

**Vol. 3 of 4**

**FEP-02/457/2013/C**

**Central Kowloon Route**

**Yau Ma Tei East**

**Contract No. HY/2014/08**

**June 2019**

## Environmental Permit No. EP-457/2013/C

### Central Kowloon Route

### Independent Environmental Checker Verification

<b>Works Contract:</b>	Yau Ma Tei East (HY/2014/08)
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#### Reference Document/Plan

Document/ <del>Plan</del> to be <del>Certified</del> / Verified:	Monthly EM&A Report No.15 (June 2019)
Date of Report:	9 July 2019 (Rev.1)
Date received by IEC:	10 July 2019


#### Reference EP Condition

Environmental Permit Condition:	3.4
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Submission of Monthly EM&A Report of the Project

3.4 Four hard copies and one electronic copy of monthly EM&A Report shall be submitted to the Director within 2 weeks after the end of each reporting month throughout the entire construction period. The EM&A Reports shall include a summary of all non-compliance. The submissions shall be certified by the ET Leader and verified by the IEC as complying with the requirements as set out in the EM&A Manual before submission to the Director. Additional copies of the submission shall be provided to the Director upon request by the Director.

#### IEC Verification

I hereby verify that the above referenced document/ <del>plan</del> complies with the above referenced condition of EP-457/2013/C.	
	
Ms Mandy To	Date: 10 July 2019
Independent Environmental Checker	



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## Build King - SKEC Joint Venture

Central Kowloon Route Contract HY/2014/08




Section of Yau Ma Tei East

Monthly EM&A Report No. 15

(Period from 1 to 30 June 2019)

Rev. 1

(9 July 2019)

	<b>Name</b>	<b>Signature</b>
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## EXECUTIVE SUMMARY

- A.1 Build King – SKEC Joint Venture (“Contractor”) commenced the construction works of Highway Department (HyD) Central Kowloon Route Contract No. HY/2014/08 – Section of Yau Ma Tei East (“The Project”) on 20 April 2018. This is the 15<sup>th</sup> monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 June 2019 to 30 June 2019.
- A.2 A summary of the construction works that undertaken for the Project during the reporting month is listed below.

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### Construction Activities undertaken

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- Building Services (BS) Works and Architectural Builders Works and Finishes (ABWF) Works of Methadone Clinic (MC)
  - King Post, Sheet Piling, Excavate & Construct Ground Floor Beam/Slab at Zone E
  - Grouting Works at Yau Ma Tei Police Station (YMTPS)
  - Prebored socket H-pile at Yau Ma Tei Police Station (YMTPS)
  - Prebored socket H-pile at temporary Public Library cum Jade Hawker Bazaar Building (TPLBJHB)
  - Excavation and Lateral Support (ELS), Excavation and Construct Pile Cap at temporary Public Library cum Jade Hawker Bazaar Building (TPLBJHB).
  - Superstructure Construction 1/F to Upper Roof at Temporary Maternal and child health Centre (TMCHC)
  - BS Works and ABWF Works for Ground Floor at TMCHC
  - Install sheet piles, king posts, pump wells and excavation down to +1.5mPD at Zone A
- 

- A.3 A summary of regular construction noise and construction dust monitoring activities in this reporting period is listed below:

#### Regular construction noise monitoring during normal working hours

W-N1A, W-N18, W-N25A, W-P11 5 times

#### Construction dust (24-hour TSP) monitoring

W-A1 4 times  
(2 valid samples, 2 voided samples)

W-A6 5 times

#### Construction dust (1-hour TSP) monitoring

W-A1, W-A6 15 times

- A.4 No construction work was conducted during time period other than normal working hours during this reporting month.
- A.5 Inert construction and demolition (C&D) materials and non-inert C&D materials were the wastes that generated from this Project. During June 2019, 14649.4 tonnes inert C&D material was generated from the Project. 13996.2 tonnes inert C&D material was sent to public fill and 653.2 tonnes inert C&D material was reused in other Projects. No plastics

was generated and sent to recyclers for recycling during reporting period, 0.2 kg paper/ cardboard packaging was generated and sent to recyclers for recycling. About 105.2 tonnes of non-recyclable non-inert C&D materials, such as general refuse, were disposed of at landfill. 0 kg of chemical waste and 0 kg of metal were generated during this reporting month.

- A.6 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 13, 27 June 2019. Details of the audit findings and implementation status are presented in Section 5.
- A.7 Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET on 6, 13, 20, 27 June 2019. Details of the audit findings and implementation status are presented in Section 5.
- A.8 No change has been made from the described in the approved EM&A, such as construction method, mitigation proposals and design changes.
- A.9 No exceedance of the Action and Limit Levels of regular construction noise monitoring was recorded during the reporting period.
- A.10 No exceedance of the Action and Limit Levels of 24-hour TSP and 1-hour TSP monitoring were recorded during the reporting period.
- A.11 One environmental complaint was received in the reporting month on 13 June 2019. As concluded from investigation on 14 June 2019, actions have been taken. The interim report for the complaint is shown in Appendix Q. Further mitigation measures were implemented on site for precautionary purpose.
- A.12 No summon or prosecution was received in this reporting period.
- A.13 No reporting changes were revised in this reporting period.
- A.14 A summary of the construction activities to be undertaken in the in the next reporting month is listed below:

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**Construction Activities to be undertaken**

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- End user relocation works, rectification of defects, demolition works for Phase 2, existing electrical duct diversion for Phase 2 works and excavation for Phase 2 works of MC
  - Excavation down to -0.5mPd at Zone E (YMTAS)
  - Construction of Ground Beam and Slab at Zone E (YMTAS)
  - Construction of super structure , ABWF and E&M works at TMCHC
  - King Post Construction at Zone A
  - Drilling Pump Well at Zone A
  - Excavation down to +1.5mPD at East Bound (E/B) of Zone A.
  - Construction of capping beam and roof slab at Zone A
  - Construction of temporary slip road at Zone A for implementation of Temporary Traffic
-

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**Construction Activities to be undertaken**

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Arrangement (TTA) stage 2.

- Divert the CLP cable back to original position, install sheet piles and demolish the remaining subway at Zone A.
  - Grouting Works at YMTPS
  - UU diversion and ELS work at TPLCJHB
  - Modification of Yau Cheung Road
  - Installation of instrumentation for all areas
-



## 1. BASIC PROJECT INFORMATION

- 1.1. Central Kowloon Route (CKR) is a 4.7 km long dual 3-lane trunk road in Central Kowloon linking Yau Ma Tei Interchange in West Kowloon with the road network on Kai Tak Development and Kowloon Bay in East Kowloon.
- 1.2. The Central Kowloon Route – Design and Construction Environmental Impact Assessment Report (Register No.: AEIAR-171/2013) was approved with conditions by the Environmental Protection Department (EPD) on 11 July 2013. An Environmental Permit (EP 457/2013) was issued on 9 August 2013. Variations of EP (VEP) was subsequently applied for and the latest EP (EP-457/2013/C) was issued by EPD on 16 January 2017. A Further EP (FEP-02/457/2013/C) was issued by EPD on 5 March 2018.
- 1.3. The construction of the CKR had been divided into different sections. This Contract No. HY/2014/08 – Section of Yau Ma Tei East (YMTE) covers part of the construction activities located at Yau Ma Tei under the EP and FEP which includes:
  - Section of Yau Ma Tei East
    - i. Construction of Cut-and-Cover Tunnel in compliance with all statutory requirements and the requirements specified under the Contract while maintaining the traffic with all necessary provisions
    - ii. Construction and subsequent handover of Yau Ma Tei Access Shaft for facilitating the access and use by the contractor of Central Kowloon Route - Central Tunnel contract
    - iii. Demolition of existing buildings including Yau Ma Tei Multi-storey Carpark Building, Yau Ma Tei Specialist Clinic Extension Building and Yau Ma Tei Jade Hawker Bazaars
    - iv. Demolition and re-provisioning of Gascoigne Road Flyover(GRF) and the underpinning works for the existing Ferry Street Flyover and Yau Ma Tei Police Station New Wing Building
    - v. Construction of civil provisions and coordination with the contractor of Central Kowloon Route - Tunnel Electrical & Mechanical contract
    - vi. Design and construction of Noise Barrier Works
    - vii. Prepare TTA proposals, discuss at TMLG meeting and obtain its agreement and approval/ endorsement from relevant authorities at suitable times to enable the execution of the Works

The alignment and works area for the Contract No. HY/2014/08 - are shown in Appendix A.

- 1.4. A summary of the major construction activities undertaken in this reporting period is shown in Table 1.1. The construction programme is presented in Appendix B.

Table 1.1 Summary of the construction Activities Undertaken during the Reporting Month.

<b>Construction Activities undertaken</b>
<ul style="list-style-type: none"> <li>• Building Services (BS) Works and Architectural Builders Works and Finishes (ABWF) Works of Methadone Clinic (MC)</li> <li>• King Post, Sheet Piling, Excavate &amp; Construct Ground Floor Beam/Slab at Zone E</li> <li>• Grouting Works at Yau Ma Tei Police Station (YMTPS)</li> <li>• Prebored socket H-pile at Yau Ma Tei Police Station (YMTPS)</li> <li>• Prebored socket H-pile at temporary Public Library cum Jade Hawker Bazaar Building (TPLBJHB)</li> <li>• Excavation and Lateral Support (ELS), Excavation and Construct Pile Cap at temporary Public Library cum Jade Hawker Bazaar Building (TPLBJHB).</li> <li>• Superstructure Construction 1/F to Upper Roof at Temporary Maternal and child health Centre (TMCHC)</li> <li>• BS Works and ABWF Works for Ground Floor at TMCHC</li> <li>• Install sheet piles, king posts, pump wells and excavation down to +1.5mPD at Zone A</li> </ul>

1.5. There are no updates on the scope of works and construction methodologies.

1.6. The project organisational chart specifying management structure and contact details are shown in Appendix C.

1.7. A summary of the valid permits, licences, and /or notifications on environmental protection for this Project is presented in Table 1.2

Table 1.2 Summary of the Status of Valid Environmental Licence, Notification, Permit and Documentations

<b>Permit/ Licences/ Notification</b>	<b>Reference</b>	<b>Validity Period</b>
<b>Environmental Permit</b>	EP-457/2013/C	Throughout the Contract
<b>Further Environmental Permit</b>	FEP-02/457/2013/C	Throughout the Contract
<b>Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation (Form NA)</b>	429806	Throughout the Contract
<b>Wastewater Discharge Licence</b>	WT00030660-2018	31 March 2023
<b>Chemical Waste Producer Registration</b>	WPN5213-225-B2526-01	Throughout the Contract
<b>Construction Noise Permit at Portion 22 &amp; 22A(Renewal)</b>	GW-RE0250-19	8 April 2019 to 7 October 2019
<b>Construction Noise Permit at Portion 15 &amp; 18 (Renewal)</b>	GW-RE0057-19	24 January 2019 to 17 July 2019
<b>Construction Noise Permit for at Methadone Clinic (Renewal)</b>	GW-RE0290-19	3 April 2019 to 18 October 2019
<b>Construction Noise Permit at Zone E (Renewal)</b>	GW-RE0337-19	27 April 2019 to 26 July 2019
<b>Construction Noise Permit at Temporary Library</b>	GW-RE0317-19	27 April 2019 to 26 July 2019
<b>Construction Noise Permit at Road Marking</b>	GW-RE0349-19	19 May 2019 to

<b>Permit/ Licences/ Notification</b>	<b>Reference</b>	<b>Validity Period</b>
<b>( 2<sup>nd</sup> Intermediate Stage)</b>		9 June 2019
<b>Construction Noise Permit at Road Marking ( Final Implementation)</b>	GW-RE0333-19	16 June 2019 to 7 July 2019
<b>Construction Noise Permit at Zone C</b>	GW-RE0479-19	18 June 2019 to 12 December 2019
<b>Billing Account for Disposal of Construction Waste</b>	7029997	Throughout the Contract
<b>Dumping at Sea Permit (Type 1 – Open Sea Disposal)</b>	EP-MD-20-014	1 June 2019 to 30 November 2019
<b>Dumping at Sea Permit (Type 1 – Open Sea Disposal (Dedicated Site) &amp; Type 2 - Confined Marine Disposal)(1st renewal)</b>	EP-MD-20-015	1 June 2019 to 30 June 2019

## 2. ENVIRONMENTAL STATUS

2.1. Environmental permit (EP) conditions under the EIAO, submission status under the EP and implementation status of mitigation measures had been reviewed and implemented on schedule. The status of required submissions under the EP (EP-457/2013/C) and FEP (FEP-02/457/2013/C) as of the reporting period for the Project are summarised in Table 2.1

Table 2.1 Summary of Status of Required Submission for EP-457/2013/C and FEP-02/457/2013/C for the Project

EP/FEP Condition (EP-457/2013/C) (FEP-02/457/2013/C)	Submission	Submission date
Condition 1.12	Notification of Commencement Date of Construction of the Project	20 Mar 2018
Condition 2.3	Community Liaison Group	23 Nov 2017
Condition 2.4	Management organisation of the main construction companies	9 Feb 2018
Condition 2.5	Construction Programme and EP Submission Schedule	26 Feb 2018
Condition 2.6	Design Drawing	26 Feb 2018
Condition 2.7	Cultural Heritage Mitigation Plan	7 Mar 2019
Condition 2.8	Landscape Mitigation Plan	9 Mar 2018
Condition 2.9	Construction Noise Mitigation Measure Plan (CNMMP)	17 May 2019
Condition 3.3	Baseline Monitoring Report	6 Apr 2018
Condition 3.4	Monthly EM&A Report (May 2019)	11 Jun 2019

2.2. Details of the major construction activities undertaken in this reporting period are shown in Table 2.2.

Table 2.2 Summary of the construction Activities Undertaken during the Reporting Month.

Construction activities undertaken	Remarks on progress
• Building Services (BS) Works and Architectural Builders Works and Finishes (ABWF) Works of Methadone Clinic (MC)	• 99% completion
• King Post, Sheet Piling, Excavate & Construct Ground Floor Beam/Slab at Zone E	• 38% completion
• Grouting Works at Yau Ma Tei Police Station (YMTPS)	• 7% completion
• Prebored socket H-pile at Yau Ma Tei Police Station (YMTPS)	• 6% completion
• Prebored socket H-pile at temporary Public Library cum Jade Hawker Bazaar Building (TPLBJHB)	• 100% completion
• Excavation and Lateral Support (ELS), Excavation and Construct	• 25% completion

<b>Construction activities undertaken</b>	<b>Remarks on progress</b>
Pile Cap at temporary Public Library cum Jade Hawker Bazaar Building (TPLBJHB)	
• Superstructure Construction 1/F to Upper Roof at Temporary Maternal and child health Centre (TMCHC)	• 50% completion
• BS Works and ABWF Works for Ground Floor at TMCHC	• 36% completion
• Install sheet piles, king posts, pump wells and excavation down to +1.5,PD at Zone A	• 47% completion

2.3. The drawing showing the the project are, environmental sensitive receivers and the location of the monitoring station is attached in Appendix A and Appendix K. Co-ordinates of the monitoring location is shown in below:

<b>Monitoring Location</b>	<b>Location ID</b>	<b>Latitude</b>	<b>Longitude</b>
Yau Ma Tei Catholic Primary School (Hoi Wang Road)	W-A1/ W-N1A	22.313357	114.16409
Man Cheong Building	W-A6	22.308185	114.166033
Hydan Place	W-N18	22.30858	114.170185
Prosperous Garden Block 1	W-N25A	22.309846	114.168072
The Coronation Tower 1	W-P11	22.309824	114.165616

### 3. MONITORING RESULTS

#### 3.1. Monitoring Parameters

##### Air Quality

- 3.1.1. The impact monitoring had been carried out in accordance with section 5.8 of the approved EM&A Manual to determine the 1-hour and 24-hour total suspended particulates (TSP) levels at the monitoring locations in the reporting month.
- 3.1.2. The sampling frequency of at least once in every 6 days, shall be strictly observed at the monitoring stations for 24-hour TSP monitoring. For 1-hour TSP monitoring, the sampling frequency of at least 3 times in every 6 days should be undertaken when the highest dust impact occurs.
- 3.1.3. General meteorological conditions (wind speed, direction and precipitation) and notes regarding any significant adjacent dust producing sources had also been recorded throughout the impact monitoring period.

##### Noise

- 3.1.4. Construction noise level shall be measured in terms of the A-weighted equivalent continuous sound pressure level ( $L_{eq}$ ).  $L_{eq}$  (30min) shall be used as the monitoring parameter for the time period between 0700 and 1900 hours on normal weekdays.
- 3.1.5. For all other time periods,  $L_{eq}$  (5min) shall be employed for comparison with the Noise Control Ordinance (NCO) criteria.
- 3.1.6. As supplementary information for data auditing, statistical results such as  $L_{10}$  and  $L_{90}$  shall also be obtained for reference.

#### 3.2. Monitoring Equipment

##### Air Quality

- 3.2.1. 1-hour TSP levels and 24-hour TSP had been measured with direct reading dust meter and High Volume Samplers respectively. It has been demonstrated its capability in achieving comparable results with high volume sampling method as set out in the Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50).
- 3.2.2. The 1-hour TSP meter was calibrated by the manufacturer prior to purchasing. Zero response of the instrument was checked before and after each monitoring event. Operation of the 1-hour TSP meter followed manufacturer's Operation and Service Manual. The 24-hour TSP meter was calibrated against firmware 80570-8100-V1.0.4, annually. Operation of the 24-hour TSP meter followed manufacturer's Operation and Service Manual. Valid calibration certificate of dust monitoring equipment is attached in Appendix H.
- 3.2.3. A summary of the equipment that was deployed for the 24-hour averaged monitoring is shown in Table 3.1. The TSP monitoring was conducted as per the schedule presented in Appendix G.

- 3.2.4. The equipment used for 1-hour TSP and 24-hour TSP measurement and calibration are summarised in Table 3.1

Table 3.1 Construction Dust Monitoring Equipment

Monitoring Parameter	Monitoring Equipment	Serial Number	Date of Calibration
1-hour TSP	LD-3B Digital Dust Indicator	296093	15 Oct 2018
1-hour TSP	LD-5R Digital Dust Indicator	882150	27 Aug 2018
24-hour TSP	TE-5170X High Volume Sampler	1050	4, 15 June 2019
	TE-5170X High Volume Sampler	1049	15 June 2019
	TE-5025 Calibration Kit	3465	22 Jan 2019

### Noise

- 3.2.5. Sound level meter in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications has been used for carrying out the noise monitoring. The sound level meter has been checked using an acoustic calibrator. The wind speed and other metrological data has been recorded from Hong Kong Observatory- King’s Park meteorological station, along with portable wind speed meter stand by as back up if malfunction occurred or data was not recorded from HKO.
- 3.2.6. An acoustic calibrator and sound level meter using for the monitoring is within the valid period and were calibrated per year. Valid calibration certificate of noise monitoring equipment is attached in Appendix I.
- 3.2.7. The details of equipment using for monitoring are listed in Table 3.2, as below:

Table 3.2 Monitoring Equipment Used in Monitoring

Monitoring Equipment	Serial Number	Date of Calibration
Nti XL2 Sound Level Meter	A2A-13661-E0	10 Sep 2018
Pulsar 105 Acoustic Calibrator	63705	11 Sep 2018

- 3.3. Monitoring Methodology and QA/QC results

### Air Quality

- 3.3.1. The 1-hour TSP monitor, portable dust meters (Sibata Digital Dust Indicator Model LD-5R) was used for the impact monitoring. The 1-hour TSP meters provides a real time 1-hour TSP measurement based on 90° light scattering. Three 1-hour TSP level were logged per every six days.
- 3.3.2. The 24-hour TSP monitor, High Volume Samplers (Tisch TE 5170 High Volume Air Sampler) were used for the impact monitoring. The 24-hour TSP monitoring consists of the following:



- ◆ The HVS was set at the monitoring location, with electricity supply connected and secured;
- ◆ HVS was calibrated before commencing the 1<sup>st</sup> measurement;
- ◆ The filter paper was weight and provided by HOKLAS lab (Acumen Laboratory and Testing Limited and ALS Technichem (HK) Pty Ltd) before and after the sampling. Certificate of HOKLAS accredited laboratory can be referred to Appendix J;
- ◆ The airflow over time during sampling process was recorded by the HVS.

3.3.3. HVSs were free-standing with no obstruction. The following criteria were considered in the installation of the HVS:

- ◆ Appropriate support to secure the samples against gusty wind needed to be provided the monitoring station;
- ◆ A minimum of 2m separation from walls, parapets and penthouses was required for rooftop samplers;
- ◆ No furnace or incinerator flues was nearby;
- ◆ Airflow around the sampler was unrestricted; and
- ◆ Permission could be obtained to set up the samplers and gain access to the monitoring station.

3.3.4. Preparation of Filter Papers

- ◆ Glass fiber 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 varied by more than  $\pm 3^{\circ}\text{C}$ ; the relative humidity (RH) was 40%; and
- ◆ Acumen Laboratory and Testing Limited and ALS Technichem (HK) Pty Limited, as HOKLAS accredited laboratory, implemented comprehensive quality assurance and quality control programmes on the filters.

3.3.5. Field Monitoring

- ◆ The power supply was checked to ensure that the HVS was working properly;
- ◆ The filter holder and area surrounding the filter were cleaned;
- ◆ The filter holder was removed by loosening the fowl 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 secured with an aluminum strip;
- ◆ The HVS was warmed- up for about 5 minutes to establish run- temperature conditions;
- ◆ A new flow rate record sheet was inserted into the flow recorder;
- ◆ The flow rates of the HVS was checked and adjusted to between  $1.22\text{-}1.37\text{m}^3\text{min}^{-3}$ , which was within the range specified in the EM&A Manual (i.e.  $0.6\text{-}1.7\text{m}^3\text{min}^{-3}$ );



- ◆ The programmable timer was set for a sampling period of 24 hours  $\pm$ hour, and the starting time, weather condition and 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 so that only surfaces with collected particulate matter were in contact;
- ◆ The filter paper was placed in a clean plastic envelope and sealed; all monitoring information was recorded on a standard data sheet and
- ◆ The filters were sent to (Acumen Laboratory and Testing Ltd and ALS Technichem (HK) Pty Ltd) for analysis.

#### 3.3.6. Maintenance and Calibration

- ◆ The HVS and their accessories were maintained in a good working condition. For example, motor brushes were replaced routinely and electrical wiring was checked to ensure a continuous power supply; and
- ◆ The flow rate of each HVS with mass flow controller was calibrated using an orifice calibrator, Initial calibrations of the dust monitoring equipment were conducted upon installation and prior to commissioning. Five- point calibration was carried out for HVS using TE-5025 Calibration Kit. HVS is calibrated bimonthly. The calibration records for the HVS is given in Appendix H.

#### 3.3.7. Wind Data Monitoring

- ◆ The wind speed has been recorded from Hong Kong Observatory- King's Park meteorological station, along with portable wind speed meter stand by as back up if malfunction occurred or data was not recorded from HKO

### Noise

3.3.8. All noise measurements by the meter were set to FAST response and on the A-weighted equivalent continuous sound pressure level (Leq) in decibels dB(A).  $L_{Aeq(30min)}$  was used as the monitoring metric for the time period between 0700 –1900 hours on normal weekdays. The measured noise levels were logged every 5 minutes throughout the monitoring period.

