MOTT MACDONALD

Ocean Park Tai Shue Wan Water World Project

Monthly EM&A Report April 2018

May 2018

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This Monthly EM&A Report for April 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: 17 May 2018

Verified by:

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

Date: 17 - May - 2018

Issue and Revision Record

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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 11th 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 30 April 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 April 2018. Furthermore, IEC performed the site inspection and audit on 13 April 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
- North Plant Room: Removal of falsework, waterproofing for double slab, concreting for high level slab and ABWF
- Main Building: L1 and L2 slab, column and wall construction, L3 column for Roof construction, Steel ramp for Platform construction, B1 underground manhole, drainage and on grade slab. Block works and ABWF in B1, L1 and L2 Secondary structure construction.
- South Transformer Room: Removal of falsework and ABWF
- South Plant Room: Construction of wall and plinths
- Spiral Ramp: On grade slab and Falsework for the RC construction.

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 11th 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 30 April 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
- Utilities diversion at A4
- Drainage works at PJD office
- Skin wall construction for Tress boulder at entrance
- North Plant Room: HKE West Substation slab falsework and formwork, rebar, and casting, East substation walls and double slab and L1 HL falsework, formwork, rebar, and casting.
- North Plant Room: Build walls, L1 HL and L2 slab. ABWF for the plant room.
- L2 Slab at Area 10E4: Construct remaining columns below L2, falsework, formwork, and rebar for Level 2 slab. Cast concrete, Dismantle the 10E4 falsework.
- L2 to L3 columns at Area 10E4: column, rebar, shutter, and casting of columns.
- Main Building: L1 and L2 slab, column and wall construction, L3 column for Roof construction, Steel ramp for Roof construction, B1 underground manhole, drainage and on grade slab. Block works and ABWF in B1
- South Plant Room: On grade slab and construction of footing and wall

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	Valid
Renew Construction Noise Permit under NCO GW-RS0356-18	16-Apr-18	432628	30-Apr-18	16-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; • 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 • 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 4, 10, 19 and 26 April 2018 during the Reporting Period and three additional impact monitoring for the construction works held during restricted hour period on 1, 8, 15, 22 and 29 April 2018 to access the compliance with environmental requirements. A total of eighteen 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					
04-Apr-18	09:42	10:12	55.6	58.6	70
10-Apr-18	09:40	10:10	55.6	58.6	70
19-Apr-18	11:10	11:40	55.9	58.9	70
26-Apr-18	10:22	10:52	56.7	59.7	70
NM2					
04-Apr-18	09:21	09:51	52.2	-	70
10-Apr-18	10:30	11:00	52.1	-	70
19-Apr-18	10:30	11:00	51.2	-	70
26-Apr-18	09:40	10:10	51.7	-	70

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

As shown in **Table 8**, results of the additional noise monitoring measurement were below 70dB(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-Apr-18	17:20	17:35	54.4	57.4	70
08-Apr-18	10:29	10:44	52.6	55.6	70
15-Apr-18	16:40	16:55	51.6	54.6	70
22-Apr-18	14:28	14:43	50.8	53.8	70
29-Apr-18	16:28	16:43	51.4	54.4	70
NM2					
01-Apr-18	16:52	17:07	49.3	-	65
08-Apr-18	10:01	10:16	48.7	-	65
15-Apr-18	17:08	17:23	48.3	-	65
22-Apr-18	14:00	14:15	46.1	-	65
29-Apr-18	16:00	16:15	48.2	-	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 13 April 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.

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*. The new shoots were observed from the underground part in Reporting Period (see Photos 1 and 2 of **Appendix L** of this report).

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 1st November to 31st 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. *Platycodon grandifloras* new shoots were observed from the underground part in the Reporting Period.

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 11 May 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 April 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.

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 April 2018. Furthermore, IEC performed the site inspection and audit on 13 April 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
13 Apr 2018	Fugitive dust was observed, appropriate mitigation measures should be undertaken.	Mitigation measures (water spraying) for fugitive dust were undertaken and the mixing shelter was removed.
20 Apr 2018	Chemical and oil containers observed without drip tray at L1 corridor next to EVA, at L2 next to EVA and L3.	Drip tray has been provided for chemical container at L1 near EVA and the chemical container were removed from the area at L2 next to EVA L3
27 Apr 2018	Oil container observed without drip tray at L2 grout station	The chemical container without drip tray was removed from L2 grout station

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

The complaints received in relation to the environmental impact during March 2018 was investigated as follows:

Case 1: The complaint was about noise generated by construction equipment and construction vehicles movement at midnight from the construction site of Ocean Park Tai Shue Wan Water World Project.

Result of investigation:

As informed by the Contractor:

- As Shum Wan Road, the only access to the construction site, experienced congested traffic during daytime, the planned concreting works had been extended beyond 19:00.
- Referring to the information provided by the site team, no works was carried out during the incident period.
- It is noted that the Contractor obtained a valid Construction Noise Permit (CNP No. CW-RS1024-17) permitting the use certain powered mechanical equipment (PME) including PME for concreting works during restricted hours between 23 November 2017 and 16 May 2018. The listed PME and no. of units have been strictly followed to CNP.

This complaint is unlikely to be related to the construction works on the project site due to no construction works was carried out during the incident period.

Case 2: The complaint was about traffic noise at Nam Long Shan Road related to Ocean Park night time operation.

According to the complainant, construction vehicles travelled along Nam Long Shan Road in the direction of Ocean Park for the past few years between the hours of 01:00 and 04:00. Furthermore, the complaint suspect that some of the vehicles were garbage trucks but according to FEHD's reply, no garbage pick-up was conducted during this period.

Result of investigation:

As informed by the Contractor:

- No construction vehicles were accessed from Nam Long Shan Road to Project Site since the commencement of this contract (TSW-C006).
- The site entrance at Nam Long Shan Road leading to the upper part of the sewage rising main under this project. However, there are no night works for this area since the commencement of this contract (TSW-C006).

Based on the above information, the complaint is considered unlikely to be related to the construction works at the project site.

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 • 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 • Main temporary access road paved with concrete • Prior to any loading or transfer operation, all dusty materials were sprayed with water to keep them wet • All debris had been covered entirely by impervious sheeting • Before debris was dumped into a chute, water was sprayed onto the debris to make them wet • Vehicles were covered with tarpaulin during transport of dusty materials • 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 • The speed of the trucks passing site areas was controlled to below 10 km/hour • Water spraying was provided for soil-nailing work
Water Quality	• Portable chemical toilets were provided on site • 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 • Drip tray was provided for chemical materials at the working areas • 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
- North Plant Room: Removal of falsework, waterproofing for double slab, concreting for high level slab and ABWF
- Main Building: L1 and L2 slab, column and wall construction, L3 column for Roof construction, Steel ramp for Platform construction, B1 underground manhole, drainage and on grade slab. Block works and ABWF in B1, L1 and L2 Secondary structure construction.
- South Transformer Room: Removal of falsework and ABWF
- South Plant Room: Construction of wall and plinths
- Spiral Ramp: On grade slab and Falsework for the RC construction.

9.3 Key Issues for the Coming Month

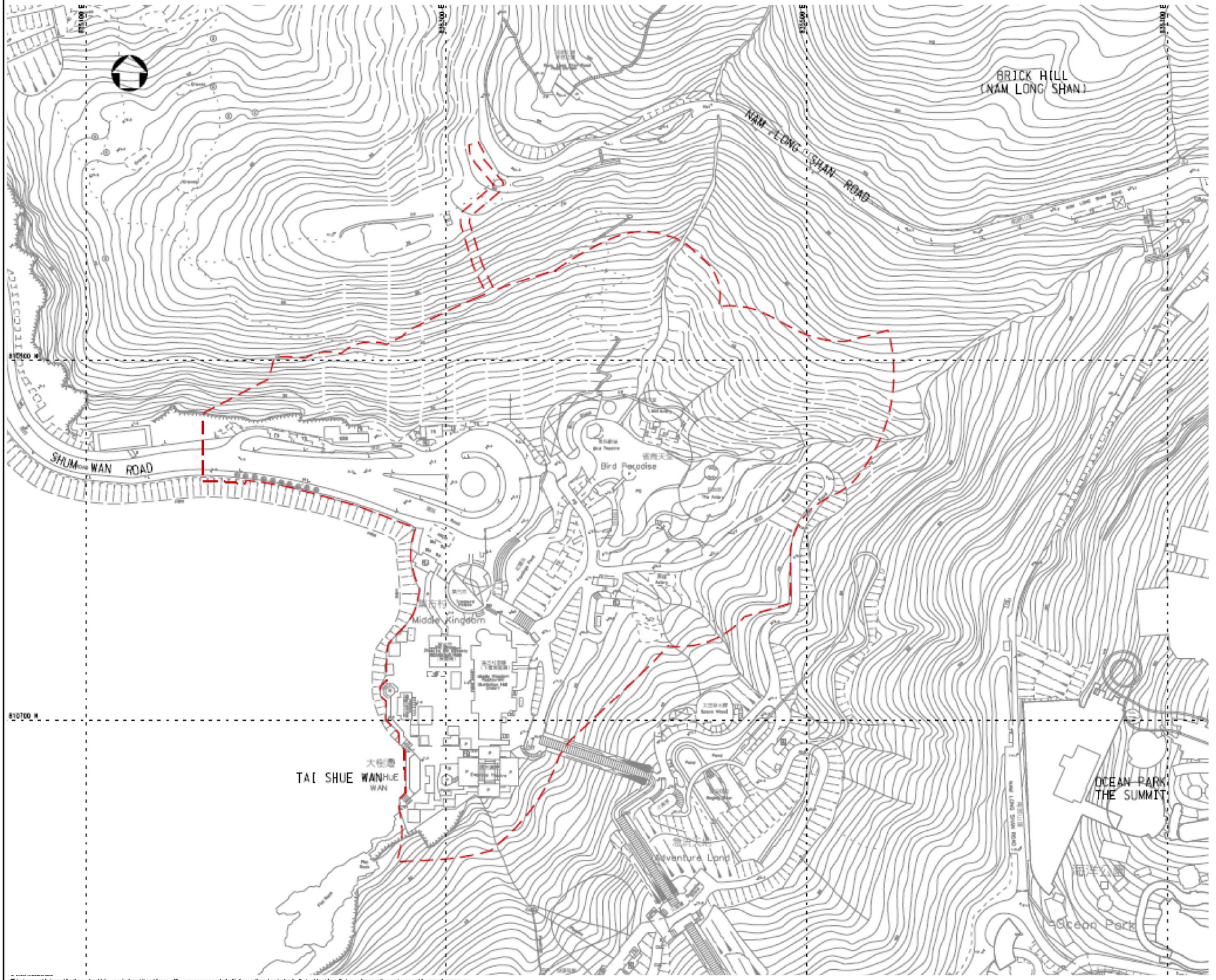
Based on construction activities as undertaken in the coming month, key environment issues consider to be included:

- 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

- Dust mitigation measures for potential fugitive dust impact should be implemented in dry season.
- 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

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

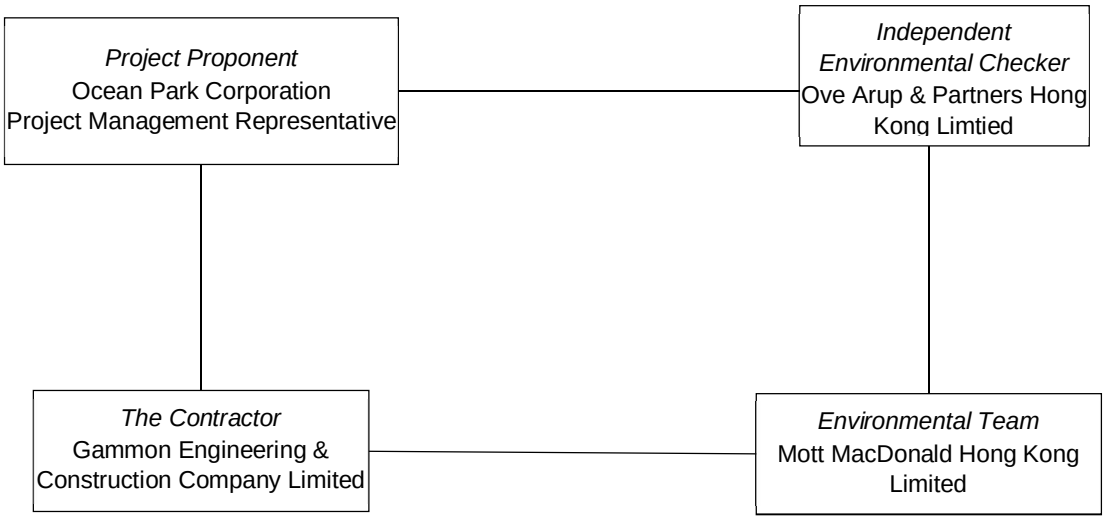
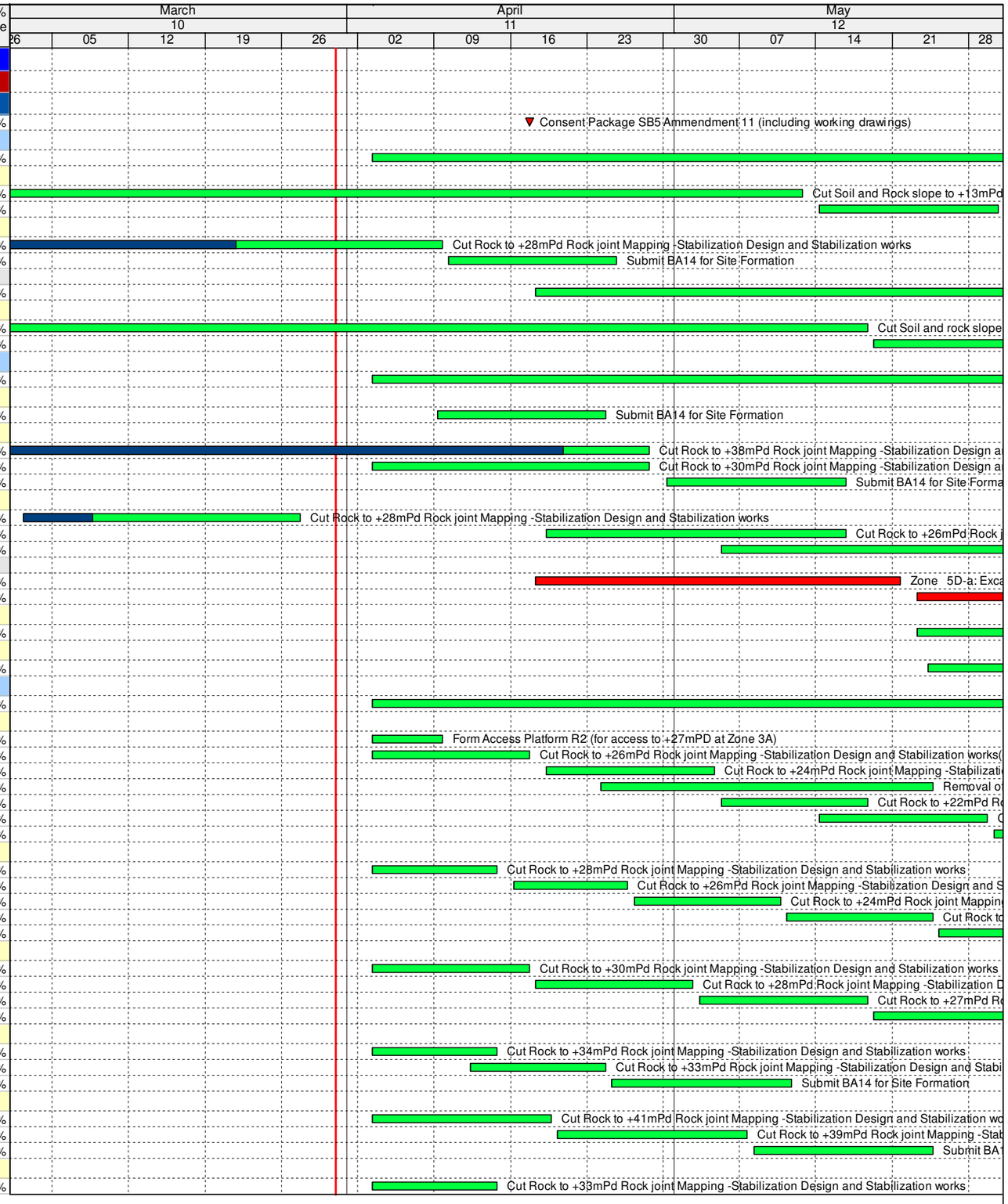


Table A: Contact information

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 Michelle Tang	-	2148 2890

C. 3-month Look-ahead Program

ID	Activity	Duration	Start	Finish	Activity % Complete
OCEAN PARK - TAI SHUE WAN WATER WORLD PROJECT Master Rev 3 As built 20180331					
SLOPE WORKS -SITE FORMATION					
Slope Works for Rides					
BD.CSS.R290	Consent Package SB5 Ammendment 11 (including working drawings)	0		17-Apr-18*	0%
Ride P1					
SF.P1.CPP110	Phasing Plan for P1 Footing Consent: Preparation submision and approval	48	03-Apr-18	31-May-18	0%
Phase 1A-1					
SF.P1.1A1110	Cut Soil and Rock slope to +13mPd Rock joint Mapping -Stabilization Design and	42	09-Oct-17	12-May-18	60%
SF.P1.1A1120	Submit BA14 for Site Formation	14	14-May-18	30-May-18	0%
Phase 1B					
SF.P1.1B1450	Cut Rock to +28mPd Rock joint Mapping -Stabilization Design and Stabilization w	14	03-Oct-17	09-Apr-18	90%
SF.P1.1B1490	Submit BA14 for Site Formation	14	10-Apr-18	25-Apr-18	0%
Additional Buttress wall (RFI 1291)					
OP.2400	Buttress wall formation	145	18-Apr-18	10-Oct-18	0%
Phase 1A-2					
SF.P1.1A1210	Cut Soil and rock slope to +24mPd Rock joint Mapping -Stabilization Design and S	34	03-Jan-18	18-May-18	5%
SF.P1.1A1220	Submit BA14 for Site Formation	14	19-May-18	05-Jun-18	0%
Ride P5					
SF.P5.CPP120	Phasing Plan for P5 Footing Consent: Preparation submision and approval	48	03-Apr-18	31-May-18	0%
Phase 5A					
SF.P5.5A1190	Submit BA14 for Site Formation	14	09-Apr-18	24-Apr-18	0%
Phase 5C					
SF.P5.5C1130	Cut Rock to +38mPd Rock joint Mapping -Stabilization Design and Stabilization w	20	22-Nov-17	28-Apr-18	95%
SF.P5.5C1150	Cut Rock to +30mPd Rock joint Mapping -Stabilization Design and Stabilization w	20	03-Apr-18	28-Apr-18	0%
SF.P5.5C1190	Submit BA14 for Site Formation	14	30-Apr-18	16-May-18	0%
Phase 5D					
SF.P5.5D1140	Cut Rock to +28mPd Rock joint Mapping -Stabilization Design and Stabilization w	22	02-Mar-18	27-Mar-18	25%
SF.P5.5D1160	Cut Rock to +26mPd Rock joint Mapping -Stabilization Design and Stabilization w	23	19-Apr-18	16-May-18	0%
SF.P5.5D1150	Cut Rock to +24mPd Rock joint Mapping -Stabilization Design and Stabilization w	23	05-May-18	05-Jun-18	0%
Additional works to Ride walkway SB5 Ammendment 11					
OP.2370	Zone 5D-a: Excavate Soil from 23 mPD to 21 mPD (hand dig)	28	18-Apr-18	21-May-18	0%
OP.2380	Zone 5D-a: Excavate Soil from 21 mPD to 19 mPD (hand dig)	36	23-May-18	05-Jul-18	0%
Phase 5E					
SF.P5.5E1120	Cut Soil Slope to +28mPd and Face Mapping -Stabilization Design and install Soi	18	23-May-18	14-Jun-18	0%
Phase 5B					
SF.P5.5B1130	Cut Rock to +32mPd Rock joint Mapping -Stabilization Design and Stabilization w	14	24-May-18	11-Jun-18	0%
Ride P3					
SF.P3.CPP120	Phasing Plan for P3 Footing Consent: Preparation submision and approval	48	03-Apr-18	31-May-18	0%
Phase 3A					
SF.P3.3A1100	Form Access Platform R2 (for access to +27mPD at Zone 3A)	5	03-Apr-18	09-Apr-18	0%
SF.P3.3A1160	Cut Rock to +26mPd Rock joint Mapping -Stabilization Design and Stabilization w	12	03-Apr-18	17-Apr-18	0%
SF.P3.3A1120	Cut Rock to +24mPd Rock joint Mapping -Stabilization Design and Stabilization w	12	19-Apr-18	04-May-18	0%
SF.P3.3A1150	Removal of Access Platform R2	22	24-Apr-18	24-May-18	0%
SF.P3.3A1170	Cut Rock to +22mPd Rock joint Mapping -Stabilization Design and Stabilization w	12	05-May-18	18-May-18	0%
SF.P3.3A1140	Cut Rock to +19mPd Rock joint Mapping -Stabilization Design and Stabilization w	12	14-May-18	29-May-18	0%
SF.P3.3A1190	Submit BA14 for Site Formation	14	30-May-18	14-Jun-18	0%
Phase 3C					
SF.P3.3C1120	Cut Rock to +28mPd Rock joint Mapping -Stabilization Design and Stabilization w	10	03-Apr-18	14-Apr-18	0%
SF.P3.3C1170	Cut Rock to +26mPd Rock joint Mapping -Stabilization Design and Stabilization w	10	16-Apr-18	26-Apr-18	0%
SF.P3.3C1130	Cut Rock to +24mPd Rock joint Mapping -Stabilization Design and Stabilization w	11	27-Apr-18	10-May-18	0%
SF.P3.3C1180	Cut Rock to +22mPd Rock joint Mapping -Stabilization Design and Stabilization w	11	11-May-18	24-May-18	0%
SF.P3.3C1140	Cut Rock to +20mPd Rock joint Mapping -Stabilization Design and Stabilization w	11	25-May-18	06-Jun-18	0%
Phase 3D					
SF.P3.3D1110	Cut Rock to +30mPd Rock joint Mapping -Stabilization Design and Stabilization w	12	03-Apr-18	17-Apr-18	0%
SF.P3.3D1130	Cut Rock to +28mPd Rock joint Mapping -Stabilization Design and Stabilization w	12	18-Apr-18	02-May-18	0%
SF.P3.3D1120	Cut Rock to +27mPd Rock joint Mapping -Stabilization Design and Stabilization w	12	03-May-18	18-May-18	0%
SF.P3.3D1190	Submit BA14 for Site Formation	14	19-May-18	05-Jun-18	0%
Phase 3E					
SF.P3.3E1140	Cut Rock to +34mPd Rock joint Mapping -Stabilization Design and Stabilization w	10	03-Apr-18	14-Apr-18	0%
SF.P3.3E1150	Cut Rock to +33mPd Rock joint Mapping -Stabilization Design and Stabilization w	10	12-Apr-18	24-Apr-18	0%
SF.P3.3E1170	Submit BA14 for Site Formation	14	25-Apr-18	11-May-18	0%
Phase 3F					
SF.P3.3F1130	Cut Rock to +41mPd Rock joint Mapping -Stabilization Design and Stabilization w	13	03-Apr-18	19-Apr-18	0%
SF.P3.3F1140	Cut Rock to +39mPd Rock joint Mapping -Stabilization Design and Stabilization w	13	20-Apr-18	07-May-18	0%
SF.P3.3F1190	Submit BA14 for Site Formation	14	08-May-18	24-May-18	0%
Phase 3G					
SF.P3.3G1160	Cut Rock to +33mPd Rock joint Mapping -Stabilization Design and Stabilization w	10	03-Apr-18	14-Apr-18	0%



