MOTT MACDONALD

Ocean Park Tai Shue Wan Water World Project

Monthly EM&A Report August 2018

September 2018

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This Monthly EM&A Report for August 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: 12 Sep 2018

Verified by:

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

Date: 12 Sep 2018

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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 15th monthly EM&A report for the construction phase of Waterpark Main Building Works submitted under Condition 3.4 of the Environmental Permit (No. EP-487/2014/A). This report summarises the findings on EM&A during the period from 1 to 31 August 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.

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 3, 10, 17, 24 and 31 August 2018. Furthermore, IEC performed the site inspection and audit on 10 August 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
- Utilities diversion at A4

- Drainage works at A4
- Backfilling at South Plant Room
- Ricing Main construction (PJD & slope portions)
- Main Building: Column and wall construction, L3 column to Roof construction, Steel Platform for Shell A construction, B1 water tank, drainage and on grade slab. Block works and ABWF in B1, L1, L2 and L3 Secondary structure construction; area Pool B, C, D; Roof construction. L2, L1 on grade slab construction, L3 Slab B1-2, L3 A4-2, core structure and staircase, re L3 Slab construction
- South Transformer Room: ABWF
- South Plant Room: E&M
- North Plant Room: Removal of falsework, waterproofing for double slab and ABWF
- Spiral Ramp: Falsework for the RC construction
- External Area: Laying of underground utilities, removal of concrete paving

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 15th monthly EM&A report presenting the monitoring results and inspection findings for the Project during the Reporting Period from 1 to 31 August 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 and A4
- Backfilling at South Plant Room
- Construction of ride footings
- Main Building: Column and wall construction, L3 column to Roof construction, Steel Platform for Shell A construction, B1 water tank, drainage and on grade slab. Block works and ABWF in B1, L1 and L2 Secondary structure construction; area Pool B, C, D; Roof construction. L2 on grade slab construction, L3 Slab B1-2, L3 A4-2
- South Transformer Room: ABWF
- North Plant Room: Removal of falsework, waterproofing for double slab and ABWF
- Spiral Ramp: Falsework for the RC construction
- External Area: Laying of underground utilities
- South Plant Room – Assembly of Chimney

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

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

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

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

3 Construction Noise Monitoring

3.1 Monitoring Requirements, Frequency and Duration

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

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

Table 2: Noise Monitoring Parameters

Monitoring Station	Parameters
NM1A and NM2	• $L_{eq(30min)}$ on normal working days (Monday to Saturday) 07:00-19:00 except public holiday; • 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 8, 16, 22 and 28 August 2018 during the Reporting Period and four additional impact monitoring for the construction works held during restricted hour period on 5, 12, 19 and 26 August 2018 to access the compliance with environmental requirements. A total of 16 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					
08-Aug-18	10:40	11:10	56.7	59.7	70
16-Aug-18	10:08	10:38	56.4	59.4	70
22-Aug-18	10:08	10:38	56.0	59.0	70
28-Aug-18	10:00	10:30	56.0	59.0	70
NM2					
08-Aug-18	10:00	10:30	51.3	-	70
16-Aug-18	09:30	10:00	51.1	-	70
22-Aug-18	09:30	10:00	50.5	-	70
28-Aug-18	09:20	09:50	50.9	-	70

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

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

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

Monitoring date	Time		Mean and range of noise levels, dB(A)		Limit Level for L_{eq} (dB(A))[2]
	Start	Finish	L_{eq} (15min)	Corrected L_{eq}(15min)[1]	
NM1A					
05-Aug-18	14:05	14:20	53.8	56.8	70
12-Aug-18	15:00	15:15	54.3	57.3	70
19-Aug-18	09:25	09:40	54.2	57.2	70
26-Aug-18	13:35	13:50	53.7	56.7	70
NM2					
05-Aug-18	13:40	13:55	47.7	-	65
12-Aug-18	14:35	14:50	49.6	-	65
19-Aug-18	09:00	09:15	49.5	-	65
26-Aug-18	13:10	13:25	48.7	-	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 31 August 2018 by the qualified ecologist. The inspection findings are presented below.

Plants of Conservation Interest (Platycodon grandiflorus)

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

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

Nesting Activities of Ardeids in Breeding Season

This monitoring parameter only required during the breeding season of ardeids, i.e., from April to July, and the last monitoring event for nesting activities of Ardeids in the 2018's breeding season was undertaken on 20 July 2018, and such monitoring would not be required for the reporting period.

Roosting Activities of Ardeids in Peak Wintering Season.

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

Compensation for Ardeid roosting Site

To be implemented.

Compensation of Woodland Habitat

To be implemented.

4.4 Conclusion

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

The tentative ecological inspection and monitoring in the next Reporting Period is scheduled on 14 September 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 3 and 17 August 2018.

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

The contractor was reminded to remove weeds regularly.

6 Waste Management

6.1 General Waste Management

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

6.2 Records of Waste Quantities

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

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

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

7 Site Inspection

7.1 Requirements

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

7.2 Findings / Deficiencies During the Reporting Period

In the Reporting Period, joint site inspections were undertaken by the PMR, ET and the Contractor on 3, 10, 17, 24, and 31 August 2018. Furthermore, IEC performed the site inspection and audit on 10 August 2018.

During site inspections, non-compliance was not observed by the ET and IEC. However, a total of four 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
3 August 2018	Muddy water was observed on hillside slope. The contractor was reminded to prevent muddy water discharge into adjacent water body.	Precaution measure has been undertaken to prevent muddy water discharge into adjacent water body.
10 August 2018	Sedimentation tank near site entrance should be well maintained to prevent any untreated water leakage outside project area.	Sedimentation tank near site entrance is maintained.
17 August 2018	Water pump should be well maintained to prevent over-flow of muddy water.	Water pump is maintained, and no over-flow of muddy water is observed.
31 August 2018	Storage over 20 cement bags should be covered or enclosed in an area sheltered on the top and the 3 sides.	Over 20 cement bags have been removed.

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

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

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

8 Environmental Complaint, Summons and Prosecution

8.1 Environmental Complaint, Summons and Prosecution

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

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

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

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

9 Implementation Status of Mitigation Measures

9.1 General Requirements

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

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

Table 11: Environmental Mitigation Measures

Issues	Environmental Mitigation Measures
Construction Noise	• Construction equipment shut down when not in use
Ecology	• Wire fencing was provided for temporary protection of the identified flora species of conservation concern • 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
- Utilities diversion at A4
- Drainage works at A4
- Backfilling at South Plant Room
- Ricing Main construction (PJD & slope portions)
- Main Building: Column and wall construction, L3 column to Roof construction, Steel Platform for Shell A construction, B1 water tank, drainage and on grade slab. Block works and ABWF in B1, L1, L2 and L3 Secondary structure construction; area Pool B, C, D; Roof construction. L2, L1 on grade slab construction, L3 Slab B1-2, L3 A4-2, core structure and staircase, re L3 Slab construction.
- South Transformer Room: ABWF
- South Plant Room: E&M
- North Plant Room: Removal of falsework, waterproofing for double slab and ABWF
- Spiral Ramp: Falsework for the RC construction.
- External Area: Laying of underground utilities, removal of concrete paving

9.3 Key Issues for the Coming Month

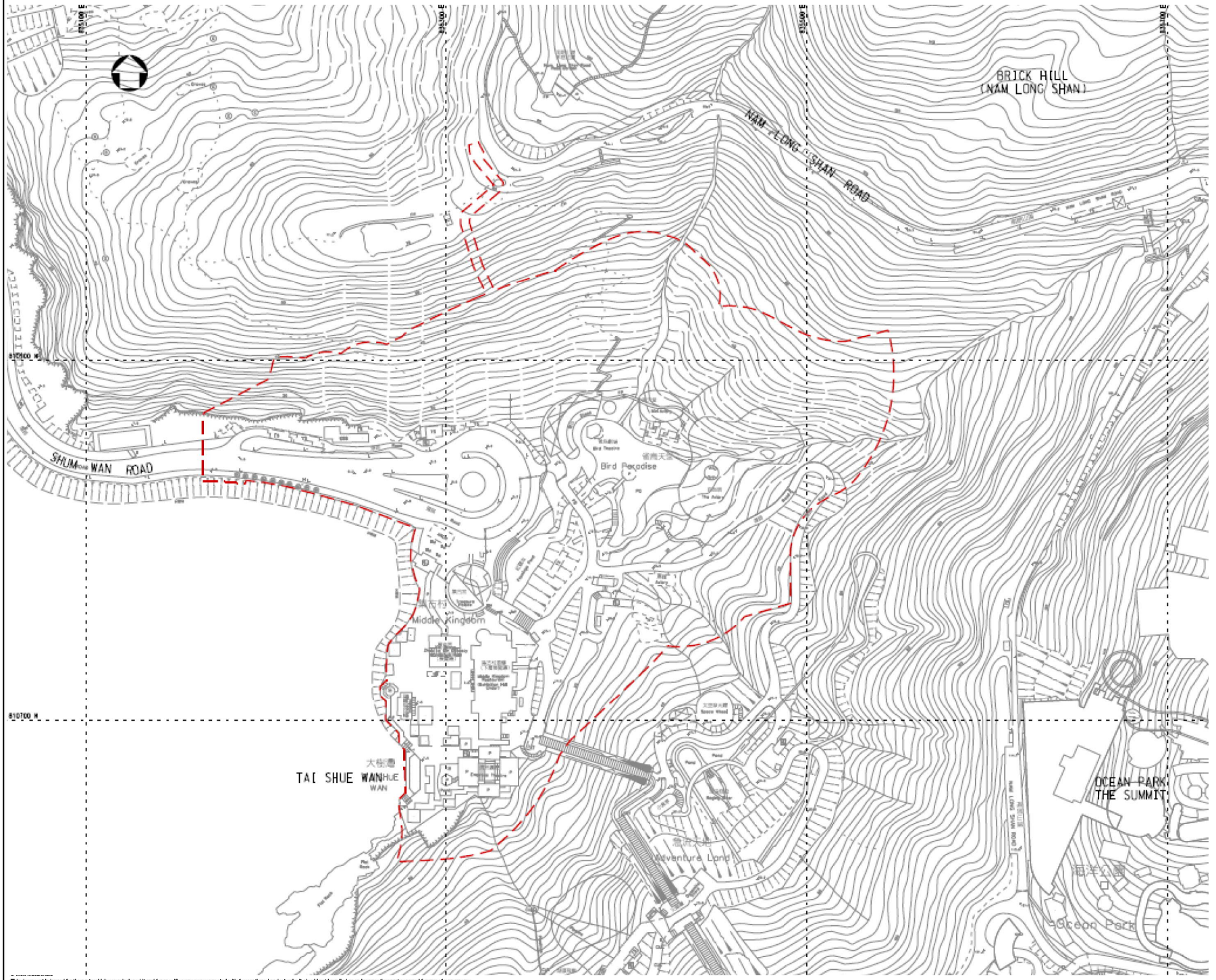
Based on construction activities as undertaken in the coming month, key environment issues consider to be included:

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

10 Recommendation

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

A. Project Location



Notes

Key to symbols

Project Boundary
項目範圍

Reference drawings

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

MOTT MACDONALD

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

Client

Project

TAI SHUE WAN DEVELOPMENT AT OCEAN PARK

Title

PROJECT LOCATION

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

Drawing Number

APPENDIX A

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

B. Project Organisation

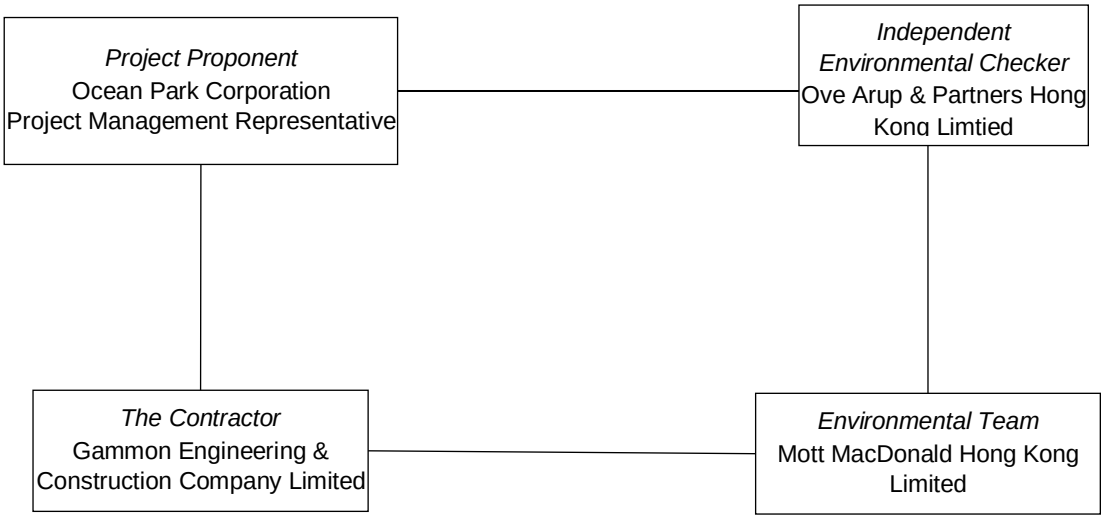
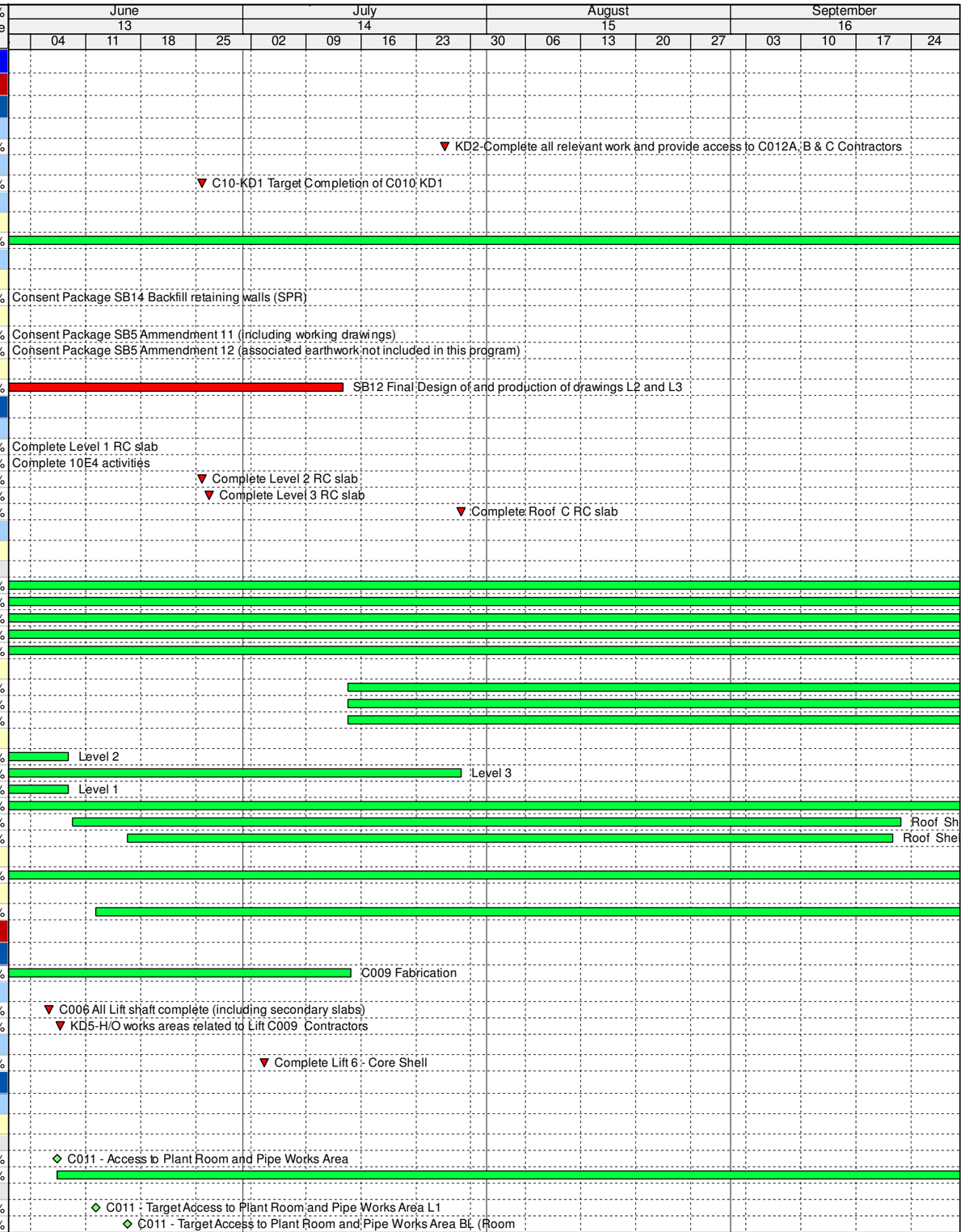


Table A: Contact information

Company / Department	Position	Name	Telephone / Mobile	Fax No.
Ocean Park Corporation	Project Management Representative	Mr Augustine Li	2870 6130	2814 0179
Ove Arup & Partners Hong Kong Ltd.	Independent Environmental Checker	Mr Gerald Kam	2268 3915	2268 3950
Mott MacDonald Hong Kong Ltd.	Environmental Team Leader	Mr Gary Chow	2828 5874	2827 1823
Mott MacDonald Hong Kong Ltd.	Qualified Ecologist	Mr Roy Hung	2828 5965	2827 1823
Gammon Engineering & Construction Company Limited	Construction Manager	Mr Paul Leaver	3690 9229	2148 2890
Gammon Engineering & Construction Company Limited	Environmental Officer	Ms Sammie Chan	3690 9233	2148 2890

C. 3-month Look-ahead Program

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



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

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

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

Gammon

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

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

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

Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
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Page: 2 of 17

OCEAN PARK - TAI SHUE WAN DEVELOPMENT
Contract No. TSW-C006
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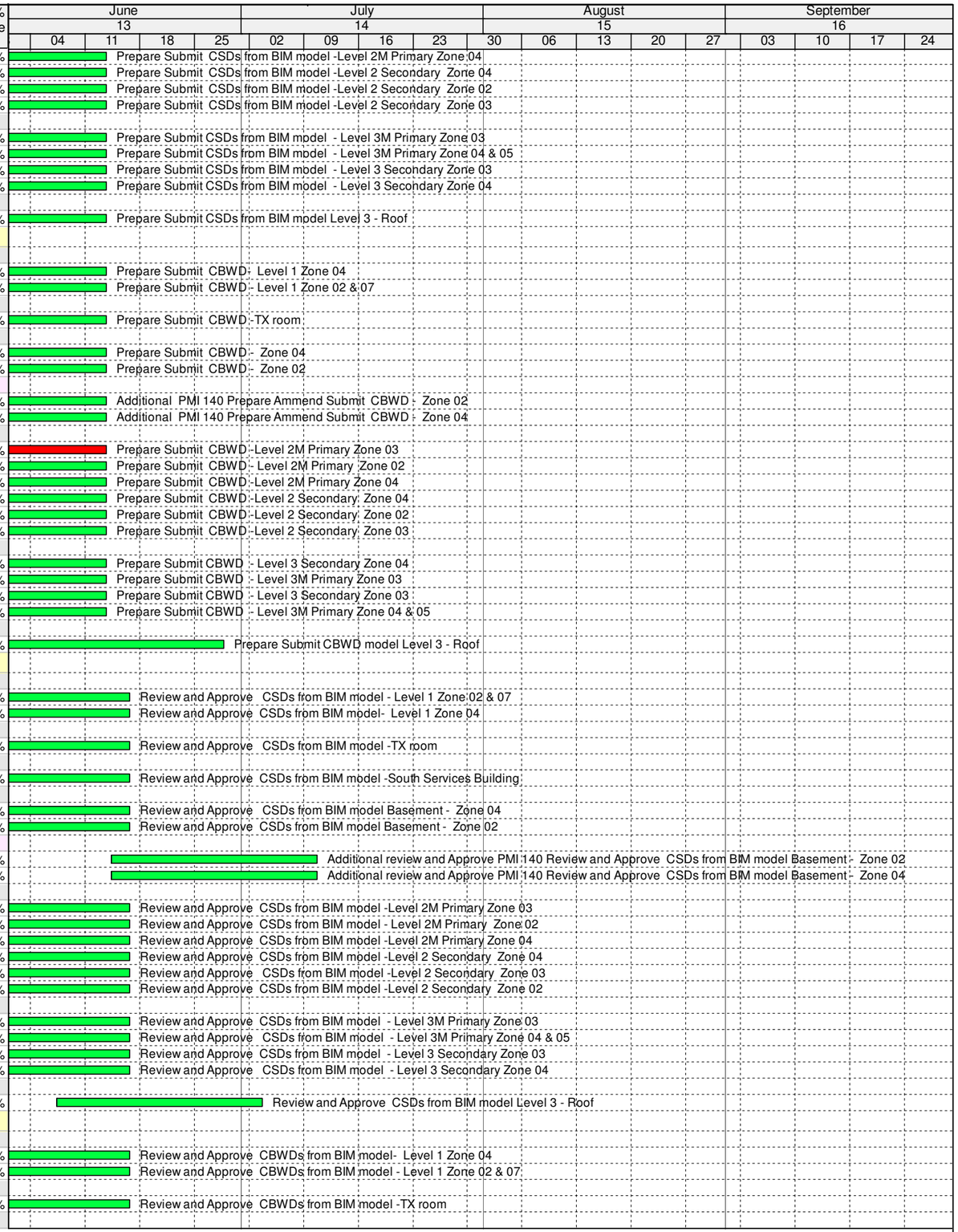
Gammon

