least 1.2 m above ground.
- Noise measurements were taken in terms of the A-weighted equivalent sound pressure level ($L_{eq}$) measured in decibels (dB). Supplementary statistical results ($L_{10}$ and $L_{90}$) were also obtained for reference.
- Free field measurement was made at NM1A while facade measurement was made at NM2.
- The battery condition was checked to ensure the correct functioning of the meter.
- Prior to and after each noise measurement, the meter was calibrated using an acoustic calibrator for 94 dB at 1 kHz. The checking was performed before and after the noise measurement.
- During the monitoring, all noise measurements would be performed with the meter with Fast time weighting and on the A-weighted equivalent continuous sound pressure level ($L_{eq}$). $L_{eq}$(30min) as the monitoring parameter for the time period between 0700-1900 hours on weekdays; and also $L_{eq}$(15min) in three consecutive $L_{eq}$(5min) measurements would be used as monitoring parameter for other time periods (e.g. during restricted hours), if necessary. In addition, any site observations and noise sources were recorded on a standard record sheet.
- A correction of +3 dB(A) was made to the free field measurement.
- Noise measurements were not made in fog, rain, wind with a steady speed exceeding 5 $ms^{-1}$ or wind with gust exceeding 10 $ms^{-1}$.

### Equipment calibration

- The sound level meter and calibrator are calibrated and certified by a HOKLAS accredited laboratory at yearly intervals.
- Calibration records of sound level meter and calibrator, together with the Anemometer used for impact monitoring program in the Reporting Period are shown in **Appendix F**.

### Meteorological Information

Meteorological information was extracted from "the Hong Kong Observatory Wong Chuk Hang Station" to provide the humidity, wind speed, wind direction and temperature etc. as background weather information. The meteorological data throughout the impact monitoring period is summarized in **Appendix K**.

### Derivation of Action/Limit (A/L) Levels

According to the approved EM&A Manual and baseline monitoring results, Action and Limit levels criterion proposed for construction noise monitoring are listed in **Table 6**.

**Table 6: Action and Limit Levels for Construction Noise**

| Monitoring Location | Action Level | Limit Level in dB(A) |
|---|---|---|
| | Time Period: 07:00-19:00 hours on normal weekdays | |
| NM1A and NM2 | When one or more documented complaints are received | 70 dB(A) [1, 2] |

Note: 1. A correction of +3dB(A) was made to the free field measurement at monitoring station NM1A.
2. No examination has taken place during this reporting period.

Should non-compliance of the environmental quality criteria occur, remedial actions will be triggered according to the Event and Action Plan which is presented in **Appendix G**.

### Data Management and Data QA/QC Control

All monitoring data will be handled by the ET's in-house data recording and management system. The monitoring data recorded in the equipment will be downloaded directly from the equipment at the end of each monitoring day. The downloaded monitoring data will be inputted into a computerized database properly maintained by the ET.

## 3.5 Monitoring Schedule

Monitoring for noise levels due to construction work was undertaken in compliance with the EM&A manual during the Reporting Period. Regular monitoring surveys were carried out on 3, 11, 19, 25, and 31 July 2018 during the Reporting Period and five additional impact monitoring for the construction works held during restricted hour period on 1, 8, 15, 22, and 29 July 2018 to access the compliance with environmental requirements. A total of 20 noise monitoring surveys were carried out at the two noise monitoring locations.

## 3.6 Results of Impact Monitoring

As shown in **Table 7**, results of the noise monitoring measurement were below 70 dB(A). No noise complaints were received in this Reporting Period. No exceedance (Action/Limit Level) of construction noise was recorded in this period.

**Table 7: Summary of Construction Noise Monitoring Results (Noise level for 30 minutes)**

| Monitoring date | Time | | Mean and range of noise levels, dB(A) | | Limit Level for $L_{eq}$ (dB(A))[2] |
|---|---|---|---|---|---|
| | Start | Finish | $L_{eq}$ (30min) | Corrected $L_{eq}$(30min)[1] | |
| **NM1A** | | | | | |
| 03-Jul-18 | 10:08 | 10:38 | 57.6 | 60.6 | 70 |
| 11-Jul-18 | 10:40 | 11:10 | 56.6 | 59.6 | 70 |
| 19-Jul-18 | 10:18 | 10:48 | 56.1 | 59.1 | 70 |
| 25-Jul-18 | 10:00 | 10:30 | 56.4 | 59.4 | 70 |
| 31-Jul-18 | 10:10 | 10:40 | 56.1 | 59.1 | 70 |
| **NM2** | | | | | |
| 03-Jul-18 | 09:30 | 10:00 | 54.7 | - | 70 |
| 11-Jul-18 | 10:00 | 10:30 | 53.1 | - | 70 |
| 19-Jul-18 | 09:40 | 10:10 | 51.1 | - | 70 |
| 25-Jul-18 | 14:30 | 15:00 | 51.0 | - | 70 |
| 31-Jul-18 | 09:30 | 10:00 | 51.3 | - | 70 |

Note: 1. A correction of +3 dB(A) was made to the free field measurement at monitoring station NM1A.
2. Acceptable Noise Levels for school should be reduced to 65 dB(A) during examination period.

As shown in **Table 8**, results of the additional noise monitoring measurement were below 70dB(A) and 65dB(A). No exceedance (Action/Limit Level) of construction noise was thus recorded in this period.

**Table 8: Summary of Construction Noise Monitoring Results (Noise level for 15 minutes)**

| Monitoring date | Time | | Mean and range of noise levels, dB(A) | | Limit Level for $L_{eq}$ (dB(A))[2] |
|---|---|---|---|---|---|
| | Start | Finish | $L_{eq}$ (15min) | Corrected $L_{eq}$(15min)[1] | |
| **NM1A** | | | | | |
| 01-Jul-18 | 11:00 | 11:15 | 52.5 | 55.5 | 70 |
| 08-Jul-18 | 09:15 | 09:30 | 51.9 | 54.9 | 70 |
| 15-Jul-18 | 15:03 | 15:18 | 51.0 | 54.0 | 70 |
| 22-Jul-18 | 16:53 | 17:08 | 49.7 | 52.7 | 70 |
| 29-Jul-18 | 10:55 | 11:10 | 52.5 | 55.5 | 70 |
| **NM2** | | | | | |
| 01-Jul-18 | 10:35 | 10:50 | 51.0 | - | 65 |
| 08-Jul-18 | 09:40 | 09:55 | 46.9 | - | 65 |
| 15-Jul-18 | 14:38 | 14:53 | 51.2 | - | 65 |
| 22-Jul-18 | 16:30 | 16:45 | 49.3 | - | 65 |
| 29-Jul-18 | 10:30 | 10:45 | 52.5 | - | 65 |

Note: 1. A correction of +3dB(A) was made to the free field measurement at monitoring station NM1A.
2. Technical memorandum on noise from construction work other than percussive piling – Section 4 Table 2.

Summary of data and the supplementary information for data auditing is presented in **Appendix I**. Graphical plots of the monitoring data are as shown in **Appendix J**.

# 4 Ecology Monitoring

## 4.1 General

As required under the Section 8.3.2 of the approved EM&A Manual, the implementation of ecological mitigation measures as detailed in the Section 15 of the EIA report and Appendix C of the approved EM&A Manual shall be routinely audited during the routine environmental audit; and any observations and recommendations shall be reported in periodic EM&A reports.

Among those mitigation measures recommended to avoid or minimize the disturbance to any plants of conservation interest (EM&A reference 8.3.1.1), nested ardeids (EM&A reference 8.3.1.2) and roosted short-nosed fruit bat (EM&A reference 8.3.1.3), the required inspection has already been undertaken in August / September 2014 with the results presented in the submitted respective baseline report. Therefore, the following sections only address those applicable to this stage of the project, i.e., Section 8.3.2 of the approved EM&A Manual.

## 4.2 Monitoring Requirement

*Monitoring of Plants of Conservation Interest (Platycondon grandiflorus)*

According to Condition 2.6 of Environmental Permit No. EP-487/2014, the Detailed Vegetation Survey Report has located two groups of the protected *Platycodon grandiflorus* and recommended that the plants should be protected with temporary protective fencing to avoid potential impact from construction activities (such as material storage), and monitor the identified *Platycodon grandiflorus* on a monthly basis throughout the construction phase to ensure they are not affected by the construction works of the Project. Accordingly, the following monitoring parameters will be undertaken on a monthly basis during the construction period:

- Effective implementation of the protection measures as recommended in the Section 4.1 of the Detailed Vegetation Survey Report
- Monitoring of the two groups of *Platycodon grandiflorus* identified during the detailed vegetation survey to ensure they are not affected by the construction works

*Monitoring of Nesting Activities of Ardeids in Breeding Season*

The project area should be checked monthly in breeding season (April to July) for any potential breeding and nesting activities, and if required, suitably sized buffer area will be recommended to avoid human or machinery disturbance until the nest is abandoned.

*Monitoring of Roosting Activities of Ardeids in Peak Wintering Season*

The existing ardeid night roost within the project area should be monitored monthly during peak wintering season (November to March) during the construction phase by direct observation from a vantage point (i.e., point count method) in the evening from an hour before sunset to nightfall.

*Compensation for Ardeid roosting Site*

An enhancement area proposed as an alternative roosting site for ardeids should be developed during the first phase of the construction.

*Compensation of Woodland Habitat*

Mitigation measures recommended in the approved Woodland Compensation Plan should be fully and properly implemented, including but not limited to the creation of 0.84 ha woodland compensation on-site and 0.78 ha on-site woodland reinstatement, to mitigate for permanent loss of woodland habitat.

## 4.3 Inspection Findings

The ecological inspection was undertaken on 20 July 2018 by the qualified ecologist. The inspection findings are presented below.

*Plants of Conservation Interest (Platycodon grandiflorus)*

*Platycodon grandiflorus* is a perennial herb up to 120 cm tall. Stems erect with scarcely any branches. It is often found on sunny grassy hillslopes in brushes. Two groups of *Platycodon grandiflorus* (see Figure 1 of **Appendix L** for their locations) that were recorded in 2015's growing season within the fenced area (see Photos 1 and 2 of **Appendix L** of this report).

On the other hand, the preventive mitigation measures, i.e., erecting of temporary protective fencing and sign post, were found to be effectively implemented for human disturbance (see Photo 3 of **Appendix L** of this report), and there are no signs or evidence (e.g. dust coating of plant) to prove that the on-going construction activities within the Project Area has affected the health condition of the *Platycodon grandiflorus*.

*Nesting Activities of Ardeids in Breeding Season*

No signs or breeding (such as courtship, nest building, brooding, juveniles etc.) of ardeids were noted within the project area during the reporting month.

*Roosting Activities of Ardeids in Peak Wintering Season*.

In accordance with the approved EM&A Manual, this monitoring parameter would not be required beyond the Peak Wintering season, i.e., from 1 November to 31 March. The last monitoring event for roosting activities of ardeids in Peak Wintering Season 2018's was undertaken on 16 March 2018.

*Compensation for Ardeid roosting Site*

To be implemented.

*Compensation of Woodland Habitat*

To be implemented.

## 4.4 Conclusion

The implementation of the mitigation measures for the plant species of conservation interest, i.e., erecting of temporary protective fencing and sign post during the Reporting Period was noted. The two groups of *Platycodon grandiflorus* within the fenced area were found to be vigorous and all new branches were in healthy condition.

On the other hand, no sighting of ardeids or signs of any breeding/nesting activities were noted within the project area during the monitoring.

The tentative ecological inspection and monitoring in the next Reporting Period is scheduled on 17 August 2018.

# 5 Landscape & Visual Monitoring

## 5.1 General

Landscape and visual mitigation measures for the construction phase are listed in the Approved EM&A Manual Table 9.1.

The design, implementation and maintenance of landscape and visual mitigation measures shall be checked bi-weekly to ensure that they are fully realized during the construction phase. The scope of the site audit during construction shall include the following:

- The extent of the agreed works areas should be regularly checked. No construction activities or storage shall be undertaken outside the limit of the works;
- The progress of the engineering works should be regularly reviewed on site to identify the earliest practical opportunities for the landscape works to be undertaken;
- All landscaping works are carried out in accordance with the specifications; and
- All new plantings are carried out properly and during the right season.

Any potential conflicts between the proposed landscape and visual mitigation measures and any other project works or operational requirements shall be recorded for the Contractor to resolve in an early stage, without compromising the intention of the mitigation measures.

## 5.2 Inspection Findings

In the Reporting Period, bi-weekly landscape and visual site inspections were conducted on 6 and 20 July 2018.

According to the bi-weekly site inspections, it was observed that the Contractor complied with the intended aims of the mitigation measures, for example, neither construction activities nor materials storage conducted and placed outside of the working site boundary.

The contractor was reminded to remove weeds regularly.

# 6 Waste Management

## 6.1 General Waste Management

Waste management was carried out by an on-site Environmental Officer or an Environmental Supervisor from time to time.

## 6.2 Records of Waste Quantities

All types of waste arising from the construction work are classified into the following:

- Construction & Demolition (C&D) Material;
- Chemical Waste;
- General Refuse; and
- Excavated Soil.

Monthly Summary Waste Flow Table provided by the Contractor is shown in **Appendix M**. Materials were reused on-site as far as practicable.

# 7 Site Inspection

## 7.1 Requirements

According to the approved EM&A Manual, the environmental site inspection shall be formulated by the ET Leader. Weekly environmental site inspections should be carried out to confirm the environmental performance.

## 7.2 Findings / Deficiencies During the Reporting Period

In the Reporting Period, joint site inspections were undertaken by the PMR, ET and the Contractor on 6, 13, 20, and 27 July 2018. Furthermore, IEC performed the site inspection and audit on 13 July 2018.

During site inspections, non-compliance was not observed by the ET and IEC. However, a total of three observations were recorded in the Reporting Period. The findings / deficiencies of the Project observed during the weekly site inspections are listed in **Table 9**.

**Table 9: Summary of findings / deficiencies**

| Date | Findings / Deficiencies | Follow-up Status |
|---|---|---|
| 6 July 2018 | Accumulated water and debris were found in Area B, L2. Site tidiness should be enhanced to maintain better environment. | Accumulated water has been cleared in Area B, L2. |
| 13 July 2018 | Debris should be cleared to maintain good hygiene at zone B | Debris has been cleared accordingly. |
| 27 July 2018 | Appropriate Non-Road Mobile Machinery (NRMM) label should be provided on excavator (B1-10E4). | NRMM label has been provided on excavator (B1-10E4). |

The Contractor has rectified the above deficiencies immediately or within deadline. Therefore, the environmental performance of the Project managed by the Contractor with OPC was considered satisfactory.

Special attention shall be paid on the proper implementation of mitigation measures to prevent runoff flow to public area.

As a general reminder, dust mitigation measures should be enforced to prevent fugitive dust from haul road, idle slope work and construction activities; and the site tidiness should be maintained. Furthermore, all chemical materials shall be stored in the designated area after use with drip tray.

# 8 Environmental Complaint, Summons and Prosecution

## 8.1 Environmental Complaint, Summons and Prosecution

No environmental complaint, summons and prosecution were received in the Reporting Period.

The statistical summary for environmental complaints is presented in **Table 10.**

**Table 10: Statistics for complaints, notifications of summons and successful prosecutions**

| Reporting Period | Cumulative Statistics | | |
|---|---|---|---|
| | Complaints | Notifications of summons | Successful prosecutions |
| This report month | 0 | 0 | 0 |

# 9 Implementation Status of Mitigation Measures

## 9.1 General Requirements

The environmental mitigation measures that were recommended in the Implementation Schedule for Environmental Mitigation Measures in the approved EM&A Manual covered the issues of dust, noise, water and waste and are presented in **Appendix N.**

The Project shall be implementing the required environmental mitigation measures according to the approved EM&A Manual as subject to the site condition. Environmental mitigation measures generally implemented by the Contractor in this Reporting Period are summarized in **Table 11.**

**Table 11: Environmental Mitigation Measures**

| Issues | Environmental Mitigation Measures |
|---|---|
| Construction Noise | • Construction equipment shut down when not in use |
| Ecology | • Wire fencing was provided for temporary protection of the identified flora species of conservation concern<br>• Site inspection of the flora species of conservation and the Ardeid of breeding and nesting activities was undertaken |
| Landscape & Visual | • Good site management |
| Air Quality | • Good site management to reduce air quality impact<br>• Main temporary access road paved with concrete<br>• Prior to any loading or transfer operation, all dusty materials were sprayed with water to keep them wet<br>• All debris had been covered entirely by impervious sheeting<br>• Before debris was dumped into a chute, water was sprayed onto the debris to make them wet<br>• Vehicles were covered with tarpaulin during transport of dusty materials<br>• When vehicles were leaving the construction site, any vehicles loaded with dusty materials were covered with clean impervious sheeting to prevent fugitive dusty material emission<br>• The speed of the trucks passing site areas was controlled to below 10 km/hour<br>• Water spraying was provided for soil-nailing work |
| Water Quality | • Portable chemical toilets were provided on site<br>• A licensed collector has been employed to collect effluent and off-site dispose. |
| Waste and Chemical Management | • A temporary container located far away from sea shore and drainage channel was provided for chemical materials and waste storage<br>• Drip tray was provided for chemical materials at the working areas<br>• Waste skip was provided for general refuse disposal |
| General | • The site was generally kept tidy and clean |

## 9.2 Tentative Construction Activities in the Coming Month

Construction activities to be undertaken in the coming month for the Project are listed below:

- Site formation for ride footing construction
- Cut soil slope and soil nail installation for Ride P1, P2, P3,P4 and P5
- Rock breaking and slope stabilization works for Ride P1 to P5
- Construction of drainage channels to slopes
- Mini pile construction
- Utilities diversion at A4
- Drainage works at PJD office and A4
- Backfilling at South Plant Room
- Construction of ride footings
- Main Building: Column and wall construction ,L3 column to Roof construction, Steel Platform for Shell A construction, B1 water tank, drainage and on grade slab. Block works and ABWF in B1, L1 and L2 Secondary structure construction; area Pool B, C, D; Roof construction. L2 on grade slab construction, L3 Slab B1-2, L3 A4-2
- South Transformer Room: ABWF
- North Plant Room : Removal of falsework, waterproofing for double slab and ABWF
- Sprial Ramp : Falsework for the RC construction.
- External Area: Laying of underground utilities
- South Plant Room – Assembly of Chimney

## 9.3 Key Issues for the Coming Month

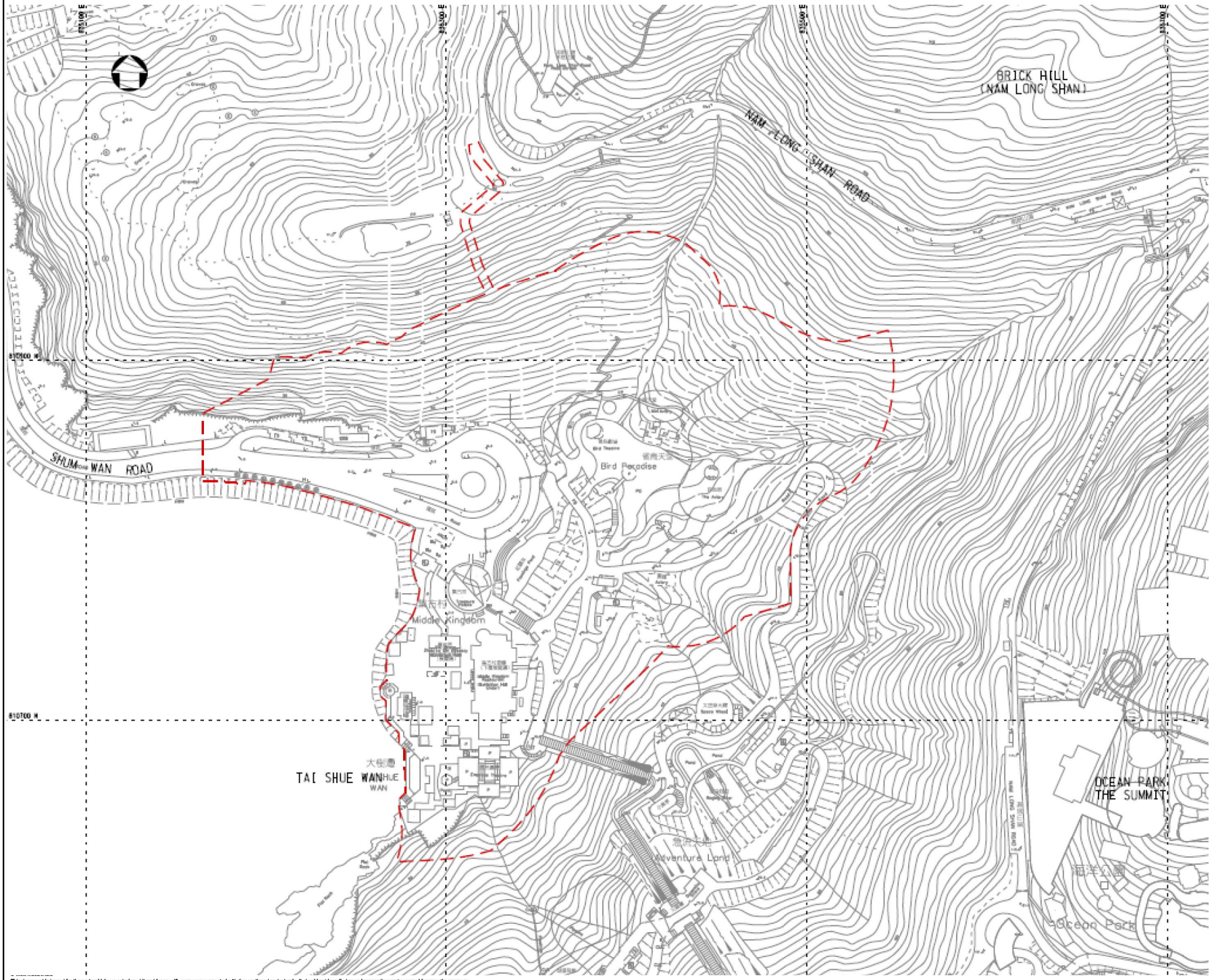
Based on construction activities as undertaken in the coming month, key environment issues consider to be included:

- Potential fugitive dust impact due to the dry/loose/exposure soil surface/dusty material;
- Potential water quality impact due to surface runoff especially on the hillside;
- Potential wastewater impact due to dust suppression measures;
- Implement dust suppression measures at all times;
- Ensure noise and dust mitigation measures are implemented properly;
- Sediment catch-pits and silt removal facilities should be regularly maintained;
- Site effluent discharge shall be fulfilled the discharge license requirements;
- Proper implementation of the management of chemical wastes;
- Ensure chemical storage is managed properly;
- Implementation of construction noise preventative control measures; and
- Cleanliness and tidiness in construction site should be maintained properly.

# 10 Recommendation

- All drainage facilities, erosion and sedimentation control structures (including the sedimentation tanks installed on site) should be regularly inspected and maintained in good condition, especially during the wet season.
- Appropriate label should be provided in specific machine.
- Noise mitigation measures, including the use of quiet plants, should be implemented in accordance with the EM&A requirement.
- Cleanliness and tidiness in construction site should be enhanced.

# A. Project Location




Notes

Key to symbols

Project Boundary
項目範圍

Reference drawings

| Rev | Date | Drawn | Description | Ch'k'd | App'd |
|---|---|---|---|---|---|


MOTT MACDONALD

20/F AIA Kowloon Tower
Landmark East
100 How Ming Street
Kwun Tong, Kowloon
Hong Kong
T +852 2828 5757
F +852 2827 1823
W mottmac.com


Client

Ocean Park Hong Kong

Project

**TAI SHUE WAN DEVELOPMENT AT OCEAN PARK**

Title

**PROJECT LOCATION**

| | | | | | |
|---|---|---|---|---|---|
| Designed | | | Eng check | | |
| Drawn | | | Coordination | | |
| Dwg check | | | Approved | | |
| Scale at A1 | | Status | | Rev | |

Drawing Number

APPENDIX A



C:\temp\Title Block.dgn DATE:25/08/2016 TIME:17:25:53 USER:ylm42169

# B. Project Organisation

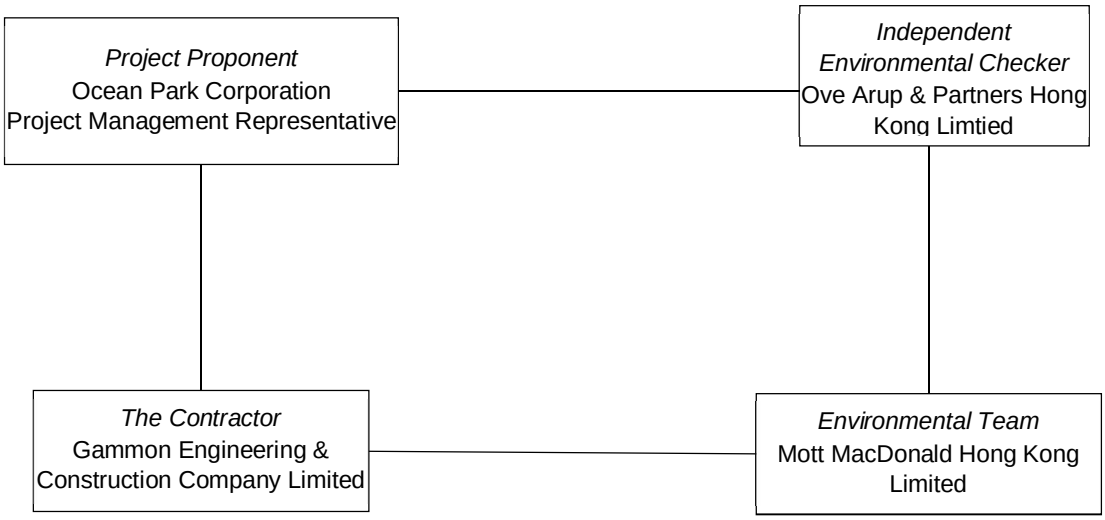
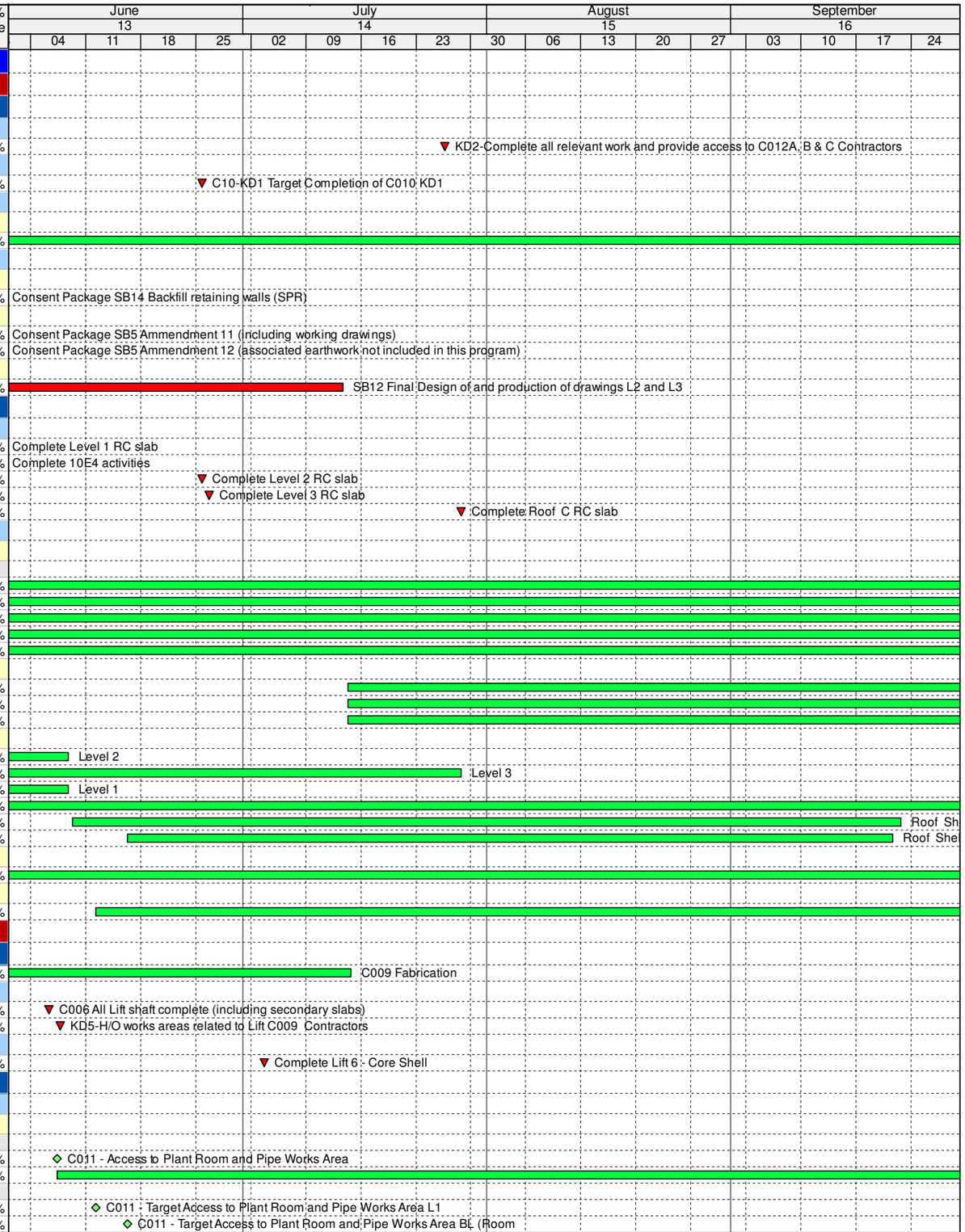



**Table A: Contact information**

| Company / Department | Position | Name | Telephone / Mobile | Fax No. |
|---|---|---|---|---|
| Ocean Park Corporation | Project Management Representative | Mr Augustine Li | 2870 6130 | 2814 0179 |
| Ove Arup & Partners Hong Kong Ltd. | Independent Environmental Checker | Mr Gerald Kam | 2268 3915 | 2268 3950 |
| Mott MacDonald Hong Kong Ltd. | Environmental Team Leader | Mr Gary Chow | 2828 5874 | 2827 1823 |
| Mott MacDonald Hong Kong Ltd. | Qualified Ecologist | Mr Roy Hung | 2828 5965 | 2827 1823 |
| Gammon Engineering & Construction Company Limited | Construction Manager | Mr Paul Leaver | 3690 9229 | 2148 2890 |
| Gammon Engineering & Construction Company Limited | Environmental Officer | Ms Sammie Chan | 2269 1507 | 2148 2890 |

# C. 3-month Look-ahead Program

| ID | Activity | Duration | Start | Finish | Total Float | Activity % Complete |
|---|---|---|---|---|---|---|
| **OCEAN PARK - TSW WW PROJECT SA (Option A PMI228 footings before roof A) Revised NSC KD 20180627** | | | | | | |
| **CONTRACT DATES** | | | | | | |
| ***Key Dates*** | | | | | | |
| **Contract** | | | | | | |
| CD.C06-KD2 | KD2-Complete all relevant work and provide access to C012A, B & C Contractors | 0 | | 26-Jul-18* | 0 | 0% |
| **Impacted Dates** | | | | | | |
| CD.C10-TD1 | C10-KD1 Target Completion of C010 KD1 | 0 | | 25-Jun-18* | -70 | 0% |
| **PMI RFI** | | | | | | |
| ***PMI's*** | | | | | | |
| OP.2320 | PMI 228 affected work | 145 | 18-Apr-18 | 23-Apr-19 | 19 | 0% |
| **Consent Dates** | | | | | | |
| ***Foundations (Main Building)*** | | | | | | |
| BD.CF.PW250 | Consent Package SB14 Backfill retaining walls (SPR) | 0 | | 31-May-18* | 529 | 0% |
| ***Ride Formation*** | | | | | | |
| BD.CSS.R290 | Consent Package SB5 Ammendment 11 (including working drawings) | 0 | | 31-May-18* | 4 | 0% |
| BD.CSS.R320 | Consent Package SB5 Ammendment 12 (associated earthwork not included in thi | 0 | | 31-May-18* | 529 | 0% |
| ***Secondary Structure*** | | | | | | |
| OP.950 | SB12 Final Design of and production of drawings L2 and L3 | 36 | 31-May-18* | 13-Jul-18 | -37 | 0% |
| ***Milestones*** | | | | | | |
| **Slab completion Dates** | | | | | | |
| OP.760 | Complete Level 1 RC slab | 0 | | 31-May-18 | 529 | 0% |
| OP.780 | Complete 10E4 activities | 0 | | 31-May-18 | 529 | 0% |
| OP.770 | Complete Level 2 RC slab | 0 | | 25-Jun-18 | 508 | 0% |
| OP.790 | Complete Level 3 RC slab | 0 | | 26-Jun-18 | -1 | 0% |
| OP.820 | Complete Roof C RC slab | 0 | | 28-Jul-18 | 36 | 0% |
| **Summary Bars** | | | | | | |
| ***Rides*** | | | | | | |
| **Formation and structure Including Columns and Flume Supports** | | | | | | |
| OP.1790 | P2 Formation and structure | 0 | 20-Jul-17 A | 21-Feb-19 | 2 | 0% |
| OP.1780 | P1 Formation and structure | 6 | 01-Aug-17 | 02-Feb-19 | 113 | 0% |
| OP.1800 | P3 Formation and structure | 0 | 06-Aug-17 | 02-Jan-19 | 64 | 0% |
| OP.1810 | P4 Formation and structure (4B-3, 5E-1, 5C-3, 5E-2) | 0 | 16-Oct-17 | 23-Feb-19 | 156 | 0% |
| OP.1820 | P5 Formation and structure | 0 | 16-Oct-17 | 13-Feb-19 | 42 | 0% |
| ***Secondary Structure*** | | | | | | |
| OP.1690 | Level 2 Secondary Slab Zone A including Pools | 287 | 14-Jul-18 | 03-Jul-19 | -19 | 0% |
| OP.1760 | Level 2 Secondary Slab Zone B including Pools | 110 | 14-Jul-18 | 22-Nov-18 | 77 | 0% |
| OP.1770 | Level 3 Secondary Slab Zone B including Pools | 70 | 14-Jul-18 | 05-Oct-18 | 164 | 0% |
| ***Primary Structure*** | | | | | | |
| OP.1630 | Level 2 | 0 | 06-Dec-16 | 08-Jun-18 | 166 | 0% |
| OP.1640 | Level 3 | 0 | 06-Dec-16 | 28-Jul-18 | 98 | 0% |
| OP.1620 | Level 1 | 6 | 24-Jul-17 A | 08-Jun-18 | 521 | 0% |
| OP.1660 | Roof Shell -B | 156 | 31-May-18 | 04-Dec-18 | -25 | 0% |
| OP.1680 | Roof Shell -C | 89 | 09-Jun-18 | 22-Sep-18 | 3 | 0% |
| OP.1650 | Roof Shell - A | 82 | 16-Jun-18 | 21-Sep-18 | 10 | 0% |
| ***E&M*** | | | | | | |
| OP.2410 | E&M | 6 | 15-Mar-18 | 25-May-19 | 55 | 0% |
| ***ABWF*** | | | | | | |
| OP.2420 | ABWF | 304 | 12-Jun-18 | 21-Jun-19 | -29 | 0% |
| **NOMINATED SUB-CONTRACTORS** | | | | | | |
| ***C009 - Lifts*** | | | | | | |
| NS.C009.1110 | C009 Fabrication | 200 | 15-Apr-17 | 14-Jul-18 | 249 | 85% |
| **ORIGINAL CONTRACT DATES** | | | | | | |
| NS.C009.1210 | C006 All Lift shaft complete (including secondary slabs) | 0 | | 06-Jun-18* | 0 | 0% |
| CD.C06-KD29 | KD5-H/O works areas related to Lift C009 Contractors | 0 | | 07-Jun-18* | 0 | 0% |
| **Lift No.6** | | | | | | |
| AB.LW7.7240 | Complete Lift 6 - Core Shell | 0 | | 03-Jul-18 | 242 | 0% |
| ***C011- Water Filtration System Advance Contract*** | | | | | | |
| **Contract Dates** | | | | | | |
| ***Area Possession Date*** | | | | | | |
| **Access Dates** | | | | | | |
| NS.C11.A1 | C011 - Access to Plant Room and Pipe Works Area | 0 | 07-Jun-18* | | 0 | 0% |
| NS.C11.A11 | C011 -Installation | 147 | 07-Jun-18 | 30-Nov-18 | 304 | 0% |
| **Target Access Dates** | | | | | | |
| OP.1500 | C011 - Target Access to Plant Room and Pipe Works Area L1 | 0 | 12-Jun-18 | | 108 | 0% |
| OP.1490 | C011 - Target Access to Plant Room and Pipe Works Area BL (Room | 0 | 16-Jun-18 | | 25 | 0% |




critical level of effort — Critical Remaining Work
Current
Milestone
Milestone
% Complete

Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**
Page: 1 of 17

**OCEAN PARK - TAI SHUE WAN DEVELOPMENT**
**Contract No. TSW-C006**
**3 month Look-ahead Target Program _July 2018**

Gammon

| Date | Revision | Checked | A... |
|---|---|---|---|
| 30-Apr-18 | 3M Look ahead Program | PL, LN, TT PY ME. | |
| 07-May-18 | 3M Look ahead Program | PL, LN, TT PY ME. | JA |
| 05-Jul-18 | 3M Look ahead Program (Draft) | | |

| ID | Activity | Duration | Start | Finish | Total Float | Activity % Complete |
|---|---|---|---|---|---|---|
| **ORIGINAL CONTRACT DATES** | | | | | | |
| OP.2480 | C011 - KD1: Access to Plant Room and Pipe Works Area | 0 | | 07-Jun-18* | 0 | 0% |
| **Installation** | | | | | | |
| ***Plant Rooms*** | | | | | | |
| NS.C11.140 | C011 Mechanical Electrical and Water Treatment Plant room Installation L1 (Roo | 120 | 12-Jun-18 | 03-Nov-18 | 108 | 0% |
| NS.C11.230 | C011 Installation (Summary) | 260 | 12-Jun-18 | 27-Apr-19 | 11 | 0% |
| NS.C11.120 | C011 Pipe work installation Plant room to Pool | 242 | 16-Jun-18 | 08-Apr-19 | 25 | 0% |
| NS.C11.130 | C011 Mechanical Electrical and Water Treatment Plant room Installation BL (Roo | 110 | 24-Jul-18 | 01-Dec-18 | 126 | 0% |
| ***Pipework*** | | | | | | |
| **Main Building** | | | | | | |
| OP.2180 | C011 Level 1 Pipework Zone B | 45 | 12-Jul-18 | 01-Sep-18 | 201 | 0% |
| OP.2090 | C011 Level 1 Pipework Zone A | 45 | 24-Jul-18 | 13-Sep-18 | 191 | 0% |
| OP.2170 | C011 Basement Pipework | 45 | 24-Jul-18 | 13-Sep-18 | 191 | 0% |
| **Procurment and Delivery** | | | | | | |
| NS.C11.100 | C011 Procurement and Fabrication Pipes Fittings Pumps UV system Electical equ | 338 | 01-Apr-17 | 12-Jul-18 | 39 | 75% |
| NS.C11.110 | C011 Pipes Fittings Pumps UV system Electical equipment Delivery | 110 | 16-Jun-18 | 27-Oct-18 | 25 | 0% |
| ***C012A - Gas Absorption Chillers & Associated Works*** | | | | | | |
| NS.C12A.1160 | C012A Fabrication | 260 | 14-Apr-17 | 12-Jul-18 | 11 | 75% |
| **Contract Dates** | | | | | | |
| ***Constract Area Possession Date*** | | | | | | |
| **Access Dates** | | | | | | |
| NS.C11.A12A | C012A - Access to Plant Room and Pipe Works Area | 0 | 31-May-18 | | 231 | 0% |
| NS.C11.A12A10 | C012A- Installation | 150 | 31-May-18 | 27-Nov-18 | 307 | 0% |
| ***C012B - Gas Condensing Boilers & Associated Works*** | | | | | | |
| NS.C12B.1170 | C012B Fabrication | 260 | 14-Apr-17 | 12-Jul-18 | -14 | 75% |
| NS.C12B.1120 | C012B - Provide Access to C012B - Boiler Contractor | 0 | 22-Jun-18 | | 4 | 0% |
| NS.C12B.1130 | C012B - Gas Condensing Boiler Installation | 150 | 13-Jul-18 | 10-Jan-19 | -14 | 0% |
| NS.C12B.1180 | C012B Delivery | 6 | 13-Jul-18 | 19-Jul-18 | -14 | 0% |
| **Contract Dates** | | | | | | |
| ***Contract Area Possession Date*** | | | | | | |
| **Access Dates** | | | | | | |
| NS.C12BA12A | C012AB- Access to Plant Room and Pipe Works Area | 0 | 31-May-18 | | 26 | 0% |
| NS.C11.A12A30 | C012A- Installation | 150 | 31-May-18 | 27-Nov-18 | 307 | 0% |
| ***C012C - Chimney for Gas Chillers & Boilers*** | | | | | | |
| NS.C12C.1110 | C012C - Fabrication | 260 | 14-Apr-17 | 12-Jul-18 | -57 | 75% |
| NS.C12C.1120 | C012C - Provide Access to C012C - Chimney Contractor | 0 | 13-Jul-18 | | -57 | 0% |
| NS.C12C.1130 | C012C - Chimney Installation | 150 | 13-Jul-18 | 10-Jan-19 | -57 | 0% |
| NS.C12C.1140 | C012C - Delivery | 6 | 13-Jul-18 | 19-Jul-18 | -57 | 0% |
| **Contract Dates** | | | | | | |
| ***Contract Area Possession Date*** | | | | | | |
| **Access Dates** | | | | | | |
| NS.C12CA12A | C012AC- Access to Plant Room and Pipe Works Area | 0 | 31-May-18 | | 379 | 0% |
| NS.C11.A12A50 | C012A- Installation | 150 | 31-May-18 | 27-Nov-18 | 307 | 0% |
| ***Thematic Works & Wayfinding Signage*** | | | | | | |
| NS.DS.1100 | Thematic Wayfinding Works - Latest Date for Client to instruct invitation (TA.4) | 0 | | 31-May-18 | 101 | 0% |
| NS.DS.1110 | Thematic Works Tender Period & return of Tender | 42 | 31-May-18 | 11-Jul-18 | 101 | 0% |
| NS.DS.1120 | Joint review & award of Thematic Works contract | 30 | 12-Jul-18 | 10-Aug-18 | 101 | 0% |
| **DESIGN** | | | | | | |
| ***Contractor Design*** | | | | | | |
| **CSDs** | | | | | | |
| ***Prepare CSD*** | | | | | | |
| **Level 1** | | | | | | |
| DS.CSD210 | Prepare Submit CSDs from BIM model- Level 1 Zone 04 | 24 | 24-May-17 | 13-Jun-18 | 109 | 75% |
| DS.CSD100 | Prepare Submit CSDs from BIM model - Level 1 Zone 02 & 07 | 24 | 26-May-17 | 13-Jun-18 | 109 | 75% |
| **TX Room** | | | | | | |
| DS.CSD180 | Prepare Submit CSDs from BIM model -TX room | 24 | 18-May-17 | 13-Jun-18 | 517 | 75% |
| **Southern Plant Room** | | | | | | |
| DS.CSD170 | Prepare Submit CSDs from BIM model -South Services Building | 24 | 18-May-17 | 13-Jun-18 | 517 | 75% |
| **Basement** | | | | | | |
| DS.CSD200 | Prepare Submit CSDs from BIM model Basement - Zone 04 | 24 | 07-Jun-17 | 13-Jun-18 | 109 | 75% |
| DS.CSD190 | Prepare Submit CSDs from BIM model Basement - Zone 02 | 24 | 21-Jun-17 | 13-Jun-18 | 109 | 75% |
| **Additional Prep CSD PMI 140** | | | | | | |
| OP.480 | Additional PMI 140 Prepare Ammend Submit CSDs from BIM model Basement - | 24 | 22-Jan-18 | 13-Jun-18 | 67 | 75% |
| OP.490 | Additional PMI 140 Prepare Submit CSDs from BIM model Basement - Zone 04 | 24 | 22-Jan-18 | 13-Jun-18 | 67 | 75% |
| **Level 2** | | | | | | |
| DS.CSD150 | Prepare Submit CSDs from BIM model -Level 2M Primary Zone 03 | 24 | 23-Jun-17 | 13-Jun-18 | 82 | 75% |
| DS.CSD110 | Prepare Submit CSDs from BIM model - Level 2M Primary Zone 02 | 24 | 13-Jul-17 A | 13-Jun-18 | 82 | 75% |


critical level of effort
Critical Remaining Work
Current
Milestone
Milestone
% Complete

