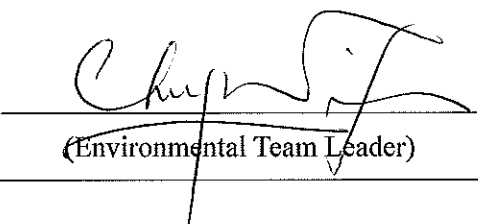


Leader and JEC Joint Venture

Contract No. DC/2009/23
HATS Stage 2A – Upgrading of
Preliminary Treatment Works at
North Point, Wan Chai East and Central

Monthly Environmental
Monitoring and Audit Report
February 2016

(Version 1.0)

Certified By 
(Environmental Team Leader)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties

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CE/Harbour Area Treatment Scheme
Drainage Services Department
Sewage Services Branch
Harbour Area Treatment Scheme Division
5/F, Western Magistracy
2A Pokfulam Road, Hong Kong

14 March 2016
By Post

Attn: Mr. Danny Tang

Dear Sir,

**Agreement No. CE 8/2009(EP)
Harbour Area Treatment Scheme (HATS) Stage 2A
Independent Environmental Checker for Construction Phase – Investigation**

**Contract No. DC/2009/23
Upgrading of Preliminary Treatment Works at North Point, Wan Chai East and Central
Condition 4.4 – Monthly EM&A Report for February 2016 (no. 61) Version 1.0**

I refer to the revised Monthly EM&A Report for February 2016 (version 1.0) submitted by ETL on 14 March 2016 via email. In accordance with Condition 4.4 of Environmental Permit No. EP-322/2008/G, I hereby verify the captioned Monthly EM&A Report.

Yours faithfully
for MOTT MACDONALD HONG KONG LIMITED

Dr. Anne F Kerr
Independent Environmental Checker

c.c. Ove Arup & Partners HK Ltd.
Leader and JEC JV
Cinotech Consultants Ltd.

Mr. Ted Y F Tang
Mr. Vincent Chan
Dr. Priscilla Choy

Fax: 2370 4377
By email
By email

TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	1
Introduction	1
Environmental Monitoring Works	1
Environmental Licenses and Permits	2
Environmental Mitigation Implementation Schedule	3
Key Information in the Reporting Month	3
Summary of Complaints and Prosecutions	3
Future Key Issues	3
1. INTRODUCTION	5
Background	5
Project Organizations	5
Construction Programme	6
Summary of EM&A Requirements	6
2. AIR QUALITY	7
Monitoring Requirements	7
Monitoring Locations	7
Monitoring Equipment	7
Monitoring Parameters, Frequency and Duration	7
Monitoring Methodology and QA/QC Procedure	8
Results and Observations	10
3. NOISE.....	11
Monitoring Requirements	11
Monitoring Locations	11
Monitoring Equipment	11
Monitoring Parameters, Frequency and Duration	11
Monitoring Methodology and QA/QC Procedures	12
Results and Observations	12
4. ENVIRONMENTAL AUDIT	14
Site Audits.....	14
Review of Environmental Monitoring Procedures	14
Status of Environmental Licensing and Permitting	14
Implementation Status of Event Action Plans	18
Summary of Complaints and Prosecutions	18
5. FUTURE KEY ISSUES	19
Key Issues for the Coming Month	19
Monitoring Schedule for the Next Month.....	19
6. CONCLUSIONS AND RECOMMENDATIONS	20
Conclusions	20
Recommendations for the coming reporting month:	20

LIST OF TABLES

Table I	Summary Table for Non-compliance Recorded in the Reporting Month
Table II	Summary Table for Key Information in the Reporting Month
Table 1.1	Key Project Contacts
Table 2.1	Locations for Air Quality Monitoring
Table 2.2	Air Quality Monitoring Equipment
Table 2.3	Impact Dust Monitoring Parameters, Frequency and Duration
Table 2.4	Summary of 1-hour and 24-hour TSP Monitoring Result in Reporting Month
Table 3.1	Locations for Noise Monitoring Stations
Table 3.2	Noise Monitoring Equipment
Table 3.3	Noise Monitoring Parameters, Frequency and Duration
Table 3.4	Summary of Daytime Noise Monitoring Results in Reporting Month
Table 3.5	Summary of Restricted Hours Noise Monitoring Results in Reporting Month
Table 4.1	Summary of Environmental Licensing and Permit Status
Table 4.2	Observations and Recommendations of Site Audit

LIST OF FIGURES

Figure 1A to 1C	General Location Plan of the Project and Locations of Air Quality and Noise Monitoring Stations
Figure 2	ET Organization Chart

LIST OF APPENDICES

A	Action and Limit Levels for Air Quality and Noise
B	Environmental Monitoring Schedules
C	Copies of Calibration Certificates
D	Meteorological data on monitoring dates
E	1-hour and 24-hour TSP Monitoring Results and Graphical Presentations
F	Noise Monitoring Results and Graphical Presentations
G	Summary of Exceedance
H	Summary of Exceedance Report
I	Site Audit Summary
J	Summary of Amount of Waste Generated
K	Event Action Plans
L	Environmental Mitigation Implementation Schedule (EMIS)
M	Complaint Log
N	Construction Programme

ABBREVIATION AND ACRONYM

AL Levels	Action and Limit Levels
DSD	Drainage Services Department
E / ER	Engineer/Engineer's Representative
EIA	Environmental Impact Assessment
EM&A	Environmental Monitoring and Audit
EMIS	Environmental Mitigation Implementation Schedule
EP	Environmental Permit
EPD	Environmental Protection Department
ET	Environmental Team
HATS 2A	Harbour Area Treatment Scheme Stage 2A
HVS	High Volume Sampler
IEC	Independent Environmental Checker
RE	Resident Engineer
RH	Relative Humidity
QA/QC	Quality Assurance / Quality Control
SLM	Sound Level Meter
WMP	Waste Management Plan

EXECUTIVE SUMMARY

Introduction

1. This is the 61st Monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for DSD Contract No. DC/2009/23 “HATS Stage 2A – Upgrading of Preliminary Treatment Works at North Point, Wan Chai East and Central” (The Project) which documents the key information of EM&A and environmental monitoring works by Contract DC/2009/23 HATS Stage 2A with the Environmental Permit (Permit No. EP-322/2008/G) for February 2016.
2. The site activities undertaken for in the reporting month included:
 - Wan Chai East PTW:
 - External wall finishing work for the new administration and workshop building;
 - Construction of curtain wall;
 - Construction of boundary wall.
 - North Point PTW
 - Operation and maintain of the new FSGT Building;
 - Construction of Grit Handling Room;
 - Laying of Twin DN400 D.I. Pipes;
 - Construction of seawater pumping station.
 - Central PTW
 - Operation and maintain of the new FSGT Building;
 - Construction of curtain wall;
 - Installation of Splash Arrestor and FRP cover inside the FSGT building;
 - Installation of multi-part cover to flume channel;
 - External wall finishing work;
 - Construction of boundary wall.

Environmental Monitoring Works

3. The environmental monitoring works of the Project was conducted by the ET for the Contract: DC/2009/23 under HATS 2A with the Environmental Permit (Permit No. EP-322/2008/G) and in accordance with the EM&A Manual. The monitoring results were checked and reviewed. Site audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.
4. Since the monitoring of air quality monitoring station at Chan's Creative School (AM1), Hong Kong & Islands Regional Office, WSD (AM2), Wan Chai East PTW (AM3), a location next to Sheung Wan Fire Station (AM4_2); and noise monitoring station at Chan's Creative School (NM1), Hyde Building (NM2) and Goldfield Building (NM3) were handed over to Contract No. DC/2009/23 from Contract No. DC/2007/23 in October 2015. The air quality and noise monitoring stations were set up by Cinotech Consultants Limited (ET for Contract No. DC/2009/23 for HATS 2A) to monitor the air quality and noise in the vicinity of the sensitive receivers starting from October 2015. The environmental monitoring schedule for the next reporting month is shown in **Appendix B**.
5. Summary of the non-compliance of the reporting month is tabulated in **Table I**.

Table I Summary Table for Non-compliance Recorded in the Reporting Month

Monitoring Station	Parameter	No. of Exceedance		No. of Exceedance Due to the Project		Action Taken
		Action Level	Limit Level	Action Level	Limit Level	
AM1	1-hr TSP	0	0	0	0	N/A
	24-hr TSP	0	0	0	0	N/A
AM2	1-hr TSP	0	0	0	0	N/A
	24-hr TSP	0	0	0	0	N/A
AM3	1-hr TSP	0	0	0	0	N/A
	24-hr TSP	0	0	0	0	N/A
AM4_2	1-hr TSP	0	0	0	0	N/A
	24-hr TSP	0	0	0	0	N/A
NM1	Noise	0	3	0	0	N/A
NM2	Noise	0	5	0	0	N/A
NM3	Noise	0	1	0	0	N/A

Note: Since the site area where air monitoring station AM4 was located had to be returned to DSD for another Works Contract, AM4 was relocated to AM4_2 on 24 September 2012.

1-hour TSP Monitoring

6. All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

24-hour TSP Monitoring

7. All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise

8. All Construction Noise monitoring was conducted as scheduled in the reporting month. No Action Level exceedance was recorded, while three non-project related Limit Level exceedance were recorded during the restricted hour noise monitoring on 2nd, 14th & 21st February 2016 by the ET of this Project at NM1; five non-project related Limit Level exceedance were recorded during the daytime noise monitoring on 12th February 2016 and during the restricted hour noise monitoring on 2nd, 12th, 14th & 21st February 2016 by the ET of this Project at NM2; and one non-project related Limit Level exceedance was recorded during the daytime noise monitoring on 18th February 2016 by the ET of this Project at NM3. Details of the exceedance could be referred to **Appendix G & H**.

Environmental Licenses and Permits

9. Licenses/Permits granted to the Project include the Environmental Permit (EP) and Registered as a Chemical Waste Producer for North Point, Wan Chai East and Central PTWs sites; water discharge licenses of North Point, Wan Chai East and Central PTWs; also the Construction Noise Permits for construction works at Wan Chai East PTW and Central PTW.

Environmental Mitigation Implementation Schedule

10. According to the EIA Report Section 3.74, 4.56, 6.384, 9.154 and 13.44, air quality, noise, water quality, waste management and landscape and visual would be the key environmental issues and mitigation measures shall be implemented during the construction phase. Details of the implementation of mitigation measures are provided in the **Appendix L**.

Key Information in the Reporting Month

11. Summary of key information in the reporting month is tabulated in **Table II**.

Table II Summary Table for Key Information in the Reporting Month

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received	0	---	N/A	N/A	---
Status of submissions under EP	1	Monthly Environmental Monitoring and Audit Report for January 2016	Submitted to EPD on 16 February 2016	No Comment	---
Notifications of any summons & prosecutions received	0	---	N/A	N/A	---

Summary of Complaints and Prosecutions

12. No environmentally related summons, prosecutions or complaints were received for the Project in the reporting month.

13. There were no environmentally related summons, prosecutions or complaints were received since the commencement of the Project. The Complaint Log is presented in **Appendix M**.

Future Key Issues

14. Major site activities for the coming two months include:

Wan Chai East PTW:

- External wall finishing work for the new administration and workshop building;
- Construction of curtain wall;
- Construction of boundary wall.

North Point PTW

- Operation and maintain of the new FSGT Building;
- Construction of Grit Handling Room;
- Laying of Twin DN400 D.I. Pipes;
- Construction of seawater pumping station.

