MOTT MACDONALD

Agreement No. CE 30/2018 (EP) Environmental Team for Kai Tak Sports Park – Design and Construction

Monthly EM&A Report for October 2019

November 2019

Home Affairs Bureau

Home Affairs Bureau
Kai Tak Sports Park Project Office
Suite 1801, 18/F Guardian House
32 Oi Kwan Road
Wanchai, Hong Kong

Agreement No. CE 30/2018 (EP) Environmental Team for Kai Tak Sports Park – Design and Construction

Monthly EM&A Report for October 2019

November 2019

Mott MacDonald Hong Kong Limited
registered in Hong Kong no. 236497

Home Affairs Bureau

Home Affairs Bureau
The Government of the Hong Kong Special Administrative Region

ERM

Environmental Permit No. EP-544/2017

Kai Tak Sports Park - Investigation

Independent Environmental Checker Verification

Reference Document/Plan

Document/~~Plan~~ to be ~~Certified~~/ Verified:	Monthly EM&A Report No. 7 (October 2019)
Date of Report:	November 2019
Date received by IEC:	12 November 2019

Reference EP Condition

Environmental Permit Condition: 3.4

Three hard copies and one electronic copy of the monthly EM&A Report shall be submitted to the Director within 10 working days after the end of each reporting month. The monthly EM&A Reports shall include a summary of all non-compliance with the recommendations in the approved EIA Report (Register No. AEIAR–204/2017) or this Permit. 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 submission shall be provided upon request by the Director.

IEC Verification

I hereby verify that the above referenced document/~~plan~~ complies with the above referenced condition of EP-544/2017.

Ms Mandy To

Independent Environmental Checker

Date: 13 November 2019

Our ref: 0500384_IEC Verification Cert_KTSP_Monthly EM&A Rpt No.7.docx

Home Affairs Bureau
The Government of the Hong Kong Special Administrative Region

MOTT MACDONALD

Environmental Permit No. EP- 544/2017

Kai Tak Sports Park – Investigation

Environmental Team Leader Certification

Reference Document /Plan

Document/~~Plan~~ to be Certified:	Monthly EM&A Report for Oct 2019
Date of Report:	November 2019
Date received by ETL:	13 November 2019

Reference EP Condition

Environmental Permit Condition: 3.4

Three hard copies and one electronic copy of the monthly EM&A Report shall be submitted to the Director within 10 working days after the end of each reporting month. The monthly EM&A Reports shall include a summary of all non-compliance with the recommendations in the approved EIA Report (Register No. AEIAR–204/2017) or this Permit. 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 submission shall be provided upon request by the Director.

ETL Certification

I hereby certify that the above reference document complies with the above referenced condition of EP-544/2017.

Mr Sunny Chan
Environmental Team Leader Date: 13 November 2019

Contents

Figures

Appendices

Tables

Executive summary

The Project – hereby meaning the Designated Project (Items O.6 and O.7 Part I, Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO)), comprising the "Kai Tak Sports Park" (KTSP) project and the Hotel and Office (H/O) Development of NKIL 6607 adjoining the KTSP – is located in the Kai Tak Development (KTD) area in Kowloon.

An EIA Report for the Project (Register No. AEIAR-204/2017) was approved by the Environmental Protection Department (EPD) on 6 January 2017. The current Environmental Permit (EP) for the Project, namely No. EP-544/2017, was issued on 8 September 2017. These documents are available through the EIA Ordinance Register. The Project construction works commenced on 8 April 2019.

In February 2019, Mott MacDonald Hong Kong Limited was appointed by the Home Affairs Bureau (HAB) as the Environmental Team (ET) to implement the Environmental Monitoring & Audit (EM&A) programme for the construction phase and first year of operation of the Project in accordance with the approved EM&A Manual.

This is the 7th Monthly EM&A Report for the construction phase of the Project which summaries findings of the EM&A programme during the reporting period from 1 to 31 October 2019.

Key Construction Works in the Reporting Period

A summary of construction activities undertaken during the reporting period is presented below:

- Ground investigation works;
- Piling works (Percussive piling, Socket H piling and Bored piling);
- Setting up of temporary site office;
- Setting up of wastewater treatment facilities;
- Tree transplantation;
- Mobilization; and
- Concreting and excavation

Environmental Monitoring and Audit Progress

The monthly EM&A programme was undertaken by ET in accordance with the approved EM&A Manual. A summary of the monitoring activities during the reporting period is presented below:

Activity	Monitoring Locations	Date
Air Quality Monitoring (1-hour TSP)	AMS1, AMS2	3, 9, 15, 21, 25, 31 October
Noise Monitoring ($L_{eq\ (30\ min)}$)	NMS1, NMS2	3, 9, 15, 21, 31 October
Weekly environmental site inspections	-	2, 9, 16, 23, 29 October
Landscape and visual site inspections	-	9, 23 October

Breaches of Action and Limit Levels

Air Quality

There was no breach of Action or Limit Levels for Air Quality (1-hr TSP) during the reporting month.

Noise

One noise related complaint was received during the reporting month. One Action Level for Noise was triggered during the reporting month.

No exceedance of Limit Level of noise at NMS1 and NMS2 was recorded during the reporting month.

Complaint Log

There was one complaint received during the reporting month:

Table 1.1: Summary of Complaints in the reporting month

Date of Notification from EPD	Date of Complaint	Description of Complaint	Recommendations / Actions	Close-Out Date / Status
14 Oct 2019	29 Sep 2019	- Complaint of percussive piling noise from the construction site of Kai Tak Sports Park. - Complainant would like percussive piling to be carried out later in the morning and implement noise control measure - Please ensure the work fulfil the relevant environmental legislation and conditions stipulated in the construction noise permit.	1. Conduct regular checking to ensure the implementation of noise mitigation measures for the percussive pilling works. 2. A new CNP has been issued on 9 October 2019 (PP-RE0043-19) with revised piling hours between 0830 to 0930 in the morning to reduce the noise impact in the morning session. 3. Arrange those sensitive percussive piling works (i.e. close to nearby sensitive receivers) in a later piling hour session if possible.	21 Oct 2019

Notifications of Summons and Successful Prosecutions

There were no notifications of summons or prosecutions received during this reporting period.

Reporting Changes

There was no reporting change during the reporting period.

Future Key Issues

The future key issues to be undertaken in the upcoming month are:

- Ground investigation works;
- Piling works (Percussive piling, Socket H piling and Bored piling);
- Setting up of temporary site office;
- Mobilization; and
- Concreting and excavation.

1 Introduction

1.1 Background

The Project – hereby meaning the Designated Project (Items O.6 and O.7 Part I, Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO)), comprising the "Kai Tak Sports Park" (KTSP) project and the Hotel and Office (H/O) Development of NKIL 6607 adjoining the KTSP – is located in the Kai Tak Development (KTD) area in Kowloon.

The key construction works of the Project include:

(i) KTSP project

a. a multi-purpose Main Stadium with a spectator capacity of around 50,000;
b. a Public Sports Ground, with a spectator capacity of around 5,000;
c. an Indoor Sports Centre with a multi-purpose main arena with a seating capacity of up to 10,000 and an ancillary sports hall with a seating capacity of 500;
d. retail and dining outlets with a gross floor area (GFA) of about 57,000 square metres (m^2), a bowling centre with 40 lanes and a health and wellness centre with about 2,500 m^2 GFA;
e. more than 8 hectares of public open space including landscaped deck structures across Shing Kai Road, passive amenities and park features, outdoor ball courts; and
f. ancillary facilities such as car parks, toilets, changing rooms, etc.

(ii) H/O Development

g. an office development;
h. a 300-room hotel with a GFA of about 16,000 m^2; and
i. ancillary facilities such as retails, car parks, etc.

In February 2019, Mott MacDonald Hong Kong Limited (MMHK) was commissioned by the Home Affairs Bureau (HAB) under Agreement No. CE 30/2018 (EP) to undertake the Environmental Team (ET) services for carrying out the Environmental Monitoring & Audit (EM&A) programme during the construction phase and first year of operation of the Project in accordance with the approved Environmental Impact Assessment (EIA) Report (Register No.: AEIAR-204/2017), EM&A Manual (including any subsequent amendments) and EP (including any subsequent variations of it and/or any further environmental permit issued under the EIAO). The current EP (No. EP-544/2017) was issued by EPD on 8 September 2017.

This is the 7th Monthly EM&A Report summarising the key findings of the construction phase EM&A programme from 1 to 31 October 2019 (the "reporting period") and is submitted to fulfil Condition 3.4 of the EP.

1.2 Project Organisation

The organisation chart and lines of communication with respect to the on-site environmental management structure of the key personnel are shown in **Appendix A**. The key personnel contact names and numbers are summarized in **Table 1.2**.

Table 1.2: Contact Information of Key Personnel

Party	Position	Name	Telephone	Fax
Project Proponent (Home Affairs Bureau)	Project Director (Sports Park)	Victor Tai	3586 3403	3586 0591
Supervising Officer's Representative (Home Affairs Bureau)	Senior Engineer	Keith Man	3586 3149	3586 0591
Environmental Team (Mott MacDonald Hong Kong Limited)	Environmental Team Leader	Sunny Chan	2828 5962	2827 1823
	Deputy Environmental Team Leader	Arthur Lo	2828 5994	2827 1823
Independent Environmental Checker (ERM Hong Kong Limited)	Independent Environmental Checker	Mandy To	2271 3000	2723 5660
Contracted Party (Kai Tak Sports Park Limited)	Senior Project Manager	Michael Wong	3552 5003	2845 9295
	Senior Environmental Engineer	Hiko Law	3552 5013	3552 5099
24-hour Community Liaison Hotline	-	-	5587 6112	-

1.3 Works Area and Construction Programme

The construction works commenced on 8 April 2019. The works area of the Project is shown in **Appendix B**. The Construction Works Programme of the Project is provided in **Appendix C**.

1.4 Construction Works undertaken during the Reporting Period

A summary of construction activities undertaken during this reporting period is presented below:

- Ground investigation works;
- Piling works (Percussive piling, Socket H piling and Bored piling);
- Setting up of temporary site office;
- Setting up of wastewater treatment facilities;
- Tree transplantation;
- Mobilization; and
- Concreting and excavation

2 Air Quality Monitoring

2.1 Introduction

In accordance with the EM&A Manual of the Project, baseline 1-hour Total Suspended Particulates (TSP) levels at air quality monitoring stations AMS1 and AMS2 were established. Impact 1-hour TSP monitoring was conducted for at least three times every 6 days.

2.2 Monitoring Parameters, Frequency and Duration

Table 2.1 summarises the monitoring parameters, frequency and duration of impact noise monitoring.

Table 2.1: Air Quality Monitoring Parameters, Frequency and Duration

Parameter	Frequency and Duration
1-hour TSP	3 times every six-days

2.3 Monitoring Locations

According to the EM&A Manual, a total of five air quality monitoring stations are identified for impact monitoring. Of these, three air sensitive receivers are planned residential use and were not available for baseline monitoring; the same three are also currently not available for impact monitoring.

Table 2.2 describes the impact air quality monitoring stations and **Figure 2.1** shows their locations.

Table 2.2: Construction Dust Monitoring Locations

Monitoring Station	Location	Status
AMS1	Hong Kong Society for the Blind Workshop, Roof Floor	Existing Air Sensitive Receiver
AMS2	Sky Tower, Podium of Tower 7	Existing Air Sensitive Receiver
AMS3	Kai Tak Area 2B Site 4 (2B4) (residential use)	Planned Air Sensitive Receiver
AMS4	Kai Tak Area 1K Site 3 (1K3) (residential use)	Planned Air Sensitive Receiver
AMS5	Kai Tak Area 1L Site 3 (1L3) (residential use)	Planned Air Sensitive Receiver

During the reporting period, monitoring locations AMS1 and AMS2 were set up at the proposed locations for impact monitoring.

Permission on setting up and carrying out impact monitoring works at AMS3, AMS4 and AMS5 will be sought once each respective development is completed and occupied.

2.4 Monitoring Action and Limit Levels

The Action and Limit Levels for 1-hr TSP are provided in **Table 2.3**.

Table 2.3: Action and Limit Levels for 1-hour TSP

Monitoring Station	Action Level, µg/m^3	Limit Level, µg/m^3
AMS1 – Hong Kong Society for the Blind Workshop, Roof Floor	283	500
AMS2 – Sky Tower, Podium of Tower 7	280	500
AMS3 - Kai Tak Area 2B Site 4 (2B4) (residential use)	287*	500
AMS4 - Kai Tak Area 1K Site 3 (1K3) (residential use)	287*	500
AMS5 - Kai Tak Area 1L Site 3 (1L3) (residential use)	287*	500

*Remarks: the Action Level for AMS3, AMS4 and AMS5 were derived from an alternative monitoring station AMS3-4-5 during the baseline monitoring.

The event and action plan is provided in **Appendix D**.

If exceedance(s) at these stations is/are recorded by the ET of the Project, it will carry out an investigation and findings will be reported in the monthly EM&A Report.

2.5 Monitoring Schedule for the Reporting Period

The schedule for air quality monitoring at AMS1 and AMS2 in the reporting period is presented in **Appendix E**.

2.6 Monitoring Equipment

Portable direct reading dust meters were used to carry out the 1-hour TSP monitoring. The brand(s) and model(s) of the equipment used for air quality monitoring stations AMS1 and AMS2 under this Project are given in **Table 2.4**.

Table 2.4: 1-hour TSP Monitoring Equipment

Equipment	Brand	Model No.
Portable direct reading dust meter	Sibata Digital Dust Monitor	LD-3B (S/N: 276019 & 456668)

2.7 Monitoring Methodology

Field Monitoring

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

- Turn the power on.
- Close the air collecting opening cover.
- Push the "TIME SETTING" switch to [BG].
- Push "START/STOP" switch to perform background measurement for 6 seconds.
- Turn the knob at SENSI ADJ position to insert the light scattering plate.
- Leave the equipment for 1 minute upon "SPAN CHECK" is indicated in the display.
- Push "START/STOP" switch to perform automatic sensitivity adjustment. This measurement takes 1 minute.
- Pull out the knob and return it to MEASURE position.
- Setting time period of 1 hour for the 1-hour TSP measurement.

- Push “START/STOP” to start the 1-hour TSP measurement.
- Regular checking of the time period setting to ensure monitoring time of 1 hour.

Maintenance and Calibration

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

2.8 Monitoring Results

The monitoring results for 1-hour TSP at AMS1 and AMS2 are summarized in **Table 2.5**. Detailed impact air quality monitoring results are presented in **Appendix G**.

Table 2.5: Summary of 1-hour TSP Monitoring Results During the Reporting Period

Monitoring Station	Average, $\mu g/m^3$	Min, $\mu g/m^3$	Max, $\mu g/m^3$	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
AMS1	50	37	79	283	500
AMS2	45	31	69	280	500

There was no Action and Limit Level exceedance of 1-hr TSP level recorded at station AMS1 and AMS2 by the ET during the reporting period.

2.9 Wind Data

Wind data at Kai Tak automatic weather station collected from the Hong Kong Observatory (HKO) were used for the air quality monitoring and they are shown in **Appendix H**. It is considered that the wind data obtained at the existing Kai Tak wind station are representative of the Project area and could be used for undertaking the construction phase baseline and impact air quality monitoring programme for the Project.

The proposed use of the existing wind data from Kai Tak automatic weather station collected from HKO for wind data collection instead of setting up wind monitoring equipment near the monitoring stations was proposed by ET and agreed by IEC in accordance with the requirements as stated in Section 3.4.7 of the EM&A Manual of the Project.

3 Noise Monitoring

3.1 Introduction

In accordance with the EM&A Manual, impact noise monitoring was conducted at least once per week for each noise monitoring location during the construction phase of the Project.

3.2 Monitoring Parameters, Frequency and Duration

Table 3.1 summarises the monitoring parameters, frequency and duration of impact noise monitoring.

Table 3.1: Noise Monitoring Parameters, Frequency and Duration

Parameter	Frequency and Duration
30-minutes measurement at each monitoring station between 0700 and 1900 on normal weekdays (Monday to Saturday). L_{eq}, L_{10} and L_{90} would be recorded.	At least once per week

3.3 Monitoring Locations

According to the approved EM&A Manual, a total of seven noise monitoring stations were identified for the impact monitoring locations. Of these, five noise sensitive receivers are planned residential use (NMS1A, NMS2A, NMS3, NMS4 and NMS5) and were not available for baseline monitoring; the same five are also currently not available for impact monitoring.

Table 3.2 describes the details of the monitoring stations and **Figure 3.1** shows the locations of noise monitoring stations.