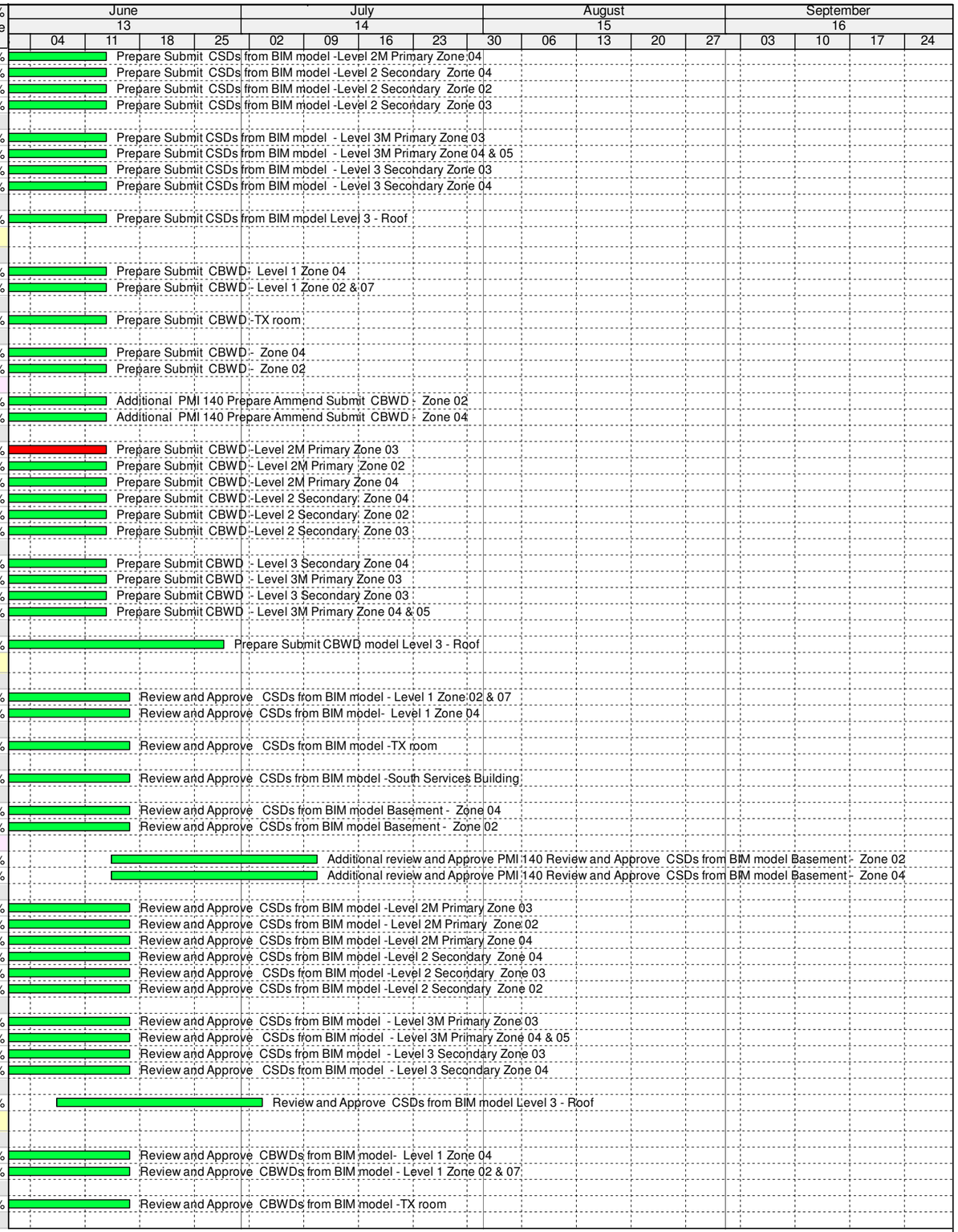
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**
Page: 2 of 17

**OCEAN PARK - TAI SHUE WAN DEVELOPMENT**
**Contract No. TSW-C006**
**3 month Look-ahead Target Program _July 2018**

Gammon

| Date | Revision | Checked | A... |
|---|---|---|---|
| 30-Apr-18 | 3M Look ahead Program | PL, LN, TT PY ME. | |
| 07-May-18 | 3M Look ahead Program | PL, LN, TT PY ME. | JA |
| 05-Jul-18 | 3M Look ahead Program (Draft) | | |

| ID | Activity | Duration | Start | Finish | Total Float | Activity % Complete |
|---|---|---|---|---|---|---|
| DS.CSD160 | Prepare Submit CSDs from BIM model -Level 2M Primary Zone 04 | 24 | 26-Jul-17 A | 13-Jun-18 | 82 | 75% |
| DS.CSD140 | Prepare Submit CSDs from BIM model -Level 2 Secondary Zone 04 | 24 | 31-Jul-17 A | 13-Jun-18 | 82 | 75% |
| DS.CSD120 | Prepare Submit CSDs from BIM model -Level 2 Secondary Zone 02 | 24 | 04-Aug-17 | 13-Jun-18 | 82 | 75% |
| DS.CSD130 | Prepare Submit CSDs from BIM model -Level 2 Secondary Zone 03 | 24 | 11-Aug-17 | 13-Jun-18 | 82 | 75% |
| **Level 3** | | | | | | |
| DS.CSD240 | Prepare Submit CSDs from BIM model - Level 3M Primary Zone 03 | 24 | 06-Jul-17 A | 13-Jun-18 | 34 | 75% |
| DS.CSD250 | Prepare Submit CSDs from BIM model - Level 3M Primary Zone 04 & 05 | 24 | 20-Jul-17 A | 13-Jun-18 | 34 | 75% |
| DS.CSD220 | Prepare Submit CSDs from BIM model - Level 3 Secondary Zone 03 | 24 | 24-Aug-17 | 13-Jun-18 | 34 | 75% |
| DS.CSD230 | Prepare Submit CSDs from BIM model - Level 3 Secondary Zone 04 | 24 | 02-Sep-17 | 13-Jun-18 | 34 | 75% |
| **Roof** | | | | | | |
| DS.CSD260 | Prepare Submit CSDs from BIM model Level 3 - Roof | 24 | 23-Sep-17 | 13-Jun-18 | 150 | 75% |
| ***Prepare CBWD*** | | | | | | |
| **Level 1** | | | | | | |
| DS.CBWD.100 | Prepare Submit CBWD- Level 1 Zone 04 | 24 | 24-May-17 | 13-Jun-18 | 109 | 75% |
| DS.CBWD.110 | Prepare Submit CBWD - Level 1 Zone 02 & 07 | 24 | 26-May-17 | 13-Jun-18 | 109 | 75% |
| **TX Room** | | | | | | |
| DS.CBWD.120 | Prepare Submit CBWD -TX room | 24 | 18-May-17 | 13-Jun-18 | 517 | 75% |
| **Basement** | | | | | | |
| DS.CBWD.140 | Prepare Submit CBWD - Zone 04 | 24 | 07-Jun-17 | 13-Jun-18 | 119 | 75% |
| DS.CBWD.150 | Prepare Submit CBWD - Zone 02 | 24 | 21-Jan-18 | 13-Jun-18 | 119 | 75% |
| **Additional Preparation PMI 140** | | | | | | |
| OP.440 | Additional PMI 140 Prepare Ammend Submit CBWD - Zone 02 | 24 | 22-Jan-18 | 13-Jun-18 | 67 | 75% |
| OP.450 | Additional PMI 140 Prepare Ammend Submit CBWD - Zone 04 | 24 | 22-Jan-18 | 13-Jun-18 | 67 | 75% |
| **Level 2** | | | | | | |
| DS.CBWD.170 | Prepare Submit CBWD -Level 2M Primary Zone 03 | 24 | 23-Jun-17 | 13-Jun-18 | -11 | 75% |
| DS.CBWD.180 | Prepare Submit CBWD - Level 2M Primary Zone 02 | 24 | 13-Jul-17 A | 13-Jun-18 | 82 | 75% |
| DS.CBWD.160 | Prepare Submit CBWD -Level 2M Primary Zone 04 | 24 | 26-Jul-17 A | 13-Jun-18 | 82 | 75% |
| DS.CBWD.210 | Prepare Submit CBWD -Level 2 Secondary Zone 04 | 24 | 31-Jul-17 A | 13-Jun-18 | 34 | 75% |
| DS.CBWD.200 | Prepare Submit CBWD -Level 2 Secondary Zone 02 | 24 | 04-Aug-17 | 13-Jun-18 | 82 | 75% |
| DS.CBWD.190 | Prepare Submit CBWD -Level 2 Secondary Zone 03 | 24 | 11-Aug-17 | 13-Jun-18 | 82 | 75% |
| **Level 3** | | | | | | |
| DS.CBWD.260 | Prepare Submit CBWD - Level 3 Secondary Zone 04 | 24 | 06-Jul-17 A | 13-Jun-18 | 34 | 75% |
| DS.CBWD.220 | Prepare Submit CBWD - Level 3M Primary Zone 03 | 24 | 20-Jul-17 A | 13-Jun-18 | 34 | 75% |
| DS.CBWD.250 | Prepare Submit CBWD - Level 3 Secondary Zone 03 | 24 | 24-Aug-17 | 13-Jun-18 | 34 | 75% |
| DS.CBWD.230 | Prepare Submit CBWD - Level 3M Primary Zone 04 & 05 | 24 | 02-Sep-17 | 13-Jun-18 | 34 | 75% |
| **Roof** | | | | | | |
| DS.CBWD.240 | Prepare Submit CBWD model Level 3 - Roof | 24 | 31-May-18 | 28-Jun-18 | 153 | 0% |
| ***Review and Approval-CSD*** | | | | | | |
| **Level 1** | | | | | | |
| DS.CSD.RA110 | Review and Approve CSDs from BIM model - Level 1 Zone 02 & 07 | 21 | 05-Jun-17 | 16-Jun-18 | 106 | 75% |
| DS.CSD.RA100 | Review and Approve CSDs from BIM model- Level 1 Zone 04 | 21 | 06-Jun-17 | 16-Jun-18 | 106 | 75% |
| **TX Room** | | | | | | |
| DS.CSD.RA120 | Review and Approve CSDs from BIM model -TX room | 21 | 16-Jun-17 | 16-Jun-18 | 514 | 75% |
| **Southern Plant Room** | | | | | | |
| DS.CSD.RA130 | Review and Approve CSDs from BIM model -South Services Building | 21 | 23-Jun-17 | 16-Jun-18 | 514 | 75% |
| **Basement** | | | | | | |
| DS.CSD.RA140 | Review and Approve CSDs from BIM model Basement - Zone 04 | 21 | 19-Jul-17 A | 16-Jun-18 | 106 | 75% |
| DS.CSD.RA150 | Review and Approve CSDs from BIM model Basement - Zone 02 | 21 | 25-Jul-17 A | 16-Jun-18 | 106 | 75% |
| **Additional Review PMI 140** | | | | | | |
| OP.420 | Additional review and Approve PMI 140 Review and Approve CSDs from BIM moc | 21 | 14-Jun-18 | 10-Jul-18 | 67 | 0% |
| OP.430 | Additional review and Approve PMI 140 Review and Approve CSDs from BIM moc | 21 | 14-Jun-18 | 10-Jul-18 | 67 | 0% |
| **Level 2** | | | | | | |
| DS.CSD.RA170 | Review and Approve CSDs from BIM model -Level 2M Primary Zone 03 | 21 | 21-Jul-17 A | 16-Jun-18 | 79 | 75% |
| DS.CSD.RA180 | Review and Approve CSDs from BIM model - Level 2M Primary Zone 02 | 21 | 04-Aug-17 | 16-Jun-18 | 79 | 75% |
| DS.CSD.RA160 | Review and Approve CSDs from BIM model -Level 2M Primary Zone 04 | 21 | 18-Aug-17 | 16-Jun-18 | 79 | 75% |
| DS.CSD.RA210 | Review and Approve CSDs from BIM model -Level 2 Secondary Zone 04 | 21 | 22-Aug-17 | 16-Jun-18 | 79 | 75% |
| DS.CSD.RA190 | Review and Approve CSDs from BIM model -Level 2 Secondary Zone 03 | 21 | 31-Aug-17 | 16-Jun-18 | 79 | 75% |
| DS.CSD.RA200 | Review and Approve CSDs from BIM model -Level 2 Secondary Zone 02 | 21 | 31-Aug-17 | 16-Jun-18 | 79 | 75% |
| **Level 3** | | | | | | |
| DS.CSD.RA220 | Review and Approve CSDs from BIM model - Level 3M Primary Zone 03 | 21 | 05-Aug-17 | 16-Jun-18 | 162 | 75% |
| DS.CSD.RA230 | Review and Approve CSDs from BIM model - Level 3M Primary Zone 04 & 05 | 21 | 05-Aug-17 | 16-Jun-18 | 162 | 75% |
| DS.CSD.RA240 | Review and Approve CSDs from BIM model - Level 3 Secondary Zone 03 | 21 | 07-Sep-17 | 16-Jun-18 | 162 | 75% |
| DS.CSD.RA250 | Review and Approve CSDs from BIM model - Level 3 Secondary Zone 04 | 21 | 13-Sep-17 | 16-Jun-18 | 162 | 75% |
| **Roof** | | | | | | |
| DS.CSD.RA260 | Review and Approve CSDs from BIM model Level 3 - Roof | 21 | 07-Jun-18 | 03-Jul-18 | 150 | 0% |
| ***Review and Approval-CBWD*** | | | | | | |
| **Level 1** | | | | | | |
| DS.CBWD.RA100 | Review and Approve CBWDs from BIM model- Level 1 Zone 04 | 21 | 18-Aug-17 | 16-Jun-18 | 106 | 75% |
| DS.CBWD.RA110 | Review and Approve CBWDs from BIM model - Level 1 Zone 02 & 07 | 21 | 22-Aug-17 | 16-Jun-18 | 106 | 75% |
| **TX Room** | | | | | | |
| DS.CBWD.RA120 | Review and Approve CBWDs from BIM model -TX room | 21 | 16-Jun-17 | 16-Jun-18 | 514 | 75% |
| **Basement** | | | | | | |




critical level of effort
Critical Remaining Work
Current
Milestone
Milestone
% Complete

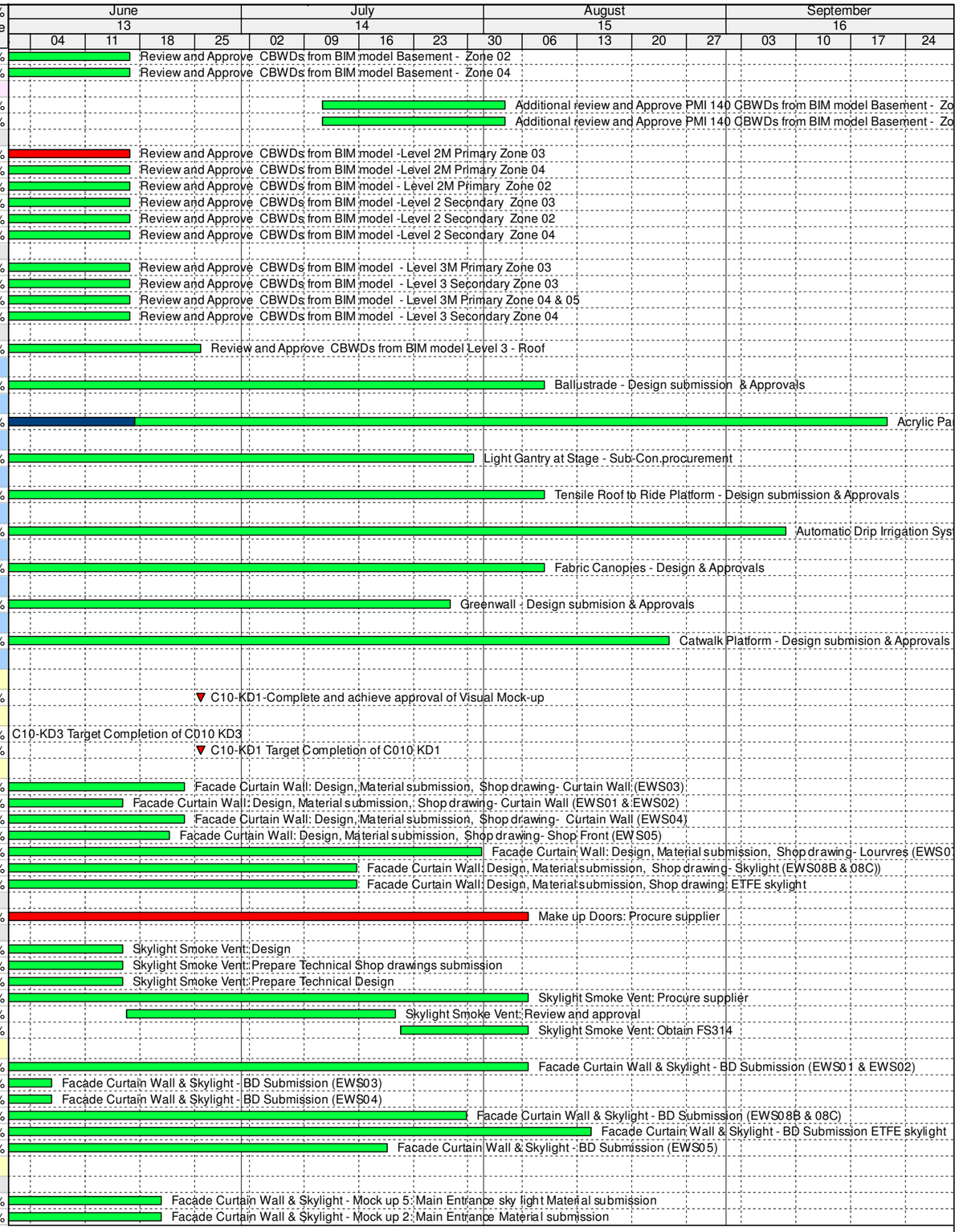
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**
Page: 3 of 17

**OCEAN PARK - TAI SHUE WAN DEVELOPMENT**
**Contract No. TSW-C006**
**3 month Look-ahead Target Program _July 2018**

Gammon

| Date | Revision | Checked | A... |
|---|---|---|---|
| 30-Apr-18 | 3M Look ahead Program | PL, LN, TT PY ME. | |
| 07-May-18 | 3M Look ahead Program | PL, LN, TT PY ME. | JA |
| 05-Jul-18 | 3M Look ahead Program (Draft) | | |

| ID | Activity | Duration | Start | Finish | Total Float | Activity % Complete |
|---|---|---|---|---|---|---|
| DS.CBWD.RA150 | Review and Approve CBWDs from BIM model Basement - Zone 02 | 21 | 18-Aug-17 | 16-Jun-18 | 106 | 75% |
| DS.CBWD.RA140 | Review and Approve CBWDs from BIM model Basement - Zone 04 | 21 | 15-Nov-17 | 16-Jun-18 | 106 | 75% |
| **Additional Review PMI 140** | | | | | | |
| OP.400 | Additional review and Approve PMI 140 CBWDs from BIM model Basement - Zon | 21 | 11-Jul-18 | 03-Aug-18 | 67 | 0% |
| OP.410 | Additional review and Approve PMI 140 CBWDs from BIM model Basement - Zon | 21 | 11-Jul-18 | 03-Aug-18 | 67 | 0% |
| **Level 2** | | | | | | |
| DS.CBWD.RA170 | Review and Approve CBWDs from BIM model -Level 2M Primary Zone 03 | 21 | 05-Sep-17 | 16-Jun-18 | -14 | 75% |
| DS.CBWD.RA160 | Review and Approve CBWDs from BIM model -Level 2M Primary Zone 04 | 21 | 13-Sep-17 | 16-Jun-18 | 79 | 75% |
| DS.CBWD.RA180 | Review and Approve CBWDs from BIM model - Level 2M Primary Zone 02 | 21 | 13-Sep-17 | 16-Jun-18 | 79 | 75% |
| DS.CBWD.RA190 | Review and Approve CBWDs from BIM model -Level 2 Secondary Zone 03 | 21 | 24-Oct-17 | 16-Jun-18 | 79 | 75% |
| DS.CBWD.RA200 | Review and Approve CBWDs from BIM model -Level 2 Secondary Zone 02 | 21 | 24-Oct-17 | 16-Jun-18 | 79 | 75% |
| DS.CBWD.RA210 | Review and Approve CBWDs from BIM model -Level 2 Secondary Zone 04 | 21 | 24-Oct-17 | 16-Jun-18 | 79 | 75% |
| **Level 3** | | | | | | |
| DS.CBWD.RA220 | Review and Approve CBWDs from BIM model - Level 3M Primary Zone 03 | 21 | 24-Oct-17 | 16-Jun-18 | 31 | 75% |
| DS.CBWD.RA240 | Review and Approve CBWDs from BIM model - Level 3 Secondary Zone 03 | 21 | 24-Oct-17 | 16-Jun-18 | 31 | 75% |
| DS.CBWD.RA230 | Review and Approve CBWDs from BIM model - Level 3M Primary Zone 04 & 05 | 21 | 24-Oct-17 | 16-Jun-18 | 31 | 75% |
| DS.CBWD.RA250 | Review and Approve CBWDs from BIM model - Level 3 Secondary Zone 04 | 21 | 24-Oct-17 | 16-Jun-18 | 31 | 75% |
| **Roof** | | | | | | |
| DS.CBWD.RA260 | Review and Approve CBWDs from BIM model Level 3 - Roof | 21 | 31-May-18 | 25-Jun-18 | 508 | 0% |
| **Balustrade** | | | | | | |
| DS.CDBL.1110 | Ballustrade - Design submission & Approvals | 100 | 01-Sep-17 | 08-Aug-18 | 31 | 75% |
| **Acrylic Panel** | | | | | | |
| DS.CDAP.1110 | Acrylic Panel - Design submission & Approvals | 55 | 01-Sep-17 | 21-Sep-18 | 39 | 75% |
| **Light Gantry at Stage** | | | | | | |
| DS.CDLG.1130 | Light Gantry at Stage - Sub-Con.procurement | 50 | 31-May-18 | 30-Jul-18 | 239 | 0% |
| **Tensile Roof to Ride Platform** | | | | | | |
| DS.CDTR.1110 | Tensile Roof to Ride Platform - Design submission & Approvals | 66 | 15-Jun-17 | 08-Aug-18 | 70 | 75% |
| **Automatic Drip Irrigation System** | | | | | | |
| DS.CDIS.1110 | Automatic Drip Irrigation System - Design submision & Approvals | 85 | 31-May-18 | 08-Sep-18 | 100 | 0% |
| **Fabric Canopies** | | | | | | |
| DS.CDFC.1110 | Fabric Canopies - Design & Approvals | 187 | 15-Jun-17 | 08-Aug-18 | 70 | 75% |
| **Greenwall** | | | | | | |
| DS.CDGW.1150 | Greenwall - Design submision & Approvals | 72 | 01-Jun-17 | 27-Jul-18 | 75 | 75% |
| **Catwalk platform over L1 Locker room** | | | | | | |
| DS.CDCP.1150 | Catwalk Platform - Design submision & Approvals | 72 | 31-May-18 | 24-Aug-18 | 187 | 0% |
| **C010 - Facade Curtain Wall & Skylight** | | | | | | |
| ***Key Dates*** | | | | | | |
| CD.C10-KD13 | C10-KD1-Complete and achieve approval of Visual Mock-up | 0 | | 25-Jun-18* | 624 | 0% |
| ***Target Key Dates*** | | | | | | |
| CD.C10-TD33 | C10-KD3 Target Completion of C010 KD3 | 0 | | 31-May-18 | 650 | 0% |
| CD.C10-TD13 | C10-KD1 Target Completion of C010 KD1 | 0 | | 25-Jun-18 | 624 | 0% |
| ***C010 - Design and Material Submission*** | | | | | | |
| DS.DMCW1060 | Facade Curtain Wall: Design, Material submission, Shop drawing- Curtain Wall (E | 63 | 20-Mar-17 | 23-Jun-18 | 102 | 75% |
| DS.DMCW1050 | Facade Curtain Wall: Design, Material submission, Shop drawing- Curtain Wall (E | 72 | 20-Mar-17 | 15-Jun-18 | 37 | 75% |
| DS.DMCW1040 | Facade Curtain Wall: Design, Material submission, Shop drawing- Curtain Wall ( | 63 | 20-Mar-17 | 23-Jun-18 | 102 | 75% |
| DS.DMCW1090 | Facade Curtain Wall: Design, Material submission, Shop drawing- Shop Front (E\ | 63 | 20-Mar-17 | 21-Jun-18 | 104 | 75% |
| DS.DMCW1080 | Facade Curtain Wall: Design, Material submission, Shop drawing- Louvres (EWS | 62 | 20-Mar-17 | 31-Jul-18 | 64 | 75% |
| DS.DMCW1100 | Facade Curtain Wall: Design, Material submission, Shop drawing- Skylight (EWS | 113 | 20-Mar-17 | 15-Jul-18 | 80 | 75% |
| DS.DMCW1110 | Facade Curtain Wall: Design, Material submission, Shop drawing: ETFE skylight | 60 | 20-Mar-17 | 15-Jul-18 | 80 | 75% |
| **Make Up Doors FSD Design** | | | | | | |
| DS.DMFD100 | Make up Doors: Procure supplier | 56 | 31-May-18 | 06-Aug-18 | -57 | 0% |
| **Smoke Vent FSD Design** | | | | | | |
| DS.DMSV110 | Skylight Smoke Vent: Design | 28 | 05-May-17 | 15-Jun-18 | 48 | 0% |
| DS.DMSV130 | Skylight Smoke Vent: Prepare Technical Shop drawings submission | 28 | 05-May-17 | 15-Jun-18 | 48 | 0% |
| DS.DMSV120 | Skylight Smoke Vent: Prepare Technical Design | 28 | 05-May-17 | 15-Jun-18 | 48 | 0% |
| DS.DMSV100 | Skylight Smoke Vent: Procure supplier | 56 | 31-May-18 | 06-Aug-18 | 473 | 0% |
| DS.DMSV140 | Skylight Smoke Vent: Review and approval | 28 | 16-Jun-18 | 20-Jul-18 | 48 | 0% |
| DS.DMSV150 | Skylight Smoke Vent: Obtain FS314 | 14 | 21-Jul-18 | 06-Aug-18 | 48 | 0% |
| ***C010 - BD Submission*** | | | | | | |
| DS.DMBD1000 | Facade Curtain Wall & Skylight - BD Submission (EWS01 & EWS02) | 138 | 20-Mar-17 | 06-Aug-18 | 58 | 0% |
| DS.DMBD1010 | Facade Curtain Wall & Skylight - BD Submission (EWS03) | 138 | 20-Mar-17 | 06-Jun-18 | 119 | 0% |
| DS.DMBD1020 | Facade Curtain Wall & Skylight - BD Submission (EWS04) | 138 | 20-Mar-17 | 06-Jun-18 | 119 | 0% |
| DS.DMBD1040 | Facade Curtain Wall & Skylight - BD Submission (EWS08B & 08C) | 163 | 20-Mar-17 | 29-Jul-18 | 66 | 0% |
| DS.DMBD1060 | Facade Curtain Wall & Skylight - BD Submission ETFE skylight | 138 | 20-Mar-17 | 14-Aug-18 | 50 | 0% |
| DS.DMBD1030 | Facade Curtain Wall & Skylight - BD Submission (EWS05) | 133 | 21-Mar-17 | 19-Jul-18 | 76 | 75% |
| ***C010 - Visual Mock Up*** | | | | | | |
| **Material submission for Visual Mock up** | | | | | | |
| DS.DMVM3030 | Facade Curtain Wall & Skylight - Mock up 5: Main Entrance sky light Material subr | 48 | 20-Mar-17 | 20-Jun-18 | 629 | 0% |
| DS.DMVM3040 | Facade Curtain Wall & Skylight - Mock up 2: Main Entrance Material submission | 48 | 20-Mar-17 | 20-Jun-18 | 629 | 0% |




critical level of effort — Critical Remaining Work
Current
Milestone
Milestone
% Complete

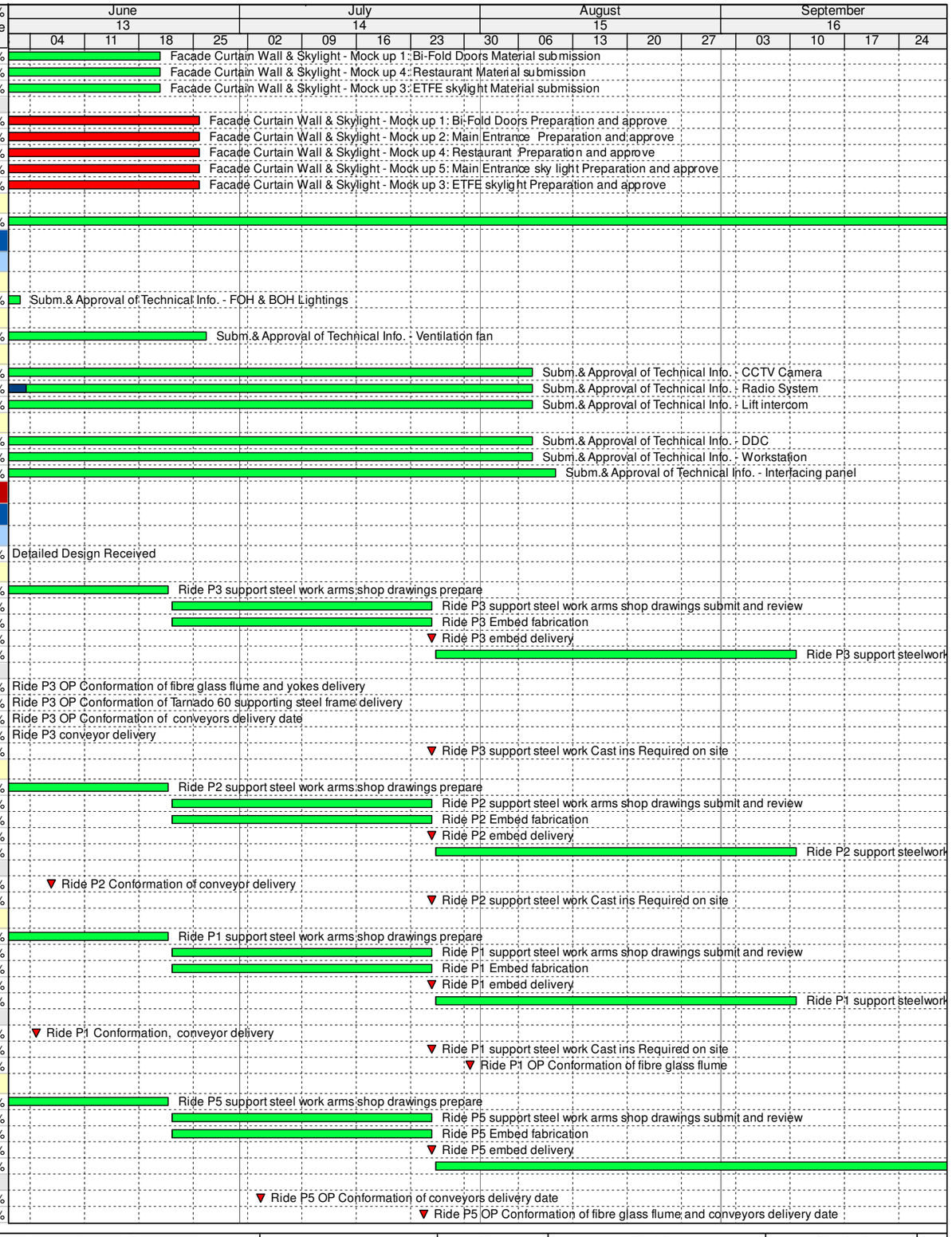
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**


**OCEAN PARK - TAI SHUE WAN DEVELOPMENT**
**Contract No. TSW-C006**
**3 month Look-ahead Target Program _July 2018**

Gammon

| Date | Revision | Checked | A... |
|---|---|---|---|
| 30-Apr-18 | 3M Look ahead Program | PL, LN, TT PY ME. | |
| 07-May-18 | 3M Look ahead Program | PL, LN, TT PY ME. | JA |
| 05-Jul-18 | 3M Look ahead Program (Draft) | | |

| ID | Activity | Duration | Start | Finish | Total Float | Activity % Complete |
|---|---|---|---|---|---|---|
| DS.DMVM3050 | Facade Curtain Wall & Skylight - Mock up 1: Bi-Fold Doors Material submission | 48 | 20-Mar-17 | 20-Jun-18 | 629 | 0% |
| DS.DMVM3060 | Facade Curtain Wall & Skylight - Mock up 4: Restaurant Material submission | 48 | 20-Mar-17 | 20-Jun-18 | 629 | 0% |
| DS.DMVM3120 | Facade Curtain Wall & Skylight - Mock up 3: ETFE skylight Material submission | 48 | 20-Mar-17 | 20-Jun-18 | 629 | 0% |
| **Preparation and submission of Visual Mock up** | | | | | | |
| DS.DMVM3070 | Facade Curtain Wall & Skylight - Mock up 1: Bi-Fold Doors Preparation and approv | 48 | 26-Jun-17 | 25-Jun-18 | -57 | 0% |
| DS.DMVM3090 | Facade Curtain Wall & Skylight - Mock up 2: Main Entrance Preparation and appro | 48 | 26-Jun-17 | 25-Jun-18 | -57 | 0% |
| DS.DMVM3100 | Facade Curtain Wall & Skylight - Mock up 4: Restaurant Preparation and approve | 48 | 26-Jun-17 | 25-Jun-18 | -57 | 0% |
| DS.DMVM3080 | Facade Curtain Wall & Skylight - Mock up 5: Main Entrance sky light Preparation a | 48 | 26-Jun-17 | 25-Jun-18 | -57 | 0% |
| DS.DMVM3140 | Facade Curtain Wall & Skylight - Mock up 3: ETFE skylight Preparation and approve | 48 | 26-Jun-17 | 25-Jun-18 | -57 | 0% |
| ***C010 - Fabrication and Delivery*** | | | | | | |
| DS.DMFD1000 | Facade Curtain Wall & Skylight - Material Fabricate, Assemble & Deliver | 250 | 31-May-18* | 04-Feb-19 | 37 | 0% |
| ***E&M Major Equipment / Material*** | | | | | | |
| **Preliminary, Material Submission** | | | | | | |
| ***Electrical*** | | | | | | |
| EM.PD002051 | Subm.& Approval of Technical Info. - FOH & BOH Lightings | 60 | 03-Jun-17 | 02-Jun-18 | 154 | 95% |
| ***HVAC*** | | | | | | |
| EM.PD001011 | Subm.& Approval of Technical Info. - Ventilation fan | 60 | 20-May-17 | 26-Jun-18 | 99 | 90% |
| ***ELV*** | | | | | | |
| EM.PD005001 | Subm.& Approval of Technical Info. - CCTV Camera | 60 | 10-Aug-17 | 07-Aug-18 | 296 | 40% |
| EM.PD005003 | Subm.& Approval of Technical Info. - Radio System | 60 | 10-Aug-17 | 07-Aug-18 | 296 | 82% |
| EM.PD005005 | Subm.& Approval of Technical Info. - Lift intercom | 60 | 10-Aug-17 | 07-Aug-18 | 296 | 40% |
| ***CCMS*** | | | | | | |
| EM.PD006002 | Subm.& Approval of Technical Info. - DDC | 60 | 28-Jun-17 | 07-Aug-18 | 295 | 40% |
| EM.PD006001 | Subm.& Approval of Technical Info. - Workstation | 60 | 17-Aug-17 | 07-Aug-18 | 325 | 40% |
| EM.PD006003 | Subm.& Approval of Technical Info. - Interfacing panel | 60 | 31-May-18 | 10-Aug-18 | 292 | 0% |
| **PROCUREMENT** | | | | | | |
| ***Ride Procurement*** | | | | | | |
| **STEELWORK** | | | | | | |
| NEW00020 | Detailed Design Received | 0 | 31-May-18* | | 8 | 0% |
| ***Ride P3*** | | | | | | |
| RSW.SD.1210 | Ride P3 support steel work arms shop drawings prepare | 18 | 31-May-18 | 21-Jun-18 | 49 | 0% |
| RSW.SD.1220 | Ride P3 support steel work arms shop drawings submit and review | 28 | 22-Jun-18 | 25-Jul-18 | 58 | 0% |
| RSW.SD.1250 | Ride P3 Embed fabrication | 28 | 22-Jun-18 | 25-Jul-18 | 49 | 0% |
| RSW.SD.1260 | Ride P3 embed delivery | 0 | | 25-Jul-18 | 49 | 0% |
| RSW.SD.1230 | Ride P3 support steelwork arms fabrication | 40 | 26-Jul-18 | 10-Sep-18 | 58 | 0% |
| **Target Dates** | | | | | | |
| PR.R03.1020 | Ride P3 OP Conformation of fibre glass flume and yokes delivery | 0 | | 31-May-18 | 48 | 0% |
| PR.R03.1025 | Ride P3 OP Conformation of Tarnado 60 supporting steel frame delivery | 0 | | 31-May-18 | 48 | 0% |
| PR.R03.1050 | Ride P3 OP Conformation of conveyors delivery date | 0 | | 31-May-18 | 115 | 0% |
| PR.R03.1060 | Ride P3 conveyor delivery | 0 | | 31-May-18 | 115 | 0% |
| RSW.SD.1390 | Ride P3 support steel work Cast ins Required on site | 0 | | 25-Jul-18 | 49 | 0% |
| ***Ride P2*** | | | | | | |
| RSW.SD.1150 | Ride P2 support steel work arms shop drawings prepare | 18 | 31-May-18 | 21-Jun-18 | 63 | 0% |
| RSW.SD.1160 | Ride P2 support steel work arms shop drawings submit and review | 28 | 22-Jun-18 | 25-Jul-18 | 63 | 0% |
| RSW.SD.1480 | Ride P2 Embed fabrication | 28 | 22-Jun-18 | 25-Jul-18 | 89 | 0% |
| RSW.SD.1490 | Ride P2 embed delivery | 0 | | 25-Jul-18 | 89 | 0% |
| RSW.SD.1170 | Ride P2 support steelwork arms fabrication | 40 | 26-Jul-18 | 10-Sep-18 | 63 | 0% |
| **Target Dates** | | | | | | |
| PR.R02.1050 | Ride P2 Conformation of conveyor delivery | 0 | | 06-Jun-18 | 88 | 0% |
| RSW.SD.1410 | Ride P2 support steel work Cast ins Required on site | 0 | | 25-Jul-18 | 89 | 0% |
| ***Ride P1*** | | | | | | |
| RSW.SD.1090 | Ride P1 support steel work arms shop drawings prepare | 18 | 31-May-18 | 21-Jun-18 | 24 | 0% |
| RSW.SD.1100 | Ride P1 support steel work arms shop drawings submit and review | 28 | 22-Jun-18 | 25-Jul-18 | 24 | 0% |
| RSW.SD.1500 | Ride P1 Embed fabrication | 28 | 22-Jun-18 | 25-Jul-18 | 54 | 0% |
| RSW.SD.1510 | Ride P1 embed delivery | 0 | | 25-Jul-18 | 54 | 0% |
| RSW.SD.1110 | Ride P1 support steelwork arms fabrication | 40 | 26-Jul-18 | 10-Sep-18 | 24 | 0% |
| **Target Dates** | | | | | | |
| OP.1850 | Ride P1 Conformation, conveyor delivery | 0 | | 04-Jun-18 | 35 | 0% |
| RSW.SD.1430 | Ride P1 support steel work Cast ins Required on site | 0 | | 25-Jul-18 | 54 | 0% |
| PR.R01.1020 | Ride P1 OP Conformation of fibre glass flume | 0 | | 30-Jul-18 | 14 | 0% |
| ***Ride P5*** | | | | | | |
| RSW.SD.1330 | Ride P5 support steel work arms shop drawings prepare | 18 | 31-May-18 | 21-Jun-18 | 8 | 0% |
| RSW.SD.1340 | Ride P5 support steel work arms shop drawings submit and review | 28 | 22-Jun-18 | 25-Jul-18 | 8 | 0% |
| RSW.SD.1520 | Ride P5 Embed fabrication | 28 | 22-Jun-18 | 25-Jul-18 | 61 | 0% |
| RSW.SD.1530 | Ride P5 embed delivery | 0 | | 25-Jul-18 | 61 | 0% |
| RSW.SD.1350 | Ride P5 support steelwork arms fabrication | 60 | 26-Jul-18 | 05-Oct-18 | 8 | 0% |
| **Target Dates** | | | | | | |
| PR.R045.1060 | Ride P5 OP Conformation of conveyors delivery date | 0 | | 03-Jul-18 | 0 | 0% |
| PR.R045.1020 | Ride P5 OP Conformation of fibre glass flume and conveyors delivery date | 0 | | 24-Jul-18 | 0 | 0% |




critical level of effort — Critical Remaining Work
Current
Milestone
Milestone
% Complete