Central PTW

- Operation and maintain of the new FSGT Building;
- Construction of curtain wall;

- Installation of Splash Arrestor and FRP cover inside the FSGT building;
 - Installation of multi-part cover to flume channel;
 - External wall finishing work;
 - Construction of boundary wall.
15. The environmental concerns in coming months are mainly surface runoff and waste water control in the wet season. Other concerns including noise generated from construction works; dust emission due to strong wind erosion and vehicle movements, and inappropriate storage of construction equipments within the tree protective zones.

1. INTRODUCTION

Background

- 1.1 The Project ‘HATS Stage 2A - Upgrading of Preliminary Treatment Works at North Point, Wan Chai East and Central with Contract No: DC/2009/23’ mainly comprises the following major works:
- Decommissioning, demolition and removal of existing structures and buildings, including the associated E&M works;
 - Relocation of sewers, control room, workshop equipment and the associated E&M works; and
 - Construction of new buildings and structures.
- 1.2 The general location plan of the Project is shown in **Figure 1A** to **1C**.
- 1.3 The Project is under Harbour Area Treatment Scheme (HATS) Stage 2A and is a designated project (Register No. : AEIAR-121/2008). The environmental permit: (Permit No. EP-322/2008/G) which was issued on 9th May 2014 to the Drainage Services Department (hereinafter called the DSD) as the Permit Holder.
- 1.4 Leader and JEC Joint Venture (hereafter called the LJJV) was commissioned by the DSD to undertake the construction of the Contract No. DC/2009/23 “Upgrading of Preliminary Treatment Works at North Point, Wan Chai East and Central”. The date of commencement of construction of the Project is on 14th February 2011.
- 1.5 Cinotech Consultants Limited was commissioned by LJJV to undertake the Environmental Monitoring and Audit (EM&A) works for the project and was appointed as the Environmental Team (ET) of the Project under Condition 2.1 of the EP.
- 1.6 This is the 61st monthly EM&A report summarizing the EM&A works conducted for the Project in February 2016.

Project Organizations

- 1.7 The contacts of the Project are shown in **Table 1.1** and the organization chart of ET for Contract is shown in **Figure 2**.

Table 1.1 Key Project Contacts

Party	Role	Name	Position	Phone No.
Drainage Services Department	Project Proponent	Mr. Vincent Y.K. Wong	Senior Engineer 2	2159 3406
Ove Arup & Partners Hong Kong Ltd	Engineer’s Representative	Mr. Ted Tang	Principal Resident Engineer	2370-4311
	Coordinator	Ms. Natalie Kwok	Resident Engineer	6794 8844
Cinotech	Environmental Team	Dr. Priscilla Choy	ET Leader	2151 2089
		Ms. Janet Wai	Project Coordinator & Audit Team Leader	2151 2078

Party	Role	Name	Position	Phone No.
Mott MacDonald	Independent Environmental Checker	Dr. Anne Kerr	Independent Environmental Checker	28285757
Leader and JEC Joint Venture	Contractor	Mr. Kelvin Cheung	Site Agent	9650 9410
		Mr. Lawrence Lam	Environmental Officer	9650 9410

Construction Programme

1.8 The site activities undertaken in the reporting month included:

Wan Chai East PTW:

- External wall finishing work for the new administration and workshop building;
- Construction of curtain wall;
- Construction of boundary wall.

North Point PTW

- Operation and maintain of the new FSGT Building;
- Construction of Grit Handling Room;
- Laying of Twin DN400 D.I. Pipes;
- Construction of seawater pumping station.

Central PTW

- Operation and maintain of the new FSGT Building;
- Construction of curtain wall;
- Installation of Splash Arrestor and FRP cover inside the FSGT building;
- Installation of multi-part cover to flume channel;
- External wall finishing work;
- Construction of boundary wall.

Summary of EM&A Requirements

1.9 The EM&A programme requires construction phase monitoring for air quality and construction noise, landscape and visual and environmental site audit. The EM&A requirements for each parameter are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event Action Plans;
- Environmental mitigation measures, as recommended in the project EIA study final report; and
- Environmental requirements in contract documents.

1.10 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in **Section 4** of this report.

1.11 This report presents the monitoring results, observations, locations, equipment, period, for required monitoring parameter namely dust, noise levels, and audit works conducted for the Project in February 2016. For the methodology and QA/QC procedures of the monitoring parameters, please refer to the **Section 2.5 & 3.5** of this report.

2. AIR QUALITY

Monitoring Requirements

- 2.1 1-hour and 24-hour TSP monitoring were conducted to monitor the air quality. **Appendix A** shows the established Action/Limit Levels for the environmental monitoring works.

Monitoring Locations

- 2.2 Four designated monitoring stations, AM1, AM2, AM3 and AM4_2 were selected for impact dust monitoring for the Project. **Table 2.1** describes the air quality monitoring locations, which are also depicted in **Figure 1A** to **1C**.

Table 2.1 Locations for Air Quality Monitoring

Monitoring Station	Monitored by	Location of Measurement
AM1	DC/2009/23	Chan's Creative School
AM2		Hong Kong & Islands Regional Office, WSD
AM3		Wan Chai East PTW
AM4_2		A Location next to Sheung Wan Fire Station

Note: Since the site area where air monitoring station AM4 was located had to be returned to DSD for another Works Contract, AM4 was relocated to AM4_2 on 24 September 2012.

Monitoring Equipment

- 2.3 Both 1-hour TSP monitoring and continuous 24-hour TSP impact air quality monitoring were performed and complied with the specifications stipulated in the approved EM&A Manual. **Table 2.2** summarizes the equipment used in the impact air monitoring programme. Copies of calibration certificates are provided in **Appendix C** of this report.

Table 2.2 Air Quality Monitoring Equipment

Equipment	Model and Make	Quantity
HVS Samplers	GMWS 2310 HVS, Model GS-2310-105	1
	Tisch Environmental, Inc.; Model no. TE-5170	3
Laser Dust Meter	Sibata; Model no. LD-3B	4
Calibrator	Tisch Environmental, Inc.; Model no. TE-5025A	1

Monitoring Parameters, Frequency and Duration

- 2.4 **Table 2.3** summarizes the monitoring parameters and frequencies of impact dust monitoring for the whole construction period. The air quality monitoring schedule for the reporting period is shown in **Appendix B**.

Table 2.3 Impact Dust Monitoring Parameters, Frequency and Duration

Monitoring Station	Parameter	Period	Frequency
All monitoring locations	1-hour TSP	0700-1900 hrs	3 times/ every 6 days
	24-hour TSP	0000-2400 hrs	once in every 6 days

Monitoring Methodology and QA/QC Procedure

2.5 Weather data was recorded during the monitoring period and is shown in **Appendix D**. The data was obtained from the Meteorological Observations from Hong Kong Observatory Station. The general weather conditions (i.e. sunny, cloudy or rainy) were recorded by the field staff’s observation on the monitoring day.

Monitoring Methodology and QA/QC Procedure

1-hour TSP Monitoring

(Equipment: Sibata; Model no. LD-3B)

Measuring Procedures

2.6 The measuring procedures of the 1-hour dust meters were in accordance with the Manufacturer’s Instruction Manual as follows:

- Pull up the air sampling inlet cover
- Change the Mode 0 to BG with once
- Push Start/Stop switch once
- Turn the knob to SENSI.ADJ and press it
- Push Start/Stop switch once
- Return the knob to the position MEASURE slowly
- Push the timer set switch to set measuring time
- Remove the cap and make a measurement

Maintenance/Calibration

2.7 The following maintenance/calibration was required for the direct dust meters:

- Check the meter at a 3-month interval and calibrate the meter at a 1-year interval throughout all stages of the air quality monitoring.

24-hour TSP Monitoring

Instrumentation

2.8 High volume (HVS) samplers (Model no. TE-5170 and GS-2310-105) completed with appropriate sampling inlets were employed for 24-hour TSP monitoring. The sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complied with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

Operating/Analytical Procedures

2.9 Operating/analytical procedures for the operation of HVS were as follows:

- A horizontal platform was provided with appropriate support to secure the samplers against gusty wind.
 - No two samplers were placed less than 2 meters apart.
 - The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
 - A minimum of 2 meters of separation from walls, parapets and penthouses was required for rooftop samples.
 - A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
 - No furnaces or incineration flues were nearby.
 - Airflow around the sampler was unrestricted.
 - The sampler was more than 20 meters from the drip line.
 - Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.
- 2.10 Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 1.1 m³/min. and 1.4 m³/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.
- 2.11 Fiberglass filters were used which have a collection efficiency of larger than 99% for particles of 0.3 µm diameter.
- 2.12 The power supply was checked to ensure the sampler worked properly. On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air monitoring station.
- 2.13 The filter holding frame was then removed by loosening the four nuts and a weighted and conditioned filter was carefully centered with the stamped number upwards, on a supporting screen.
- 2.14 The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- 2.15 The shelter lid was closed and secured with the aluminum strip.
- 2.16 The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
- 2.17 After sampling, the filter was removed and sent to the laboratory for weighing. The elapsed time was also recorded.
- 2.18 Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±5%. A convenient working RH is 40%.

Maintenance/Calibration

2.19 The following maintenance/calibration was required for the HVS:

- The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.

2.22 High volume samplers were calibrated at bi-monthly intervals using Calibration Kit (Tisch Environmental, Inc.; Model no. TE-5025A) throughout all stages of the air quality monitoring.

Results and Observations

2.23 **Table 2.4** summarizes the monitoring results at AM1, AM2, AM3 and AM4_2 in reporting month.

Table 2.4 Summary of 1-hour and 24-hour TSP Monitoring Result in Reporting Month

Air Quality Monitoring Station	Average $\mu\text{g}/\text{m}^3$	Range $\mu\text{g}/\text{m}^3$	Action Level $\mu\text{g}/\text{m}^3$	Limit Level $\mu\text{g}/\text{m}^3$
1 hour TSP				
AM1	178	88 - 254	340	500
AM2	176	90 - 249	352	
AM3	198	146 - 244	355	
AM4_2	175	96 - 253	393	
24 hours TSP				
AM1	52	28 - 86	185	260
AM2	79	23 - 138	182	
AM3	111	80 - 152	181	
AM4_2	133	89 - 176	211	

Note: Since the site area where air monitoring station AM4 was located had to be returned to DSD for another Works Contract, AM4 was relocated to AM4_2 on 24 September 2012.

2.24 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded. Summary of exceedance is presented in **Appendix G**.

2.25 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded. Summary of exceedance is presented in **Appendix G**.

2.26 The detailed monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results could be referred to **Appendix E** of this report.

2.27 According to field observations during site inspection, the identified dust sources at the monitoring stations were mainly from loading of material, vehicles movement and construction works in site.

3 NOISE

Monitoring Requirements

3.1 Three noise monitoring stations, namely NM1, NM2 and NM3 were designated in the EM&A Manual for impact monitoring. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Monitoring Locations

3.2 Noise monitoring was conducted at three designated monitoring stations as listed in **Table 3.1**, which are also depicted in **Figure 1A to 1C**

Table 3.1 Location of Noise Monitoring Stations

Monitoring Station	Monitored By	Location of Measurement
NM1	DC/2009/23	Chan's Creative School
NM2		Hyde Building
NM3		Goldfield Building

Monitoring Equipment

3.3 Integrating Sound Level Meter was used for noise monitoring. The meter is a Type 1 sound level meter capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (L_x) and also complied with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications. **Table 3.2** summarizes the noise monitoring equipments. Copies of calibration certificates are provided in **Appendix C** of this report.