Table 3.2: Construction Noise Monitoring Locations

Monitoring Station	Location Description	Status
NMS1	Hong Kong Society for the Blind Workshop, Roof Floor	Existing Noise Sensitive Receiver
NMS2	Sky Tower, Podium of Tower 7	Existing Noise Sensitive Receiver
NMS1A	Sung Wong Toi Road Public Housing Site	Planned Noise Sensitive Receiver
NMS2A	Sung Wong Toi Road CDA Site (mixed use)	Planned Noise Sensitive Receiver
NMS3	Kai Tak Area 2B Site 4 (2B4) (residential use)	Planned Noise Sensitive Receiver
NMS4	Kai Tak Area 1K Site 3 (1K3) (residential use)	Planned Noise Sensitive Receiver
NMS5	Kai Tak Area 1L Site 3 (1L3) (residential use)	Planned Noise Sensitive Receiver

During the reporting period, monitoring locations NMS1 and NMS2 were set up at the proposed locations for impact monitoring.

Since NMS1A & NMS2A are planned (i.e. not existing) noise sensitive receivers, noise monitoring should be carried out initially at NMS1 and NMS2 respectively before the population intake of the planned developments. Once the planned developments are completed and occupied, NMS1A shall replace NMS1, while NMS2A shall replace NMS2. It is proposed that

the baseline noise level and Limit Level at NMS1A and NMS2A will be the same as those derived from the baseline monitoring data recorded at NMS1 and NMS2 respectively.

Permission on setting up and carrying out impact monitoring works at NMS3, NMS4 and NMS5 will be sought once each respective development is completed and occupied.

3.4 Action and Limit Levels

The Action and Limit Levels for construction noise are defined in **Table 3.3**.

Table 3.3: Action and Limit Level for Construction Noise

Monitoring Station	Time Period	Action Level	Limit Level
NMS1 NMS2	0700 – 1900 hours on normal weekdays	When one documented complaint is received	75 dB(A)

The event and action plan is provided in **Appendix D**.

If exceedance(s) at these stations is/are recorded by the ET of the Project, it will carry out an investigation and findings will be reported in the monthly EM&A Report.

3.5 Monitoring Schedule for the Reporting Period

The schedule for noise monitoring in the reporting period is presented in **Appendix E**.

3.6 Monitoring Equipment

Noise monitoring was performed using sound level meters at each designed monitoring station. The sound level meters deployed comply with the International Electrotechnical Commission Publications (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator was deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment used for noise monitoring under this Project is given in **Table 3.4**.

Table 3.4: Noise Monitoring Equipment

Equipment	Brand	Model No.
Integrated Sound Level Meter	Rion	NL-52 (S/N: 00542913)
Acoustic Calibrator	LARSON DAVIS	CAL200 (S/N: 15678)

3.7 Monitoring Methodology

- Façade and Free Field measurements were made at the monitoring locations.
- For Façade measurement, the microphone hear of the head level meter was positioned 1m exterior of the noise sensitive façade and lowered sufficiently so that the building's external wall acts as a reflecting surface.
- For free field, the microphone of the Sound Level Meter was set at least 1.2 m above the ground.
- A correction of +3dB(A) was made for free field measurement.
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - frequency weighting: A
  - time weighting: Fast

  - time measurement: 30-minute intervals (between 0700-1900 on normal weekdays)
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94 dB at 1 kHz. If the difference in the calibration level before and after measurement was more than 1 dB, the measurement would be considered invalid and repeated after the re-calibration or repair of the equipment.
- During the monitoring period, the L_{eq}, L_{10} and L_{90} were recorded. In addition, any site observations and noise sources were recorded on a standard record sheet.
- Noise measurements were not made in presence of fog, rain, wind with a steady speed exceeding 5m/s or wind with gusts exceeding 10m/s.

Maintenance and Calibration

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

3.8 Monitoring Results

The monitoring results for construction noise are summarized in **Table 3.5**. Detailed impact noise monitoring results and relevant graphical plots are presented in **Appendix G**.

Table 3.5: Summary of Construction Noise Monitoring Results During the Reporting Period

	Measured Noise Level $L_{eq\ (30\ mins)}$, dB(A)			
Monitoring Station	Average	Min	Max	Limit Level
NMS1	70	69	70	75
NMS2	68	67	69	75

One noise related complaint was received during the reporting month. One Action Level for Noise was triggered during the reporting month.

No exceedance of Limit Level of noise at NMS1 and NMS2 was recorded during the reporting month.

4 Environmental Site and Audit

4.1 Site Inspection

Site inspections were carried out by ET on a weekly basis to monitor the implementation of proper environmental pollution control mitigation measures for the Project. Key observations were recorded in the site inspection checklist and passed to the Contracted Party together with the appropriate recommended mitigation measures where necessary. During the reporting period, site inspections were carried out on 2, 9, 16, 23, 29 October 2019. Joint IEC site inspections were carried out on 16 and 29 October 2019.

Bi-weekly landscape and visual site audit was carried out on 9 and 23 October 2019. The landscape and visual audit have been audited by Registered Landscape Architect (RLA). No major observations of landscape and visual impact were identified. The result findings were summarised in **Appendix K.**

Key observations during the site inspections are described in **Table 4.1**.

Table 4.1: Summary of Site Inspections and Recommendations

Inspection Date	Key Observations	Recommendations / Actions	Close-Out Date / Status
2 October 2019	A chemical waste storage area without lock was observed at southern area.	The contractor was reminded to provide lock for chemical waste storage area.	9 October 2019
2 October 2019	Dry access road was observed at the southern site area.	The contractor was reminded to provide water spraying at the access road.	9 October 2019
2 October 2019	Accumulation of muddy water was observed near southern site access area.	The contractor was reminded to clear the muddy water.	9 October 2019
9 October 2019	Accumulation of stock pile was observed near zone 22 at southern site.	The contractor was reminded to provide cover for the stock pile.	16 October 2019
16 October 2019	Chemical container without drip tray was observed at northern site area.	The contractor was reminded to provide drip tray for the chemical container.	23 October 2019
16 October 2019	The environmental permit was missing at the site entrance at southern site gate no.1.	The contractor was reminded to display the environmental permit at all site entrance.	23 October 2019
23 October 2019	Accumulation of stockpile without cover was observed at northern site area.	The contractor was reminded to provide covering for the stockpile on-site.	29 October 2019
29 October 2019	Chemical containers without drip tray was observed at northern sire area.	The contractor is reminded to provide drip tray for the chemical containers.	6 November 2019
29 October 2019	Poor house keeping with chemical containers was observed at southern site area.	The contractor was reminded to maintain proper house keeping for	6 November 2019

Inspection Date	Key Observations	Recommendations / Actions	Close-Out Date / Status
		chemical container storage.	
29 October 2019	A drip tray with unplugged hole was observed at northern site area.	The contractor was reminded to provide plugging for the drip tray.	6 November 2019
29 October 2019	Accumulation of muddy water inside the tree protection zone was observed at southern site area.	The contractor was reminded to provide sand bags and keep the tree protection zone clear.	6 November 2019
29 October 2019	Dry surface was observed near piling works area at southern site area.	The contractor was reminded to provide water spraying for the works area at southern site.	6 November 2019
29 October 2019	The tree protection zone did not cover the area under the dripline for the tree at southern site area.	The contractor was reminded to properly implement the tree protection zone.	6 November 2019

4.2 Advice on the Solid and Liquid Waste Management Status

The Contracted Party was registered as a chemical waste producer for the Project. Sufficient numbers of receptacles were available for general refuse collection and sorting.

The monthly summary of waste flow table is detailed in **Appendix I**.

The Contracted Party was reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packing, Labelling and Storage of Chemical Waste.

4.3 Environmental Licenses and Permits

The valid environmental licenses and permits for the Project during the reporting period are summarized in **Appendix J**.

4.4 Implementation Status of Environmental Mitigation Measures

In response to the site audit findings, the Contracted Party carried out corrective actions.

A summary of the environmental mitigation measures implementation status is presented in **Appendix K**. Most of the necessary mitigation measures were implemented properly.

4.5 Summary of Exceedance of the Environmental Quality Performance Limit

Air Quality

No Action and Limit Level exceedances of 1-hour TSP level was recorded at AMS1 and AMS2 during the reporting period.

Noise

One noise related complaint was received during the reporting month. One Action Level for Noise was triggered during the reporting month.

No exceedance of Limit Level of noise at NMS1 and NMS2 was recorded during the reporting month.

4.6 Summary of Complaints, Notification of Summons and Successful Prosecution

Complaints

There was one complaint received during the reporting month:

Table 4.2: Summary of Complaints in the reporting month

Date of Notification from EPD	Date of Complaint	Description of Complaint	Recommendations / Actions	Close-Out Date / Status
14 Oct 2019	29 Sep 2019	- Complaint of percussive piling noise from the construction site of Kai Tak Sports Park. - Complainant would like percussive piling to be carried out later in the morning and implement noise control measure - Please ensure the work fulfil the relevant environmental legislation and conditions stipulated in the construction noise permit.	1. Conduct regular checking to ensure the implementation of noise mitigation measures for the percussive pilling works. 2. A new CNP has been issued on 9 October 2019 (PP-RE0043-19) with revised piling hours between 0830 to 0930 in the morning to reduce the noise impact in the morning session. 3. Arrange those sensitive percussive piling works (i.e. close to nearby sensitive receivers) in a later piling hour session if possible.	21 Oct 2019

Details of the complaint investigation is shown in **Appendix M.**

Notification of Summons and Successful Prosecution

No notification of summons or prosecutions was received during the reporting period.

Statistics on notifications of summons and successful prosecutions are summarized in **Appendix L**.

5 Future Key Issues

5.1 Construction Programme for the Coming Months

As informed by the Contracted Party, the major construction activities for the next reporting period (November 2019) are summarized in **Table 5.1**.

Table 5.1: Construction Activities for the Next Reporting Period

Site Area	Description of Activities
• Kai Tak Sports Park	• Ground investigation works; • Piling works (Percussive piling, Socket H piling and Bored piling); • Setting up of temporary site office; • Mobilization; and • Concreting and excavation.

5.2 Environmental Site Inspection and Monitoring Schedule for the Next Reporting Period

The tentative schedule for weekly site inspection and monitoring for air quality and noise for the next reporting period is provided in **Appendix E**.

6 Conclusions

6.1 Conclusions

General

The construction works for the Project commenced on 8 April 2019.

The ET of the Project has implemented the air quality and noise environmental impact monitoring under the construction phase EM&A programme during the reporting period.

Breaches of Action and Limit Levels

Air Quality

No Action and Limit Level exceedances of 1-hour TSP level was recorded at AMS1 and AMS2 during the reporting period.

Noise

One noise related complaint was received during the reporting month. One Action Level for Noise was triggered during the reporting month.

No exceedance of Limit Level of noise at NMS1 and NMS2 was recorded during the reporting month.

Environmental Site Inspections

Environmental site inspections were carried out five times during the reporting period. Recommendations on remedial actions were given to the Contracted Party for the deficiencies identified during the site inspections.

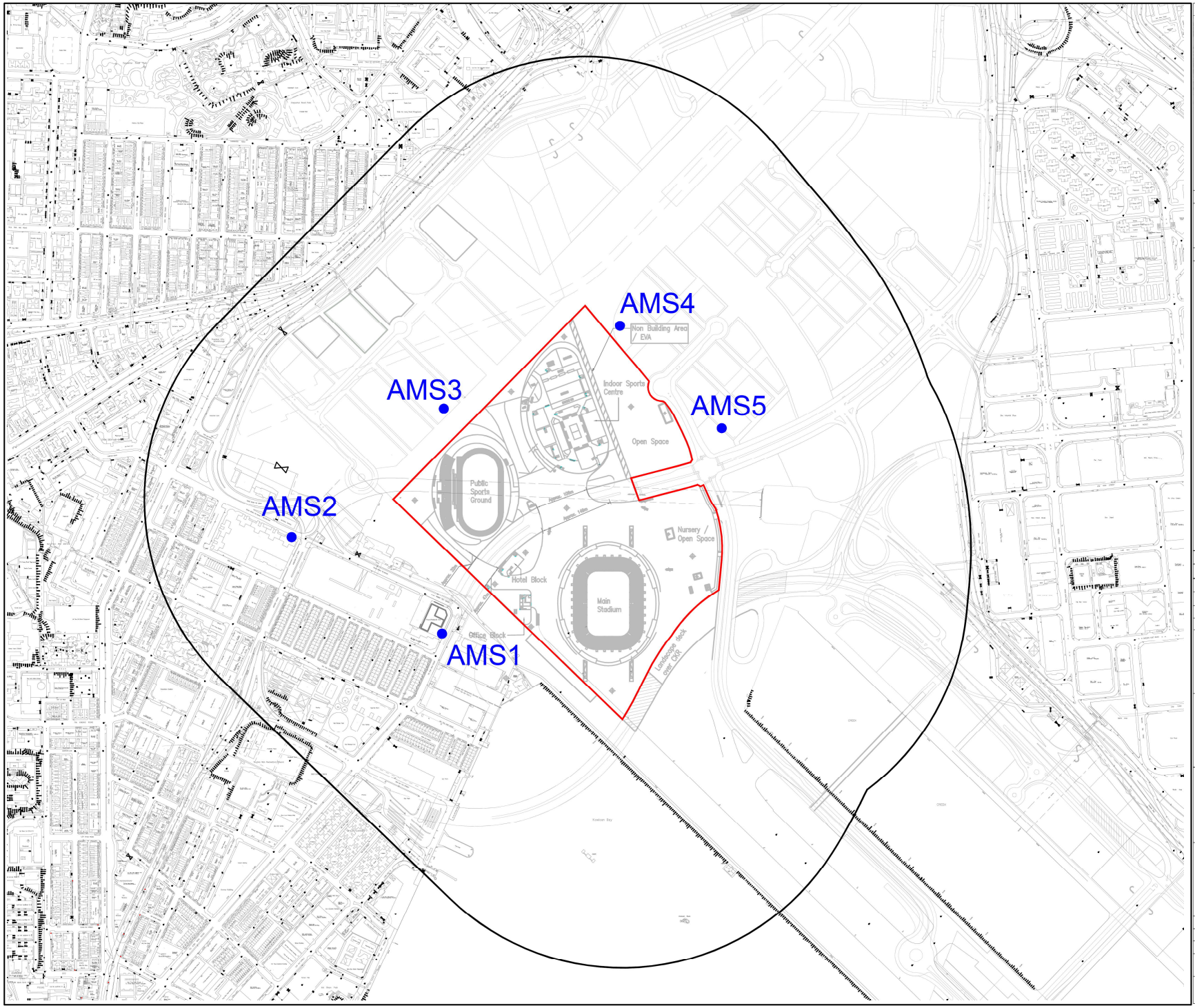
Complaints

There was one complaint received in relation to the environmental impact during the reporting period.

Notifications of Summons and Successful Prosecutions

There were no notifications of summons or prosecutions received during the reporting period.

