MOTT MACDONALD

Proposed Comprehensive Development at Wo Shang Wai, Yuen Long

Monthly EM&A Report for November 2017

December 2017

Profit Point Enterprises Limited

20/F AIA Kowloon Tower
Landmark East
100 How Ming Street
Kwun Tong
Kowloon
Hong Kong

T +852 2828 5757
F +852 2827 1823
mottmac.hk

72-76/F Two International
Finance Centre,
8 Finance Street,
Central, Hong Kong

Proposed Comprehensive Development at Wo Shang Wai, Yuen Long

Monthly EM&A Report for November 2017

December 2017

Pursuant to Condition 4.5 of Environmental Permit No. EP-311/2008/D, this Monthly EM&A Report for November 2017 has been reviewed, certified by Environmental Team Leader (ETL) and verified by the Independent Environmental Checker (IEC).

Certified by:

Brandon Wong
Environmental Team Leader (ETL)
Mott MacDonald Hong Kong Ltd.

Date 12 Dec. 2017

Verified by:

David Yeung
Independent Environmental Checker (IEC)
Ramboll Environ Hong Kong Limited

Date 15 December 2017

Contents

Tables

Figures

Executive summary

Mott MacDonald Hong Kong Ltd. ("MMHK") has been commissioned by the Contractor, Heng Shung Construction Co. Ltd., to undertake the Environmental Team (ET) services to carry out environmental monitoring and audit (EM&A) for both pre-construction and construction phases of the Proposed Comprehensive Development at Wo Shang Wai, Yuen Long. From August 2016, the Project Proponent, Profit Point Enterprises Limited, commissioned MMHK to continue the ET services.

This is the 91th EM&A report submitted under the Condition 4.5 of Environmental Permit No. EP-311/2008/D. This report summarises the findings on EM&A during the period from 1 to 30 November 2017.

Exceedance of Action and Limit Levels

There was no breach of Action or Limit levels for Air Quality (1-hr TSP and 24-hr TSP) and Noise level (as L_{eq}) in the reporting month.

During November 2017, a total of twenty seven Action Level exceedances for Water Quality were observed. Thirteen Action Level exceedances of pH were recorded at MP3. Seven Action Level exceedances of pH were recorded at MP5. Seven Action Level exceedances of pH were recorded at MP6.

The summary of measured water quality is presented in **Section 3.2.3**.

Investigations have been carried out to identify the causes of exceedance. From investigation, the Contractor has implemented water quality mitigation measures as recommended in the EIA report. With external factors affecting the adjacent environments, such as such as pond fish culture activities, natural variations and growth of water plant in the open ditch, all the recorded exceedances in Water Quality were considered not due to the project construction works.

Implementation of Mitigation Measures

Site audits were carried out on 1, 8, 15, 22 and 29 November 2017 to confirm the implementation measures undertaken by the Contractor in the reporting month. The outcomes are presented in Section 6 and the status of implementation of mitigation measures in the site is shown in Appendix L.

Record of Complaints

There was no record of complaints received in the reporting month.

1 Introduction

1.1 Introduction

In March 2005, the Project Proponent, Profit Point Enterprises Limited, acquired the development site at Wo Shang Wai in Yuen Long. An Environmental Impact Assessment (EIA) was then carried out and approved under the EIA Ordinance (EIAO), and the Environmental Permit (EP-311/2008) for construction of the comprehensive development in Wo Shang Wai was first granted by EPD on 9 September 2008 and has been subsequently varied, with the current version (EP-311/2008/D) issued by EPD on 20 March 2013.

The Project involves the residential development and associated infrastructure and wetland restoration area and linear landscape area. The construction works under the Environmental Permit commenced on 12 May 2010. The site formation construction works of the Wetland Restoration Area (hereafter WRA) were completed on 15 November 2010, while the 30-month establishment period of the WRA was concluded in August 2012 – this indicated that planting works as scheduled in the approved Wetland Restoration and Creation Scheme (WRCS; Nov 2009) was complete, except along the western and southern boundary where the planting is affected by the existing site boundary and noise barrier, and for which a Variation to Environmental Permit (EP-311/2008/C) to defer planting at the location was approved. The current valid EP (EP-311/2008/D) includes specific mitigation measures to minimise certain identified noise impacts during the operation phase.

Mott MacDonald Hong Kong Ltd. ("MMHK") has been commissioned by the Contractor, Heng Shung Construction Co. Ltd., to undertake the Environmental Team (ET) services to carry out environmental monitoring and audit (EM&A) for both pre-construction and construction phases of the Proposed Comprehensive Development at Wo Shang Wai, Yuen Long. From August 2016, the Project Proponent, Profit Point Enterprises Limited, commissioned MMHK to continue the ET services.

According to the EP Condition 4.5, the monthly EM&A Report shall be submitted to the Director within two weeks after the end of the reporting month. This report summarises the findings during the period from 1 to 30 November 2017.

1.2 Project Organization

The organisation chart and lines of communication with respect to the on-site environmental management structure together with the contact information of the key personnel are shown in Appendix A.

1.3 Environmental Status in the reporting period

During the reporting month, construction works of the Project undertaken include:

- Removal of filling materials from site was in progress
- Regular maintenance work for the Wetland Restoration Area (including lowering of the water level and removal of unwanted species in the pond)

The Construction Works Programme of the Project is provided in Appendix B. The general layout plan of the Project site is shown in Figure 1.1.

1.4 Summary of EM&A Requirements

The EM&A programme requires environmental monitoring of air quality, noise, water quality, ecology and landscape and visual as specified in the approved EM&A Manual.

A summary of impact EM&A requirements is presented in **Table 1.1** below:

Table 1.1: Summary of Impact EM&A Requirements

Parameters	Descriptions	Locations	Frequencies
Air Quality	24-Hour TSP	ASR1, ASR2A, ASR3, ASR4	Once every 6 days
	1-Hour TSP	ASR1, ASR2A, ASR3, ASR4	3 times every 6 days
Noise	$L_{eq(30min)}$, L_{90}, L_{10} (dB(A))	NSR1, NSR3, NSR5, NSR7	Weekly
Water Quality	Dissolved Oxygen (DO), temperature, pH, suspended solids (SS) and Biochemical Oxygen Demand (BOD)	MP1 to MP6	3 days per week
Ecology	Birds	Within the Project Area and Assessment Area of 500m	Weekly
	Dragonflies and Butterflies	Within the Project Area and Assessment Area of 500m	Once per month during Mar and Sep to November, and twice per month during Apr to Aug
	Herpetofauna	Within the Project Area and Assessment Area of 500m	Once per month during Apr to Nov
	Water quality of Wetland Restoration Area (WRA)	WRA	After filling of WRA with water, monthly for in situ water quality and every six months (end of wet season and end of dry season) for laboratory testing
	Site Inspections	Within the Project Area and Assessment Area of 500m	Weekly
Landscape and Visual	Auditing of protection of existing trees, the transplanting of existing trees, the creation of new wetland, the planting of new trees and shrubs and other landscape and visual mitigation measures	CM1 to CM10 and OM1 to OM7 within the Project Area	Site inspections once every two weeks during construction phase; once every two months during operational phase

The Environmental Quality Performance Limits for air quality, noise and water quality are shown in Appendix C.

The Event and Action Plan for air quality, noise, water quality and Landscape & Visual are shown in Appendix D.

The monitoring schedule for the reporting month is shown in **Table 1.2** below.

Table 1.2: Environmental Monitoring and Audit Schedule for the Reporting Month

Environmental Monitoring and Audit Schedule for November 2017

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1 Water *	2	3 Water 24-hr TSP 1-hr TSP **Bird**	4
5	6 Water	7 **Bird**	8 Water *	9 24-hr TSP 1-hr TSP Noise Monitoring	10 Water **Bird**	11
12	13 Water	14 **Bird** **Landscape**	15 Water 24-hr TSP 1-hr TSP Noise Monitoring **Water Quality Monitoring** *	16	17 Water **Bird**	18
19	20 Water	21 **Bird** 24-hr TSP 1-hr TSP Noise Monitoring	22 Water **Dragonfly & Butterfly** **Herpetofauna** *	23	24 Water **Bird**	25
26	27 Water 24-hr TSP 1-hr TSP Noise Monitoring	28 **Bird**	29 Water **Water Quality Monitoring** **Landscape** *	30		

* Site Audit by Mott MacDonald (MM)

@ Report Submission (Monthly EM&A Report)

Ecological Surveys & Landscape Audits indicated in **bold font**

2 Impact Monitoring Methodology

2.1 Introduction

For air quality, construction noise and water quality, ecology, landscape and visual monitoring methodology, including the monitoring locations, monitoring equipment used, monitoring parameters, and frequency and duration, etc., are detailed in this Chapter.

2.2 Air Quality

2.2.1 Monitoring Parameters, Frequency and Duration

In accordance with the EM&A Manual, 1-hour and 24-hour TSP levels monitoring are to be conducted during the construction phase. **Table 2.1** summarizes the monitoring parameters, frequency and duration of air quality monitoring.

Table 2.1: Air Quality Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Frequency and Duration
ASR1, ASR2A, ASR3 & ASR4	24-hour TSP	At least once in every six-days
	1-hour TSP	3 times every six-days

2.2.2 Monitoring Locations

The four air quality monitoring stations were established in the EM&A manual and were slightly adjusted during the baseline monitoring phase. Locations of the agreed air quality monitoring stations are listed in **Table 2.2** and as shown in Figure 2.1.

Table 2.2: Air Monitoring Stations

Monitoring Stations	Locations
ASR1	Works Site Boundary
ASR2A	At the rooftop of refuse collection point, which is located at the southwest of the project area
ASR3	At the commercial centre at Palm Springs, which is located at the south of the project area
ASR4	Works Site Boundary

2.2.3 Monitoring Equipment

Continuous 24-hour TSP air quality monitoring is conducted using High Volume Sampler (HVS) (Model: GMWS-2310 Accu-vol). The HVS meets all the requirements of the EM&A Manual. Portable direct reading dust meters were used to carry out the 1-hour TSP monitoring. **Table 2.3** summarizes the equipment used in the impact air quality monitoring.

Table 2.3: TSP Monitoring Equipment

Equipment	Model
24-hr TSP monitoring	
High Volume Sampler	GMWS 2310 Accu-vol
Calibrator	GMW 25

Equipment	Model
1-hr TSP monitoring	
Portable direct reading dust meter	AM510 SidePak Personal Aerosol Monitor

2.2.4 Monitoring Methodology

2.2.4.1 24-hour TSP Monitoring

Installation

The HVS was installed in the vicinity of the air sensitive receiver. The following criteria were considered in the installation of the HVS.

- A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
- The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
- A minimum of two metres separation from walls, parapets and penthouse was required for rooftop sampler.
- A minimum of two metres separation from any supporting structure, measured horizontally was required.
- No furnace or incinerator flues or building vent were nearby.
- Airflow around the sampler was unrestricted.
- The sampler has been more than 20 metres from any drip line.
- Permission was obtained to set up the samplers and to obtain access to the monitoring stations.
- A secured supply of electricity is needed to operate the samplers.

Preparation of Filter Papers

- Glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected.
- All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ±3 °C with relative humidity (RH) < 50% and was not variable by more than ±5%. A convenient working RH was 40%.

Field Monitoring

- The power supply was checked to ensure the HVS works properly.
- The filter holder and the area surrounding the filter were cleaned.
- The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
- The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
- The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges.
- The shelter lid was closed and was secured with the aluminium strip.
- The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
- A new flow rate record sheet was set into the flow recorder.

- The flow rate of the HVS was checked and adjusted at around 1.1 m^3/min. The range specified in the EM&A Manual was between 0.6-1.7 m^3/min.
- The programmable timer was set for a sampling period of 24 hrs + 1 hr, and the starting time, weather condition and the filter number were recorded.
- The initial elapsed time was recorded.
- At the end of sampling, the sampled filter was removed carefully and folded in half-length so that only surfaces with collected particulate matter were in contact.
- It was then placed in a clean plastic envelope and sealed.
- All monitoring information was recorded on a standard data sheet.
- Filters were sent to a HOKLAS accredited laboratory for analysis.

Maintenance and Calibration

- The HVS and its accessories are maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
- HVSs were calibrated at two-month intervals.
- Calibration records for HVSs are shown in Appendix E.

2.2.4.2 1-hour TSP Monitoring

Field Monitoring

The measuring procedures of the 1-hour dust meter are in accordance with the Manufacturer's Instruction Manual as follows:

- Set POWER to "ON", push BATTERY button, make sure that the meter's indicator is in the range with a red line and allow the instrument to stand for about 3 minutes (Then, the air sampling inlet has been capped).
- Push the knob at MEASURE position.
- Push "O-ADJ" button. (Then meter's indication is 0).
- Push the knob at SENSI ADJ position and set the meter's indication to S value described on the Test Report using the trimmer for SENSI ADJ.
- Pull out the knob and return it to MEASURE position.
- Push "START" button.

Maintenance and Calibration

- The 1-hour dust meter would be checked at 3-month intervals and calibrated at 1-year intervals throughout all stages of the air quality monitoring.
- Calibration records for direct dust meters are shown in Appendix E.

2.3 Construction Noise

2.3.1 Monitoring Parameters, Frequency and Duration

Following the requirements in the EM&A Manual for noise, noise monitoring has to be carried out during the construction phase. Continuous noise monitoring for the A-weighted levels $L_{eq(30\ min)}$, L_{10} and L_{90} is undertaken once per every week.

Table 2.4 summarizes the monitoring parameters, frequency and duration of air quality monitoring.

Table 2.4: Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Frequency and Duration
NSR1, NSR3, NSR5, NSR7	$L_{eq(30min)}$, L_{90}, L_{10} (dB(A))	Once every week

2.3.2 Monitoring Locations

The four noise quality monitoring stations were established in the EM&A manual and were slightly adjusted during the baseline monitoring phase. Locations of the agreed noise quality monitoring stations are listed in **Table 2.5** and as shown in Figure 2.2.

Table 2.5: Noise Monitoring Stations

Monitoring Stations	Locations	Type of measurement
NSR1	Noise monitoring equipment was set up near the boundary wall at Palm Springs.	Free-field
NSR3	The monitoring station was located next to the guard house at Palm Springs.	Facade
NSR5	The monitoring station was located within the work site boundary.	Free-field
NSR7	The monitoring station was located near the boundary wall of the house of Mai Po San Tsuen.	Free-field

2.3.3 Monitoring Equipment

Integrating Sound Level Meter will be used for noise monitoring. It is a Type 1 sound level meter capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (L_x). They comply with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1). **Table 2.6** summarizes the noise monitoring equipment model being used.

Table 2.6: Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	Rion NL-52
Calibrator	Larson Davis CAL200

2.3.4 Monitoring Methodology

Field Monitoring

- The Sound Level Meter was set on a tripod at a height of at least 1.2 m above the ground.
- Façade and free-field measurements were made at the monitoring locations.
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - frequency weighting: A
  - time weighting: Fast
  - time measurement: 30 minutes intervals (between 07:00 and 19:00)
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94 dB at 1 kHz. If the difference in the calibration level before and after measurement was more than 1 dB, the measurement would be considered invalid has to be repeated after re-calibration or repair of the equipment.

- During the monitoring period, the L_{eq}, L_{10} and L_{90} were recorded. In addition, any site observations and noise sources were recorded on a standard record sheet.

Maintenance and Calibration

- The microphone head of the sound level meter and calibrator is cleaned with soft cloth at quarterly intervals.
- The meter and calibrator are sent to the supplier or HOKLAS laboratory to check and calibrate at yearly intervals.
- Calibration records are shown in Appendix E.

2.4 Water Quality

2.4.1 Monitoring Parameters, Frequency and Duration

In accordance with the requirements in the EM&A Manual for water quality, water quality parameters including Dissolved Oxygen (DO), temperature, pH, turbidity, suspended solids (SS) and Biochemical Oxygen Demand (BOD) have to be monitored at designated monitoring stations during construction of the Project. DO, temperature and pH were measured in-situ whereas SS and BOD were analysed in a laboratory. The measurements should be taken at all designated monitoring stations, three days per week. The interval between any two sets of monitoring was not less than 36 hours. **Table 2.7** summarizes the monitoring parameters, frequency and duration of water quality monitoring.

Table 2.7: Water Quality Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Frequency and Duration
MP1, MP2, MP3, MP4, MP5 & MP6	DO, temperature, pH, SS, turbidity, BOD	Three days every week

2.4.2 Monitoring Locations

The six water quality monitoring stations were established in the EM&A manual. Locations of the agreed water quality monitoring stations are listed in **Table 2.8** and as shown in Figure 2.3.

Table 2.8: Water Quality Monitoring Stations

Monitoring Stations	Easting	Northing
MP1*	838 730.50	822 862.25
MP2*	838 933.26	823 247.41
MP3	839 107.17	823 596.84
MP4	839 286.14	823 638.55
MP5	839 134.35	823 722.99
MP6	839 063.02	823 842.25

*Note: The water quality impact monitoring at MP1 and MP2 have been terminated since July 2012 due to withdrawal of access right from land owner.

2.4.3 Monitoring Equipment

The Water Quality Monitoring Equipment and Analytical Methods applied to Water Quality Samples are given in **Table 2.9** and **Table 2.10** respectively. Details of which are discussed below.

Table 2.9: Water Quality Monitoring Equipment

Equipment	Model	Equipment/Serial Number
Conductivity, Dissolved oxygen, pH, Salinity and Temperature Measuring Meter, Turbidity	YSI ProDss	16J101715
Global Positioning System (GPS)	Garmin eTrex Vista	ENO 007

Table 2.10: Analytical Methods applied to Water Quality Samples

Determinant, unit	Standard Method
Total Suspended Solids, mg/L	In house method based on APHA 2540D; ALS Method Code: EA-025
Biochemical Oxygen Demand (BOD), mg/L	In house method based on APHA 5210B; ALS Method Code: EP-030

All in-situ monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme before use.

Dissolved Oxygen (DO), Temperature and pH measuring equipment

A portable, weatherproof multiparameter instrument (YSI Professional Plus) was used in the monitoring. It can be capable for measuring dissolved oxygen (DO), pH, and temperature simultaneously with the following limits:

- a dissolved oxygen level in the range of 0-50 mg/L and 0-500 % saturation;
- a temperature of -5 to 45 degrees Celsius; and
- pH value of 0-14 with 0.1 as the base unit.

Turbidity Measurement Instrument

Portable and weatherproof turbidity meter (HACH model 2100Q) was used during impact monitoring. It has a photoelectric sensor capable of measuring turbidity between 0-1000 NTU. Response of the sensor was checked with certified standard turbidity solutions before the start of measurement.

Global Positioning System (GPS)

A hand-held GPS navigator (Garmin eTrex Vista) was used to identify the designated monitoring stations prior to water sampling.

Suspended Solids and BOD Measurements (Sample Containers and Storage)

Water samples for SS analysis were stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4 ºC without being frozen), delivered to the laboratory, and analysed as soon as possible after collection. Analysis was carried out in a HOKLAS accredited laboratory.

2.4.4 Detection Limit

The limits of detection for the in-situ and laboratory measurements are shown in **Table 2.11**.

Table 2.11: Detection Limits for Water Quality Determinants

Determinant	Limit of Detection
Dissolved Oxygen	0.1 mg/L
Temperature	0.1 degree Celsius
pH	0.01 unit
Turbidity	0.1 NTU
Suspended Solids	1 mg/L

Determinant	Limit of Detection
BOD	2 mg/L

2.4.5 Monitoring Methodology

In situ Measurement

All pH meters, DO/temperature meters had been checked and calibrated prior to use. Standard buffer solution of at least two pH levels (either pH 4 and pH 7, or pH 7 and pH 10) had been used for calibration of the instrument before and after use.

DO meters had been calibrated by a laboratory accredited under HOKLAS or any other international accreditation scheme, and subsequently re-calibrated at three-monthly intervals throughout all stages of the water quality monitoring. Responses of sensors and electrodes had been checked with certified standard solutions before each use. Wet bulb calibrations for all DO meters had been carried out before measurement at each monitoring location. For the on-site calibration of field equipment, BS 127:1993, "Guide to field and on-site test methods for the analysis of waters" had been observed.

Measurements shall be at three water depths, namely, 1m below water surface, mid-depth and 1m above stream bed/pond bed, except where the water depth less that 6m, the mid-depth station maybe omitted. Should the water depth be less than 3 m, only the mid-depth station will be monitored.

Replicates in-situ measurements and samples collected from each independent monitoring event are required for all parameters to ensure a robust statistically interpretable dataset.

Water Samples Preparation and Analysis

For collection of water sampling within the water courses, a 500ml clean plastic beaker was used. After collection, the water samples were stored in high-density polythene bottles. The sample container was rinsed with a portion of the water sample. The water sample was then transferred to the container, labelled with a unique sample ID and sealed with a screw cap. The water samples were stored in a cool box maintained at 4 ºC. The water samples were then delivered to a local HOKLAS-accredited laboratory (ALS) on the same day for analysis.

The testing methods of testing parameters as recommended by EIA or required by EPD, with the QA/QC results are in accordance with the requirement of HOKLAS or international accredited scheme.

The calibration certificates for equipment used for in-situ monitoring of water quality are attached in Appendix E.

2.5 Ecology

2.5.1 Monitoring Parameters, Frequency and Duration

Target species and certain other fauna will be monitored within the Project Area and Assessment Area during the wetland and residential construction phase. This will be important to ensure that any unexpected events or impacts either on- or off-site are quickly identified so that remedial action can be taken. The groups to be monitored and frequency of monitoring are shown in **Table 2.12**.

Table 2.12: Summary of Construction Phase Ecological Monitoring for the Wo Shang Wai Wetland Restoration Area (WRA)

Species / Parameter	Construction Phase Ecological Monitoring
Birds	Weekly (including Assessment Area).
Dragonflies and Butterflies	Once per month during March and September to November, and twice per month during April to August.
Herpetofauna	Once per month during April to November.
Water Quality	After filling of WRA with water, monthly for in situ water quality and every six months (end of the wet season and end of the dry season) for laboratory testing.
Site Inspections	Weekly.

2.5.2 Monitoring Locations and Methodology

Ecological monitoring locations during construction phase are shown in Figure 4.1 and the methodology for ecological monitoring is detailed in Section 4.

2.6 Landscape and Visual

2.6.1 Monitoring Parameters, Frequency and Duration

All measures undertaken by both the Contractor and the specialist Landscape Sub-Contractor during the construction phase and first year of the operational phase shall be audited by a Registered Landscape Architect, as a member of the ET, on a regular basis to ensure compliance with the intended aims of the measures. Site inspections should be undertaken at least once every two weeks throughout the construction period and once every two months during the operational phase.

The broad scope of audit is detailed below but should also be undertaken with reference to the more specific checklist provided in **Table 2.13** below. Operational phase auditing will be restricted to the last 12 months of the establishment works of the landscaping proposals and thus only the items below concerning this period are relevant to the operational phase.

- The extent of the agreed works area should be regularly checked during the construction phase. Any trespass by the Contractor outside the limit of the works, including any damage to existing trees and woodland shall be noted;
- 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 existing vegetation, streams and other features within the study area which are not directly affected by the works are retained and protected;
- The methods of protecting existing vegetation proposed by the Contractor are acceptable and enforced;
- Preparation, lifting transport and re-planting operations for any transplanted trees;
- The layout, design and construction of buildings conforms to requirements specified in the EIA report;
- All landscaping works are carried out in accordance with the EIA recommendations and with specifications;
- The planting of new trees, shrubs, groundcover, climbers, grasses and other plans, together with the replanting of any transplanted trees are carried out properly and within the right season;

- All necessary horticultural operations and replacement planting are undertaken throughout the Establishment Period to ensure the healthy establishment and growth of both transplanted trees and all newly establishment plants.

Table 2.13: Construction and Operation Phase Audit Checklist

Area of Works	Items to be Monitored
Works Area	Check the extent of the Works to ensure that the Works Area is not exceeded
Protection of all trees and woodland blocks to be retained	Identification and demarcation of trees / vegetation to be retained, erection of physical protection (e.g. fencing), monitoring against possible incursion, physical damage, fire, pollution, surface erosion, etc.
Streams	Ensure no run-off into existing streams
Clearance of existing vegetation	Identification and demarcation of trees / vegetation to be cleared, checking of extent of works to minimize damage, monitoring of adjacent areas against possible incursion, physical damage, fire, pollution, surface erosion, etc.
Transplanting of trees	Identification and demarcation of trees / vegetation to be transplanted, monitoring of extent of pruning / lifting works to minimize damage, timing of operations implementation of all stages of preparatory and translocation works, and maintenance of transplanted vegetation, etc.
Topsoil stripping	Ensuring existing topsoil is stripped and stored under recognized good practice and is hydroseeded and regularly turned to prevent anaerobic conditions
New buildings	Ensure that building finishes accord with mitigation proposals with regard to colour and albedo.
Boundaries	Ensuring hoarding are erected as required
Noise Barrier	Ensure noise barrier design accords with the mitigation proposals with regard to location, materials and finishes.
Night-time lighting	Ensuring night-time lighting is directional, hooded and shielded away from VSRs
Plant supply	Monitoring of operations relating to the supply of specialist plant material (including the collecting, germination and growth of plants from seed) to ensure that plants will be available in time to be used within the construction works.
Landscape and wetland treatments generally	Check that wetland, and hard / soft landscape designs conform to intent of mitigation measures and agreed designs
Soiling, planting, etc.	Monitoring of implementation and maintenance of soiling and planting works against possible incursion, physical damage, fire, pollution, surface erosion, etc.
Establishment Works	Monitoring of implementation of maintenance operation during Establishment Period

2.6.2 Monitoring Locations

The monitoring locations should check against the mitigation measures proposed under the approved Environmental Impact Assessment, which are summarised as follows in **Table 2.14** and **Table 2.15**:

Table 2.14: Proposed Construction Phase Mitigation Measures

ID No.	Landscape and Visual Mitigation Measures
CM1	The construction area and contractor's temporary works areas should be minimised to avoid impacts on adjacent landscape.
CM2	Screening of construction works by hoardings/noise barriers around Works area in visually unobtrusive colours, to screen Works.
CM3	Reduction of construction period to practical minimum.
CM4	Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where the soil material meets acceptable criteria and where practical. The Contract Specification shall include storage and reuse of topsoil as appropriate.
CM5	Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material (in earth tone).
CM6	Advance screen planting to noise barriers.
CM7	Control night-time lighting and glare by hooding all lights.

ID No.	Landscape and Visual Mitigation Measures
CM8	Ensure no run-off into streams adjacent to Project Area.
CM9	Protection of existing trees on boundary of project area shall be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree protection measures will be detailed at S16 and Tree Removal Application stage).
CM10	Trees unavoidably affected by the works shall be transplanted where practical. Trees should be transplanted straight to their destinations and not held in a nursery. A detailed Tree Transplanting Specification shall be provided in the Contract Specification, if applicable. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme.

Table 2.15: Proposed Operation Phase Mitigation Measures

ID No.	Landscape Mitigation Measures
OM1	Compensatory Tree Planting for all felled trees shall be provided to the satisfaction of relevant Government departments. Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Felling Application process under ETWBTC 3/2006.
OM2	A continuous belt of screen planting along southern perimeter of project area with fast growing tree species. At least 450 trees capable of reaching a height > 10m within 10 years should be planted. Planting of the belt of trees shall be carried out as advance works ahead of other site formation and building works.
OM3	Maximise soft landscape and amenity water bodies in residential areas of the development. Approximately 750 trees (of Heavy Standard size) should be planted. Where space permits, roadside berms should be created. Street trees should be of species that reach a mature height of no less than 15m.
OM4	Maximise freshwater habitat wetland creation consistent with achieving other parameters. Minimum 4.74 ha to be provided. Wetlands must have natural edge profiles with >1m wide emergent zone. No access to the wetland by residents and all wetlands must be screened from residential development by a continuous tree screen at interface with residential development or earth mounding such that disturbance is minimised. Implementation of the wetland shall be carried out as advance works.
OM5	Use appropriate (visually unobtrusive and non-reflective) building materials and colours in built structures.
OM6	During detailed design, refine building layout to create a min. 10m wide gap between buildings north of Wo Shang Wai pond and also two min. 10m wide gaps in the row of buildings adjacent to Royal Palms.
OM7	Streetscape elements (e.g. paving, signage, street furniture, lighting etc.) shall be sensitively designed in a manner that responds to the local context, and minimises potential negative landscape and visual impacts. Lighting units should be directional and minimise unnecessary light spill.

3 Monitoring Results

3.1 Impact Monitoring Schedule

Impact monitoring for air quality (dust), noise and water quality due to the construction work were undertaken during the reporting month in compliance with the EM&A manual in the reporting period. Regular site inspections were carried out on 1, 8, 15, 22 and 29 November 2017 during the reporting month to assess the compliance with environmental requirements.

3.2 Results of Impact Monitoring

3.2.1 Air Quality Monitoring

3.2.1.1 1-hour TSP

Results of 1-hour TSP at the four monitoring locations are summarised in **Table 3.1**. Graphical plots of the monitoring results are shown in Appendix F. The weather conditions in the reporting period are provided in Appendix G.

Table 3.1: Summary of 1-hour TSP Monitoring Results

Monitoring Date	Start Time	1-hr TSP (mg/m^3)			Range (mg/m^3)	Action Level (mg/m^3)	Limit Level (mg/m^3)
		1st Result	2nd Result	3rd Result			
ASR1							
03-Nov-17	08:34	170	186	190			
09-Nov-17	12:41	230	214	216			
15-Nov-17	08:23	186	193	196	170-273	378	500
21-Nov-17	12:36	244	241	239			
27-Nov-17	08:22	263	267	273			
ASR2A							
03-Nov-17	12:47	143	151	156			
09-Nov-17	08:26	183	191	197			
15-Nov-17	12:21	140	146	153	140-248	357	500
21-Nov-17	08:22	180	173	182			
27-Nov-17	12:43	243	246	248			
ASR3							
03-Nov-17	12:39	163	165	170			
09-Nov-17	08:18	198	203	209			
15-Nov-17	12:14	143	151	163	143-247	358	500
21-Nov-17	08:17	181	186	192			
27-Nov-17	12:36	234	247	240			
ASR4							
03-Nov-17	08:27	180	187	193			
09-Nov-17	12:33	210	217	224			
15-Nov-17	08:17	181	173	189	173-274	372	500
21-Nov-17	12:26	240	238	233			
27-Nov-17	08:17	266	268	274			

3.2.1.2 24-hour TSP

Results of 24-hour TSP at the four monitoring locations are summarised in **Table 3.2**. Graphical plots of the monitoring results are shown in Appendix F. The weather conditions in the reporting period are provided in Appendix G.

Table 3.2: Summary of 24-hour TSP Monitoring Results

Monitoring Date	Monitoring Results (mg/m^3)	Range (mg/m^3)	Action Level (mg/m^3)	Limit Level (mg/m^3)
ASR1				
03-Nov-17	68			
09-Nov-17	68			
15-Nov-17	64	59-73	226	260
21-Nov-17	59			
27-Nov-17	73			
ASR2A				
03-Nov-17	74			
09-Nov-17	70			
15-Nov-17	72	69-74	213	260
21-Nov-17	69			
27-Nov-17	69			
ASR3				
03-Nov-17	77			
09-Nov-17	70			
15-Nov-17	73	70-77	205	260
21-Nov-17	71			
27-Nov-17	74			
ASR4				
03-Nov-17	71			
09-Nov-17	73			
15-Nov-17	76	70-76	237	260
21-Nov-17	70			
27-Nov-17	71			

No exceedance of 1-hour and 24-hour TSP (Action or Limit Level) was recorded in the reporting period.

3.2.2 Construction Noise Monitoring

The construction noise monitoring results are summarized in **Table 3.3**. Graphical plots of the monitoring data are shown in Appendix F. The weather conditions in the reporting period are provided in Appendix G.

Table 3.3: Summary of Construction Noise Monitoring Results

Monitoring Date	Start Time	Mean and Range of Noise Levels, dB(A)			Limit Level for L_{eq} (dB(A))
		L_{eq}	L_{10}	L_{90}	
NSR1					
09-Nov-17	08:38	44	47	41	
15-Nov-17	13:03	47	50	44	75
21-Nov-17	08:37	47	49	44	

Monitoring Date	Start Time	Mean and Range of Noise Levels, dB(A)			Limit Level for L_{eq} (dB(A))
		L_{eq}	L_{10}	L_{90}	
27-Nov-17	13:04	51	52	49	
NSR3					
09-Nov-17	09:22	44	46	42	75
15-Nov-17	13:46	47	49	45	
21-Nov-17	09:29	45	47	43	
27-Nov-17	13:42	51	52	49	
NSR5					
09-Nov-17	13:04	52	54	50	75
15-Nov-17	08:26	54	55	52	
21-Nov-17	13:04	51	53	48	
27-Nov-17	09:01	54	56	52	
NSR7					
09-Nov-17	13:47	67	68	65	75
15-Nov-17	09:06	68	70	65	
21-Nov-17	13:41	68	69	66	
27-Nov-17	08:23	68	69	64	

No exceedance (Action/Limit Level) of construction noise was recorded in the reporting period.

3.2.3 Water Quality Monitoring

The water quality monitoring results are summarized in **Table 3.4**. Graphical plots of the monitoring data are shown in Appendix F. The weather conditions in the reporting period are provided in Appendix G.

Table 3.4: Summary of Water Quality Monitoring Results

Monitoring Date	Temp (°C)	pH	Dissolved Oxygen (DO) (mg/L)	DO (%)	Turbidity (NTU)	BOD (mg/L)[1]	Suspended Solids (mg/L)
MP3							
01/11/2017	26.7	**7.8**	7.6	96.0	20.5	6	15
03/11/2017	27.2	**7.7**	7.3	91.2	18.4	4.5	13.5
06/11/2017	25.7	**7.7**	6.9	84.7	23.7	5.5	21
08/11/2017	26.8	**7.7**	7.1	89.0	30.3	5	21.5
10/11/2017	24.6	**7.7**	8.0	95.5	22.3	4	15.5
13/11/2017	21.3	**7.8**	8.6	96.7	25.0	4	25.5
15/11/2017	22.4	**7.7**	8.5	98.1	19.9	4.5	23.5
17/11/2017	24.2	**7.8**	8.2	97.7	21.2	6	22.5
20/11/2017	19.5	**7.8**	8.5	92.4	17.1	7	16.5
22/11/2017	19.9	**7.8**	8.7	94.7	19.1	5	19
24/11/2017	18.5	**7.7**	8.8	93.6	16.6	3	15
27/11/2017	18.5	**7.8**	9.1	97.2	17.9	5	12
29/11/2017	23.6	**7.7**	8.1	95.0	19.6	6	18.5
Action Level	-	<5.5 or >7.5	<6.85	-	>64	-	>65
Limit Level	-	<4.0 or >8.0	<6.65	-	>67	-	>66

Monitoring Date	Temp (ºC)	pH	Dissolved Oxygen (DO) (mg/L)	DO (%)	Turbidity (NTU)	BOD (mg/L)[1]	Suspended Solids (mg/L)
MP4							
01/11/2017	24.0	7.4	7.1	84.3	14.7	2.5	16
03/11/2017	24.5	7.3	7.1	85.4	18.5	7	23.5
06/11/2017	23.0	7.2	7.4	86.2	27.6	4.5	34
08/11/2017	24.4	7.3	7.7	91.9	28.5	4.5	45
10/11/2017	24.1	7.2	7.1	83.9	18.2	3	22.5
13/11/2017	20.8	7.3	8.0	88.8	31.3	4	31.5
15/11/2017	21.9	7.3	7.9	90.8	28.5	3.5	30.5
17/11/2017	23.7	7.4	7.6	90.1	27.5	4	25
20/11/2017	19.0	7.2	7.7	82.6	15.9	6.5	16
22/11/2017	19.4	7.4	7.6	82.5	11.2	<2	10.5
24/11/2017	18.0	7.4	7.8	82.8	9.4	2	7.5
27/11/2017	18.0	7.4	8.2	85.1	29.5	5.5	24
29/11/2017	23.1	7.4	7.0	83.3	34.8	6.5	30
Action Level	-	<5.5 or >7.5	<3.91	-	>60	-	>50
Limit Level	-	<4.0 or >8.0	<3.82	-	>64	-	>53
MP5							
01/11/2017	24.8	7.5	7.6	92.4	16.4	3	15
03/11/2017	25.3	**7.6**	7.1	86.9	16.3	4	17
06/11/2017	23.8	7.5	7.1	84.5	25.5	5	34
08/11/2017	24.9	**7.6**	7.5	91.8	29.6	5	36.5
10/11/2017	25.5	7.5	7.1	86.9	23.3	2.5	22
13/11/2017	22.2	7.5	7.2	81.9	29.4	5	29.5
15/11/2017	23.3	7.5	8.2	96.3	23.6	3.5	35
17/11/2017	25.1	**7.6**	7.2	86.9	21.4	4.5	31.5
20/11/2017	20.4	**7.6**	8.1	90.3	16.6	5	16
22/11/2017	20.8	**7.6**	7.9	88.5	14.3	2.5	13.5
24/11/2017	19.4	7.5	7.7	84.1	15.3	2	7.5
27/11/2017	19.4	**7.6**	8.5	93.0	25.5	5.5	22.5
29/11/2017	24.5	**7.6**	7.1	85.5	26.3	5.5	25
Action Level	-	<5.5 or >7.5	<4.13	-	>81	-	>66
Limit Level	-	<4.0 or >8.0	<3.87	-	>84	-	>69
MP6							
01/11/2017	24.8	7.5	7.4	89.6	16.7	3	15.5
03/11/2017	25.3	**7.6**	6.7	82.5	16.7	3.5	16
06/11/2017	23.8	7.5	7.1	84.0	26.4	6	35
08/11/2017	24.9	**7.6**	6.6	80.0	30.1	4	37.5
10/11/2017	25.6	7.5	6.7	82.7	23.8	2.5	19
13/11/2017	22.3	7.5	6.9	79.1	27.9	6.5	27.5
15/11/2017	23.4	7.5	7.7	91.0	23.3	3	33
17/11/2017	25.2	**7.6**	6.5	79.5	22.9	6	35
20/11/2017	20.5	**7.6**	7.6	85.2	17.1	4	16
22/11/2017	20.9	**7.6**	7.4	83.2	14.4	3	14

Monitoring Date	Temp (ºC)	pH	Dissolved Oxygen (DO) (mg/L)	DO (%)	Turbidity (NTU)	BOD (mg/L)(1)	Suspended Solids (mg/L)
24/11/2017	19.5	7.5	7.9	86.2	15.2	2.5	11.5
27/11/2017	19.5	**7.6**	8.5	92.7	26.2	5	20.5
29/11/2017	24.6	**7.6**	7.1	85.7	27.1	5.5	23.5
Action Level	-	<5.5 or >7.5	<4.61	-	>94	-	>75
Limit Level	-	<4.0 or >8.0	<4.52	-	>96	-	>75

Notes:
(1) "<2": Value is too low to indicate (<2mg/L).
(2) Values in **Bold** indicate Action Level exceedance.
(3) Values **Underlined and in Bold** indicate Limit Level exceedance.

3.2.3.1 Exceedance Investigation and Findings

During November 2017, a total of twenty seven Action Level exceedances for Water Quality were observed. Thirteen Action Level exceedances of pH were recorded at MP3. Seven Action Level exceedances of pH were recorded at MP5. Seven Action Level exceedances of pH were recorded at MP6.

The Event and Action Plan in Appendix D was followed under these cases of exceedances.

From investigation, removal of filling materials from site and regular maintenance work for the Wetland Restoration Area (including lowering of the water level and removal of unwanted species in the pond) were undertaken.

Based on the recent site observations carried out by ET, the Contractor implemented the following water quality mitigation measures as recommended in EIA report which include:

- Temporary drainage channels were provided to collect the surface runoff generated within the project site; and
- Installation of barrier at the drainage channels to intercept site runoff and pump the wastewater to the sedimentation tanks as primary treatment prior to treatment by wastewater treatment facilities (AquaSed), which will ensure all site runoff is treated to satisfactory quality before discharging into the northern ditches.

Exceedances of pH at MP3

Exceedances of the Action Level of pH were observed on 1, 3, 6, 8, 10, 13, 15, 17, 20, 22, 24, 27 and 29 November 2017 at MP3.

As understood, the fish pond near the site (represented by MP3) is separated from the open ditch by the pond bund (since commencement of construction phase EM&A monitoring in May 2010) and from the construction site by the WRA (since it was completed in November 2010). No direct discharge from the project site to the fish pond was observed.

Mitigation measures for water quality protection, including the provision of wastewater treatment facilities (including sedimentation tank and AquaSed) and proper drainage system that separates from the WRA, have been implemented. No adverse impact on the fish pond near the site was observed, including on those days with exceedance of water quality parameters. According to the results of baseline water quality monitoring conducted prior to the commencement of construction works, the pH recorded at MP3 ranged from 7.7 to 8.6. The recorded pH exceedances (7.7 to 7.8) are therefore considered to be very close to / within the range of natural variations at this location.

It is concluded that the exceedances of pH at MP3 were possibly due to natural variations and external factors such as pond fish culture activities in the fish pond represented by MP3, which are not related to project construction activities.

Exceedance of pH at MP5 and MP6

During the reporting month, Action Level exceedance of pH were observed on 3, 8, 17, 20, 22, 27 and 29 November 2017 at MP5 and Action Level exceedance of pH were observed on 3, 8, 17, 20, 22, 27 and 29 November 2017 at MP6.

For the pH exceedances at MP5 and MP6, it is noted that the pH levels recorded were very similar. As noted above, the open ditch (represented by MP4, MP5 and MP6) is separated from the fish pond near the site (represented by MP3) by the pond bund. It is possible that the pH level exceedances were due to localised natural variations affecting the vicinity of the open ditch in general.

During the reporting month, there were no construction works with the potential to cause adverse water quality impacts. Hydroseeding and paving with rocks were applied by the Contractor to minimise generation of muddy site runoff during rainy periods.

In addition, during the regular weekly site inspections the site effluent was generally effectively treated by the AquaSed system and discharged from the site at a low, controlled rate during the reporting month.

Conclusion

As a result, the abovementioned exceedance(s) were unlikely to be due to the construction works and therefore not considered to be related to the project.

4 Ecological Monitoring

4.1 Monitoring of Birds

This report documents surveys conducted in the Survey Area between 1 and 30 November 2017. The Wetland Restoration Area (WRA) is also surveyed as the area is accessible and site formation works for WRA has been completed. The updated survey transect is provided in Figure 4.1. Dates and ecological surveys conducted during this period are summarised in Appendix H.