Table 3.2 Noise Monitoring Equipment

Equipment	Model and Make	Quantity
Integrating Sound Level Meter	SVAN 955	1
	SVAN 957	2
Calibrator	SV30A	1
	B&K 4231	2

Monitoring Parameters, Frequency and Duration

3.4 Table 3.3 summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix B**.

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Period	Frequency
NM1 NM2	L_{eq} (30 min.) dB(A)	0700-1900 hrs. on weekdays	Once per week

	$L_{eq}(5 \text{ min.})$ dB(A)	Restricted hours (1900-2300 on all days and 0700-2300 on general holidays and Sundays)
NM3	$L_{eq}(30 \text{ min.})$ dB(A)	0700-1900 hrs. on weekdays

Monitoring Methodology and QA/QC Procedures

- The Sound Level Meter was generally set on a tripod at a height of 1.2 m above the ground, depending to the actual monitoring condition.
- For free field measurement (if any), the meter was positioned away from any nearby reflective surfaces. All records for free field noise levels were adjusted with a correction of +3 dB(A).
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - frequency weighting : A
 - time weighting : Fast
 - time measurement : 30 minutes / 5 minutes
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1.0 dB, the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- The wind speed was frequently checked with the portable wind meter.
- At the end of the monitoring period, the L_{eq} , L_{90} and L_{10} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise measurement was paused during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.

Results and Observations

3.5 **Table 3.4** summarizes the daytime noise monitoring results at NM1, NM2 and NM3 in reporting month.

Table 3.4 Summary of Daytime Noise Monitoring Results in Reporting Month

For the time period 0700-1900 hrs. on weekdays		
Monitoring Station	Range, dB(A) $L_{eq}(30 \text{ min.})$	Limit Level ,dB(A) $L_{eq}(30 \text{ min.})$
NM1	67 - 69	70.0 *
NM2	73 - 75	75.0
NM3	72 - 76	

* 70 dB(A) was adopted as the Limit Level during school normal teaching period in the reporting period.

3.6 **Table 3.5** summarizes the restricted hours noise monitoring results at NM1 and NM2 in

reporting month.

Table 3.5 Summary of Restricted Hours Noise Monitoring Results in Reporting Month

Restricted hours (1900-2300 on all days and 0700-2300 on general holidays and Sundays)		
Monitoring Station	Range, dB(A) L _{eq} (5 min.)	Limit Level ,dB(A) L _{eq} (5 min.)
NM1	69 - 72	70.0 *
NM2	72 - 75	70.0 *

Note: No class was held at the school during all the measurement period

* 70dB (A) was adopted as the Limit Level during restricted hours in the reporting period.

- 3.7 The construction noise monitoring at the designated locations was conducted by the ET of Contract DC/2009/23 as scheduled in the reporting month.
- 3.8 Excavation works were conducted during day time at North Point PTW. No construction work was conducted during the restricted hours under the Project in the reporting month.
- 3.9 All Construction Noise monitoring was conducted as scheduled in the reporting month. No Action Level exceedance was recorded, while three non-project related Limit Level exceedance were recorded during the restricted hour noise monitoring on 2nd, 14th & 21st February 2016 by the ET of this Project at NM1; five non-project related Limit Level exceedance were recorded during the daytime noise monitoring on 12th February 2016 and during the restricted hour noise monitoring on 2nd, 12th, 14th & 21st February 2016 by the ET of this Project at NM2; and one non-project related Limit Level exceedance was recorded during the daytime noise monitoring on 18th February 2016 by the ET of this Project at NM3. Details of the exceedance could be referred to **Appendix G & H**.
- 3.10 The detailed monitoring data and graphical presentations of noise monitoring results could be referred to **Appendix F** of this report.
- 3.11 The major noise sources identified at the designated noise monitoring stations were traffic noise and construction activities.

4 ENVIRONMENTAL AUDIT

Site Audits

- 4.1 Site audits were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.
- 4.2 Environmental site audits were conducted on 3rd, 12th, 19th and 25th February 2016. No non-compliance was observed during the site audits.
- 4.3 Site inspections were undertaken to ensure and check that the implementation and maintenance of landscape and visual mitigation measures are being properly carried out in the reporting month in accordance to section 14.1 of the EM&A Manual. No non-compliance was observed during the site inspections.
- 4.4 The summaries of site audits are attached in **Appendix I**.

Review of Environmental Monitoring Procedures

- 4.5 The monitoring works were conducted by the monitoring team of Contract DC/2009/23. The monitoring procedures were reviewed by its ET.

Status of Environmental Licensing and Permitting

- 4.6 All permits/licenses obtained for the Contract DC/2009/23 are summarized in **Table 4.1**.

Table 4.1 Summary of Environmental Licensing and Permit Status for Contract DC/2009/23

Ref. No.	Valid Period		Details	Status
	From	To		
Water Discharge License				
WT000944 3-2011	22/6/2011	30/6/2016	Location: Aberdeen	Valid
WT000164 39-2013	2/7/2013	31/5/2016	Location: North Point PTW	
WT000164 65-2013	21/6/2013	30/4/2016	Location: Wan Chai East PTW	
WT000164 62-2013	2/7/2013	30/4/2016	Location: Central PTW	
Registered Chemical Waste Producer				
5213-153- L2743-01	15/2/2011	N/A	Location: North Point PTW	Valid
5213-115- L2737-01	26/1/2011	N/A	Location: Wan Chai East PTW	
5213-134- L2745-01	16/2/2011	N/A	Location: Central PTW	
Construction Noise Permit				
GW- RS0516-13	29/5/2013	28/11/2013	Construction Noise Permit for the use of Powered Mechanical Equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work at North Point Preliminary Treatment Works Plant House, Man Hong Street, North Point, Hong Kong	Expiry
GW- RS0906-13	23/8/2013	22/11/2013	Construction Noise Permit for the use of Powered Mechanical Equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work at North Point Preliminary Treatment Works Plant House, Man Hong Street, North Point, Hong Kong	Expiry
GW- RS1387-13	5/12/2013	21/5/2014	Construction Noise Permit for the use of Powered Mechanical Equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work at North Point Preliminary Treatment Works Plant House, Man Hong Street, North Point, Hong Kong	Expiry
GW- RS0424-14	5/5/2014	5/7/2014	Construction Noise Permit for the use of Powered Mechanical Equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work at North Point Preliminary Treatment Works Plant House, Man Hong Street, North Point, Hong Kong	Expiry

Ref. No.	Valid Period		Details	Status
	From	To		
			Kong	
GW- RS0643-14	3/7/2014	30/9/2014	Construction Noise Permit for the use of Powered Mechanical Equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work at Wan Chai East Preliminary Treatment Works, Wan Chai, Hong Kong	Expiry
GW- RS1078-14	10/10/2014	9/4/2015	Construction Noise Permit for the use of Powered Mechanical Equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work at Wan Chai East Preliminary Treatment Works, Wan Chai, Hong Kong	Expiry
GW- RS0179-15	25/2/2015	23/5/2015	Construction Noise Permit for the use of Powered Mechanical Equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work at Central Preliminary Treatment Works, Western Fire Services Street, Hong Kong	Expiry
GW- RS0484-15	8/5/2015	3/8/2015	Construction Noise Permit for the use of Powered Mechanical Equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work at Wan Chai East Preliminary Treatment Works, Wan Chai, Hong Kong	Expiry
GW- RS0567-15	26/5/2015	23/11/2015	Construction Noise Permit for the use of Powered Mechanical Equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work at Central Preliminary Treatment Works, Western Fire Services Street, Hong Kong	Expiry
Special Waste Admission Ticket				
12670	24/11/2015	23/5/2016	Location: Central PTW	Valid

Status of Waste Management

- 4.7 The amount of wastes generated by the activities of the Project in the reporting month is shown in **Appendix J**.

Implementation Status of Environmental Mitigation Measures

4.8 Details of the implementation of mitigation measures are provided in the **Appendix L**.

4.9 During the weekly environmental site inspections in the reporting period, no non-conformance was identified. The observations and recommendations for the Projects are summarized in **Table 4.2**.

Table 4.2 Observations and Recommendations of Site Audit

Parameters	Date/Ref. Number	Observations	Follow Up Action
Water Quality	160127-R02	Properly clear the debris and sediment in the wheel washing facility at Central-PTW.	Please refer to 160203-O02.
	160203-O02	Properly clear the debris and sediment in the wheel washing facility at Central-PTW.	Please refer to 160212-O01.
	160212-O01	Properly clear the debris and sediment in the wheel washing facility at Central-PTW.	Please refer to 160219-O01.
	160219-O01	Properly clear the debris and sediment in the wheel washing facility at Central-PTW.	Please refer to 160225-O03.
	160225-O01	The water quality of WetSep at North Point-PTW should be fulfilled the requirement of the WPCO's wastewater discharge license before discharging out. The Contractor was reminded to provide the maintenance of the WetSep.	The water quality of WetSep at North Point-PTW was fulfilled the requirement of the WPCO's wastewater discharge license before discharging out.
	160225-O03	Properly clear the debris and sediment in the wheel washing facility at Central-PTW.	The debris and sediment in the wheel washing facility were cleared regularly at Central-PTW
	160225-R04	The bund should be provided to prevent the muddy water runoff to the access road at Central-PTW.	The bund was provided at Central-PTW.
Air Quality	--	--	--
Waste/ Chemical Management	160203-O01	The oil leakage was observed from the excavator at Central-PTW. The Contractor was reminded to provide the maintenance and clear the oil stain properly.	The oil leakage from the excavator was not observed at Central-PTW.
	160203-R03	Properly clear the oil stain at Central-PTW.	The oil stain was cleared at Central-PTW.
	160225-O02	The oil leakage was observed from the excavators at North Point-PTW and Central-PTW. The Contractor was reminded to provide the maintenance and clear the oil stain properly.	The follow up action will be reported during site inspections in March 2016.
Noise	--	--	--
Landscape and Visual	--	--	--
Permit/ Licenses	--	--	--

Implementation Status of Event Action Plans

4.10 The Event Action Plans for air quality and noise are presented in **Appendix K**.

1-hr TSP

4.11 No Action/Limit Level exceedance was recorded.

24-hr TSP

4.12 No Action/Limit Level exceedance was recorded.

Construction Noise

4.13 No Action Level exceedance was recorded, while three non-project related Limit Level exceedance were recorded during the restricted hour noise monitoring on 2nd, 14th & 21st February 2016 by the ET of this Project at NM1; five non-project related Limit Level exceedance were recorded during the daytime noise monitoring on 12th February 2016 and during the restricted hour noise monitoring on 2nd, 12th, 14th & 21st February 2016 by the ET of this Project at NM2; and one non-project related Limit Level exceedance was recorded during the daytime noise monitoring on 18th February 2016 by the ET of this Project at NM3. Details of the exceedance could be referred to **Appendix G & H**.

Landscape and Visual

4.14 No non-compliance was recorded.

Summary of Complaints and Prosecutions

4.15 No environmentally related summons, prosecutions or complaints were received for the Project in the reporting month.

4.16 There were no environmentally related summons, prosecutions or complaints were received since the commencement of the Project. The Complaint Log is presented in **Appendix M**.

5. FUTURE KEY ISSUES

Key Issues for the Coming Month

5.1 Key environmental issues in the coming month include:

- Generation of dust from stockpiles of excavated and dusty materials, unpaved site area and vehicle movement, roadwork, excavation works and loading and unloading dusty materials on-site;
- Noise from operation of equipment and machinery on-site;
- Provision well maintenance on the storage facilities of chemicals/fuel and chemical waste/waste oil on-site;
- Ponding water generated in pre-drillings;
- Drainage system should be well designed and maintained to prevent flooding and silty water getting into the public area during and after rainstorm;
- Silty surface runoff generated from the site area; and
- Silt and dust getting into the public area by the leaving site vehicles at the site exits without adequate wheel washing facilities.