Figures



Key Plan:

Notes:

1. ALL LEVELS ARE METRES TO PRINCIPAL DATUM (PD) UNLESS NOTED OTHERWISE.
2. ALL CO-ORDINATES REFER TO HONG KONG (1980) METRIC GRID CO-ORDINATES SYSTEM.
3. PIPE AND BOX CULVERT SIZES ARE SHOWN IN MILLIMETERS

Key to symbols:

LEGEND:

- Project Site
- 500m from Site Boundary
- AMS1 Air Monitoring Station 1

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

MOTT MACDONALD
3/F Mapletree Bay Point
348 Kwun Tong Road
Kwun Tong, Kowloon
Hong Kong
T +852 2828 5757
F +852 2827 1823
W mottmac.com

Client

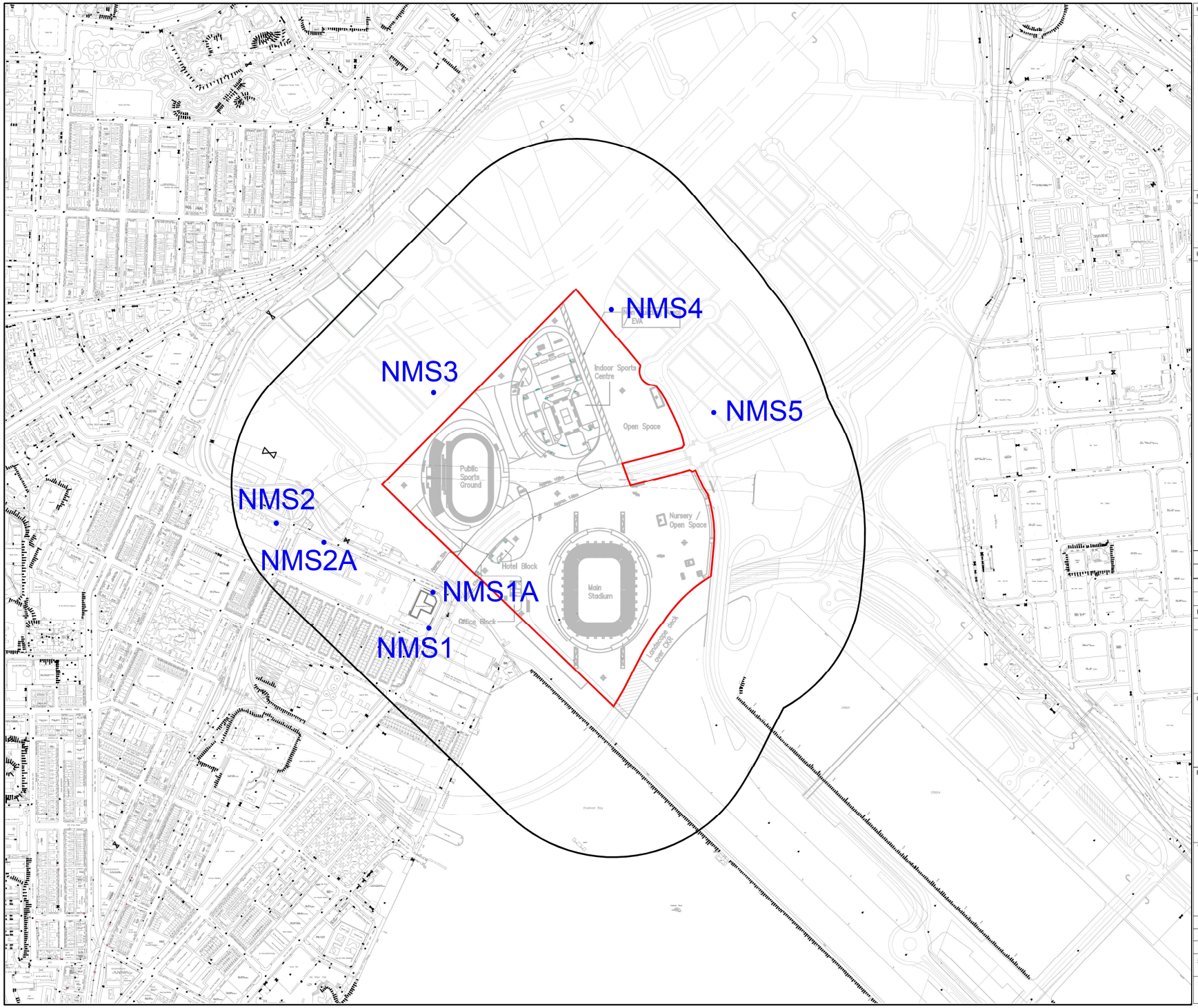
Project

Title

Figure 2.1
Location of Air Quality Monitoring Stations

Designed			Eng check		
Drawn			Coordination		
Dwg check			Approved		
Scale at A3		Status		Rev	

Drawing Number



Key Plan:

Notes:

1. ALL LEVELS ARE METRES TO PRINCIPAL DATUM (PD) UNLESS NOTED OTHERWISE.
2. ALL CO-ORDINATES REFER TO HONG KONG (1980) METRIC GRID CO-ORDINATES SYSTEM.
3. PIPE AND BOX CULVERT SIZES ARE SHOWN IN MILLIMETERS

Key to symbols:

LEGEND:

- Project Site
- 300m from Site Boundary
- NMS1 • Construction Noise Monitoring Station 1

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

MOTT MACDONALD
3/F Mapletree Bay Point
348 Kwun Tong Road
Kwun Tong, Kowloon
Hong Kong
T +852 2828 5757
F +852 2827 1823
W mottmac.com

Client

Project

Title

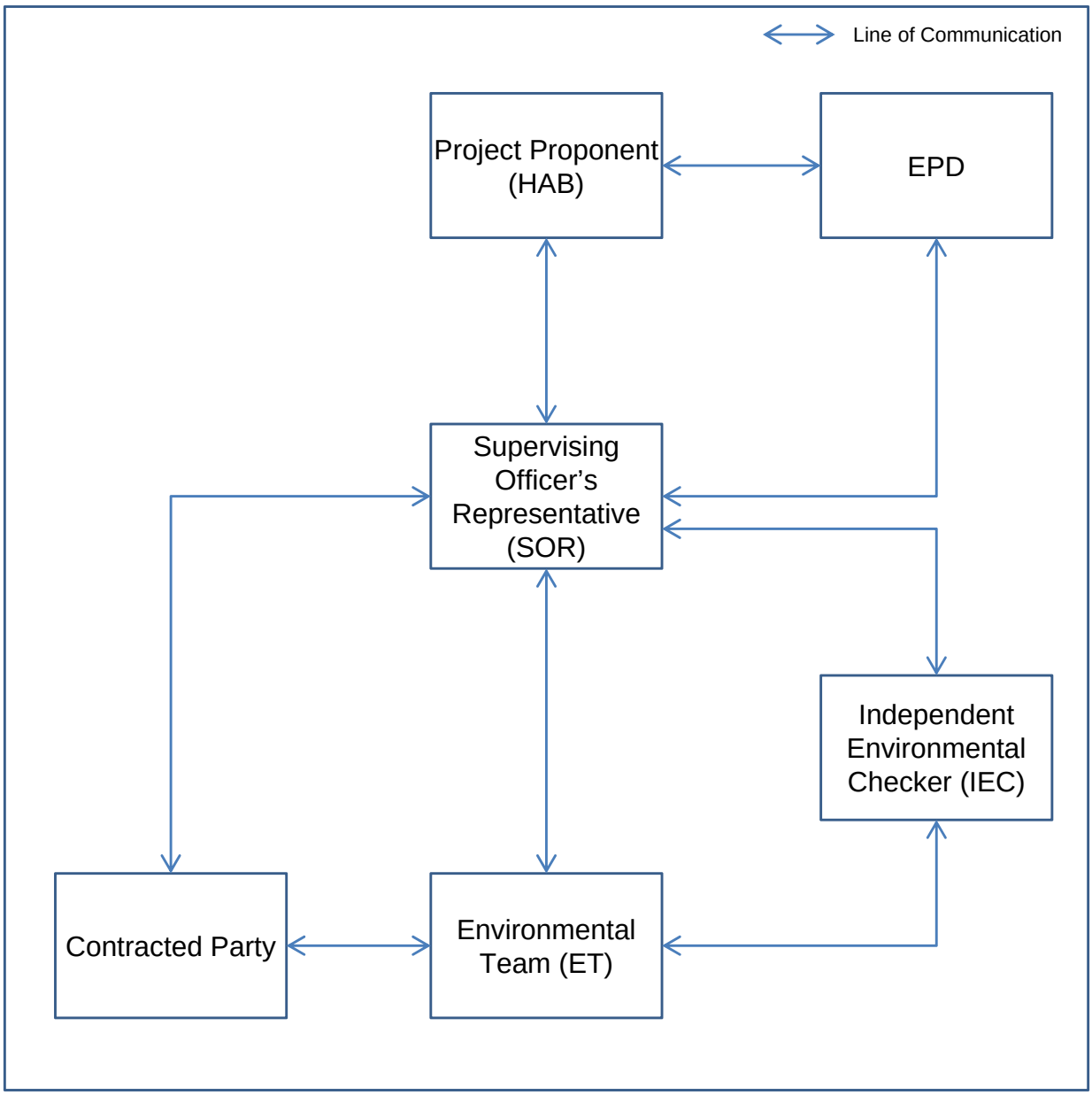
Figure 3.1
Location of Noise Monitoring Stations

Designed			Eng check		
Drawn			Coordination		
Dwg check			Approved		
Scale at A3		Status		Rev	

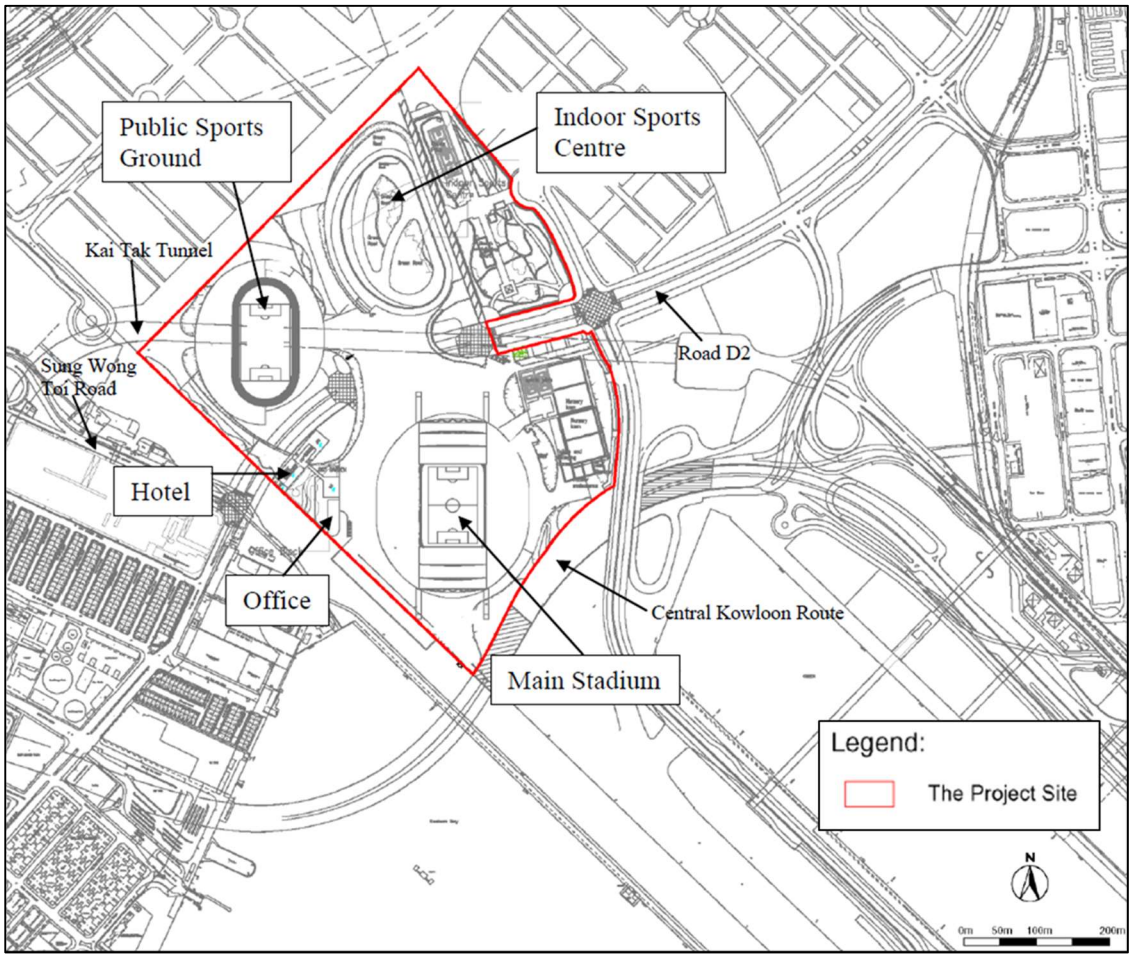
Drawing Number

Appendix A. Project Organization for Environmental Works

Project Organisation for Environmental Works



Appendix B. Location of Works Areas



Appendix C. Construction Programme

Construction Programme (Oct 2019 to Jan 2020)

	2019						2020					
Construction Activities	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Plants Mobilization												
C&D Waste Disposal (By vessel)												
Loading/ Unloading of Materials												
Excavation												
Ground Investigation												
C&D Waste Disposal												
Setting up of Temporary Office												
Piling (Percussive Piling)												
Piling (Socket H Piling)												
Piling (Bored Piling)												
Concreting												
Lifting												
C&D Materials Internal Transportation												

Appendix D. Event and Action Plan

Should non-compliance of the air quality criteria occur, actions in accordance with the Event and Action Plan in **Table D.1** and **Table D.2** shall be carried out.

Table D.1: Event and Action Plan for Construction Air Quality (Action Level)

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

Table D.2: Event and Action Plan for Construction Air Quality (Limit Level)

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

Should non-compliance of the noise criteria occur, actions in accordance with the Event and Action Plan in **Table D.3** shall be carried out.

Table D.3: Event and Action Plan for Construction Noise

Event	Action			
	ET	IEC	ET	Contracted Party
Action Level	1. Notify IEC, SOR and Contracted Party of exceedance; 2. Identify source; 3. Investigate the causes of exceedance and propose remedial measures; 4. Report the results of investigation to the IEC, SOR and Contracted Party; 5. Discuss with the IEC, SOR and Contracted Party and formulate remedial measures; 6. Increase monitoring frequency to check mitigation effectiveness.	1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contracted Party and advise the SOR accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contracted Party; 3. Require Contracted Party to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented	1. Submit noise mitigation proposals to SOR with copy to ET and IEC; 2. Implement noise mitigation proposals.
Limit Level	1. Inform IEC, SOR, EPD and Contracted Party; 2. Identify source; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contracted Party's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, SOR and EPD the causes and actions taken for the exceedances; 7. Assess effectiveness of Contracted Party's remedial actions and keep IEC, EPD and SOR informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst SOR, ET, and Contracted Party on the potential remedial actions; 2. Review Contracted Party's remedial actions whenever necessary to assure their effectiveness and advise the SOR accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contracted Party; 3. Require Contracted Party to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented; 5. If exceedance continues, investigate what portion of the work is responsible and instruct the Contracted Party to terminate that portion of work until the exceedance ceases.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to SOR with copy to ET and IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Terminate the relevant portion of works as determined by the SOR until the exceedance ceases.

Appendix E. Environmental Site Inspection and Monitoring Schedule

Table E.1: Site Inspection and Monitoring Schedule for October 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1 National Day	2 site inspection	3 AMS1, NMS1 AMS2, NMS2	4	5
6	7 Chung Yeung Festival	8	9 AMS1, NMS1 AMS2, NMS2 site inspection landscape and visual audit	10	11	12
13	14	15 AMS1, NMS1 AMS2, NMS2	16 site inspection	17	18	19
20	21 AMS1, NMS1 AMS2, NMS2	22	23 site inspection landscape and visual audit	24	25 AMS1 AMS2	26
27	28	29 site inspection	30	31 AMS1, NMS1 AMS2, NMS2		

Air Quality/Noise Monitoring

Remark: Joint site walk with IEC on 16 and 29 October 2019

Table E.2: Tentative Site Inspection and Monitoring Schedule for November 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6 AMS1, NMS1 AMS2, NMS2 site inspection landscape and visual audit	7	8	9
10	11	12 AMS1, NMS1 AMS2, NMS2	13 site inspection	14	15	16
17	18 AMS1, NMS1 AMS2, NMS2	19	20 site inspection landscape and visual audit	21	22 AMS1 AMS2	23
24	25	26	27 site inspection	28 AMS1, NMS1 AMS2, NMS2	29	30

Air Quality/Noise Monitoring

Remark: The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Appendix F. Calibration Certificates

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

SUB-CONTRACTING REPORT

CONTACT	:	MR K.W. FAN	WORK ORDER	:	**HK1907875**
CLIENT	:	**ENVIROTECH SERVICES CO.**			
ADDRESS	:	RM113, 1/F, MY LOFT, 9 HOI WING ROAD, TUEN MUN, N.T. HONG KONG	SUB-BATCH	:	1
			DATE RECEIVED	:	22-FEB-2019
			DATE OF ISSUE	:	7-MAR-2019
PROJECT	:	----	NO. OF SAMPLES	:	1
			CLIENT ORDER	:	----

General Comments

- **Sample(s) were received in ambient condition.**
- **Sample(s) analysed and reported on as received basis.**
- **Calibration was subcontracted to and analysed by Action United Enviro Services.**

Signatories

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

Signatories	*Position*
Richard Fung	General Manager

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd
Part of the ALS Laboratory Group
11/F. Chung Shun Knitting Centre 1 - 3 Wing Yip Street Kwai Chung N.T. Hong Kong
Tel. +852 2610 1044 Fax. +852 2610 2021 **www.alsglobal.com**

WORK ORDER : HK1907875
SUB-BATCH : 1
CLIENT : ENVIROTECH SERVICES CO.
PROJECT : ----

ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK1907875-001	S/N: 276019	Equipments	22-Feb-2019	S/N: 276019

TISCH Environmental

RECALIBRATION DUE DATE:
February 13, 2019

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	February 13, 2018	**Rootsmeter S/N:** 438320	**Ta:** 293	°K
Operator:	Jim Tisch		**Pa:** 763.3	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **1612**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.3970	3.2	2.00
2	3	4	1	1.0000	6.3	4.00
3	5	6	1	0.8900	7.9	5.00
4	7	8	1	0.8440	8.7	5.50
5	9	10	1	0.7010	12.6	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)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0172	0.7281	1.4293	0.9958	0.7128	0.8762
1.0130	1.0130	2.0213	0.9917	0.9917	1.2392
1.0109	1.1358	2.2599	0.9896	1.1120	1.3854
1.0098	1.1964	2.3702	0.9886	1.1713	1.4530
1.0046	1.4331	2.8586	0.9835	1.4030	1.7524
QSTD	**m=**	**2.02017**	**QA**	**m=**	**1.26500**
	b=	**-0.03691**		**b=**	**-0.02263**
	r=	**0.99988**		**r=**	**0.99988**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/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= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