3.3.9. Prior to the noise measurement, the accuracy of the sound level meter was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Checking was conducted before and after the monitoring. The calibration level before and after the noise measurement is agreed to within 1.0 dB(A).

3.3.10. Noise measurements should not be made in presence of fog, rain, wind with a steady speed exceeding  $5 \text{ ms}^{-1}$  or wind with gusts exceeding  $10 \text{ ms}^{-1}$ . The wind speed was checked with a portable wind speed meter capable of measuring with speeds in  $\text{ms}^{-1}$ .

#### 3.4. Monitoring Locations

### Air Quality

3.4.1. During the site visit, both of the original proposed dust monitoring locations were rejected due to the condition at The Coronation was not favorable for monitoring and the

access was declined by the management office of Hong Kong Community College (HKCC) of PolyU. Two alternative air monitoring stations Yau Ma Tei Catholic Primary School (Hoi Wang Road) and Man Cheong Building had been proposed by ET and approved by IEC. 2 designated air monitoring locations were identified and agreed with IEC and EPD. Details of air monitoring stations are described in Table 3.3. The location plan of air quality monitoring stations is shown in Appendix K.

Table 3.3 Location of the Dust Monitoring Stations

<b>Air Quality Monitoring Station</b>	<b>Dust Monitoring Station</b>
W-A1	Yau Ma Tei Catholic Primary School (Hoi Wang Road)
W-A6	Man Cheong Building

### **Noise**

3.4.2. During the site visit, one of the original proposed noise monitoring locations Tak Cheong Building was rejected by the president of the owner’s corporation. Alternative noise monitoring station Hydan place had been proposed by ET and approved by IEC. 4 noise sensitive receivers designated noise monitoring locations were identified and agreed with IEC and EPD. The designated monitoring stations are identified and access was granted by the premises. The details of noise monitoring station are described in Table 3.4 and the location plan of noise monitoring station is shown in Appendix K.

Table 3.4 Noise Monitoring Stations

<b>Noise Monitoring Station</b>	<b>Identified Noise Monitoring Station</b>	<b>Type of Measurement</b>
W-N1A	Yau Ma Tei Catholic Primary School (Hoi Wang Road)	Façade
W-N18	Hydan Place	Façade
W-N25A	Prosperous Garden Block 1	Façade
W-P11	The Coronation Tower 1	Façade

### 3.5. Monitoring date, time, frequency and duration

3.5.1. A summary of impact monitoring duration, sampling parameter and frequency is presented in Table 3.5.

Table 3.5: Summary of Impact Monitoring Programme

Impact Monitoring	Duration	Sampling Parameter	Frequency
Dust	1-hour continuous measurement	1-hour TSP	3 times per six days
Dust	24-hour continuous sampling	24-hour TSP	Once per six days
Noise	30-minute continuous measurement	$L_{eq\ 30\ min}$ , $L_{10}$ and $L_{90}$ as reference.	Once $L_{eq\ 30\ min}$ from 0700 – 1900 per seven days

### 3.6. Result Summary

#### Air Quality

3.6.1. According to our field observations, the major dust source identified at the designated air quality monitoring station in the reporting month are summarised in Table 3.6

Table 3.6 Observation at Dust Monitoring Station

Monitoring Station	Major Dust Source
W-A1	Nearby traffic, construction work from West Kowloon Government Offices
W-A6	Nearby traffic

3.6.2. Air quality impact monitoring for the reporting month was carried out on 4, 10, 15, 21, 27 June 2019 at W-A6; 4, 10, 15, 21, 27 June 2019 for 1-hour TSP and 27, 28 June 2019 for 24-hour TSP at (W-A1).

3.6.3. Due to the motor fail of high volume sample (HVS) plausibly caused by short-circuited electricity supply at W-A1, the 24-hour TSP result on 4, 10 June 2019 had been suspended.

3.6.4. Additional HVS was installed on 15 June 2019 upon granting the installation permission by Yau Ma Tei Catholic Primary School and 24-hour TSP monitoring was resumed. However, failed operation on air flow chart was found on 21 June 2019 due to unstable electricity supply from Yau Ma Tei Catholic Primary School, thus 24-hour TSP result for 15, 21 June 2019 was voided.

3.6.5. Checking and repairing work for electricity supply by Contractor was conducted on 24 and 25 June 2019. Monitoring for 24-hour TSP was resumed on 27 June 2019. Additional monitoring for 24-hour TSP at W-A1 was conducted on 28 June 2019 as a supplement to the voided monitoring result

3.6.6. Scheduled monitoring for 1-hour TSP was remain unaffected, only 24-hour TSP result was affected. Based on the 1-hour TSP monitoring result at WA-1, the construction dust

level was sufficiently mitigated and below the action and limit level during the reporting month.

- 3.6.7. The results for 1-hour TSP and 24-hour TSP are summarized in Table 3.7 and Table 3.8. The measurement data and details of influencing factors such as weather conditions and site observation are presented in Appendix L.

Table 3.7 Summary of 1-hour TSP Monitoring Results

Monitoring Location	Range( $\mu\text{g}/\text{m}^3$ )	Action Level( $\mu\text{g}/\text{m}^3$ )	Limit Level( $\mu\text{g}/\text{m}^3$ )
W-A1	63-80	319	500
W-A6	62-81	306	500

Table 3.8 Summary of 24-hour TSP Monitoring Results

Monitoring Location	Range( $\mu\text{g}/\text{m}^3$ )	Action Level( $\mu\text{g}/\text{m}^3$ )	Limit Level( $\mu\text{g}/\text{m}^3$ )
W-A1	11-13	167	260
W-A6	18-42	166	260

### Noise

- 3.6.8. According to our field observations, the major noise source identified at the designated noise monitoring station in the reporting month are summarised in Table 3.9:

Table 3.9 Observation at Noise Monitoring Stations

Monitoring Station	Major Noise Source
W-N1A	Nearby traffic, construction work from West Kowloon Government Offices, school activities
W-N18	Nearby traffic
W-N25A	Nearby traffic
W-P11	Nearby traffic

- 3.6.9. The construction noise impact monitoring for the reporting month was carried out on 4, 10, 15, 21, 27 June 2019. The measurement data are shown in Appendix M and summarized in Tables 3.10:

Table 3.10 Summary of Noise Monitoring Results

Time Period	Monitoring location	Parameter	Range, dB(A)			Action Level	Limit Level#
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>		
Normal working hour from 0700-1900	W-N1A	L <sub>eq</sub> 30min	63.6-64.4	67.1-67.8	61.6-62.3	When one documented complaint is received	70dB(A) or 65 dB(A) during examination**
	W-N18		66.9-69.3	69.2-72.7	64.6-67.2		75dB(A)#
	W-N25A		65.4-66.9	67.5-69.0	62.4-64.6		
	W-P11		63.9-65.9	65.6-68.1	60.9-64.2		

Remarks: # If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit by the Noise Control Authority have to be followed.  
 \*\* Reduce to 70dB(A) for schools and 65dB(A) during school examination periods.

**Waste management**

3.6.10. The waste generated from this Project includes inert C&D materials, and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes such as plastics and paper/cardboard packaging waste. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in Table 3.11. Details of cumulative waste management data are presented as a waste flow table in Appendix N.

Table 3.11 Quantities of waste generated from the Project

Reporting period	Quantity					
	Inert C&D Materials (in ‘tonnes)	Chemical Waste (in ‘000 Kg)	Non-inert C&D Materials			
			Others, e.g. General Refuse disposed at Landfill (in ‘tonnes)	Recycled materials		
				Paper/card board (in ‘000 Kg)	Plastics (in ‘000 Kg)	Metals (in ‘000 Kg)
June-19	14649.4	0.0	105.2	0.2	0.0	0.0

#### 4. SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTIONS

4.1. The Environmental Complaint Handling Procedure is shown in below Table 4.1:

Table 4.1 Environmental Complaint Handling Procedure

Complaint Received via Project Hotline	Complaint Received via 1823 or from other government departments
Contractor notify ER, ET and IEC	ER notify Contractor, ET and IEC
Contractor log complaint and date of receipt onto the complaint database. Contractor, ER and ET to conduct investigation of complaint	
If complaint is considered not valid	If complaint is found valid
ET or ER to reply the complainant if necessary	Contractor to identify and implement remedial measures in consultation with the IEC, ET and ER.
	The ER, ET and IEC to review the effectiveness of the Contractor's remedial measures and the updated situation; ET to undertake additional monitoring and audit to verify the situation if necessary, and oversee that circumstances leading to the complaint do not recur. ER to conduct further inspection as necessary.
If the complaint is referred by the EPD, the Contractor to prepare interim report on the status of the complaint investigation and follow-up actions stipulated above, including the details of the remedial measures and additional monitoring identified or already taken, for submission to EPD within the time frame assigned by the EPD	
The ET to record the details of the complaint, results of the investigation, subsequent actions taken to address the complaint and updated situation including the effectiveness of the remedial measures, supported by regular and additional monitoring results in the monthly EM&A reports	

- 4.2. Should non-compliance of the criteria occur, action in accordance with the Action Plan in Appendix D and Appendix E shall be carried out.
- 4.3. No exceedance of the Action and Limit Levels of the regular construction noise was recorded during the reporting period
- 4.4. No exceedance of the Action and Limit Level of 1-hour TSP and 24-hour TSP monitoring was recording during the reporting period.
- 4.5. One environmental complaint was received on 13 June 2019. As concluded from investigation on 14 June 2019, actions have been taken. The interim report for the complaint is shown in Appendix Q. Further mitigation measures were implemented on site for precautionary purpose.
- 4.6. No notification of summons and prosecution was received in the reporting period.
- 4.7. Statistics on complaints, notifications of summons and successful prosecutions are summarized in Appendix O.



## 5. EM&A SITE INSPECTION

- 5.1. Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures under the Contract. In the reporting period, four (4) site inspections were carried out on 6, 13, 20, 27 June 2019, along with bi-weekly inspection of the implementation of landscape and visual mitigation measures conducted on 13, 27 June 2019.
- 5.2. One joint site inspection with IEC also undertaken on 13 June 2019. Minor deficiencies were observed during weekly site inspection. Key observations during the site inspections are summarized in Table 5.1.

Table 5.1 Site Observations

<b>Date</b>	<b>Environmental Observations</b>	<b>Follow-up Status</b>
6 June 2019	Chemical waste storage box's lock was broken in Zone A.	Chemical waste storage box's lock was repaired in Zone A.
13 June 2019	Concrete mixer area is not 3-sided fully covered in Zone E.	Grouting works completed and cement mixing area was removed in the same day.
20 June 2019	No Major observation was found.	-
27 June 2019	No Major observation was found.	-

- 5.3. The Contractor has rectified all observation identified during environmental site inspection in the reporting period.
- 5.4. According to the EIA Study Report, Environmental Permit, contract documents and EM&A Manual, the mitigation measures detailed in the documents are implemented as much as practical during the reporting period. An updated Implementation Status of Environmental Mitigation Measures (EMIS) is provided in Appendix F.

## **6. FUTURE KEY ISSUES**

6.1. Work to be undertaken in the next reporting month are:

- End user relocation works, rectification of defects, demolition works for Phase 2, existing electrical duct diversion for Phase 2 works and excavation for Phase 2 works of MC
- Excavation down to -0.5mPd at Zone E (YMTAS)
- Construction of Ground Beam and Slab at Zone E (YMTAS)
- Construction of super structure , ABWF and E&M works at TMCHC
- King Post Construction at Zone A
- Drilling Pump Well at Zone A
- Excavation down to +1.5mPD at East Bound (E/B) of Zone A.
- Construction of capping beam and roof slab at Zone A
- Construction of temporary slip road at Zone A for implementation of Temporary Traffic Arrangement (TTA) stage 2.
- Divert the CLP cable back to original position, install sheet piles and demolish the remaining subway at Zone A.
- Grouting Works at YMTPS
- UU diversion and ELS work at TPLCJHB
- Modification of Yau Cheung Road
- Installation of instrumentation for all areas

Potential environmental impacts arising from the above construction activities are mainly associated with dust, construction noise and waste management.

- 6.2. The tentative schedule of regular construction noise monitoring, 1-hour TSP and 24-hour TSP monitoring in the next reporting period is presented in Appendix P.
- 6.3. The construction programme for the Project for the next reporting month is presented in Appendix B.

## 7. CONCLUSION AND RECOMMENDATIONS

- 7.1. This 15<sup>th</sup> monthly EM&A Report presents the EM&A works undertaken during the period from 1 June 2019 to 30 June 2019 in accordance with the EM&A Manual and the requirement under EP- 457/2013/C and FEP-02/457/2013/C.
- 7.2. Air quality (including 1-hour TSP and 24-hour TSP) and noise impact monitoring were carried out in the reporting period. All monitoring results are satisfactory. No exceedance of the Action and Limit Level was recorded during the reporting period.
- 7.3. Due to the motor fail of high volume sample (HVS) plausibly caused by short-circuited electricity supply at W-A1, the 24-hour TSP result on 4, 10 June 2019 had been suspended.
- 7.4. Additional HVS was installed on 15 June 2019 upon granting the installation permission by Yau Ma Tei Catholic Primary School and 24-hour TSP monitoring was resumed. However, failed operation on air flow chart was found on 21 June 2019 due to unstable electricity supply from Yau Ma Tei Catholic Primary School, thus 24-hour TSP result for 15, 21 June 2019 was voided.
- 7.5. Checking and repairing work for electricity supply by Contractor was conducted on 24 and 25 June 2019. Monitoring for 24-hour TSP was resumed on 27 June 2019. Additional monitoring for 24-hour TSP at W-A1 was conducted on 28 June 2019 as a supplement to the voided monitoring result
- 7.6. Scheduled monitoring for 1-hour TSP was remain unaffected, only 24-hour TSP result was affected. Based on the 1-hour TSP monitoring result at WA-1, the construction dust level was sufficiently mitigated and below the action and limit level during the reporting month.
- 7.7. Weekly environmental site inspections were conducted during the reporting period. Joint site inspection with IEC were carried out on 13 June 2019. Minor deficiency was observed during site inspection and was rectified within the specified deadlines. The environmental performance of the Project was therefore considered satisfactory.
- 7.8. One environmental complaint was received in the reporting month on 13 June 2019. As concluded from investigation on 14 June 2019, actions have been taken. The interim report for the complaint is shown in Appendix Q. Further mitigation measures were implemented on site for precautionary purpose.
- 7.9. No notification of summons or prosecution was received since commencement of the Contract.
- 7.10. The ET will keep track on the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

# Appendix A

## Alignment and Works Area For the Contract No. HY/2014/08



# Appendix B

## Construction Programme



Contract No. HY/2014/08  
Environmental Monitoring & Auditing

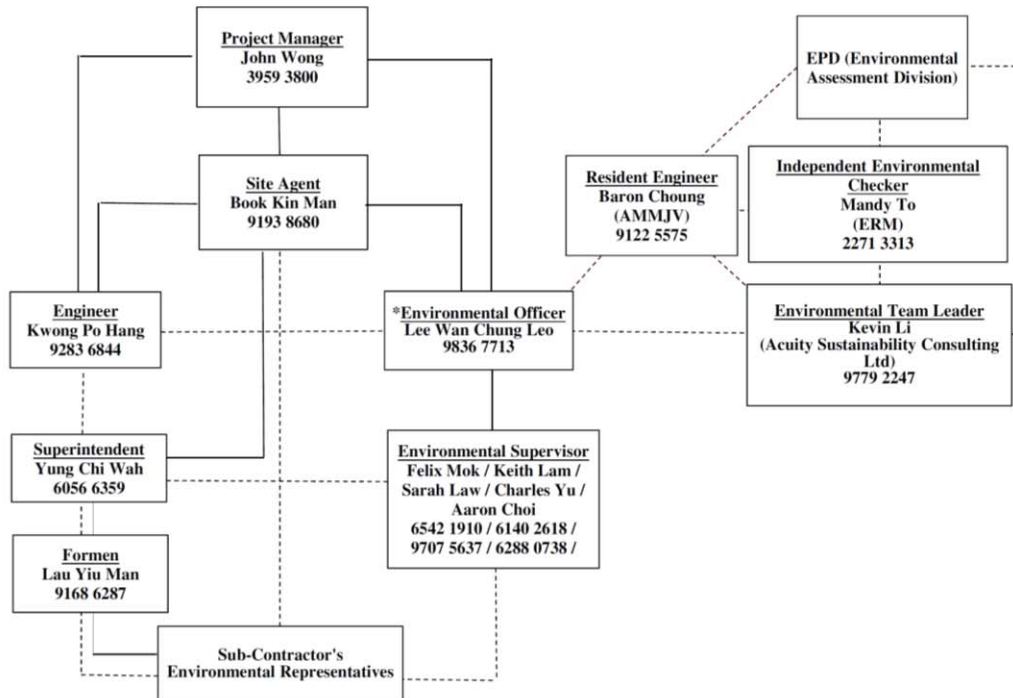


# Appendix C

## Project Organization Chart



# Project O-Chart



— Line of Responsibility  
 - - - - Line of Communication  
 (\*) - person responsible for updating the EMP, WFT and summary table for timber

# Appendix D

## Dust Event-Action Plan (EAP)

EVENT	ACTION			ER	CONTRACTOR
	ET	IEC			
<b>ACTION LEVEL</b>					
1.Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>2. Inform IEC and ER;</li> <li>3. Repeat measurement to confirm findings;</li> <li>4. Increase monitoring frequency to daily.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method.</li> </ol>	1. Notify Contractor.	<ol style="list-style-type: none"> <li>1. Rectify any unacceptable practice;</li> <li>2. Amend working methods if appropriate.</li> </ol>	
2.Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IEC and ER;</li> <li>3. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>4. Repeat measurements to confirm findings;</li> <li>5. Increase monitoring frequency to daily;</li> <li>6. Discuss with IEC and Contractor on remedial actions required;</li> <li>7. If exceedance continues, arrange meeting with IEC and ER;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET and Contractor on possible remedial measures;</li> <li>4. Advise the ET on the effectiveness of the proposed remedial measures;</li> <li>5. Supervise Implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Ensure remedial measures properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit proposals for remedial to ER within 3 working days of notification;</li> <li>2. Implement the agreed proposals;</li> <li>3. Amend proposal if appropriate.</li> </ol>	
<b>LIMIT LEVEL</b>					
1.Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>2. Inform ER, Contractor and</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC</li> </ol>	

EVENT	ACTION			CONTRACTOR
	ET	IEC	ER	
	<p>EPD;</p> <p>3. Repeat measurement to confirm findings;</p> <p>4. Increase monitoring frequency to daily;</p> <p>5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.</p>	<p>3. Discuss with ET and Contractor on possible remedial measures;</p> <p>4. Advise the ER on the effectiveness of the proposed remedial measures;</p> <p>5. Supervise implementation of remedial measures.</p>	<p>3. Ensure remedial measures properly implemented.</p>	<p>within 3 working days of notification;</p> <p>Implement the agreed proposals;</p> <p>4. Amend proposal if appropriate.</p>
<p>2. Exceedance for two or more consecutive samples</p>	<p>1. Notify IEC, ER, Contractor and EPD;</p> <p>2. Identify source;</p> <p>3. Repeat measurement to confirm findings;</p> <p>4. Increase monitoring frequency to daily;</p> <p>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</p> <p>6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken;</p> <p>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</p> <p>8. If exceedance stops, cease additional monitoring.</p>	<p>1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;</p> <p>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</p> <p>3. Supervise the implementation of remedial measures.</p>	<p>1. Confirm receipt of notification of failure in writing;</p> <p>2. Notify Contractor;</p> <p>3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented;</p> <p>4. Ensure remedial measures properly implemented;</p> <p>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</p>	<p>1. Take immediate action to avoid further exceedance;</p> <p>2. Submit proposals for remedial actions to IEC within 3 working days of notification;</p> <p>3. Implement the agreed proposals;</p> <p>4. Resubmit proposals if problem still not under control;</p> <p>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</p>

Note:

ET – Environmental Team

IEC – Independent Environmental Checker

ER – Engineer's Representative

# Appendix E

## Noise Event-Action Plan (EAP)

		<b>ACTION</b>			
<b>EVEN T</b>	<b>ET</b>	<b>IEC</b>	<b>ER</b>	<b>CONTRACTOR</b>	
Action Level	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>2. Notify IEC and Contractor;</li> <li>3. Report the results of investigation to the IEC, ER and Contractor;</li> <li>4. Discuss with the Contractor and formulate remedial measures;</li> <li>5. Increase monitoring frequency to check mitigation effectiveness.</li> </ol>	<ol style="list-style-type: none"> <li>1. Review the analysed results submitted by the ET;</li> <li>2. Review the proposed remedial measures by the Contractor and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>4. Ensure remedial measures are properly implemented</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit noise mitigation proposals to IEC;</li> <li>2. Implement noise mitigation proposals.</li> </ol>	
Limit Level	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IEC, ER, EPD and Contractor;</li> <li>3. Repeat measurements to confirm findings;</li> <li>4. Increase monitoring frequency;</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>4. Ensure remedial measures properly implemented;</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Resubmit proposals if problem still not under control;</li> <li>5. Stop the relevant portion of works as determined by the ER</li> </ol>	

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	<p>6. Inform IEC, ER and EPD the causes and actions taken for the exceedances;</p> <p>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</p> <p>8. If exceedance stops, cease additional monitoring.</p>		<p>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</p>	<p>until the exceedance is abated.</p>

Note:

ET – Environmental Team

IEC – Independent Environmental Checker

ER – Engineer's Representative

# Appendix F

## Environmental Mitigation Implementation Schedule (EMIS)



Environmental Mitigation Implementation Schedule –  
Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/ or standards to be achieved	Implementation Status
<b>Construction Dust Impact</b>								
S4.3.10	D1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• APCO</li> <li>• To control the dust impact To meet HKAQO and TM-EIA criteria</li> </ul>	<ul style="list-style-type: none"> <li>• Implemented</li> </ul>
S4.3.10	D2	<ul style="list-style-type: none"> <li>• Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road should be conducted to achieve dust removal efficiencies of 91.7%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.3 L/m<sup>2</sup> to achieve the dust removal efficiency.</li> </ul>	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• APCO</li> <li>• To control the dust impact To meet HKAQO and TM-EIA criteria</li> </ul>	<ul style="list-style-type: none"> <li>• Implemented</li> </ul>
S4.3.10	D3	<ul style="list-style-type: none"> <li>• Proper watering at exposed spoil should be undertaken throughout the construction phase;</li> <li>• Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</li> <li>• Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> <li>• A stockpile of dusty material should not be extended</li> </ul>	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• APCO</li> <li>• To control the dust impact To meet HKAQO and TM-EIA criteria</li> </ul>	<ul style="list-style-type: none"> <li>• Implemented, rectified after observation.</li> </ul>

Environmental Mitigation Implementation Schedule –  
Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/or standards to be achieved	Implementation Status
		<p>beyond the pedestrian barriers, fencing or traffic cones;</p> <ul style="list-style-type: none"> <li>•The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle.</li> <li>•Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;</li> <li>•When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period;</li> <li>•The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;</li> <li>•Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously;</li> <li>•Any area that involves demolition activities should be</li> </ul>						