Monitoring Schedule for the Next Month

5.2 The tentative environmental monitoring schedules for the next month are shown in **Appendix B**.

5.3 Construction Activities for the Next Two Months:

Wan Chai East PTW:

- External wall finishing work for the new administration and workshop building;
- Construction of curtain wall;
- Construction of boundary wall.

North Point PTW

- Operation and maintain of the new FSGT Building;
- Construction of Grit Handling Room;
- Laying of Twin DN400 D.I. Pipes;
- Construction of seawater pumping station.

Central PTW

- Operation and maintain of the new FSGT Building;
- Construction of curtain wall;
- Installation of Splash Arrestor and FRP cover inside the FSGT building;
- Installation of multi-part cover to flume channel;
- External wall finishing work;
- Construction of boundary wall.

5.4 The tentative construction program is provided in **Appendix N**.

6. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 6.1 Environmental monitoring and audit works were performed in the reporting month and all monitoring results were checked and reviewed.

1-hour TSP Monitoring

- 6.2 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

24-hour TSP Monitoring

- 6.3 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise Monitoring

- 6.4 All Construction Noise monitoring was conducted as scheduled in the reporting month. No Action Level exceedance was recorded, while three non-project related Limit Level exceedance were recorded during the restricted hour noise monitoring on 2nd, 14th & 21st February 2016 by the ET of this Project at NM1; five non-project related Limit Level exceedance were recorded during the daytime noise monitoring on 12th February 2016 and during the restricted hour noise monitoring on 2nd, 12th, 14th & 21st February 2016 by the ET of this Project at NM2; and one non-project related Limit Level exceedance was recorded during the daytime noise monitoring on 18th February 2016 by the ET of this Project at NM3. Details of the exceedance could be referred to **Appendix G & H**.

Environmental Audit

- 6.5 Environmental site audits were conducted as weekly basis in the reporting month. No non-compliance was recorded.

Complaint and Prosecution

- 6.6 No environmentally related summons, prosecutions or complaints were received in the reporting month.

Recommendations for the coming reporting month:

- 6.7 According to the environmental audit performed in the reporting month, the following recommendations were made for coming reporting month:

Water Quality Impact

- To well maintain the wheel washing facility in the site such as clear the debris and sediment;
- To provide the bund to prevent the muddy water runoff to the access road; and
- To provide the maintenance of the WetSep to ensure the water quality of the WetSep be fulfilled the requirement of the WPCO's discharge license before discharging out.

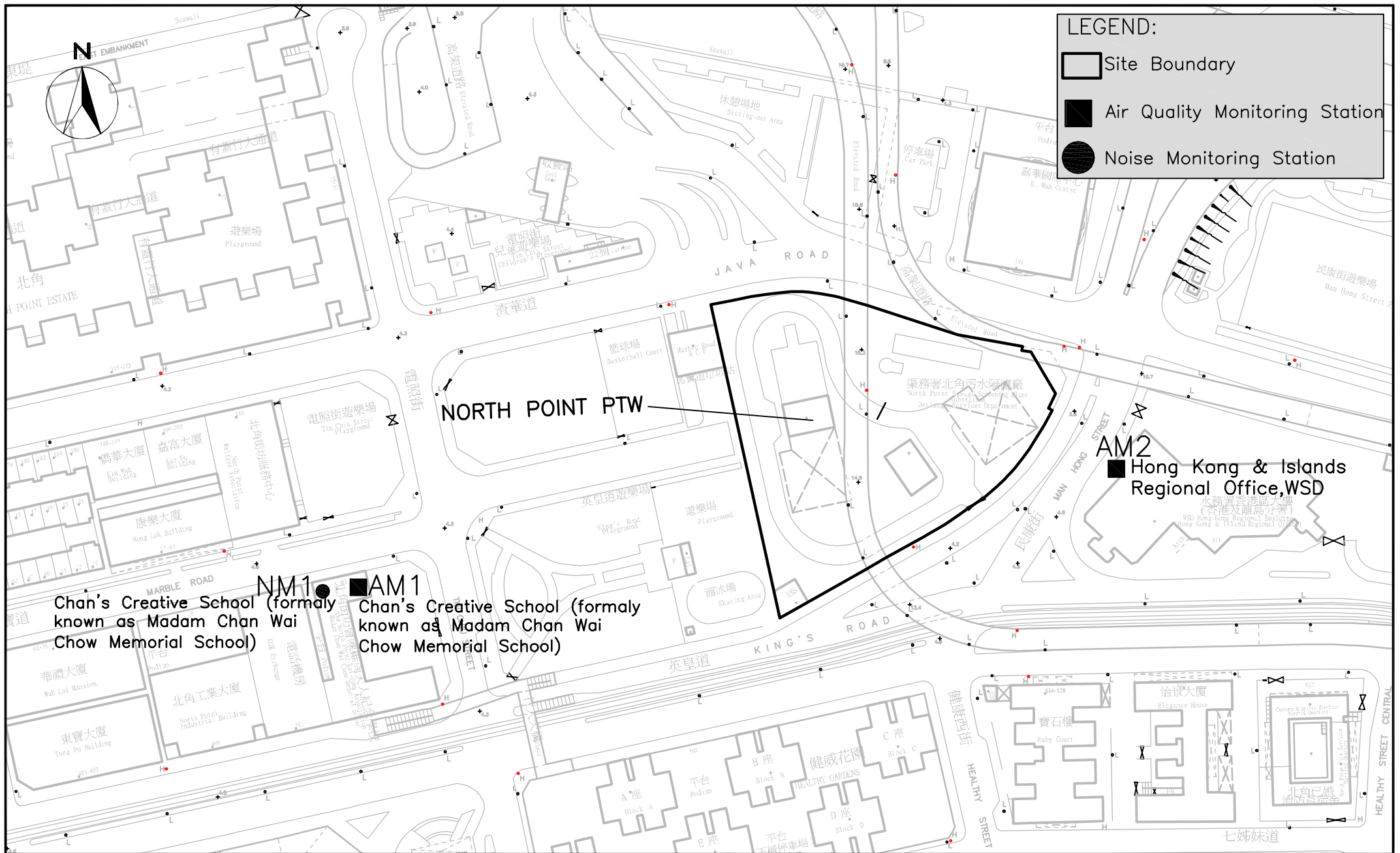
Noise Impact

- To inspect the noise sources inside the site;
- To follow up any exceedance caused by the construction works;
- To space out noisy equipment and position the equipment as far away as possible from sensitive receivers;
- To provide temporary noise barriers for operations of noisy equipment near the noise sensitive receivers in an appropriate location;
- To provide adequate lubricant on mechanical equipments to reduce frictional noise;
- To ensure the doors of the air compressors are closed; and
- To well maintain the mechanical equipments / machineries to avoid abnormal noise nuisance.

Waste/Chemical Management

- To well maintain the equipments to prevent the oil spillage in the site; and
- To proper clear the oil stain on the site.

FIGURES



LEGEND:

- Site Boundary
- Air Quality Monitoring Station
- Noise Monitoring Station

NM1 **AM1**
 Chan's Creative School (formally known as Madam Chan Wai Chow Memorial School)

NORTH POINT PTW

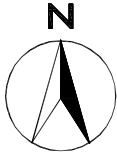
AM2
 Hong Kong & Islands Regional Office, WSD

Contract No. DC/2009/23 – Harbour Area Treatment Stage 2A
 – Upgrading of Preliminary Treatment Works at North Point,
 Wan Chai East and Central

Impact Air Quality & Noise Monitoring Stations (North Point)



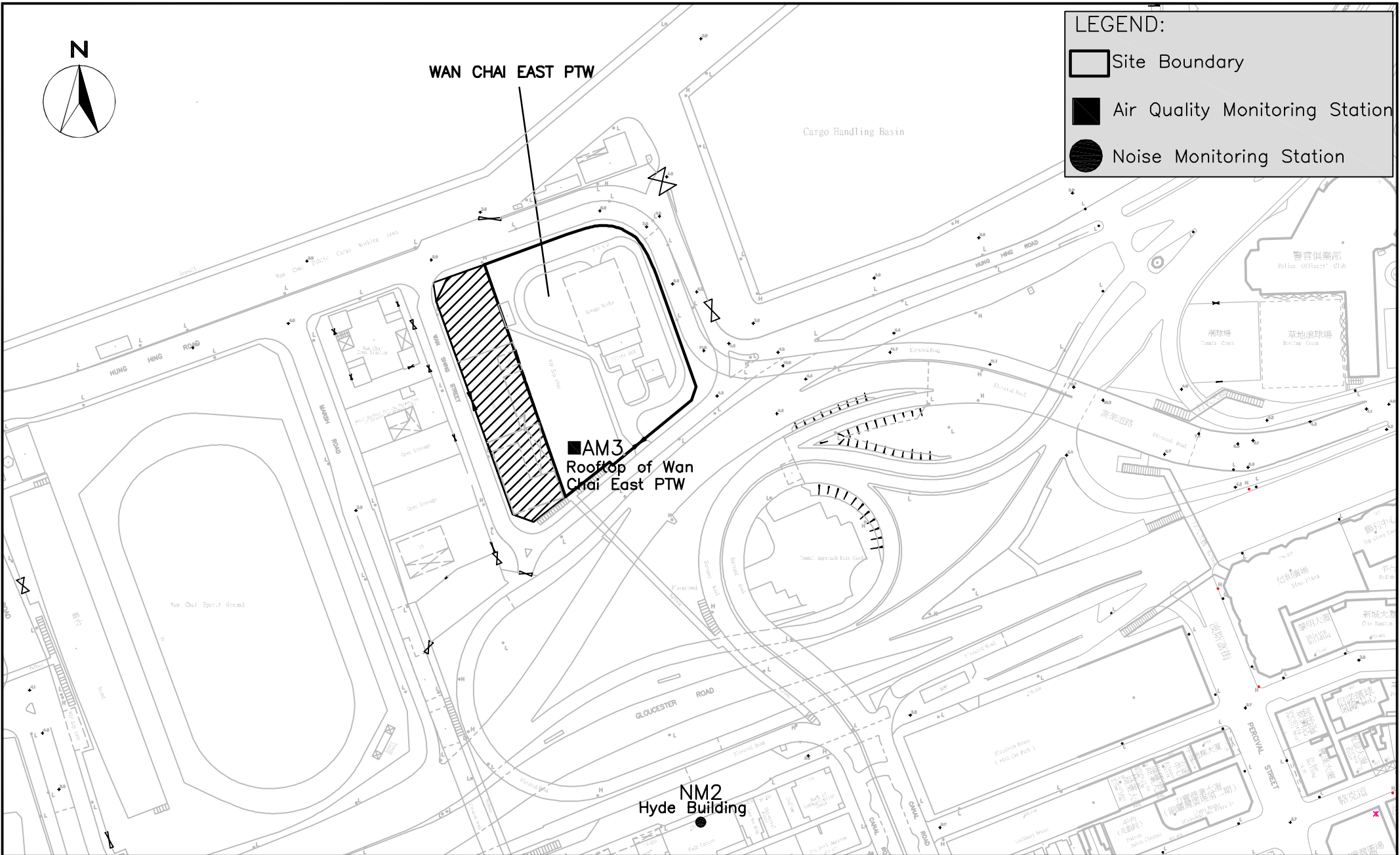
SCALE	N.T.S	DATE	11 MAR 2011	
CHECK	GL	DRAWN	TW	
PROJECT NO.	MA11003	FIGURE NO.	1A	REV —