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

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



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

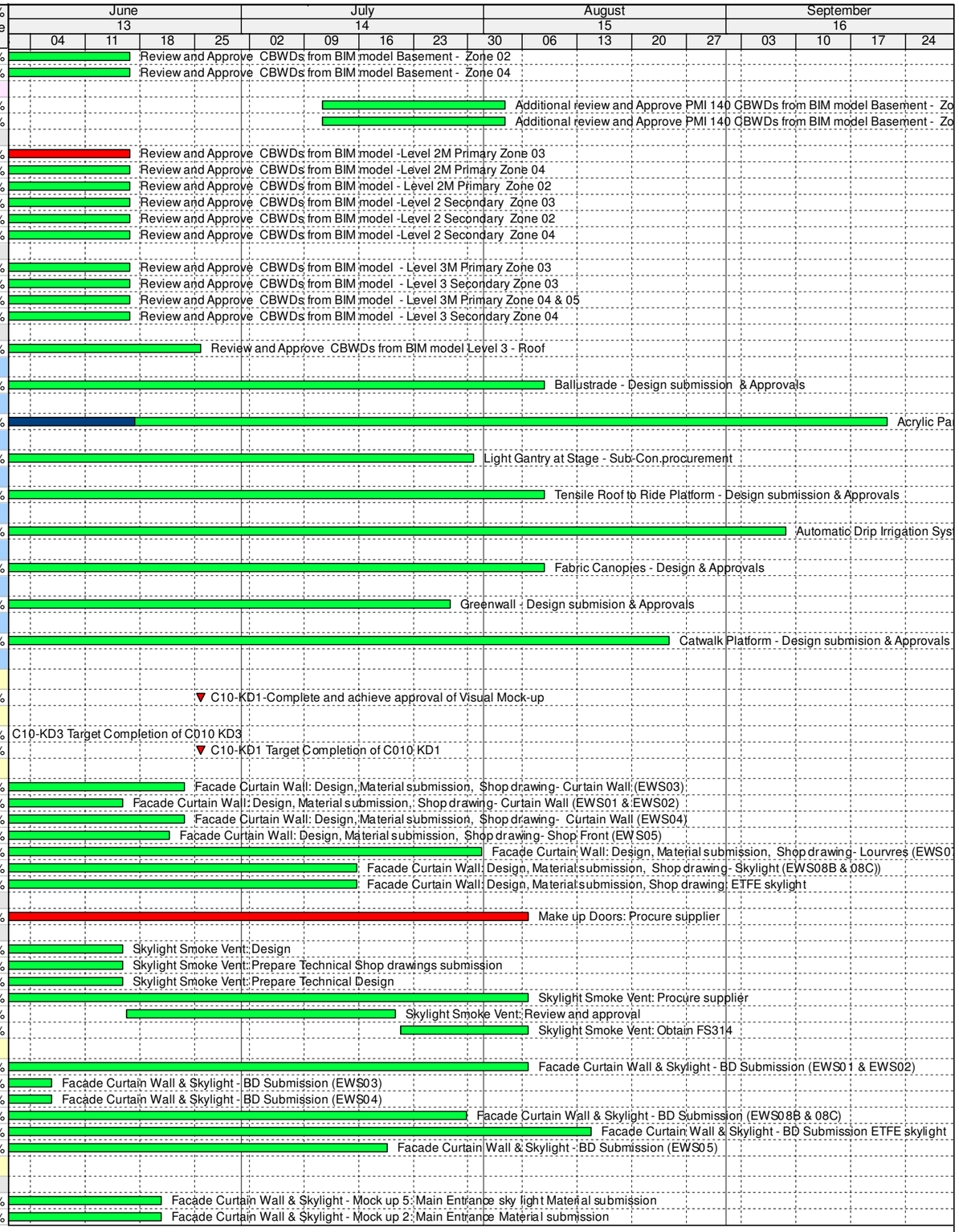
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**
Page: 3 of 17

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

Gammon

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

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



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

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

Gammon

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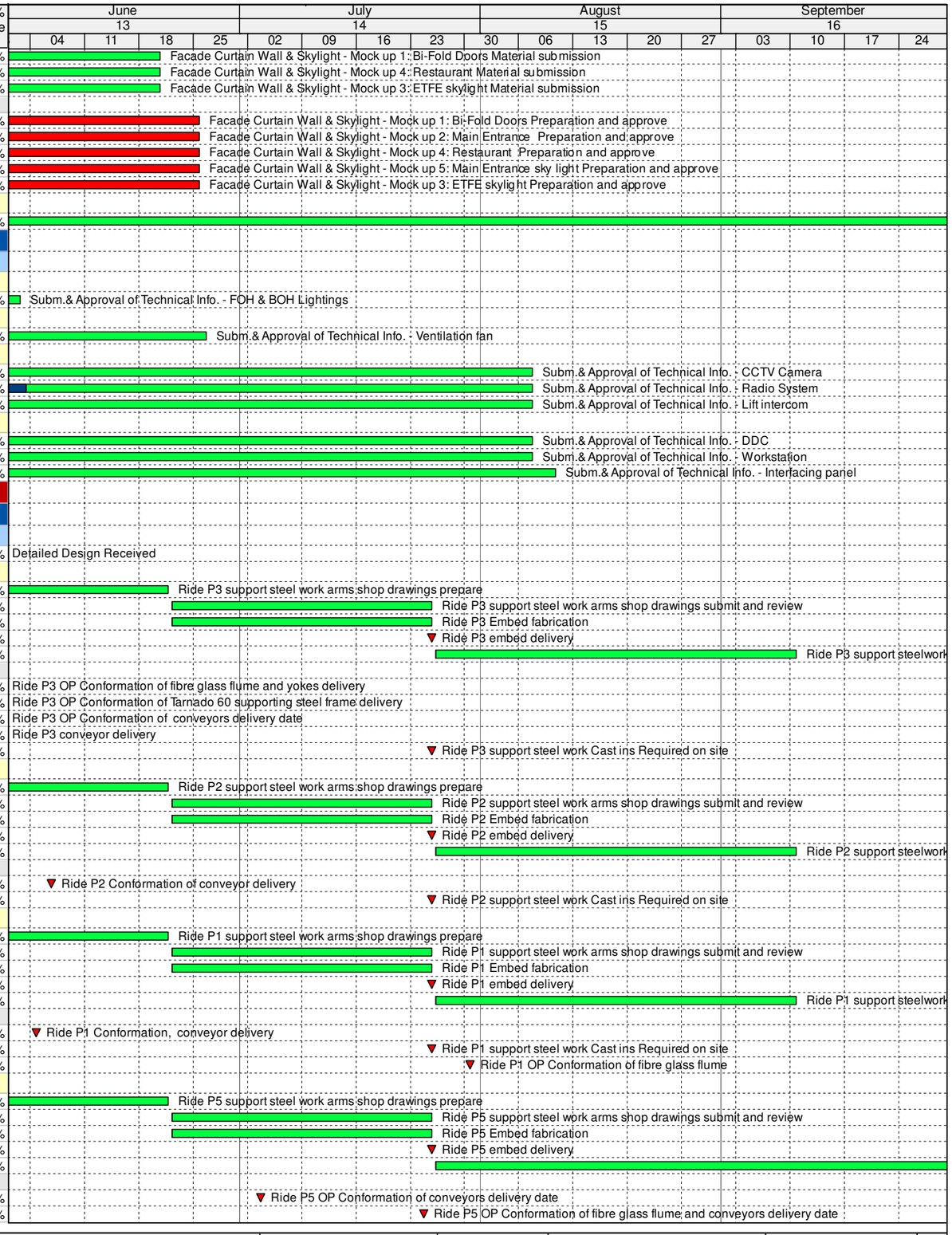
DS.DMVM3050	Facade Curtain Wall & Skylight - Mock up 1: Bi-Fold Doors Material submission	48	20-Mar-17	20-Jun-18	629	0%
DS.DMVM3060	Facade Curtain Wall & Skylight - Mock up 4: Restaurant Material submission	48	20-Mar-17	20-Jun-18	629	0%
DS.DMVM3120	Facade Curtain Wall & Skylight - Mock up 3: ETFE skylight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



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

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

Gammon

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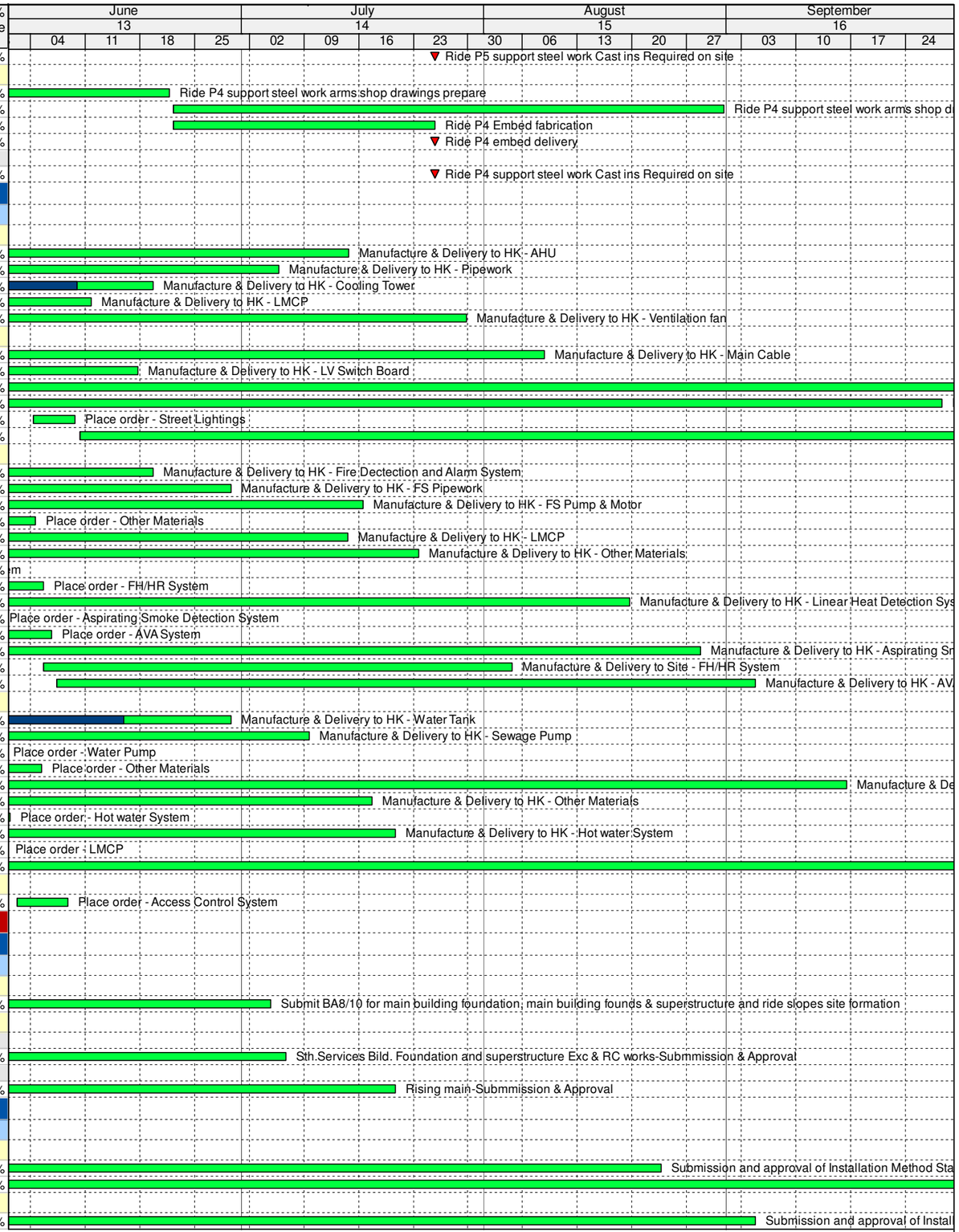
ID	Activity	Duration	Start	Finish	Total Float	Activity % Complete
RSW.SD.1450	Ride P5 support steel work Cast ins Required on site	0		25-Jul-18	61	0%
Ride P4						
RSW.SD.1270	Ride P4 support steel work arms shop drawings prepare	18	31-May-18	21-Jun-18	56	0%
RSW.SD.1280	Ride P4 support steel work arms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



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

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

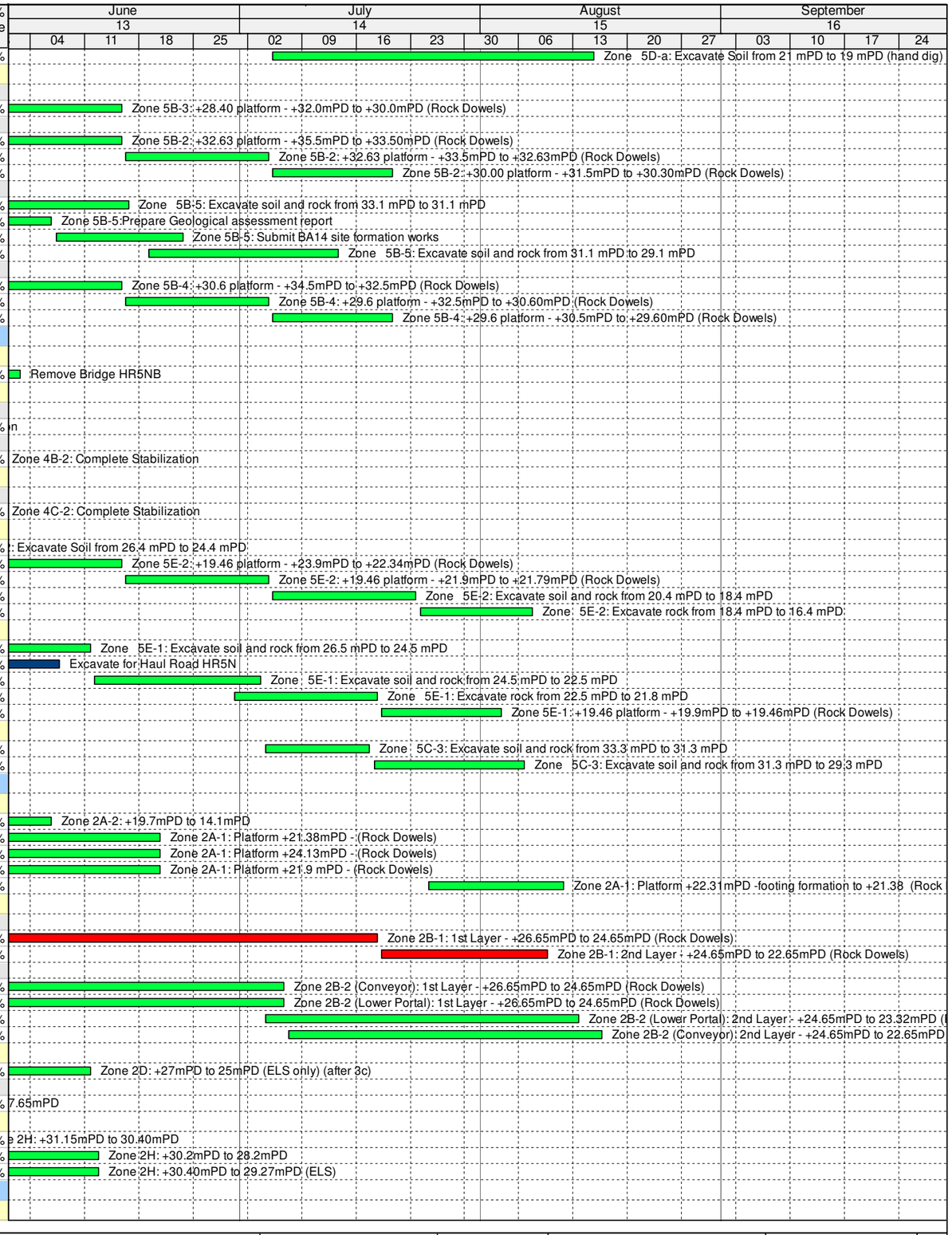
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**
Page: 7 of 17

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

Gammon

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

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



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

Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**
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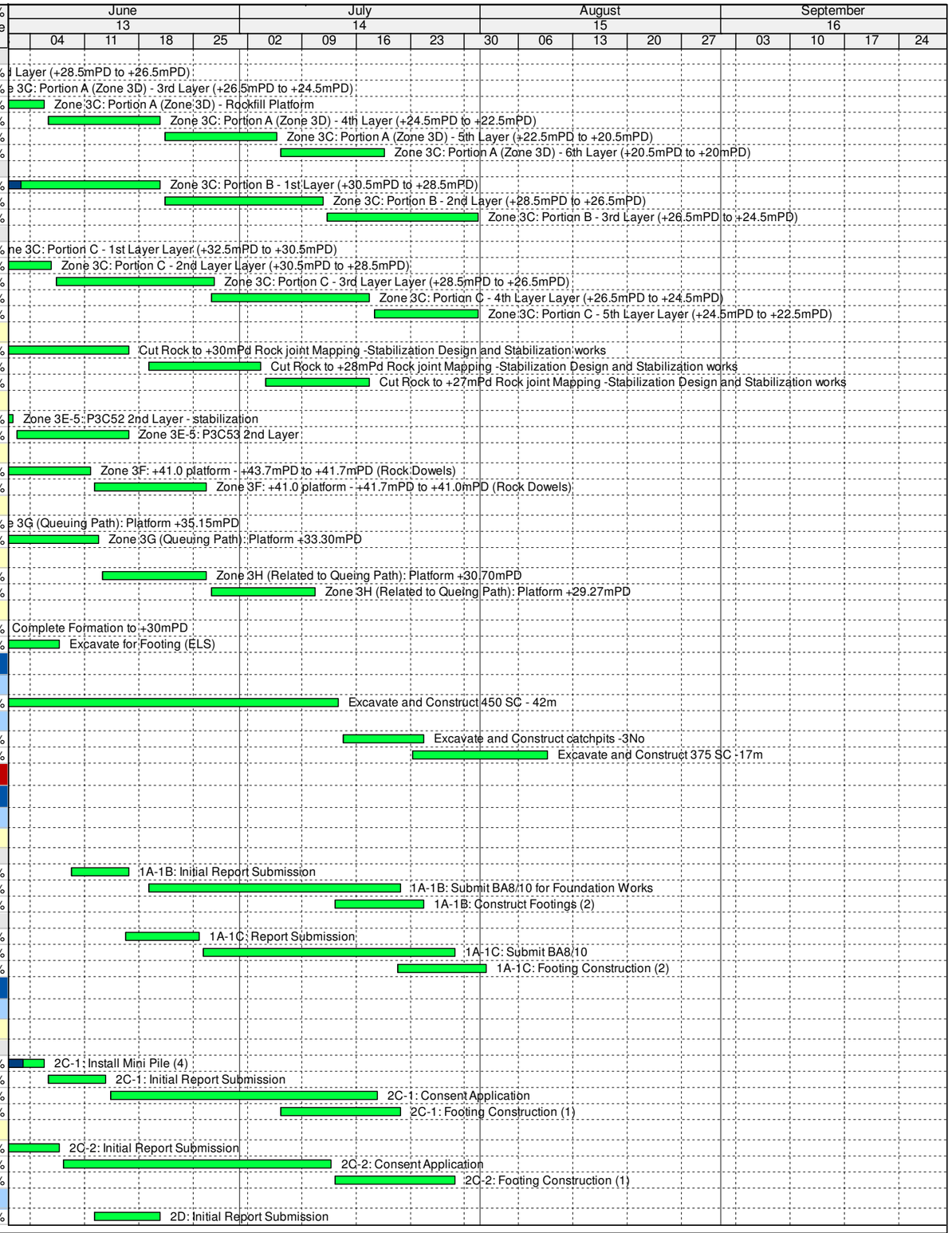
OCEAN PARK - TAI SHUE WAN DEVELOPMENT
Contract No. TSW-C006
3 month Look-ahead Target Program _July 2018