Environmental Mitigation Implementation Schedule –  
Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/ or standards to be achieved	Implementation Status
S4.3.10	D6	<p>sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet;</p> <ul style="list-style-type: none"> <li>Any skip hoist for material transport should be totally enclosed by impervious sheeting;</li> <li>Every stock of more than 20 bags of cement or dry-pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;</li> <li>Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system</li> <li>Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabilizer within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.</li> </ul>	Monitoring of dust impact	Contractor	Selected rep. dust monitoring station	Construction stage	<ul style="list-style-type: none"> <li>TM-EIA</li> </ul>	Implemented
Construction Noise (Airborne)								

Environmental Mitigation Implementation Schedule –  
Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/ or standards to be achieved	Implementation Status
S5.4.1	N1	<p>Implement the following good site practices:</p> <ul style="list-style-type: none"> <li>Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;</li> <li>Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</li> <li>Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs;</li> <li>Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works;</li> <li>Mobile plant should be sited as far away from NSRs as possible and practicable;</li> <li>Material stockpiles, mobile container site office and other structures should be effectively utilized, where practicable, to screen noise from on-site construction activities.</li> </ul>	Control construction airborne noise	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Annex 5, TM-EIAO</li> </ul>	<ul style="list-style-type: none"> <li>Implemented</li> </ul>
S5.4.1	N2	<p>Install temporary hoarding located on the site boundaries between noisy construction activities and NSRs. The conditions of hoardings shall be properly maintained throughout the construction period.</p>	Reduce the construction noise levels at low-level zone of NSRs through partial screening	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Annex 5, TM-EIAO</li> </ul>	<ul style="list-style-type: none"> <li>Implemented</li> </ul>
S5.4.1	N3	<p>Install movable noise barriers (typical design is wooden framed barrier with a small-cantilevered on a skid footing with 25mm thick internal sound absorptive lining), acoustic mat or full enclosure, screen the noisy</p>	Screen the noisy plant items to be used at all construction	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> <li>Annex 5, TM-EIAO</li> </ul>	<ul style="list-style-type: none"> <li>Implemented</li> </ul>

Environmental Mitigation Implementation Schedule –  
Contract No. HY/2014/08 (Yau Ma Tei East)

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		plants including air compressors, generators and handheld breakers, etc.	sites					
S5.4.1	N4	Use 'Quiet plant'	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIAO	• Implemented
S5.4.1	N5	Loading/ unloading activities should be carried out inside the full enclosure of mucking out points.	Reduce the noise levels of loading/ unloading activities	Contractor	Mucking out locations	Construction stage	• Annex 5, TM-EIAO	• Implemented
S5.4.1	N6	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction stage	• Annex 5, TM-EIAO	• Implemented
S5.4.1	N7	Implement a noise monitoring programme under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected rep. noise monitoring station	Construction stage	• TM-EIAO	• Implemented
Water Quality (Construction Phase)								

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S6.9.1.1	W1	<p>In accordance with the Practice Note for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following:</p> <p><u>Construction Runoff</u></p> <ul style="list-style-type: none"> <li>At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction;</li> <li>The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a silt/ sediment trap. The sediment/ silt traps should be incorporated in the permanent drainage channels to enhance deposition rates;</li> <li>The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/ sand traps should be 5 minutes under</li> </ul>	To minimize water quality impact from the construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>ProPECC PN 1/94</li> <li>TM-EIAO</li> <li>TM-DSS</li> </ul>	<ul style="list-style-type: none"> <li>Implemented.</li> </ul>

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		<p>maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1 m<sup>3</sup>/s a sedimentation basin of 30 m<sup>3</sup> would be required and for a flow rate of 0.5 m<sup>3</sup>/s the basin would be 150 m<sup>3</sup>. The detailed design of the sand/ silt traps shall be undertaken by the contractor prior to the commencement of construction;</p> <ul style="list-style-type: none"> <li>• All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means;</li> <li>• The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows;</li> <li>• All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas;</li> <li>• Measures should be taken to minimize the ingress</li> </ul>						

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		<p>of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;</p> <ul style="list-style-type: none"> <li>Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m<sup>3</sup> should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system;</li> <li>Manholes should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers;</li> <li>Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarized in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes;</li> <li>All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on</li> </ul>						



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		<p>roads. An adequately designed and site wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel wash bay to the public road should be paved with sufficient backfall toward the wheel wash bay to prevent vehicle tracking of soil and silty water to public roads and drains;</p> <ul style="list-style-type: none"> <li>Oil interceptors should be provided in the drainage system downstream of any oil/ fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain;</li> <li>Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts;</li> <li>All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby;</li> <li>Adopt best management practices;</li> <li>All earth works should be conducted sequentially to limit the amount of construction runoff</li> </ul>						

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S6.9.1.2	W2	<p>generated from exposed areas during the wet season (April to September) as far as practicable.</p> <p><u>Tunneling Works and Underground Works</u></p> <ul style="list-style-type: none"> <li>• Cut-&amp;-cover tunneling work should be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September) as far as practicable.</li> <li>• Uncontaminated discharge should pass through sedimentation tanks prior to off-site discharge;</li> <li>• The wastewater with a high concentration of SS should be treated (e.g. by sedimentation tanks with sufficient retention time) before discharge. Oil interceptors would also be required to remove the oil, lubricants and grease from the wastewater;</li> <li>• Direct discharge of the bentonite slurry (as a result of D-wall) is not allowed. It should be reconditioned and reused wherever practicable. Temporary storage locations (typically a properly closed warehouse) should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities area completed. The requirements in ProPECC PN 1/94 should be adhered to in the handling and disposal of bentonite slurries.</li> </ul>	To minimize construction water quality impact from tunneling works	Contractor	All tunneling portion	Construction stage	<ul style="list-style-type: none"> <li>• Water Pollution Control Ordinance</li> <li>• ProPECC PN 1/94</li> <li>• TM-DSS</li> <li>• TM-EIAO</li> </ul>	<ul style="list-style-type: none"> <li>• Implemented</li> </ul>

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S6.9.1.3	W3	<p><u>Sewage Effluent</u></p> <ul style="list-style-type: none"> <li>Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.</li> </ul>	To minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>TM-DSS</li> </ul>	<ul style="list-style-type: none"> <li>Implemented</li> </ul>
S6.9.1.5	W4	<p><u>Groundwater from Potential Contaminated Area:</u></p> <ul style="list-style-type: none"> <li>No direct discharge of groundwater from contaminated areas should be adopted.</li> <li>A discharge license under the WPCO through the Regional Office of EPD for groundwater discharge should be applied. Prior to the excavation works within these potentially contaminated areas, the groundwater quality should be reviewed during the process of discharge license application. The compliance to the Technical Memorandum on Standards for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters (TM-DSS) and the existence of prohibited substance should be confirmed. If the review results indicated that the groundwater to be generated from the excavation works would be contaminated, the contaminated groundwater should be either properly treated in compliance with the requirements of the TM-DSS or properly</li> </ul>	To minimize groundwater quality impact from contaminated area	Contractor	Excavation areas where contamination is found	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>TM-DSS</li> <li>TM-EIAO</li> </ul>	<ul style="list-style-type: none"> <li>Implemented</li> </ul>

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		<p>recharged into the ground.</p> <ul style="list-style-type: none"> <li>• If wastewater treatment is deployed, the wastewater treatment unit shall deploy suitable treatment process (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (e.g. TPH) to undetectable range. All treated effluent from wastewater treatment plant shall meet the requirements as stated in TM-DSS and should be discharged into the foul sewers.</li> <li>• If groundwater recharging wells are deployed, recharging wells should be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells should be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in the Section 2.3 of TM-DSS. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substances such as TPH products should be removed as necessary by installing the petrol</li> </ul>						

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S6.9.1.6	W6	<p>interceptor.</p> <p><u>Accidental Spillage</u></p> <p>In order to prevent accidental spillage of chemicals, the following is recommended:</p> <ul style="list-style-type: none"> <li>All the tanks, containers, storage area should be banded and the locations should be locked as far as possible from the sensitive watercourse and stormwater drains;</li> <li>The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings.</li> </ul> <p>Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste Disposal (Chemical Waste) (General) Regulation.</p>	To minimize water impact from accidental spillage	Contractor	All construction site where practicable	Construction stage	<ul style="list-style-type: none"> <li>Water Pollution Control Ordinance</li> <li>ProPECC PN 1/94</li> <li>TM-EIAO</li> <li>TM-DSS</li> </ul>	<ul style="list-style-type: none"> <li>Implemented, rectified after observation</li> </ul>
Waste Management (Construction Waste)								
S7.4.1	WM1	<p><u>On-site sorting of C&amp;D material</u></p> <ul style="list-style-type: none"> <li>Geological assessment should be carried out by competent persons on site during excavation to identify materials which are not suitable to use as aggregate in structural concrete (e.g. volcanic rock, Aplite dyke rock, etc.). Volcanic rock and Aplite</li> </ul>	Separation of unsuitable rock from ending up at concrete batching plants and be turned into concrete for	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>DEVB (W) No. 6/2010</li> </ul>	<ul style="list-style-type: none"> <li>Implemented</li> </ul>

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S7.5.1	WM2	<p>dyke rock should be separated at the source sites as far as practicable and stored at designated stockpile area preventing them from delivering to crushing facilities. The crushing plant operator should also be reminded to set up measures to prevent unsuitable rock from ending up at concrete batching plants and be turned into concrete for structural use. Details regarding control measures at source site and crushing facilities should be submitted by the Contractor for the Engineer to review and agree. In addition, site records should also be kept for the types of rock materials excavated and the traceability of delivery will be ensured with the implementation of Trip Ticket System and enforced by site supervisory staff as stipulated under DEVB TC(W) No. 6/2010 for tracking of the correct delivery to the rock crushing facilities for processing into aggregates. Alternative disposal option for the reuse of volcanic rock and Aplite Dyke rock, etc. should be explored.</p> <p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> <li>• Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement;</li> <li>• Carry out on-site sorting;</li> <li>• Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate;</li> <li>• Adopt 'selective demolition' technique to demolish the existing structures and facilities with a view to</li> </ul>	<p>Good practice to minimize waste generation and recycle the C&amp;D materials as far as practicable so as to reduce the</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• Land (Miscellaneous Provisions)</li> <li>• Ordinance</li> <li>• Waste Disposal Ordinance</li> <li>• ETWB TCW No. 19/2005</li> </ul>	<ul style="list-style-type: none"> <li>• Implemented</li> </ul>

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S7.5.1	WM3	<p>recovering broken concrete effectively for recycling purpose, where possible;</p> <ul style="list-style-type: none"> <li>Implement a trip-ticket system for each works contract to ensure that the disposal of C&amp;D materials are properly documented and verified; and</li> <li>Implement an enhanced Waste Management Plan similar to ETWBTC (Works) No. 19/2005 – “Environmental Management on Construction Sites” to encourage on-site sorting of C&amp;D materials and to minimize their generation during the course of construction.</li> </ul>	<p>amount for final disposal</p>	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Land (Miscellaneous Provisions) Ordinance</li> <li>Waste Disposal Ordinance</li> <li>ETWB TCW No. 19/2005</li> </ul>	<ul style="list-style-type: none"> <li>Implemented</li> </ul>
		<p><u>C&amp;D Waste</u></p> <ul style="list-style-type: none"> <li>Standard formwork or pre-fabrication should be used as far as practicable in order to minimize the arising of C&amp;D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage;</li> <li>The Contractor should recycle as much of the C&amp;D materials as possible on-site. Public fill and C&amp;D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed</li> </ul>	<p>Good site to practice the minimize waste generation and recycle the C&amp;D materials as far as practicable so as to reduce the amount for final disposal</p>					

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S7.5.1	WM5	<p>and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage.</p> <p><u>Land-based Sediment</u></p> <ul style="list-style-type: none"> <li>All construction plant and equipment shall be designed and maintained to minimize the risk of silt, sediments, contaminants or other pollutants being released into the water column or deposited in the locations other than designated location;</li> <li>All vessels shall be sized such that adequate draft is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;</li> <li>Before moving the vessels which are used for transporting dredged material, excess material shall be cleaned from the decks and exposed fittings of vessels and the excess materials shall never be dumped into the sea except at the approved locations;</li> <li>Adequate freeboard shall be maintained on barges to ensure that decks are not washed by wave action.</li> <li>The Contractors shall monitor all vessels transporting material to ensure that no dumping outside the approved location takes place. The Contractor shall keep and produce logs and other records to demonstrate compliance and that journeys are consistent with designated locations</li> </ul>	To control pollution due to marine sediment	Contractor	Along CKR alignment	Construction stage	<ul style="list-style-type: none"> <li>ETWB TCW No. 34/2002</li> </ul>	<ul style="list-style-type: none"> <li>Implemented</li> </ul>



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		<p>and copies of such records shall be submitted to the engineers;</p> <ul style="list-style-type: none"> <li>• The Contractors shall comply with the conditions in the dumping licence.</li> <li>• All bottom dumping vessels (Hopper barges) shall be fitted with tight fittings seals to their bottom openings to prevent leakage of material;</li> <li>• The material shall be placed into the disposal pit by bottom dumping;</li> <li>• Contaminated marine mud shall be transported by spit barge of not less than 750m3 capacity and capable of rapid opening and discharge at the disposal site;</li> <li>• Discharge shall be undertaken rapidly and the hoppers shall be closed immediately. Material adhering to the sides of the hopper shall not be washed out of the hopper and the hopper shall remain closed until the barge returns to the disposal site.</li> <li>• For Type 3 special disposal treatment, sealing of contaminant with geosynthetic containment before dropping designated mud pit would be a possible arrangement. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping at the disposal site, thereby fulfilling the requirements for fully confined mud disposal.</li> </ul>						

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S7.5.1	WM6	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> <li>Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes;</li> <li>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, have a capacity of less than 450 L unless the specification has been approved by EPD, and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation;</li> <li>The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste, enclosed on at least 3 sides, have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste stored in that area, whichever is the greatest, have adequate ventilation, covered to prevent rainfall entering, and arranged so that incompatible materials are adequately separated;</li> <li>Disposal of chemical waste should be via a licensed waste collector, be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical</li> </ul>	Control the chemical waste and ensure proper storage, handling and disposal	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Waste</li> </ul>	<ul style="list-style-type: none"> <li>Implemented and after observation.</li> </ul>

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S7.5.1	WM7	waste collection service and can supply the necessary storage containers, or be to a reuser of the waste, under approval from EPD. <u>General Refuse</u> <ul style="list-style-type: none"> <li>General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes;</li> <li>A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.</li> <li>Aluminum cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible;</li> <li>Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor.</li> </ul>	Minimize the production of general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>Waste Disposal Ordinance</li> </ul>	<ul style="list-style-type: none"> <li>Implemented</li> </ul>
S8.9 Appendix 8.4	LC2	<u>Excavation of the Contaminated Soil</u> <ul style="list-style-type: none"> <li>Prior to commencement of the excavation works at the contamination zone, the zone should be clearly marked out on site and the surface levels recorded. Excavation of contaminated material should be undertaken using dedicated earth-moving plant.</li> </ul>	The contaminated soil will be excavated for on-site reuse	Contractor	PBH4	Prior to commencement of construction works within the contaminated area	<ul style="list-style-type: none"> <li>Practice Guide (PG) for Investigation and Remediation</li> </ul>	<ul style="list-style-type: none"> <li>Implemented</li> </ul>

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S8.9 & Appendix 8.4	LC3	<p>The excavated contaminated soils would be stockpiled at designated area on site and covered by sheet to prevent dispersion of contamination during stockpiling.</p> <ul style="list-style-type: none"> <li>The Contractor should pay attention to the selection of suitable groundwater lowering schemes and discharge points if the groundwater table is higher than the contaminated soils during excavation. The Contractor should also obtain a valid Water Pollution Control Ordinance (WPCO) discharge licence from EPD where applicable.</li> <li>Following completion of the excavation to the specified depth, at least one sample from the base of the excavation and four samples evenly distributed along the boundary of the excavation shall be taken for a closure assessment testing. The acceptance criterion is shown below:</li> </ul> <table border="1" data-bbox="1061 1344 1181 1870"> <thead> <tr> <th>Locations</th> <th>Testing requirement</th> <th>Acceptance Criteria</th> </tr> </thead> <tbody> <tr> <td>PBH4</td> <td>PCBs</td> <td>RBRGs (Public Park)</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>If the results of analysis below the RBRGs (Public Park), no further excavation will be required.</li> </ul> <p>If the analysis indicates presence of contamination (i.e. noncompliance of the acceptance criteria), further excavation shall be carried out in 0.5m increment vertically and/or horizontally depending on the</p>	Locations	Testing requirement	Acceptance Criteria	PBH4	PCBs	RBRGs (Public Park)					<p>of Contaminated Land</p> <ul style="list-style-type: none"> <li>Guidance Notes for Contaminated Land Assessment and Remediation Guidance</li> <li>Manual for Use of Risk-Based Remediation Goals (RBRGs) for Contaminated Land Management</li> </ul>	<ul style="list-style-type: none"> <li>Implemented</li> </ul>
Locations	Testing requirement	Acceptance Criteria												
PBH4	PCBs	RBRGs (Public Park)												

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Appendix 8.4	LC4	location(s) of the sample(s) which has exceeded the acceptance criteria. Further sampling shall also be conducted for compliance testing. The process of excavation, sampling and compliance testing should continue until all contaminated materials are removed and should be supervised by a Land Contamination Specialist. • A Remediation Report (RR) to demonstrate adequate clean-up shall be prepared and submitted to EPD for endorsement prior to the commencement of any construction/development works within the sites. No construction/development works shall be carried out prior to the endorsement of the RR by EPD.						• Implemented
<b>Hazard to Life</b>								
S9.18	H1	Blasting activities regarding transport and use of explosives should be supervised and audited by competent site staff to ensure full compliance with the blasting permit conditions.	To ensure that the risks from the proposed explosives handling and transport would be acceptable	Contractor	Works areas at which explosives would be used	Construction stage	• Dangerous Goods Ordinance	• N/A
S9.6, para.4	H2	Detonators shall not be transported in the same vehicle with other Category 1 Dangerous Goods.	To reduce the risk of explosion during the transport of cartridge emulsion	Contractor	-	Construction stage	• Dangerous Goods Ordinance	• N/A

Environmental Mitigation Implementation Schedule –  
Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/ or standards to be achieved	Implementation Status
S9.6, para.8	H3	The explosives delivery trucks should be approved by Mines Division and should meet the regulatory requirements for transport of explosives.	To comply with the requirements for approval of an explosives delivery vehicle	Contractor	-	Construction stage	• Dangerous Goods Ordinance	• N/A
S9.10, para.7 and S9.18	H4	Blast cover should be provided for shaft at HMT, and kept closed during blasting. Provision of blast doors or heavy duty blast curtains should be implemented at the shaft to prevent flyrock and control the air overpressure.	To ensure safe use of explosives	Contractor	Shaft	Construction stage	-	• N/A
S9.16	H5	Only the required quantity of explosives for a particular blast should be transported to avoid the return.	To reduce risks during explosives transport	Contractor	Works areas at which explosives would be used	Construction stage	-	• N/A
S9.18	H7	The approved truck dedicated for transport of explosives should comply with the "Guidance Note on Requirements for Approval of an Explosives Delivery Vehicle" issued by CEDD Mines Division. The truck should be periodically inspected and properly maintained in good operation conditions. The fuel carried in the fuel tank should be minimized to reduce the duration of fire. Adequate fire fighting equipment shall be provided, inspected and replaced periodically (e.g. fire extinguishers).	To reduce the risk during explosives transport	Contractor	Works areas of which explosives would be used	Construction stage	• Dangerous Goods Ordinance	• N/A

Environmental Mitigation Implementation Schedule –  
Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/ or standards to be achieved	Implementation Status
S9.18	H8	The driver and his assistant should be physically healthy, experienced and have good safe driving records. The driver should hold a proper driving licence for the approved transport truck. Dedicated training programme and regular road safety briefing sessions/ workshops should be provided to enhance their safe driving attitude and practice. Smoking should be strictly prohibited.	To reduce the risk during explosives transport	Contractor	Works areas at which explosives would be used	Construction stage	-	• Implemented
S9.18	H9	Emergency response plans in case of road accident should be prepared and implemented. The driver and his assistant should be familiar with the emergency procedures including evacuation, and proper communication/ fire-fighting equipment should be provided to the driver and his assistant.	To reduce the risk during explosives transport	Contractor	Works areas at which explosives would be used	Construction stage	-	• N/A
S9.18	H10	Close liaison and communication among Mines Division, Contractors for transport of explosives, and working staff of the blasting should be established. In case of any change of work schedule leading to cancellation or variation of explosives required, relevant parties should be informed in time to avoid unused explosives at the work sites.	To reduce the risk during explosives transport	Contractor	Works areas at which explosives would be used	Construction stage	-	• N/A
S9.18	H11	Close liaison and communication with Fire Services Department should be established to reduce the accidental detonation escalated from a fire. The contractors for transport of explosives should use the preferred transport routes as far as practicable.	To reduce the risk during explosives transport	Contractor	Works areas at which explosives would be used	Construction stage	-	• N/A
S9.18	H12	Contingency plan should be prepared for transport of explosives under severe weather conditions such as rainstorms and thunderstorms.	To reduce the risk during explosives transport	Contractor	Works areas at which explosives would be used	Construction stage	-	• N/A

Environmental Mitigation Implementation Schedule –  
Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/or standards to be achieved	Implementation Status
					used			
S9.18	H13	For explosive transport, all packages of explosives on the truck should be properly stored in the truck compartment as required. Packaging of the explosives should remain intact (i.e. damage free) until they are transferred to the blasting site.	To reduce the risk during explosives transport	Contractor	Works areas at which explosives would be used	Construction stage	-	• N/A
S9.18	H14	Availability of a parking space should be ensured before commencement of transport of explosives. Location for loading and unloading of explosives should be as close as possible to the shaft. No hot work should be performed in the vicinity during the time of loading and unloading.	To reduce the risk during explosives transport	Contractor	Works areas at which explosives would be used	Construction stage	-	• N/A
S9.18	H22	It is recommended to explore to minimize the use of the cartridge emulsion explosives and maximize the use of bulk emulsion explosive as far as practicable.	To reduce the risk during explosives transport	Contractor	Works areas at which explosives would be used	Construction stage	-	• N/A
S9.18	H24	It is recommended to explore to use smaller explosive charges such as 'cast boosters' or 'mini-cast booster' instead of cartridge emulsion as primers for bulk emulsion. This option reduces the quantity of explosives required for transportation for the sections where bulk emulsion will be used.	To reduce the risk during explosives transport	Contractor	Works areas at which explosives would be used	Construction stage	-	• N/A
Landscape & Visual								