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.cor
TOLL FREE: (877)263-761(
FAX: (513)467-900

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

SUB-CONTRACTING REPORT

CONTACT	:	MR K.W. FAN	WORK ORDER	:	**HK1907876**
CLIENT	:	**ENVIROTECH SERVICES CO.**			
ADDRESS	:	RM113, 1/F, MY LOFT, 9 HOI WING ROAD, TUEN MUN, N.T. HONG KONG	SUB-BATCH	:	1
			DATE RECEIVED	:	22-FEB-2019
			DATE OF ISSUE	:	7-MAR-2019
PROJECT	:	----	NO. OF SAMPLES	:	1
			CLIENT ORDER	:	----

General Comments

- **Sample(s) were received in ambient condition.**
- **Sample(s) analysed and reported on as received basis.**
- **Calibration was subcontracted to and analysed by Action United Enviro Services.**

Signatories

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

Signatories	*Position*
Richard Fung	General Manager

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd
Part of the ALS Laboratory Group
11/F. Chung Shun Knitting Centre 1 - 3 Wing Yip Street Kwai Chung N.T. Hong Kong
Tel. +852 2610 1044 Fax. +852 2610 2021 www.alsglobal.com

WORK ORDER : HK1907876
SUB-BATCH : 1
CLIENT : ENVIROTECH SERVICES CO.
PROJECT : ----

ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK1907876-001	S/N: 456668	Equipments	22-Feb-2019	S/N: 456668

TISCH Environmental

RECALIBRATION DUE DATE:
February 13, 2019

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	February 13, 2018	**Rootsmeter S/N:** 438320	**Ta:** 293	°K
Operator:	Jim Tisch		**Pa:** 763.3	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **1612**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.3970	3.2	2.00
2	3	4	1	1.0000	6.3	4.00
3	5	6	1	0.8900	7.9	5.00
4	7	8	1	0.8440	8.7	5.50
5	9	10	1	0.7010	12.6	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)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0172	0.7281	1.4293	0.9958	0.7128	0.8762
1.0130	1.0130	2.0213	0.9917	0.9917	1.2392
1.0109	1.1358	2.2599	0.9896	1.1120	1.3854
1.0098	1.1964	2.3702	0.9886	1.1713	1.4530
1.0046	1.4331	2.8586	0.9835	1.4030	1.7524
QSTD	**m=**	**2.02017**	**QA**	**m=**	**1.26500**
	b=	**-0.03691**		**b=**	**-0.02263**
	r=	**0.99988**		**r=**	**0.99988**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/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= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

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.cor
TOLL FREE: (877)263-761(
FAX: (513)467-900

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

Certificate of Calibration
校正證書

Certificate No. : C185607
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC18-1968) Date of Receipt / 收件日期 : 27 September 2018

Description / 儀器名稱	:	Precision Acoustic Calibrator
Manufacturer / 製造商	:	LARSON DAVIS
Model No. / 型號	:	CAL200
Serial No. / 編號	:	15678
Supplied By / 委託者	:	Envirotech Services Co. Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun, New Territories, Hong Kong

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 14 October 2018

TEST RESULTS / 測試結果

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

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

Tested By 測試 : K C Lee
Engineer

Certified By 核證 : H C Chan
Engineer

Date of Issue 簽發日期 : 19 October 2018

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 — 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

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

Certificate of Calibration
校正證書

Certificate No. : C185607
證書編號

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

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

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C183775
CL281	Multifunction Acoustic Calibrator	CDK1806821
TST150A	Measuring Amplifier	C181288

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.2	± 0.2
114 dB, 1 kHz	113.9		

5.2 Frequency Accuracy

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

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

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

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

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 — 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

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

Certificate of Calibration
校正證書

Certificate No. : C185972
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC18-2180) Date of Receipt / 收件日期 : 24 October 2018

Description / 儀器名稱 : Sound Level Meter
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-52
Serial No. / 編號 : 00542913
Supplied By / 委託者 : Envirotech Services Co.
Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
New Territories, Hong Kong

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期 : 4 November 2018

TEST RESULTS / 測試結果

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

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

Tested By 測試 : K C Lee
Engineer

Certified By 核證 : H C Chan
Engineer

Date of Issue 簽發日期 : 7 November 2018

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 — 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C185972
證書編號

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

2. Self-calibration using the internal standard (After Adjustment) was performed before the test 6.1.1.2 to 6.3.2.

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

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C180024
CL281	Multifunction Acoustic Calibrator	CDK1806821

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	* 95.9	± 1.1

*Out of IEC 61672 Class 1 Spec.

6.1.1.2 After Adjustment

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	94.0	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L_A	A	Fast	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

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

Certificate of Calibration
校正證書

Certificate No. : C185972
證書編號

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	94.0	Ref.
			Slow			94.0	± 0.3

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	A	Fast	94.00	63 Hz	67.8	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.5
					250 Hz	85.3	-8.6 ± 1.4
					500 Hz	90.7	-3.2 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.6
					4 kHz	95.0	+1.0 ± 1.6
					8 kHz	93.0	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.6	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_C	C	Fast	94.00	63 Hz	93.1	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.5
					250 Hz	94.0	0.0 ± 1.4
					500 Hz	94.0	0.0 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.6
					4 kHz	93.2	-0.8 ± 1.6
					8 kHz	91.1	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.6	-6.2 (+3.0 ; -6.0)

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

Certificate of Calibration
校正證書

Certificate No. : C185972
證書編號

Remarks : - UUT Microphone Model No. : UC-53A & S/N : 320728

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

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

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

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

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

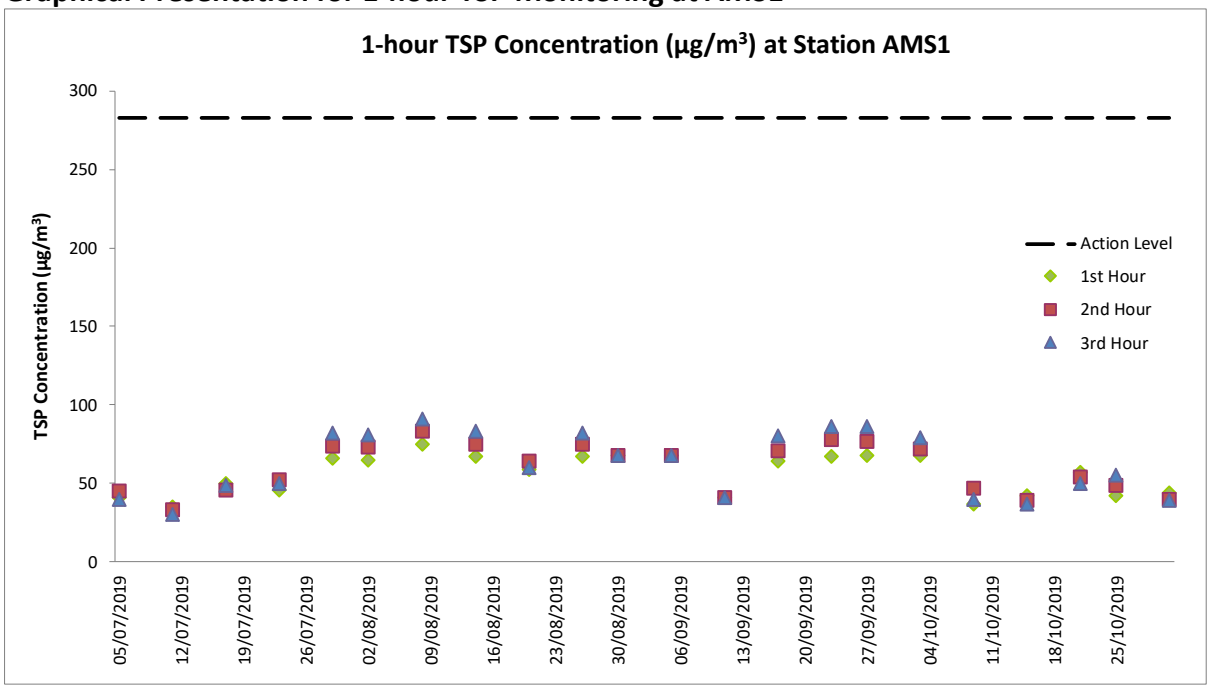
Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 — 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Appendix G. Monitoring Data and Graphical Plots (Air Quality and Noise)

Data for 1-hour TSP Monitoring at Station AMS1

Date	Start Time	Finish Time	Weather	Wind Speed (m/s)	Wind Direction (deg)	1-hour TSP (µg/m3)
03-Oct-19	8:53	9:53	Sunny	2.7	270	68
03-Oct-19	9:53	10:53	Sunny	2.4	262	72
03-Oct-19	10:53	11:53	Sunny	2.7	250	79
09-Oct-19	8:53	9:53	Fine	5.1	89	37
09-Oct-19	9:53	10:53	Fine	6.8	100	47
09-Oct-19	10:53	11:53	Fine	4.6	73	40
15-Oct-19	10:22	11:22	Fine	6.0	95	42
15-Oct-19	11:22	12:22	Fine	6.1	105	39
15-Oct-19	12:22	13:22	Fine	6.8	109	37
21-Oct-19	8:54	9:54	Sunny	1.9	29	57
21-Oct-19	9:54	10:54	Sunny	2.2	103	54
21-Oct-19	10:54	11:54	Sunny	2.9	113	50
25-Oct-19	8:30	9:30	Sunny	4.6	97	42
25-Oct-19	9:30	10:30	Sunny	5.6	100	49
25-Oct-19	10:30	11:30	Sunny	4.7	91	55
31-Oct-19	8:54	9:54	Cloudy	2.0	20	44
31-Oct-19	9:54	10:54	Cloudy	3.6	68	40
31-Oct-19	10:54	11:54	Cloudy	3.2	40	39

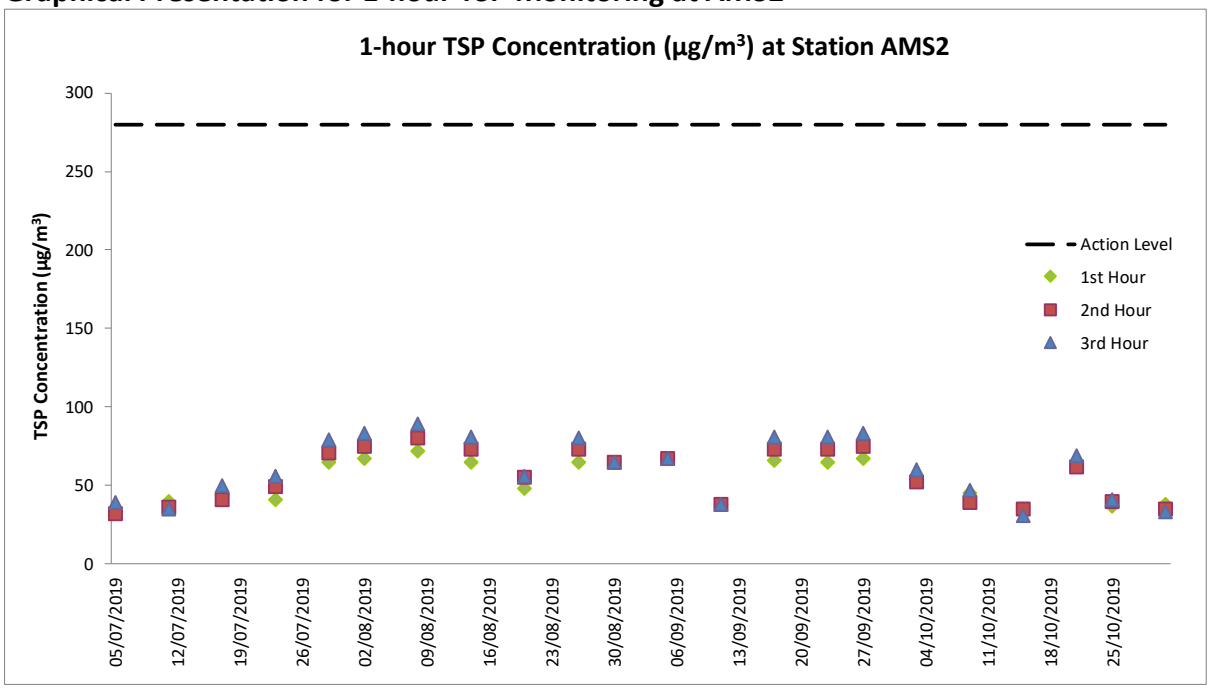
Graphical Presentation for 1-hour TSP Monitoring at AMS1



Data for 1-hour TSP Monitoring at Station AMS2

Date	Start Time	Finish Time	Weather	Wind Speed (m/s)	Wind Direction (deg)	1-hour TSP (µg/m3)
03-Oct-19	8:08	1:00	Sunny	2.4	267	54
03-Oct-19	9:08	1:00	Sunny	2.7	256	52
03-Oct-19	10:08	1:00	Sunny	2.1	237	60
09-Oct-19	8:08	1:00	Fine	2.5	59	45
09-Oct-19	9:08	1:00	Fine	5.2	89	39
09-Oct-19	10:08	1:00	Fine	6.1	101	47
15-Oct-19	9:09	1:00	Cloudy	2.9	Variable	35
15-Oct-19	10:09	1:00	Cloudy	5.9	104	35
15-Oct-19	11:09	1:00	Cloudy	6.3	95	31
21-Oct-19	8:08	1:00	Sunny	1.2	Variable	64
21-Oct-19	9:08	1:00	Sunny	2.1	24	62
21-Oct-19	10:08	1:00	Sunny	2.9	114	69
25-Oct-19	8:10	1:00	Sunny	3.3	101	37
25-Oct-19	9:10	1:00	Sunny	5.4	89	40
25-Oct-19	10:10	1:00	Sunny	6.9	107	41
31-Oct-19	8:09	1:00	Cloudy	2.9	2	38
31-Oct-19	9:09	1:00	Cloudy	2.4	347	35
31-Oct-19	10:09	1:00	Cloudy	2.1	84	33

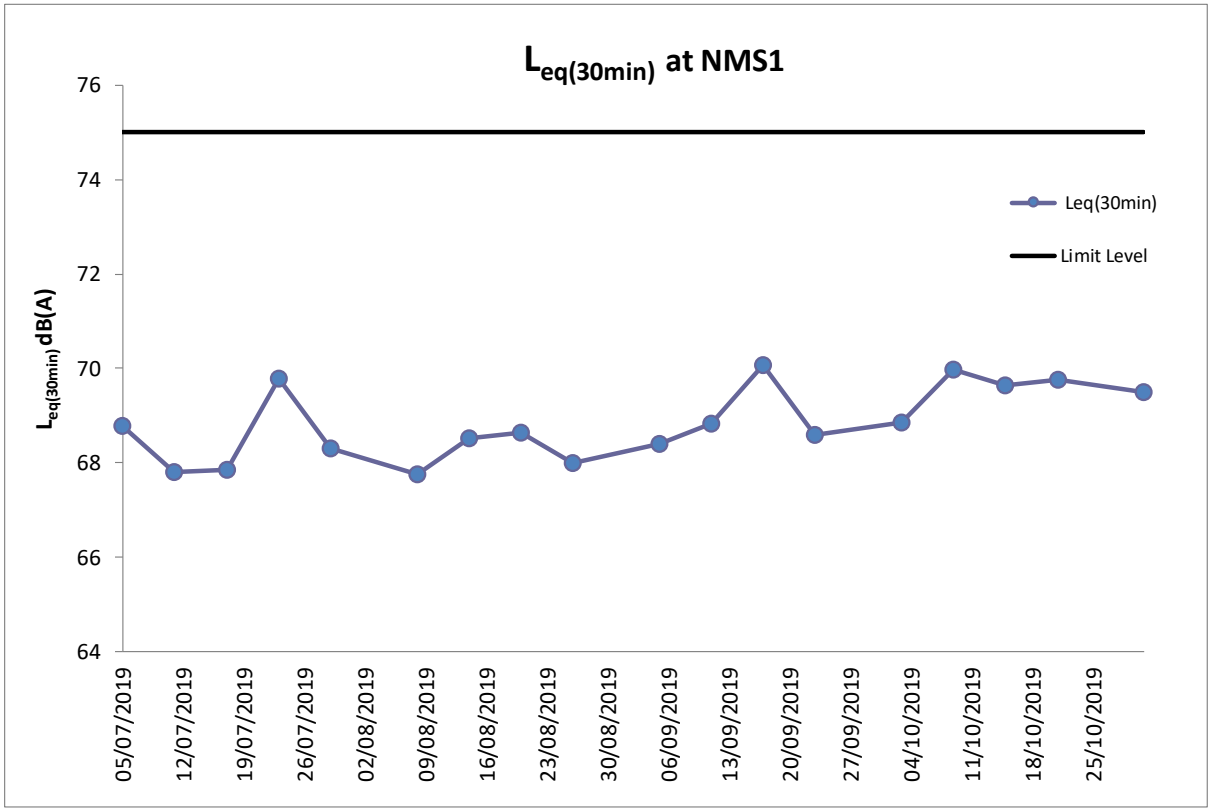
Graphical Presentation for 1-hour TSP Monitoring at AMS2