Monitoring was undertaken following the survey methodology in the EM&A Manual. A transect was followed in the bird surveys (see Figure 4.1). All bird species were identified to species and all bird species of conservation importance and/or wetland dependent were enumerated and recorded to the habitats in which they were observed. Flying birds were not recorded unless they were foraging and/or associated with the habitat (such as swifts). Further, notable bird observations during other surveys were also recorded.

Bird surveys were conducted on a weekly basis. A total of 38 bird species was recorded in the Survey Area (excluding the WRA), 22 of which were species of conservation importance and/or wetland-dependence. Within the WRA, 37 bird species were recorded, 18 of which were species of conservation importance and/or wetland-dependence including two of the target species (i.e. Little Egret and Chinese Pond Heron). The WRA continues to attract a number of species of conservation importance, including Little Grebe, *Tachybaptus ruficollis*, Grey Heron, *Ardea cinereal*, Black-crowned Night Heron, *Nycticorax nycticorax*, Yellow Bittern, *Ixobrychus sinensis*, Black Kite, *Milvus migrans* and White-throated Kingfisher, *Halcyon smyrnensis*. Little Grebe, Black-crowned Night Heron, Yellow Bittern and White-throated Kingfisher are listed by Fellowes et al. as of “Local Concern” in 2002. Grey Heron is listed by Fellowes et al. “Potential Regional Concern” in 2002. Black Kite is listed by Fellowes et al. as of “Regional Concern” in 2002.

In addition to wetland-dependence birds, the WRA also attracts a number of terrestrial birds including Greater Coucal, *Centropus sinensis* which is listed as vulnerable (VU) in the China Red Data Book and it is protected under terrestrial wildlife state protection (category II). Survey findings indicate that the WRA not only provides important habitat for wetland-dependence birds but also the terrestrial birds.

A summary of survey data is provided in Appendix I.

4.2 Monitoring of Herpetofauna

One day time herpetofauna survey was conducted in the period. No amphibian species and no reptile species were recorded in the Survey Area (excluding the WRA). Within the WRA, no amphibian species and one reptile species were recorded during regular survey. One unidentified snake species was recorded within the WRA during additional survey.

A summary of the survey findings is provided in Appendix J.

4.3 Monitoring of Dragonflies and Butterflies

Odonates and butterflies surveys were conducted once during the reporting month according to the EM&A Manual. No odonata species and no butterfly species were recorded in the Survey

Area (excluding the WRA) during the regular survey. Within the WRA, one odonates species was recorded while one butterfly species was recorded during the regular survey.

A summary of the survey findings is provided in Appendix J.

4.4 Monitoring of Mammals

Monitoring of mammals was conducted concurrently with other surveys. No mammal species was recorded in the Survey Area (excluding the WRA) nor within the WRA during the regular survey. Two unidentified bat species were recorded within the WRA during additonal night survey.

A summary of the survey findings is provided in Appendix J.

4.5 Monitoring of Water Quality

The pH of Cell 1, Cell 2 and Cell 3 reached the Action Level on 15 November 2017. The monitoring frequency of pH will be doubled.

Monitoring data are presented in Appendix K. Locations for the monitoring of water quality for the ecological monitoring are shown in Figure 4.2.

4.6 Management Activities

4.6.1 Vegetation Management

Removal of exotic vegetation in all cells was undertaken; these removals included but were not limited to *Ipomoea* sp*., Mikania* sp., *Mimosa* sp., *Pennisetum* sp*.* and *Typha* sp..

Vegetation management activities undertaken at the site primarily involved watering of plants, weeding and grass cutting.

4.6.2 Wildlife Management

Removal of Golden Apple Snail was undertaken on an “as-seen” basis.

All sighted Red Fire Ant nests were treated with approved pesticide.

Mitigation actions have been taken in the WRA during the survey period to increase the WRA utilization by birds, including:

1. Controlling the vegetation at Cell 1, Cell 3 and Cell 4.

4.7 Summary

Ecological monitoring during November 2017 was carried out according to the survey methodology and frequency outlined in the EM&A Manual.

Summary of survey findings is listed in **Table 4.1** below:

Table 4.1: Summary of Ecological Monitoring in WRA and Survey Area under EM&A Manual

Species	Survey Area (excluding WRA)	WRA
Birds (total)	38	37
Birds (of conservation importance and/or wetland-dependence)	22	18
Amphibians	0	0

Species	Survey Area (excluding WRA)	WRA
Reptiles	0	2
Mammals	0	2
Odonatas	0	1
Butterflies	0	1

Survey findings indicate that the ponds within the Survey Area supported numbers and diversity of wetland-dependent birds typical of fish pond areas. The WRA continues to attract wetland dependent fauna and serves as a buffer between the residential portion and the fishponds in the north.

5 Landscape and Visual

5.1 Site Inspections

The EM&A programme for Landscape and Visual impact due to the construction commenced in June 2010 and continued during the reporting period. Site inspections on Landscape and Visual impact were carried out on 14 and 29 November 2017 to confirm the implementation of mitigation measures at the construction stage.

The Event and Action Plan for Landscape & Visual is shown in Appendix D.

5.2 Construction Phase Audit Summary

The audit was undertaken with references to the specific checklists provided in **Table 2.13 – Table 2.15** and audit results are summarized below in **Table 5.1**. Representative photos showing the implementation of mitigation measures are presented in Appendix M.

Table 5.1: Construction and Operation Phase Audit Summary

Area of Works	Items of be Monitored
Works Area	The boundaries of the works area have been established on site in accordance with the contract documents and approved plans (EP), and the limit of current heavy construction activity is now confined to within the site hoardings (North side of the site / access road) and the noise barriers (other sides of the site). Minor works such as horticultural maintenance of the planting and transplanted trees, and boundary fence repair was proceeding along the Royal Palms – Palm Springs boundary. (**Appendix M** Photo 1 – **Table 2.14** CM2 refers) No construction works were observed to have exceeded the site boundaries. No construction was carried out at the wetland restoration area after 15 November 2010.
Protection of all trees and woodland blocks to be retained	Trees retained within the site along the northeast boundary, beside wetland restoration area, have been identified and protected by temporary protective fencing.
Streams	The works site is partly encircled by a berm / perimeter channel to intercept surface water and prevent it from washing off into any of the neighbouring sites. Surface water is collected within the site in a temporary drainage channel. Gravels beds and barriers have been installed to filter site runoff, sedimentation ponds have been provided to enable primary treatment before discharge to mains drains.
Clearance of existing vegetation	Site clearance was completed prior to the commencement of construction.
Transplanting of trees	Tree transplanting has been completed, with the trees relocated to various points within the planting strip along the southern boundary of the site, outside the noise barrier. The trees continue to re-establish well.
Topsoil stripping	Suitable pond bund and soil material which had been excavated and stockpiled from the original site, has now been re-used within the landscape works. Dust suppression measures are active along all internal site access tracks.
New buildings	No new permanent buildings have yet been constructed on site.
Boundaries	Hoardings have been erected along most of the boundaries of the site. Installation of new screen fence between the future residential sites and the constructed wetland restoration areas is complete. Fence has been painted green to match with the surrounding vegetated environment. (Appendix M Photo 1 – **Table 2.14** CM2 refers)
Noise Barrier	Noise barriers have been installed along the southern and western boundaries of the site in accordance with the contract requirements. Their design complies with the mitigation requirements, with upper 6 to 7m portion of the barrier being made from a translucent material with green tinted (to match with the environment). Supporting GMS structure, likewise, has been painted green. (Appendix M Photo 3 – **Table 2.14** CM6 refers). Repair or replacement of the broken panels is recommended.
Night-time lighting	No night-time works were reported to have been carried out during the monitoring period.
Landscape and wetland treatments generally	Continuous belt of screen planting along the southern and western boundaries of the site has been completed. The formation, soiling and water control structures of the wetland restoration area have been completed. (Appendix M Photo 3 – **Table 2.14** CM6 refers)

Area of Works	Items of be Monitored
	The wetland areas are being established, with the ponds are being seasonally filled with rain water. Planting of areas around the WRA cells is complete. No construction was carried out at the wetland restoration area after 15 November 2010. (Appendix M Photo 2 – **Table 2.14** CM2 refers)
Soiling, etc.	The soiling for the advance planting strip has been completed. The soil placement and grading for each of the wetland restoration areas has been completed.
Plant supply	The plant material used in the Advance Planting Strip and in the WRA are all commonly available species and came from commercial sources. Transplanted reeds (*Phragmites australis*) at the wetland habitat came from the temporary holding nursery onsite.
Planting	The tree species are all from the approved list. Some of the trees that were identified as dead in the previous month or having defects (i.e. extensive bark damage, cavities, fungal growths, etc.) still need to be replaced with new specimens. Some of the recently planted trees are still in poor condition. These trees are under close monitoring. If the condition of these trees continues to deteriorate, tree replacement will be required. Seedling trees and shrubs, have been established at the margins of the wetland cells. Some additional fill-in planting has been undertaken. Some unplanned invasive vegetation has been cleared, which needs to be carried out on a regular basis.
Establishment Works	The advance planting, the compensatory planting and transplanted trees are generally being maintained by the landscape sub-contractor in accordance with the specification to ensure that the contract requirements are met, although treatment of damaged / defective trees needs urgent attention. Some trees are in poor health condition. Close monitoring for those trees are recommended. Regular weeding for over-grown shrub is recommended. Removal of trees with broken trunk is recommended due to typhoon. Pest control measures such as application of termiticide is required to eradicate any pest infestation. Removal of termite by treatment and keep close monitoring on the tree is recommended. Removal of extensive growth of weeds and invasive climbers in the space behind screen noise barrier needs to be undertaken on a monthly basis as they may be inhibiting the advance planting. Climbers were still found on shrub plantings and railing, and should be cleared immediately. Regular horticultural maintenance (grass cutting, weeding, watering etc.) in the shrubs and tree seedling areas around the WRA cells is being undertaken. The growth of shrubs / seedlings on the north side of WRA remains fair, with some of the shrub planting requiring pruning to avoid obstruction to the access path. Removal of broken branch from adjacent property is recommended.

6 Environmental Site Inspection and Audit

6.1 Site Inspection

The ET had carried out construction phase weekly site inspections on 1, 8, 15, 22 and 29 November 2017. All observations have been recorded in the site inspection checklist and passed to the Contractor together with the appropriate recommended mitigation measures where necessary. The key observations from site inspections and associated recommendations are summarized in **Table 6.1**.

Table 6.1: Summary of Site Inspections and Recommendations

Key Observations	ET Recommendation	Contractor's Responses / Action(s) Undertaken	Close-out (Date)
Some remaining dead tree branches were observed near drainage channel. (8 November 2017)	The contractor was reminded to clear the tree branches as soon as possible.	Agreed and followed up	22 November 2017
A new excavator with no NRMM label was observed on site. (8 November 2017)	The contractor was reminded to display the NRMM label on the excavator.	Agreed and followed up	15 November 2017
A breaker without NRMM label was observed on site. (22 November 2017)	The contractor was reminded to provide the NRMM label for the breaker.	Agreed and followed up	6 December 2017
No Environmental Permit was displayed at the new site entrance. (29 November 2017)	The contractor was reminded to ensure the Environmental Permit is displayed conspicuously at all vehicle site entrance.	Agreed and followed up	6 December 2017
Loose general refuse was observed at site entrance. (29 November 2017)	The contractor was reminded to clear the general refuse as soon as possible.	Agreed and action to be taken	On-going

6.2 Solid and Liquid Waste Management Status

The Contractor has been registered as a chemical waste producer for the Project. Construction and demolition (C&D) material sorting was carried out on site. A sufficient number of receptacles were available for general refuse collection.

As advised by the Contractor, 50.7 tonne C&D waste was generated on site and disposed of at landfill during the period. 1 kg of metals was generated and collected by registered recycling collector. 1 kg of paper/cardboard packing and 1 kg of plastic was generated on site and collected by registered recycling collector. No chemical waste was generated and collected by licensed chemical waste collector. 2 kg of other types of wastes (e.g. general refuse) was generated on site and disposed of at public landfill facility.

The Contractor is advised to maintain on site waste sorting and recording system and maximize reuse / recycling of C&D wastes, whenever these are generated.

6.3 Status of Environmental Licences and Permits

The environmental permits, licenses, and/or notifications on environmental protection for this Project which were valid during the reporting period is summarised in **Table 6.2**.

Table 6.2: Status of Environmental Submissions, Licenses and Permits

Statutory Reference	Description	Permit/Reference No.	Status
EIAO	Environmental Permit	EP-311/2008/D	Valid
APCO	Notification of Construction Work under APCO	316688 (27 Apr 2010)	Valid
WPCO	Discharge License	WT00022647-2015 (8 Oct 2015)	Valid
WDO	Registration as Chemical Waste Producer	WPN0000-542-H3083-04	Valid
WDO	Bill Account for Disposal	700945423	Valid

Legend: EIAO – Environmental Impact Assessment Ordinance; APCO – Air Pollution Control Ordinance; WPCO – Water Pollution Control Ordinance; WDO – Waste Disposal Ordinance

6.4 Recommended Mitigation Measures

The EM&A programme followed the recommended mitigation measures in the EM&A Manual. The EM&A requirements as well as the summary of implementation status of the environmental mitigation measures are provided in Appendix L. In particular, the following mitigation measures were brought to attention during the site audits.

Air Quality

- Dark smoke emission from equipment/plant should be avoided.

Water Quality

- Site effluent should be discharged in accordance with discharge licence.
- The site should be confined and properly maintained to avoid silt runoff.

Waste Management

- The chemical waste storage area should be clearly labelled.
- General refuse should be stored in enclosed bins or compaction units separate from C&D and chemical wastes.

7 Report on Non-compliance, Complaints, Notifications of Summons and Successful Prosecutions

7.1 Record of non-compliance of Action and Limit Levels

There was no breach of Action or Limit Levels for Air Quality and Noise monitoring in the reporting month.

During November 2017, a total of twenty seven Action Level exceedances for Water Quality were observed. Thirteen Action Level exceedances of pH were recorded at MP3. Seven Action Level exceedances of pH were recorded at MP5. Seven Action Level exceedances of pH were recorded at MP6.

A summary is presented in **Table 7.1** below.

Table 7.1: Summary of Exceedances in Water Quality

Monitoring Date	pH	Dissolved Oxygen (DO) (mg/L)	Turbidity (NTU)	Suspended Solids (mg/L)
MP3				
01/11/2017	**7.8**	7.6	20.5	15
03/11/2017	**7.7**	7.3	18.4	13.5
06/11/2017	**7.7**	6.9	23.7	21
08/11/2017	**7.7**	7.1	30.3	21.5
10/11/2017	**7.7**	8.0	22.3	15.5
13/11/2017	**7.8**	8.6	25.0	25.5
15/11/2017	**7.7**	8.5	19.9	23.5
17/11/2017	**7.8**	8.2	21.2	22.5
20/11/2017	**7.8**	8.5	17.1	16.5
22/11/2017	**7.8**	8.7	19.1	19
24/11/2017	**7.7**	8.8	16.6	15
27/11/2017	**7.8**	9.1	17.9	12
29/11/2017	**7.7**	8.1	19.6	18.5
Action Level	<5.5 or >7.5	<6.85	>64	>65
Limit Level	<4.0 or >8.0	<6.65	>67	>66
MP5				
01/11/2017	7.5	7.6	16.4	15
03/11/2017	**7.6**	7.1	16.3	17
06/11/2017	7.5	7.1	25.5	34
08/11/2017	**7.6**	7.5	29.6	36.5
10/11/2017	7.5	7.1	23.3	22
13/11/2017	7.5	7.2	29.4	29.5
15/11/2017	7.5	8.2	23.6	35
17/11/2017	**7.6**	7.2	21.4	31.5
20/11/2017	**7.6**	8.1	16.6	16
22/11/2017	**7.6**	7.9	14.3	13.5

Monitoring Date	pH	Dissolved Oxygen (DO) (mg/L)	Turbidity (NTU)	Suspended Solids (mg/L)
24/11/2017	7.5	7.7	15.3	7.5
27/11/2017	**7.6**	8.5	25.5	22.5
29/11/2017	**7.6**	7.1	26.3	25
Action Level	<5.5 or >7.5	<4.13	>81	>66
Limit Level	<4.0 or >8.0	<3.87	>84	>69
MP6				
01/11/2017	7.5	7.4	16.7	15.5
03/11/2017	**7.6**	6.7	16.7	16
06/11/2017	7.5	7.1	26.4	35
08/11/2017	**7.6**	6.6	30.1	37.5
10/11/2017	7.5	6.7	23.8	19
13/11/2017	7.5	6.9	27.9	27.5
15/11/2017	7.5	7.7	23.3	33
17/11/2017	**7.6**	6.5	22.9	35
20/11/2017	**7.6**	7.6	17.1	16
22/11/2017	**7.6**	7.4	14.4	14
24/11/2017	7.5	7.9	15.2	11.5
27/11/2017	**7.6**	8.5	26.2	20.5
29/11/2017	**7.6**	7.1	27.1	23.5
Action Level	<5.5 or >7.5	<4.61	>94	>75
Limit Level	<4.0 or >8.0	<4.52	>96	>75

Notes:
(1) "<2": Value is too low to indicate (<2mg/L).
(2) Values in **Bold** indicate Action Level exceedance.
(3) Values **Underlined and in Bold** indicate Limit Level exceedance.

7.2 Record on Environmental Complaints Received

No environmental complaint was received during the reporting month.

7.3 Record on Notifications of Summons and Successful Prosecution

No notifications of summons or successful prosecution were received the reporting month.

7.4 Review of Reasons for and Implications of Non-compliance, Complaints, Summons and Prosecutions

Non-compliance

Investigations have been carried out to identify the causes of the water quality exceedances.

The investigation findings are presented in **Section 3.2.3.1**. It was concluded that the abovementioned exceedances were unlikely to be due to the construction works and therefore not considered to be related to the project.

Complaints, Summons and Prosecutions

Not applicable for this reporting month.

7.5 Follow-up Actions Taken

Non-compliance

As non-compliances have been recorded, the Event and Action Plan has been followed. Although it is considered that the exceedances were not related to the Project, the Contractor was reminded to implement the water quality mitigation measures in accordance with the recommendation stated in Section 5.6.1 – 5.6.4 of the EIA Report as far as practicable and regular spot check would be conducted on the nearby discharge by Contractor and inform ET for investigation.

Complaints, Summons and Prosecutions

Not applicable for this reporting month.

7.6 Cumulative Statistics for Complaints, Notifications of Summons and Successful Prosecutions

Cumulative statistics for complaints, notifications of summons and successful prosecutions for the Project account for period starting from the date of commencement of construction (i.e. 12 May 2010) to the end of the reporting month and are summarized in **Table 7.2** below.

Table 7.2: Statistics for Complaints, Notifications of Summons and Successful Prosecution

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Successful Prosecutions
This reporting month (November 2017)	0	0	0
From 12 May 2010 to end of the reporting month (November 2017)	8	0	0

8 Future Key Issues

8.1 Site Preparatory Works and Construction Works for the Coming Month

The major site works to be commissioned in the coming month include:

- Site formation
- Regular maintenance work for the Wetland Restoration Area (including lowering of the water level and removal of unwanted species in the pond)

8.2 Key Issues for the Coming Months

Key issues to be considered in the coming three months include:

- Provision of water spraying or dust suppression chemical to prevent generation of dust from activities on-site and the haul road during dry weather conditions;
- Provision of wheel washing facilities at vehicle exit point;
- Generation and treatment of site surface runoffs and wastewater from activities on-site and during wet weather conditions;
- Sorting, recycling, storage and disposal of general refuse and construction waste from activities on-site; and
- Management of chemicals and avoidance of oil spillage on-site and to the drainage system.

8.3 Monitoring Schedule for the Coming Month

The environmental site inspection and environmental monitoring will be continued in the coming month. Impact monitoring for air, noise, water quality, ecology and landscape and visual in accordance with the approved EM&A Manual has commenced since 12 May 2010. The tentative monitoring schedule for December 2017 is shown in the **Table 8.1**.

Table 8.1: Tentative Environmental Monitoring and Audit Schedule for the Next Reporting Month

Environmental Monitoring and Audit Schedule for December 2017

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1 Water 24-hr TSP 1-hr TSP Noise Monitoring	2
3	4 Water	5 **Bird**	6 Water *	7 24-hr TSP 1-hr TSP Noise Monitoring	8 Water	9
10	11 Water	12 **Bird**	13 Water 24-hr TSP 1-hr TSP Noise Monitoring *	14	15 Water **Landscape**	16
17	18 Water	19 **Bird** 24-hr TSP 1-hr TSP Noise Monitoring	20 Water *	21	22 Water 24-hr TSP 1-hr TSP	23
24	25 Christmas Day	26 The first weekday after Christmas Day	27 Water *	28 24-hr TSP 1-hr TSP Noise Monitoring	29 Water **Landscape** **Bird**	30
31						

* Site Audit by Mott MacDonald (MM)

@ Report Submission (Monthly EM&A Report)

Ecological Surveys & Landscape Audits indicated in **bold font**

8.4 Conclusions and Recommendations

8.4.1 Conclusions

The EM&A programme as recommended in the EM&A manual has been undertaken in the reporting month since 12 May 2010.

Monitoring of Air Quality, Noise, Water Quality, Ecology and Landscape and Visual impacts due to the Project was under way. In particular, the 1-hr TSP, 24-hr TSP, noise level (as L_{eq}) and water quality parameters (such as pH, DO, turbidity and SS) under monitoring have been checked against established Action and Limit levels.

There was no breach of Action or Limit levels for Air Quality (1-hr TSP and 24-hr TSP) and Noise level (as L_{eq}) in the reporting month.

During November 2017, a total of twenty seven Action Level exceedances for Water Quality were observed. Thirteen Action Level exceedances of pH were recorded at MP3. Seven Action Level exceedances of pH were recorded at MP5. Seven Action Level exceedances of pH were recorded at MP6.

However, since no project-related activity was identified which may have caused the recorded exceedances of pH during the reporting month, it is concluded that the exceedances were likely to be due to localised natural variations affecting the vicinity of the open ditch in general .

8.4.2 Recommendations

With considerations on the construction activities and environment, the following recommendations were provided:

Air Quality

- All stockpiles should be covered by tarpaulin or kept wet by water spraying;
- All vehicles should be washed to remove any dusty materials before leaving the construction sites;
- The portion of road leading the construction site that is within 30m of a designated vehicle entrance or exit should be kept clear of dusty materials;
- During the dry season, sufficient water spraying should be provided at haul road to reduce dust emission; and
- Ensure proper functioning of the wheel wash facility.

Noise

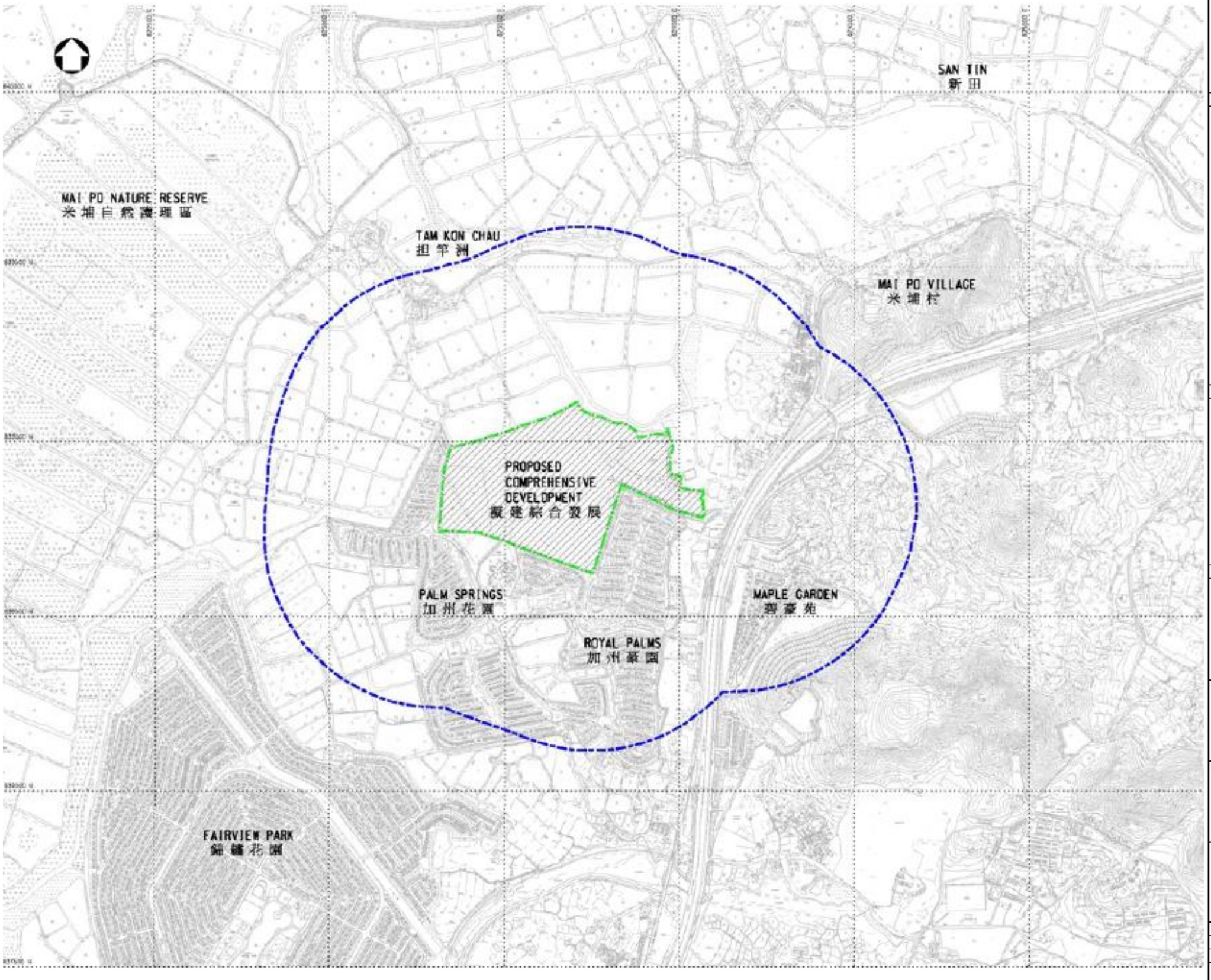
- Mobile plant should be sited as far away from NSRs as possible;
- Plant known to emit noise strongly in one direction should be orientated to direct noise away from the NSRs; and
- The construction activities should be better scheduled to reduce noise nuisance.

Water Quality

- Effluent should be discharged in accordance with the discharge licence conditions;
- Soil contaminated with chemicals/oils should be removed from site and the voids should be created filled with suitable materials; and
- Silt and debris should be removed from the temporary drainage channel regularly.

Waste Management

- General refuse should be stored in enclosed bins or compaction units separate from C&D and chemical wastes to minimise odour, pest and litter impacts.
- Reuse the excavated materials as far as practical to reduce the amount of waste disposal;
- C&D waste should be segregated and stored in different containers to other wastes to encourage the re-use or recycling of materials and their proper disposal;
- Ensure drip trays are provided for chemical containers to prevent leakage or soil contamination;
- All plants and vehicles should be properly maintained to prevent oil leakage; and
- Oil stains on soil should be cleared by disposal of contaminated soil.



Notes

Key to symbols

Site Boundary

500m Assessment Area

Proposed Comprehensive Development

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

PROFIT POINT ENTERPRISES LIMITED

Project

PROPOSED COMPREHENSIVE DEVELOPMENT
AT WO SHANG WAI, YUEN LONG

Title

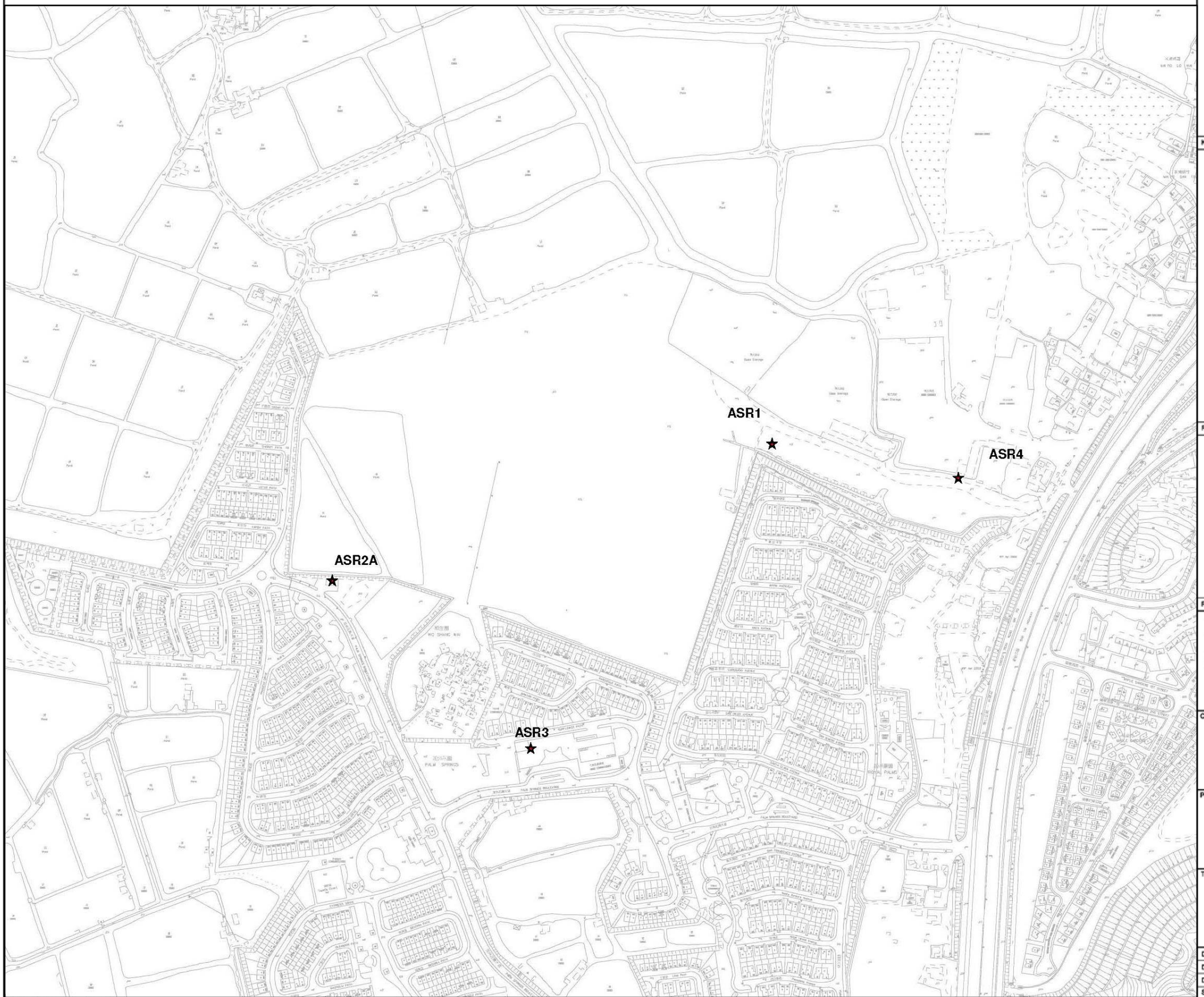
General Layout Plan of the Project Site

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

Drawing Number

Figure 1.1

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



Notes

Key to symbols

★ Construction Phase Air Quality Monitoring Locations

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

PROFIT POINT ENTERPRISES LIMITED

Project

PROPOSED COMPREHENSIVE DEVELOPMENT
AT WO SHANG WAI, YUEN LONG

Title

Locations of Air Quality Monitoring Stations

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

Drawing Number

Figure 2.1

C:\temp\Title Block.dgn DATE:25/08/2016 TIME:17:25:53 USER:yim42169

Notes

Key to symbols

- Construction Phase Noise Monitoring Stations

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

PROFIT POINT ENTERPRISES LIMITED

Project

PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI, YUEN LONG

Title

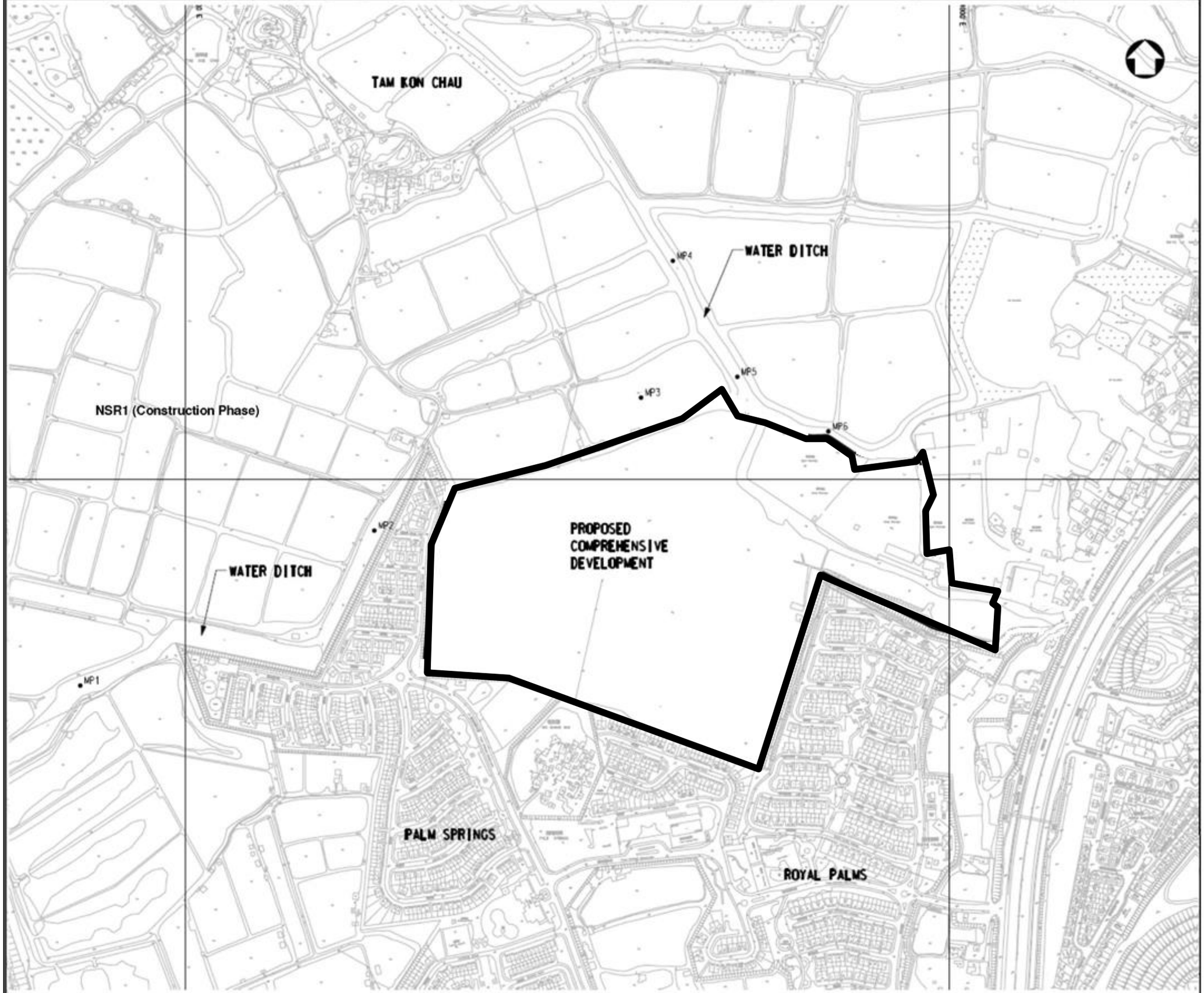
Locations of Noise Monitoring Stations

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

Drawing Number

Figure 2.2

C:\temp\Title Block.dgn DATE:29/08/2016 TIME:17:25:53 USER:ylm42169



Notes

Key to symbols

- Water Quality Monitoring Stations
- Site Boundary

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

PROFIT POINT ENTERPRISES LIMITED

Project

PROPOSED COMPREHENSIVE DEVELOPMENT
AT WO SHANG WAI, YUEN LONG

Title

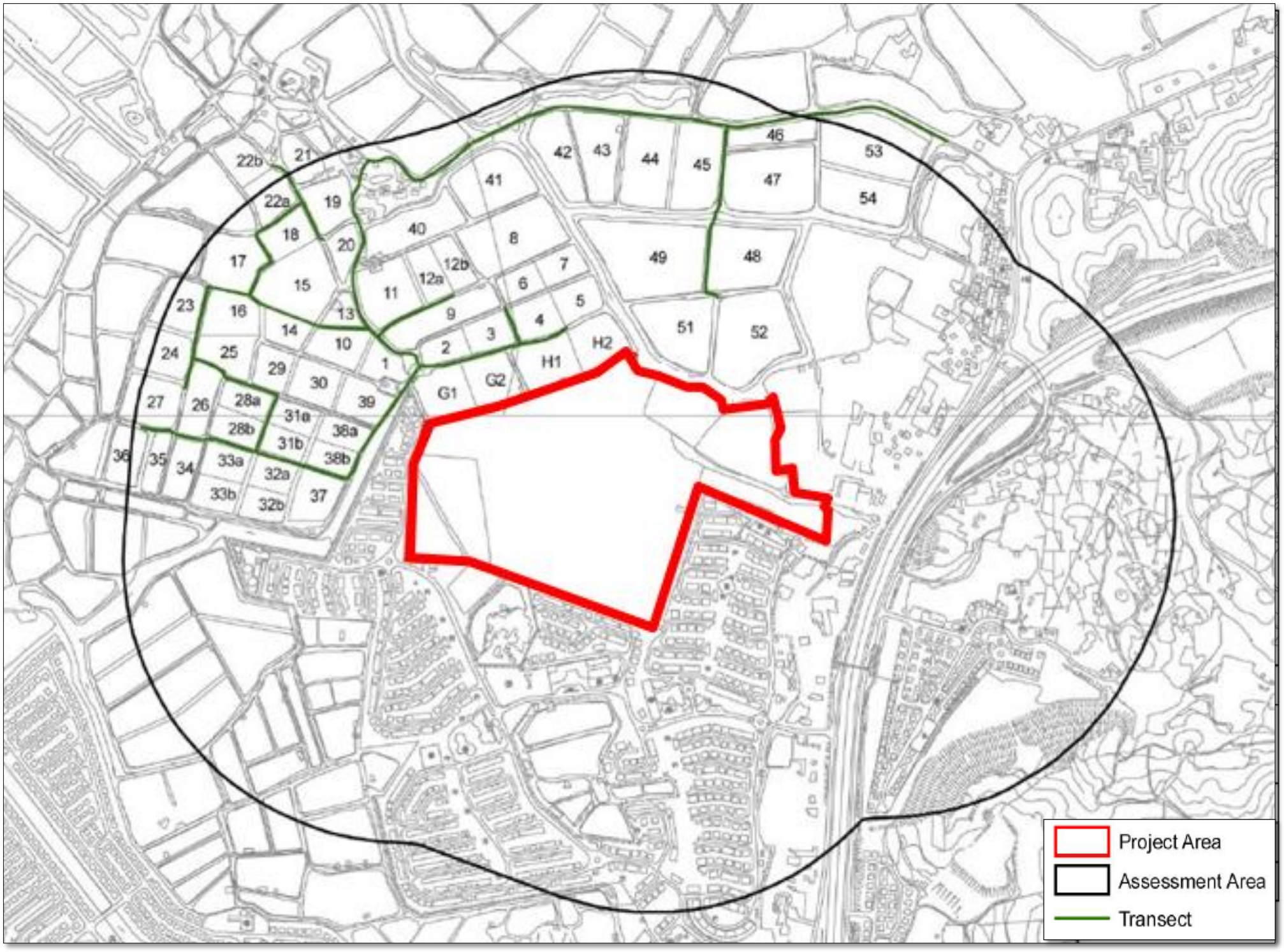
Locations of Water Quality Monitoring Stations

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

Drawing Number

Figure 2.3

C:\temp\Title Block.dgn DATE:25/08/2016 TIME:17:25:53 USER:yim42169



Notes

Key to symbols

Project Area

Assessment Area

Transect

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

PROFIT POINT ENTERPRISES LIMITED

Project

PROPOSED COMPREHENSIVE DEVELOPMENT
AT WO SHANG WAI, YUEN LONG

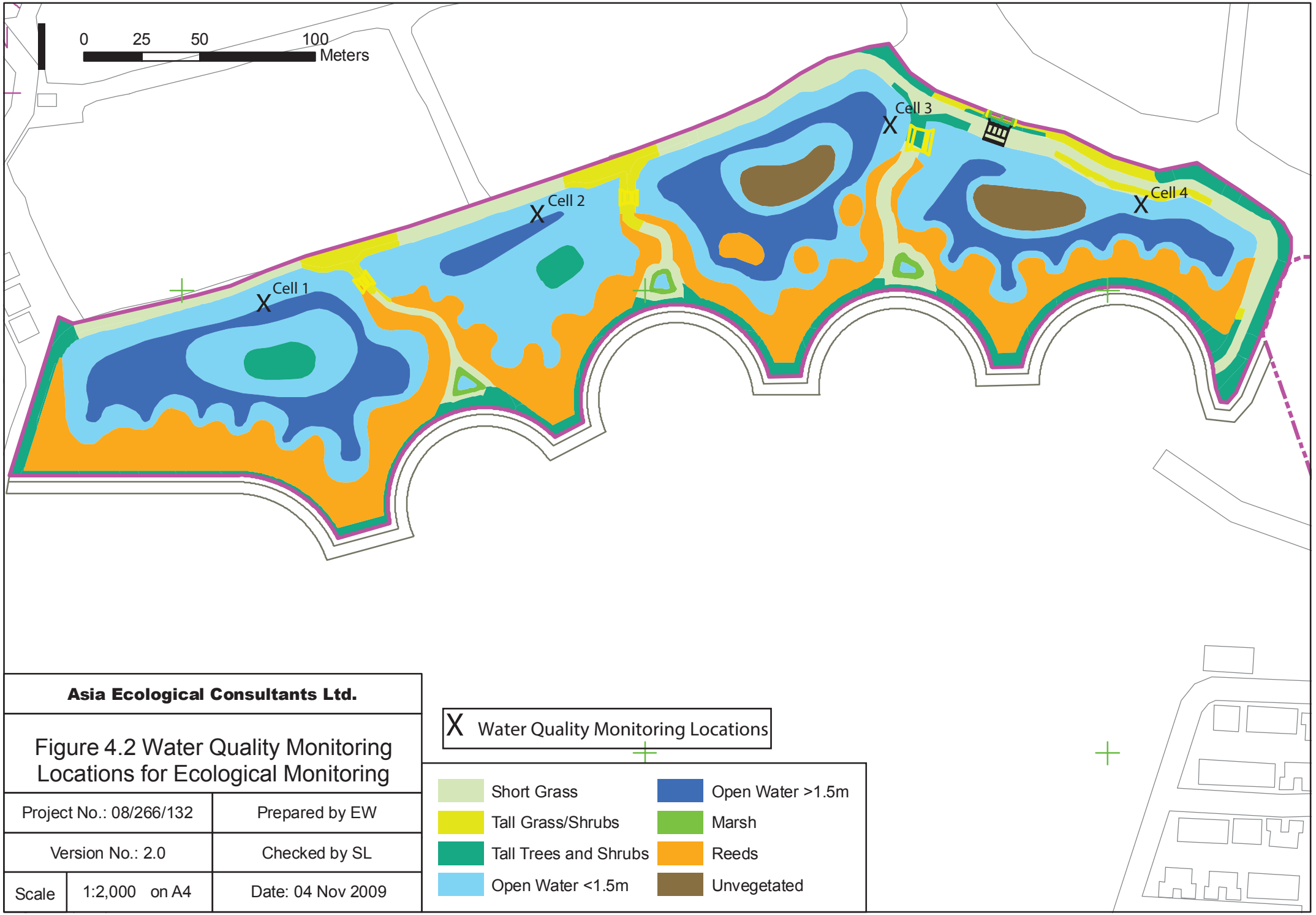
Title

Survey Area and Transect Walked

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

Drawing Number

Figure 4.1



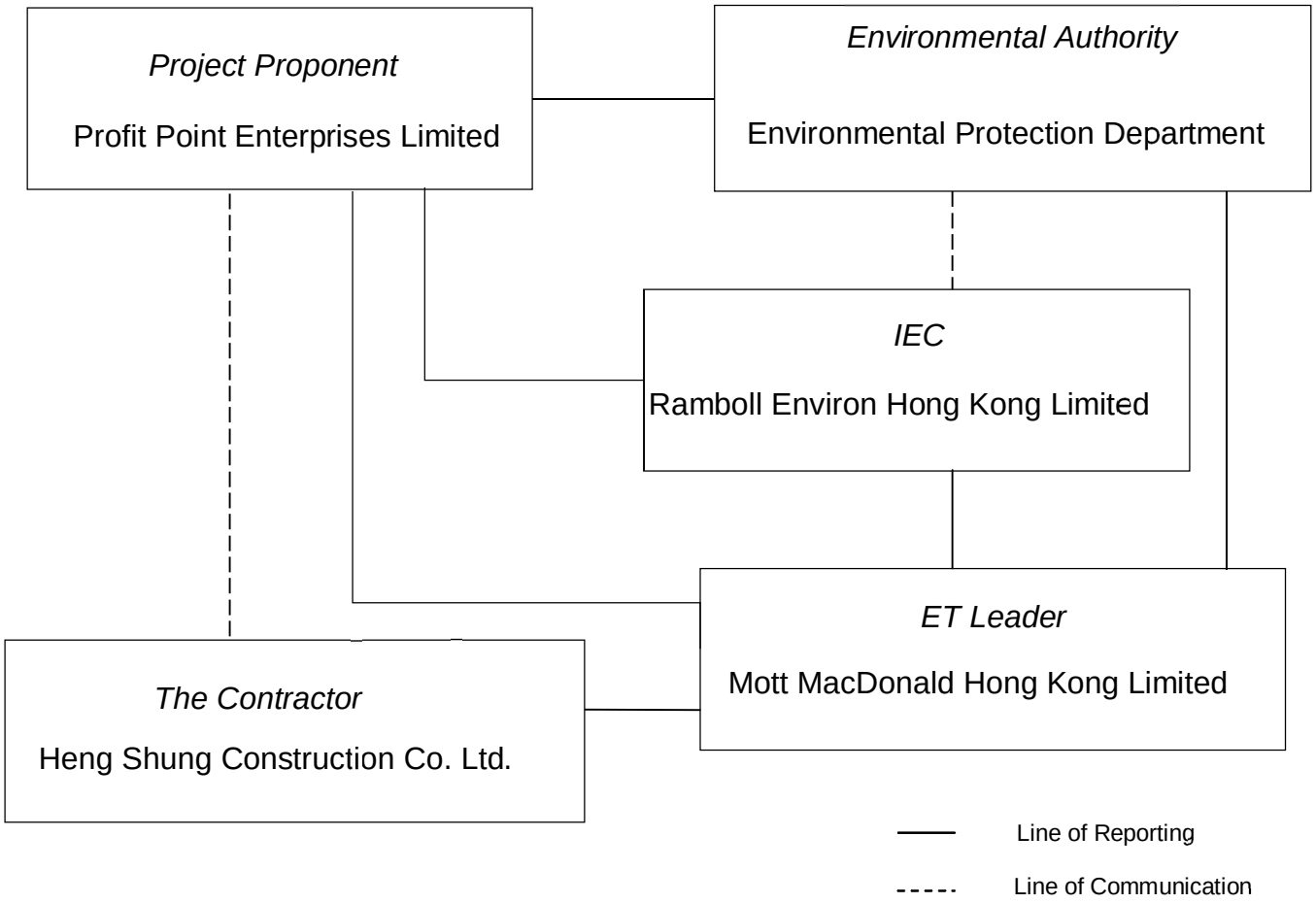
Asia Ecological Consultants Ltd.