Environmental Mitigation Implementation Schedule –  
Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/or standards to be achieved	Implementation Status
S10.10.1 Table 10.11	LV3	<p><u>Good Site Management</u></p> <ul style="list-style-type: none"> <li>Large temporary stockpiles of excavated material shall be covered with unobtrusive sheeting to prevent dust and dirt spreading to adjacent landscape areas and vegetation, and to create a neat and tidy visual appearance.</li> <li>Construction plant and building material shall be orderly and carefully stored in order to create a neat and tidy visual appearance.</li> </ul>	Minimize visual impact	Contractor	Within Project site	Construction stage	-	<ul style="list-style-type: none"> <li>Implemented</li> </ul>
S10.10.1 Table 10.11	LV4	<p><u>Screen Hoarding</u></p> <ul style="list-style-type: none"> <li>Decorative screen hoarding should be erected to screen the public from the construction area. It should be designed to be compatible with the existing urban context.</li> </ul>	Minimize visual impact	Contractor	Within Project site	Construction stage	-	<ul style="list-style-type: none"> <li>Implemented</li> </ul>
S10.10.1 Table 10.11	LV5	<p><u>Lighting Control during Construction</u></p> <ul style="list-style-type: none"> <li>All lighting in the construction site shall be carefully controlled to minimize light pollution and night-time glare to nearby residences and GIC. The Contractor shall consider other security measures, which shall minimize the visual impacts.</li> </ul>	Minimize visual impact	Contractor	Within Project site	Construction stage	-	<ul style="list-style-type: none"> <li>N/A</li> </ul>
S10.10.1 Table 10.11	LV6	<p><u>Erosion Control</u></p> <ul style="list-style-type: none"> <li>The potential for soil erosion shall be reduced by minimizing the extent of vegetation disturbance on site and by providing a protective cover over newly exposed soil.</li> </ul>	Minimize landscape impact	Contractor	Within Project site	Construction stage	-	<ul style="list-style-type: none"> <li>N/A</li> </ul>
S10.10.1 Table 10.11	LV7	<p><u>Tree Protection &amp; Preservation</u></p> <ul style="list-style-type: none"> <li>Carefully protected during construction. Tree protection measures will be detailed at the Tree Removal Application stage and plans submitted to</li> </ul>	Minimize landscape and visual impact	Contractor	Within Project site	Construction stage	<ul style="list-style-type: none"> <li>'Guidelines for Tree Risk Management and</li> </ul>	<ul style="list-style-type: none"> <li>Implemented</li> </ul>

Environmental Mitigation Implementation Schedule –  
Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/ or standards to be achieved	Implementation Status	
S10.10.1 Table 10.11	LV8	<p>the relevant Government Department for approval in due course in accordance with ETWB TC no. 3/2006.</p> <p><u>Tree Transplantation</u></p> <ul style="list-style-type: none"> <li>For trees unavoidably affected by the Project that have to be removed, where practical transplantation will be chosen as the top priority method of removal. If this is not possible or practical compensatory planting will be provided for trees unavoidably felled (See LV10). For trees unavoidably affected by the Project works that are transplanted, transplantation must be carried out in accordance with ETWB TCW 2/2004 and 3/2006.</li> </ul>	Minimize landscape and visual impact	Contractor	Within Project site and designated off-site locations	Prior to Construction stage	<p>Assessment Arrangement on an Area Basis and on a Tree Basis, Greening, Landscape and Tree Management (GLTM) Section, DEVB</p> <ul style="list-style-type: none"> <li>Latest recommended horticultural practices from GLTM Section, DEVB</li> </ul>	<ul style="list-style-type: none"> <li>ETWB TCW 3/2006</li> <li>Latest recommended horticultural practices from Greening, Landscape</li> </ul>	• N/A

Environmental Mitigation Implementation Schedule –  
Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/or standards to be achieved	Implementation Status
S10.10.1 Table 10.11	LV9	<p><u>Compensatory Planting</u></p> <ul style="list-style-type: none"> <li>For trees unavoidably affected by the Project that have to be removed, where practical transportation will be chosen as the top priority method of removal but if this is not possible or practical compensatory planting will be provided for trees unavoidably felled. All felled trees shall be compensated for by planting trees to the satisfaction of relevant Government projects. 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.</li> <li>Compensatory tree planting may be incorporated into public open spaces and along roadside amenity areas affected by the construction works and therefore be part of the bigger wider planting plans. Onsite compensation planting is preferred but if necessary, additional receptor sites outside the Works Area shall be agreed separately with Government during the Tree Felling Application process.</li> </ul>	Minimize visual impact and also enhance landscape	Contractor	Within Project site	Construction stage	<p>and Tree Management (GLTM) Section, DEVB</p> <ul style="list-style-type: none"> <li>ETWB TCW 2/2004</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>

Environmental Mitigation Implementation Schedule –  
Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/or standards to be achieved	Implementation Status
Cultural Heritage Impact (Construction Phase)								
S11.4.4	CH1	The contractor should be alerted during the construction on the possibility of locating archaeological remains and as a precautionary measure, AMO shall be informed immediately in case of discovery of antiquities or supposed antiquities in the subject sites.	To preserve any cultural heritage items which may be removed and damaged by the excavation	Contractor	During construction works for cut and cover tunnels	Construction stage	<ul style="list-style-type: none"> <li>• AMOs requirements</li> </ul>	<ul style="list-style-type: none"> <li>• Implemented</li> </ul>
S12.6.1	CH3	<ul style="list-style-type: none"> <li>• Protective covering should be provided for the buildings in the form of plastic sheeting;</li> <li>• Buffer zones should be provided between the construction works and the external walls of the buildings and should be as large as site restrictions allow and be marked out by temporary fencing or hoarding;</li> <li>• An underpinning scheme is required to transfer the existing column loadings to a deeper rock stratum. The supporting system includes cutting the existing ground floor slab to expose the existing pile caps and then construct transfer beams at both sides of the pile caps. The transfer beams will tie up with the existing caps. Loadings of the transfer beams will be transferred to the rock socket piles installed at the two ends of the beams;</li> <li>• The AAA settlement and tilting limit should be 6/10 mm and 1/2000, 1/1500 and 1/1000;</li> <li>• Monitoring of vibration levels will be undertaken during the construction phase and the Alert, Alarm and Action (AAA) vibration limit will be set at 5/6/7.5 mm/s. The monitoring proposal should be</li> </ul>	Protect the building from damage from construction works	Contractor	Yau Ma Tei Police Station (Old Wing) (CKR-01)	Prior to commencement of and during the construction phase	<ul style="list-style-type: none"> <li>• Guidelines for Cultural Heritage Impact Assessment</li> <li>• EIAO-TM Annex 10 and Annex 19</li> <li>• AMO Proposed Vibration Limits</li> </ul>	<ul style="list-style-type: none"> <li>• Implemented</li> </ul>

Environmental Mitigation Implementation Schedule –  
Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/ or standards to be achieved	Implementation Status
S12.6.1		<p>sent to AMO for comment;</p> <ul style="list-style-type: none"> <li>Regular site inspections and monitoring works will be carried out by the contractor and the monitoring results will be submitted to the resident site staff of HyD to ensure compliance.</li> <li>Adopting diaphragm wall construction method;</li> <li>Grout curtain should be provided in front of the building;</li> <li>Recharging system should be installed as a contingency measure to mitigate the fluctuation of water table;</li> <li>the AAA settlement and tilting limit should be 6/8/10 mm and 1/2000, 1/1500 and 1/1000;</li> <li>Monitoring of vibration levels will be undertaken during the construction phase and the Alert, Alarm and Action (AAA) vibration limit will be set at 5/6/7.5 mm/s. The monitoring proposal should be sent to AMO for comment;</li> <li>Regular site inspections and monitoring works will be carried out by the contractor and the monitoring results will be submitted to the resident site staff of HyD to ensure compliance.</li> </ul>	Protect the building from damage from construction works	Contractor	Yau Ma Tei Police Station (Old Wing) (CKR-01)	Prior to commencement of and during the construction phase	<ul style="list-style-type: none"> <li>Guidelines for Cultural Heritage Impact Assessment</li> <li>EIAO-TM Annex 10 and Annex 19</li> <li>AMO Proposed Vibration Limits</li> </ul>	Implemented
S12.6.1 Table 12.2		<ul style="list-style-type: none"> <li>The Alert, Alarm and Action (AAA) vibration limit will be set at 3/4/5 mm/s and a condition survey shall be carried out by the project proponent prior to the construction phase to confirm this assessment</li> <li>Vibration monitoring of the structure shall be employed during the construction phase to ensure that the level is not exceeded. The monitoring</li> </ul>	Protect the building from damage from construction works	Contractor	Tin Hau Temple (CKR-02)	Prior to commencement of and during the construction phase	<ul style="list-style-type: none"> <li>Guidelines for Cultural Heritage Impact Assessment</li> <li>EIAO-TM Annex 10 and Annex 19</li> </ul>	Implemented

Environmental Mitigation Implementation Schedule –  
Contract No. HY/2014/08 (Yau Ma Tei East)

EIA Ref.	EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and/ or standards to be achieved	Implementation Status
		proposal should be sent to AMO for comment.					<ul style="list-style-type: none"> <li>• AMO Proposed Vibration Limits</li> </ul>	
EM&A Project								
S13.2	EM1	An Independent Environmental Checker needs to be employed as per the EM&A Manual	Control EM&A Performance	Highways Department	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• EIAO Guidance Note 4/2010</li> <li>• TM-EIAO</li> </ul>	<ul style="list-style-type: none"> <li>• Implemented</li> </ul>
S13.2-13.4	EM2	<ul style="list-style-type: none"> <li>• An Environmental Team needs to be employed as per the EM&amp;A Manual;</li> <li>• Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures;</li> <li>• An environmental impact monitoring needs to be implemented by the Environmental Team to ensure all the requirements given in the EM&amp;A Manual are fully complied with.</li> </ul>	Perform environmental monitoring & auditing	Highways Department/ Contractor	All construction sites	Construction stage	<ul style="list-style-type: none"> <li>• EIAO Guidance Note 4/2010</li> <li>• TM-EIAO</li> </ul>	<ul style="list-style-type: none"> <li>• Implemented</li> </ul>

# Appendix G

## Monitoring Schedule of the Reporting Month

Contract No. HY/2014/08  
Environmental Monitoring & Auditing

Impact Monitoring Schedule for YMTE						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
Jun-19						
						1
2	3	4	5	6	7	8
		Impact Air monitoring for W-A6 & W-A1 Noise monitoring for W-N1A, W-P11, W-N1B & W-N25A				
9	10	11	12	13	14	15
	Impact Air monitoring for W-A6 & W-A1 Noise monitoring for W-N1A, W-P11, W-N1B & W-N25A					Impact Air monitoring for W-A6 & W-A1 Noise monitoring for W-N1A, W-P11, W-N1B & W-N25A
16	17	18	19	20	21	22
					Impact	
23	24	25	26	27	28	29
			Impact	Air monitoring for W-A6 & W-A1 Noise monitoring for W-N1A, W-P11, W-N1B & W-N25A	Air monitoring for W-A6 & W-A1 Noise monitoring for W-N1A, W-P11, W-N1B & W-N25A	Impact Air monitoring (24-hour TSP) for W-A1
30						

Remark:

- 24-hour TSP monitoring at W-A1 was suspended on 4, 10 June 2019 due to the motor fail of HVS plausibly caused by short-circuited electricity supply.
- 24-hour TSP monitoring result at W-A1 for 15, 21 June 2019 was voided due to the failed operation on air flow chart caused by unstable electricity supply.



# Appendix H

## Calibration Certificates

### (Air Monitoring)



SIBATA SCIENTIFIC TECHNOLOGY LTD.

1-1-62, Nakane, Soka, Saitama, 340-0005 Japan

TEL : 048-933-1582 FAX : 048-933-1591

## CALIBRATION CERTIFICATE

Date: October 17, 2018

Equipment Name	:	Digital Dust Indicator, Model LD-3B
Code No.	:	080000-42
Quantity	:	1 unit
Serial No.	:	296093
Sensitivity	:	0.001 mg/m3
Sensitivity Adjustment	:	650CPM
Scale Setting	:	October 15, 2018

We hereby certify that the above mentioned instrument has been calibrated satisfactorily.

Sincerely

**SIBATA SCIENTIFIC TECHNOLOGY LTD.**

*Tong Zhang*

\_\_\_\_\_  
Tong Zhang

Overseas Sales Division



SIBATA SCIENTIFIC TECHNOLOGY LTD.

1-1-62, Nakane, Soka, Saitama, 340-0005 Japan

TEL : 048-933-1582 FAX : 048-933-1591

## CALIBRATION CERTIFICATE

Date: September 10, 2018

Equipment Name	:	Digital Dust Indicator, Model LD-5R
Code No.	:	080000-72
Quantity	:	1 unit
Serial No.	:	882150
Sensitivity	:	0.001 mg/m3
Sensitivity Adjustment	:	615
Scale Setting	:	August 27, 2018

We hereby certify that the above mentioned instrument has been calibrated satisfactory.

Sincerely

**SIBATA SCIENTIFIC TECHNOLOGY LTD.**

*Tong Zhang*

\_\_\_\_\_  
Tong Zhang

Overseas Sales Division



<b>RECALIBRATION DUE DATE:</b>
<b>January 22, 2020</b>

# Certificate of Calibration

Calibration Certification Information			
Cal. Date: January 22, 2019	Rootsmeter S/N: 438320	Ta: 293 °K	
Operator: Jim Tisch		Pa: 756.9 mm Hg	
Calibration Model #: TE-5025A	Calibrator S/N: <b>3465</b>		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4330	3.2	2.00
2	3	4	1	1.0230	6.4	4.00
3	5	6	1	0.9170	7.9	5.00
4	7	8	1	0.8730	8.7	5.50
5	9	10	1	0.7180	12.7	8.00

Data Tabulation					
Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left( \frac{Pa}{Pstd} \right) \left( \frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left( \frac{Ta}{Pa} \right)}$ (y-axis)
1.0087	0.7039	1.4233	0.9958	0.6949	0.8799
1.0044	0.9818	2.0129	0.9915	0.9693	1.2443
1.0024	1.0931	2.2505	0.9896	1.0791	1.3912
1.0013	1.1470	2.3603	0.9885	1.1323	1.4591
0.9959	1.3871	2.8467	0.9832	1.3694	1.7598
<b>QSTD</b>	m=	<b>2.08653</b>	<b>QA</b>	m=	<b>1.30655</b>
	b=	<b>-0.03834</b>		b=	<b>-0.02370</b>
	r=	<b>0.99989</b>		r=	<b>0.99989</b>

Calculations			
Vstd=	$\Delta Vol((Pa-\Delta P)/Pstd)(Tstd/Ta)$	Va=	$\Delta Vol((Pa-\Delta P)/Pa)$
Qstd=	Vstd/ΔTime	Qa=	Va/ΔTime
For subsequent flow rate calculations:			
Qstd=	$1/m \left( \left( \sqrt{\Delta H \left( \frac{Pa}{Pstd} \right) \left( \frac{Tstd}{Ta} \right)} \right) - b \right)$	Qa=	$1/m \left( \left( \sqrt{\Delta H \left( \frac{Ta}{Pa} \right)} \right) - b \right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg
Key	
ΔH: calibrator manometer reading (in H2O)	
ΔP: rootsmeter manometer reading (mm Hg)	
Ta: actual absolute temperature (°K)	
Pa: actual barometric pressure (mm Hg)	
b: intercept	
m: slope	

RECALIBRATION
US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

Tisch Environmental, Inc.  
 145 South Miami Avenue  
 Village of Cleves, OH 45002

[www.tisch-env.com](http://www.tisch-env.com)  
 TOLL FREE: (877)263-7610  
 FAX: (513)467-9009

**InnoTech Instrumentation Co. Ltd.**  
 創新科儀有限公司

**HIVOL SAMPLER CALIBRATION DATA SHEET (TSP)**

**Site Information**

YMT Catholic Primary					
Location:	School	Site ID:	W-A1	Date:	15-Jun-2019
Serial No:	1049	Model:	TE-5170X	Operator:	Hong

**Ambient Condition**

Corrected Pressure (mm Hg):	760.0	Temperature (deg K):	298.2
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**Calibration Orifice**

Model:	TE-5025	Slope:	2.08653
Serial No.:	3465	Intercept:	-0.03834
Calibration Due Date:	22-Jan-20	Corr. Coeff:	0.99989

**Calibration Data**

Plate or Test #	In, H <sub>2</sub> O (in)	Q <sub>a</sub> , X-Axis (m <sup>3</sup> /min)	I, CFM (chart)	IC, Y-Axis (corrected)
1	1.76	0.654	34.9	34.89
2	2.09	0.711	35.7	35.69
3	2.23	0.734	36.0	35.99
4	2.50	0.776	36.6	36.59
5	2.64	0.797	36.9	36.89

**Sampler Calibration Relationship (Q<sub>a</sub> on x-axis, IC on y-axis)**

m=	<u>13.9707</u>	b=	<u>25.7513</u>	Corr. Coeff=	<u>0.9999</u>
	Sampler set point(SSP)		43 CFM		

**Calculations**

$Q_{std} = 1/m[\sqrt{(H_2O(P_a/P_{std})(T_{std}/T_a))} - b]$   
 $IC = I[\sqrt{(P_a/P_{std})(T_{std}/T_a)}]$

- m = sampler slope
- b = sampler intercept
- I = chart response
- T<sub>av</sub> = average temperature
- P<sub>av</sub> = average pressure

Q<sub>std</sub> = standard flow rate  
 IC = corrected chart response  
 I = actual chart response  
 m = calibrator Q<sub>std</sub> slope  
 b = calibrator Q<sub>std</sub> intercept

T<sub>a</sub> = actual temperature during calibration (deg K)  
 P<sub>a</sub> = actual pressure during calibration (mm Hg)  
 T<sub>std</sub> = 298 deg K

P<sub>std</sub> = 760 mm Hg

For subsequent calculation of sampler flow:  
 $(1.21 * m + b) / [\sqrt{(298/T_{av})(P_{av}/760)}]$

Checked by: Hong

Date: 15-Jun-19

**InnoTech Instrumentation Co. Ltd.**  
創新科儀有限公司

**HIVOL SAMPLER CALIBRATION DATA SHEET (TSP)**

**Site Information**

Location: Man Cheong Building	Site ID: W-A6	Date: 04-Jun-2019
Serial No: 1050	Model: TE-5170X	Operator: Hong

**Ambient Condition**

Corrected Pressure (mm Hg): 760.0	Temperature (deg K): 298.2
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**Calibration Orifice**

Model: TE-5025	Slope: 2.08653
Serial No.: 3465	Intercept: -0.03834
Calibration Due Date: 22-Jan-20	Corr. Coeff: 0.99989

**Calibration Data**

Plate or Test #	In, H2O (in)	Qa, X-Axis (m3/min)	I, CFM (chart)	IC, Y-Axis (corrected)
1	1.75	0.652	32.8	32.79
2	2.32	0.748	34.9	34.89
3	2.21	0.731	34.5	34.49
4	2.47	0.771	35.4	35.39
5	2.54	0.782	35.6	35.59

**Sampler Calibration Relationship (Qa on x-axis, IC on y-axis)**

$$m = \frac{21.6899}{\text{Sampler set point(SSP)}} \quad b = 18.6480 \quad \text{Corr. Coeff} = 0.9999$$

$$\text{Sampler set point(SSP)} = 45 \text{ CFM}$$

**Calculations**

$$Q_{std} = 1/m[\sqrt{H_2O(P_a/P_{std})(T_{std}/T_a)}] - b$$

$$IC = I[\sqrt{P_a/P_{std}}(T_{std}/T_a)]$$

- m = sampler slope
- b = sampler intercept
- I = chart response
- T<sub>av</sub> = average temperature
- P<sub>av</sub> = average pressure

Q<sub>std</sub> = standard flow rate  
 IC = corrected chart response  
 I = actual chart response  
 m = calibrator Q<sub>std</sub> slope  
 b = calibrator Q<sub>std</sub> intercept  
 T<sub>a</sub> = actual temperature during calibration (deg K)  
 P<sub>a</sub> = actual pressure during calibration (mm Hg)  
 T<sub>std</sub> = 298 deg K  
 P<sub>std</sub> = 760 mm Hg  
 For subsequent calculation of sampler flow:  
 $(1.21 * m + b) / [\sqrt{298/T_{av}}(P_{av}/760)]$

Checked by: Hong Date: 4-Jun-19

**InnoTech** Instrumentation Co. Ltd.  
創新科儀有限公司

**HIVOL SAMPLER CALIBRATION DATA SHEET (TSP)**

**Site Information**

<b>Location:</b>	Man Cheong Building	<b>Site ID:</b>	W-A6	<b>Date:</b>	15-Jun-2019
<b>Serial No:</b>	1050	<b>Model:</b>	TE-5170X	<b>Operator:</b>	Hong

**Ambient Condition**

<b>Corrected Pressure (mm Hg):</b>	760.0	<b>Temperature (deg K):</b>	298.2
------------------------------------	-------	-----------------------------	-------

**Calibration Orifice**

<b>Model:</b>	TE-5025	<b>Slope:</b>	2.08653
<b>Serial No.:</b>	3465	<b>Intercept:</b>	-0.03834
<b>Calibration Due Date:</b>	22-Jan-20	<b>Corr. Coeff:</b>	0.99989

**Calibration Data**

Plate or Test #	In,H2O (in)	Qa, X-Axis (m3/min)	I, CFM (chart)	IC, Y-Axis (corrected)
1	1.83	0.667	32.2	32.19
2	2.34	0.751	34.8	34.79
3	2.41	0.762	35.1	35.09
4	2.50	0.776	35.5	35.49
5	2.47	0.771	35.4	35.39

**Sampler Calibration Relationship (Qa on x-axis, IC on y-axis)**

m=	<u>30.3328</u>	b=	<u>11.9785</u>	Corr. Coeff=	<u>0.9999</u>
	Sampler set point(SSP)		49 CFM		

**Calculations**

$Q_{std} = 1/m[\text{Sqrt}(H_2O(P_a/P_{std})(T_{std}/T_a))-b]$   
 $IC = I[\text{Sqrt}(P_a/P_{std})(T_{std}/T_a)]$

- m = sampler slope
- b = sampler intercept
- I = chart response
- T<sub>av</sub> = average temperature
- P<sub>av</sub> = average pressure

Q<sub>std</sub> = standard flow rate  
 IC = corrected chart response  
 I = actual chart response

m = calibrator Q<sub>std</sub> slope  
 b = calibrator Q<sub>std</sub> intercept  
 T<sub>a</sub> = actual temperature during calibration (deg K)  
 P<sub>a</sub> = actual pressure during calibration (mm Hg)  
 T<sub>std</sub> = 298 deg K

P<sub>std</sub> = 760 mm Hg  
 For subsequent calculation of sampler flow:  
 $(1.21*m+b)/[\text{Sqrt}(298/T_{av})(P_{av}/760)]$

Checked by: Hong

Date: 15-Jun-19

# Appendix I

## Calibration Certificates (Noise)



**(A+A)\*L** Acoustics and Air Testing Laboratory Co. Ltd. ■■■■■  
聲學及空氣測試實驗室有限公司

# Certificate of Calibration

for

**Description:** *Sound Level Meter*  
**Manufacturer:** *NTi Audio*  
**Type No.:** *XL2 (Serial No.: A2A-13661-E0)*  
**Microphone:** *ACO 7052 (Serial No.:70537)*  
**Preamplifier:** *NTi Audio MA220 (Serial No.:6282)*

**Submitted by:**

**Customer:** *Acuity Sustainability Consulting Limited*  
**Company Address:** *Unit 1908, iPlace, Nos. 301-305 Castle Peak Road,  
Kwai Chung, New Territories*

Upon receipt for calibration, the instrument was found to be:

- Within**  
 **Outside**

the allowable tolerance.




The test equipment used for calibration are traceable to National Standards via:

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

**Date of receipt:** 7 September 2018

**Date of calibration:** 10 September 2018

**Calibrated by:**   
Calibration Technician

**Certified by:**   
Mr. Ng Yan Wa  
Laboratory Manager

**Date of issue:** 10 September 2018

Certificate No.: APJ18-086-CC001

Page 1 of 4



**1. Calibration Precaution:**

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.