Data for Noise Monitoring at Station NMS1

Date	Time	Weather	$L_{eq(5min)}$	L_{10}	L_{90}	Measured $L_{eq(30min)}$
03-Oct-19	08:56	Sunny	68.2	70.1	63.4	68.9
03-Oct-19	09:01	Sunny	69.7	71.7	64.4	
03-Oct-19	09:06	Sunny	67.7	69.4	63.0	
03-Oct-19	09:11	Sunny	69.9	71.4	64.7	
03-Oct-19	09:16	Sunny	68.4	70.6	63.9	
03-Oct-19	09:21	Sunny	68.8	70.7	63.7	
09-Oct-19	08:55	Fine	70.1	72.7	64.1	70.0
09-Oct-19	09:00	Fine	69.7	71.1	63.9	
09-Oct-19	09:05	Fine	70.4	72.5	64.5	
09-Oct-19	09:10	Fine	68.2	70.6	63.2	
09-Oct-19	09:15	Fine	70.1	72.7	64.7	
09-Oct-19	09:20	Fine	70.9	72.7	64.9	
15-Oct-19	10:00	Fine	69.9	72.1	66.2	69.6
15-Oct-19	10:05	Fine	70.3	72.8	66.9	
15-Oct-19	10:10	Fine	71.7	74.2	65.8	
15-Oct-19	10:15	Fine	67.1	69.4	63.1	
15-Oct-19	10:20	Fine	68.2	70.6	64.1	
15-Oct-19	10:25	Fine	69.1	71.2	65.0	
21-Oct-19	08:57	Sunny	70.1	72.1	65.1	69.8
21-Oct-19	09:02	Sunny	71.1	73.6	66.1	
21-Oct-19	09:07	Sunny	69.1	72.1	65.7	
21-Oct-19	09:12	Sunny	68.7	70.9	65.4	
21-Oct-19	09:17	Sunny	69.4	71.7	65.9	
21-Oct-19	09:22	Sunny	69.7	71.9	65.7	
31-Oct-19	08:56	Cloudy	69.1	71.1	64.1	69.5
31-Oct-19	09:01	Cloudy	70.1	72.4	65.2	
31-Oct-19	09:06	Cloudy	68.2	70.6	64.0	
31-Oct-19	09:11	Cloudy	69.2	71.7	65.7	
31-Oct-19	09:16	Cloudy	70.1	72.9	65.9	
31-Oct-19	09:21	Cloudy	69.9	71.6	65.2	

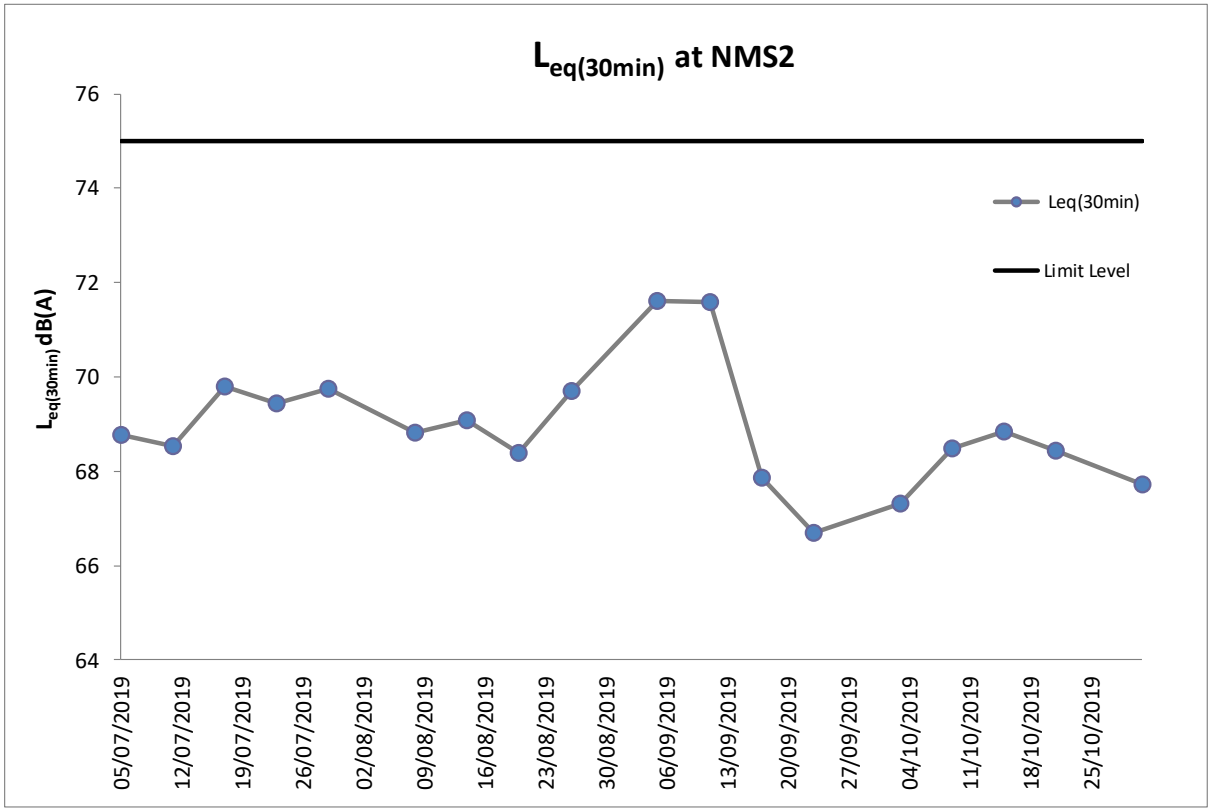
Graphical Presentation for Noise Monitoring at NMS1



Data for Noise Monitoring at Station NMS2

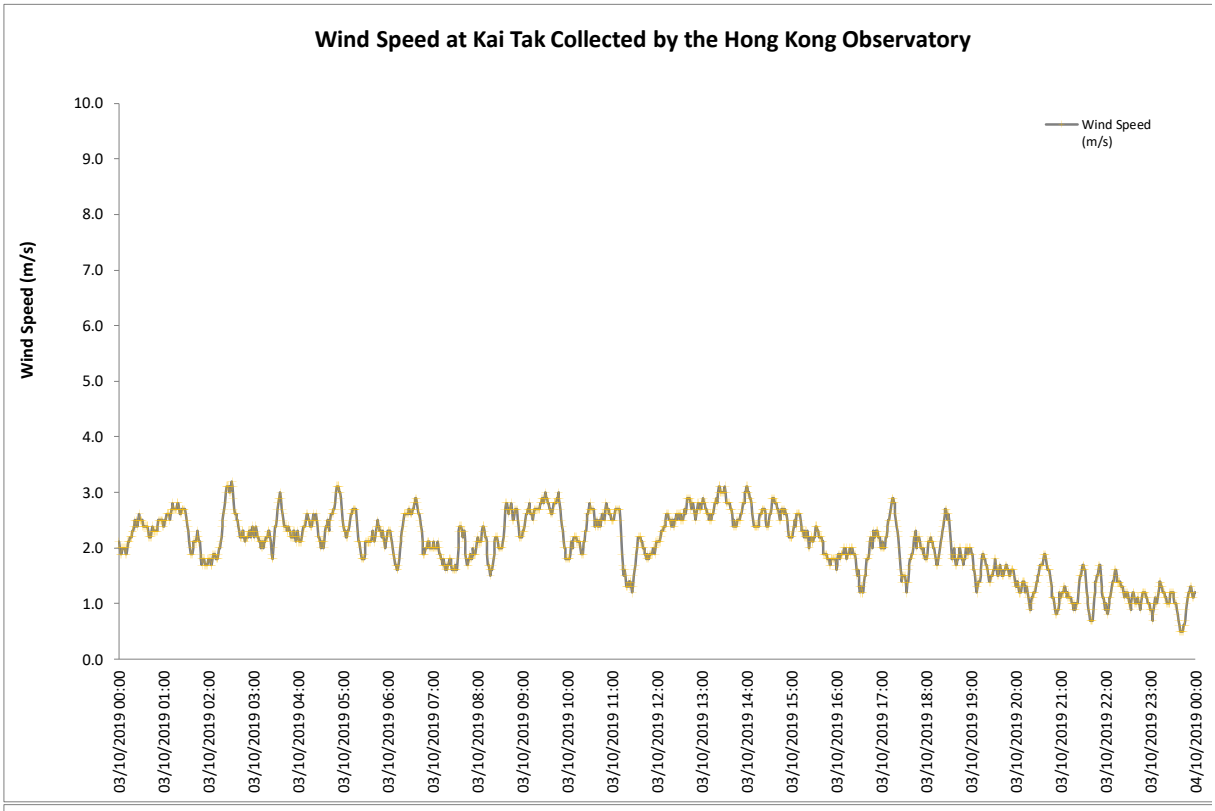
Date	Time	Weather	$L_{eq(5min)}$	L_{10}	L_{90}	Measured $L_{eq(30min)}$
03-Oct-19	08:11	Sunny	67.1	69.4	63.7	67.3
03-Oct-19	08:16	Sunny	68.2	70.6	64.1	
03-Oct-19	08:21	Sunny	66.9	68.2	62.9	
03-Oct-19	08:26	Sunny	67.1	69.7	63.8	
03-Oct-19	08:31	Sunny	67.9	69.9	63.9	
03-Oct-19	08:36	Sunny	66.5	68.4	63.7	
09-Oct-19	08:12	Fine	67.1	69.4	63.4	68.5
09-Oct-19	08:17	Fine	68.2	70.6	64.2	
09-Oct-19	08:22	Fine	68.9	70.7	64.5	
09-Oct-19	08:27	Fine	67.1	69.4	63.5	
09-Oct-19	08:32	Fine	69.2	71.5	64.7	
09-Oct-19	08:37	Fine	69.7	71.6	64.9	
15-Oct-19	09:12	Cloudy	68.4	70.8	64.4	68.8
15-Oct-19	09:17	Cloudy	69.1	71.4	65.4	
15-Oct-19	09:22	Cloudy	68.8	71.6	64.2	
15-Oct-19	09:27	Cloudy	68.8	70.8	64.9	
15-Oct-19	09:32	Cloudy	68.8	71.2	65.1	
15-Oct-19	09:37	Cloudy	69.1	71.4	65.0	
21-Oct-19	08:11	Sunny	67.1	69.4	63.1	68.4
21-Oct-19	08:16	Sunny	68.2	70.1	64.1	
21-Oct-19	08:21	Sunny	67.9	69.5	63.7	
21-Oct-19	08:26	Sunny	68.8	70.6	64.5	
21-Oct-19	08:31	Sunny	69.2	71.4	64.9	
21-Oct-19	08:36	Sunny	69.1	71.5	65.0	
31-Oct-19	08:12	Cloudy	67.1	70.4	63.1	67.7
31-Oct-19	08:17	Cloudy	68.4	71.1	64.4	
31-Oct-19	08:22	Cloudy	66.9	69.2	63.0	
31-Oct-19	08:27	Cloudy	68.1	71.4	64.7	
31-Oct-19	08:32	Cloudy	68.4	71.6	64.8	
31-Oct-19	08:37	Cloudy	67.1	70.7	64.0	

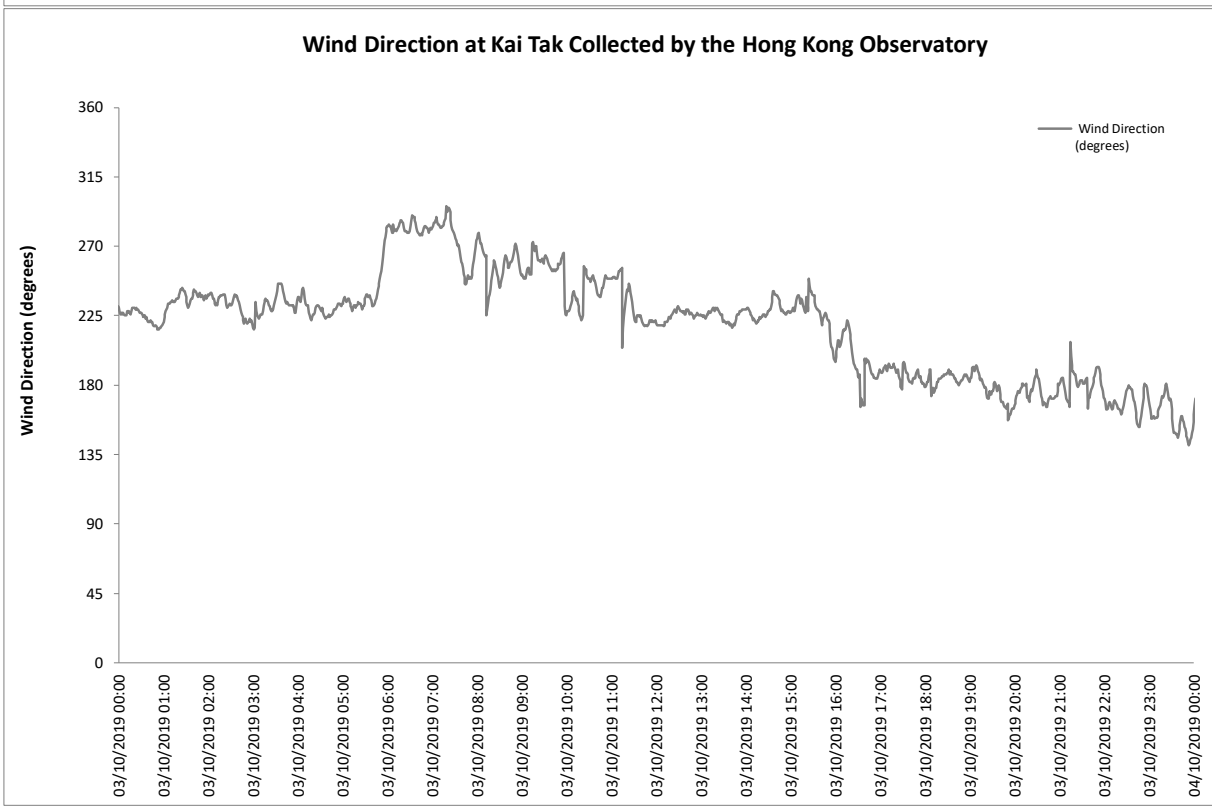
Graphical Presentation for Noise Monitoring at NMS2