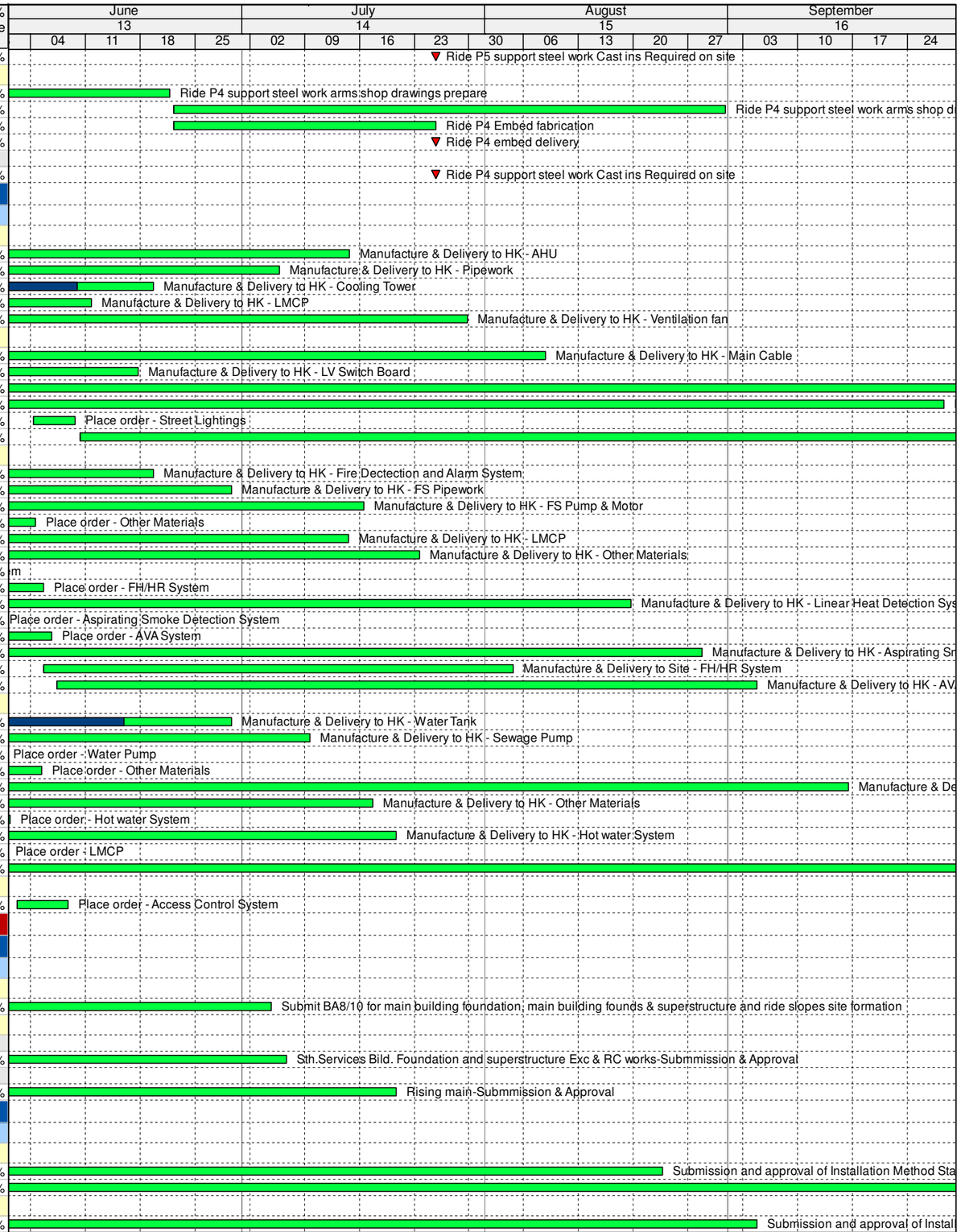
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**
Page: 5 of 17

**OCEAN PARK - TAI SHUE WAN DEVELOPMENT**
**Contract No. TSW-C006**
**3 month Look-ahead Target Program _July 2018**

Gammon

| Date | Revision | Checked | A... |
|---|---|---|---|
| 30-Apr-18 | 3M Look ahead Program | PL, LN, TT PY ME. | |
| 07-May-18 | 3M Look ahead Program | PL, LN, TT PY ME. | JA |
| 05-Jul-18 | 3M Look ahead Program (Draft) | | |

| ID | Activity | Duration | Start | Finish | Total Float | Activity % Complete |
|---|---|---|---|---|---|---|
| RSW.SD.1450 | Ride P5 support steel work Cast ins Required on site | 0 | | 25-Jul-18 | 61 | 0% |
| ***Ride P4*** | | | | | | |
| RSW.SD.1270 | Ride P4 support steel work arms shop drawings prepare | 18 | 31-May-18 | 21-Jun-18 | 56 | 0% |
| RSW.SD.1280 | Ride P4 support steel work arms shop drawings submit and review | 60 | 22-Jun-18 | 31-Aug-18 | 56 | 0% |
| RSW.SD.1540 | Ride P4 Embed fabrication | 28 | 22-Jun-18 | 25-Jul-18 | 91 | 0% |
| RSW.SD.1550 | Ride P4 embed delivery | 0 | | 25-Jul-18 | 91 | 0% |
| **Target Dates** | | | | | | |
| RSW.SD.1470 | Ride P4 support steel work Cast ins Required on site | 0 | | 25-Jul-18 | 91 | 0% |
| ***E&M Procurement*** | | | | | | |
| **Procurement, Manufacture & Delivery** | | | | | | |
| ***HVAC*** | | | | | | |
| EM.PM001011 | Manufacture & Delivery to HK - AHU | 181 | 29-Sep-17 | 14-Jul-18 | 605 | 75% |
| EM.PM001111 | Manufacture & Delivery to HK - Pipework | 120 | 15-Nov-17 | 05-Jul-18 | 614 | 70% |
| EM.PM001091 | Manufacture & Delivery to HK - Cooling Tower | 117 | 06-Dec-17 | 19-Jun-18 | 208 | 95% |
| EM.PM001071 | Manufacture & Delivery to HK - LMCP | 62 | 15-Dec-17 | 11-Jun-18 | 351 | 80% |
| EM.PM001021 | Manufacture & Delivery to HK - Ventilation fan | 100 | 30-Jan-18 | 29-Jul-18 | 590 | 50% |
| ***Electrical*** | | | | | | |
| EM.PM002041 | Manufacture & Delivery to HK - Main Cable | 135 | 13-Dec-17 | 08-Aug-18 | 65 | 50% |
| EM.PM002011 | Manufacture & Delivery to HK - LV Switch Board | 90 | 11-Feb-18 | 17-Jun-18 | 72 | 80% |
| EM.PM002061 | Manufacture & Delivery to HK - FOH & BOH Lightings | 135 | 31-May-18 | 12-Oct-18 | 515 | 0% |
| EM.PM002071 | Manufacture & Delivery to HK - Uninterruptible Power Supply | 121 | 31-May-18 | 28-Sep-18 | 529 | 0% |
| EM.PM002050 | Place order - Street Lightings | 6 | 04-Jun-18 | 09-Jun-18 | 154 | 0% |
| EM.PM002051 | Manufacture & Delivery to HK - Street Lightings | 135 | 10-Jun-18 | 22-Oct-18 | 186 | 0% |
| ***Fire Services*** | | | | | | |
| EM.PM003041 | Manufacture & Delivery to HK - Fire Dectection and Alarm System | 90 | 06-Dec-17 | 19-Jun-18 | 220 | 90% |
| EM.PM003021 | Manufacture & Delivery to HK - FS Pipework | 60 | 02-Feb-18 | 29-Jun-18 | 160 | 50% |
| EM.PM003011 | Manufacture & Delivery to HK - FS Pump & Motor | 93 | 07-Mar-18 | 16-Jul-18 | 226 | 50% |
| EM.PM003060 | Place order - Other Materials | 6 | 15-Mar-18 | 04-Jun-18 | 525 | 40% |
| EM.PM003051 | Manufacture & Delivery to HK - LMCP | 89 | 16-Mar-18 | 14-Jul-18 | 606 | 50% |
| EM.PM003061 | Manufacture & Delivery to HK - Other Materials | 60 | 30-Mar-18 | 23-Jul-18 | 596 | 10% |
| EM.PM003090 | Place order - Linear Heat Detection System | 6 | 02-May-18 | 02-May-18 | | 100% |
| EM.PM003030 | Place order - FH/HR System | 6 | 15-May-18 | 05-Jun-18 | 476 | 20% |
| EM.PM003091 | Manufacture & Delivery to HK - Linear Heat Detection System | 90 | 15-May-18 | 19-Aug-18 | 569 | 10% |
| EM.PM003080 | Place order - Aspirating Smoke Detection System | 6 | 31-May-18 | 31-May-18 | | 100% |
| EM.PM003070 | Place order - AVA System | 6 | 31-May-18 | 06-Jun-18 | 452 | 0% |
| EM.PM003081 | Manufacture & Delivery to HK - Aspirating Smoke Detection System | 90 | 31-May-18 | 28-Aug-18 | 560 | 0% |
| EM.PM003031 | Manufacture & Delivery to Site - FH/HR System | 60 | 05-Jun-18 | 04-Aug-18 | 584 | 0% |
| EM.PM003071 | Manufacture & Delivery to HK - AVA Sytem | 90 | 07-Jun-18 | 04-Sep-18 | 553 | 0% |
| ***Plumbing & Drainage*** | | | | | | |
| EM.PM004041 | Manufacture & Delivery to HK - Water Tank | 167 | 27-Sep-17 | 29-Jun-18 | 217 | 95% |
| EM.PM004021 | Manufacture & Delivery to HK - Sewage Pump | 155 | 17-Oct-17 | 09-Jul-18 | 207 | 80% |
| EM.PM004010 | Place order - Water Pump | 6 | 10-Mar-18 | 31-May-18 | 529 | 95% |
| EM.PM004060 | Place order - Other Materials | 6 | 10-Mar-18 | 05-Jun-18 | 525 | 30% |
| EM.PM004011 | Manufacture & Delivery to HK - Water Pump | 155 | 21-Mar-18 | 16-Sep-18 | 139 | 30% |
| EM.PM004061 | Manufacture & Delivery to HK - Other Materials | 60 | 21-Mar-18 | 17-Jul-18 | 602 | 20% |
| EM.PM004070 | Place order - Hot water System | 6 | 15-May-18 | 01-Jun-18 | 528 | 80% |
| EM.PM004071 | Manufacture & Delivery to HK - Hot water System | 60 | 23-May-18 | 20-Jul-18 | 196 | 15% |
| EM.PM004050 | Place order - LMCP | 6 | 31-May-18 | 31-May-18 | | 100% |
| EM.PM004051 | Manufacture & Delivery to HK - LMCP | 150 | 31-May-18 | 27-Oct-18 | 500 | 0% |
| ***ELV*** | | | | | | |
| EM.PM005020 | Place order - Access Control System | 6 | 02-Jun-18 | 08-Jun-18 | 353 | 0% |
| **PRELIMINARIES** | | | | | | |
| ***Submission*** | | | | | | |
| **General** | | | | | | |
| ***Structure Foundation, Main Building Superstructure (all areas) & Slope Formation Works*** | | | | | | |
| PR.GEN.1060 | Submit BA8/10 for main building foundation, main building founds & superstructur | 28 | 31-May-18 | 04-Jul-18 | 501 | 0% |
| ***Method Statements (Initial submissions)*** | | | | | | |
| **Southern Plant Area** | | | | | | |
| PR.SMS.1010 | Sth.Services Bild. Foundation and superstructure Exc & RC works-Submmission & | 30 | 31-May-18 | 06-Jul-18 | 499 | 0% |
| **Rising Main** | | | | | | |
| PR.SMS.1030 | Rising main-Submmission & Approval | 42 | 31-May-18 | 20-Jul-18 | 86 | 0% |
| ***E&M Submission*** | | | | | | |
| **Drawing and Method Statement** | | | | | | |
| ***ACMV*** | | | | | | |
| EM.DM001002 | Submission and approval of Installation Method Statement | 120 | 03-Feb-17 | 23-Aug-18 | 565 | 62% |
| EM.DM001001 | Submission and approval of Drawings | 130 | 28-Apr-17 | 09-Oct-18 | 420 | 53% |
| ***Electrical*** | | | | | | |
| EM.DM002002 | Submission and approval of Installation Method Statement | 120 | 05-Feb-17 | 04-Sep-18 | 553 | 33% |




critical level of effort — Critical Remaining Work
Current
Milestone
Milestone
% Complete

Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**
Page: 6 of 17

**OCEAN PARK - TAI SHUE WAN DEVELOPMENT**
**Contract No. TSW-C006**
**3 month Look-ahead Target Program _July 2018**

Gammon

| Date | Revision | Checked | A... |
|---|---|---|---|
| 30-Apr-18 | 3M Look ahead Program | PL, LN, TT PY ME. | |
| 07-May-18 | 3M Look ahead Program | PL, LN, TT PY ME. | JA |
| 05-Jul-18 | 3M Look ahead Program (Draft) | | |

| ID | Activity | Duration | Start | Finish | Total Float | Activity % Complete |
|---|---|---|---|---|---|---|
| EM.DM002001 | Submission and approval of Drawings | 130 | 07-May-17 | 21-Sep-18 | 433 | 64% |
| ***Fire Services*** | | | | | | |
| EM.DM003002 | Submission and approval of Installation Method Statement | 120 | 22-Feb-17 | 16-Sep-18 | 541 | 20% |
| EM.DM003001 | Submission and approval of Drawings | 130 | 15-May-17 | 29-Aug-18 | 453 | 73% |
| ***Plumbing & Drainage*** | | | | | | |
| EM.DM004002 | Submission and approval of Installation Method Statement | 120 | 13-Mar-17 | 10-Sep-18 | 547 | 25% |
| EM.DM004001 | Submission and approval of Drawings | 130 | 16-May-17 | 06-Sep-18 | 446 | 63% |
| ***ELV*** | | | | | | |
| EM.DM005001 | Submission and approval of Drawings | 120 | 31-Jul-17 A | 22-Oct-18 | 410 | 78% |
| EM.DM005002 | Submission and approval of Installation Method Statement | 90 | 28-Sep-17 | 01-Sep-18 | 556 | 10% |
| ***CCMS*** | | | | | | |
| EM.DM4001 | Submission and approval of Drawings | 110 | 31-Jul-17 A | 18-Oct-18 | 413 | 5% |
| EM.DM4011 | Submission and approval of Installation Method Statement | 90 | 31-May-18 | 28-Aug-18 | 560 | 0% |
| **SLOPE WORKS -SITE FORMATION** | | | | | | |
| ***Tower Crane*** | | | | | | |
| **TC5** | | | | | | |
| PR.STC5.5140 | TC5 - Tower Crane in Use | 151 | 06-Aug-17 | 22-Oct-18 | 98 | 0% |
| **TC2** | | | | | | |
| PR.STC2.2140 | TC2 - Tower Crane in Use | 283 | 08-Jul-17 A | 29-Apr-19 | -29 | 0% |
| **TC4** | | | | | | |
| PR.STC4.4140 | TC4 - Tower Crane in Use | 200 | 06-Jul-17 A | 07-Jan-19 | 41 | 0% |
| **TC1** | | | | | | |
| PR.STC1.1130 | TC1 - Tower Crane in Use | 278 | 02-Aug-17 | 18-Apr-19 | 50 | 0% |
| **TC3 (Mobile Crane)** | | | | | | |
| PR.STC3.3170 | MC1 - Excavate for Steel Platform | 5 | 31-May-18 | 05-Jun-18 | 73 | 0% |
| PR.STC3.3120 | MC1 - Construct Steel Platform | 18 | 06-Jun-18 | 04-Jul-18 | 74 | 0% |
| PR.STC3.3130 | MC1-Mobilize Crane & Commission | 6 | 05-Jul-18 | 12-Jul-18 | 70 | 0% |
| PR.STC3.3140 | MC1 - in Use | 291 | 13-Jul-18 | 23-Jul-19 | 97 | 0% |
| ***Mobile Crane Platform*** | | | | | | |
| OP.2490 | Platform design submision and approval | 12 | 31-May-18 | 13-Jun-18 | -1 | 0% |
| OP.2500 | Platform BD design Approval | 48 | 14-Jun-18 | 10-Aug-18 | -1 | 0% |
| ***Slope Works for Rides*** | | | | | | |
| **Ride P1** | | | | | | |
| ***Phase 1A-1*** | | | | | | |
| FM.P1.1A-1a.310 | Zone 1A-1a: Excavate rock from 16 mPD to 14.2 mPD | 15 | 15-May-18 | 09-Jun-18 | 102 | 50% |
| FM.P1.1A-1a.190 | Zone 1A-1a: Excavate rock from 20 mPD to 18 mPD | 17 | 31-May-18 | 20-Jun-18 | 497 | 0% |
| NEW.1A.0110 | Zone 1A-1a: Complete +26mpd to 14.2mPD | 0 | | 15-Jun-18 | 97 | 0% |
| FM.P1.1A-1a.230 | Zone 1A-1a: Excavate rock from 18 mPD to 16 mPD | 18 | 19-Jun-18 | 10-Jul-18 | 497 | 0% |
| **Zone 1A-1B** | | | | | | |
| NEW.1A.0020 | Zone 1A-1b: Resolve Design Issues incl. 22KV & Thoroughfare | 6 | 12-Dec-17 | 09-Jul-18 | 497 | 0% |
| NEW.1A.0040 | Zone 1A-1b: Platform +16.20mPD - +16.6mPD to +16.2mPD (Rock Dowels) | 14 | 15-May-18 | 08-Jun-18 | 79 | 50% |
| **Zone 1A-1C** | | | | | | |
| NEW.1A.0090 | Zone 1A-1c: Platform +13.20mPD - +15.7mPD to +13.7mPD (Rock Dowels) | 14 | 08-Mar-18 | 31-May-18 | 62 | 50% |
| NEW.1A.0095 | Zone 1A-1c: Platform +13.70mPD - +13.7mPD to +13.2mPD (Rock Dowels) | 14 | 31-May-18 | 15-Jun-18 | 62 | 0% |
| ***Phase 1B*** | | | | | | |
| **Phase 1B-1** | | | | | | |
| FM.P1.1B-1.220 | Zone 1B-1: Excavate soil and rock from 29.7 mPD to 28.5 mPD | 13 | 12-Oct-17 | 14-Jun-18 | -9 | 50% |
| NEW.1B.0020 | Zone 1B-1: Redesign and site formation Amendment | 6 | 17-Dec-17 | 11-Jun-18 | -6 | 0% |
| NEW.1B.0050 | Zone 1B-1: Platform +27.00mPD - +31.5mPD to +29.5mPD (Rock Dowels) | 14 | 15-Jun-18 | 03-Jul-18 | -9 | 0% |
| NEW.1B.0060 | Zone 1B-1: Platform +27.00mPD - +29.5mPD to +27.5mPD (Rock Dowels) | 14 | 04-Jul-18 | 19-Jul-18 | -9 | 0% |
| NEW.1B.0070 | Zone 1B-1: Platform +27.00mPD - +27.5mPD to +27.0mPD (Rock Dowels) | 14 | 20-Jul-18 | 04-Aug-18 | -9 | 0% |
| **Phase 1B-2** | | | | | | |
| **Additional Buttress wall (RFI 1291)** | | | | | | |
| OP.2400 | Buttress wall formation | 145 | 18-Apr-18 | 21-Nov-18 | -30 | 10% |
| ***Phase 1A-2*** | | | | | | |
| FM.P1.1A-2.220 | Zone 1A-2: Excavate Soil from 30.4 mPD to 28.4 mPD | 12 | 15-Nov-17 | 08-Jun-18 | 24 | 50% |
| FM.P1.1A-2.260 | Zone 1A-2: Excavate soil and rock from 28.4 mPD to 26.4 mPD | 14 | 09-Jun-18 | 26-Jun-18 | 24 | 0% |
| **Ride P5** | | | | | | |
| SF.P5.CPP120 | Phasing Plan for P5 Footing Consent: Preparation submision and approval | 48 | 31-May-18 | 27-Jul-18 | 90 | 0% |
| ***Phase 5C*** | | | | | | |
| **5C-1** | | | | | | |
| NEW.5A.1110 | Zone 5C-1: +29.90 platform - +30.3mPD to +29.9mPD (Rock Dowels) | 14 | 31-May-18 | 15-Jun-18 | 19 | 0% |
| NEW.5D.4010 | Complete Shell B Shear Key Vertical Dowels | 0 | | 30-Jul-18 | -17 | 0% |
| **5C-2** | | | | | | |
| NEW.5D.0015 | Complete Shell B Shear Key Vertical Dowels | 0 | | 30-Jul-18 | -17 | 0% |
| ***Phase 5D*** | | | | | | |
| **Additional works to Ride walkway SB5 Ammendment 11** | | | | | | |
| OP.2370 | Zone 5D-a: Excavate Soil from 23 mPD to 21 mPD (hand dig) | 28 | 31-May-18 | 04-Jul-18 | 49 | 0% |


critical level of effort
Critical Remaining Work
Current
Milestone
Milestone
% Complete

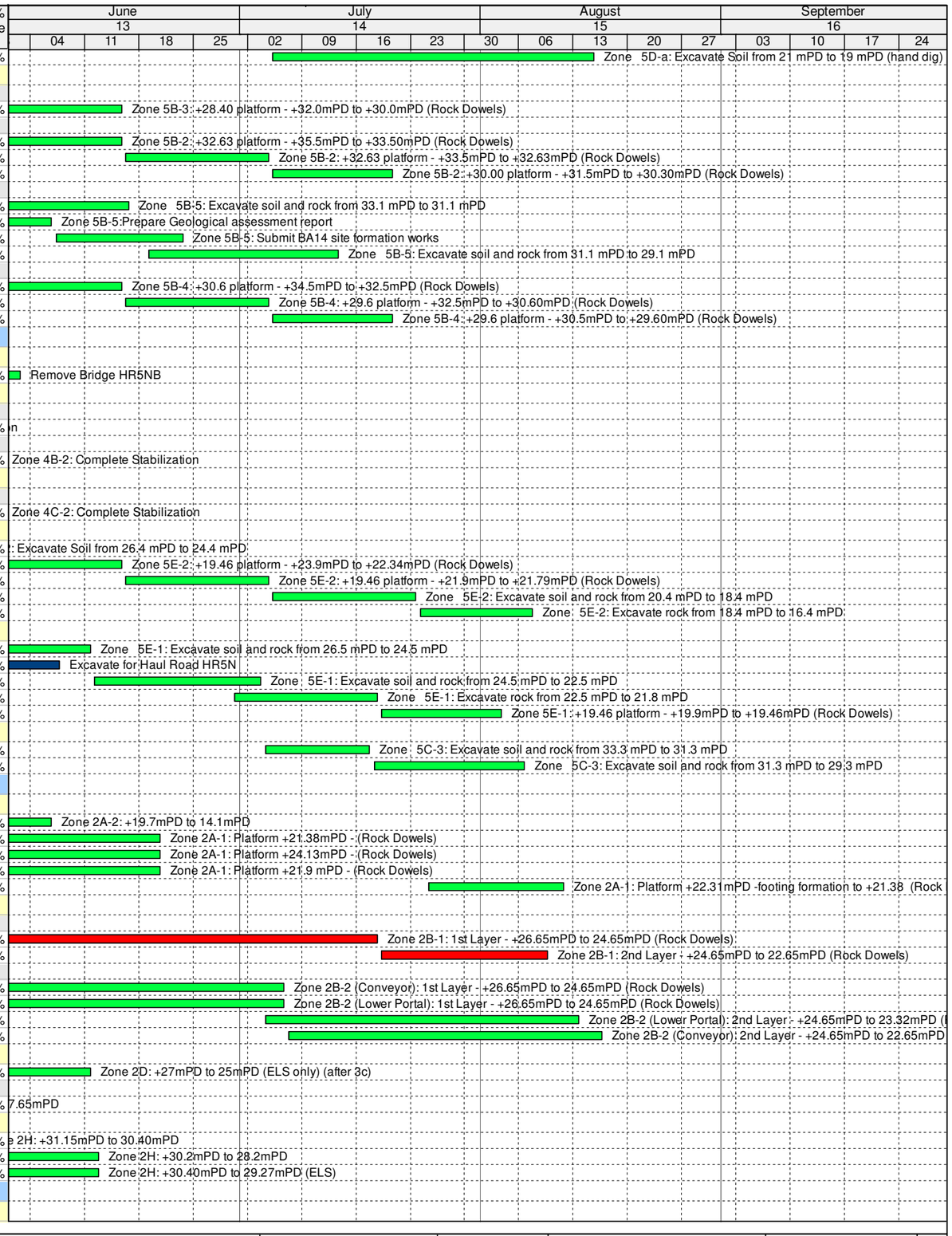
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**
Page: 7 of 17

**OCEAN PARK - TAI SHUE WAN DEVELOPMENT**
**Contract No. TSW-C006**
**3 month Look-ahead Target Program _July 2018**

Gammon

| Date | Revision | Checked | A... |
|---|---|---|---|
| 30-Apr-18 | 3M Look ahead Program | PL, LN, TT PY ME. | |
| 07-May-18 | 3M Look ahead Program | PL, LN, TT PY ME. | JA |
| 05-Jul-18 | 3M Look ahead Program (Draft) | | |

| ID | Activity | Duration | Start | Finish | Total Float | Activity % Complete |
|---|---|---|---|---|---|---|
| OP.2380 | Zone 5D-a: Excavate Soil from 21 mPD to 19 mPD (hand dig) | 36 | 05-Jul-18 | 15-Aug-18 | 49 | 0% |
| ***Phase 5B*** | | | | | | |
| **5B-3** | | | | | | |
| NEW.5B.0055 | Zone 5B-3: +28.40 platform - +32.0mPD to +30.0mPD (Rock Dowels) | 14 | 31-May-18 | 15-Jun-18 | 103 | 0% |
| **5B-2** | | | | | | |
| NEW.5A.1140 | Zone 5B-2: +32.63 platform - +35.5mPD to +33.50mPD (Rock Dowels) | 14 | 31-May-18 | 15-Jun-18 | 89 | 0% |
| NEW.5A.1150 | Zone 5B-2: +32.63 platform - +33.5mPD to +32.63mPD (Rock Dowels) | 14 | 16-Jun-18* | 04-Jul-18 | 89 | 0% |
| NEW.5A.1160 | Zone 5B-2: +30.00 platform - +31.5mPD to +30.30mPD (Rock Dowels) | 14 | 05-Jul-18 | 20-Jul-18 | 89 | 0% |
| **5B-5** | | | | | | |
| FM.P5.5B-5.110 | Zone 5B-5: Excavate soil and rock from 33.1 mPD to 31.1 mPD | 15 | 31-May-18 | 16-Jun-18 | 81 | 0% |
| FM.P5.5B-5.140 | Zone 5B-5:Prepare Geological assessment report | 6 | 31-May-18 | 06-Jun-18 | 97 | 0% |
| FM.P5.5B-5.150 | Zone 5B-5: Submit BA14 site formation works | 14 | 07-Jun-18 | 23-Jun-18 | 97 | 0% |
| FM.P5.5B-5.120 | Zone 5B-5: Excavate soil and rock from 31.1 mPD to 29.1 mPD | 21 | 19-Jun-18 | 13-Jul-18 | 81 | 0% |
| **5B-4** | | | | | | |
| NEW.5B.0030 | Zone 5B-4: +30.6 platform - +34.5mPD to +32.5mPD (Rock Dowels) | 14 | 31-May-18 | 15-Jun-18 | 112 | 0% |
| NEW.5B.0040 | Zone 5B-4: +29.6 platform - +32.5mPD to +30.60mPD (Rock Dowels) | 14 | 16-Jun-18 | 04-Jul-18 | 112 | 0% |
| NEW.5B.0050 | Zone 5B-4: +29.6 platform - +30.5mPD to +29.60mPD (Rock Dowels) | 14 | 05-Jul-18 | 20-Jul-18 | 112 | 0% |
| **Ride P4** | | | | | | |
| ***Temp Haul Road 5N*** | | | | | | |
| OP.2250 | Remove Bridge HR5NB | 3 | 31-May-18 | 02-Jun-18 | 526 | 0% |
| ***Phase 4B*** | | | | | | |
| **Phase 4B-1** | | | | | | |
| NEW.P4.0060 | Zone 4B-1: Complete Stabilization | 0 | | 08-May-18 | | 100% |
| **Phase 4B-2** | | | | | | |
| NEW.P4.0070 | Zone 4B-2: Complete Stabilization | 0 | | 31-May-18 | 83 | 0% |
| ***Phase 4C*** | | | | | | |
| **Phase 4C-2** | | | | | | |
| NEW.P4.0090 | Zone 4C-2: Complete Stabilization | 0 | | 31-May-18 | 83 | 0% |
| ***5E-2*** | | | | | | |
| FM.P5.5E-2.100 | Zone 5E-2: Excavate Soil from 26.4 mPD to 24.4 mPD | 12 | 09-May-18 | 23-May-18 | | 100% |
| NEW.5E.0030 | Zone 5E-2: +19.46 platform - +23.9mPD to +22.34mPD (Rock Dowels) | 14 | 24-May-18 | 15-Jun-18 | 83 | 20% |
| NEW.5E.0040 | Zone 5E-2: +19.46 platform - +21.9mPD to +21.79mPD (Rock Dowels) | 14 | 16-Jun-18 | 04-Jul-18 | 83 | 0% |
| FM.P5.5E-2.130 | Zone 5E-2: Excavate soil and rock from 20.4 mPD to 18.4 mPD | 16 | 05-Jul-18 | 23-Jul-18 | 83 | 0% |
| FM.P5.5E-2.140 | Zone 5E-2: Excavate rock from 18.4 mPD to 16.4 mPD | 13 | 24-Jul-18 | 07-Aug-18 | 83 | 0% |
| ***5E-1*** | | | | | | |
| FM.P5.5E-1.100 | Zone 5E-1: Excavate soil and rock from 26.5 mPD to 24.5 mPD | 13 | 24-May-18 | 11-Jun-18 | 3 | 0% |
| NEW.5E.2540 | Excavate for Haul Road HR5N | 4 | 24-May-18 | 07-Jun-18 | 522 | 100% |
| FM.P5.5E-1.110 | Zone 5E-1: Excavate soil and rock from 24.5 mPD to 22.5 mPD | 17 | 12-Jun-18 | 03-Jul-18 | 3 | 0% |
| FM.P5.5E-1.120 | Zone 5E-1: Excavate rock from 22.5 mPD to 21.8 mPD | 15 | 30-Jun-18 | 18-Jul-18 | 86 | 0% |
| NEW.5E.0010 | Zone 5E-1: +19.46 platform - +19.9mPD to +19.46mPD (Rock Dowels) | 14 | 19-Jul-18 | 03-Aug-18 | 86 | 0% |
| ***5C-3*** | | | | | | |
| FM.P5.5C-3.110 | Zone 5C-3: Excavate soil and rock from 33.3 mPD to 31.3 mPD | 12 | 04-Jul-18 | 17-Jul-18 | 3 | 0% |
| FM.P5.5C-3.120 | Zone 5C-3: Excavate soil and rock from 31.3 mPD to 29.3 mPD | 17 | 18-Jul-18 | 06-Aug-18 | 3 | 0% |
| **Ride P2** | | | | | | |
| ***Phase 2A*** | | | | | | |
| NEW.2A.0350 | Zone 2A-2: +19.7mPD to 14.1mPD | 6 | 17-Sep-17 | 06-Jun-18 | 523 | 0% |
| NEW.2A.0050 | Zone 2A-1: Platform +21.38mPD - (Rock Dowels) | 17 | 27-Feb-18 | 20-Jun-18 | 512 | 0% |
| NEW.2A.0020 | Zone 2A-1: Platform +24.13mPD - (Rock Dowels) | 16 | 28-Feb-18 | 20-Jun-18 | 512 | 0% |
| NEW.2A.0040 | Zone 2A-1: Platform +21.9 mPD - (Rock Dowels) | 17 | 02-Mar-18 | 20-Jun-18 | 96 | 0% |
| NEW.2A.0030 | Zone 2A-1: Platform +22.31mPD -footing formation to +21.38 (Rock Dowels) (staç | 16 | 25-Jul-18 | 11-Aug-18 | 66 | 0% |
| ***Phase 2B*** | | | | | | |
| **Zone 2B-1** | | | | | | |
| NEW.2B.0010 | Zone 2B-1: 1st Layer - +26.65mPD to 24.65mPD (Rock Dowels) | 19 | 10-Mar-18 | 18-Jul-18 | -34 | 50% |
| NEW.2B.0020 | Zone 2B-1: 2nd Layer - +24.65mPD to 22.65mPD (Rock Dowels) | 19 | 19-Jul-18 | 09-Aug-18 | -34 | 0% |
| **Zone 2B-2** | | | | | | |
| NEW.2B.0040 | Zone 2B-2 (Conveyor): 1st Layer - +26.65mPD to 24.65mPD (Rock Dowels) | 30 | 07-Mar-18 | 06-Jul-18 | 30 | 0% |
| NEW.2B.0080 | Zone 2B-2 (Lower Portal): 1st Layer - +26.65mPD to 24.65mPD (Rock Dowels) | 30 | 10-Mar-18 | 06-Jul-18 | 49 | 0% |
| NEW.2B.0090 | Zone 2B-2 (Lower Portal): 2nd Layer - +24.65mPD to 23.32mPD (Rock Dowels) | 35 | 04-Jul-18 | 13-Aug-18 | 49 | 0% |
| NEW.2B.0050 | Zone 2B-2 (Conveyor): 2nd Layer - +24.65mPD to 22.65mPD (Rock Dowels) | 35 | 07-Jul-18 | 16-Aug-18 | 30 | 0% |
| ***Phase 2C*** | | | | | | |
| NEW.2C.0060 | Zone 2D: +27mPD to 25mPD (ELS only) (after 3c) | 10 | 31-May-18 | 11-Jun-18 | 122 | 0% |
| **Zone 2C-2** | | | | | | |
| NEW.2C.0025 | Zone 2C-2: +28.2mPD to 27.65mPD | 10 | 02-May-18 | 12-May-18 | | 100% |
| ***Zone 2H*** | | | | | | |
| NEW.2C.0053 | Zone 2H: +31.15mPD to 30.40mPD | 11 | 14-May-18 | 28-May-18 | | 100% |
| NEW.2C.0050 | Zone 2H: +30.2mPD to 28.2mPD | 11 | 31-May-18* | 12-Jun-18 | 518 | 0% |
| NEW.2C.0056 | Zone 2H: +30.40mPD to 29.27mPD (ELS) | 11 | 31-May-18 | 12-Jun-18 | 111 | 0% |
| **Ride P3** | | | | | | |
| ***Phase 3C*** | | | | | | |




critical level of effort
Critical Remaining Work
Current
Milestone
Milestone
% Complete

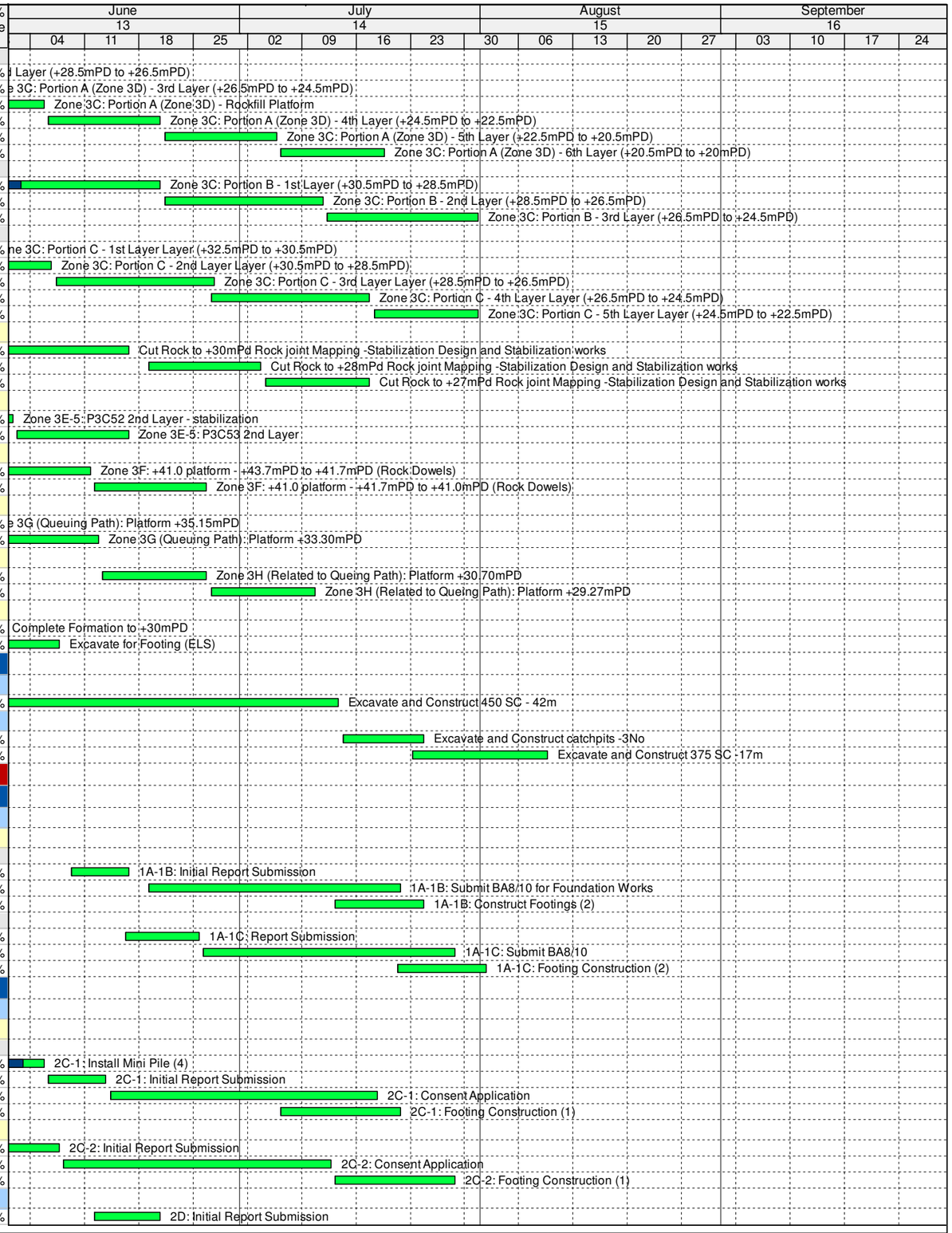
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**
Page: 8 of 17