Gammon

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

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



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

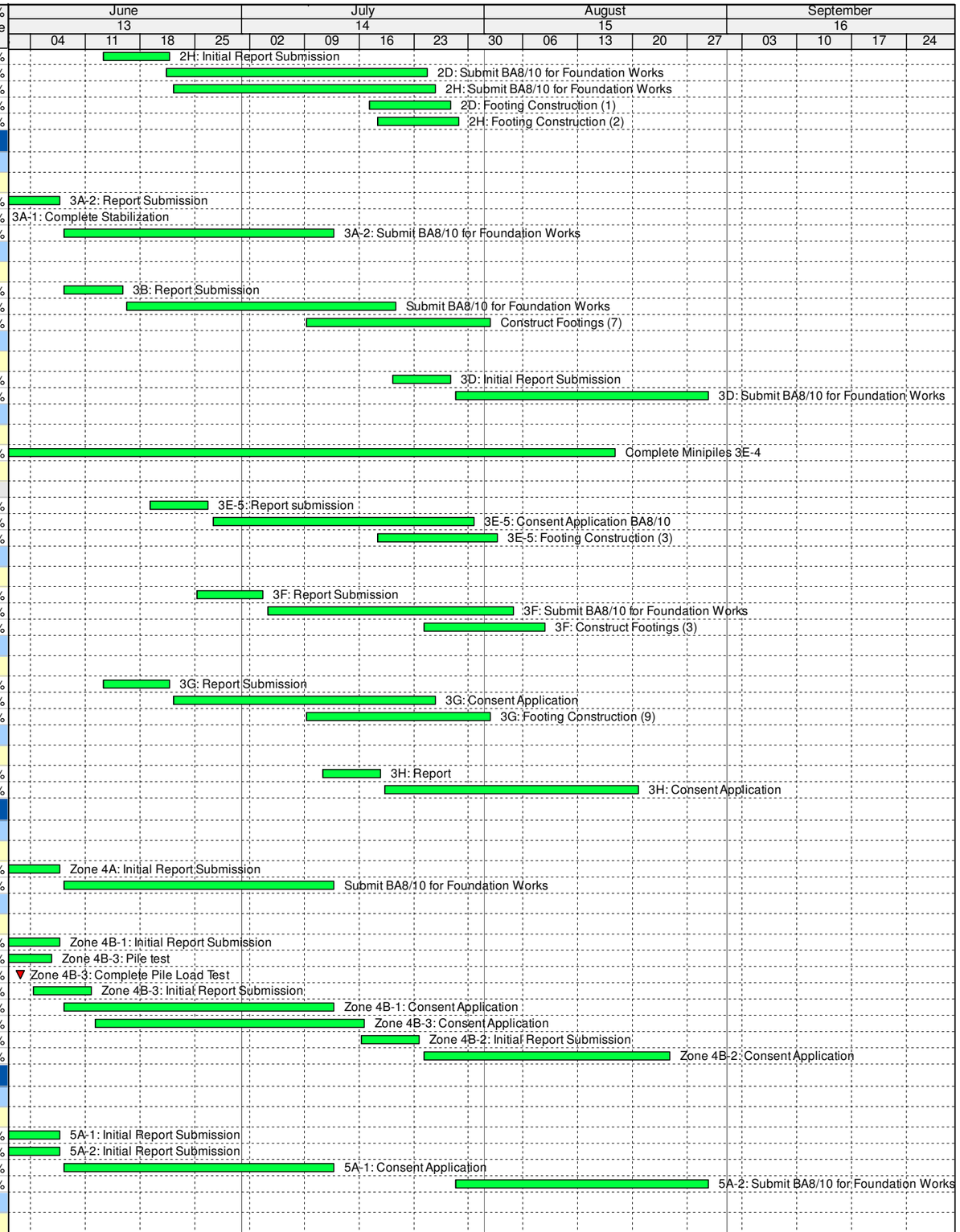
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**

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

Gammon

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

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



critical level of effort
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Project: Ocean Park Tai Shue Wan Water World Project
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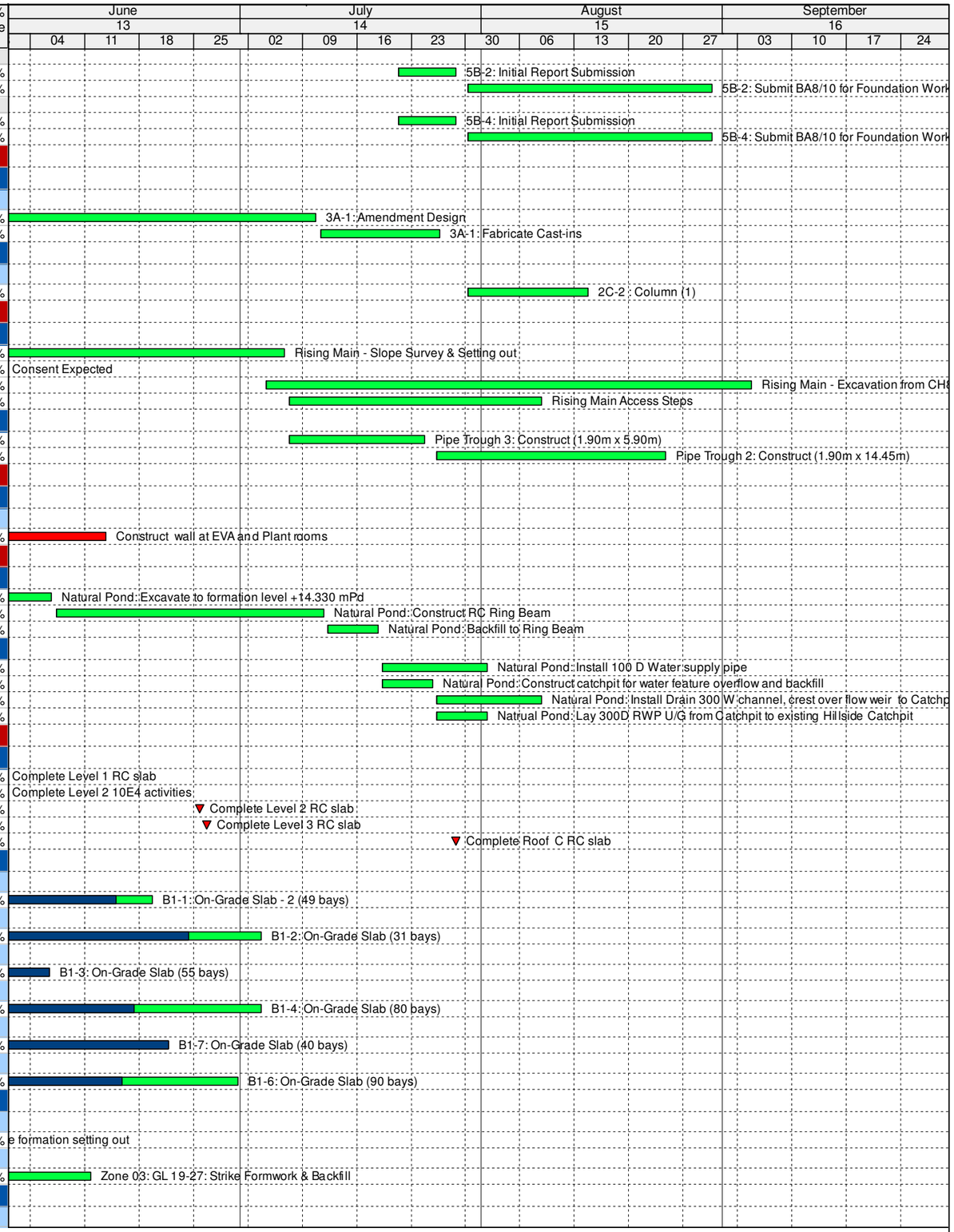
OCEAN PARK - TAI SHUE WAN DEVELOPMENT
Contract No. TSW-C006
3 month Look-ahead Target Program _July 2018

Gammon

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

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



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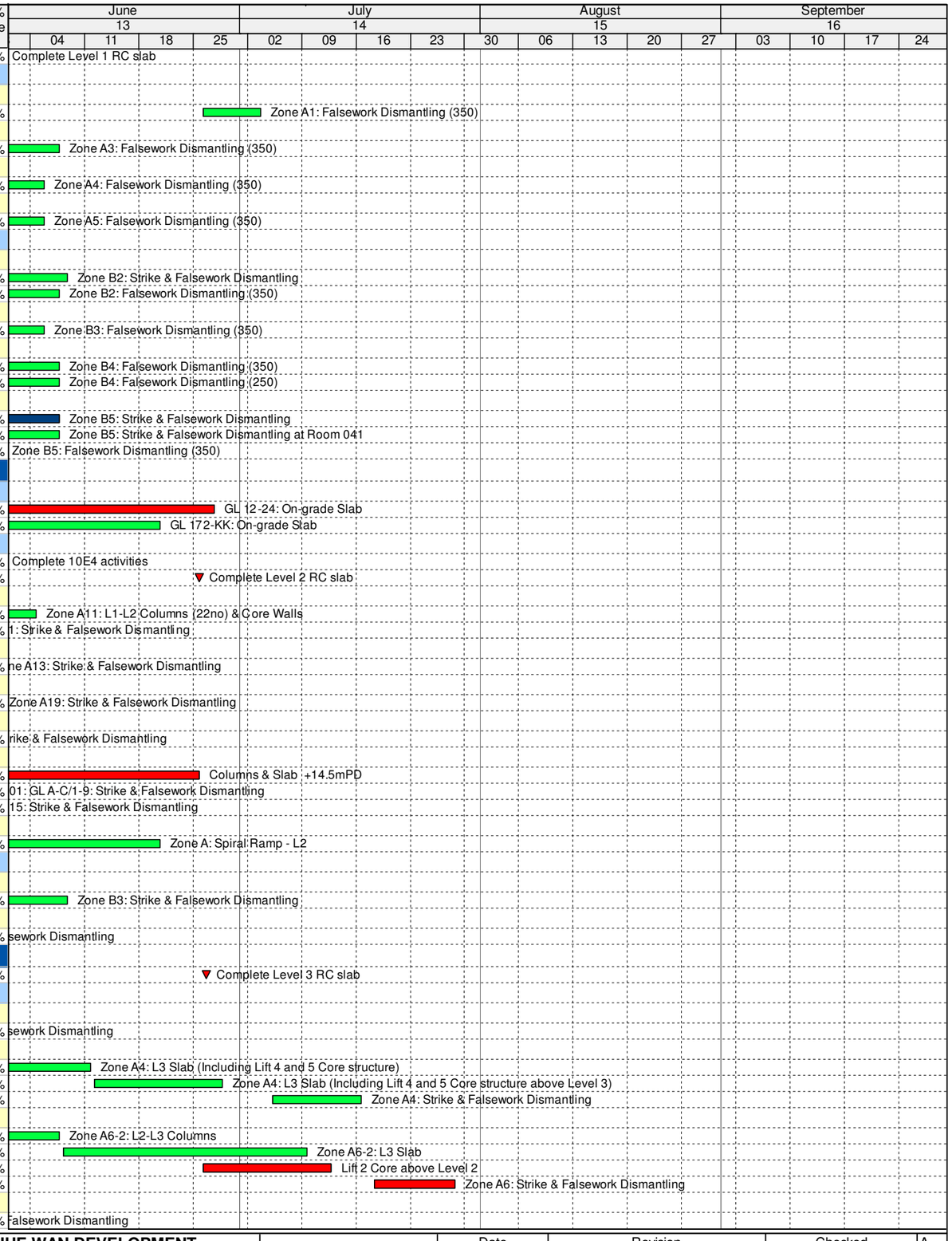
ID	Activity	Duration	Start	Finish	Total Float	Activity % Complete
OP.630	Complete Level 1 RC slab	0		31-May-18	529	0%
Zone A						
Zone A1						
SPL1A.1140	Zone A1: Falsework Dismantling (350)	6	26-Jun-18	03-Jul-18	125	0%
Zone A3						
SPL1A.1340	Zone A3: Falsework Dismantling (350)	6	31-May-18	07-Jun-18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



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

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

Gammon

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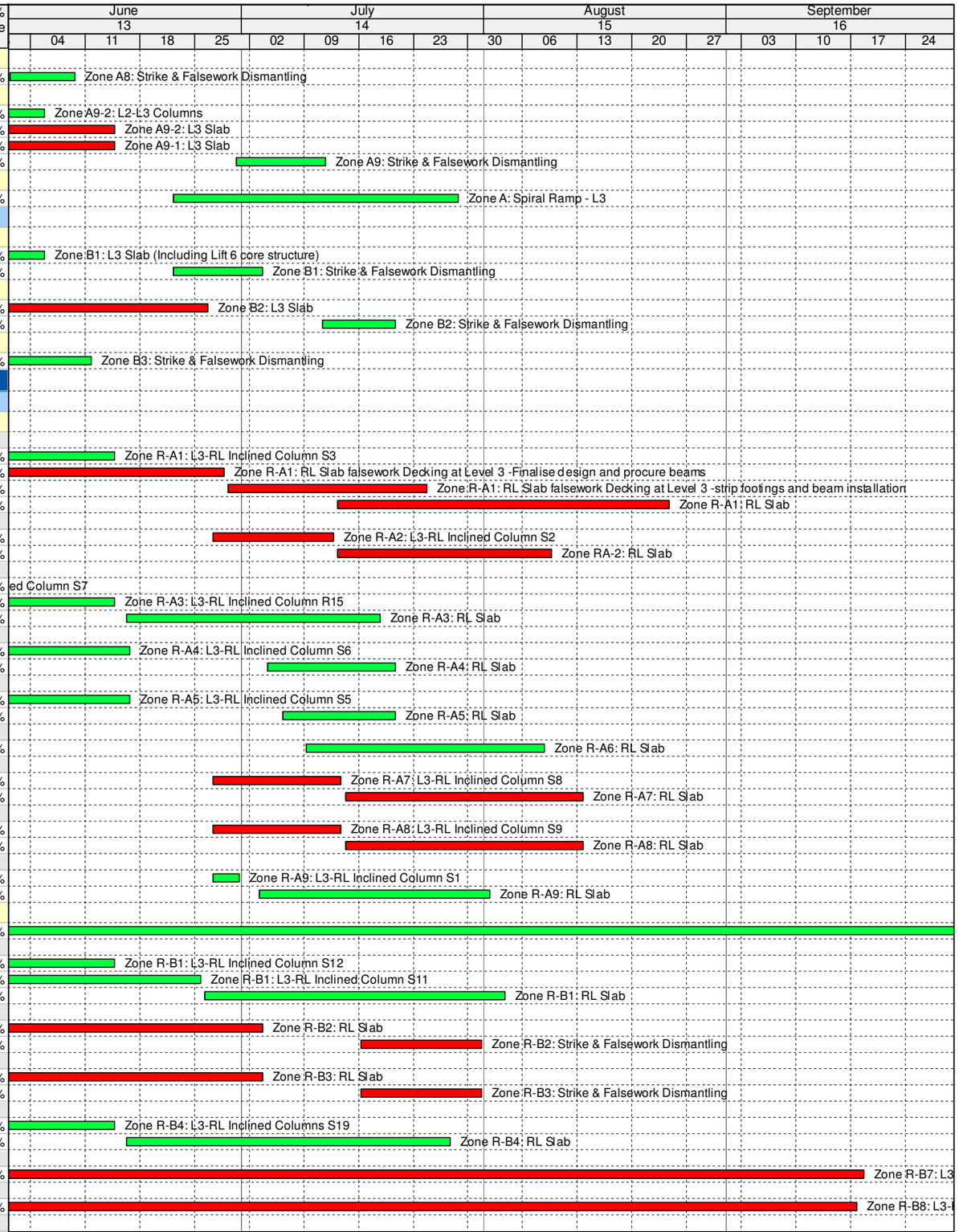
ID	Activity	Duration	Start	Finish	Total Float	Activity % Complete
Zone A8						
SP.L3A.3830	Zone A8: Strike & Falsework Dismantling	7	01-Jun-18	09-Jun-18	38	0%
Zone A9						
SP.L3A.3950	Zone A9-2: L2-L3 Columns	8	16-Apr-18	05-Jun-18	1	50%
SP.L3A.3940	Zone A9-2: L3 Slab	25	20-Apr-18	14-Jun-18	0	50%
SP.L3A.3920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



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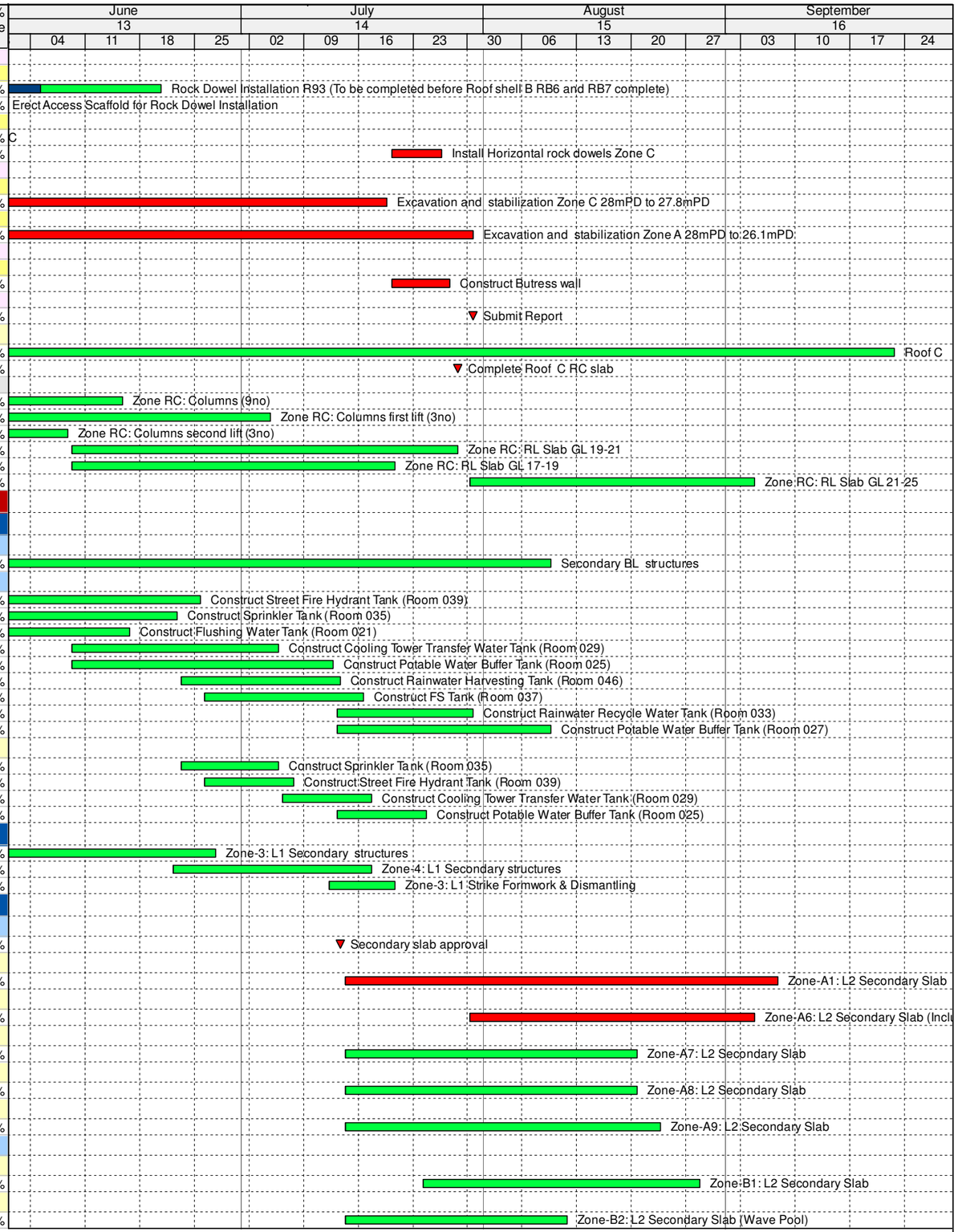
ID	Activity	Duration	Start	Finish	Total Float	Activity % Complete
Rock Dowels to slopes						
Rock Dowels to Zone B (PMI 215 Associated with Roof Shell B shear Key)						
OP.1870	Rock Dowel Installation R93 (To be completed before Roof shell B RB6 and RB7 c	80	10-Mar-18	20-Jun-18	8	85%
OP.1860	Erect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



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

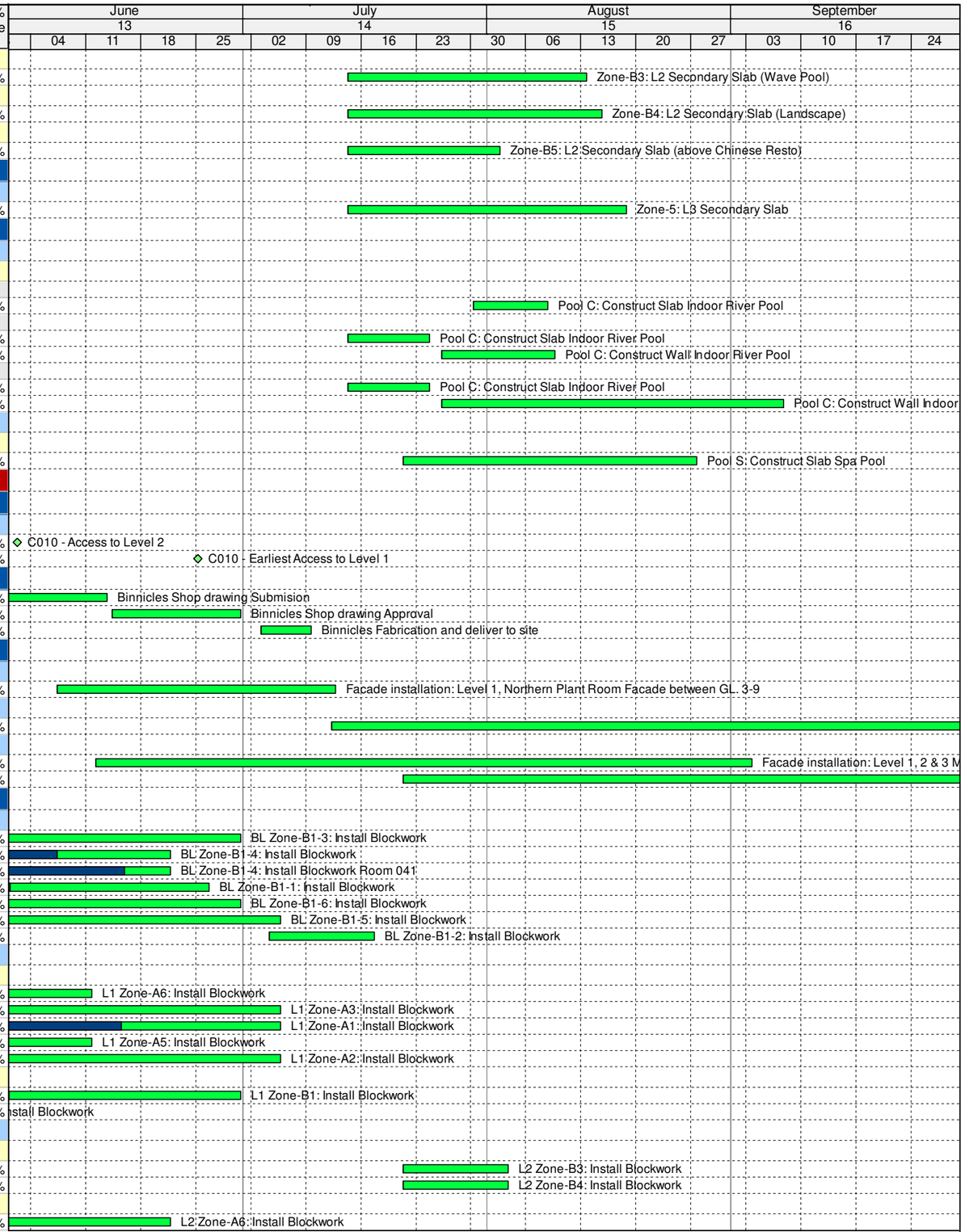
Project: Ocean Park Tai Shue Wan Water World Project
Project ID: T16004-183
Layout: 3 Month look ahead TARGET 20180507**
Page: 14 of 17