**2. Calibration Conditions:**

Air Temperature: 26.0 °C  
Air Pressure: 1008 hPa  
Relative Humidity: 64.8 %

**3. Calibration Equipment:**

	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV180064	HOKLAS

**4. Calibration Results**

Sound Pressure Level



Reference Sound Pressure Level

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBa SPL	Fast	94	1000	94.0	±0.4

Linearity

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBa SPL	Fast	94	1000	94.0	Ref
			104		104.0	±0.3
			114		114.0	±0.3

Time Weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBa SPL	Fast	94	1000	94.0	Ref
		Slow			94.0	±0.3



Frequency Response

Linear Response

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB	
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
30-130	dB	SPL	94	Fast	31.5	93.9	±2.0
					63	94.0	±1.5
					125	94.0	±1.5
					250	94.0	±1.4
					500	94.0	±1.4
					1000	94.0	Ref
					2000	93.8	±1.6
					4000	93.9	±1.6

A-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB	
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
30-130	dBA	SPL	94	Fast	31.5	54.8	-39.4±2.0
					63	67.8	-26.2±1.5
					125	77.9	-16.1±1.5
					250	85.4	-8.6±1.4
					500	90.8	-3.2±1.4
					1000	94.0	Ref
					2000	95.0	+1.2±1.6
					4000	94.9	+1.0±1.6

C-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB	
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz			
30-130	dBC	SPL	94	Fast	31.5	90.9	-3.0±2.0
					63	93.2	-0.8±1.5
					125	93.8	-0.2±1.5
					250	94.0	-0.0±1.4
					500	94.0	-0.0±1.4
					1000	94.0	Ref
					2000	93.7	-0.2±1.6
					4000	93.1	-0.8±1.6



**5. Calibration Results Applied**

The results apply to the particular unit-under-test only. All calibration points are within manufacture's specification as IEC 61672 Class 1.

Uncertainties of Applied Value:

94 dB	31.5 Hz	± 0.15
	63 Hz	± 0.05
	125 Hz	± 0.05
	250 Hz	± 0.05
	500 Hz	± 0.10
	1000 Hz	± 0.05
	2000 Hz	± 0.05
	4000 Hz	± 0.10
104 dB	1000 Hz	± 0.05
114 dB	1000 Hz	± 0.05

The uncertainties are evaluated for a 95% confidence level.



**Note:**

The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. (A+A)\*L shall not be liable for any loss or damage resulting from the use of the equipment.

Certificate No.: APJ18-086-CC001

Page 4 of 4

Room 422, Leader Industrial Centre, 57-59 Au Pui Wan Street, Fo Tan, Shatin, N.T., Hong Kong  
Tel: (852) 2668 3423 Fax: (852) 2668 6946  
http://www.aa-lab.com E-mail: inquiry@aa-lab.com



## CALIBRATION CERTIFICATE

<i>Certificate Information</i>																
<b>Date of Issue</b>	11-Sep-2018															
<b>Certificate Number</b>	MLCN182166S															
<i>Customer Information</i>																
<b>Company Name</b>	Acuity Sustainability Consulting Limited															
<b>Address</b>	Unit 1908, Nos. 301-305 Castle Peak Road, Kwai Chung, N.T.															
<i>Equipment-under-Test (EUT)</i>																
<b>Description</b>	Acoustic Calibrator															
<b>Manufacturer</b>	Pulsar															
<b>Model Number</b>	105															
<b>Serial Number</b>	63705															
<b>Equipment Number</b>	--															
<i>Calibration Particular</i>																
<b>Date of Calibration</b>	11-Sep-2018															
<b>Calibration Equipment</b>	4231(MLTE008) / AV180068 / 13-May-20 1357(MLTE190) / MLEC18/05/02 / 25-May-19															
<b>Calibration Procedure</b>	MLCG00, MLCG15															
<b>Calibration Conditions</b>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">Laboratory</td> <td style="width: 30%;">Temperature</td> <td style="width: 50%;">23 °C ± 5 °C</td> </tr> <tr> <td></td> <td>Relative Humidity</td> <td>55% ± 25%</td> </tr> <tr> <td>EUT</td> <td>Stabilizing Time</td> <td>Over 3 hours</td> </tr> <tr> <td></td> <td>Warm-up Time</td> <td>Not applicable</td> </tr> <tr> <td></td> <td>Power Supply</td> <td>Internal battery</td> </tr> </table>	Laboratory	Temperature	23 °C ± 5 °C		Relative Humidity	55% ± 25%	EUT	Stabilizing Time	Over 3 hours		Warm-up Time	Not applicable		Power Supply	Internal battery
Laboratory	Temperature	23 °C ± 5 °C														
	Relative Humidity	55% ± 25%														
EUT	Stabilizing Time	Over 3 hours														
	Warm-up Time	Not applicable														
	Power Supply	Internal battery														
<b>Calibration Results</b>	Calibration data were detailed in the continuation pages. Calibration result was out of EUT specification.															
<i>Approved By &amp; Date</i>																
	K.O. Lo															
	11-Sep-2018															
<i>Statements</i>																
<ul style="list-style-type: none"> <li>* Calibration equipment used for this calibration are traceable to national / international standards.</li> <li>* The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement.</li> <li>* MaxLab Calibration Centre Limited shall not be liable for any loss or damage resulting from the use of the EUT.</li> <li>* The copy of this Certificate is owned by MaxLab Calibration Centre Limited. No part of this Certificate may be reproduced without the prior written approval of MaxLab Calibration Centre Limited.</li> </ul>																



Certificate No. MLCN182166S

<i>Calibration Data</i>				
EUT Setting	Standard Reading	EUT Error from Setting	Calibration Uncertainty	EUT Specification
94 dB	93.6 dB	-0.4 dB *	0.20 dB	± 0.2 dB

- END -

Calibrated By :  
Date :

Dan  
11-Sep-18

Checked By :  
Date :

K.O. Lo  
11-Sep-18

Page 2 of 2



# Appendix J

## The Certification of Laboratory with HOKLAS Accredited Analytical Tests



Hong Kong Accreditation Service  
香港認可處

**Certificate of Accreditation**  
認可證書

*This is to certify that*  
特此證明

**ALS TECHNICHEM (HK) PTY LIMITED**

11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, New Territories, Hong Kong  
香港新界葵涌永業街1-3號忠信針織中心11樓

*has been accepted by the HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a*  
為香港認可處執行機關根據認可諮詢委員會建議而接受的

**HOKLAS Accredited Laboratory**  
「香港實驗所認可計劃」認可實驗所

*This laboratory meets the requirements of ISO / IEC 17025 : 2005 – General requirements for the competence*  
此實驗所符合ISO / IEC 17025 : 2005 – 《測試及校正實驗所能力的通用規定》所訂的要求。  
*of testing and calibration laboratories and it has been accredited for performing specific tests or calibrations as*  
獲認可進行載於香港實驗所認可計劃《認可實驗所名冊》內下述測試類別中的指定  
*listed in the HOKLAS Directory of Accredited Laboratories within the test category of*  
測試或校正工作

**Environmental Testing**  
環境測試

*This laboratory is accredited in accordance with the recognised international Standard ISO / IEC 17025 : 2005.*  
本實驗所乃根據公認的國際標準 ISO / IEC 17025 : 2005 獲得認可。

*This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory*  
這項認可資格演示在指定範疇所需的技術能力及實驗所質量管理體系的運作  
*quality management system (see joint IAF-ILAC-ISO Communiqué).*  
(見國際認可論壇、國際實驗所認可合作組織及國際標準化組織的聯合公報)。

*The common seal of the Hong Kong Accreditation Service is affixed hereto by the authority of the HKAS Executive*  
香港認可處根據認可處執行機關的權限在此蓋上通用印章

CHAN Sing Sing, Terence, Executive Administrator  
執行幹事 陳成城  
Issue Date : 5 May 2009  
簽發日期：二零零九年五月五日

Registration Number : **HOKLAS 066**  
註冊號碼：

Date of First Registration : 15 September 1995  
首次註冊日期：一九九五年九月十五日



*This certificate is issued subject to the terms and conditions laid down by HKAS*  
本證書按照香港認可處訂立的條款及條件發出

L 000552





Hong Kong Accreditation Service  
香港認可處

**Certificate of Accreditation**  
認可證書

*This is to certify that*  
特此證明

**ACUMEN LABORATORY AND TESTING LIMITED**  
浩科檢測中心有限公司

**Lot 12, Tam Kon Shan Road, North Tsing Yi, New Territories, Hong Kong**  
香港新界青衣北担杆山路12路段

*has been accepted by the HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a*  
在認可諮詢委員會的建議下獲香港認可處執行機關接受為

**HOKLAS Accredited Laboratory**  
「香港實驗所認可計劃」認可實驗所

*This laboratory meets the requirements of ISO/IEC 17025:2005 and it has been accredited for performing specific tests or calibrations as listed in the scope of accreditation within the test category of*

**Environmental Testing**

*此實驗所符合ISO/IEC 17025:2005所訂的要求*  
*並獲認可進行載於認可範圍內下述測試類別中的指定測試或校正工作*

**環境測試**

*This accreditation to ISO/IEC 17025:2005 demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (see joint IAF-ILAC-ISO Communiqué).*  
*此項 ISO/IEC 17025:2005 的認可資格證明此實驗所具備指定範圍內所須的技術能力並實施一套實驗所質量管理體系(見國際認可論壇、國際實驗所認可合作組織及國際標準化組織的聯合公報)。*

*The common seal of the Hong Kong Accreditation Service is affixed hereto by the authority of the HKAS Executive*  
*現經香港認可處執行機關授權在此蓋上香港認可處的印章*

WONG Wang-wah, Executive Administrator  
執行幹事 黃宏華  
Issue Date : 16 July 2014  
簽發日期：二零一四年七月十六日

Registration Number : HOKLAS 241  
註冊號碼：



Date of First Registration : 16 July 2014  
首次註冊日期：二零一四年七月十六日

*This certificate is issued subject to the terms and conditions laid down by HKAS*  
本證書按照香港認可處訂立的條款及條件發出

L 001195

# Appendix K

## Location Plan of Noise and Air Quality Monitoring Station



LEGEND:

- WORKS LIMIT
- DUST MONITORING LOCATION
- NOISE MONITORING LOCATION



00	ISSUE FOR TENDER	AL	02/17
Rev.	Description	Date	By



Project Title  
 Contract No. HY/2014/08  
 Central Kowloon Route -  
 Yau Ma Tei East

Drawing title MIS-518	APPENDIX A		
LOCATION PLAN OF NOISE AND DUST MONITORING STATIONS			
Drawing no. MIS-518	CKR/YMTE/02/0001	Rev.	00
Drawn By AL	Checked By AL	Approved By AL	RTG
Scale 1:2500 @ A1	Status TENDER	TENDER	

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 版權所有

HIGHWAYS DEPARTMENT  
 主要工程管理處  
 MAJOR WORKS PROJECT MANAGEMENT OFFICE



# Appendix L

## Monitoring Data (Air Monitoring)

Location: Yau Ma Tei Catholic Primary School (Hoi Wang Road) ( W-A1)  
Monitoring date: 4, 10, 15, 21, 27 June 2019  
Parameter : TSP 1-hour  
Other Factors nearby traffic, construction work from West Kowloon Government Offices, school activities

Date	1-hour TSP ( $\mu\text{g}/\text{m}^3$ )				
	Weather	Start Time	1 <sup>st</sup> Hour ( $\mu\text{g}/\text{m}^3$ )	2 <sup>nd</sup> Hour ( $\mu\text{g}/\text{m}^3$ )	3 <sup>rd</sup> Hour ( $\mu\text{g}/\text{m}^3$ )
4/6/2019	Sunny	9:25	69	73	76
10/6/2019	Sunny	9:43	76	71	80
15/6/2019	Cloudy	9:30	68	70	63
21/6/2019	Sunny	12:16	74	78	71
27/6/2019	Sunny	9:40	72	65	70

Location: Man Cheong Building (W-A6)  
Monitoring date: 4, 10, 15, 21, 27 June 2019  
Parameter : TSP 1-hour  
Other Factors Nearby traffic

Date	1-hour TSP ( $\mu\text{g}/\text{m}^3$ )				
	Weather	Start Time	1 <sup>st</sup> Hour ( $\mu\text{g}/\text{m}^3$ )	2 <sup>nd</sup> Hour ( $\mu\text{g}/\text{m}^3$ )	3 <sup>rd</sup> Hour ( $\mu\text{g}/\text{m}^3$ )
4/6/2019	Sunny	9:13	72	68	64
10/6/2019	Sunny	9:30	70	75	81
15/6/2019	Cloudy	9:18	74	68	66
21/6/2019	Sunny	13:17	64	69	70
27/6/2019	Sunny	9:27	71	73	62



Figure 1: Graphical Illustration of Measured 1-hour TSP ( $\mu\text{g}/\text{m}^3$ ) Levels at W-A1

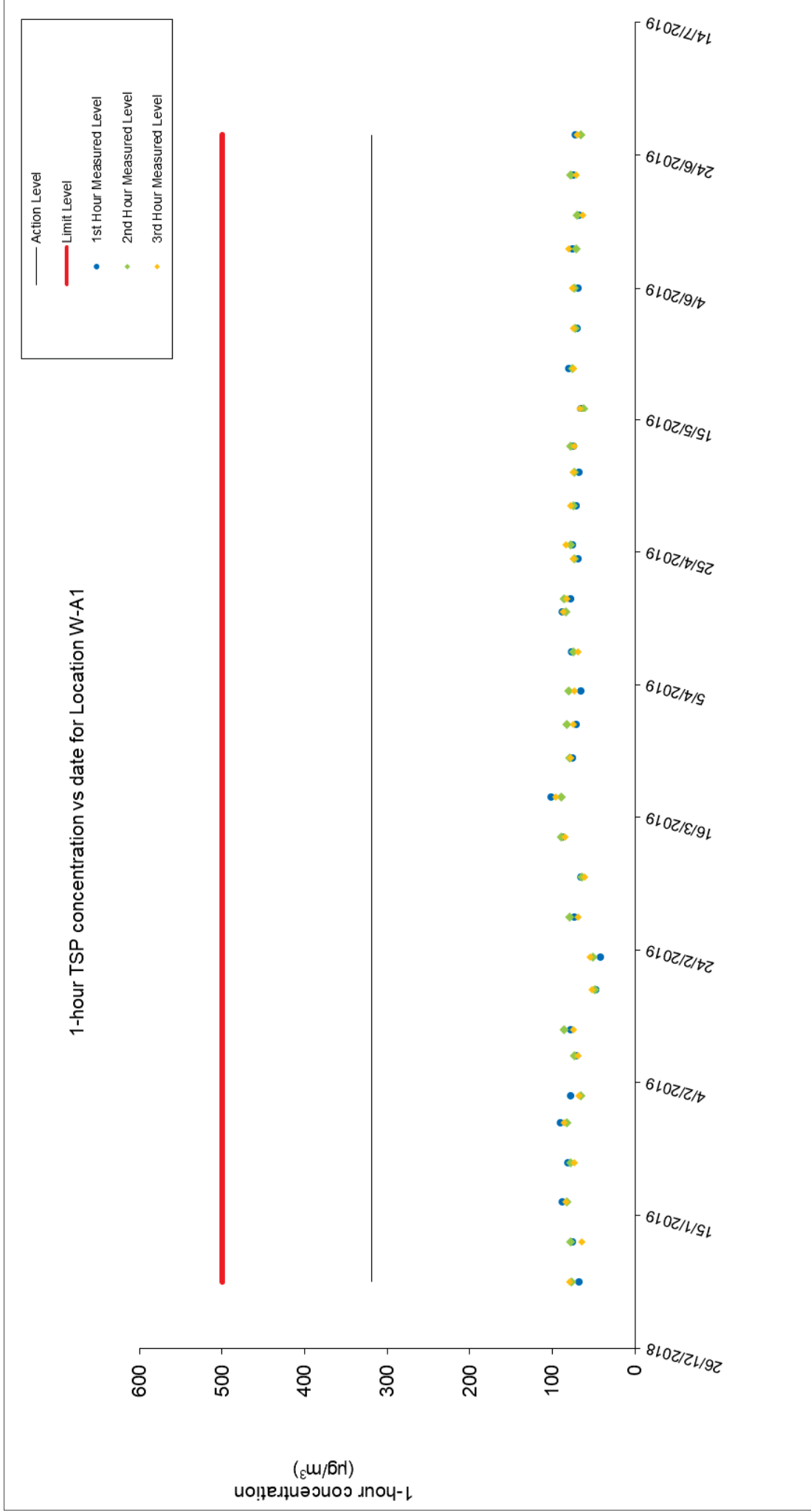
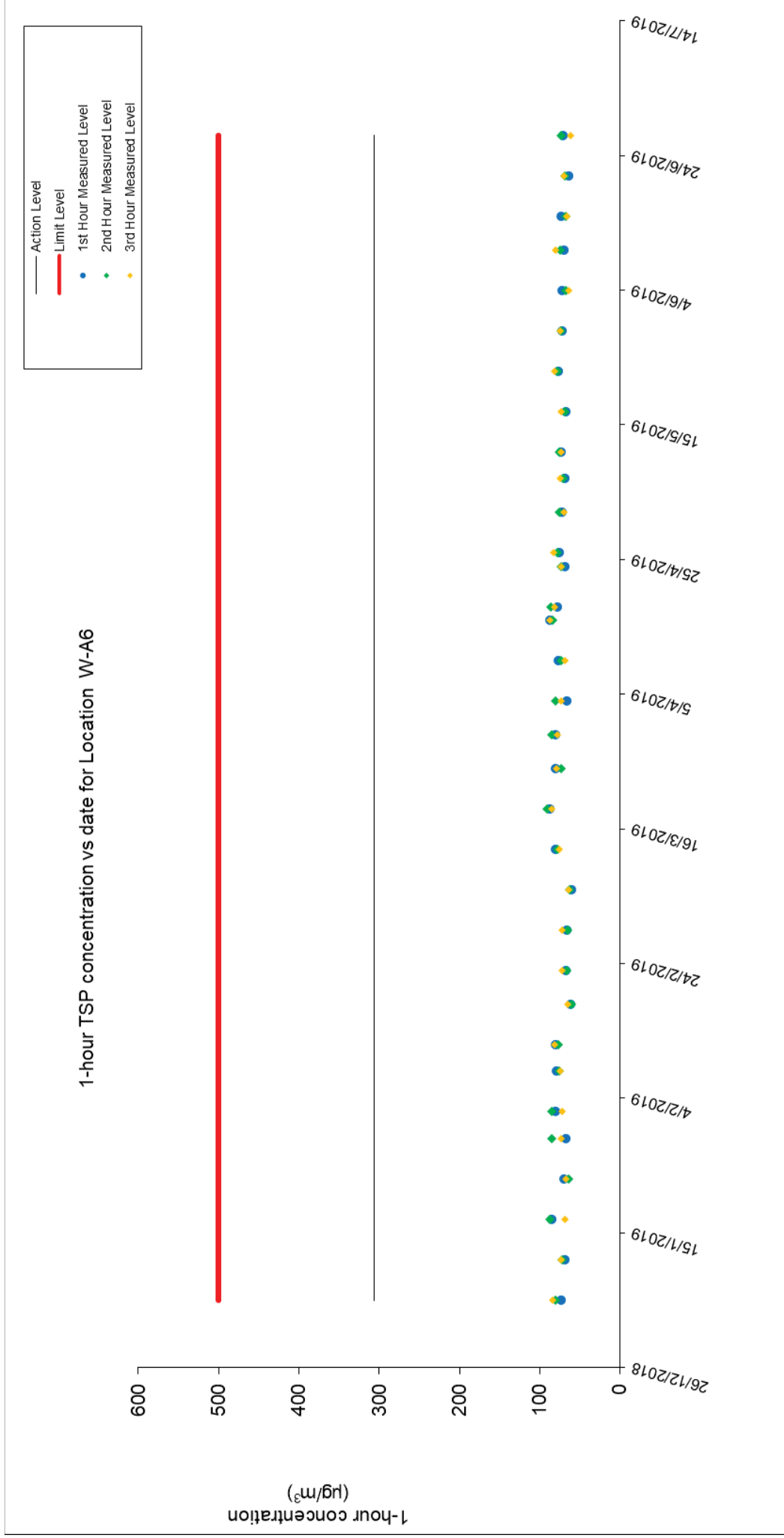


Figure 2: Graphical Illustration of Measured 1-hour TSP ( $\mu\text{g}/\text{m}^3$ ) Levels at W-A6





Location: Yau Ma Tei Catholic Primary School (Hoi Wang Road) (W-A1)

Monitoring date: 4, 10, 15, 21, 27 June 2019

Parameter : TSP 24-hour

Other Factors nearby traffic

Start Date	Weather Condition	Elapse Time		Chart Reading			Avg Air Temp (°C)	Avg Atmospheric Pressure (mm Hg)	Flow Rate (m <sup>3</sup> /min)	Standard Air Volume (m <sup>3</sup> )	Filter Weight (g)		Particulate weight (g)	Conc. (µg/m <sup>3</sup> )
		Initial	Final	Actual (min)	Min	Max					Avg	Initial		
4/6/2019	Sunny						28.0	1008.6						13.9707
10/6/2019	Sunny						29.5	1003.5						25.7513
15/6/2019	Cloudy						28.6	1005.3						
21/6/2019	Sunny						30.8	1005.9						
27/6/2019	Sunny	2210.4	2234.4	1440.00	58	58	30.2	1001.7	3.58	5157	2.7031	2.7582	0.0551	11
28/6/2019	Sunny	2234.4	2258.4	1440.00	60	60	30.5	1001.7	3.77	5423	2.6787	2.7497	0.0710	13

Remark: Results on 4, 10 June 2019 were voided due to short-circuited electricity supply.  
Results on 15, 21 June 2019 were voided due to unstable electricity supply.