**OCEAN PARK - TAI SHUE WAN DEVELOPMENT**
**Contract No. TSW-C006**
**3 month Look-ahead Target Program _July 2018**

Gammon

| Date | Revision | Checked | A... |
|---|---|---|---|
| 30-Apr-18 | 3M Look ahead Program | PL, LN, TT PY ME. | |
| 07-May-18 | 3M Look ahead Program | PL, LN, TT PY ME. | JA |
| 05-Jul-18 | 3M Look ahead Program (Draft) | | |

| ID | Activity | Duration | Start | Finish | Total Float | Activity % Complete |
|---|---|---|---|---|---|---|
| **Portion A** | | | | | | |
| NEW.3C.0040 | Zone 3C: Portion A (Zone 3D)- 2nd Layer (+28.5mPD to +26.5mPD) | 14 | 30-Apr-18 | 07-May-18 | | 100% |
| NEW.3C.0045 | Zone 3C: Portion A (Zone 3D) - 3rd Layer (+26.5mPD to +24.5mPD) | 14 | 07-May-18 | 28-May-18 | | 100% |
| NEW.3C.0050 | Zone 3C: Portion A (Zone 3D) - Rockfill Platform | 5 | 31-May-18 | 05-Jun-18 | 89 | 0% |
| NEW.3C.0060 | Zone 3C: Portion A (Zone 3D) - 4th Layer (+24.5mPD to +22.5mPD) | 12 | 06-Jun-18 | 20-Jun-18 | 89 | 0% |
| NEW.3C.0070 | Zone 3C: Portion A (Zone 3D) - 5th Layer (+22.5mPD to +20.5mPD) | 12 | 21-Jun-18 | 05-Jul-18 | 89 | 0% |
| NEW.3C.0080 | Zone 3C: Portion A (Zone 3D) - 6th Layer (+20.5mPD to +20mPD) | 12 | 06-Jul-18 | 19-Jul-18 | 89 | 0% |
| **Portion B** | | | | | | |
| NEW.3C.0090 | Zone 3C: Portion B - 1st Layer (+30.5mPD to +28.5mPD) | 17 | 16-May-18 | 20-Jun-18 | 32 | 50% |
| NEW.3C.0100 | Zone 3C: Portion B - 2nd Layer (+28.5mPD to +26.5mPD) | 17 | 21-Jun-18 | 11-Jul-18 | 32 | 0% |
| NEW.3C.0110 | Zone 3C: Portion B - 3rd Layer (+26.5mPD to +24.5mPD) | 17 | 12-Jul-18 | 31-Jul-18 | 32 | 0% |
| **Portion C** | | | | | | |
| NEW.3C.0160 | Zone 3C: Portion C - 1st Layer Layer (+32.5mPD to +30.5mPD) | 17 | 16-May-18 | 29-May-18 | | 100% |
| NEW.3C.0170 | Zone 3C: Portion C - 2nd Layer Layer (+30.5mPD to +28.5mPD) | 17 | 30-May-18 | 06-Jun-18 | 35 | 0% |
| NEW.3C.0180 | Zone 3C: Portion C - 3rd Layer Layer (+28.5mPD to +26.5mPD) | 17 | 07-Jun-18 | 27-Jun-18 | 35 | 0% |
| NEW.3C.0190 | Zone 3C: Portion C - 4th Layer Layer (+26.5mPD to +24.5mPD) | 17 | 27-Jun-18 | 17-Jul-18 | 35 | 0% |
| NEW.3C.0200 | Zone 3C: Portion C - 5th Layer Layer (+24.5mPD to +22.5mPD) | 12 | 18-Jul-18 | 31-Jul-18 | 35 | 0% |
| ***Phase 3D*** | | | | | | |
| SF.P3.3D1110 | Cut Rock to +30mPd Rock joint Mapping -Stabilization Design and Stabilization w | 12 | 31-May-18 | 16-Jun-18 | 100 | 0% |
| SF.P3.3D1130 | Cut Rock to +28mPd Rock joint Mapping -Stabilization Design and Stabilization w | 12 | 19-Jun-18 | 03-Jul-18 | 111 | 0% |
| SF.P3.3D1120 | Cut Rock to +27mPd Rock joint Mapping -Stabilization Design and Stabilization w | 12 | 04-Jul-18 | 17-Jul-18 | 103 | 0% |
| ***Phase 3E*** | | | | | | |
| NEW.3E.0032 | Zone 3E-5: P3C52 2nd Layer - stabilization | 2 | 29-Apr-18 | 01-Jun-18 | 100 | 50% |
| NEW.3E.0068 | Zone 3E-5: P3C53 2nd Layer | 13 | 02-Jun-18 | 16-Jun-18 | 100 | 0% |
| ***Phase 3F*** | | | | | | |
| NEW.3F.0040 | Zone 3F: +41.0 platform - +43.7mPD to +41.7mPD (Rock Dowels) | 10 | 31-May-18 | 11-Jun-18 | 51 | 0% |
| NEW.3F.0050 | Zone 3F: +41.0 platform - +41.7mPD to +41.0mPD (Rock Dowels) | 12 | 12-Jun-18 | 26-Jun-18 | 51 | 0% |
| ***Phase 3G*** | | | | | | |
| NEW.3G.0070 | Zone 3G (Queuing Path): Platform +35.15mPD | 11 | 15-May-18 | 28-May-18 | | 100% |
| NEW.3G.0080 | Zone 3G (Queuing Path): Platform +33.30mPD | 11 | 29-May-18 | 12-Jun-18 | 61 | 0% |
| ***Phase 3H*** | | | | | | |
| NEW.3H.0020 | Zone 3H (Related to Queing Path): Platform +30.70mPD | 11 | 13-Jun-18 | 26-Jun-18 | 61 | 0% |
| NEW.3H.0030 | Zone 3H (Related to Queing Path): Platform +29.27mPD | 11 | 27-Jun-18 | 10-Jul-18 | 61 | 0% |
| ***Phase 3B*** | | | | | | |
| NEW.3B.3000 | Complete Formation to +30mPD | 0 | 31-May-18* | | 85 | 0% |
| NEW.3B.3010 | Excavate for Footing (ELS) | 7 | 31-May-18 | 07-Jun-18 | 85 | 0% |
| ***Drainage Channel to Slopes*** | | | | | | |
| **P4/5** | | | | | | |
| SFD.P45.1020 | Excavate and Construct 450 SC - 42m | 36 | 31-May-18 | 13-Jul-18 | 200 | 0% |
| **P1** | | | | | | |
| SFD.P1.1000 | Excavate and Construct catchpits -3No | 9 | 14-Jul-18 | 24-Jul-18 | 200 | 0% |
| SFD.P1.1010 | Excavate and Construct 375 SC -17m | 16 | 23-Jul-18 | 09-Aug-18 | 200 | 0% |
| **RIDES - PILING & FOOTINGS** | | | | | | |
| ***Ride P1 - Giant Aquatube Slide*** | | | | | | |
| **Phase 1A-1** | | | | | | |
| ***Footing*** | | | | | | |
| **Zone 1A-1B** | | | | | | |
| NEW.1A.2500 | 1A-1B: Initial Report Submission | 7 | 09-Jun-18 | 16-Jun-18 | 79 | 0% |
| RC.P1.1A2110 | 1A-1B: Submit BA8/10 for Foundation Works | 28 | 19-Jun-18 | 21-Jul-18 | 79 | 0% |
| RC.P1.1A2140 | 1A-1B: Construct Footings (2) | 10 | 13-Jul-18 | 24-Jul-18 | 80 | 0% |
| **Zone 1A-1C** | | | | | | |
| NEW.1A.2400 | 1A-1C: Report Submission | 7 | 16-Jun-18 | 25-Jun-18 | 62 | 0% |
| NEW.1A.2410 | 1A-1C: Submit BA8/10 | 28 | 26-Jun-18 | 28-Jul-18 | 62 | 0% |
| NEW.1A.2420 | 1A-1C: Footing Construction (2) | 10 | 21-Jul-18 | 01-Aug-18 | 62 | 0% |
| ***Ride P2 - Aqua Twist Mat Races*** | | | | | | |
| **Phase 2C** | | | | | | |
| ***Minipile*** | | | | | | |
| **2C-1** | | | | | | |
| NEW.P2.3580 | 2C-1: Install Mini Pile (4) | 12 | 26-May-18 | 05-Jun-18 | 106 | 75% |
| NEW.P2.3590 | 2C-1: Initial Report Submission | 7 | 06-Jun-18 | 13-Jun-18 | 106 | 0% |
| NEW.P2.3600 | 2C-1: Consent Application | 28 | 14-Jun-18 | 18-Jul-18 | 106 | 0% |
| NEW.P2.3610 | 2C-1: Footing Construction (1) | 14 | 06-Jul-18 | 21-Jul-18 | 106 | 0% |
| ***Footing*** | | | | | | |
| NEW.P2.3400 | 2C-2: Initial Report Submission | 7 | 31-May-18 | 07-Jun-18 | 132 | 0% |
| NEW.P2.3410 | 2C-2: Consent Application | 28 | 08-Jun-18 | 12-Jul-18 | 132 | 0% |
| NEW.P2.3420 | 2C-2: Footing Construction (1) | 14 | 13-Jul-18 | 28-Jul-18 | 132 | 0% |
| **Phase 2D and 2H** | | | | | | |
| NEW.P2.2300 | 2D: Initial Report Submission | 7 | 12-Jun-18 | 20-Jun-18 | 122 | 0% |




critical level of effort
Critical Remaining Work
Current
Milestone
Milestone
% Complete

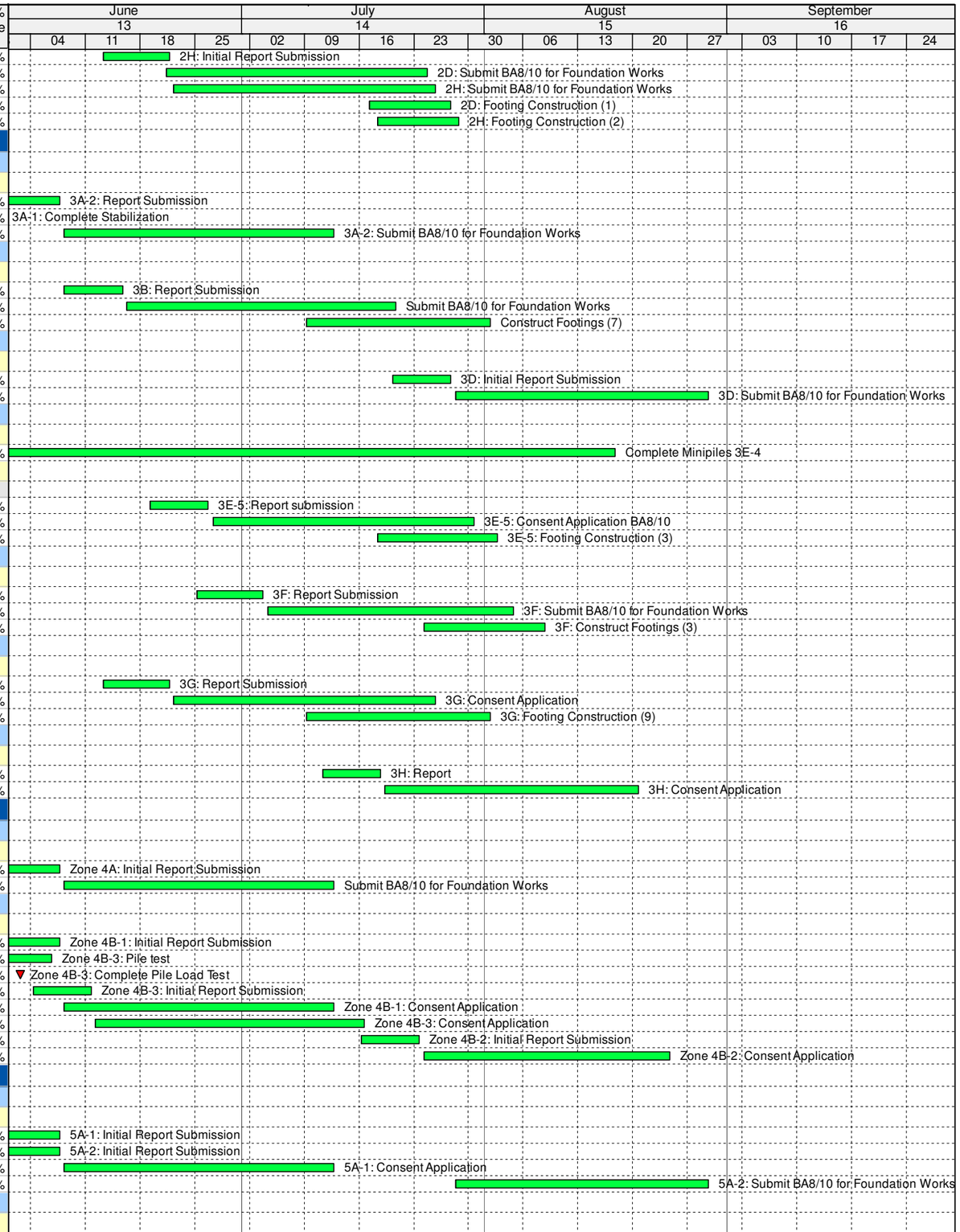
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**
Page: 9 of 17

**OCEAN PARK - TAI SHUE WAN DEVELOPMENT**
**Contract No. TSW-C006**
**3 month Look-ahead Target Program _July 2018**

Gammon

| Date | Revision | Checked | A... |
|---|---|---|---|
| 30-Apr-18 | 3M Look ahead Program | PL, LN, TT PY ME. | |
| 07-May-18 | 3M Look ahead Program | PL, LN, TT PY ME. | JA |
| 05-Jul-18 | 3M Look ahead Program (Draft) | | |

| ID | Activity | Duration | Start | Finish | Total Float | Activity % Complete |
|---|---|---|---|---|---|---|
| NEW.P2.2330 | 2H: Initial Report Submission | 7 | 13-Jun-18 | 21-Jun-18 | 111 | 0% |
| NEW.P2.2310 | 2D: Submit BA8/10 for Foundation Works | 28 | 21-Jun-18 | 24-Jul-18 | 122 | 0% |
| NEW.P2.2340 | 2H: Submit BA8/10 for Foundation Works | 28 | 22-Jun-18 | 25-Jul-18 | 111 | 0% |
| NEW.P2.2320 | 2D: Footing Construction (1) | 10 | 17-Jul-18 | 27-Jul-18 | 122 | 0% |
| NEW.P2.2350 | 2H: Footing Construction (2) | 10 | 18-Jul-18 | 28-Jul-18 | 111 | 0% |
| ***Ride P3 - Hybrid Funnel/Dark Ride*** | | | | | | |
| **Phase 3A** | | | | | | |
| ***Footing*** | | | | | | |
| NEW.3A.2000 | 3A-2: Report Submission | 7 | 31-May-18 | 07-Jun-18 | 116 | 0% |
| NEW.3A.1960 | 3A-1: Complete Stabilization | 0 | 31-May-18* | | 121 | 0% |
| RC.P3.3A2110 | 3A-2: Submit BA8/10 for Foundation Works | 28 | 08-Jun-18 | 12-Jul-18 | 116 | 0% |
| **Phase 3B** | | | | | | |
| ***Footing*** | | | | | | |
| NEW.3B.2000 | 3B: Report Submission | 7 | 08-Jun-18 | 15-Jun-18 | 85 | 0% |
| RC.P3.3B2110 | Submit BA8/10 for Foundation Works | 28 | 16-Jun-18 | 20-Jul-18 | 85 | 0% |
| RC.P3.3B2140 | Construct Footings (7) | 21 | 09-Jul-18 | 01-Aug-18 | 85 | 0% |
| **Phase 3D** | | | | | | |
| ***Footing*** | | | | | | |
| NEW.3D.1020 | 3D: Initial Report Submission | 7 | 20-Jul-18 | 27-Jul-18 | 109 | 0% |
| RC.P3.3D2110 | 3D: Submit BA8/10 for Foundation Works | 28 | 28-Jul-18 | 29-Aug-18 | 109 | 0% |
| **Phase 3E** | | | | | | |
| ***Minipiles*** | | | | | | |
| NEW.P3.6010 | Complete Minipiles 3E-4 | 66 | 31-May-18 | 17-Aug-18 | 16 | 0% |
| ***Footing*** | | | | | | |
| **3E-5** | | | | | | |
| NEW.3E.1010 | 3E-5: Report submission | 7 | 19-Jun-18 | 26-Jun-18 | 129 | 0% |
| NEW.3E.1020 | 3E-5: Consent Application BA8/10 | 28 | 27-Jun-18 | 30-Jul-18 | 129 | 0% |
| NEW.3E.1030 | 3E-5: Footing Construction (3) | 14 | 18-Jul-18 | 02-Aug-18 | 129 | 0% |
| **Phase 3F** | | | | | | |
| ***Footing*** | | | | | | |
| NEW.3F.2000 | 3F: Report Submission | 7 | 25-Jun-18 | 03-Jul-18 | 51 | 0% |
| RC.P3.3F2110 | 3F: Submit BA8/10 for Foundation Works | 28 | 04-Jul-18 | 04-Aug-18 | 51 | 0% |
| RC.P3.3F2140 | 3F: Construct Footings (3) | 14 | 24-Jul-18 | 08-Aug-18 | 51 | 0% |
| **Phase 3G** | | | | | | |
| ***Footing*** | | | | | | |
| NEW.3G.2010 | 3G: Report Submission | 7 | 13-Jun-18 | 21-Jun-18 | 73 | 0% |
| NEW.3G.2020 | 3G: Consent Application | 28 | 22-Jun-18 | 25-Jul-18 | 73 | 0% |
| NEW.3G.2030 | 3G: Footing Construction (9) | 21 | 09-Jul-18 | 01-Aug-18 | 73 | 0% |
| **Phase 3H** | | | | | | |
| ***Footing*** | | | | | | |
| NEW.3H.2010 | 3H: Report | 7 | 11-Jul-18 | 18-Jul-18 | 61 | 0% |
| NEW.3H.2020 | 3H: Consent Application | 28 | 19-Jul-18 | 20-Aug-18 | 61 | 0% |
| ***Ride P4 - Aqua Drop Speed Slide*** | | | | | | |
| **Phase 4A** | | | | | | |
| ***Pilecap / Footing*** | | | | | | |
| NEW.P4.0120 | Zone 4A: Initial Report Submission | 7 | 31-May-18 | 07-Jun-18 | 113 | 0% |
| RC.P4.4A2110 | Submit BA8/10 for Foundation Works | 28 | 08-Jun-18 | 12-Jul-18 | 113 | 0% |
| **Phase 4B** | | | | | | |
| ***Footing*** | | | | | | |
| NEW.P4.1030 | Zone 4B-1: Initial Report Submission | 7 | 31-May-18 | 07-Jun-18 | 113 | 0% |
| NEW.P4.1120 | Zone 4B-3: Pile test | 6 | 31-May-18 | 06-Jun-18 | 187 | 0% |
| NEW.P4.1085 | Zone 4B-3: Complete Pile Load Test | 0 | | 02-Jun-18* | 159 | 0% |
| NEW.P4.1090 | Zone 4B-3: Initial Report Submission | 7 | 04-Jun-18 | 11-Jun-18 | 159 | 0% |
| NEW.P4.1040 | Zone 4B-1: Consent Application | 28 | 08-Jun-18 | 12-Jul-18 | 113 | 0% |
| NEW.P4.1100 | Zone 4B-3: Consent Application | 28 | 12-Jun-18 | 16-Jul-18 | 159 | 0% |
| NEW.P4.1060 | Zone 4B-2: Initial Report Submission | 7 | 16-Jul-18* | 23-Jul-18 | 76 | 0% |
| NEW.P4.1070 | Zone 4B-2: Consent Application | 28 | 24-Jul-18 | 24-Aug-18 | 76 | 0% |
| ***Ride P5 - Family Boomerango*** | | | | | | |
| **Phase 5A** | | | | | | |
| ***Footing*** | | | | | | |
| NEW.5A.4000 | 5A-1: Initial Report Submission | 7 | 31-May-18 | 07-Jun-18 | 162 | 0% |
| NEW.5A.4030 | 5A-2: Initial Report Submission | 7 | 31-May-18 | 07-Jun-18 | 181 | 0% |
| NEW.5A.4010 | 5A-1: Consent Application | 28 | 08-Jun-18 | 12-Jul-18 | 162 | 0% |
| RC.P5.5A2110 | 5A-2: Submit BA8/10 for Foundation Works | 28 | 28-Jul-18 | 29-Aug-18 | 140 | 0% |
| **Phase 5B** | | | | | | |
| ***Footing*** | | | | | | |




critical level of effort
Critical Remaining Work
Current
Milestone
Milestone
% Complete

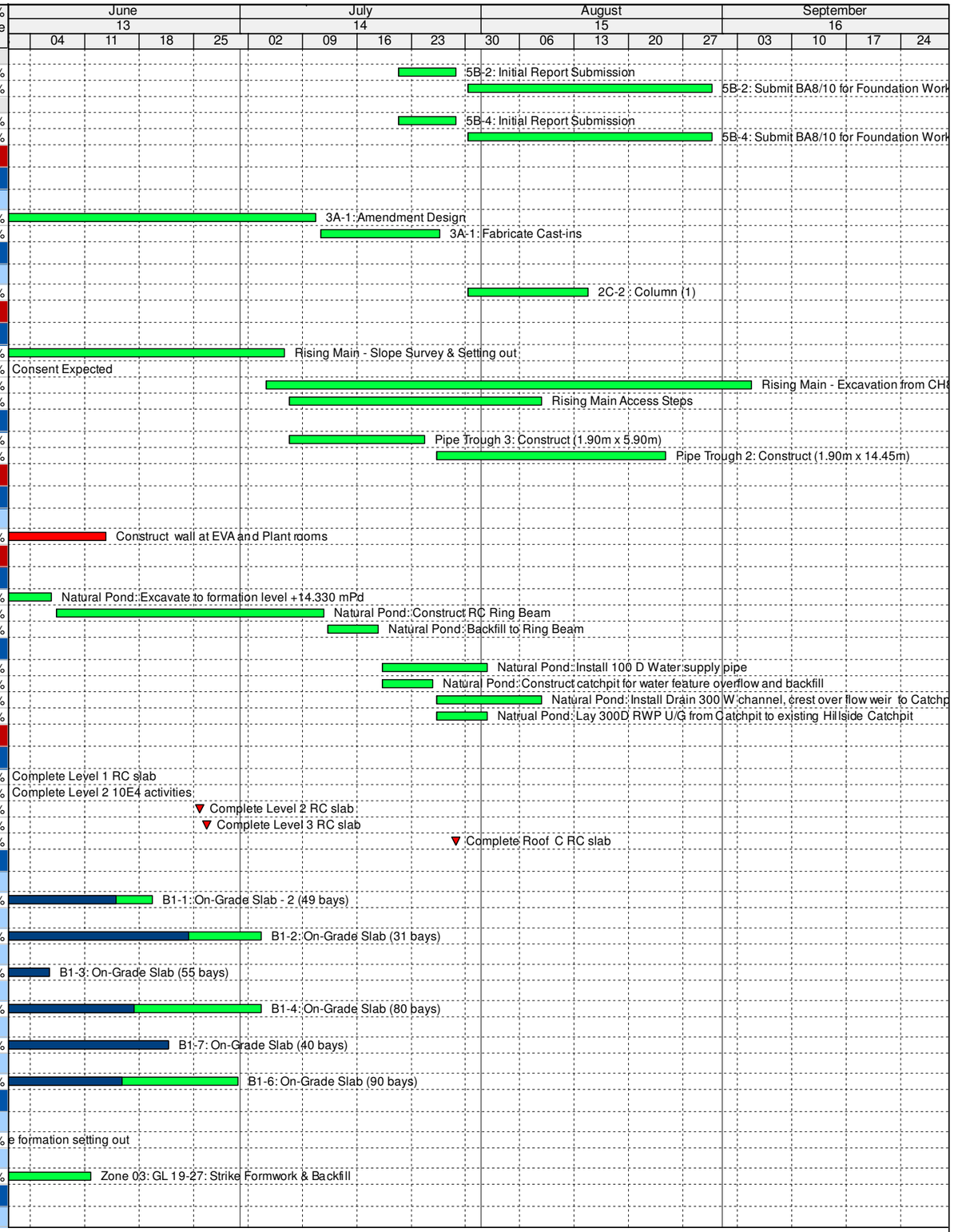
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**
Page: 10 of 17

**OCEAN PARK - TAI SHUE WAN DEVELOPMENT**
**Contract No. TSW-C006**
**3 month Look-ahead Target Program _July 2018**

Gammon

| Date | Revision | Checked | A... |
|---|---|---|---|
| 30-Apr-18 | 3M Look ahead Program | PL, LN, TT PY ME. | |
| 07-May-18 | 3M Look ahead Program | PL, LN, TT PY ME. | JA |
| 05-Jul-18 | 3M Look ahead Program (Draft) | | |

| ID | Activity | Duration | Start | Finish | Total Float | Activity % Complete |
|---|---|---|---|---|---|---|
| **5B-2** | | | | | | |
| NEW.5B.0200 | 5B-2: Initial Report Submission | 7 | 21-Jul-18 | 28-Jul-18 | 89 | 0% |
| RC.P5.5B2110 | 5B-2: Submit BA8/10 for Foundation Works | 28 | 30-Jul-18 | 30-Aug-18 | 89 | 0% |
| **5B-4** | | | | | | |
| NEW.5B.0240 | 5B-4: Initial Report Submission | 7 | 21-Jul-18 | 28-Jul-18 | 112 | 0% |
| NEW.5B.0250 | 5B-4: Submit BA8/10 for Foundation Works | 28 | 30-Jul-18 | 30-Aug-18 | 112 | 0% |
| **RIDE STRUCTURE** | | | | | | |
| ***Ride P3 - Hybid Funnel / Dark Ride*** | | | | | | |
| **3A** | | | | | | |
| NEW.P3SS.0047 | 3A-1: Amendment Design | 33 | 31-May-18 | 10-Jul-18 | 121 | 0% |
| NEW.P3SS.0048 | 3A-1: Fabricate Cast-ins | 14 | 11-Jul-18 | 26-Jul-18 | 121 | 0% |
| ***Ride P2 - Aqua Twist Mat Races*** | | | | | | |
| **2C** | | | | | | |
| NEW.P2.3015 | 2C-2 : Column (1) | 14 | 30-Jul-18 | 14-Aug-18 | 132 | 0% |
| **RISING MAIN (SEWERAGE)** | | | | | | |
| ***Site Formation/Access/ Excavation*** | | | | | | |
| RM.SFGE.1010 | Rising Main - Slope Survey & Setting out | 24 | 31-May-18 | 06-Jul-18 | 78 | 0% |
| NEW 00010 | Consent Expected | 0 | 31-May-18* | | 90 | 0% |
| RM.SFLL.1210 | Rising Main - Excavation from CH80-CH125 | 50 | 04-Jul-18 | 04-Sep-18 | 127 | 0% |
| RM.SFGE.1020 | Rising Main Access Steps | 24 | 07-Jul-18 | 08-Aug-18 | 78 | 0% |
| ***Thrust Block, Pipe Trough & Slope Pipe*** | | | | | | |
| RM.PTHL.1020 | Pipe Trough 3: Construct (1.90m x 5.90m) | 14 | 07-Jul-18 | 24-Jul-18 | 104 | 0% |
| RM.PTHL.1030 | Pipe Trough 2: Construct (1.90m x 14.45m) | 24 | 26-Jul-18 | 24-Aug-18 | 104 | 0% |
| **SOUTH SERVICES BUILDING** | | | | | | |
| ***Basement Level*** | | | | | | |
| **Basement Level** | | | | | | |
| SB.BLS.0190 | Construct wall at EVA and Plant rooms | 12 | 31-May-18 | 13-Jun-18 | -42 | 0% |
| **NATURAL POND** | | | | | | |
| ***Pond structure*** | | | | | | |
| HL.NP.1000 | Natural Pond: Excavate to formation level +14.330 mPd | 6 | 31-May-18 | 06-Jun-18 | 341 | 0% |
| HL.NP.1010 | Natural Pond: Construct RC Ring Beam | 28 | 07-Jun-18 | 11-Jul-18 | 341 | 0% |
| HL.NP.1020 | Natural Pond: Backfill to Ring Beam | 6 | 12-Jul-18 | 18-Jul-18 | 341 | 0% |
| ***Drainage*** | | | | | | |
| HL.NP.1030 | Natural Pond: Install 100 D Water supply pipe | 12 | 19-Jul-18 | 01-Aug-18 | 353 | 0% |
| HL.NP.1040 | Natural Pond: Construct catchpit for water feature overflow and backfill | 6 | 19-Jul-18 | 25-Jul-18 | 341 | 0% |
| HL.NP.1050 | Natural Pond: Install Drain 300 W channel, crest over flow weir to Catchpit | 12 | 26-Jul-18 | 08-Aug-18 | 341 | 0% |
| HL.NP.1060 | Natrual Pond: Lay 300D RWP U/G from Catchpit to existing Hillside Catchpit | 6 | 26-Jul-18 | 01-Aug-18 | 353 | 0% |
| **PRIMARY RC STRUCTURE** | | | | | | |
| ***Summary completion dates*** | | | | | | |
| OP.680 | Complete Level 1 RC slab | 0 | | 31-May-18 | 529 | 0% |
| OP.700 | Complete Level 2 10E4 activities | 0 | | 31-May-18 | 529 | 0% |
| OP.690 | Complete Level 2 RC slab | 0 | | 25-Jun-18 | -20 | 0% |
| OP.710 | Complete Level 3 RC slab | 0 | | 26-Jun-18 | -8 | 0% |
| OP.740 | Complete Roof C RC slab | 0 | | 28-Jul-18 | 36 | 0% |
| ***Basement Level BL*** | | | | | | |
| **Zone B1-1** | | | | | | |
| SP.BLS.1160 | B1-1: On-Grade Slab - 2 (49 bays) | 16 | 16-Mar-18 | 19-Jun-18 | 513 | 95% |
| **Zone B1-2** | | | | | | |
| SP.BLS.1230 | B1-2: On-Grade Slab (31 bays) | 12 | 02-May-18 | 03-Jul-18 | 82 | 85% |
| **Zone B1-3** | | | | | | |
| SP.BLS.1330 | B1-3: On-Grade Slab (55 bays) | 17 | 02-Apr-18 | 06-Jun-18 | 524 | 100% |
| **Zone B1-4** | | | | | | |
| SP.BLS.1430 | B1-4: On-Grade Slab (80 bays) | 27 | 13-Apr-18 | 03-Jul-18 | 502 | 80% |
| **Zone B1-7** | | | | | | |
| SP.BLS.1730 | B1-7: On-Grade Slab (40 bays) | 20 | 23-Mar-18 | 21-Jun-18 | 511 | 100% |
| **Zone B1-6** | | | | | | |
| SP.BLS.1630 | B1-6: On-Grade Slab (90 bays) | 30 | 23-Mar-18 | 30-Jun-18 | 144 | 85% |
| ***Foundations*** | | | | | | |
| **PMI 228 Footings M-11a, M-12-A, M-13-A and M-14-A** | | | | | | |
| OP.2540 | PMI 257 site formation setting out | 0 | | 23-May-18 | | 100% |
| **Zone 03 (North Wall-Foundation Level 3) GL19-27** | | | | | | |
| SP.L1S.1115 | Zone 03: GL 19-27: Strike Formwork & Backfill | 8 | 31-May-18 | 11-Jun-18 | 490 | 0% |
| ***Level 1*** | | | | | | |
| **Slab** | | | | | | |




critical level of effort — Critical Remaining Work
Current
Milestone
Milestone
% Complete

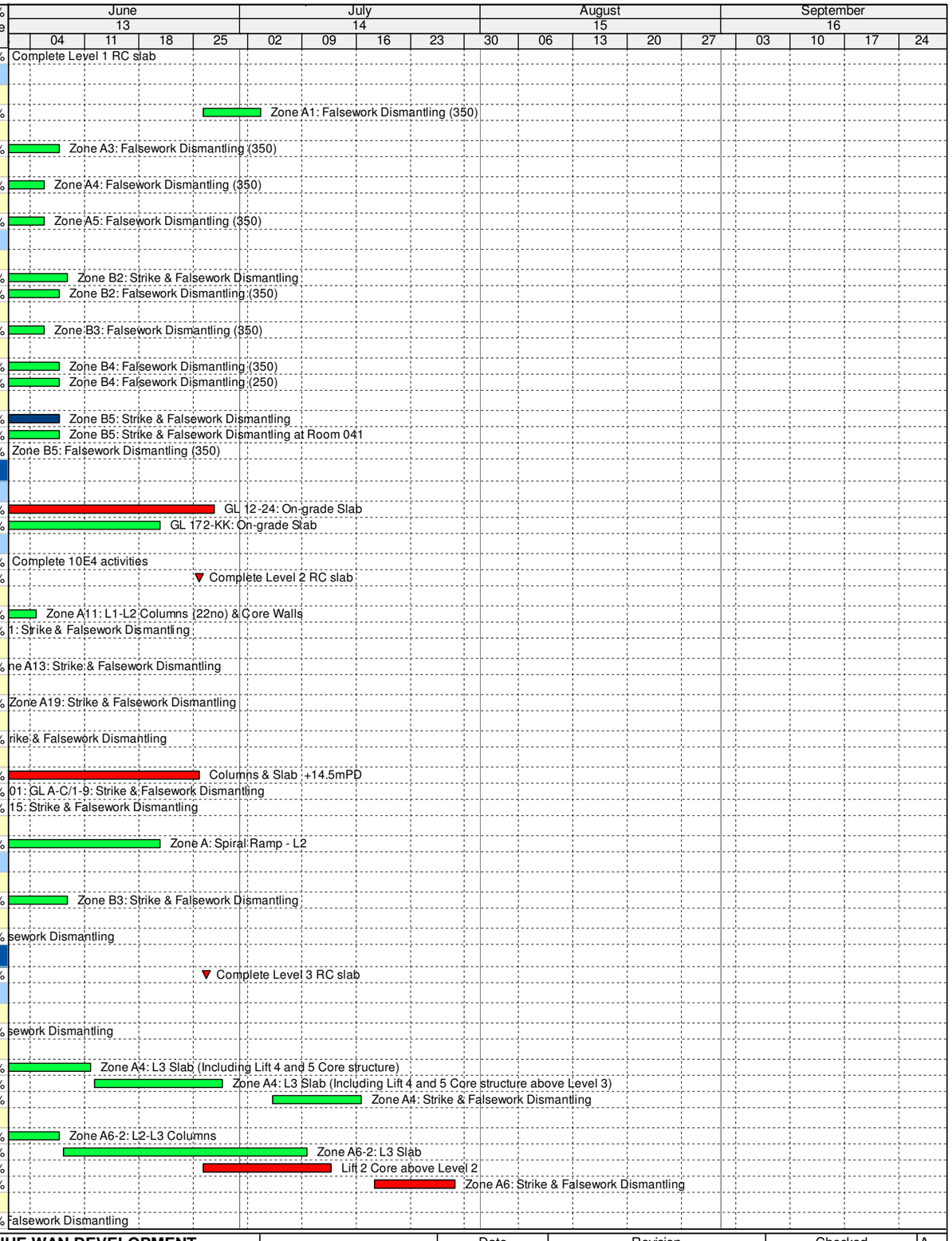
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**


**OCEAN PARK - TAI SHUE WAN DEVELOPMENT**
**Contract No. TSW-C006**
**3 month Look-ahead Target Program _July 2018**

Gammon

| Date | Revision | Checked | A... |
|---|---|---|---|
| 30-Apr-18 | 3M Look ahead Program | PL, LN, TT PY ME. | |
| 07-May-18 | 3M Look ahead Program | PL, LN, TT PY ME. | JA |
| 05-Jul-18 | 3M Look ahead Program (Draft) | | |

| ID | Activity | Duration | Start | Finish | Total Float | Activity % Complete |
|---|---|---|---|---|---|---|
| OP.630 | Complete Level 1 RC slab | 0 | | 31-May-18 | 529 | 0% |
| **Zone A** | | | | | | |
| ***Zone A1*** | | | | | | |
| SPL1A.1140 | Zone A1: Falsework Dismantling (350) | 6 | 26-Jun-18 | 03-Jul-18 | 125 | 0% |
| ***Zone A3*** | | | | | | |
| SPL1A.1340 | Zone A3: Falsework Dismantling (350) | 6 | 31-May-18 | 07-Jun-18 | 143 | 0% |
| ***Zone A4*** | | | | | | |
| SPL1A.1440 | Zone A4: Falsework Dismantling (350) | 5 | 31-May-18 | 05-Jun-18 | 144 | 0% |
| ***Zone A5*** | | | | | | |
| SPL1A.1540 | Zone A5: Falsework Dismantling (350) | 5 | 31-May-18 | 05-Jun-18 | 144 | 0% |
| **Zone B** | | | | | | |
| ***Zone B2*** | | | | | | |
| SPL1B.1230 | Zone B2: Strike & Falsework Dismantling | 7 | 31-May-18 | 08-Jun-18 | 46 | 0% |
| SPL1B.1240 | Zone B2: Falsework Dismantling (350) | 6 | 31-May-18 | 07-Jun-18 | 47 | 0% |
| ***Zone B3*** | | | | | | |
| SPL1B.1340 | Zone B3: Falsework Dismantling (350) | 5 | 31-May-18 | 05-Jun-18 | 181 | 0% |
| ***Zone B4*** | | | | | | |
| SPL1B.1440 | Zone B4: Falsework Dismantling (350) | 6 | 31-May-18 | 07-Jun-18 | 498 | 0% |
| SPL1B.1450 | Zone B4: Falsework Dismantling (250) | 6 | 31-May-18 | 07-Jun-18 | 498 | 0% |
| ***Zone B5*** | | | | | | |
| SPL1B.1530 | Zone B5: Strike & Falsework Dismantling | 23 | 26-Feb-18 | 07-Jun-18 | 498 | 100% |
| SPL1B.1560 | Zone B5: Strike & Falsework Dismantling at Room 041 | 6 | 16-Mar-18 | 07-Jun-18 | 522 | 50% |
| SPL1B.1540 | Zone B5: Falsework Dismantling (350) | 6 | 17-Mar-18 | 31-May-18 | 78 | 50% |
| ***Level 2*** | | | | | | |
| **On Grade Slab** | | | | | | |
| SPL2S.2020 | GL 12-24: On-grade Slab | 20 | 31-May-18 | 27-Jun-18 | -9 | 0% |
| SPL2S.2010 | GL 172-KK: On-grade Slab | 15 | 31-May-18 | 20-Jun-18 | 26 | 0% |
| **Zone A** | | | | | | |
| OP.620 | Complete 10E4 activities | 0 | | 31-May-18 | 529 | 0% |
| OP.610 | Complete Level 2 RC slab | 0 | | 25-Jun-18 | 508 | 0% |
| ***Zone A11 (Ramp)*** | | | | | | |
| SPL2A.2970 | Zone A11: L1-L2 Columns (22no) & Core Walls | 7 | 09-Aug-17 | 04-Jun-18 | 500 | 80% |
| SPL2A.2990 | Zone A11: Strike & Falsework Dismantling | 9 | 15-May-18 | 25-May-18 | | 100% |
| ***Zone A13*** | | | | | | |
| SPL2A.3050 | Zone A13: Strike & Falsework Dismantling | 8 | 20-May-18 | 29-May-18 | | 100% |
| ***Zone A19 , (Including Bridge)*** | | | | | | |
| SPL2A.3170 | Zone A19: Strike & Falsework Dismantling | 8 | 21-May-18 | 31-May-18 | | 100% |
| ***Zone A14 (North Plant Below)*** | | | | | | |
| SPL2A.3200 | Zone A14: Strike & Falsework Dismantling | 8 | 15-May-18 | 22-May-18 | | 100% |
| ***Zone A15 (North Plant Room)*** | | | | | | |
| SPL1S.1040 | Columns & Slab +14.5mPD | 12 | 02-Jan-18 | 25-Jun-18 | -17 | 30% |
| SPL1S.1045 | Zone 01: GL A-C/1-9: Strike & Falsework Dismantling | 7 | 16-May-18 | 27-May-18 | | 100% |
| SPL2A.3230 | Zone A15: Strike & Falsework Dismantling | 8 | 17-May-18 | 26-May-18 | | 100% |
| ***Zone A - Spiral Ramp*** | | | | | | |
| SPL2A.3240 | Zone A: Spiral Ramp - L2 | 28 | 09-May-18 | 20-Jun-18 | 25 | 0% |
| **Zone B** | | | | | | |
| ***Zone B3*** | | | | | | |
| SPL2B.2330 | Zone B3: Strike & Falsework Dismantling | 7 | 31-May-18 | 08-Jun-18 | 154 | 0% |
| ***Zone B1*** | | | | | | |
| SPL2B.2130 | Zone B1: Strike & Falsework Dismantling | 9 | 05-May-18 | 16-May-18 | | 100% |
| ***Level 3*** | | | | | | |
| OP.640 | Complete Level 3 RC slab | 0 | | 26-Jun-18 | 507 | 0% |
| **Zone A** | | | | | | |
| ***Zone A1*** | | | | | | |
| SPL3A.3130 | Zone A1: Strike & Falsework Dismantling | 8 | 05-May-18 | 16-May-18 | | 100% |
| ***Zone A4*** | | | | | | |
| SPL3A.3420 | Zone A4: L3 Slab (Including Lift 4 and 5 Core structure) | 28 | 05-Mar-18 | 11-Jun-18 | 3 | 0% |
| SPL3A.3440 | Zone A4: L3 Slab (Including Lift 4 and 5 Core structure above Level 3) | 14 | 12-Jun-18 | 28-Jun-18 | 110 | 0% |
| SPL3A.3430 | Zone A4: Strike & Falsework Dismantling | 9 | 05-Jul-18 | 16-Jul-18 | 100 | 0% |
| ***Zone A6*** | | | | | | |
| SPL3A.3970 | Zone A6-2: L2-L3 Columns | 6 | 31-May-18 | 07-Jun-18 | 475 | 0% |
| SPL3A.3960 | Zone A6-2: L3 Slab | 23 | 08-Jun-18 | 09-Jul-18 | 475 | 0% |
| SPL3A.3650 | Lift 2 Core above Level 2 | 14 | 26-Jun-18 | 12-Jul-18 | -20 | 0% |
| SPL3A.3640 | Zone A6: Strike & Falsework Dismantling | 8 | 18-Jul-18 | 28-Jul-18 | -19 | 0% |
| ***Zone A7*** | | | | | | |
| SPL3A.3730 | Zone A7: Strike & Falsework Dismantling | 8 | 10-May-18 | 18-May-18 | | 100% |




critical level of effort
Critical Remaining Work
Current
Milestone
Milestone
% Complete

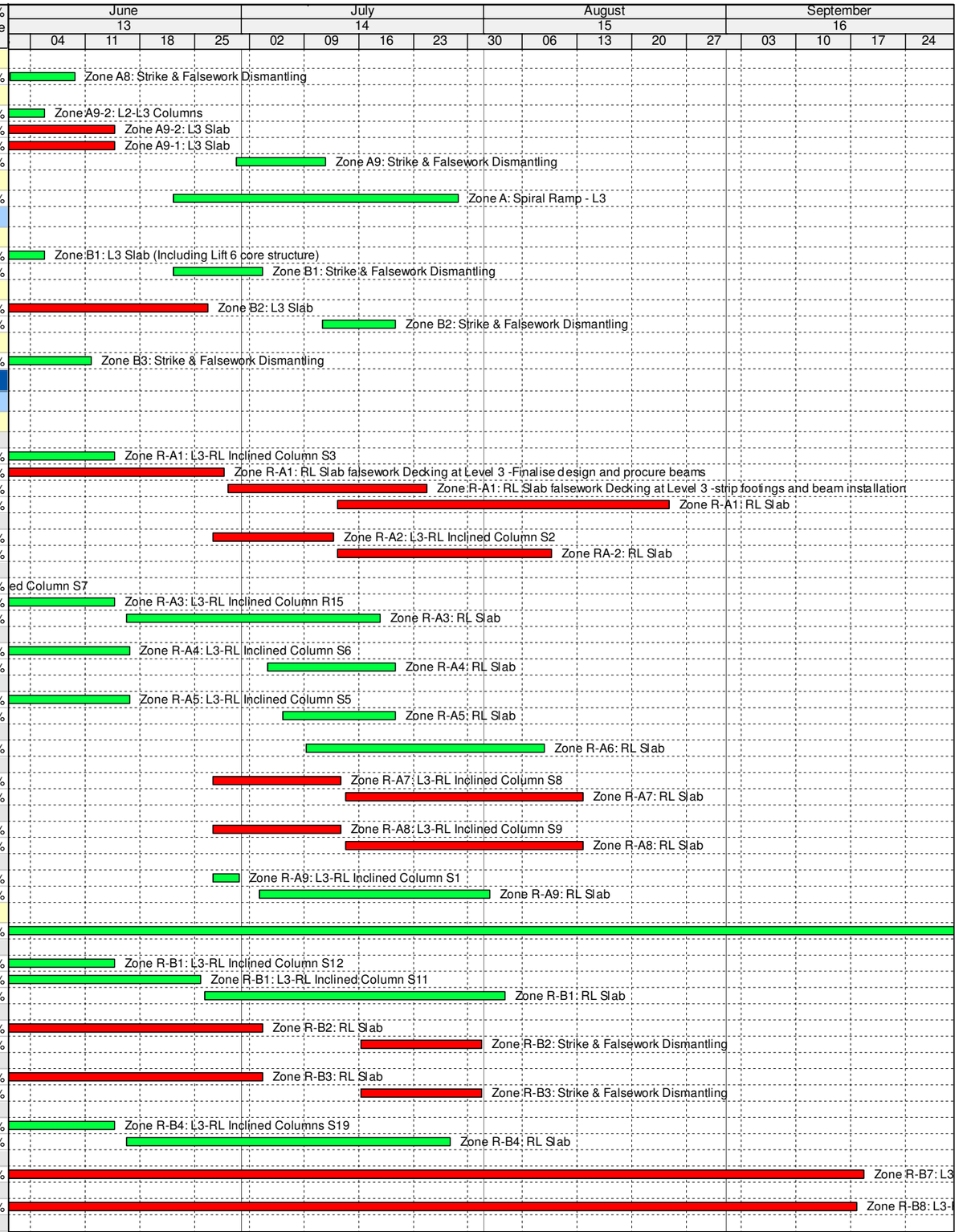
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**