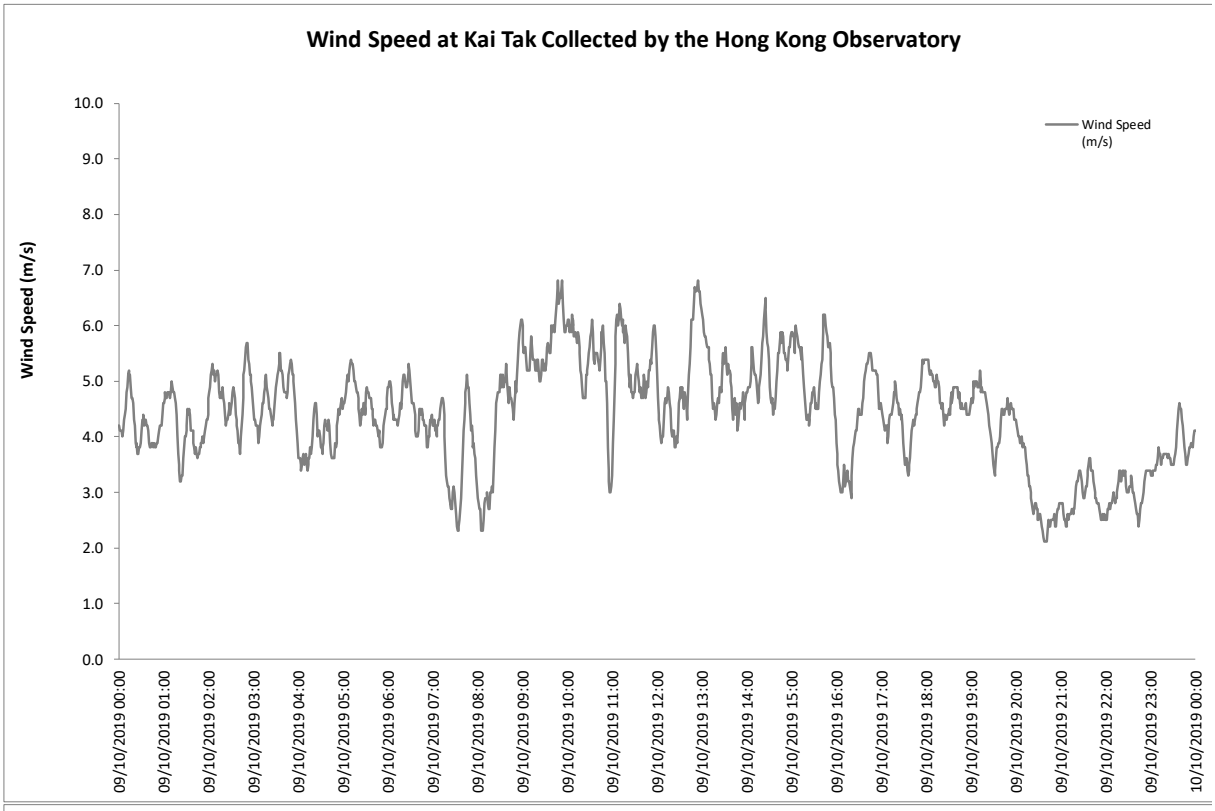
Appendix H. Wind Data

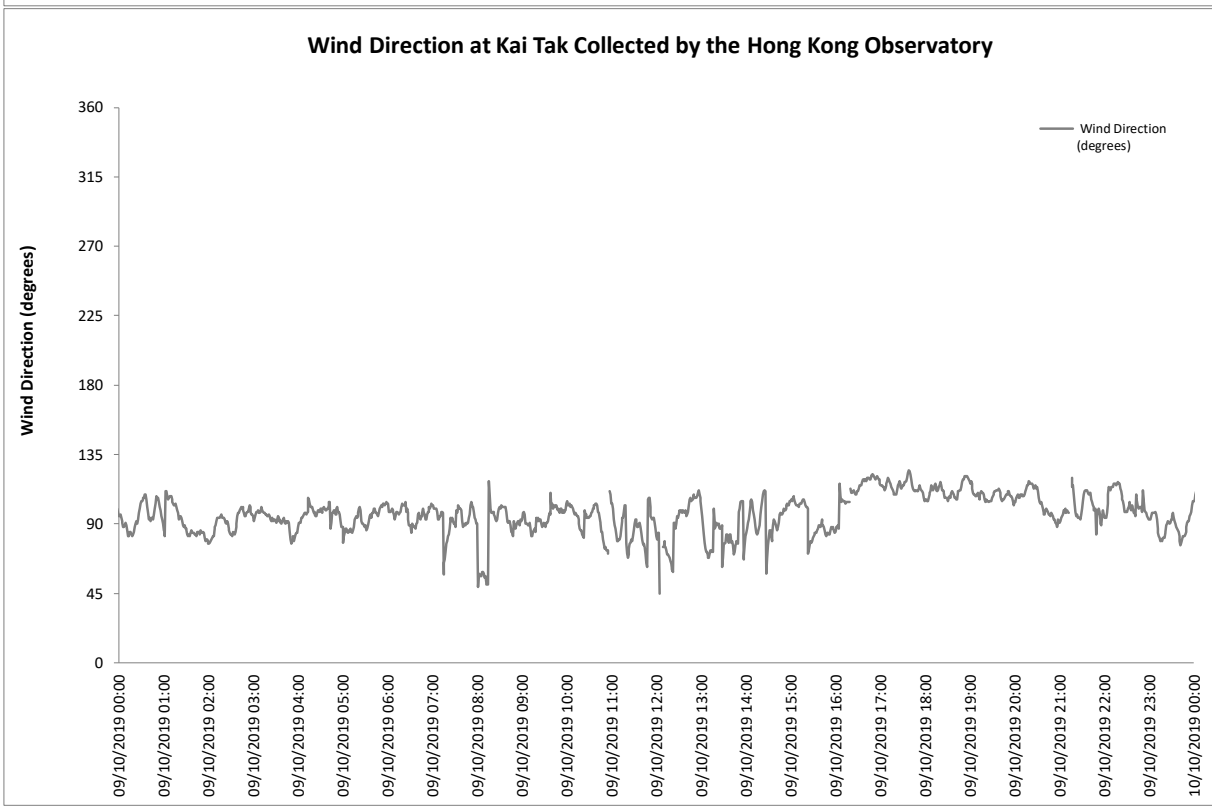
3 October 2019



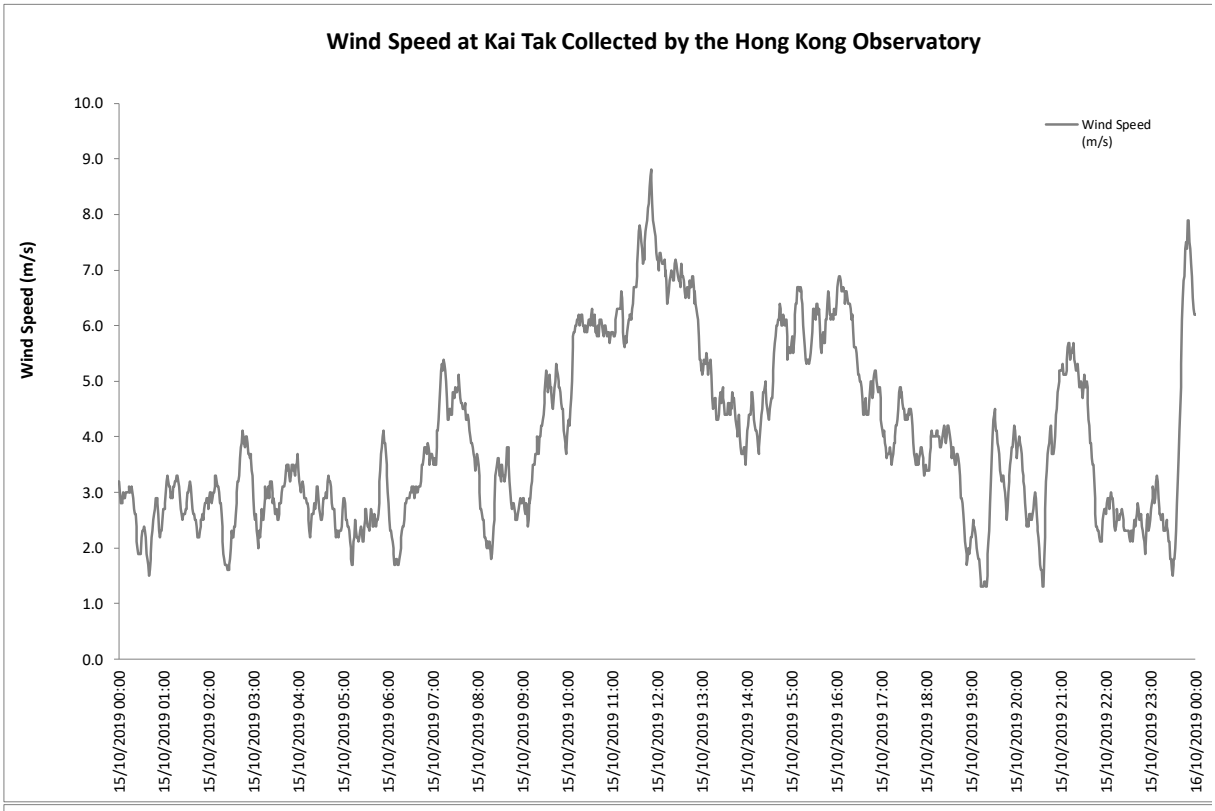


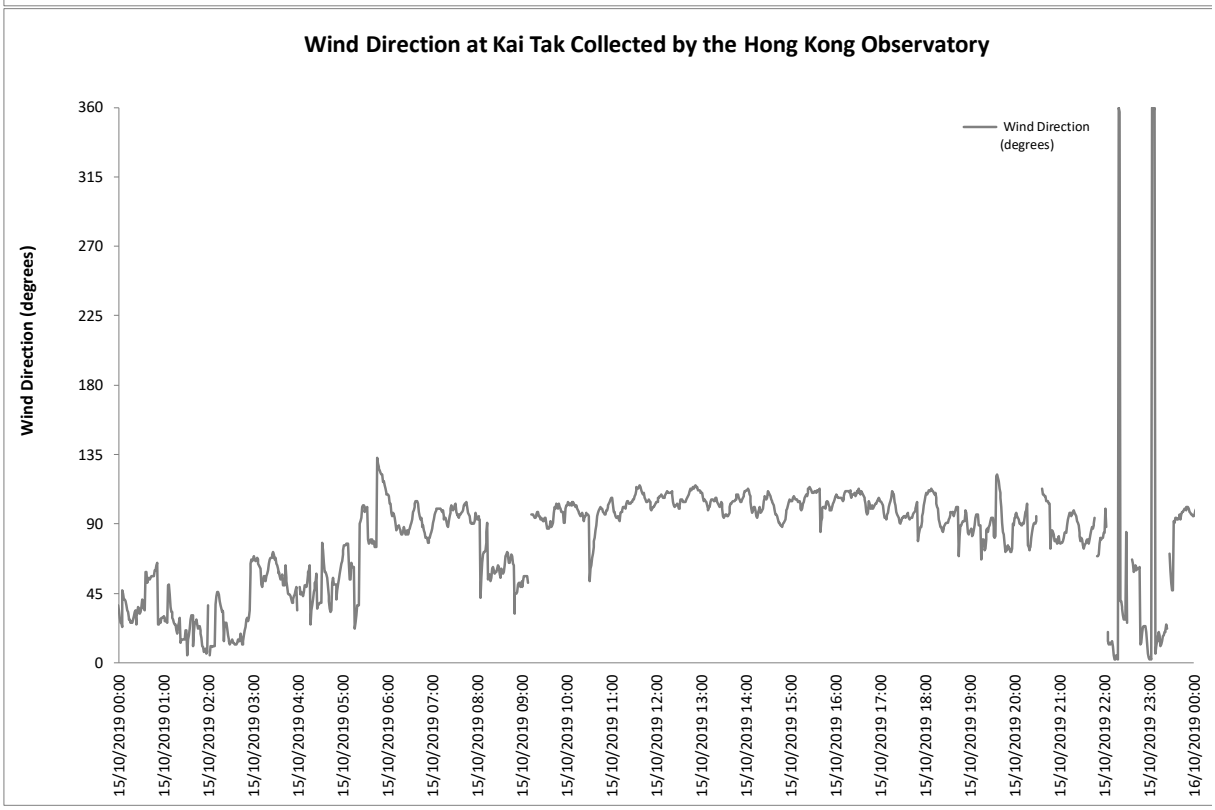
9 October 2019



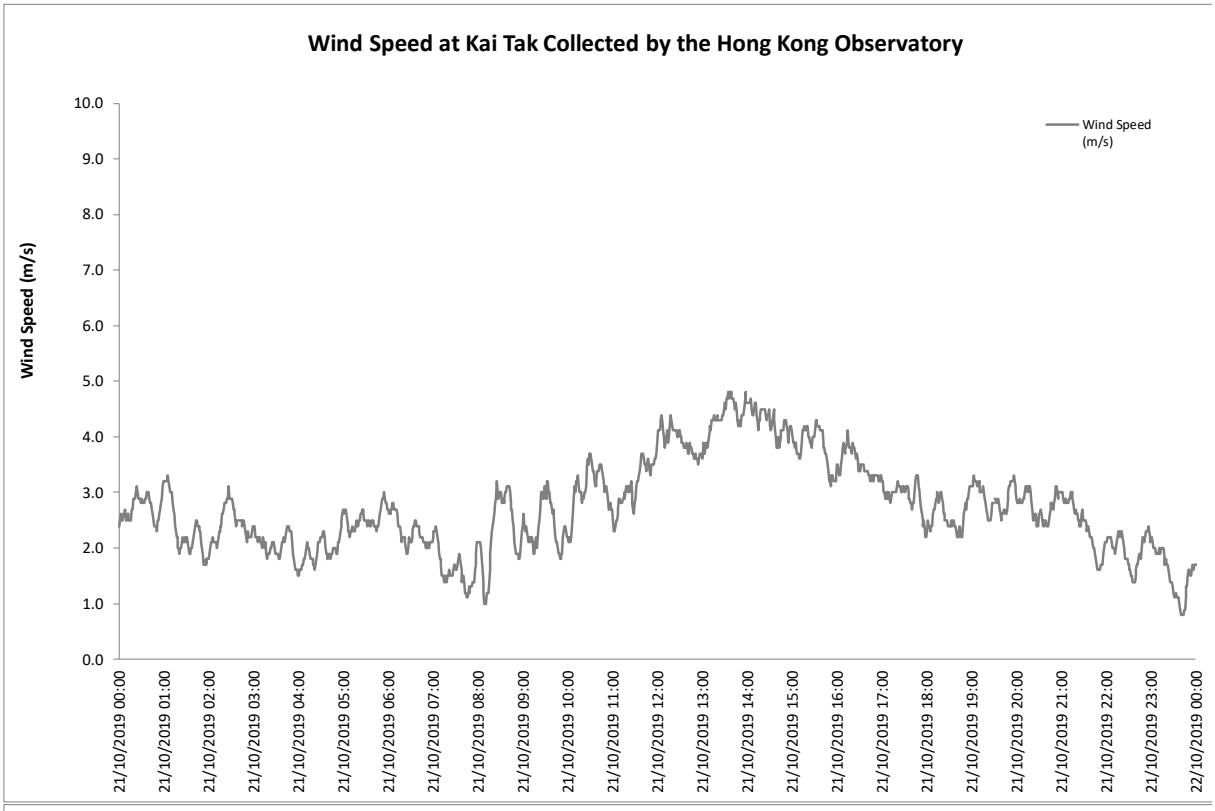


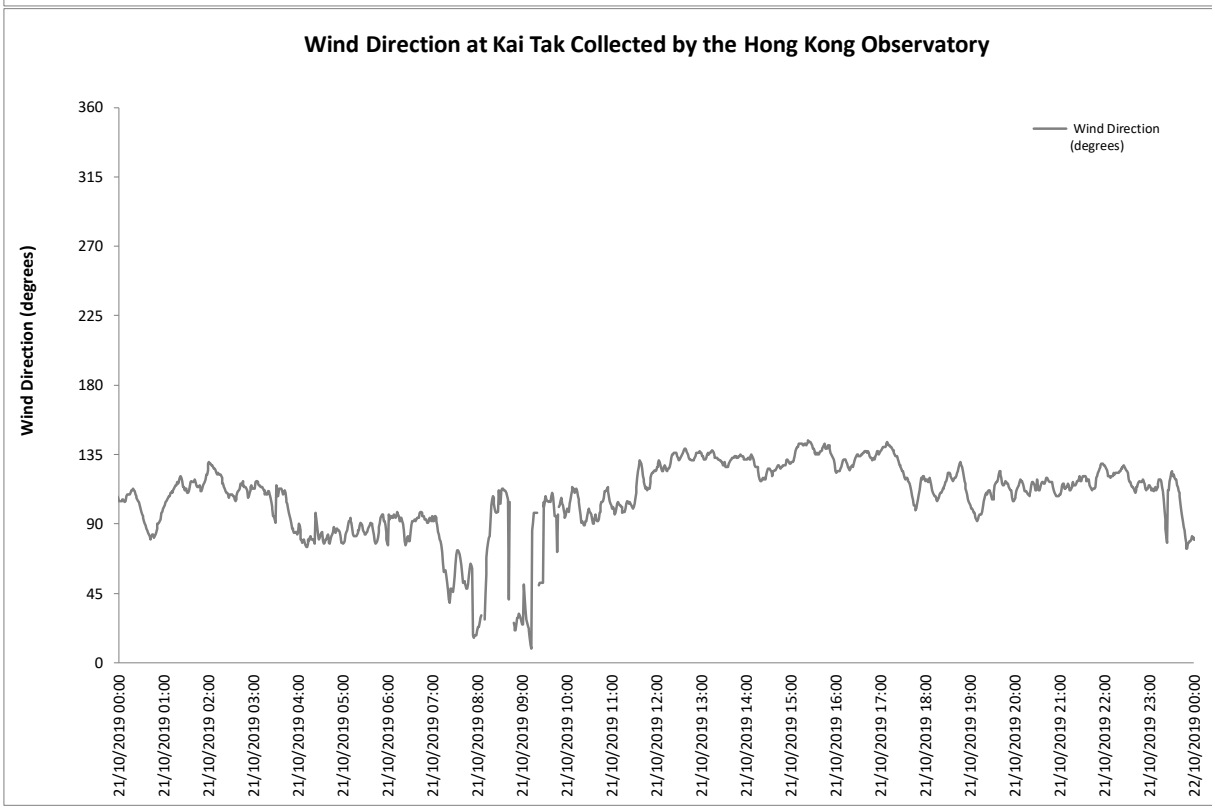
15 October 2019



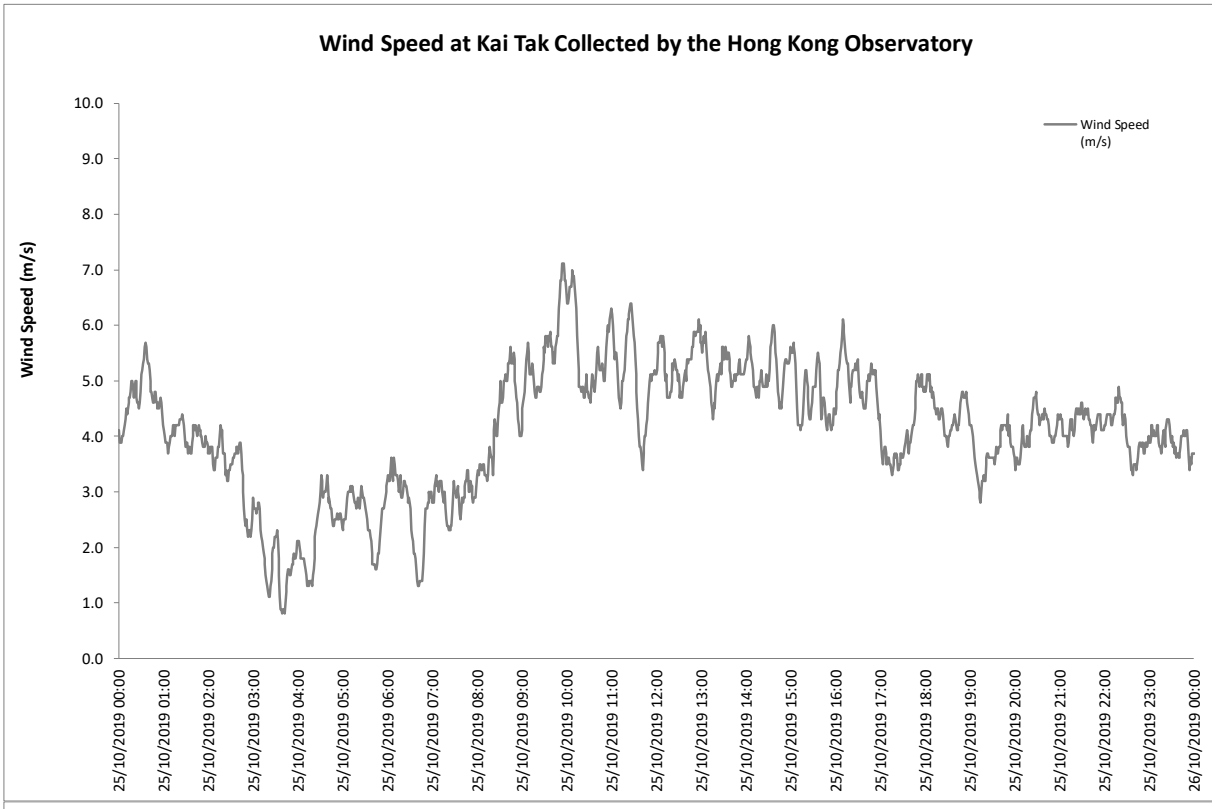


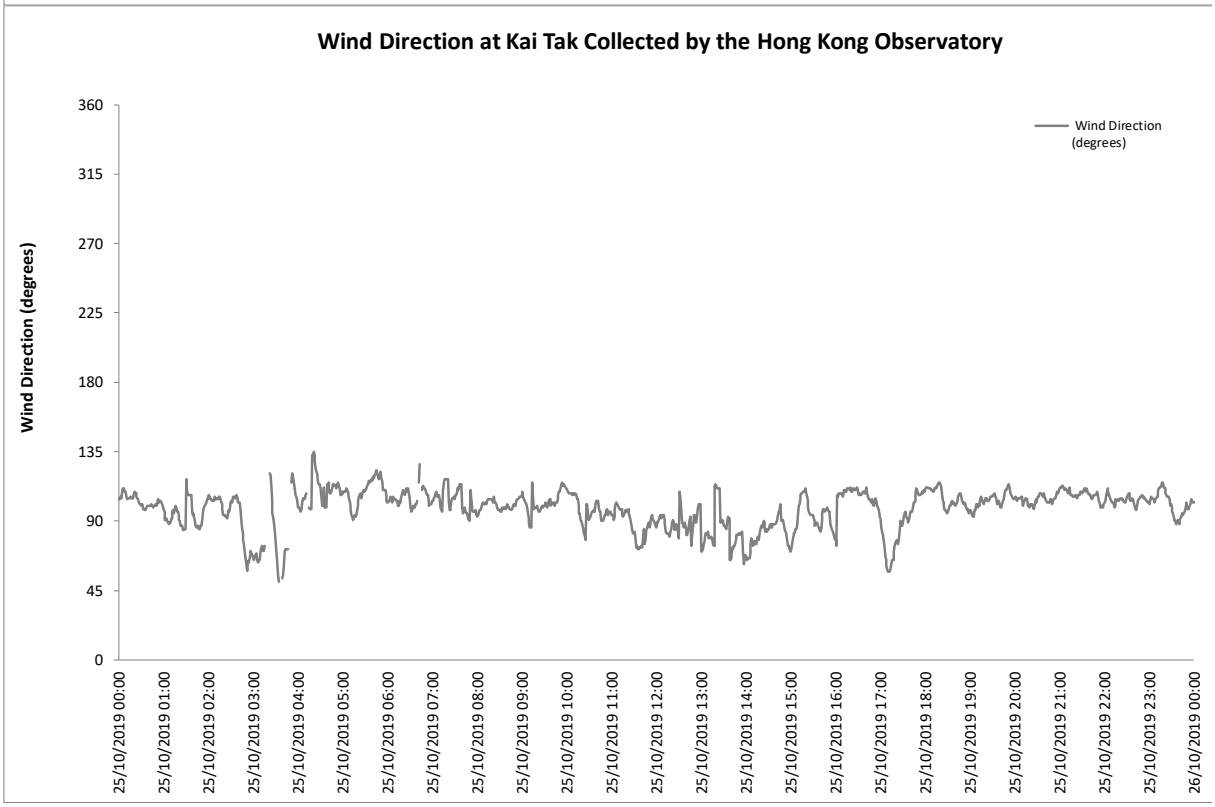
21 October 2019



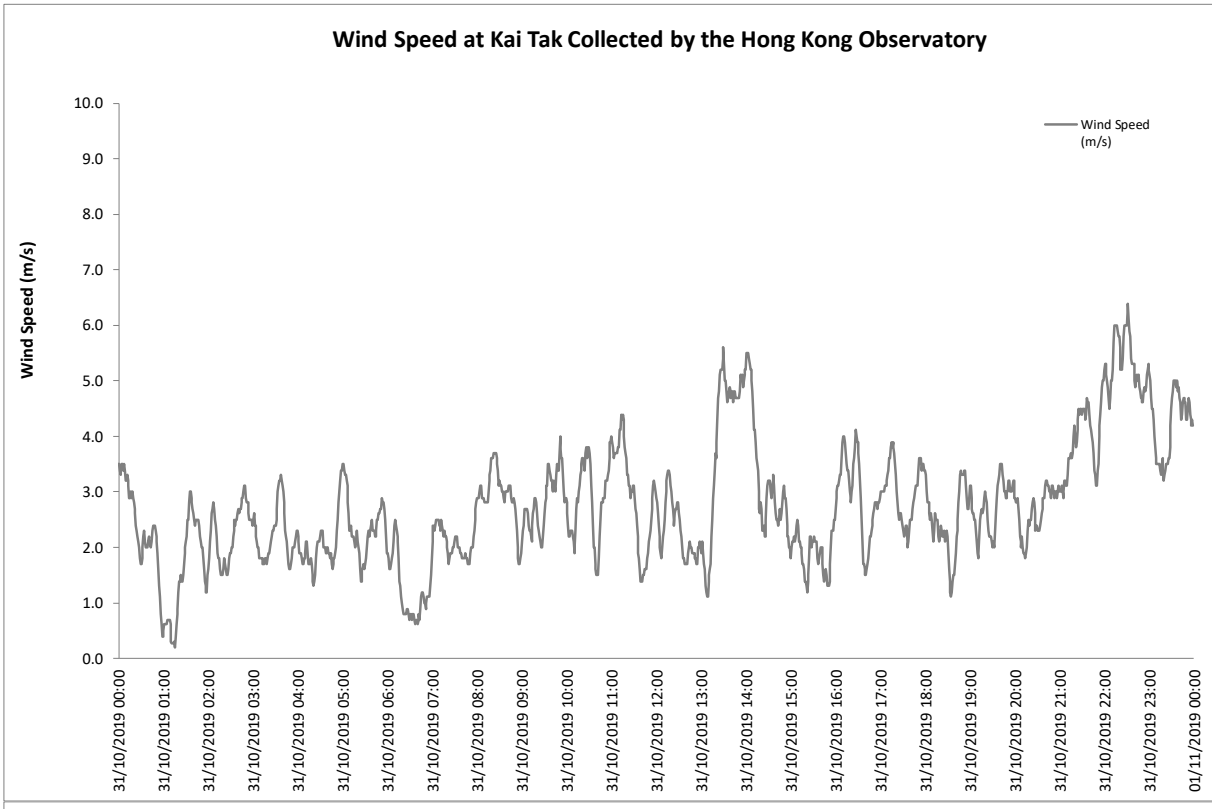


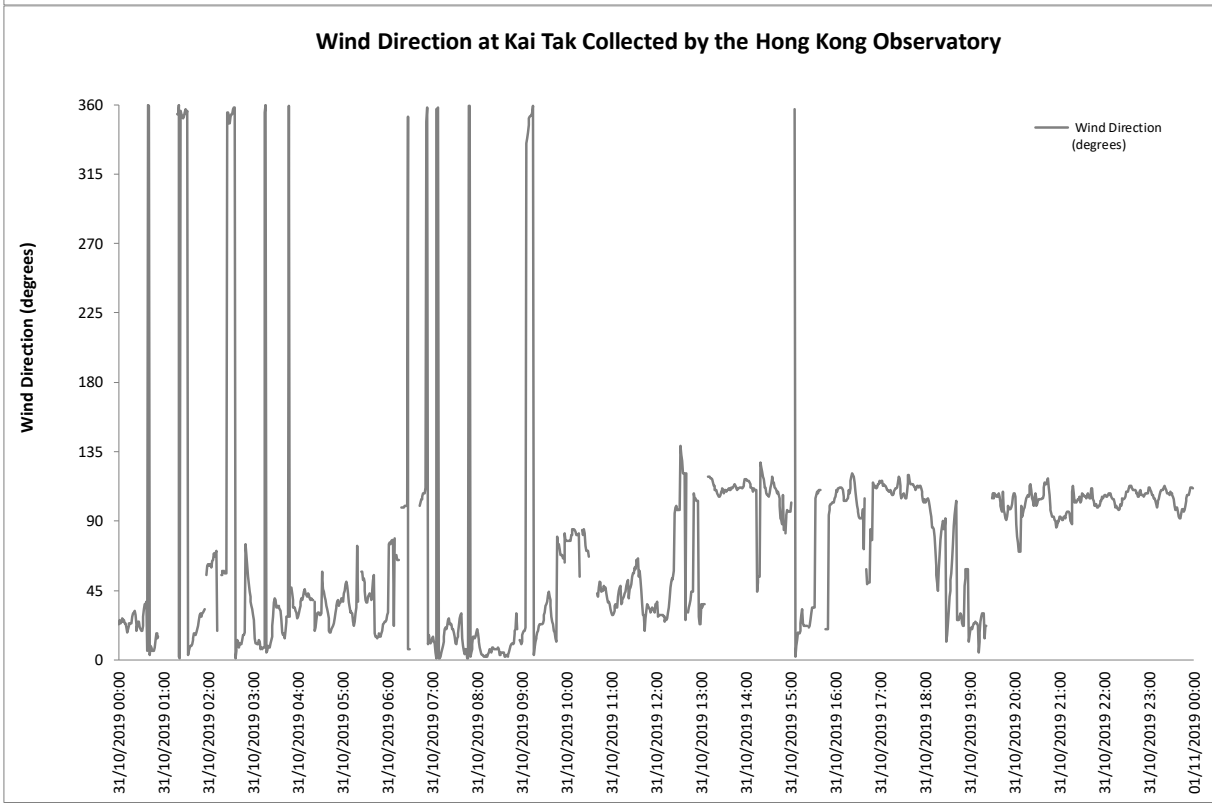
25 October 2019





31 October 2019





Appendix I. Waste Flow Table

Project: Kai Tak Sport Park
Contract No.: HAB/ KTSP/ 01
Contract Title: Design, Construction and Operation of the Kai Tak Sports Park at Kai Tak, Kowloon City District, Hong Kong
Year of Record: 2019

協興工程有限公司
HIP HING ENGINEERING CO LTD
新創建集團成員 Member of NWS Holdings

Monthly Waste Flow Table

Month	Total Quantity Generated	Total Quantity Generated (Excluded Excavated Material)	Actual Quantities of Inert C&D Materials Generated Monthly								Actual Quantities of C&D Materials Generated Monthly						Remarks
			Excavated Materials			Non-excavated Materials											
			Disposed in Public Fill	Disposed in Sorting Facilities	Others (e.g Reused in the Contract / Other Projects)	Broken Concrete or Construction Waste Collected by Recycled Company	Reused in the Contract	Reused in other Projects	Disposed in Public Fill	Disposed in Sorting Facilities	Metals (steel bar / metal strip)(1)	Metals (aluminum can)(1)	Paper / cardboard packaging (1)	Plastics (1) & (4)	Chemical waste (wasted lubricant oil/ oil container)	Other, e.g. general refuse	
	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	
	a1	a2	b	b	b	c	d	e	f	g	h	i	j	k	l	m	