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

Gammon

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

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



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

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

Gammon

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30-Apr-18	3M Look ahead Program	PL, LN, TT PY ME.	
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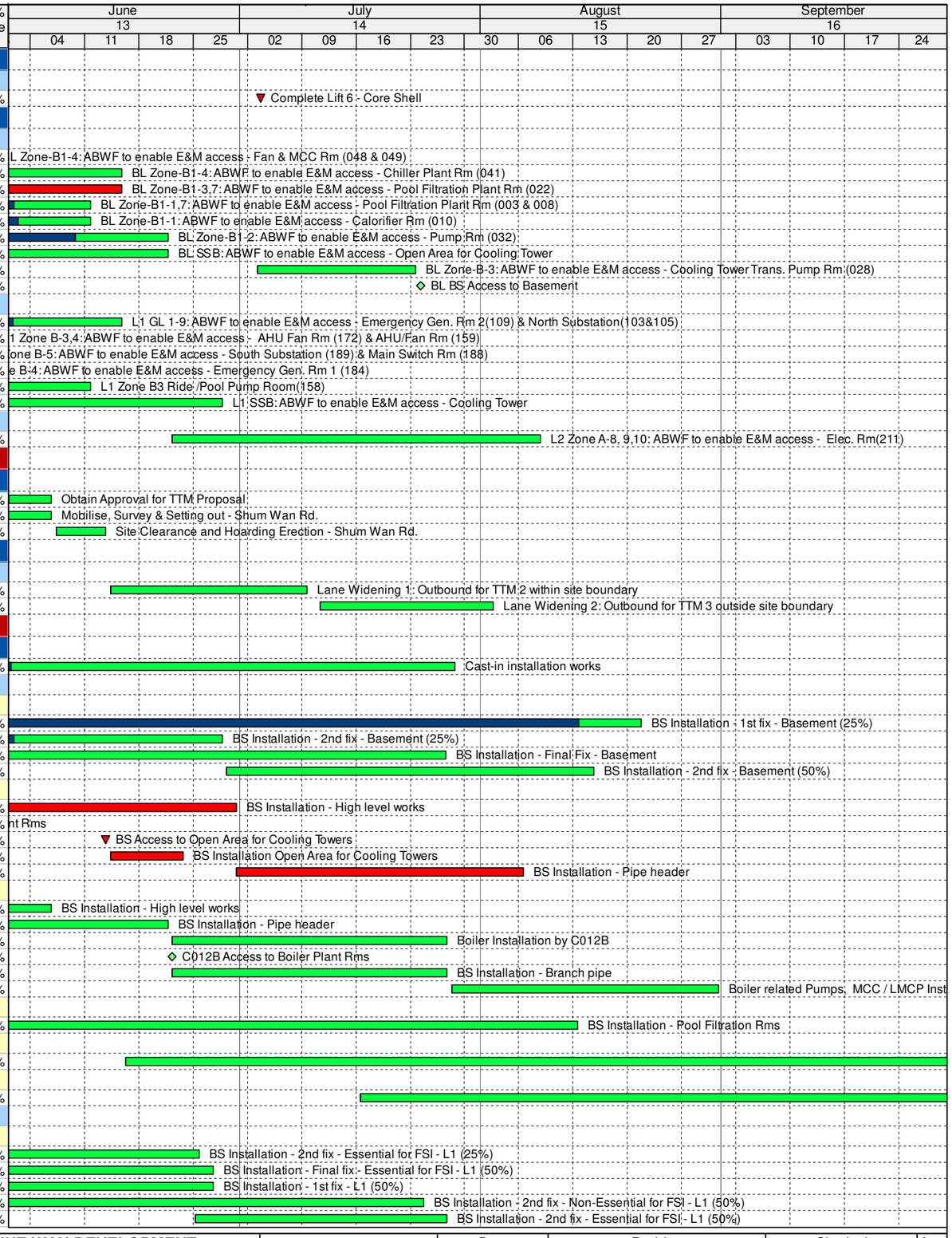
05-Jul-18	3M Look ahead Program (Draft)		

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



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Project: Ocean Park Tai Shue Wan Water World Project
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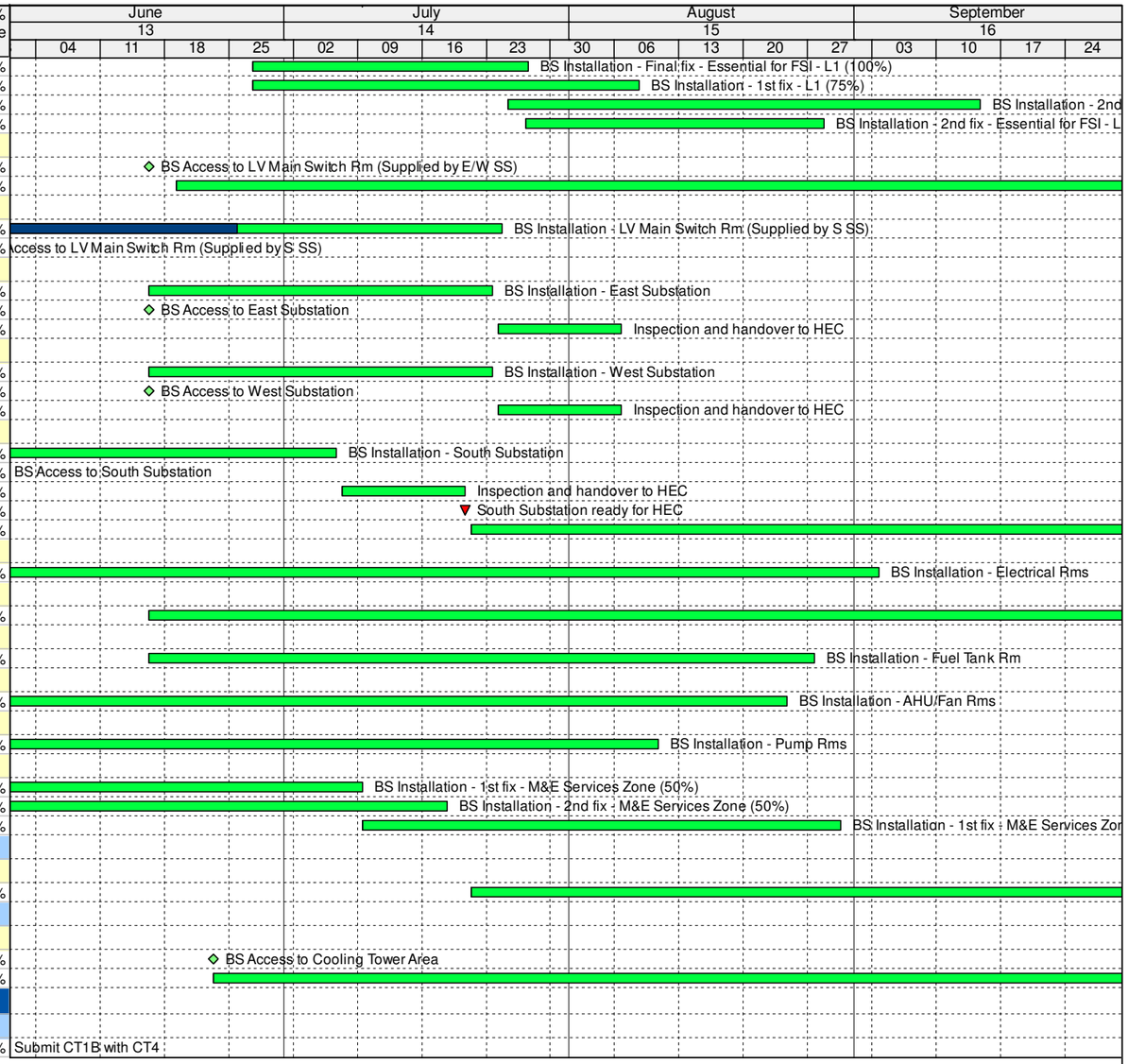
30-Apr-18	3M Look ahead Program	PL, LN, TT PY ME.	
07-May-18	3M Look ahead Program	PL, LN, TT PY ME.	JA
05-Jul-18	3M Look ahead Program (Draft)		

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



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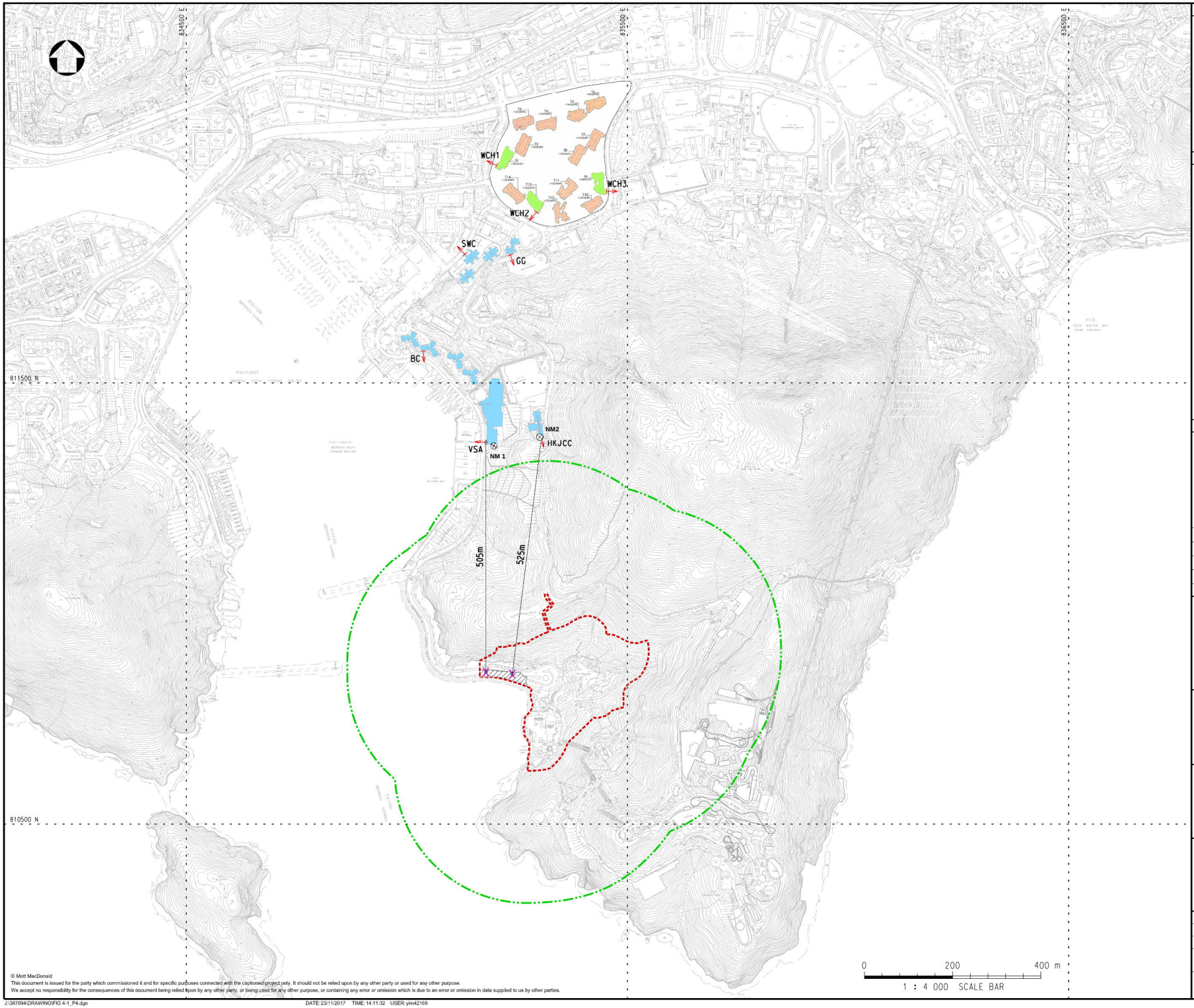
D. Designated Monitoring Locations as Recommended in the Approved EM&A Manual



Notes

Key to symbols

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

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

Reference drawings

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

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Client

Ocean Park Hong Kong 香港海洋公園

Project

TAI SHUE WAN DEVELOPMENT AT OCEAN PARK

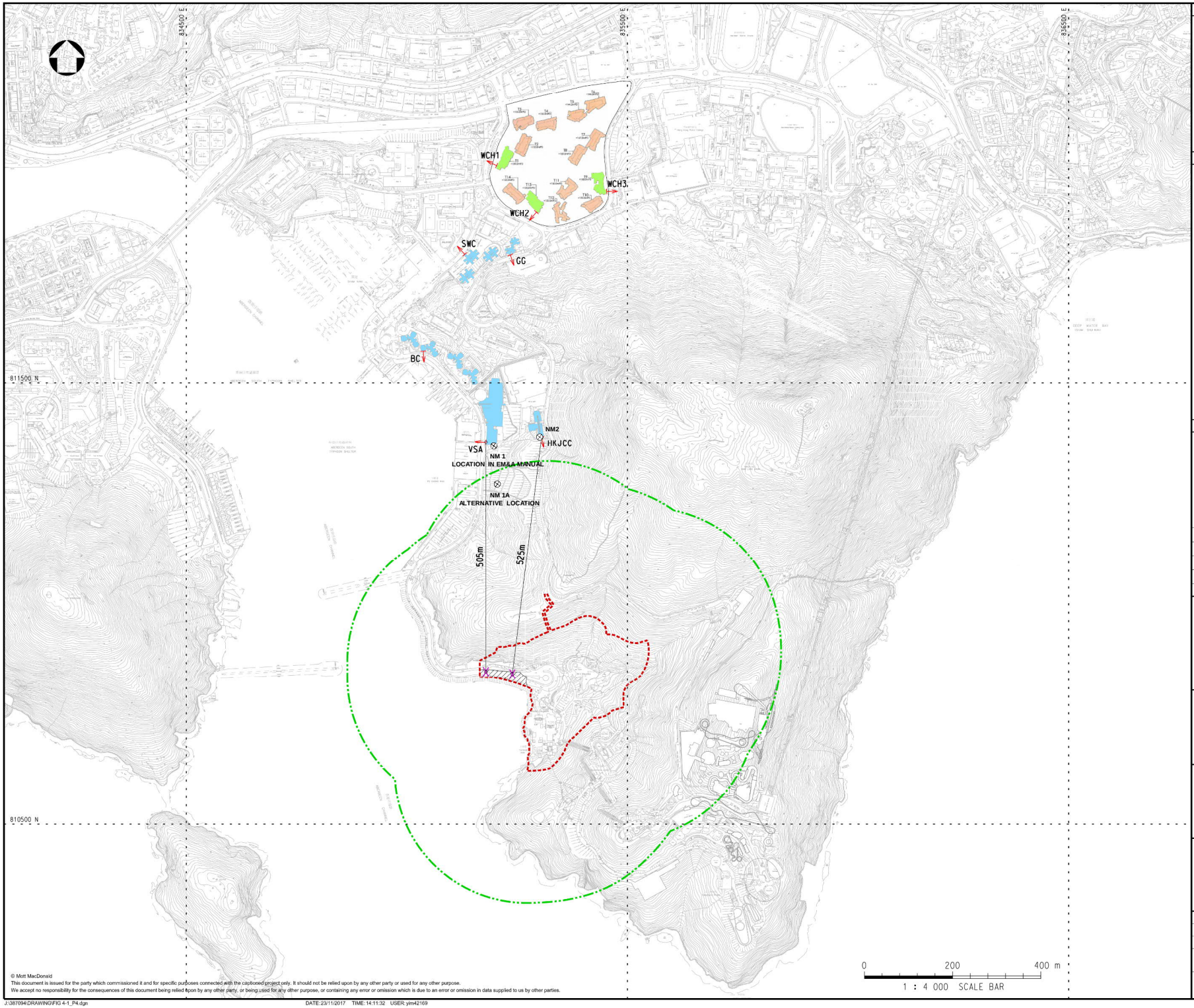
Title

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

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

Drawing Number **APPENDIX D**

E. Actual Locations of Impact Monitoring



Notes

Key to symbols

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

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

Reference drawings

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

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

Client

Ocean Park Hong Kong 香港海洋公園

Project

TAI SHUE WAN DEVELOPMENT AT OCEAN PARK

Title

ACTUAL LOCATION OF IMPACT MONITORING

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

Drawing Number

APPENDIX E

F. Calibration Certificates

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

Certificate of Calibration
校正證書

Certificate No. : C181259
證書編號

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

Description / 儀器名稱	:	Sound Level Meter
Manufacturer / 製造商	:	Rion
Model No. / 型號	:	NL-52
Serial No. / 編號	:	01010406
Supplied By / 委託者	:	Envirotech Services Co. 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 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 11 March 2018

TEST RESULTS / 測試結果

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

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

Tested By 測試 : H T Wong, Technical Officer

Certified By 核證 : K C Lee, Engineer

Date of Issue 簽發日期 : 12 March 2018

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
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輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C181259
證書編號

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

2. Self-calibration was performed before the test.

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

4. Test equipment :

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

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

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

6.1.2 Linearity

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

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

6.2 Time Weighting

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

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Certificate of Calibration
校正證書

Certificate No. : C181259
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

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

6.3.2 C-Weighting

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

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

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

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

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

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

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

輝
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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. : C175727
證書編號

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

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

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 13 October 2017

TEST RESULTS / 測試結果

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

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

Tested By 測試 : H C Chan, Engineer

Certified By 核證 : K C Lee, Engineer

Date of Issue 簽發日期 : 16 October 2017

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

Certificate of Calibration
校正證書

Certificate No. : C175727
證書編號

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

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

3. Test equipment :

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

4. Test procedure : MA130N.

5. Results :

Air Velocity

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

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

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

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

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

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G. Event and Action Plan

Event and Action Plan for Construction Noise

Event	Action			
	ET	IEC	ER	Contractor
Action Level	1. Notify ER, IEC and Contractor; 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

AUGUST 2018

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

July 2018

S	M	T	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

September 2018

S	M	T	W	Th	F	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

Notes:

SEPTEMBER 2018

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5 Noise Monitoring	6	7 ET weekly site inspection Landscape and Visual Monitoring	8
9	10	11	12	13 Noise Monitoring	14 ET weekly site inspection Ecological Monitoring	15
16	17	18	19 Noise Monitoring	20	21 ET weekly site inspection Landscape and Visual Monitoring	22
23	24	25	26	27 Noise Monitoring	28 ET weekly site inspection	29
30		August 2018 S M T W Th F Sa 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	October 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:**	

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]**		
08-Aug-18	10:40	11:10	59.7	57.9	61.2	0.3	70
16-Aug-18	10:08	10:38	59.4	58.1	60.9	0.5	70
22-Aug-18	10:08	10:38	59.0	57.7	60.5	0.2	70
28-Aug-18	10:00	10:30	59.0	57.7	60.5	0.2	70

NM2 - Hong Kong Juvenile Care Centre							
Date	**Time**		**Noise Levels, dB(A)**			**Wind Speed (ms-1)**	**Limit Level for L_{eq} (dB(A))[2]**
	Start	**Finish**	**L_{eq}(30min)**	**L_{90}**	**L_{10}**		
08-Aug-18	10:00	10:30	51.3	49.9	52.7	0.3	70
16-Aug-18	09:30	10:00	51.1	49.7	52.3	0.5	70
22-Aug-18	09:30	10:00	50.5	49.3	51.9	0.2	70
28-Aug-18	09:20	09:50	50.9	49.5	52.2	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)) (3)**
	Start	**Finish**	**Corrected L_{eq}(15min) (1)**	**Corrected L_{90} (1)**	**Corrected L_{10} (1)**		
05-Aug-18	14:05	14:20	56.8	55.2	58.2	0.4	70
12-Aug-18	15:00	15:15	57.3	55.7	58.9	0.5	70
19-Aug-18	09:25	09:40	57.2	55.4	59.0	0.5	70
26-Aug-18	13:35	13:50	56.7	55.5	58.1	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))(3)**
	Start	**Finish**	**L_{eq}(15min)**	**L_{90}**	**L_{10}**		
05-Aug-18	13:40	13:55	47.7	46.0	49.2	0.4	65
12-Aug-18	14:35	14:50	49.6	48.1	51.0	0.5	65
19-Aug-18	09:00	09:15	49.5	48.0	50.8	0.5	65
26-Aug-18	13:10	13:25	48.7	47.4	49.9	0.3	65