**OCEAN PARK - TAI SHUE WAN DEVELOPMENT**
**Contract No. TSW-C006**
**3 month Look-ahead Target Program _July 2018**

Gammon

| Date | Revision | Checked | A... |
|---|---|---|---|
| 30-Apr-18 | 3M Look ahead Program | PL, LN, TT PY ME. | |
| 07-May-18 | 3M Look ahead Program | PL, LN, TT PY ME. | JA |
| 05-Jul-18 | 3M Look ahead Program (Draft) | | |

| ID | Activity | Duration | Start | Finish | Total Float | Activity % Complete |
|---|---|---|---|---|---|---|
| **Zone A8** | | | | | | |
| SP.L3A.3830 | Zone A8: Strike & Falsework Dismantling | 7 | 01-Jun-18 | 09-Jun-18 | 38 | 0% |
| **Zone A9** | | | | | | |
| SP.L3A.3950 | Zone A9-2: L2-L3 Columns | 8 | 16-Apr-18 | 05-Jun-18 | 1 | 50% |
| SP.L3A.3940 | Zone A9-2: L3 Slab | 25 | 20-Apr-18 | 14-Jun-18 | 0 | 50% |
| SP.L3A.3920 | Zone A9-1: L3 Slab | 20 | 20-May-18 | 14-Jun-18 | 0 | 0% |
| SP.L3A.3930 | Zone A9: Strike & Falsework Dismantling | 8 | 30-Jun-18 | 11-Jul-18 | 18 | 0% |
| **Zone A spiral ramp** | | | | | | |
| SP.L2A.3250 | Zone A: Spiral Ramp - L3 | 28 | 22-Jun-18 | 28-Jul-18 | 25 | 0% |
| **Zone B** | | | | | | |
| **Zone B1** | | | | | | |
| SP.L3B.3120 | Zone B1: L3 Slab (Including Lift 6 core structure) | 18 | 29-Jan-18 | 05-Jun-18 | 7 | 0% |
| SP.L3B.3130 | Zone B1: Strike & Falsework Dismantling | 9 | 22-Jun-18 | 03-Jul-18 | 88 | 0% |
| **Zone B2** | | | | | | |
| SP.L3B.3220 | Zone B2: L3 Slab | 40 | 03-Feb-18 | 26-Jun-18 | -7 | 75% |
| SP.L3B.3230 | Zone B2: Strike & Falsework Dismantling | 8 | 11-Jul-18 | 20-Jul-18 | 16 | 0% |
| **Zone B3, Bridge** | | | | | | |
| SP.L3B.3930 | Zone B3: Strike & Falsework Dismantling | 9 | 31-May-18 | 11-Jun-18 | 119 | 0% |
| **Roof Level** | | | | | | |
| **Slab** | | | | | | |
| **Roof A** | | | | | | |
| **Zone R-A1** | | | | | | |
| SP.RLA.5122 | Zone R-A1: L3-RL Inclined Column S3 | 13 | 14-Mar-18 | 14-Jun-18 | 1 | 50% |
| SP.RLA.5150 | Zone R-A1: RL Slab falsework Decking at Level 3 -Finalise design and procure be | 24 | 31-May-18 | 28-Jun-18 | -20 | 0% |
| SP.RLA.5120 | Zone R-A1: RL Slab falsework Decking at Level 3 -strip footings and beam installa | 21 | 29-Jun-18 | 24-Jul-18 | -20 | 0% |
| SP.RLA.5130 | Zone R-A1: RL Slab | 32 | 13-Jul-18 | 24-Aug-18 | -18 | 0% |
| **Zone R-A2** | | | | | | |
| SP.RLA.5210 | Zone R-A2: L3-RL Inclined Column S2 | 12 | 27-Jun-18 | 12-Jul-18 | -7 | 0% |
| SP.RLA.5230 | Zone RA-2: RL Slab | 21 | 13-Jul-18 | 09-Aug-18 | -7 | 0% |
| **Zone R-A3** | | | | | | |
| SP.RLA.5310 | Zone R-A3: L3-RL Inclined Column S7 | 11 | 10-May-18 | 14-May-18 | | 100% |
| SP.RLA.5305 | Zone R-A3: L3-RL Inclined Column R15 | 11 | 10-May-18 | 14-Jun-18 | 18 | 50% |
| SP.RLA.5330 | Zone R-A3: RL Slab | 24 | 16-Jun-18 | 18-Jul-18 | 18 | 0% |
| **Zone R-A4** | | | | | | |
| SP.RLA.5410 | Zone R-A4: L3-RL Inclined Column S6 | 12 | 25-Jan-18 | 16-Jun-18 | 14 | 50% |
| SP.RLA.5430 | Zone R-A4: RL Slab | 13 | 04-Jul-18 | 20-Jul-18 | 3 | 0% |
| **Zone R-A5** | | | | | | |
| SP.RLA.5510 | Zone R-A5: L3-RL Inclined Column S5 | 12 | 26-Feb-18 | 16-Jun-18 | 16 | 75% |
| SP.RLA.5530 | Zone R-A5: RL Slab | 11 | 06-Jul-18 | 20-Jul-18 | 3 | 0% |
| **Zone R-A6** | | | | | | |
| SP.RLA.5630 | Zone R-A6: RL Slab | 23 | 09-Jul-18 | 08-Aug-18 | 3 | 0% |
| **Zone R-A7** | | | | | | |
| SP.RLA.5710 | Zone R-A7: L3-RL Inclined Column S8 | 13 | 27-Jun-18 | 13-Jul-18 | -1 | 0% |
| SP.RLA.5730 | Zone R-A7: RL Slab | 23 | 14-Jul-18 | 13-Aug-18 | -1 | 0% |
| **Zone R-A8** | | | | | | |
| SP.RLA.5810 | Zone R-A8: L3-RL Inclined Column S9 | 13 | 27-Jun-18 | 13-Jul-18 | -1 | 0% |
| SP.RLA.5830 | Zone R-A8: RL Slab | 23 | 14-Jul-18 | 13-Aug-18 | -1 | 0% |
| **Zone R-A9** | | | | | | |
| SP.RLA.5910 | Zone R-A9: L3-RL Inclined Column S1 | 4 | 27-Jun-18 | 30-Jun-18 | 8 | 0% |
| SP.RLA.5930 | Zone R-A9: RL Slab | 23 | 03-Jul-18 | 01-Aug-18 | 8 | 0% |
| **Roof B** | | | | | | |
| OP.900 | Roof B | 136 | 17-Jan-18 | 04-Dec-18 | -29 | 0% |
| **Zone R-B1** | | | | | | |
| SP.RLB.5115 | Zone R-B1: L3-RL Inclined Column S12 | 12 | 28-Dec-17 | 14-Jun-18 | 52 | 50% |
| SP.RLB.5110 | Zone R-B1: L3-RL Inclined Column S11 | 12 | 17-Jan-18 | 25-Jun-18 | 46 | 80% |
| SP.RLB.5130 | Zone R-B1: RL Slab | 30 | 26-Jun-18 | 03-Aug-18 | 46 | 0% |
| **Zone R-B2** | | | | | | |
| SP.RLB.5230 | Zone R-B2: RL Slab | 24 | 31-May-18 | 03-Jul-18 | -1 | 0% |
| SP.RLB.5240 | Zone R-B2: Strike & Falsework Dismantling | 12 | 16-Jul-18 | 31-Jul-18 | -1 | 0% |
| **Zone R-B3** | | | | | | |
| SP.RLB.5330 | Zone R-B3: RL Slab | 24 | 31-May-18 | 03-Jul-18 | -1 | 0% |
| SP.RLB.5340 | Zone R-B3: Strike & Falsework Dismantling | 12 | 16-Jul-18 | 31-Jul-18 | -1 | 0% |
| **Zone R-B4** | | | | | | |
| SP.RLB.5410 | Zone R-B4: L3-RL Inclined Columns S19 | 13 | 11-Apr-18 | 14-Jun-18 | 50 | 0% |
| SP.RLB.5430 | Zone R-B4: RL Slab | 30 | 16-Jun-18 | 27-Jul-18 | 50 | 0% |
| **Zone R-B7** | | | | | | |
| SP.RLB.5710 | Zone R-B7: L3-RL Inclined Columns S17 | 13 | 08-Dec-17 | 18-Sep-18 | -14 | 0% |
| **Zone R-B8** | | | | | | |
| SP.RLB.5810 | Zone R-B8: L3-RL Inclined Columns S18 | 12 | 02-Dec-17 | 17-Sep-18 | -12 | 0% |
| **Shear Key Works** | | | | | | |




critical level of effort
Critical Remaining Work
Current
Milestone
Milestone
% Complete

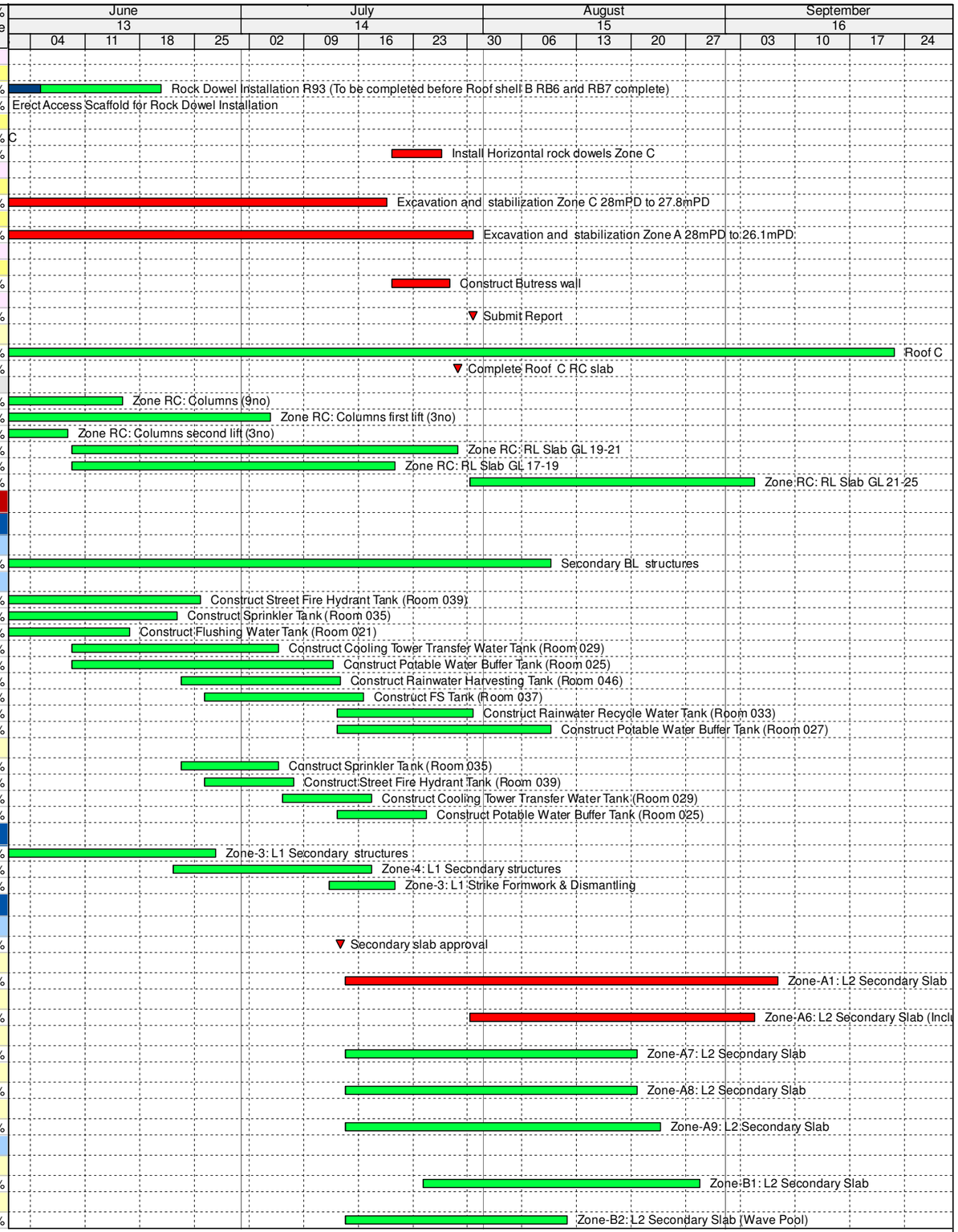
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**
Page: 13 of 17

**OCEAN PARK - TAI SHUE WAN DEVELOPMENT**
**Contract No. TSW-C006**
**3 month Look-ahead Target Program _July 2018**

Gammon

| Date | Revision | Checked | A... |
|---|---|---|---|
| 30-Apr-18 | 3M Look ahead Program | PL, LN, TT PY ME. | |
| 07-May-18 | 3M Look ahead Program | PL, LN, TT PY ME. | JA |
| 05-Jul-18 | 3M Look ahead Program (Draft) | | |

| ID | Activity | Duration | Start | Finish | Total Float | Activity % Complete |
|---|---|---|---|---|---|---|
| **Rock Dowels to slopes** | | | | | | |
| **Rock Dowels to Zone B (PMI 215 Associated with Roof Shell B shear Key)** | | | | | | |
| OP.1870 | Rock Dowel Installation R93 (To be completed before Roof shell B RB6 and RB7 c | 80 | 10-Mar-18 | 20-Jun-18 | 8 | 85% |
| OP.1860 | Erect Access Scaffold for Rock Dowel Installation | 8 | 15-Mar-18 | 31-May-18 | 529 | 100% |
| **Zone C** | | | | | | |
| OP.1290 | Install Vertical rock dowels Zone C | 8 | 30-Apr-18 | 08-May-18 | | 100% |
| OP.1280 | Install Horizontal rock dowels Zone C | 6 | 20-Jul-18 | 26-Jul-18 | -22 | 0% |
| **Shear key Pit** | | | | | | |
| **Zone C** | | | | | | |
| OP.1210 | Excavation and stabilization Zone C 28mPD to 27.8mPD | 20 | 29-May-18 | 19-Jul-18 | -22 | 10% |
| **Zone A** | | | | | | |
| OP.1060 | Excavation and stabilization Zone A 28mPD to 26.1mPD | 20 | 15-May-18 | 30-Jul-18 | -33 | 50% |
| **Buttress wall** | | | | | | |
| **Zone C** | | | | | | |
| OP.1230 | Construct Butress wall | 7 | 20-Jul-18 | 27-Jul-18 | -22 | 0% |
| **Shear Key Records and Reports** | | | | | | |
| OP.2570 | Submit Report | 0 | | 30-Jul-18 | -25 | 0% |
| ***Roof C*** | | | | | | |
| OP.750 | Roof C | 134 | 17-Mar-18 | 22-Sep-18 | 3 | 0% |
| OP.670 | Complete Roof C RC slab | 0 | | 28-Jul-18 | 480 | 0% |
| **Zone R-C** | | | | | | |
| SP.RLC.5130 | Zone RC: Columns (9no) | 21 | 17-Mar-18 | 15-Jun-18 | 4 | 50% |
| SP.RLC.5140 | Zone RC: Columns first lift (3no) | 28 | 31-May-18 | 04-Jul-18 | 501 | 0% |
| SP.RLC.5150 | Zone RC: Columns second lift (3no) | 8 | 31-May-18 | 08-Jun-18 | 57 | 0% |
| SP.RLC.5120 | Zone RC: RL Slab GL 19-21 | 36 | 09-Jun-18 | 28-Jul-18 | 4 | 0% |
| SP.RLC.5160 | Zone RC: RL Slab GL 17-19 | 30 | 09-Jun-18 | 20-Jul-18 | 50 | 0% |
| SP.RLC.5170 | Zone RC: RL Slab GL 21-25 | 32 | 30-Jul-18 | 04-Sep-18 | 4 | 0% |
| **SECONDARY RC STRUCTURE (M & E Zone)** | | | | | | |
| ***Basement Level*** | | | | | | |
| **Secondary structures** | | | | | | |
| SS.BLS.1740 | Secondary BL structures | 58 | 11-Apr-18 | 09-Aug-18 | 470 | 0% |
| **Water Tanks** | | | | | | |
| SSBL WT140 | Construct Street Fire Hydrant Tank (Room 039) | 21 | 31-May-18 | 25-Jun-18 | 90 | 0% |
| SSBL WT160 | Construct Sprinkler Tank (Room 035) | 19 | 31-May-18 | 22-Jun-18 | 92 | 0% |
| SSBL WT180 | Construct Flushing Water Tank (Room 021) | 15 | 31-May-18 | 16-Jun-18 | 134 | 0% |
| SSBL WT110 | Construct Cooling Tower Transfer Water Tank (Room 029) | 21 | 09-Jun-18 | 05-Jul-18 | 82 | 0% |
| SSBL WT130 | Construct Potable Water Buffer Tank (Room 025) | 27 | 09-Jun-18 | 12-Jul-18 | 52 | 0% |
| SSBL WT170 | Construct Rainwater Harvesting Tank (Room 046) | 17 | 23-Jun-18 | 13-Jul-18 | 113 | 0% |
| SSBL WT150 | Construct FS Tank (Room 037) | 17 | 26-Jun-18 | 16-Jul-18 | 111 | 0% |
| SSBL WT100 | Construct Rainwater Recycle Water Tank (Room 033) | 15 | 13-Jul-18 | 30-Jul-18 | 99 | 0% |
| SSBL WT120 | Construct Potable Water Buffer Tank (Room 027) | 24 | 13-Jul-18 | 09-Aug-18 | 52 | 0% |
| ***Modification and Additional works*** | | | | | | |
| OP.380 | Construct Sprinkler Tank (Room 035) | 10 | 23-Jun-18 | 05-Jul-18 | 92 | 0% |
| OP.390 | Construct Street Fire Hydrant Tank (Room 039) | 10 | 26-Jun-18 | 07-Jul-18 | 90 | 0% |
| OP.370 | Construct Cooling Tower Transfer Water Tank (Room 029) | 10 | 06-Jul-18 | 17-Jul-18 | 82 | 0% |
| OP.350 | Construct Potable Water Buffer Tank (Room 025) | 10 | 13-Jul-18 | 24-Jul-18 | 76 | 0% |
| ***Level 1*** | | | | | | |
| SS.L1S.1340 | Zone-3: L1 Secondary structures | 20 | 31-May-18 | 27-Jun-18 | 466 | 0% |
| SS.L1S.1310 | Zone-4: L1 Secondary structures | 20 | 22-Jun-18 | 17-Jul-18 | 451 | 0% |
| SS.L1S.1350 | Zone-3: L1 Strike Formwork & Dismantling | 8 | 12-Jul-18 | 20-Jul-18 | 487 | 0% |
| ***Level 2*** | | | | | | |
| **Zone A** | | | | | | |
| OP.940 | Secondary slab approval | 0 | | 13-Jul-18* | -37 | 0% |
| ***Zone A1*** | | | | | | |
| SS.L2A.2110 | Zone-A1: L2 Secondary Slab | 41 | 14-Jul-18 | 07-Sep-18 | -21 | 0% |
| ***Zone A6*** | | | | | | |
| SS.L2A.2610 | Zone-A6: L2 Secondary Slab (Including Lift 2 Core structure) | 28 | 30-Jul-18 | 04-Sep-18 | -19 | 0% |
| ***Zone A7*** | | | | | | |
| SS.L2A.2710 | Zone-A7: L2 Secondary Slab | 28 | 14-Jul-18 | 20-Aug-18 | 8 | 0% |
| ***Zone A8*** | | | | | | |
| SS.L2A.2810 | Zone-A8: L2 Secondary Slab | 28 | 14-Jul-18 | 20-Aug-18 | 15 | 0% |
| ***Zone A9*** | | | | | | |
| SS.L2A.2910 | Zone-A9: L2 Secondary Slab | 30 | 14-Jul-18 | 23-Aug-18 | 16 | 0% |
| **Zone B** | | | | | | |
| ***Zone B1*** | | | | | | |
| SS.L2B.2110 | Zone-B1: L2 Secondary Slab | 27 | 24-Jul-18 | 28-Aug-18 | 16 | 0% |
| ***Zone B2*** | | | | | | |
| SS.L2B.2210 | Zone-B2: L2 Secondary Slab (Wave Pool) | 22 | 14-Jul-18 | 11-Aug-18 | 1 | 0% |




critical level of effort
Critical Remaining Work
Current
Milestone
Milestone
% Complete

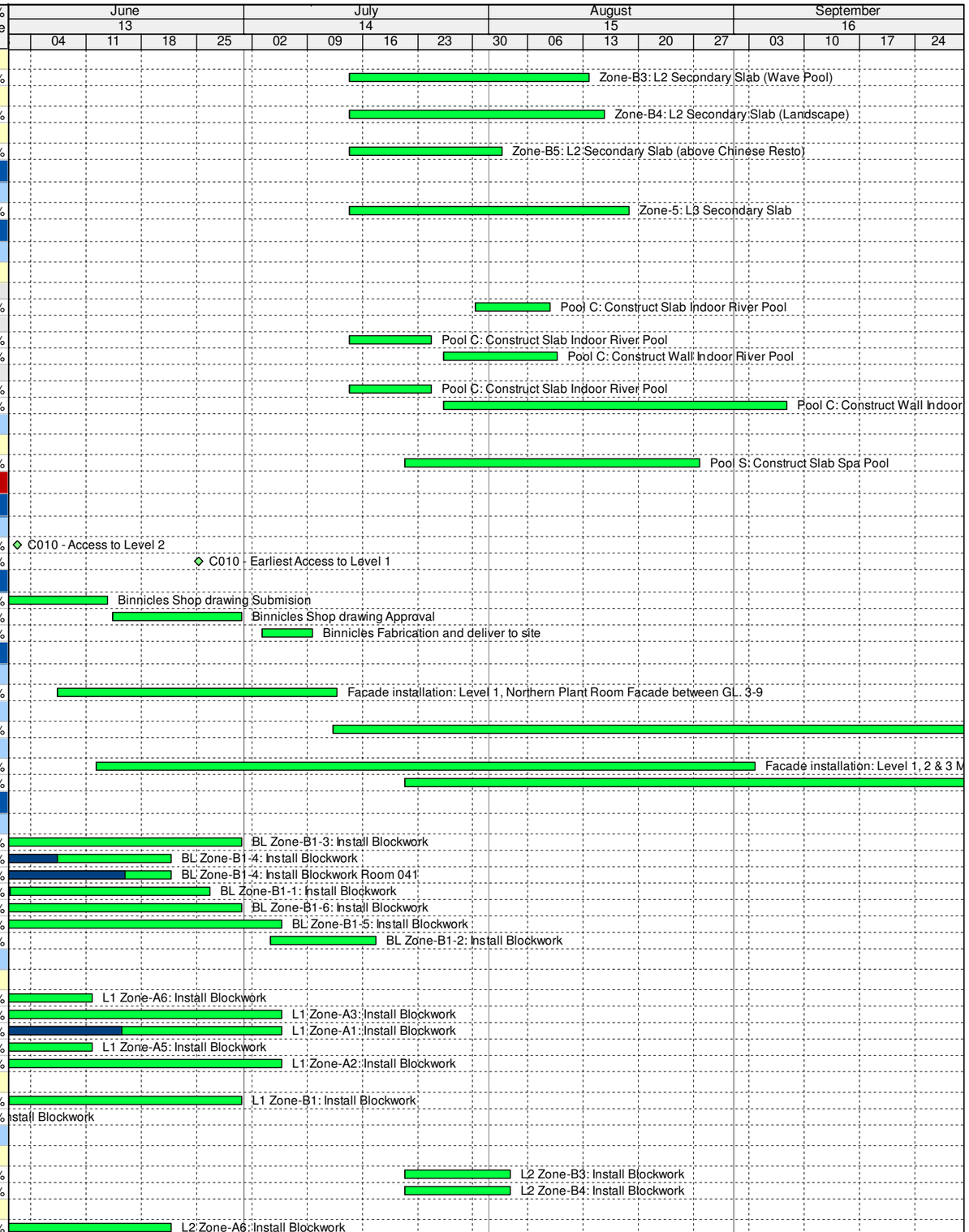
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**
Page: 14 of 17

**OCEAN PARK - TAI SHUE WAN DEVELOPMENT**
**Contract No. TSW-C006**
**3 month Look-ahead Target Program _July 2018**

Gammon

| Date | Revision | Checked | A... |
|---|---|---|---|
| 30-Apr-18 | 3M Look ahead Program | PL, LN, TT PY ME. | |
| 07-May-18 | 3M Look ahead Program | PL, LN, TT PY ME. | JA |
| 05-Jul-18 | 3M Look ahead Program (Draft) | | |

| ID | Activity | Duration | Start | Finish | Total Float | Activity % Complete |
|---|---|---|---|---|---|---|
| **Zone B3** | | | | | | |
| SS.L2B.2310 | Zone-B3: L2 Secondary Slab (Wave Pool) | 23 | 14-Jul-18 | 13-Aug-18 | 40 | 0% |
| **Zone B4** | | | | | | |
| SS.L2B.2410 | Zone-B4: L2 Secondary Slab (Landscape) | 25 | 14-Jul-18 | 15-Aug-18 | 125 | 0% |
| **Zone B5** | | | | | | |
| SS.L2B.2510 | Zone-B5: L2 Secondary Slab (above Chinese Resto) | 15 | 14-Jul-18 | 02-Aug-18 | 135 | 0% |
| **Level 3** | | | | | | |
| **Zone B (Zone 5)** | | | | | | |
| SS.L3B.3110 | Zone-5: L3 Secondary Slab | 27 | 14-Jul-18 | 18-Aug-18 | 39 | 0% |
| **Pool Unit** | | | | | | |
| **Level 2** | | | | | | |
| **Pool C - Indoor River Pool (Lazy River)** | | | | | | |
| **SS A6** | | | | | | |
| SS.PUPC.2250 | Pool C: Construct Slab Indoor River Pool | 8 | 30-Jul-18 | 08-Aug-18 | 154 | 0% |
| **SS A7** | | | | | | |
| SS.PUPC.2270 | Pool C: Construct Slab Indoor River Pool | 8 | 14-Jul-18 | 24-Jul-18 | 165 | 0% |
| SS.PUPC.2310 | Pool C: Construct Wall Indoor River Pool | 12 | 26-Jul-18 | 09-Aug-18 | 165 | 0% |
| **SS A8** | | | | | | |
| SS.PUPC.2290 | Pool C: Construct Slab Indoor River Pool | 8 | 14-Jul-18 | 24-Jul-18 | 144 | 0% |
| SS.PUPC.2300 | Pool C: Construct Wall Indoor River Pool | 33 | 26-Jul-18 | 07-Sep-18 | 144 | 0% |
| **Level 3** | | | | | | |
| **Pool S - Spa Pool** | | | | | | |
| SS.PUPS.1110 | Pool S: Construct Slab Spa Pool | 28 | 21-Jul-18 | 27-Aug-18 | 164 | 0% |
| **ABWF WORKS** | | | | | | |
| **Access Dates** | | | | | | |
| **Level 1 & 2** | | | | | | |
| NS.C10.A1 | C010 - Access to Level 2 | 0 | 02-Jun-18 | | 168 | 0% |
| NS.C10.A1a | C010 - Earliest Access to Level 1 | 0 | 25-Jun-18 | | 191 | 0% |
| **Binnacles** | | | | | | |
| BIN.GDP.1000 | Binnicles Shop drawing Submision | 90 | 17-Jul-17 A | 13-Jun-18 | 251 | 0% |
| BIN.GDP.1010 | Binnicles Shop drawing Approval | 14 | 14-Jun-18 | 30-Jun-18 | 251 | 0% |
| BIN.GDP.1020 | Binnicles Fabrication and deliver to site | 6 | 03-Jul-18 | 09-Jul-18 | 251 | 0% |
| **Facade Installation** | | | | | | |
| **EWS09** | | | | | | |
| NS.C10.A230 | Facade installation: Level 1, Northern Plant Room Facade between GL. 3-9 | 29 | 07-Jun-18 | 12-Jul-18 | 251 | 0% |
| **EWS04** | | | | | | |
| NS.C10.A210 | Facade installation: Level 2, Pool C between GL. 13-17 (Steelwork only) | 70 | 12-Jul-18 | 03-Oct-18 | 112 | 0% |
| **EWS03** | | | | | | |
| NS.C10.A240 | Facade installation: Level 1, 2 & 3 Main Lobby Entance between GL. CC-JJ (Stee | 70 | 12-Jun-18 | 03-Sep-18 | 131 | 0% |
| NS.C10.A480 | Facade installation: Level 1, 2 & 3 Main Lobby Entance between GL. HH-NN (Stee | 70 | 21-Jul-18 | 12-Oct-18 | 163 | 0% |
| **Blockwork** | | | | | | |
| **Basement Level** | | | | | | |
| AB.BWBL.0130 | BL Zone-B1-3: Install Blockwork | 12 | 29-Mar-18 | 30-Jun-18 | 95 | 50% |
| AB.BWBL.0140 | BL Zone-B1-4: Install Blockwork | 10 | 25-Apr-18 | 21-Jun-18 | 152 | 75% |
| AB.BWBL.0180 | BL Zone-B1-4: Install Blockwork Room 041 | 8 | 25-Apr-18 | 21-Jun-18 | 511 | 90% |
| AB.BWBL.0110 | BL Zone-B1-1: Install Blockwork | 18 | 07-May-18 | 26-Jun-18 | 148 | 50% |
| AB.BWBL.0160 | BL Zone-B1-6: Install Blockwork | 10 | 21-May-18 | 30-Jun-18 | 144 | 10% |
| AB.BWBL.0150 | BL Zone-B1-5: Install Blockwork | 10 | 23-May-18 | 05-Jul-18 | 141 | 20% |
| AB.BWBL.0120 | BL Zone-B1-2: Install Blockwork | 12 | 04-Jul-18 | 17-Jul-18 | 82 | 0% |
| **Level 1** | | | | | | |
| **Zone A** | | | | | | |
| AB.BWL1.1160 | L1 Zone-A6: Install Blockwork | 10 | 05-Mar-18 | 11-Jun-18 | 120 | 5% |
| AB.BWL1.1130 | L1 Zone-A3: Install Blockwork | 18 | 16-Apr-18 | 05-Jul-18 | 101 | 50% |
| AB.BWL1.1110 | L1 Zone-A1: Install Blockwork | 18 | 16-Apr-18 | 05-Jul-18 | 155 | 75% |
| AB.BWL1.1150 | L1 Zone-A5: Install Blockwork | 10 | 31-May-18 | 11-Jun-18 | 174 | 0% |
| AB.BWL1.1120 | L1 Zone-A2: Install Blockwork | 29 | 31-May-18 | 05-Jul-18 | 155 | 0% |
| **Zone B** | | | | | | |
| AB.BWL1.1520 | L1 Zone-B1: Install Blockwork | 7 | 05-Mar-18 | 30-Jun-18 | 158 | 75% |
| AB.BWL1.1550 | L1 Zone-B2: Install Blockwork | 12 | 07-May-18 | 21-May-18 | | 100% |
| **Level 2** | | | | | | |
| **Zone B** | | | | | | |
| AB.BWL2.2530 | L2 Zone-B3: Install Blockwork | 12 | 21-Jul-18 | 03-Aug-18 | 195 | 0% |
| AB.BWL2.2540 | L2 Zone-B4: Install Blockwork | 12 | 21-Jul-18 | 03-Aug-18 | 107 | 0% |
| **Zone A** | | | | | | |
| AB.BWL2.2160 | L2 Zone-A6: Install Blockwork | 18 | 31-May-18 | 21-Jun-18 | 55 | 0% |




critical level of effort
Critical Remaining Work
Current
Milestone
Milestone
% Complete

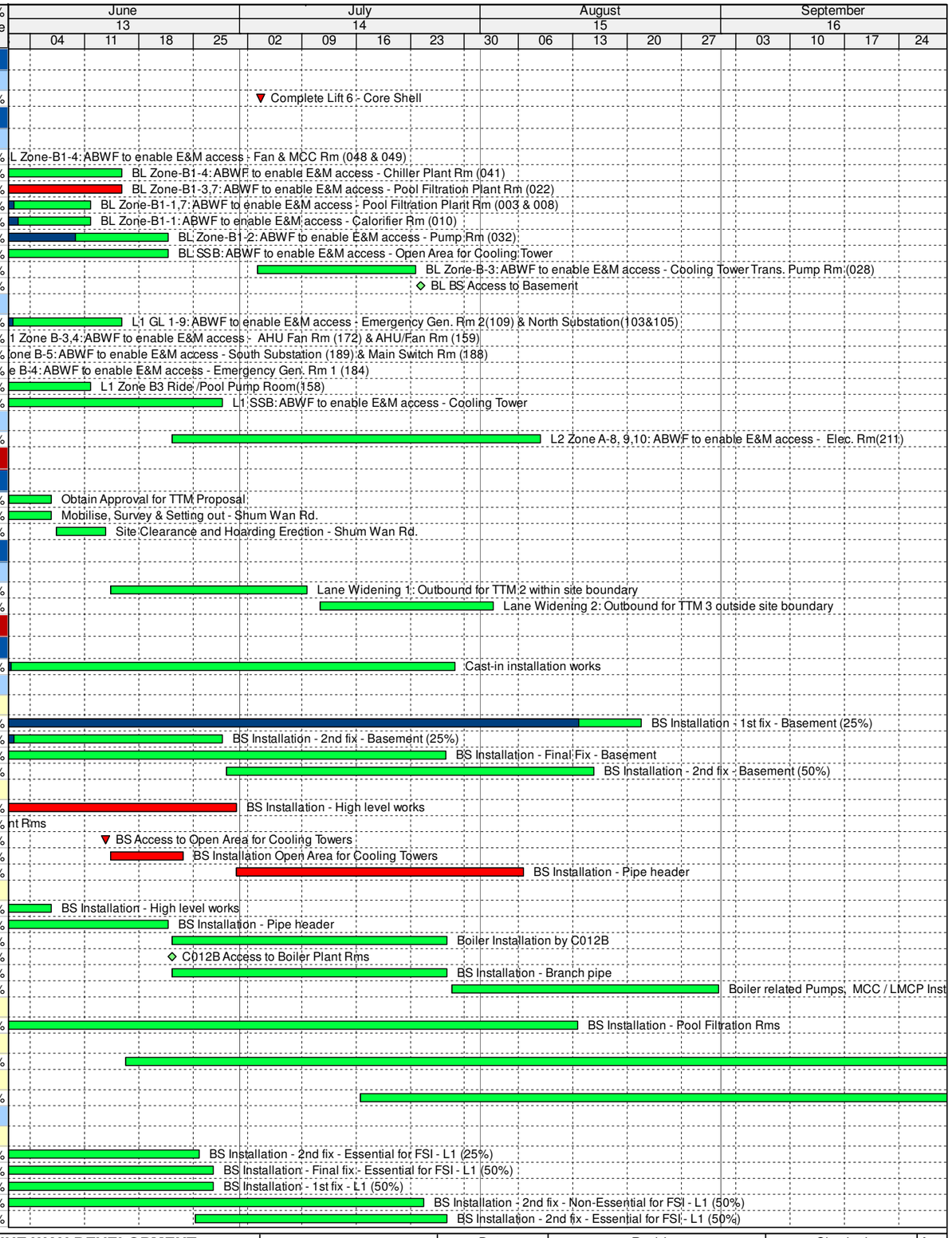
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**
Page: 15 of 17

**OCEAN PARK - TAI SHUE WAN DEVELOPMENT**
**Contract No. TSW-C006**
**3 month Look-ahead Target Program _July 2018**

Gammon

| Date | Revision | Checked | A... |
|---|---|---|---|
| 30-Apr-18 | 3M Look ahead Program | PL, LN, TT PY ME. | |
| 07-May-18 | 3M Look ahead Program | PL, LN, TT PY ME. | JA |
| 05-Jul-18 | 3M Look ahead Program (Draft) | | |

| ID | Activity | Duration | Start | Finish | Total Float | Activity % Complete |
|---|---|---|---|---|---|---|
| **Lift Works** | | | | | | |
| **Lift No.6** | | | | | | |
| AB.LW7.7105 | Complete Lift 6 - Core Shell | 0 | | 03-Jul-18 | 242 | 0% |
| **ABWF Works to Enable E&M Access** | | | | | | |
| **Basement Level** | | | | | | |
| AB.EABL.0145 | BL Zone-B1-4: ABWF to enable E&M access - Fan & MCC Rm (048 & 049) | 18 | 02-May-18 | 30-May-18 | | 100% |
| AB.EABL.0140 | BL Zone-B1-4: ABWF to enable E&M access - Chiller Plant Rm (041) | 12 | 15-May-18 | 15-Jun-18 | 164 | 50% |
| AB.EABL.0150 | BL Zone-B1-3,7: ABWF to enable E&M access - Pool Filtration Plant Rm (022) | 30 | 15-May-18 | 15-Jun-18 | -8 | 50% |
| AB.EABL.0130 | BL Zone-B1-1,7: ABWF to enable E&M access - Pool Filtration Plant Rm (003 & 008 | 18 | 23-May-18 | 11-Jun-18 | 111 | 50% |
| AB.EABL.0155 | BL Zone-B1-1: ABWF to enable E&M access - Calorifier Rm (010) | 18 | 24-May-18 | 11-Jun-18 | 111 | 50% |
| AB.EABL.0160 | BL Zone-B1-2: ABWF to enable E&M access - Pump Rm (032) | 18 | 29-May-18 | 21-Jun-18 | 152 | 50% |
| AB.EABL.0120 | BL SSB: ABWF to enable E&M access - Open Area for Cooling Tower | 24 | 30-May-18 | 21-Jun-18 | 152 | 0% |
| AB.EABL.0170 | BL Zone-B-3: ABWF to enable E&M access - Cooling Tower Trans. Pump Rm (028) | 18 | 03-Jul-18 | 23-Jul-18 | 126 | 0% |
| AM.IN021000a | BL BS Access to Basement | 0 | 24-Jul-18 | | 150 | 0% |
| **Level 1** | | | | | | |
| AB.EAL1.1110 | L1 GL 1-9: ABWF to enable E&M access - Emergency Gen. Rm 2(109) & North Su | 30 | 07-Apr-18 | 15-Jun-18 | 29 | 80% |
| AB.EAL1.1190 | L1 Zone B-3,4: ABWF to enable E&M access - AHU Fan Rm (172) & AHU/Fan Rm | 24 | 01-May-18 | 30-May-18 | | 100% |
| AB.EAL1.1130 | L1 Zone B-5: ABWF to enable E&M access - South Substation (189) & Main Switcl | 33 | 05-May-18 | 28-May-18 | | 100% |
| AB.EAL1.1180 | L1 Zone B-4: ABWF to enable E&M access - Emergency Gen. Rm 1 (184) | 18 | 05-May-18 | 26-May-18 | | 100% |
| AB.EAL1.1140 | L1 Zone B3 Ride /Pool Pump Room(158) | 24 | 08-May-18 | 11-Jun-18 | 108 | 50% |
| AB.EAL1.1120 | L1 SSB: ABWF to enable E&M access - Cooling Tower | 24 | 31-May-18 | 28-Jun-18 | 505 | 0% |
| **Level 2** | | | | | | |
| AB.EAL2.2160 | L2 Zone A-8, 9,10: ABWF to enable E&M access - Elec. Rm(211) | 40 | 22-Jun-18 | 08-Aug-18 | 72 | 0% |
| **SHUM WAN ROAD (Area A4)** | | | | | | |
| ***General Requirements*** | | | | | | |
| EW.GENR.0130 | Obtain Approval for TTM Proposal | 28 | 13-Apr-18 | 06-Jun-18 | 47 | 90% |
| PR.SWGE.1050 | Mobilise, Survey & Setting out - Shum Wan Rd. | 6 | 31-May-18 | 06-Jun-18 | 41 | 0% |
| PR.SWGE.1025 | Site Clearance and Hoarding Erection - Shum Wan Rd. | 6 | 07-Jun-18 | 13-Jun-18 | 41 | 0% |
| ***Temporary Traffic Management*** | | | | | | |
| **TTM Preparation Works** | | | | | | |
| EW.TTMS.2110 | Lane Widening 1: Outbound for TTM 2 within site boundary | 18 | 14-Jun-18 | 09-Jul-18 | 36 | 0% |
| EW.TTMS.2120 | Lane Widening 2: Outbound for TTM 3 outside site boundary | 18 | 11-Jul-18 | 02-Aug-18 | 36 | 0% |
| **E&M WORKS** | | | | | | |
| ***New Water Park*** | | | | | | |
| EM.IN020002 | Cast-in installation works | 180 | 12-Jul-17 A | 28-Jul-18 | 72 | 85% |
| **Basement Level** | | | | | | |
| ***Basement Areas*** | | | | | | |
| EM.IN0210011 | BS Installation - 1st fix - Basement (25%) | 45 | 15-Mar-18 | 21-Aug-18 | 52 | 95% |
| EM.IN0210021 | BS Installation - 2nd fix - Basement (25%) | 40 | 15-May-18 | 28-Jun-18 | 124 | 40% |
| EM.IN021003 | BS Installation - Final Fix - Basement | 50 | 22-May-18 | 27-Jul-18 | 247 | 5% |
| EM.IN0210022 | BS Installation - 2nd fix - Basement (50%) | 40 | 29-Jun-18 | 15-Aug-18 | 124 | 0% |
| ***Chiller Plant Rooms*** | | | | | | |
| EM.IN021011 | BS Installation - High level works | 30 | 14-May-18 | 30-Jun-18 | -10 | 15% |
| EM.IN021010 | BS Access to Chiller Plant Rms | 0 | 14-May-18 | | | 100% |
| EM.IN021041 | BS Access to Open Area for Cooling Towers | 0 | | 13-Jun-18 | -42 | 0% |
| EM.IN021071 | BS Installation Open Area for Cooling Towers | 8 | 14-Jun-18 | 23-Jun-18 | -42 | 0% |
| EM.IN021012 | BS Installation - Pipe header | 30 | 30-Jun-18 | 06-Aug-18 | -10 | 0% |
| ***Boiler Plant Room*** | | | | | | |
| EM.IN021021 | BS Installation - High level works | 30 | 10-Mar-18 | 06-Jun-18 | 41 | 80% |
| EM.IN021022 | BS Installation - Pipe header | 30 | 21-Mar-18 | 21-Jun-18 | 3 | 40% |
| EM.IN021025 | Boiler Installation by C012B | 30 | 22-Jun-18 | 27-Jul-18 | 149 | 0% |
| EM.IN021023 | C012B Access to Boiler Plant Rms | 0 | 22-Jun-18 | | 3 | 0% |
| EM.IN021024 | BS Installation - Branch pipe | 30 | 22-Jun-18 | 27-Jul-18 | 149 | 0% |
| EM.IN021026 | Boiler related Pumps, MCC / LMCP Installation by C012B | 30 | 28-Jul-18 | 31-Aug-18 | 149 | 0% |
| ***Pool Filtration Rooms*** | | | | | | |
| EM.IN021030 | BS Installation - Pool Filtration Rms | 65 | 23-May-18 | 13-Aug-18 | 164 | 5% |
| ***Electrical Rooms*** | | | | | | |
| EM.IN021040 | BS Installation - Electrical Rms | 90 | 16-Jun-18 | 03-Oct-18 | 164 | 0% |
| ***FS Street Hydrant Pump Room*** | | | | | | |
| EM.IN021100 | BS Installation - FS Street Hydrant Pump Rm | 70 | 16-Jul-18 | 08-Oct-18 | 185 | 0% |
| **Level 1** | | | | | | |
| ***L1 Areas*** | | | | | | |
| EM.IN0220021 | BS Installation - 2nd fix - Essential for FSI - L1 (25%) | 28 | 22-Jan-18 | 25-Jun-18 | 130 | 25% |
| EM.IN0220031 | BS Installation - Final fix - Essential for FSI - L1 (50%) | 25 | 29-Jan-18 | 27-Jun-18 | 247 | 10% |
| EM.IN0220012 | BS Installation - 1st fix - L1 (50%) | 35 | 16-May-18 | 27-Jun-18 | 103 | 35% |
| EM.IN0220041 | BS Installation - 2nd fix - Non-Essential for FSI - L1 (50%) | 45 | 31-May-18 | 24-Jul-18 | 223 | 0% |
| EM.IN0220022 | BS Installation - 2nd fix - Essential for FSI - L1 (50%) | 28 | 25-Jun-18 | 27-Jul-18 | 130 | 0% |




critical level of effort
Critical Remaining Work
Current
Milestone
Milestone
% Complete