WAN CHAI EAST PTW

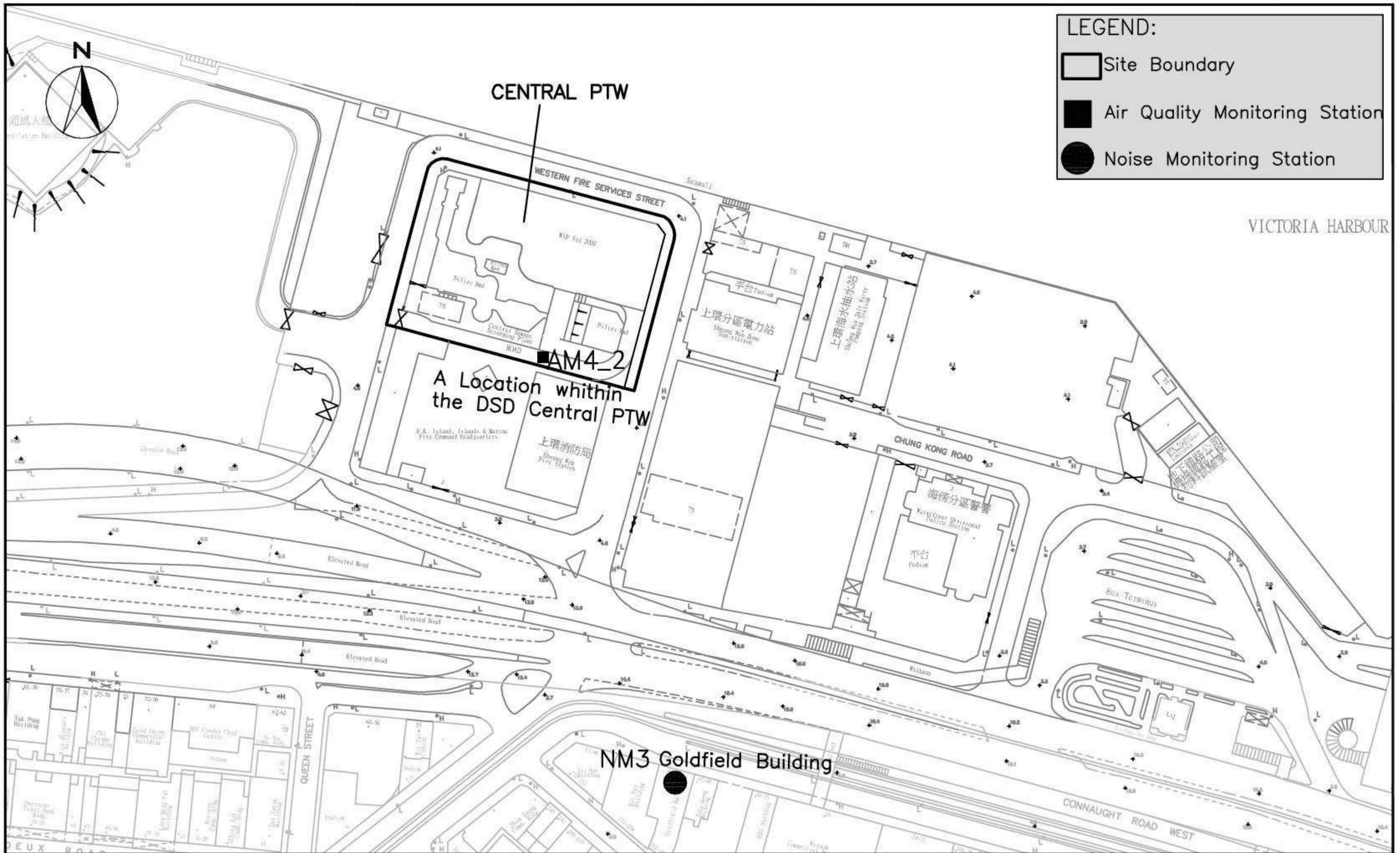
LEGEND:

- Site Boundary
- Air Quality Monitoring Station
- Noise Monitoring Station



Contract No. DC/2009/23 – Harbour Area Treatment Stage 2A
 – Upgrading of Preliminary Treatment Works at North Point,
 Wan Chai East and Central
Impact Air Quality & Noise Monitoring Stations (Wan Chai East)

SCALE	N.T.S	DATE	11 MAR 2011
CHECK	GL	DRAWN	TW
PROJECT NO.	MA11003	FIGURE NO.	1B
		REV	—



LEGEND:

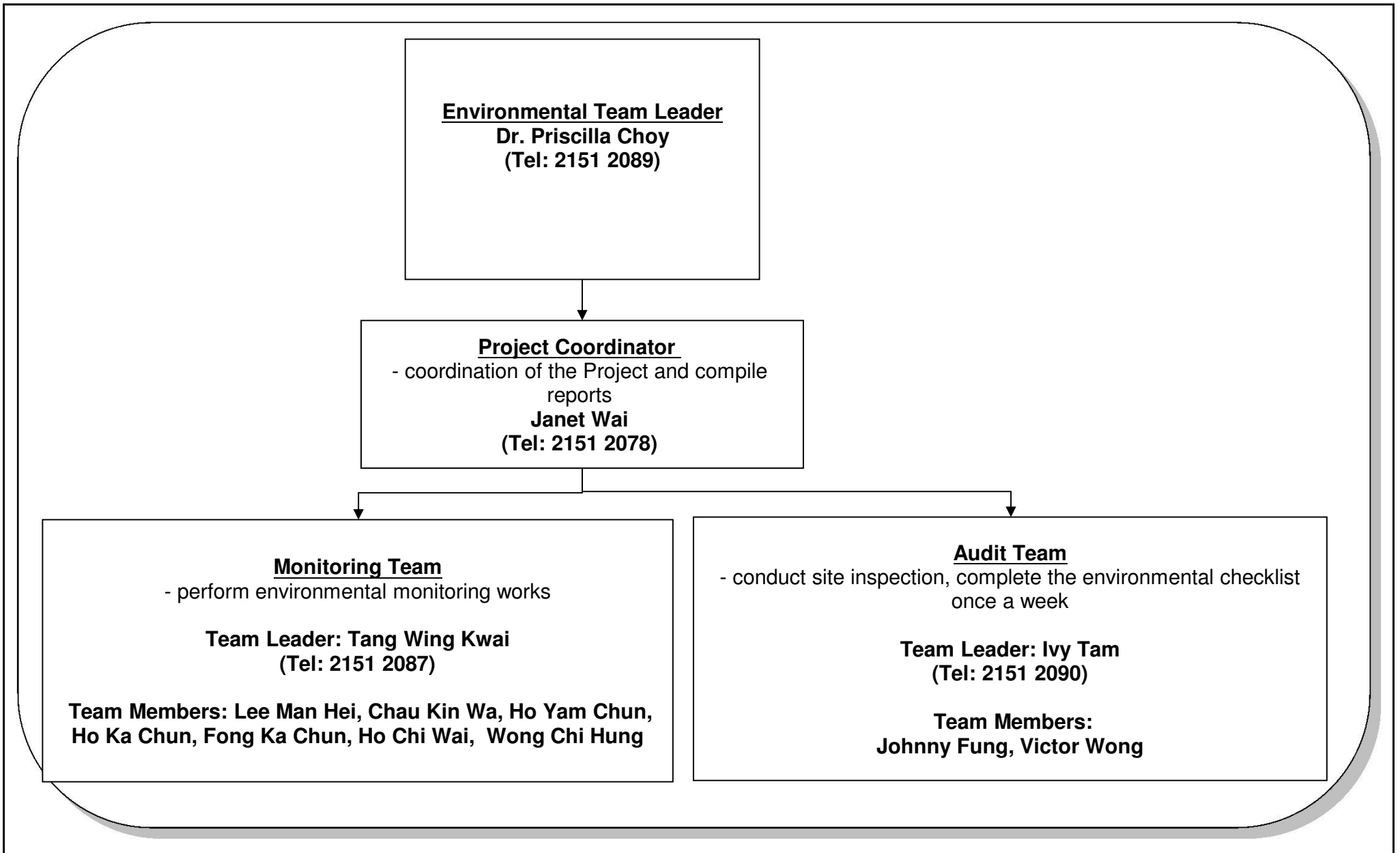
- Site Boundary
- Air Quality Monitoring Station
- Noise Monitoring Station

VICTORIA HARBOUR

Contract No. DC/2009/23 – Harbour Area Treatment Stage 2A
 – Upgrading of Preliminary Treatment Works at North Point,
 Wan Chai East and Central
Impact Air Quality & Noise Monitoring Stations (Central)



SCALE	N.T.S	DATE	11 MAR 2011	
CHECK	GL	DRAWN	TW	
PROJECT NO.	MA11003	FIGURE NO.	1C	REV —



Title	Contract No. DC/2009/23	Scale	N.T.S	Project No.	MA11003	CINOTECH
	HATS Stage 2A – Upgrading of Preliminary Treatment Works at North Point, Wanchai East and Central	Date	Mar-15	Figure	2	
ET's Organization Chart						

**APPENDIX A
ACTION AND LIMIT LEVELS FOR AIR
QUALITY AND NOISE**

Appendix A Action and Limit Levels

Table A-1 Action and Limit Levels for 1-Hour TSP and 24-Hour TSP

Monitoring Stations	Action Level ($\mu\text{g}/\text{m}^3$)		Limit Level ($\mu\text{g}/\text{m}^3$)	
	1-hour	24-hour	1-hour	24-hour
AM1	340	185	500	260
AM2	352	182		
AM3	355	181		
AM4_2	393	211		

Table A-2 Action and Limit Level for Construction Noise

Monitoring Stations	Time Period	Action Level	Limit Level in dB(A)
NM1	0700-1900 hours on normal weekdays	When one documented complaint is received	70 *
	Restricted hours (1900-2300 on all days and 0700-2300 on general holidays and Sundays)		70 **
NM2 and NM3	0700-1900 hours on normal weekdays		75

Notes: 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.

* 70 dB(A) was adopted as the Limit Level during school normal teaching period in the reporting period.

** 70 dB(A) was adopted as the Limit Level during restricted hours in the reporting period

**APPENDIX B
ENVIRONMENTAL MONITORING
SCHEDULES**

Contract No. DC/2009/23
Upgrading of PTWs at North Point, Wan Chai East and Central
Impact Air Quality and Noise Monitoring for February 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Feb	2-Feb	3-Feb	4-Feb	5-Feb	6-Feb
	24 hrs TSP (AM1, AM2, AM3 & AM4_2)	1 hr TSP (AM1, AM2, AM3 & AM4_2) Noise (NM1 & NM2) (Daytime & Evening time) Noise (NM3)(Daytime)				1 hr TSP (AM1, AM2, AM3 & AM4_2) 24 hrs TSP (AM1, AM2, AM3 & AM4_2)
7-Feb	8-Feb	9-Feb	10-Feb	11-Feb	12-Feb	13-Feb
					1 hr TSP (AM1, AM2, AM3 & AM4_2) Noise (NM1 & NM2) (Daytime & Evening time) Noise (NM3)(Daytime) 24 hrs TSP (AM1, AM2, AM3 & AM4_2)	
14-Feb	15-Feb	16-Feb	17-Feb	18-Feb	19-Feb	20-Feb
Noise (NM1 & NM2) (during daytime on sundays/public holidays)			24 hrs TSP (AM1, AM2, AM3 & AM4_2)	1 hr TSP (AM1, AM2, AM3 & AM4_2) Noise (NM1, NM2 & NM3) (Daytime)		
21-Feb	22-Feb	23-Feb	24-Feb	25-Feb	26-Feb	27-Feb
Noise (NM1 & NM2) (during daytime on sundays/public holidays)		24 hrs TSP (AM1, AM2, AM3 & AM4_2)	1 hr TSP (AM1, AM2, AM3 & AM4_2) Noise (NM1, NM2 & NM3) (Daytime)			
28-Feb	29-Feb					
	24 hrs TSP (AM1, AM2, AM3 & AM4_2)					