Figure 4.2 Water Quality Monitoring Locations for Ecological Monitoring

Project No.: 08/266/132	Prepared by EW
Version No.: 2.0	Checked by SL
Scale 1:2,000 on A4	Date: 04 Nov 2009

Appendices

A. Project Organization Chart



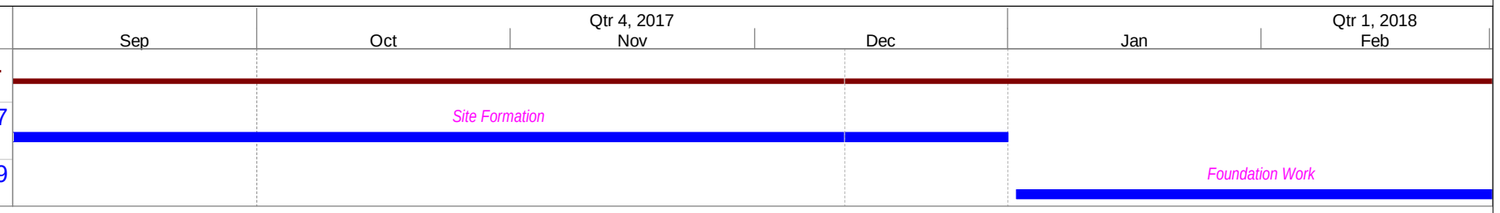
Contact information:

Company	Position	Name	Telephone
Profit Point Enterprises Limited (Project Proponent)	Project Manager	Mr. Kelvin LAU	2908 8114
Heng Shung Construction Co. Ltd. (The Contractor)	Construction Manager	Mr. Joe Chan	2908 2260
	Site Agent	Mr. Wong Shun Wah	9588 8848
	Environmental Officer	Ms. Phyllis CHAN	9468 6846
Ramboll Environ Hong Kong Limited (Independent Environmental Checker (IEC))	Independent Environmental Checker	Mr. David YEUNG	3465 2888
Mott MacDonald Hong Kong Ltd. (Environmental Team (ET))	Environmental Team Leader	Mr. Brandon WONG	2828 5875

B. Tentative Construction Programme

Wo Shang Wai Construction Works Programme (Including TOA)

ID	Task Name	Working	Start	Finish
0	**Wo Shang Wai Construction Phase**	**3697 d...**	**Wed 13/01/10**	**Fri 31/12/21**
5	Site Formation	2153 days	Mon 03/01/11	Sun 31/12/17
6	Foundation Work	467 days	Tue 02/01/18	Sun 30/06/19



Project : Wo Shang Wai
Revision : I
Print Date : Tue 12/12/17

Task	Inactive Milestone		Manual Summary Rollup
Milestone	Inactive Summary		Manual Summary
Summary	Manual Task		Start-only
Inactive Task	Duration-only		Finish-only

C. Action and Limit Levels for Construction Phase

Air Quality

Action and Limit Levels for 24-hour TSP

Monitoring Station	Action Level (mg/m^3)	Limit Level (mg/m^3)
ASR1	226	260
ASR2A	213	260
ASR3	205	260
ASR4	237	260

Action and Limit Levels for 1-hour TSP

Monitoring Station	Action Level (mg/m^3)	Limit Level (mg/m^3)
ASR1	378	500
ASR2A	357	500
ASR3	358	500
ASR4	372	500

Noise

Action and Limit Levels for Construction Noise

Time Period	Action Level	Limit Level
NSR1, NSR3, NSR5, NSR7		
0700 – 1900 hours on normal weekdays	When one documented complaint is received from any one of the sensitive receivers	75 dB(A)

Water Quality

Action and Limit Levels for Water Quality

Parameters	DO in mg/L		Turbidity in NTU		SS in mg/L		pH	
	Action Level	Limit Level	Action Level	Action Level	Action Level	Limit Level	Action Level	Limit Level
MP1	1.23	1.17	173	177	231	299	< 5.5 or > 7.5	< 4.0 or > 8.0
MP2	1.04	0.89	132	163	170	209		
MP3	6.85	6.65	64	67	65	66		
MP4	3.91	3.82	60	64	50	53		
MP5	4.13	3.87	81	84	66	69		
MP6	4.61	4.52	94	96	75	75		

D. Event and Action Plan for Air Quality, Noise, Water Quality and Landscape & Visual

Air Quality

Event	Action			
	ET Leader	IEC	ER	Contractor
Action Level				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures. 2. Inform IEC and ER. 3. Repeat measurement to confirm finding. 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET. 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice. 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	1. Identify the source. 2. Inform IEC and ER. 3. Advise ER on the effectiveness of the proposed remedial measures 4. Repeat measurements to confirm findings. 5. Increase monitoring frequency to daily. 6. Discuss with IEC and the Contractor on remedial actions required. 7. If exceedance continues, arrange meeting with IEC and ER. 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET. 2. Check the Contractor's working method. 3. Discuss with ET Leader and the Contractor on possible remedial measures. 4. Advise ER on the effectiveness of the proposed remedial measures. 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial actions to IEC within 3 working days of notification. 2. Implement the agreed proposals. 3. Amend proposal if appropriate.
Limit Level				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures. 2. Inform ER and EPD. 3. Repeat measurement to confirm finding. 4. Increase monitoring frequency to daily. 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET. 2. Check the Contractor's working method. 3. Discuss with ET Leader and the Contractor on possible remedial measures. 4. Advise ER on the effectiveness of the proposed remedial measures. 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Amend proposal if appropriate.

Event	Action			
	ET Leader	IEC	ER	Contractor
2. Exceedance for two or more consecutive samples	1. Notify IEC, ER, EPD and the Contractor. 2. Identify the source. 3. Repeat measurements to confirm findings. 4. Increase monitoring frequency to daily. 5. Carry out analysis of the Contractor's working procedures to determine possible mitigation to be implemented. 6. Arrange meeting IEC and ER to discuss the remedial actions to be taken. 7. Assess effectiveness of the 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 Leader and the Contractor on the potential remedial actions. 2. Review the Contractor's remedial actions whenever necessary and advise ER accordingly. 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. In consultation with IEC, agree with the remedial measures to be implemented. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant activity of works as determined by ER until the exceedance is abated.

Construction Noise

Event	Action			
	ET Leader	IEC	ER	Contractor
Action Level	1. Notify IEC and the Contractor. 2. Carry out investigation. 3. Report the results of investigation to IEC and the Contractor. 4. Discuss with the Contractor and formulate remedial measures. 5. Increase monitoring frequency to check mitigation measures.	1. Review with analysed results submitted by ET. 2. Review the proposed remedial measures by the Contractor and advise ER accordingly. 3. Supervise the implement of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IEC. 2. Implement noise mitigation proposals.
Limit Level	1. Identify the source. 2. Notify IEC, ER, EPD and the Contractor. 3. Repeat measurement to confirm findings. 4. Increase monitoring frequency. 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented. 6. Inform IEC, ER, and EPD the causes & actions taken for the exceedances. 7. Assess effectiveness of the 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 Leader and the Contractor on the potential remedial actions. 2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise ER accordingly. 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant activity of works as determined by the ER until the exceedance is abated.

Water Quality

Event	Action			
	ET Leader	IEC	ER	Contractor
Action Level				
1. Exceedance for one sample	1. Repeat in-situ measurement to confirm finding; 2. Identify source(s) of impact; 3. Inform IEC and Contractor; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC and Contractor; and 6. Repeat measurement on next day of exceedance.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; and 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC on the proposed mitigation measures; and 2. Make agreement on the mitigation measures to be implemented.	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET and IEC and propose mitigation measures to IEC and ER; and 6. Implement the agreed mitigation measures.

Event	Action			
	ET Leader	IEC	ER	Contractor
2. Exceedance for two or more consecutive samples	1. Repeat in-situ measurement to confirm finding; 2. Identify source(s) of impact; 3. Inform IEC and Contractor; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC and Contractor; 6. Ensure mitigation measures are implemented; 7. Prepare to increase the monitoring frequency to daily; and 8. Repeat measurement on next day of exceedance.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; and 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC on the proposed mitigation measures; 2. Make agreement on the mitigation measures to be implemented; and 3. Assess the effectiveness of the implemented mitigation measures.	1. Inform the Engineer and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET and IEC and propose mitigation measures to IEC and ER within 3 working days; and 6. Implement the agreed mitigation measures.
Limit Level				
1. Exceedance for one sample	1. Repeat in-situ measurement to confirm finding; 2. Identify source(s) of impact; 3. Inform IEC, Contractor and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; and 7. Increase the monitoring frequency to daily until no exceedance of Limit level.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; and 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; and 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; and 4. Assess the effectiveness of the implemented mitigation measures.	1. Inform the Engineer and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET and IEC and ER and propose mitigation measures to IEC and ER within 3 working days; and 6. Implement the agreed mitigation measures.

Event	Action			
	ET Leader	IEC	ER	Contractor
2. Exceedance for two or more consecutive samples	1. Repeat in-situ measurement to confirm finding; 2. Identify source(s) of impact; 3. Inform IEC, Contractor and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; and 7. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; and 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; and 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures; and 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit Level.	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET and IEC and ER and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures; and 7. As directed by the Engineer, to slow down or to stop all or part of the marine work or construction activities.

Landscape and Visual

Event	Action			
	ET Leader	IEC	ER	Contractor
Action Level				
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; and 4. Monitor remedial actions until rectification has been completed.	1. Check report; 2. Check the Contractor's working method; 3. Discuss with the ES and the contractor on possible remedial measures; 4. Advise the ER on effectiveness of proposed remedial measures; and 5. Check implementation of remedial measures.	1. Notify Contractor; and 2. Ensure remedial measures are properly implemented	1. Amend working methods; and 2. Rectify damage and undertake any necessary replacement

Event	Action			
Repeated Non-conformity	1. Identify Source; 2. Inform the Project Proponent, IEC and the ER. If serious non-compliance inform EPD; 3. Increase monitoring frequency; 4. Discuss remedial actions with the IEC, the ER and the Contractor; 5. Monitor remedial actions until rectification has been completed; and 6. If exceedance stops, cease additional monitoring.	1. Check monitoring report; 2. Check the Contractor's working method; 3. Discuss with the ES and the Contractor on possible remedial measures; 4. Advise the ER on effectiveness of proposed remedial measures; and 5. Supervise implementation of remedial measures.	1. Notify the Contractor; and 2. Ensure remedial measures are properly implemented.	1. Amend working methods; and 2. Rectify damage and undertake any necessary replacement.

E. Calibration Certificates

Appendix E

Calibration Record

(Air Quality Monitoring)

PILOT TESTING

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

REPORT NO.	: HK1710037
PROJECT NAME	: PERFORMANCE CHECK / CALIBRATION OF DUST METER
DATE OF ISSUE	: 17/01/2017
CUSTOMER	: Envirotech Services Company
ADDRESS	: Rm. 113, 1/F., MY LOFT, 9 HOI WING ROAD, TUEN MUN, N.T.

REPORT NO.	: HK1710037
PROJECT ITEM NO.	: HK1710037-01
PERFORMANCE CHECK / CALIBRATED EQUIPMENT	
TYPE	: Aerosol monitor
MANUFACTURER	: TSI
MODEL NO.	: SidePak AM510
SERIAL NO.	: 10406054
EQUIPMENT NO.	: ---
RECEIPT DATE	: 11/01/2017
PERFORMANCE CHECK / CALIBRATION DATE	: 12/01/2017

PERFORMANCE CHECK / CALIBRATION Information

CODE	Calibration Parameter	Method Procedure	Reference Method
Dust PC/CAL	Performance Check / Calibration of Dust Meter	CAL003	General Technical Requirements of Environmental Monitoring, Environmental Monitoring & Audit Guidelines for Development Projects in HK

Notes : 1. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.
2. Performance Check / Calibration result relates to performance check / calibration item(s) as received.

Approved Signatory : Issue Date: 17/01/2017

Wong Po Yan Pauline
(Testing Engineer)

REPORT OF PERFORMANCE CHECK / CALIBRATION

PROJECT NAME	:	PERFORMANCE CHECK / CALIBRATION OF DUST METER
DATE OF ISSUE	:	17/01/2017
REPORT NO.	:	HK1710037

PERFORMANCE CHECK / CALIBRATED EQUIPMENT

TYPE	:	Aerosol monitor
MANUFACTURER	:	TSI
MODEL NO.	:	SidePak AM510
SERIAL NO.	:	10406054
EQUIPMENT NO.	:	---
PERFORMANCE CHECK / CALIBRATION DATE	:	12/01/2017

STANDARD EQUIPMENT

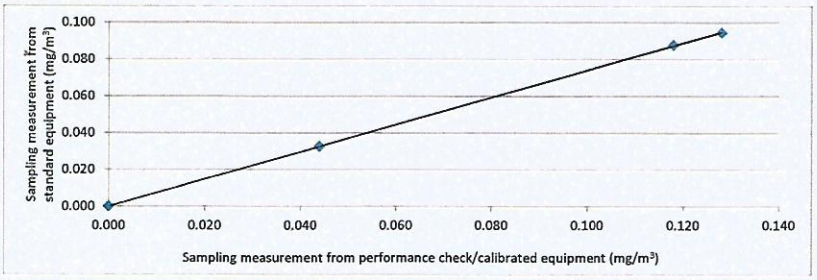
	:	
TYPE	:	HIGH VOLUME AIR SAMPLER
MANUFACTURER	:	TISCH
MODEL NO.	:	TE-5170
EQUIPMENT REF NO.	:	PTL_HV002
LAST CALIBRATION DATE	:	23/11/2016

EQUIPMENT PERFORMANCE CHECK / CALIBRATION RESULTS:

Trial no. in 1-hr period	Time	Mean Temp (°C)	Mean Pressure (hPa)	Concentration in mg/m^3 (Standard equipment) (Y - Axis)	Concentration in mg/m^3 (Performance Check / Calibrated equipment) (X - Axis)
Zero Check[1]	12/01/2017,10:00:00 AM	19	1016	0.000	0.000
1	12/01/2017,11:10:00 AM	19	1016	0.095	0.128
2	12/01/2017,12:15:00 PM	19	1016	0.088	0.118
3	12/01/2017,1:25:00 PM	19	1016	0.033	0.044

Linear Regression of Y on X

Slope (K- factor)	:	0.7
Correlation Coefficient	:	1.0000
Validity of Performance Check / Calibration Record	:	12/01/2018



Notes : 1. Zero check conducted as per CAL003 SOP and manufacturer's manual as appropriate.

2. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.

3. Performance Check / Calibration result relates to performance check / calibration item(s) as received.

Operator: MA Ching Him, Jackey Signature: _____ Date: 12/01/2017

Checked by: Wong Po Yan, Pauline Signature: _____ Date: 17/01/2017

PILOT TESTING

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION

REPORT NO.	: HK1710038
PROJECT NAME	: PERFORMANCE CHECK / CALIBRATION OF DUST METER
DATE OF ISSUE	: 17/01/2017
CUSTOMER	: Envirotech Services Company
ADDRESS	: Rm. 113, 1/F., MY LOFT, 9 HOI WING ROAD, TUEN MUN, N.T.

REPORT NO.	: HK1710038
PROJECT ITEM NO.	: HK1710038-01
PERFORMANCE CHECK / CALIBRATED EQUIPMENT	
TYPE	: Aerosol monitor
MANUFACTURER	: TSI
MODEL NO.	: SidePak AM510
SERIAL NO.	: 11306036
EQUIPMENT NO.	: ---
RECEIPT DATE	: 11/01/2017
PERFORMANCE CHECK / CALIBRATION DATE	: 12/01/2017

PERFORMANCE CHECK / CALIBRATION Information

CODE	Calibration Parameter	Method Procedure	Reference Method
Dust PC/CAL	Performance Check / Calibration of Dust Meter	CAL003	General Technical Requirements of Environmental Monitoring, Environmental Monitoring & Audit Guidelines for Development Projects in HK

Notes : 1. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.
2. Performance Check / Calibration result relates to performance check / calibration item(s) as received.

Approved Signatory : Issue Date: 17/01/2017

Wong Po Yan Pauline
(Testing Engineer)

REPORT OF PERFORMANCE CHECK / CALIBRATION

PROJECT NAME	:	PERFORMANCE CHECK / CALIBRATION OF DUST METER
DATE OF ISSUE	:	17/01/2017
REPORT NO.	:	HK1710038

PERFORMANCE CHECK / CALIBRATED EQUIPMENT

TYPE	:	Aerosol monitor
MANUFACTURER	:	TSI
MODEL NO.	:	SidePak AM510
SERIAL NO.	:	11306036
EQUIPMENT NO.	:	---
PERFORMANCE CHECK / CALIBRATION DATE	:	12/01/2017

STANDARD EQUIPMENT :

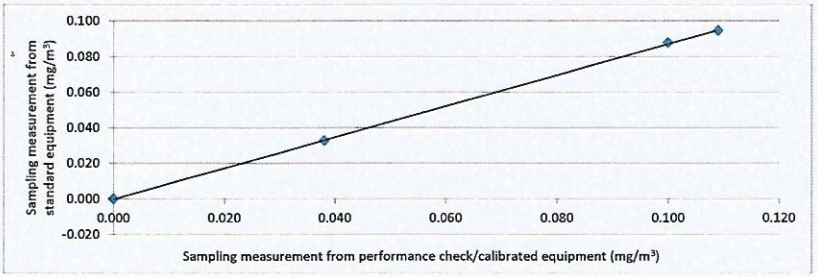
TYPE	:	HIGH VOLUME AIR SAMPLER
MANUFACTURER	:	TISCH
MODEL NO.	:	TE-5170
EQUIPMENT REF NO.	:	PTL_HV002
LAST CALIBRATION DATE	:	23/11/2016

EQUIPMENT PERFORMANCE CHECK / CALIBRATION RESULTS:

Trial no. in 1-hr period	Time	Mean Temp (°C)	Mean Pressure (hPa)	Concentration in mg/m^3 (Standard equipment) (Y - Axis)	Concentration in mg/m^3 (Performance Check / Calibrated equipment) (X - Axis)
Zero Check[1]	12/01/2017,10:00:00 AM	19	1016	0.000	0.000
1	12/01/2017,11:10:00 AM	19	1016	0.095	0.109
2	12/01/2017,12:15:00 PM	19	1016	0.088	0.100
3	12/01/2017,1:25:00 PM	19	1016	0.033	0.038

Linear Regression of Y on X

Slope (K- factor)	:	0.9
Correlation Coefficient	:	0.9999
Validity of Performance Check / Calibration Record	:	12/01/2018



Notes : 1. Zero check conducted as per CAL003 SOP and manufacturer's manual as appropriate.

2. This report shall not be reproduced, except in full, without prior approval from Pilot Testing Limited.

3. Performance Check / Calibration result relates to performance check / calibration item(s) as received.

Operator: MA Ching Him, Jackey Signature: Date: 12/01/2017

Checked by: Wong Po Yan, Pauline Signature: Date: 17/01/2017

High-Volume TSP Sampler
5-Point Calibration Record

Location : ASR1
Calibrated by : T.K.Wong
Date : 05/09/2017

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 1806

Calibration Orifice and Standard Calibration Relationship
Serial Number : 2454
Service Date : 20 March 2017
Slope (m) : 2.08464
Intercept (b) : -0.036840
Correlation Coefficient(r) : 0.99994

Standard Condition
Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition
Pa (hpa) : 1008
Ta(K) : 303

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.9	3.413	1.655	50	49.46
2	13 holes	9.8	3.097	1.503	46	45.51
3	10 holes	6.9	2.599	1.264	40	39.57
4	7 holes	4.2	2.027	0.990	34	33.64
5	5 holes	2.6	1.595	0.783	28	27.70

Sampler Calibration Relationship

Slope(m):24.497 Intercept(b):8.822 Correlation Coefficient(r): 0.9992

Checked by: Magnum Fan Date: 09/09/2017

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR2A
Calibrated by	:	T.K.Wong
Date	:	05/09/2017

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 1061

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	20 March 2017
Slope (m)	:	2.08464
Intercept (b)	:	-0.036840
Correlation Coefficient(r)	:	0.99994

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1008
Ta(K)	:	303

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	12.2	3.455	1.675	55	54.41
2	13 holes	9.2	3.001	1.457	48	47.48
3	10 holes	7.0	2.617	1.273	43	42.54
4	7 holes	4.6	2.122	1.035	34	33.64
5	5 holes	2.8	1.655	0.812	26	25.72

Sampler Calibration Relationship

Slope(m):33.219 Intercept(b):-0.784 Correlation Coefficient(r): 0.9986

Checked by: Magnum Fan Date: 09/09/2017

High-Volume TSP Sampler
5-Point Calibration Record

Location : ASR3
Calibrated by : T.K.Wong
Date : 05/09/2017

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 7577

Calibration Orifice and Standard Calibration Relationship
Serial Number : 2454
Service Date : 20 March 2017
Slope (m) : 2.08464
Intercept (b) : -0.036840
Correlation Coefficient(r) : 0.99994

Standard Condition
Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition
Pa (hpa) : 1008
Ta(K) : 303

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	12.70	3.525	1.709	62	61.33
2	13 holes	9.60	3.065	1.488	54	53.42
3	10 holes	7.20	2.654	1.291	46	45.51
4	7 holes	4.80	2.167	1.057	36	35.61
5	5 holes	3.30	1.797	0.880	28	27.70

Sampler Calibration Relationship

Slope(m):40.700 Intercept(b):-7.585 Correlation Coefficient(r): 0.9992

Checked by: Magnum Fan Date: 09/09/2017

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR4
Calibrated by	:	T.K.Wong
Date	:	05/09/2017

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 1273

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	20 March 2017
Slope (m)	:	2.08464
Intercept (b)	:	-0.036840
Correlation Coefficient(r)	:	0.99994

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1008
Ta(K)	:	303

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	12.9	3.553	1.722	61	60.35
2	13 holes	9.8	3.097	1.503	54	53.42
3	10 holes	7.2	2.654	1.291	45	44.52
4	7 holes	4.3	2.051	1.002	35	34.62
5	5 holes	2.6	1.595	0.783	28	27.70

Sampler Calibration Relationship

Slope(m):35.314 Intercept(b):-0.381 Correlation Coefficient(r): 0.9991

Checked by: Magnum Fan Date: 09/09/2017

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR1
Calibrated by	:	T.K.Wong
Date	:	05/11/2017

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 1806

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	20 March 2017
Slope (m)	:	2.08464
Intercept (b)	:	-0.036840
Correlation Coefficient(r)	:	0.99994

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1016
Ta(K)	:	298

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	12.7	3.569	1.730	57	57.08
2	13 holes	10.3	3.214	1.559	50	50.07
3	10 holes	7.9	2.815	1.368	43	43.06
4	7 holes	5.7	2.391	1.165	32	32.05
5	5 holes	3.8	1.952	0.954	26	26.04

Sampler Calibration Relationship

Slope(m):41.155 Intercept(b):14.111 Correlation Coefficient(r): 0.9964

Checked by: Magnum Fan Date: 09/11/2017

High-Volume TSP Sampler
5-Point Calibration Record

Location : ASR2A
Calibrated by : T.K.Wong
Date : 05/11/2017

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 1061

Calibration Orifice and Standard Calibration Relationship
Serial Number : 2454
Service Date : 20 March 2017
Slope (m) : 2.08464
Intercept (b) : -0.036840
Correlation Coefficient(r) : 0.99994

Standard Condition
Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition
Pa (hpa) : 1016
Ta(K) : 303

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.5	3.396	1.647	58	58.09
2	13 holes	9.1	3.021	1.467	50	50.07
3	10 holes	6.8	2.612	1.270	45	45.07
4	7 holes	4.6	2.148	1.048	34	34.05
5	5 holes	2.8	1.676	0.822	25	25.04

Sampler Calibration Relationship

Slope(m):39.761 Intercept(b):-7.268 Correlation Coefficient(r): 0.9966

Checked by: Magnum Fan Date: 09/11/2017

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	ASR4
Calibrated by	:	T.K.Wong
Date	:	05/11/2017

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 1273

Calibration Orifice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	20 March 2017
Slope (m)	:	2.08464
Intercept (b)	:	-0.036840
Correlation Coefficient(r)	:	0.99994

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1016
Ta(K)	:	298

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.8	3.440	1.668	59	59.09
2	13 holes	9.4	3.070	1.491	52	52.08
3	10 holes	7.4	2.724	1.325	42	42.06
4	7 holes	4.7	2.171	1.059	32	32.05
5	5 holes	3.2	1.792	0.877	26	26.04

Sampler Calibration Relationship

Slope(m):42.606 Intercept(b):-12.438 Correlation Coefficient(r): 0.9956

Checked by: Magnum Fan Date: 09/11/2017

High-Volume TSP Sampler
5-Point Calibration Record

Location : ASR3
Calibrated by : T.K.Wong
Date : 05/11/2017

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 7577

Calibration Orifice and Standard Calibration Relationship
Serial Number : 2454
Service Date : 20 March 2017
Slope (m) : 2.08464
Intercept (b) : -0.036840
Correlation Coefficient(r) : 0.99994

Standard Condition
Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition
Pa (hpa) : 1016
Ta(K) : 298

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	12.50	3.541	1.716	64	64.09
2	13 holes	9.80	3.135	1.522	56	56.08
3	10 holes	7.60	2.761	1.342	48	48.07
4	7 holes	4.90	2.217	1.081	41	41.06
5	5 holes	2.90	1.705	0.836	30	30.04

Sampler Calibration Relationship

Slope(m):37.634 Intercept(b):-1.029 Correlation Coefficient(r): 0.9968

Checked by: Magnum Fan Date: 09/11/2017

Appendix E

Calibration Record

(Noise Monitoring)

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. : C173477
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC17-1398) Date of Receipt / 收件日期 : 21 June 2017

Description / 儀器名稱 : Precision Acoustic Calibrator
Manufacturer / 製造商 : LARSON DAVIS
Model No. / 型號 : CAL200
Serial No. / 編號 : 11333
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 : 28 June 2017

TEST RESULTS / 測試結果

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

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

Tested By 測試 : H T Wong, Technical Officer

Certified By 核證 : K C Lee, Engineer

Date of Issue 簽發日期 : 30 June 2017

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

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

Certificate of Calibration
校正證書

Certificate No. : C173477
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	C163709
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	94.0	± 0.2	± 0.2
114 dB, 1 kHz	114.0		

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.

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

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

Certificate of Calibration
校正證書

Certificate No. : C173120
證書編號

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

Description / 儀器名稱	:	Sound Level Meter
Manufacturer / 製造商	:	Rion
Model No. / 型號	:	NL-52
Serial No. / 編號	:	00643049
Supplied By / 委託者	:	Envirotech Services Co. Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun, New Territories, Hong Kong

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 8 June 2017

TEST RESULTS / 測試結果

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

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

Tested By 測試 : H T Wong, Technical Officer

Certified By 核證 : K C Lee, Engineer

Date of Issue 簽發日期 : 8 June 2017

Certificate of Calibration
校正證書

Certificate No. : C173120
證書編號

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

2. Self-calibration was performed before the test.

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

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C170048
CL281	Multifunction Acoustic Calibrator	PA160023

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	93.9	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L_A	A	Fast	94.00	1	93.9 (Ref.)
				104.00		104.0
				114.00		114.0

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

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	93.9	Ref.
			Slow			93.9	± 0.3

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

Certificate of Calibration
校正證書

Certificate No. : C173120
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	A	Fast	94.00	63 Hz	67.6	-26.2 ± 1.5
					125 Hz	77.7	-16.1 ± 1.5
					250 Hz	85.2	-8.6 ± 1.4
					500 Hz	90.6	-3.2 ± 1.4
					1 kHz	93.9	Ref.
					2 kHz	95.1	+1.2 ± 1.6
					4 kHz	94.9	+1.0 ± 1.6
					8 kHz	92.8	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.4	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_C	C	Fast	94.00	63 Hz	93.0	-0.8 ± 1.5
					125 Hz	93.7	-0.2 ± 1.5
					250 Hz	93.9	0.0 ± 1.4
					500 Hz	93.9	0.0 ± 1.4
					1 kHz	93.9	Ref.
					2 kHz	93.7	-0.2 ± 1.6
					4 kHz	93.1	-0.8 ± 1.6
					8 kHz	90.9	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.5	-6.2 (+3.0 ; -6.0)

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

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

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

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

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

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

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

Appendix E

Calibration Record

(Water Quality Monitoring)

專業化驗有限公司
QUALITY PRO TEST-CONSULT LIMITED
Unit 10, 14/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong
Email: info@qualityprotest.com; Website: www.qualityprotest.com
Tel: (852) 3956 8717; Fax: (852) 3956 3928

Report of Equipment Performance Check/Calibration

Report No. : AG080100
Date of Issue : 18 August 2017

PART A – CUSTOMER INFORMATION

Enovative Environmental Service Ltd.
Rm 811, Hin Pui House,
Hin Keng Estate, Tai Wai
New Territories, Hong Kong
Attn: Mr. Thomas WONG

PART B – DESCRIPTION

Name of Equipment	:	YSI ProDss (Multi-Parameters)
Manufacturer	:	YSI (a xylem brand)
Serial Number	:	16J101715
Date of Received	:	17 Aug, 2017
Date of Calibration	:	17 Aug, 2017
Date of Next Calibration[a]	:	17 Nov, 2017

PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Parameter	Reference Method
pH at 25°C	APHA 21e 4500-H^+ B
Dissolved Oxygen	APHA 21e 4500-O G
Conductivity at 25°C	APHA 21e 2510 B
Salinity	APHA 21e 2520 B
Turbidity	APHA 21e 2130 B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

PART D – CALIBRATION RESULTS[b,c]

(1) pH at 25°C

Target (pH unit)	Displayed Reading[d] (pH Unit)	Tolerance[e](pH Unit)	Results
4.00	4.05	+0.05	Satisfactory
7.42	7.42	+0.00	Satisfactory
10.01	10.05	-0.04	Satisfactory

Tolerance of pH should be less than ±0.10 (pH unit)

(2) Temperature

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
15.0	14.9	-0.1	Satisfactory
26.0	25.8	-0.2	Satisfactory
34.0	33.8	-0.2	Satisfactory

Tolerance limit of temperature should be less than ±2.0 (°C)

~ CONTINUED ON NEXT PAGE ~

Remark(s): -

[a] *The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted form relevant international standards.*
[b] *The results relate only to the calibrated equipment as received*
[c] *The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.*
[d] *"Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.*
[e] *The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by QPT or quoted form relevant international standards.*

APPROVED SIGNATORY : _____
FUNG Yuen-ching Aries
Laboratory Manager

專業化驗有限公司
QUALITY PRO TEST-CONSULT LIMITED
Unit 10, 14/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong
Email: info@qualityprotest.com; Website: www.qualityprotest.com
Tel: (852) 3956 8717; Fax: (852) 3956 3928

Report of Equipment Performance Check/Calibration

Report No. : AG080100
Date of Issue : 18 August 2017

PART D – CALIBRATION RESULTS (Cont'd)

(3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
0.03	0.08	+0.05	Satisfactory
4.01	4.09	+0.08	Satisfactory
7.95	7.91	-0.04	Satisfactory

Tolerance limit of dissolved oxygen should be less than ±0.20 (mg/L)

(4) Conductivity at 25°C

Expected Reading (µS/cm)	Displayed Reading (µS/cm)	Tolerance (%)	Results
146.9	143.7	-2.2	Satisfactory
1412	1488	+5.4	Satisfactory
12890	12275	-4.8	Satisfactory
58670	57357	-2.2	Satisfactory
111900	113226	+1.2	Satisfactory

Tolerance limit of conductivity should be less than ±10.0 (%)

(5) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	10.14	+1.4	Satisfactory
20	20.20	+1.0	Satisfactory
30	30.37	+1.2	Satisfactory

Tolerance limit of salinity should be less than ±10.0 (%)

(6) Turbidity

Expected Reading (NTU)	Displayed Reading[f] (NTU)	Tolerance[g](%)	Results
0	--	--	Satisfactory
10	10.1	+1.0	Satisfactory
20	20.6	+3.0	Satisfactory
100	104.5	+4.5	Satisfactory
800	817.6	+2.2	Satisfactory

Tolerance limit of turbidity should be less than ±10.0 (%)

~ END OF REPORT ~

Remark(s): -

(f) "Displayed Reading" presents the figures shown on item under calibration/ checking regardless of equipment precision or significant figures.

(g) The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards.

專業化驗有限公司
QUALITY PRO TEST-CONSULT LIMITED
Unit 10, 14/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong
Email: info@qualityprotest.com; Website: www.qualityprotest.com
Tel: (852) 3956 8717; Fax: (852) 3956 3928

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AG110096
Date of Issue : 16 November 2017

PART A – CUSTOMER INFORMATION

Enovative Environmental Service Ltd.
Rm 811, Hin Pui House,
Hin Keng Estate, Tai Wai
New Territories, Hong Kong
Attn: Mr. Thomas WONG

PART B – DESCRIPTION

Name of Equipment	:	YSI ProDSS (Multi-Parameters)
Manufacturer	:	YSI (a xylem brand)
Serial Number	:	16J101715
Date of Received	:	Nov 15, 2017
Date of Calibration	:	Nov 15, 2017 to Nov 15, 2017
Date of Next Calibration[a]	:	Feb 15, 2018

PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Parameter	Reference Method
pH at 25°C	APHA 21e 4500-H^+ B
Dissolved Oxygen	APHA 21e 4500-O G
Conductivity at 25°C	APHA 21e 2510 B
Salinity	APHA 21e 2520 B
Turbidity	APHA 21e 2130 B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

PART D – CALIBRATION RESULTS[b,c]

(1) pH at 25°C

Target (pH unit)	Displayed Reading[d] (pH Unit)	Tolerance[e](pH Unit)	Results
4.00	4.03	+0.03	Satisfactory
7.42	7.44	+0.02	Satisfactory
10.01	10.03	+0.02	Satisfactory

Tolerance of pH should be less than ±0.10 (pH unit)

(2) Temperature

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
14.3	14.4	0.1	Satisfactory
23.4	23.4	0	Satisfactory
33.5	33.3	-0.2	Satisfactory

Tolerance limit of temperature should be less than ±2.0 (°C)

~ CONTINUED ON NEXT PAGE ~

Remark(s): -

(a) *The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted form relevant international standards.*
(b) *The results relate only to the calibrated equipment as received*
(c) *The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.*
(d) *"Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.*
(e) *The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by QPT or quoted form relevant international standards.*

APPROVED SIGNATORY : _____
FUNG Yuen-ching Aries
Laboratory Manager

專業化驗有限公司
QUALITY PRO TEST-CONSULT LIMITED
Unit 10, 14/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong
Email: info@qualityprotest.com; Website: www.qualityprotest.com
Tel: (852) 3956 8717; Fax: (852) 3956 3928

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AG110096
Date of Issue : 16 November 2017

PART D – CALIBRATION RESULTS (Cont'd)

(3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
0	0.05	0.05	Satisfactory
3.54	3.60	0.06	Satisfactory
8.20	8.18	-0.02	Satisfactory

Tolerance limit of dissolved oxygen should be less than ±0.20 (mg/L)

(4) Conductivity at 25°C

Conc. of KCl (M)	Expected Reading (µS/cm)	Displayed Reading (µS/cm)	Tolerance (%)	Results
0.001	146.9	148.2	+0.9	Satisfactory
0.01	1412	1450	+2.7	Satisfactory
0.1	12890	13185	+2.3	Satisfactory
0.5	58670	59600	+1.6	Satisfactory
1.0	111900	111072	-0.7	Satisfactory

Tolerance limit of conductivity should be less than ±10.0 (%)

(5) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	9.8	-2.0	Satisfactory
20	19.73	-1.4	Satisfactory
30	30.31	+1.0	Satisfactory

Tolerance limit of salinity should be less than ±10.0 (%)

(6) Turbidity

Expected Reading (NTU)	Displayed Reading[f] (NTU)	Tolerance[g] (%)	Results
0	0.01	--	
4	4	0.0	Satisfactory
20	20.5	+2.5	Satisfactory
100	106.2	+6.2	Satisfactory
800	834	+4.3	Satisfactory

Tolerance limit of turbidity should be less than ±10.0 (%)

~ END OF REPORT ~

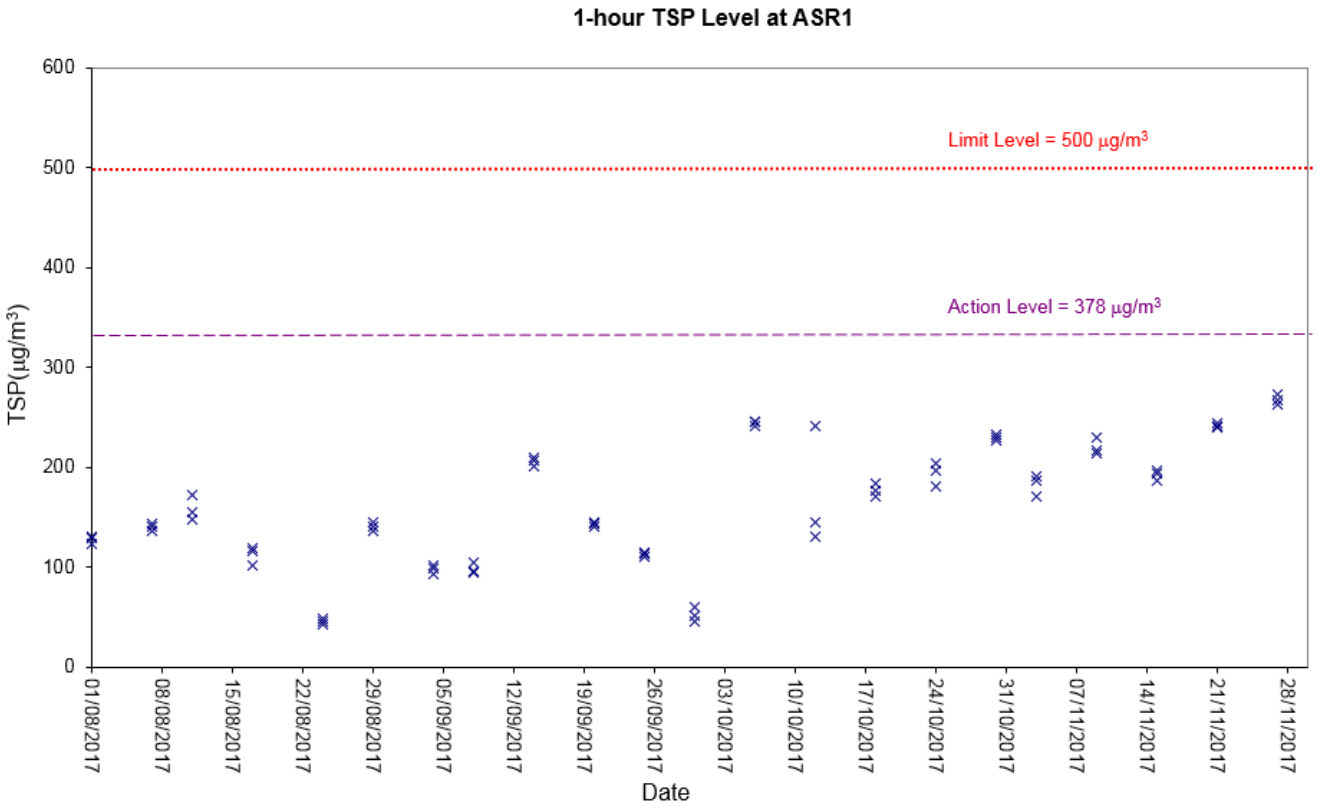
Remark(s): -

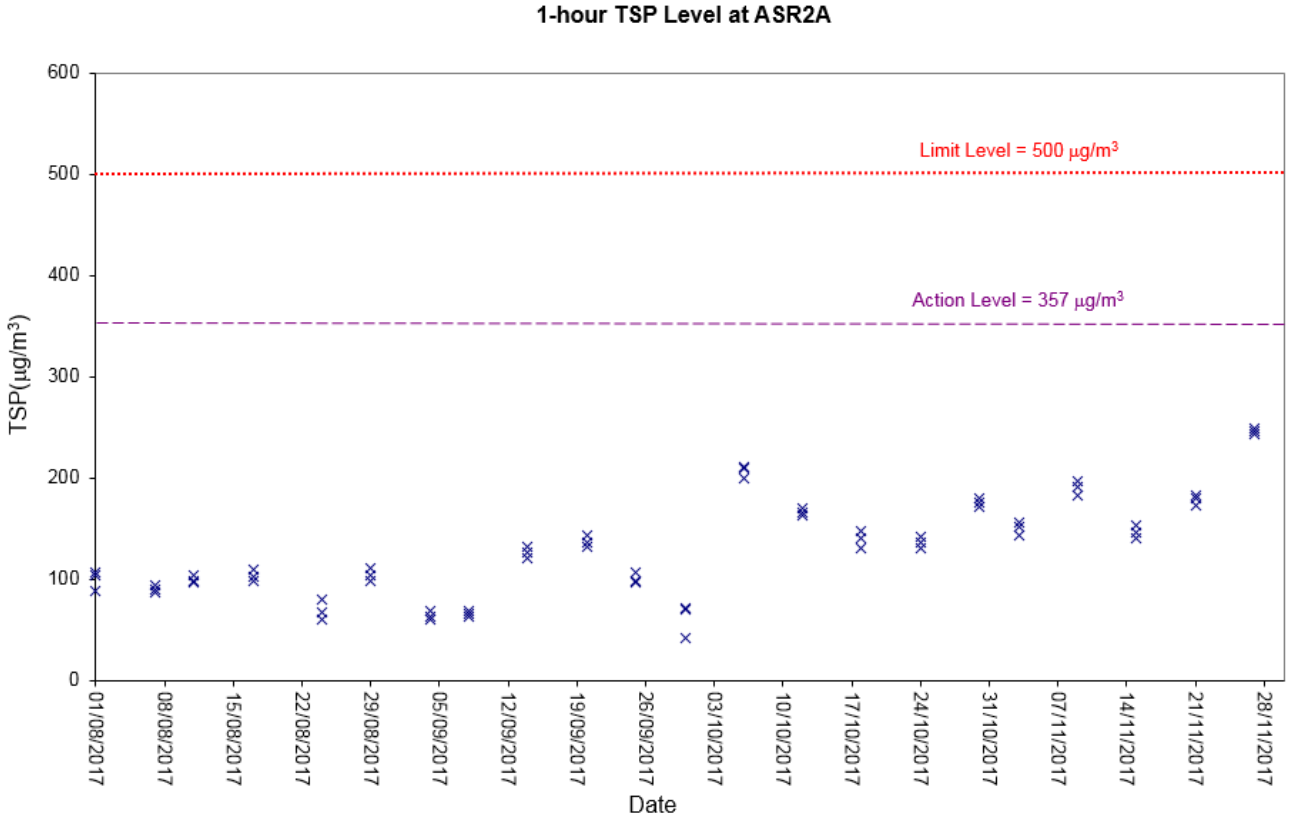
(f) "Displayed Reading" presents the figures shown on item under calibration/ checking regardless of equipment precision or significant figures.