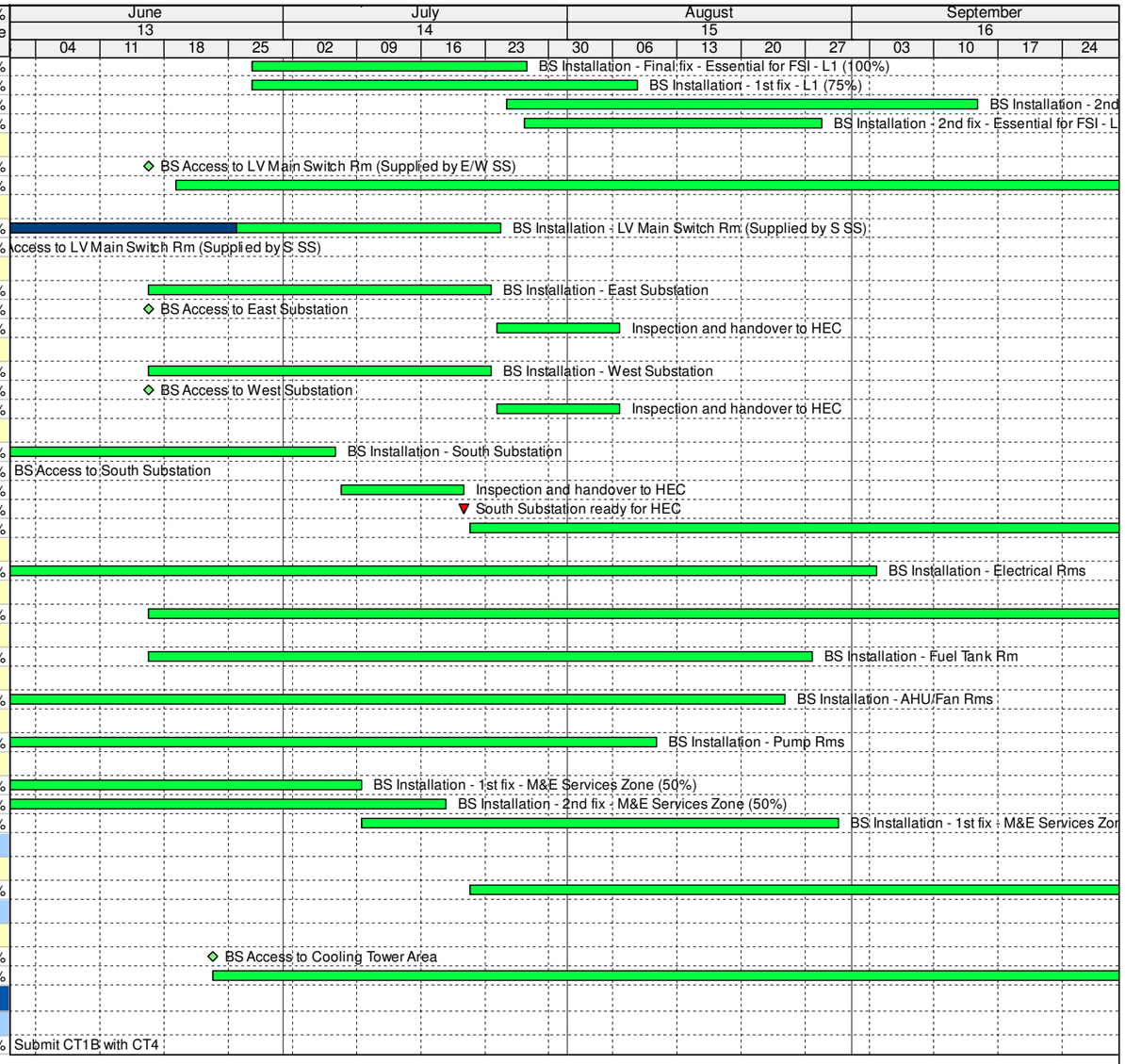
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**


**OCEAN PARK - TAI SHUE WAN DEVELOPMENT**
**Contract No. TSW-C006**
**3 month Look-ahead Target Program _July 2018**

Gammon

| Date | Revision | Checked | A... |
|---|---|---|---|
| 30-Apr-18 | 3M Look ahead Program | PL, LN, TT PY ME. | |
| 07-May-18 | 3M Look ahead Program | PL, LN, TT PY ME. | JA |
| 05-Jul-18 | 3M Look ahead Program (Draft) | | |

| ID | Activity | Duration | Start | Finish | Total Float | Activity % Complete |
|---|---|---|---|---|---|---|
| EM.IN0220032 | BS Installation - Final fix - Essential for FSI - L1 (100%) | 25 | 27-Jun-18 | 27-Jul-18 | 247 | 0% |
| EM.IN0220013 | BS Installation - 1st fix - L1 (75%) | 35 | 27-Jun-18 | 08-Aug-18 | 122 | 0% |
| EM.IN0220042 | BS Installation - 2nd fix - Non-Essential for FSI - L1 (100%) | 45 | 25-Jul-18 | 14-Sep-18 | 223 | 0% |
| EM.IN0220023 | BS Installation - 2nd fix - Essential for FSI - L1 (75%) | 28 | 27-Jul-18 | 28-Aug-18 | 130 | 0% |
| ***LV Main Switch Room (Supplied by East & West Substations)*** | | | | | | |
| EM.IN022010 | BS Access to LV Main Switch Rm (Supplied by E/W SS) | 0 | 16-Jun-18 | | 61 | 0% |
| EM.IN022011 | BS Installation - LV Main Switch Rm (Supplied by E/W SS) | 90 | 19-Jun-18 | 04-Oct-18 | 60 | 0% |
| ***LV Main Switch Room (Supplied by South Substation)*** | | | | | | |
| EM.IN022021 | BS Installation - LV Main Switch Rm (Supplied by S SS) | 90 | 28-May-18 | 24-Jul-18 | 112 | 50% |
| EM.IN022020 | BS Access to LV Main Switch Rm (Supplied by S SS) | 0 | 28-May-18 | | | 100% |
| ***East Substation*** | | | | | | |
| EM.IN022031 | BS Installation - East Substation | 30 | 16-Jun-18 | 23-Jul-18 | 29 | 0% |
| EM.IN022030 | BS Access to East Substation | 0 | 16-Jun-18 | | 29 | 0% |
| EM.IN022032 | Inspection and handover to HEC | 12 | 24-Jul-18 | 06-Aug-18 | 29 | 0% |
| ***West Substation*** | | | | | | |
| EM.IN022041 | BS Installation - West Substation | 30 | 16-Jun-18 | 23-Jul-18 | 29 | 0% |
| EM.IN022040 | BS Access to West Substation | 0 | 16-Jun-18 | | 29 | 0% |
| EM.IN022042 | Inspection and handover to HEC | 12 | 24-Jul-18 | 06-Aug-18 | 29 | 0% |
| ***South Substation*** | | | | | | |
| EM.IN022051 | BS Installation - South Substation | 30 | 31-May-18 | 06-Jul-18 | 43 | 0% |
| EM.IN022050 | BS Access to South Substation | 0 | 31-May-18 | | 43 | 0% |
| EM.IN022052 | Inspection and handover to HEC | 12 | 07-Jul-18 | 20-Jul-18 | 43 | 0% |
| EM.IN022053 | South Substation ready for HEC | 0 | | 20-Jul-18 | 43 | 0% |
| EM.IN022054 | HEC Installation and Energization - South Substation | 100 | 21-Jul-18 | 28-Oct-18 | 51 | 0% |
| ***Electrical Rooms*** | | | | | | |
| EM.IN022060 | BS Installation - Electrical Rms | 80 | 31-May-18 | 03-Sep-18 | 188 | 0% |
| ***Emergency Generator Room*** | | | | | | |
| EM.IN022070 | BS Installation - Emergency Generator Rm | 90 | 16-Jun-18 | 03-Oct-18 | 184 | 0% |
| ***Fuel Tank Room*** | | | | | | |
| EM.IN022076 | BS Installation - Fuel Tank Rm | 60 | 16-Jun-18 | 27-Aug-18 | 214 | 0% |
| ***AHU/Fan Rooms*** | | | | | | |
| EM.IN022080 | BS Installation - AHU/Fan Rms | 80 | 30-Apr-18 | 24-Aug-18 | 222 | 10% |
| ***Pump Rooms*** | | | | | | |
| EM.IN022100 | BS Installation - Pump Rms | 60 | 31-May-18 | 10-Aug-18 | 234 | 0% |
| ***M&E Services Zone*** | | | | | | |
| EM.IN022091 | BS Installation - 1st fix - M&E Services Zone (50%) | 45 | 30-Mar-18 | 09-Jul-18 | 183 | 30% |
| EM.IN022093 | BS Installation - 2nd fix - M&E Services Zone (50%) | 40 | 31-May-18 | 18-Jul-18 | 199 | 0% |
| EM.IN022092 | BS Installation - 1st fix - M&E Services Zone (100%) | 45 | 09-Jul-18 | 30-Aug-18 | 183 | 0% |
| **Level 3 to Roof** | | | | | | |
| ***Pool S - Spa Pool*** | | | | | | |
| EM.IN024080 | Pool S Lighting Installation - 1st fix | 65 | 21-Jul-18 | 06-Oct-18 | 197 | 0% |
| **Open Area** | | | | | | |
| ***Cooling Tower System*** | | | | | | |
| EM.IN025000 | BS Access to Cooling Tower Area | 0 | 23-Jun-18 | | 168 | 0% |
| EM.IN025001 | BS Installation | 100 | 23-Jun-18 | 22-Oct-18 | 168 | 0% |
| ***Statutory Submission, Inspection & Approval*** | | | | | | |
| **Obtain Occupation Permit** | | | | | | |
| EM.SS010011 | Submit CT1B with CT4 | 0 | | 31-May-18* | 224 | 0% |




critical level of effort
Critical Remaining Work
Current
Milestone
Milestone
% Complete

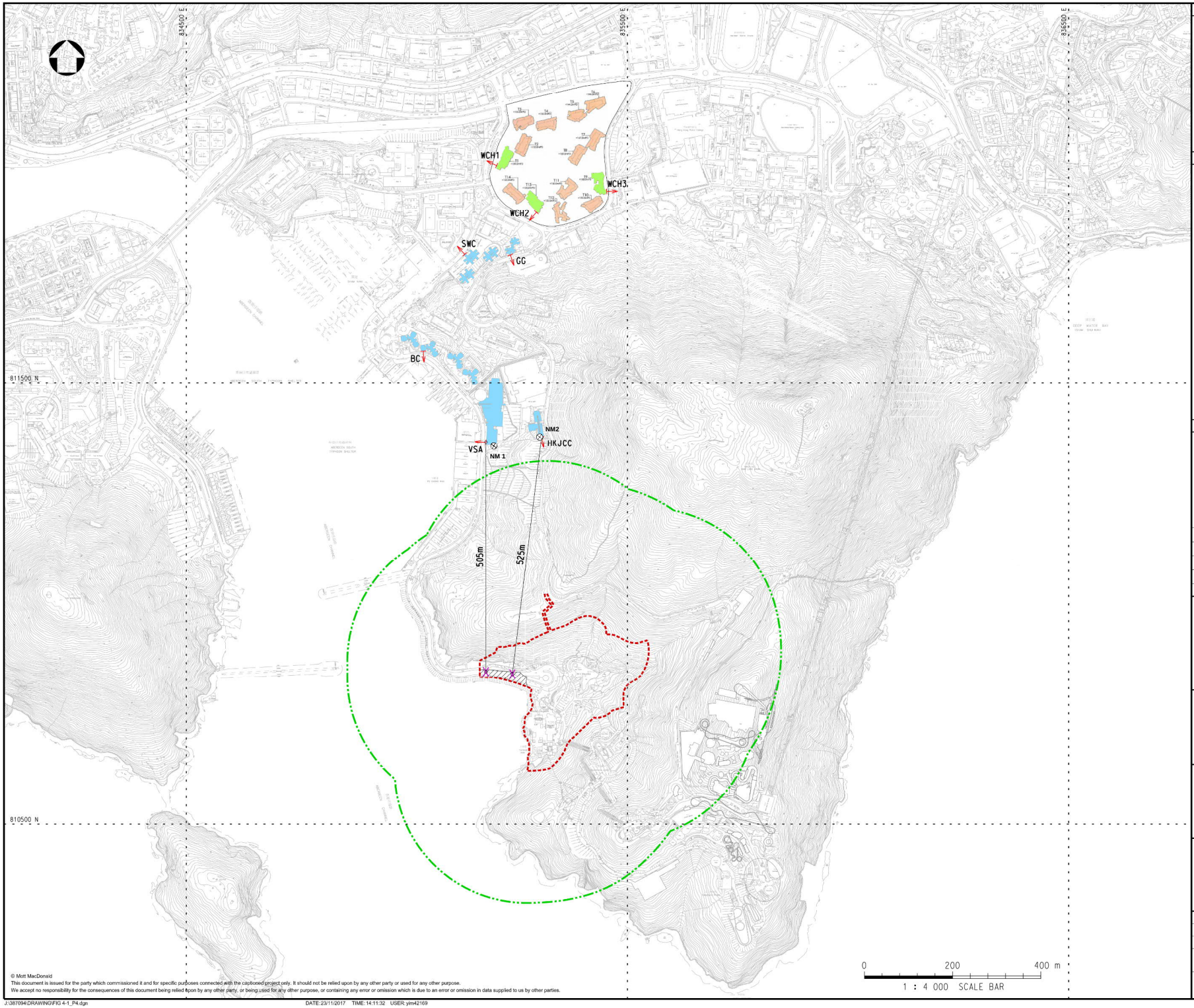
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**


**OCEAN PARK - TAI SHUE WAN DEVELOPMENT**
**Contract No. TSW-C006**
**3 month Look-ahead Target Program _July 2018**

Gammon

| Date | Revision | Checked | A... |
|---|---|---|---|
| 30-Apr-18 | 3M Look ahead Program | PL, LN, TT PY ME. | |
| 07-May-18 | 3M Look ahead Program | PL, LN, TT PY ME. | JA |
| 05-Jul-18 | 3M Look ahead Program (Draft) | | |

# D. Designated Monitoring Locations as Recommended in the Approved EM&A Manual




Notes

Key to symbols

- NOISE MONITORING STATION
- 300m ASSESSMENT AREA
- REVISED PROJECT BOUNDARY
- ADDITIONAL WORKS AREA AT SHUM WAN ROAD
- EXISTING NOISE SENSITIVE RECEIVER
- PLANNED NOISE SENSITIVE RECEIVER
- NOTIONAL SOURCE POSITION

| NSRID | DESCRIPTION |
|---|---|
| VSA | VICTORIA SHANGHAI ACADEMY |
| HKJCC | HONG KONG JUVENILE CARE CENTRE |
| BC | BROADVIEW COURT |
| SWC | SOUTH WAVE COURT |
| WCH | PLANNED DEVELOPMENT ON WONG CHUK HANG STATION DEPOT |
| GG | GRANDVIEW GARDEN |

Reference drawings

| Rev | Date | Drawn | Description | Ch'k'd | App'd |
|---|---|---|---|---|---|
| P4 | NOV 17 | MING | FOURTH ISSUE | HL | EC |
| P3 | NOV 17 | MING | THIRD ISSUE | HL | EC |
| P2 | AUG 17 | TSE | SECOND ISSUE | HL | EC |
| P1 | JUL 17 | TSE | FIRST ISSUE | HL | EC |

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Client

Ocean Park Hong Kong 香港海洋公園

Project

TAI SHUE WAN DEVELOPMENT AT OCEAN PARK

Title

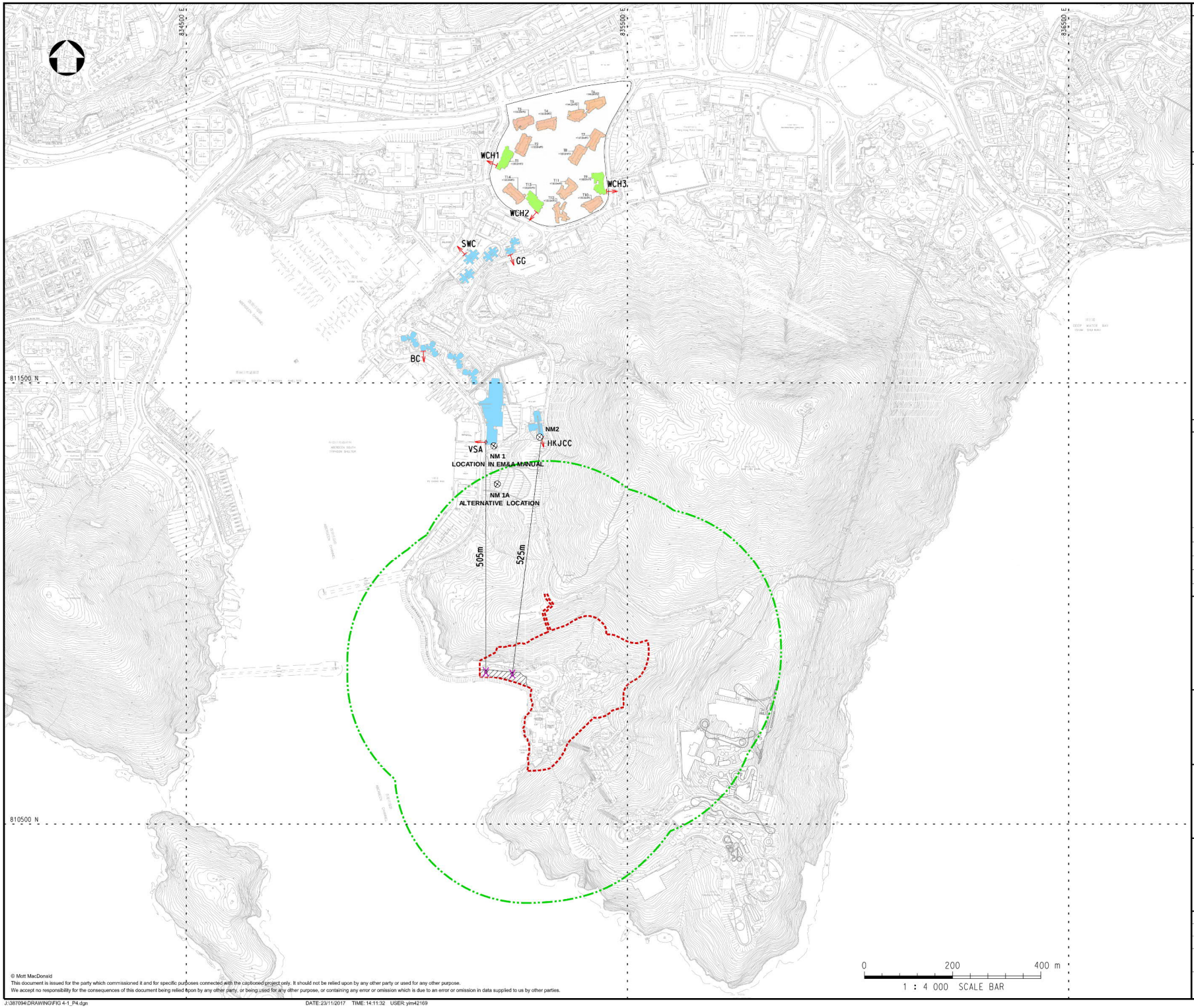
# DESIGNATED MONITORING LOCATIONS AS RECOMMENDED IN THE APPROVED EM&A MANUAL

| | | | | | |
|---|---|---|---|---|---|
| Designed | HL | | Eng check | JC | |
| Drawn | MING | | Coordination | HC | |
| Dwg check | HL | | Approved | EC | |
| Scale at A1 | 1:4000 | Status | PRE | Rev | P4 |

Drawing Number

**APPENDIX D**

# E. Actual Locations of Impact Monitoring




Notes

Key to symbols

- NOISE MONITORING STATION
- 300m ASSESSMENT AREA
- REVISED PROJECT BOUNDARY
- ADDITIONAL WORKS AREA AT SHUM WAN ROAD
- EXISTING NOISE SENSITIVE RECEIVER
- PLANNED NOISE SENSITIVE RECEIVER
- NOTIONAL SOURCE POSITION

| NSRID | DESCRIPTION |
|---|---|
| VSA | VICTORIA SHANGHAI ACADEMY |
| HKJCC | HONG KONG JUVENILE CARE CENTRE |
| BC | BROADVIEW COURT |
| SWC | SOUTH WAVE COURT |
| WCH | PLANNED DEVELOPMENT ON WONG CHUK HANG STATION DEPOT |
| GG | GRANDVIEW GARDEN |

Reference drawings

| Rev | Date | Drawn | Description | Ch'k'd | App'd |
|---|---|---|---|---|---|
| P4 | NOV 17 | MING | FOURTH ISSUE | HL | EC |
| P3 | NOV 17 | MING | THIRD ISSUE | HL | EC |
| P2 | AUG 17 | TSE | SECOND ISSUE | HL | EC |
| P1 | JUL 17 | TSE | FIRST ISSUE | HL | EC |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Client

Ocean Park Hong Kong 香港海洋公園

Project

TAI SHUE WAN DEVELOPMENT AT OCEAN PARK

Title

# ACTUAL LOCATION OF IMPACT MONITORING

| | | | | | |
|---|---|---|---|---|---|
| Designed | HL | | Eng check | JC | |
| Drawn | MING | | Coordination | HC | |
| Dwg check | HL | | Approved | EC | |
| Scale at A1 | 1:4000 | Status | PRE | Rev | P4 |

Drawing Number

**APPENDIX E**

# F. Calibration Certificates

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

# Certificate of Calibration
# 校正證書

Certificate No. : C181259
證書編號

**ITEM TESTED / 送檢項目** ( Job No. / 序引編號 : IC18-0475 ) Date of Receipt / 收件日期 : 5 March 2018

| | | |
|---|---|---|
| Description / 儀器名稱 | : | Sound Level Meter |
| Manufacturer / 製造商 | : | Rion |
| Model No. / 型號 | : | NL-52 |
| Serial No. / 編號 | : | 01010406 |
| Supplied By / 委託者 | : | Envirotech Services Co.<br>Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,<br>New Territories, Hong Kong |

**TEST CONDITIONS / 測試條件**

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%
Line Voltage / 電壓 : ---

**TEST SPECIFICATIONS / 測試規範**

Calibration check

**DATE OF TEST / 測試日期** : 11 March 2018

**TEST RESULTS / 測試結果**

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong, Technical Officer

Certified By 核證 : K C Lee, Engineer

Date of Issue 簽發日期 : 12 March 2018



Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel 電話: 2927 2606 Fax 傳真: 2744 8986 E-mail 電郵: callab@suncreation.com Website 網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

# Certificate of Calibration
# 校正證書

Certificate No. : C181259
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

| Equipment ID | Description | Certificate No. |
|---|---|---|
| CL280 | 40 MHz Arbitrary Waveform Generator | C180024 |
| CL281 | Multifunction Acoustic Calibrator | PA160023 |

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 61672 Class 1 Spec. (dB) |
|---|---|---|---|---|---|---|---|
| Range (dB) | Function | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | | |
| 30 - 130 | $L_A$ | A | Fast | 94.00 | 1 | 94.1 | ± 1.1 |

6.1.2 Linearity

| UUT Setting | | | | Applied Value | | UUT Reading (dB) |
|---|---|---|---|---|---|---|
| Range (dB) | Function | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | |
| 30 - 130 | $L_A$ | A | Fast | 94.00 | 1 | 94.1 (Ref.) |
| | | | | 104.00 | | 104.1 |
| | | | | 114.00 | | 114.1 |

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 61672 Class 1 Spec. (dB) |
|---|---|---|---|---|---|---|---|
| Range (dB) | Function | Frequency Weighting | Time Weighting | Level (dB) | Freq. (kHz) | | |
| 30 - 130 | $L_A$ | A | Fast | 94.00 | 1 | 94.1 | Ref. |
| | | | Slow | | | 94.1 | ± 0.3 |

# Certificate of Calibration
# 校正證書

Certificate No. : C181259
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 61672 Class 1 Spec. (dB) |
|---|---|---|---|---|---|---|---|
| Range (dB) | Function | Frequency Weighting | Time Weighting | Level (dB) | Freq. | | |
| 30 - 130 | $L_A$ | A | Fast | 94.00 | 63 Hz | 67.8 | -26.2 ± 1.5 |
| | | | | | 125 Hz | 77.9 | -16.1 ± 1.5 |
| | | | | | 250 Hz | 85.4 | -8.6 ± 1.4 |
| | | | | | 500 Hz | 90.9 | -3.2 ± 1.4 |
| | | | | | 1 kHz | 94.1 | Ref. |
| | | | | | 2 kHz | 95.3 | +1.2 ± 1.6 |
| | | | | | 4 kHz | 95.1 | +1.0 ± 1.6 |
| | | | | | 8 kHz | 93.1 | -1.1 (+2.1 ; -3.1) |
| | | | | | 12.5 kHz | 89.7 | -4.3 (+3.0 ; -6.0) |

6.3.2 C-Weighting

| UUT Setting | | | | Applied Value | | UUT Reading (dB) | IEC 61672 Class 1 Spec. (dB) |
|---|---|---|---|---|---|---|---|
| Range (dB) | Function | Frequency Weighting | Time Weighting | Level (dB) | Freq. | | |
| 30 - 130 | $L_C$ | C | Fast | 94.00 | 63 Hz | 93.3 | -0.8 ± 1.5 |
| | | | | | 125 Hz | 93.9 | -0.2 ± 1.5 |
| | | | | | 250 Hz | 94.1 | 0.0 ± 1.4 |
| | | | | | 500 Hz | 94.1 | 0.0 ± 1.4 |
| | | | | | 1 kHz | 94.1 | Ref. |
| | | | | | 2 kHz | 93.9 | -0.2 ± 1.6 |
| | | | | | 4 kHz | 93.3 | -0.8 ± 1.6 |
| | | | | | 8 kHz | 91.2 | -3.0 (+2.1 ; -3.1) |
| | | | | | 12.5 kHz | 87.7 | -6.2 (+3.0 ; -6.0) |

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 04870

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

| | | |
|---|---|---|
| 94 dB : | 63 Hz - 125 Hz | : ± 0.35 dB |
| | 250 Hz - 500 Hz | : ± 0.30 dB |
| | 1 kHz | : ± 0.20 dB |
| | 2 kHz - 4 kHz | : ± 0.35 dB |
| | 8 kHz | : ± 0.45 dB |
| | 12.5 kHz | : ± 0.70 dB |
| 104 dB : | 1 kHz | : ± 0.10 dB (Ref. 94 dB) |
| 114 dB : | 1 kHz | : ± 0.10 dB (Ref. 94 dB) |

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

# Certificate of Calibration
# 校正證書

Certificate No. : C175522
證書編號

**ITEM TESTED / 送檢項目** ( Job No. / 序引編號 : IC17-2161 ) Date of Receipt / 收件日期 : 18 September 2017

| | | |
|---|---|---|
| Description / 儀器名稱 | : | Precision Acoustic Calibrator |
| Manufacturer / 製造商 | : | LARSON DAVIS |
| Model No. / 型號 | : | CAL200 |
| Serial No. / 編號 | : | 11334 |
| Supplied By / 委託者 | : | Envirotech Services Co.<br>Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,<br>New Territories, Hong Kong |

**TEST CONDITIONS / 測試條件**

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

**TEST SPECIFICATIONS / 測試規範**

Calibration check

**DATE OF TEST / 測試日期** : 2 October 2017

**TEST RESULTS / 測試結果**

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- *Rohde & Schwarz Laboratory, Germany*
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong
Technical Officer

Certified By 核證 : K C Lee
Engineer

Date of Issue 簽發日期 : 3 October 2017



Sun Creation Engineering Limited, Calibration & Testing Laboratory
Tel: [illegible] Fax: [illegible] Email: [illegible] Website: www.suncreation.com

# Certificate of Calibration
# 校正證書

Certificate No. : C175522
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

| Equipment ID | Description | Certificate No. |
|---|---|---|
| CL130 | Universal Counter | C173864 |
| CL281 | Multifunction Acoustic Calibrator | PA160023 |
| TST150A | Measuring Amplifier | C161175 |

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

| UUT Nominal Value | Measured Value (dB) | Mfr's Spec. (dB) | Uncertainty of Measured Value (dB) |
|---|---|---|---|
| 94 dB, 1 kHz | 93.9 | ± 0.2 | ± 0.2 |
| 114 dB, 1 kHz | 113.9 | | |

5.2 Frequency Accuracy

| UUT Nominal Value (kHz) | Measured Value (kHz) | Mfr's Spec. | Uncertainty of Measured Value (Hz) |
|---|---|---|---|
| 1 | 1.000 | 1 kHz ± 1 % | ± 1 |

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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Sun Creation Engineering Limited
Calibration and Testing Laboratory

# Certificate of Calibration
# 校正證書

Certificate No. : C175727
證書編號

**ITEM TESTED / 送檢項目** ( Job No. / 序引編號 : IC17-2277 ) Date of Receipt / 收件日期 : 3 October 2017

Description / 儀器名稱 : Anemometer
Manufacturer / 製造商 : Lutron
Model No. / 型號 : AM-4201
Serial No. / 編號 : AF.27513
Supplied By / 委託者 : Envirotech Services Co.
Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
New Territories, Hong Kong

**TEST CONDITIONS / 測試條件**

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

**TEST SPECIFICATIONS / 測試規範**

Calibration check

**DATE OF TEST / 測試日期** : 13 October 2017

**TEST RESULTS / 測試結果**

The results apply to the particular unit-under-test only.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- Testo Industrial Services GmbH, Germany

Tested By 測試 : H C Chan, Engineer

Certified By 核證 : K C Lee, Engineer

Date of Issue 簽發日期 : 16 October 2017



Sun Creation Engineering Limited - Calibration & Testing Laboratory
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輝創工程有限公司 - 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel 電話: 2927 2606 Fax 傳真: 2744 8986 E-mail 電郵: callab@suncreation.com Website 網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

# Certificate of Calibration
# 校正證書

Certificate No. : C175727
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 10 measurements at each calibration point.

3. Test equipment :

| Equipment ID | Description | Certificate No. |
|---|---|---|
| CL386 | Multi-function Measuring Instrument | S16493 |

4. Test procedure : MA130N.

5. Results :

Air Velocity

| Applied Value (m/s) | UUT Reading (m/s) | Measured Correction | | |
|---|---|---|---|---|
| | | Value (m/s) | Measurement Uncertainty | |
| | | | Expanded Uncertainty (m/s) | Coverage Factor |
| 1.9 | 1.7 | +0.2 | 0.2 | 2.0 |
| 4.0 | 3.8 | +0.2 | 0.2 | 2.0 |
| 6.0 | 5.9 | +0.1 | 0.3 | 2.0 |
| 8.0 | 8.0 | 0.0 | 0.3 | 2.0 |
| 10.0 | 10.1 | -0.1 | 0.4 | 2.0 |

Remarks : - The Measured Corrections are defined as :
Value = Applied Value - UUT Reading

- The expanded uncertainties are for a level of confidence of 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.



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# G. Event and Action Plan

Event and Action Plan for Construction Noise

| Event | Action | | | |
|---|---|---|---|---|
| | ET | IEC | ER | Contractor |
| Action Level | 1. Notify ER, IEC and Contractor;<br>2. Carry out investigation;<br>3. Report the results of investigation to the IEC, ER and Contractor;<br>4. Discuss with the IEC and Contractor on remedial measures required;<br>5. Increase monitoring frequency to check mitigation effectiveness. | 1. Review the investigation results submitted by the ET;<br>2. Review the proposed remedial measures by the Contractor and advise the ER accordingly;<br>3. Advise the ER on the effectiveness of the proposed remedial measures. | 1. Confirm receipt of notification of failure in writing;<br>2. Notify Contractor;<br>3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;<br>4. Supervise the implementation of remedial measures. | 1. Submit noise mitigation proposals to IEC and ER;<br>2. Implement noise mitigation proposals. |
| Limit Level | 1. Inform IEC, ER, Contractor and EPD;<br>2. Repeat measurements to confirm findings;<br>3. Increase monitoring frequency;<br>4. Identify source and investigate the cause of exceedance;<br>5. Carry out analysis of Contractor's working procedures;<br>6. Discuss with the IEC, Contractor and ER on remedial measures required;<br>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;<br>8. If exceedance stops, cease additional monitoring. | 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;<br>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. | 1. Confirm receipt of notification of failure in writing;<br>2. Notify Contractor;<br>3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented;<br>4. Supervise the implementation of remedial measures;<br>5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated. | 1. Take immediate action to avoid further exceedance;<br>2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification;<br>3. Implement the agreed proposals;<br>4. Submit further proposal if problem still not under control;<br>5. Stop the relevant portion of works as instructed by the ER until the exceedance is abated. |

Event and Action Plan for Landscape and Visual Impact during Construction Phase

| Action Level | Environmental Team Leader (ETL) | Independent Environmental Checker (IEC) | Engineer's Representative (ER) | Contractor |
|---|---|---|---|---|
| Non-conformity on one occasion | 1. Identify source<br>2. Inform the IEC and the ER<br>3. Discuss remedial actions with the IEC, the ER and the Contractor<br>4. Monitor remedial action until rectification has been completed | 1. Check report<br>2. Check the Contractor's working method<br>3. Discuss with the ER and the Contractor on possible remedial measures<br>4. Advise the ER on effectiveness of proposed remedial measures | 1. Notify the Contractor<br>2. Ensure remedial measures are properly implemented | 1. Amend working methods<br>2. Rectify damage and undertake remedial measures or any necessary replacement |
| Repeated Non-conformity | 1. Identify source<br>2. Inform the IEC and the ER<br>3. Increase monitoring (site audit) frequency<br>4. Discuss remedial actions with the IEC, the ER and the Contractor<br>5. Monitor remedial actions until rectification has been completed<br>6. If exceedance stops, cease additional monitoring (site audit) | 1. Check report<br>2. Check the Contractor's working method<br>3. Discuss with the ER and the Contractor on possible remedial measures<br>4. Advise the ER on effectiveness of proposed remedial measures<br>5. Supervise implementation of remedial measures | | |

# H. Impact Monitoring Schedule

# JULY 2018

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| 1<br>Noise Monitoring | 2 | 3<br>Noise Monitoring | 4 | 5 | 6<br>ET weekly site inspection<br>Landscape and Visual Monitoring | 7 |
| 8<br>Noise Monitoring | 9 | 10 | 11<br>Noise Monitoring | 12 | 13<br>ET weekly site inspection | 14 |
| 15<br>Noise Monitoring | 16 | 17 | 18 | 19<br>Noise Monitoring | 20<br>ET weekly site inspection<br>Landscape and Visual Monitoring<br>Ecological Monitoring | 21 |
| 22<br>Noise Monitoring | 23 | 24 | 25<br>Noise Monitoring | 26 | 27<br>ET weekly site inspection | 28 |
| 29<br>Noise Monitoring | 30 | 31<br>Noise Monitoring | | | | |

June 2018

| S | M | T | W | Th | F | Sa |
|---|---|---|---|---|---|---|
| | | | | | 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 |

August 2018

| S | M | T | W | Th | F | Sa |
|---|---|---|---|---|---|---|
| | | | 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 | |

**Notes:**

# AUGUST 2018

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3<br>ET weekly site inspection<br>Landscape and Visual Monitoring | 4 |
| 5 | 6 | 7 | 8<br>Noise Monitoring | 9 | 10<br>ET weekly site inspection | 11 |
| 12 | 13 | 14 | 15 | 16<br>Noise Monitoring | 17<br>ET weekly site inspection<br>Landscape and Visual Monitoring<br>Ecological Monitoring | 18 |
| 19 | 20 | 21 | 22<br>Noise Monitoring | 23 | 24<br>ET weekly site inspection | 25 |
| 26 | 27 | 28<br>Noise Monitoring | 29 | 30 | 31<br>ET weekly site inspection | |

July 2018

| S | M | T | W | Th | F | Sa |
|---|---|---|---|---|---|---|
| 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 | | | | |

September 2018

| S | M | T | W | Th | F | Sa |
|---|---|---|---|---|---|---|
| | | | | | | 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 | | | | | | |

**Notes:**

# I. Noise Monitoring Data

## Noise Monitoring Data - Summary of Construction Noise Monitoring Results (30mins), dB(A)

| NM1A - Slope near the Victoria Shanghai Academy | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Date** | **Time** | | **Noise Levels, dB(A)** | | | **Wind Speed (ms-1)** | **Limit Level for $L_{eq}$ (dB(A)) [2]** |
| | **Start** | **Finish** | **Corrected $L_{eq}$(30min) [1]** | **Corrected $L_{90}$ [1]** | **Corrected $L_{10}$ [1]** | | |
| 03-Jul-18 | 10:08 | 10:38 | 60.6 | 58.8 | 62.6 | 0.5 | 70 |
| 11-Jul-18 | 10:40 | 11:10 | 59.6 | 58.5 | 61.4 | 0.3 | 70 |
| 19-Jul-18 | 10:18 | 10:48 | 59.1 | 58.0 | 60.3 | 0.5 | 70 |
| 25-Jul-18 | 10:00 | 10:30 | 59.4 | 58.1 | 60.8 | 0.3 | 70 |
| 31-Jul-18 | 10:10 | 10:40 | 59.1 | 57.9 | 60.5 | 0.2 | 70 |

| NM2 - Hong Kong Juvenile Care Centre | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Date** | **Time** | | **Noise Levels, dB(A)** | | | **Wind Speed (ms-1)** | **Limit Level for $L_{eq}$ (dB(A))[2]** |
| | **Start** | **Finish** | **$L_{eq}$(30min)** | **$L_{90}$** | **$L_{10}$** | | |
| 03-Jul-18 | 09:30 | 10:00 | 54.7 | 53.1 | 56.2 | 0.3 | 70 |
| 11-Jul-18 | 10:00 | 10:30 | 53.1 | 51.7 | 54.7 | 0.3 | 70 |
| 19-Jul-18 | 09:40 | 10:10 | 51.1 | 50.1 | 52.5 | 0.5 | 70 |
| 25-Jul-18 | 14:30 | 15:00 | 51.0 | 49.8 | 52.3 | 0.3 | 70 |
| 31-Jul-18 | 09:30 | 10:00 | 51.3 | 49.8 | 52.8 | 0.2 | 70 |

## Noise Monitoring Data - Summary of Construction Noise Monitoring Results (15mins), dB(A)

| NM1A - Slope near the Victoria Shanghai Academy | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Date** | **Time** | | **Noise Levels, dB(A)** | | | **Wind Speed (ms-1)** | **Limit Level for $L_{eq}$ (dB(A)) (3)** |
| | **Start** | **Finish** | **Corrected $L_{eq}$(15min) (1)** | **Corrected $L_{90}$ (1)** | **Corrected $L_{10}$ (1)** | | |
| 01-Jul-18 | 11:00 | 11:15 | 55.5 | 52.6 | 57.8 | 0.2 | 70 |
| 08-Jul-18 | 09:15 | 09:30 | 54.9 | 50.1 | 56.1 | 0.4 | 70 |
| 15-Jul-18 | 15:03 | 15:18 | 54.0 | 50.3 | 55.3 | 0.2 | 70 |
| 22-Jul-18 | 16:53 | 17:08 | 52.7 | 49.7 | 54.8 | 0.4 | 70 |
| 29-Jul-18 | 10:55 | 11:10 | 55.5 | 52.1 | 57.4 | 0.2 | 70 |

| NM2 - Hong Kong Juvenile Care Centre | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Date** | **Time** | | **Noise Levels, dB(A)** | | | **Wind Speed (ms-1)** | **Limit Level for $L_{eq}$ (dB(A))(3)** |
| | **Start** | **Finish** | **$L_{eq}$(15min)** | **$L_{90}$** | **$L_{10}$** | | |
| 01-Jul-18 | 10:35 | 10:50 | 51.0 | 47.7 | 54.1 | 0.2 | 65 |
| 08-Jul-18 | 09:40 | 09:55 | 46.9 | 44.9 | 51.3 | 0.4 | 65 |
| 15-Jul-18 | 14:38 | 14:53 | 51.2 | 47.1 | 53.1 | 0.2 | 65 |
| 22-Jul-18 | 16:30 | 16:45 | 49.3 | 44.8 | 51.2 | 0.4 | 65 |
| 29-Jul-18 | 10:30 | 10:45 | 52.5 | 45.9 | 54.6 | 0.2 | 65 |

**Notes:**

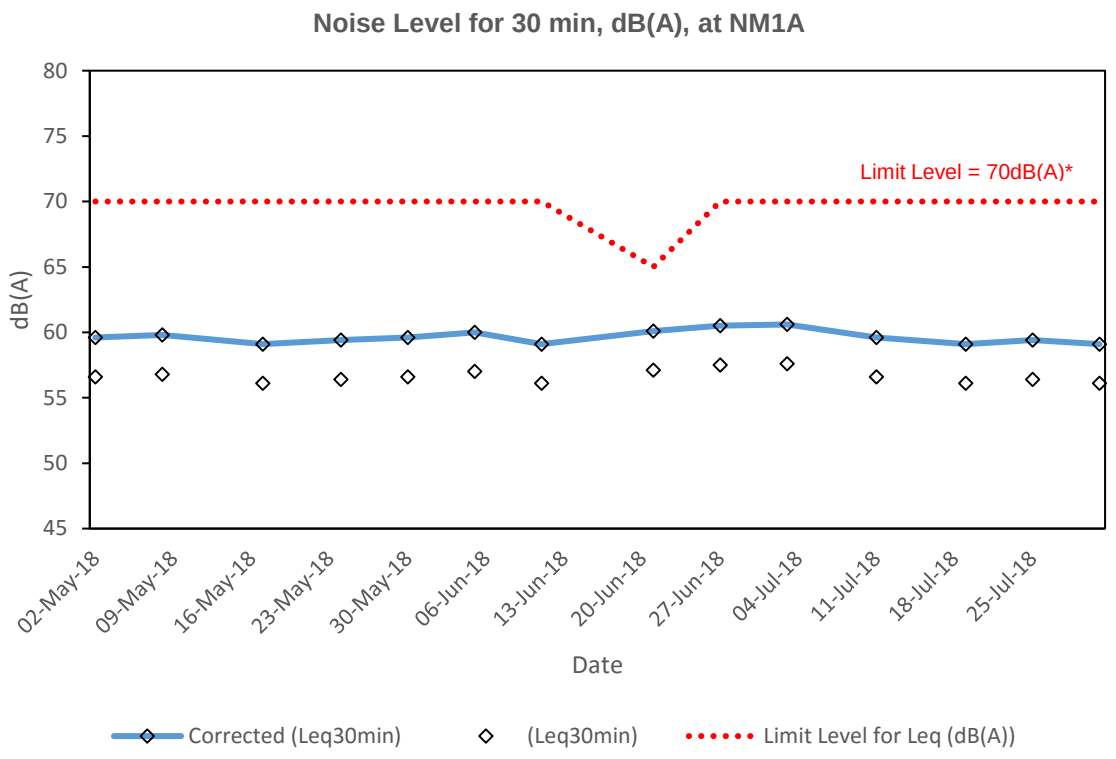
(1) A free field correction of +3dB(A) has been made to these measurements as specified in the EM&A Manual and EPD guidelines.