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Air Quality Monitoring Station

AM1 - Works site boundary of DC/2009/23
 AM2 - Hong Kong & Islands Regional Office, WSD
 AM3 - Wan Chai East PTW
 AM4_2 - A Location within the DSD Central PTW

Noise Monitoring Station

NM1 - Chan's Creative School
 NM2 - Hyde Building
 NM3 - Goldfield Building

Contract No. DC/2009/23
Upgrading of PTWs at North Point, Wan Chai East and Central
Tentative Impact Air Quality and Noise Monitoring for March 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1-Mar	2-Mar	3-Mar	4-Mar	5-Mar
		1 hr TSP (AM1, AM2, AM3 & AM4_2) Noise (NM1 & NM2) (Daytime & Evening time) Noise (NM3)(Daytime)			24 hrs TSP (AM1, AM2, AM3 & AM4_2)	
6-Mar	7-Mar	8-Mar	9-Mar	10-Mar	11-Mar	12-Mar
Noise (NM1 & NM2) (during daytime on sundays/public holidays)	1 hr TSP (AM1, AM2, AM3 & AM4_2) Noise (NM1, NM2 & NM3) (Daytime)			24 hrs TSP (AM1, AM2, AM3 & AM4_2)	1 hr TSP (AM1, AM2, AM3 & AM4_2)	
13-Mar	14-Mar	15-Mar	16-Mar	17-Mar	18-Mar	19-Mar
			24 hrs TSP (AM1, AM2, AM3 & AM4_2)	1 hr TSP (AM1, AM2, AM3 & AM4_2) Noise (NM1 & NM2) (Daytime & Evening time) Noise (NM3)(Daytime)		
20-Mar	21-Mar	22-Mar	23-Mar	24-Mar	25-Mar	26-Mar
		24 hrs TSP (AM1, AM2, AM3 & AM4_2)	1 hr TSP (AM1, AM2, AM3 & AM4_2) Noise (NM1, NM2 & NM3) (Daytime)	24 hrs TSP (AM1, AM2, AM3 & AM4_2)	Noise (NM1 & NM2) (during daytime on sundays/public holidays)	
27-Mar	28-Mar	29-Mar	30-Mar	31-Mar		
		1 hr TSP (AM1, AM2, AM3 & AM4_2) Noise (NM1 & NM2) (Daytime & Evening time) Noise (NM3)(Daytime)	24 hrs TSP (AM1, AM2, AM3 & AM4_2)			

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Air Quality Monitoring Station

AM1 - Works site boundary of DC/2009/23
 AM2 - Hong Kong & Islands Regional Office, WSD
 AM3 - Wan Chai East PTW
 AM4_2 - A Location within the DSD Central PTW

Noise Monitoring Station

NM1 - Chan's Creative School
 NM2 - Hyde Building
 NM3 - Goldfield Building

**APPENDIX C
COPIES OF CALIBRATION
CERTIFICATES**

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA11003/46/0003

Station: AMI - Chan's Creative School Operator: WK
 Date: 27-Jan-16 Next Due Date: 26-Mar-16
 Equipment No.: A-01-46 Serial No. 1315

Ambient Condition			
Temperature, Ta (K)	281.5	Pressure, Pa (mmHg)	770.8

Orifice Transfer Standard Information					
Equipment No.:	A-04-06	Slope, mc (CFM)	0.0593	Intercept, bc	-0.02195
Last Calibration Date:	4-Feb-15	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	3-Feb-16	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)] ^{1/2} Y-axis
1	11.8	3.56	60.43	8.2	2.97
2	9.4	3.18	53.98	6.6	2.66
3	7.2	2.78	47.29	5.0	2.32
4	5.1	2.34	39.86	3.4	1.91
5	3.4	1.91	32.61	2.2	1.54

By Linear Regression of Y on X

Slope, mw = 0.0518 Intercept, bw : -0.1475
 Correlation coefficient* = 0.9997

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation	
From the TSP Field Calibration Curve, take Qstd = 43 CFM	
From the Regression Equation, the "Y" value according to	
$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$	
Therefore, Set Point; W = (mw x Qstd + bw) ² x (760 / Pa) x (Ta / 298) = <u>4.03</u>	

Remarks: _____

Conducted by: Wk Tang Signature: Kwan Date: 27/1/16
 Checked by: AW Signature: _____ Date: 27 January 2016

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA11003/44/0003

Station: AM2 - Hong Kong & Islands Regional Office, WSD Operator: WK
 Date: 27-Jan-16 Next Due Date: 26-Mar-16
 Equipment No.: A-01-44 Serial No. 1316

Ambient Condition			
Temperature, Ta (K)	281.7	Pressure, Pa (mmHg)	771.5

Orifice Transfer Standard Information					
Equipment No.:	A-04-06	Slope, mc (CFM)	0.0593	Intercept, bc	-0.02195
Last Calibration Date:	4-Feb-15	$mc \times Q_{std} + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	3-Feb-16	$Q_{std} = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.5	3.51	59.67	8.0	2.93
2	9.9	3.26	55.39	6.8	2.70
3	7.6	2.86	48.58	5.3	2.39
4	5.3	2.39	40.63	3.4	1.91
5	3.2	1.85	31.65	2.1	1.50

By Linear Regression of Y on X

Slope, mw = 0.0515 Intercept, bw : -0.1450
 Correlation coefficient* = 0.9991

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Q_{std} + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W = $(mw \times Q_{std} + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.99

Remarks: _____

Conducted by: Wkc Tang Signature: [Signature] Date: 27/1/16
 Checked by: A Signature: [Signature] Date: 27 January 2016

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA11003/48/0003

Station: AM3 - Wan Chai East PTW Operator: WK
 Date: 27-Jan-16 Next Due Date: 26-Mar-16
 Equipment No.: A-01-48 Serial No. 1792

Ambient Condition			
Temperature, Ta (K)	282.2	Pressure, Pa (mmHg)	770.4

Orifice Transfer Standard Information					
Equipment No.:	A-04-06	Slope, mc (CFM)	0.0593	Intercept, bc	-0.02195
Last Calibration Date:	4-Feb-15	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	3-Feb-16	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.3	3.48	59.06	7.9	2.91
2	9.9	3.26	55.30	6.8	2.70
3	7.4	2.81	47.86	5.1	2.34
4	5.1	2.34	39.80	3.4	1.91
5	3.3	1.88	32.08	2.1	1.50

By Linear Regression of Y on X
 Slope, mw = 0.0519 Intercept, bw = -0.1616
 Correlation coefficient* = 0.9999
 *If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM
 From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.01

Remarks: _____

Conducted by: Wk Tang Signature: Wk Tang Date: 27/1/16
 Checked by: AW Signature: _____ Date: 27 January 2016

High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA11003/15/0003

Station: AM4_2 - A location within the DSD Central PTW Operator: WK
 Date: 27-Jan-16 Next Due Date: 26-Mar-16
 Equipment No.: A-01-15 Serial No. 10576

Ambient Condition			
Temperature, Ta (K)	281.4	Pressure, Pa (mmHg)	771.7

Orifice Transfer Standard Information					
Equipment No.:	A-04-06	Slope, mc (CFM)	0.0593	Intercept, bc	-0.02195
Last Calibration Date:	4-Feb-15	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	3-Feb-16	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of water	[ΔW x (Pa/760) x (298/Ta)] ^{1/2} Y-axis
1	11.5	3.51	59.63	7.9	2.91
2	9.8	3.25	55.15	6.5	2.64
3	7.6	2.86	48.61	5.2	2.36
4	5.2	2.36	40.27	3.4	1.91
5	3.3	1.88	32.16	2.2	1.54

By Linear Regression of Y on X

Slope, mw = 0.0498 Intercept, bw = -0.0749
 Correlation coefficient* = 0.9992

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM
 From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.97

Remarks: _____

Conducted by: Wk Tang Signature: Kwai Date: 27/1/16
 Checked by: IA Signature: _____ Date: 27 January 2016



Equipment No A-04-06

TISCH ENVIRONMENTAL, INC.
 145 SOUTH MIAMI AVE
 VILLAGE OF CLEVELAND, OH
 45002
 513.467.9000
 877.263.7610 TOLL FREE
 513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Feb 04, 2015 Roots-meter S/N 0438320 Ta (K) - 293
 Operator Tisch Orifice I.D. - 2896 Pa (mm) - 756.92

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.4590	3.2	2.00
2	NA	NA	1.00	1.0330	6.4	4.00
3	NA	NA	1.00	0.9250	7.9	5.00
4	NA	NA	1.00	0.8800	8.8	5.50
5	NA	NA	1.00	0.7260	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0086	0.6913	1.4233	0.9958	0.6825	0.8799
1.0044	0.9723	2.0129	0.9916	0.9599	1.2443
1.0023	1.0835	2.2505	0.9895	1.0697	1.3912
1.0011	1.1377	2.3603	0.9884	1.1231	1.4591
0.9959	1.3718	2.8467	0.9832	1.3542	1.7598
Qstd slope (m) = 2.09317			Qa slope (m) = 1.31071		
intercept (b) = -0.02195			intercept (b) = -0.01357		
coefficient (r) = 0.99997			coefficient (r) = 0.99997		
y axis = SQRT[H2O(Pa/760)(298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

Vstd = Diff. Vol [(Pa-Diff. Hg)/760] (298/Ta)
 Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]
 Qa = Va/Time

For subsequent flow rate calculations:

Qstd = 1/m{ [SQRT(H2O(Pa/760)(298/Ta))] - b}
 Qa = 1/m{ [SQRT H2O(Ta/Pa)] - b}

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/160108/2
Date of Issue:	2016-01-11
Date Received:	2016-01-08
Date Tested:	2016-01-08
Date Completed:	2016-01-11
Next Due Date:	2016-03-10

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 853944
Sensitivity (K) 1 CPM	: 0.001 mg/m ³
Sen. Adjustment Scale Setting	: 685 CPM
Equipment No.	: A-02-04

Test Conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 59 %

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0033
-------------------------	--------

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/160219/1
Date of Issue:	2016-02-22
Date Received:	2016-02-19
Date Tested:	2016-02-19
Date Completed:	2016-02-22
Next Due Date:	2016-04-21

ATTN: Mr. WK Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 954253
Sensitivity (K) 1 CPM	: 0.001 mg/m ³
Sen. Adjustment Scale Setting	: 772 CPM
Equipment No.	: A-02-05

Test Conditions:

Room Temperature	: 21 degree Celsius
Relative Humidity	: 55 %

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0034
-------------------------	--------

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/151218/1
Date of Issue:	2015-12-21
Date Received:	2015-12-18
Date Tested:	2015-12-18
Date Completed:	2015-12-21
Next Due Date:	2016-02-20

ATTN: Mr. WK Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 954253
Sensitivity (K) 1 CPM	: 0.001 mg/m ³
Sen. Adjustment Scale Setting	: 772 CPM
Equipment No.	: A-02-05

Test Conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 58 %

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0032
-------------------------	--------

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/160226/1
Date of Issue:	2016-02-29
Date Received:	2016-02-26
Date Tested:	2016-02-26
Date Completed:	2016-02-29
Next Due Date:	2016-04-25

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 095039
Sensitivity (K) 1 CPM	: 0.001 mg/m ³
Sen. Adjustment Scale Setting	: 764 CPM
Equipment No.	: A-02-08

Test Conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 54 %

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0033
-------------------------	--------

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/151224/1
Date of Issue:	2015-12-28
Date Received:	2015-12-24
Date Tested:	2015-12-24
Date Completed:	2015-12-28
Next Due Date:	2016-02-27