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

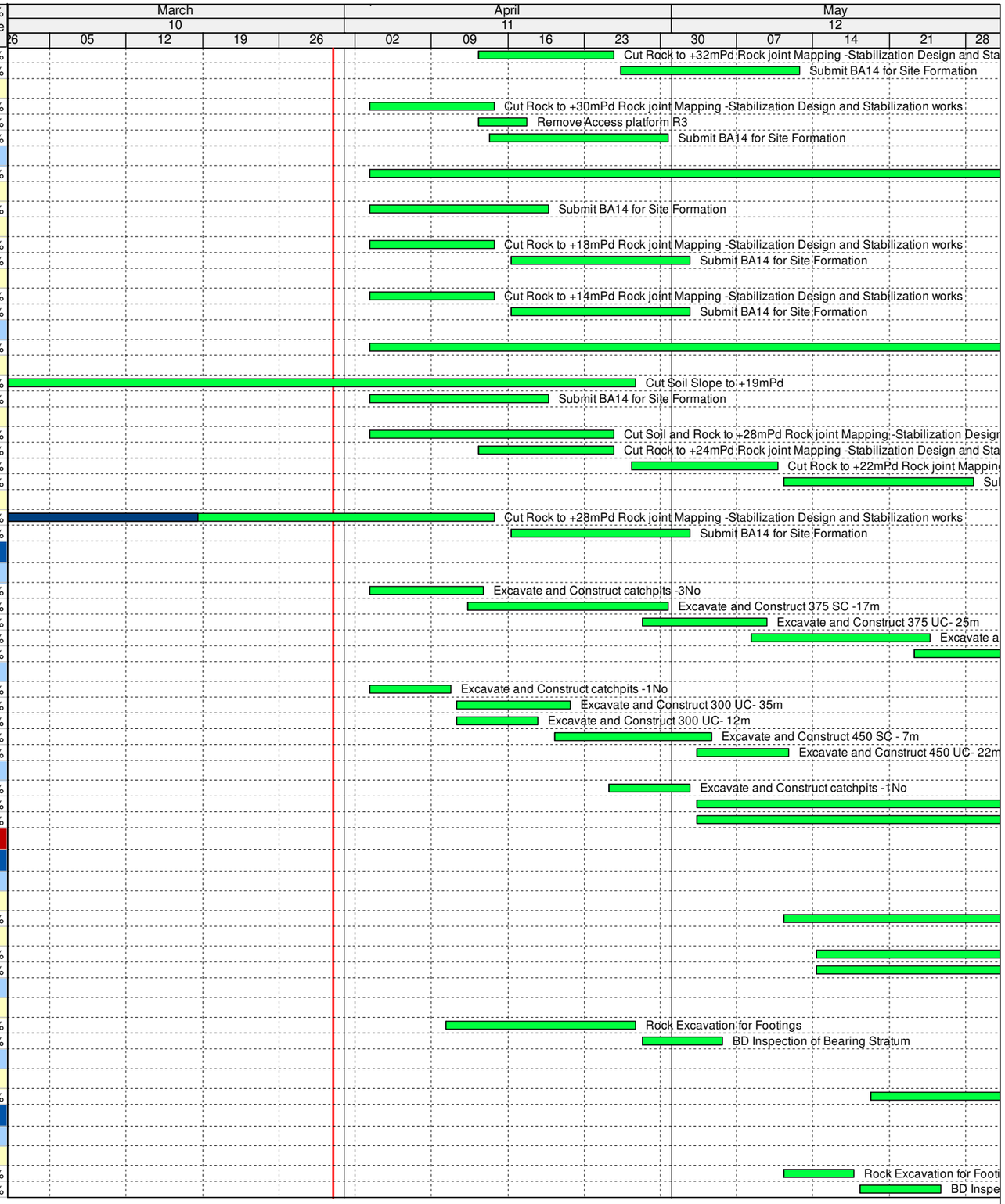
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-165
Layout: 3 Month look ahead 20180331
Page: 1 of 8

OCEAN PARK - TAI SHUE WAN DEVELOPMENT
Contract No. TSW-C006
3 month rolling program _April 2018

Gammon

Date	Revision	Checked	Approved
02-Apr-18	3M rolling	PL LN ME	

ID	Activity	Duration	Start	Finish	Activity % Complete
SF.P3.3G1170	Cut Rock to +32mPd Rock joint Mapping -Stabilization Design and Stabilization w	10	13-Apr-18	25-Apr-18	0%
SF.P3.3G1190	Submit BA14 for Site Formation	14	26-Apr-18	12-May-18	0%
Phase 3H					
SF.P3.3H1120	Cut Rock to +30mPd Rock joint Mapping -Stabilization Design and Stabilization w	10	03-Apr-18	14-Apr-18	0%
SF.P3.3H1200	Remove Access platform R3	4	13-Apr-18	17-Apr-18	0%
SF.P3.3H1190	Submit BA14 for Site Formation	14	14-Apr-18	30-Apr-18	0%
Ride P4					
SF.P4.CPP120	Phasing Plan for P4 Footing Consent: Preparation submision and approval	48	03-Apr-18	31-May-18	0%
Phase 4A					
SF.P4.4A1190	Submit BA14 for Site Formation	14	03-Apr-18	19-Apr-18	0%
Phase 4B					
SF.P4.4B1130	Cut Rock to +18mPd Rock joint Mapping -Stabilization Design and Stabilization w	10	03-Apr-18	14-Apr-18	0%
SF.P4.4B1190	Submit BA14 for Site Formation	14	16-Apr-18	02-May-18	0%
Phase 4C					
SF.P4.4C1140	Cut Rock to +14mPd Rock joint Mapping -Stabilization Design and Stabilization w	10	03-Apr-18	14-Apr-18	0%
SF.P4.4C1190	Submit BA14 for Site Formation	14	16-Apr-18	02-May-18	0%
Ride P2					
SF.P2.CPP120	Phasing Plan for P2 Footing Consent: Preparation submision and approval	48	03-Apr-18	31-May-18	0%
Phase 2A					
SF.P2.2A1110	Cut Soil Slope to +19mPd	19	26-Feb-18	27-Apr-18	0%
SF.P2.2A1190	Submit BA14 for Site Formation	14	03-Apr-18	19-Apr-18	0%
Phase 2B					
SF.P2.2B1210	Cut Soil and Rock to +28mPd Rock joint Mapping -Stabilization Design and Stabil	18	03-Apr-18	25-Apr-18	0%
SF.P2.2B1220	Cut Rock to +24mPd Rock joint Mapping -Stabilization Design and Stabilization w	10	13-Apr-18	25-Apr-18	0%
SF.P2.2B1230	Cut Rock to +22mPd Rock joint Mapping -Stabilization Design and Stabilization w	10	27-Apr-18	10-May-18	0%
SF.P2.2B1290	Submit BA14 for Site Formation	14	11-May-18	28-May-18	0%
Phase 2C					
SF.P2.2C1320	Cut Rock to +28mPd Rock joint Mapping -Stabilization Design and Stabilization w	13	27-Dec-17	14-Apr-18	75%
SF.P2.2C1390	Submit BA14 for Site Formation	14	16-Apr-18	02-May-18	0%
Drainage Channel to Slopes					
P1					
SFD.P1.1000	Excavate and Construct catchpits -3No	9	03-Apr-18	13-Apr-18	0%
SFD.P1.1010	Excavate and Construct 375 SC -17m	16	12-Apr-18	30-Apr-18	0%
SFD.P1.1020	Excavate and Construct 375 UC- 25m	9	28-Apr-18	09-May-18	0%
SFD.P1.1030	Excavate and Construct 450 SC - 11m	14	08-May-18	24-May-18	0%
SFD.P1.1040	Excavate and Construct 525 UC -24m	9	23-May-18	01-Jun-18	0%
P3					
SFD.P3.1000	Excavate and Construct catchpits -1No	6	03-Apr-18	10-Apr-18	0%
SFD.P3.1010	Excavate and Construct 300 UC- 35m	10	11-Apr-18	21-Apr-18	0%
SFD.P3.1020	Excavate and Construct 300 UC- 12m	7	11-Apr-18	18-Apr-18	0%
SFD.P3.1030	Excavate and Construct 450 SC - 7m	12	20-Apr-18	04-May-18	0%
SFD.P3.1040	Excavate and Construct 450 UC- 22m	8	03-May-18	11-May-18	0%
P4/5					
SFD.P45.1000	Excavate and Construct catchpits -1No	6	25-Apr-18	02-May-18	0%
SFD.P45.1010	Excavate and Construct 300 UC- 48m	24	03-May-18	31-May-18	0%
SFD.P45.1020	Excavate and Construct 450 SC - 42m	36	03-May-18	14-Jun-18	0%
RIDES - PILING & FOOTINGS					
Ride P1 - Giant Aquatube Slide					
Phase 1A-1					
Minipiles					
MP.P2.2B1110	Submit BA8/10 for Minipiles	28	11-May-18	13-Jun-18	0%
Footing					
RC.P1.1A2110	Submit BA8/10 for Foundation Works	28	14-May-18	15-Jun-18	0%
RC.P1.1A2120	Rock Excavation for Footings	18	14-May-18	04-Jun-18	0%
Phase 1B					
Footing					
RC.P1.1B2120	Rock Excavation for Footings	16	10-Apr-18	27-Apr-18	0%
RC.P1.1B2130	BD Inspection of Bearing Stratum	6	28-Apr-18	05-May-18	0%
Phase 1A-2					
Footing					
RC.P1.1A2220	Rock Excavation for Footings	16	19-May-18	08-Jun-18	0%
Ride P2 - Aqua Twist Mat Races					
Phase 2B					
Footing					
RC.P2.2B2120	Rock Excavation for Footings	6	11-May-18	17-May-18	0%
RC.P2.2B2130	BD Inspection of Bearing Stratum	6	18-May-18	25-May-18	0%



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

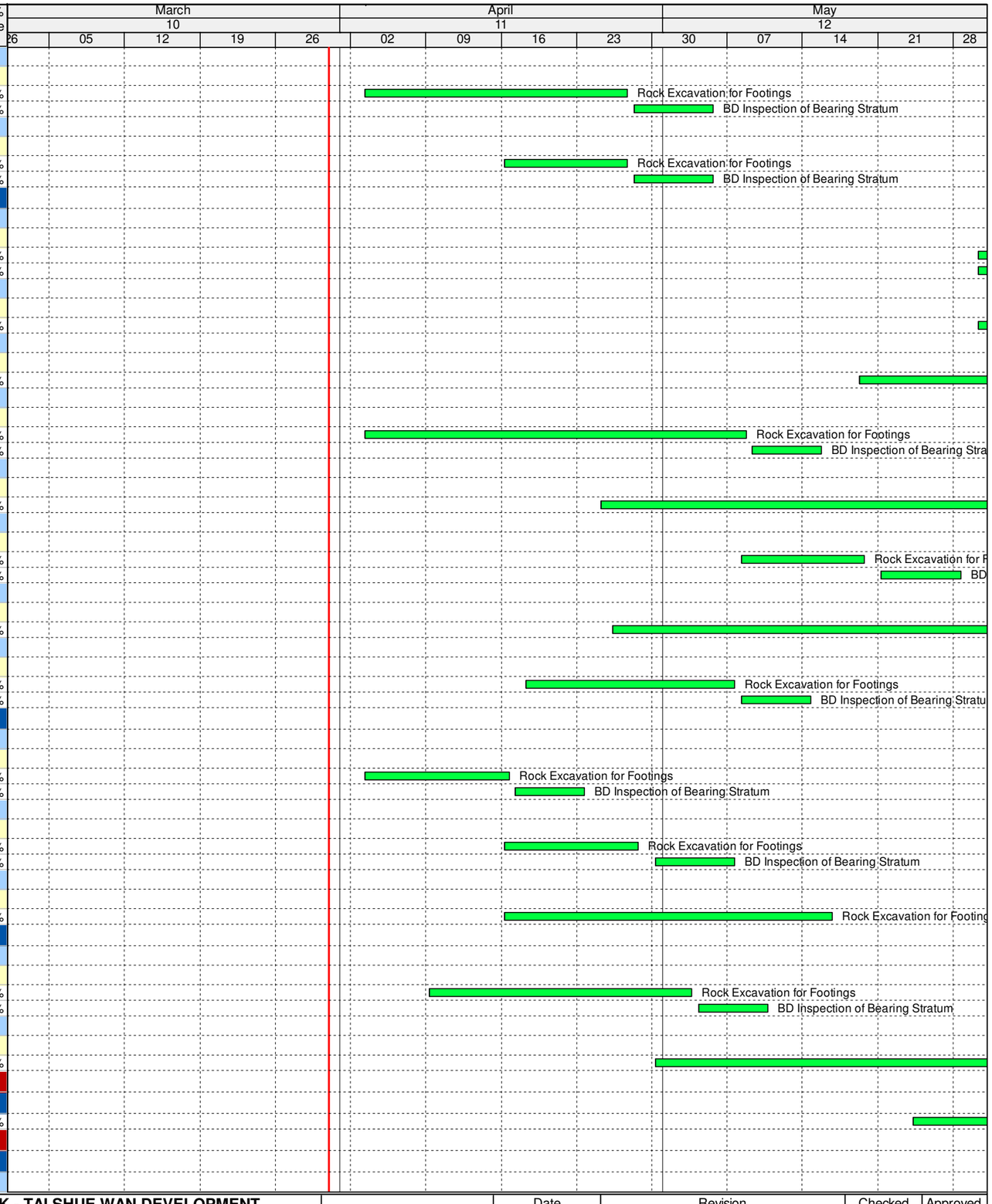
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-165
Layout: 3 Month look ahead 20180331

OCEAN PARK - TAI SHUE WAN DEVELOPMENT
Contract No. TSW-C006
3 month rolling program _April 2018

Gammon

Date	Revision	Checked	Approved
02-Apr-18	3M rolling	PL LN ME	

ID	Activity	Duration	Start	Finish	Activity % Complete
Phase 2A					
Footing					
RC.P2.2A2120	Rock Excavation for Footings	21	03-Apr-18	27-Apr-18	0%
RC.P2.2A2130	BD Inspection of Bearing Stratum	6	28-Apr-18	05-May-18	0%
Phase 2C					
Footing					
RC.P2.2C2120	Rock Excavation for Footings	11	16-Apr-18	27-Apr-18	0%
RC.P2.2C2130	BD Inspection of Bearing Stratum	6	28-Apr-18	05-May-18	0%
Ride P3 - Hybrid Funnel/Dark Ride					
Phase 3A					
Footing					
RC.P3.3A2110	Submit BA8/10 for Foundation Works	28	30-May-18	03-Jul-18	0%
RC.P3.3A2120	Rock Excavation for Footings	37	30-May-18	18-Jul-18	0%
Phase 3B					
Footing					
RC.P3.3B2120	Rock Excavation for Footings	41	30-May-18	24-Jul-18	0%
Phase 3D					
Footing					
RC.P3.3D2120	Rock Excavation for Footings	38	19-May-18	09-Jul-18	0%
Phase 3C					
Footing / Pile Cap					
RC.P3.3C2120	Rock Excavation for Footings	29	03-Apr-18	08-May-18	0%
RC.P3.3C2130	BD Inspection of Bearing Stratum	6	09-May-18	15-May-18	0%
Phase 3E					
Footing					
RC.P3.3E2120	Rock Excavation for Footings	35	25-Apr-18	07-Jun-18	0%
Phase 3F					
Footing					
RC.P3.3F2120	Rock Excavation for Footings	11	08-May-18	19-May-18	0%
RC.P3.3F2130	BD Inspection of Bearing Stratum	6	21-May-18	28-May-18	0%
Phase 3G					
Footing					
RC.P3.3G2120	Rock Excavation for Footings	38	26-Apr-18	12-Jun-18	0%
Phase 3H					
Footing					
RC.P3.3H2120	Rock Excavation for Footings	16	18-Apr-18	07-May-18	0%
RC.P3.3H2130	BD Inspection of Bearing Stratum	6	08-May-18	14-May-18	0%
Ride P4 - Aqua Drop Speed Slide					
Phase 4A					
Pilecap / Footing					
RC.P4.4A2120	Rock Excavation for Footings	11	03-Apr-18	16-Apr-18	0%
RC.P4.4A2130	BD Inspection of Bearing Stratum	6	17-Apr-18	23-Apr-18	0%
Phase 4B					
Footing					
RC.P4.4B2120	Rock Excavation for Footings	12	16-Apr-18	28-Apr-18	0%
RC.P4.4B2130	BD Inspection of Bearing Stratum	6	30-Apr-18	07-May-18	0%
Phase 4C					
Footing					
RC.P4.4C2120	Rock Excavation for Footings	26	16-Apr-18	16-May-18	0%
Ride P5 - Family Boomerango					
Phase 5A					
Footing					
RC.P5.5A2120	Rock Excavation for Footings	21	09-Apr-18	03-May-18	0%
RC.P5.5A2130	BD Inspection of Bearing Stratum	6	04-May-18	10-May-18	0%
Phase 5C					
Footing					
RC.P5.5C2120	Rock Excavation for Footings	28	30-Apr-18	02-Jun-18	0%
RISING MAIN (SEWERAGE)					
Site Formation/Access/ Excavation					
RM.SFLL.1210	Rising Main - Excavation from CH80-CH125	50	24-May-18	01-Aug-18	0%
SOUTH SERVICES BUILDING					
Basement Level					
Basement Level					



critical level of effort
Critical Remaining Work
Current
Milestone
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% Complete

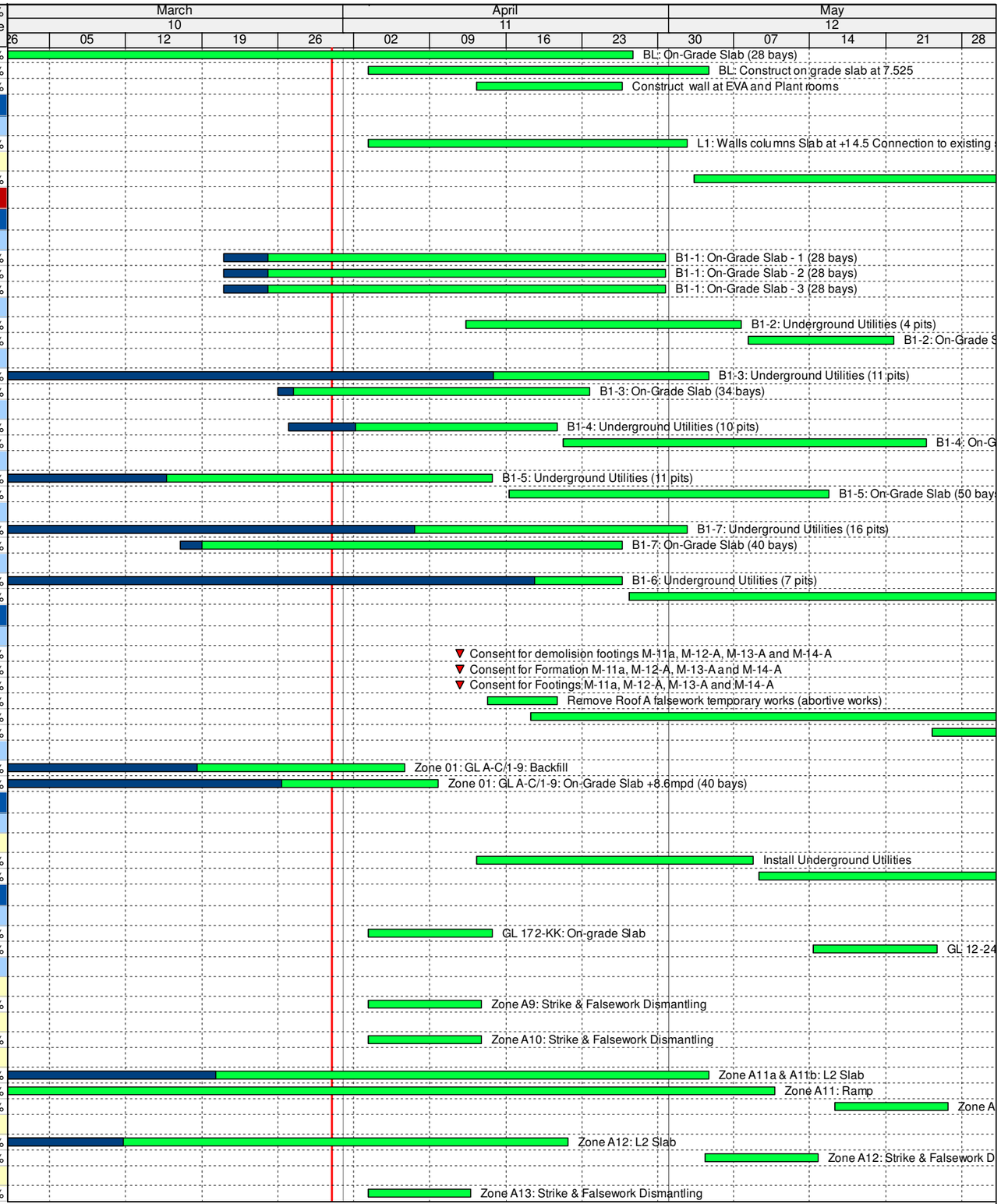
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-165
Layout: 3 Month look ahead 20180331
Page: 3 of 8

OCEAN PARK - TAI SHUE WAN DEVELOPMENT
Contract No. TSW-C006
3 month rolling program _April 2018

