



Maeda Corporation

MTRCL Contract C3840-13C Tsim Sha Tsui Station
Carnarvon Road Subway and Entrances
Modification Works

Quarterly EM&A Report (December 2015 to February 2016)

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M A E D A

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Report No EB001340R0341

Date 14 March 2016

This Quarterly EM&A Report is prepared for Maeda Corporation in accordance with the terms and conditions of appointment dated 30 October 2013. Hyder Consulting Limited (Company Number 126012) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

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Our Ref: 40032976/450025

By Email and Post

MTR Corporation Limited
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Attn.: Mr. Kenneth Chow / Environmental Engineer II

11 March 2016

Dear Sirs

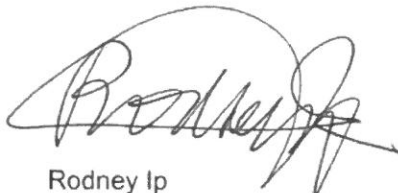
**Consultancy Agreement A130-13
Independent Environmental Checker for CRS and LTS
CRS - Verification for 8th Quarterly Environmental Monitoring and Audit (EM&A) Report
(December 2015 to February 2016) (Report No.: EB001340R00341)**

We refer to the 8th Quarterly EM&A Report (December 2015 to February 2016) received under cover of the email from the Environmental Team, Hyder Consulting Limited (HCL), dated on 4 March 2016.

Further to our comments provided on 7 March 2016, and subsequent revision of the Report by HCL on 10 March 2016, we have no further comment and have verified the captioned report (Report No.: EB001340R00341).

Should you have any queries, please feel free to contact the undersigned at 3922 9529.

Yours faithfully
AECOM Consulting Services Ltd



Rodney Ip
Independent Environmental Checker

DCYO/wwsc

cc Hyder Consulting Limited (Attn.: Mr. F. N. Wong) via email
Maeda Corporation (Attn.: Ms. Cecilia Lee) via email

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EXECUTIVE SUMMARY

KEY ISSUES DURING REPORTING PERIOD

Breaches of Action and Limit Levels

- ES01 No Notice of Exceedance (NOE) and the associated investigation and follow-up actions were required as the environmental monitoring results registered no exceedances of Action/ Limit Levels of air quality and construction noise during the Reporting Period.
- ES02 Minor deficiencies in maintenance of the damp condition of the covering cloth which is used as a dust preventive measure and handling of chemical containers were respectively observed during site inspection on 19 and 26 January 2016. Contractor promptly rectified the situation in-situ and took corrective actions to avoid recurrence. In general, the environmental audit during the Reporting Period observed:
1. Satisfactory compliance with the recommended environmental mitigation implantation schedule;
 2. Proper waste management; and
 3. Alleviation of environmental impacts to acceptable levels on the sensitive receivers environed with the site of the project.

Environmental Complaints

- ES03 No environmental complaints were recorded during the Reporting Period.

Notification of Summons and Successful Prosecutions

- ES04 No notification of summons and successful prosecutions were recorded during the Reporting Period.

Reporting Changes

- ES05 No major reporting changes were made during the Reporting Period.

FUTURE KEY ISSUES

General

- ES06 Full implementation of the environmental mitigation measures, which are required in the EM&A Plan and summarized in Implementation Schedule, are recommended. Whenever necessary, proper maintenance and improvement of the implemented mitigation measures are reminded.

Construction Noise

- ES07 Particular attention should be paid to construction noise mitigation measures, especially during piling works during the coming construction period to ensure full compliance with statutory and non-statutory requirements and guidelines. Proactive review of working methods, careful selection and arrangement of the noisy equipment as well as effective noise mitigation measures are strongly recommended.

Water Quality

- ES08 In addition, compliance with water quality mitigation measures remains one of the key environmental issues within the construction period, especially when water usage is high.

Air Quality

- ES09 Furthermore, implying of construction dust suppression measures are recommended during dusty activities under dry and windy conditions.

ES10 Construction dust suppression measures including decking over the excavation areas, watering of exposed site surface and covering of all excavated and stockpiles of dusty material by impervious sheeting or similar materials are reminded.

1. INTRODUCTION

1.1 REPORTING PERIOD

1.1.1 This is the 8th quarterly EM&A report (hereinafter referred as 'This Report') covering construction period from 1st December 2015 to 29th February 2016 (hereinafter referred as 'the Reporting Period').

1.1.2 This Report has been written in accordance with the **Environmental Monitoring and Audit Plan** (hereinafter referred as 'the EM&A Plan') enclosed in the **Project Profile – MTR Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works**, which is registered in the **Environmental Permit No. EP-440/2012** (hereinafter referred as 'the EP') (Register No.: PP-462/2012).

1.2 PROJECT BACKGROUND

1.2.1 In order to improve the appearance of Carnarvon Road Entrance D1 and D2 of Tsim Sha Tsui (hereafter referred as 'TST') Station and to provide a more comfortable walking environment nearby, MTR Corporation Limited (hereafter referred as 'MTRC' or 'the Corporation') has commissioned Maeda Corporation (hereinafter referred as 'MC') the contract **MTR Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works** (hereafter referred as 'the Project'). The Project is proposed to rebuild the existing Entrance D1 and D2 and construct a new Entrance D3 at the basement B2 level of the K11 Art Mall to connect to the TST station by a subway, which extends from the Entrance D1 and D2 and runs approximately 80m along Carnarvon Road and across the Bristol Avenue to the Entrance D3. The tentative programme for the Project is approximately 25 months, and was commenced in March 2014.

1.2.2 The existing TST Station had been in operation before the **Environmental Impact Assessment Ordinance** (hereafter referred as 'EIAO') came into effect on 1 April 1998. It constitutes an exempted Designated Project (hereinafter referred as 'DP') according to Section 9(2) (g) of the EIAO (Cap. 499). As the Project involves a material change to an exempted DP which may have potential environmental impacts, an environmental permit is required prior to the commencement of the modification works. The Project Profile has been developed to provide information for direct application of an environmental permit. The EP has been granted since 18 July 2012, where the Project Profile and the associated **EM&A Plan** are registered.

1.2.3 Site map, works area and locations of the environmental monitoring under the Project are illustrated in Figure 1.1 Site Location Plan of **Appendix A**.

1.2.4 Management structure of the Project, including organization chart, lines of communication and contact names and telephone numbers of key personnel, is demonstrated in **Appendix B**.

1.2.5 Construction programme is shown in **Appendix C**, whereas implementation schedule for the recommended environmental mitigation measures (hereinafter referred as 'the Implementation Schedule') is summarized in **Appendix D**, which fine tunes construction activities and shows inter-relationship with environmental protection/mitigation measures for the construction period.

1.3 ENVIRONMENTAL STATUS

- 1.3.1 As required in the EP, AECOM Consulting Services Limited (formerly known as “URS Hong Kong Limited”) has been appointed as the Independent Environmental Checker under the Project (hereinafter referred as ‘the IEC’), whereas Hyder Consulting Limited has been appointed as the Environmental Team under the Project (hereinafter referred as ‘the ET’).
- 1.3.2 According to the EP Condition 3.2 (a) under Environmental Monitoring and Audit (EM&A) during the Construction Period, baseline monitoring has been completed and the required Baseline Monitoring Report has been submitted to EPD on 14 February 2014 prior to commencement of the works under the Project.
- 1.3.3 Status of relevant environmental permits, licences, and/or notifications on environmental protection for the Project is summarized in **Table 1-3**. They are detailed in **Appendix E**.

TABLE 1-3 SUMMARY OF STATUS OF ENVIRONMENTAL LICENSES AND PERMITS

Item	Description	License/Permit Status
1	Air Pollution Control (Construction Dust)	Notification Ref. 365953 acknowledged on 21 Oct 2013.
2	Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation	EPD’s Non-Road Mobile Machinery (NRMM) labels have been demonstrated on the regulated NRMM, except those which application is in progress.
3	Water Pollution Control Ordinance (Discharge License)	The discharge license (Ref No. WT00019722-2014) was granted on 01 Sep 2014 superseding the previous license (Ref No. WT00018229-2014).
4	Billing Account for Disposal of Construction Waste	A/C Ref. 7018523 granted on 25 Oct 2013
5	Chemical Waste Producer Registration	Registration Ref. 5213-2214-M2446-16 granted on 4 Mar 2014
6	Construction Noise Permit	<p>(a) CNP No. GW-RE0558-15 approved on 3 Jun 2015 for operation of 4 submersible water pumps (electric) from 23 June 2015 to 22 December 2015.</p> <p>(b) CNP No. GW-RE1279-15 approved on 14 Dec 2015 for operation of 4 submersible water pumps (electric) from 22 December 2015 to 14 February 2016.</p> <p>(c) CNP No. GW-RE0088-16 approved on 29 January 2016 for operation of 4 submersible water pumps (electric) or 1 Air Blower (TS) or 4 Hand-held Drill (TS) from 15 February to 14 August 2016.</p>

1.4 CONSTRUCTION ACTIVITIES

1.4.1 Construction activities undertaken during the Reporting Period are summarized in **Table 1-4:**

Table 1-4 Construction Activities Undertaken during the Reporting Period

1	Demobilization of the rock breaking and excavation plants
2	Excavation and rock breaking at vertical shaft
3	Construction of temporary staircase reinforced concrete structure
4	Backfilling of the trial trench at D2
5	Excavation of trial trench for UU identification at D2
6	Concrete Coring works for breakthrough to TST station
7	ABWF & BS works of the temporary staircase
8	Horizontal pipe piling and grouting for mined tunnel
9	Mobilization of pipe piling and grouting plants and equipment
10	Excavation of top layer for UU identification and support tailoring at G2-4 & G2-5

2. EM&A REQUIREMENTS

2.1 AIR QUALITY

Monitoring Parameters and Frequency

- 2.1.1 24-Hour Total Suspended Particulates (hereinafter referred as '24-Hr TSP') is required to be monitored once a week during construction period of the Project.
- 2.1.2 1-Hour Total Suspended Particulates (hereinafter referred as '1-Hr TSP') is required to be monitored when exceedances of 24-Hr TSP were recorded, following the Event and Action Plan presented in **Appendix F**.

Action and Limit Levels

- 2.1.3 The Action and Limit levels (hereinafter referred as 'the A/L Levels') at K11 have been established in the Baseline Monitoring Report in accordance with the derivation criteria specified in Section 3.7 of the EM&A Plan, which are summarized in **Table 2-1-1** as follows:

Table 2-1-1 Derivation of Action and Limit Levels for Air Quality at K11, $\mu\text{g}/\text{m}^3$

Parameter	Action Level	Limit Level
24-Hr TSP	For baseline level $\leq 200 \mu\text{g}/\text{m}^3$, Action level = (130% of baseline level + Limit level)/2 For baseline level $> 200 \mu\text{g}/\text{m}^3$, Action level = Limit level	260
1-Hr TSP	For baseline level $\leq 384 \mu\text{g}/\text{m}^3$, Action level = (130% of baseline level + Limit level)/2 For baseline level $> 384 \mu\text{g}/\text{m}^3$, Action level = Limit level	500

- 2.1.4 The established A/L Levels for 24-Hr and 1-Hr TSP are summarized in **Table 2-1-2** as follows:

Table 2-1-2 Action & Limit Levels for Air Quality at K11, $\mu\text{g}/\text{m}^3$

Parameter	Action Level	Limit Level
24-Hr TSP	222	260
1-Hr TSP	373	500

Event and Action Plan

- 2.1.5 In case exceedances of Action and/or Limit levels for air quality occur, **Event and Action Plan** for Air Quality enclosed in **Appendix F** will be implemented.

Environmental Mitigation Measures for Air Quality

- 2.1.6 Although most of the construction works would be carried out underground, appropriate dust mitigation measures as stipulated in the EP, Project Profile, related environmental regulation including Air Pollution Control (Construction Dust) Regulation as well as those recommended in the Implementation Schedule should be implemented to control fugitive dust emission. The following key dust suppression measures are recommended:
- a) Decking over the excavation areas;

- b) Regular watering to reduce dust emissions from all exposed site surface, particularly during dry weather;
- c) Frequent watering for particularly dusty construction areas and areas close to air sensitive receivers;
- d) Cover all excavated or stockpiles of dusty material by impervious sheeting or spraying with water to maintain the entire surface wet;
- e) Provision of vehicle washing facilities at the exit points of the site; and
- f) Provision of tarpaulin covering for any dusty materials on a vehicle leaving the site.

2.1.7 Details of the implementation schedule for the required environmental mitigation measures are presented in **Appendix D**.

2.2 CONSTRUCTION NOISE

Monitoring Parameters and Frequency

2.2.1 **Table 2-2-1** summarizes the monitoring parameters and frequency for construction noise.

Table 2-2-1 Noise Monitoring Parameters and Frequency

Parameters	Frequency
L_{eq} in 30 minutes	Once a week

2.2.2 Monitoring schedules for construction noise for the Reporting Period and the next Reporting Period are prepared and submitted to MTRC, IEC and MC prior to implementation via e-mail and / or facsimile for ease of necessary inspection. Where amendment is necessary under ad hoc conditions, including actual and broadcast adverse weather, accidental instrument failures, etc., advanced notification is given at least 24 hours prior to implementation or as practical as possible.

Action and Limit Levels

2.2.3 The Action and Limit levels (hereinafter referred as 'the A/L Levels') at K11 have been established in the **Baseline Monitoring Report**. They are summarized in **Table 2-2-2** as follows:

Table 2-2-2 Action and Limit Levels for Construction Noise

Time Period	Action Level	Limit Level
0700-1900 hours on normal weekdays	When one valid documented complaint is received.	75*

*Note: *70 dB(A) for schools and 65 dB(A) during school examination periods. If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed.*

Event and Action Plan

2.2.4 In case exceedances of Action and/or Limit levels for construction noise occur, the Event and Action Plan enclosed in **Appendix F** will be implemented.

Mitigation Measures for Construction Noise

2.2.5 Although no residual noise impact would be generated after the proposed mitigation measures are in place, the general construction noise control measures stipulated in the EP, Project Profile as well as those recommended in the Implementation Schedule should be fully implemented in order to minimize noise impacts during the construction phase. They are summarized as follows:

- a) The Code of Practice on Good Management Practice to Prevent Violation of the Noise Control Ordinance (Chapter 400) (for Construction Industry) published by EPD shall be adopted;
- b) The statutory and non-statutory requirements and guidelines shall be complied with;
- c) Approval for the method of working, equipment and noise mitigation measures intended to be used at the site shall be granted from the Project Engineer before commencing any work;
- d) Working methods to minimize the noise impact on the surrounding NSRs shall be formulated and executed, and the implementation of these methods shall be monitored by experienced personnel with suitable training;
- e) Noisy equipment and noisy activities shall be located as far away from the NSRs as is practical;
- f) Unused equipment shall be turned off;
- g) PME should be kept to a minimum and the parallel use of noisy equipment / machinery should be avoided;
- h) All plant and equipment shall be maintained regularly;
- i) Material stockpiles and other structures shall be effectively utilized as noise barriers, whenever practicable; and
- j) Enclosure of Entrance D1 with acoustic mat during demolition.

2.2.6 Details of the implementation schedule for the mitigation measures are presented in **Appendix D**.

3. MONITORING RESULTS

3.1 AIR QUALITY

Monitoring Results

- 3.1.1 24-Hr TSP monitoring during the Reporting Period was conducted following the agreed monitoring schedule.
- 3.1.2 24-Hr TSP results of the Reporting Period are summarized in the following **Table 3-1**. Graphical plots of the parameter are illustrated in **Appendix H**.

Table 3-1 Summary of 24-Hr TSP Monitoring Results, $\mu\text{g}/\text{m}^3$

Monitoring Date	24-Hr TSP	A/L Levels	
1-Dec-15	70.3		
8-Dec-15	63.7		
15-Dec-15	53.0		
22-Dec-15	68.2		
29-Dec-15	102.5		
4-Jan-16	59.8		
11-Jan-16	58.3	Action Level: 222	Limit Level: 260
18-Jan-16	89.2		
25-Jan-16	114.1		
1-Feb-16	46.5		
11-Feb-16	139.7		
15-Feb-16	58.7		
22-Feb-16	185.7		
Mean (Min – Max)	85.4 (46.5 – 185.7)		

Discussion

- 3.1.3 No environmental complaints against air quality were registered during the Reporting Period.
- 3.1.4 **Table 3-1** demonstrates that all 24-Hr TSP results of the Reporting Period were fluctuated below the A/L Level, there were no Action Level or Limit Level exceedances recorded during the Reporting Period.
- 3.1.5 No Notice of Exceedances (thereinafter referred as 'NOE') and the associated NOE Investigation and remedial actions were required during the Reporting Period.

3.2 CONSTRUCTION NOISE

Monitoring Results

- 3.2.1 Construction noise monitoring during the Reporting Period was conducted following the agreed monitoring schedule.
- 3.2.2 Construction noise monitoring results of the Reporting Period are summarized in the following **Table 3-2**. Graphical plots of the parameter are illustrated in **Appendix H**.
- 3.2.3 Weather condition, including wind speeds and directions, during the monitoring period are recorded and shown in **Appendix G**.

Table 3-2 Summary of Construction Noise Monitoring Results at K11, dB(A)

Monitoring Date	Leq (30 min)	A/L Levels
1-Dec-15	68.3	Limit Level: 75 Action Level: Any Documented complaint against construction noise.
8-Dec-15	69.2	
15-Dec-15	68.6	
22-Dec-15	72.2	
29-Dec-15	71.9	
6-Jan-16	68.5	
12-Jan-16	67.3	
19-Jan-16	69.2	
26-Jan-16	67.8	
2-Feb-16	66.3	
11-Feb-16	71.5	
18-Feb-16	66.2	
25-Feb-16	67.5	
Mean (Min – Max)	69.3 (66.2 – 72.2)	

Discussion

- 3.2.4 No environmental complaint against construction noise was registered during the Reporting Period, whereas Table 3-2 demonstrates that all construction noise results of the Reporting Period fell below the Limit Level of the parameter.
- 3.2.5 Neither NOE nor NOE investigation and the associated remedial actions were required during the Reporting Period.
- 3.2.6 The Contractor was reminded to pay attention to noisy construction activities within the Reporting Period and the coming quarter. The ET will liaise closely with the Contractor on any unusual level of noise recorded in the upcoming month.

- 3.2.7 It is re-instated that adequate mitigation measures should be implemented during the noisy construction activities in order to alleviate noise nuisance generated from the Project related construction activities.

Weather Conditions

- 3.2.8 No weather conditions and any other factors were identified to have significant effects on the monitoring results of air quality and construction noise during the Reporting Period.
- 3.2.9 Weather information during the Reporting Period which is extracted from Hong Kong Observatory King's Park Weather Station is enclosed for reference in **Appendix G**.

3.3 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 3.3.1 No exceedances of A/L Levels of air quality and no exceedances of Action Level of construction noise were registered during the Reporting Period.
- 3.3.2 No NOE and the associated NOE Investigation and corrected actions were required during the Reporting Period.

Recommendations

- 3.3.3 Full implementation of the environmental mitigation measures, which are required in the EM&A Plan and summarized in Implementation Schedule of **Appendix D**, is recommended. Where necessary, proper maintenance and improvement of the implemented mitigation measures are reminded.
- 3.3.4 Construction dust shall be suppressed during dusty construction activities under dry and windy conditions.
- 3.3.5 Construction noise shall be eliminated to avoid adverse impacts on the nearby sensitive receivers.

4. ENVIRONMENTAL AUDIT

4.1 SITE INSPECTION

4.1.1 Weekly site inspections during the Reporting Period are conducted by MTRC, MC and ET, whereas monthly site inspections of the Reporting Period were jointly conducted by the IEC, MTRC, MC and ET. The site inspection follows strictly the agreed Site Inspection Checklist, which covers all the site audit requirements stipulated in the EM&A Plan, PS and all relevant environmental laws.

4.1.2 The completed Site Inspection Checklists are distributed to all relevant parties upon completion of the site inspection for agreement and signature and, where appropriate, for implementation of the recommended corrected actions to promptly rectify the situation.

4.1.3 There were 13 site inspections conducted within the Reporting Period. Deficiencies or findings of the site audits and the associated follow up actions are summarized in **Table 4-1:**

Table 4-1 Summary of Findings and Follow-Up Actions of the Site Inspection

Date	Deficiencies or findings	Follow-Up Action
1-Dec-15	No deficiency was observed on site.	Not required.
8-Dec-15	No deficiency was observed on site.	Not required.
15-Dec-15	No deficiency was observed on site.	Not required.
22-Dec-15	No deficiency was observed on site.	Not required.
29-Dec-15	No deficiency was observed on site.	Not required.
5-Jan-16	No deficiency was observed on site.	Not required.
12-Jan-16	No deficiency was observed on site.	Not required.
	No follow-up item.	Not required.
19-Jan-16	Excessive dust was emitted from the shaft exhaust vent, where active exhaustion by air blower was adopted. It was suspected that the covering cloth was dried out by blower causing excessive dust emission. Contractor conducted immediate remedial by watering the covering cloth and emission of dust was found immediate mitigated.	Contractor was reminded to maintain the covering cloth damp by regular watering.
	Excessive dust was not observed.	Not required.
26-Jan-16	Chemical containers were observed not properly stored and without drip tray over staircase steps.	Contractor was reminded to relocate the chemical containers to suitable storage area or provide drip trays and covers for any chemical containers on site.

Date	Deficiencies or findings	Follow-Up Action
2-Feb-16	Chemical containers were observed without drip tray or storage over staircase steps. The contractor was reminded to store any chemical containers with a drip tray if over unpaved ground or relocate the chemical to a paved ground.	Closed. The improper stored chemicals were removed or put to paved ground.
	No deficiency was observed on site.	Not required.
11-Feb-16	No deficiency was observed on site.	Not required.
16-Feb-16	No deficiency was observed on site.	Not required.
23-Feb-16	No deficiency was observed on site.	Not required.

4.1.4 Minor deficiencies in maintenance of the damp condition of the covering cloth which is used as a dust preventive measure and handling of chemical containers were observed during the site inspection respectively on 19 and 26 January 2016, neither significant non-compliance of environmental mitigation measures nor adverse environmental impacts were identified. Contractor promptly rectified the situation in-situ and took corrective actions to avoid recurrence.

4.2 COMPLIANCE WITH LEGAL/ CONTRACTUAL REQUIREMENTS

4.2.1 Construction activities under the Project must comply with all environmental protection and pollution control laws in Hong Kong, as well as the contractual requirements of the Project. **Table 4-2** summarizes breaches of legal and contractual requirements.

Table 4-2 Summary of Breaches of Legal and Contractual Requirements

Month	No. of Breaches	Cumulative no. from March 2014 to the Reporting Period
December 2015	0	0
January 2016	0	0
February 2016	0	0

4.3 ENVIRONMENTAL COMPLAINTS

4.3.1 Environmental complaints are handled following closely the flow chart of complaint response procedure which is enclosed in **Appendix I**.