Location: Man Cheong Building (W-A6)  
Monitoring date: 4, 10, 15, 21, 27 June 2019  
Parameter : TSP 24-hour  
Other Factors nearby traffic

Start Date	Weather Condition	Elapse Time			Chart Reading			Avg Air Temp (°C)	Avg Atmospheric Pressure (mm Hg)	Flow Rate (m <sup>3</sup> /min)	Standard Air Volume (m <sup>3</sup> )	Filter Weight (g)		Particulate weight (g)	Conc. (µg/m <sup>3</sup> )
		Initial	Final	Actual (min)	Min	Max	Avg					Initial	Final		
4/6/2019	Sunny	1936.8	1960.8	1440.00	52	53	52.5	28.0	1008.6	2.34	3364	2.7111	2.7907	0.0796	21.6899
10/6/2019	Sunny	1960.8	1984.8	1440.00	53	53	53.0	29.5	1003.5	2.34	3373	2.6563	2.7354	0.0791	18.6480
15/6/2019	Cloudy	1985.8	2009.8	1440.00	52	52	52.0	28.6	1005.3	1.86	2677	2.7272	2.8394	0.1122	30.3328
21/6/2019	Sunny	2009.2	2033.2	1440.00	58	60	59.0	30.8	1005.9	2.15	3103	2.7677	2.8239	0.0562	11.9785
27/6/2019	Sunny	2033.4	2057.4	1440.00	59	62	60.5	30.2	1001.7	2.21	3184	2.6627	2.735	0.0723	23

Figure 3: Graphical Illustration of Measured 24-hour TSP ( $\mu\text{g}/\text{m}^3$ ) Levels at W-A1

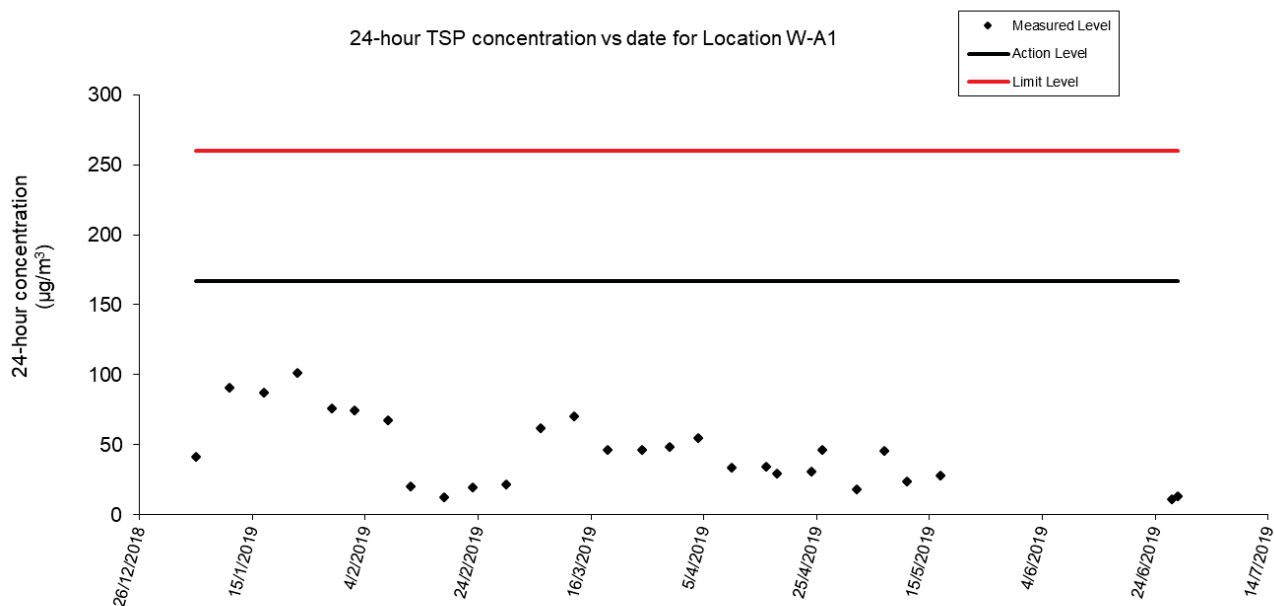
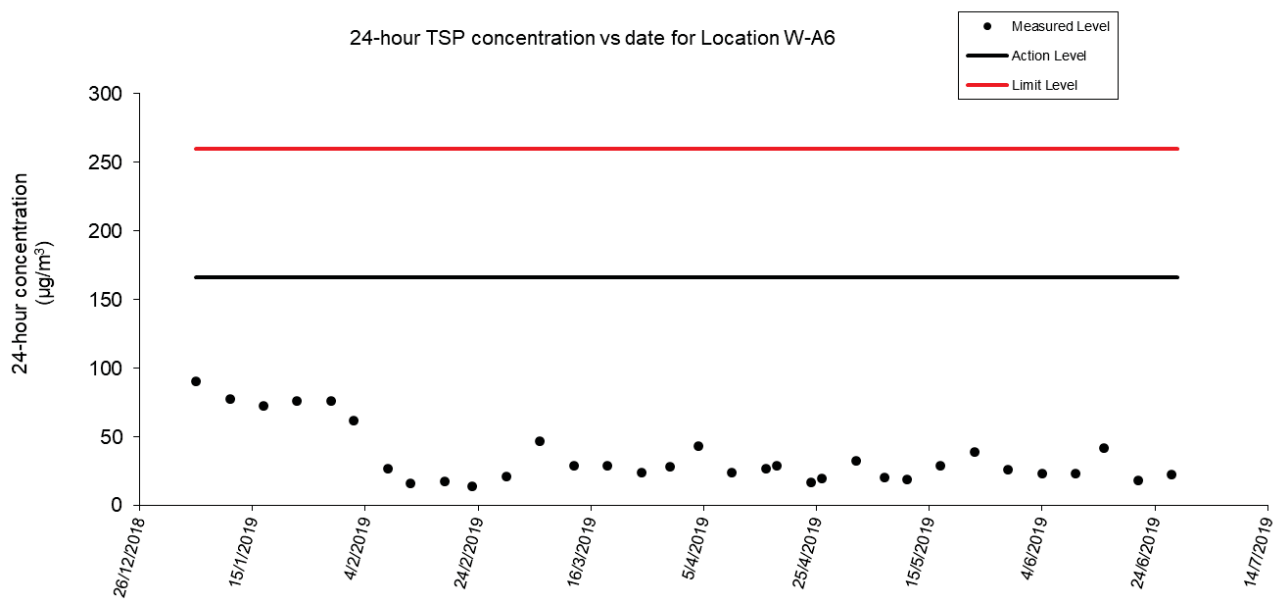
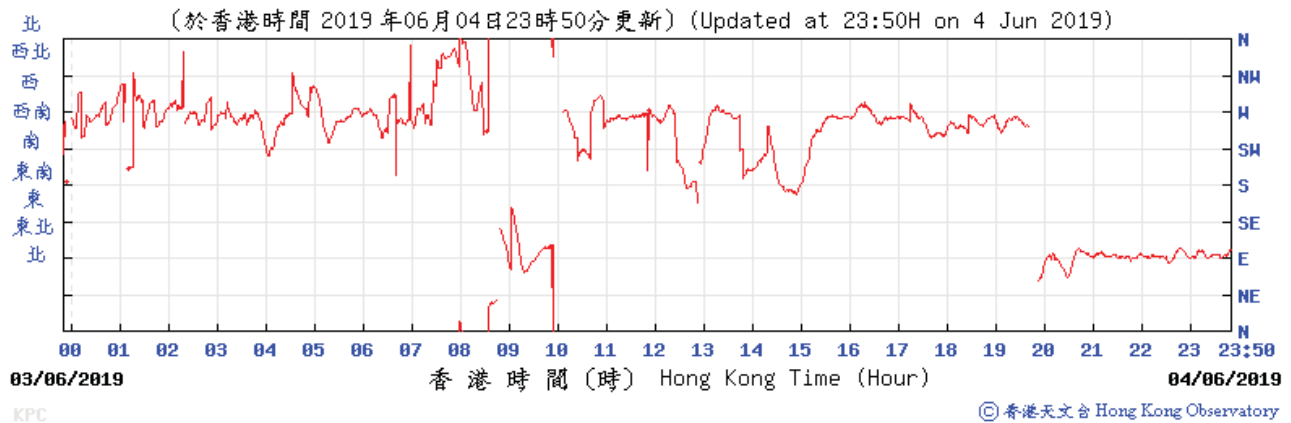


Figure 4: Graphical Illustration of Measured 24-hour TSP ( $\mu\text{g}/\text{m}^3$ ) Levels at W-A6

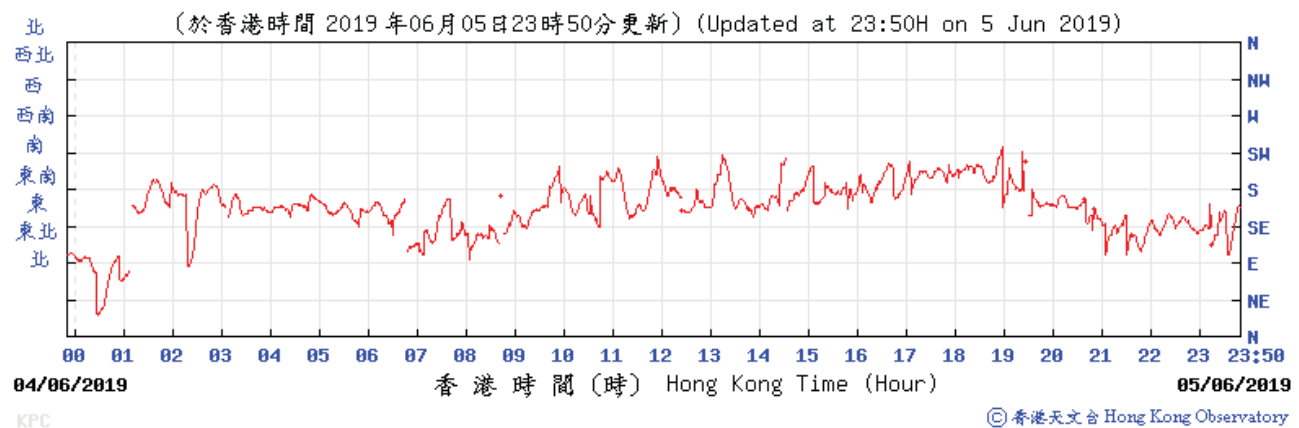


**Wind direction data for 4, 5, 10, 11, 15, 16, 21, 22, 27, 28, 29 June 2019**

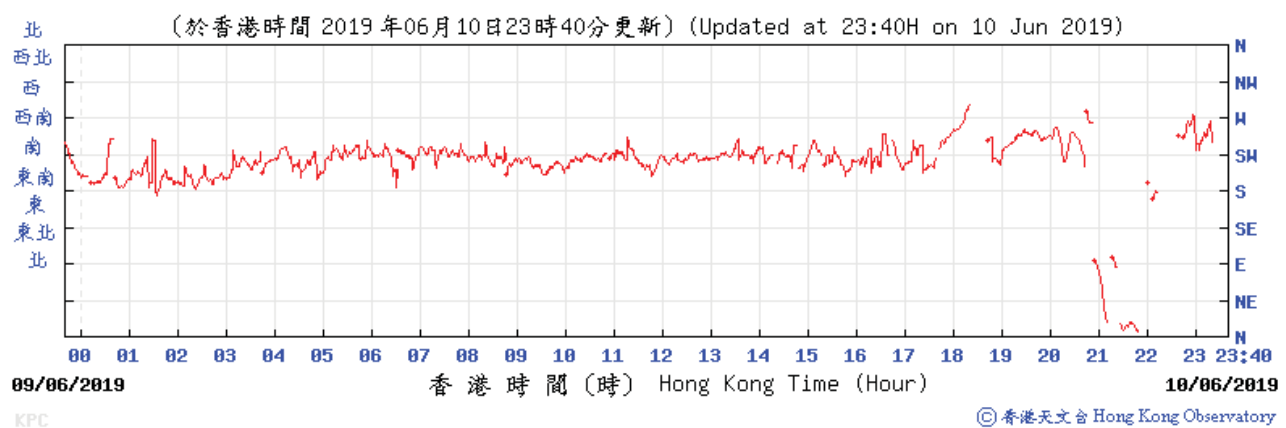
Wind Direction:



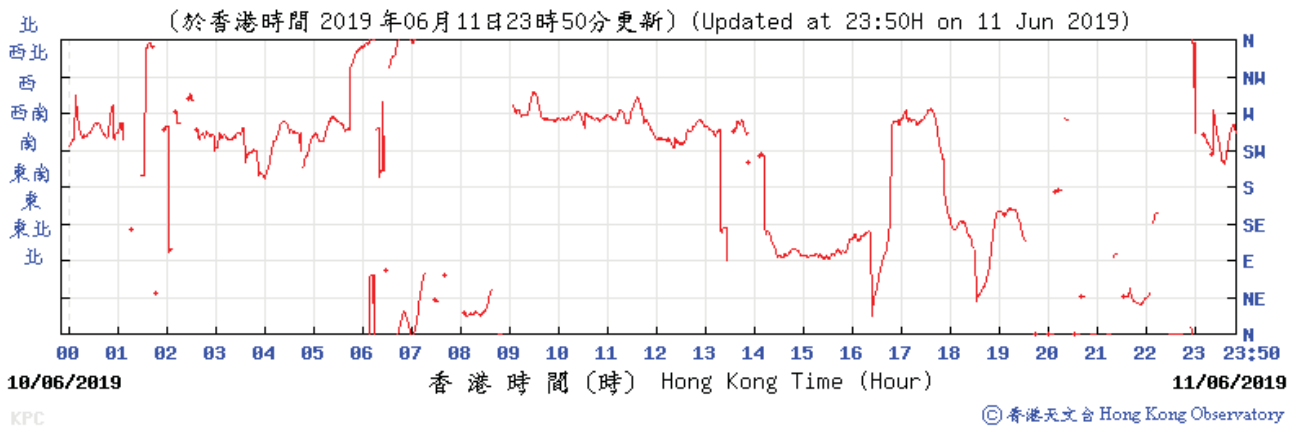
Wind Direction:



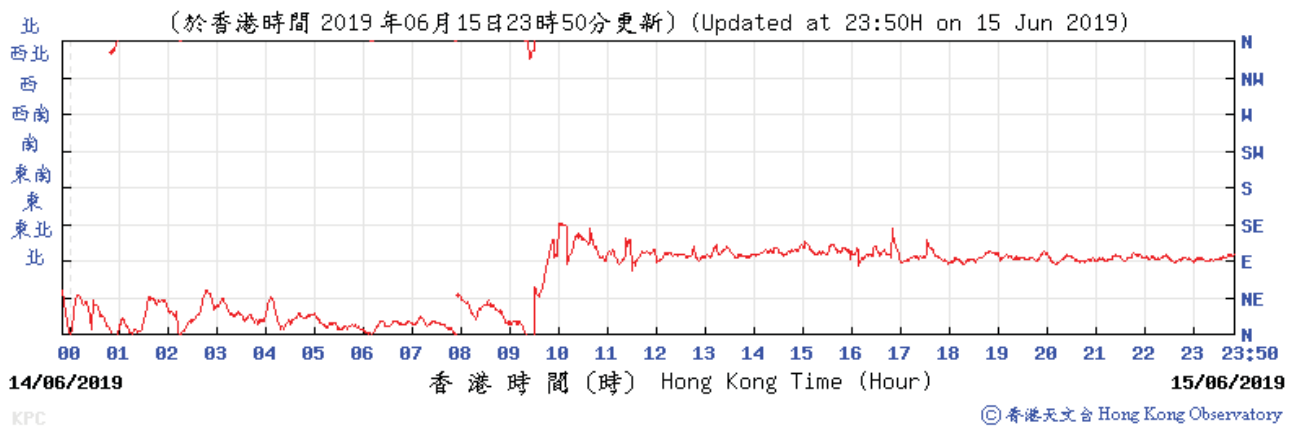
Wind Direction:



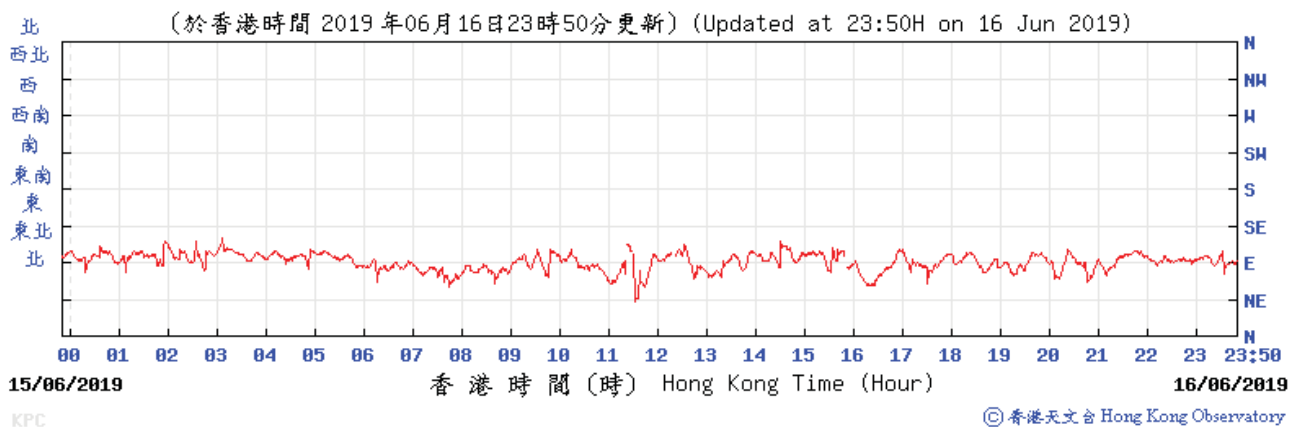
Wind Direction:



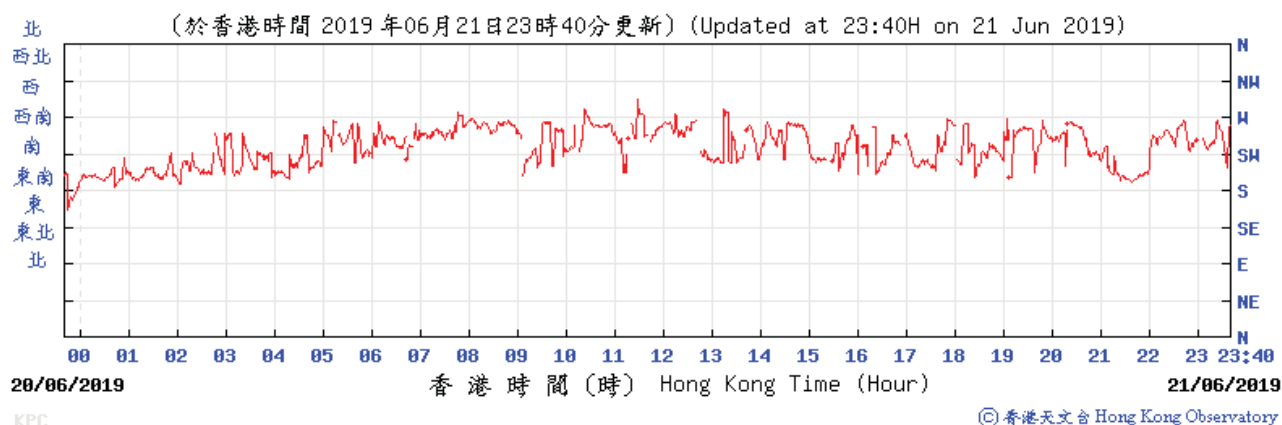
Wind Direction:



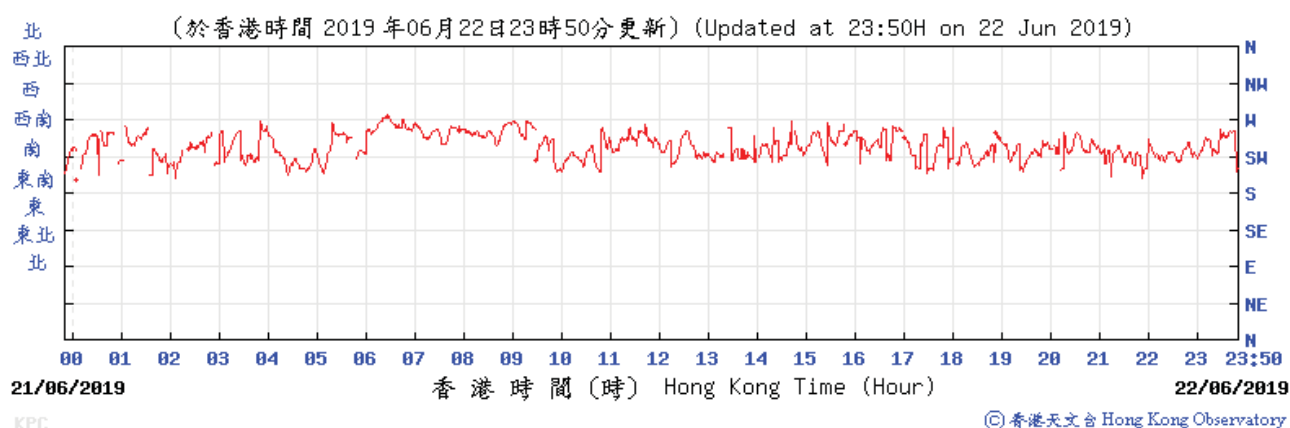
Wind Direction:



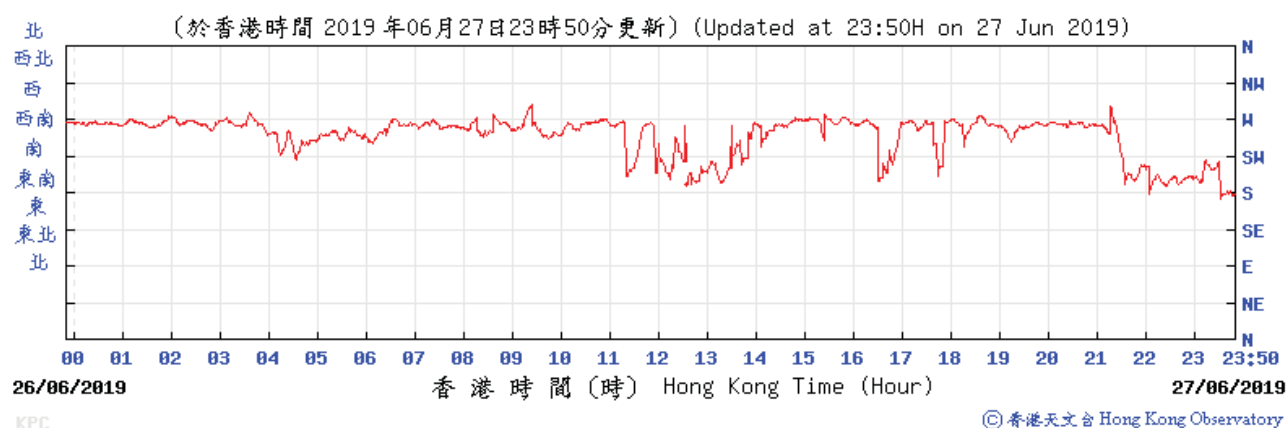
Wind Direction:



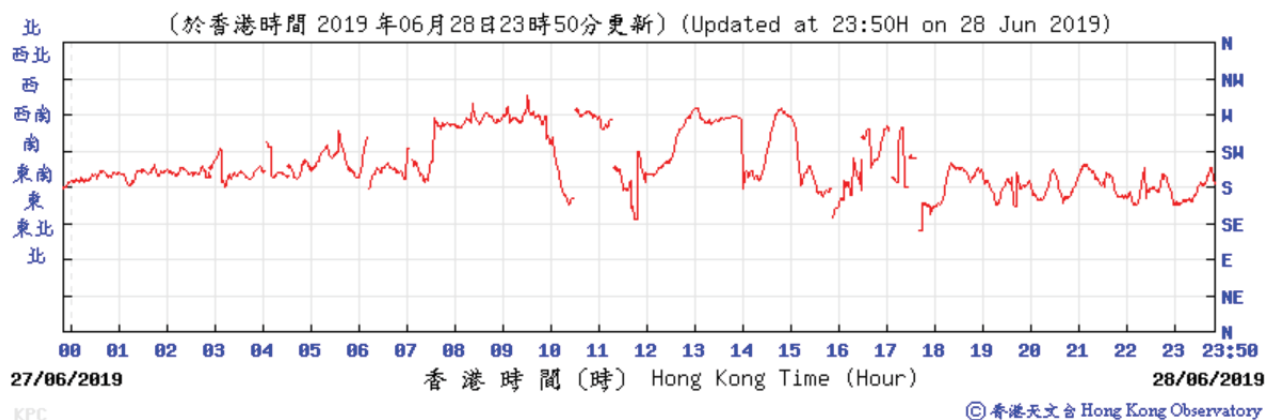
Wind Direction:



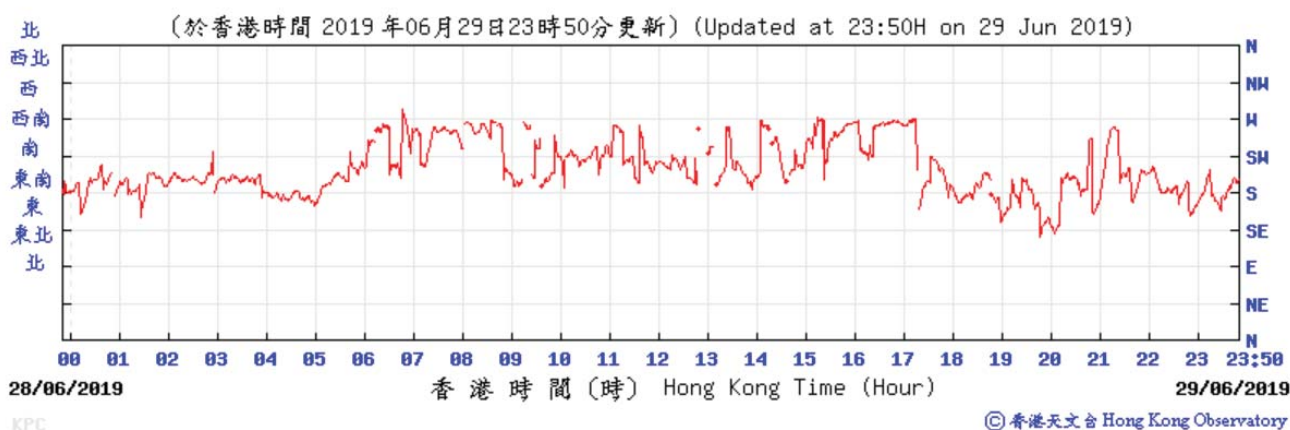
Wind Direction:



Wind Direction:



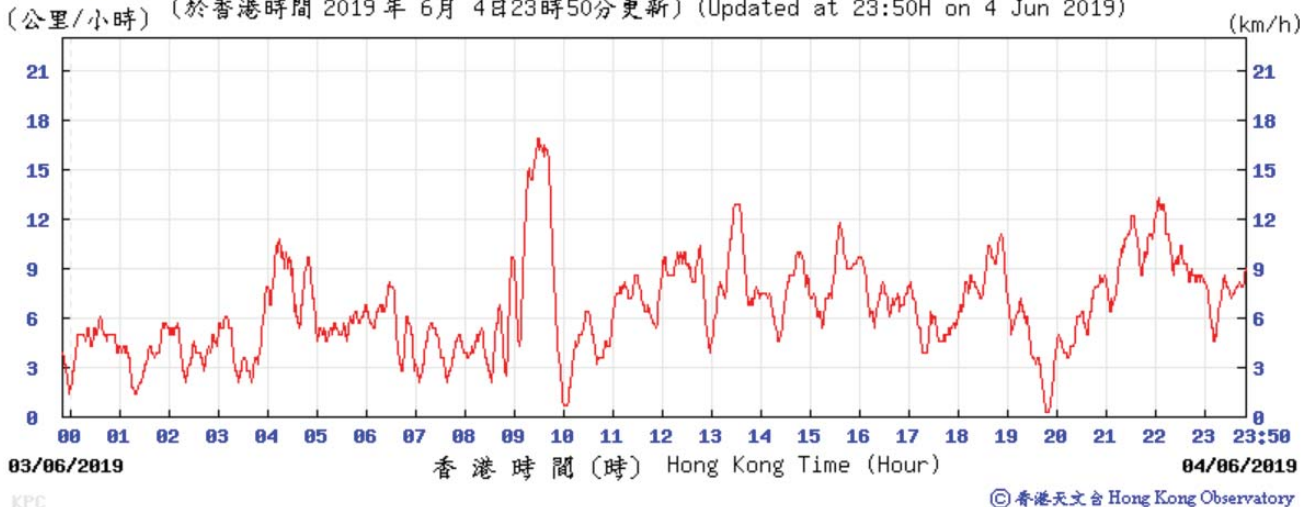
Wind Direction:



**Wind speed data for 4, 5, 10, 11, 15, 16, 21, 22, 27, 28, 29 June 2019**

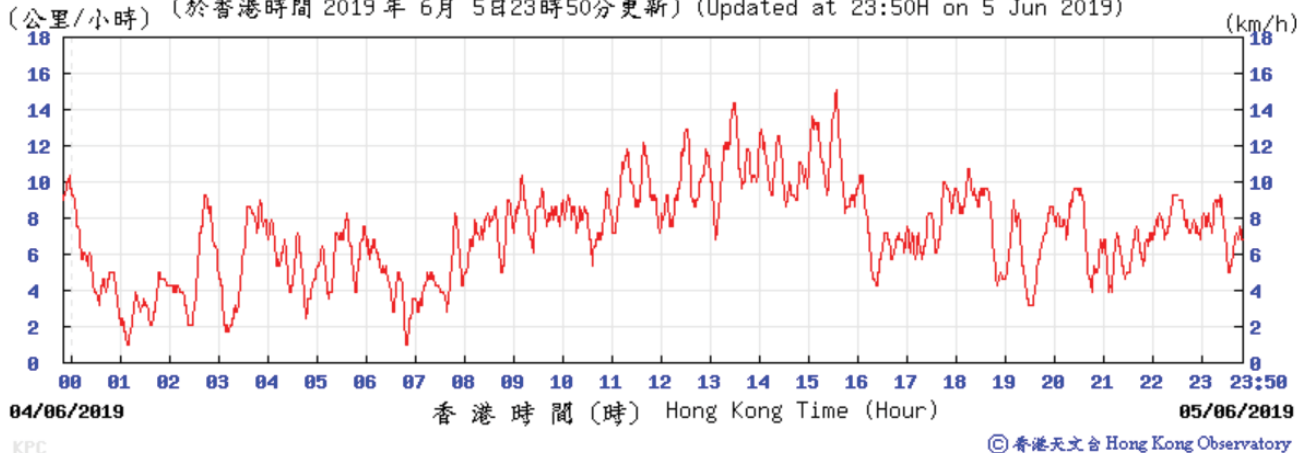
Wind Speed:

(公里/小時) (於香港時間 2019 年 6 月 4 日 23 時 50 分更新) (Updated at 23:50H on 4 Jun 2019)



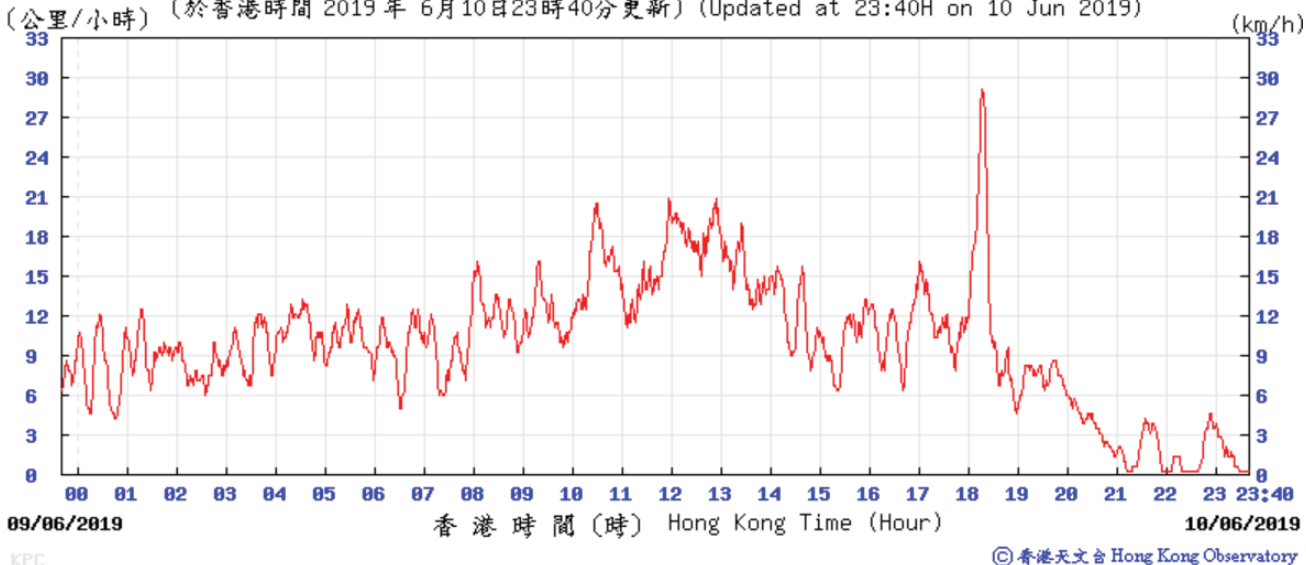
Wind Speed:

(公里/小時) (於香港時間 2019 年 6 月 5 日 23 時 50 分更新) (Updated at 23:50H on 5 Jun 2019)



Wind Speed:

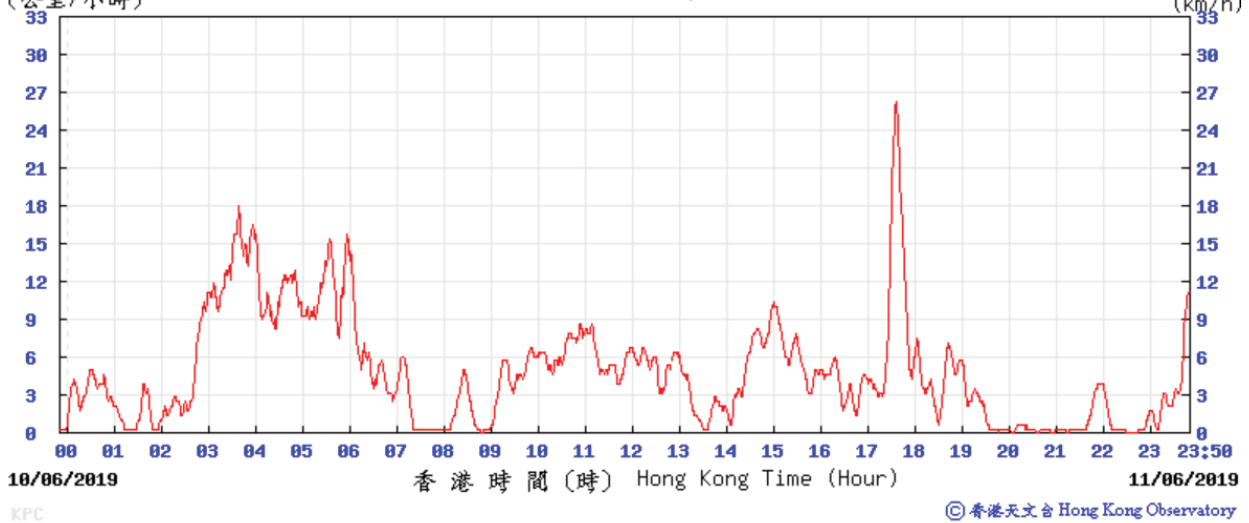
(公里/小時) (於香港時間 2019 年 6 月 10 日 23 時 40 分更新) (Updated at 23:40H on 10 Jun 2019)





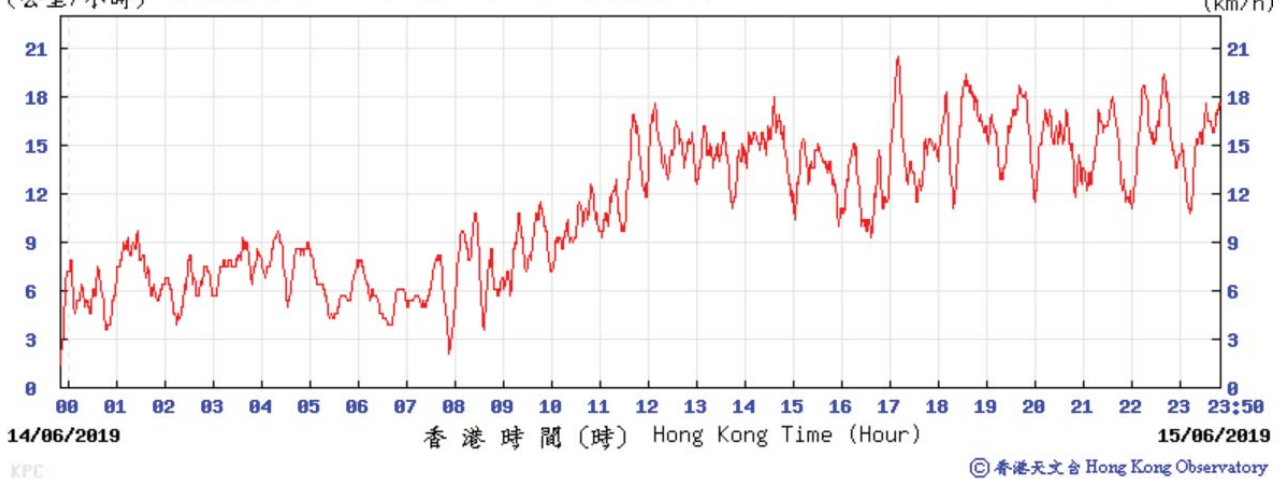
Wind Speed:

(公里/小時) (於香港時間 2019 年 6 月 11 日 23 時 50 分更新) (Updated at 23:50H on 11 Jun 2019)



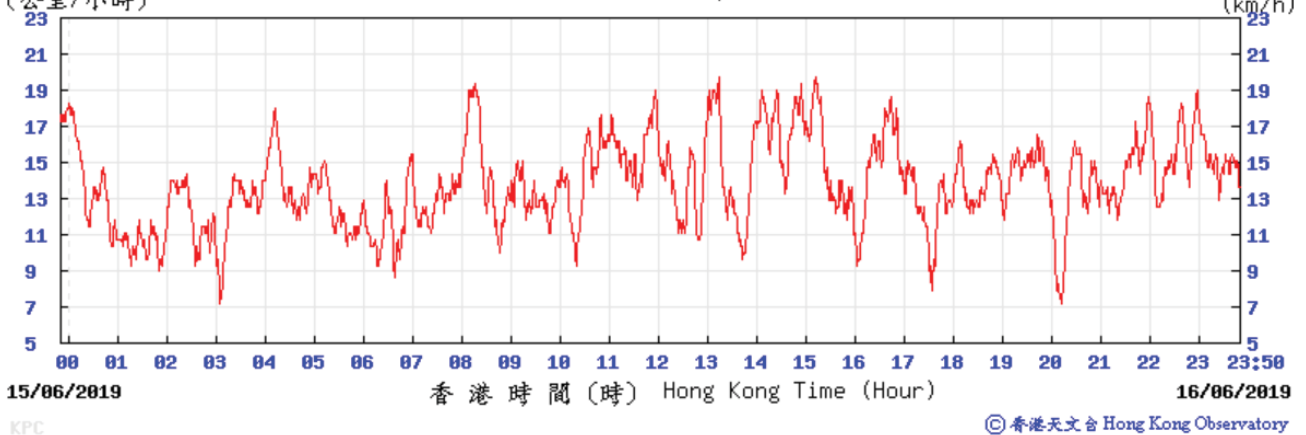
Wind Speed:

(公里/小時) (於香港時間 2019 年 6 月 15 日 23 時 50 分更新) (Updated at 23:50H on 15 Jun 2019)



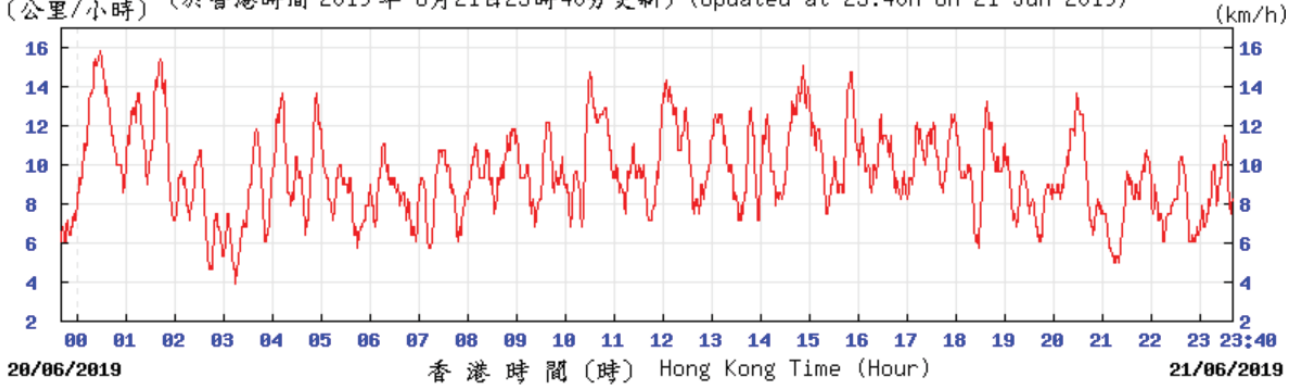
Wind Speed:

(公里/小時) (於香港時間 2019 年 6 月 16 日 23 時 50 分更新) (Updated at 23:50H on 16 Jun 2019)



Wind Speed:

(公里/小時) (於香港時間 2019年 6月21日23時40分更新) (Updated at 23:40H on 21 Jun 2019)

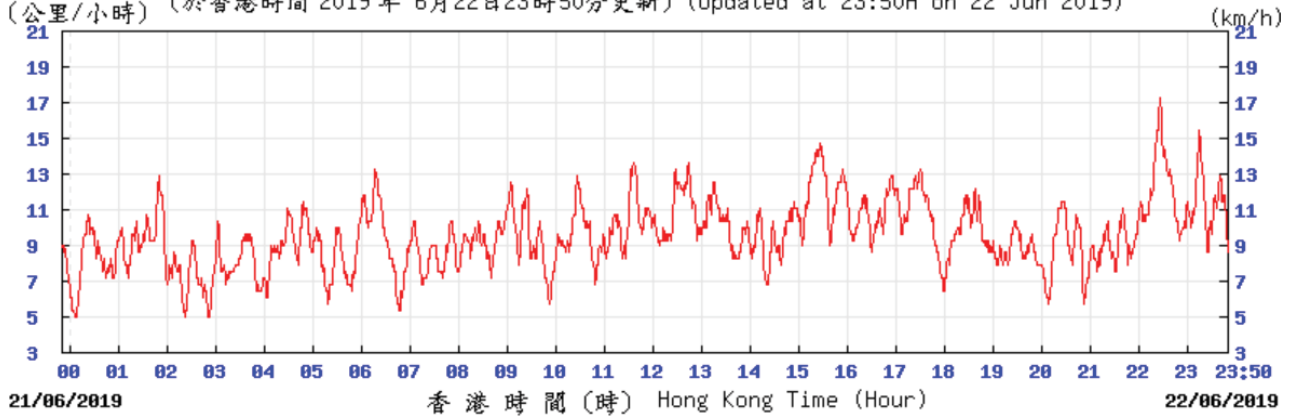


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Wind Speed:

(公里/小時) (於香港時間 2019年 6月22日23時50分更新) (Updated at 23:50H on 22 Jun 2019)

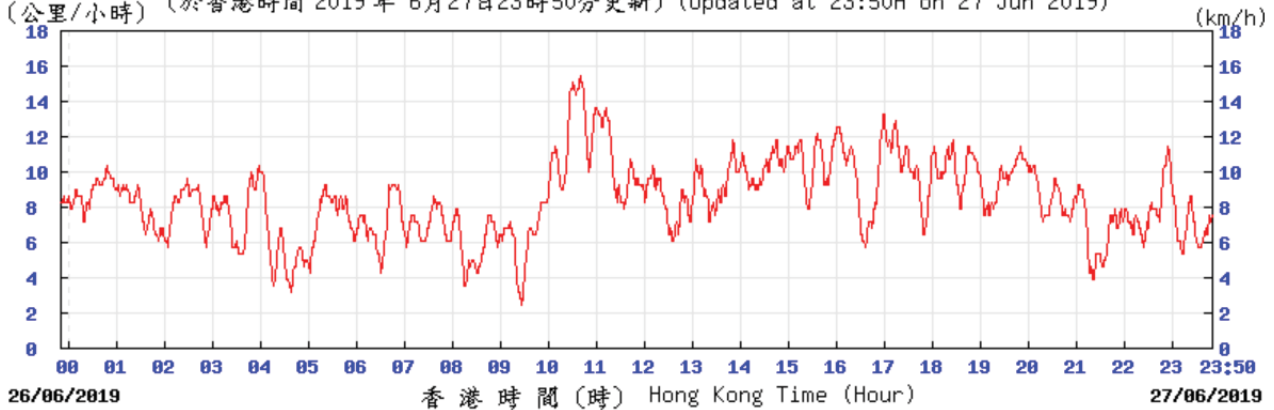


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Wind Speed:

(公里/小時) (於香港時間 2019年 6月27日23時50分更新) (Updated at 23:50H on 27 Jun 2019)

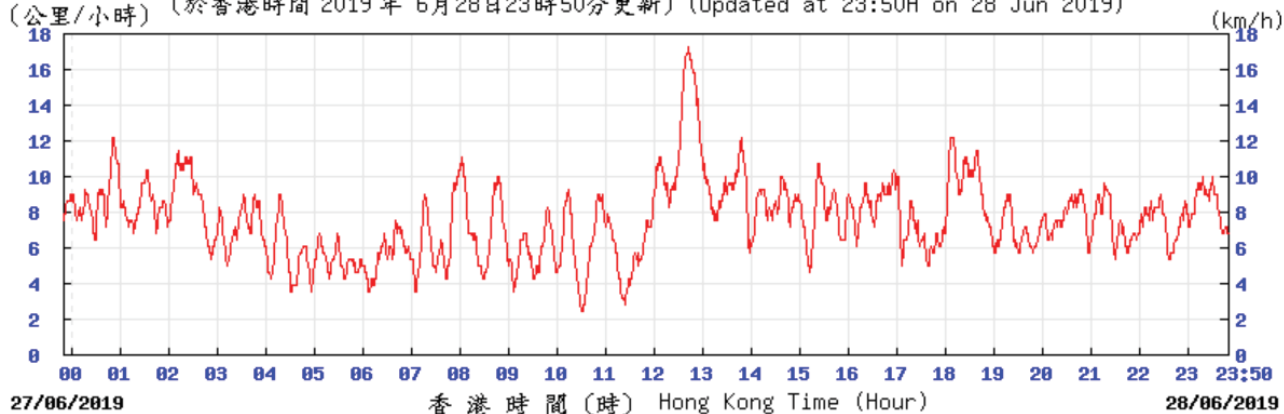


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Wind Speed:

(公里/小時) (於香港時間 2019 年 6 月 28 日 23 時 50 分更新) (Updated at 23:50H on 28 Jun 2019)

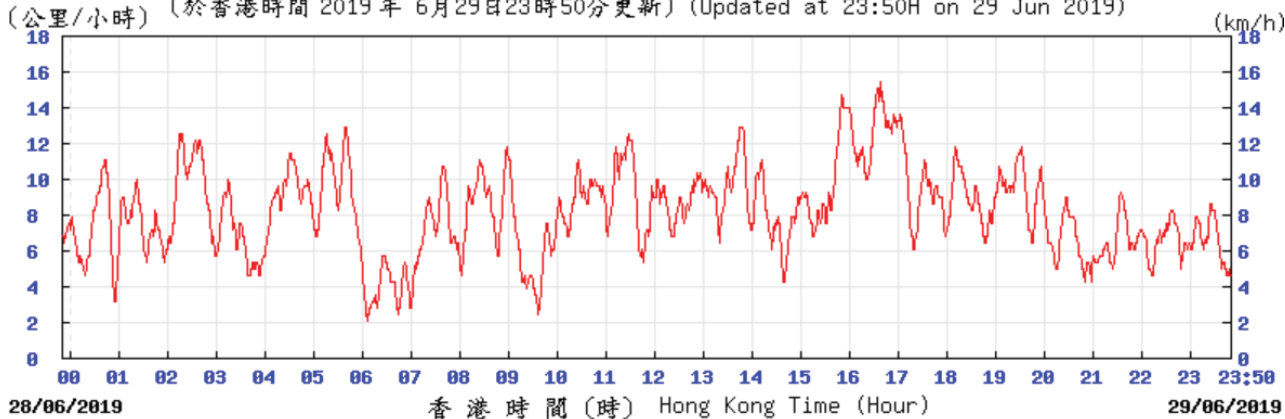


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Wind Speed:

(公里/小時) (於香港時間 2019 年 6 月 29 日 23 時 50 分更新) (Updated at 23:50H on 29 Jun 2019)



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# Appendix M

## Monitoring Data (Noise)

Location: Yau Ma Tei Catholic Primary School (Hoi Wang Road) (W-N1A)  
Monitoring date: 4, 10, 15, 21, 27 June 2019  
Parameter :  $L_{eq}$ ,  $L_{10}$ ,  $L_{90}$   
Other Factors Nearby traffic, construction work from West Kowloon Government Offices, school activities

Noise Monitoring data:

Date	Weather	Start Time - End Time	$L_{eq}$	$L_{10}$	$L_{90}$	Wind speed (m/s)
04/06/2019	Sunny	9:25 - 9:55	63.6	67.8	61.6	4.4
10/06/2019	Sunny	9:43 - 10:13	64.4	67.4	62.3	3.2
15/06/2019	Cloudy	9:30 - 10:00	63.9	67.3	61.7	2.5
21/06/2019	Sunny	13:20 - 13:50	64.4	67.4	62.2	2.7
27/06/2019	Sunny	9:40 - 10:10	63.9	67.1	61.7	1.8

Remark: Examination was held from 29 May 2019 to 4 June 2019. Limit level was reduced to 65 dB(A).