Jan-19																	
Feb-19	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mar-19	4960.89	4741.39	219.50	0	0	0	0	0	0	0	11.84	0	0	0	0	4729.55	
Apr-19	1218.47	1211.81	6.66	0	0	0	0	0	0	0	0	0	0	0.06	0	1211.75	
May-19	87.29	87.29	0	0	0	0	0	0	0	0	0	0	0	0.01	0	87.28	
Jun-19	80.78	80.78	0	0	0	0	0	0	0	0	0.67	0	0.08	0.42	0	79.61	
Jul-19	2302.12	614.75	1687.37	0	0	0	0	0	0	0	0	0	0.26	0.95	0	613.54	
Aug-19	3619.81	280.59	3339.22	0	0	0	0	0	0	0	1.77	0	0	1.29	0.6	276.93	
Sep-19	9840.53	350.02	9490.51	0	0	0	0	0	0	0	0	0	0	1.41	0.6	348.01	
Oct-19	11503.06	541.69	10961.37	0	0	0	0	0	0	0	81.95	0	0.00	0.580	0	459.16	
Nov-19																	
Dec-19																	
Total	33612.95	7908.32	25704.63	0	0	0	0	0	0	0	96.23	0	0.34	4.72	1.2	7805.83	

Total C&D waste generated	33612.95	tonne	a1=b+c+d+e+f+g+h+i+j+k+l+m
Total C&D waste generated (excluding excavated materials)	7908.317	tonne	a2=c+d+e+f+g+h+i+j+k+l+m
Total recycled C&D waste	101.29	tonne	a3=c+d+e+h+i+j+k
% of recycled C&D waste for BEAM Plus MA10 or MA11	1.28	%	a4=a3/a2 x 100%

Notes:
(1) Metal, paper & plastic were collected by recycler.
(2) The performance target of waste recycling are specified in the Contract.
(3) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(4) Plastics refer to plastic bottles/ containers, plastic/ foam from packaging material.
(5) Broken concrete for recycling into aggregates.
(6) Excavated materials/waste will NOT be considered as part of construction waste. It should be excluded in the calculation.
(7) Disposal of inert waste to public fill or sorting facilities will NOT be considered as recycled waste.
(8)Disposal record for Oct 2019 has been updated according to the latest information from contractor.