(g) The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards.

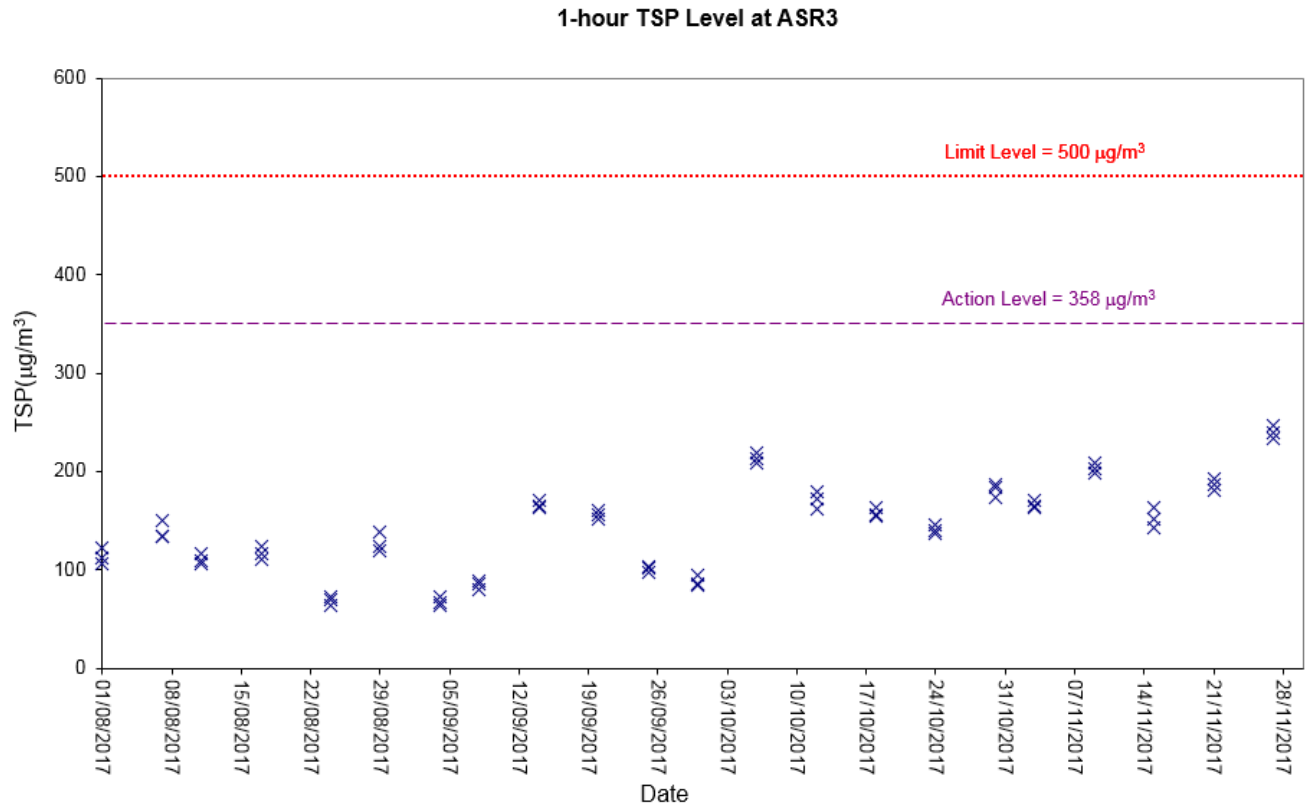
F. Graphical Plots of the Monitoring Results

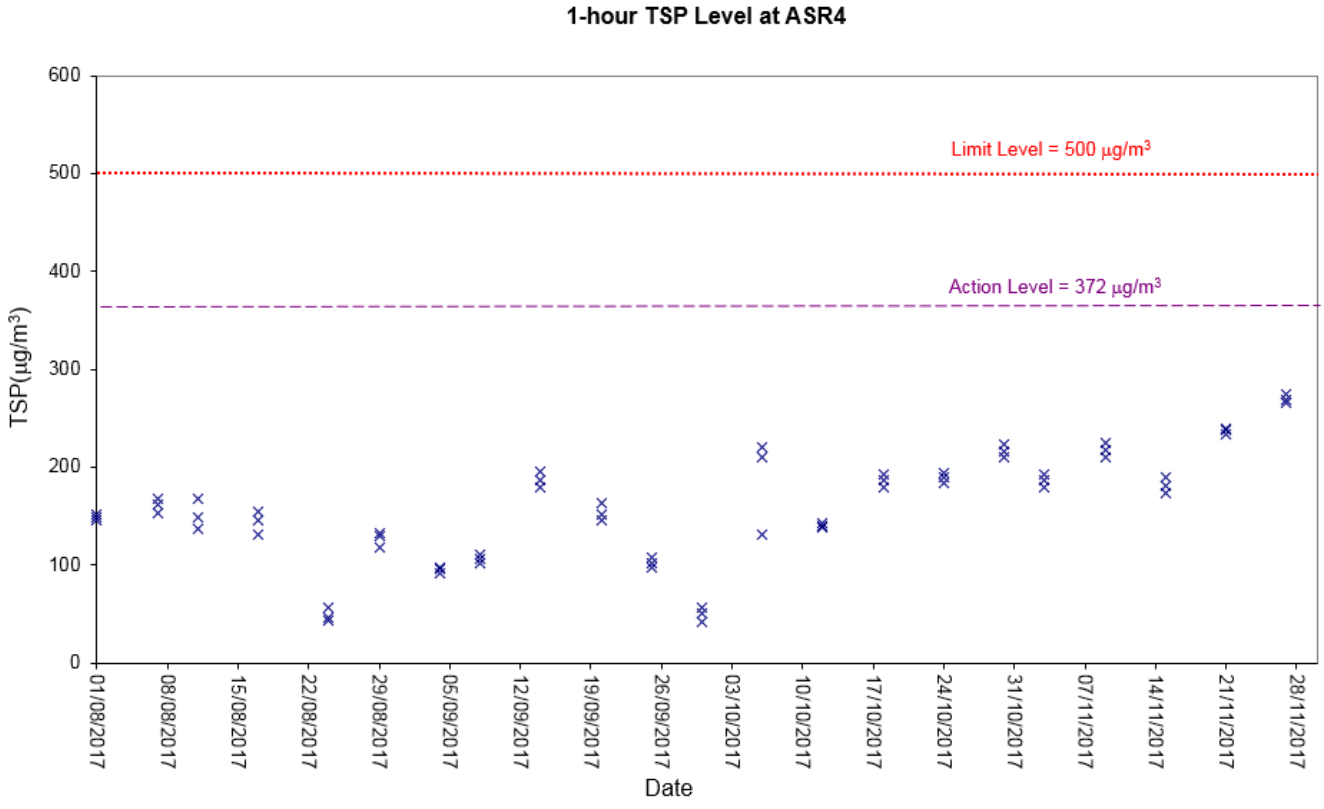
Air Quality


1-hour TSP Level at ASR1
Limit Level = 500 µg/m³
Action Level = 378 µg/m³
TSP(µg/m³)
Date
600
500
400
300
200
100
0
01/08/2017
08/08/2017
15/08/2017
22/08/2017
29/08/2017
05/09/2017
12/09/2017
19/09/2017
26/09/2017
03/10/2017
10/10/2017
17/10/2017
24/10/2017
31/10/2017
07/11/2017
14/11/2017
21/11/2017
28/11/2017

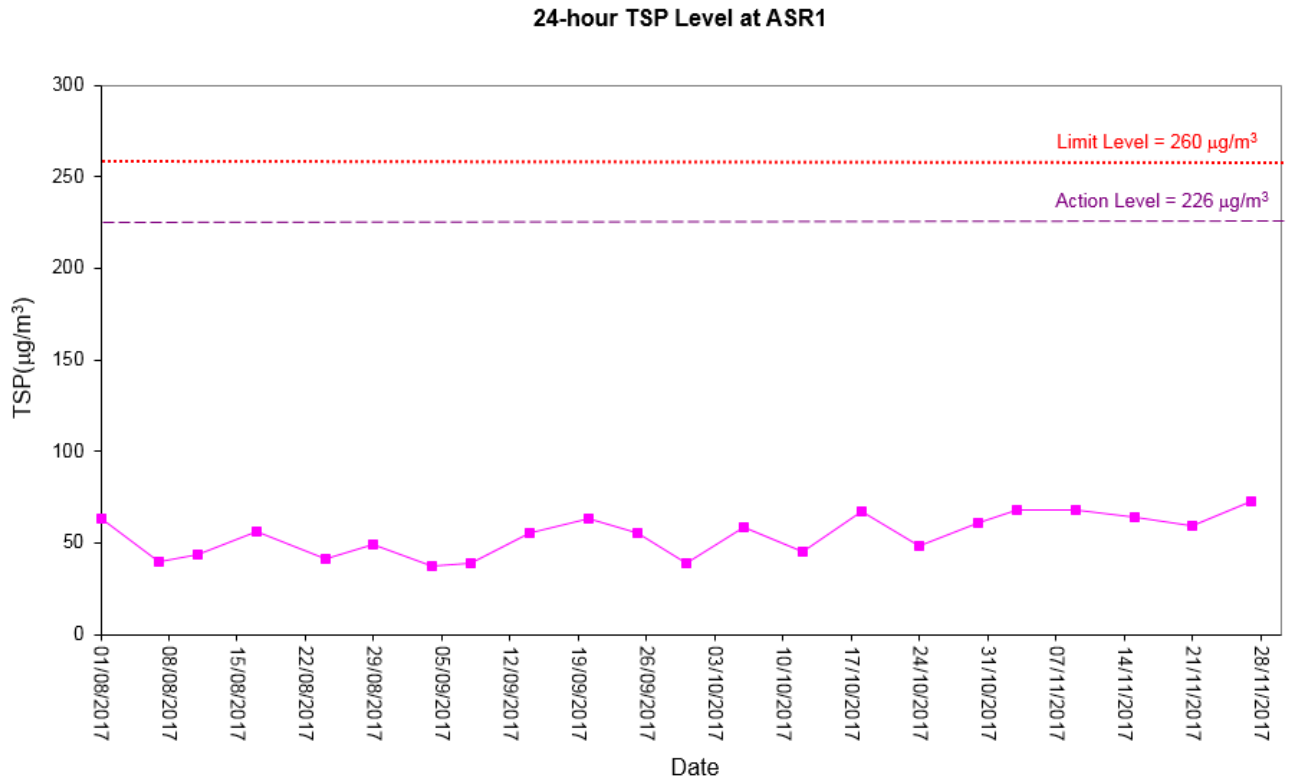

1-hour TSP Level at ASR2A
Limit Level = 500 µg/m³
Action Level = 357 µg/m³
TSP(µg/m³)
Date
600
500
400
300
200
100
0
01/08/2017
08/08/2017
15/08/2017
22/08/2017
29/08/2017
05/09/2017
12/09/2017
19/09/2017
26/09/2017
03/10/2017
10/10/2017
17/10/2017
24/10/2017
31/10/2017
07/11/2017
14/11/2017
21/11/2017
28/11/2017

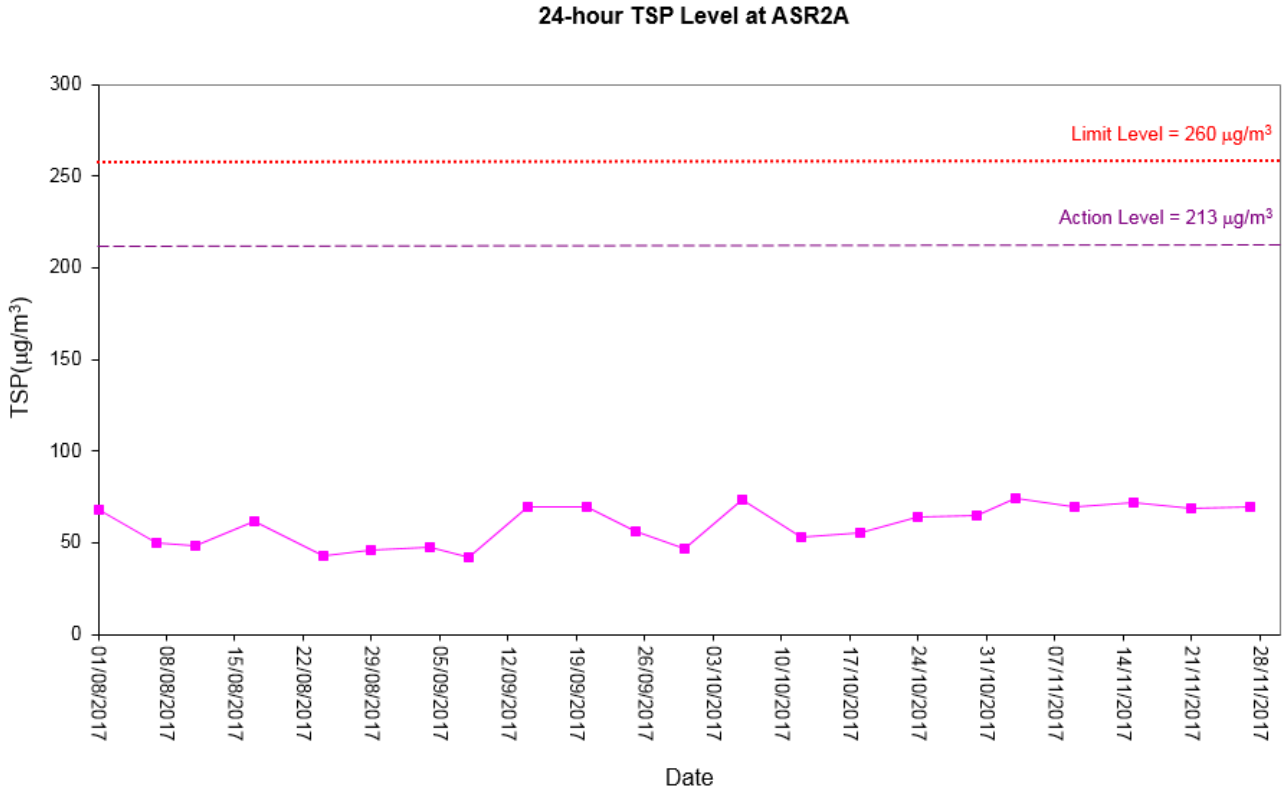
Air Quality


1-hour TSP Level at ASR3
Limit Level = 500 µg/m³
Action Level = 358 µg/m³
TSP(µg/m³)
Date
0
100
200
300
400
500
600
01/08/2017
08/08/2017
15/08/2017
22/08/2017
29/08/2017
05/09/2017
12/09/2017
19/09/2017
26/09/2017
03/10/2017
10/10/2017
17/10/2017
24/10/2017
31/10/2017
07/11/2017
14/11/2017
21/11/2017
28/11/2017

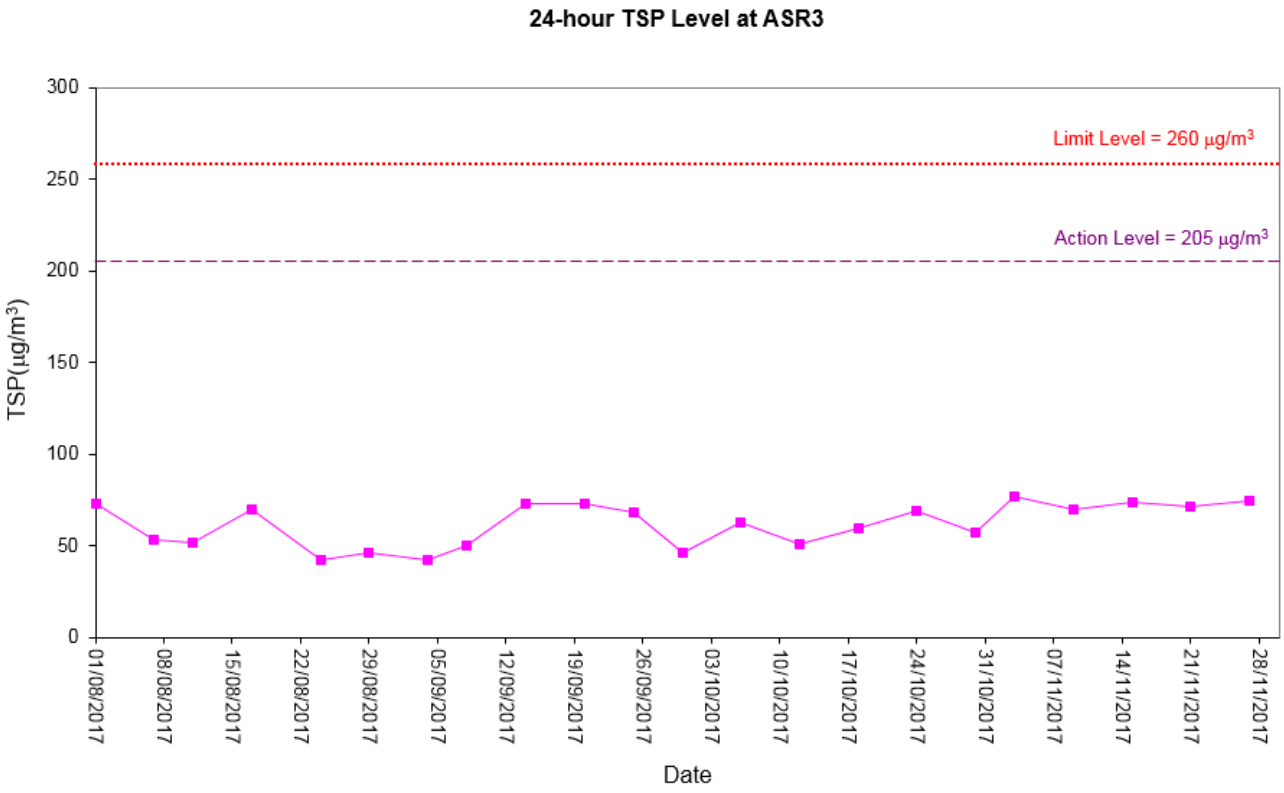

1-hour TSP Level at ASR4
Limit Level = 500 µg/m³
Action Level = 372 µg/m³
TSP(µg/m³)
Date
0
100
200
300
400
500
600
01/08/2017
08/08/2017
15/08/2017
22/08/2017
29/08/2017
05/09/2017
12/09/2017
19/09/2017
26/09/2017
03/10/2017
10/10/2017
17/10/2017
24/10/2017
31/10/2017
07/11/2017
14/11/2017
21/11/2017
28/11/2017

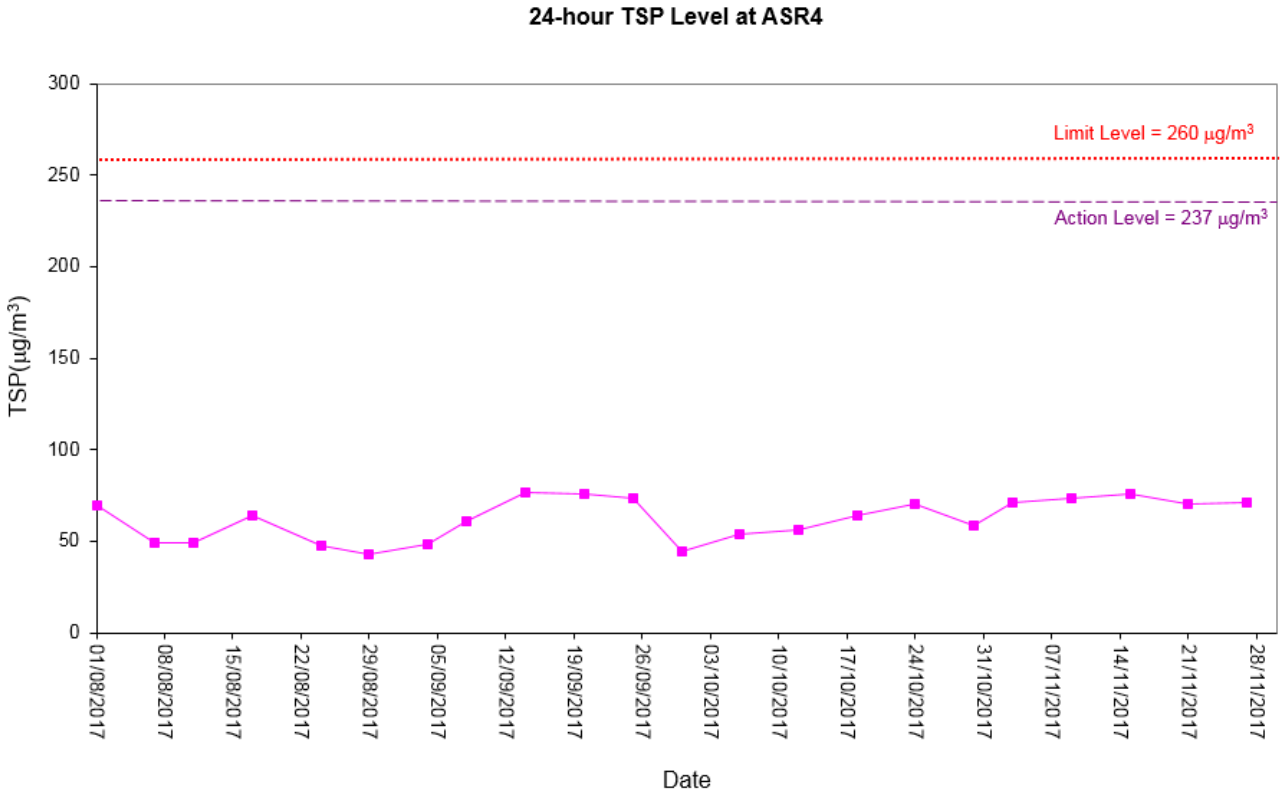
Air Quality


24-hour TSP Level at ASR1
Limit Level = 260 µg/m³
Action Level = 226 µg/m³
TSP(µg/m³)
300
250
200
150
100
50
0
01/08/2017
08/08/2017
15/08/2017
22/08/2017
29/08/2017
05/09/2017
12/09/2017
19/09/2017
26/09/2017
03/10/2017
10/10/2017
17/10/2017
24/10/2017
31/10/2017
07/11/2017
14/11/2017
21/11/2017
28/11/2017
Date

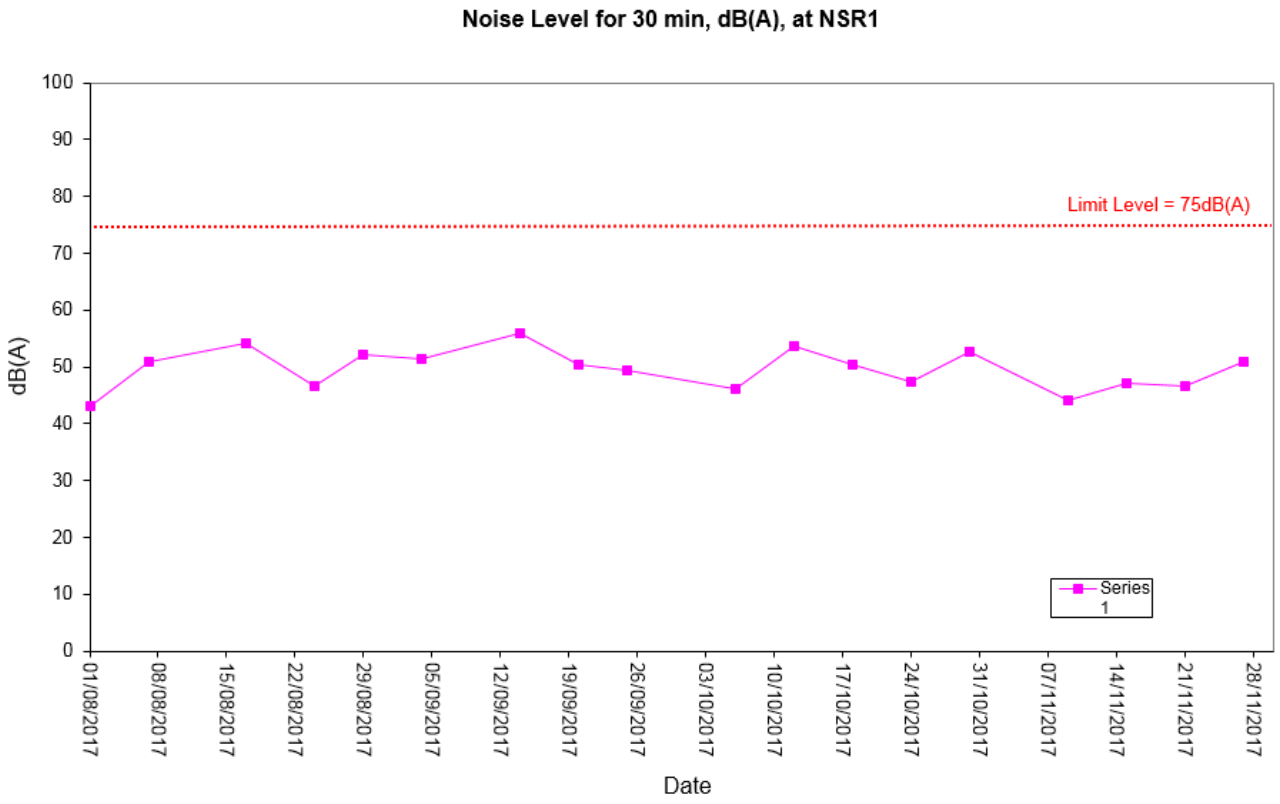

24-hour TSP Level at ASR2A
Limit Level = 260 µg/m³
Action Level = 213 µg/m³
TSP(µg/m³)
300
250
200
150
100
50
0
01/08/2017
08/08/2017
15/08/2017
22/08/2017
29/08/2017
05/09/2017
12/09/2017
19/09/2017
26/09/2017
03/10/2017
10/10/2017
17/10/2017
24/10/2017
31/10/2017
07/11/2017
14/11/2017
21/11/2017
28/11/2017
Date

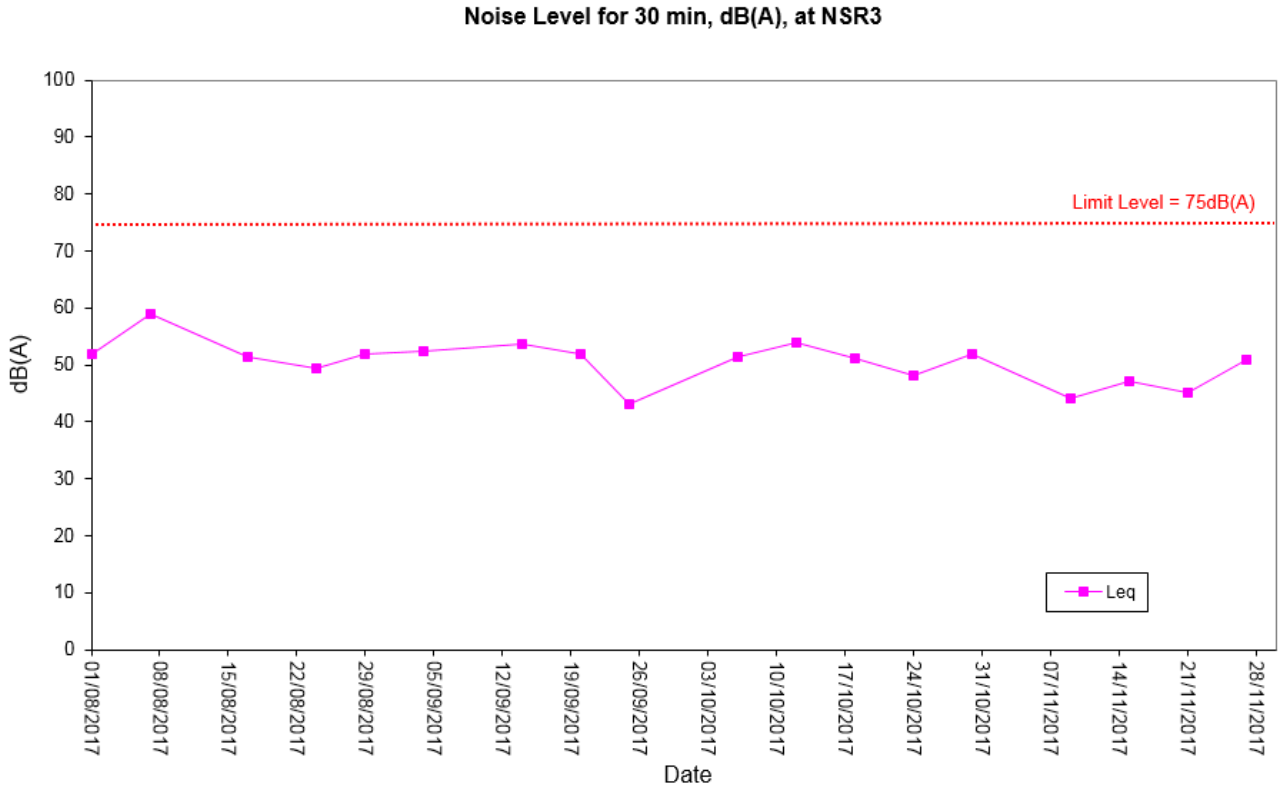
Air Quality


24-hour TSP Level at ASR3
Limit Level = 260 µg/m³
Action Level = 205 µg/m³
TSP(µg/m³)
300
250
200
150
100
50
0
01/08/2017
08/08/2017
15/08/2017
22/08/2017
29/08/2017
05/09/2017
12/09/2017
19/09/2017
26/09/2017
03/10/2017
10/10/2017
17/10/2017
24/10/2017
31/10/2017
07/11/2017
14/11/2017
21/11/2017
28/11/2017
Date

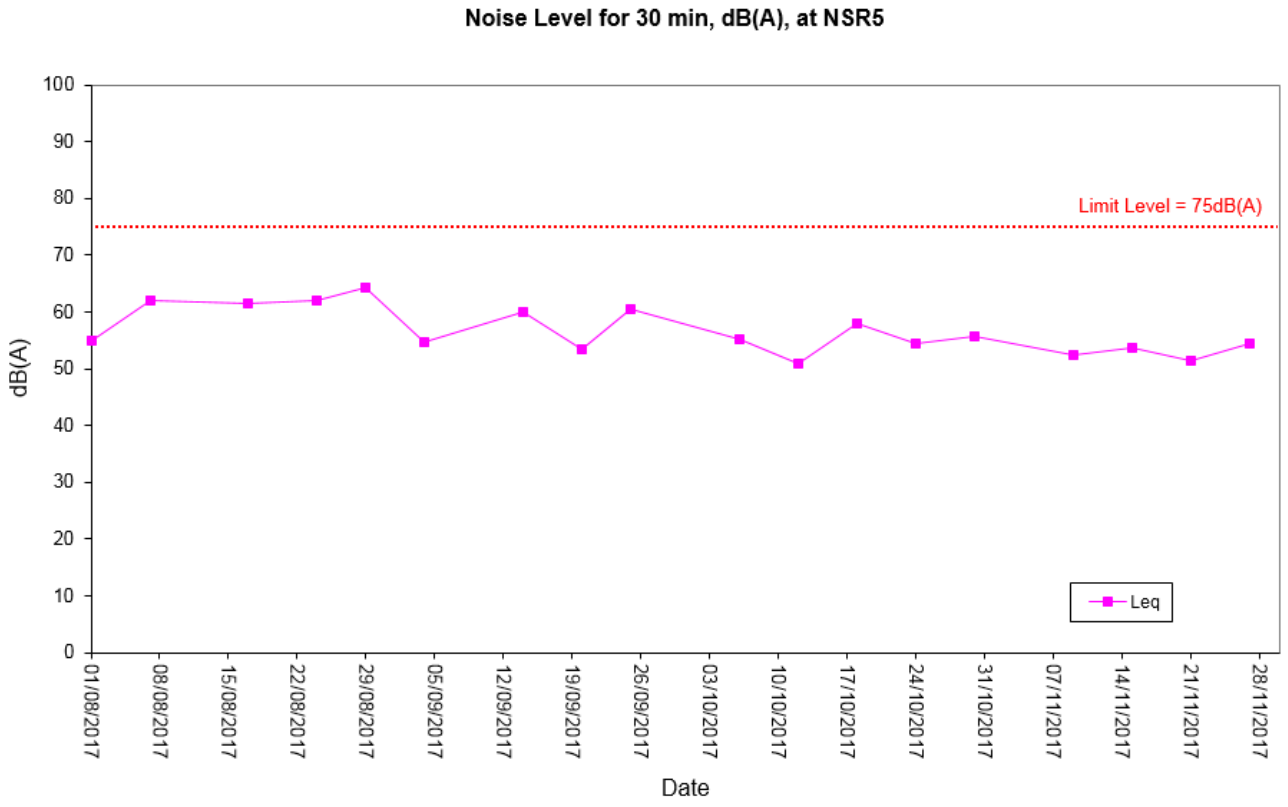

24-hour TSP Level at ASR4
Limit Level = 260 µg/m³
Action Level = 237 µg/m³
TSP(µg/m³)
300
250
200
150
100
50
0
01/08/2017
08/08/2017
15/08/2017
22/08/2017
29/08/2017
05/09/2017
12/09/2017
19/09/2017
26/09/2017
03/10/2017
10/10/2017
17/10/2017
24/10/2017
31/10/2017
07/11/2017
14/11/2017
21/11/2017
28/11/2017
Date

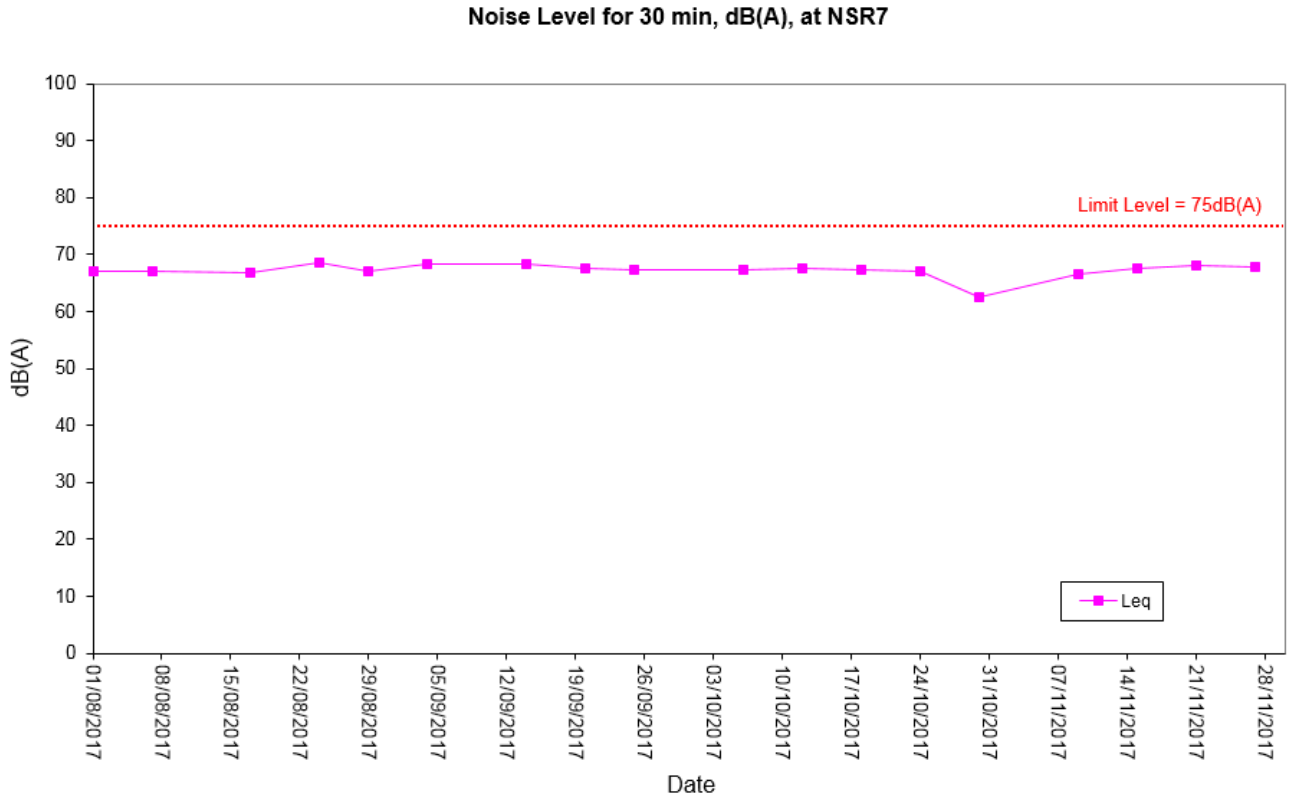
Noise


Noise Level for 30 min, dB(A), at NSR1
dB(A)
Limit Level = 75dB(A)
Series 1
Date
01/08/2017
08/08/2017
15/08/2017
22/08/2017
29/08/2017
05/09/2017
12/09/2017
19/09/2017
26/09/2017
03/10/2017
10/10/2017
17/10/2017
24/10/2017
31/10/2017
07/11/2017
14/11/2017
21/11/2017
28/11/2017