4.3.2 Environmental complaints registered during the Reporting Period and cumulative statistics of environmental complaints are summarized in **Table 4-3** below:

Table 4-3 Summary of Complaint

Month	No. of Complaint	Cumulative no. from March 2014 to the Reporting Period
December 2015	0	4
January 2016	0	4
February 2016	0	4

4.4 NOTIFICATION OF SUMMONS/SUCCESSFUL PROSECUTIONS

4.4.1 Notification of summons and successful prosecutions registered during the Reporting Period are summarized in **Table 4-4** below:

Table 4-4 Summary of Summon and Successful Prosecutions

Month	Number of Issue	Cumulative no. from March 2014 to the Reporting Period
December 2015	0	0
January 2016	0	0
February 2016	0	0

5. WASTE MANAGEMENT

5.1 WASTE MANAGEMENT

5.1.1 Despite small scale of the Project and the amount of C&D material that needs to be hauled off site and disposed of is anticipated not to be significant, 3-R waste management i.e. Reduce, Reuse and Recycle, is adopted in order to minimize adverse environmental impacts to be generated from construction of the Project.

5.1.2 Waste management under the Project is performed in accordance with the Waste Management Plan, which has been prepared for implementation of the construction waste mitigation measures in compliance with the requirements stipulated in the EM&A Plan, PS, Waste Disposal Ordinance and the associated subsidiary regulations.

5.2 WASTE MANAGEMENT RECORD

5.2.1 Updated waste management status is detailed in **Appendix J**, where the 3-R status of the construction waste generated from construction of the Project during the Reporting Period is presented.

6. FUTURE ENVIRONMENTAL ISSUES

6.1 KEY ENVIRONMENTAL ISSUES

6.1.1 Future key environmental issues include:

- 1) Air quality in particular construction dust during dusty construction activities on site, e.g. demolition of the Entrance D2 and excavation works, under dry and windy conditions;
- 2) Construction noise during noisy activities; and
- 3) Site surface water run-off and construction wastewater discharge.

6.2 Mitigation Measures

6.2.1 To avoid potential adverse environmental impacts of the future key environmental issues stated above, full implementation of the mitigation measures as stipulated in the Implementation Schedule shown in **Appendix D** is required.

6.2.2 Mitigation measures for air quality, construction noise and water quality implemented to date shall be properly maintained.

6.2.3 Where appropriate, improvement of the implemented mitigation measures is reminded to ensure effectiveness of the mitigation measures.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 CONCLUSIONS

7.1.1 In compliance with the EP Condition 5.6 of the EM&A Plan, the environmental monitoring results of the monitored parameters during the Reporting Period, covering 24-hr TSP and Leq(30min), were supported by statistical information including result tables and graphical plots as presented in **Appendix H**. No exceedances of A/L Levels of air quality and construction noise were recorded. No NOE and the associated investigation as well as follow-up actions were hence required.

7.1.2 Base on the findings listed in **Table 4-1-1** within the Reporting period, two corrective actions were required:

- 1) Excessive dust was emitted from the shaft exhaust vent, where active exhaustion by air blower was adopted. It was suspected that the covering cloth was dried out by blower causing excessive dust emission. Contractor conducted immediate remedial by watering the covering cloth and emission of dust was found immediate mitigated.
- 2) Chemical containers were observed not properly stored and without drip tray over staircase steps. Contractor was reminded to relocate the chemical containers to suitable storage area or provide drip trays and covers for any chemical containers on site.

7.1.3 In addition, no notification of summons and successful prosecutions were registered during the Reporting Period. No remediation actions were hence required.

7.2 *RECOMMENDATIONS*

7.2.1 In general, full implementation of the environmental mitigation measures stipulated in the EM&A Plan and summarized in Implementation Schedule in **Appendix D** of This Report, are recommended. Where necessary, proper maintenance and improvement of the implemented mitigation measures are reminded.

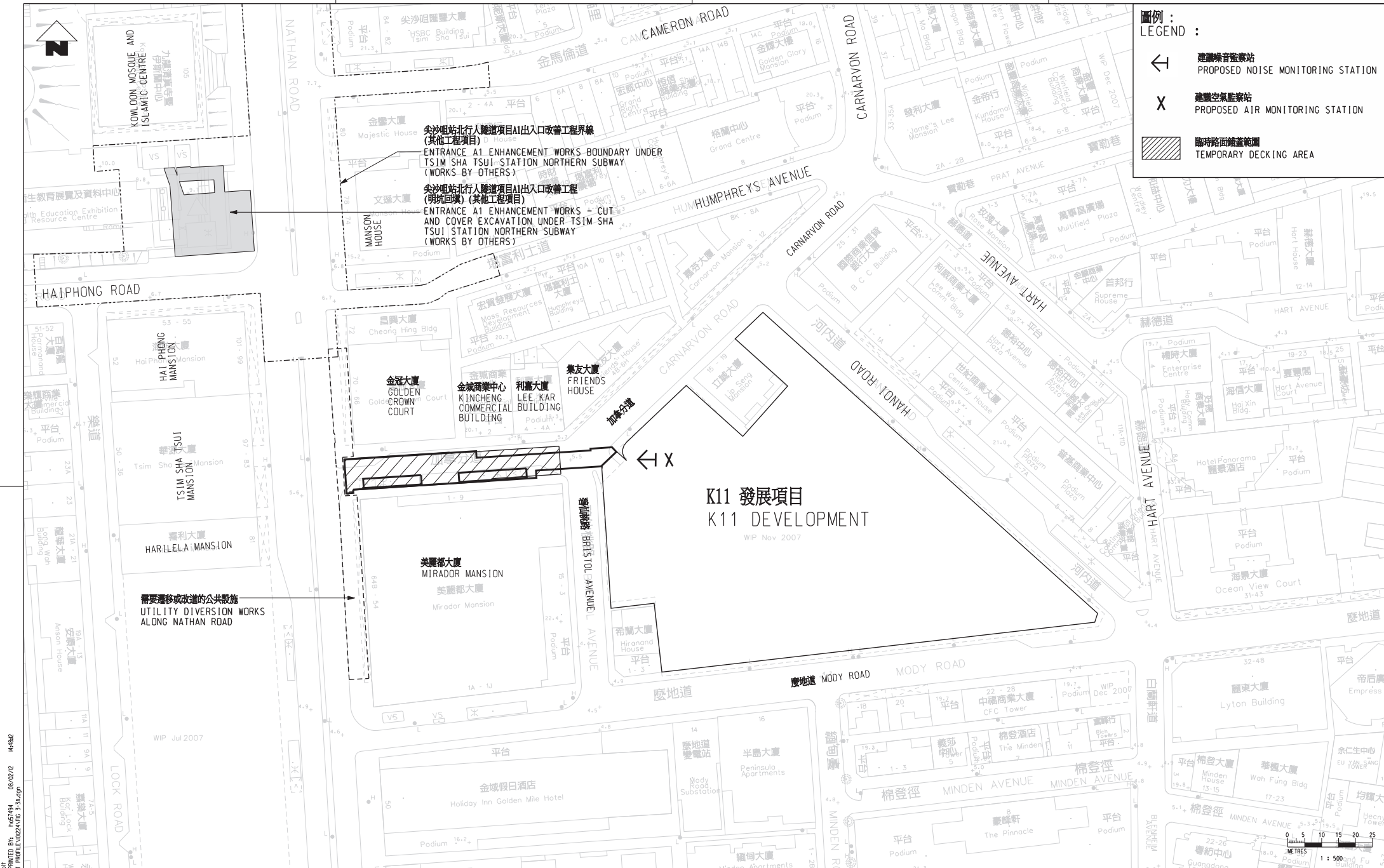
7.2.2 Adequate mitigation measures are reminded to be implemented in order to alleviate noise nuisance to acceptable levels.

7.2.3 In addition, suppression of construction dust is required during dusty construction activities under dry and windy conditions.

7.2.4 Furthermore, monitoring of site water runoff is reminded to prevent any direct water discharge off site, especially when water usage is high during the construction period. When necessary, the Contractor is reminded to apply additional precautionary measures to prevent any possible environmental deficiency.

Appendix A

Site Location Plan



圖例 :
LEGEND :

- ← 建議噪音監察站
PROPOSED NOISE MONITORING STATION
- X 建議空氣監察站
PROPOSED AIR MONITORING STATION
- ▨ 臨時路面鋪蓋範圍
TEMPORARY DECKING AREA

尖沙咀站北行人隧道項目A1出入口改善工程界線
 (其他工程項目)
 ENTRANCE A1 ENHANCEMENT WORKS BOUNDARY UNDER
 TSM SHA TSUI STATION NORTHERN SUBWAY
 (WORKS BY OTHERS)

尖沙咀站北行人隧道項目A1出入口改善工程
 (明坑回填) (其他工程項目)
 ENTRANCE A1 ENHANCEMENT WORKS - CUT
 AND COVER EXCAVATION UNDER TSM SHA
 TSUI STATION NORTHERN SUBWAY
 (WORKS BY OTHERS)

需要遷移或改道的公共設施
 UTILITY DIVERSION WORKS
 ALONG NATHAN ROAD

K11 發展項目
K11 DEVELOPMENT
 WIP Nov 2007

C:\MTR\A3.BW.COL.dwg 6/15/2007 14:46:02
 PLOT 01/02
 FILENAME: A3270984-KV-PROJECT_PROFILE\022A5103_3-1.dwg

REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED
A	PROJECT PROFILE				HO				

DRAWN	HO
DESIGNED	--
CHECKED	--
APPROVED	--
DATE	--

MTR

TST STATION CARNARVON ROAD SUBWAY

ORIGINATOR

Mott MacDonald

30/F The Landmark Hotel
 100 Hong Kong Street
 Hong Kong
 T: +852 2512 2122
 F: +852 2512 1000
 www.mottmacdonald.com

In association with
 Hatched Architect Ltd
 8/F 80 Wing Lok Street
 Hong Kong

CADD REF.

TITLE

CONSULTANCY AGREEMENT NO. NEX/1049
DETAILED DESIGN FOR CARNARVON ROAD SUBWAY
AIR AND NOISE MONITORING LOCATIONS
 空氣及噪音監察站位置圖

SCALE: 1:500 (A1)

DRAWING NO. **APPENDIX B**

REV. **A**



Appendix B



Management Structure

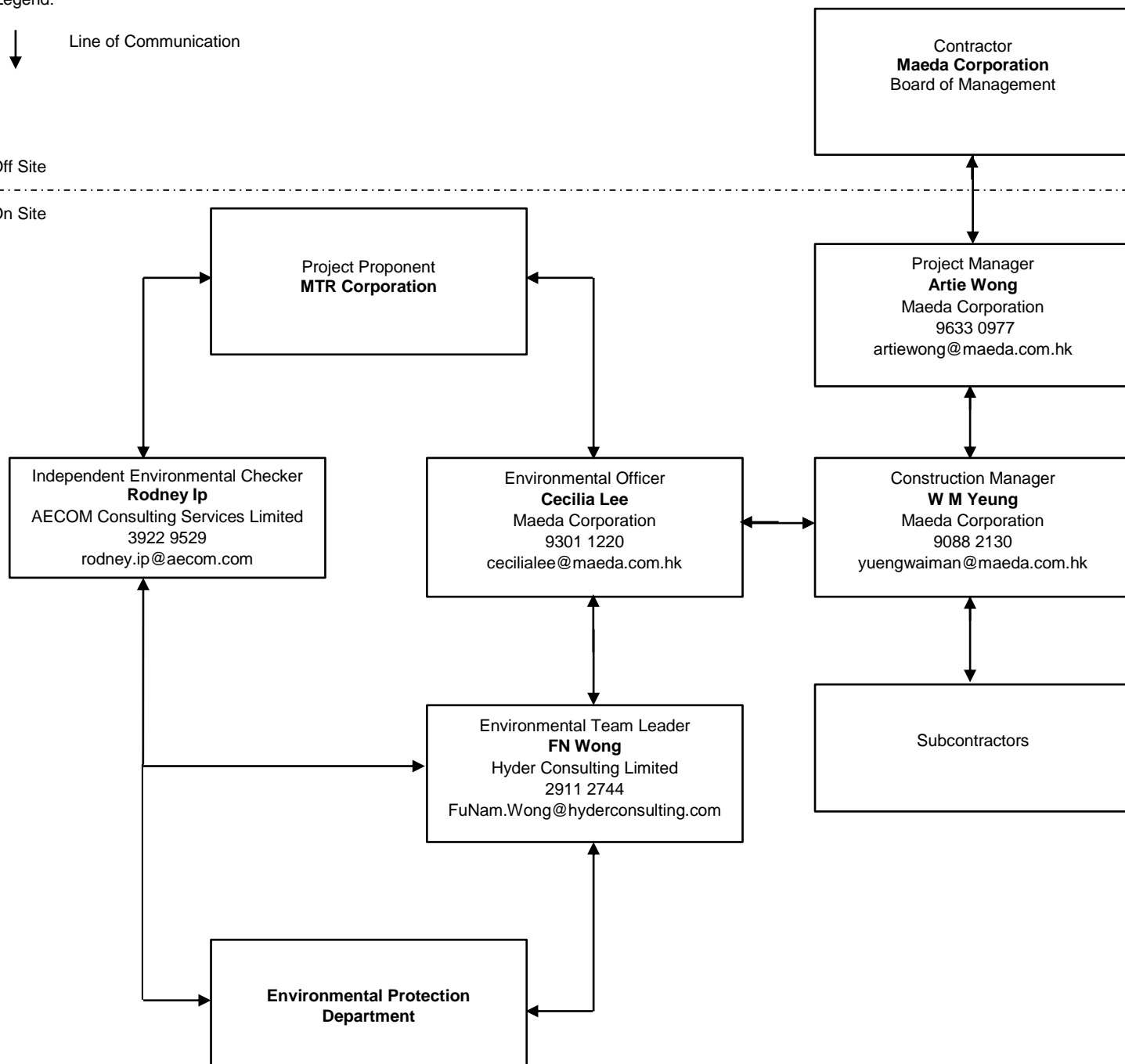
Project Organization Chart in Environmental Management (Rev.02)

Legend:

↓ Line of Communication

Off Site

On Site



Note: In Compliance with

i) Clause.1.3 of Environmental Monitoring and Audit Manual (Appendix VII of Project Profile PP462/2012)

Appendix C

Construction Programme

Appendix D

Implementation Schedule

Appendix VIII

Implementation Schedule

Project Profile Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
	Noise Impact					
S.3.1	Use of quieter plant	To minimise construction noise emissions	Contractor	Work site	Construction Stage	ProPECC PN2/93 and Noise Control Ordinance
S.3.1	Use of noise enclosure and movable barrier <ul style="list-style-type: none"> • movable barrier can achieve a 5 dB(A) reduction for movable PME and 10 dB(A) reduction for stationary PME; • noise enclosure can achieve 15dB(A) reduction for PME; • A typical design barrier with a steel frame of vertical / cantilever type would be adopted and located close to the noise generating part of PME; • Barrier material of surface mass in excess of 7kg/m² shall be required to achieve the maximum screening effect (and minimum 10kg/m² for noise enclosure); • The length of barrier should generally be at least five times greater than its height and the minimum height of a barrier should be such that no part of the noise source will be visible from the noise sensitive receiver being protected. 	To minimize construction noise emissions	Contractor	Work site	Construction Stage	ProPECC PN2/93, Noise Control Ordinance and EIAO Guidance Note NO. 9/2010
S.3.1	General Construction Noise Control Measures <ul style="list-style-type: none"> • The Code of Practice on Good Management Practice 	To minimize construction noise	Contractor	Work site	Construction Stage	ProPECC PN2/93 and Noise Control

Project Profile Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
	<p>to Prevent Violation of the Noise Control Ordinance (Chapter 400) (for Construction Industry) published by EPD shall be adopted;</p> <ul style="list-style-type: none"> • The statutory and non-statutory requirements and guidelines shall be complied with; • Approval for the method of working, equipment and noise mitigation measures intended to be used at the site shall be granted from the Project Engineer before commencing any work; • Working methods to minimize the noise impact on the surrounding NSRs shall be formulated and executed, and the implementation of these methods shall be monitored by experienced personnel with suitable training; • Noisy equipment and noisy activities shall be located as far away from the NSRs as is practical; • Unused equipment shall be turned off; • PME should be kept to a minimum and the parallel use of noisy equipment / machinery should be avoided; • All plant and equipment shall be maintained regularly; and • Material stockpiles and other structures shall be effectively utilized as noise barriers, whenever practicable. 	emissions				Ordinance
	Air Quality Impact					
S.3.2	<p>Construction Dust Control Measures</p> <ul style="list-style-type: none"> • Decking will be provided subsequent to the completion of surface excavation works. The duration 	To minimise the dust impacts arising from the	Contractor	Work site	Construction Stage	Air Pollution Control (Construction

Project Profile Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
	<p>of decking is around 13 months after surface excavation works;</p> <ul style="list-style-type: none"> • Regular watering to reduce dust emissions from all exposed site surface, particularly during dry weather; • Frequent watering for particularly dusty construction areas and areas close to air sensitive receivers; • Cover all excavated or stockpile of dusty material by impervious sheeting or spraying with water to maintain the entire surface wet; • Provision of vehicle washing facilities at the exit points of the site; and • Provision of tarpaulin covering of any dusty materials on a vehicle leaving the site. 	construction works				Dust) Regulation
	Water Quality Impact					
S.3.3	<p>Construction Water Quality Impact Measures</p> <ul style="list-style-type: none"> • The Contractor should design and implement all the mitigation measures and practices specified in the ProPECC PN 1/94 “Construction Site Drainage” and “Recommended Pollution Control Clauses for Construction Contracts” issued by EPD. • All runoffs arising from the construction site should be properly collected and treated to ensure the discharge standards as stipulated in WPCO are met. Silt trap and oil interceptor should be provided to remove the oil, lubricants, grease, silt, grit and debris from the wastewater before being pumped to the public stormwater drainage system. The silt traps and oil interceptors should be cleaned and maintained regularly. 	To reduce water quality impact induced by the construction work	Contractor	Work Site	Construction Stage	ProPECC PN1/94; Water Pollution Control Ordinance

Project Profile Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
	<ul style="list-style-type: none"> Any foul effluent should not be discharged into any public sewer and stormwater drain, unless an effluent discharge permit is obtained under the WPCO by the Contractor. Site toilet facilities, if needed, should be chemical toilets or should have the foul water effluent directed to a foul sewer. 					
	Waste Management					
S.3.4	<p>Construction Waste Management Measures</p> <ul style="list-style-type: none"> Excavated material should be reused on site as far as possible to minimise off-site disposal. Scrap metals or abandoned equipment should be recycled if possible. Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner. The Contractor should adopt a trip ticket system for the disposal of C&D materials to any designated public filling facility and/or landfill. Independent audits of the Contractor and resident site staff will be undertaken to ensure that the correct procedures are being followed. Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes. All general refuse should be segregated and stored in enclosed bins or compaction units and waste separation facilities for paper, aluminium cans, plastic bottles etc. should be provided to facilitate reuse or 	To adopt waste management measures in the way of avoiding, minimising, reusing and recycling so as to reduce waste generation	Contractor	Work Site	Construction Stage	Waste Disposal Ordinance (Cap. 54); Waste Disposal (Chemical Waste) (General) Regulation; ETWB TCW No. 31/2004; ETWB TCW No. 19/2005.

Project Profile Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
	recycling of materials and their proper disposal.					
	Landscape and Visual Impact					
S.3.5	Landscape and Visual Measures <ul style="list-style-type: none"> Screening of construction works by hoardings/noise barriers around works area with visually unobtrusive colours 	To reduce visual impact by construction works.	Contractor	Temporary Storage Area at Salisbury Road	Construction Stage	EIAO
S.3.5	<ul style="list-style-type: none"> Reinstating the affected amenity planting area at Salisbury Road after the completion of works 	To prevent loss of planter after construction	Contractor	Temporary Storage Area at Salisbury Road	Operation Stage	ETWB TCW No. 2/2004

Appendix E

Status of Environmental Licenses and Permits



Maeda Corporation

Contract No. C3840-13C

Tsim Sha Tsui Station Carnarvon Road Subway

Last Update: 15-February-2016

Licence Summary

Item No.	Our Ref.	Govt. Ord.	Type? (License / Permit / Account / Notification / Registration & etc.)	Description	Submission	Ref. No	Date of Submission (to EPD) (DD-MM-YYYY)	Date of Approval / Receipt (from EPD) (DD-MM-YYYY)	Date of Activation (DD-MM-YYYY)	Date of Expiry (DD-MM-YYYY) Green = expire next mth; Yellow = expire this wk; Red = Expired	Description	Remarks
000	000	EIAO	Permit	Environmental Permit	N/A	AEP-440/2012	N/A	N/A	18 - 07 - 2012	N/A	Baseline, Air & Noise Impact Monitoring	
001	001	APCO	Notification	Construction Dust Notification	Form NA – Notification S3(1) of APCO (Construction Dust)	365953	18 - 10 - 2013	21 - 10 - 2013	01 - 02 - 2014	01 - 10 - 2016	Demolition of a Building	
001	001	APCO	Notification	Construction Dust Notification	Form NA – Notification S3(1) of APCO (Construction Dust)	365953	18 - 10 - 2013	21 - 10 - 2013	01 - 08 - 2014	01 - 08 - 2016	Work carried out in any part of a tunnel that is within 100m of any exit to the open air	
001	001	APCO	Notification	Construction Dust Notification	Form NA – Notification S3(1) of APCO (Construction Dust)	365953	18 - 10 - 2013	21 - 10 - 2013	01 - 01 - 2016	01 - 03 - 2017	Construction of the Superstructure of a Building	
001	001	APCO	Notification	Construction Dust Notification	Form NA – Notification S3(1) of APCO (Construction Dust)	365953	18 - 10 - 2013	21 - 10 - 2013	01 - 11 - 2016	10 - 09 - 2017	Road Construction Work	
002	002	WDO	Account	Construction Waste Billing Account	EPD-211 (Form 1) Application for a Billing Account for Disposal of Construction Waste	7018523	18 - 10 - 2013	25 - 10 - 2013	25 - 10 - 2013	N/A	Disposal of C&D Waste	Application No. WFG12765
003	003 WPCO #002	WPCO	Licence	Water Discharge Licence	EPD-117 (Form A) Application for a Licence of Water Discharge	WT00019722-2014	24 - 07 - 2014	01 - 09 - 2014	01 - 09 - 2014	31 - 03 - 2019	Quarterly Report FlowRate 25m3/d, pH 6-9, SS 30mg/L, COD 80mg/L	
004	004 CWP#001	WDO	Registration	Chemical Waste Producer	EPD-129 Application for Registration as a Chemical Waste Producer	5213-2214-M2446-16	15 - 01 - 2014	04 - 03 - 2014	04 - 03 - 2014	N/A	Surplus paint, spent lubricating oil, spent battery	
005	005 CNP#003	NCO	Permit	Construction Noise Permit	EPD74A(s) Form 1 - Application for a Construction Noise Permit	Application: 389338 Permit: GW-RE0558-15	27 - 05 - 2015	03 - 06 - 2015	23 - 06 - 2015	22 - 12 - 2015	Apply for 4nos Submersible Water pump (Electric) w/ whole site area	Superseded by GW-RE1279-15 at 2300 on 22 Dec
005	005 CNP#004	NCO	Permit	Construction Noise Permit	EPD74A(s) Form 1 - Application for a Construction Noise Permit	Application: 396336 Permit: GW-RE1279-15	04 - 12 - 2015	14 - 12 - 2015	22 - 12 - 2015	15 - 02 - 2016	Apply for 4nos Submersible Water pump (Electric) w/ whole site area	Superseded by GW-RE0088-16 at 0:00 on 15 Feb 2016
005	005 CNP#005	NCO	Permit	Construction Noise Permit	EPD74A(s) Form 1 - Application for a Construction Noise Permit	Application: 397983 Permit: GW-RE0088-16	15 - 01 - 2016	29 - 01 - 2016	15 - 02 - 2016	14 - 08 - 2016	4nos Electric Water pump (whole site) or 1no Air Blower (TS) or 4nos Hand-held Drill (TS)	

Appendix F

Event and Action Plan

Event and Action Plan for Air Quality

In case the Action and Limit Levels are not complied during construction stage, the Event and Action Plan shown below should be followed.