Notes:

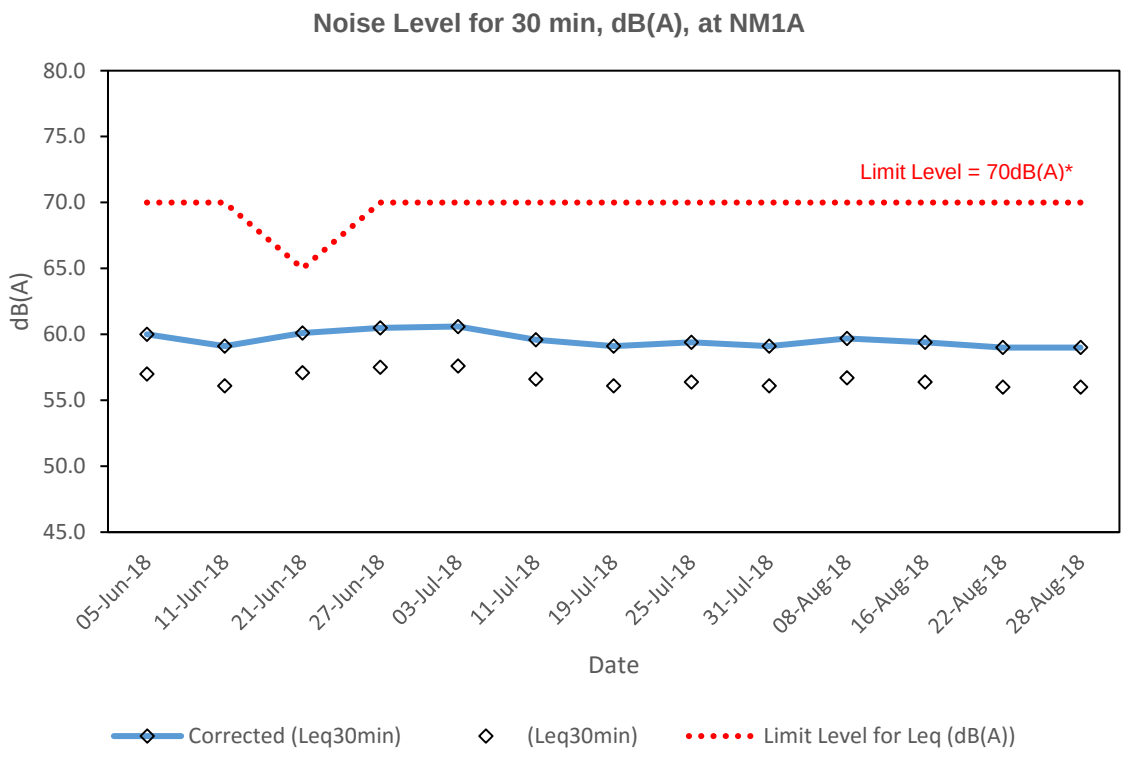
(1) A free field correction of +3dB(A) has been made to these measurements as specified in the EM&A Manual and EPD guidelines.

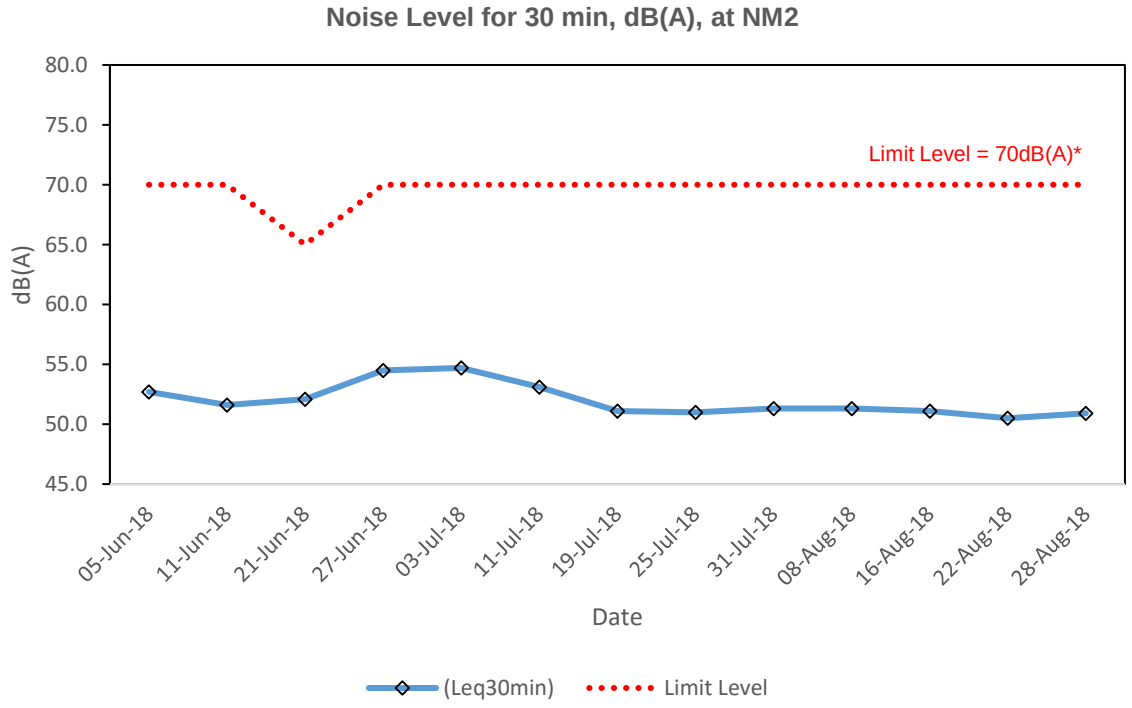
(2) Acceptable Noise Levels for school should be reduced to 65 dB(A) during examination period.

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

J. Graphical Plots for Noise Monitoring Data

Graphical Plot for Noise Monitoring Data (June - August 2018)



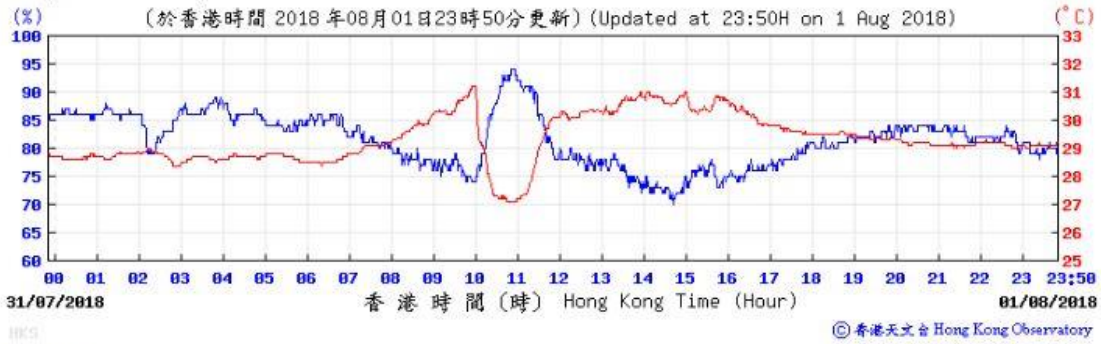


Note: *Acceptable Noise Levels for school should be reduced to 65 dB(A) during examination period.

K. Meteorological Data

1/8/2018 **Wong Chuk Hang Station**

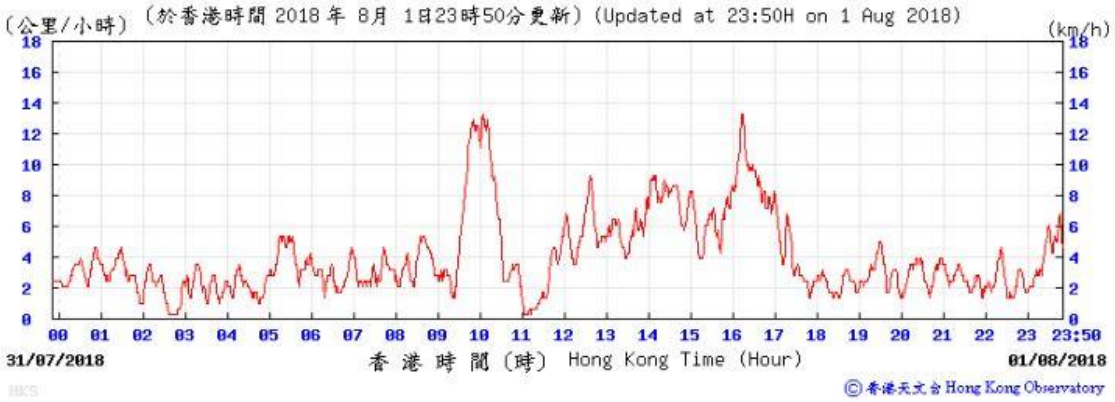
Tempearture/Humidity:



Pressure:

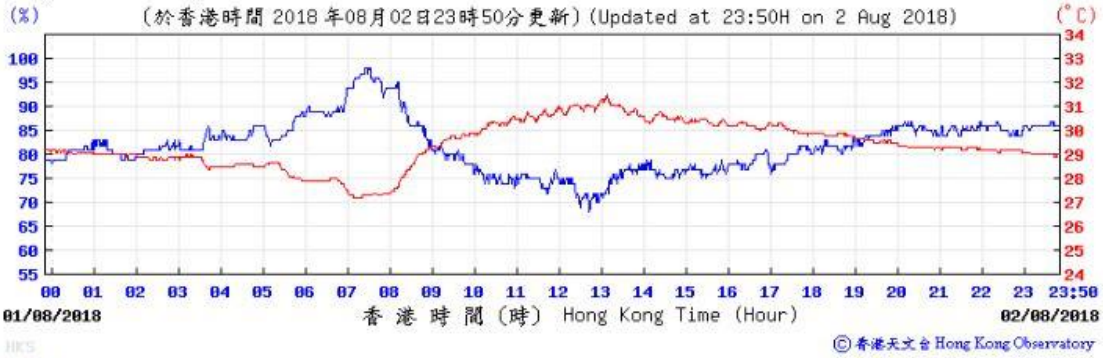
Wind Direction:

Wind Speed:



2/8/2018

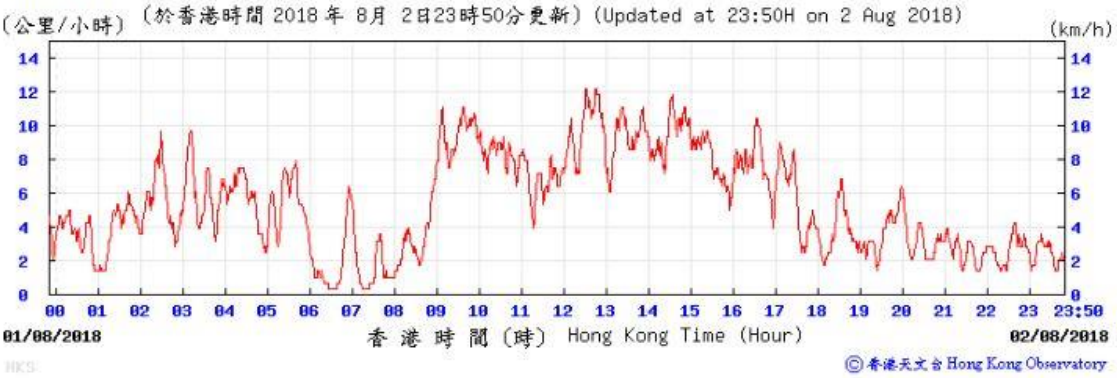
Tempearture/Humidity:



Pressure:

Wind Direction:

Wind Speed:



3/8/2018

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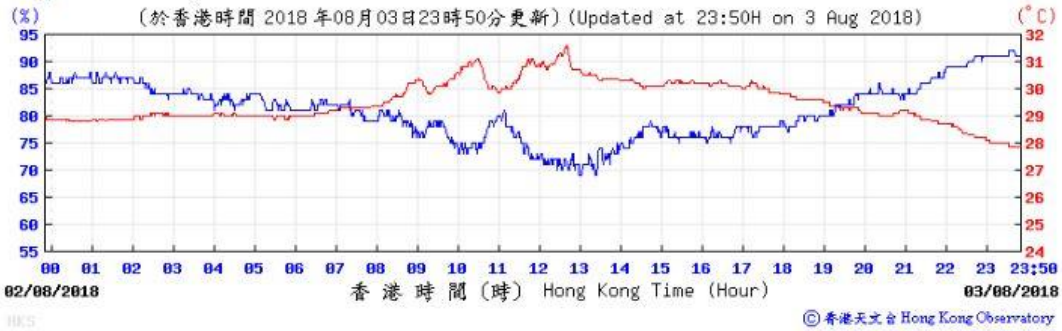
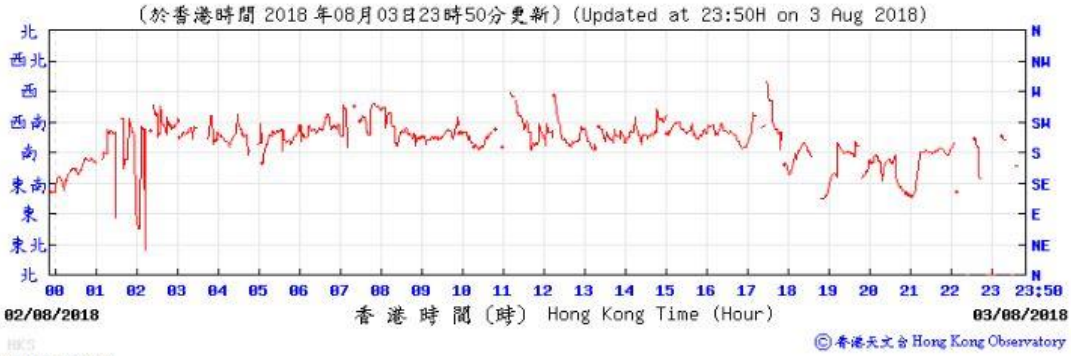
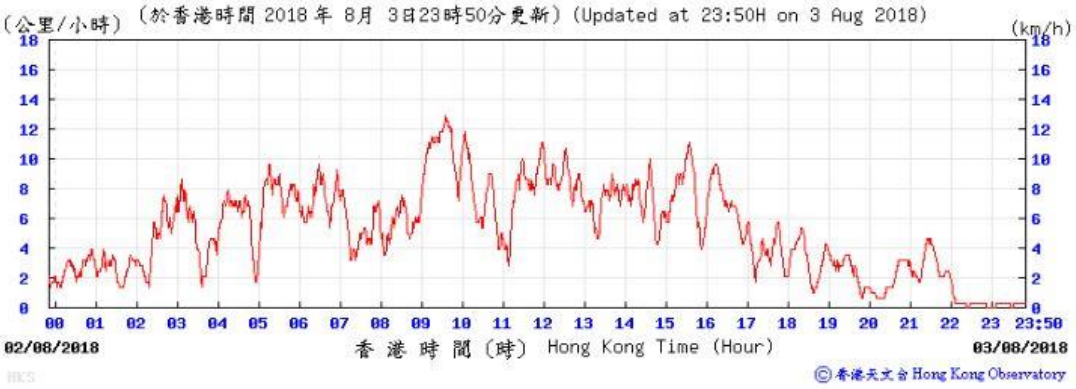


Pressure:

Wind Direction:



Wind Speed:



6/8/2018

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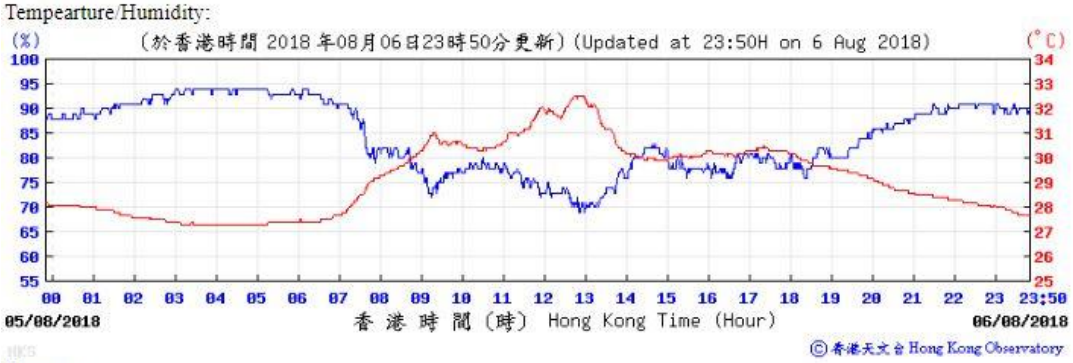
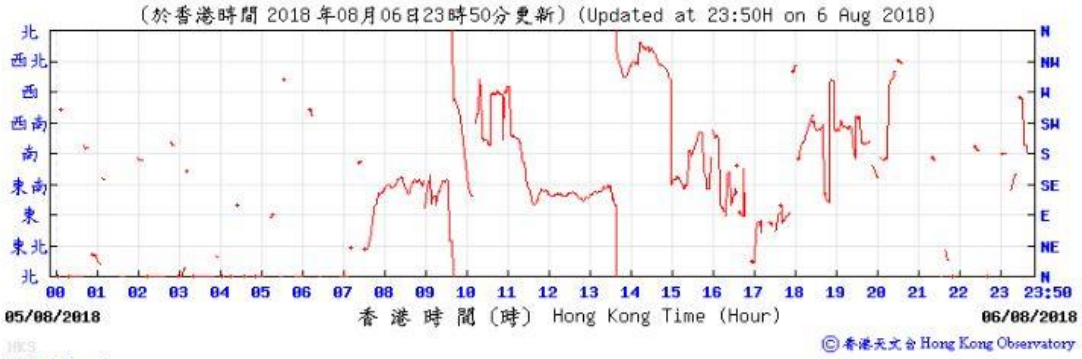
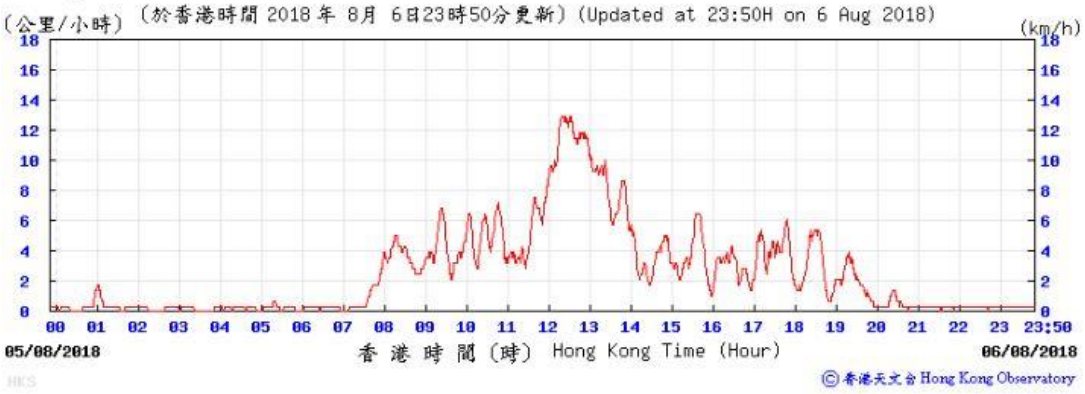


Pressure:

Wind Direction:



Wind Speed:



7/8/2018

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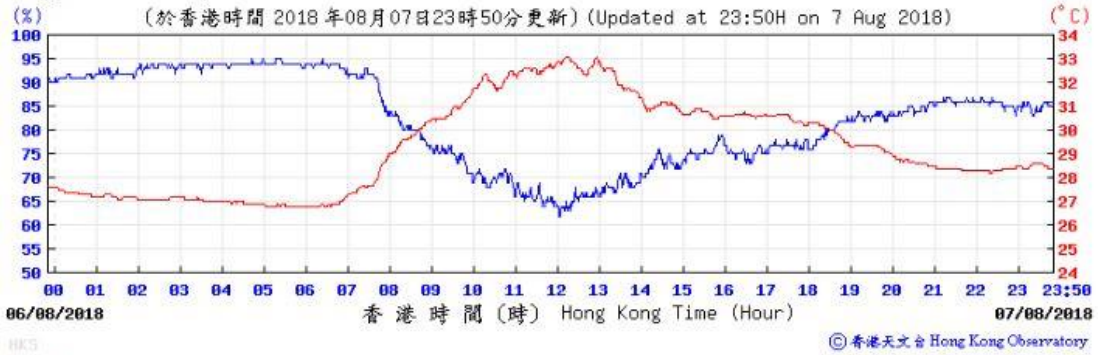
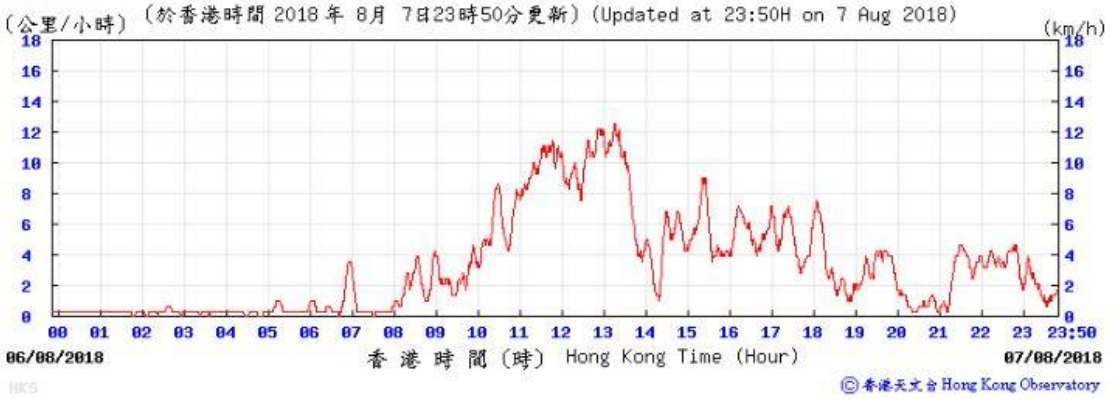