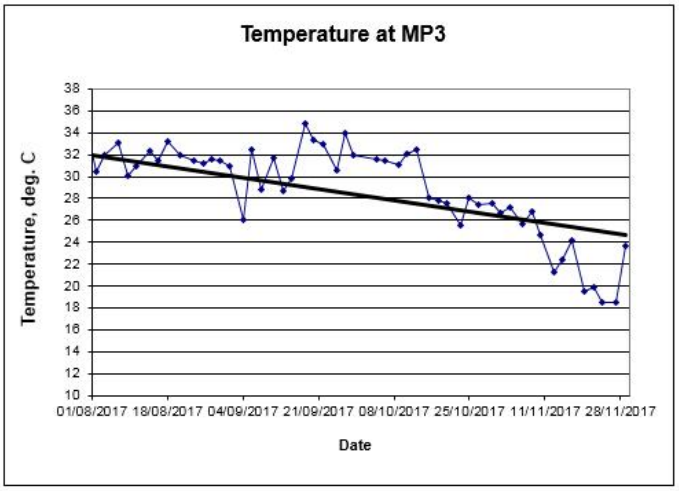

Noise Level for 30 min, dB(A), at NSR3
dB(A)
Limit Level = 75dB(A)
Leq
Date
01/08/2017
08/08/2017
15/08/2017
22/08/2017
29/08/2017
05/09/2017
12/09/2017
19/09/2017
26/09/2017
03/10/2017
10/10/2017
17/10/2017
24/10/2017
31/10/2017
07/11/2017
14/11/2017
21/11/2017
28/11/2017

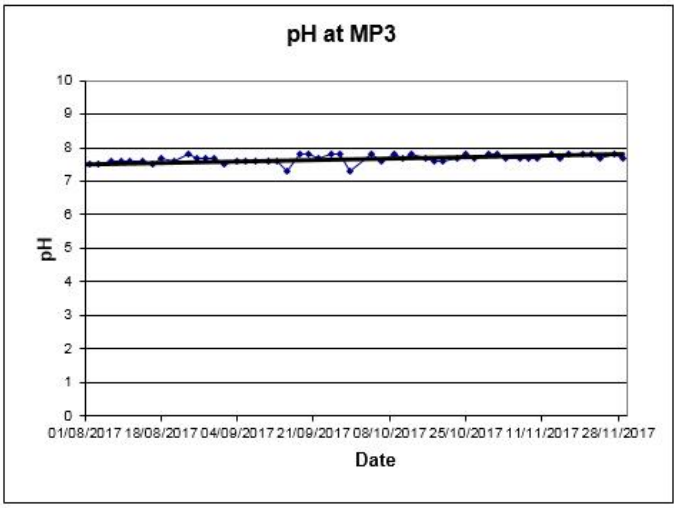
Noise

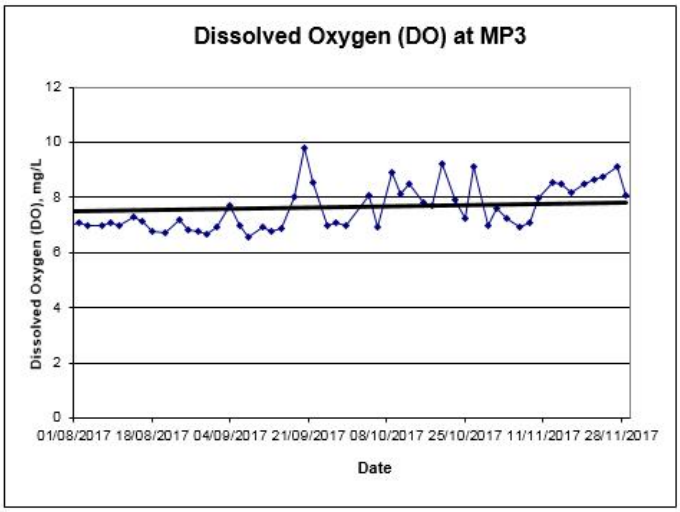

Noise Level for 30 min, dB(A), at NSR5
dB(A)
Limit Level = 75dB(A)
Leq
Date
01/08/2017
08/08/2017
15/08/2017
22/08/2017
29/08/2017
05/09/2017
12/09/2017
19/09/2017
26/09/2017
03/10/2017
10/10/2017
17/10/2017
24/10/2017
31/10/2017
07/11/2017
14/11/2017
21/11/2017
28/11/2017

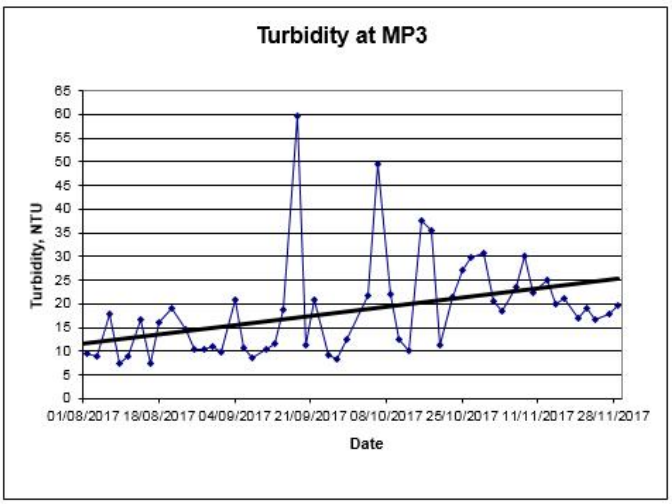

Noise Level for 30 min, dB(A), at NSR7
dB(A)
Limit Level = 75dB(A)
Leq
Date
01/08/2017
08/08/2017
15/08/2017
22/08/2017
29/08/2017
05/09/2017
12/09/2017
19/09/2017
26/09/2017
03/10/2017
10/10/2017
17/10/2017
24/10/2017
31/10/2017
07/11/2017
14/11/2017
21/11/2017
28/11/2017

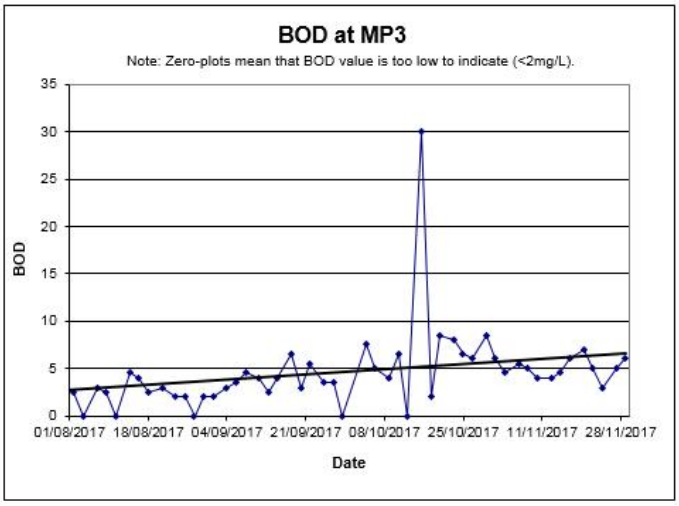
Water Quality

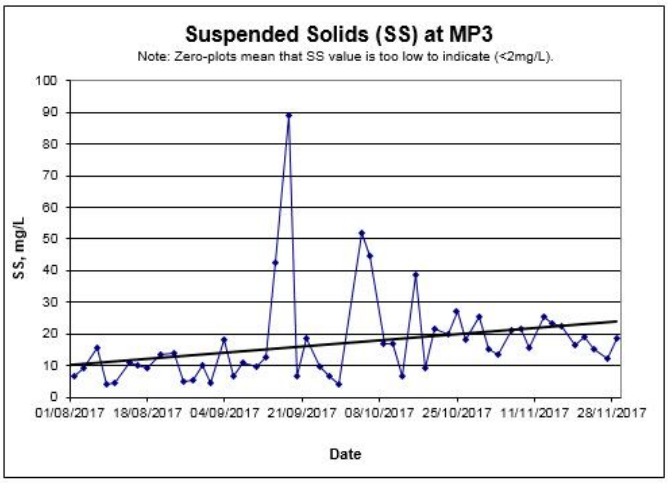




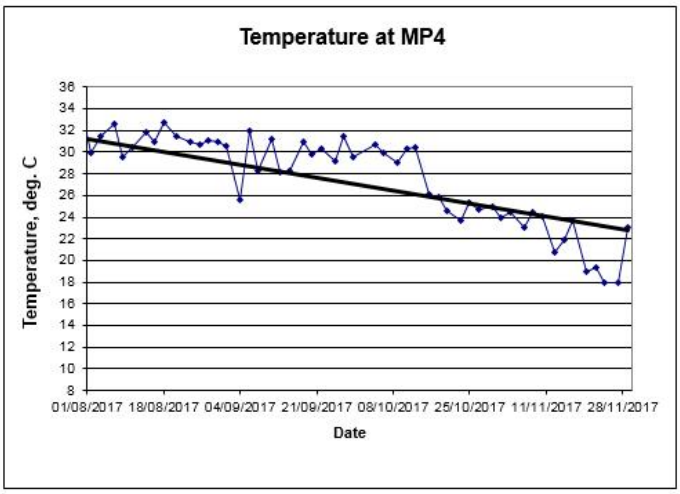


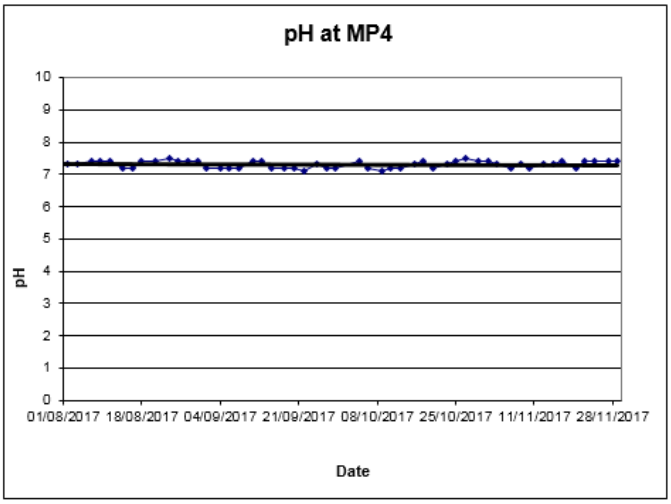


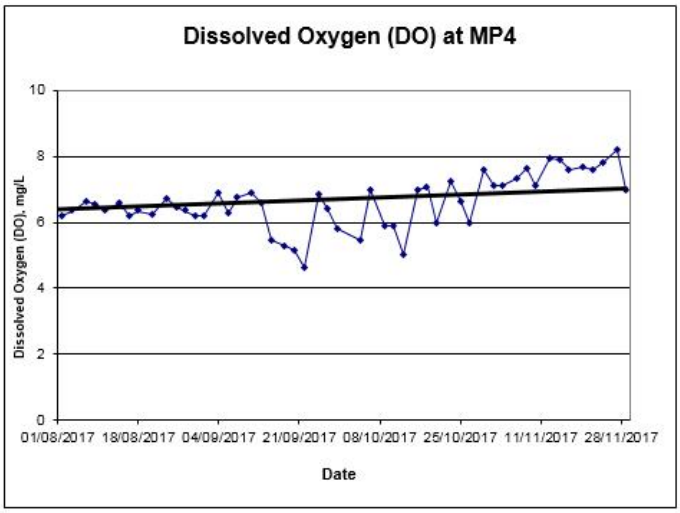


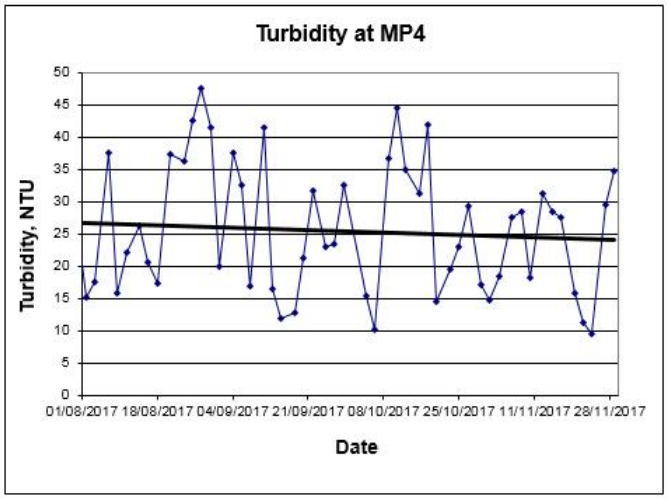


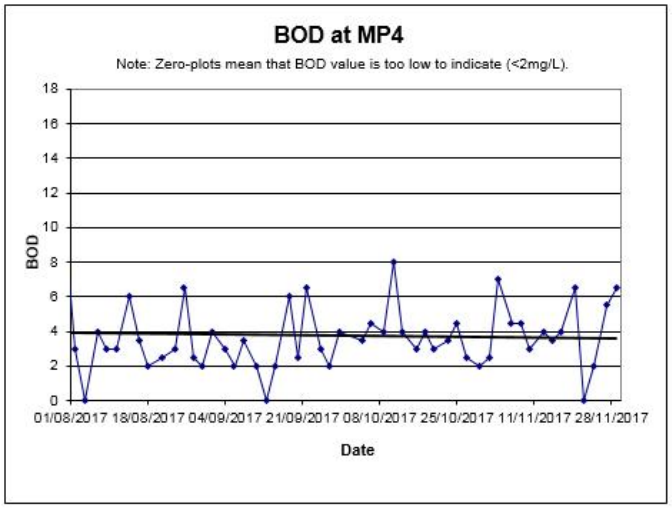
Water Quality

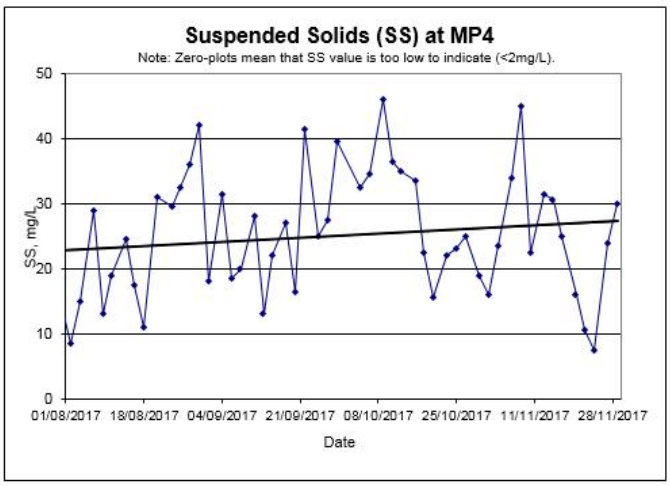




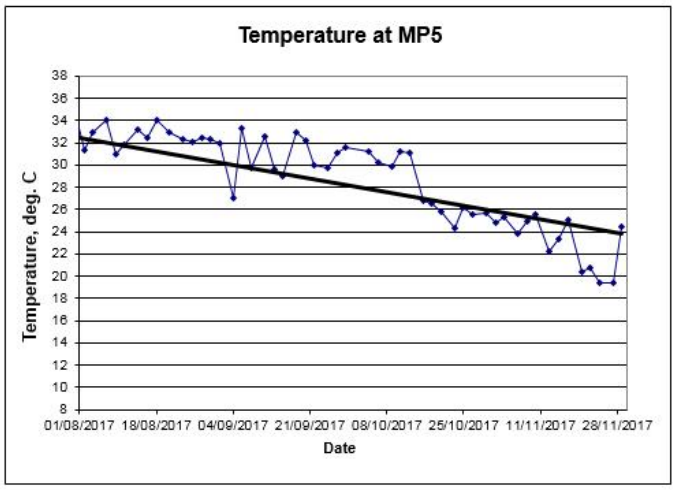


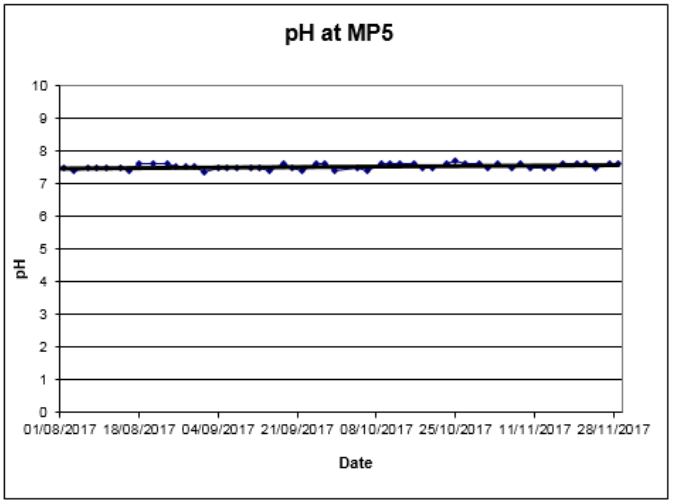


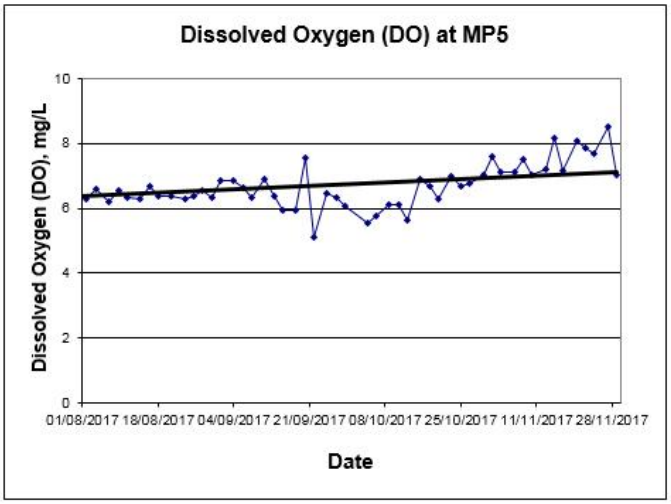


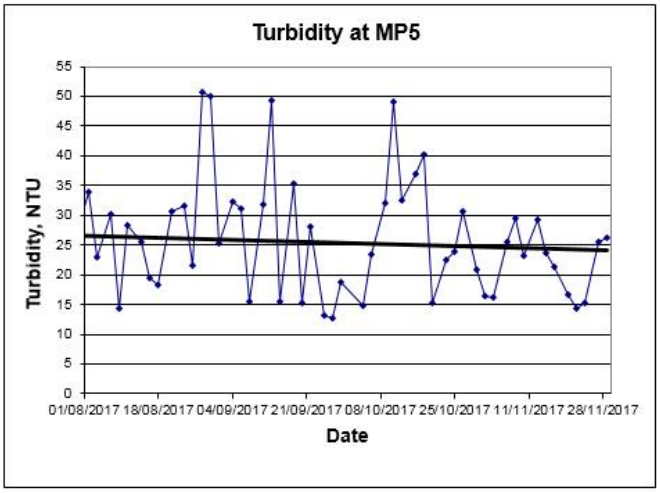


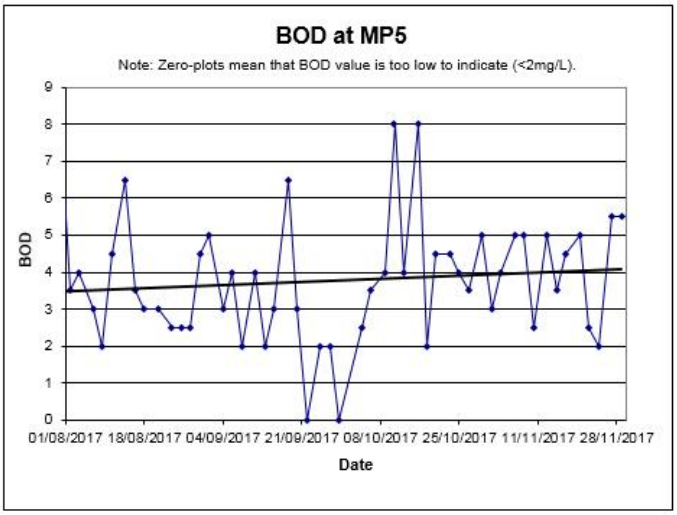
Water Quality

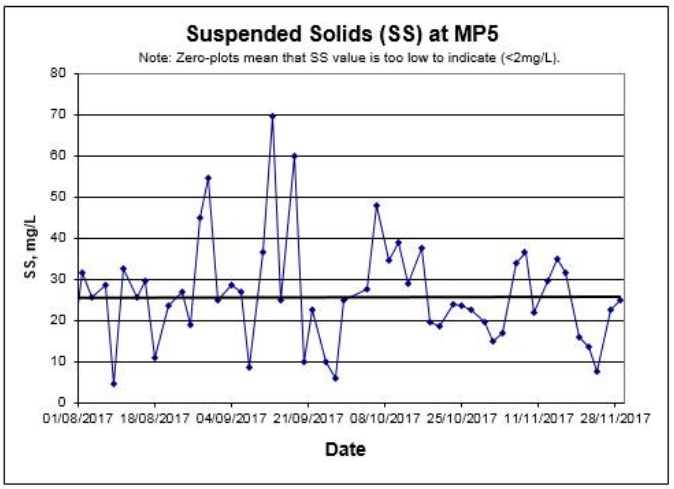




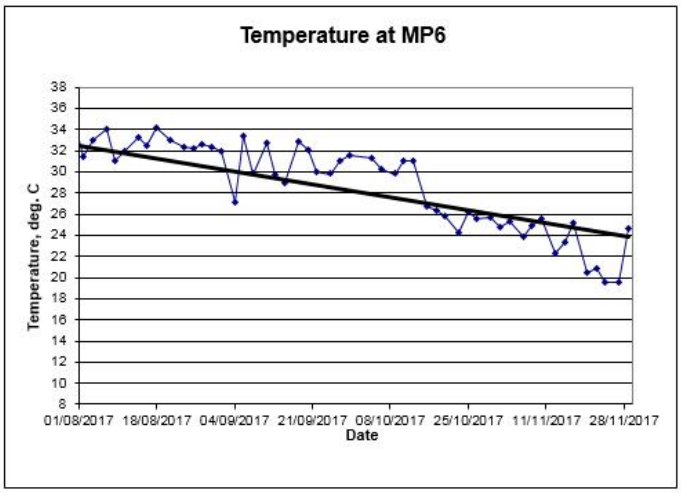


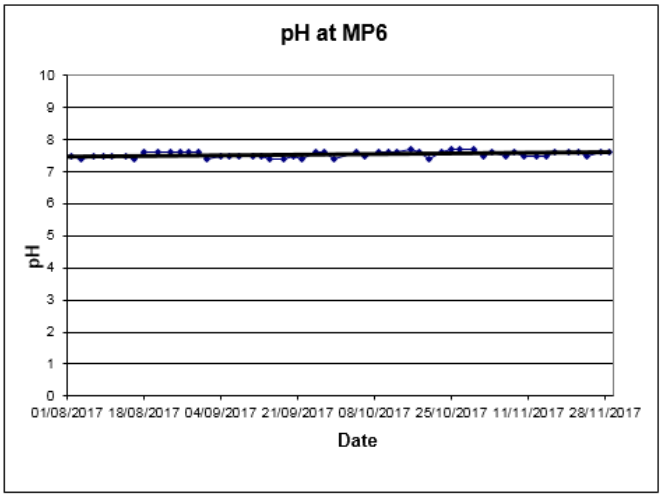


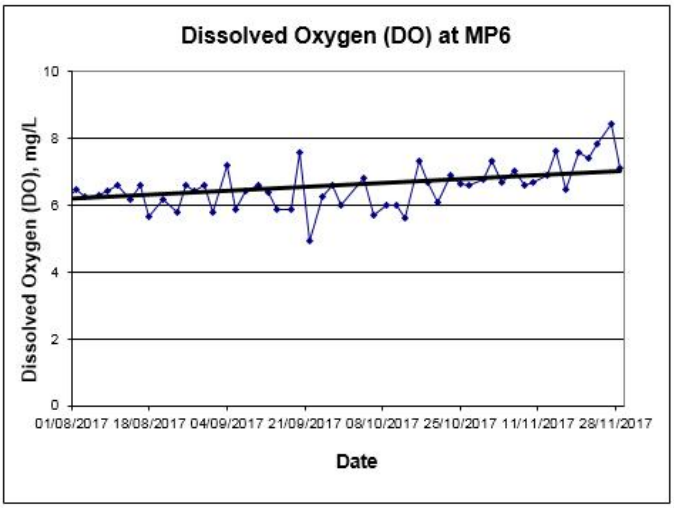


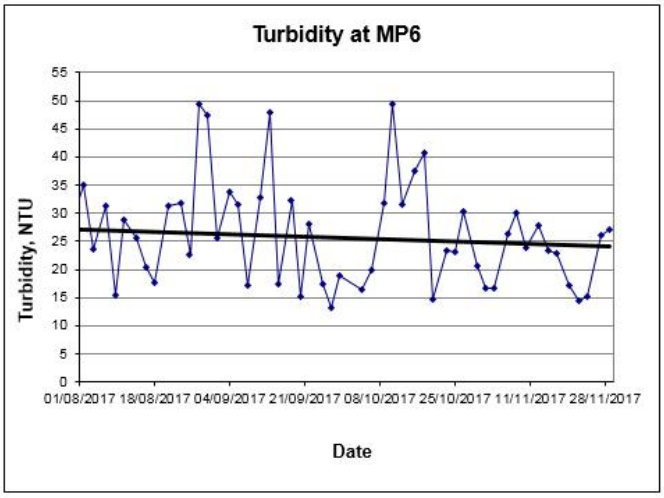


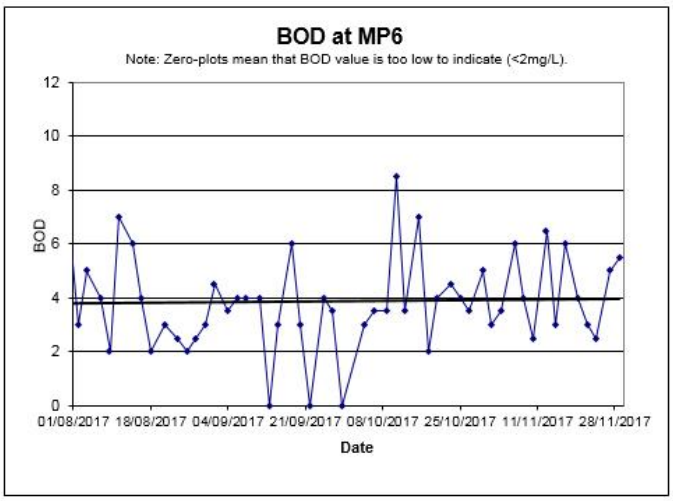
Water Quality

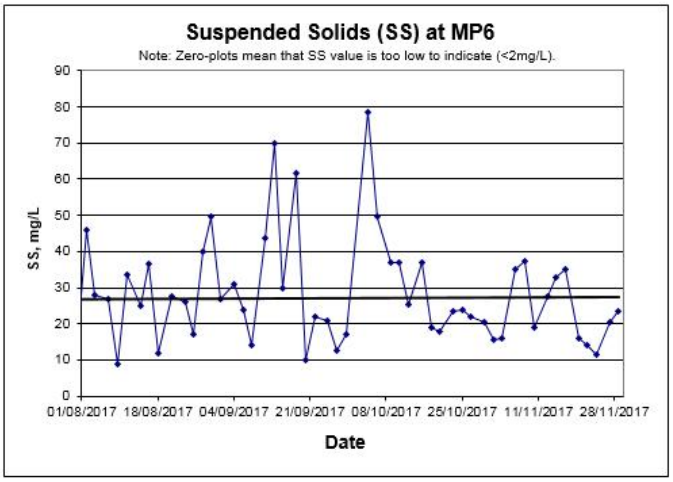












CERTIFICATE OF ANALYSIS

Client	:	ENOVATIVE ENVIRONMENTAL SERVICE LTD	*Laboratory*	:	ALS Technichem (HK) Pty Ltd	*Page*	: 1 of 4
Contact	:	MR THOMAS WONG	*Contact*	:	Richard Fung	*Work Order*	: **HK1773491**
Address	:	FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	*Address*	:	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	:	Thomas.wong@eno.com.hk	*E-mail*	:	richard.fung@alsglobal.com		
Telephone	:	2242 1020	*Telephone*	:	+852 2610 1044		
Facsimile	:	----	*Facsimile*	:	+852 2610 2021		
Project	:	PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG	*Quote number*	:	HK/5895/2015	*Date received*	: 01-Nov-2017
Order number	:	---				*Date of issue*	: 06-Nov-2017
C-O-C number	:	---				*No. of samples*	- *Received* : 8
Site	:						- *Analysed* : 8

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatory	*Position*	*Authorised results for:*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1773491 supersedes any previous reports with this reference. Testing period is from 01-Nov-2017 to 06-Nov-2017. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1773491 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER			Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
			LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID		EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[01-Nov-2017]	HK1773491-001		15	6	----	----	----
MP3-2	[01-Nov-2017]	HK1773491-002		15	6	----	----	----
MP4-1	[01-Nov-2017]	HK1773491-003		16	3	----	----	----
MP4-2	[01-Nov-2017]	HK1773491-004		16	2	----	----	----
MP5-1	[01-Nov-2017]	HK1773491-005		16	3	----	----	----
MP5-2	[01-Nov-2017]	HK1773491-006		14	3	----	----	----
MP6-1	[01-Nov-2017]	HK1773491-007		16	3	----	----	----
MP6-2	[01-Nov-2017]	HK1773491-008		15	3	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1216724)								
HK1773465-021	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	24	26	9.21
HK1773480-002	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2	0.00
EA/ED: Physical and Aggregate Properties (QC Lot: 1216725)								
HK1773508-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	10	12	11.6
HK1773508-008	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	5	5	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 1216724)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	90.5	----	81	117	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 1216725)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	102	----	81	117	----	----
EP: Aggregate Organics (QCLot: 1216847)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	92.6	----	81	115	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

CERTIFICATE OF ANALYSIS

Client	: ENOVATIVE ENVIRONMENTAL SERVICE LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: MR THOMAS WONG	Contact	: Richard Fung	Work Order	: HK1774130
Address	: FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: thomas.wong@eno.com.hk	E-mail	: richard.fung@alsglobal.com		
Telephone	: +852 22421020	Telephone	: +852 2610 1044		
Facsimile	: +852 27143612	Facsimile	: +852 2610 2021		
Project	: PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG	Quote number	: HK/5393b/2016	Date received	: 03-Nov-2017
Order number	: —			Date of issue	: 08-Nov-2017
C-O-C number	: —			No. of samples	- Received : 8
Site	: —				- Analysed : 8

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatory	Position	Authorised results for:
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1774130 supersedes any previous reports with this reference. Testing period is from 03-Nov-2017 to 08-Nov-2017. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1774130 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER			Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
			LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID		EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	03-Nov-2017	HK1774130-001		13	5	----	----	----
MP3-2	03-Nov-2017	HK1774130-002		14	4	----	----	----
MP4-1	03-Nov-2017	HK1774130-003		23	7	----	----	----
MP4-2	03-Nov-2017	HK1774130-004		24	7	----	----	----
MP5-1	03-Nov-2017	HK1774130-005		16	5	----	----	----
MP5-2	03-Nov-2017	HK1774130-006		18	3	----	----	----
MP6-1	03-Nov-2017	HK1774130-007		15	4	----	----	----
MP6-2	03-Nov-2017	HK1774130-008		17	3	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1224062)								
HK1774129-024	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	9	10	12.2
HK1774129-032	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	10	10	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 1224062)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	108	----	81	117	----	----
EP: Aggregate Organics (QCLot: 1221275)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	90.9	----	81	115	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

CERTIFICATE OF ANALYSIS

Client	:	ENOVATIVE ENVIRONMENTAL SERVICE LTD	*Laboratory*	:	ALS Technichem (HK) Pty Ltd	*Page*	: 1 of 4
Contact	:	MR THOMAS WONG	*Contact*	:	Richard Fung	*Work Order*	: **HK1774465**
Address	:	FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	*Address*	:	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	:	Thomas.wong@eno.com.hk	*E-mail*	:	richard.fung@alsglobal.com		
Telephone	:	----	*Telephone*	:	+852 2610 1044		
Facsimile	:	----	*Facsimile*	:	+852 2610 2021		
Project	:	PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG	*Quote number*	:	HK/5895/2015	*Date received*	: 06-Nov-2017
Order number	:	---				*Date of issue*	: 16-Nov-2017
C-O-C number	:	---				*No. of samples*	- *Received* : 8
Site	:						- *Analysed* : 8

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatory	*Position*	*Authorised results for:*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1774465 supersedes any previous reports with this reference. Testing period is from 06-Nov-2017 to 16-Nov-2017. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1774465 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER			Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
			LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID		EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[06-Nov-2017]	HK1774465-001		21	5	----	----	----
MP3-2	[06-Nov-2017]	HK1774465-002		21	6	----	----	----
MP4-1	[06-Nov-2017]	HK1774465-003		34	5	----	----	----
MP4-2	[06-Nov-2017]	HK1774465-004		34	4	----	----	----
MP5-1	[06-Nov-2017]	HK1774465-005		34	5	----	----	----
MP5-2	[06-Nov-2017]	HK1774465-006		34	5	----	----	----
MP6-1	[06-Nov-2017]	HK1774465-007		34	6	----	----	----
MP6-2	[06-Nov-2017]	HK1774465-008		36	6	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1229169)								
HK1774378-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2	0.00
HK1774402-003	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	24	25	0.00
EA/ED: Physical and Aggregate Properties (QC Lot: 1229170)								
HK1774482-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	4	3	0.00
HK1774485-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 1229169)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	98.0	----	81	117	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 1229170)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	108	----	81	117	----	----
EP: Aggregate Organics (QCLot: 1226886)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	105	----	81	115	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

CERTIFICATE OF ANALYSIS

Client	:	ENOVATIVE ENVIRONMENTAL SERVICE LTD	*Laboratory*	:	ALS Technichem (HK) Pty Ltd	*Page*	: 1 of 4
Contact	:	MR THOMAS WONG	*Contact*	:	Richard Fung	*Work Order*	: **HK1774984**
Address	:	FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	*Address*	:	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	:	Thomas.wong@eno.com.hk	*E-mail*	:	richard.fung@alsglobal.com		
Telephone	:	2242 1020	*Telephone*	:	+852 2610 1044		
Facsimile	:	----	*Facsimile*	:	+852 2610 2021		
Project	:	PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG	*Quote number*	:	HK/5895/2015	*Date received*	: 08-Nov-2017
Order number	:	—				*Date of issue*	: 15-Nov-2017
C-O-C number	:	—				*No. of samples*	- *Received* : 8
Site	:						- *Analysed* : 8

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatory	*Position*	*Authorised results for:*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1774984 supersedes any previous reports with this reference. Testing period is from 08-Nov-2017 to 14-Nov-2017. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1774984 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER			Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
			LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID		EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[08-Nov-2017]	HK1774984-001		22	5	----	----	----
MP3-2	[08-Nov-2017]	HK1774984-002		21	5	----	----	----
MP4-1	[08-Nov-2017]	HK1774984-003		43	5	----	----	----
MP4-2	[08-Nov-2017]	HK1774984-004		47	4	----	----	----
MP5-1	[08-Nov-2017]	HK1774984-005		35	6	----	----	----
MP5-2	[08-Nov-2017]	HK1774984-006		38	4	----	----	----
MP6-1	[08-Nov-2017]	HK1774984-007		36	5	----	----	----
MP6-2	[08-Nov-2017]	HK1774984-008		39	3	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1231845)								
HK1775024-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	26	28	9.05
HK1775009-006	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	5	4	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 1231845)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	111	----	81	117	----	----
EP: Aggregate Organics (QCLot: 1232159)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	106	----	81	115	----	----
EP: Aggregate Organics (QCLot: 1232160)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	102	----	81	115	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

CERTIFICATE OF ANALYSIS

Client	:	ENOVATIVE ENVIRONMENTAL SERVICE LTD	*Laboratory*	:	ALS Technichem (HK) Pty Ltd	*Page*	: 1 of 4
Contact	:	MR THOMAS WONG	*Contact*	:	Richard Fung	*Work Order*	: **HK1775355**
Address	:	FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	*Address*	:	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	:	Thomas.wong@eno.com.hk	*E-mail*	:	richard.fung@alsglobal.com		
Telephone	:	----	*Telephone*	:	+852 2610 1044		
Facsimile	:	----	*Facsimile*	:	+852 2610 2021		
Project	:	PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG	*Quote number*	:	HK/5895/2015	*Date received*	: 10-Nov-2017
Order number	:	---				*Date of issue*	: 15-Nov-2017
C-O-C number	:	---				*No. of samples*	- *Received* : 8
Site	:						- *Analysed* : 8

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatory	*Position*	*Authorised results for:*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1775355 supersedes any previous reports with this reference. Testing period is from 10-Nov-2017 to 15-Nov-2017. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1775355 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER			Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
			LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID		EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[10-Nov-2017]	HK1775355-001		15	4	----	----	----
MP3-2	[10-Nov-2017]	HK1775355-002		16	4	----	----	----
MP4-1	[10-Nov-2017]	HK1775355-003		22	3	----	----	----
MP4-2	[10-Nov-2017]	HK1775355-004		23	3	----	----	----
MP5-1	[10-Nov-2017]	HK1775355-005		21	3	----	----	----
MP5-2	[10-Nov-2017]	HK1775355-006		23	2	----	----	----
MP6-1	[10-Nov-2017]	HK1775355-007		18	3	----	----	----
MP6-2	[10-Nov-2017]	HK1775355-008		20	2	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1238788)								
HK1775345-006	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	23	22	7.43
HK1775350-005	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 1238788)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	102	----	81	117	----	----
EP: Aggregate Organics (QCLot: 1236244)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	102	----	81	115	----	----
EP: Aggregate Organics (QCLot: 1236733)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	106	----	81	115	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

CERTIFICATE OF ANALYSIS

Client	:	ENOVATIVE ENVIRONMENTAL SERVICE LTD	*Laboratory*	:	ALS Technichem (HK) Pty Ltd	*Page*	: 1 of 4
Contact	:	MR THOMAS WONG	*Contact*	:	Richard Fung	*Work Order*	: **HK1775717**
Address	:	FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	*Address*	:	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	:	Thomas.wong@eno.com.hk	*E-mail*	:	richard.fung@alsglobal.com		
Telephone	:	2242 1020	*Telephone*	:	+852 2610 1044		
Facsimile	:	----	*Facsimile*	:	+852 2610 2021		
Project	:	PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG	*Quote number*	:	HK/5895/2015	*Date received*	: 13-Nov-2017
Order number	:	---				*Date of issue*	: 20-Nov-2017
C-O-C number	:	---				*No. of samples*	- *Received* : 8
Site	:						- *Analysed* : 8

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatory	*Position*	*Authorised results for:*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1775717 supersedes any previous reports with this reference. Testing period is from 13-Nov-2017 to 20-Nov-2017. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1775717 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER			Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
			LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID		EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[13-Nov-2017]	HK1775717-001		25	4	----	----	----
MP3-2	[13-Nov-2017]	HK1775717-002		26	4	----	----	----
MP4-1	[13-Nov-2017]	HK1775717-003		33	4	----	----	----
MP4-2	[13-Nov-2017]	HK1775717-004		30	4	----	----	----
MP5-1	[13-Nov-2017]	HK1775717-005		30	5	----	----	----
MP5-2	[13-Nov-2017]	HK1775717-006		29	5	----	----	----
MP6-1	[13-Nov-2017]	HK1775717-007		28	6	----	----	----
MP6-2	[13-Nov-2017]	HK1775717-008		27	7	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1241678)								
HK1775659-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2	0.00
HK1775668-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	49	46	5.48
EA/ED: Physical and Aggregate Properties (QC Lot: 1241679)								
HK1775789-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	2	3	0.00
HK1775794-004	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	17	15	13.6

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 1241678)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	96.0	----	81	117	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 1241679)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	100	----	81	117	----	----
EP: Aggregate Organics (QCLot: 1243334)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	102	----	81	115	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

CERTIFICATE OF ANALYSIS

Client	:	ENOVATIVE ENVIRONMENTAL SERVICE LTD	*Laboratory*	:	ALS Technichem (HK) Pty Ltd	*Page*	: 1 of 4
Contact	:	MR THOMAS WONG	*Contact*	:	Richard Fung	*Work Order*	: **HK1776136**
Address	:	FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	*Address*	:	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	:	Thomas.wong@eno.com.hk	*E-mail*	:	richard.fung@alsglobal.com		
Telephone	:	2242 1020	*Telephone*	:	+852 2610 1044		
Facsimile	:	----	*Facsimile*	:	+852 2610 2021		
Project	:	PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG	*Quote number*	:	HK/5895/2015	*Date received*	: 15-Nov-2017
Order number	:	---				*Date of issue*	: 22-Nov-2017
C-O-C number	:	---				*No. of samples*	- *Received* : 8
Site	:						- *Analysed* : 8

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatory	*Position*	*Authorised results for:*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1776136 supersedes any previous reports with this reference. Testing period is from 15-Nov-2017 to 22-Nov-2017. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1776136 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: **WATER**

Client sample ID	Client sampling date / time	Laboratory sample ID	Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
			LOR Unit	2 mg/L	2 mg/L	----	----	----
				EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[15-Nov-2017]	HK1776136-001		**23**	**5**	**----**	**----**	**----**
MP3-2	[15-Nov-2017]	HK1776136-002		**24**	**4**	**----**	**----**	**----**
MP4-1	[15-Nov-2017]	HK1776136-003		**30**	**3**	**----**	**----**	**----**
MP4-2	[15-Nov-2017]	HK1776136-004		**31**	**4**	**----**	**----**	**----**
MP5-1	[15-Nov-2017]	HK1776136-005		**34**	**4**	**----**	**----**	**----**
MP5-2	[15-Nov-2017]	HK1776136-006		**36**	**3**	**----**	**----**	**----**
MP6-1	[15-Nov-2017]	HK1776136-007		**32**	**4**	**----**	**----**	**----**
MP6-2	[15-Nov-2017]	HK1776136-008		**34**	**2**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1247957)								
HK1775839-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	139	148	6.40
HK1776123-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	5	5	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 1247957)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	107	----	81	117	----	----
EP: Aggregate Organics (QCLot: 1246214)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	106	----	81	115	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: ENOVATIVE ENVIRONMENTAL SERVICE LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 5
Contact	: MR THOMAS WONG	Contact	: Richard Fung	Work Order	: HK1776607
Address	: FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Thomas.wong@eno.com.hk	E-mail	: richard.fung@alsglobal.com		
Telephone	: 2242 1020	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG	Quote number	: HK/5895/2015	Date Samples Received	: 17-Nov-2017
Order number	: ----			Issue Date	: 23-Nov-2017
C-O-C number	: ----			No. of samples received	: 8
Site	:			No. of samples analysed	: 8

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Fung Lim Chee, Richard	General Manager	Inorganics

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 17-Nov-2017 to 22-Nov-2017.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1776607

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER

Compound	CAS Number	LOR	Unit	Client sample ID: MP3-1	MP3-2	MP4-1	MP4-2	MP5-1
				Client sampling date / time: [17-Nov-2017]	[17-Nov-2017]	[17-Nov-2017]	[17-Nov-2017]	[17-Nov-2017]
				HK1776607-001	HK1776607-002	HK1776607-003	HK1776607-004	HK1776607-005
EA/ED: Physical and Aggregate Properties								
EA025: Suspended Solids (SS)	----	2	mg/L	23	22	24	26	32
EP: Aggregate Organics								
EP030: Biochemical Oxygen Demand	----	2	mg/L	6	6	5	3	5

Sub-Matrix: WATER			Client sample ID	MP5-2	MP6-1	MP6-2	----	----
			Client sampling date / time	[17-Nov-2017]	[17-Nov-2017]	[17-Nov-2017]	----	----
Compound	CAS Number	LOR	Unit	HK1776607-006	HK1776607-007	HK1776607-008	------	------
EA/ED: Physical and Aggregate Properties								
EA025: Suspended Solids (SS)	----	2	mg/L	31	35	35	---	---
EP: Aggregate Organics								
EP030: Biochemical Oxygen Demand	----	2	mg/L	4	6	6	---	---

Laboratory Duplicate (DUP) Report

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1254666)								
HK1776582-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	119	111	6.88
HK1776585-006	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	9	10	0.00
EA/ED: Physical and Aggregate Properties (QC Lot: 1254667)								
HK1776608-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	6	5	0.00
HK1776608-007	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	22	20	9.10

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 1254666)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	88.5	----	81	117	----	----
EA/ED: Physical and Aggregate Properties (QC Lot: 1254667)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	99.5	----	81	117	----	----
EP: Aggregate Organics (QC Lot: 1252434)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	99.2	----	81	115	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.