Location: Hydan Place (W-N18)  
Monitoring date: 4, 10, 15, 21, 27 June 2019  
Parameter :  $L_{eq}$ ,  $L_{10}$ ,  $L_{90}$   
Other Factors Nearby traffic

Noise Monitoring data:

Date	Weather	Start Time	-	End Time	$L_{eq}$	$L_{10}$	$L_{90}$	Wind speed (m/s)
04/06/2019	Sunny	11:40	-	12:10	68.0	71.9	65.0	2.3
10/06/2019	Sunny	12:12	-	12:42	69.3	72.7	67.2	4.9
15/06/2019	Cloudy	11:56	-	12:26	67.5	71.1	65.2	4.4
21/06/2019	Sunny	15:25	-	15:55	66.9	69.2	64.6	2.7
27/06/2019	Sunny	12:10	-	12:40	67.5	70.6	65.3	2.2

Location: Prosperous Garden Block 1 (W-N25A)  
Monitoring date: 4, 10, 15, 21, 27 June 2019  
Parameter :  $L_{eq}$ ,  $L_{10}$ ,  $L_{90}$   
Other Factors nearby traffic

Noise Monitoring data:

Date	Weather	Start Time	-	End Time	$L_{eq}$	$L_{10}$	$L_{90}$	Wind speed (m/s)
04/06/2019	Sunny	11:05	-	11:35	66.9	69.0	64.6	2.3
10/06/2019	Sunny	11:25	-	11:55	65.9	68.3	63.9	4.2
15/06/2019	Cloudy	11:12	-	11:42	65.4	67.5	62.4	3.3
21/06/2019	Sunny	14:42	-	15:12	65.9	68.0	63.5	3.8
27/06/2019	Sunny	11:25	-	11:55	66.0	68.5	63.8	2.9

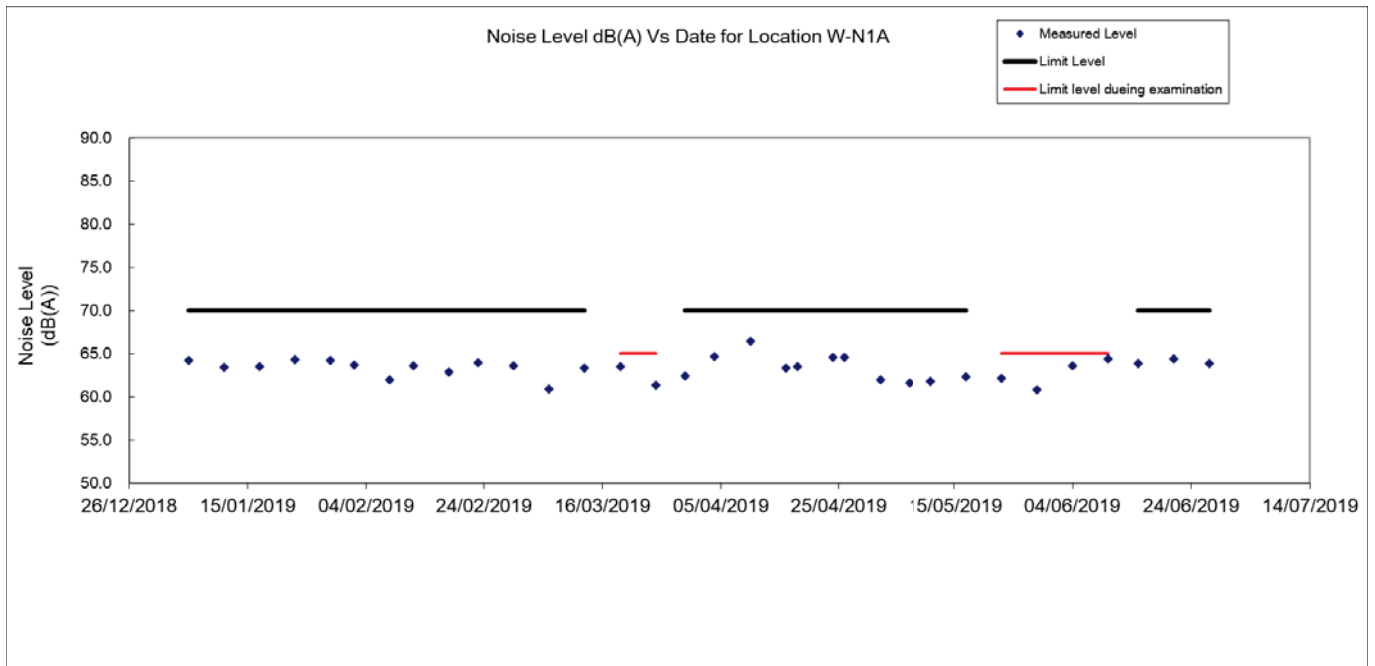
Location: The Coronation Tower 1 (W-P11)  
Monitoring date: 4, 10, 15, 21, 27 June 2019  
Parameter :  $L_{eq}$ ,  $L_{10}$ ,  $L_{90}$   
Other Factors Nearby traffic

Noise Monitoring data:

Date	Weather	Start Time	-	End Time	$L_{eq}$	$L_{10}$	$L_{90}$	Wind Speed (m/s)
04/06/2019	Sunny	10:18	-	10:48	65.9	68.1	64.2	1.4
10/06/2019	Sunny	10:35	-	11:05	64.7	66.8	62.6	4.8
15/06/2019	Cloudy	10:23	-	10:53	63.9	65.9	61.7	2.7
21/06/2019	Sunny	14:04	-	14:34	63.9	65.8	61.4	3.5
27/06/2019	Sunny	10:34	-	11:04	63.9	65.6	60.9	4.1



Figure 1: Graphical Illustration of Measured Noise Levels at W-N1A



Remark: Examination was held from 29 May 2019 to 4 June 2019. Limit level was reduced to 65 dB(A).

Figure 2: Graphical Illustration of Measured Noise Levels at W-N18

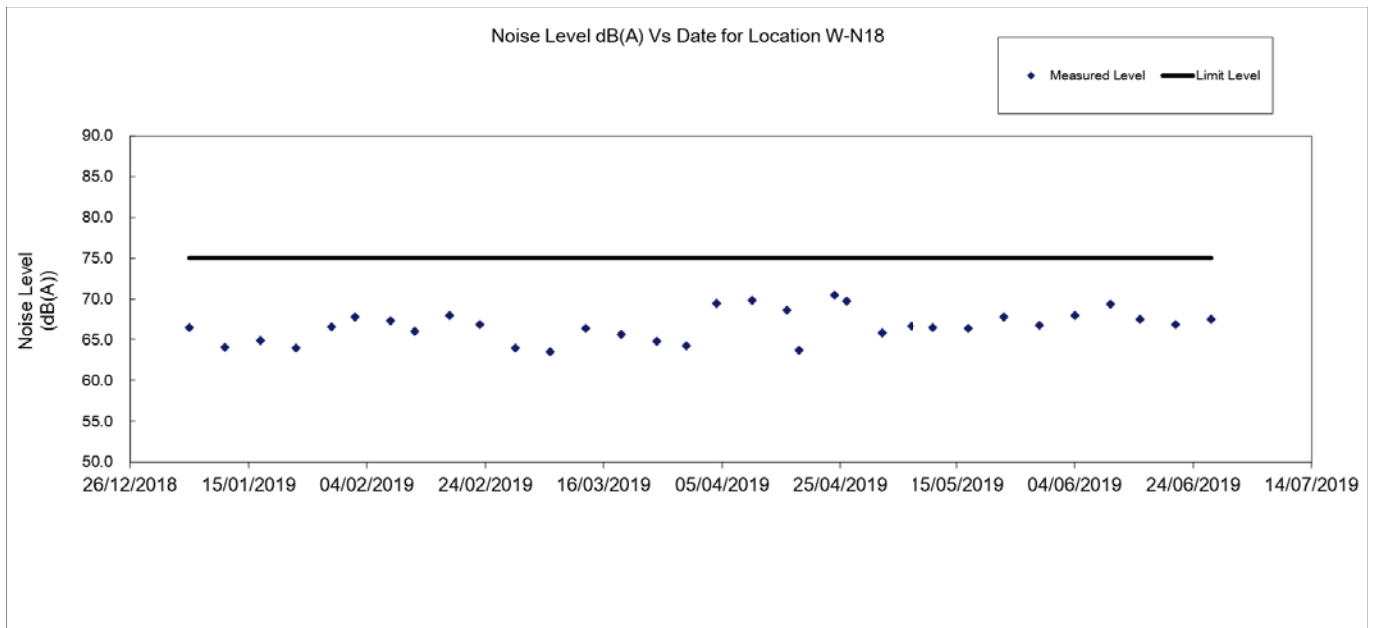


Figure 3: Graphical Illustration of Measured Noise Levels at W-N25A

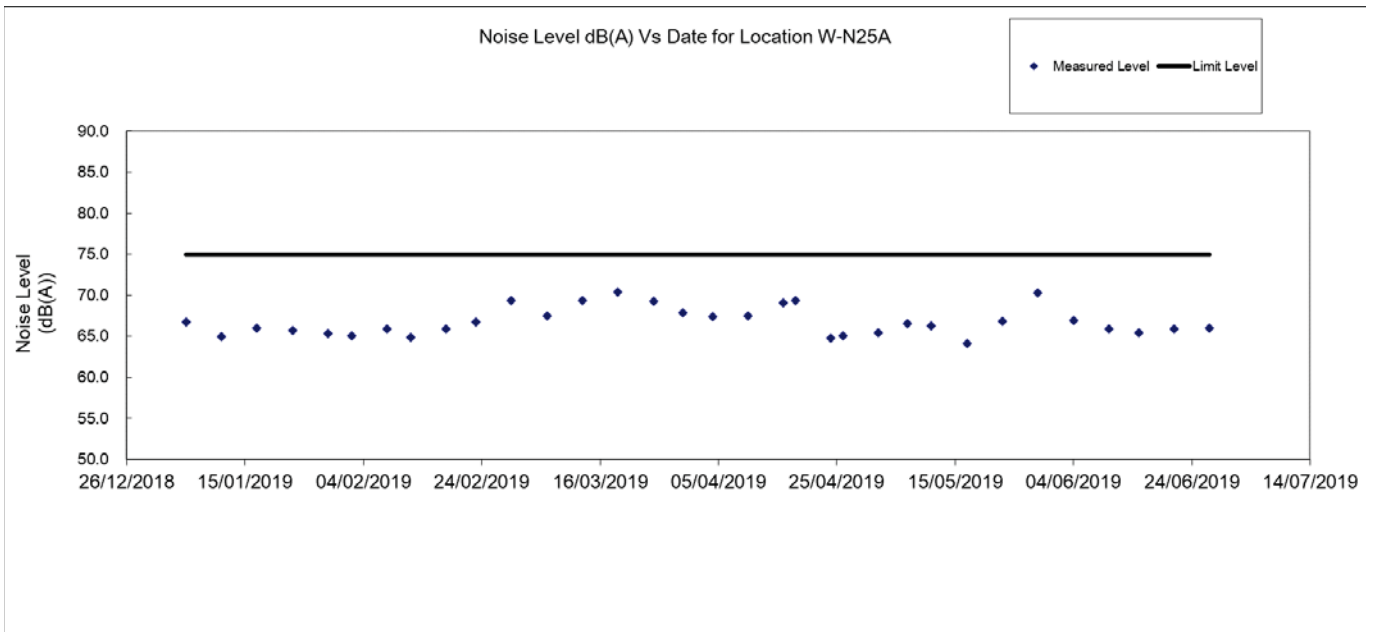
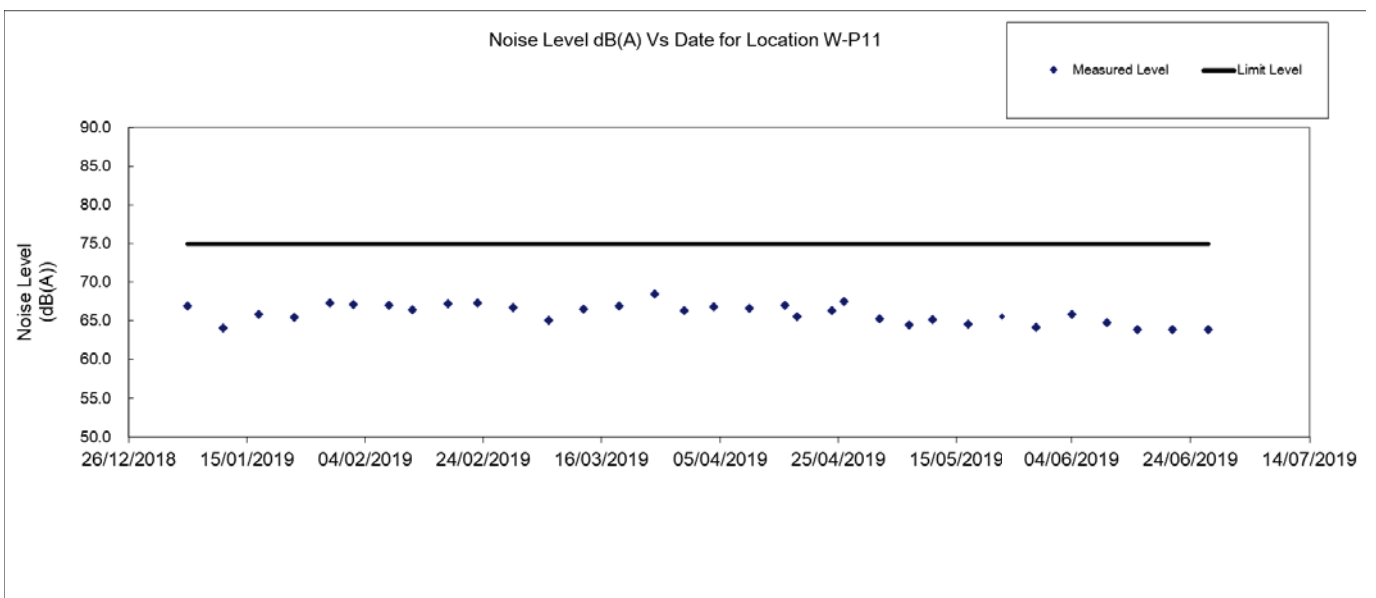


Figure 4: Graphical Illustration of Measured Noise Levels at W-P11



# Appendix N

## Waste Flow Table

**Monthly Summary Waste Flow Table**

**Name of Department:** Highways Department  
**Monthly Summary Waste Flow Table for** June 2019

**Contract No. / Works Order No.:** HY/2014/08

[to be submitted not later than the 15<sup>th</sup> day of each month following reporting month] (All quantities shall be rounded off to 1 decimal place.)

Month	Actual Quantities of Inert Construction Waste Generated Monthly					
	(a)=(b)+(c)+(d)+(e)+(f)+(g)+(h)+(i)+(j)+(k) Total Quantity Generated (in 'tonnes)	(b) Hard Rock and Large Broken Concrete (in 'tonnes)	(c) Reused in the Contract (in 'tonnes)	(d) Reused in other Projects (in 'tonnes)	(e) Disposed of as Public Fill (in 'tonnes)	(f) Imported Fill (in 'tonnes)
2018	51058.0	0.0	0.0	0.0	47715.6	2877.4
Jan-19	8937.2	0.0	0.0	0.0	7956.9	961.8
Feb-19	6705.9	0.0	0.0	0.0	6306.9	384.6
Mar-19	6749.9	0.0	0.0	0.0	6722.4	0.0
Apr-19	11090.4	0.0	0.0	0.0	11053.5	0.0
May-19	9400.1	0.0	0.0	440.6	8889.5	0.0
Jun-19	14754.7	0.0	0.0	653.2	13996.2	0.0
Sub-total	57794.1	0.0	0.0	1093.8	55280.8	1346.4
Jul-19						
Aug-19						
Sep-19						
Oct-19						
Nov-19						
Dec-19						
Total	57994.1	0.0	0.0	1093.8	55280.8	1346.4

Actual Quantities of Non-inert Construction Waste Generated Monthly										
Month	(g) Metals (in '000kg)		(h) Paper/ cardboard packaging (in '000kg)		(i) Plastics (in '000kg)		(j) Chemical Waste (in '000kg)		(k) Others, e.g. General Refuse disposed at Landfill (in 'tonnes)	
	generated	recycled	generated	recycled	generated	recycled	generated	recycled	generated	recycled
2018	28.4	0.0	0.0	0.0	0.0	0.0	2.0	0.0	434.5	
Jan-19	0.0	0.0	0.4	0.0	0.0	0.0	0.8	0.0	17.6	
Feb-19	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	13.2	
Mar-19	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.5	
Apr-19	0.0	0.0	0.0	0.2	0.0	0.0	0.8	0.0	36.0	
May-19	0.0	0.0	0.0	0.2	0.0	0.0	2.4	0.0	67.5	
Jun-19	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	105.2	
Sub-total	28.4	0.0	0.4	0.6	0.0	0.0	5.2	0.0	267.1	
Jul-19										
Aug-19										
Sep-19										
Oct-19										
Nov-19										
Dec-19										
Total	28.4	0.0	0.4	0.6	0.0	0.0	7.2	0.0	267.1	

# Appendix O

## Statistics on Complaint, Notifications of Summons and Successful Prosecutions

Statistical Summary of Exceedances

Air Quality			
Location	Action Level	Limit Level	Total
W-A1	0	0	0
W-A6	0	0	0
Noise			
Location	Action Level	Limit Level	Total
W-N1A	0	0	0
W-N18	0	0	0
W-N25A	0	0	0
W-P11	0	0	0

Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
1 June 2019-30 June 2019	1	5	Construction noise

Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Details
1 June 2019-30 June 2019	0	0	N/A

Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Details
1 June 2019-30 June 2019	0	0	N/A

# Appendix P

## Monitoring Schedule of the Coming Month



Contract No. HY/2014/08  
Environmental Monitoring & Auditing

Impact Monitoring Schedule for YMTE						
Jul-19						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
			Air monitoring for W-A6 &W-A1 Noise monitoring for W-N1A, W-P11, W-N18 & W-N25A			
7	8	9	10	11	12	13
		Impact				
		Air monitoring for W-A6 &W-A1 Noise monitoring for W-N1A, W-P11, W-N18 & W-N25A				
14	15	16	17	18	19	20
	Impact					Impact
	Air monitoring for W-A6 &W-A1 Noise monitoring for W-N1A, W-P11, W-N18 & W-N25A					Air monitoring for W-A6 &W-A1 Noise monitoring for W-N1A, W-P11, W-N18 & W-N25A
21	22	23	24	25	26	27
					Impact	
					Air monitoring for W-A6 &W-A1 Noise monitoring for W-N1A, W-P11, W-N18 & W-N25A	
28	29	30	31			

# Appendix Q

## Interim Report for the Complaint

Contract No. HY/2014/08  
 Central Kowloon Route, Yau Ma Tei East Section

Build King - SKEC Joint Venture

**Interim Report on Environmental Complaint**

Project	Central Kowloon Route, Yau Ma Tei East Section	
Complaint Code	EC005-CKRYMTE20190608_001	
Complaint description	<p>The complainant also complained about the noise of another West Kowloon construction project. The complainant stated that the construction works were carried out from 08:00 to 18:00 every day. The construction noise was particularly serious in the past week. The complainant requested the department to follow up at the same time.</p> <p>The complainant mentioned that                  “投訴人同時投訴另一西九的工程的噪音，投訴人表示工程於每天08:00-18:00進行，近一星期的工程噪音特別嚴重，要求部門同時跟進”</p>	
Parameter	Construction Noise	
Investigation finding	<p>Impact noise monitoring had been carried out on 4, 10 June 2019 and the monitoring results at the nearest monitoring stations -Prosperous Garden Block 1 were 66.0, 66.8, 67.3, 67.6, 67.1 and 66.7 dB(A)<sub>5min</sub>; 65.9, 65.7, 65.4, 66.1, 66.3 and 65.8 dB(A)<sub>5min</sub> respectively and The Coronation Tower 1 were 65.3, 65.7, 66.3, 66.1, 66.0, 65.8 dB(A)<sub>5min</sub>; 64.8, 64.4, 65.0, 65.2, 64.7, 64.3 dB(A)<sub>5min</sub> respectively, which were well below the limit levels for the monitoring station at 75 dB(A)<sub>30min</sub>. Similar works had been conducted throughout the week. It was believed that the construction noise generated on first week of June 2019 did not exceed the noise limit level as stipulated under EM&amp;A manual.</p> <p>Noisy construction activities were restricted to be conducted within 7am to 7pm as per the Contractor’s information under the stipulated NCO requirement.</p>	
Actions taken / to be taken	As a precautionary measure, the Contractor had implemented some measures in respect to this complaint case in order to minimize nuisance to the public. The measures included rescheduling of the construction works, regular checking on integrity of installed noise barriers and intermittent operation of plants and equipment.	
Remarks	<p>Construction works carried out on first week of June 2019:</p> <ul style="list-style-type: none"> <li>• Excavation, Socket H piling, Superstructure at Zone A</li> <li>• Grouting at Zone C</li> </ul> <p>Works locations: (next page.)</p>	
Prepared by	Nelson Tsui	
Date	17 June 2019	