Gammon

Date	Revision	Checked	Approved
02-Apr-18	3M rolling	PL LN ME	

ID	Activity	Duration	Start	Finish	Activity % Complete
SB.BLS.0130	BL: On-Grade Slab (28 bays)	14	21-Nov-17	27-Apr-18	50%
SB.BLS.0180	BL: Construct on grade slab at 7.525	26	03-Apr-18	04-May-18	0%
SB.BLS.0190	Construct wall at EVA and Plant rooms	12	13-Apr-18	26-Apr-18	0%
Level 1					
Level 1					
SB.L1S.1030	L1: Walls columns Slab at +14.5 Connection to existing structure	24	03-Apr-18	02-May-18	0%
Earthworks					
OP.260	Backfill to +15mPd	28	03-May-18	05-Jun-18	0%
PRIMARY RC STRUCTURE					
Basement Level BL					
Zone B1-1					
SP.BLS.1150	B1-1: On-Grade Slab - 1 (28 bays)	16	21-Mar-18	30-Apr-18	10%
SP.BLS.1160	B1-1: On-Grade Slab - 2 (28 bays)	16	21-Mar-18	30-Apr-18	10%
SP.BLS.1170	B1-1: On-Grade Slab - 3 (28 bays)	16	21-Mar-18	30-Apr-18	10%
Zone B1-2					
SP.BLS.1220	B1-2: Underground Utilities (4 pits)	21	12-Apr-18	07-May-18	0%
SP.BLS.1230	B1-2: On-Grade Slab (24 bays)	12	08-May-18	21-May-18	0%
Zone B1-3					
SP.BLS.1320	B1-3: Underground Utilities (11 pits)	21	23-Dec-17	04-May-18	85%
SP.BLS.1330	B1-3: On-Grade Slab (34 bays)	17	26-Mar-18	23-Apr-18	5%
Zone B1-4					
SP.BLS.1420	B1-4: Underground Utilities (10 pits)	8	27-Mar-18	20-Apr-18	25%
SP.BLS.1430	B1-4: On-Grade Slab (80 bays)	27	21-Apr-18	24-May-18	0%
Zone B1-5					
SP.BLS.1520	B1-5: Underground Utilities (11 pits)	21	19-Jan-18	14-Apr-18	65%
SP.BLS.1530	B1-5: On-Grade Slab (50 bays)	25	16-Apr-18	15-May-18	0%
Zone B1-7					
SP.BLS.1720	B1-7: Underground Utilities (16 pits)	21	28-Dec-17	02-May-18	80%
SP.BLS.1730	B1-7: On-Grade Slab (40 bays)	20	17-Mar-18	26-Apr-18	5%
Zone B1-6					
SP.BLS.1620	B1-6: Underground Utilities (7 pits)	21	05-Feb-18	26-Apr-18	90%
SP.BLS.1630	B1-6: On-Grade Slab (90 bays)	30	27-Apr-18	02-Jun-18	0%
Foundations					
PMI 228 Footings M-11a, M-12-A, M-13-A and M-14-A					
OP.2310	Consent for demolision footings M-11a, M-12-A, M-13-A and M-14-A	0		11-Apr-18*	0%
OP.2340	Consent for Formation M-11a, M-12-A, M-13-A and M-14-A	0		11-Apr-18*	0%
OP.2350	Consent for Footings M-11a, M-12-A, M-13-A and M-14-A	0		11-Apr-18*	0%
OP.2360	Remove Roof A falsework temporary works (abortive works)	6	14-Apr-18	20-Apr-18	0%
OP.2280	Demolish existing footings M-11a, M-12-A, M-13-A and M-14-A	42	18-Apr-18	07-Jun-18	0%
OP.2290	Formation to new footings M-11a, M-12-A, M-13-A and M-14-A	36	25-May-18	07-Jul-18	0%
Zone 01 (Foundation transformer room) (GL A-C/1-9)					
SP.L1S.1020	Zone 01: GL A-C/1-9: Backfill	7	01-Jan-18	06-Apr-18	80%
SP.L1S.1030	Zone 01: GL A-C/1-9: On-Grade Slab +8.6mpd (40 bays)	23	04-Jan-18	09-Apr-18	85%
Level 1					
Slab					
On Grade Slab					
OG.L1.1000	Install Underground Utilities	21	13-Apr-18	08-May-18	0%
OG.L1.1010	Construct on grade slab GL MM / 47-174	21	09-May-18	02-Jun-18	0%
Level 2					
On Grade Slab					
SP.L2S.2010	GL 172-KK: On-grade Slab	10	03-Apr-18	14-Apr-18	0%
SP.L2S.2020	GL 12-24: On-grade Slab	10	14-May-18	25-May-18	0%
Zone A					
Zone A9					
SP.L2A.2930	Zone A9: Strike & Falsework Dismantling	9	03-Apr-18	13-Apr-18	0%
Zone A10					
SP.L2A.2960	Zone A10: Strike & Falsework Dismantling	9	03-Apr-18	13-Apr-18	0%
Zone A11 (Ramp)					
SP.L2A.2980	Zone A11a & A11b: L2 Slab	22	04-Nov-17	04-May-18	75%
SP.L2A.2975	Zone A11: Ramp	31	04-Nov-17	10-May-18	0%
SP.L2A.2990	Zone A11: Strike & Falsework Dismantling	9	16-May-18	26-May-18	0%
Zone A12					
SP.L2A.3010	Zone A12: L2 Slab	24	09-Jan-18	21-Apr-18	60%
SP.L2A.3020	Zone A12: Strike & Falsework Dismantling	9	04-May-18	14-May-18	0%
Zone A13					
SP.L2A.3050	Zone A13: Strike & Falsework Dismantling	8	03-Apr-18	12-Apr-18	0%



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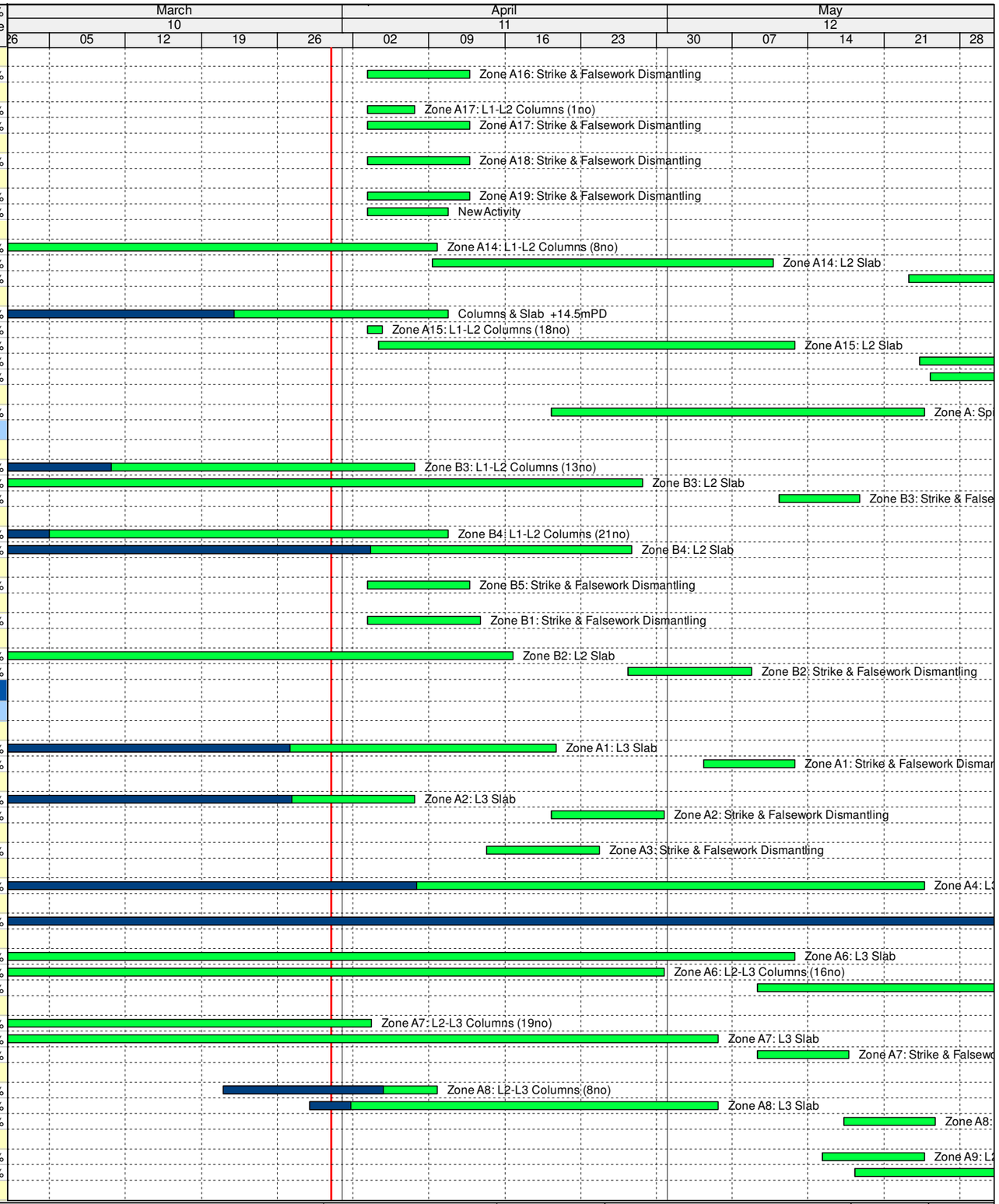
Project ID: T16004-165
Layout: 3 Month look ahead 20180331

OCEAN PARK - TAI SHUE WAN DEVELOPMENT
Contract No. TSW-C006
3 month rolling program _April 2018

Gammon

Date	Revision	Checked	Approved
02-Apr-18	3M rolling	PL LN ME	

ID	Activity	Duration	Start	Finish	Activity % Complete
	Zone A16				
SPL2A.3080	Zone A16: Strike & Falsework Dismantling	8	03-Apr-18	12-Apr-18	0%
	Zone A17				
SPL2A.3090	Zone A17: L1-L2 Columns (1no)	4	03-Apr-18	07-Apr-18	0%
SPL2A.3110	Zone A17: Strike & Falsework Dismantling	8	03-Apr-18	12-Apr-18	0%
	Zone A18				
SPL2A.3140	Zone A18: Strike & Falsework Dismantling	8	03-Apr-18	12-Apr-18	0%
	Zone A19 , (Including Bridge)				
SPL2A.3170	Zone A19: Strike & Falsework Dismantling	8	03-Apr-18	12-Apr-18	0%
SPL2A.3260	New Activity	6	03-Apr-18	10-Apr-18	0%
	Zone A14 (North Plant Below)				
SPL2A.3180	Zone A14: L1-L2 Columns (8no)	5	21-Nov-17	09-Apr-18	60%
SPL2A.3190	Zone A14: L2 Slab	27	09-Apr-18	10-May-18	0%
SPL2A.3200	Zone A14: Strike & Falsework Dismantling	8	23-May-18	31-May-18	0%
	Zone A15 (North Plant Room)				
SPL1S.1040	Columns & Slab +14.5mPD	27	02-Jan-18	10-Apr-18	80%
SPL2A.3210	Zone A15: L1-L2 Columns (18no)	2	03-Apr-18	04-Apr-18	0%
SPL2A.3220	Zone A15: L2 Slab	32	04-Apr-18	12-May-18	0%
SPL1S.1045	Zone 01: GL A-C/1-9: Strike & Falsework Dismantling	7	24-May-18	31-May-18	0%
SPL2A.3230	Zone A15: Strike & Falsework Dismantling	8	25-May-18	02-Jun-18	0%
	Zone A - Spiral Ramp				
SPL2A.3240	Zone A: Spiral Ramp - L2	28	20-Apr-18	24-May-18	0%
	Zone B				
	Zone B3				
SPL2B.2310	Zone B3: L1-L2 Columns (13no)	6	03-Oct-17	07-Apr-18	85%
SPL2B.2320	Zone B3: L2 Slab	24	05-Dec-17	28-Apr-18	25%
SPL2B.2330	Zone B3: Strike & Falsework Dismantling	7	11-May-18	18-May-18	0%
	Zone B4				
SPL2B.2410	Zone B4: L1-L2 Columns (21no)	9	09-Oct-17	10-Apr-18	80%
SPL2B.2420	Zone B4: L2 Slab	30	18-Nov-17	27-Apr-18	85%
	Zone B5				
SPL2B.2530	Zone B5: Strike & Falsework Dismantling	8	03-Apr-18	12-Apr-18	0%
	Zone B1				
SPL2B.2130	Zone B1: Strike & Falsework Dismantling	9	03-Apr-18	13-Apr-18	0%
	Zone B2				
SPL2B.3220	Zone B2: L2 Slab	20	25-Nov-17	16-Apr-18	50%
SPL2B.3230	Zone B2: Strike & Falsework Dismantling	9	27-Apr-18	08-May-18	0%
	Level 3				
	Zone A				
	Zone A1				
SPL3A.3120	Zone A1: L3 Slab	28	19-Dec-17	20-Apr-18	80%
SPL3A.3130	Zone A1: Strike & Falsework Dismantling	8	04-May-18	12-May-18	0%
	Zone A2				
SPL3A.3220	Zone A2: L3 Slab	29	22-Jan-18	07-Apr-18	85%
SPL3A.3230	Zone A2: Strike & Falsework Dismantling	9	20-Apr-18	30-Apr-18	0%
	Zone A3				
SPL3A.3330	Zone A3: Strike & Falsework Dismantling	9	14-Apr-18	24-Apr-18	0%
	Zone A4				
SPL3A.3420	Zone A4: L3 Slab	26	20-Feb-18	24-May-18	50%
	Zone A5				
SPL3A.3520	Zone A5: L3 Slab	38	27-Nov-17	07-Jul-18	100%
	Zone A6				
SPL3A.3630	Zone A6: L3 Slab	26	19-Dec-17	12-May-18	30%
SPL3A.3610	Zone A6: L2-L3 Columns (16no)	6	20-Dec-17	30-Apr-18	10%
SPL3A.3620	Zone A6: Ramp	26	09-May-18	09-Jun-18	0%
	Zone A7				
SPL3A.3710	Zone A7: L2-L3 Columns (19no)	7	20-Oct-17	03-Apr-18	75%
SPL3A.3720	Zone A7: L3 Slab	26	27-Nov-17	05-May-18	30%
SPL3A.3730	Zone A7: Strike & Falsework Dismantling	8	09-May-18	17-May-18	0%
	Zone A8				
SPL3A.3810	Zone A8: L2-L3 Columns (8no)	5	21-Mar-18	09-Apr-18	75%
SPL3A.3820	Zone A8: L3 Slab	20	29-Mar-18	05-May-18	10%
SPL3A.3830	Zone A8: Strike & Falsework Dismantling	7	17-May-18	25-May-18	0%
	Zone A9				
SPL3A.3910	Zone A9: L2-L3 Columns (23no)	8	15-May-18	24-May-18	0%
SPL3A.3920	Zone A9: L3 Slab	20	18-May-18	12-Jun-18	0%
	Zone A spiral ramp				



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Date	Revision	Checked	Approved
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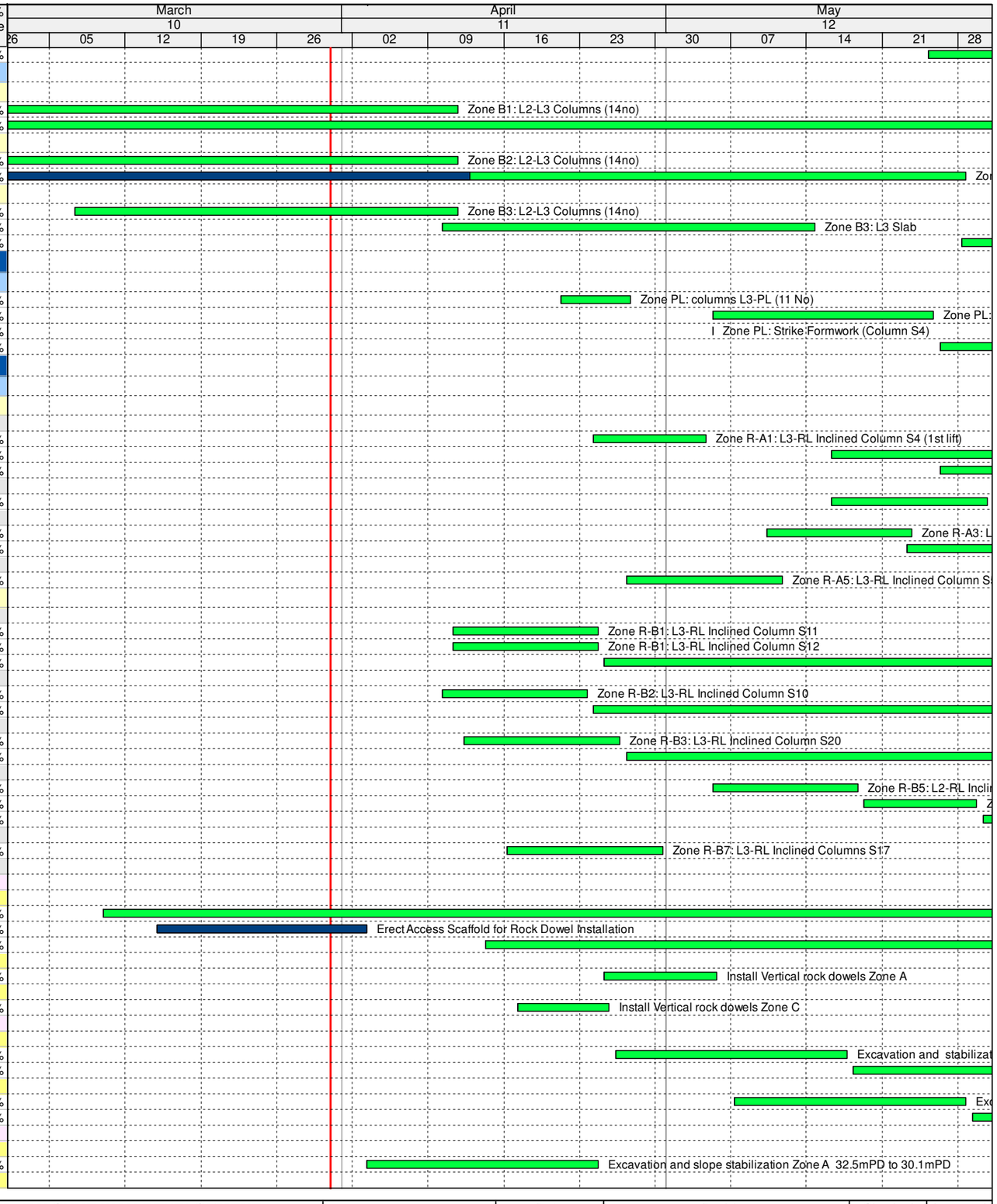
ID	Activity	Duration	Start	Finish	Activity % Complete
SPLL2A.3250	Zone A: Spiral Ramp - L3	28	25-May-18	30-Jun-18	0%
Zone B					
Zone B1					
SPL3B.3110	Zone B1: L2-L3 Columns (14no)	7	21-Nov-17	11-Apr-18	0%
SPL3B.3120	Zone B1: L3 Slab	14	28-Jan-18	05-Jun-18	0%
Zone B2					
SPL3B.3210	Zone B2: L2-L3 Columns (14no)	7	21-Nov-17	11-Apr-18	60%
SPL3B.3220	Zone B2: L3 Slab	28	26-Feb-18	28-May-18	50%
Zone B3, Bridge					
SPL3B.3310	Zone B3: L2-L3 Columns (14no)	7	07-Mar-18	11-Apr-18	0%
SPL3B.3920	Zone B3: L3 Slab	29	10-Apr-18	14-May-18	0%
SPL3B.3930	Zone B3: Strike & Falsework Dismantling	9	28-May-18	07-Jun-18	0%
Platform Level					
Zone PL					
SPL4S.4040	Zone PL: columns L3-PL (11 No)	6	21-Apr-18	27-Apr-18	0%
SPL4S.4030	Zone PL: PL Slab Grid 170/14-18 at 33.95mPD	17	05-May-18	25-May-18	0%
SPL4S.4015	Zone PL: Strike Formwork (Column S4)	0	05-May-18	05-May-18	0%
SPL4S.4050	Zone PL: PL Slab Grid 170/14-18 at 33.95mPD strike falsework	6	26-May-18	01-Jun-18	0%
Roof Level					
Slab					
Roof A					
Zone R-A1					
SPRLA.5110	Zone R-A1: L3-RL Inclined Column S4 (1st lift)	9	24-Apr-18	04-May-18	0%
SPRLA.5122	Zone R-A1: L3-RL Inclined Column S3	13	16-May-18	31-May-18	0%
SPRLA.5115	Zone R-A1: L3-RL Inclined Column S4 (2nd lift)	9	26-May-18	05-Jun-18	0%
Zone R-A2					
SPRLA.5210	Zone R-A2: L3-RL Inclined Column S2	12	16-May-18	30-May-18	0%
Zone R-A3					
SPRLA.5305	Zone R-A3: L3-RL Inclined Column R15	11	10-May-18	23-May-18	0%
SPRLA.5310	Zone R-A3: L3-RL Inclined Column S7	11	23-May-18	04-Jun-18	0%
Zone R-A5					
SPRLA.5510	Zone R-A5: L3-RL Inclined Column S5	12	27-Apr-18	11-May-18	0%
Roof B					
Zone R-B1					
SPRLB.5110	Zone R-B1: L3-RL Inclined Column S11	12	11-Apr-18	24-Apr-18	0%
SPRLB.5115	Zone R-B1: L3-RL Inclined Column S12	12	11-Apr-18	24-Apr-18	0%
SPRLB.5130	Zone R-B1: RL Slab	35	25-Apr-18	07-Jun-18	0%
Zone R-B2					
SPRLB.5210	Zone R-B2: L3-RL Inclined Column S10	12	10-Apr-18	23-Apr-18	0%
SPRLB.5230	Zone R-B2: RL Slab	31	24-Apr-18	31-May-18	0%
Zone R-B3					
SPRLB.5310	Zone R-B3: L3-RL Inclined Column S20	13	12-Apr-18	26-Apr-18	0%
SPRLB.5330	Zone R-B3: RL Slab	28	27-Apr-18	31-May-18	0%
Zone R-B5					
SPRLB.5510	Zone R-B5: L2-RL Inclined Columns S13 (1st lift)	12	05-May-18	18-May-18	0%
SPRLB.5515	Zone R-B5: L2-RL Inclined Columns S13 (2nd lift)	8	19-May-18	29-May-18	0%
SPRLB.5530	Zone R-B5: RL Slab	30	30-May-18	09-Jul-18	0%
Zone R-B7					
SPRLB.5710	Zone R-B7: L3-RL Inclined Columns S17	13	16-Apr-18	30-Apr-18	0%
Shear Key Works					
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 (	109	10-Mar-18	19-Jun-18	0%
OP.1860	Erect Access Scaffold for Rock Dowel Installation	8	15-Mar-18	03-Apr-18	100%
OP.2260	Rock Dowel Installation R39 (To be completed before Roof shell B RB6 and RB7 (	45	14-Apr-18	07-Jun-18	0%
Zone A					
OP.1270	Install Vertical rock dowels Zone A	9	25-Apr-18	05-May-18	0%
Zone C					
OP.1290	Install Vertical rock dowels Zone C	8	17-Apr-18	25-Apr-18	0%
Shear key Pit					
Zone C					
OP.1200	Excavation and stabilization Zone C 30.1mPD to 28mPD	18	26-Apr-18	17-May-18	0%
OP.1210	Excavation and stabilization Zone C 28mPD to 27.8mPD	20	18-May-18	11-Jun-18	0%
Zone A					
OP.1050	Excavation and stabilization Zone A 30.1mPD to 28mPD	18	07-May-18	28-May-18	0%
OP.1060	Excavation and stabilization Zone A 28mPD to 26.1mPD	20	29-May-18	21-Jun-18	0%
Shear key slope Formation					
Zone A					
OP.1040	Excavation and slope stabilization Zone A 32.5mPD to 30.1mPD	18	03-Apr-18	24-Apr-18	0%
Zone B					