CERTIFICATE OF ANALYSIS

Client	: ENOVATIVE ENVIRONMENTAL SERVICE LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: MR THOMAS WONG	Contact	: Richard Fung	Work Order	: HK1776918
Address	: FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Thomas.wong@eno.com.hk	E-mail	: richard.fung@alsglobal.com		
Telephone	: 2242 1020	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG	Quote number	: HK/5895/2015	Date received	: 20-Nov-2017
Order number	: —			Date of issue	: 27-Nov-2017
C-O-C number	: —			No. of samples	- Received : 8
Site	:				- Analysed : 8

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatory	Position	Authorised results for:
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1776918 supersedes any previous reports with this reference. Testing period is from 20-Nov-2017 to 27-Nov-2017. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1776918 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER			Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
			LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID		EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[20-Nov-2017]	HK1776918-001		16	6	----	----	----
MP3-2	[20-Nov-2017]	HK1776918-002		17	8	----	----	----
MP4-1	[20-Nov-2017]	HK1776918-003		16	6	----	----	----
MP4-2	[20-Nov-2017]	HK1776918-004		16	7	----	----	----
MP5-1	[20-Nov-2017]	HK1776918-005		16	5	----	----	----
MP5-2	[20-Nov-2017]	HK1776918-006		16	5	----	----	----
MP6-1	[20-Nov-2017]	HK1776918-007		16	4	----	----	----
MP6-2	[20-Nov-2017]	HK1776918-008		16	4	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1257674)								
HK1776890-003	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2	0.00
HK1776907-003	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<5	<5	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 1257674)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	96.5	----	81	117	----	----
EP: Aggregate Organics (QCLot: 1258590)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	108	----	81	115	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

CERTIFICATE OF ANALYSIS

Client	: ENOVATIVE ENVIRONMENTAL SERVICE LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: MR THOMAS WONG	Contact	: Richard Fung	Work Order	: HK1777263
Address	: FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Thomas.wong@eno.com.hk	E-mail	: richard.fung@alsglobal.com		
Telephone	: 2242 1020	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG	Quote number	: HK/5895/2015	Date received	: 22-Nov-2017
Order number	: —			Date of issue	: 29-Nov-2017
C-O-C number	: —			No. of samples	- Received : 8
Site	:				- Analysed : 8

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatory	Position	Authorised results for:
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1777263 supersedes any previous reports with this reference. Testing period is from 22-Nov-2017 to 28-Nov-2017. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1777263 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER			Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
			LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID		EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[22-Nov-2017]	HK1777263-001		18	6	----	----	----
MP3-2	[22-Nov-2017]	HK1777263-002		20	4	----	----	----
MP4-1	[22-Nov-2017]	HK1777263-003		11	<2	----	----	----
MP4-2	[22-Nov-2017]	HK1777263-004		10	<2	----	----	----
MP5-1	[22-Nov-2017]	HK1777263-005		13	3	----	----	----
MP5-2	[22-Nov-2017]	HK1777263-006		14	2	----	----	----
MP6-1	[22-Nov-2017]	HK1777263-007		14	3	----	----	----
MP6-2	[22-Nov-2017]	HK1777263-008		14	3	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1264017)								
HK1777229-007	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	31	34	9.56
HK1777255-003	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2	0.00
EA/ED: Physical and Aggregate Properties (QC Lot: 1264018)								
HK1777264-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	23	23	0.00
HK1777265-004	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	3	3	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 1264017)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	102	----	81	117	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 1264018)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	89.0	----	81	117	----	----
EP: Aggregate Organics (QCLot: 1264733)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	107	----	81	115	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

CERTIFICATE OF ANALYSIS

Client	: ENOVATIVE ENVIRONMENTAL SERVICE LTD	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 4
Contact	: MR THOMAS WONG	Contact	: Richard Fung	Work Order	: HK1777620
Address	: FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Thomas.wong@eno.com.hk	E-mail	: richard.fung@alsglobal.com		
Telephone	: 2242 1020	Telephone	: +852 2610 1044		
Facsimile	: ----	Facsimile	: +852 2610 2021		
Project	: PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG	Quote number	: HK/5895/2015	Date received	: 24-Nov-2017
Order number	: —			Date of issue	: 04-Dec-2017
C-O-C number	: —			No. of samples	- Received : 8
Site	:				- Analysed : 8

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatory	Position	Authorised results for:
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1777620 supersedes any previous reports with this reference. Testing period is from 24-Nov-2017 to 04-Dec-2017. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1777620 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER			Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
			LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID		EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[24-Nov-2017]	HK1777620-001		14	3	----	----	----
MP3-2	[24-Nov-2017]	HK1777620-002		16	3	----	----	----
MP4-1	[24-Nov-2017]	HK1777620-003		8	<2	----	----	----
MP4-2	[24-Nov-2017]	HK1777620-004		7	2	----	----	----
MP5-1	[24-Nov-2017]	HK1777620-005		7	2	----	----	----
MP5-2	[24-Nov-2017]	HK1777620-006		8	2	----	----	----
MP6-1	[24-Nov-2017]	HK1777620-007		11	2	----	----	----
MP6-2	[24-Nov-2017]	HK1777620-008		12	3	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1271676)								
HK1777605-003	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<5	<5	0.00
HK1777617-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	11	9	20.1

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 1271676)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	99.5	----	81	117	----	----
EP: Aggregate Organics (QCLot: 1272923)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	109	----	81	115	----	----
EP: Aggregate Organics (QCLot: 1272924)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	110	----	81	115	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

CERTIFICATE OF ANALYSIS

Client	:	ENOVATIVE ENVIRONMENTAL SERVICE LTD	*Laboratory*	:	ALS Technichem (HK) Pty Ltd	*Page*	: 1 of 4
Contact	:	MR THOMAS WONG	*Contact*	:	Richard Fung	*Work Order*	: **HK1777809**
Address	:	FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	*Address*	:	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	:	Thomas.wong@eno.com.hk	*E-mail*	:	richard.fung@alsglobal.com		
Telephone	:	2242 1020	*Telephone*	:	+852 2610 1044		
Facsimile	:	----	*Facsimile*	:	+852 2610 2021		
Project	:	PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG	*Quote number*	:	HK/5895/2015	*Date received*	: 27-Nov-2017
Order number	:	---				*Date of issue*	: 04-Dec-2017
C-O-C number	:	---				*No. of samples*	- *Received* : 8
Site	:						- *Analysed* : 8

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatory	*Position*	*Authorised results for:*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1777809 supersedes any previous reports with this reference. Testing period is from 27-Nov-2017 to 04-Dec-2017. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1777809 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: **WATER**

Client sample ID	Client sampling date / time	Laboratory sample ID	Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
			LOR Unit	2 mg/L	2 mg/L	----	----	----
				EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[27-Nov-2017]	HK1777809-001		**12**	**5**	**----**	**----**	**----**
MP3-2	[27-Nov-2017]	HK1777809-002		**12**	**5**	**----**	**----**	**----**
MP4-1	[27-Nov-2017]	HK1777809-003		**24**	**6**	**----**	**----**	**----**
MP4-2	[27-Nov-2017]	HK1777809-004		**24**	**5**	**----**	**----**	**----**
MP5-1	[27-Nov-2017]	HK1777809-005		**23**	**5**	**----**	**----**	**----**
MP5-2	[27-Nov-2017]	HK1777809-006		**22**	**6**	**----**	**----**	**----**
MP6-1	[27-Nov-2017]	HK1777809-007		**21**	**5**	**----**	**----**	**----**
MP6-2	[27-Nov-2017]	HK1777809-008		**20**	**5**	**----**	**----**	**----**

Laboratory Duplicate (DUP) Report

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1274791)								
HK1777705-013	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	284	297	4.41
HK1777777-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	5	6	20.1
EA/ED: Physical and Aggregate Properties (QC Lot: 1274792)								
HK1777815-004	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2	0.00
HK1777851-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	9	10	16.7

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 1274791)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	102	----	81	117	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 1274792)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	93.0	----	81	117	----	----
EP: Aggregate Organics (QCLot: 1278791)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	111	----	81	115	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

CERTIFICATE OF ANALYSIS

Client	:	ENOVATIVE ENVIRONMENTAL SERVICE LTD	*Laboratory*	:	ALS Technichem (HK) Pty Ltd	*Page*	: 1 of 4
Contact	:	MR THOMAS WONG	*Contact*	:	Richard Fung	*Work Order*	: **HK1778117**
Address	:	FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	*Address*	:	11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	:	Thomas.wong@eno.com.hk	*E-mail*	:	richard.fung@alsglobal.com		
Telephone	:	2242 1020	*Telephone*	:	+852 2610 1044		
Facsimile	:	----	*Facsimile*	:	+852 2610 2021		
Project	:	PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG	*Quote number*	:	HK/5895/2015	*Date received*	: 29-Nov-2017
Order number	:	---				*Date of issue*	: 04-Dec-2017
C-O-C number	:	---				*No. of samples*	- *Received* : 8
Site	:						- *Analysed* : 8

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatory	*Position*	*Authorised results for:*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1778117 supersedes any previous reports with this reference. Testing period is from 29-Nov-2017 to 04-Dec-2017. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1778117 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER			Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
			LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID		EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[29-Nov-2017]	HK1778117-001		18	6	----	----	----
MP3-2	[29-Nov-2017]	HK1778117-002		19	6	----	----	----
MP4-1	[29-Nov-2017]	HK1778117-003		30	6	----	----	----
MP4-2	[29-Nov-2017]	HK1778117-004		30	7	----	----	----
MP5-1	[29-Nov-2017]	HK1778117-005		25	5	----	----	----
MP5-2	[29-Nov-2017]	HK1778117-006		25	6	----	----	----
MP6-1	[29-Nov-2017]	HK1778117-007		24	6	----	----	----
MP6-2	[29-Nov-2017]	HK1778117-008		23	5	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1281322)								
HK1778093-007	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	6	6	0.00
HK1778093-008	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	8	6	28.6

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 1281322)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	107	----	81	117	----	----
EP: Aggregate Organics (QCLot: 1278792)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	109	----	81	115	----	----
EP: Aggregate Organics (QCLot: 1279693)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	112	----	81	115	----	----

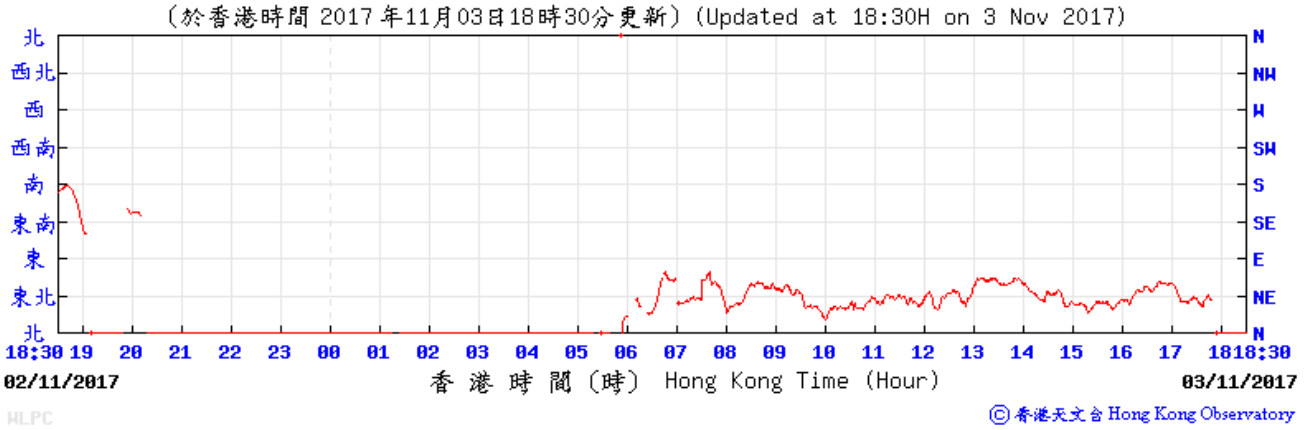
Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

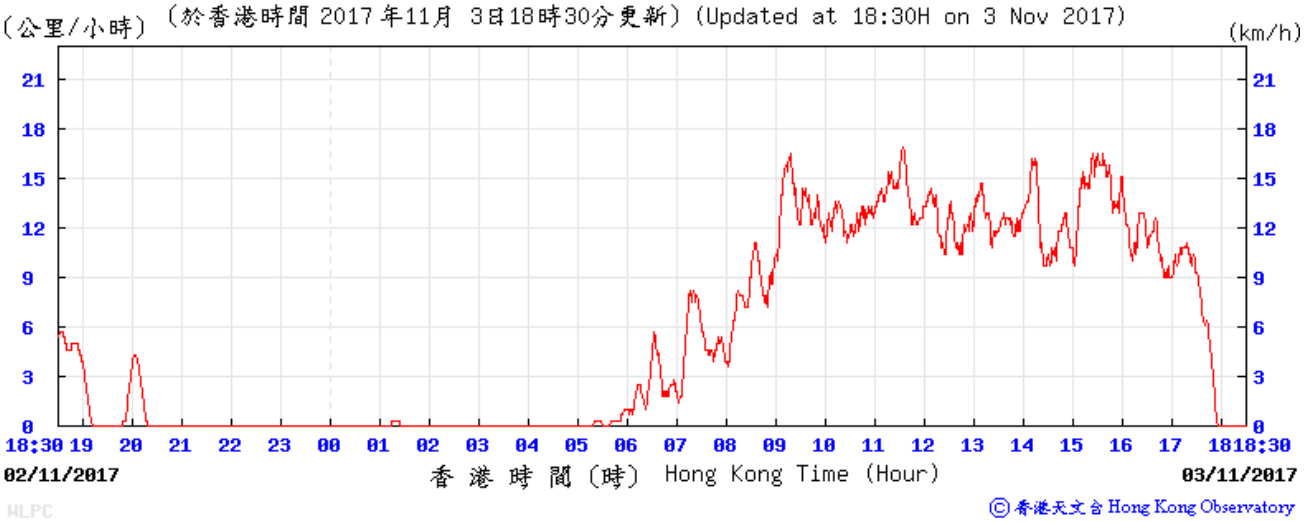
- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

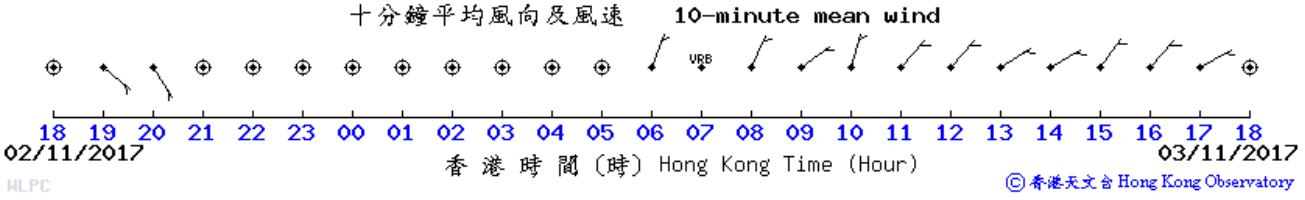
G. Weather Conditions during the Monitoring Period