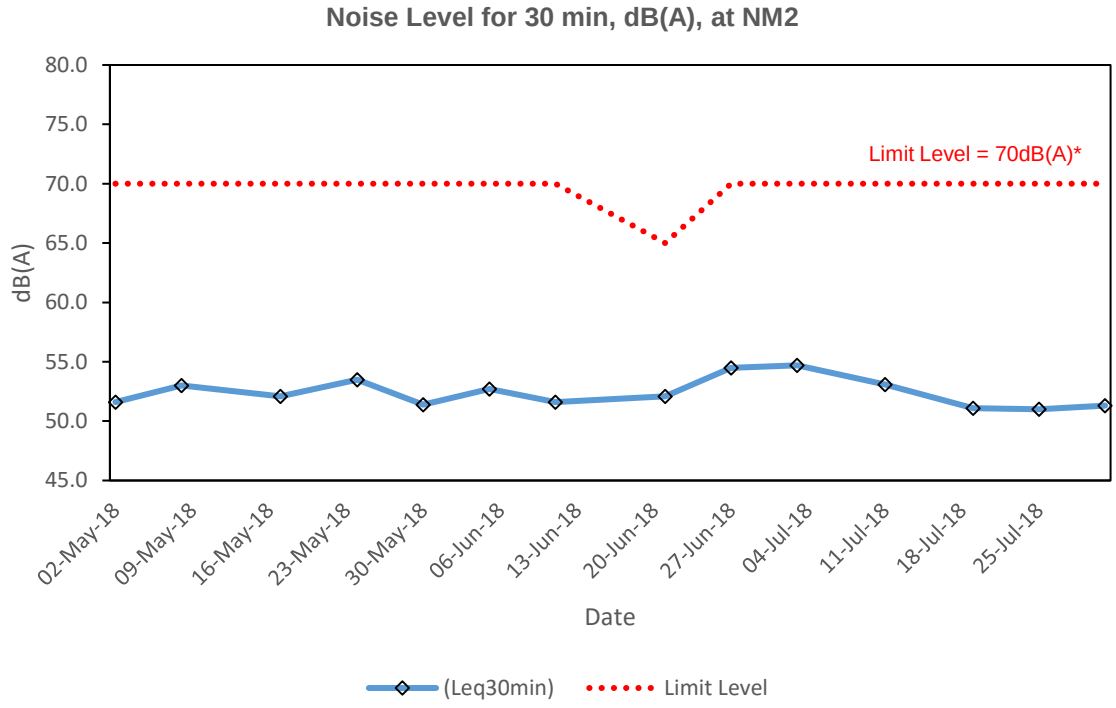
(2) Acceptable Noise Levels for school should be reduced to 65 dB(A) during examination period.

(3) Technical memorandum on noise from construction work other than percussive piling – Section 4 Table 2.

# J. Graphical Plots for Noise Monitoring Data

## Graphical Plot for Noise Monitoring Data (May - July 2018)



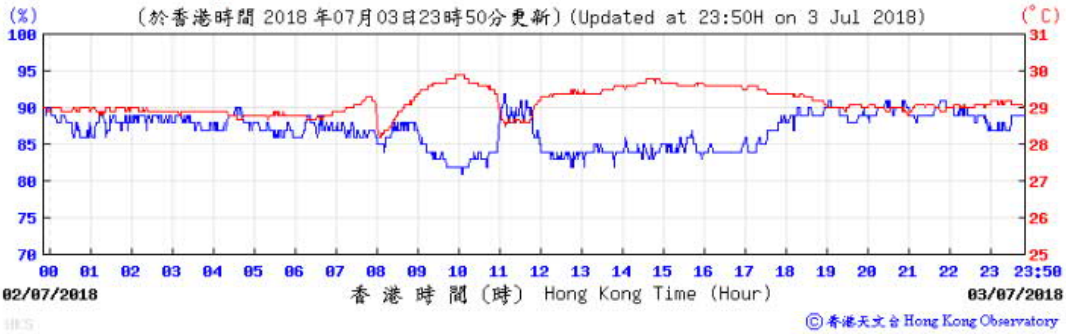




Note: *Acceptable Noise Levels for school should be reduced to 65 dB(A) during examination period.

# K. Meteorological Data

3/7/2018 **Wong Chuk Hang Station**

Tempearture/Humidity:




Pressure:

Wind Direction:

(於香港時間 2018 年07月03日23時50分更新) (Updated at 23:50H on 3 Jul 2018)

"風向"- 現正維修
"Wind Direction" - Under Maintenance.

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Wind Speed:

(公里/小時) (於香港時間 2018 年 7月 3日23時50分更新) (Updated at 23:50H on 3 Jul 2018) (km/h)

"風速"- 現正維修
"Wind Speed" - Under Maintenance.

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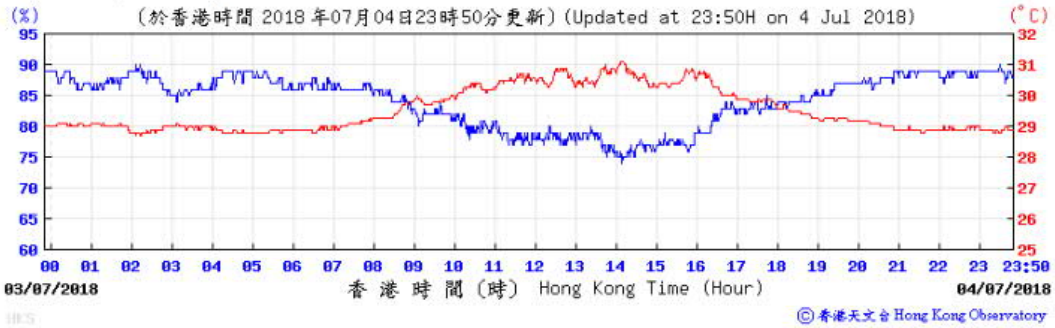
4/7/2018

Tempearture/Humidity:



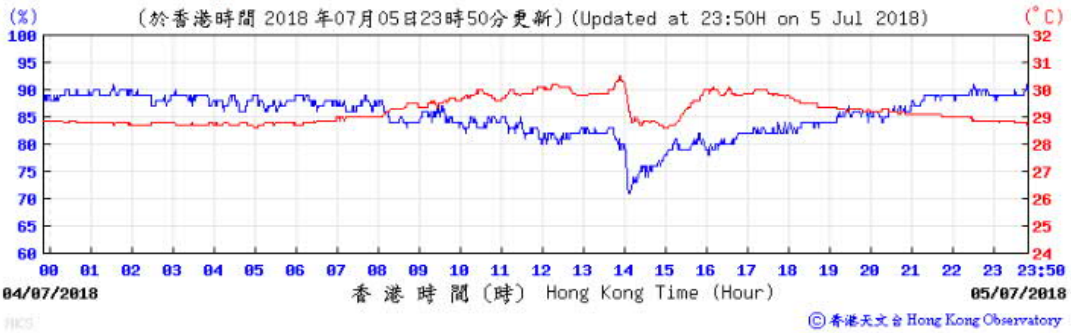

Pressure:

Wind Direction:


Wind Speed:

5/7/2018

Tempearture/Humidity:



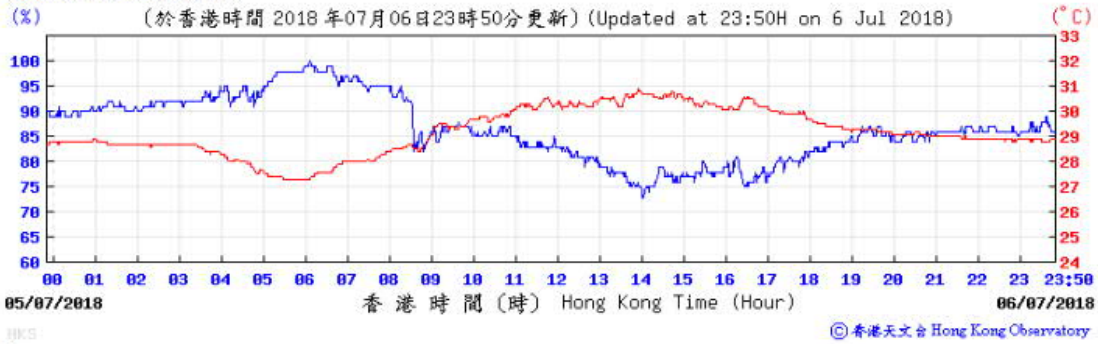

Pressure:

Wind Direction:


Wind Speed:

6/7/2018

Tempearture/Humidity:



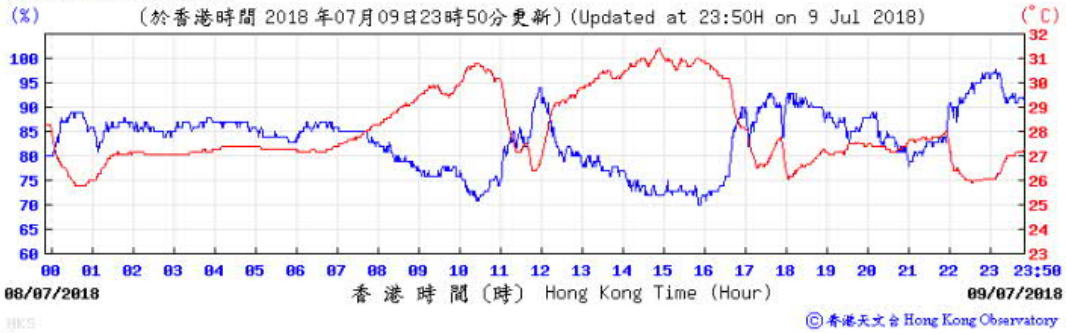

Pressure:

Wind Direction:


Wind Speed:

9/7/2018

Tempearture/Humidity:



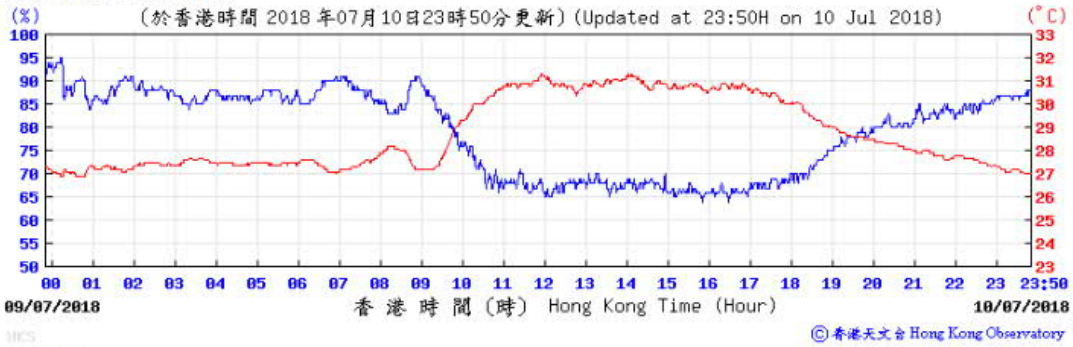

Pressure:

Wind Direction:


Wind Speed:

10/7/2018

Tempearture/Humidity:



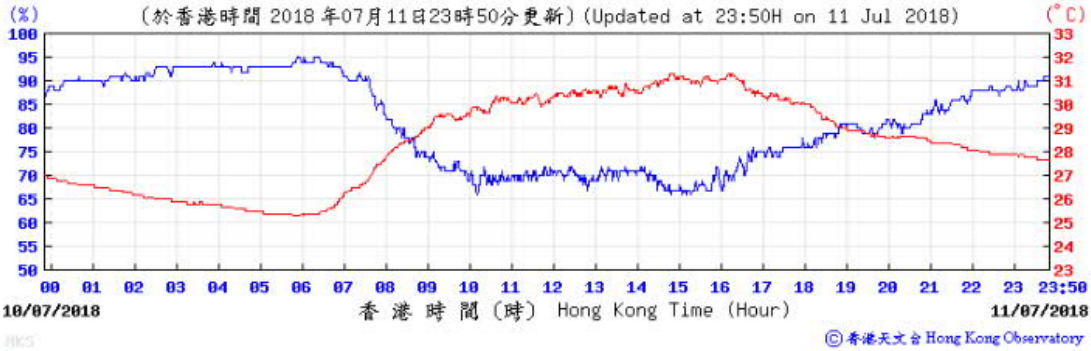

Pressure:

Wind Direction:


Wind Speed:

11/7/2018

Tempearture/Humidity:



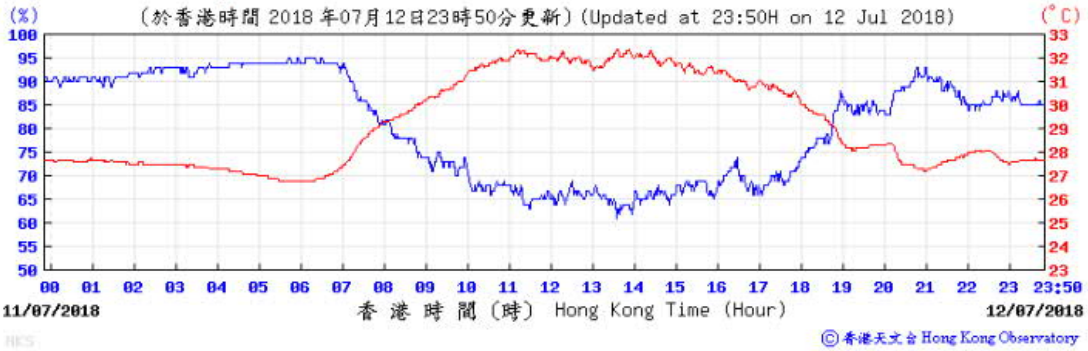

Pressure:

Wind Direction:


Wind Speed:

12/7/2018

Tempearture/Humidity:



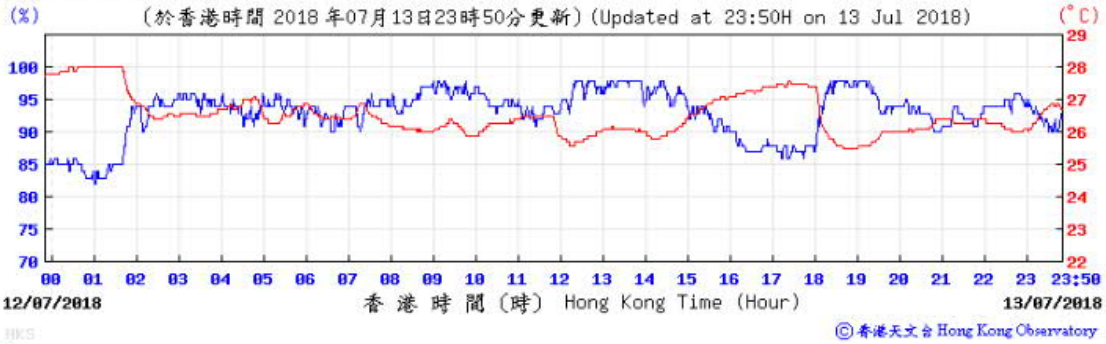

Pressure:

Wind Direction:


Wind Speed:

13/7/2018

Tempearture/Humidity:



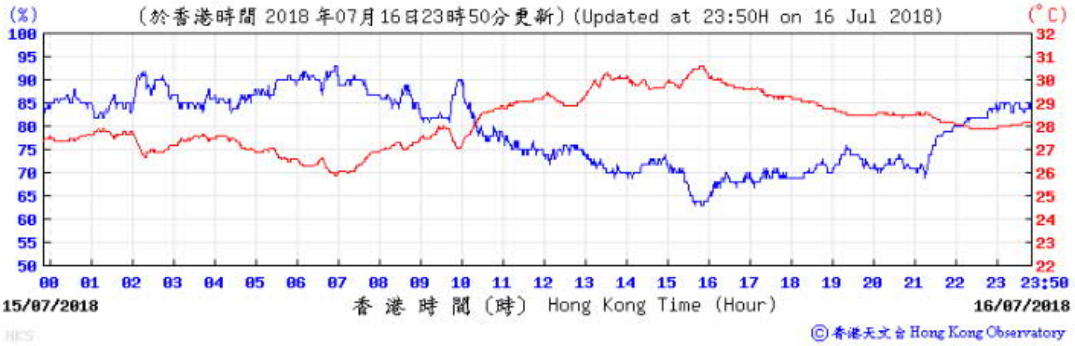

Pressure:

Wind Direction:


Wind Speed:

16/7/2018

Tempearture/Humidity:



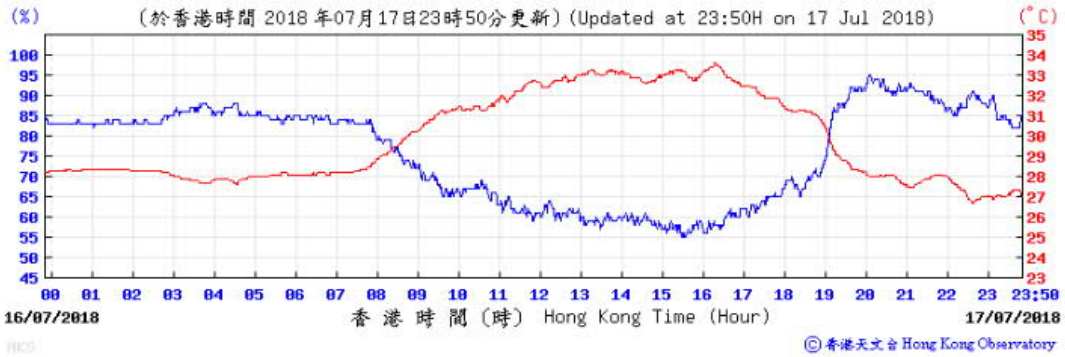

Pressure:

Wind Direction:


Wind Speed:

17/7/2018

Tempearture/Humidity:



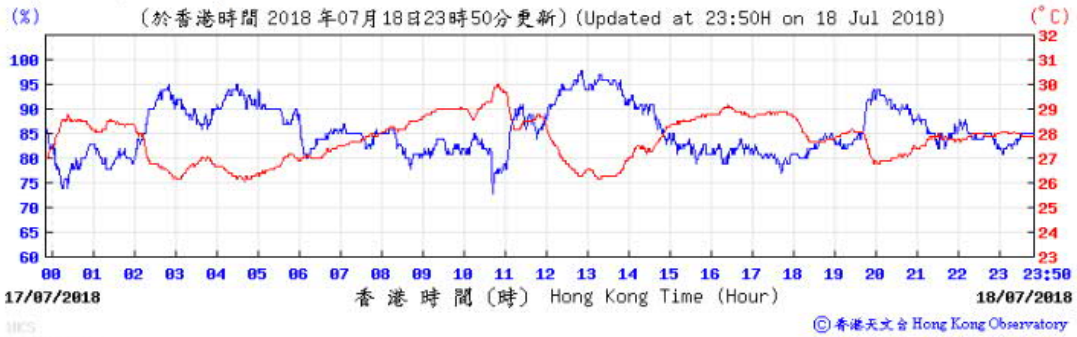

Pressure:

Wind Direction:


Wind Speed:

18/7/2018

Tempearture/Humidity:



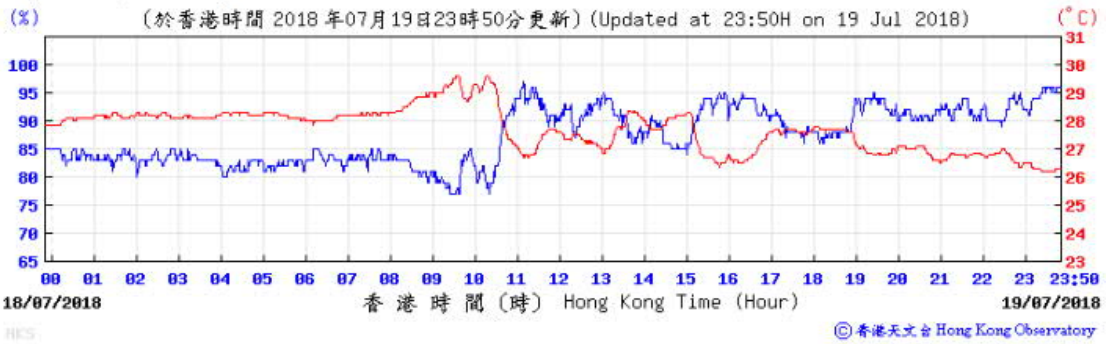

Pressure:

Wind Direction:


Wind Speed:

19/7/2018

Tempearture/Humidity:



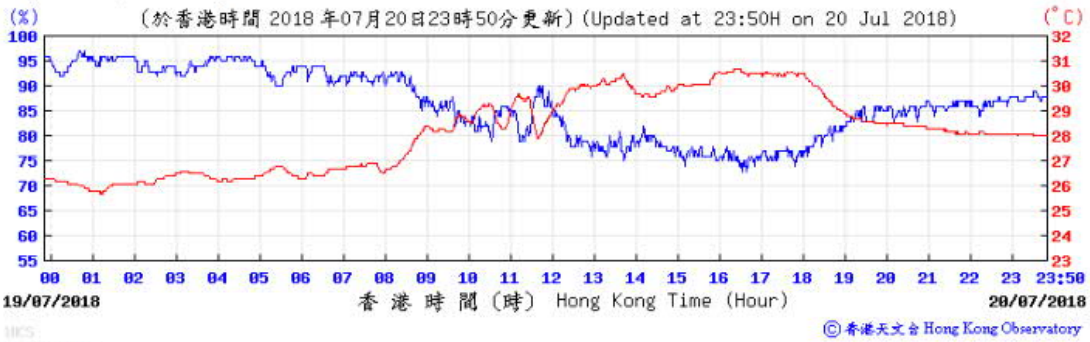

Pressure:

Wind Direction:


Wind Speed:

20/7/2018

Tempearture/Humidity:



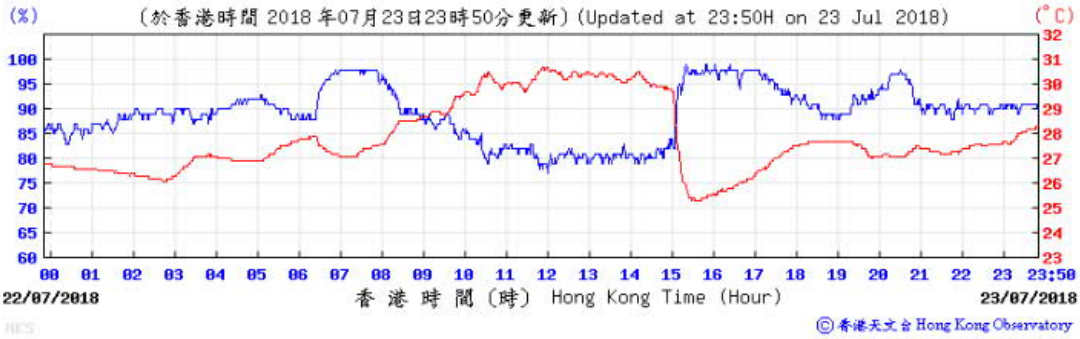

Pressure:

Wind Direction:


Wind Speed:

23/7/2018

Tempearture/Humidity:




Pressure:

Wind Direction:


Wind Speed:

24/7/2018

Tempearture/Humidity:

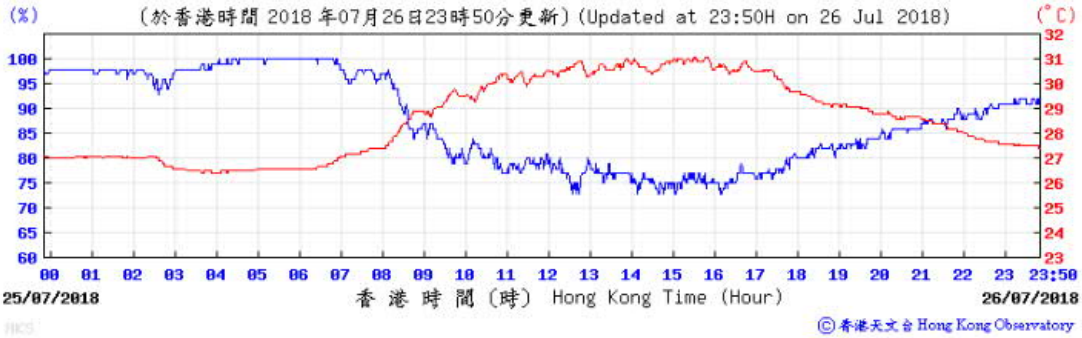

Pressure:

Wind Direction:


Wind Speed:

26/7/2018

Tempearture/Humidity:




Pressure:

Wind Direction:


Wind Speed:

27/7/2018

Tempearture/Humidity:

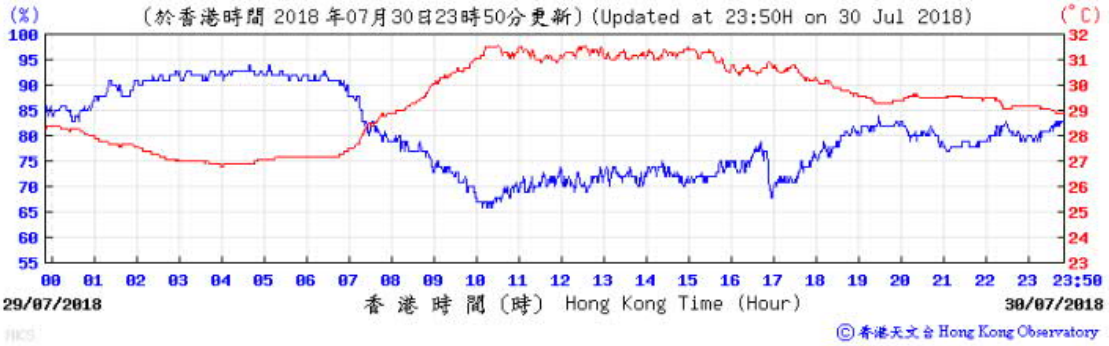

Pressure:

Wind Direction:


Wind Speed:

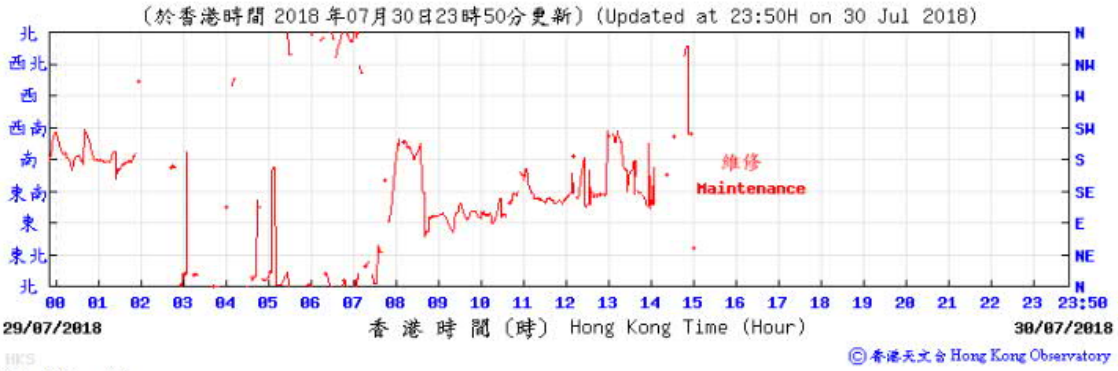
30/7/2018

Tempearture/Humidity:

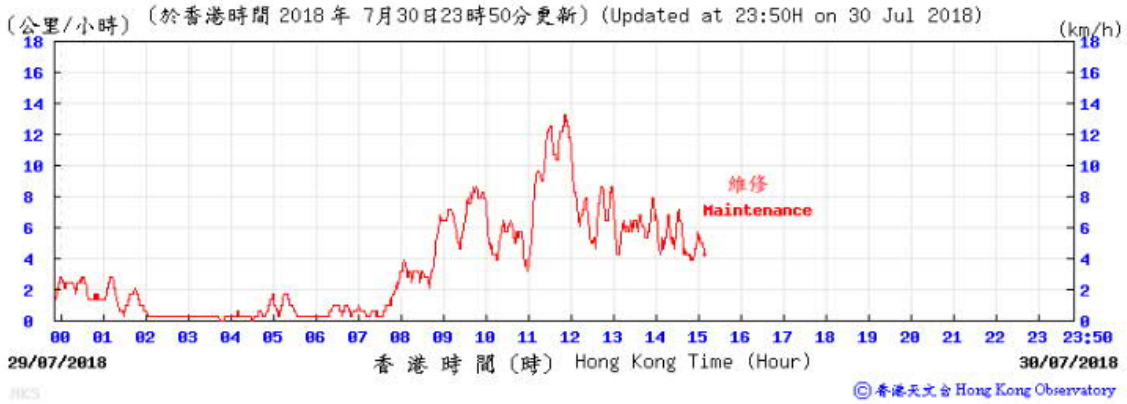



Pressure:

Wind Direction:

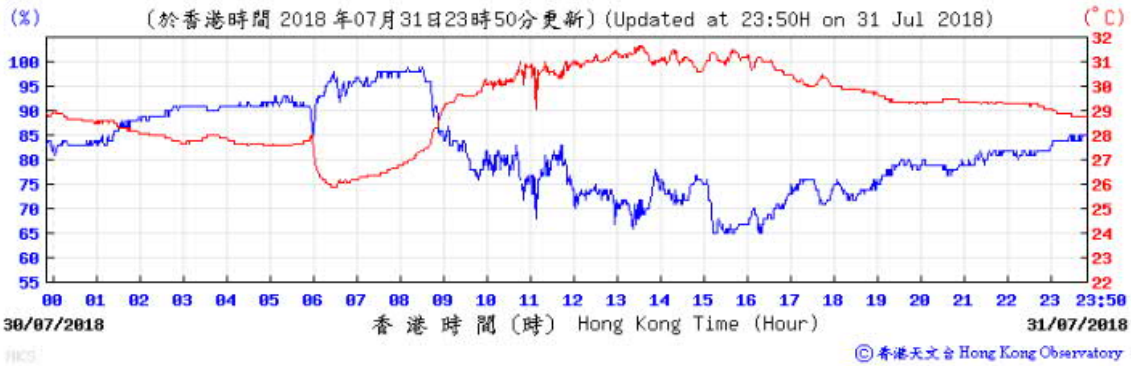



Wind Speed:



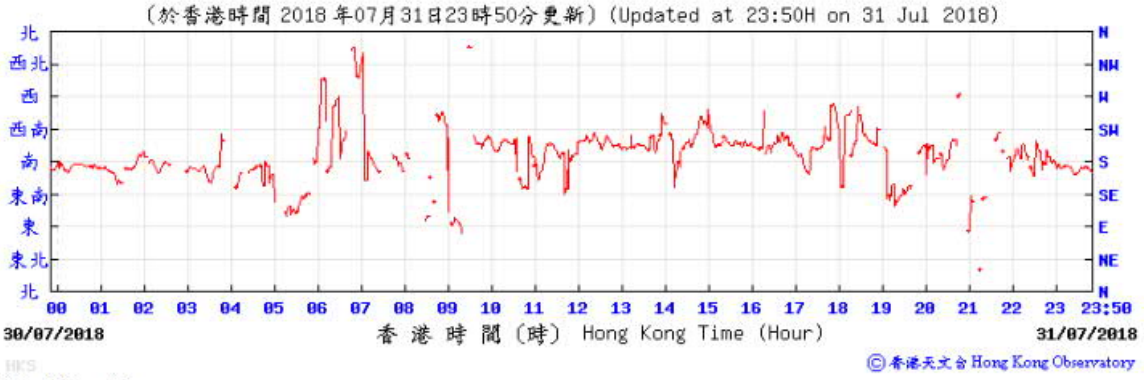
31/7/2018

Tempearture/Humidity:

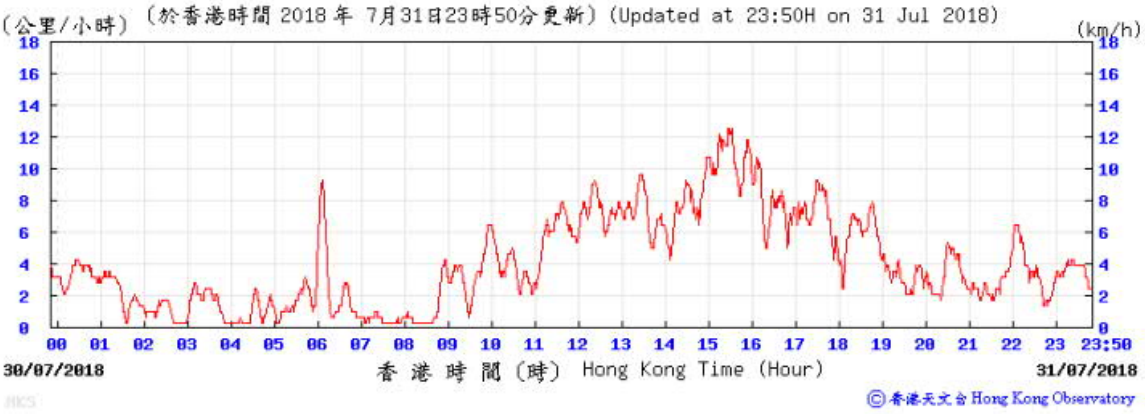



Pressure:

Wind Direction:




Wind Speed:



# L. Ecological Inspection Records

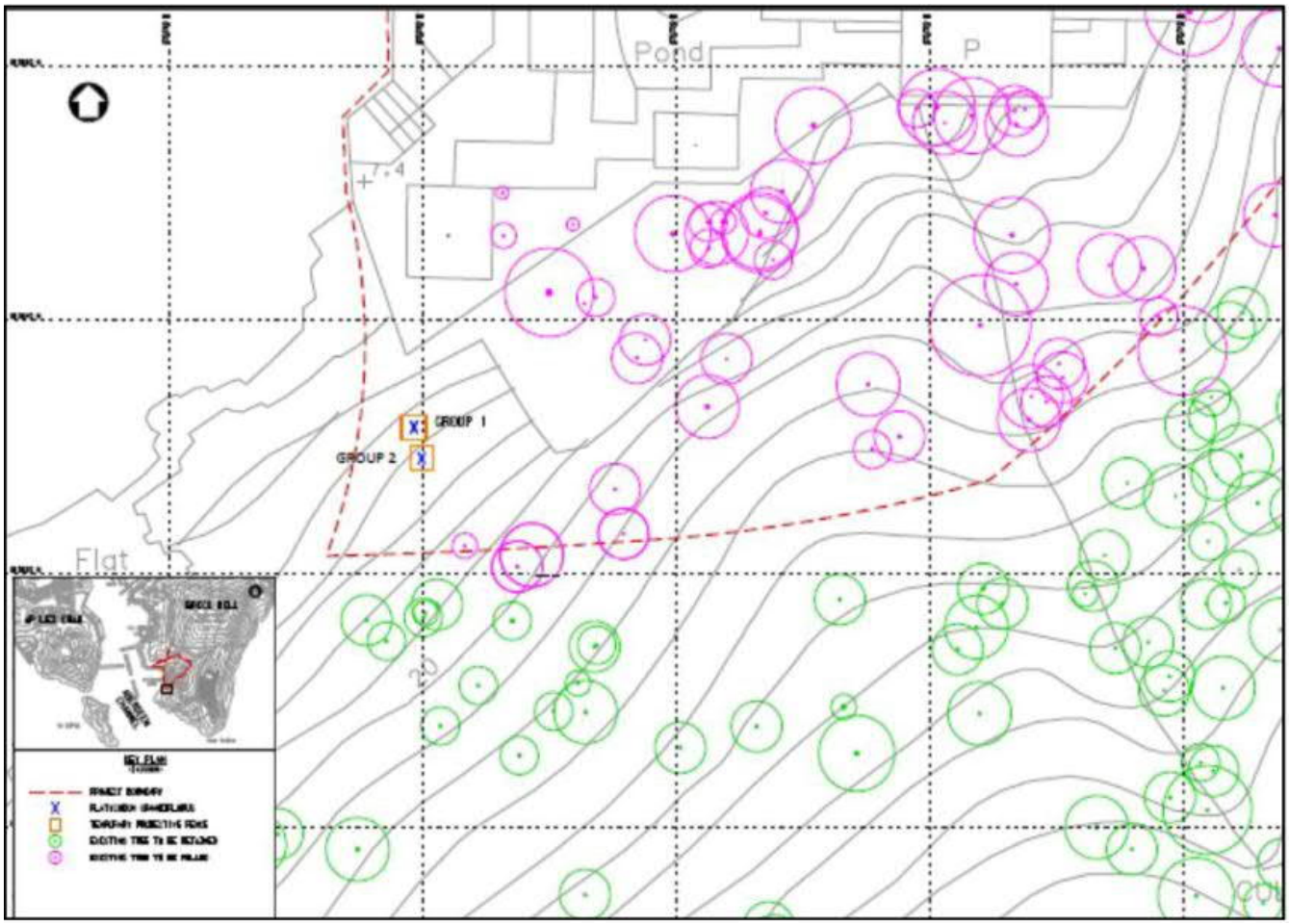
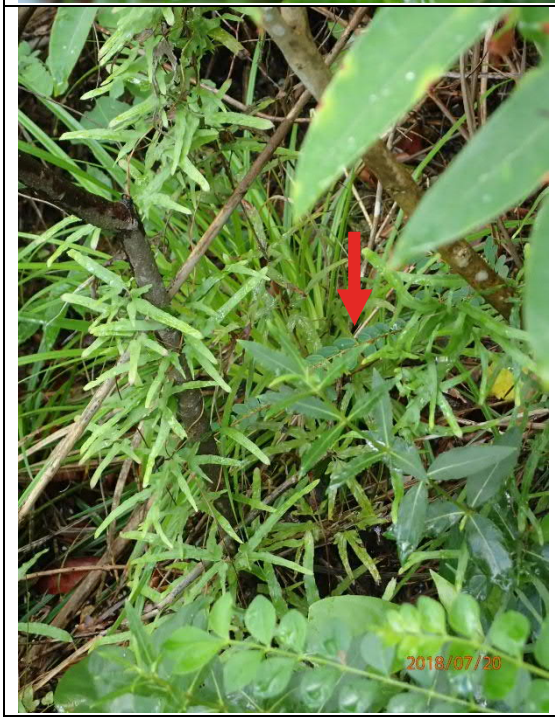



**Figure 1 – Location of Two Groups of *Platycodon Grandiforus***

| | |
|---|---|
|  | Photo 1 – Group 1 of *Platycodon Grandiforus* |
|  | Photo 2 – Group 2 of *Platycodon Grandiforus* |

| | |
|---|---|
|   | Photo 3 – Current situation of fencing and warning sign |

# M. Waste Flow Table

**Ocean Park Tai Shue Wan Water World Project Contract No. TSW-C006**
**Waterpark - Main Building Works**

## Monthly Summary Waste Flow Table for 2018 (Year)

| Month | Quantity of Inert C&D Materials | | | | | | | | Quantity of Non-inert C&D Materials (i.e. C&D Wastes) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Generated | Disposed | | | | Reused | | | Recycled | | | Disposed | |
| | Total Quantity Generated | Disposed as Public Fill at CW-PFBP | Disposed as Public Fill at TKO137 | Disposed as Public Fill at TM38 | Total Quantity Disposal | Reused in the Contract | Reused in other Projects | Total Quantity Reused | *Metals | Paper/ cardboard packaging | Plastics | Chemical Waste | General Refuse |
| **Unit** | (Tonne) | (Tonne) | (Tonne) | (Tonne) | (Tonne) | (Tonne) | (Tonne) | (Tonne) | (kg) | (kg) | (kg) | (kg/ L) | (Tonne) |
| Jan | 7573.16 | 6488.47 | 430.69 | 0.00 | 6919.16 | 600.00 | 54.00 | 654.00 | 74670.00 | 0.00 | 0.00 | 0.00 | 134.96 |
| Feb | 6413.22 | 5417.91 | 495.31 | 0.00 | 5913.22 | 500.00 | 0.00 | 500.00 | 6520.00 | 91.00 | 0.00 | 0.00 | 95.61 |
| Mar | 5196.18 | 4092.33 | 358.36 | 75.49 | 4526.18 | 602.00 | 68.00 | 670.00 | 7180.00 | 271.00 | 0.00 | 0.00 | 234.16 |
| Apr | 5322.94 | 4399.56 | 411.38 | 0.00 | 4810.94 | 512.00 | 0.00 | 512.00 | 5260.00 | 231.00 | 0.00 | 0.00 | 163.40 |
| May | 3197.41 | 1701.51 | 195.90 | 0.00 | 1897.41 | 1300.00 | 0.00 | 1300.00 | 6690.00 | 101.00 | 0.00 | 0.00 | 287.390 |
| Jun | 4511.40 | 3746.81 | 404.59 | 0.00 | 4151.40 | 360.00 | 0.00 | 360.00 | 350.00 | 315.00 | 0.00 | 0.00 | 223.85 |
| SUB-TOTAL | 32214.31 | 25846.59 | 2296.23 | 75.49 | 28218.31 | 3874.00 | 122.00 | 3996.00 | 100670.00 | 1009.00 | 0.00 | 0.00 | 1139.37 |
| Jul | 2779.37 | 2335.98 | 263.39 | 0.00 | 2599.37 | 180.00 | 0.00 | 180.00 | 100.00 | 262.00 | 0.00 | 200.00 | 256.12 |
| Aug | | | | | | | | | | | | | |
| Sep | | | | | | | | | | | | | |
| Oct | | | | | | | | | | | | | |
| Nov | | | | | | | | | | | | | |
| Dec | | | | | | | | | | | | | |
| TOTAL | 34993.68 | 28182.57 | 2559.62 | 75.49 | 30817.68 | 4054.00 | 122.00 | 4176.00 | 100770.00 | 1271.00 | 0.00 | 200.00 | 1395.49 |