Appendix J. Environmental Licences and Permits

Table J.1: Summary of Environmental Licences and Permits Status

Item No.	Type of Permit / Licence	Reference No.	Application Date	Valid from	Valid until	Remark
1	Environmental Permit under EIAO	EP-544/2017	21 Aug 2017	8 Sep 2017	N/A	Issued
2	Construction Dust Notification under APCO	441733	25 Jan 2019	29 Jan 2019	N/A	N/A
3	Construction Waste Disposal Account (Main)	7033182	12 Feb 2019	12 Feb 2019	N/A	N/A
4	Construction Waste Disposal Account (Vessel)	7033555	8 Jul 2019	7 Aug 2019	7 Nov 2019	superseded
			8 Oct 2019	7 Nov 2019	7 Feb 2020	N/A
5	Registration as a Chemical Waste Producer	WPN5213-286-H3906-02	29 Jan 2019	12 Feb 2019	N/A	N/A
6	Discharge Licence under WPCO	WT00034082-2019	15 Feb 2019	26 Jun 2019	30 Jun 2024	Issued
7	Construction Noise Permit (Percussive Piling)	PP-RE0023-19	26 Apr 2019	18 May 2019	8 Oct 2019	Superseded
8	Construction Noise Permit (Percussive Piling)	PP-RE0043-19	12 Sep 2019	9 Oct 2019	8 Apr 2020	Issued
9	Construction Noise Permit (Construction Works)	GW-RE0654-19	1 Aug 2019	19 Aug 2019	14 Feb 2020	Issued

Appendix K. Environmental Mitigation Measures Implementation Status

Air Quality – Recommended Mitigation Measures

Air Quality Mitigation Measures during construction	Implementation Status
• Good housekeeping to minimize dust generation, e.g. by properly handling and storing dusty materials	✓
• Store cement in shelter with 3 sides and the top covered by impervious materials if the stack exceeds 20 bags	✓
• Cement delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed	✓
• Loading, unloading, transfer, handling or storage of bulk cement 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	✓
• Dusty materials (e.g. debris) should be wetted by misting / water-spraying before any loading, unloading, transfer or transport operation	✓
• Any skip hoist for material transport should be fully enclosed by impervious sheeting	✓
• 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	✓
• Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities to maintain the entire surface wet	✓
• Excavation area should be minimized as far as possible	✓
• Stockpile of dusty materials should not be extended beyond the pedestrian barriers, fencing or traffic cones	✓
• 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, backfilled or reinstated where practicable within 24 hours of the excavation or unloading	P
• Dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads	✓
• Properly fitted side and tail boards are necessary for any vehicle with open load area	✓
• While transporting materials that potentially create dust (e.g. debris), materials should not be loaded higher than side and tail boards, and should be fully covered by tarpaulin or similar materials which extent at least 300 mm over the edges of the side and tail boards to prevent leakage.	✓
• Limit the maximum vehicle speed within the site to 10km/hr	✓
• Haulage and delivery vehicles should be confined to designated roads	✓
• Every main haul road should either be 1.) paved with concrete and kept clear of dusty materials, or 2.) sprayed or watered to maintain the entire road surface wet	✓
• All on-site unpaved roads should be compacted and kept free of lose materials as possible	✓
• Provide vehicle washing (e.g. wheel washing bay & high pressure water jet where practicable) at every vehicle exit point for cleaning vehicle body and wheels	✓
• The vehicle washing area and the road between washing area and site exit should be paved with concrete, bituminous or other hardcores	✓
• 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.	✓
• Dusty materials on every vehicle's body and wheels should be removed in washing area before leaving the site	✓

Air Quality Mitigation Measures during construction	Implementation Status
• Regular maintenance of all plant equipment	✓
• Throttle down or switch off unused machines or machine in intermittent use	✓
• If the site is adjacent to area where accessible to the public (e.g. road and service lane etc.), hoarding of not less than 2.4 m high from ground level should be erected along the adjoining the entire length of that portion of the site boundary, except for a site entrance or exit. The hoarding should be well maintained throughout the construction period.	✓
• Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding	N/A
• Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shortcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies	✓
• Carry out air quality monitoring throughout the construction period	✓
• Carry out weekly site inspection to audit the implementation of mitigation measures	✓
• Regular watering once per hour on exposed worksites and haul road with an equivalent intensity of not less than 1.3L/m3 to achieve 91.7% dust removal efficiency.	P
• Provision of electrical vehicle (EV) charging facilities in at least one-third of the car parking spaces for private cars. Provision of EV charging enabling facilities in all car parking spaces provided for private cars.	N/A
• Non-Road Mobile Machinery (NRMMs)	✓
• All NRMMs operated on-site are approved or exempted (as the case may be) and affixed with the requisite approval/exemption labels under the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation or are in the process of application for such approval/exemption during the relevant grace period.	✓

Noise – Recommended Mitigation Measures

Noise Mitigation Measures during construction	Implementation Status
• Adopt good site practice, such as throttle down or switch off equipment unused or intermittently used between works	✓
• Regular maintenance of equipment to prevent noise emission due to impair	✓
• Position mobile noisy equipment in locations away from NSRs and point the noise sources to directions away from NSRs	✓
• Use silencer or muffler for equipment	✓
• Make good use structures for noise screening	✓
• Use Quality Powered Mechanical Equipment (QPME) and quiet equipment which produces lower noise level.	✓
• Erect movable noise barrier of 3m height to shed large plant equipment (e.g. breaker, backhoe & mobile crane) or hand-held items (e.g. poker, wood saw, power rammer & compactor) near low-rise NSR. Where necessary, special design (e.g. with noise absorbing material or bend top) should be adopted. The barrier's length should be at least five times greater than its height, and the minimum surface density is 10 kg/m2. Alternatively, acoustic shed, enclosure or silencer (for generator, air compressor and concrete pump) or acoustic mat (for piling) can be adopted.	✓
• Carry out regular site inspection to audit the implementation of mitigation measures	✓
• Carry out noise monitoring throughout the construction period	✓

Water Quality – Recommended Mitigation Measures

Water Quality Mitigation Measures during construction	Implementation Status
• Practices outlined in ProPECC PN 1/94 Construction Site Drainage should be adopted.	✓
• Install perimeter channels in the works areas to intercept runoff from boundary prior to the commencement of any earthwork	✓
• To prevent storm runoff from washing across exposed soil surfaces, intercepting channels should be provided.	✓
• Drainage channels are required to convey site runoff to sand/silt traps and oil interceptors. Provision of regular cleaning and maintenance to ensure the normal operation of these facilities throughout the construction period.	✓
• Any practical options for the diversion and realignment of drainage should comply with both engineering and environmental requirements	✓
• Minimum distances of 100 m should be maintained between the discharge points of construction site runoff and the existing WSD saltwater intake and EMSD cooling water intake.	✓
• The following good site measures should be adopted for the use of the existing barging facilities being operated by the MTR SCL Project: - All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash. - All hopper barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material. - Construction activities should not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site. - Loading of barges and hoppers should be controlled to prevent splashing of material into the surrounding water. - Barges or hoppers should not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation. Whole construction site Contractor P WPCO, EIAO-TM Page	N/A
• The runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS.	✓
• Reuse and recycling of the treated effluent from construction site runoff.	N/A
• Weekly site audit should be carried out to check the implementation status of the recommended water quality impact mitigation measures throughout construction period.	✓
• The construction programme should be properly planned to minimise soil excavation, if any, in rainy seasons.	✓
• Any exposed soil surfaces should be properly protected to minimise dust emission.	✓
• In areas where a large amount of exposed soils exist, earth bunds or sand bags should be provided.	✓
• Exposed stockpiles should be covered with tarpaulin or impervious sheets at all times.	✓
• The stockpiles of materials should be placed at locations away from any stream courses so as to avoid releasing materials into the water bodies.	✓
• Final surfaces of earthworks should be compacted and protected by permanent work.	✓
• Haul roads should be paved with concrete and the temporary access roads protected using crushed stone or gravel, wherever practicable.	✓
• Wheel washing facilities should be provided at all site exits to ensure that earth, mud and debris would not be carried out of the works areas by vehicles.	✓
• Good site practices should be adopted to keep the site dry and tidy, such as clean the rubbish and litter on the construction sites.	✓
• Adequate temporary site drainage and pumping should be provided, if necessary.	✓
• Provide sufficient temporary toilets in the works areas. The toilet facilities should be more than 30 m from any watercourse. A licensed waste collector should be deployed to clean the temporary toilets on a regular basis.	✓
• Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the Project.	✓

Water Quality Mitigation Measures during construction	Implementation Status
• Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	✓
• Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	✓
• Clean the construction sites on a regular basis.	✓
• Oil interceptor in car parking area shall be designed and constructed according to Practice Note for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers, APP-46 (PNAP 124)	N/A
• Provide two sequential storage tanks to contain surface water with residual fertilizers and pesticides and third holding tank for incidental rainstorm	N/A
Sewerage and Sewage Treatment Implications	
• Implementation of Sewer No. 1 and Sewer No.2 as proposed in Sections 7.2.2 - 7.2.3 of the EIA Report	✓

Waste Management – Recommended Mitigation Measures

Waste Management Mitigation Measures during construction	Implementation Status
• Inert C&D materials (or public fills) will be used to form the ramps and other filling area as far as civil engineering design permits.	✓
• The contractor should formulate waste management measures on waste minimization, storage, handling and disposal in a Waste Management Plan as part of Environmental Management Plan.	✓
• Adopt good site practice as follows: - Provide training to workers on site cleanliness, waste management (waste reduction, reuse and recycle) and chemical handling procedures - Provide sufficient waste collection points and regular removal - Cover waste materials with tarpaulin or in enclosure during transportation - Maintain drainage systems, sumps and oil interceptors - Sort out chemical waste for proper handling and treatment onsite or offsite	✓
• Adopt waste reduction measures as follows: - Allocate area/containers for sorting, recovering and storing waste for reuse, recycle or disposal (e.g. demolition debris and excavated materials, general refuse like aluminium cans.) Remove waste from the Site for sorting once generated if no suitable space can be identified. - Allocate area for proper storage of construction materials to prevent contamination - Minimize wastage through careful planning and avoiding over-purchase of construction materials	✓
• Store waste materials properly as follows: - Avoid contamination by proper handling and storing waste - Prevent erosion by covering waste - Apply water spray on excavated materials - Maintain and clean storage area regularly - Sort and stockpile different materials at designated location to enhance reuse	P
• Apply for relevant waste disposal permits in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28), Dumping at Sea Ordinance (Cap. 466).	✓
• Hire licensed waste disposal contractors for waste collection and removal. Dispose waste at licensed waste disposal facilities.	✓
• Implement trip-ticket system for recording the amount of waste generated, recycled and disposed, including chemical wastes	✓

Waste Management Mitigation Measures during construction	Implementation Status
• Reduce water content in wet spoil generated from piling work by mixing with dry materials. Only dispose treated spoil with less than 25% dry density to Public Fill Reception Facilities	✓
• Dispose dry waste or waste with less than 70% water content by weight to landfill	✓
• Follow the Code of Practice on the Packaging, Labelling and Storage of Chemical Waste as follows: - Store chemical wastes with suitable containers. Seal and maintain the container to avoid leakage or spillage during storage, handling and transport - Label chemical waste containers in both English and Chinese with instructions in accordance to Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation - The container capacity should be smaller than 450 litres unless agreed by the EPD	✓
• Comply with the requirement of the chemical storage area: - Store only chemical waste and label clearly the chemical characters of the waste - Have at least 3 sides enclosed and protected from rainfall with cover - Provide sufficient ventilation - Have impermeable floor and has bunds to contain 110% of the capacity of the largest container or 20% of the total volume of the stored waste in the area, whichever is larger - Adequately spaced incompatible materials	P
• Transfer used lubricants, waste oils and other chemicals to oil recycling companies, if possible, and empty oil drums for reuse or refill. No direct or indirect discharge is permitted	✓
• Hire licensed chemical waste disposal contractors for waste collection and removal. Dispose chemical waste at the approved Chemical Waste Treatment Centre at Tsing Yi or other licensed facility	✓
• Hire reputable waste collector to separately collect and dispose general refuse from other wastes. Cover the waste to prevent being blown away	✓
• The hauling of C&D materials shall follow established environmental mitigation measures as stated in Practice Note for Registered Contractors No. 17 “Control of Environmental Nuisance from Construction Sites” issued by the Buildings Department	✓
• Provide recycling bins for sorting out recyclables for collection by recycling companies. Non-recyclables should be removed to designated landfills every day by licensed collectors to prevent environmental and health nuisance.	✓
• Organize training and reminders to site staff on waste minimization through avoidance and reduction, reusing and recycling	✓
• Bentonite slurry which will not be reused shall be disposed of from the Site as soon as possible. Residual used dewatered bentonite slurry should be disposed to a public filling area and liquid bentonite slurry if mixed with inert fill material should be disposed to a public filling area.	N/A
• If chemical wastes were to be produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer, and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the waste such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport the chemical wastes. • The licensed collector shall deliver the waste to the Chemical Waste Treatment Centre at Tsing Yi, or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation	✓
• Carry out weekly site inspection to check the implementation status of the recommended waste management measures.	✓
• The barging of C&DM for this Project shall use the existing Kai Tak Barging Facility (KTBF), or otherwise approved by the Director.	N/A

Ecology – Recommended Mitigation Measures

Ecology Mitigation Measures during construction	Implementation Status
• Erection of hoarding, fencing or provision of clear demarcation of work zone	✓

Ecology Mitigation Measures during construction	Implementation Status
• Designate areas for placement of equipment, building materials and wastes away from drainage channels	✓
• Carry out weekly site inspection to check the implementation status and the effectiveness of the proposed mitigation measures	✓

Landscape and Visual – Recommended Mitigation Measures

Landscape and Visual Mitigation Measures during construction	Implementation Status
• Construction Lighting Control - All security floodlights for construction sites should be equipped with adjustable shields, frosted diffusers and reflective covers, and be controlled to minimize light pollution and night-time glare to the visual sensitive receivers (VSRs).	✓
• Temporary Landscape Treatments - Including vertical greening, pot planting and application of green roofing to site offices, Hydroseeding of site formation areas and short term greening of site boundaries and land not immediately developed.	✓
• Decoration of Hoarding - Erection of screen hoardings should be designed appropriately to be compatible with the existing urban context, either brightly and imaginatively or with visually unobtrusive design and colours where more appropriate.	✓
• All security floodlights for construction sites shall be equipped with adjustable shield, frosted diffusers and reflective covers, and be carefully controlled to minimize light pollution and night-time glare to nearby receivers	✓
• Site inspection should be undertaken once every two weeks.	✓
• Compensatory Tree Planting - A new parkland area is created in the project development to be used for the implementation of compensatory tree planting to offset the net loss of key landscape resources. It is recommended that 340 trees be planted in this regard and a compensatory tree planting proposal outlining the locations of tree compensation will be submitted separately in seeking relevant government department's approval in accordance with DEVB TC No.7/2015.	N/A

Other – Recommended Mitigation Measures

• Relevant environmental permits/licences should be posted at all vehicle entrances/exits.	✓

Legend:
✓ Implemented
× Not implemented
P Partially implemented
N/A Not applicable

Appendix L. Statistics on Environmental Complaints, Notification of Summons and Successful Prosecutions

Table L.1: Statistics on Environmental Complaints, Notifications of Summons and Successful Prosecutions

Reporting Period	Complaints	Notifications of Summons	Successful Prosecutions
This reporting period (October 2019)	1	0	0
From commencement data of construction to end of reporting month	4	0	0

Appendix M. Complaint Investigation Report

Interim Report on Complaint Investigation

RECEIPT OF COMPLAINT			**Ref: COM_0004**
Date:	15 October 2019		
Time:	09:01		
From:	Hiko Law (Hip Hing Construction Limited)		
Via:	Email		
Contact no.:	60360068		
COMPLAINANT			
Name:	Mr. W.K. Tse	Address:	-
Contact no.:	2117 7572		
DETAILS OF COMPLAINT			
Date:	29 September 2019		
Time:	-		
Parameter:*	~~Dust~~ Noise ~~Water~~ ~~Other (specify):~~		
Description:			
- Complaint of percussive piling noise from the construction site of Kai Tak Sports Park.			
- Complainant would like percussive piling to be carried out later in the morning and implement noise control measure			
- Please ensure the work fulfil the relevant environmental legislation and conditions stipulated in the construction noise permit.			
INVESTIGATION RESULT & RESPONSE			
ET, IEC and SOR notified on:	15 October 2019		
Investigation conducted on:	17 October 2019		
Result of investigation:			
1. No percussive piling activities was carried out at Kai Tak Sports Park on 29 September 2019.			
2. All noise monitoring data ($L_{eq\ (30\ min)}$) recorded at the representative noise sensitive receivers during the morning piling hours sessions in September 2019 ranged between 67 dB(A) and 72 dB (A), complied with the relevant environmental legislation requirement.			
3. The percussive piling activities were carried out any day not being a general holiday between 8:00 a.m. and 9:30 a.m., fulfilling the construction noise permit requirement (Ref. No. PP-RE0023-19)			
4. The piling works in the morning sessions have been changed to 8:30am to 9:30am after addressing previous noise complaint (EPD Ref. 19-24781)			
5. Noise barrier for percussive piling works had been implemented to reduce the noise nuisance to sensitive receivers. (see attached photo record for 17 October 2019)			
RECOMMENDATIONS / MITIGATION MEASURES / ACTIONS			
1. Conduct regular checking to ensure the implementation of noise mitigation measures for the percussive pilling works.			
2. A new CNP has been issued on 9 October 2019 (PP-RE0043-19) with revised piling hours between 0830 to 0930 in the morning to reduce the noise impact in the morning session.			
3. Arrange those sensitive percussive piling works (i.e. close to nearby sensitive receivers) in a later piling hour session if possible.			
Prepared by:	Sunny Chan	Title:	Environmental Team Leader
Signature:	Sunny Chan	Date:	21 October 2019

ATTACHMENTS

Date of Investigation: 17 October 2019

1. Noise barrier for percussive piling had been implemented to reduce the noise nuisance to sensitive receivers.