Wind Data for Wetland Park

3 Nov 2017

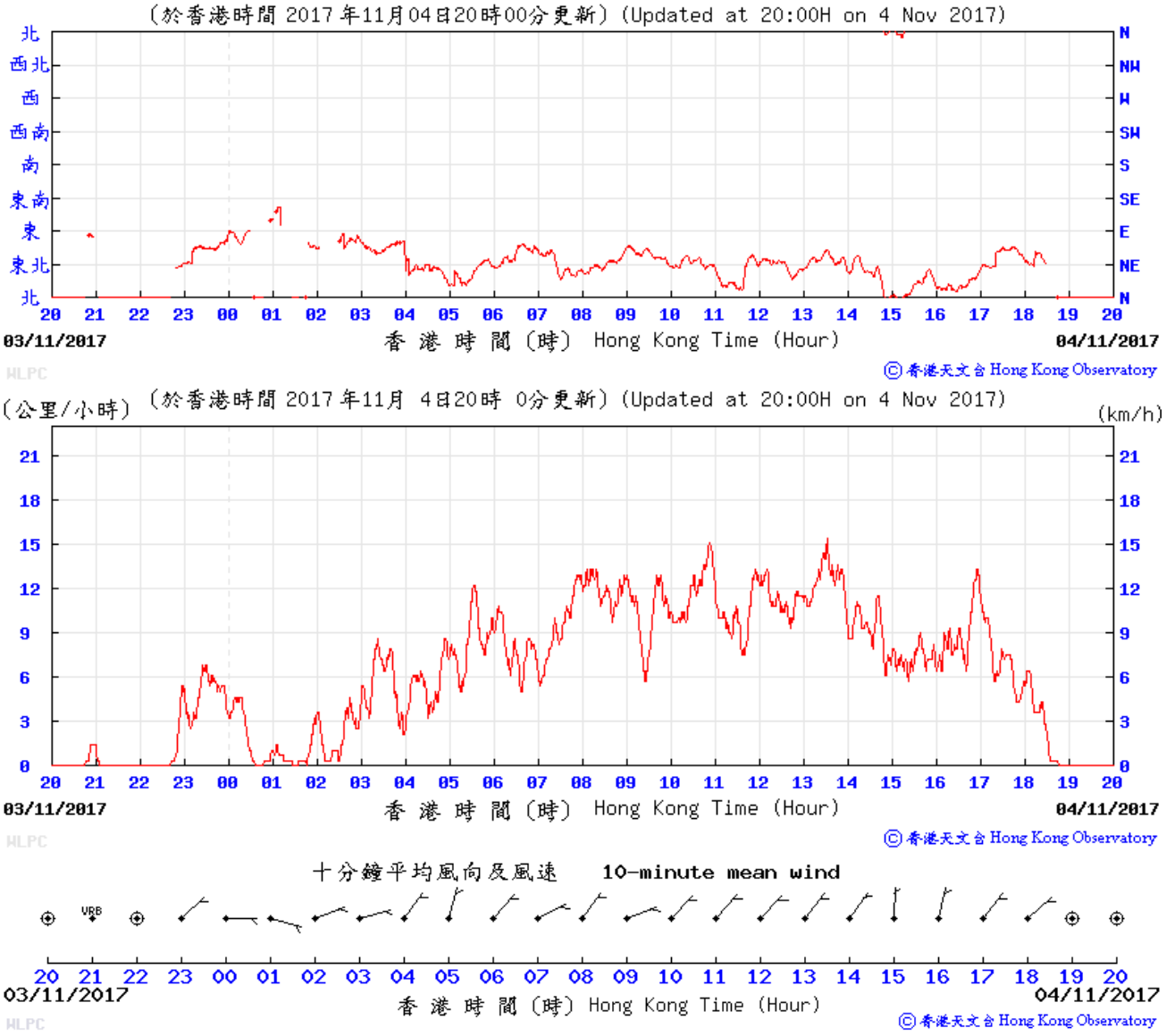






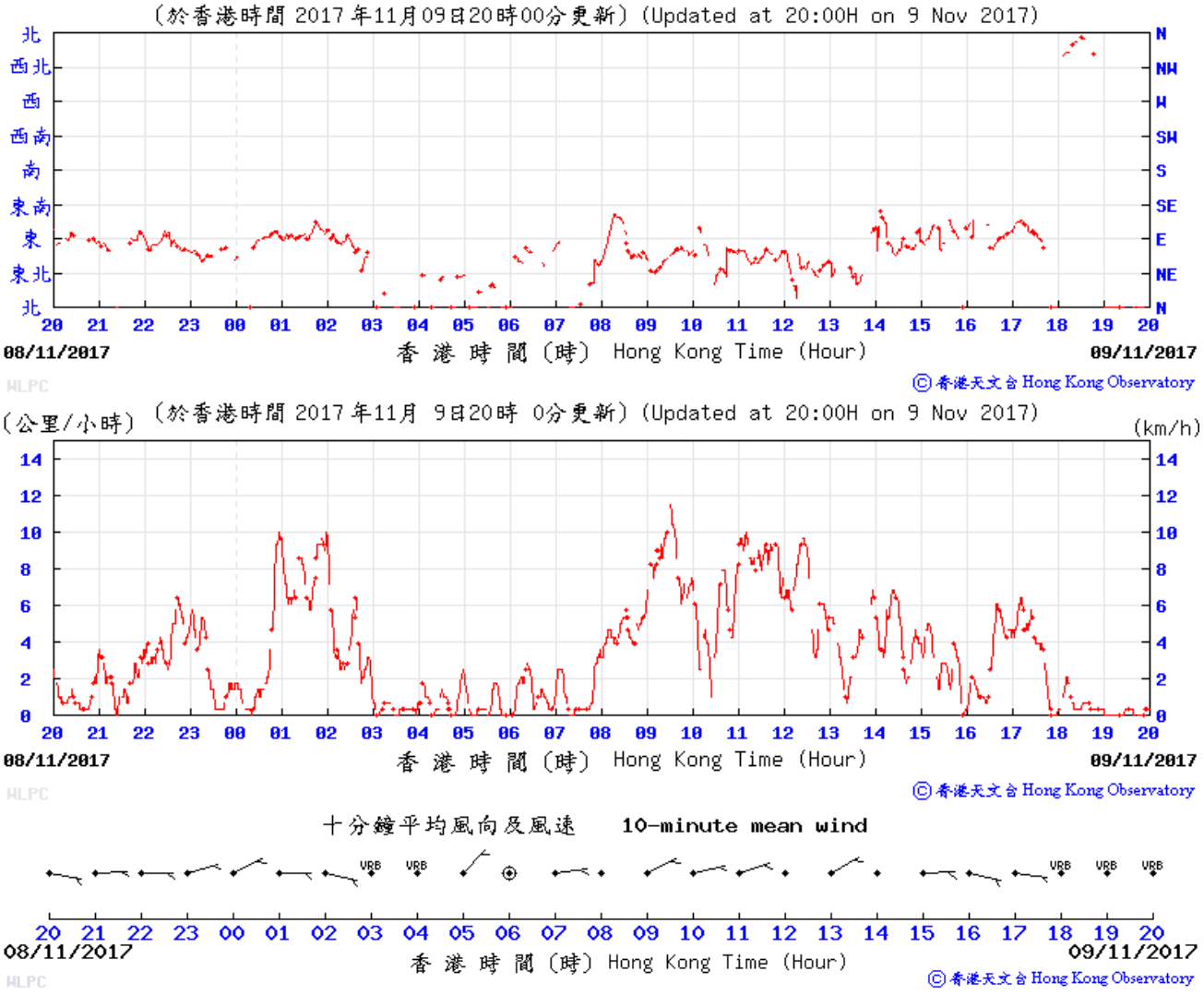
Wind Data for Wetland Park

4 Nov 2017



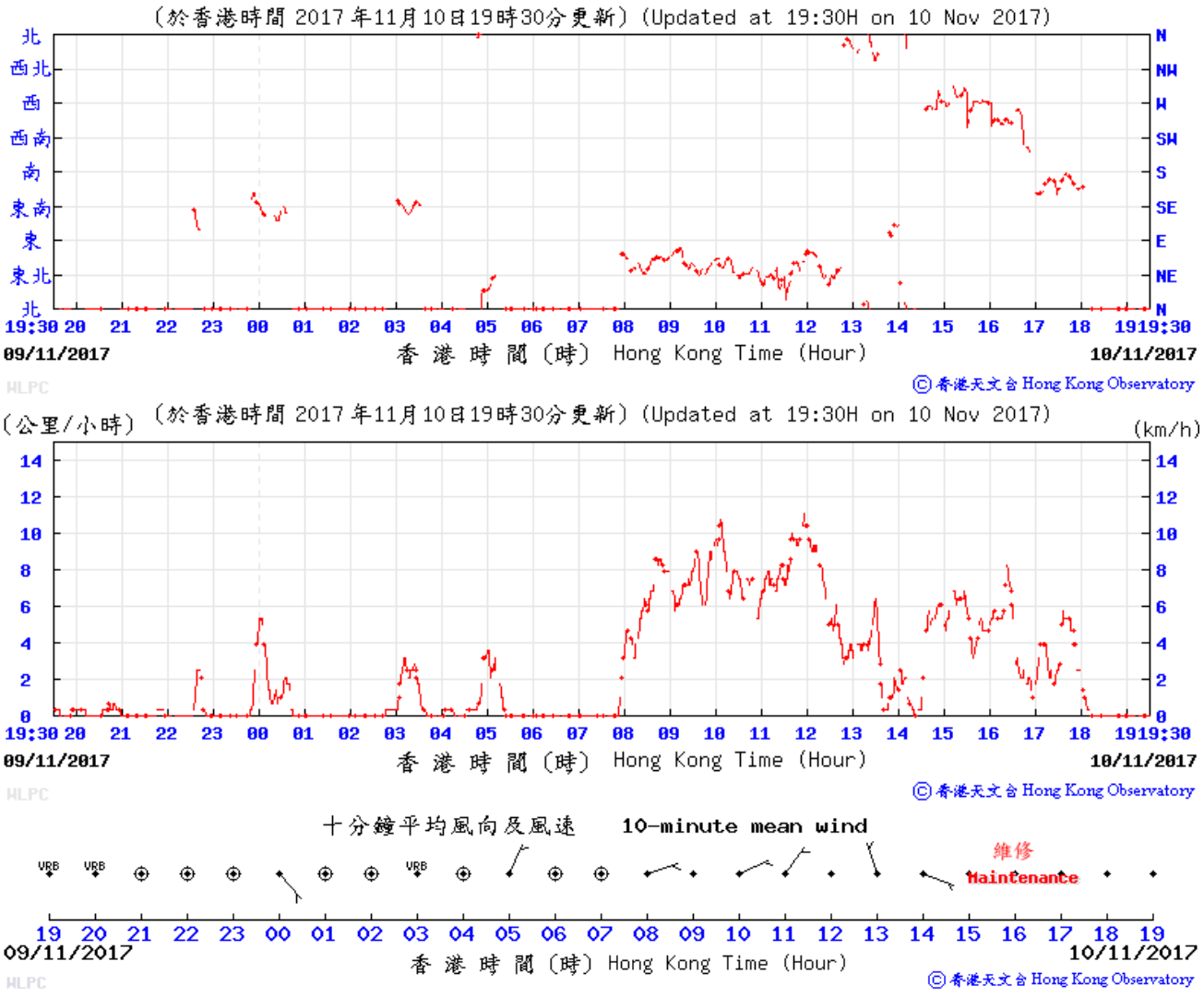
Wind Data for Wetland Park

9 Nov 2017



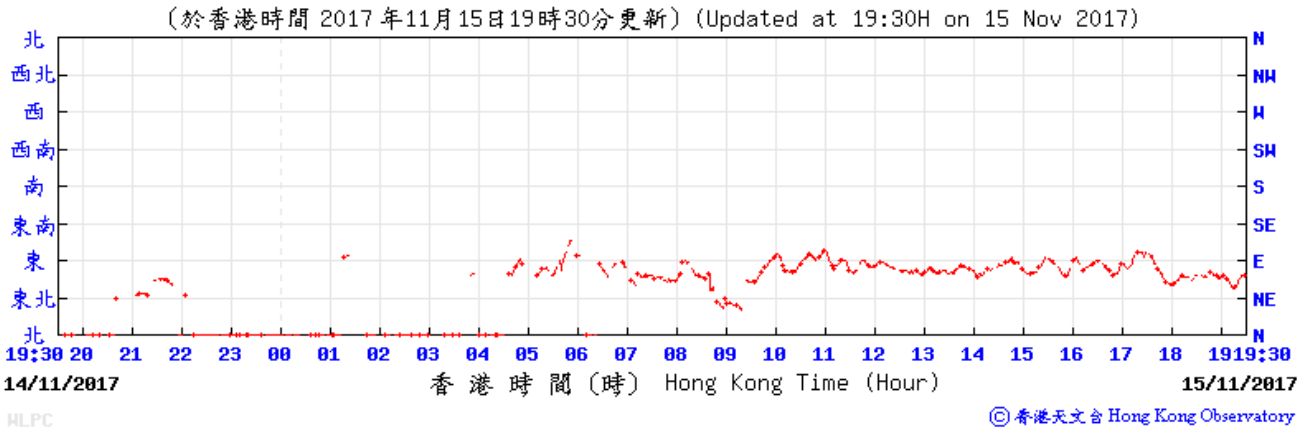
Wind Data for Wetland Park

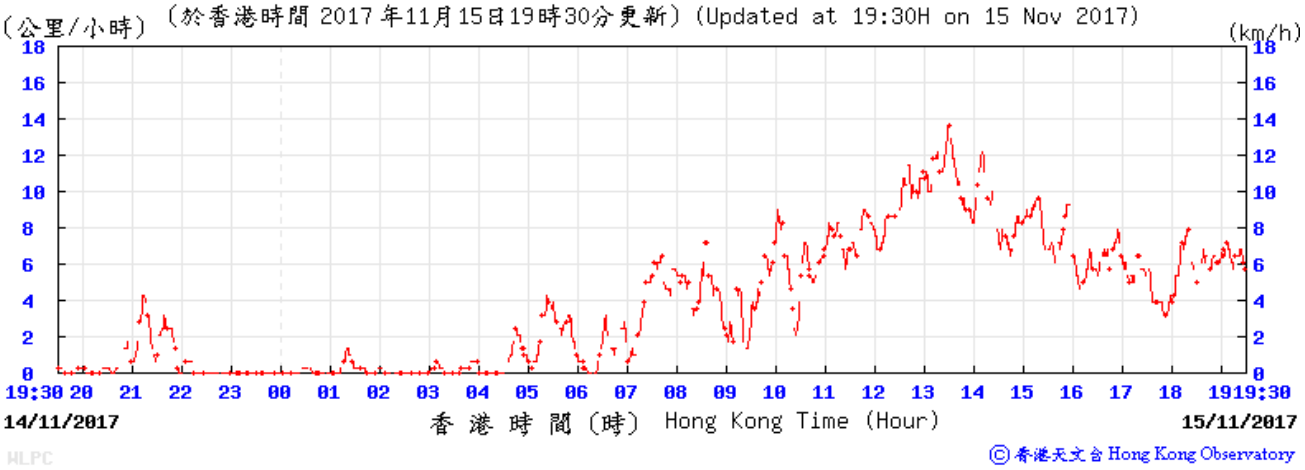
10 Nov 2017

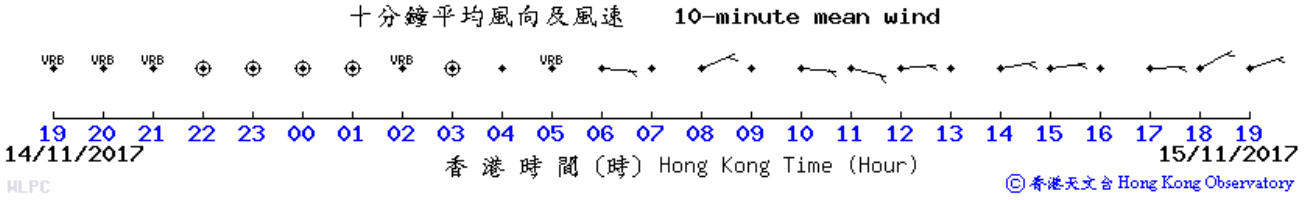


Wind Data for Wetland Park

15 Nov 2017

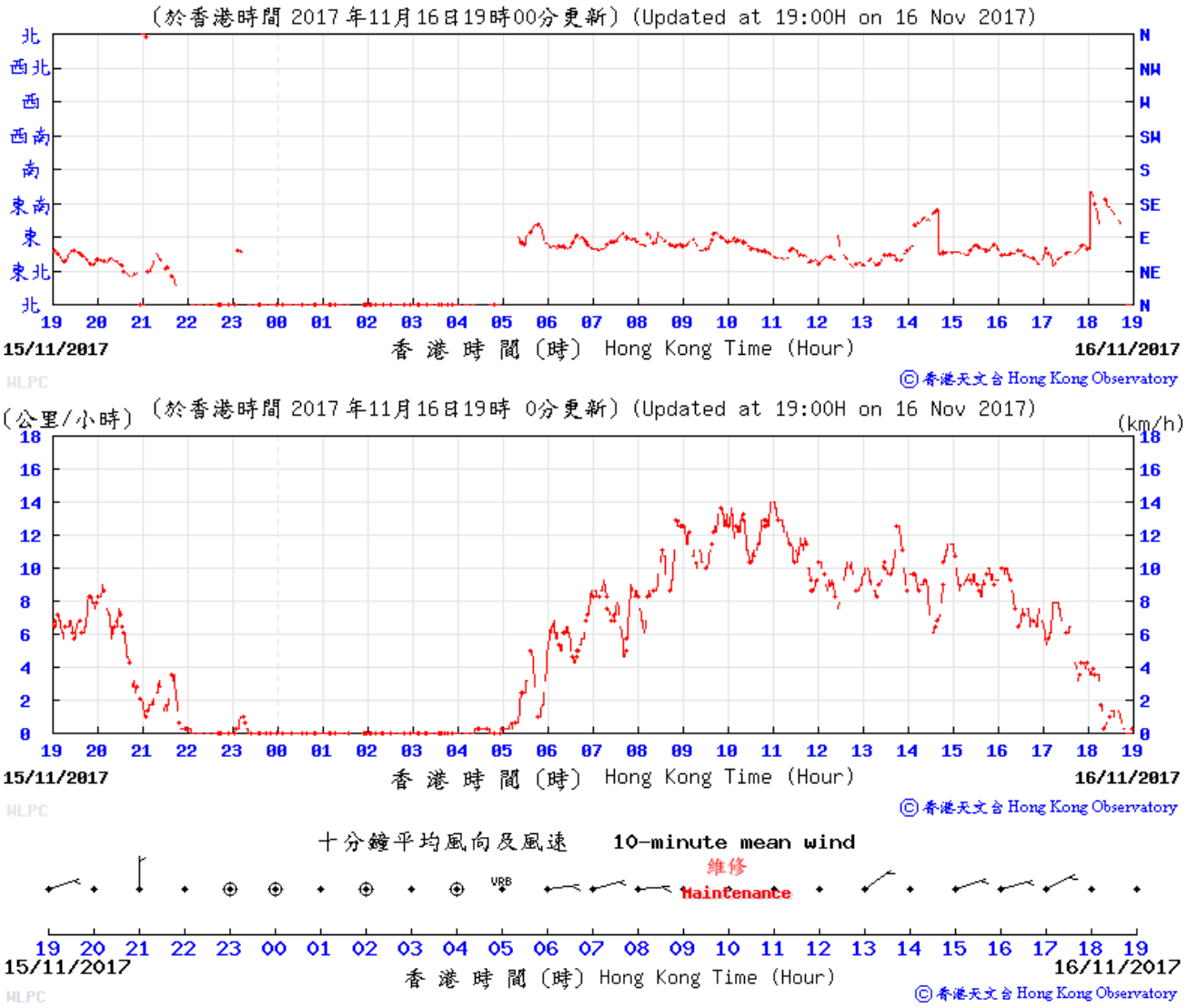






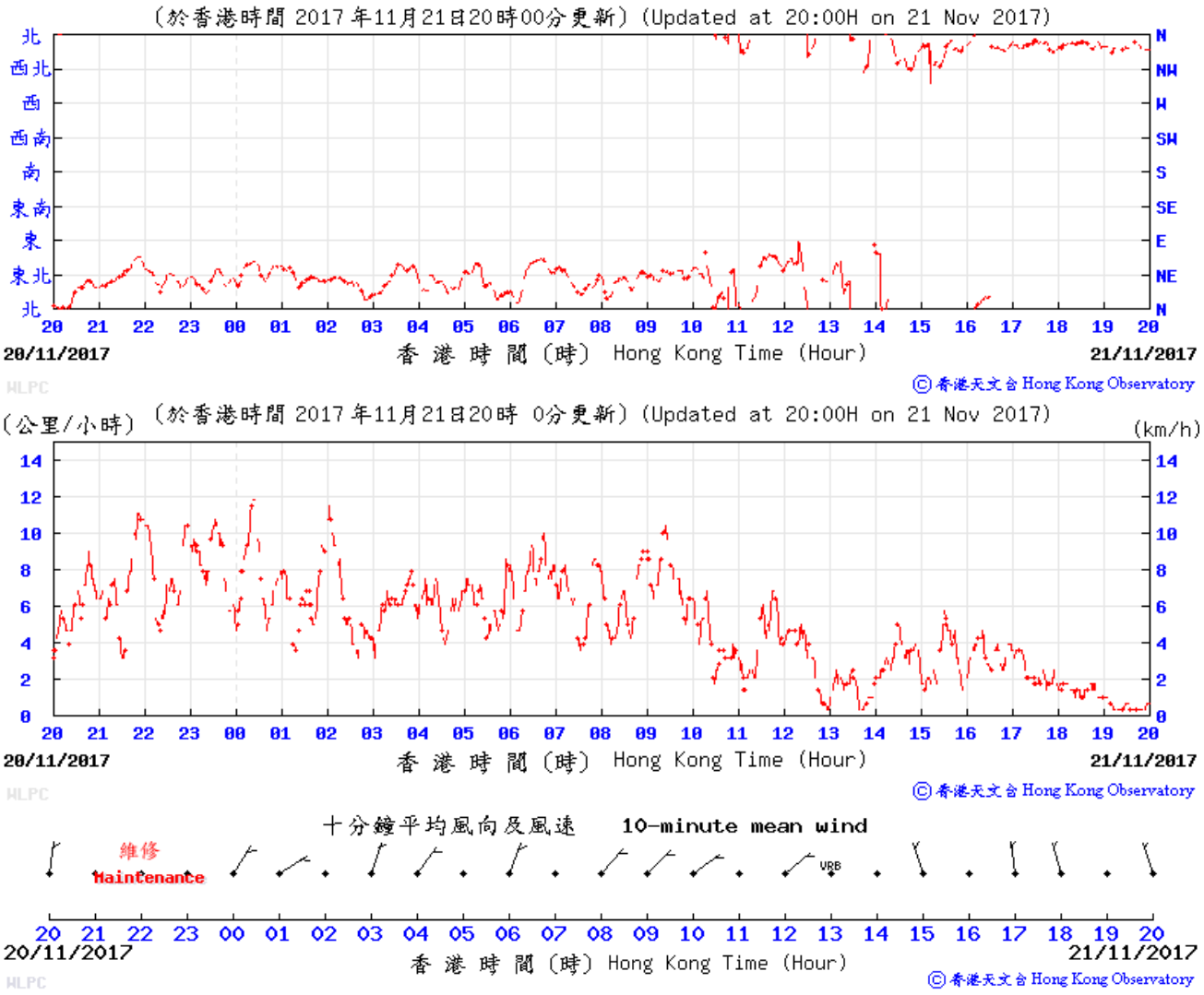
Wind Data for Wetland Park

16 Nov 2017



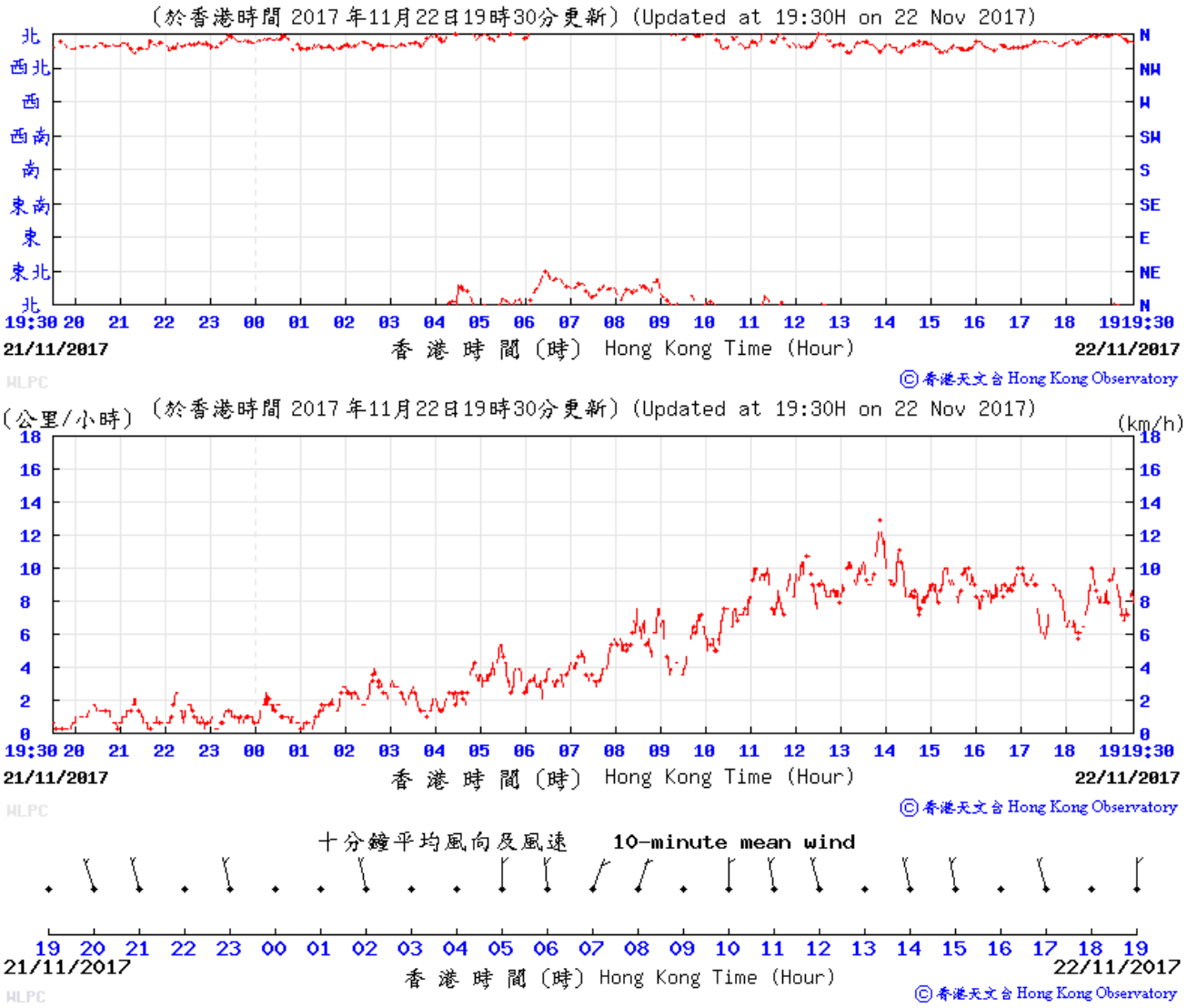
Wind Data for Wetland Park

21 Nov 2017



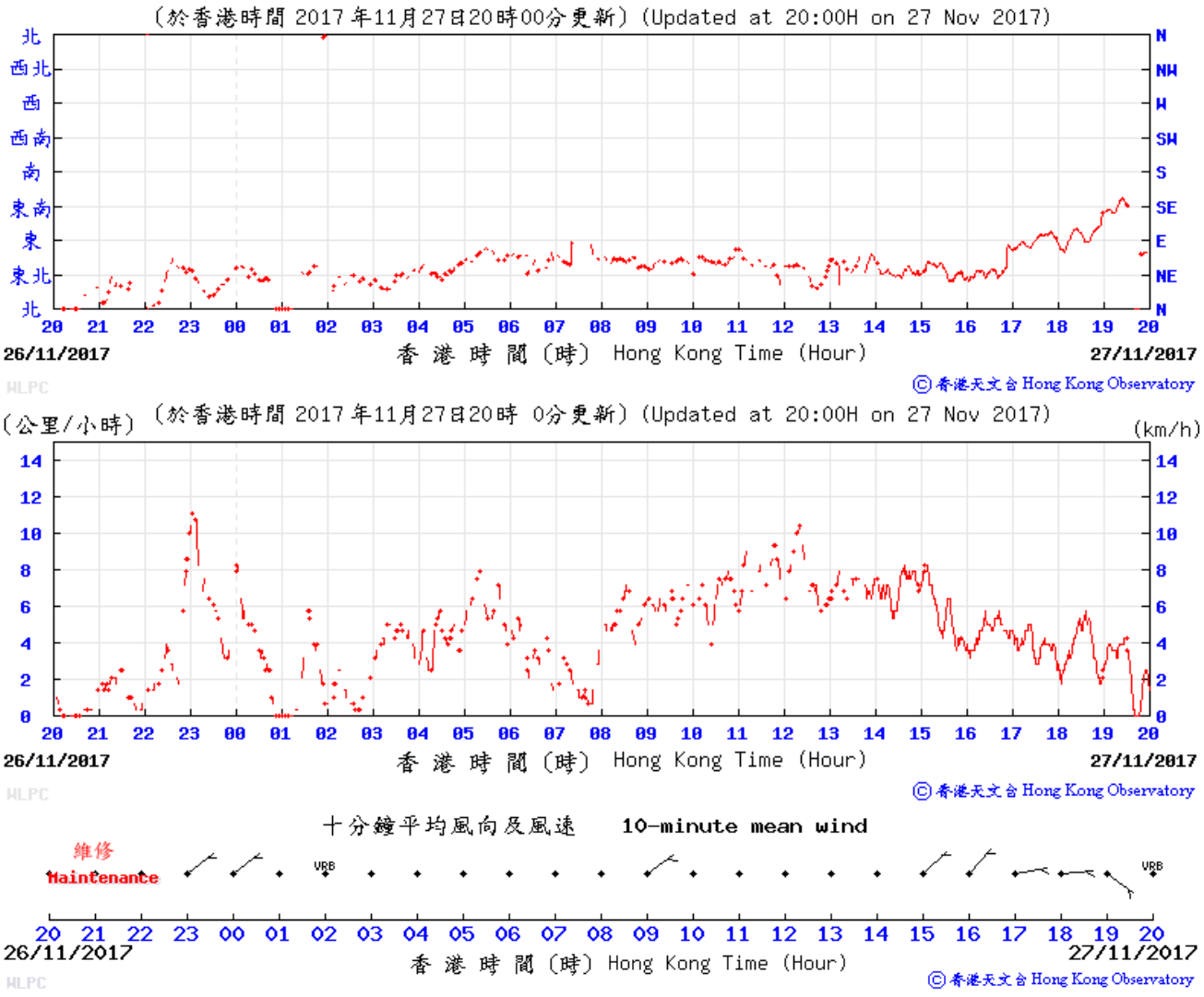
Wind Data for Wetland Park

22 Nov 2017



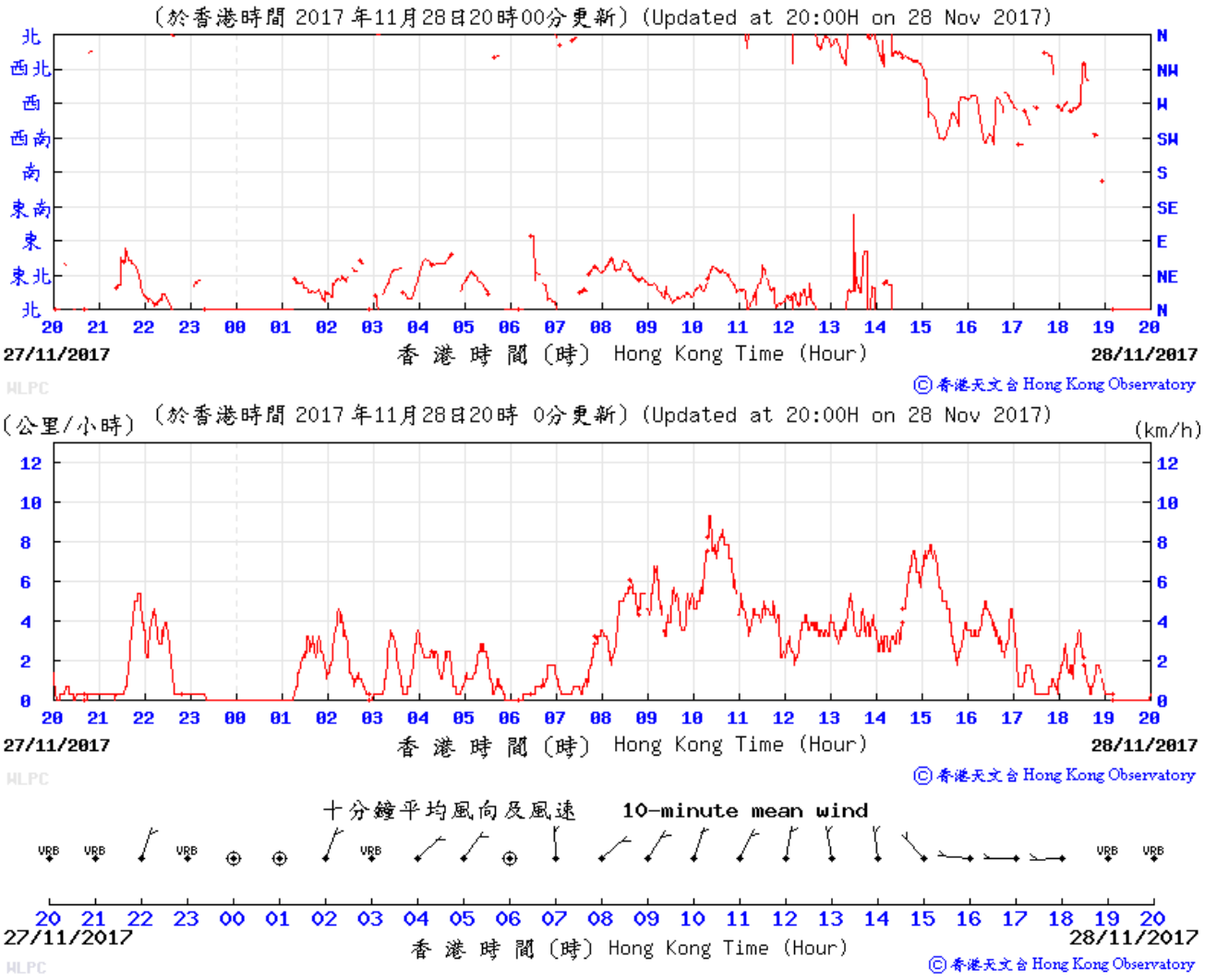
Wind Data for Wetland Park

27 Nov 2017



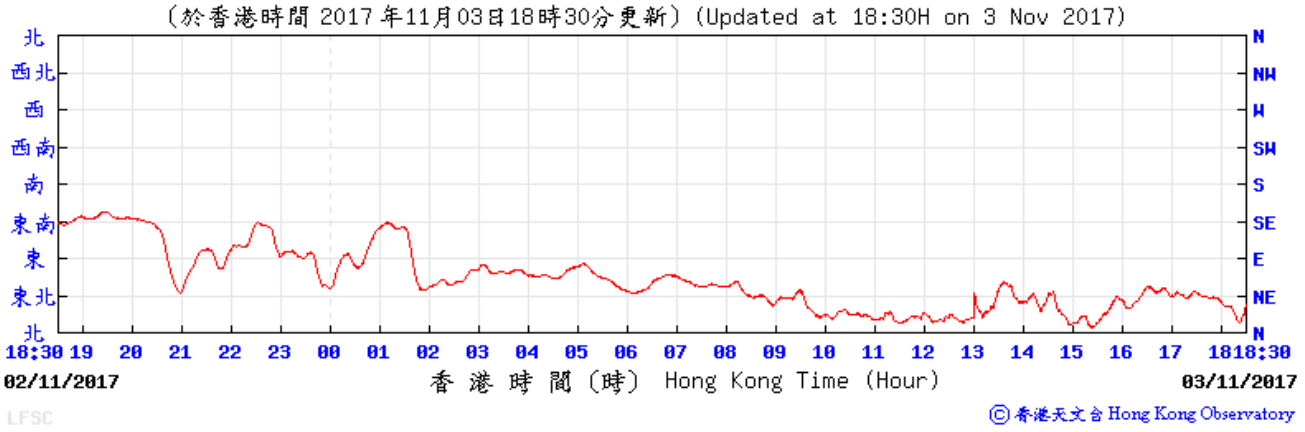
Wind Data for Wetland Park

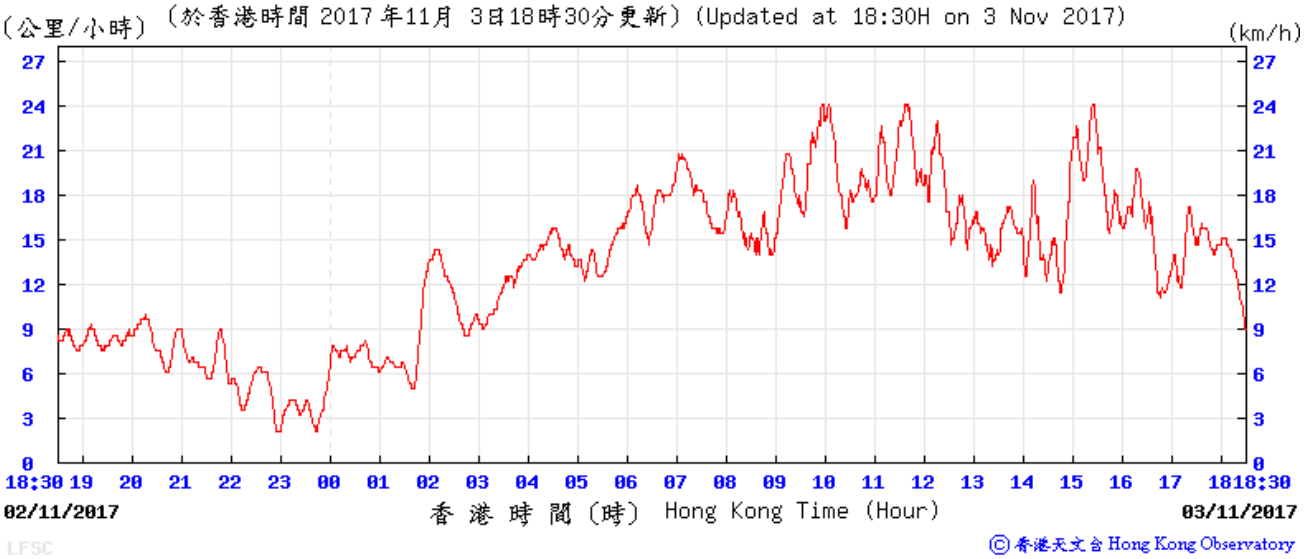
28 Nov 2017

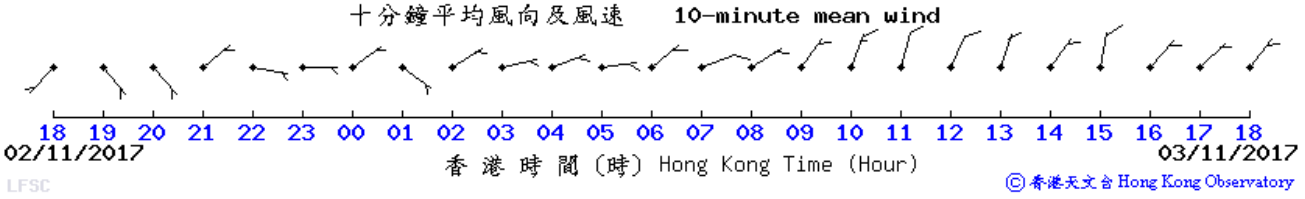


Wind Data for Lau Fau Shan

3 Nov 2017

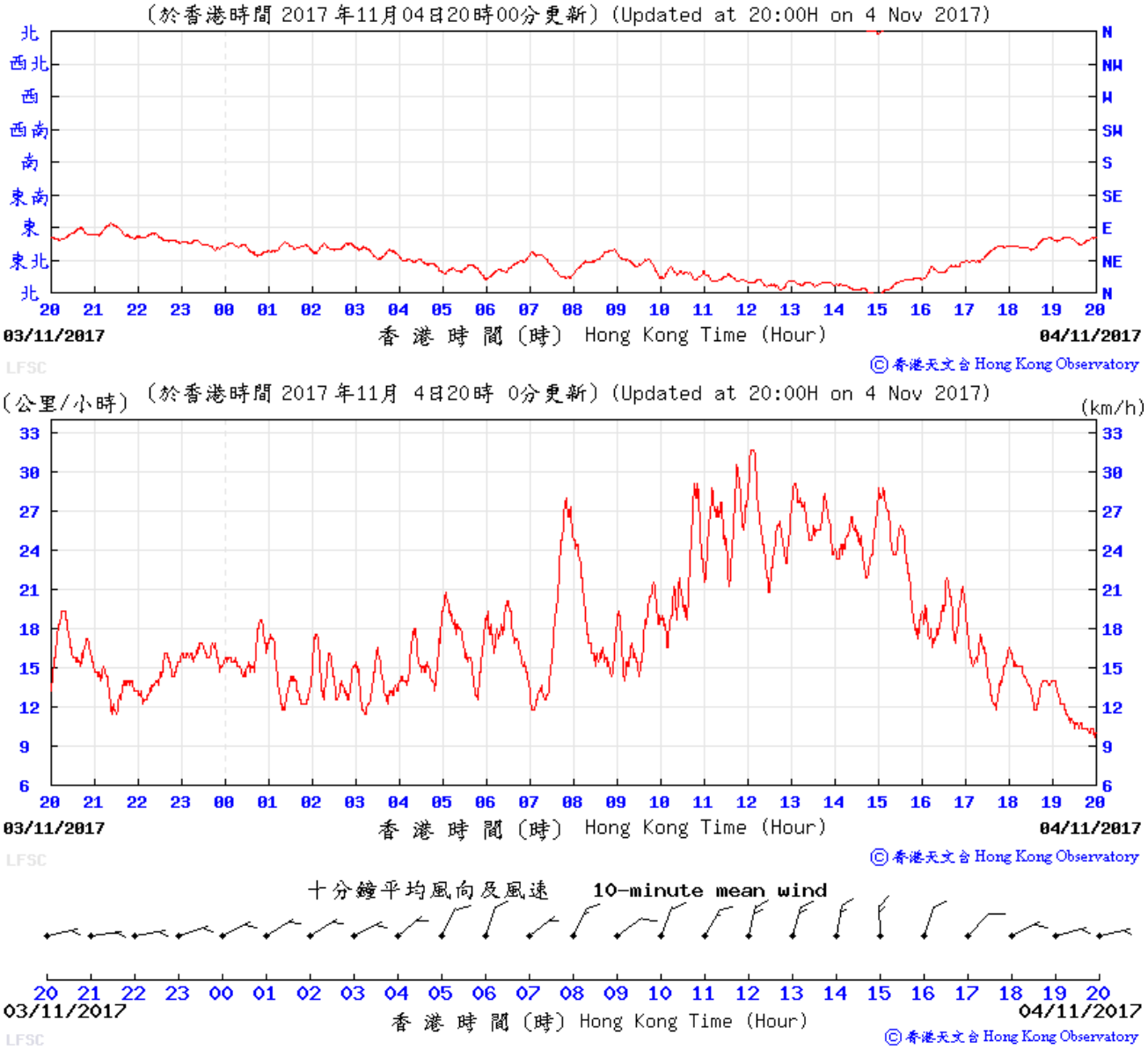






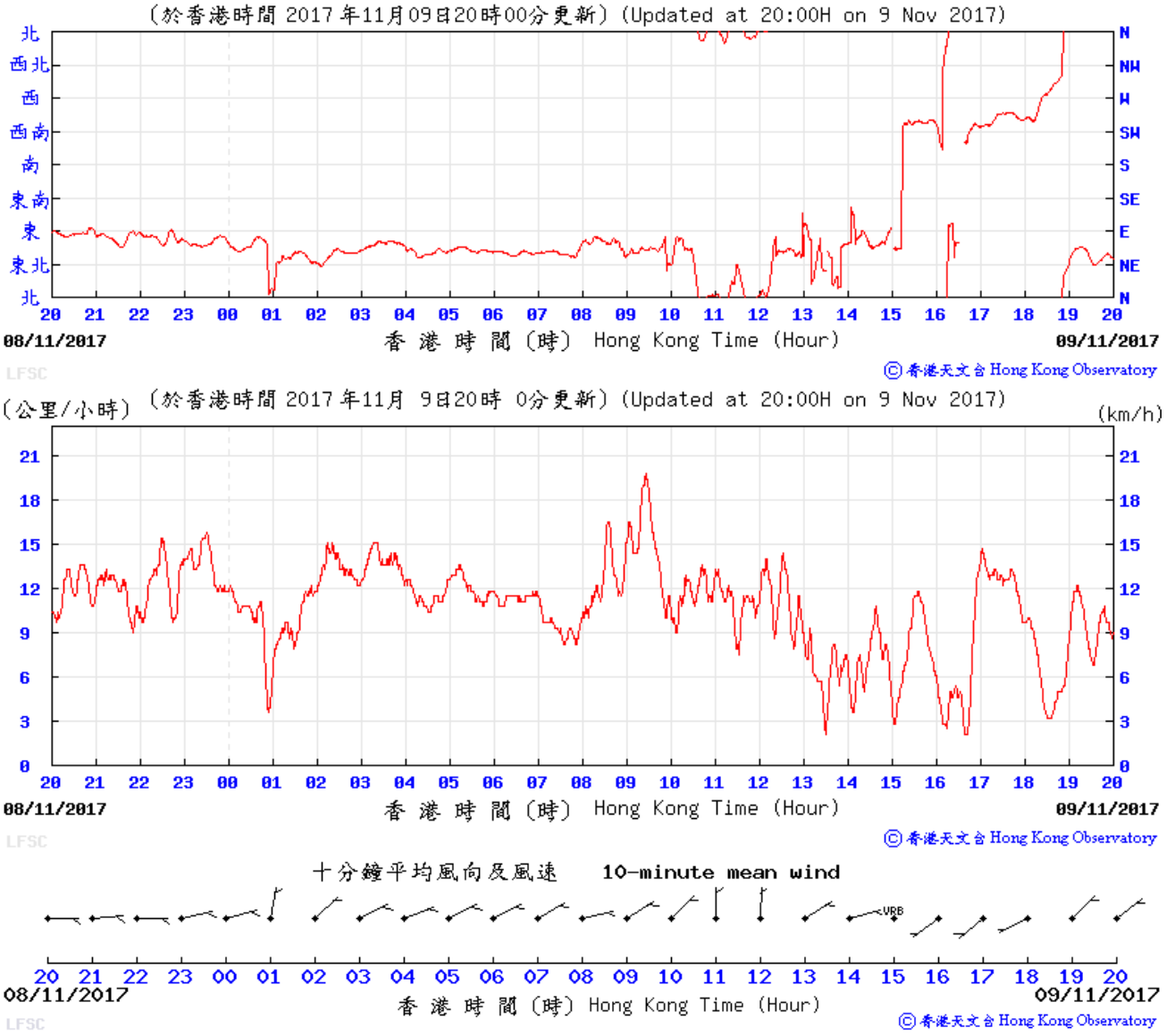
Wind Data for Lau Fau Shan

4 Nov 2017



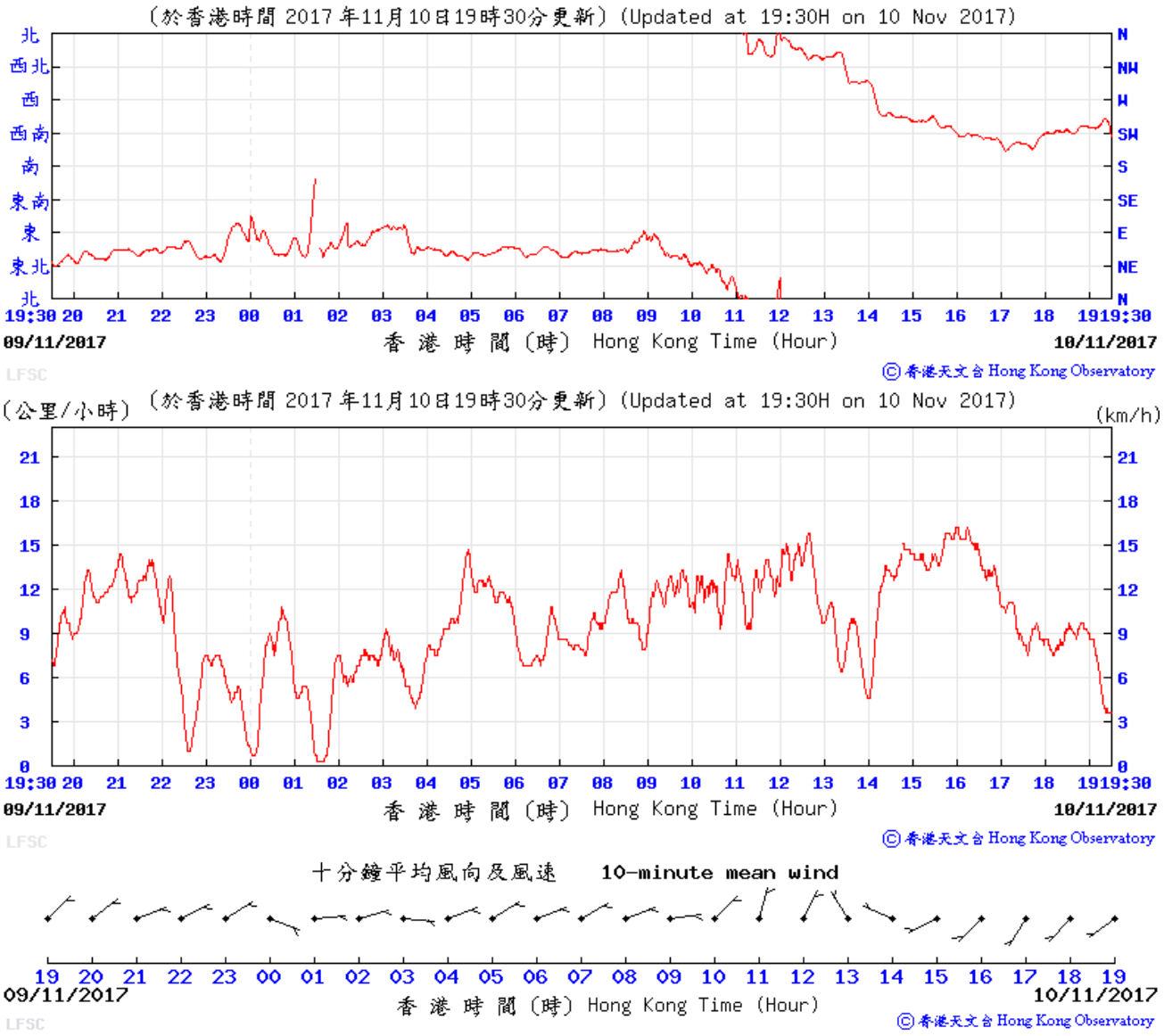
Wind Data for Lau Fau Shan

9 Nov 2017



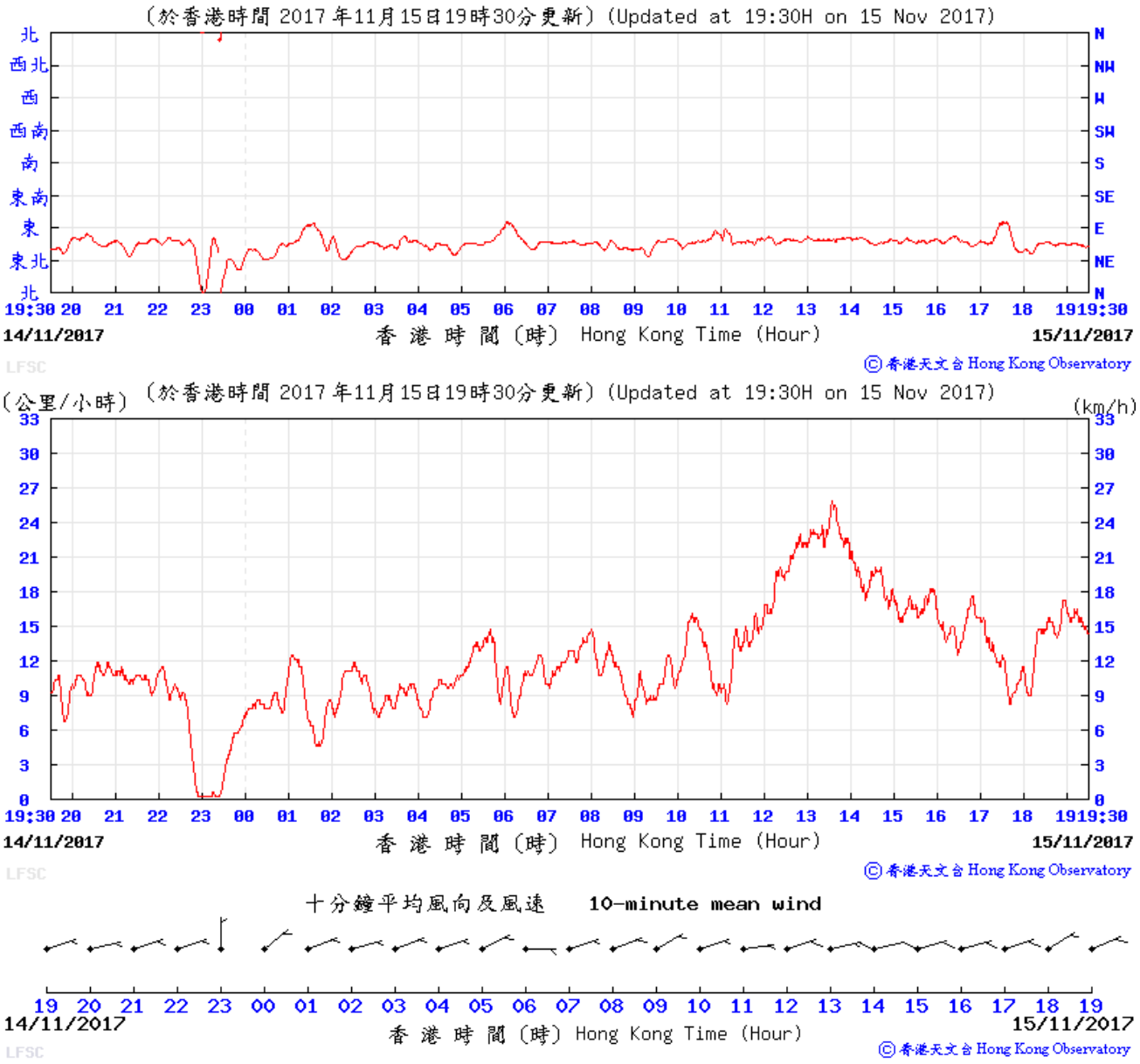
Wind Data for Lau Fau Shan

10 Nov 2017



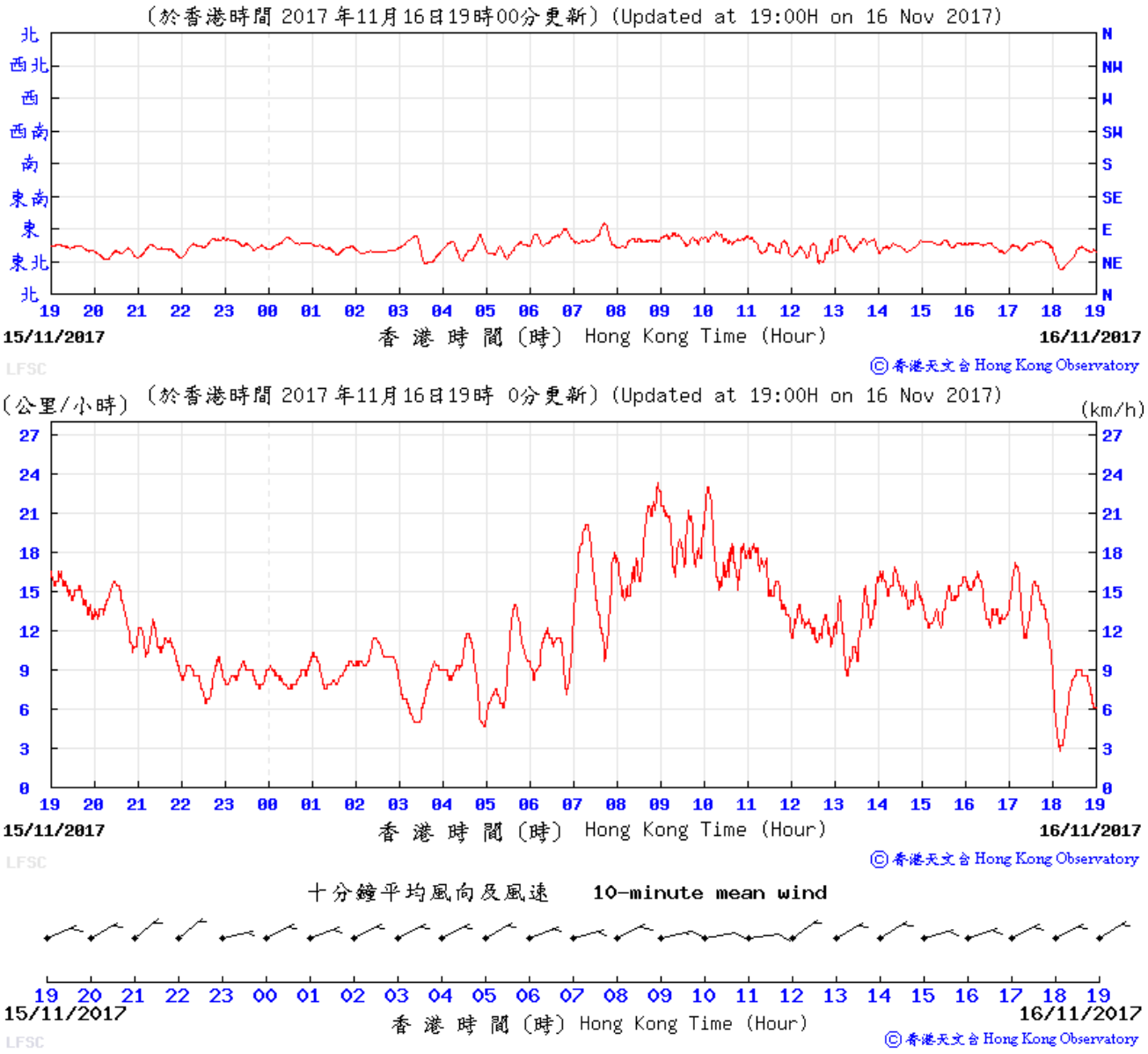
Wind Data for Lau Fau Shan

15 Nov 2017



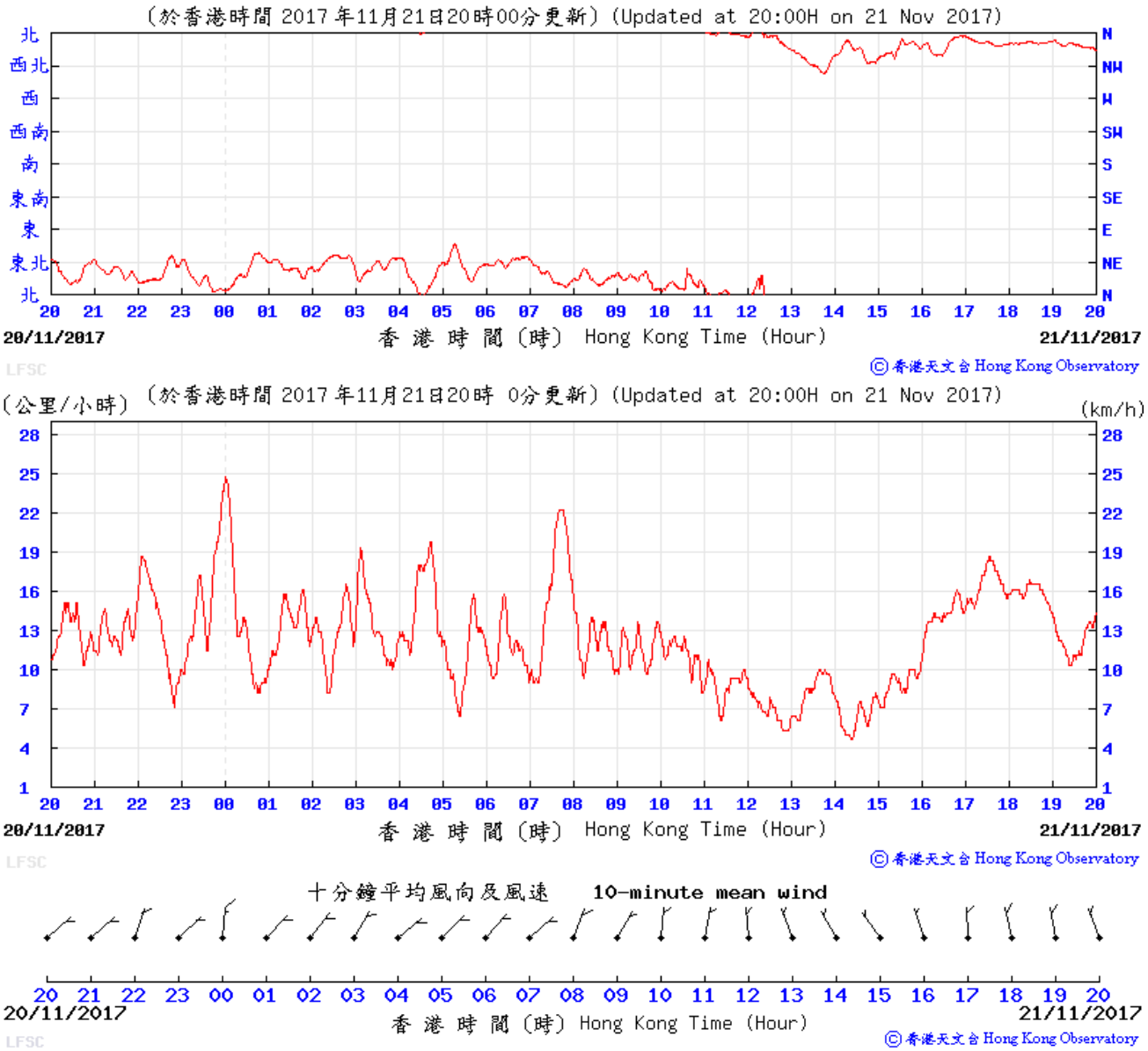
Wind Data for Lau Fau Shan

16 Nov 2017



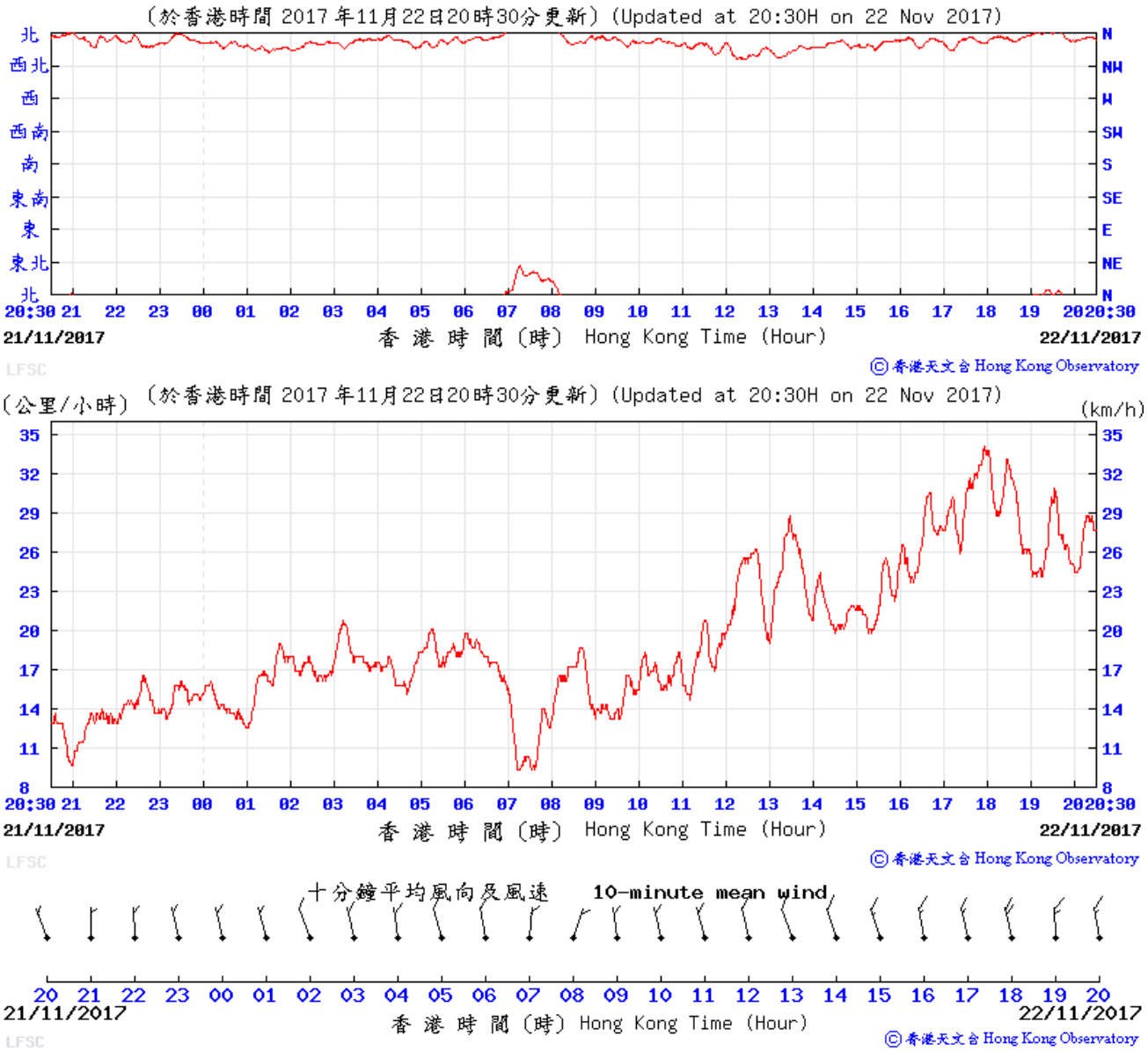
Wind Data for Lau Fau Shan

21 Nov 2017



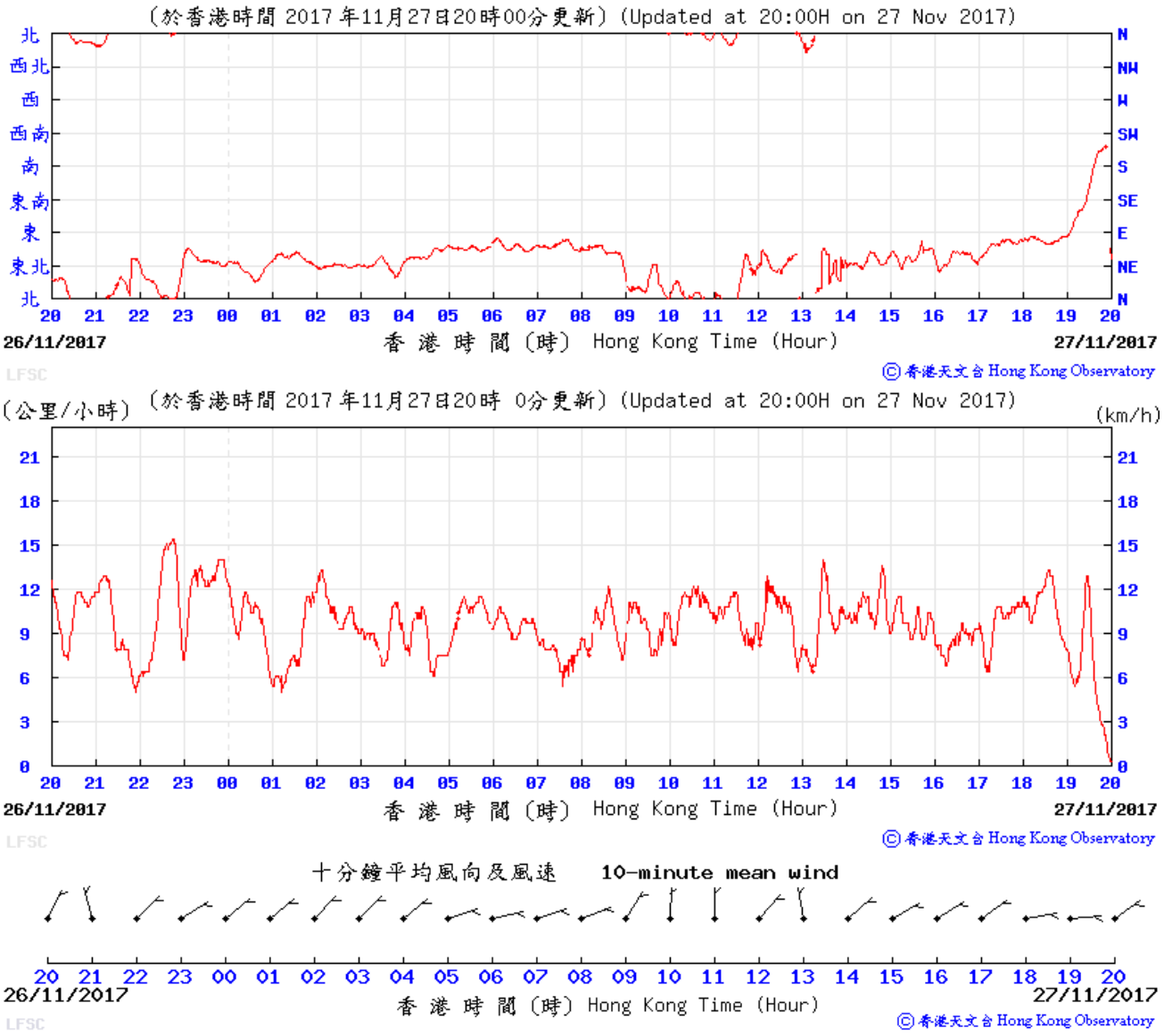
Wind Data for Lau Fau Shan

22 Nov 2017



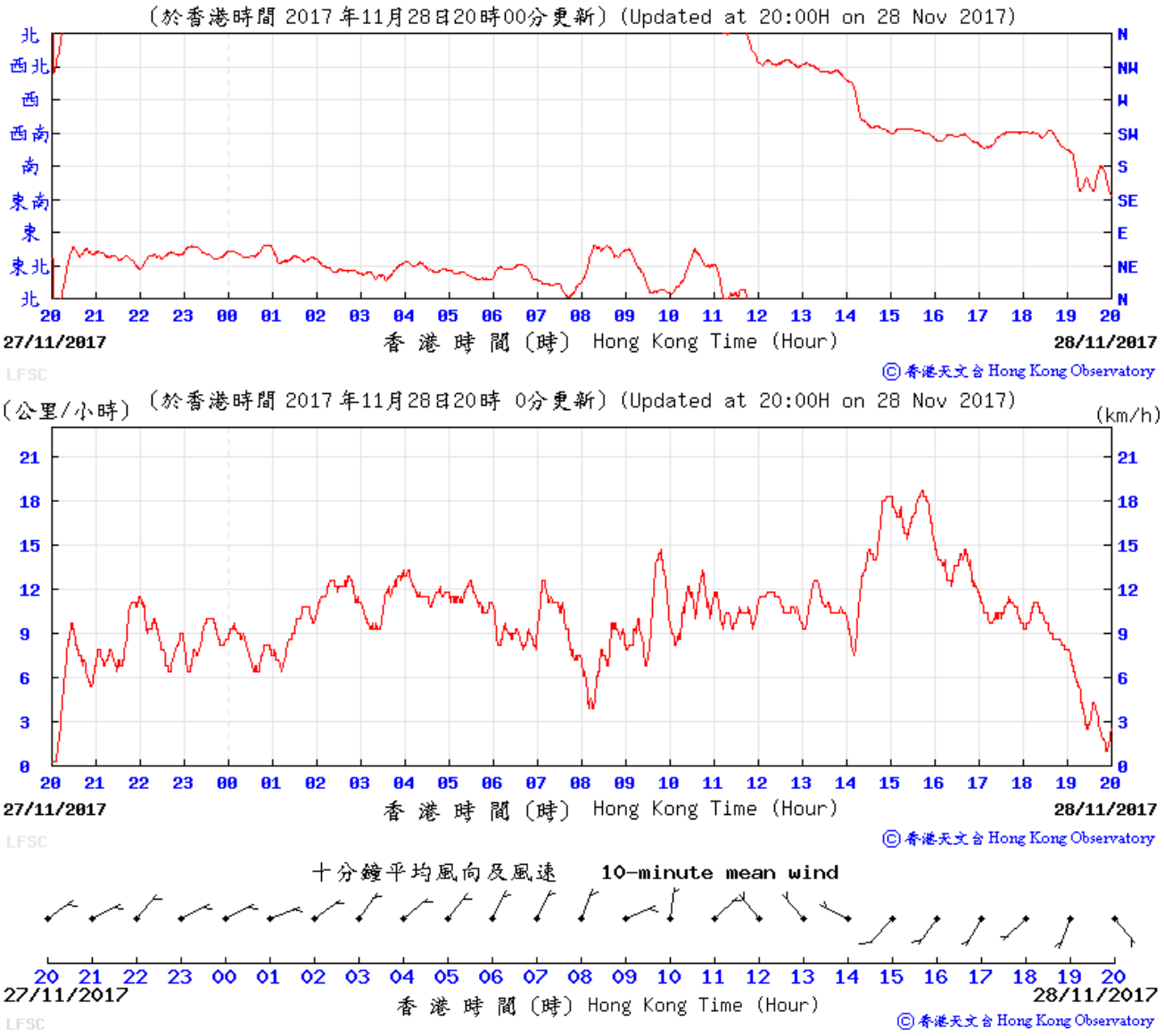
Wind Data for Lau Fau Shan

27 Nov 2017



Wind Data for Lau Fau Shan

28 Nov 2017



EXTRACT OF METEOROLOGICAL OBSERVATIONS FOR HONG KONG, NOVEMBER 2017 (Table 1)