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

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

Event / Action	ET	IEC	ER	Contractor
	results; 8. If exceedance stops, cease additional monitoring.			

Event and Action Plan for Construction Noise

In case the Action and Limit Levels are not complied during the construction stage, the Event and Action Plan shown below should be followed.

Event / Action	ET	IEC	ER	Contractor
Action Level	<ol style="list-style-type: none"> 1. Notify IEC and Contractor. 2. Carry out investigation. 3. Report the results of investigation to the IEC and Contractor. 4. Discuss with the Contractor and formulate remedial measures 5. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review the analyzed result submitted by ET. 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly. 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC 2. Implement noise mitigation proposals
Limit Level	<ol style="list-style-type: none"> 1. Notify IEC, ER, EPD and Contractor, and follow other actions 2. Identify source 3. Repeat measurement to confirm findings 4. Increase monitoring frequency 5. Check Contractor's working procedures to determine possible mitigation to be implemented 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances 7. Assess effectiveness of Contractor's 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET and Contractor on the potential remedial actions 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ET accordingly 3. Supervise the implementation of remedial measures 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedances 2. Notify Contractor 3. Require Contractor to propose remedial measures 4. Ensure remedial measures are properly implemented 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to IEC within 3 working days of notifications 3. Implement the agreed proposals 4. Revise and resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Event / Action	ET	IEC	ER	Contractor
	remedial actions and keep IEC, EPD, ER informed of the results 8. If exceedance stops, cease additional monitoring			

Appendix G

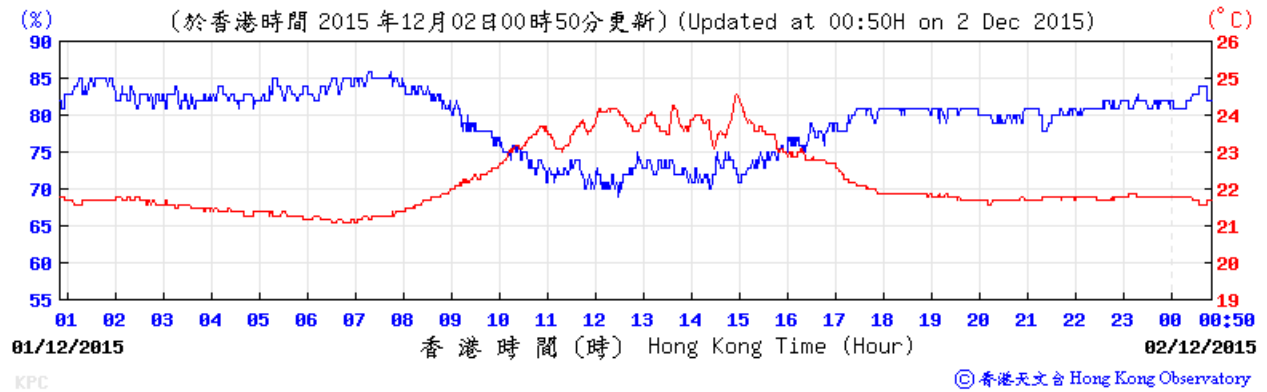
Weather Information Extracted from HK Observatory

Daily Total Rainfall at King's Park HKO Weather Monitoring Station - December 2015

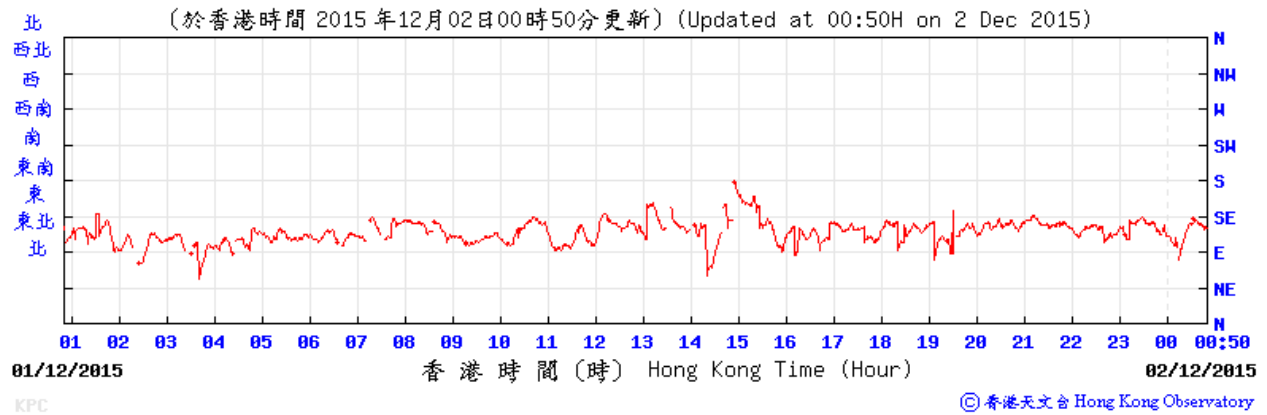
Day	Total Rainfall, mm	24-hr TSP	Noise	Remarks
1	0.3	✓	✓	No rainfall perceived on site during noise monitoring.
2	7			
3	46.4			
4	38.1			
5	15.6			
6	50.7			
7	5.8			
8	0	✓	✓	No rainfall perceived on site during noise monitoring.
9	Trace			
10	1			
11	2			
12	Trace			
13	Trace			
14	0			
15	0	✓	✓	No rainfall perceived on site during noise monitoring.
16	0			
17	0			
18	0			
19	0			
20	0			
21	Trace			
22	0	✓	✓	No rainfall perceived on site during noise monitoring.
23	0			
24	Trace			
25	0.2			
26	0.7			
27	0			
28	Trace			
29	Trace	✓	✓	No rainfall perceived on site during noise monitoring.
30	0			
31	0.5			

King's Park Weather Station – 01 December 2015

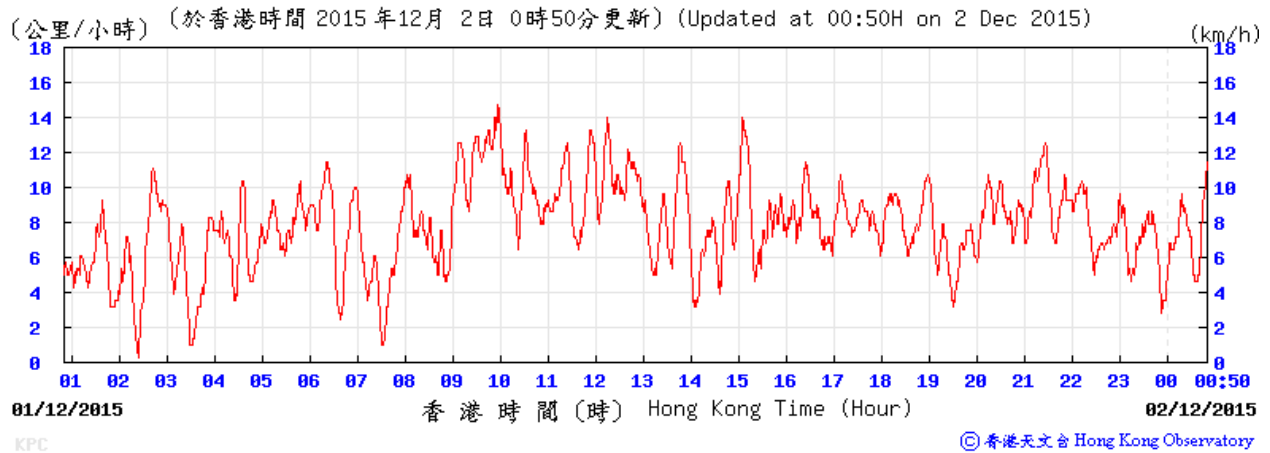
Temperature/Humidity:



Wind Direction:

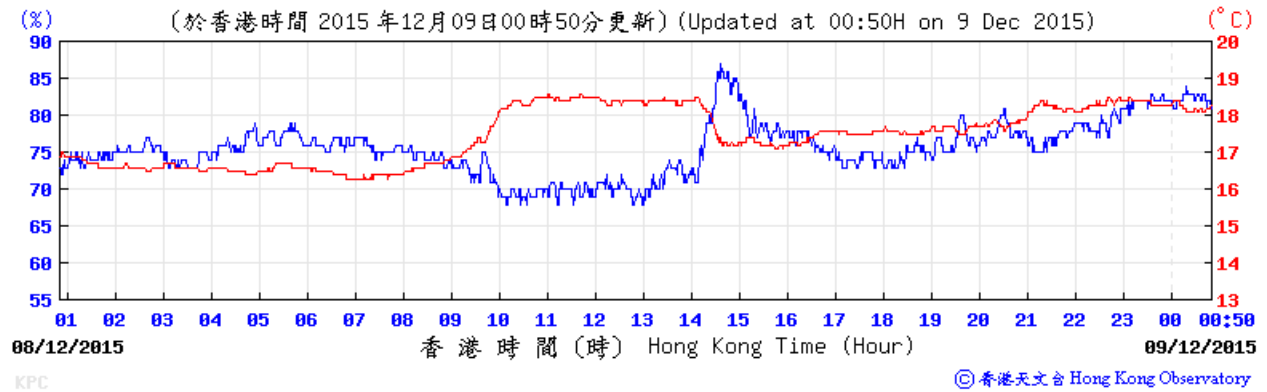


Wind Speed:

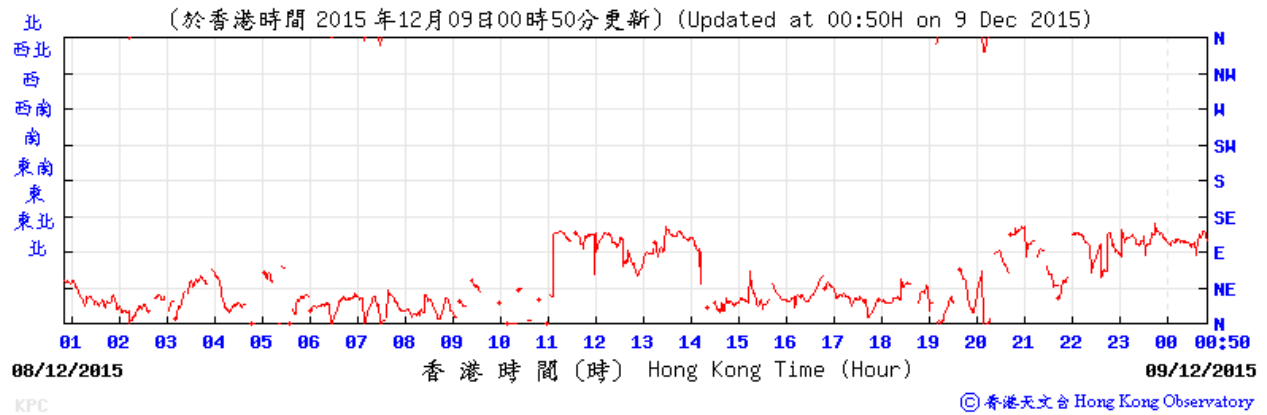


King's Park Weather Station – 08 December 2015

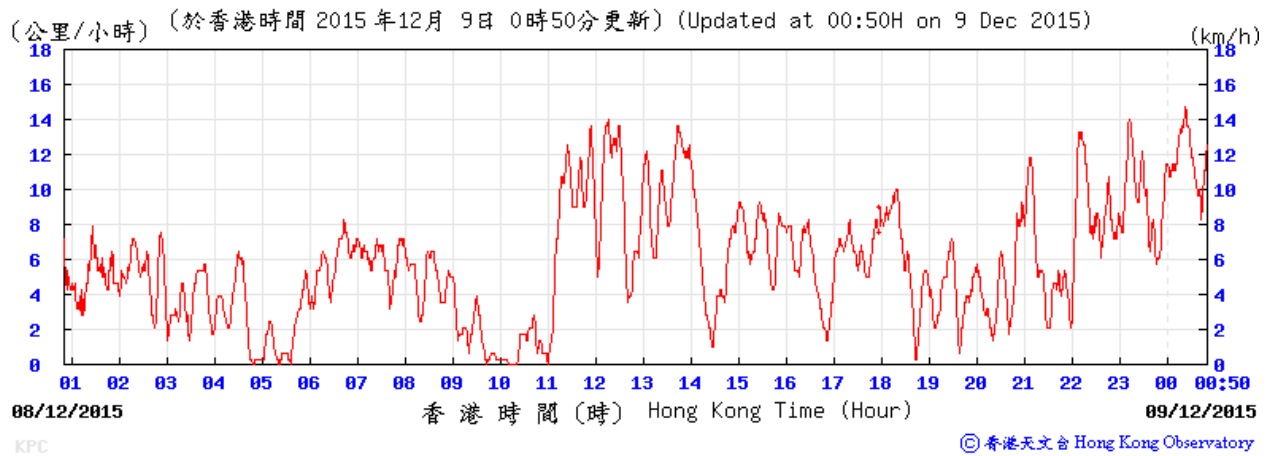
Temperature/Humidity:



Wind Direction:

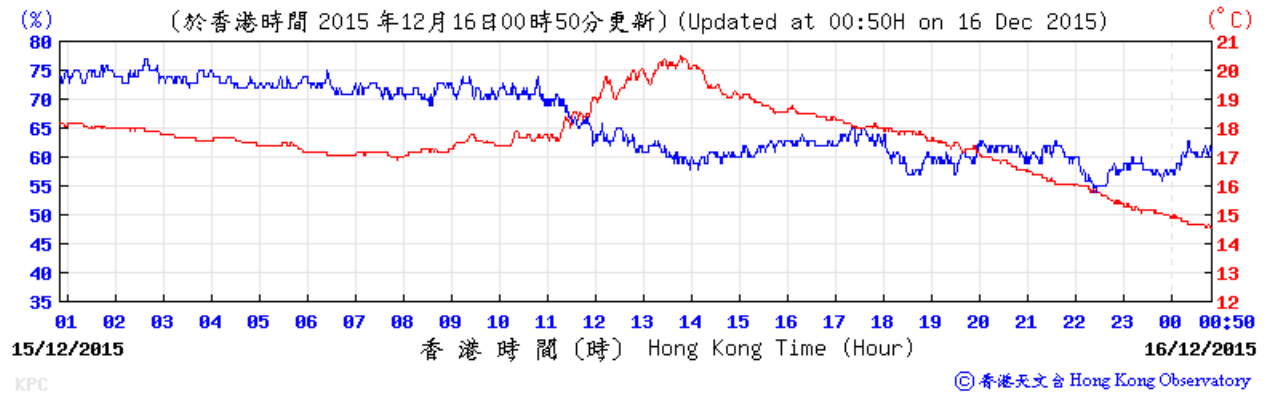


Wind Speed:

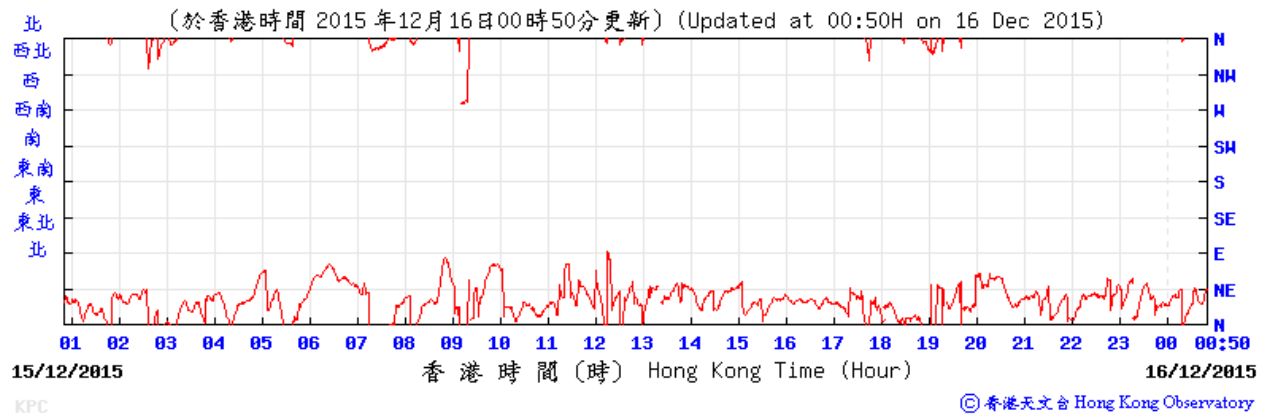


King's Park Weather Station – 15 December 2015

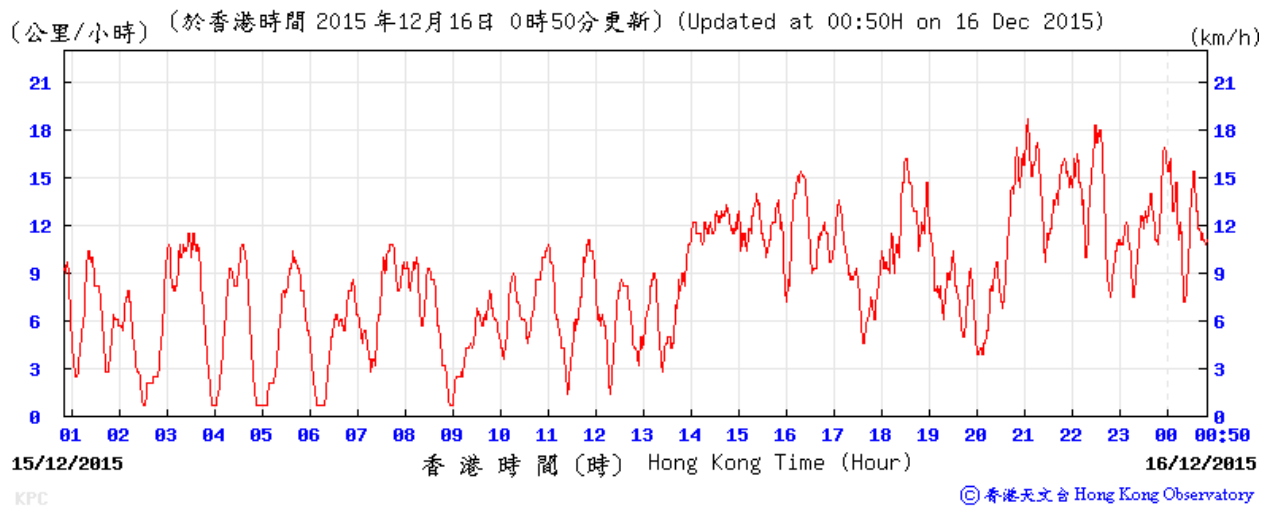
Temperature/Humidity:



Wind Direction:

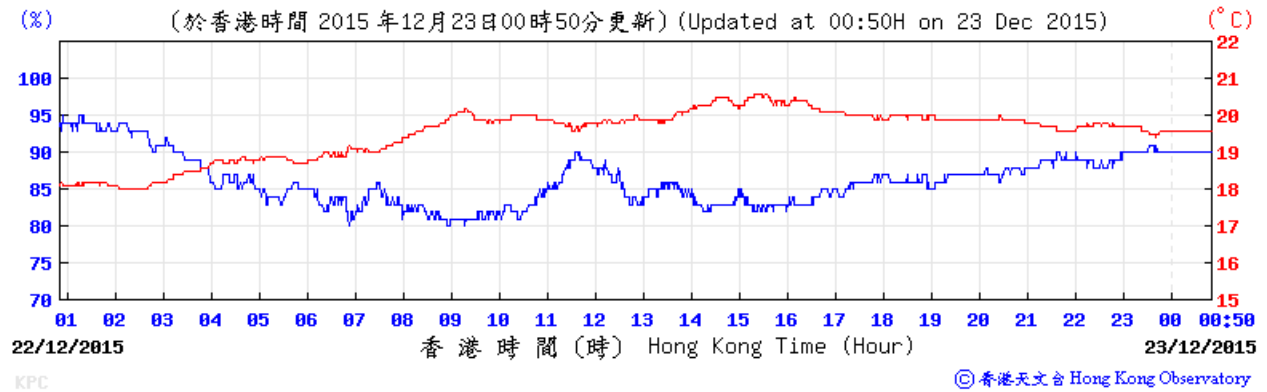


Wind Speed:

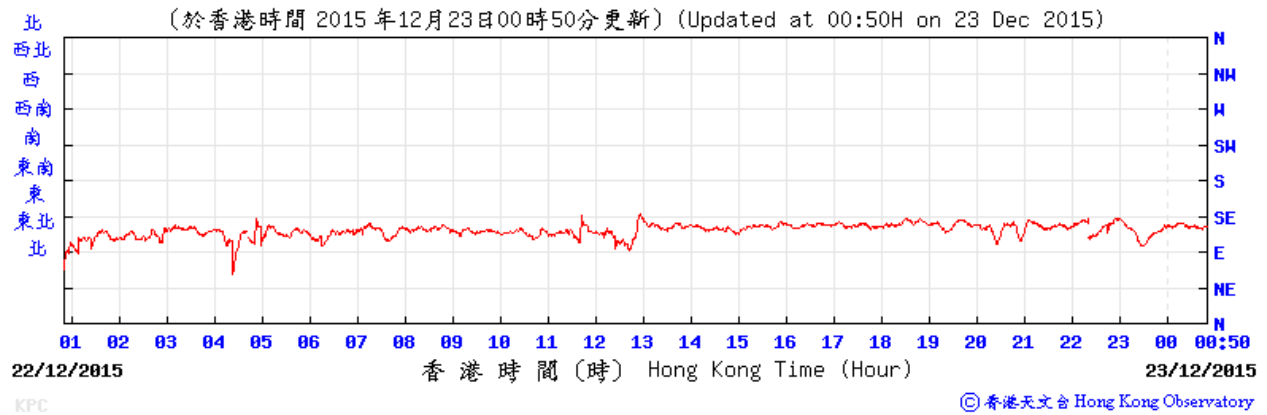


King's Park Weather Station – 22 December 2015

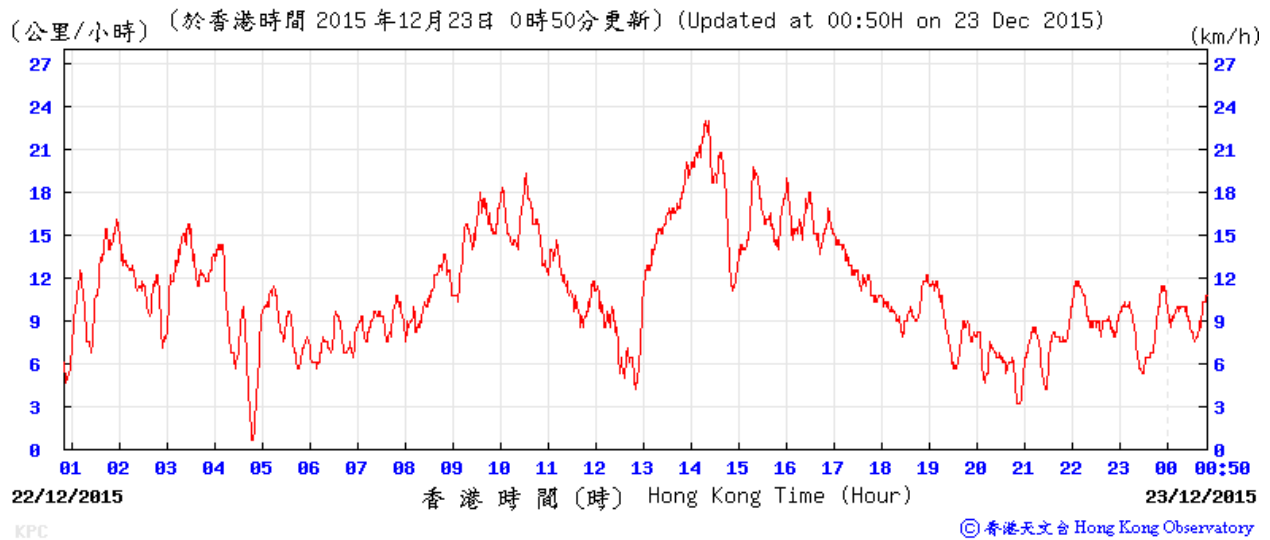
Temperature/Humidity:



Wind Direction:

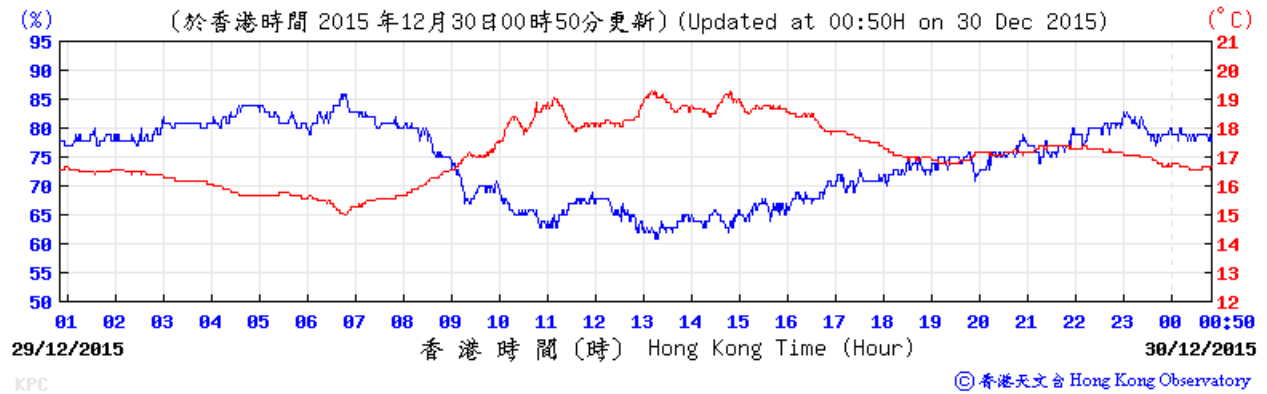


Wind Speed:

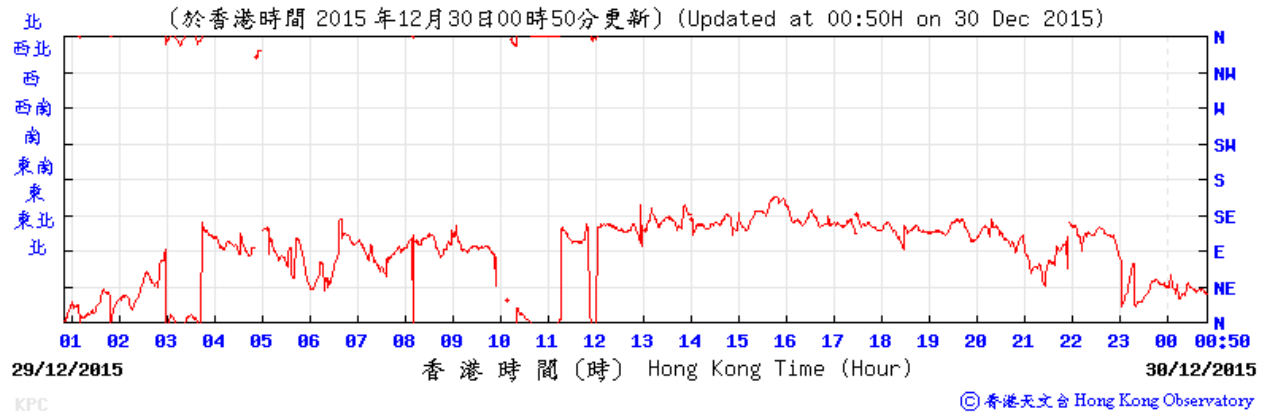


King's Park Weather Station – 29 December 2015

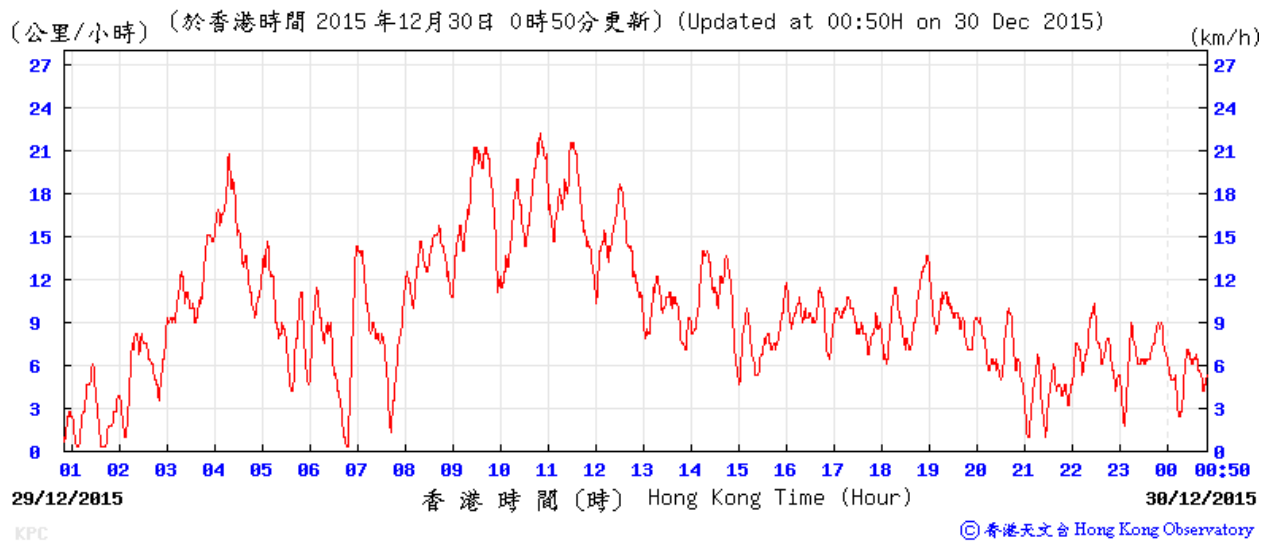
Temperature/Humidity:



Wind Direction:



Wind Speed:

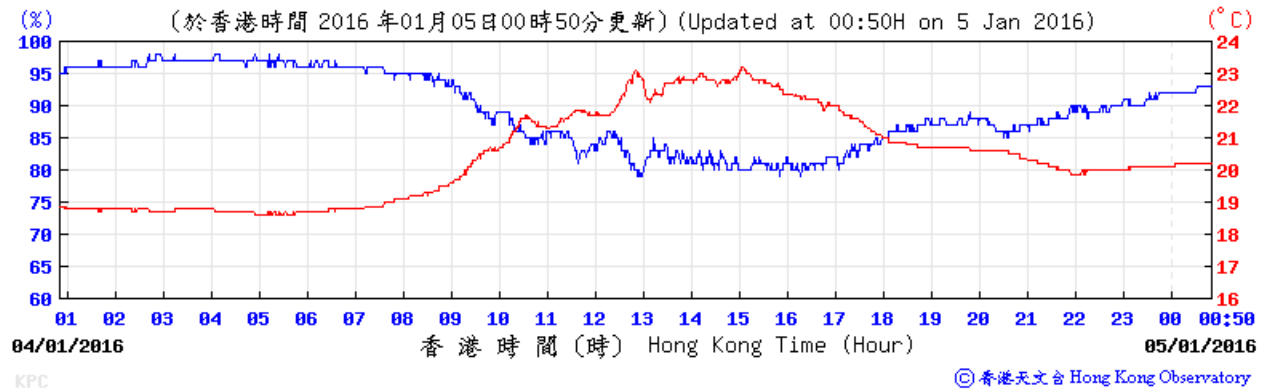


Daily Total Rainfall at King's Park HKO Weather Monitoring Station - January 2016

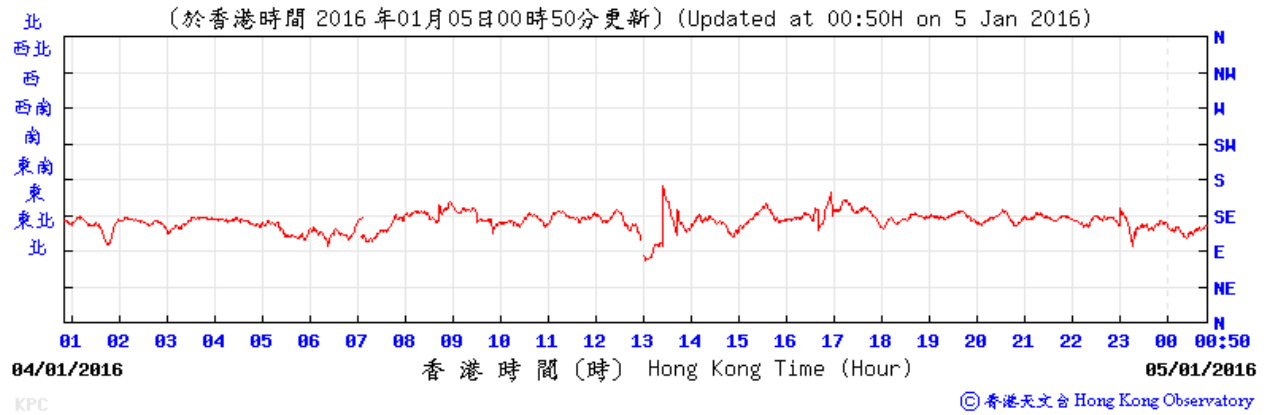
Day	Total Rainfall, mm	24-hr TSP	Noise	Remarks
1	Trace			
2	0.3			
3	5.6			
4	Trace	✓		
5	46.7			
6	Trace		✓	It was sunny on site during noise monitoring.
7	0			
8	0			
9	0			
10	6.9			
11	30.7	✓		
12	0		✓	It was cloudy without rainfall on site during noise monitoring.
13	0			
14	1.1			
15	38.8			
16	12.3			
17	24.6			
18	0	✓		
19	0		✓	It was cloudy without rainfall on site during noise monitoring.
20	3.3			
21	0.1			
22	12.9			
23	0.5			
24	4			
25	0	✓		
26	Trace		✓	It was cloudy without rainfall on site during noise monitoring.
27	3.5			
28	42.5			
29	32.8			
30	0			
31	0.3			

King's Park Weather Station – 04 January 2016

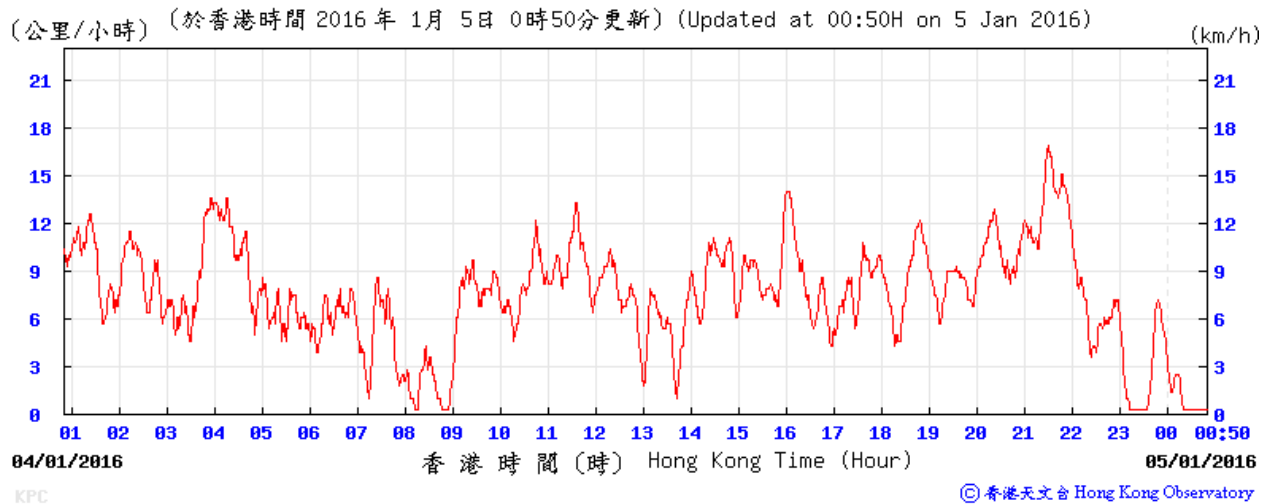
Temperature/Humidity:



Wind Direction:

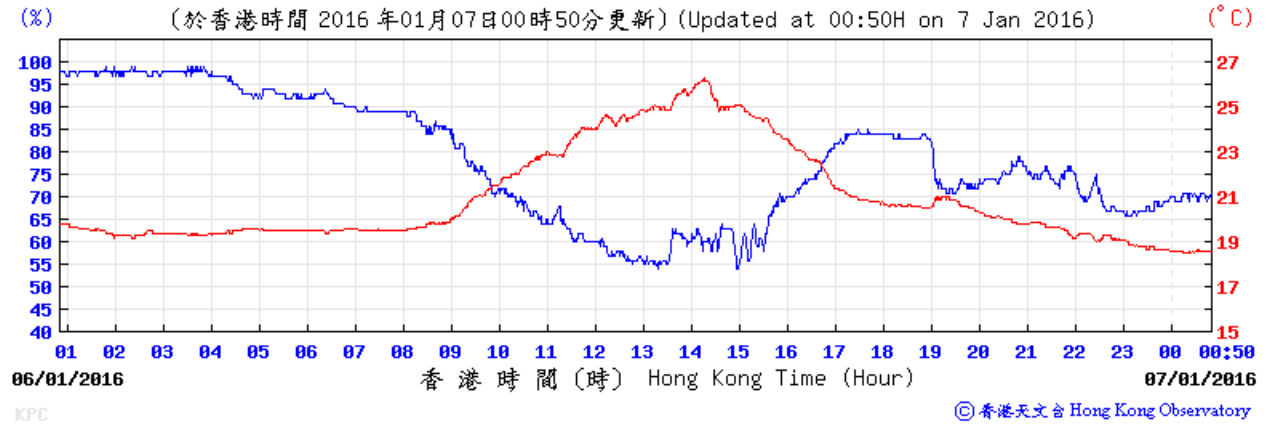


Wind Speed:

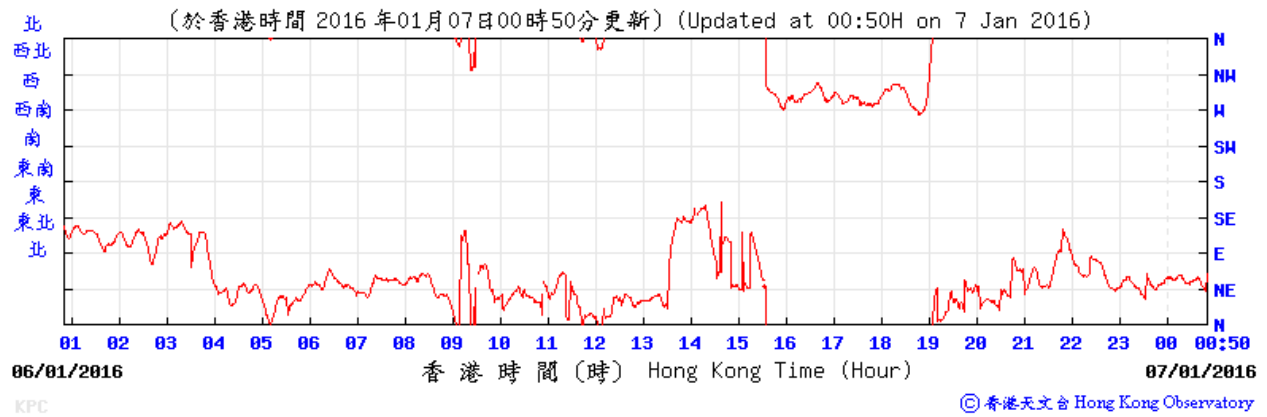


King's Park Weather Station – 06 January 2016

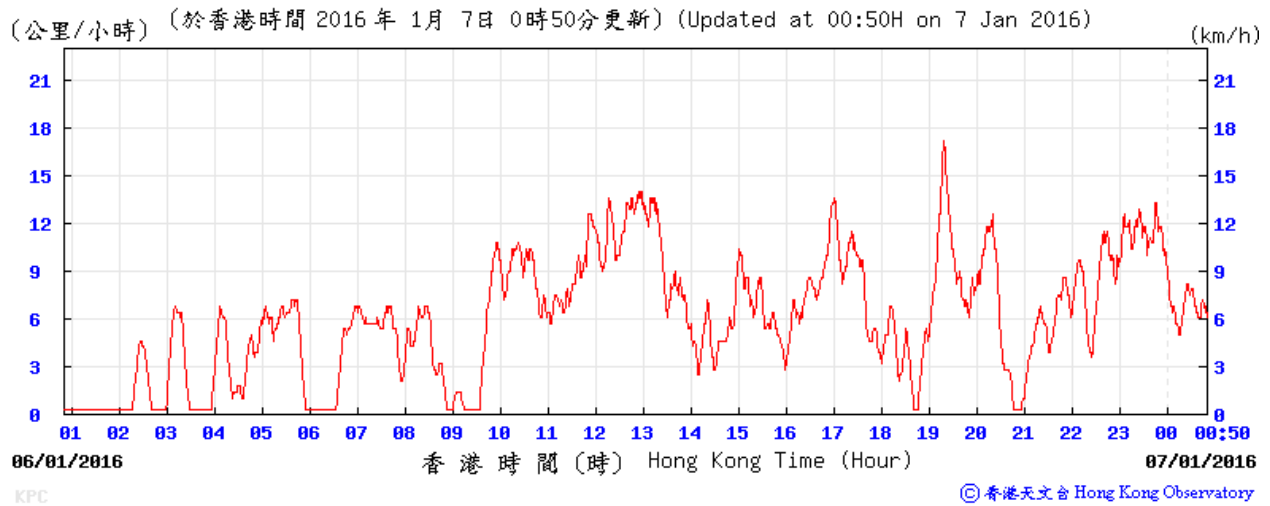
Temperature/Humidity:



Wind Direction:

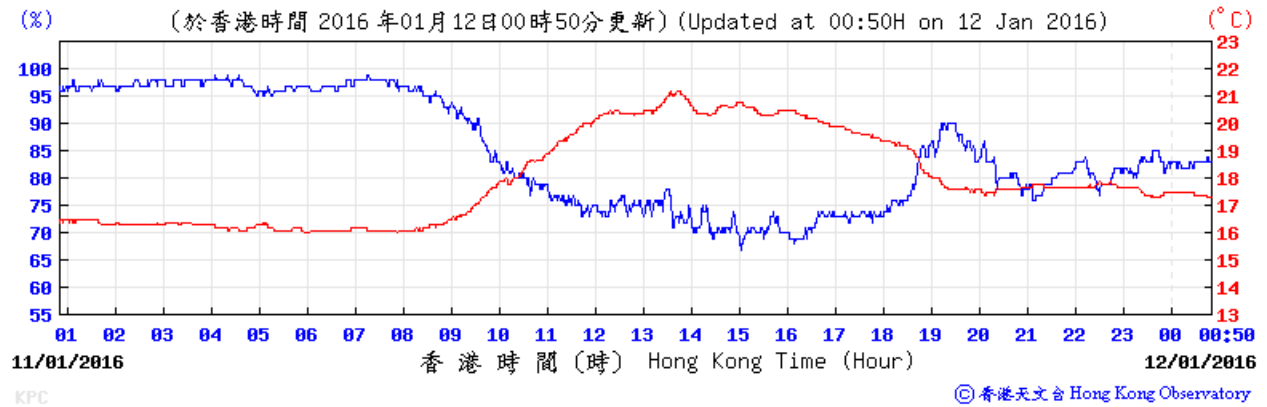


Wind Speed:

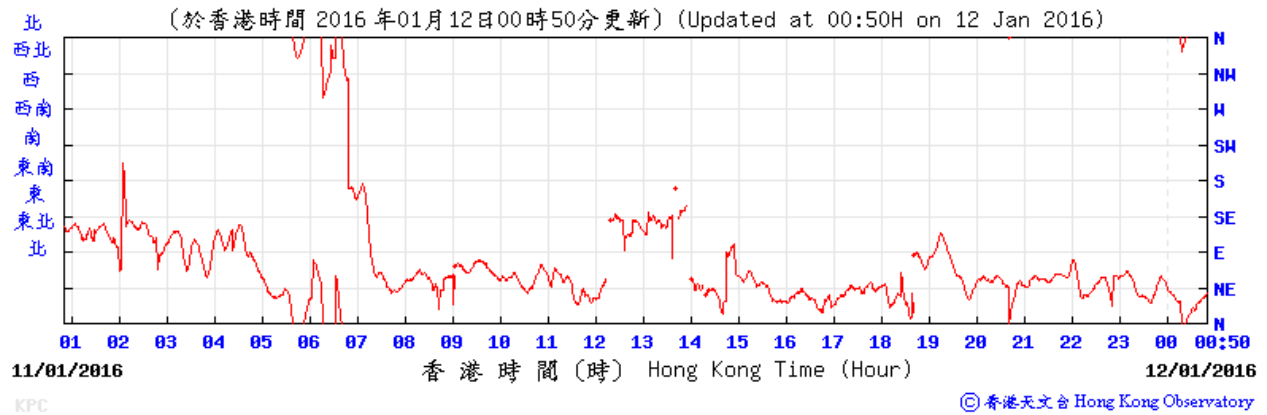


King's Park Weather Station – 11 January 2016

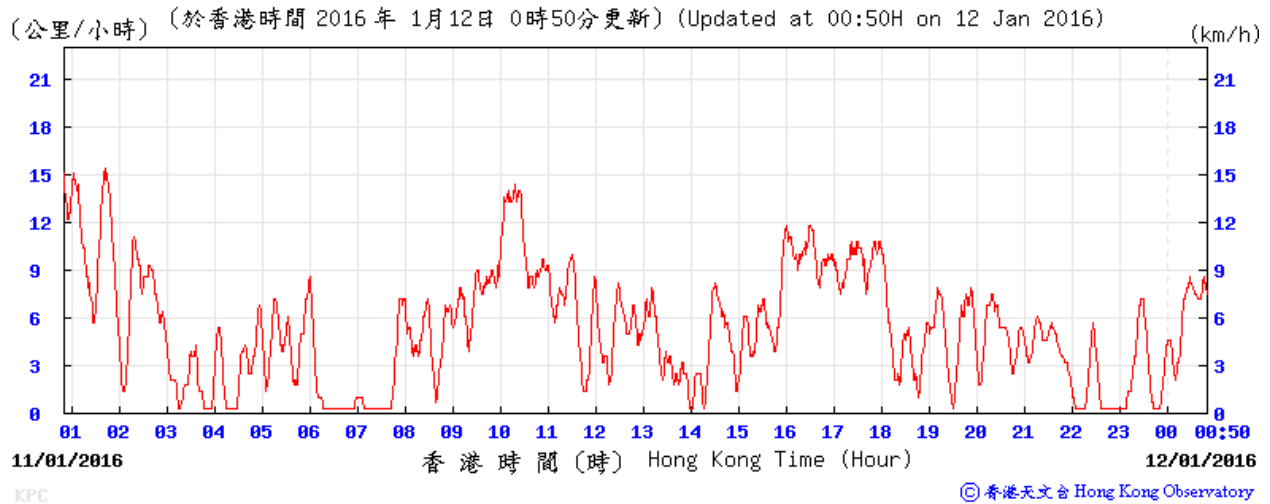
Temperature/Humidity:



Wind Direction:

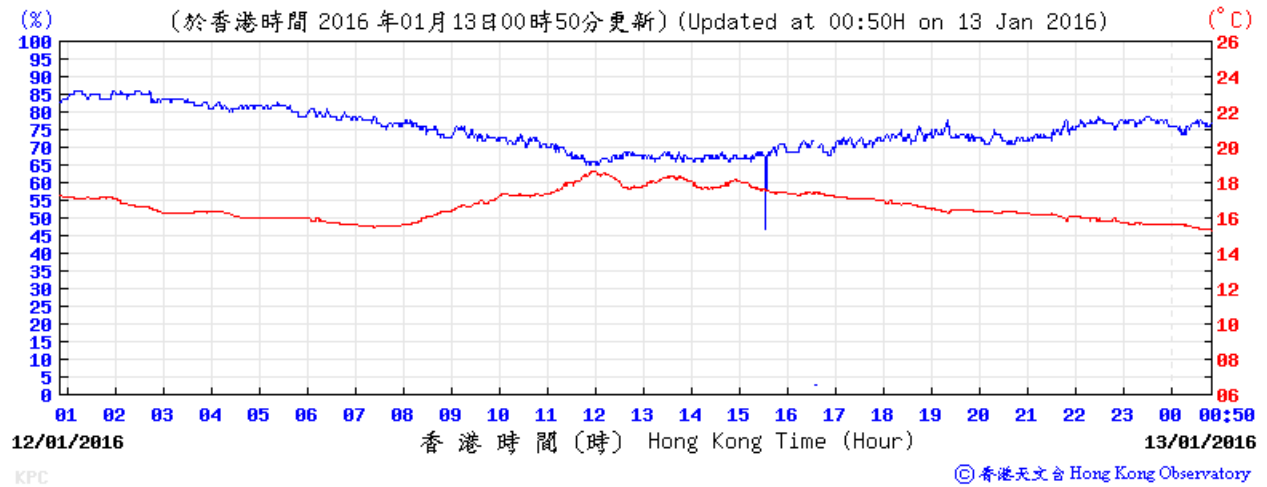


Wind Speed:

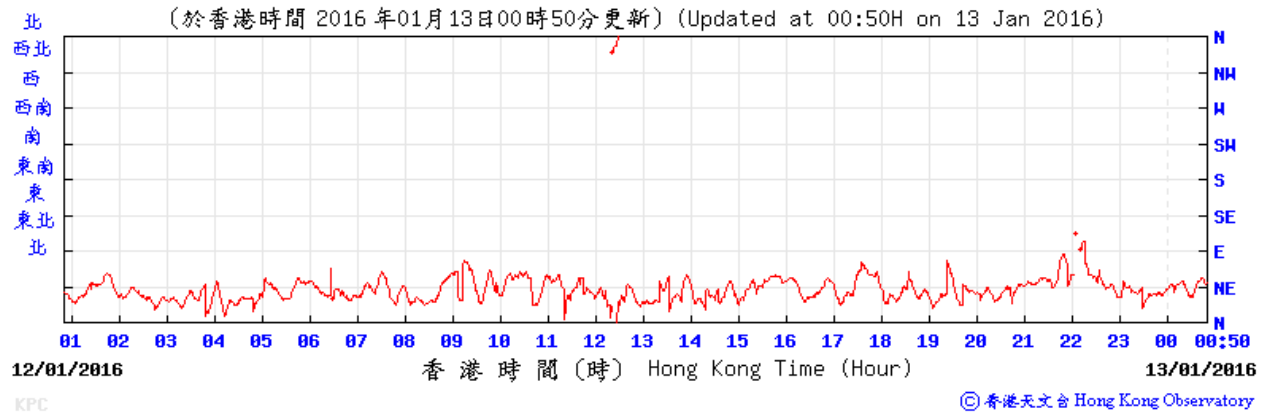


King's Park Weather Station – 12 January 2016

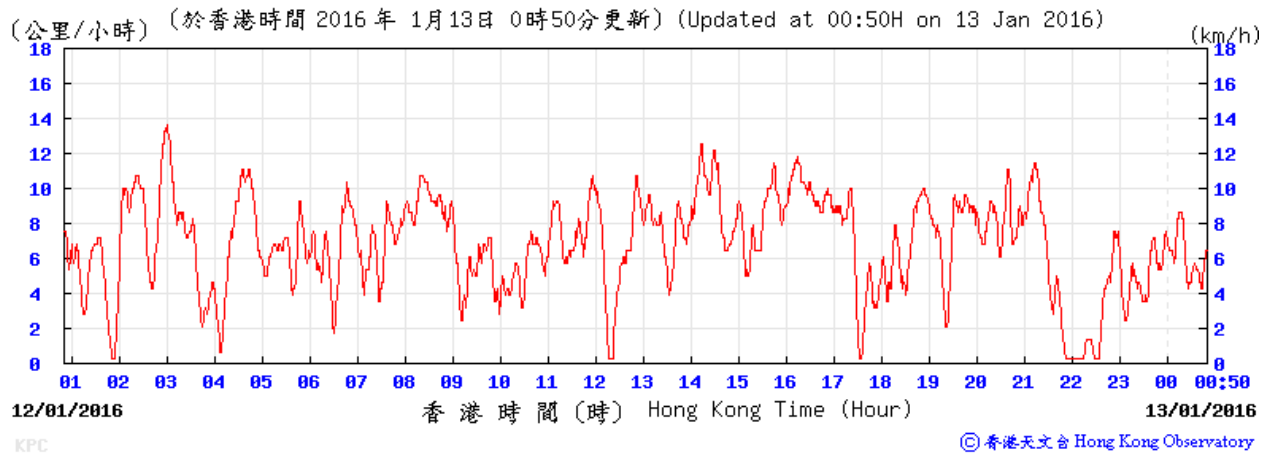
Temperature/Humidity:



Wind Direction:

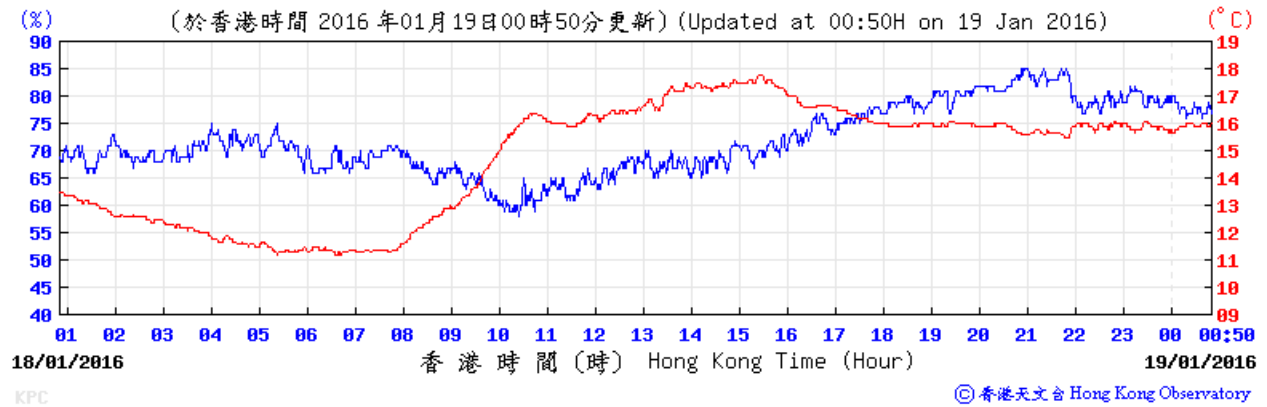


Wind Speed:

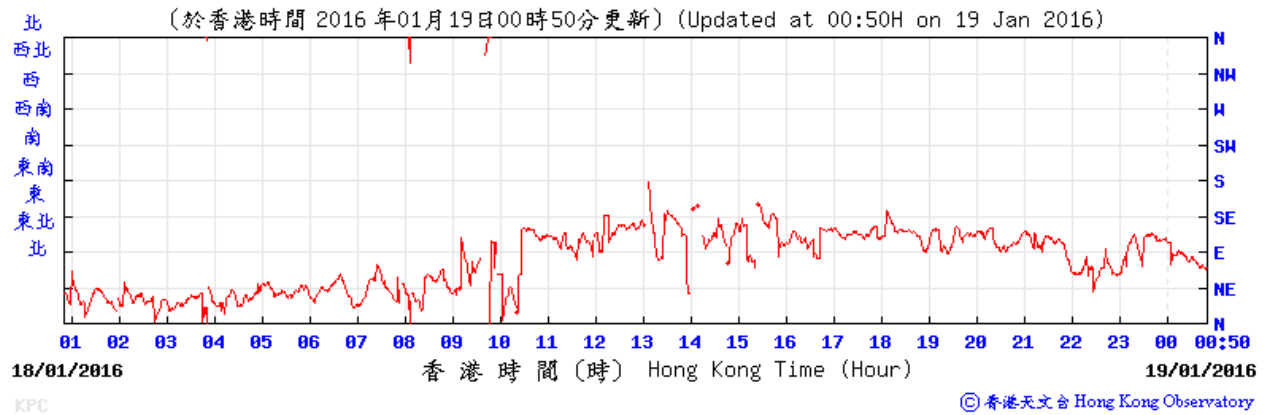


King's Park Weather Station – 18 January 2016

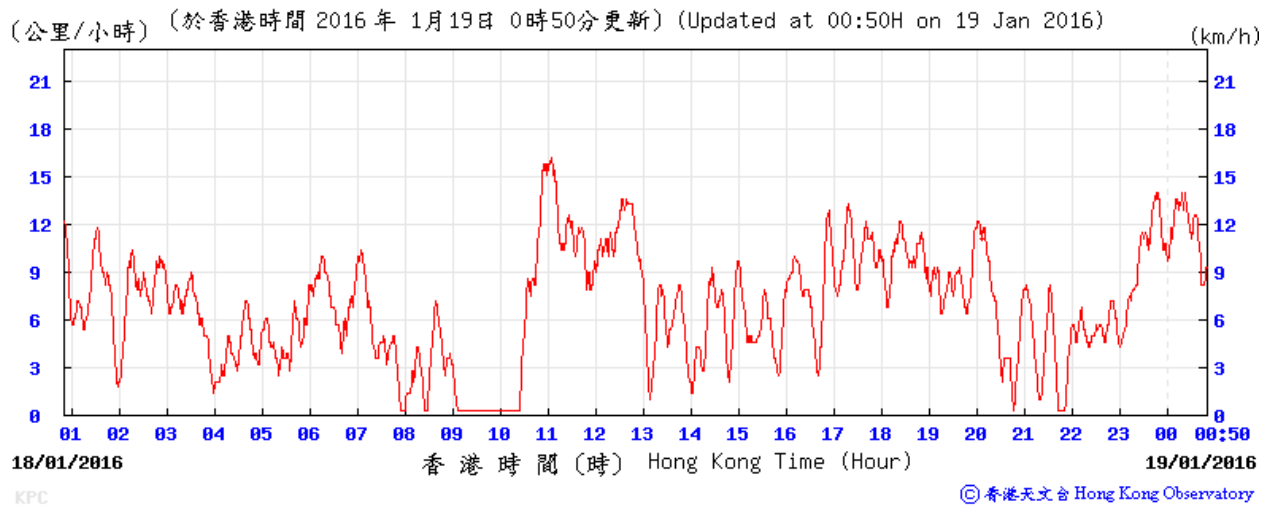
Temperature/Humidity:



Wind Direction:

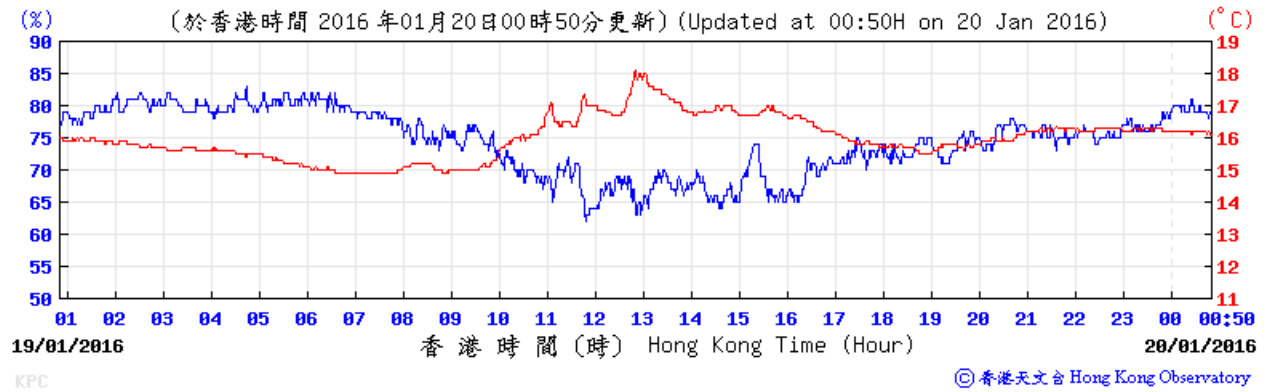


Wind Speed:

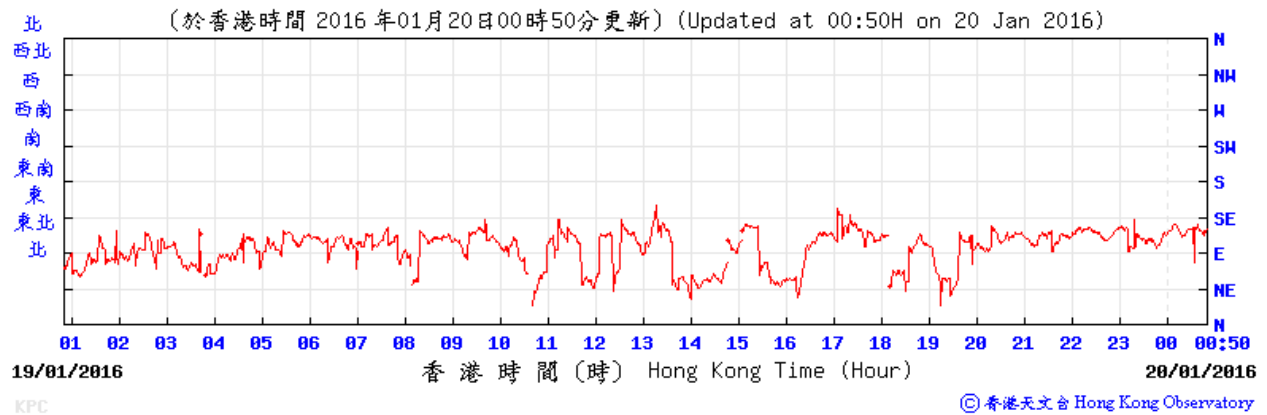


King's Park Weather Station – 19 January 2016

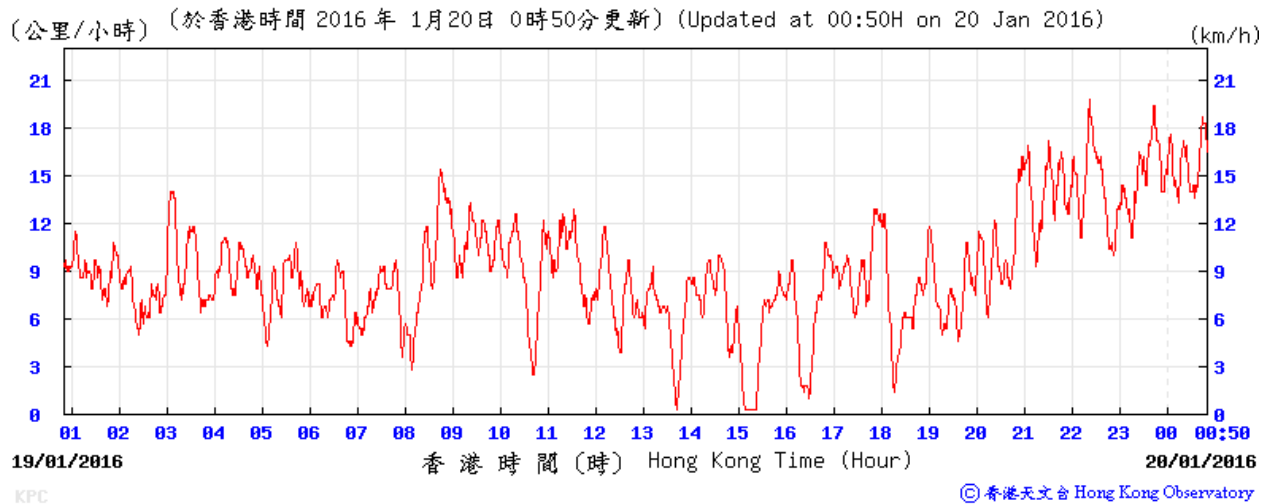
Temperature/Humidity:



Wind Direction:

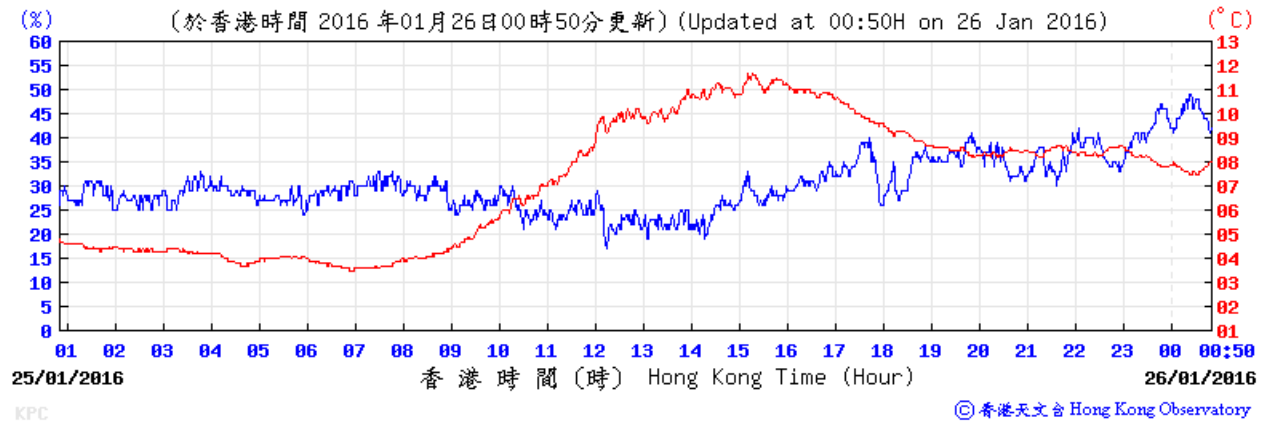


Wind Speed:

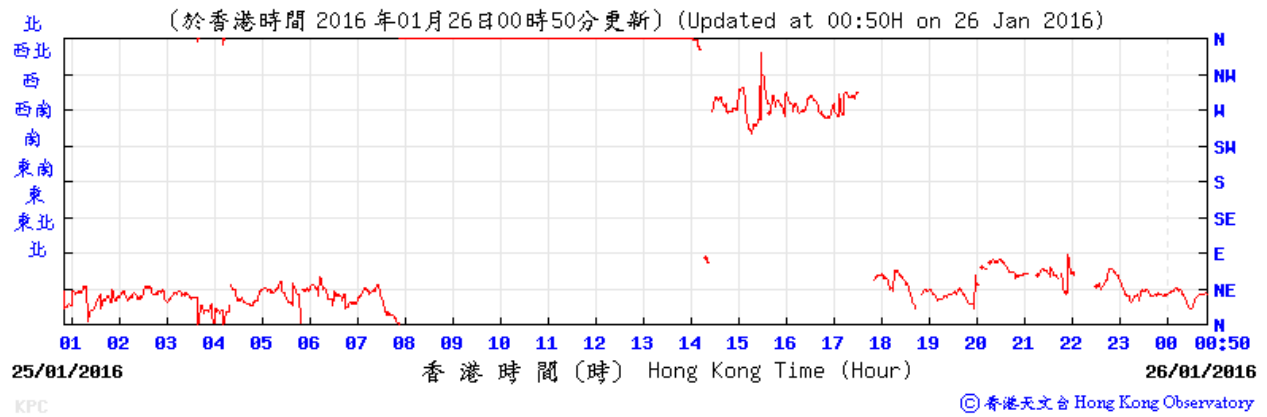


King's Park Weather Station – 25 January 2016

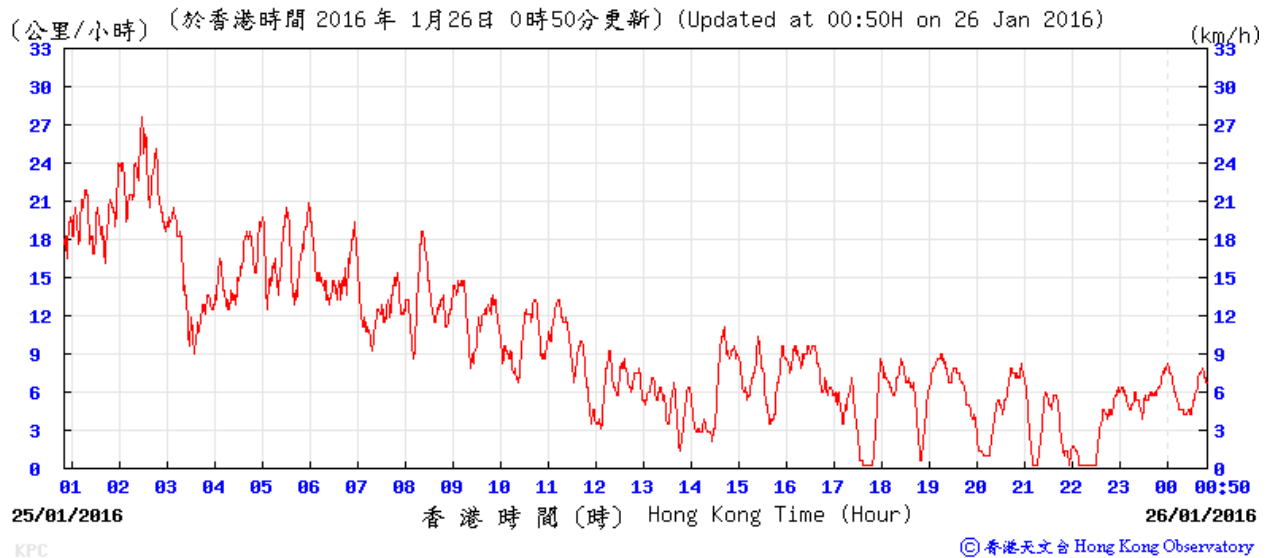
Temperature/Humidity:



Wind Direction:

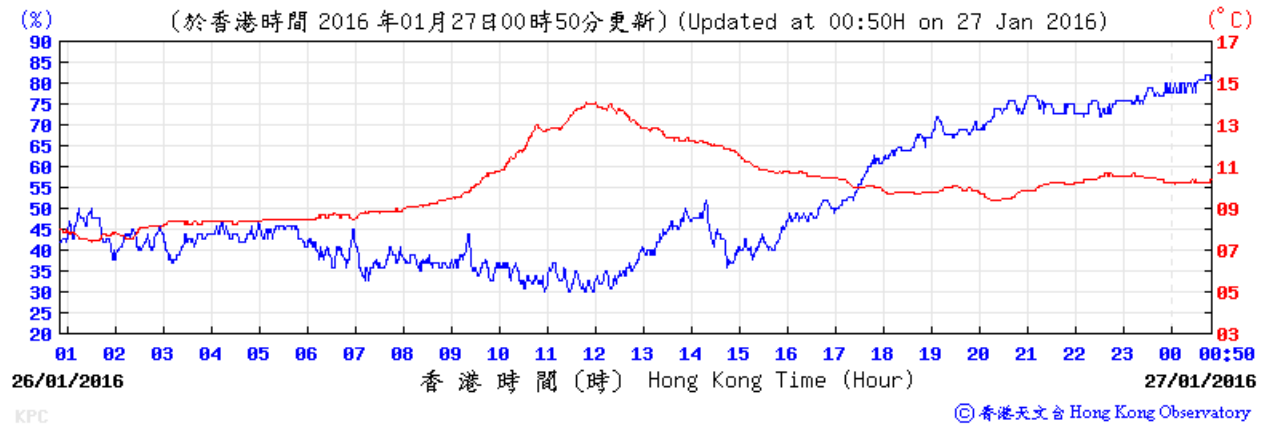


Wind Speed:

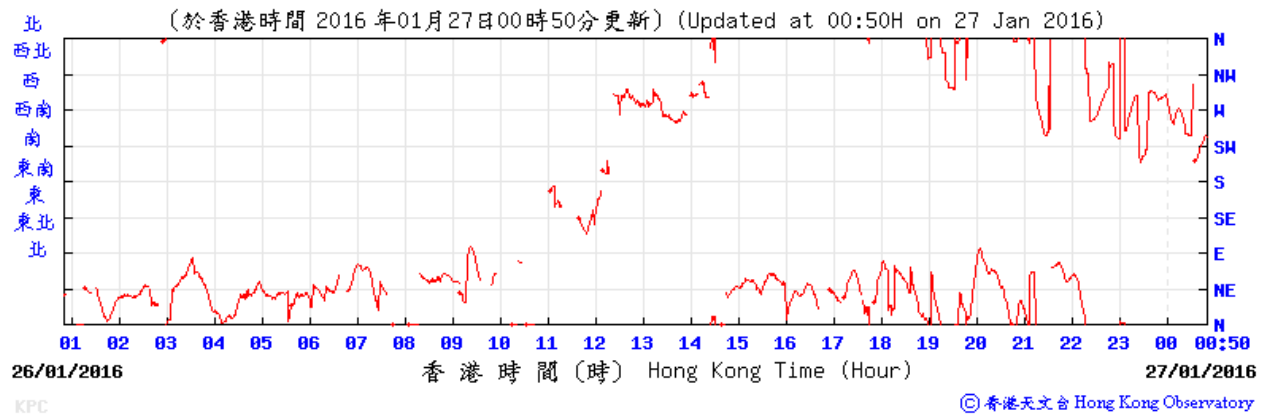


King's Park Weather Station – 26 January 2016

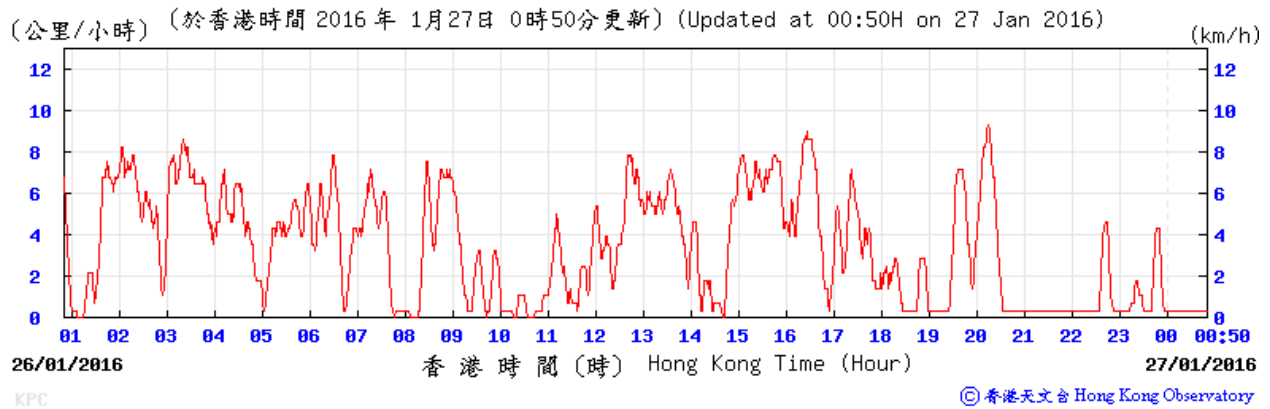
Temperature/Humidity:



Wind Direction:



Wind Speed:

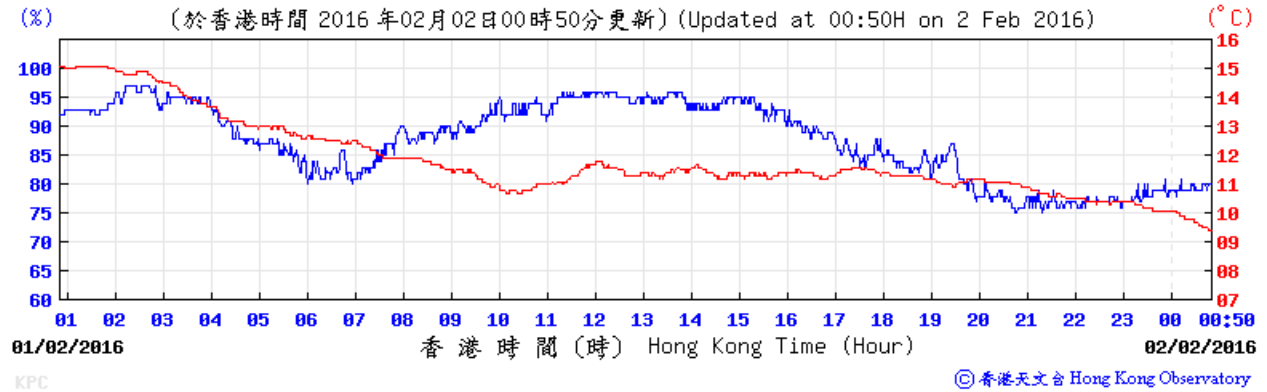


Daily Total Rainfall at King's Park HKO Weather Monitoring Station - February 2016

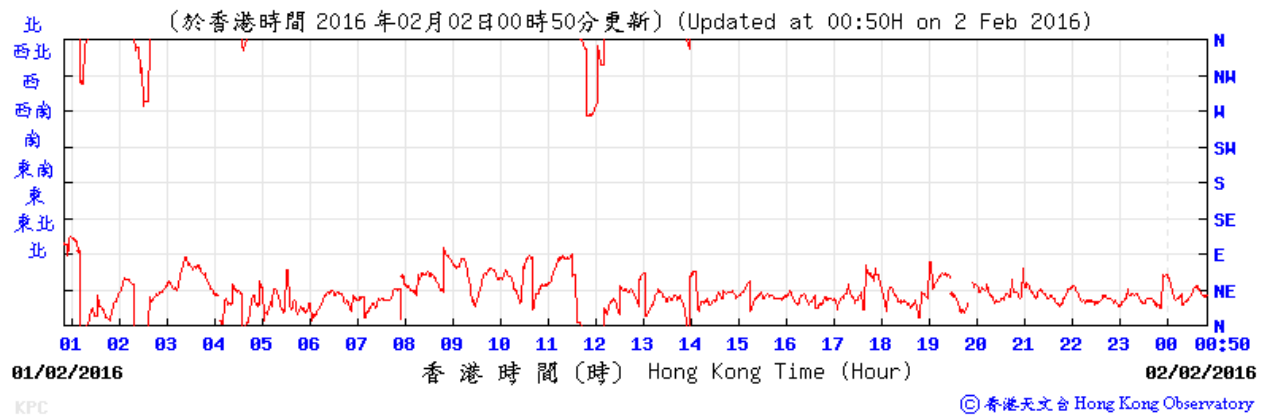
Day	Total Rainfall, mm	24-hr TSP	Noise	Remarks
1	11.3	✓		
2	Trace		✓	It was cloudy without rainfall on site during noise monitoring.
3	Trace			
4	0			
5	0			
6	0			
7	0			
8	0			
9	0			
10	0.2			
11	Trace	✓	✓	It was cloudy without rainfall on site during noise monitoring.
12	0.1			
13	0			
14	Trace			
15	0.3	✓		
16	0		✓	It was cloudy without rainfall on site during noise monitoring.
17	1.7			
18	3.4			
19	4.4			
20	2.4			
21	Trace			
22	0.5	✓		
23	0.5			
24	Trace			
25	0		✓	It was cloudy without rainfall on site during noise monitoring.
26	Trace			
27	Trace			
28	0			
29	0			

King's Park Weather Station – 01 February 2016

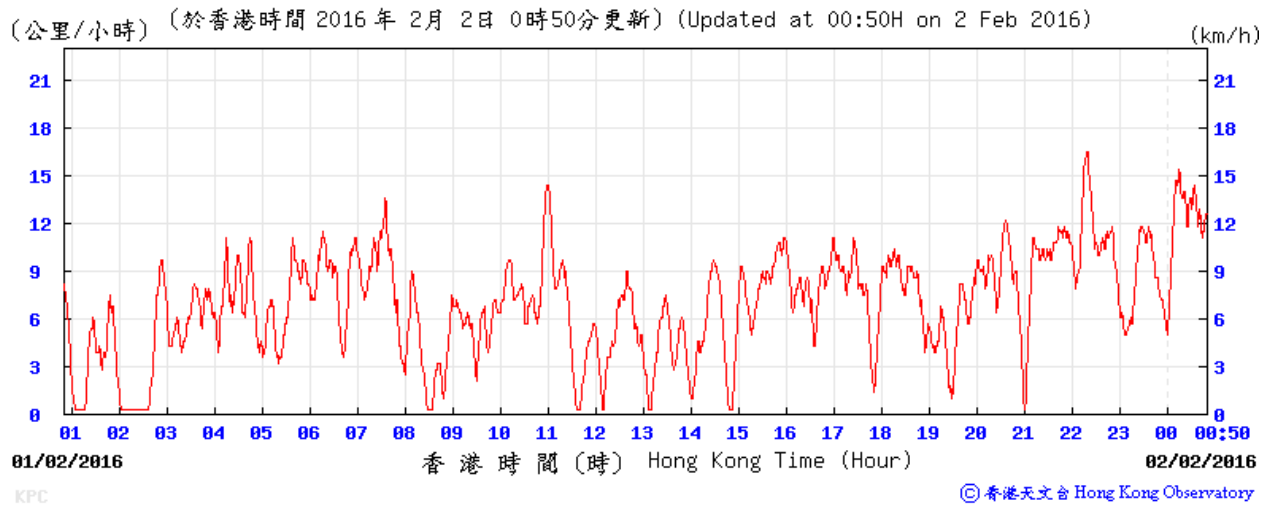
Temperature/Humidity:



Wind Direction:

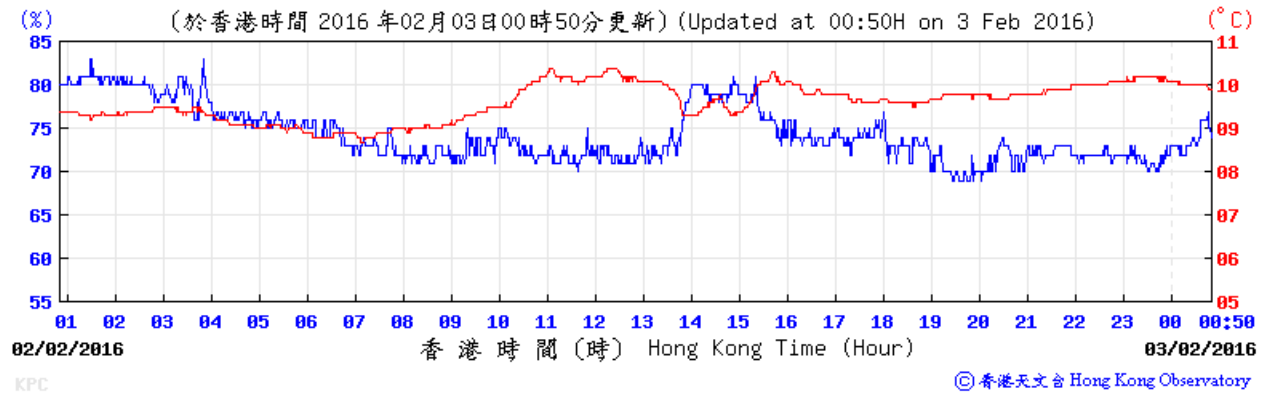


Wind Speed:

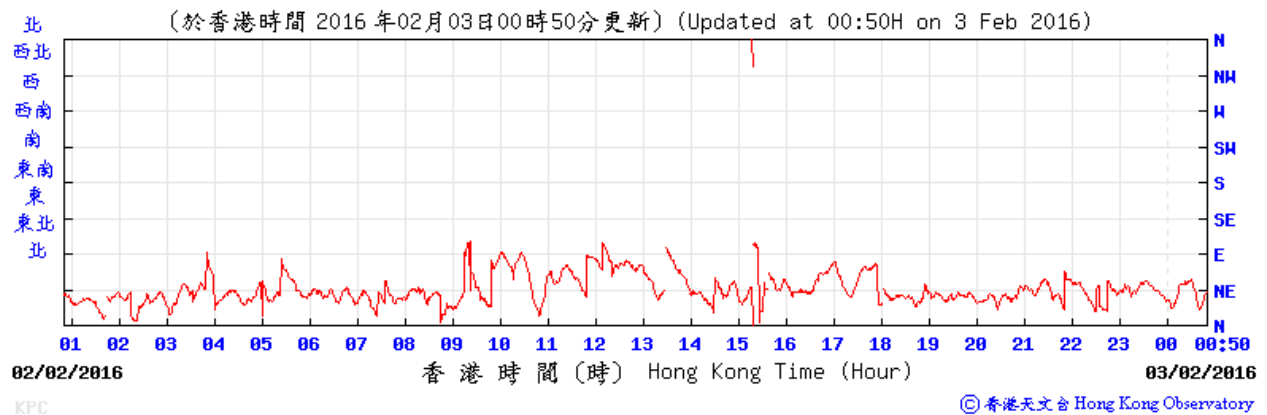


King's Park Weather Station – 02 February 2016

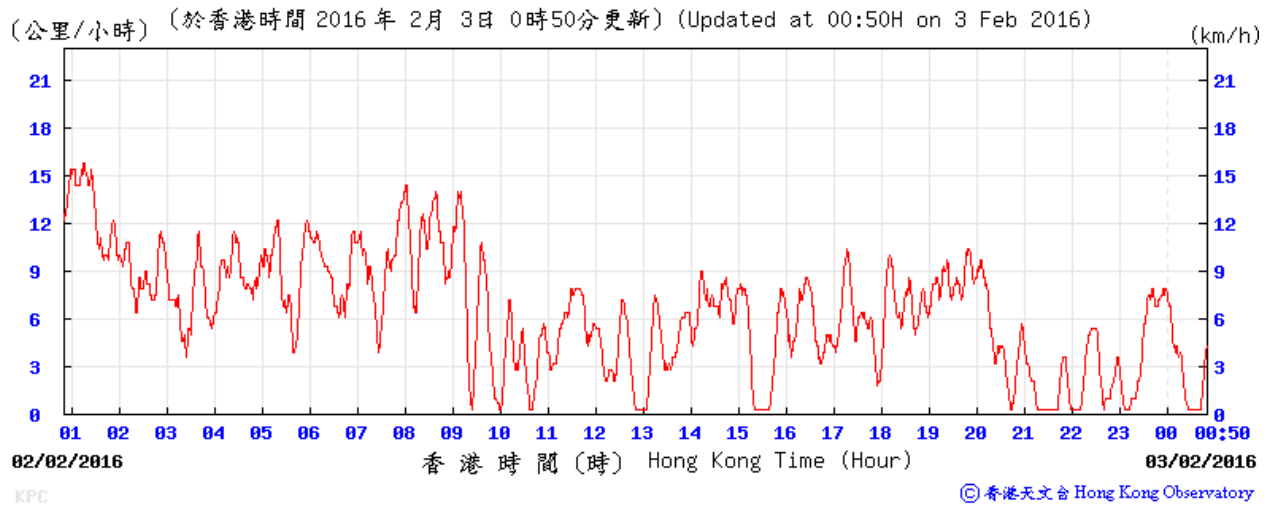
Temperature/Humidity:



Wind Direction:

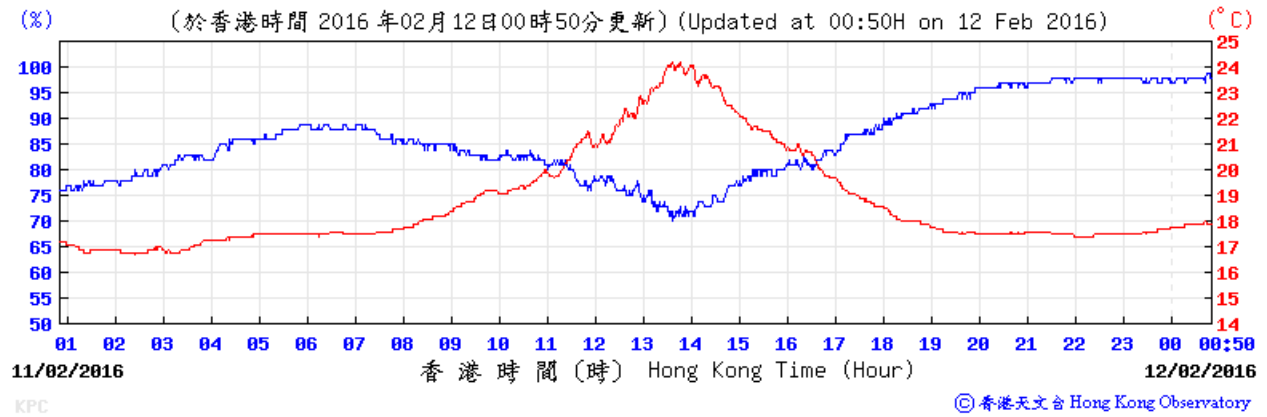


Wind Speed:

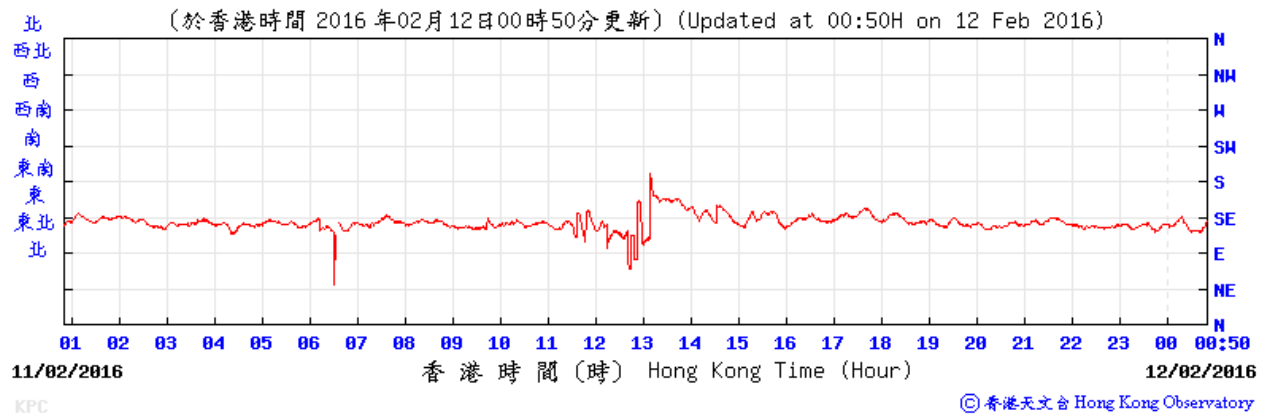


King's Park Weather Station – 11 February 2016

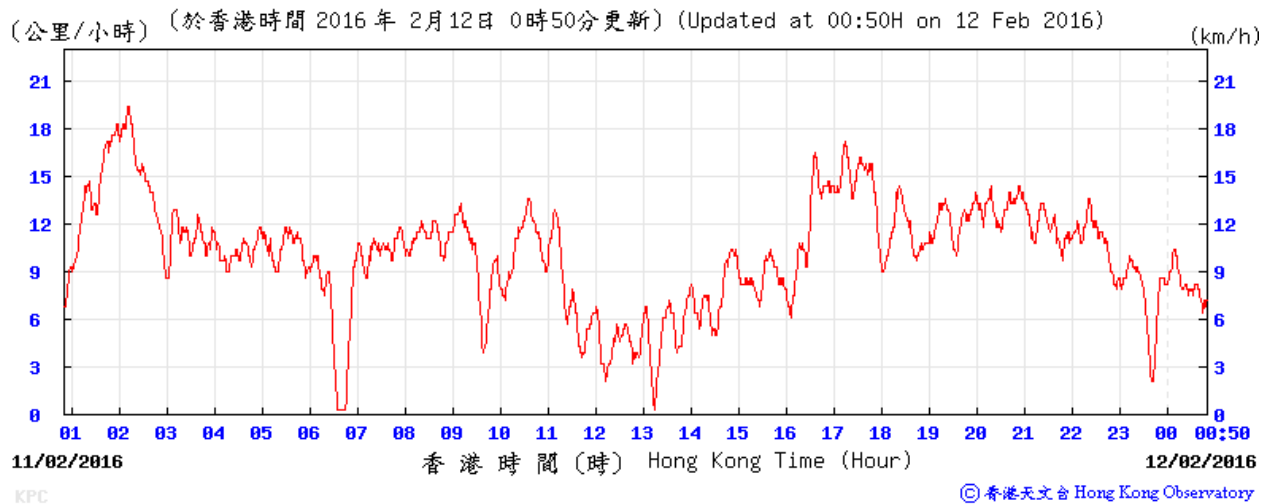
Temperature/Humidity:



Wind Direction:

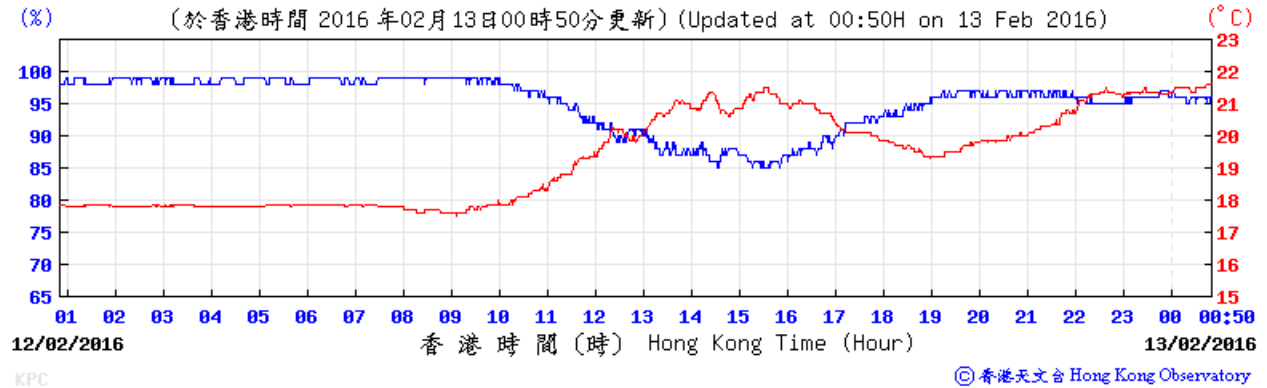


Wind Speed:

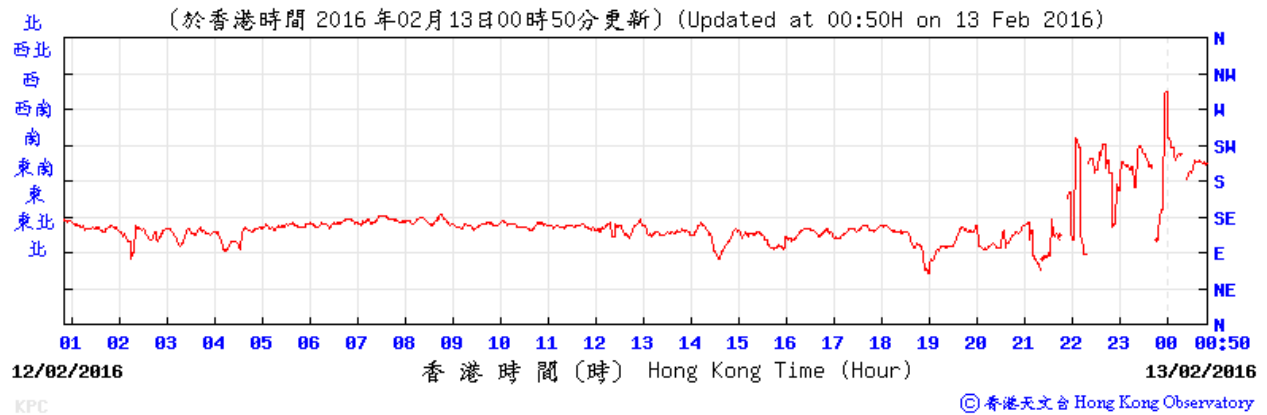


King's Park Weather Station – 12 February 2016

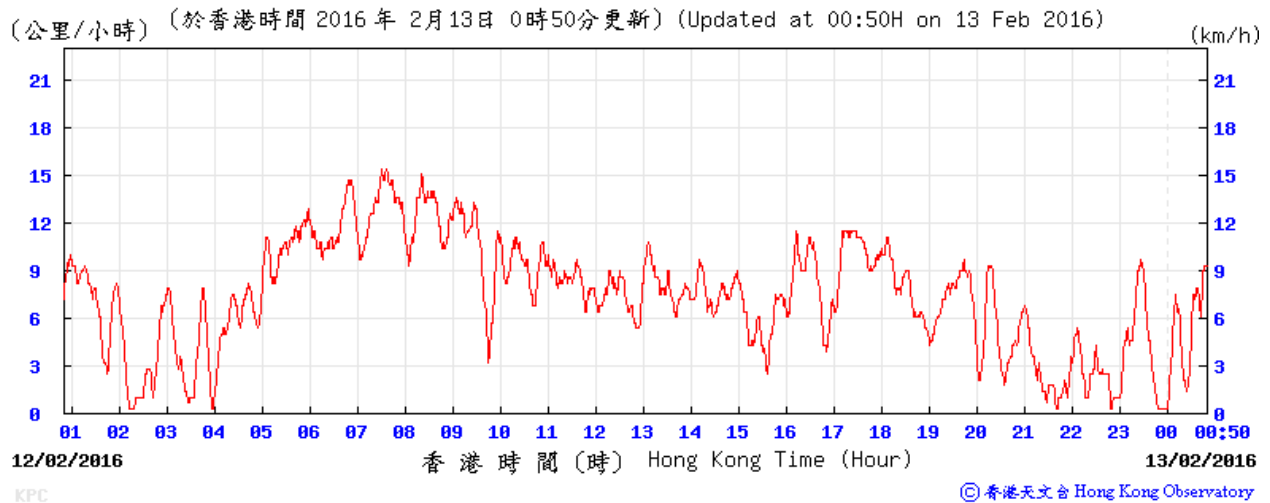
Temperature/Humidity:



Wind Direction:

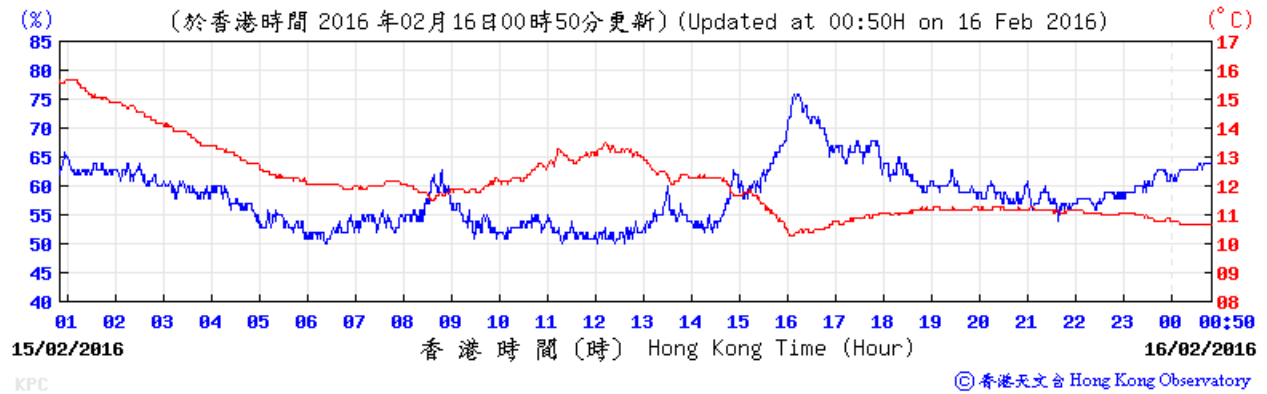


Wind Speed:

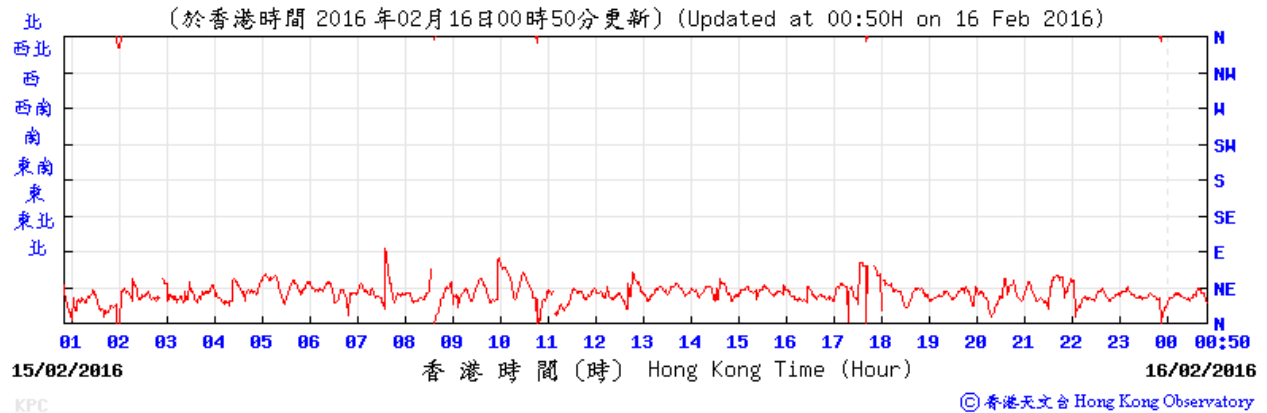


King's Park Weather Station – 15 February 2016

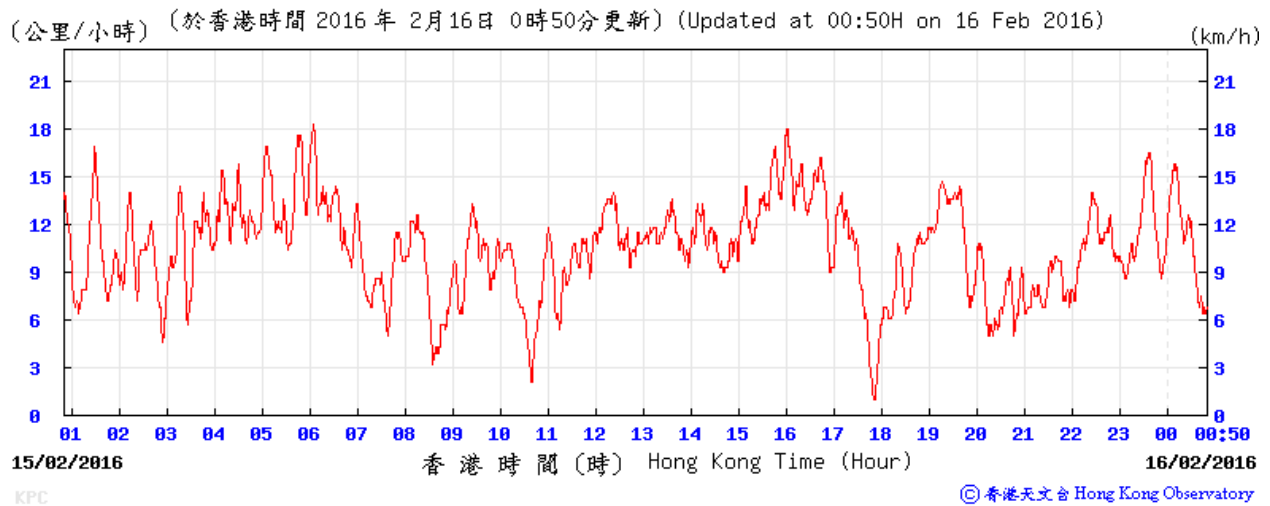
Temperature/Humidity:



Wind Direction:

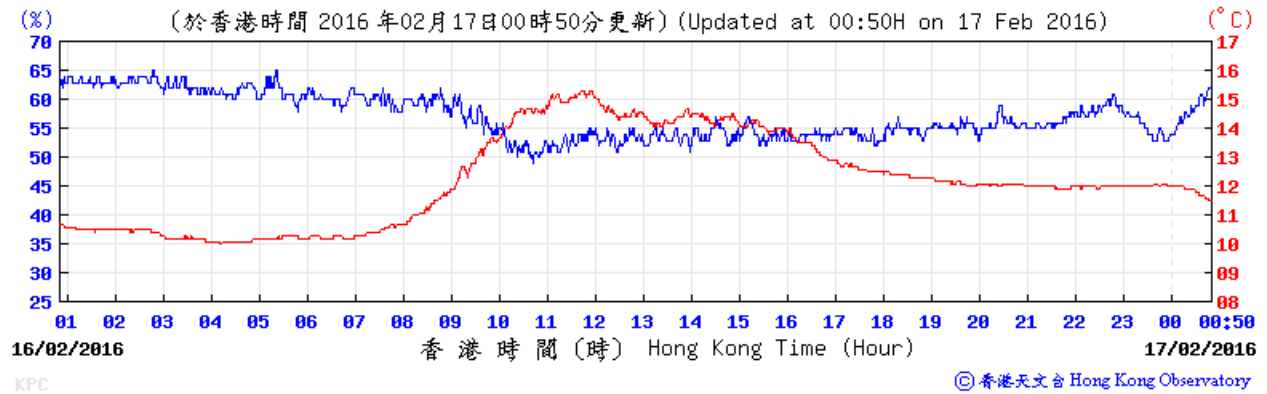


Wind Speed:

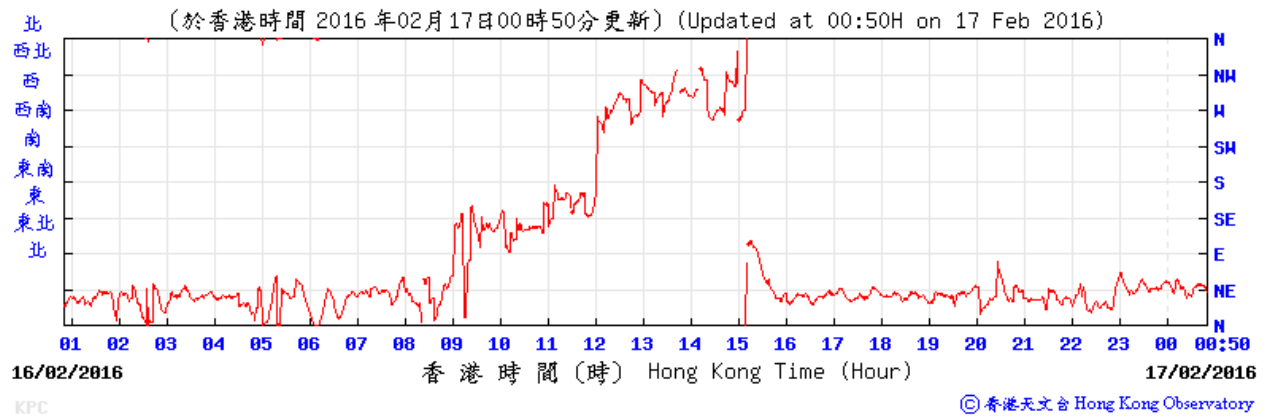


King's Park Weather Station – 16 February 2016

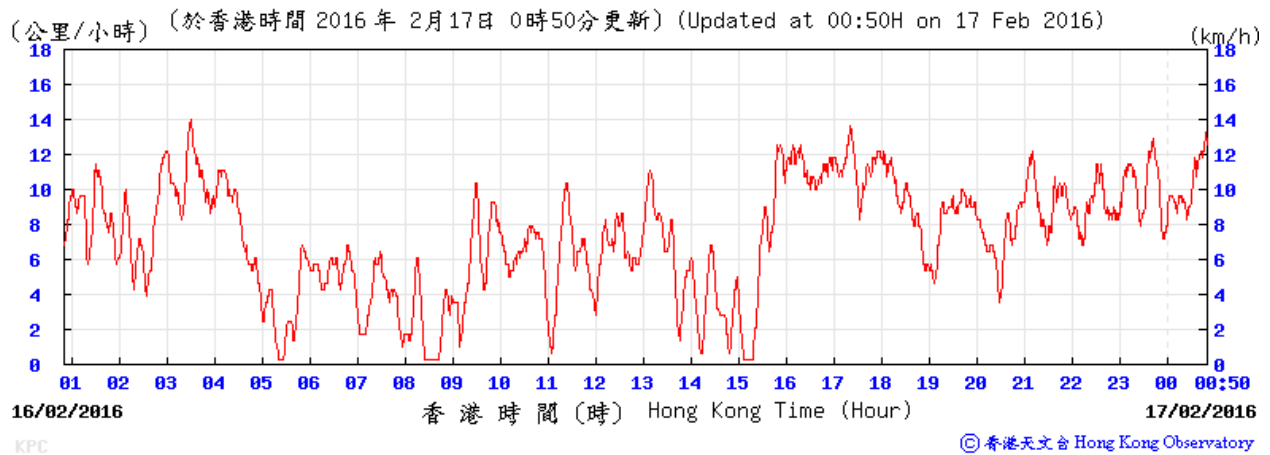
Temperature/Humidity:



Wind Direction:

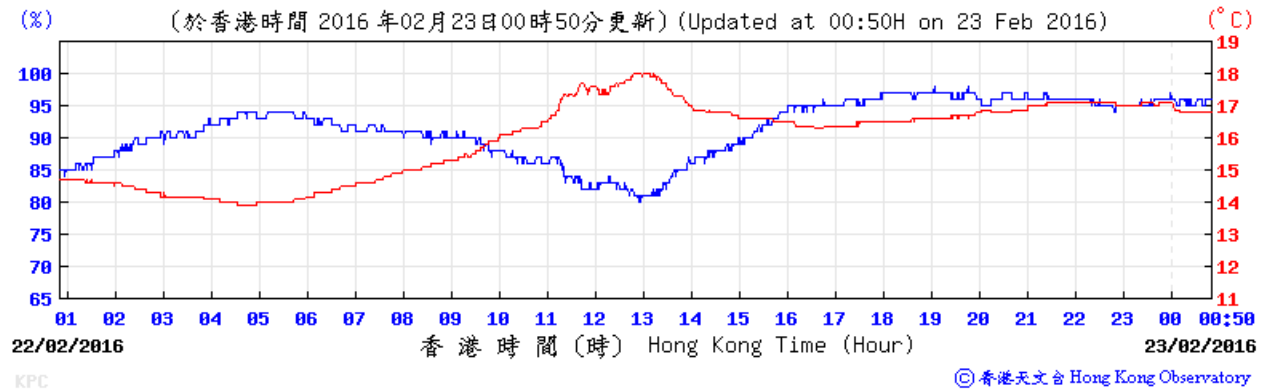


Wind Speed:

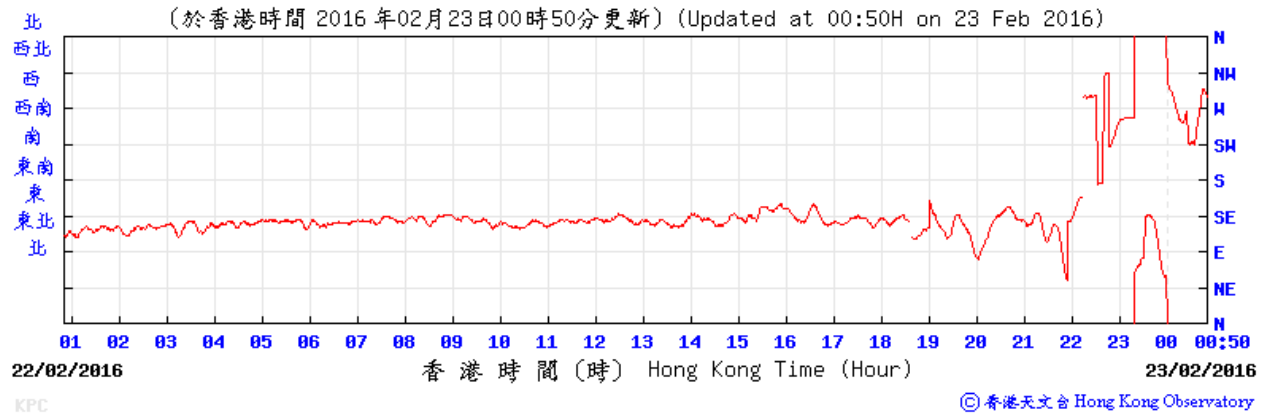


King's Park Weather Station – 22 February 2016

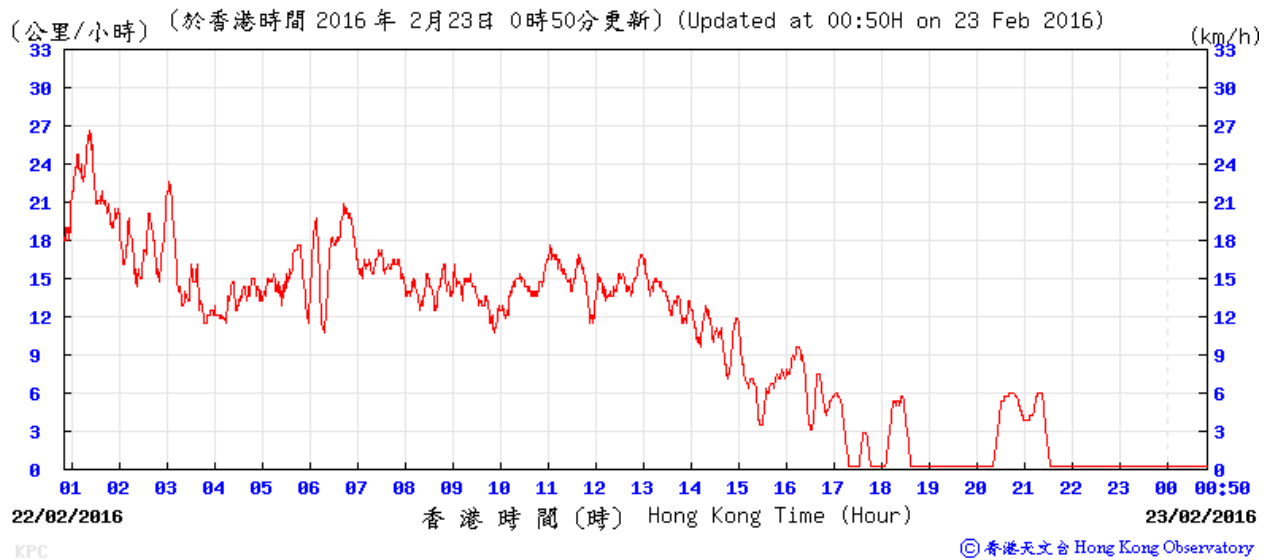
Temperature/Humidity:



Wind Direction:

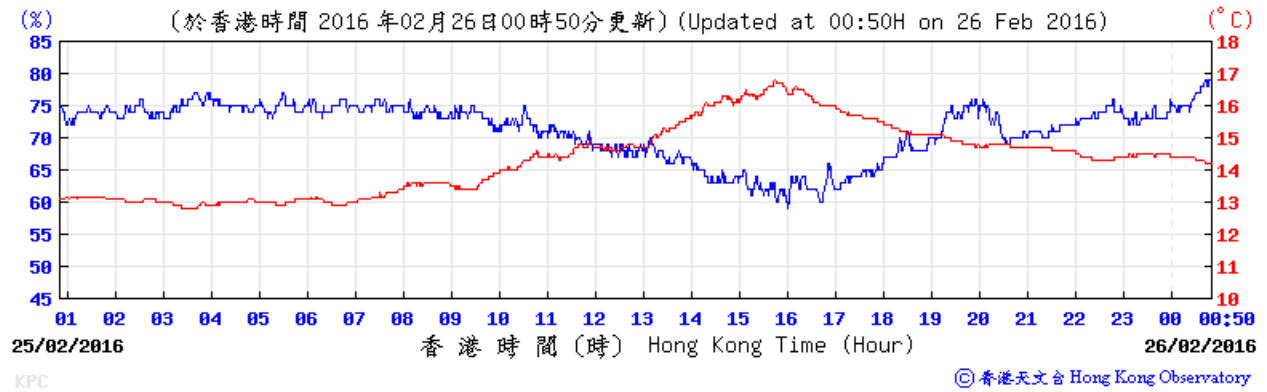


Wind Speed:

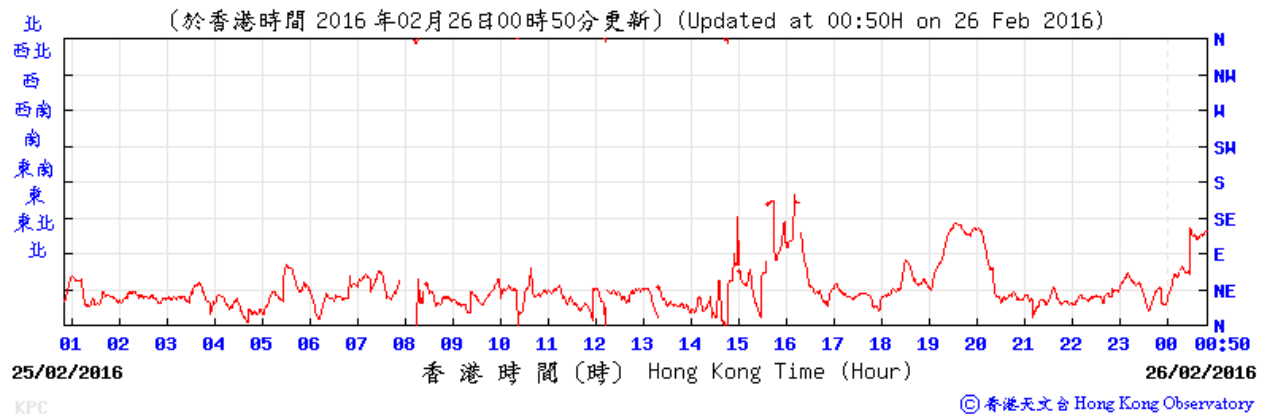


King's Park Weather Station – 25 February 2016

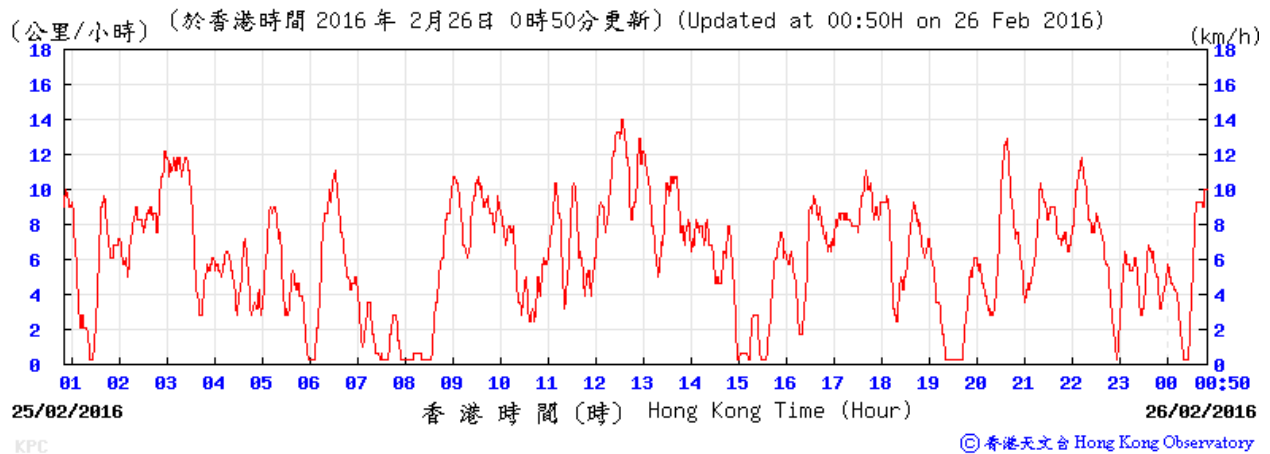
Temperature/Humidity:



Wind Direction:



Wind Speed:

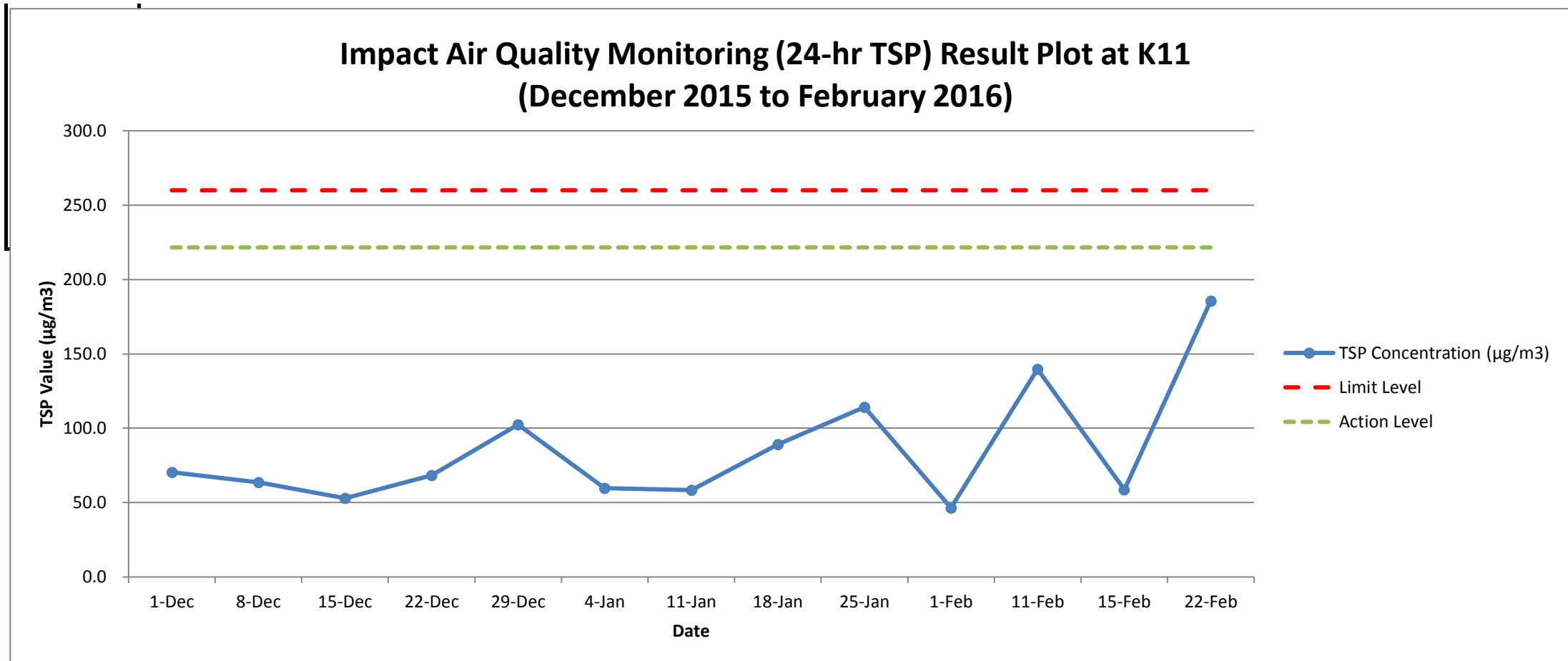


Appendix H

Monitoring Results and Plots

**C3840-13C MTRCL Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works
Impact Air Quality Monitoring (24-hr TSP) Results at K11 (December 2015 to February 2016)**

Location	Monitoring Date	Start Time	Weather Conditions	Temperature	Elapse Time			Flow Rate (CFM)			TSP Concentration (µg/m ³)	Action/Limit Levels
					Initial	Final	Sampling Hours	Initial	Final	Average Flow Rate		
K11	1-Dec-15	10:34	Sunny	23.5	892002	894403	24	42	46	44	70.3	221.6/260
	8-Dec-15	10:22	Rainy	18.3	894403	896804	24	43	46	45	63.7	221.6/260
	15-Dec-15	10:00	Cloudy	17.4	896805	899206	24	42	44	43	53.0	221.6/260
	22-Dec-15	9:30	Cloudy	19.9	622564	624991	24	40	47	44	68.2	221.6/260
	29-Dec-15	9:00	Sunny	17.0	624991	627478	24	54	55	55	102.5	221.6/260
	4-Jan-16	9:20	Rainy	16.0	627478	629936	24	39	41	40	59.8	221.6/260
	11-Jan-16	9:24	Overcast	16.8	629936	632392	24	38	39	39	58.3	221.6/260
	18-Jan-16	10:27	Cloudy	15.8	632392	634849	24	38	39	39	89.2	221.6/260
	25-Jan-16	10:31	Cloudy	19.2	634849	637305	24	39	40	40	114.1	221.6/260
	1-Feb-16	10:35	Rainy	10.8	637305	639761	25	39	39	39	46.5	221.6/260
	11-Feb-16	7:00	Cloudy	17.5	639761	642264	25	38	39	39	139.7	221.6/260
	15-Feb-16	10:05	Cloudy	12.2	642264	644716	25	40	40	40	58.7	221.6/260
	22-Feb-16	10:30	Cloudy	16.4	644716	647158	24	39	39	39	185.7	221.6/260

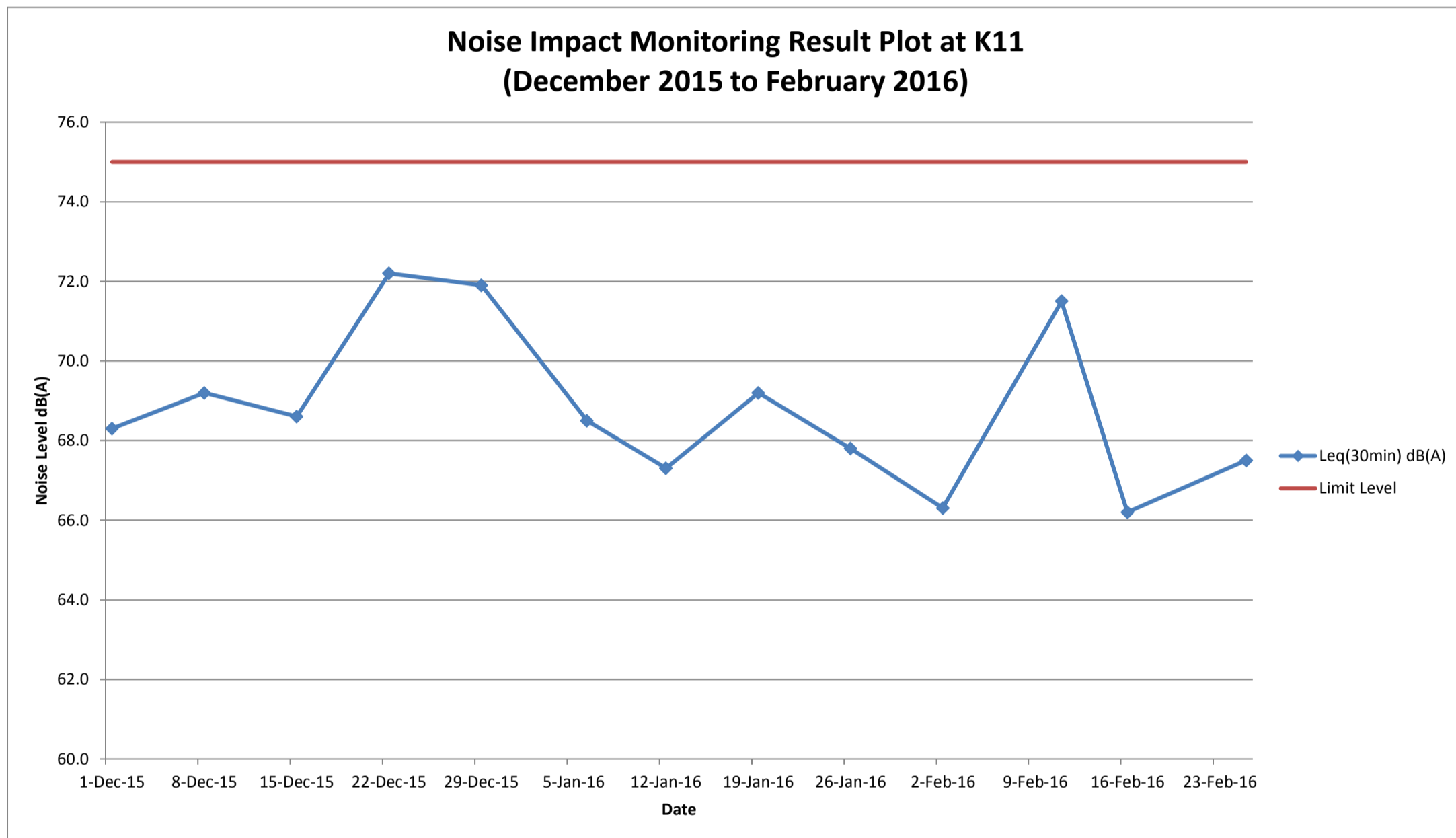


**C3840-13C MTRCL Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works
Noise Impact Monitoring Results at K11 (December 2015 to February 2016)**

Monitoring Locations	Date	Weather Conditions	Wind Speed (m/s)	Start Time	End Time	Background Level dB(A)	Limit Level dB(A)	Leq(30min) dB(A)	L10(30min) dB(A)	L90(30min) dB(A)
K11 Art Mall	1-Dec-15	Sunny	0.9	10:16	10:46	65.3	75	68.3	69.5	66.0
	8-Dec-15	Cloudy	1.7	10:17	10:47	65.3	75	69.2	70.5	67.0
	15-Dec-15	Cloudy	1.8	10:05	10:35	65.3	75	68.6	69.5	66.5
	22-Dec-15	Drizzle	1.1	10:18	10:48	65.3	75	72.2	74.5	67.0
	29-Dec-15	Sunny	0.4	14:37	15:07	65.3	75	71.9	73.0	69.0
	6-Jan-16	Sunny	0.5	10:19	10:49	65.3	75	68.5	70.0	66.5
	12-Jan-16	Cloudy	2.8	10:24	10:54	65.3	75	67.3	68.5	65.0
	19-Jan-16	Cloudy	2.5	10:11	10:41	65.3	75	69.2	70.5	67.5
	26-Jan-16	Cloudy	1.1	10:16	10:46	65.3	75	67.8	68.5	64.0
	2-Feb-16	Cloudy	1.9	10:08	10:38	65.3	75	66.3	67.5	64.0
	11-Feb-16	Cloudy	2.5	10:56	11:26	65.3	75	71.5	73.5	68.5
	16-Feb-16	Cloudy	1.7	10:03	10:33	65.3	75	66.2	68.0	64.0
25-Feb-16	Cloudy	1.2	10:18	10:48	65.3	75	67.5	69.5	64.5	

* Not collected

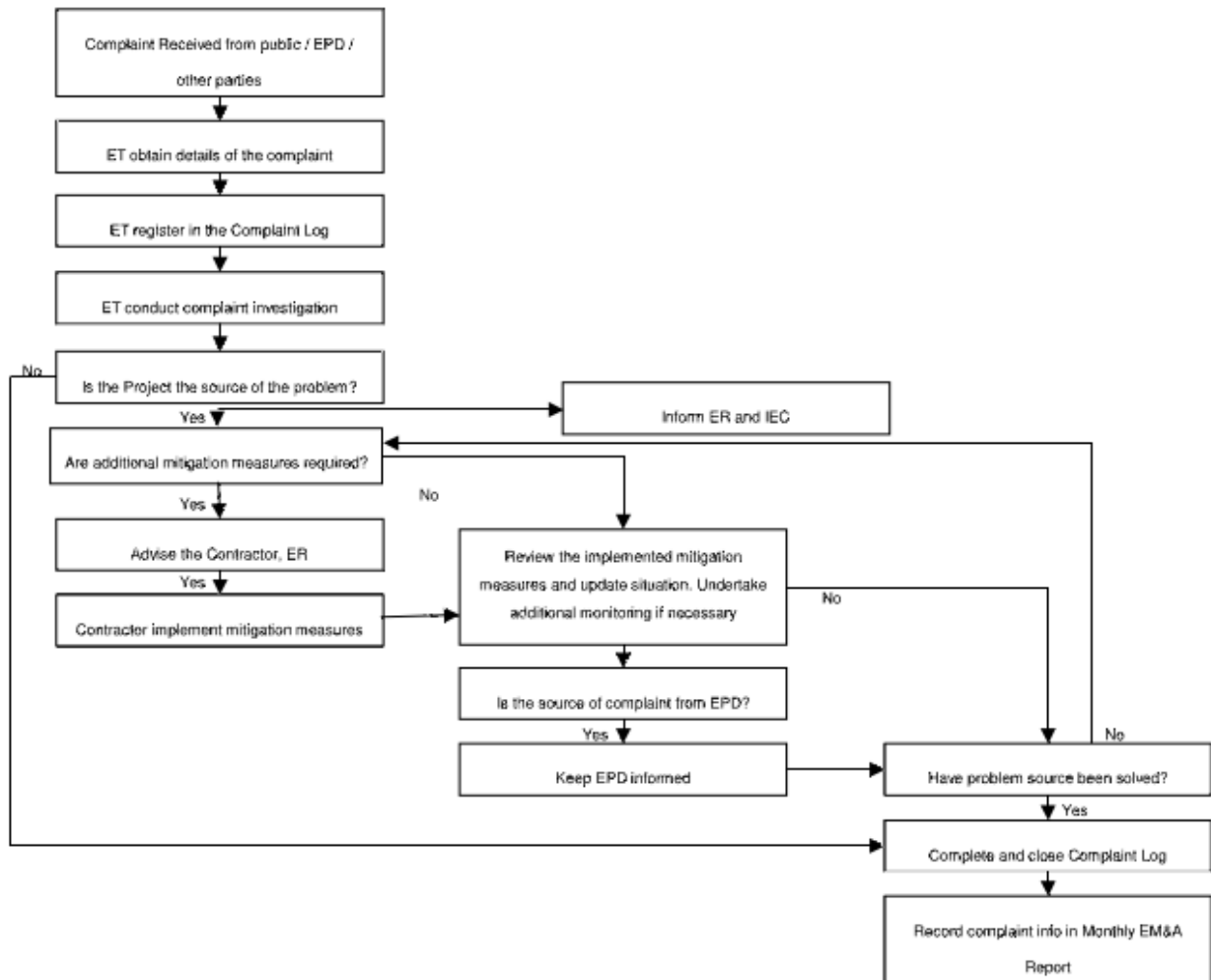
Red Bold indicates an exceedance of Limit Level



Appendix I

Flow Chart for Handling Environmental Complaints

Complaint Response Procedure



Appendix J

Waste Management Records

APPENDIX M

Monthly Summary Waste Flow Table for 2015 (year)

Contract No: C3840-13C Tsim Sha Tsui Station Carnarvon Road Subway
Date Reported: 5-January-2016

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly					
	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse	
		(See Note 3)							(see Note 2)			
(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³ /tonne)		
Carried from 2014	0.9342	-	-	-	0.9342	-	-	-	-	-	0.0035	
Jan	0.0682	-	-	-	0.0682	-	-	-	-	-	-	
Feb	0.0418	-	-	-	0.0418	-	-	-	-	-	-	
Mar	0.2563	-	-	-	0.2563	-	-	-	-	-	0.0020	
Apr	0.2182	-	-	-	0.2182	-	-	-	-	-	-	
May	0.1011	-	-	-	0.1011	-	-	-	-	-	-	
June	0.2604	-	-	-	0.2604	-	-	-	-	-	-	
Sub-total	0.9460	-	-	-	0.9460	-	-	-	-	-	0.0020	
July	0.1806	-	-	-	0.1806	-	-	-	-	-	-	
Aug	0.1006	-	-	-	0.1006	-	-	-	-	-	-	
Sept	0.0937	-	-	-	0.0937	-	-	-	-	-	0.0011	
Oct	0.0591	-	-	-	0.0591	-	-	-	-	-	0.0061	
Nov	0.0958	-	-	-	0.0958	-	-	-	-	-	0.0060	
Dec	0.1195	-	-	-	0.1195	-	-	-	-	-	0.0015	
Total	1.5953	-	-	-	1.5953	-	-	-	-	-	0.0167	
Acc. Total	2.5295	(accumulated quantity of the project = carried amount + this year amount)						0.0202				

Notes:

- (1) The performance targets are given below:
 - All excavated materials to be sorted for recovering the inert portion of C&D materials, e.g. hard rocks, soil and broken concrete, for reuse on the Site or disposal to designated outlets;
 - All metallic waste to be recovered for collection by recycling contractors;
 - All cardboard and paper packaging (for plant, equipment and materials) to be recovered, properly stockpiled in dry and covered condition to prevent cross contamination;
 - All chemical wastes to be collected and properly disposed of by specialist contractors; and
 - All demolition debris to be stored to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fitting / materials that have established recycling outlets.
- (2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
- (3) Broken concrete for recycling into aggregates.
- (4) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

Monthly Summary Waste Flow Table for 2016 (year)

Contract No: C3840-13C Tsim Sha Tsui Station Carnarvon Road Subway
Date Reported: 2-March-2016

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly					
	Total Quantity Generated	Hard Rocks and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse	
		(See Note 3)							(see Note 2)			
(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³ /tonne)	
Carried from Project Start	2.5295	-	-	-	2.5295	-	-	-	-	-	0.0202	
Jan	0.1751	-	-	-	0.1751	-	-	-	-	-	0.0036	
Feb	0.0326	-	-	-	0.0326	-	-	-	-	-	0.0029	
Mar	-	-	-	-	-	-	-	-	-	-	-	
Apr	-	-	-	-	-	-	-	-	-	-	-	
May	-	-	-	-	-	-	-	-	-	-	-	
June	-	-	-	-	-	-	-	-	-	-	-	
Sub-total	0.2077	-	-	-	0.2077	-	-	-	-	-	0.0065	
July	-	-	-	-	-	-	-	-	-	-	-	
Aug	-	-	-	-	-	-	-	-	-	-	-	
Sept	-	-	-	-	-	-	-	-	-	-	-	
Oct	-	-	-	-	-	-	-	-	-	-	-	
Nov	-	-	-	-	-	-	-	-	-	-	-	
Dec	-	-	-	-	-	-	-	-	-	-	-	
Total	0.2077	-	-	-	0.2077	-	-	-	-	-	0.0065	
Acc. Total	2.7372	(accumulated quantity of the project = carried amount + this year amount)										0.0267

Notes:

- (1) The performance targets are given below:
 - All excavated materials to be sorted for recovering the inert portion of C&D materials, e.g. hard rocks, soil and broken concrete, for reuse on the Site or disposal to designated outlets;
 - All metallic waste to be recovered for collection by recycling contractors;
 - All cardboard and paper packaging (for plant, equipment and materials) to be recovered, properly stockpiled in dry and covered condition to prevent cross contamination;
 - All chemical wastes to be collected and properly disposed of by specialist contractors; and
 - All demolition debris to be stored to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fitting / materials that have established recycling outlets.
- (2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
- (3) Broken concrete for recycling into aggregates.
- (4) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.