Note:

*Recycled Metals quantity in 4 months (February, March, April and May) has been updated in the Reporting Period

# N. Implementation Schedule for Environmental Mitigation Measures

# Appendix C. Implementation Schedule for Environmental Mitigation Measures

| EIA Ref. | EM&A Log Ref. | Environmental Protection Measures | Location / Duration of measures / Timing of completion of measures | Implementation Agent | Implementation Stage[1] | | | | Relevant Legislation & Guidelines |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Des | Con | Op | Dec | |
| **Cat.1 Key/specific proposed mitigation measure** | | | | | | | | | |
| **Noise Impact (Construction)** | | | | | | | | | |
| 5.7 | 3.2 | **Selecting Quiet Plant**<br>The actual SWL of quiet plant is less than the value specified in GW-TM for the same piece of equipment. It should be noted that the silenced PME taken from EPD's Quality Powered Mechanical Equipment (QPME) Inventory. | Within Project area / Duration of the construction phase / Prior to commencement of operation | Contractor appointed by OPC | | ✓ | | | EIAO and Noise Control Ordinance |
| 5.7 | 3.2 | **Use of Movable Barriers**<br>Movable noise barriers can be very effective in screening noise from particular items of plant when constructing the Project. Noise barriers located along the active works area close to the noise generating component of a PME could produce at least 10 dB(A) screening for stationary plant and 5 dB(A) for mobile plant provided that the direct line of sight between the PME and the NSRs is blocked. | Within Project area / Duration of the construction phase / Prior to commencement of operation | Contractor appointed by OPC | | ✓ | | | EIAO and Noise Control Ordinance |
| **Ecological Impact** | | | | | | | | | |
| 10.7 | 8.3 | **Inspection of Active Ardeid Nest**<br>Prior to site clearance works at the planting area abandoned for ardeid breeding, the area around the boundary of the ardeids roosting site as indicatively shown in Figure 8.1 should be inspected to confirm no active ardeid nest is present. If any active ardeid nest is observed, suitably sized buffer area should be established to avoid human or machinery disturbance until the nest is abandoned. | Indicative boundary of the ardeids roosting site within Project construction site (location indicated in Figure 8.1) / For once / Before site clearance | Qualified ecologist appointed by OPC | ✓ | | | | EIAO-TM; HK Ordinance Cap. 170 |
| 10.7 | 8.3 | **Inspection of Short-nosed Fruit Bat**<br>As precautionary measure, prior to any proposed arboricultural works of the trees (particularly the Chinese Fan-palms), daytime | Project construction site / For once / Before arboricultural works of | ET appointed by OPC | ✓ | ✓ | | | EIAO-TM; HK Ordinance Cap. 170 |

| EIA Ref. | EM&A Log Ref. | Environmental Protection Measures | Location / Duration of measures / Timing of completion of measures | Implementation Agent | Implementation Stage[1] | | | | Relevant Legislation & Guidelines |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Des | Con | Op | Dec | |
| | | inspection should be carried out to confirm no Short-nosed Fruit Bat is present. If any Short-nosed Fruit Bat is observed roosting, suitably sized buffer area should be established around the tree to minimise human or machinery disturbance until the bat has left. | the trees | | | | | | |
| 10.7 | 8.3 | **In-situ Preservation of Plant Species of Conservation Interest**<br>During construction phase, protective fence for the identified flora species of conservation concern shall be erected and maintained. | Project construction site / Throughout construction stage / Until completion of all construction activities | Contractor appointed by OPC | | ✓ | | | EIAO-TM |
| 10.7 | 8.3 | **Inspection of Ardeid Nest during breeding season**<br>After commencement of construction phase, the Site should be monitored monthly in breeding season (April to July) to check for any potential breeding and nesting activities. | Project construction site / Throughout construction stage / Until completion of all construction activities | Qualified ecologist appointed by OPC | | ✓ | | | EIAO-TM |
| 10.7 | 8.2 | **Timing of site clearance and tree felling works**<br>Site clearance and tree felling works at the existing ardeid night roost location as shown in Figure 8.1 should be avoided during the peak wintering season of ardeids, i.e. between November and March. | Indicative boundary of the ardeids roosting site within Project construction site (location indicated in Figure 8.1) / Throughout construction stage / Until completion of site clearance and tree felling works within the boundary | Contractor appointed by OPC | | ✓ | | | EIAO-TM |
| 10.7 | 8.3 | **Compensation for Ardeid Roosting Site**<br>An enhancement area with following features should be provided as an alternative roosting site for ardeids.<br>▪ The location is at southern part of the Project area (location indicated in Figure 8.1)<br>▪ The enhancement area shall include a Flamingo Pond<br>▪ Native tree species *Macaranga tanarius* and *Celtis sinensis* and tree species which was used by ardeids for roosting *Mallotus paniculatus, Ficus hispida* and *Cratoxylum cochinchinense* shall be considered in the plan.<br>▪ Heavy standard sized trees shall be considered for planting to allow early establishment of the trees around the Flamingo | Southern part of Project construction site (location indicated in Figure 8.1) / Before and throughout construction stage / Until completion of Flamingo Pond construction and tree planting activities at that area | Qualified ecologist and Contractor appointed by OPC | ✓ | ✓ | ✓ | | EIAO-TM |

| EIA Ref. | EM&A Log Ref. | Environmental Protection Measures | Location / Duration of measures / Timing of completion of measures | Implementation Agent | Implementation Stage[1] Des | Con | Op | Dec | Relevant Legislation & Guidelines |
|---|---|---|---|---|---|---|---|---|---|
| | | Pond. | | | | | | | |
| 10.7 | 8.3 | **Compensation for Woodland Habitat**<br>▪ Provision of a Woodland Area of about 1.62 ha, which includes 0.84 ha woodland compensation on-site and 0.78 ha on-site woodland reinstatement, to mitigate for permanent loss of woodland habitat.<br>▪ In the woodland compensation area, whips should be planted with predominately native tree species similar to the affected woodland, such as *Celtis sinensis*, *Cratoxylum cochinchinense*, *Polyspora axillaris* and *Sterculia lanceolata*. | Location of Woodland Compensation Area indicated in Figure 8.2/ Before and throughout construction stage / Until completion of all construction activities | Contractor appointed by OPC | ✓ | ✓ | ✓ | | EIAO-TM |
| **Landscape and Visual Impact (Construction)** | | | | | | | | | |
| Table 12.13 (CP07) | Table 9.1 (CP07) | **Temporary Tree Nurseries**<br>Temporary tree nurseries may be set up within the Project area at an early stage to allow small trees to grow during the construction period. By the time these trees are needed for landscape planting at the end of the construction phase, they will have grown larger, require minimal pruning and suffer much less damage during transplanting, as the moving distance from an on-site rather than off-site nursery will be much smaller. The temporary tree nurseries can also temporarily hold the existing trees to be transplanted if direct transplantation from their original locations to the final recipient location is impracticable. The locations of the temporary tree nurseries should be carefully selected so that the trees can also act as screen planting to block the views of the Project area from the VSRs during the construction phase, if practicable. | Project construction site / Throughout construction stage / Until completion of all construction activities | Contractor appointed by OPC | ✓ | ✓ | | | EIAO-TM |
| Table 12.13 (CP08) | Table 9.1 (CP08) | **Advance Planting**<br>Advance planting should be undertaken at the earliest possible stage of the construction phase of the project. Plant species, preferably native ones, should be carefully selected to blend in with the existing preserved vegetation. Landscape planting in movable planters should also be considered as a temporary greening measure for the Project area. | Project construction site / Throughout construction stage / Until completion of all construction activities | Contractor appointed by OPC | ✓ | ✓ | | | EIAO-TM |
| **Landscape and Visual Impact (Operation)** | | | | | | | | | |
| Table 12.14 (OP04) | Table 9.2 (OP04) | **Green Roofs and Vertical Greening**<br>Green Roofs and Vertical Greening should be provided where feasible and appropriate to screen and soften the hard edges of | Project building rooftops / During design stage / Throughout operation | Design Architect / Contractor appointed by OPC | ✓ | | ✓ | | EIAO-TM |

| EIA Ref. | EM&A Log Ref. | Environmental Protection Measures | Location / Duration of measures / Timing of completion of measures | Implementation Agent | Implementation Stage[1] Des | Con | Op | Dec | Relevant Legislation & Guidelines |
|---|---|---|---|---|---|---|---|---|---|
| | | building structures. | phase | | | | | | |
| Table 12.14 (OP05) | Table 9.2 (OP05) | **Reprovision of Flamingo Pond**<br>A pond is recommended to replace the demolished Flamingo Pond as compensation for the loss of semi-natural ponds, where wildlife, such as birds, can utilise. | Project area / During design stage / Throughout operation phase | Design Architect / Contractor appointed by OPC | ✓ | | ✓ | | EIAO-TM |
| Table 12.14 (OP07) | Table 9.2 (OP07) | **Woodland Compensation**<br>1.53ha of affected woodland is recommended to be reinstated / compensated by 1.62ha of whip tree planting adjacent to the existing unaffected woodland and tall shrubland. Native species should be proposed as far as practicable to re-create a native landscape, restore the ecological habitats and blend in with the existing native vegetation. | Project area / During design stage / Throughout operation phase | Design Architect / Contractor appointed by OPC | ✓ | | ✓ | | EIAO-TM |
| **Cat. 2 Submission required post EIA stage** | | | | | | | | | |
| **Sewerage and Sewage Treatment Implications** | | | | | | | | | |
| 7.7 | 5.2 | **Detailed Sewerage Design Report**<br>In order to prevent septicity problems during operation phase, a detailed sewerage design report should be submitted to DSD for approval prior to installation of the rising mains. | Rising mains site / During design stage | Design Engineer | ✓ | | | | Sewerage Manual Part 1 |
| **Ecological Impact (Construction)** | | | | | | | | | |
| 10.7 | 8.3 | **Vegetation Survey for Plant Species of Conservation Interest**<br>For precautionary purposes and to further ensure no flora species of conservation interest to be affected, a detailed vegetation survey need to conduct to the exact locations, number and condition of individuals of *Platycodon grandiflorus*. | Project construction site / For once / Before site clearance | Qualified botanist/ecologist of the ET appointed by OPC | ✓ | | | | EIAO-TM; Hong Kong Ordinance Cap. 96 |
| 10.7 | 8.3 | **Woodland Compensation Plan**<br>A Woodland Compensation Plan shall be prepared and submitted to AFCD for approval no later than one month prior to commencement of site clearance.<br>The plan shall include but not limited to the following:<br>▪ Timing of planting works<br>▪ Planting location<br>▪ Species, size and number of trees<br>▪ Monitoring methodology | Location of Woodland Compensation Area indicated in Figure 8.2/ Before construction stage / No later than one month prior to commencement of site clearance | Qualified botanist/ecologist of the ET appointed by OPC | ✓ | | | | EIAO-TM |

| EIA Ref. | EM&A Log Ref. | Environmental Protection Measures | Location / Duration of measures / Timing of completion of measures | Implementation Agent | Implementation Stage[1] Des | Con | Op | Dec | Relevant Legislation & Guidelines |
|---|---|---|---|---|---|---|---|---|---|
| | | ▪ Action Plan | | | | | | | |
| **Landscape and Visual Impact (Construction)** | | | | | | | | | |
| Table 12.13 (CP05) | Table 9.1 (CP05) | **Transplantation of Existing Trees**<br>Trees which are in direct conflict with the development proposals and suitable for transplantation should be transplanted as far as practicable. A tree transplantation proposal should be submitted together with the tree removal application. Trees proposed to be transplanted should preferably be transplanted from their original locations directly to their final recipient locations in one go. If this is infeasible, the trees should be held in a temporary tree nursery, preferably within the Project area, where the trees will be properly maintained. | Project construction site / Throughout construction stage / Until completion of all construction activities | Contractor appointed by OPC | ✓ | ✓ | | | EIAO-TM;<br>LAO PN No. 07/2007 |
| **Landscape and Visual Impact (Operation)** | | | | | | | | | |
| Table 12.14 (OP02) | Table 9.2 (OP02) | **Compensatory Tree Planting**<br>Existing trees to be felled should be compensated as far as practicable. Native species should be proposed as far as practicable to re-create a native landscape, restore the ecological habitats and blend in with the existing native vegetation. A compensatory tree planting proposal should be submitted together with the tree removal application for approval by relevant authorities in accordance with LAO Practice Note No. 7/2007. It is recommended that approximately 608 heavy standard trees and approximately 18,202 whip trees could be planted on-site. The availability of off-site compensatory tree planting area is still subject to further investigation and agreement with relevant authorities. | Project area / During design stage / Throughout operation phase | Design Architect / Contractor appointed by OPC | ✓ | | ✓ | | EIAO-TM;<br>LAO PN No. 07/2007 |
| **Cat. 3 Good site practice/housekeeping measures under EM&A mechanism** | | | | | | | | | |
| **Air Quality Impact (Construction)** | | | | | | | | | |
| 3.9.1 | 2.2 | **Dust Control Measures**<br>To achieve compliance with the FSP, RSP and TSP criteria during the construction phase, good practices for dust control should be implemented to reduce dust impacts. The dust control measures are detailed as follows:<br>▪ Use of regular water spraying (once every 2.5 hours or 4 times per day) to reduce dust emissions from heavy construction activities (including ground excavation, earth moving, etc.) at all active works area exposed site surfaces and unpaved | Project construction site / Duration of the construction phase / Prior to commencement of operation | Contractor appointed by OPC | | ✓ | | | EIA Recommendation and Air Pollution Control (Construction Dust) Regulation |

| EIA Ref. | EM&A Log Ref. | Environmental Protection Measures | Location / Duration of measures / Timing of completion of measures | Implementation Agent | Implementation Stage[1] Des | Con | Op | Dec | Relevant Legislation & Guidelines |
|---|---|---|---|---|---|---|---|---|---|
| | | roads, particularly during dry weather.<br>▪ Covering 80% of stockpiling area by impervious sheets and spraying all dusty material with water immediately prior to any loading transfer operations to keep the dusty materials wet during material handling at the stockpile areas<br><br>Relevant dust control practices as stipulated in the Air Pollution Control (Construction Dust) Regulation should be adopted:<br><br>Good Site Management<br>▪ Good site management is important to help reduce potential air quality impact down to an acceptable level. As a general guide, the Contractor should maintain high standards of housekeeping to prevent emissions of fugitive dust. Loading, unloading, handling and storage of raw materials, wastes or by-products should be carried out in a manner so as to minimise the release of visible dust emission. Any piles of materials accumulated on or around the work areas should be cleaned up regularly. Cleaning, repair and maintenance of all plant facilities within the work areas should be carried out in a manner minimising generation of fugitive dust emissions. The material should be handled properly to prevent fugitive dust emission before cleaning.<br><br>Disturbed Parts of the Roads<br>▪ Main temporary access points should be paved with concrete, bituminous hardcore materials or metal plates and be kept clear of dusty materials; or<br>▪ Unpaved parts of the road should be sprayed with water or a dust suppression chemical so as to keep the entire road surface wet.<br><br>Exposed Earth<br>▪ Exposed earth should be properly treated by compaction, hydroseeding, vegetation planting or seating with latex, vinyl, bitumen within six months after the last construction activity on the site or part of the site where the exposed earth lies.<br><br>Loading, Unloading or Transfer of Dusty Materials<br>▪ All dusty materials should be sprayed with water immediately prior to any loading or transfer operation so as | | | | | | | |

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| | | to keep the dusty material wet.<br><br>Debris Handling<br>▪ Any debris should be covered entirely by impervious sheeting or stored in a debris collection area sheltered on the top and the three sides.<br>▪ Before debris is dumped into a chute, water should be sprayed onto the debris so that it remains wet when it is dumped.<br><br>Transport of Dusty Materials<br>▪ Vehicles used for transporting dusty materials/spoils should be covered with tarpaulin or similar material. The cover should extend over the edges of the sides and tailboards.<br><br>Wheel washing<br>▪ Vehicle wheel washing facilities should be provided at each construction site exit. Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels.<br><br>Use of vehicles<br>▪ The speed of the trucks within the site should be controlled to about 10 km/hour in order to reduce adverse dust impacts and secure the safe movement around the site.<br>▪ Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels.<br>▪ Where a vehicle leaving the construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle.<br><br>Site hoarding<br>▪ Where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit | | | | | | | |
| **Noise Impact (Construction)** | | | | | | | | | |

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| 5.7 | 3.2 | **Good Site Practice**<br>Good site practice and noise management can significantly reduce the impact of construction site activities on nearby NSRs.<br>▪ only well-maintained plant to be operated on-site and plant should be serviced regularly during the construction works;<br>▪ machines and plant that may be in intermittent use to be shut down between work periods or should be throttled down to a minimum;<br>▪ plant known to emit noise strongly in one direction, should, where possible, be orientated to direct noise away from the NSRs;<br>▪ mobile plant should be sited as far away from NSRs as possible; and<br>▪ material stockpiles and other structures to be effectively utilised, where practicable, to screen noise from on-site construction activities. | Project construction site / Duration of the construction phase / Prior to commencement of operation | Contractor appointed by OPC | | ✓ | | | EIAO and Noise Control Ordinance |
| **Noise Impact (Operation)** | | | | | | | | | |
| 5.7 | 3.3.2 | **Fixed Plant Noise**<br>With the adoption of the proposed maximum allowable SWLs, all representative NSRs is expected to comply with the relevant noise criteria for the daytime and evening time periods. No adverse fixed plant noise impact is anticipated.<br>It is also recommended that the following noise reduction measures should be considered as far as practicable during design stage:<br>▪ choose quiet plant such as those which have been effectively silenced;<br>▪ include noise levels specification when ordering new plant (including chiller and E&M equipment);<br>▪ locate fixed plant / louvre away from any NSRs as far as practicable;<br>▪ locate fixed plant in walled plant rooms or in specially designed enclosures;<br>▪ locate noisy machine in a basement or a completely separate building; | Within Project area / Prior to operation phase / Duration of the operation phase / Throughout operation phase | Design Architect / Contractor appointed by OPC | ✓ | ✓ | ✓ | | EIAO and Noise Control Ordinance |

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| | | ▪ install direct noise mitigation measures including silencers, acoustic louvres and acoustic enclosure where necessary; and<br>▪ develop and implement a regularly scheduled plant maintenance programme so that equipment is properly operated and serviced in order to maintain a controlled level of noise.<br>Prior to the operation of the Project, noise commissioning tests for all major fixed noise sources should be conducted. | | | | | | | |
| 5.7 | 3.3.2 | **Open Air Entertainment Noise**<br>With the adoption of the proposed maximum allowable SWLs, all representative NSRs is expected to comply with the relevant noise criteria for the daytime and evening periods, the following measures should be considered as far as practicable during stage:<br>▪ use small clusters of small power loudspeakers rather than a few large power loudspeakers; and<br>▪ loudspeakers should be pointed away from nearby NSRs. | Within Project area / Duration of the operation phase / Throughout operation phase | Design Architect / Contractor appointed by OPC | ✓ | ✓ | | | EIAO and Noise Control Ordinance |
| **Water Quality Impact (Construction)** | | | | | | | | | |
| 6.7 | 4.2 | **Construction Site Runoff**<br>The site practices outlined in ProPECC Note PN 1/94 should be followed as far as practicable in order to minimise surface runoff and erosion. The following measures are recommended to protect water quality of the inland areas:<br>▪ At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels, earth bunds or sand bag barriers should be provided on site to direct storm water to silt removal facilities. The design of the temporary on-site drainage system should be undertaken by the Contractors prior to the commencement of construction;<br>▪ Sand/ silt removal facilities such as sand/silt traps and sediment basins should be provided to remove sand/silt particles from runoff to meet the requirements of the TM standards under the WPCO. The design of efficient silt removal facilities should be based on the guidelines in | Project construction site / Duration of the construction phase | Contractor appointed by OPC | | ✓ | | | EIAO-TM;<br>ProPECC Note PN 1/94;<br>WPCO;<br>TM-DSS |

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| | | Appendix A1 of ProPECC Note PN 1/94. Sizes may vary depending upon the flow rate. The detailed design of the sand/silt traps should be undertaken by the Contractors prior to the commencement of construction;<br>▪ All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit should be regularly removed, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times;<br>▪ Measures should be taken to minimise the ingress of site drainage into excavations. If excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from site formation excavations should be discharged into storm drains via silt removal facilities;<br>▪ All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facility should be provided at construction site exit where practicable. Wash-water should have sand and silt settled out and removed regularly to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains;<br>▪ Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system;<br>▪ Manholes (including newly constructed ones) should be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and stormwater runoff being directed into foul sewers;<br>▪ Precautions should be taken at any time of the year when | | | | | | | | |

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| | | rainstorms are likely. Actions should be taken when a rainstorm is imminent or forecasted and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC Note PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes; and,<br>▪ Bentonite slurries used on site should be reconditioned and reused wherever practicable. Temporary enclosed storage locations should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC Note PN 1/94 should be adhered to in the handling and disposal of bentonite slurries.<br>The Contractor would be required to obtain a license from EPD under the WPCO for discharge to the public drainage system or the marine environment. Construction site discharge should be collected by the temporary drainage system installed by the Contractor and treated or desilted on-site to fulfil the WPCO discharge license requirements before discharge. | | | | | | | |
| 6.7 | 4.2 | **General Construction Activities**<br>Best Management Practices (BMPs) should be implemented at the construction site, including proper handling, sorting and storage of construction solid waste, debris and refuse generated on-site prior to disposal. Stockpiles of cement and other construction materials should be kept covered when not being used. The Contractor should also follow the guidelines set in the "Pesticides Used for Outdoor Mosquito Control", published by AFCD in 2010, for mosquito control on site. | Project construction site / Duration of the construction phase | Contractor appointed by OPC | | ✓ | | | EIAO-TM;<br>ProPECC Note PN 1/94 |
| 6.7 | 4.2 | **Expansion of Existing Storm U-Channel**<br>Guidelines and measures summarised in ProPECC PN 1/94 for trenching activities should be implemented. | Project construction site / Duration of the construction phase | Contractor appointed by OPC | | ✓ | | | ProPECC Note PN 1/94 |
| 6.7 | 4.2 | **Interception of Natural Streams**<br>Guidelines and measures summarised in ProPECC PN 1/94 for excavation and stockpiling activities should be implemented. | Project construction site / Duration of the construction phase | Contractor appointed by OPC | | ✓ | | | ProPECC Note PN 1/94 |
| 6.7 | 4.2 | **Site Formation Works**<br>The construction programme should be properly planned to minimise excavation works during the wet season (April to September), temporarily exposed slope/soil surfaces should be | Project construction site / Duration of the construction phase | Contractor appointed by OPC | | ✓ | | | ProPECC Note PN 1/94 |

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| | | covered by a tarpaulin or other means, as far as practicable. Interception channels should be provided (e.g. along the crest/edge of the excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should be in place to ensure that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. Measures will be taken to minimise water ingress into the excavation. Diverting any water from the excavated areas to on-site wastewater treatment facilities for treatment prior to discharge should also be performed. Other measures that need to be implemented before, during and after rainstorms are summarised in ProPECC PN 1/94. | | | | | | | |
| 6.7 | 4.2 | **Construction of Sewage Sump Pit and Rising Mains**<br>Measures for excavation works summarised for site formation works should also be implemented during construction of the sewage sump pit.<br>During the laying of rising mains, guidelines and measures summarised in ProPECC PN 1/94 for trenching activities should be performed. Concrete water generated from the construction of the concrete support should be collected and treated with the wastewater treatment facilities prior to discharge. | Project construction site / Duration of the construction phase | Contractor appointed by OPC | | ✓ | | | ProPECC Note PN 1/94 |
| 6.7 | 4.2 | **Accidental Spillage**<br>The Contractor should register as a chemical waste producer if chemical wastes are produced from construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes. This will prevent contamination of top soil and water pollution due to construction site runoff.<br>Maintenance of vehicles and equipment, involving activities with potential for leakage and spillage, should only be undertaken within areas appropriately equipped to control these discharges.<br>Oils and fuels should only be stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to any nearby storm water drain, all fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund should be drained of rainwater after a rain event. | Project construction site / Duration of the construction phase | Contractor appointed by OPC | | ✓ | | | ProPECC Note PN 1/94;<br>Waste Disposal Ordinance (Cap 354);<br>Waste Disposal (Chemical Waste) (General) Regulation |

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| | | Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows:<br>▪ Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.<br>▪ Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.<br>▪ Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. | | | | | | | |
| 6.7 | 4.2 | **Sewage Effluent from the Construction Workforce**<br>The Contractor should provide temporary sanitary facilities, such as portable chemical toilets within the construction site to handle sewage from the workforce. The Contractor has the responsibility to ensure that chemical toilets are used and properly maintained, and that licensed Contractors are employed to collect and dispose of the waste off-site at approved locations. | Project construction site / Duration of the construction phase | Contractor appointed by OPC | | ✓ | | | ProPECC Note PN 1/94 |
| **Water Quality Impact (Operation)** | | | | | | | | | |
| 6.7 | 4.2 | **Runoff from Road Surfaces**<br>Road drainage system design has already included silt traps in the gully inlets to remove silt and grit before the runoff enters the public storm water drainage system. Silt traps should be regularly checked and maintained to ensure efficient operation. | Within Project area / During operation phase | OPC/Operator appointed by OPC | | | ✓ | | EIAO-TM;<br>WPCO |
| 6.7 | 4.2 | **Runoff from On-site Planting Area**<br>Watering of plants on site should always be performed before application of pesticides, herbicides and fertilizers. Regular training should also be provided to frontline staff on the appropriate treatment and disposal of pesticides, herbicides and fertilizers. | Within Project area / During operation phase | OPC/Operator appointed by OPC | | | ✓ | | EIAO-TM;<br>WPCO;<br>TM-DSS |
| **Waste Management Implications (Construction)** | | | | | | | | | |
| 8.5.1.1 | 6.2 | **Good Site Practice** | Project construction site / Throughout construction | Contractor | | ✓ | | | Waste Disposal Ordinance; Waste |

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| | | Recommendations for good site practices during the construction activities include:<br>▪ Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site<br>▪ Training of site personnel in proper waste management and chemical handling procedures<br>▪ Provision of sufficient waste disposal points and regular collection of waste<br>▪ Appropriate measures to minimise windblown litter and dust/ odour during transportation of waste by either covering trucks or by transporting wastes in enclosed containers<br>▪ Stockpiles of C&D materials should be kept covered by impervious sheets to avoid wind-blown dust<br>▪ All dusty materials including C&D materials should be sprayed with water immediately prior to any loading transfer operation so as to keep the dusty material wet during material handling at the stockpile areas<br>▪ Provision of wheel washing facilities before the trucks leaving the works area so as to minimise dust introduction to public roads<br>▪ Well planned delivery programme for offsite disposal such that adverse environmental impact from transporting the inert or non-inert C&D materials is not anticipated | stage / Until completion of all construction activities | appointed by OPC | | | | | Disposal (Chemical Wastes) (General) Regulation; and ETWB Technical Circular (Works) No. 19/2005 Environmental Management on Construction Site |
| 8.5.1.2 | 6.2 | **Waste Reduction Measures**<br>Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:<br>▪ Sort inert C&D materials to recover any recyclable portions such as metals<br>▪ Segregation and storage of different types of waste in different containers or skips to enhance reuse or recycling of | Project construction site / Throughout construction stage / Until completion of all construction activities | Contractor appointed by OPC | | ✓ | | | Waste Disposal Ordinance |

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| | | materials and their proper disposal<br>▪ Encourage collection of recyclable waste such as waste paper and aluminium cans by providing separate labelled bins to enable such waste to be segregated from other general refuse generated by the work force<br>▪ Proper site practices to minimise the potential for damage or contamination of inert C&D materials<br>▪ Plan the use of construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste | | | | | | | |
| 8.5.1.3 | 6.2 | **Inert and Non-inert C&D materials**<br>In order to minimise impacts resulting from collection and transportation of inert C&D materials for off-site disposal, the inert C&D materials should be reused on-site as fill material as far as practicable. In addition, inert C&D materials generated from excavation works could be reused as fill materials in local projects that require public fill for reclamation.<br>The surplus inert C&D materials will be disposed of at the Government's PFRFs for beneficial use by other projects in Hong Kong.<br>The C&D materials generated from general site clearance should be sorted on site to segregate any inert materials for reuse or disposal of at PFRFs whereas the non-inert materials will be disposed of at the designated landfill site.<br>In order to monitor the disposal of inert and non-inert C&D materials at respectively PFRFs and the designated landfill site, and to control fly-tipping, it is recommended that the Contractor should follow the DEVB Technical Circular (Works) No.6/2010 for Trip Ticket System for Disposal of Construction & Demolition Materials issued by Development Bureau. In addition, it is also recommended that the Contractor should prepare and implement a Waste Management Plan detailing their various waste arising and waste management practices in accordance with the relevant requirements of the ETWB Technical Circular (Works) No. 19/2005 Environmental Management on Construction Site. | Project construction site / Throughout construction stage / Until completion of all construction activities | Contractor appointed by OPC | | ✓ | | | Waste Disposal Ordinance ; DEVB Technical Circular (Works) No.6/2010 for Trip Ticket System for Disposal of Construction & Demolition Materials; and ETWB Technical Circular (Works) No. 19/2005 Environmental Management on Construction Site |
| 8.5.1.4 | 6.2 | **Chemical Waste**<br>If chemical wastes are produced at the construction site, the | Project construction site / Throughout construction | Contractor appointed by OPC | | ✓ | | | Code of Practice on the Packaging |

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| | | Contractor will be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the "Code of Practice on the Packaging Labelling and Storage of Chemical Wastes". Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor should use a licensed collector to transport and dispose of the chemical wastes at the approved Chemical Waste Treatment Centre or other licensed recycling facilities, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.<br>Potential environmental impacts arising from the handling activities (including storage, collection, transportation and disposal of chemical waste) are expected to be minimal with the implementation of appropriate mitigation measures as recommended. | stage / Until completion of all construction activities | | | | | | Labelling and Storage of Chemical Wastes; Waste Disposal (Chemical Waste) (General) Regulation |
| 8.5.1.5 | 6.2 | **General Refuse**<br>General refuse should be stored in enclosed bins or compaction units separated from inert C&D materials. A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from inert C&D materials. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material. | Project construction site / Throughout construction stage / Until completion of all construction activities | Contractor appointed by OPC | | ✓ | | | Waste Disposal Ordinance and Public Health and Municipal Services Ordinance - Public Cleansing and Prevention of Nuisances Regulation |
| 8.5.1.6 | 6.2 | **Floating Refuse**<br>Provide general refuse collection points on site can minimise the refuse contaminate the marine environment. The construction contractors will be required to regularly check and clean any refuse trapped or accumulated along the artificial seawall. Such refuse will then be stored and disposed of together with the general refuse. | Project construction site / Throughout construction stage / Until completion of all construction activities | Contractor appointed by OPC | | ✓ | | | Waste Disposal Ordinance |
| **Waste Management Implications (Operation)** | | | | | | | | | |
| 8.5.2.1 | 6.2 | **General Refuse**<br>General refuse should be collected on daily basis and delivered | Project area / On a regular basis / | Contractor appointed by OPC | | | ✓ | | Waste Disposal Ordinance |

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| | | to the refuse collection point accordingly. A reputable waste collector should be employed to remove general refuse regularly to avoid odour nuisance or pest/vermin problem. Sufficient recycling containers are recommended to be provided at suitable locations of the Project to encourage recycling of such waste as aluminium cans, plastics and waste paper. | Throughout operation stage | | | | | | |
| 8.5.2.2 | 6.2 | **Chemical Waste**<br>If chemical wastes are expected to be produced during the operation phase, the Project Proponent should register with the EPD as a chemical waste producer and follow the guidelines stated in the "Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes". Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. Licensed collector should be deployed to transport and dispose of the chemical wastes at the approved Chemical Waste Treatment Centre or other licensed recycling facilities, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation. | Project area / On a regular basis / Throughout operation stage | Contractor appointed by OPC | | | ✓ | | Code of Practice on the Packaging Labelling and Storage of Chemical Wastes; Waste Disposal (Chemical Waste) (General) Regulation |
| 8.5.2.3 | 6.2 | **Floating Refuse**<br>Regular inspection should be carried out along the artificial seawall of the Project boundary for any entrapment or accumulation of floating refuse. Where an appreciable amount of floating refuse is found on the artificial seawall during the inspection, the locations of such refuse will be recorded and arrangements with the project proponent will immediately be made to collect and clear the refuse from the seawall. | Project area / On a regular basis / Throughout operation stage | Contractor appointed by OPC | | | ✓ | | Waste Disposal Ordinance |
| **Land Contamination (Construction)** | | | | | | | | | |
| 9.6 | 7.2 | In any case where contaminated soil is identified after the commencement of works, a Contamination Assessment Plan (CAP) is required to be prepared for EPD's endorsement prior to | Project construction site / Before construction stage | Contractor appointed by OPC | ✓ | | | | Guidance Note for Contaminated Land Assessment and Remediation |

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| | | the site investigation. The Contamination Assessment Report (CAR) and/ or Remediation Action Plan (RAP) should be prepared for EPD's approval after the site investigation. If land contamination is confirmed, remediation works should be carried out according to the approved RAP. A Remediation Report (RR) should also be prepared for EPD's endorsement to demonstrate that the clean-up of the contaminated land is completed. No construction work or development of site should be carried out before the approval of the RR. | | | | | | | Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management<br><br>Practice Guide for Investigation and Remediation of Contaminated Land |
| 9.6 | 7.2 | If contaminated soil is identified, the following mitigation measures are for the excavation and transportation of contaminated materials (if any):<br>▪ To minimise the incidents of construction workers coming in contact with any contaminated materials, bulk earth-moving excavation equipment should be employed;<br>▪ Contact with contaminated materials can be minimised by wearing appropriate clothing and personal protective equipment such as gloves and masks (especially when working directly with contaminated material), provision of washing facilities and prohibition of smoking and eating on site;<br>▪ Stockpiling of contaminated excavated materials on site should be avoided as far as possible;<br>▪ The use of any contaminated soil for landscaping purpose should be avoided unless pre-treatment was carried out;<br>▪ Vehicles containing any excavated materials should be suitably covered to reduce dust emissions and/or release of contaminated wastewater;<br>▪ Truck bodies and tailgates should be sealed to prevent any discharge;<br>▪ Only licensed waste haulers should be used to collect and transport contaminated material to treatment/disposal site and should be equipped with tracking system to avoid fly | Project construction site / Throughout construction stage / Until completion of all construction activities | Contractor appointed by OPC | | ✓ | | | Waste Disposal Ordinance (Cap 354)<br>Waste Disposal (Chemical Waste) (General) Regulation (Cap 354) |

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| | | tipping;<br>▪ Speed control for trucks carrying contaminated materials should be exercised.<br>▪ Observe all relevant regulations in relation to waste handling, such as Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap 354) and obtain all necessary permits where required; and<br>▪ Maintain records of waste generation and disposal quantities and disposal arrangements. | | | | | | | |
| **Landscape and Visual Impact (Construction)** | | | | | | | | | |
| Table 12.13 (CP01) | Table 9.1 (CP01) | **Minimisation of Construction Period**<br>The construction programme should be carefully designed to minimise the length of the construction period. | Project construction site / Throughout construction stage / Until completion of all construction activities | Contractor appointed by OPC | ✓ | ✓ | | | EIAO-TM |
| Table 12.13 (CP02) | Table 9.1 (CP02) | **Minimisation of Works Areas**<br>The footprint of the proposed hard structures as well as the extent of temporary works areas should be minimised as far as practicable. | Project construction site / Throughout construction stage / Until completion of all construction activities | Contractor appointed by OPC | ✓ | ✓ | | | EIAO-TM |
| Table 12.13 (CP03) | Table 9.1 (CP03) | **Construction Site Controls**<br>Construction site controls should be enforced, where possible, to ensure that the landscape and visual impacts arising from the construction phase activities, such as the storage of materials, the location and appearance of site accommodation, etc. are minimised. | Project construction site / Throughout construction stage / Until completion of all construction activities | Contractor appointed by OPC | ✓ | ✓ | | | EIAO-TM |
| Table 12.13 (CP04) | Table 9.1 (CP04) | **Preservation of Existing Vegetation**<br>The development proposal should avoid disturbance to existing vegetation as far as practicable. A formal tree removal application should be submitted for approval by relevant authorities in accordance with LAO PN No. 07/2007 "Tree Preservation and Tree Removal Application for Building Development in Private Projects" during the detailed design phase of the Project. Where possible, all trees which are not in direct conflict with the development proposals should be retained *in situ*. | Project construction site / Throughout construction stage / Until completion of all construction activities | Contractor appointed by OPC | ✓ | ✓ | | | EIAO-TM;<br>LAO PN No. 07/2007 |
| Table | Table | **No Intrusion Zones** | Project construction site / | Contractor | ✓ | ✓ | | | EIAO-TM |

| EIA Ref. | EM&A Log Ref. | Environmental Protection Measures | Location / Duration of measures / Timing of completion of measures | Implementation Agent | Implementation Stage[1] Des | Con | Op | Dec | Relevant Legislation & Guidelines |
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| 12.13 (CP06) | 9.1 (CP06) | Where practicable, "no intrusion zones" should be designated within the Project area for protection of existing vegetation. Durable boundary fences should be erected to clearly demarcate these "no intrusion zones". No construction activities, storage of materials and vehicular access will be allowed within the "no intrusion zones" to prevent potential damage to canopies and root zones of vegetation. | Throughout construction stage / Until completion of all construction activities | appointed by OPC | | | | | |
| Table 12.13 (CP09) | Table 9.1 (CP09) | **Construction Site Hoardings**<br>Two types of hoardings should be considered. One is used for areas in close contact with visitors and for areas where visual intrusion is a key concern. It should be graphical and thematic, and visually 'impermeable' to block the views of construction activities from the VSRs. The other is used for areas to be viewed at a distance. It should be subtle and camouflaged so that it blends in with the surrounding landscape. | Project construction site / Throughout construction stage / Until completion of all construction activities | Contractor appointed by OPC | ✓ | ✓ | | | EIAO-TM |
| Table 12.13 (CP10) | Table 9.1 (CP10) | **Dust and Erosion Control for Exposed Soil**<br>Exposed soil shall be covered or "camouflaged" and watered frequently. Areas that are expected to be left with bare soil for a long period of time should be hydroseeded and / or covered with suitable protective fabrics. | Project construction site / Throughout construction stage / Until completion of all construction activities | Contractor appointed by OPC | | ✓ | | | EIAO-TM |
| Table 12.13 (CP11) | Table 9.1 (CP11) | **Appearance of Construction Plant / Machinery**<br>To minimise the visual intrusion of construction activities to visitors and other VSRs, a suitable colour scheme of construction machines and plants should be adopted where possible. | Project construction site / Throughout construction stage / Until completion of all construction activities | Contractor appointed by OPC | | ✓ | | | EIAO-TM |
| Table 12.13 (CP12) | Table 9.1 (CP12) | **Construction Lighting Control**<br>All security floodlights for construction sites should be equipped with adjustable shield, frosted diffusers and reflective covers, and be carefully controlled to minimise light pollution and night-time glare to the VSRs. | Project construction site / Throughout construction stage / Until completion of all construction activities | Contractor appointed by OPC | | ✓ | | | EIAO-TM |
| Table 12.13 (CP13) | Table 9.1 (CP13) | **Appearance of Construction Workers**<br>To protect Ocean Park's image, construction workers should be required to enter the park areas with their helmets and safety vests properly stored or carried in non-transparent bags. They should also dress properly and cleanly. | Project construction site / Throughout construction stage / Until completion of all construction activities | Contractor appointed by OPC | | ✓ | | | EIAO-TM |
| **Landscape and Visual Impact (Operation)** | | | | | | | | | |

| EIA Ref. | EM&A Log Ref. | Environmental Protection Measures | Location / Duration of measures / Timing of completion of measures | Implementation Agent | Implementation Stage[1] Des | Con | Op | Dec | Relevant Legislation & Guidelines |
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| Table 12.14 (OP01) | Table 9.2 (OP01) | **Sensitive Design and Disposition**<br>All proposed hard structures should be sensitively designed in a manner that responds to the existing and planned landscape context, and minimises potential adverse landscape and visual impacts. The structural design should seek to reduce the apparent visual mass through the use of natural materials such as wooden frame and semi-transparent panels. Subdued tones should be considered for the colour palette with non-reflective finishes to reduce glare effect. Site specific measures, such as the disposition of the key structures closer to the northern slopes, the design of building forms as extension along the existing slope topography, the use of concave roof form and the location of ride platforms on or near the slopes to minimise structural support, should also be considered for better integration with the surroundings and minimisation of potential visual impacts. | Project buildings / During design stage / Throughout operation phase | Design Architect / Contractor appointed by OPC | ✓ | | ✓ | | EIAO-TM |
| Table 12.14 (OP03) | Table 9.2 (OP03) | **Enhancement Planting**<br>Other than compensatory tree planting, additional trees, shrubs, groundcovers and lawn should also be considered to maximise greening within the redevelopment area. | Project area / During design stage / Throughout operation phase | Design Architect / Contractor appointed by OPC | ✓ | | ✓ | | EIAO-TM |
| Table 12.14 (OP06) | Table 9.2 (OP06) | **Responsive Lighting Design**<br>Overall lighting design would carefully consider a reasonable level of functional and thematic lighting with due consideration of possible light pollution and night-time glare to the surroundings. Consideration shall be made by the lighting designers to the following measures:<br>▪ Lighting shall be designed with due consideration of mounting height and direction of light fixtures so as not to point directly towards any sensitive receiver.<br>▪ Lighting shall be arranged with due consideration of reflectance so as to avoid glare effect.<br>▪ Lighting shall be regularly monitored during operation.<br>▪ Lights located adjacent or in proximity to neighbours shall be carefully designed to prevent possible light intrusion.<br>▪ Lighting operation schedule shall specify only lights necessary for security to be left on after business hours.<br>▪ Paving materials should be selected as necessary to reduce | Project area / During design stage / Throughout operation phase | Design Architect / Contractor appointed by OPC | ✓ | | ✓ | | EIAO-TM |

| EIA Ref. | EM&A Log Ref. | Environmental Protection Measures | Location / Duration of measures / Timing of completion of measures | Implementation Agent | Implementation Stage[1] Des | Con | Op | Dec | Relevant Legislation & Guidelines |
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| | | potential glare from surface reflectance.<br>▪ Particular attention should be paid to the use of lighting having a high intensity or harsher tone (e.g. metal halide lamps).<br>▪ Lights shall generally be models having precise cut-off range (such as full cut-off optics where available and practicable) and if necessary be fitted with adjustable anti-glare shields. | | | | | | | |

Remarks:
1. Des – Design Stage, Con – Construction Stage, Op – Operation, Dec - Decommissioning