Date November	Mean Pressure (hPa)	Air Temperature			Mean Dew Point Temperature (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)
		Maximum (deg. C)	Mean (deg. C)	Minimum (deg. C)				
1	1017.2	26.4	23.0	20.5	16.1	66	29	-
2	1014.3	27.8	23.8	20.9	16.9	67	22	-
3	1015.5	27.6	24.5	22.0	16.7	63	64	-
4	1018.9	25.8	23.6	20.7	14.8	58	86	0.3
5	1018.5	25.6	23.0	20.3	15.8	64	78	Trace
6	1016.4	25.8	23.3	21.3	17.1	68	87	Trace
7	1016.0	26.0	23.6	21.8	18.9	75	88	0.3
8	1015.9	27.3	24.6	23.1	20.6	78	88	Trace
9	1015.8	26.8	24.4	22.8	19.4	74	77	Trace
10	1014.9	28.4	25.0	22.9	20.0	74	56	-
11	1014.1	26.5	24.7	23.4	20.6	78	89	-
12	1013.6	23.5	22.1	21.1	19.8	87	93	14.7
13	1013.2	22.7	21.9	21.5	20.3	91	95	12.5
14	1014.6	24.0	23.0	22.0	20.9	88	88	0.2
15	1016.0	23.9	23.2	22.6	20.3	84	84	-
16	1015.1	26.2	23.4	22.2	19.9	81	68	-
17	1011.6	26.2	24.2	22.9	21.3	84	42	-
18	1012.2	26.5	23.9	20.1	20.8	83	60	1.9
19	1017.7	20.2	19.9	19.4	17.0	84	88	1.0
20	1018.8	20.3	19.3	17.9	15.4	78	91	-
21	1018.0	21.4	19.3	17.5	15.1	77	88	-
22	1016.5	22.9	19.8	17.3	14.0	70	60	-
23	1019.9	20.3	17.8	15.5	10.9	64	47	-
24	1022.1	20.8	18.0	16.5	11.3	65	86	-
25	1021.5	19.1	18.0	16.9	13.1	73	88	-
26	1020.2	22.4	19.7	18.1	14.8	73	73	-
27	1018.1	22.1	20.3	18.5	16.3	78	84	Trace
28	1017.4	24.6	22.2	20.6	18.3	79	76	Trace
29	1016.9	26.4	23.8	21.6	20.4	82	74	-
30	1016.9	23.2	22.3	21.8	20.5	90	86	0.3
Mean/Total	1016.6	24.4	22.2	20.5	17.6	76	74	31.2
Normal*	1017.7	24.1	21.8	19.8	16.0	71	54	37.6
Station	Hong Kong Observatory							

EXTRACT OF METEOROLOGICAL OBSERVATIONS FOR HONG KONG, NOVEMBER 2017 (Table 2)

Date November	Number of hours of Reduced Visibility# (hours)	Total Bright Sunshine (hours)	Daily Global Solar Radiation (MJ/m^2)	Total Evaporation (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
1	0	10.3	19.57	4.1	060	26.4
2	0	10.3	19.35	4.4	060	19.7
3	0	10.2	17.73	4.4	360	30.2
4	0	1.5	10.45	4.0	060	35.9
5	3	8.3	15.83	3.6	070	32.2
6	0	1.5	9.91	2.6	060	28.3
7	2	-	5.55	2.3	360	22.4
8	0	1.0	8.34	2.7	080	25.0
9	0	6.2	14.76	3.5	070	40.8
10	8	9.2	17.56	3.6	070	27.1
11	0	1.5	8.24	2.6	070	37.4
12	0	-	3.82	2.0	070	44.1
13	0	-	3.30	1.2	070	35.9
14	0	0.2	6.04	1.7	070	28.5
15	0	0.1	6.55	2.1	060	30.8
16	0	7.9	16.65	2.7	060	29.0
17	0	9.8	17.20	2.4	050	13.1
18	1	3.2	7.21	2.7	360	20.2
19	0	-	3.36	1.7	060	41.5
20	0	-	6.22	2.3	360	29.3
21	0	0.6	6.94	2.4	010	23.0
22	0	9.0	16.83	4.0	350	26.4
23	0	5.4	13.44	3.5	360	34.1
24	0	3.8	11.51	2.8	360	28.5
25	0	-	5.65	1.9	010	21.8
26	0	4.7	11.29	2.7	010	13.8
27	2	0.7	8.93	2.1	050	29.3
28	11	2.4	9.05	1.7	050	28.1
29	5	5.7	13.90	1.7	050	26.4
30	0	0.8	3.56	2.0	070	34.6
Mean/Total	32	114.3	10.62	81.4	060	28.8
Normal*	130.3§	180.1	12.28	99.5	080	27.0
Station	Hong Kong International Airport	King's Park			Waglan Island^	

The minimum pressure recorded at the Hong Kong Observatory was 1008.8 hectopascals at 1513 HKT on 17 November.

The maximum air temperature recorded at the Hong Kong Observatory was 28.4 degrees C at 1525 HKT on 10 November.

The minimum air temperature recorded at the Hong Kong Observatory was 15.5 degrees C at 0634 HKT on 23 November.

The maximum gust peak speed recorded at Waglan Island was 79 kilometres per hour from 070 degrees at 2138 HKT on 18 November.

The maximum 1-minute mean rainfall rate recorded at King's Park was 25 millimetres per hour at 1247 HKT on 12 November.

Reduced visibility refers to visibility below 8 kilometres when there is no fog, mist or precipitation.

- The visibility readings at the Hong Kong International Airport are based on hourly observations by professional meteorological observers in 2004 and before, and average readings over the 10-minute period before the clock hour of the visibility meter near the middle of the south runway from 2005 onwards. The change of the data source in 2005 is an improvement of the visibility assessment using instrumented observations following the international trend.

- Before 10 October 2007, the number of hours of reduced visibility at the Hong Kong International Airport in 2005 and thereafter displayed in this web page was based on hourly visibility observations by professional meteorological observers. Since 10 October 2007, the data have been revised using the average visibility readings over the 10-minute period before the clock hour, as recorded by the visibility meter near the middle of the south runway.

^ In case the data are not available from Waglan Island, observations of Cheung Chau or other nearby weather stations will be incorporated in computing the Prevailing Wind Direction and Mean Wind Speed.

* 1981-2010 Climatlogical Normal, unless otherwise specified

§ 1997-2016 Mean value

H. Ecological Monitoring conducted

November 2017	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Mammals			ü				ü			ü				ü	
Birds			ü				ü			ü				ü	
Herpetofauna															
Dragonflies & butterflies															
Water Quality															ü
Inspection Visits			ü				ü			ü				ü	

November 2017	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Mammals		ü				ü	ü		ü				ü		
Birds		ü				ü			ü				ü		
Herpetofauna							ü								
Dragonflies & butterflies							ü								
Water Quality														ü#	
Inspection Visits		ü				ü	ü		ü				ü		

Note:
(1). Light grey cells indicate public holidays, Saturdays or Sundays.
# indicates additional pH monitoring

I. Summary of Bird Surveys conducted

Table I1: Summary of bird species of conservation importance and/or wetland-dependence recorded in the Survey Area (excluding the WRA)

Species Name[4]	Scientific Name[4]	Wetland Dependence	Conservation Status[1]	Nov 2017 Occurrence[2]	Nov 2017 Mean[3]	Records outside surveys
Little Grebe	*Tachybaptus ruficollis*	Y	LC	4	5.5	ü
Great Cormorant	*Phalacrocorax carbo*	Y	PRC	4	21.3	ü
Grey Heron	*Ardea cinereal*	Y	PRC	4	8.0	ü
Great Egret	*Ardea alba*	Y	PRC, (RC)	4	15.0	ü
Little Egret	*Egretta garzetta*	Y	PRC, (RC)	4	11.0	ü
Eastern Cattle Egret	*Bubulcus coromandus*	Y	(LC)	3	4.0	ü
Chinese Pond Heron	*Ardeola bacchus*	Y	PRC, (RC)	4	10.3	ü
Tufted Duck	*Aythya fuligula*	Y	LC	1	1.8	-
Black Kite	*Milvus migrans*	Y	(RC)	1	0.3	ü
Eastern Buzzard	*Buteo japonicus*	Y	-	1	0.3	-
White-breasted Waterhen	*Amaurornis phoenicurus*	Y	-	2	0.8	ü
Pied Avocet	*Recurvirostra avosetta*	Y	RC	1	0.3	-
Little Ringed Plover	*Charadrius dubius*	Y	LC	4	2.3	-
Wood Sandpiper	*Tringa glareola*	Y	LC	1	0.5	-
Common Sandpiper	*Actitis hypoleucos*	Y	-	4	1.8	ü
White-throated Kingfisher	*Halcyon smyrnensis*	Y	(LC)	3	0.8	ü
Pied Kingfisher	*Ceryle rudis*	Y	(LC)	1	0.3	-
Common Kingfisher	*Alcedo atthis*	Y	-	4	2.0	ü
Eastern Yellow Wagtail	*Motacilla tschutschensis*	Y	-	3	2.0	ü
White Wagtail	*Motacilla alba*	Y	-	4	4.0	ü
Red-billed Starling	*Spodiopsar sericeus*	Y	(GC)	2	8.5	-
Collared Crow	*Corvus torquatus*	Y	LC, NT	2	1.3	ü
			No. of species recorded:	**22**		

Note:
(1) Conservation status follows that of Fellowes et al. (2002) and BirdLife International listing (2017) Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence. (Fellowes et al. 2002)
(2) Indicates number of surveys recorded within the reporting period.
(3) Refers to the mean number of individuals recorded in the reporting period (excluding the WRA).
(4) Follows HK bird list (dated 2017-09-05).

Table I2: Summary of bird species of conservation importance and/or wetland-dependence recorded in the WRA

Species Name[4]	Scientific Name[4]	Wetland Dependence	Conservation Status[1]	Nov 2017 Occurrence[2]	Nov 2017 Mean[3]	Records outside surveys
Little Grebe	*Tachybaptus ruficollis*	Y	LC	3	1.8	ü
Great Cormorant	*Phalacrocorax carbo*	Y	PRC	-	-	ü
Grey Heron	*Ardea cinerea*	Y	PRC	4	2.5	ü
Great Egret	*Ardea alba*	Y	PRC, (RC)	3	2.5	ü
Little Egret	*Egretta garzetta*	Y	PRC, (RC)	4	62.3	ü
Chinese Pond Heron	*Ardeola bacchus*	Y	PRC, (RC)	3	4.0	ü
Yellow Bittern	*Ixobrychus sinensis*	Y	(LC)	2	0.8	ü
Black-crowned Night Heron	*Nycticorax nycticorax*	Y	LC	1	0.3	ü
Black Kite	*Milvus migrans*	Y	(RC)	2	1.0	-
Greater Spotted Eagle	*Clanga clanga*	Y	GC	-	-	ü
White-breasted Waterhen	*Amaurornis phoenicurus*	Y	-	1	0.3	ü
Common Moorhen	*Gallinula chloropus*	Y	-	2	0.8	ü
Green Sandpiper	*Tringa ochropus*	Y	-	-	-	ü
Common Sandpiper	*Actitis hypoleucos*	Y	-	1	0.8	ü
White-throated Kingfisher	*Halcyon smyrnensis*	Y	(LC)	1	0.3	ü
Common Kingfisher	*Alcedo atthis*	Y	-	3	1.0	ü
White Wagtail	*Motacilla alba*	Y	-	4	1.5	ü
Red-billed Starling	*Spodiopsar sericeus*	Y	(GC)	1	5.0	-
			No. of species recorded:	**18**		

Note:
(1) Conservation status follows that of Fellowes *et al*. (2002) and BirdLife International listing (2017). Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence. (Fellowes et al. 2002)
(2) Indicates number of surveys recorded within the reporting period.
(3) Refers to the mean number of individuals recorded in the reporting period in the WRA.
(4) Follows HK bird list (dated 2017-09-05).

Table I3: Summary of bird species recorded in the Survey Area (excluding the WRA) during the reporting month

Species Name[2]	Scientific Name[2]	Wetland Dependence	Conservation Status[1]
Little Grebe	*Tachybaptus ruficollis*	Y	LC
Great Cormorant	*Phalacrocorax carbo*	Y	PRC
Grey Heron	*Ardea cinereal*	Y	PRC
Great Egret	*Ardea alba*	Y	PRC, (RC)
Little Egret	*Egretta garzetta*	Y	PRC, (RC)
Eastern Cattle Egret	*Bubulcus coromandus*	Y	(LC)
Chinese Pond Heron	*Ardeola bacchus*	Y	PRC, (RC)
Tufted Duck	*Aythya fuligula*	Y	LC
Black Kite	*Milvus migrans*	Y	(RC)
Eastern Buzzard	*Buteo japonicus*	Y	-
White-breasted Waterhen	*Amaurornis phoenicurus*	Y	-
Pied Avocet	*Recurvirostra avosetta*	Y	RC
Little Ringed Plover	*Charadrius dubius*	Y	LC
Wood Sandpiper	*Tringa glareola*	Y	LC
Common Sandpiper	*Actitis hypoleucos*	Y	-
Spotted Dove	*Spilopelia chinensis*	N	-
Eurasian Collared Dove	*Streptopelia decaocto*	N	-
Pied Kingfisher	*Ceryle rudis*	Y	(LC)
White-throated Kingfisher	*Halcyon smyrnensis*	Y	(LC)
Common Kingfisher	*Alcedo atthis*	Y	-
Barn Swallow	*Hirundo rustica*	N	-
Eastern Yellow Wagtail	*Motacilla tschutschensis*	Y	-
White Wagtail	*Motacilla alba*	Y	-
Red-whiskered Bulbul	*Pycnonotus jocosus*	N	-
Chinese Bulbul	*Pycnonotus sinensis*	N	-
Long-tailed Shrike	*Lanius schach*	N	-
Oriental Magpie Robin	*Copsychus saularis*	N	-
Daurian Redstart	*Phoenicurus auroreus*	N	-
Stejneger's Stonechat	*Saxicola stejnegeri*	N	-
Masked Laughingthrush	*Garrulax perspicillatus*	N	-
Plain Prinia	*Prinia inornata*	N	-
Scaly-breasted Munia	*Lonchura punctulata*	N	-
Eurasian Tree Sparrow	*Passer montanus*	N	-
Red-billed Starling	*Spodiopsar sericeus*	Y	(GC)
Black-collared Starling	*Gracupica nigricollis*	N	-
Crested Myna	*Acridotheres cristatellus*	N	-
Eurasian Magpie	*Pica pica*	N	-
Collared Crow	*Corvus torquatus*	Y	LC, NT
	No. of species recorded:	**38**	

Note:

(1) Conservation status follows that of Fellowes et al. (2002) and BirdLife International listing (2017). Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence. (Fellowes et al. 2002).
(2) Follows HK bird list (dated 2017-09-05)

Table I4: Summary of bird species recorded in the WRA during the reporting month

Species Name[2]	Scientific Name[2]	Wetland Dependence	Conservation Status[1]
Little Grebe	*Tachybaptus ruficollis*	Y	LC
Great Cormorant	*Phalacrocorax carbo*	Y	PRC
Grey Heron	*Ardea cinerea*	Y	PRC
Great Egret	*Ardea alba*	Y	PRC, (RC)
Little Egret	*Egretta garzetta*	Y	PRC, (RC)
Chinese Pond Heron	*Ardeola bacchus*	Y	PRC, (RC)
Yellow Bittern	*Ixobrychus sinensis*	Y	(LC)
Black-crowned Night Heron	*Nycticorax nycticorax*	Y	LC
Black Kite	*Milvus migrans*	Y	(RC)
Greater Spotted Eagle	*Clanga clanga*	Y	GC
White-breasted Waterhen	*Amaurornis phoenicurus*	Y	-
Common Moorhen	*Gallinula chloropus*	Y	-
Green Sandpiper	*Tringa ochropus*	Y	-
Common Sandpiper	*Actitis hypoleucos*	Y	-
Spotted Dove	*Spilopelia chinensis*	N	-
Eurasian Collared Dove	*Streptopelia decaocto*	N	-
House Swift	*Apus nipalensis*	N	-
White-throated Kingfisher	*Halcyon smyrnensis*	Y	(LC)
Common Kingfisher	*Alcedo atthis*	Y	-
Barn Swallow	*Hirundo rustica*	N	-
White Wagtail	*Motacilla alba*	Y	-
Red-whiskered Bulbul	*Pycnonotus jocosus*	N	-
Chinese Bulbul	*Pycnonotus sinensis*	N	-
Long-tailed Shrike	*Lanius schach*	N	-
Oriental Magpie Robin	*Copsychus saularis*	N	-
Daurian Redstart	*Phoenicurus auroreus*	N	-
Stejneger's Stonechat	*Saxicola stejnegeri*	N	-
Masked Laughingthrush	*Garrulax perspicillatus*	N	-
Common Tailorbird	*Orthotomus sutorius*	N	-
Dusky Warbler	*Phylloscopus fuscatus*	N	-
Yellow-bellied Prinia	*Prinia flaviventris*	N	-
Plain Prinia	*Prinia inornata*	N	-
Eurasian Tree Sparrow	*Passer montanus*	N	-
Red-billed Starling	*Spodiopsar sericeus*	Y	(GC)
Black-collared Starling	*Gracupica nigricollis*	N	-
Crested Myna	*Acridotheres cristatellus*	N	-
Eurasian Magpie	*Pica pica*	N	-
	No. of species recorded:	**37**	

Note:
(1) Conservation status follows that of Fellowes *et al*. (2002) and BirdLife International listing (2017). Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence. (Fellowes et al. 2002)
(2) Follows HK bird list (dated 2017-01-26)

J. Summary of Herpetofauna, Mammal and Insect Surveys conducted

Table J1: Summary of herpetofauna monitoring in the Survey Area (excluding the WRA)

Species Name	Scientific Name	Conservation Status[1]	Nov 2017 Occurrence[2]	Nov 2017 Mean[3]	Records Outside Surveys
Amphibian	**No. of species recorded:**	**0**			
(No records in November 2017)		-	-	-	-
Species Name	**Scientific Name**	**Conservation Status[1]**	**Nov 2017 Occurrence[2]**	**Nov 2017 Mean[3]**	**Records Outside Surveys**
Reptile	**No. of species recorded:**	**0**			
(No records in November 2017)		-	-	-	-

Note:
(1) Conservation status follows that of Fellowes *et al*. (2002), Chan *et al.* (2005) and Karsen *et al.* (1998).
(2) Indicates number of surveys recorded within the reporting period.
(3) Refers to the mean number of individuals recorded in the reporting period (excluding the WRA).

Table J2: Summary of herpetofauna monitoring in the WRA

Species Name	Scientific Name	Conservation Status[1]	Nov 2017 Occurrence[2]	Nov 2017 Mean[3]	Records Outside Surveys
Amphibian	**No. of species recorded:**	**0**			
(No records in November 2017)	-	-	-	-	
Species Name	**Scientific Name**	**Conservation Status[1]**	**Nov 2017 Occurrence[2]**	**Nov 2017 Mean[3]**	**Records Outside Surveys**
Reptile	**No. of species recorded:**	**2**			
Checkered Keelback	*Xenochrophis flavipunctatus*	-	2	1	ü
Snake	*Indet. sp.1*	-	1	1	ü

Note:
(1) Conservation status follows that of Fellowes et al. (2002), Chan et al. (2005) and Karsen et al. (1998).
(2) Indicates number of surveys recorded within the reporting period.
(3) Refers to the mean number of individuals recorded in the reporting period in the WRA.

Table J3: Summary of mammal monitoring in the Survey Area (excluding the WRA)

Species Name	Scientific Name	Conservation Status[1]	Nov 2017 Occurrence[2]	Nov 2017 Max[3]	Records Outside Surveys
Mammal	**No. of species recorded:**	**0**			
(No records in November 2017)	-	-	-	-	

Note:
(1) Conservation status follows that of Fellowes et al. (2002) and Shek (2006).
(2) Indicates number of surveys recorded within the reporting period.

(3) Refers to the maximum number of individuals recorded in the reporting period (excluding the WRA).

Table J4: Summary of mammal monitoring in the WRA

Species Name	Scientific Name	Conservation Status[1]	Nov 2017 Occurrence[2]	Nov 2017 Max[3]	Records Outside Surveys
Mammal	**No. of species recorded:**	**2**			
Bat	*Indet.* sp.*1*	-	-	-	ü
Bat	*Indet.* sp.*2*	-	-	-	ü

Note:
(1) Conservation status follows that of Fellowes et al. (2002) and Shek (2006).
(2) Indicates number of surveys recorded within the reporting period.
(3) Refers to the maximum number of individuals recorded in the reporting period in the WRA.

Table J5: Summary of dragonflies (odonata) and butterfly monitoring in the Survey Area (excluding the WRA)

Species Name	Scientific Name	Conservation Status[1]	Nov 2017 Occurrence[2]	Nov 2017 Mean [3]	Records Outside Surveys
Odonata	**No. of species recorded:**	**0**			
No record in November 2017		-	-	-	-

Species Name	Scientific Name	Conservation Status[1]	Nov 2017 Occurrence[2]	Nov 2017 Mean [3]	Records Outside Surveys
Butterfly	**No. of species recorded:**	**0**			
No record in November 2017		-	-	-	-

Note:
(1) Conservation status follows that of Fellowes et al. (2002), Lo & Hui (2004), Tam et al. (2011) and Young & Yiu (2002).
(2) Indicates number of surveys recorded within the reporting period.
(3) Refers to the mean number of individuals recorded in the reporting period (excluding the WRA).

Table J6: Summary of dragonflies (odonata) and butterfly monitoring in the WRA

Species Name	Scientific Name	Conservation Status[1]	Nov 2017 Occurrence[2]	Nov 2017 Mean [3]	Records Outside Surveys
Odonata	**No. of species recorded:**	**1**			
Common Bluetail	*Ischnura senegalensis*	-	1	1	-

Species Name	Scientific Name	Conservation Status[1]	Nov 2017 Occurrence[2]	Nov 2017 Mean [3]	Records Outside Surveys
Butterflies	**No. of species recorded:**	**1**			
Great Egg-fly	*Hypolimnas bolina kezia*	-	1	3	-

Note:
(1) Conservation status follows that of Fellowes et al. (2002), Lo & Hui (2004), Tam et al. (2011) and Young & Yiu (2002).
(2) Indicates number of surveys recorded within the reporting period.
(3) Refers to the mean number of individuals recorded in the reporting period in the WRA.

K. Summary of Water Quality Monitoring associated with Ecological Monitoring conducted

Table K1. Water quality at WRA during the reporting month

Cell No.	Temp. (°C)	pH	Additional pH monitoring	Salinity (ppt)	Turbidity (NTU)	DO (mg/L)	Water Level (regular monitoring) (cm)
1	22.3	**8.11**	**8.09**	0.14	10.9	5.7	170
2	22.5	**8.08**	**8.07**	0.15	12.1	6.3	160
3	22.6	**8.01**	**8.00**	0.15	12.4	6.0	160
4	22.5	7.94	7.88	0.15	10.3	5.8.	150
Action Level	-	<6.5 or >8.0	<6.5 or >8.0	>2	-	<2	<150 or >250
Limit Level	-	<6.0 or >8.5	<6.0 or >8.5	>5	-	<1	-

Note: Values highlighted in **bold** indicate that action level is reached; whereas values in **bold and underline** indicate that limit level is reached.

L. Environmental Mitigation Measures - Implementation Status

Air Quality – Recommended Mitigation Measures

Air Quality Mitigation Measures during construction	Implementation Status
access roads should be sprayed with water or dust suppression chemical to maintain the entire road surface wet or paved;	ü
every stock of more than 20 bags of cement or dry PFA should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;	N/A
de-bagging, batching or mixing process should be carried out in sheltered areas during the use of bagged cement;	N/A
use of effective dust screens, sheeting or netting to be provided to enclose dry scaffolding which may be provided from the ground floor level of the building or if a canopy is provided at the first floor level, from the first floor level, up to the highest level (maximum four floors for this Project) of the scaffolding where scaffolding is erected around the perimeter of a building under construction;	N/A
dump trucks for material transport should be totally enclosed using impervious sheeting;	ü
any excavated dusty materials or stockpile of dusty materials should be covered entirely by impervious sheeting or sprayed with water so as to maintain the entire surface wet, and recovered or backfilled or reinstated within 24 hours of the excavation or unloading;	ü
dusty materials remaining after a stockpile is removed should be wetted with water;	ü
the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with e.g. concrete, bituminous materials or hardcore or similar;	ü
the portion of road leading only to a construction site that is within 30m of a designated vehicle entrance or exit should be kept clear of dusty materials;	ü
stockpile of dusty materials to be either covered entirely by impervious sheeting, placed in an area sheltered on the top and the 3 sides; or sprayed with water so as to maintain the entire surface wet;	ü
all dusty materials to be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty material wet;	ü
vehicle speed to be limited to 10 kph except on completed access roads;	ü
every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites;	ü
the load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle; and	ü
the working area of excavation should be sprayed with water immediately before, during and immediately after (as necessary) the operations so as to maintain the entire surface wet.	ü
Odour mitigation measures	
all malodorous excavated material should be placed as far as possible from any ASRs;	N/A
the stockpiled malodorous material should be removed from site as soon as possible; and	N/A
the stockpiled malodorous material should be covered entirely by plastic tarpaulin sheets.	N/A

Noise – Recommended Mitigation Measures

Noise Mitigation Measures during construction	Implementation Status
only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction works;	ü
machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;	ü
plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs;	ü
silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction period;	ü
mobile plant should be sited as far away from NSRs as possible;	ü
material stockpiles and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities; and	ü
air compressor and hand-held breaker should be fitted with valid noise emission labels during operation; and	N/A
The Contractor shall at all times comply with all current statutory environmental legislation.	ü
Selection of quieter plant and working methods The Contractor shall obtain particular models of plant that are quieter than standards given in GW-TM. The list of assumed quieter plants can be found in the Table 4–14 of the EIA report. The Contractor shall select from the available models achieving the assumed sound levels while making reference to the GW-TM and BS5228: Part 1: 1997	ü
Use of Noise Barriers Noise barriers are proposed along the site boundary to block the direct line of sight from the most affected NSRs to the major noise contribution construction phases. The height of the noise barriers ranged from 9-10m. The noise barriers shall be built before the commencement of construction works in order to ensure protection to nearby NSRs. The noise barrier should have a surface density of at least 10kg/m^2 or material providing equivalent transmission loss. The noise barriers and hoardings should have no gaps and openings to avoid noise leakage.	ü

Water Quality – Recommended Mitigation Measures

Water Quality Mitigation Measures during construction	Implementation Status
The site should be confined to avoid silt runoff to the site.	ü
No discharge of silty water into the storm drain and drainage channel within and the vicinity of the site.	ü
Any soil contaminated with chemicals/oils shall be removed from site and the void created shall be filled with suitable materials.	ü
Stockpiles to be covered by tarpaulin to avoid spreading of materials during rainstorms;	N/A
Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport;	ü
Chemical waste containers shall be labelled with appropriate warning signs in English and Chinese to avoid accidents. there shall also be clear instructions showing what action to take in the event of an accidental;	ü
Storage areas shall be selected at safe locations on site and adequate space shall be allocated to the storage area;	ü
Any construction plant which causes pollution to the water system due to leakage of oil or fuel shall be removed off-site immediately;	N/A
Spillage or leakage of chemical waste to be controlled by using suitable absorbent materials;	N/A
Chemicals will always be stored on drip trays or in bunded areas where the volume is 110% of the stored volume;	ü
Regular clearance of domestic waste generated in the temporary sanitary facilities to avoid waste water spillage.	ü
Temporary sanitary facilities to be provided for on-site workers during construction.	ü

Water Quality Mitigation Measures during construction	Implementation Status
Temporary drainage channel and associated facilities will be provided to collect the surface runoff generated within the Project Area during the construction phase.	ü
Sandbags or silt traps will need to be placed to avoid silt runoff to the drainage channel draining the water in the northern ditch. Draining of the ditches should avoid rainy weather.	ü
Excavated soil which needs to be temporarily stockpiled should be stored in a specially designated area and provided with a tarpaulin cover to avoid runoff into the drainage channels.	ü

Waste Management – Recommended Mitigation Measures

Waste Management Mitigation Measures during construction	Implementation Status
Site Clearance Waste The major construction works of Wo Shang Wai is in the development of residential buildings and other associated facilities (club house, tennis courts, etc.). The amount of site clearance works will be limited with the exception of the excavated materials. The thin layer of vegetation removed can be stored and reused for landscaping.	ü
Excavated Materials The intention is to maximize the reuse of the excavated materials on-site as fill materials.	ü
Imported Filling Material The excavated/imported filling material may have to be temporarily stockpiled on-site for the construction of road embankment and foundation of viaduct substructure. Control measures should be taken at the stockpiling area to prevent the generation of dust and pollution of stormwater channels. However, to eliminate the risk of blocking drains in the wet season, it is recommended that stockpiling of excavated materials at during wet season should be avoided as far as practicable.	ü
Construction and Demolition Materials Careful design, planning and good site management can minimise over-ordering and generation of waste materials such as concrete, mortars and cement grouts. The design of formwork should maximise the use of standard wooden panels so that high reuse levels can be achieved. Alternatives such as steel formwork of plastic facing should be considered to increase the potential for reuse.	ü
The Contractor should reuse any C&D material on-site. C&D waste should be segregated and stored in different containers to other wastes to encourage the re-use or recycling of materials and their proper disposal.	ü
Chemical Waste For those processes which generate chemical waste, it may be possible to find alternatives which generate reduced quantities or even no chemical waste, or less dangerous types of chemical waste.	N/A
Containers used for the storage of chemical wastes should:	
be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed:	ü
have a capacity of less than 450 litres unless the specification have been approved by the EPD; and	ü
display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations,	ü
The storage area for chemical wastes should:	
be clearly labelled and used solely for the storage of chemical waste;	ü
be enclosed on at least 3 sides;	ü
have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area whichever is the greatest;	ü
have adequate ventilation;	ü
be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste if necessary); and	ü
be arranged so that incompatible materials are adequately separated.	ü
Disposal of chemical waste should:	
be via a licensed waste collector; and	N/A

Waste Management Mitigation Measures during construction	Implementation Status
be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Facility which also offers a chemical waste collection service and can supply the necessary storage containers, or	N/A
to be reuser of the waste, under approval from the EPD.	N/A
General Refuse Should be stored in enclosed bins or compaction units separate from C&D and chemical wastes. The Contractor should employ a reputable waste collector to remove general refuse from the site, separate from C&D and chemical wastes, on a regular basis to minimise odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.	P
Disposal of Excavated Sediment at Sea	
The requirements and procedures for excavated sediment disposal are specified under the ETWB TCW No. 34/2002 and PNAP 252. The management of the excavation, use and disposal of sediment is monitored by Fill Management Committee, whilst the licensing of marine dumping is the responsibility of the Director of Environmental Protection (DEP).	N/A
The excavated sediment would be loaded onto barges or other appropriate vessel and transported to the designated marine disposal site. Category L sediment and Category M sediment passing the biological test would be suitable for disposal at a gazetted open sea disposal ground. Category M sediment failing the biological test and Category H sediment passing the biological test would require confined marine disposal.	N/A
During transportation and disposal of the dredged sediment, the following measures should be taken to minimize potential impacts on water quality: -	N/A
Bottom opening transport vessels should be fitted with tight fitting seals to prevent leakage of material. Excess material should be cleaned from the decks and exposed fittings of vessels before the vessel is moved.	N/A
Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels should be equipped with automatic self-monitoring devices as specified by the DEP.	N/A

Ecology – Recommended Mitigation Measures

Ecology Mitigation Measures during construction	Implementation Status
Clear Definition of Site Limit	
Clear definition of the site limit should be provided in order to minimize and confine the disturbance during the construction period, especially the northern limit of the Site which is adjacent to fishponds within the Conservation Area (CA) zone and are considered to be ecological sensitive receivers.	ü
During wetland construction stage the WRA boundary will be delineated using a temporary hoarding in order to reduce disturbance to off-site habitats and wildlife. During the establishment phase this hoarding will be replaced with a 1 m high chain-link fence in order to reduce disturbance to the WRA through access by humans and dogs, and a hoarding will be established around the residential construction site.	N/A (WRA construction completed)
Dust and Noise Suppression and Avoidance of Water Pollution	
Good site practices of dust and noise suppression should be strictly implemented to ensure that disturbance is minimized to acceptable levels. Mitigation measures for the off-site disturbance impacts on the fishponds in the CA include hoarding at the northern site boundary during construction of the WRA to reduce noise and dust impacts to the adjacent habitats. Through the use of quieter plant and temporary/movable noise barriers, the noise level would be reduced significantly to an acceptable level. Hoarding at the northern boundary should be replaced with a 1 m high chain-link fence following construction and the WRA will then act as a buffer between the existing wetland areas and the residential part of the site until construction is completed. Hoarding will be retained between the WRA and ongoing construction work to avoid visual disturbance and reduce noise and dust emissions. Pollution of watercourses and sedimentary runoff will be minimized by good site practice, especially the containment of water and sediment within the site for removal. These standard noise and air and water quality site practices are considered to be effective measures for minimizing the disturbance impact during the construction period.	ü

Ecology Mitigation Measures during construction	Implementation Status
Planning of Construction Schedule	
The construction of the proposed project should be scheduled in phases. Because mitigation is preferably carried out in advance of the main works rather than after the completion of works, the construction of the WRA will commence at the start of the project. Construction work within the WRA is scheduled to take place in a single wet season, followed by 1.5 years of wetland establishment. During the wetland establishment period no noisy work will be undertaken within the WRA to minimize the disturbance to off-site habitats and wildlife.	N/A (WRA construction completed)
Reusing Onsite Materials	
Soil and plants on-site should be reused (e.g. used as fill material) as far as practical. Stock piles of these reusable materials should be stored in an appropriate area on-site. In particular, the re-use of the wetland soils and topsoil should be considered.	ü
Construction of the Wetland Restoration Area The WRA will be operational within 2.5 yrs from the commencement of construction (1 year for site formation and 1.5 years for establishment) and will compensate for the predicted ecological impacts of the proposed development.	ü

Landscape and Visual – Recommended Mitigation Measures

Landscape and Visual Mitigation Measures during construction	Implementation Status
CM1 - The construction area and contractor's temporary works areas should be minimised to avoid impacts on adjacent landscape.	ü
CM2 - Screening of construction works by hoarding / noise barriers.	ü (see **Appendix M** Photo 1 & 2 *)
CM3 - Reduction of construction period to practical minimum.	ü
CM4 - Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where the soil material meets acceptable criteria and where practical. The Contract Specification shall include storage and reuse of topsoil as appropriate.	ü
CM5 - Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material (in earth tone).	ü
CM6 - Advance screen planting of noise barriers	ü (see **Appendix M** Photo 3 *)
CM7 - Control night-time lighting and glare by hooding all lights.	N/A
CM8 - Ensure no run-off into streams adjacent to the Project Area.	ü
CM9 - Protection of existing trees on boundary of site shall be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree protection measures will be detailed at S16 and Tree Removal Application stage).	ü
CM10 - Trees unavoidably affected by the works shall be transplanted where practical. Trees should be transplanted straight to their destinations and not held in a nursery. A detailed Tree Transplanting Specification shall be provided in the Contract Specification, if applicable. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme.	ü

Legend:

ü	Implemented
×	Not implemented
P	Partially implemented
N/A	Not applicable
*	Representative photos showing the implementation of mitigation measures are presented in **Appendix M**

M. Landscape and Visual Audit Photos

	
Photo 1: The Construction works have been screened by hoarding / noise barriers. (CM2)	Photo 2: The wetland areas are being established, with the ponds are being seasonally filled with rain water. (CM2)

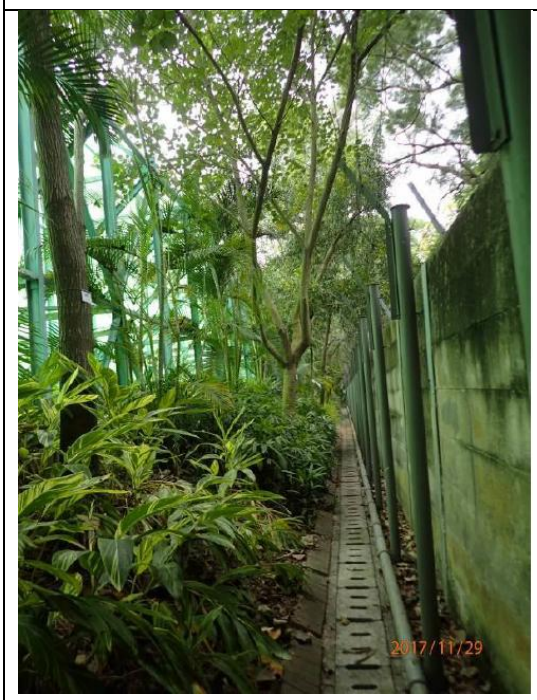



Photo 3: Advance screen planting of noise barrier has been undertaken (CM6)	