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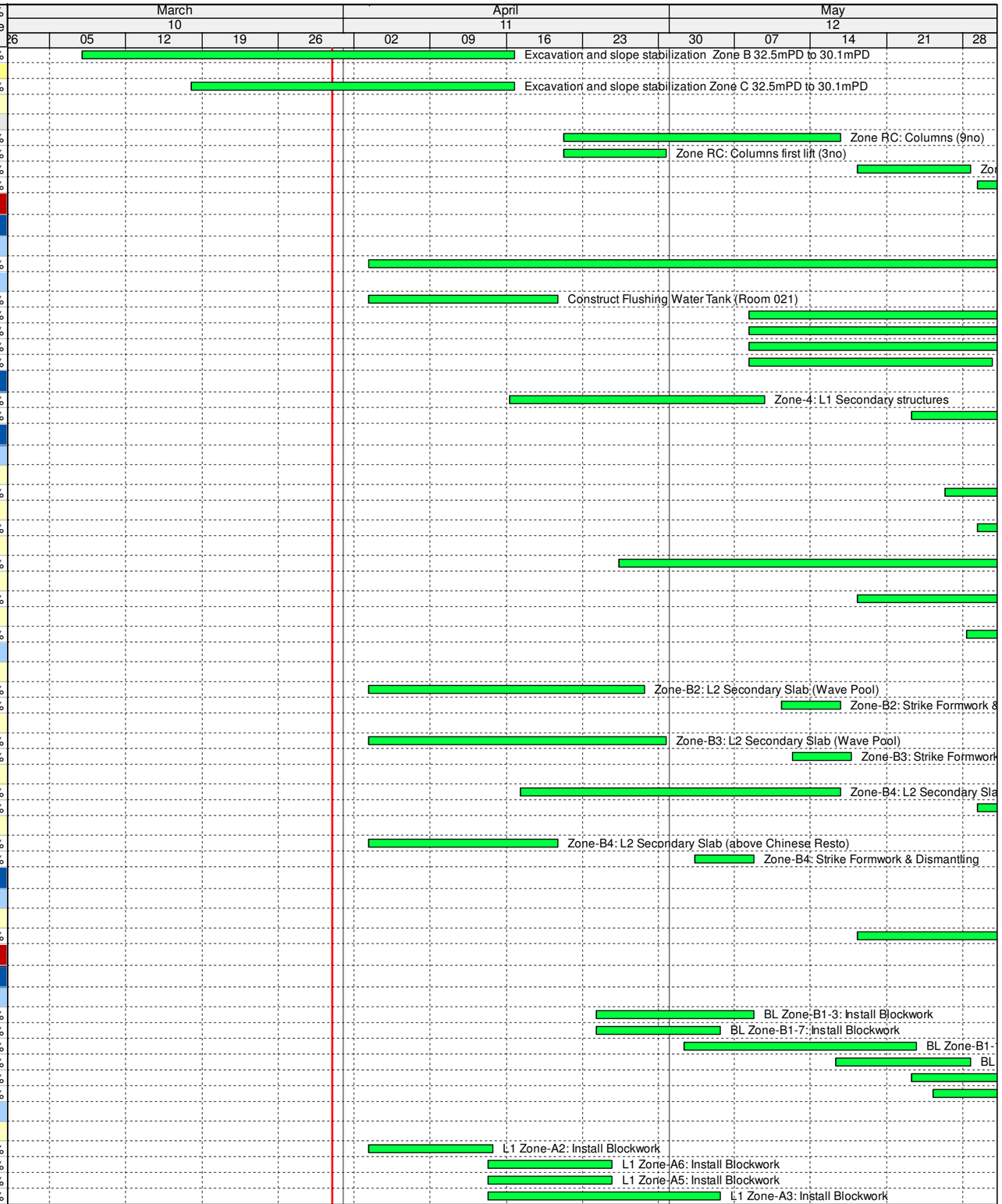
OP.1190	Excavation and slope stabilization Zone B 32.5mPD to 30.1mPD	11	08-Mar-18	16-Apr-18	0%
Zone C					
OP.1150	Excavation and slope stabilization Zone C 32.5mPD to 30.1mPD	11	18-Mar-18	16-Apr-18	0%
Roof C					
Zone R-C					
SP.RLC.5130	Zone RC: Columns (9no)	21	21-Apr-18	16-May-18	0%
SP.RLC.5140	Zone RC: Columns first lift (3no)	8	21-Apr-18	30-Apr-18	0%
SP.RLC.5150	Zone RC: Columns second lift (3no)	8	18-May-18	28-May-18	0%
SP.RLC.5120	Zone RC: RL Slab	60	29-May-18	17-Aug-18	0%
SECONDARY RC STRUCTURE (M & E Zone)					
Basement Level					
Secondary structures					
SS.BLS.1740	Secondary BL structures	79	03-Apr-18	09-Jul-18	0%
Water Tanks					
SSBL WT180	Construct Flushing Water Tank (Room 021)	15	03-Apr-18	20-Apr-18	0%
SSBL WT110	Construct Cooling Tower Transfer Water Tank (Room 029)	21	08-May-18	01-Jun-18	0%
SSBL WT130	Construct Potable Water Buffer Tank (Room 025)	27	08-May-18	08-Jun-18	0%
SSBL WT140	Construct Street Fire Hydrant Tank (Room 039)	21	08-May-18	01-Jun-18	0%
SSBL WT160	Construct Sprinkler Tank (Room 035)	19	08-May-18	30-May-18	0%
Level 1					
SS.L1S.1310	Zone-4: L1 Secondary structures	20	16-Apr-18	09-May-18	0%
SS.L1S.1320	Zone-4: L1 Strike Formwork & Dismantling	8	23-May-18	31-May-18	0%
Level 2					
Zone A					
Zone A1					
SS.L2A.2110	Zone-A1: L2 Secondary Slab	41	26-May-18	20-Jul-18	0%
Zone A2					
SS.L2A.2210	Zone-A2: L2 Secondary Slab	30	29-May-18	07-Jul-18	0%
Zone A3					
SS.L2A.2310	Zone-A3: L2 Secondary Slab	30	26-Apr-18	01-Jun-18	0%
Zone A7					
SS.L2A.2710	Zone-A7: L2 Secondary Slab	28	18-May-18	25-Jun-18	0%
Zone A8					
SS.L2A.2810	Zone-A8: L2 Secondary Slab	28	28-May-18	04-Jul-18	0%
Zone B					
Zone B2					
SS.L2B.2210	Zone-B2: L2 Secondary Slab (Wave Pool)	22	03-Apr-18	28-Apr-18	0%
SS.L2B.2220	Zone-B2: Strike Formwork & Dismantling	5	11-May-18	16-May-18	0%
Zone B3					
SS.L2B.2310	Zone-B3: L2 Secondary Slab (Wave Pool)	23	03-Apr-18	30-Apr-18	0%
SS.L2B.2320	Zone-B3: Strike Formwork & Dismantling	5	12-May-18	17-May-18	0%
Zone B4					
SS.L2B.2410	Zone-B4: L2 Secondary Slab (Landscape)	25	17-Apr-18	16-May-18	0%
SS.L2B.2420	Zone-B4: Strike Formwork & Dismantling	5	29-May-18	02-Jun-18	0%
Zone B5					
SS.L2B.2510	Zone-B4: L2 Secondary Slab (above Chinese Resto)	15	03-Apr-18	20-Apr-18	0%
SS.L2B.2520	Zone-B4: Strike Formwork & Dismantling	5	03-May-18	08-May-18	0%
Pool Unit					
Level 2					
Pool A - Outdoor Wave Pool					
SS.PUPA.1110	Pool A: Construct Slab Outdoor Wave Pool	35	18-May-18	04-Jul-18	0%
ABWF WORKS					
Blockwork					
Basement Level					
AB.BWBL.0130	BL Zone-B1-3: Install Blockwork	12	24-Apr-18	08-May-18	0%
AB.BWBL.0170	BL Zone-B1-7: Install Blockwork	10	24-Apr-18	05-May-18	0%
AB.BWBL.0110	BL Zone-B1-1: Install Blockwork	18	02-May-18	23-May-18	0%
AB.BWBL.0150	BL Zone-B1-5: Install Blockwork	10	16-May-18	28-May-18	0%
AB.BWBL.0120	BL Zone-B1-2: Install Blockwork	12	23-May-18	05-Jun-18	0%
AB.BWBL.0140	BL Zone-B1-4: Install Blockwork	10	25-May-18	05-Jun-18	0%
Level 1					
Zone A					
AB.BWL1.1120	L1 Zone-A2: Install Blockwork	10	03-Apr-18	14-Apr-18	0%
AB.BWL1.1160	L1 Zone-A6: Install Blockwork	10	14-Apr-18	25-Apr-18	0%
AB.BWL1.1150	L1 Zone-A5: Install Blockwork	10	14-Apr-18	25-Apr-18	0%
AB.BWL1.1130	L1 Zone-A3: Install Blockwork	18	14-Apr-18	05-May-18	0%



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

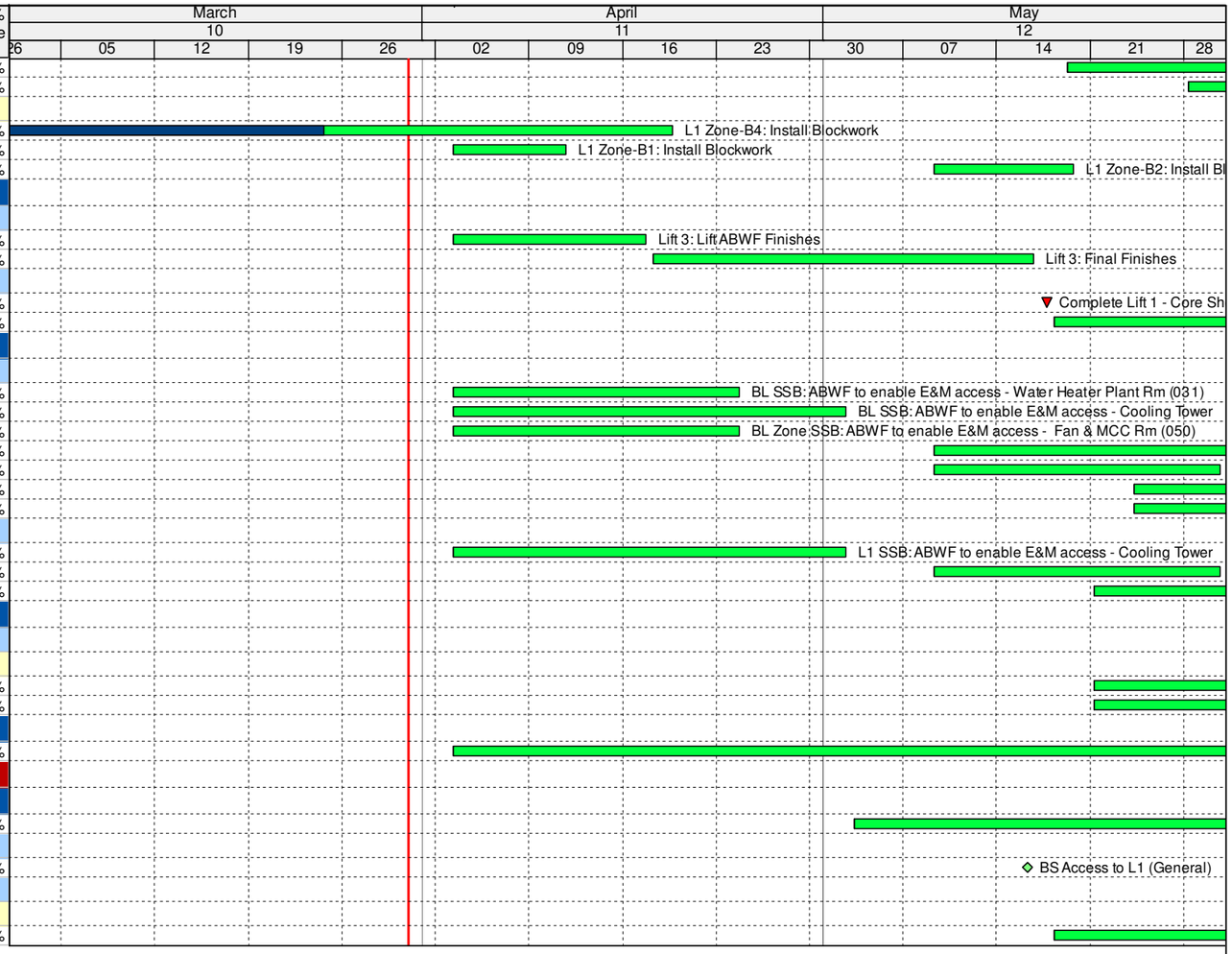
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-165
Layout: 3 Month look ahead 20180331

OCEAN PARK - TAI SHUE WAN DEVELOPMENT
Contract No. TSW-C006
3 month rolling program _April 2018

Gammon

Date	Revision	Checked	Approved
02-Apr-18	3M rolling	PL LN ME	

ID	Activity	Duration	Start	Finish	Activity % Complete
AB.BWL1.1140	L1 Zone-A4: Install Blockwork	10	19-May-18	31-May-18	0%
AB.BWL1.1110	L1 Zone-A1: Install Blockwork	18	28-May-18	16-Jun-18	0%
Zone B					
AB.BWL1.1540	L1 Zone-B4: Install Blockwork	14	05-Jan-18	19-Apr-18	75%
AB.BWL1.1520	L1 Zone-B1: Install Blockwork	7	03-Apr-18	11-Apr-18	0%
AB.BWL1.1550	L1 Zone-B2: Install Blockwork	10	09-May-18	19-May-18	0%
Lift Works					
Lift No.3					
AB.LW3.3110	Lift 3: Lift ABWF Finishes	12	03-Apr-18	17-Apr-18	0%
AB.LW3.3210	Lift 3: Final Finishes	24	18-Apr-18	16-May-18	0%
Lift No.1					
AB.LW1.1105	Complete Lift 1 - Core Shell	0		17-May-18	0%
AB.LW1.1110	Lift 1: Lift ABWF Finishes	12	18-May-18	01-Jun-18	0%
ABWF Works to Enable E&M Access					
Basement Level					
AB.EABL.0110	BL SSB: ABWF to enable E&M access - Water Heater Plant Rm (031)	18	03-Apr-18	24-Apr-18	0%
AB.EABL.0120	BL SSB: ABWF to enable E&M access - Cooling Tower	24	03-Apr-18	02-May-18	0%
AB.EABL.0135	BL Zone SSB: ABWF to enable E&M access - Fan & MCC Rm (050)	18	03-Apr-18	24-Apr-18	0%
AB.EABL.0150	BL Zone-B1-3,7: ABWF to enable E&M access - Pool Filtration Plant Rm (022)	30	09-May-18	13-Jun-18	0%
AB.EABL.0170	BL Zone-B-3: ABWF to enable E&M access - Cooling Tower Trans. Pump Rm (028)	18	09-May-18	30-May-18	0%
AB.EABL.0130	BL Zone-B1-1,7: ABWF to enable E&M access - Pool Filtration Plant Rm (003 & 008	18	24-May-18	13-Jun-18	0%
AB.EABL.0155	BL Zone-B1-1: ABWF to enable E&M access - Colorifier Rm (010)	18	24-May-18	13-Jun-18	0%
Level 1					
AB.EAL1.1120	L1 SSB: ABWF to enable E&M access - Cooling Tower	24	03-Apr-18	02-May-18	0%
AB.EAL1.1180	L1 Zone B-4: ABWF to enable E&M access - Emergency Gen. Rm 1 (184)	18	09-May-18	30-May-18	0%
AB.EAL1.1130	L1 Zone B-5: ABWF to enable E&M access - South Substation (189) & Main Switcl	31	21-May-18	27-Jun-18	0%
Changing / Washrooms					
Level 1					
North					
AB.CRL1.1110	L1 Zone-A3: Male Shower and Toilet Area	90	21-May-18	05-Sep-18	0%
AB.CRL1.1120	L1 Zone-A3: Female Shower and Toilet Area	90	21-May-18	05-Sep-18	0%
Catwalk Platform over L1 Locker room					
AB.CW.1000	Install Catwalkd platform over L1 Locker room	60	03-Apr-18	14-Jun-18	0%
E&M WORKS					
New Water Park					
EM.IN020001	Setting out for installation of first fix items	30	03-May-18	07-Jun-18	0%
Level 1					
EM.IN022000	BS Access to L1 (General)	0	16-May-18		0%
Level 2					
Pool A - Outdoor Wave Pool					
EM.IN023060	Pool A Lighting Installation - 1st fix	65	18-May-18	04-Aug-18	0%



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

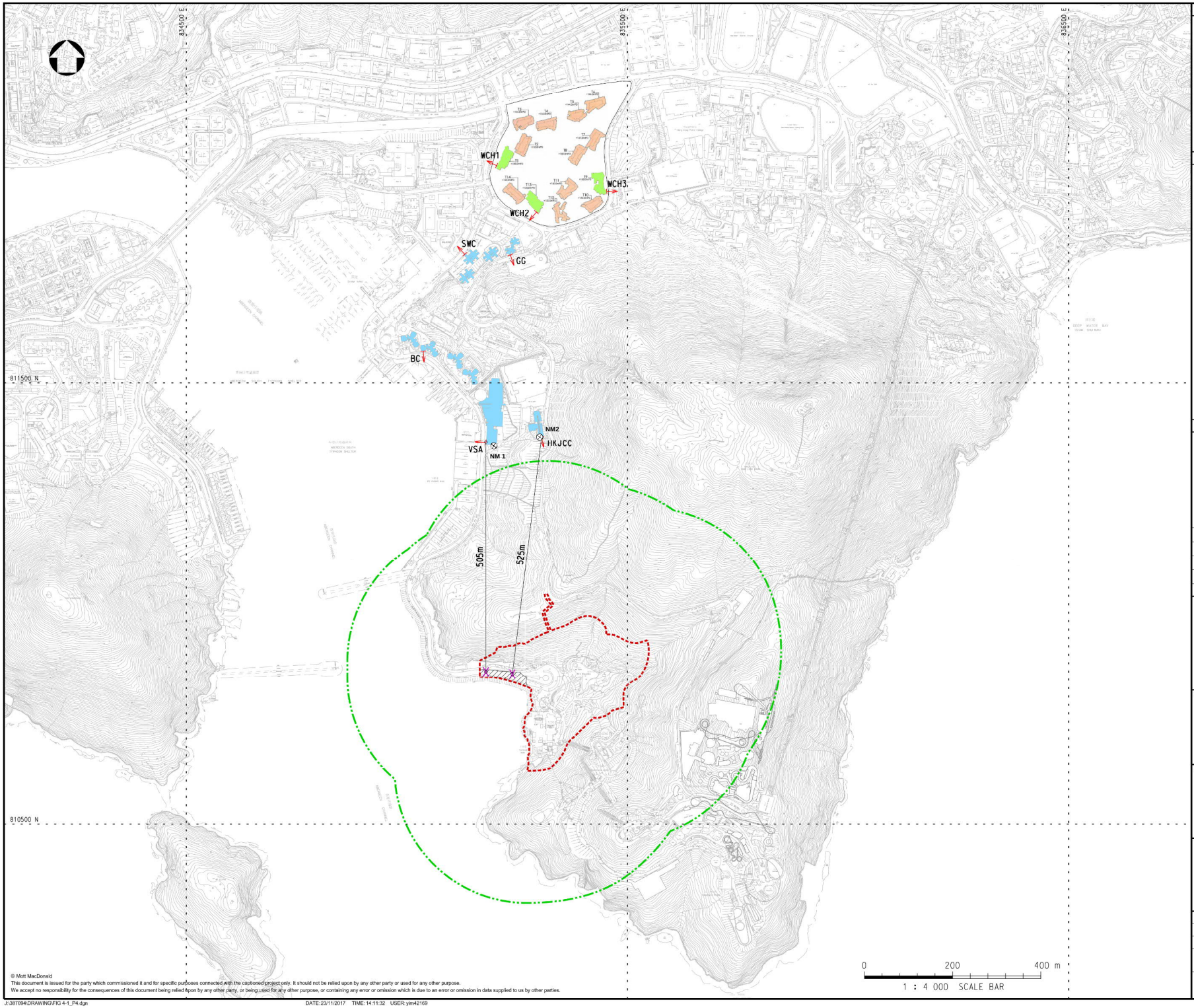
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-165
Layout: 3 Month look ahead 20180331
Page: 8 of 8

OCEAN PARK - TAI SHUE WAN DEVELOPMENT
Contract No. TSW-C006
3 month rolling program _April 2018

Gammon

Date	Revision	Checked	Approved
02-Apr-18	3M rolling	PL LN ME	

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

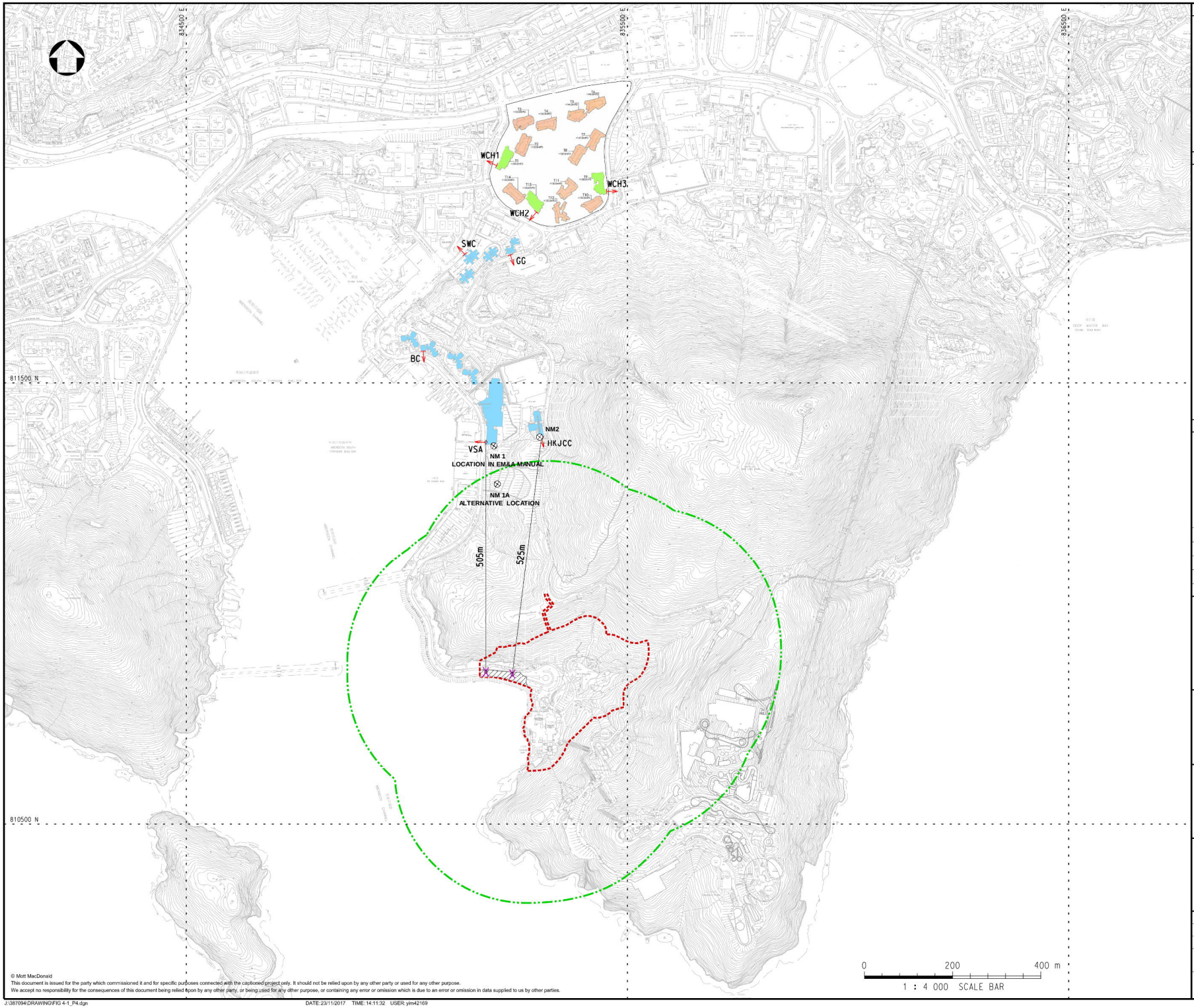
Title

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
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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. : C173120
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC17-1220) Date of Receipt / 收件日期 : 1 June 2017

Description / 儀器名稱	:	Sound Level Meter
Manufacturer / 製造商	:	Rion
Model No. / 型號	:	NL-52
Serial No. / 編號	:	00643049
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 : 8 June 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 : 8 June 2017

Certificate of Calibration
校正證書

Certificate No. : C173120
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	C170048
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	93.9	± 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	93.9 (Ref.)
				104.00		104.0
				114.00		114.0

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	93.9	Ref.
			Slow			93.9	± 0.3

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. : C173120
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	67.6	-26.2 ± 1.5
					125 Hz	77.7	-16.1 ± 1.5
					250 Hz	85.2	-8.6 ± 1.4
					500 Hz	90.6	-3.2 ± 1.4
					1 kHz	93.9	Ref.
					2 kHz	95.1	+1.2 ± 1.6
					4 kHz	94.9	+1.0 ± 1.6
					8 kHz	92.8	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.4	-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	93.0	-0.8 ± 1.5
					125 Hz	93.7	-0.2 ± 1.5
					250 Hz	93.9	0.0 ± 1.4
					500 Hz	93.9	0.0 ± 1.4
					1 kHz	93.9	Ref.
					2 kHz	93.7	-0.2 ± 1.6
					4 kHz	93.1	-0.8 ± 1.6
					8 kHz	90.9	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.5	-6.2 (+3.0 ; -6.0)

Remarks : - UUT Microphone Model No. : UC-59 & S/N : 06829

- 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.