Pressure:

Wind Direction:

Wind Speed:



8/8/2018

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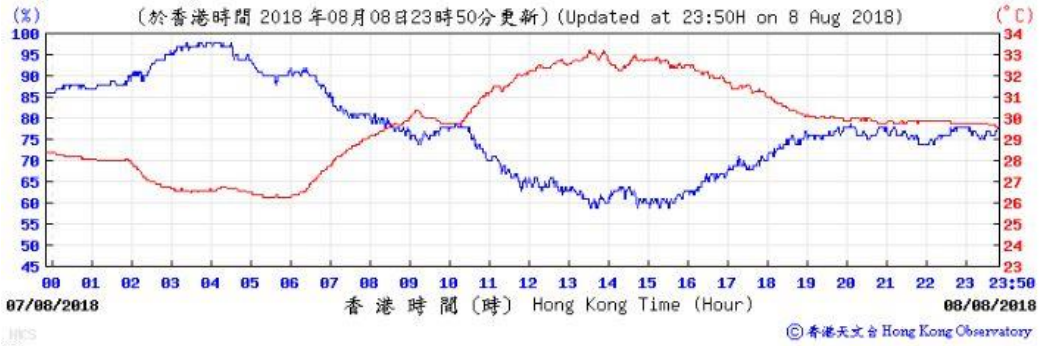
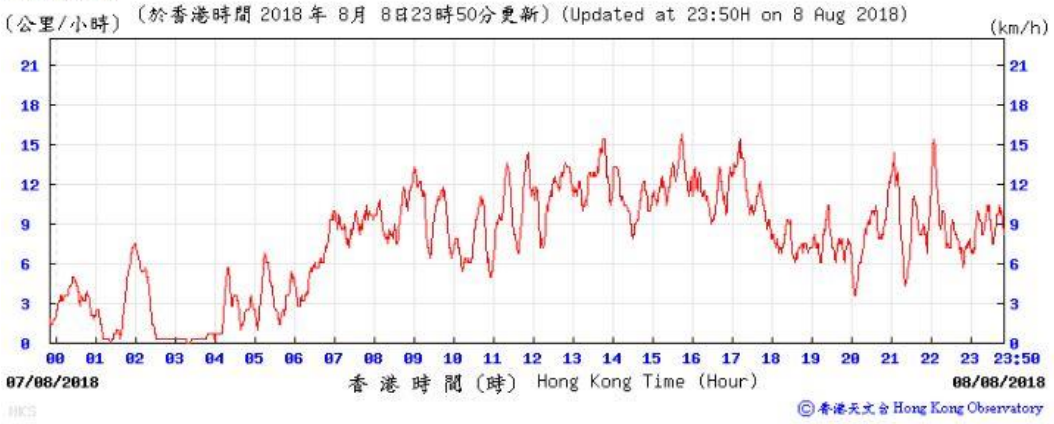


Pressure:

Wind Direction:

Wind Speed:



9/8/2018

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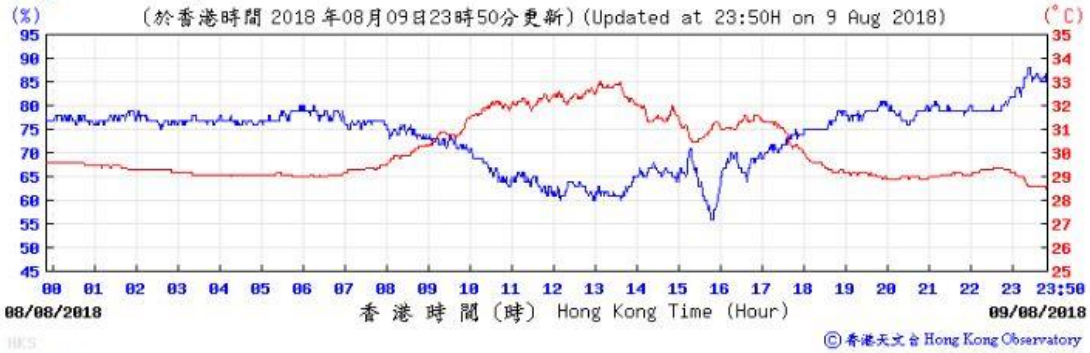
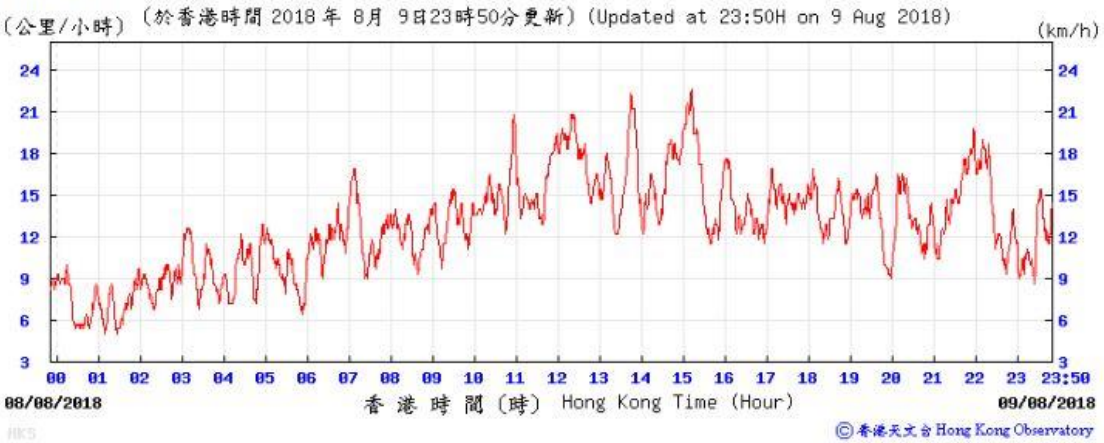


Pressure:

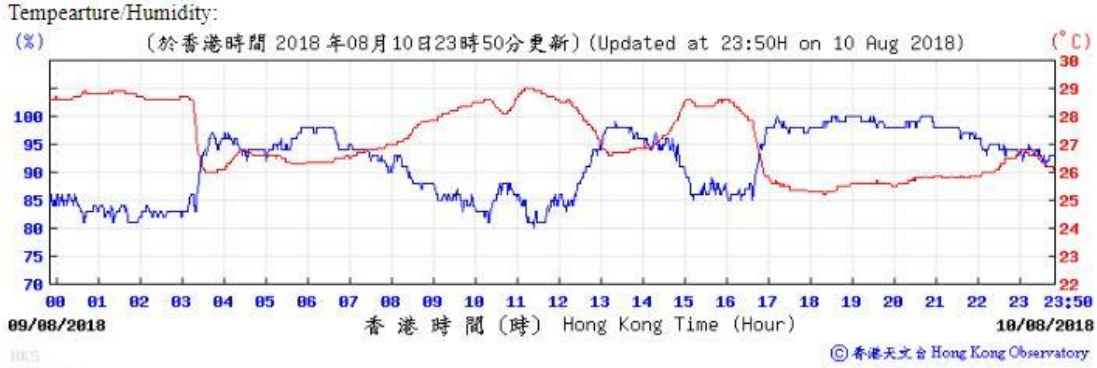
Wind Direction:

Wind Speed:



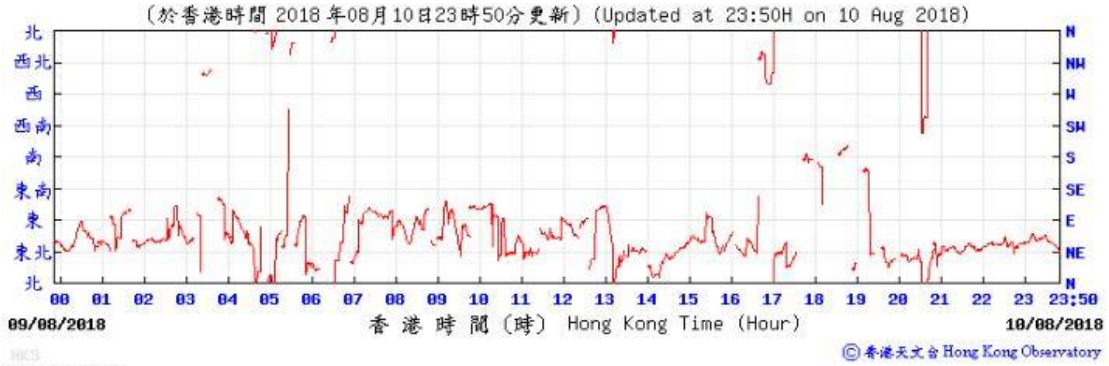
10/8/2018

Tempearture/Humidity:

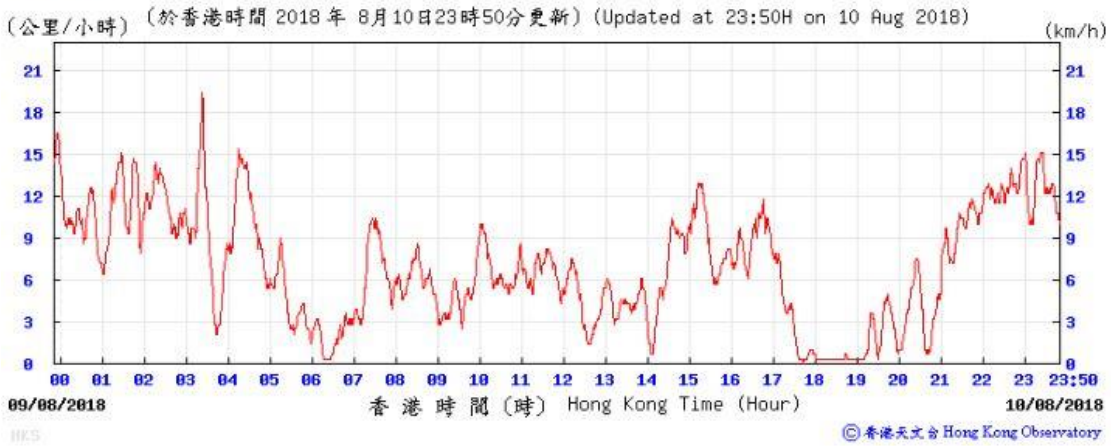


Pressure:

Wind Direction:



Wind Speed:



13/8/2018

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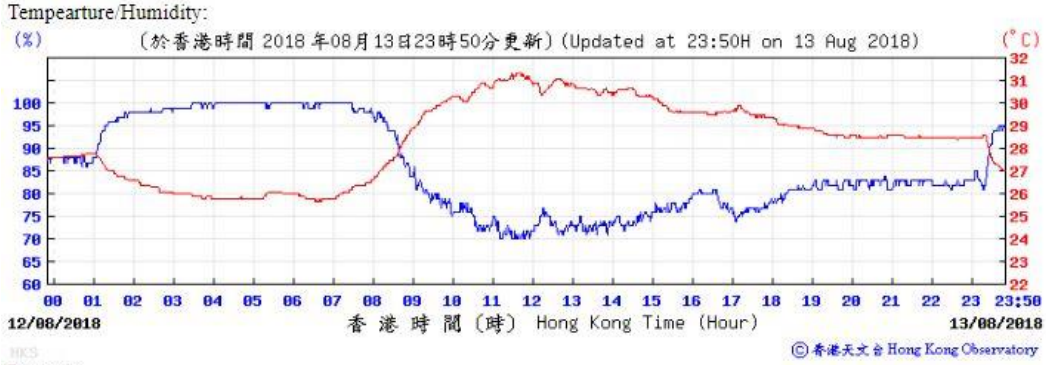
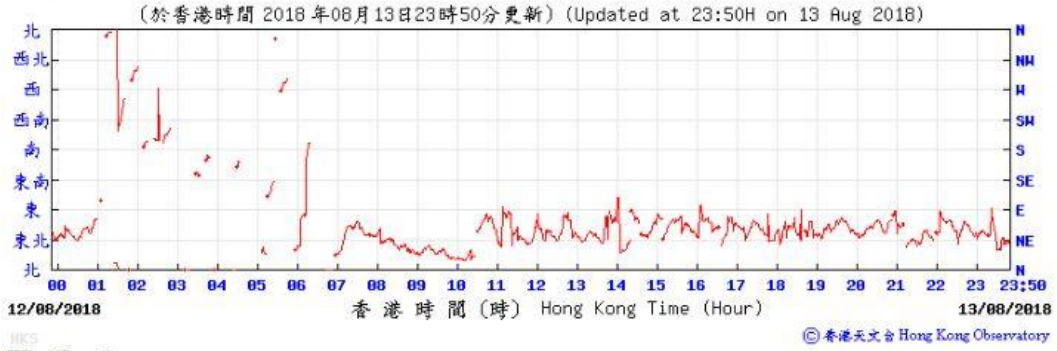


Pressure:

Wind Direction:



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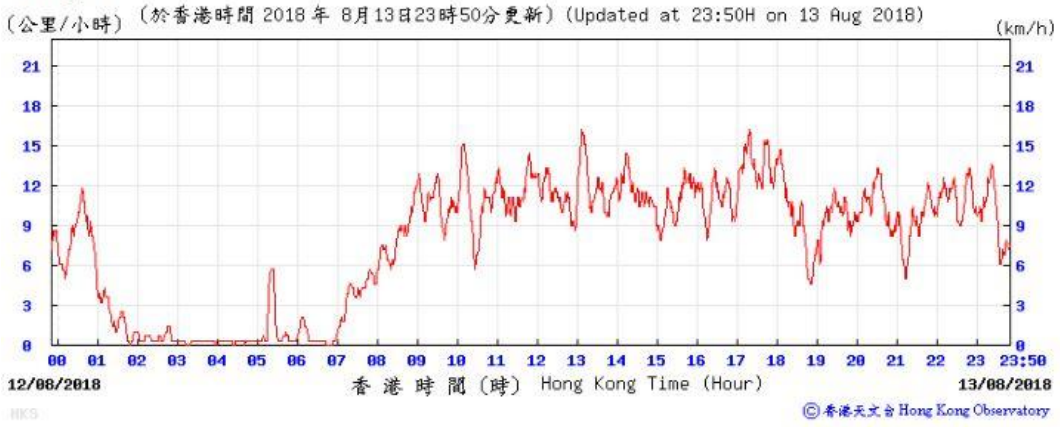

14/8/2018

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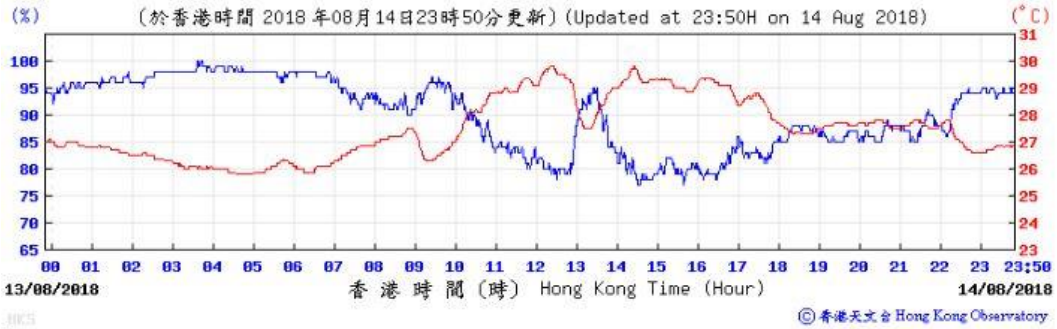
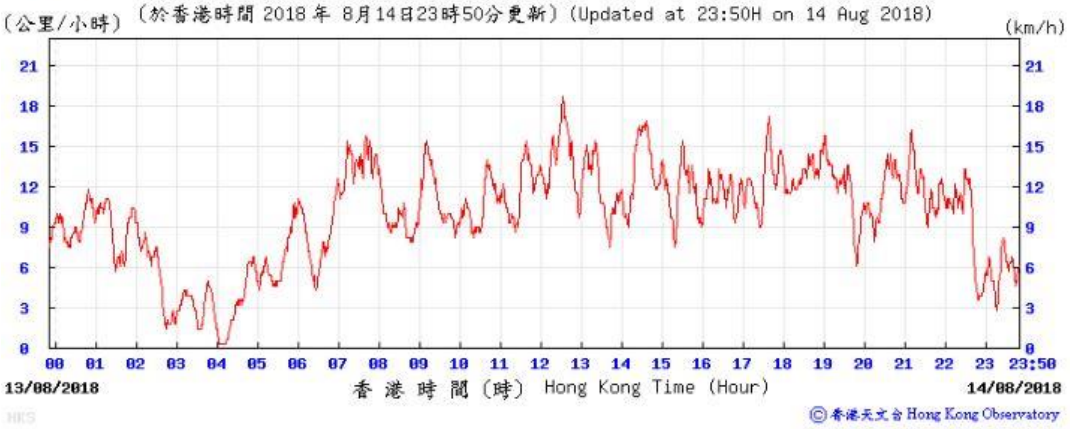


Pressure:

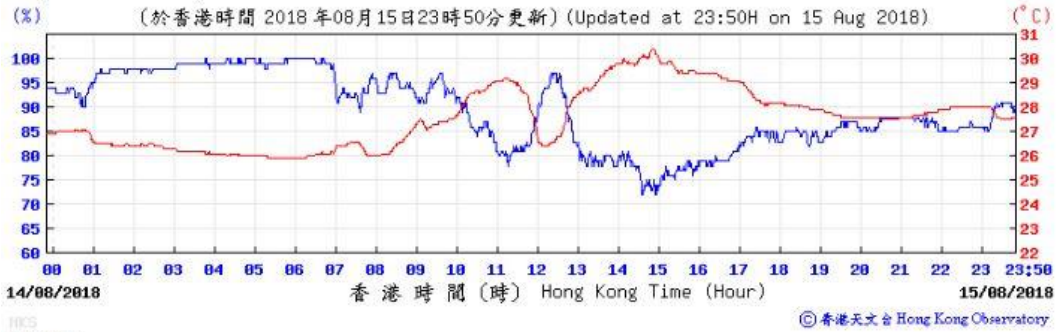
Wind Direction:

Wind Speed:



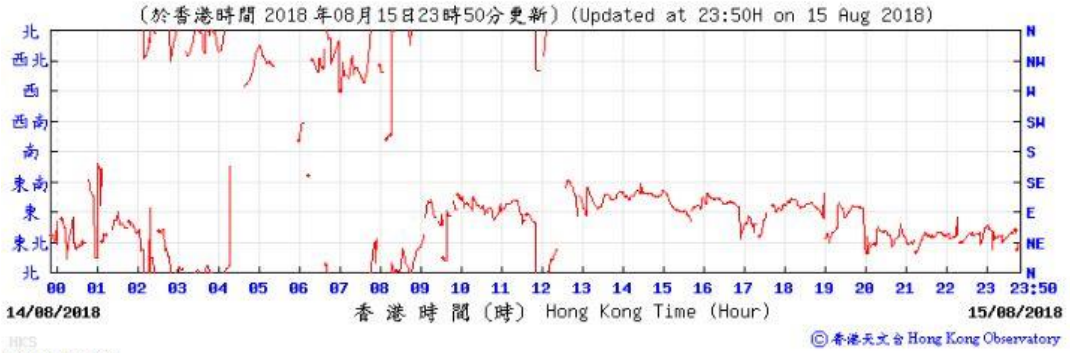
15/8/2018

Tempearture/Humidity:

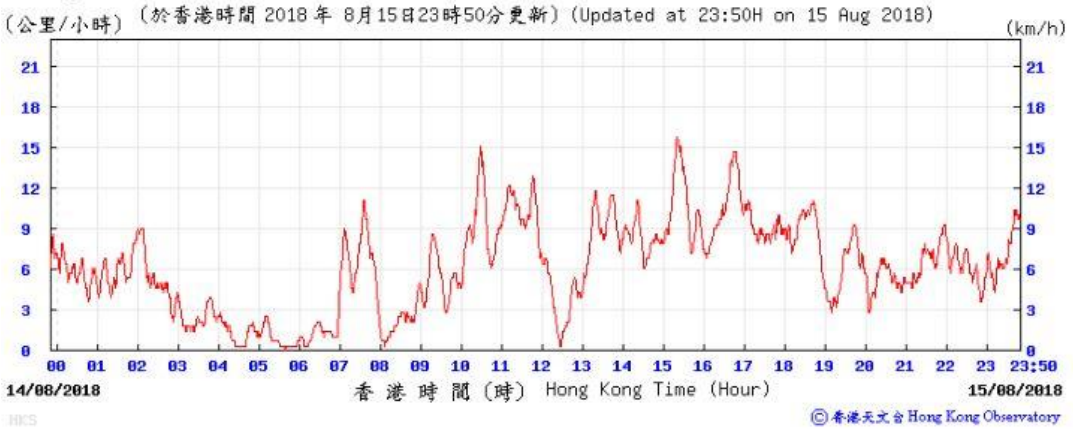


Pressure:

Wind Direction:



Wind Speed:



16/8/2018

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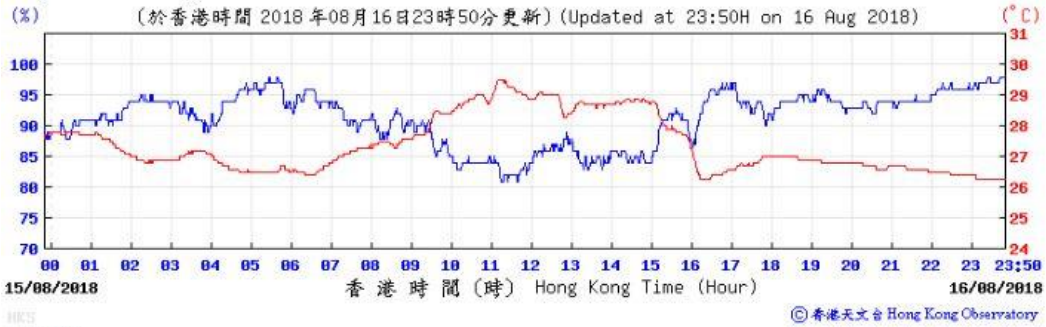
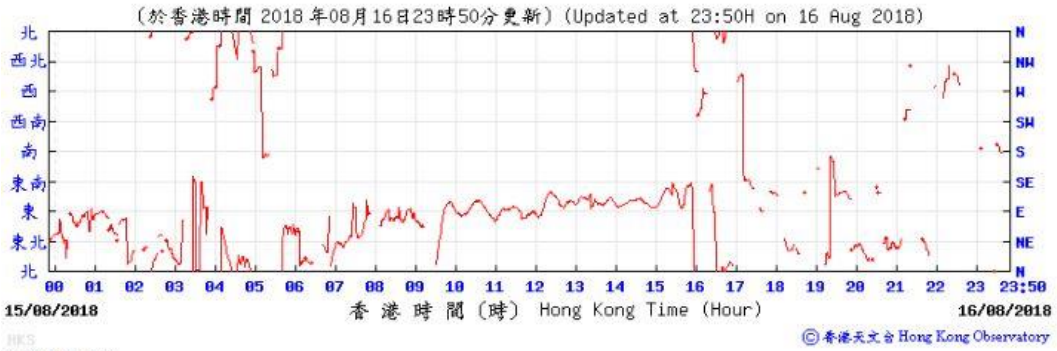


Pressure:

Wind Direction:



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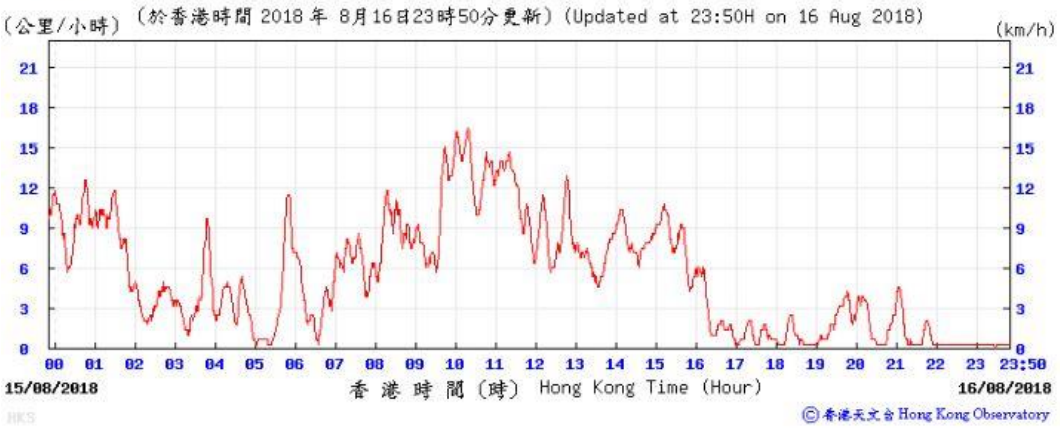

17/8/2018

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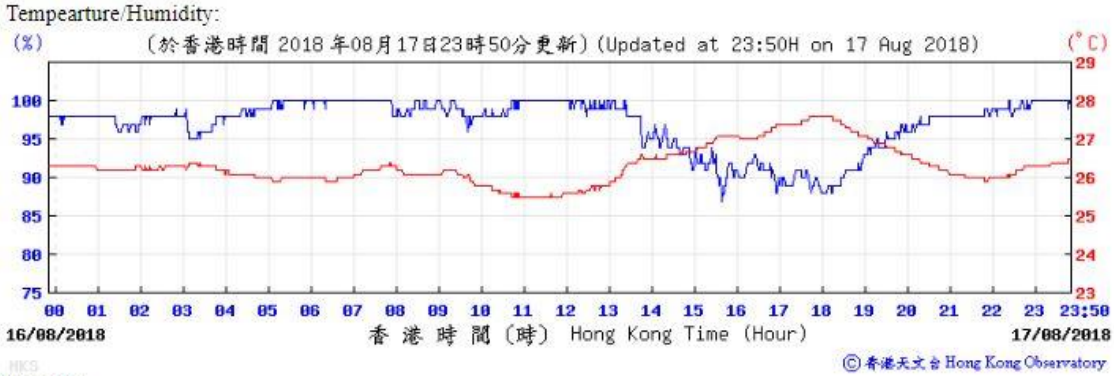
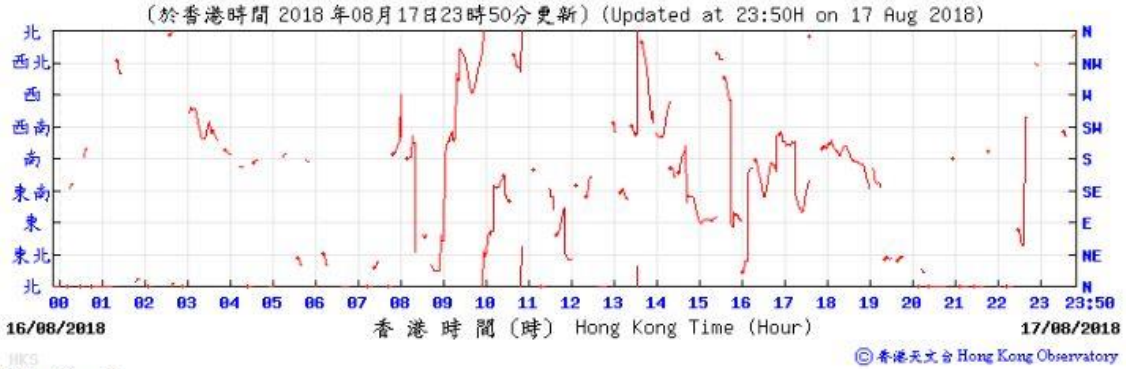


Pressure:

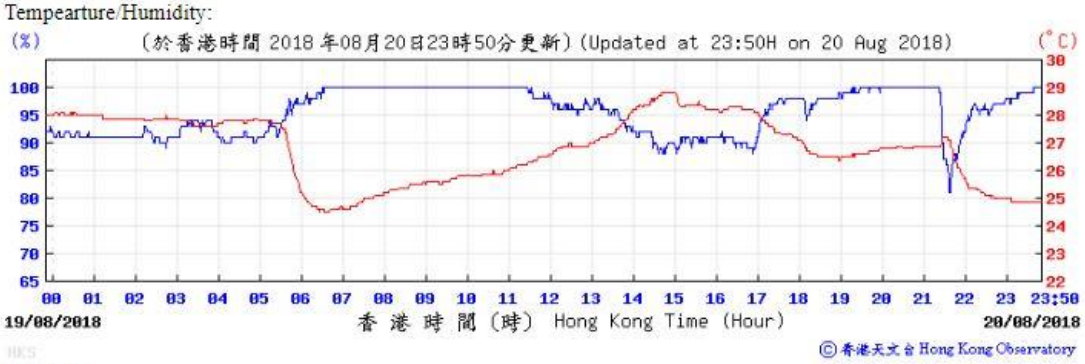
Wind Direction:



Wind Speed:

20/8/2018

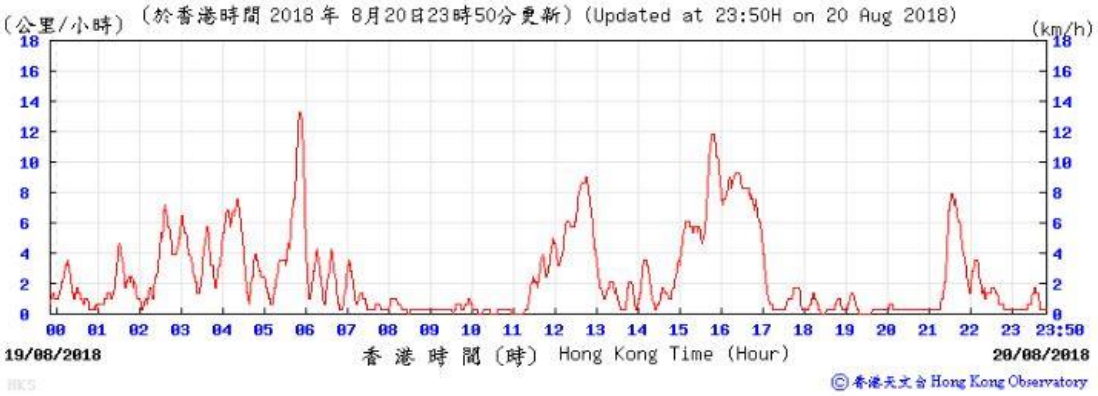
Tempearture/Humidity:



Pressure:

Wind Direction:

Wind Speed:



21/8/2018

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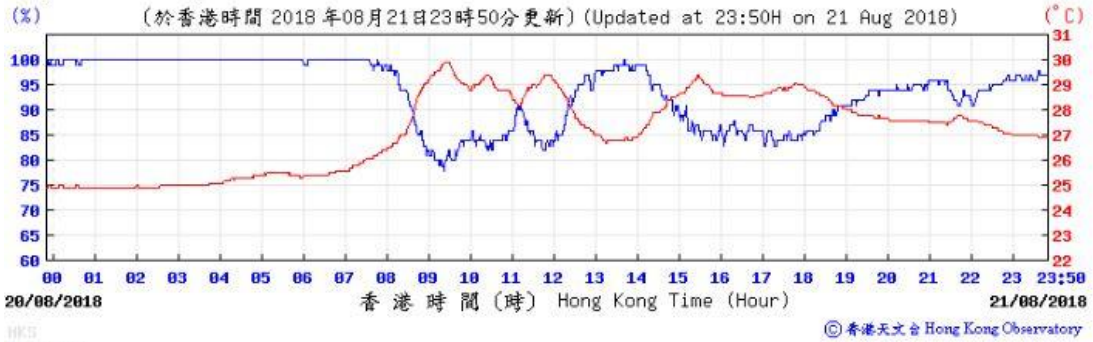
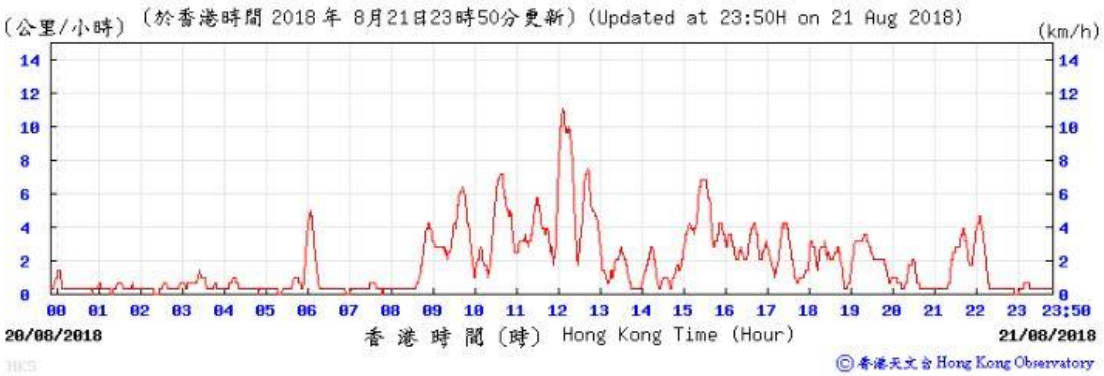


Pressure:

Wind Direction:

Wind Speed:



22/8/2018

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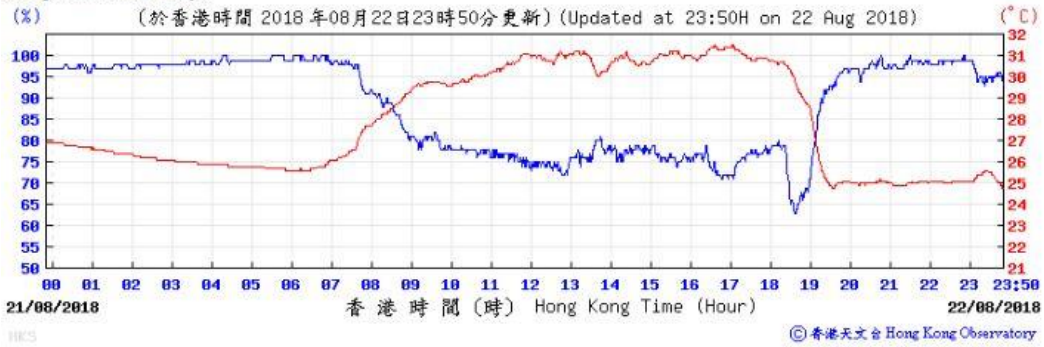
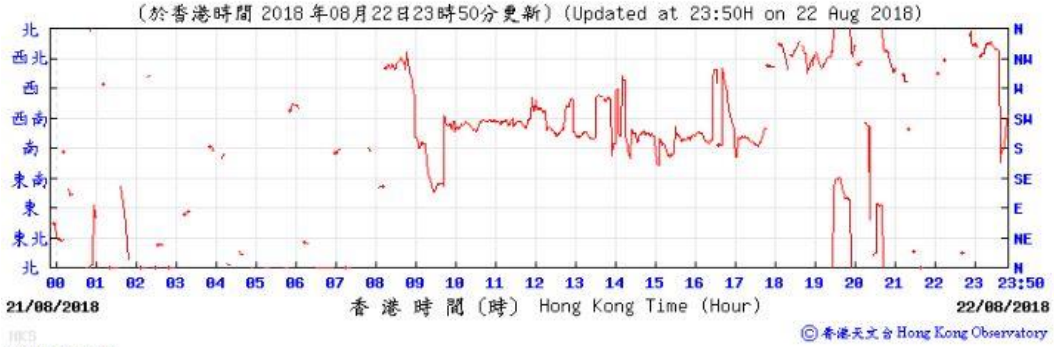
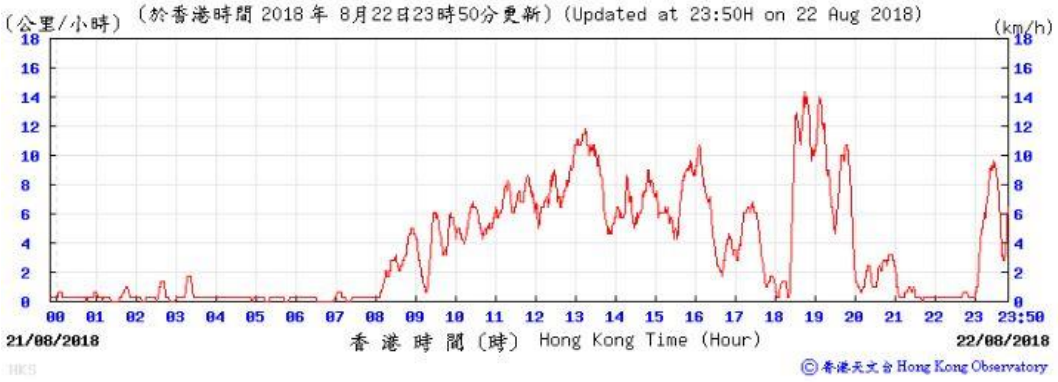


Pressure:

Wind Direction:



Wind Speed:



23/8/2018

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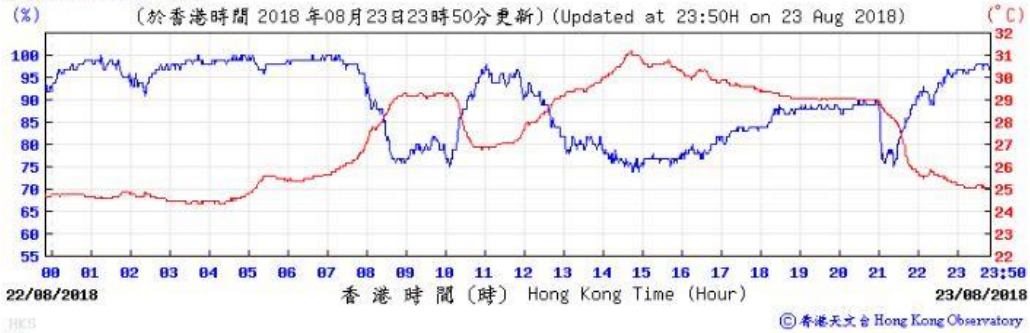
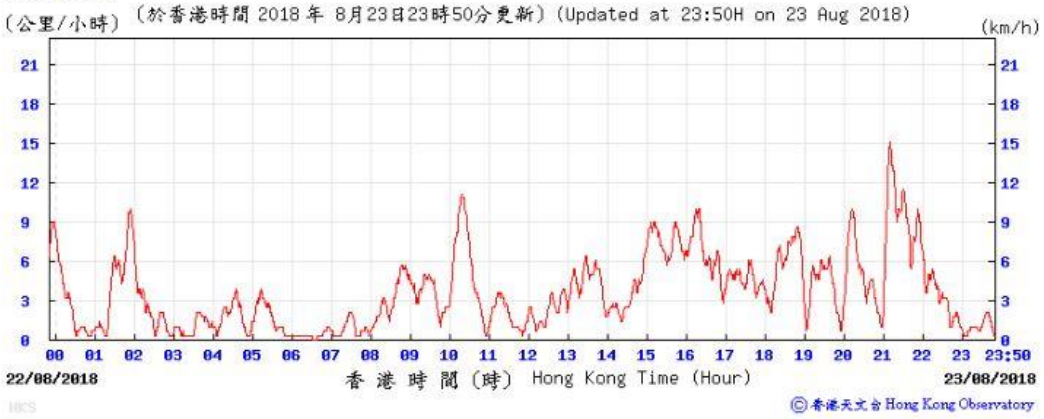


Pressure:

Wind Direction:

Wind Speed:



24/8/2018

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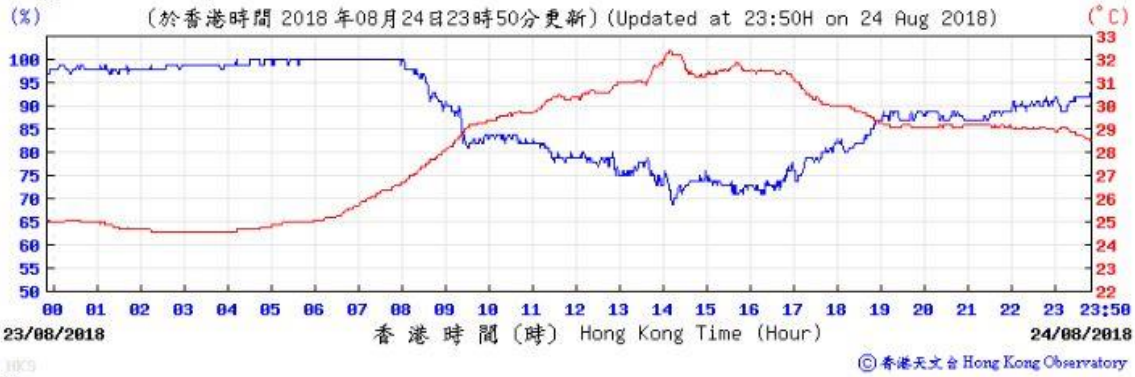
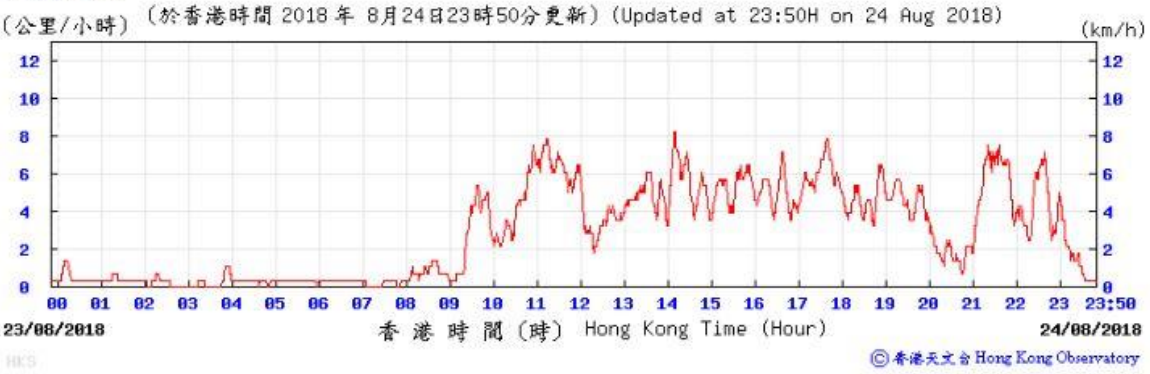