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
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輝創工程
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. 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 : 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 : H T Wong
測試 Technical Officer

Certified By : K C Lee
核證 Engineer

Date of Issue : 3 October 2017
簽發日期

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.

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. : C165934
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC16-2438) Date of Receipt / 收件日期 : 26 October 2016

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 : 27 October 2016

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 : T L Shek
Assistant Engineer

Certified By / 核證 : H C Chan
Engineer

Date of Issue / 簽發日期 : 28 October 2016

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. : C165934
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	S12109

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
2.0	1.8	+0.2	0.2	2.0
4.0	3.8	+0.2	0.2	2.0
6.0	5.8	+0.2	0.3	2.0
8.1	8.0	+0.1	0.3	2.0
10.0	10.0	0.0	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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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

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; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures.	1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals.
Limit Level	1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 5. Carry out analysis of Contractor's working procedures; 6. Discuss with the IEC, Contractor and ER on remedial measures required; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 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; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 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; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals; 4. Submit further proposal if problem still not under control; 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 2. Inform the IEC and the ER 3. Discuss remedial actions with the IEC, the ER and the Contractor 4. Monitor remedial action until rectification has been completed	1. Check report 2. Check the Contractor's working method 3. Discuss with the ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures	1. Notify the Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake remedial measures or any necessary replacement
Repeated Non-conformity	1. Identify source 2. Inform the IEC and the ER 3. Increase monitoring (site audit) frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If exceedance stops, cease additional monitoring (site audit)	1. Check report 2. Check the Contractor's working method 3. Discuss with the ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 5. Supervise implementation of remedial measures		

H. Impact Monitoring Schedule

APRIL 2018

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

March 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

May 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:

MAY 2018

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

April 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					

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

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]**		
04-Apr-18	09:42	10:12	58.6	56.6	60.7	0.3	70
10-Apr-18	09:40	10:10	58.6	56.9	60.2	0.5	70
19-Apr-18	11:10	11:40	58.9	57.1	60.4	0.3	70
26-Apr-18	10:22	10:52	59.7	57.3	61.3	0.3	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}**		
04-Apr-18	09:21	09:51	52.2	48.3	54.7	0.3	70
10-Apr-18	10:30	11:00	52.1	50.6	53.7	0.2	70
19-Apr-18	10:30	11:00	51.2	49.5	52.7	0.3	70
26-Apr-18	09:40	10:10	51.7	50.0	53.2	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)) (2)**
	Start	**Finish**	**Corrected L_{eq}(15min) (1)**	**Corrected L_{90} (1)**	**Corrected L_{10} (1)**		
01-Apr-18	17:20	17:35	57.4	53.3	59.1	0.5	70
08-Apr-18	10:29	10:44	55.6	50.4	58.5	0.8	70
15-Apr-18	16:40	16:55	54.6	49.9	57.6	0.4	70
22-Apr-18	14:28	14:43	53.8	49.8	56.4	0.6	70
29-Apr-18	16:28	16:43	54.4	50.4	56.7	0.5	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}(15min)**	**L_{90}**	**L_{10}**		
01-Apr-18	16:52	17:07	49.3	47.4	50.1	0.4	65
08-Apr-18	10:01	10:16	48.7	50.3	45.5	0.4	65
15-Apr-18	17:08	17:23	48.3	42.5	50.7	0.5	65
22-Apr-18	14:00	14:15	46.1	42.2	48.2	0.3	65
29-Apr-18	16:00	16:15	48.2	43.9	49.3	0.5	65

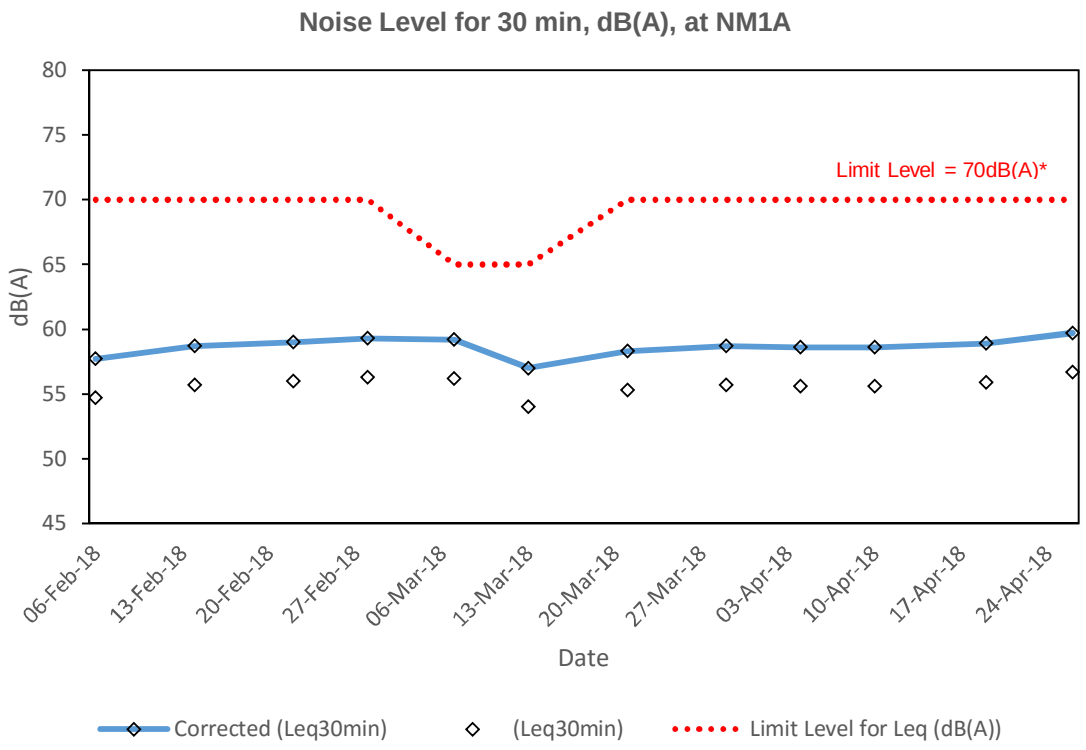
Notes:

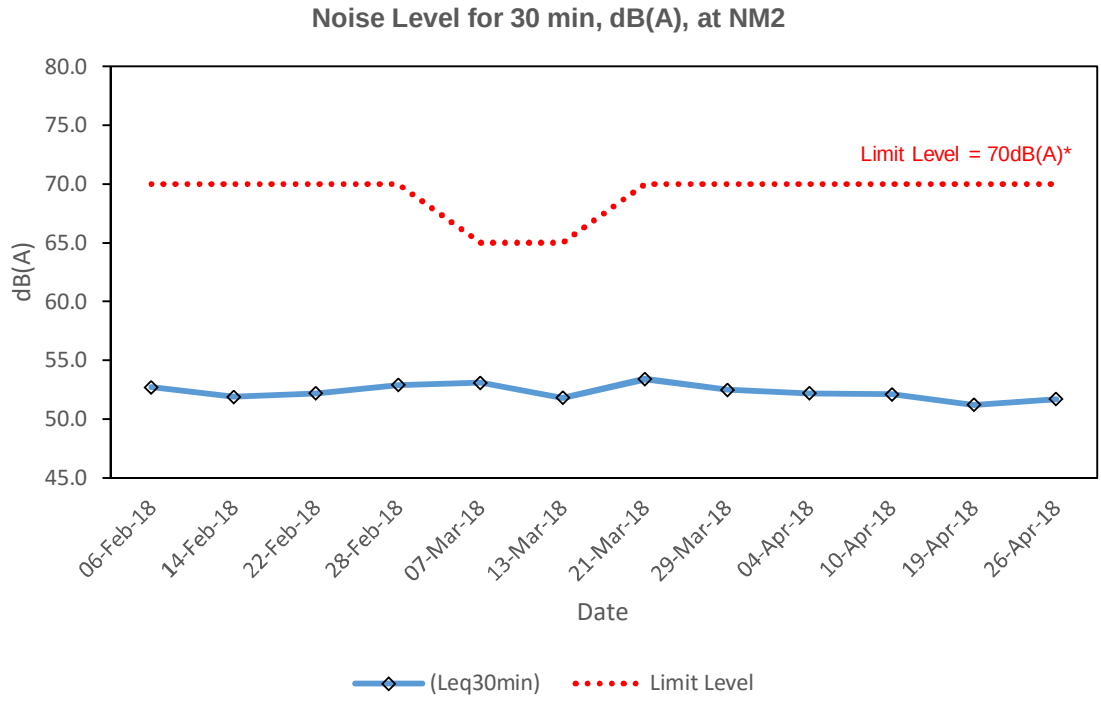
(1) A free field correction of +3dB(A) has been made to these measurements as specified in the EM&A Manual and EPD guidelines.

(2) Acceptable noise level should be reduced to 65dB(A) upon school examination period.

J. Graphical Plots for Noise Monitoring Data

Graphical Plot for Noise Monitoring Data (February - April 2018)



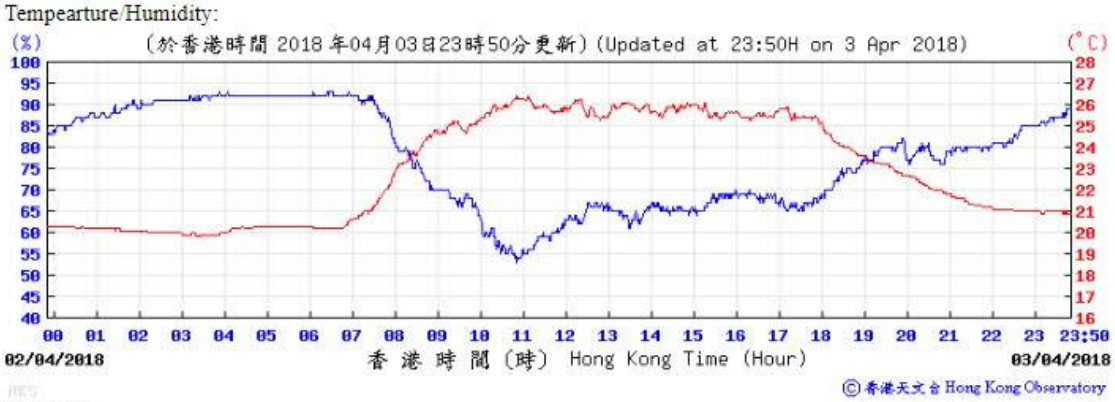


Note: *Acceptable Noise Levels for school should be reduced to 65 dB(A) during examination period.

K. Meteorological Data

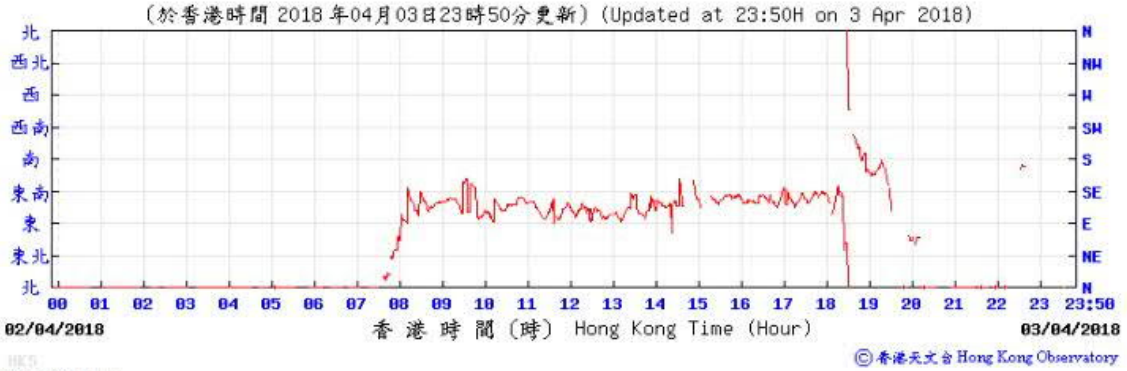
3/4/2018 **Wong Chuk Hang Station**

Tempearture/Humidity:

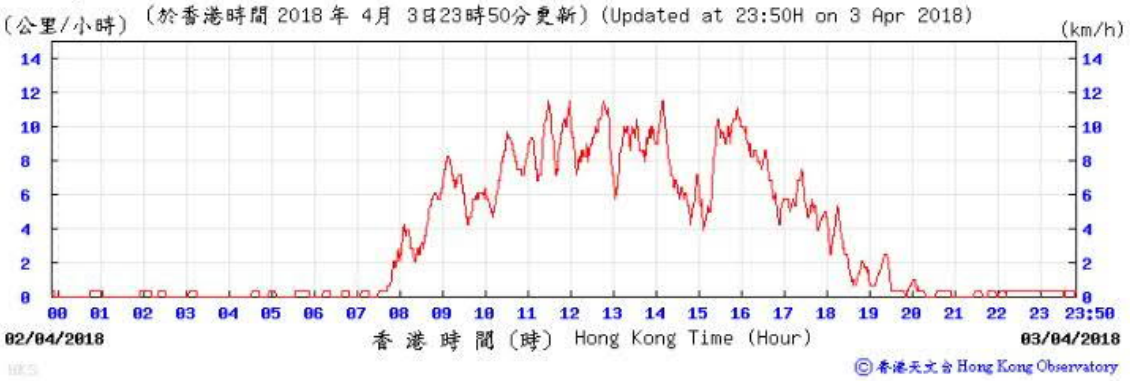


Pressure:

Wind Direction:



Wind Speed:



4/4/2018

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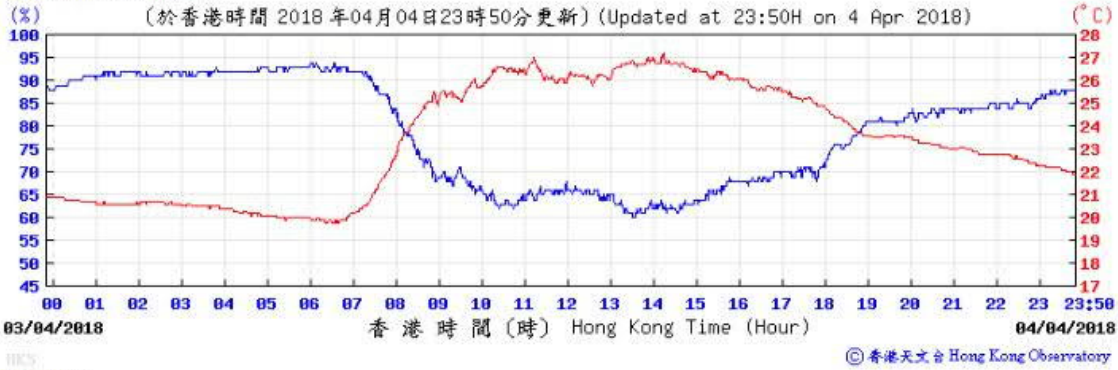
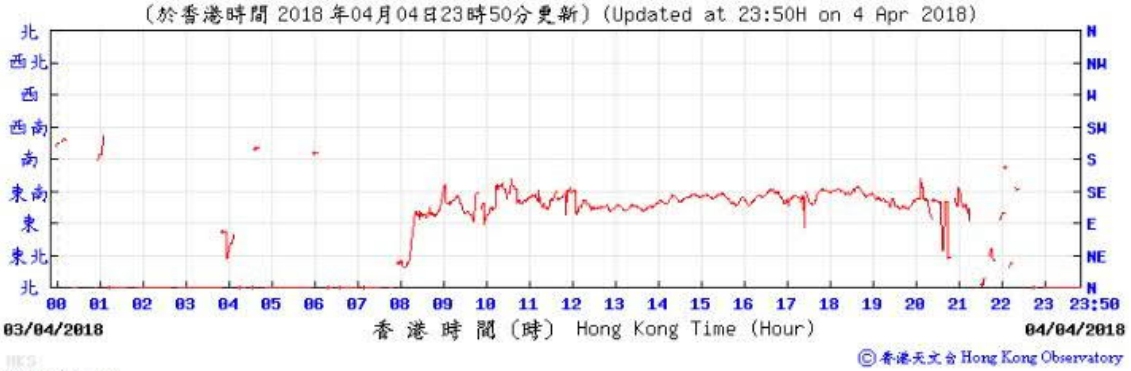
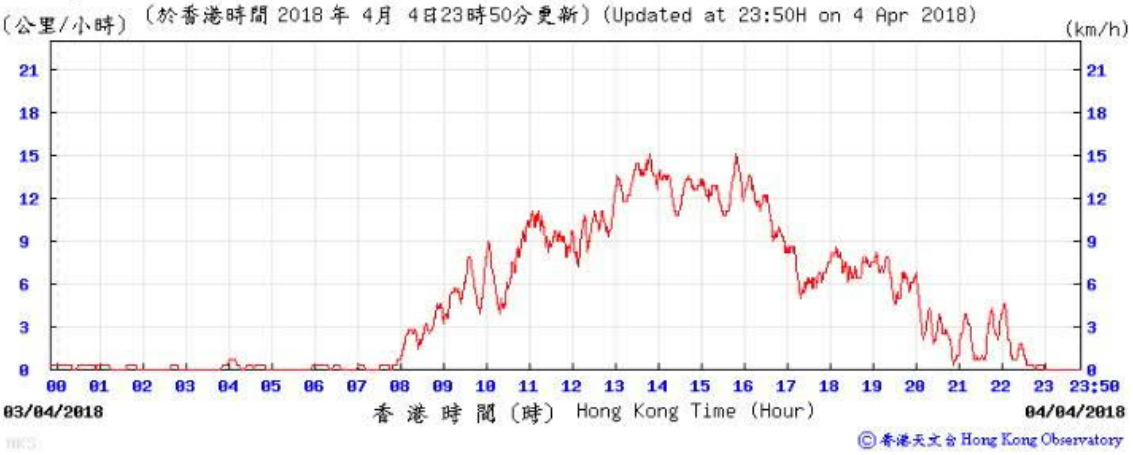


Pressure:

Wind Direction:

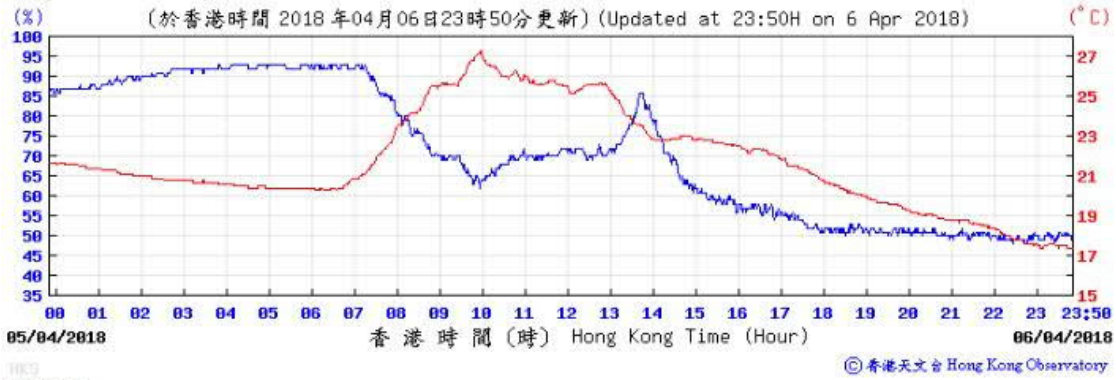


Wind Speed:



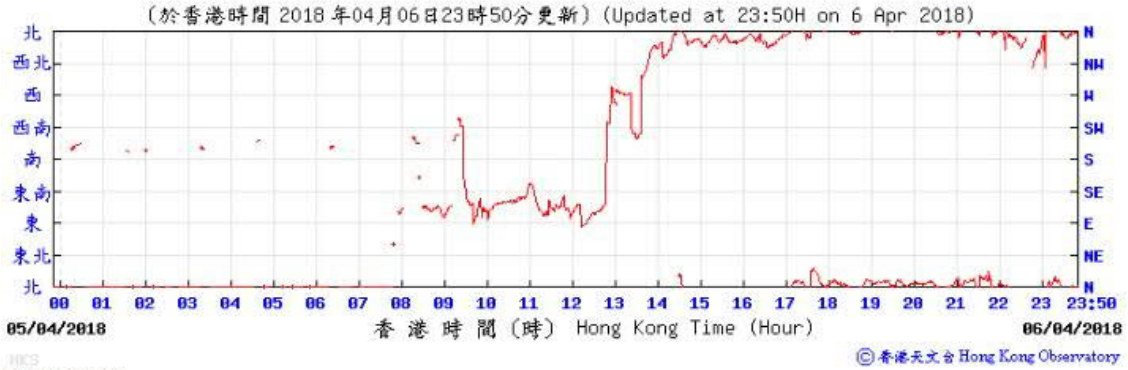
6/4/2018

Tempearture/Humidity:



Pressure:

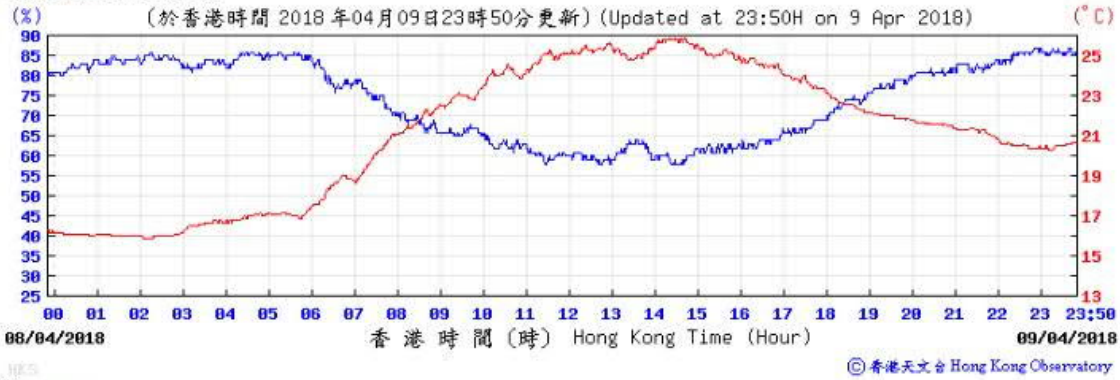
Wind Direction:



Wind Speed:

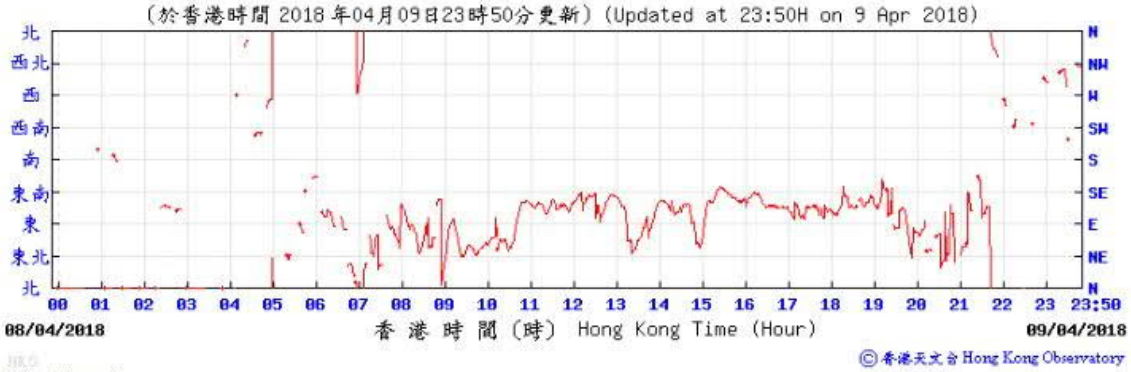
9/4/2018

Tempearture/Humidity:

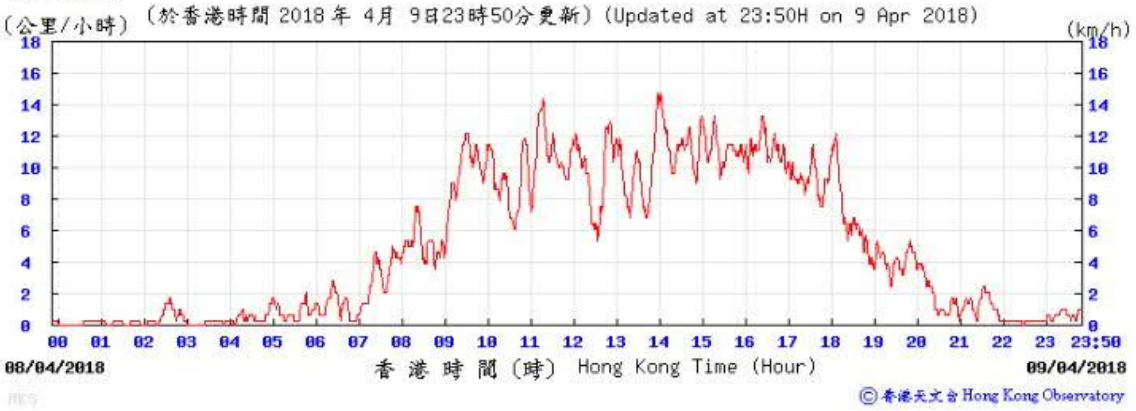


Pressure:

Wind Direction:



Wind Speed:



10/4/2018

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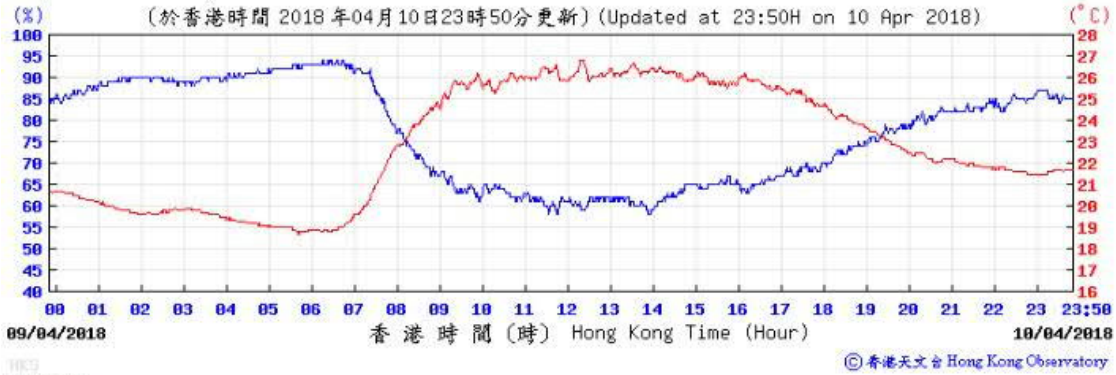
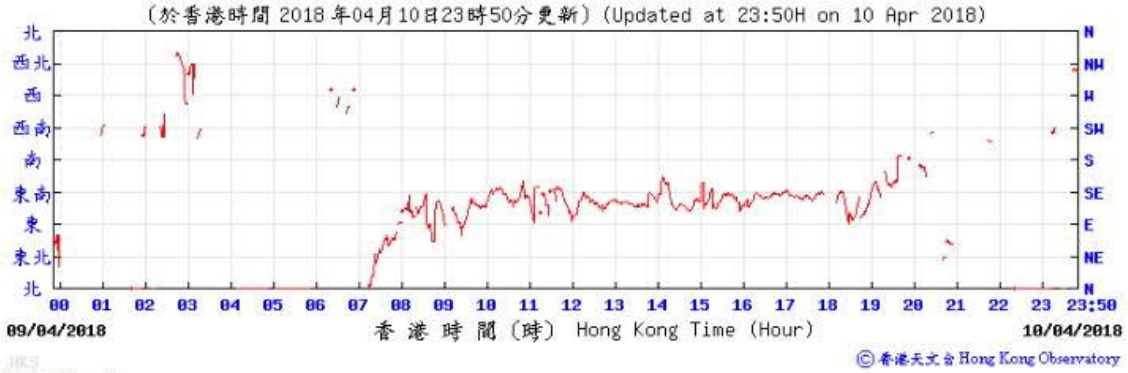
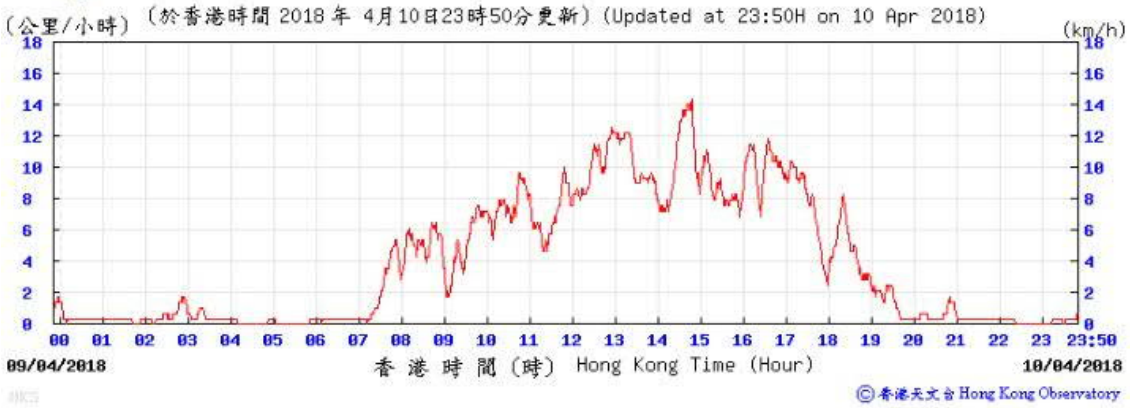


Pressure:

Wind Direction:

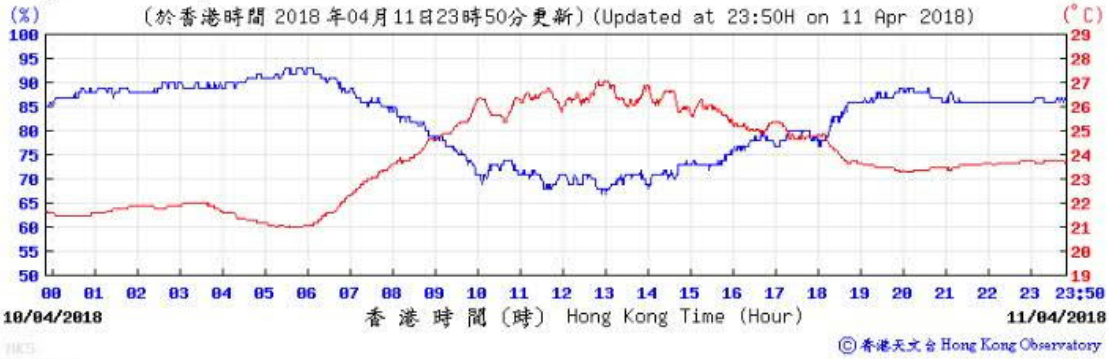


Wind Speed:



11/4/2018

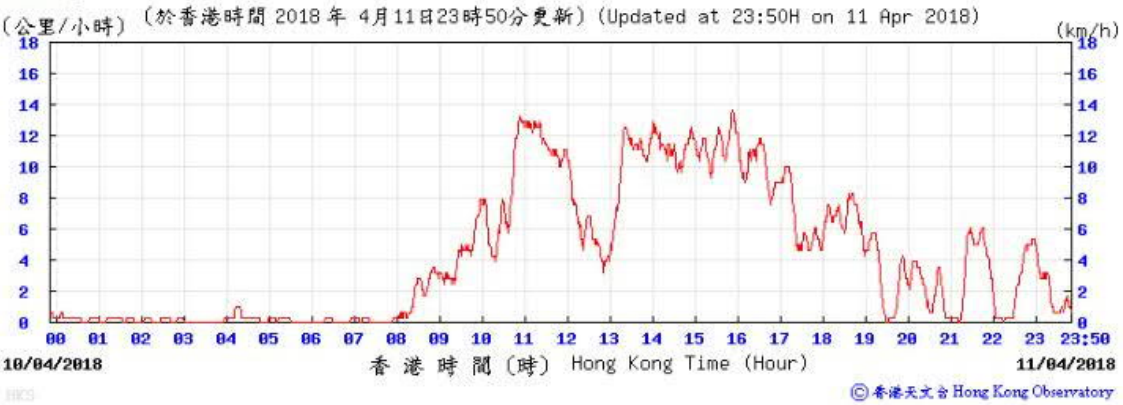
Tempearture/Humidity:



Pressure:

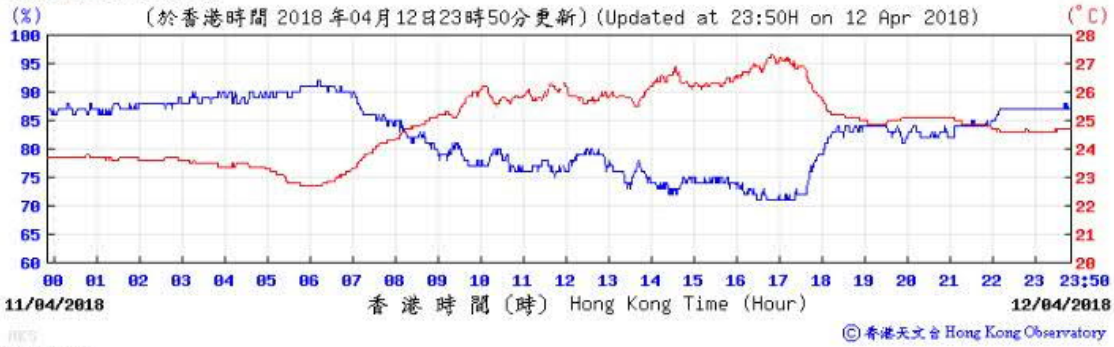
Wind Direction:

Wind Speed:



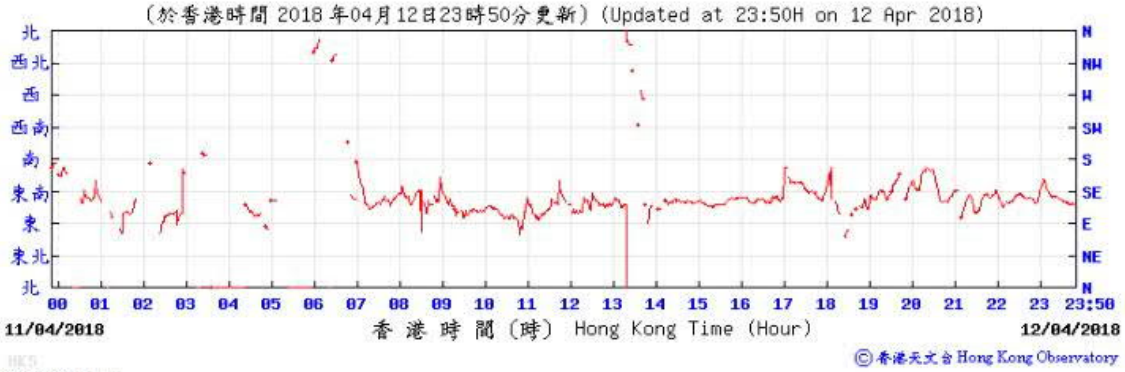
12/4/2018

Tempearture/Humidity:

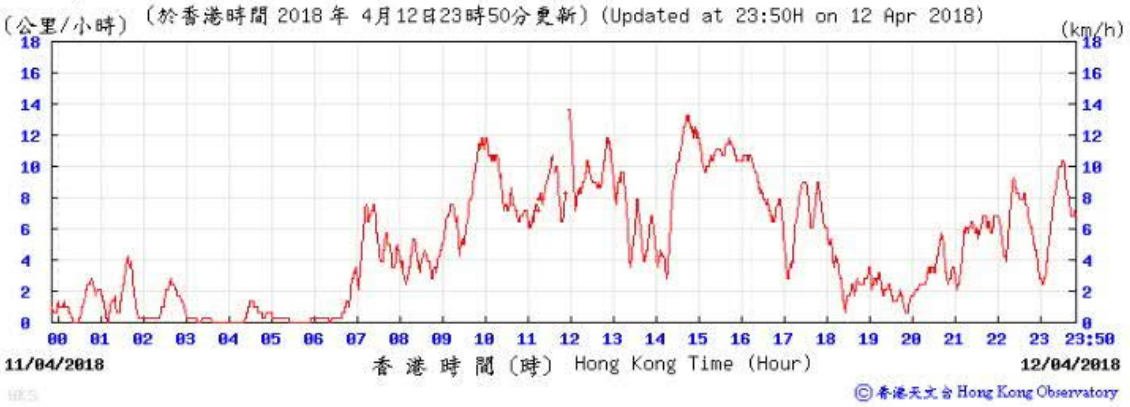


Pressure:

Wind Direction:

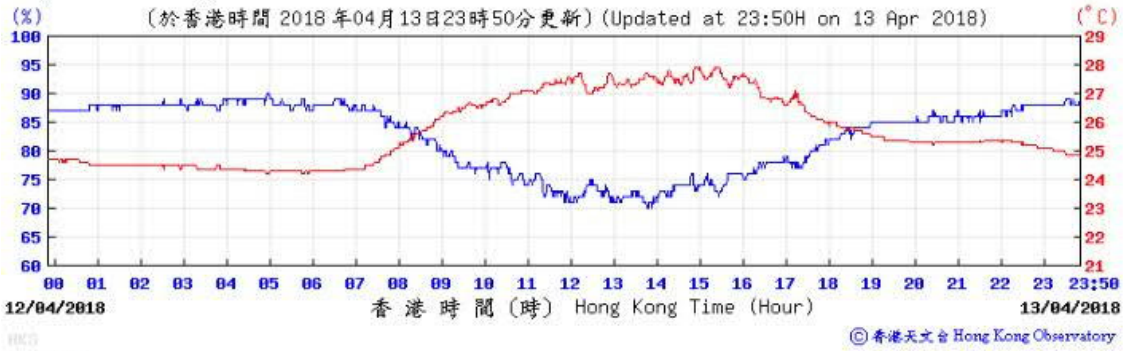


Wind Speed:



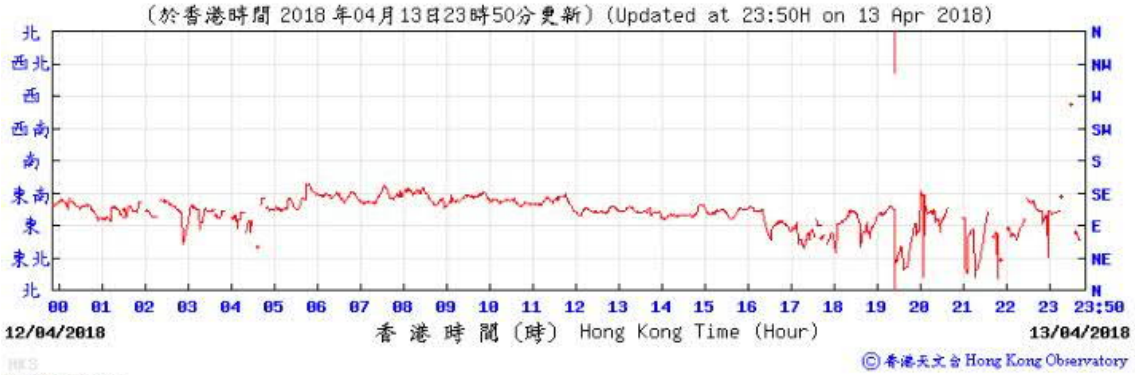
13/4/2018

Tempearture/Humidity:



Pressure:

Wind Direction:



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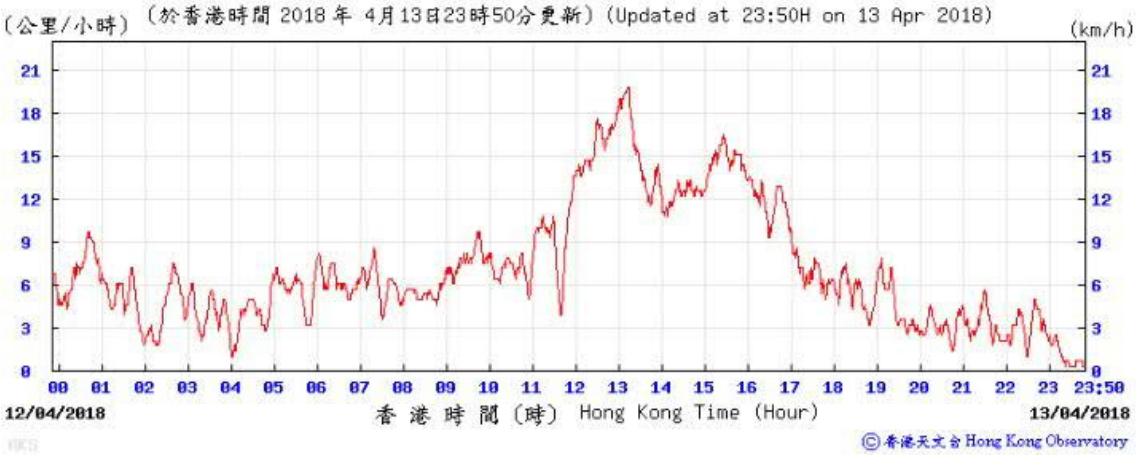
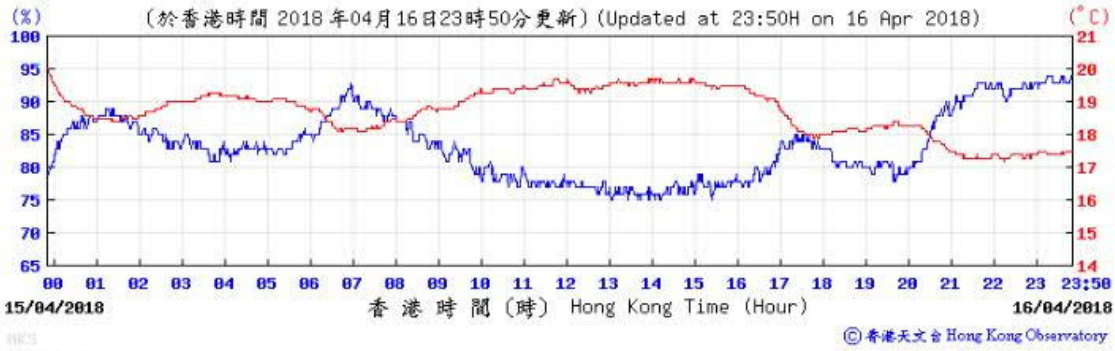


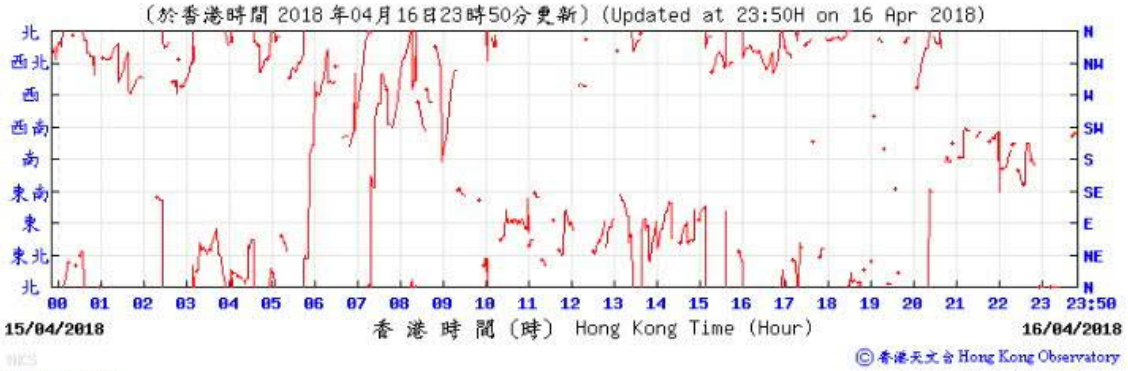
16/4/2018

Tempearture/Humidity:



Pressure:

Wind Direction:



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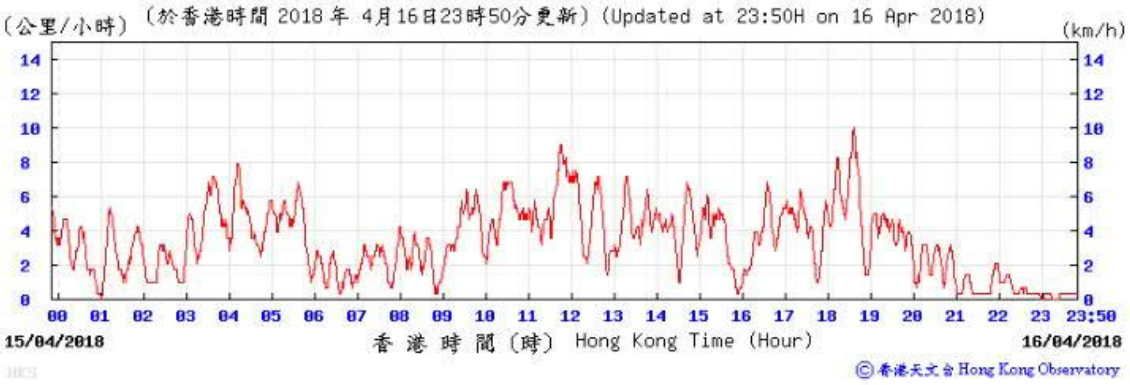
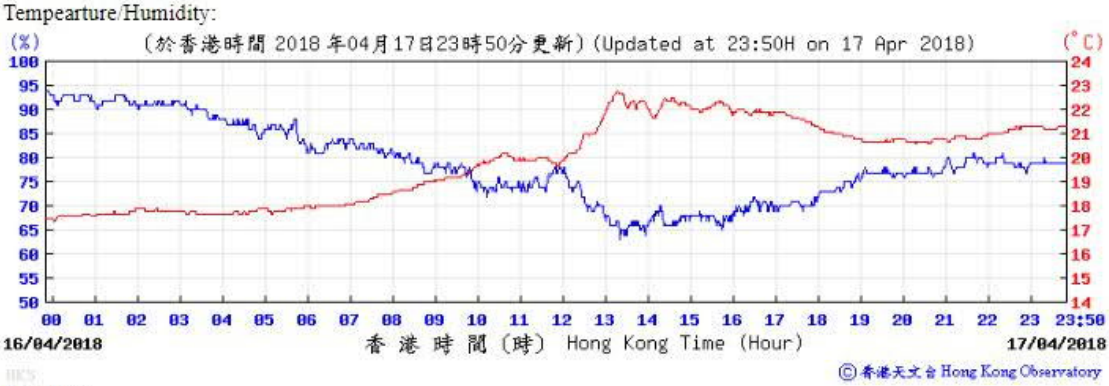


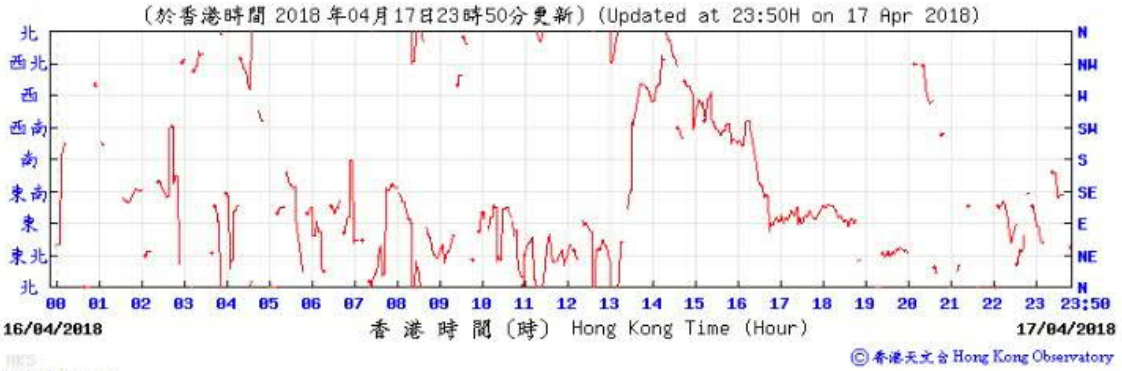
17/4/2018

Tempearture/Humidity:



Pressure:

Wind Direction:



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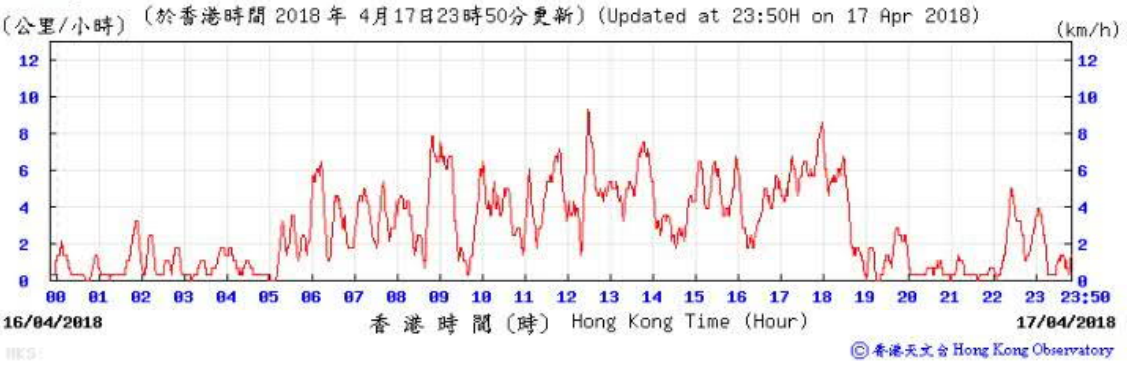
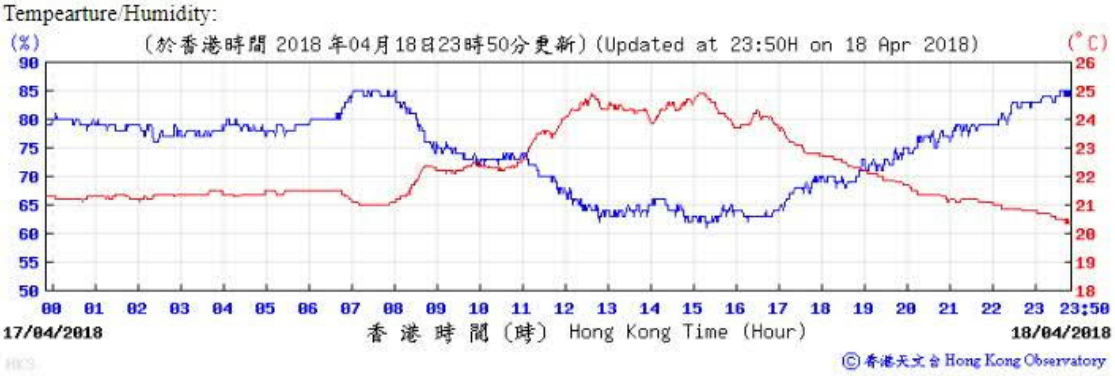


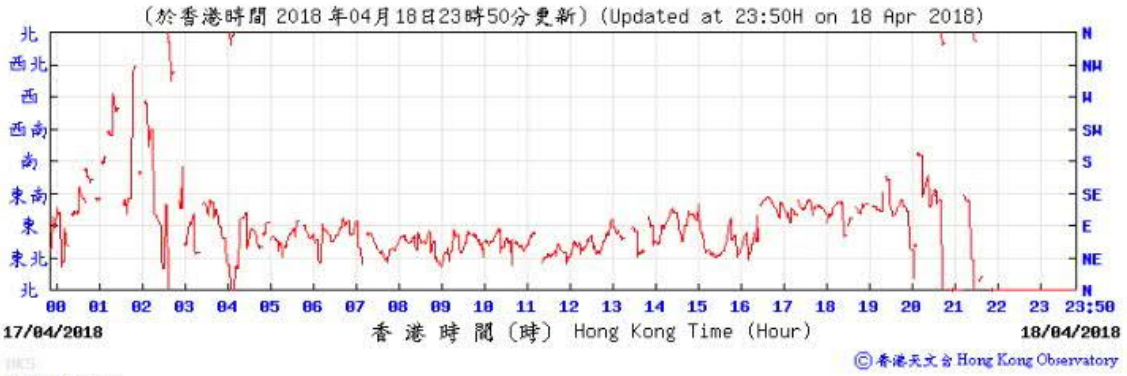
18/4/2018

Tempearture/Humidity:

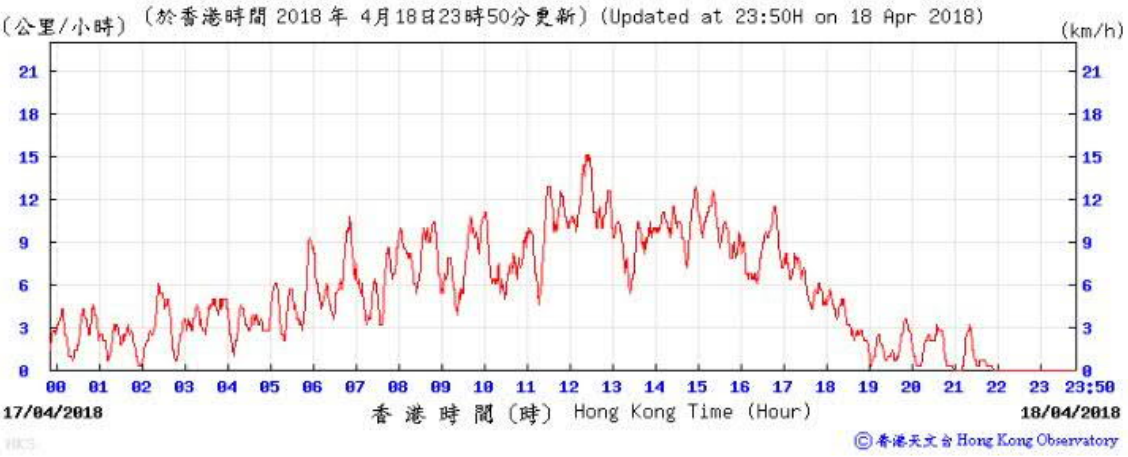


Pressure:

Wind Direction:

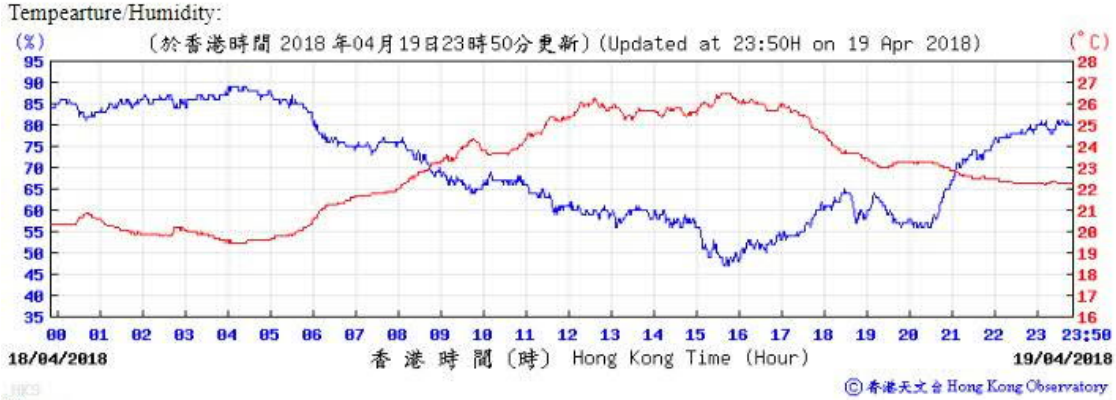


Wind Speed:



19/4/2018

Tempearture/Humidity:



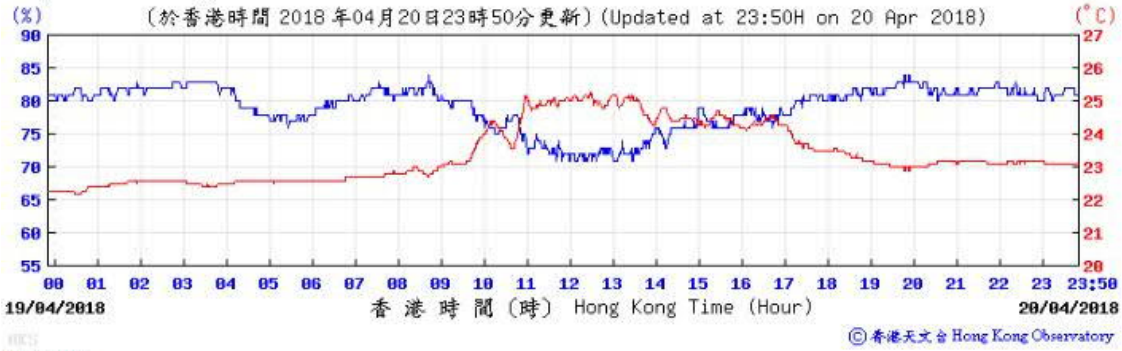
Pressure:

Wind Direction:

Wind Speed:

20/4/2018

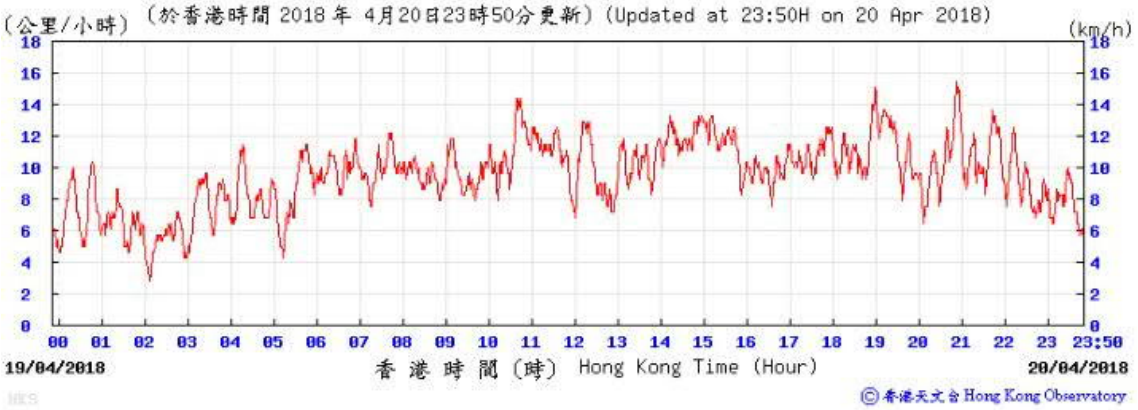
Tempearture/Humidity:



Pressure:

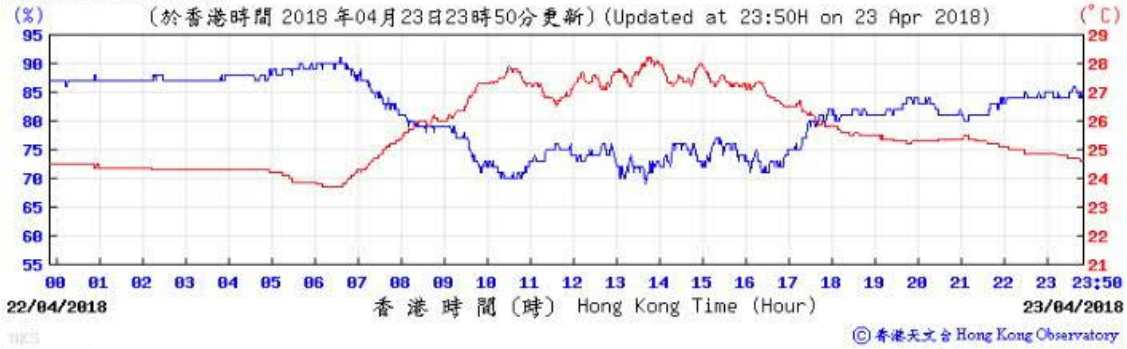
Wind Direction:

Wind Speed:



23/4/2018

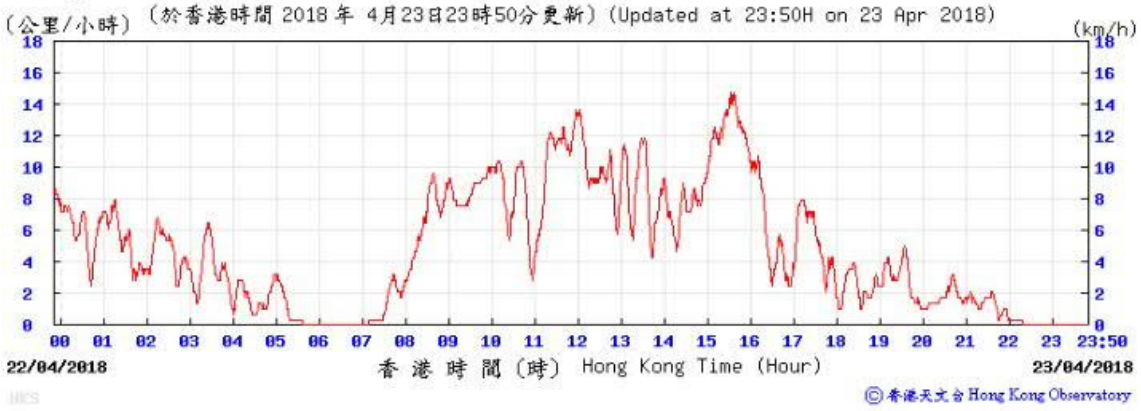
Tempearture/Humidity:



Pressure:

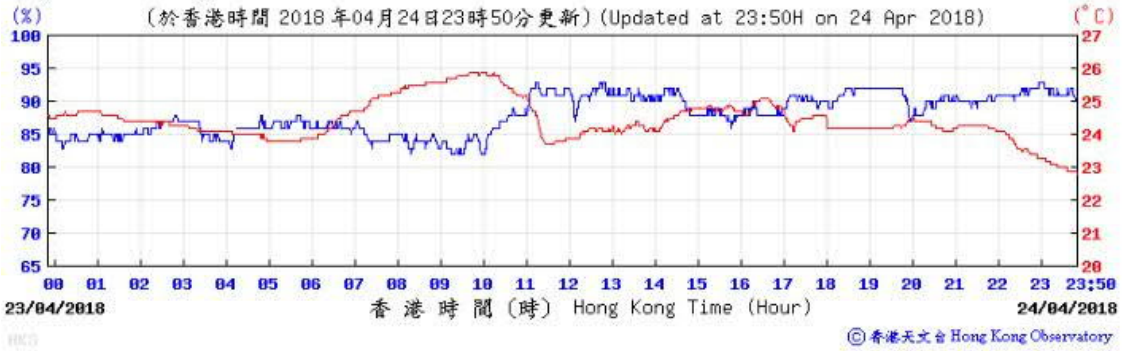
Wind Direction:

Wind Speed:



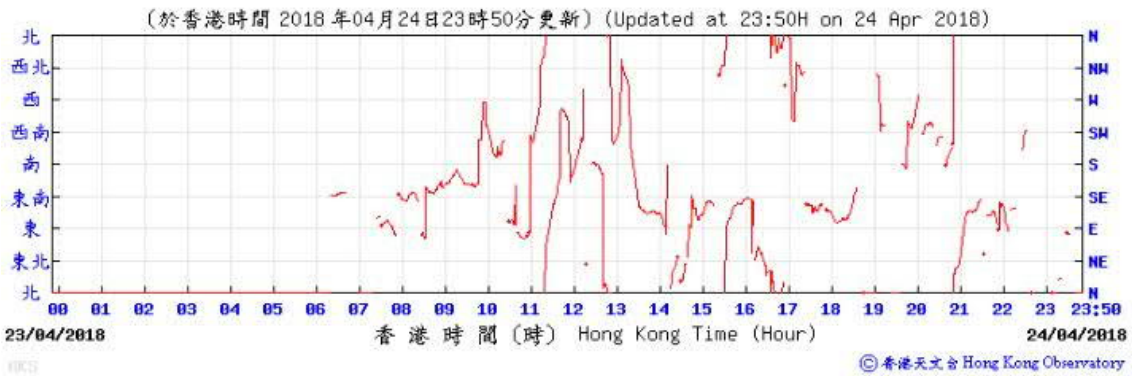
24/4/2018

Tempearture/Humidity:



Pressure:

Wind Direction:



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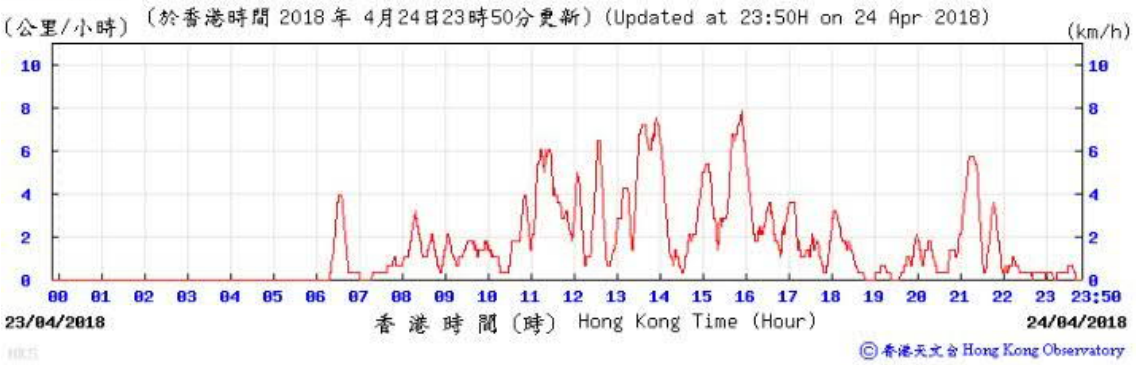

25/4/2018

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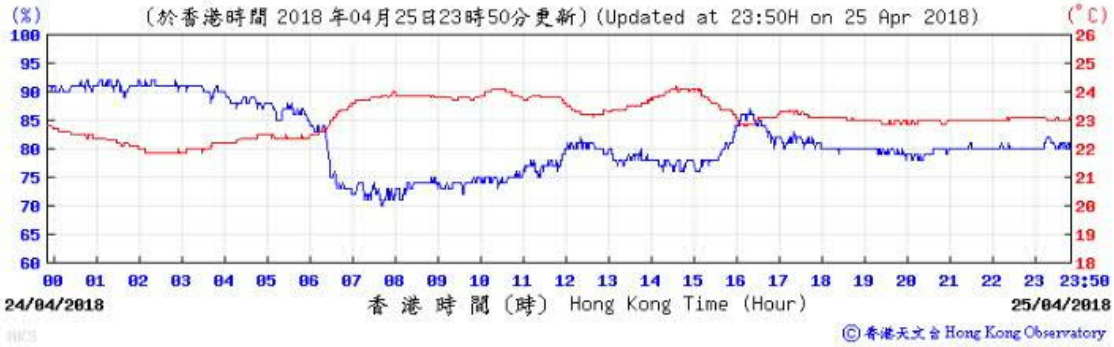

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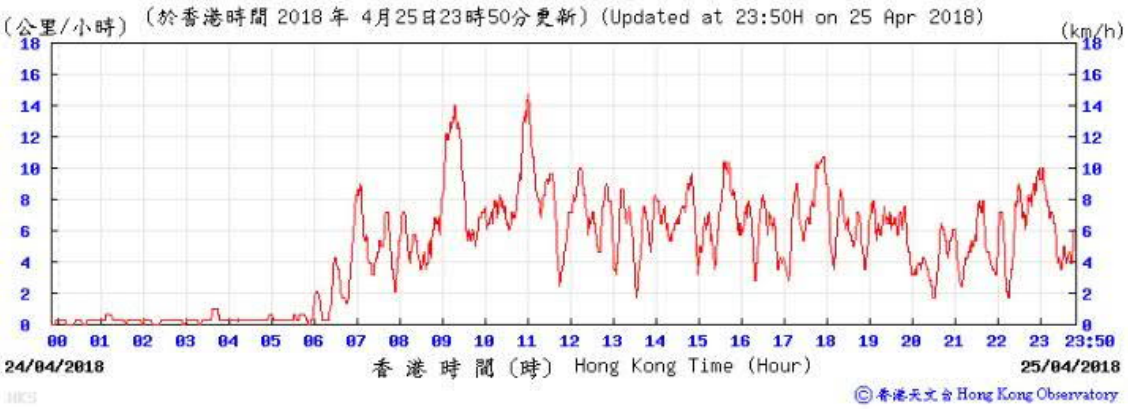
Wind Direction:

Wind Speed:



26/4/2018

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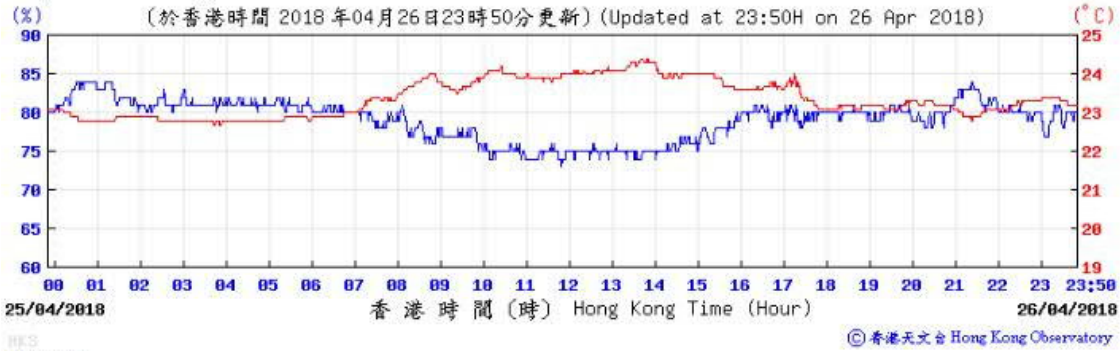

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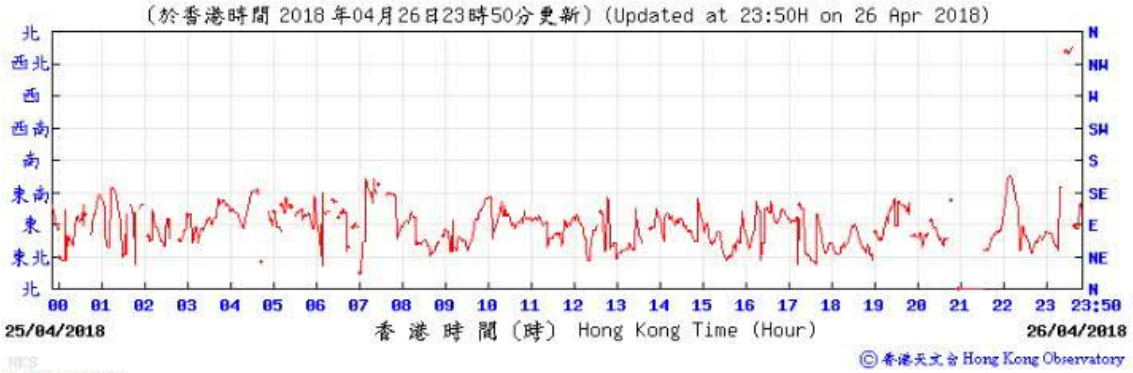

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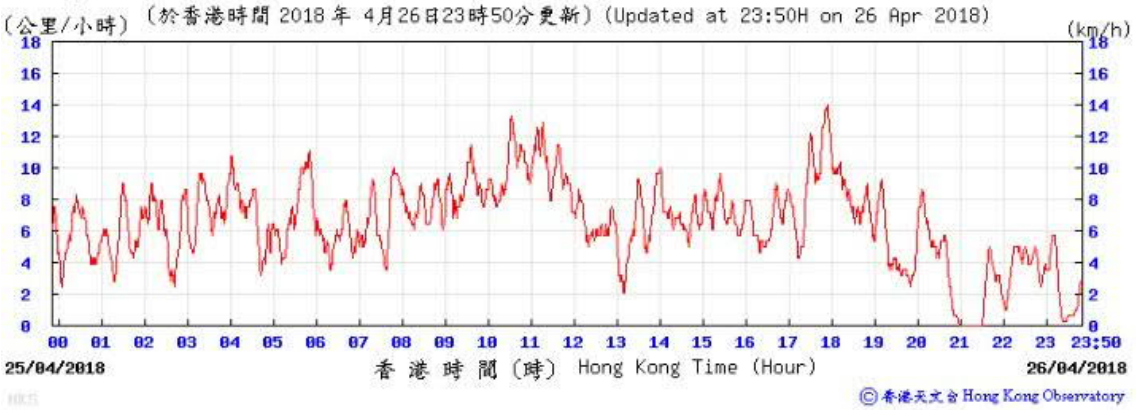

27/4/2018

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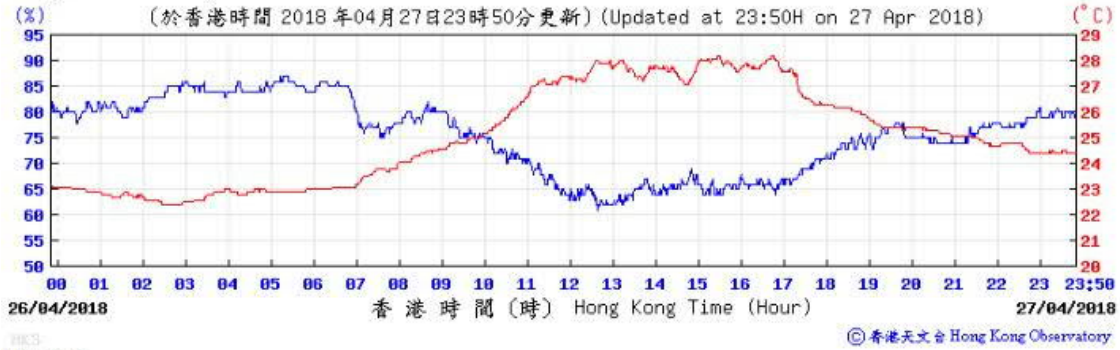
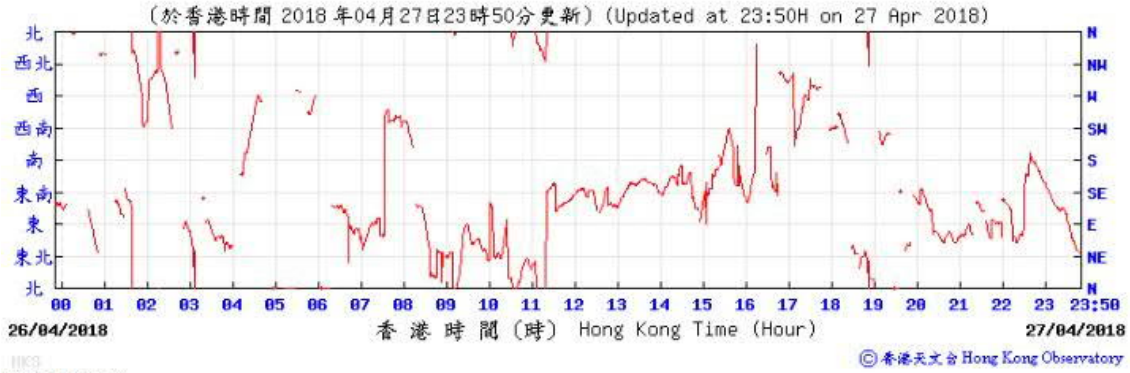


Pressure:

Wind Direction:



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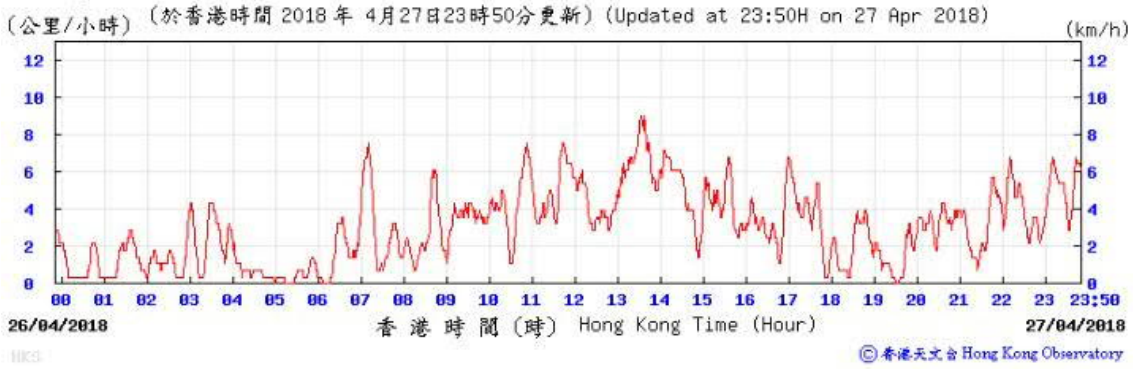

30/4/2018

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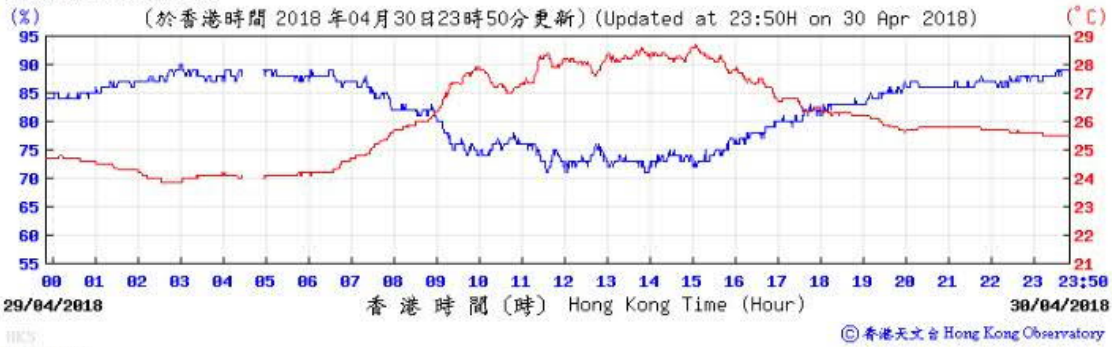
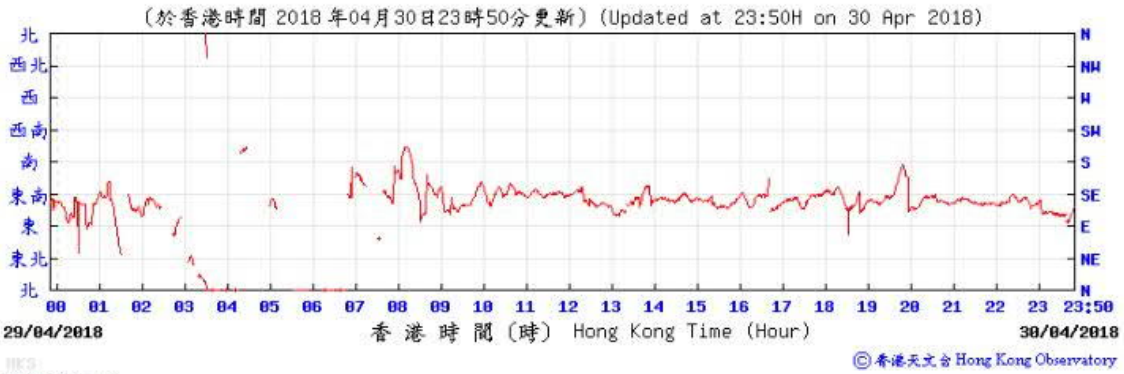
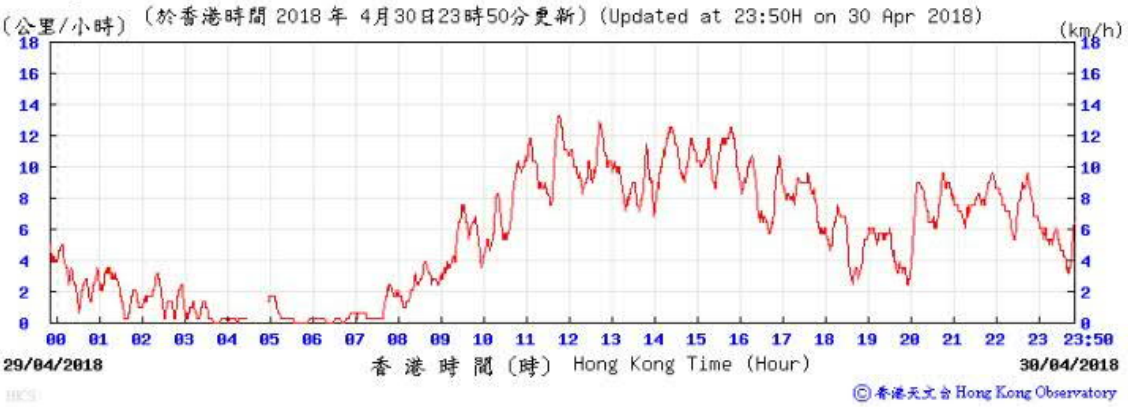


Pressure:

Wind Direction:



Wind Speed:



L. Ecological Inspection Records

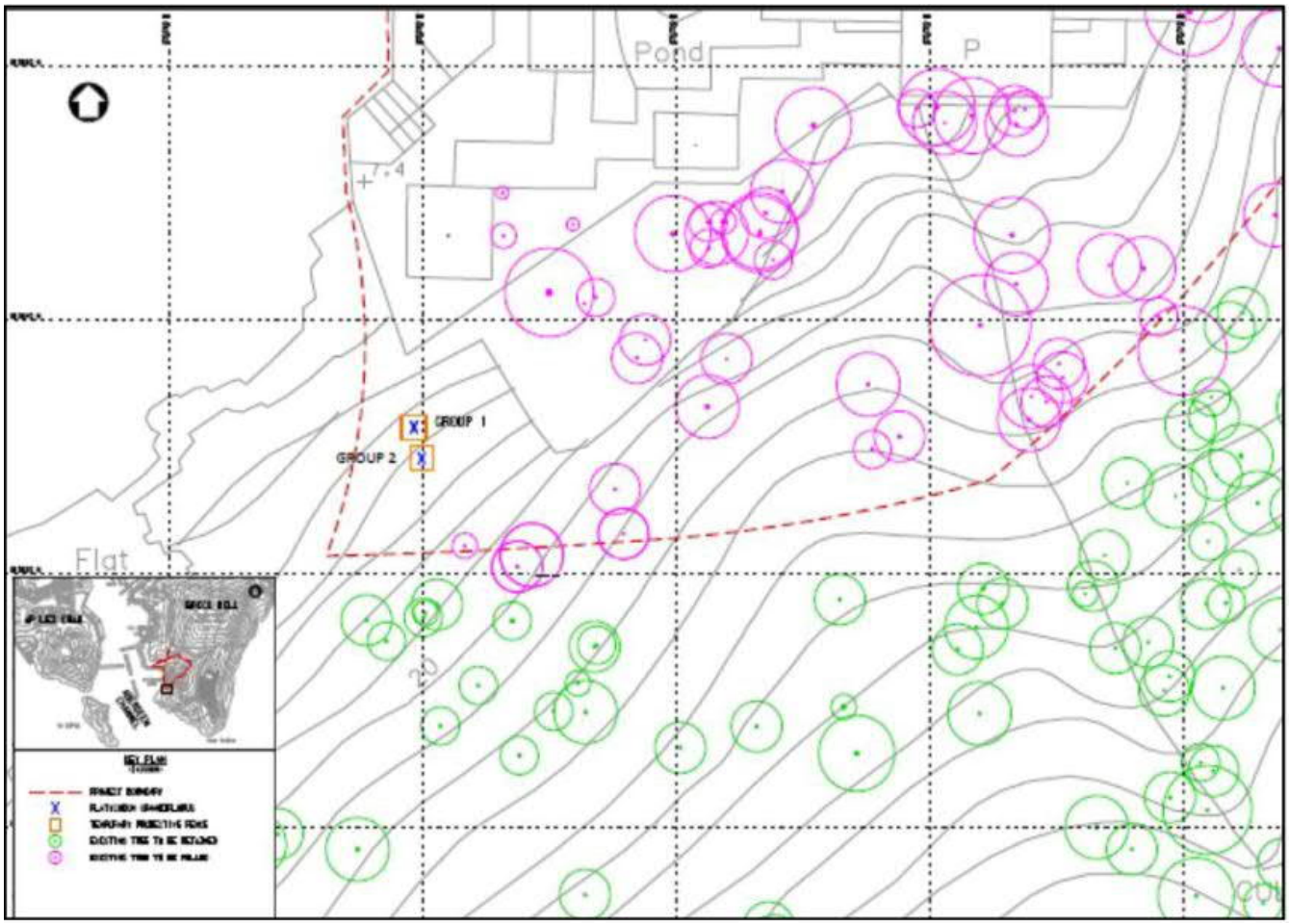


Figure 1 – Location of Two Groups of *Platycodon Grandiforus*

	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)	(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	0.00	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	100.00	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	1000.00	231.00	0.00	0.00	163.40
May													
Jun													
SUB-TOTAL	24505.50	20398.27	1695.74	75.49	22169.50	2214.00	122.00	2336.00	75770.00	593.00	0.00	0.00	628.13
Jul													
Aug													
Sep													
Oct													
Nov													
Dec													
TOTAL	24505.50	20398.27	1695.74	75.49	22169.50	2214.00	122.00	2336.00	75770.00	593.00	0.00	0.00	628.13

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** 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** 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** 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** 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** 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** 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** 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** An enhancement area with following features should be provided as an alternative roosting site for ardeids. ▪ The location is at southern part of the Project area (location indicated in Figure 8.1) ▪ The enhancement area shall include a Flamingo Pond ▪ 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. ▪ 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** ▪ 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. ▪ 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** 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** 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** 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** 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** 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** 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** 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** A Woodland Compensation Plan shall be prepared and submitted to AFCD for approval no later than one month prior to commencement of site clearance. The plan shall include but not limited to the following: ▪ Timing of planting works ▪ Planting location ▪ Species, size and number of trees ▪ 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** 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; LAO PN No. 07/2007
Landscape and Visual Impact (Operation)									
Table 12.14 (OP02)	Table 9.2 (OP02)	**Compensatory Tree Planting** 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; 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** 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: ▪ 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. ▪ 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 Relevant dust control practices as stipulated in the Air Pollution Control (Construction Dust) Regulation should be adopted: Good Site Management ▪ 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. Disturbed Parts of the Roads ▪ Main temporary access points should be paved with concrete, bituminous hardcore materials or metal plates and be kept clear of dusty materials; or ▪ Unpaved parts of the road should be sprayed with water or a dust suppression chemical so as to keep the entire road surface wet. Exposed Earth ▪ 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. Loading, Unloading or Transfer of Dusty Materials ▪ All dusty materials should be sprayed with water immediately prior to any loading or transfer operation so as							

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
		to keep the dusty material wet. Debris Handling ▪ Any debris should be covered entirely by impervious sheeting or stored in a debris collection area sheltered on the top and the three sides. ▪ Before debris is dumped into a chute, water should be sprayed onto the debris so that it remains wet when it is dumped. Transport of Dusty Materials ▪ 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. Wheel washing ▪ 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. Use of vehicles ▪ 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. ▪ Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels. ▪ 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. Site hoarding ▪ 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)									

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
5.7	3.2	**Good Site Practice** Good site practice and noise management can significantly reduce the impact of construction site activities on nearby NSRs. ▪ only well-maintained plant to be operated on-site and plant should be serviced regularly during the construction works; ▪ machines and plant that may be in intermittent use to be shut down between work periods or should be throttled down to a minimum; ▪ plant known to emit noise strongly in one direction, should, where possible, be orientated to direct noise away from the NSRs; ▪ mobile plant should be sited as far away from NSRs as possible; and ▪ 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** 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. It is also recommended that the following noise reduction measures should be considered as far as practicable during design stage: ▪ choose quiet plant such as those which have been effectively silenced; ▪ include noise levels specification when ordering new plant (including chiller and E&M equipment); ▪ locate fixed plant / louvre away from any NSRs as far as practicable; ▪ locate fixed plant in walled plant rooms or in specially designed enclosures; ▪ 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

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
		▪ install direct noise mitigation measures including silencers, acoustic louvres and acoustic enclosure where necessary; and ▪ 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. 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** 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: ▪ use small clusters of small power loudspeakers rather than a few large power loudspeakers; and ▪ 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** 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: ▪ 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; ▪ 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; ProPECC Note PN 1/94; WPCO; TM-DSS

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
		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; ▪ 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; ▪ 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; ▪ 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; ▪ 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; ▪ 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; ▪ 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, ▪ 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. 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** 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; ProPECC Note PN 1/94
6.7	4.2	**Expansion of Existing Storm U-Channel** 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** 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** 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

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
		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** Measures for excavation works summarised for site formation works should also be implemented during construction of the sewage sump pit. 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** 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. 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. 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; Waste Disposal Ordinance (Cap 354); Waste Disposal (Chemical Waste) (General) 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
		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: ▪ Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. ▪ Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. ▪ 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** 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** 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; WPCO
6.7	4.2	**Runoff from On-site Planting Area** 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; WPCO; 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

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
		Recommendations for good site practices during the construction activities include: ▪ 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 ▪ Training of site personnel in proper waste management and chemical handling procedures ▪ Provision of sufficient waste disposal points and regular collection of waste ▪ Appropriate measures to minimise windblown litter and dust/ odour during transportation of waste by either covering trucks or by transporting wastes in enclosed containers ▪ Stockpiles of C&D materials should be kept covered by impervious sheets to avoid wind-blown dust ▪ 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 ▪ Provision of wheel washing facilities before the trucks leaving the works area so as to minimise dust introduction to public roads ▪ 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** 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: ▪ Sort inert C&D materials to recover any recyclable portions such as metals ▪ 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

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
		materials and their proper disposal ▪ 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 ▪ Proper site practices to minimise the potential for damage or contamination of inert C&D materials ▪ 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** 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. The surplus inert C&D materials will be disposed of at the Government's PFRFs for beneficial use by other projects in Hong Kong. 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. 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** 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

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
		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. 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** 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** 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** General refuse should be collected on daily basis and delivered	Project area / On a regular basis /	Contractor appointed by OPC			✓		Waste Disposal Ordinance

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
		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** 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** 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

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
		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 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): ▪ To minimise the incidents of construction workers coming in contact with any contaminated materials, bulk earth-moving excavation equipment should be employed; ▪ 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; ▪ Stockpiling of contaminated excavated materials on site should be avoided as far as possible; ▪ The use of any contaminated soil for landscaping purpose should be avoided unless pre-treatment was carried out; ▪ Vehicles containing any excavated materials should be suitably covered to reduce dust emissions and/or release of contaminated wastewater; ▪ Truck bodies and tailgates should be sealed to prevent any discharge; ▪ 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) Waste Disposal (Chemical Waste) (General) Regulation (Cap 354)

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
		tipping; ▪ Speed control for trucks carrying contaminated materials should be exercised. ▪ 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 ▪ 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** 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** 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** 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** 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; 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
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** 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** 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** 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** 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** 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
Table 12.14 (OP01)	Table 9.2 (OP01)	**Sensitive Design and Disposition** 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** 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** 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: ▪ 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. ▪ Lighting shall be arranged with due consideration of reflectance so as to avoid glare effect. ▪ Lighting shall be regularly monitored during operation. ▪ Lights located adjacent or in proximity to neighbours shall be carefully designed to prevent possible light intrusion. ▪ Lighting operation schedule shall specify only lights necessary for security to be left on after business hours. ▪ 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
		potential glare from surface reflectance. ▪ Particular attention should be paid to the use of lighting having a high intensity or harsher tone (e.g. metal halide lamps). ▪ 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