Pressure:

Wind Direction:

Wind Speed:



27/8/2018

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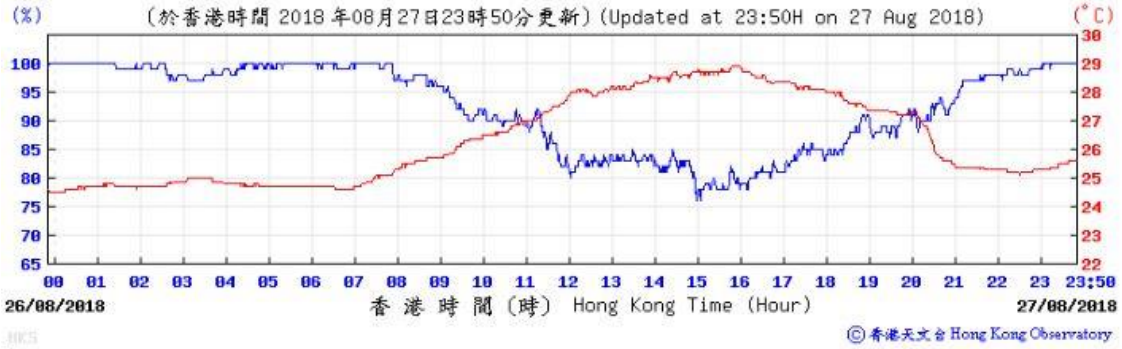
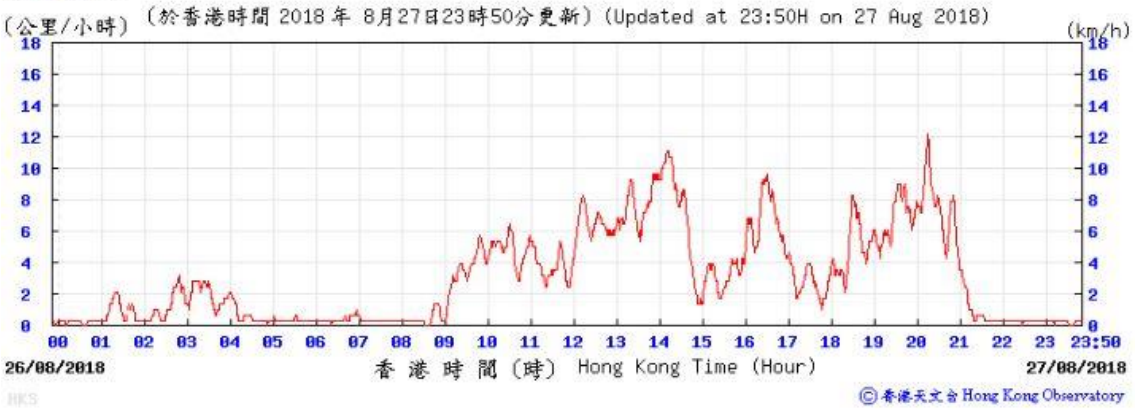


Pressure:

Wind Direction:

Wind Speed:



28/8/2018

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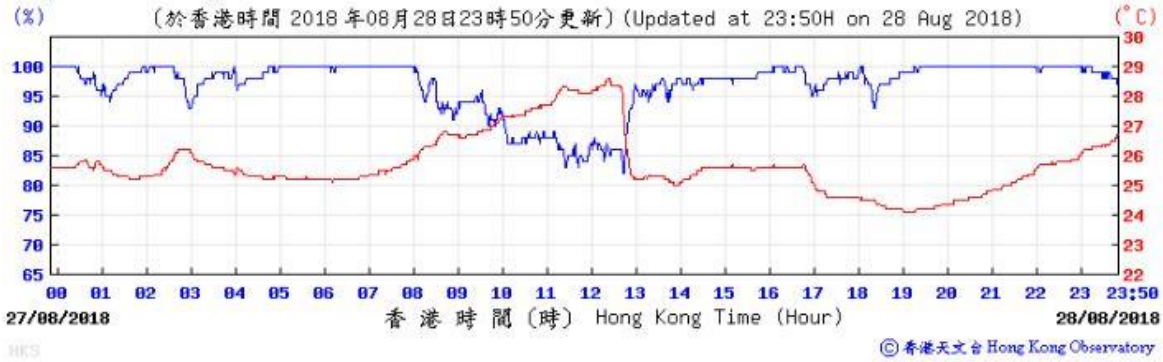
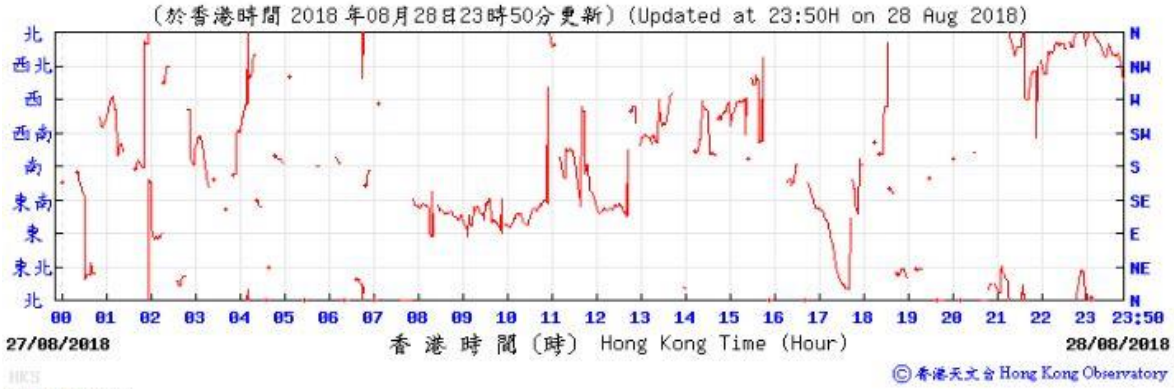
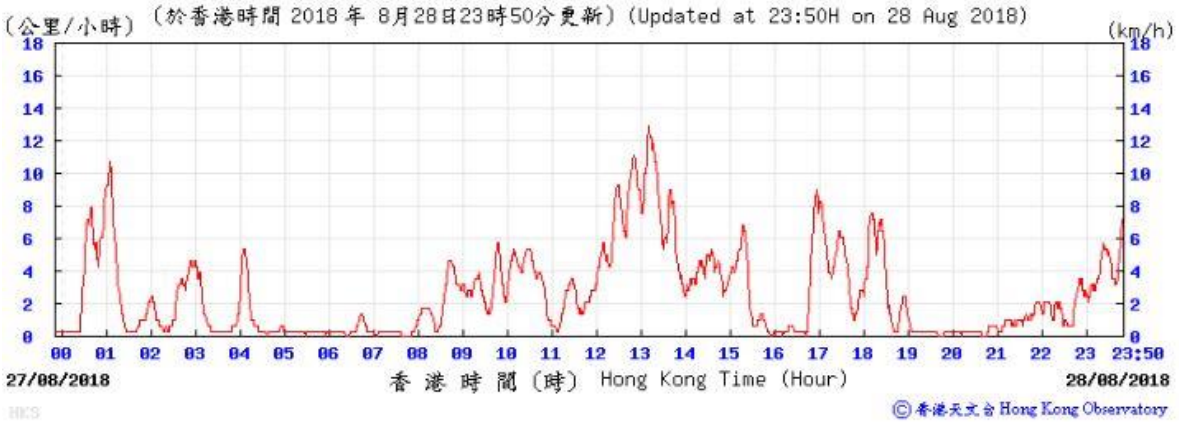


Pressure:

Wind Direction:

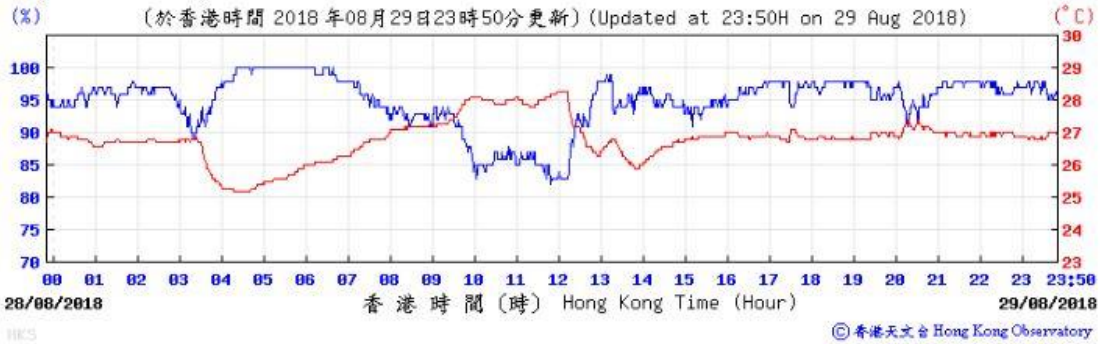


Wind Speed:



29/8/2018

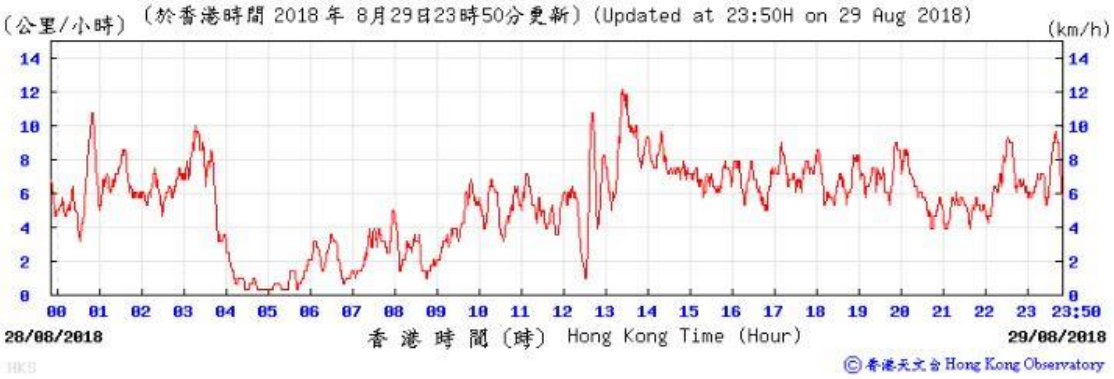
Tempearture/Humidity:



Pressure:

Wind Direction:

Wind Speed:



30/8/2018

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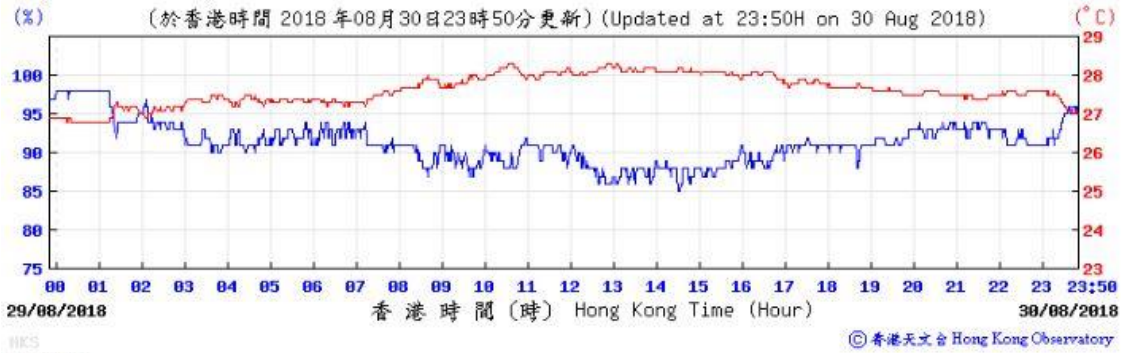
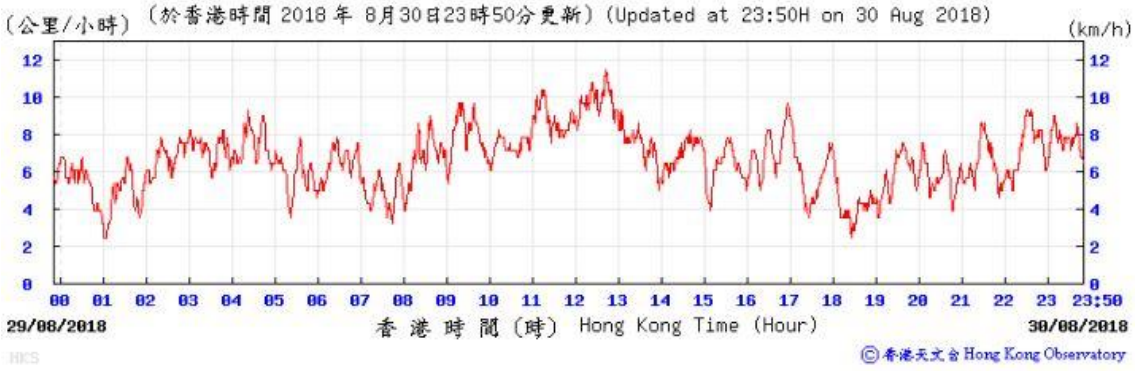


Pressure:

Wind Direction:

Wind Speed:



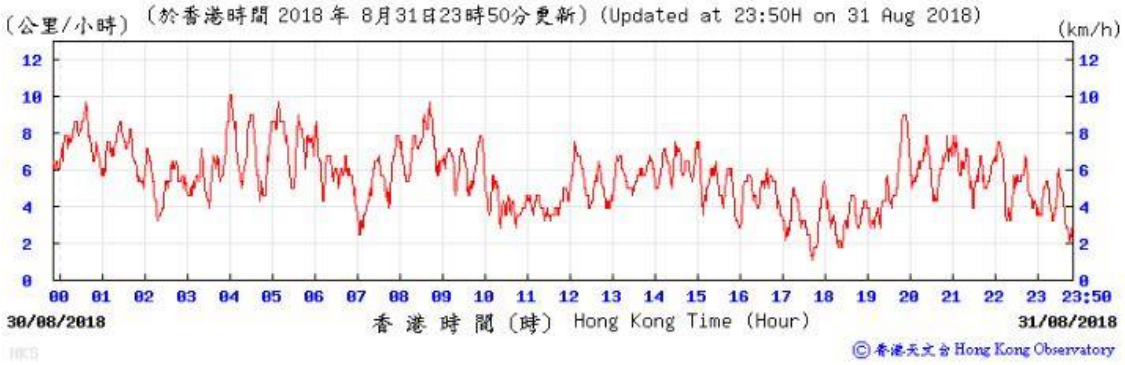
31/8/2018

Tempearture/Humidity:

Pressure:

Wind Direction:

Wind Speed:



L. Ecological Inspection Records

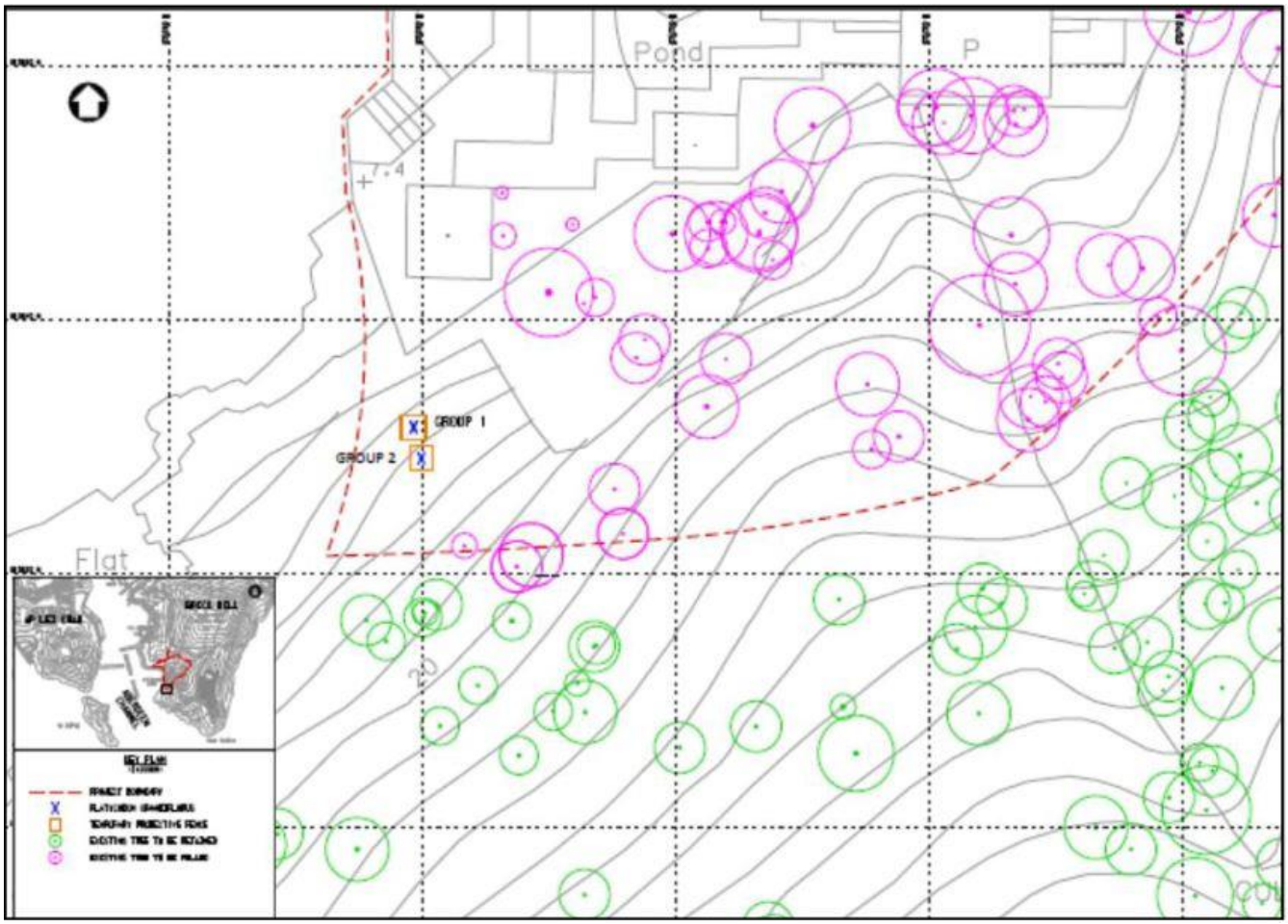


Figure 1 – Location of Two Groups of *Platycodon Grandiforus*

	Photo 1 – Group 1 of *Platycodon Grandiforus*
	Photo 2 – Group 2 of *Platycodon Grandiforus*
	Photo 3 – Current situation of fencing and warning sign

M. Waste Flow Table

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

Monthly Summary Waste Flow Table for 2018 (Year)

Month	Quantity of Inert C&D Materials								Quantity of Non-inert C&D Materials (i.e. C&D Wastes)				
	Generated	Disposed				Reused			Recycled			Disposed	
	Total Quantity Generated	Disposed as Public Fill at CW-PFBP	Disposed as Public Fill at TKO137	Disposed as Public Fill at TM38	Total Quantity Disposal	Reused in the Contract	Reused in other Projects	Total Quantity Reused	*Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	General Refuse
Unit	(Tonne)	(Tonne)	(Tonne)	(Tonne)	(Tonne)	(Tonne)	(Tonne)	(Tonne)	(kg)	(kg)	(kg)	(kg/ L)	(Tonne)
Jan	7573.16	6488.47	430.69	0.00	6919.16	600.00	54.00	654.00	74670.00	0.00	0.00	0.00	134.96
Feb	6413.22	5417.91	495.31	0.00	5913.22	500.00	0.00	500.00	6520.00	91.00	0.00	0.00	95.61
Mar	5196.18	4092.33	358.36	75.49	4526.18	602.00	68.00	670.00	7180.00	271.00	0.00	0.00	234.16
Apr	5322.94	4399.56	411.38	0.00	4810.94	512.00	0.00	512.00	5200.00	231.00	0.00	0.00	163.40
May	3197.41	1701.51	195.90	0.00	1897.41	1300.00	0.00	1300.00	6690.00	101.00	0.00	0.00	287.390
Jun	4511.40	3746.81	404.59	0.00	4151.40	360.00	0.00	360.00	15620.00	315.00	0.00	0.00	223.85
SUB-TOTAL	32214.31	25846.59	2296.23	75.49	28218.31	3874.00	122.00	3996.00	115880.00	1009.00	0.00	0.00	1139.37
Jul	2779.37	2335.98	263.39	0.00	2599.37	180.00	0.00	180.00	100.00	262.00	0.00	200.00	256.12
Aug	2589.30	2131.24	358.06	0.00	2489.30	100.00	0.00	100.00	0.00	546.00	0.00	0.00	262.69
Sep													
Oct													
Nov													
Dec													
TOTAL	37582.98	30313.81	2917.68	75.49	33306.98	4154.00	122.00	4276.00	115980.00	1817.00	0.00	200.00	1658.18

Note:

*Recycled Metals quantity in 2 months (April and June) has been updated in the Reporting Period

N. Implementation Schedule for Environmental Mitigation Measures

Appendix C. Implementation Schedule for Environmental Mitigation Measures

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1]				Relevant Legislation & Guidelines
					Des	Con	Op	Dec	
Cat.1 Key/specific proposed mitigation measure									
Noise Impact (Construction)									
5.7	3.2	**Selecting Quiet Plant** 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								

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
		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