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 095039
Sensitivity (K) 1 CPM	: 0.001 mg/m ³
Sen. Adjustment Scale Setting	: 764 CPM
Equipment No.	: A-02-08

Test Conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 59 %

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0031
-------------------------	--------

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/160226/3
Date of Issue:	2016-02-29
Date Received:	2016-02-26
Date Tested:	2016-02-26
Date Completed:	2016-02-29
Next Due Date:	2016-04-25

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 095029
Sensitivity (K) 1 CPM	: 0.001 mg/m ³
Sen. Adjustment Scale Setting	: 551 CPM
Equipment No.	: A-02-10

Test Conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 54 %

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0032
-------------------------	--------

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/151224/3
Date of Issue:	2015-12-28
Date Received:	2015-12-24
Date Tested:	2015-12-24
Date Completed:	2015-12-28
Next Due Date:	2016-02-27

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 095029
Sensitivity (K) 1 CPM	: 0.001 mg/m ³
Sen. Adjustment Scale Setting	: 551 CPM
Equipment No.	: A-02-10

Test Conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 59 %

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0030
-------------------------	--------

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/150918/1
Date of Issue:	2015-09-21
Date Received:	2015-09-18
Date Tested:	2015-09-18
Date Completed:	2015-09-21
Next Due Date:	2016-09-20

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 12553
Microphone No.	: 35222
Equipment No.	: N-08-02

Test conditions:

Room Temperature	: 25 degree Celsius
Relative Humidity	: 58%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/150821/3
Date of Issue:	2015-08-24
Date Received:	2015-08-21
Date Tested:	2015-08-21
Date Completed:	2015-08-24
Next Due Date:	2016-08-23

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21459
Microphone No.	: 43676
Equipment No.	: N-08-08

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 54%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/151127/1
Date of Issue:	2015-11-30
Date Received:	2015-11-27
Date Tested:	2015-11-27
Date Completed:	2015-11-30
Next Due Date:	2016-11-29

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 23853
Microphone No.	: 48530
Equipment No.	: N-08-10

Test conditions:

Room Temperature	: 24 degree Celsius
Relative Humidity	: 62%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/151003/1
Date of Issue:	2015-10-04
Date Received:	2015-10-03
Date Tested:	2015-10-03
Date Completed:	2015-10-04
Next Due Date:	2016-10-03

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description : Acoustical Calibrator
Manufacturer : SVANTEK
Model No. : SV30A
Serial No. : 24803
Equipment No. : N-09-03

Test conditions:

Room Temperature : 23 degree Celsius
Relative Humidity : 57%

Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/151106/1
Date of Issue:	2015-11-07
Date Received:	2015-11-06
Date Tested:	2015-11-06
Date Completed:	2015-11-07
Next Due Date:	2016-11-06

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2326353
Equipment No.	: N-02-01

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 56 %

Methodology:

The sound calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/150821/4
Date of Issue:	2015-08-24
Date Received:	2015-08-21
Date Tested:	2015-08-21
Date Completed:	2015-08-24
Next Due Date:	2016-08-23

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2412367
Equipment No.	: N-02-03

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 54%

Methodology:

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

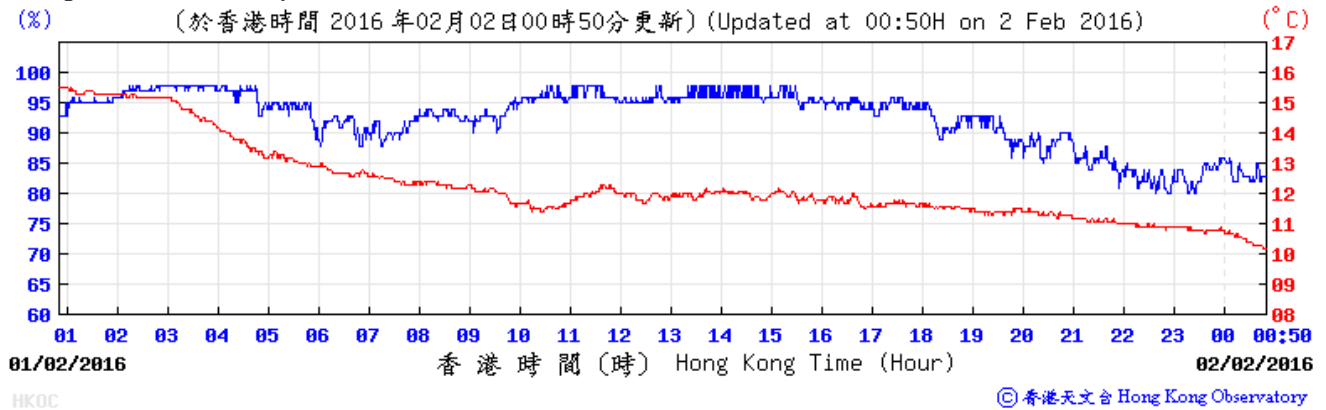
PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

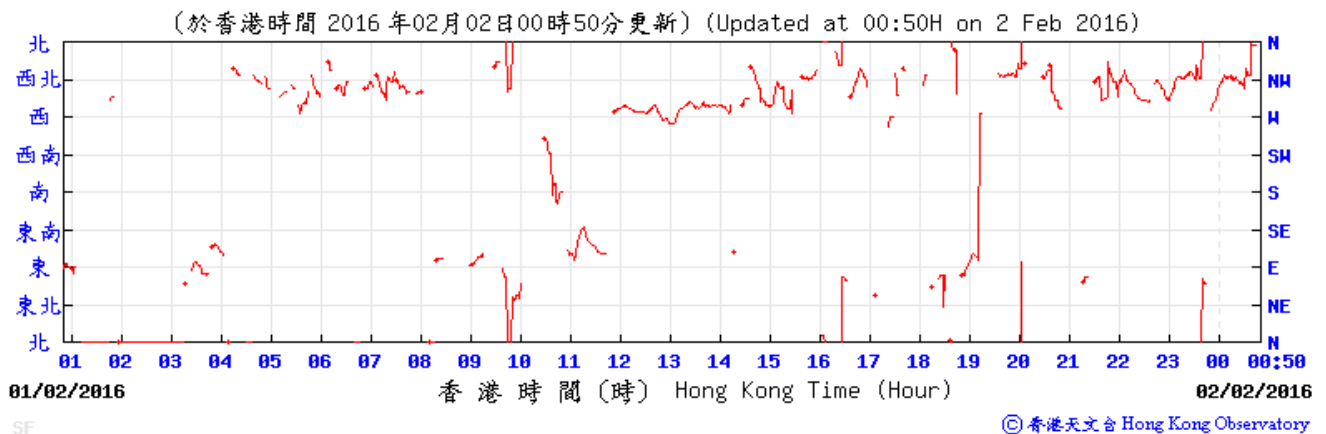
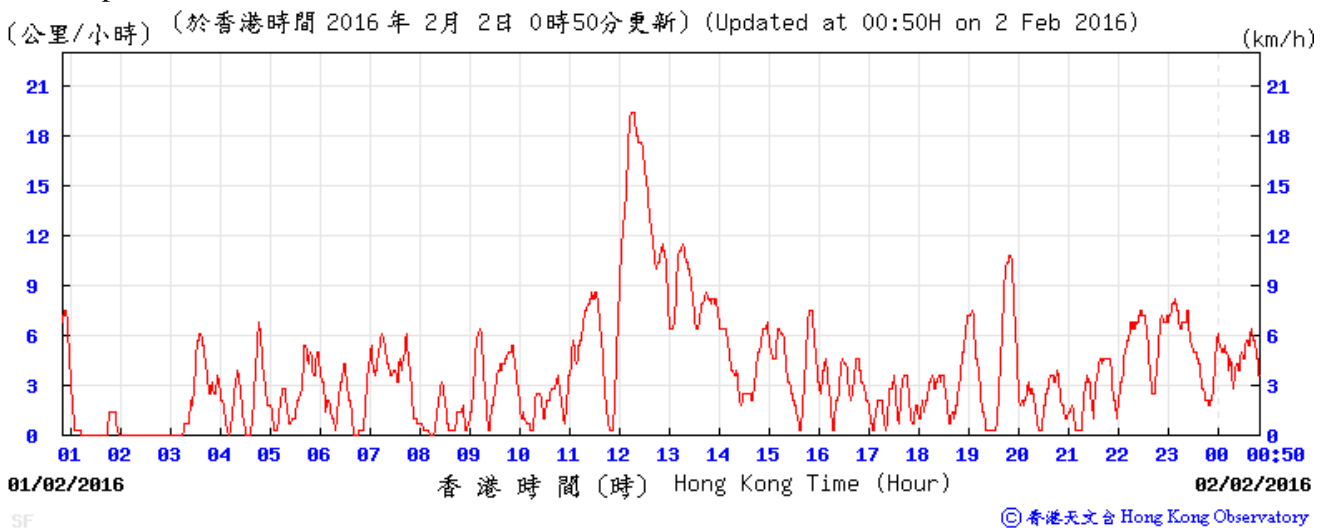
**APPENDIX D
METEOROLOGICAL DATA ON
MONITORING DATES**

Appendix D
Meteorological Data Recorded from HKO Station (1 February 2016)
 (Source: www.hko.gov.hk)

Temperature/Humidity:



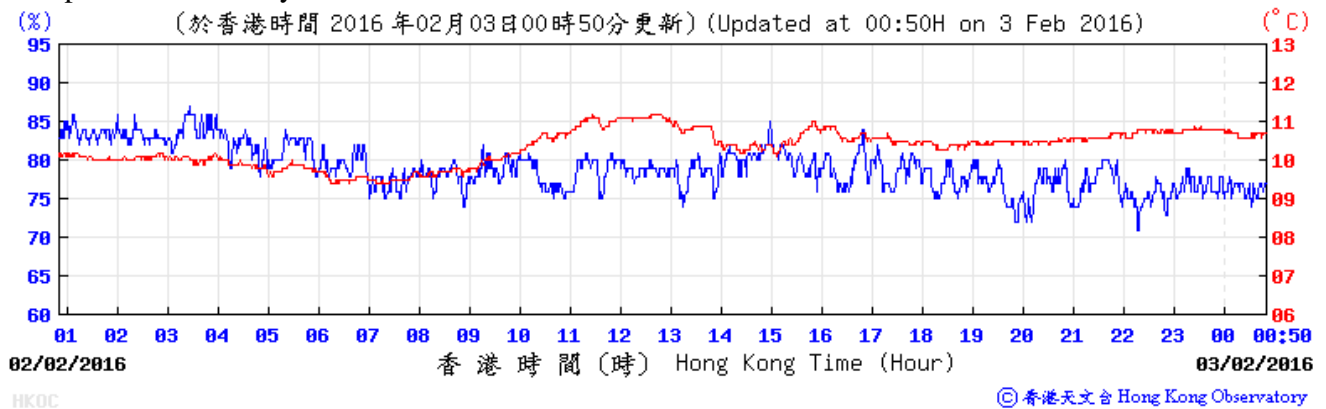
Wind Speed and Direction:



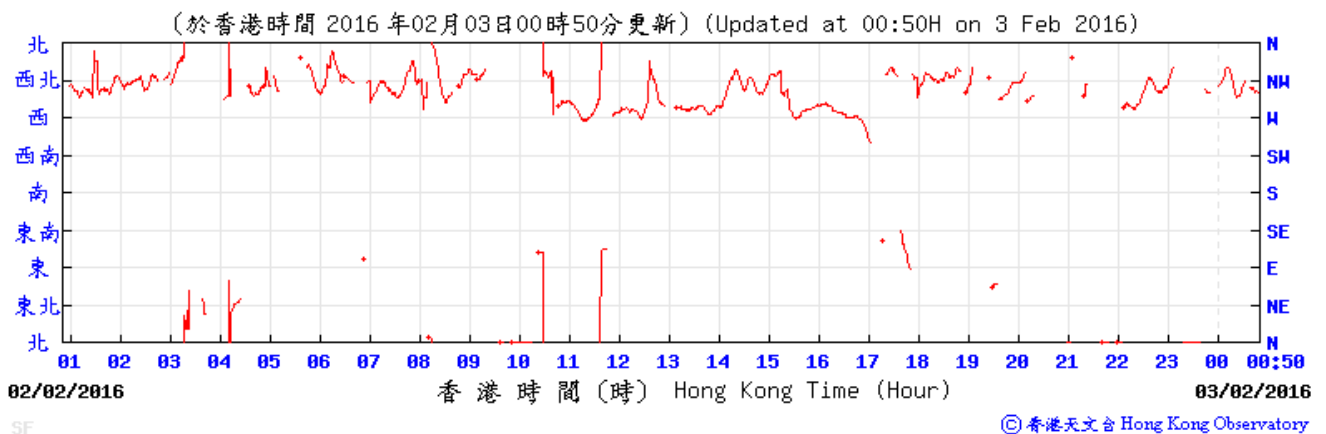
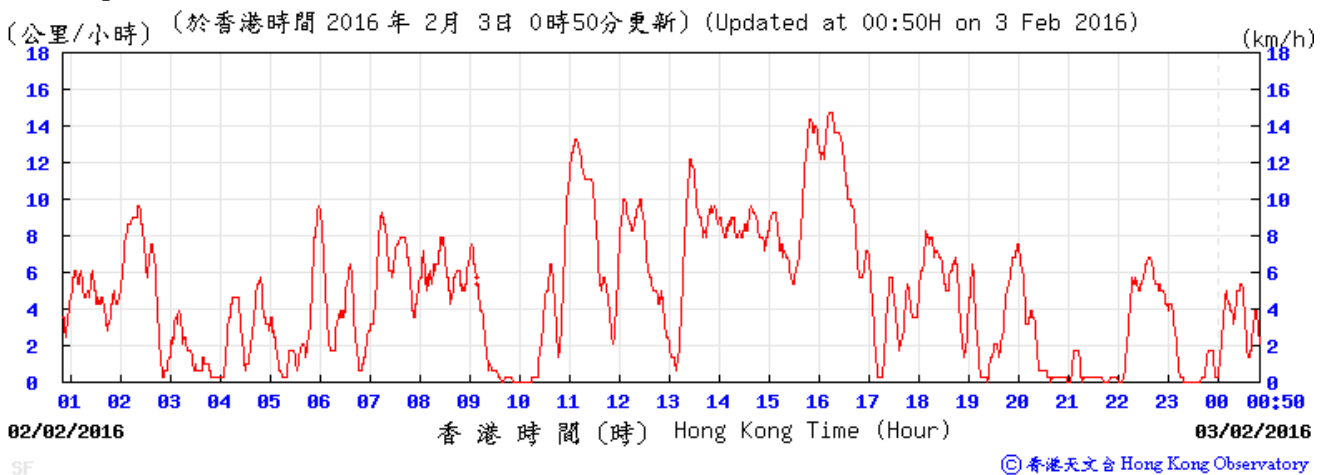
Meteorological Data Recorded from HKO Station (2 February 2016)

(Source: www.hko.gov.hk)

Temperature/Humidity:



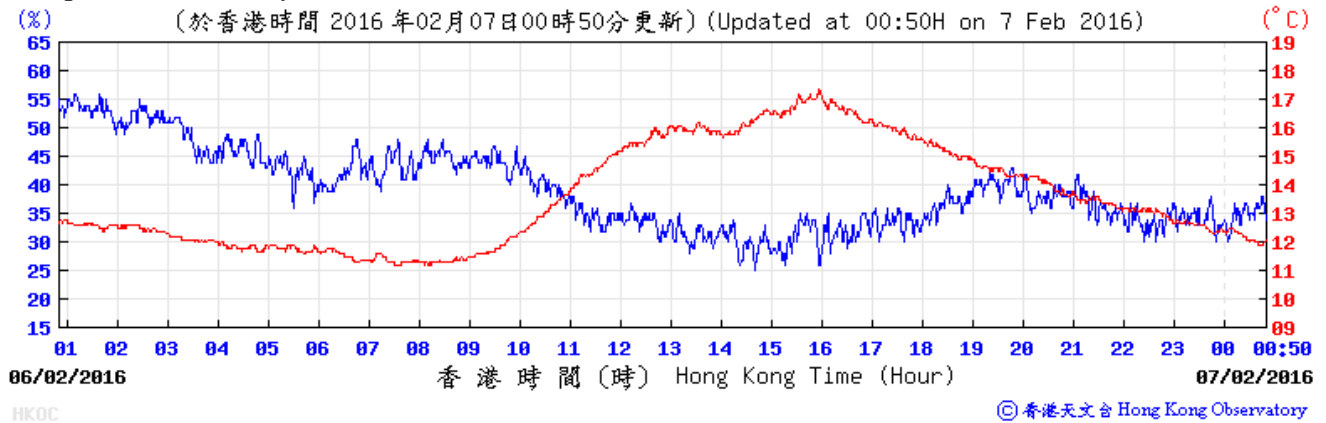
Wind Speed and Direction:



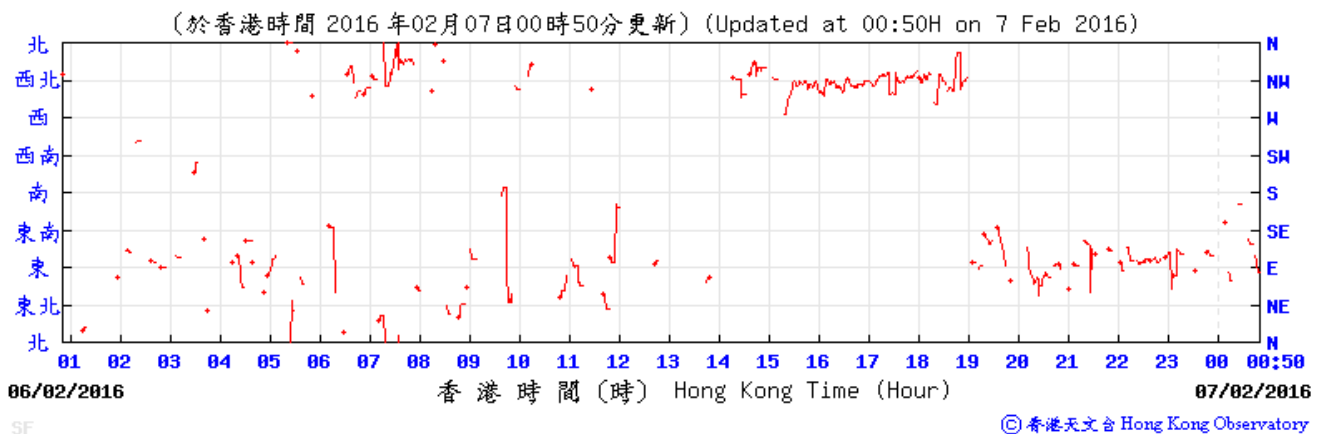
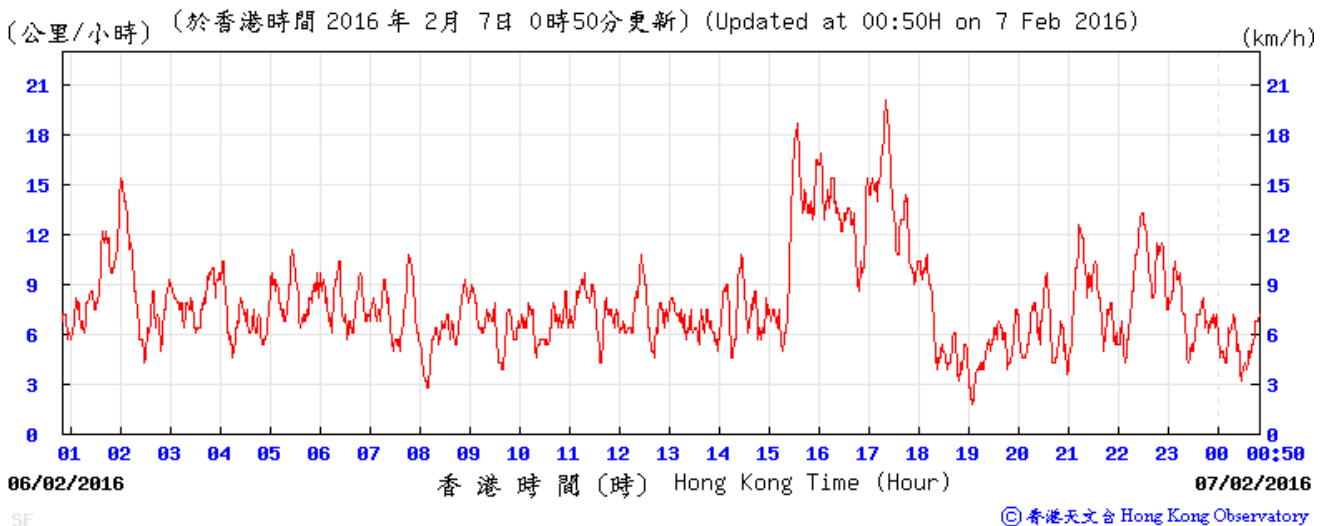
Meteorological Data Recorded from HKO Station (6 February 2016)

(Source: www.hko.gov.hk)

Temperature/Humidity:



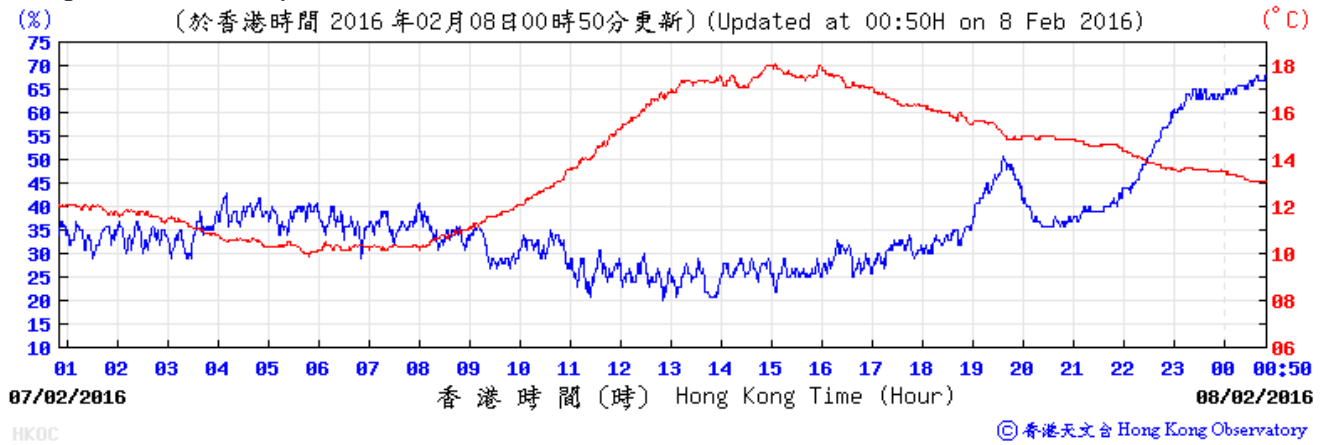
Wind Speed and Direction:



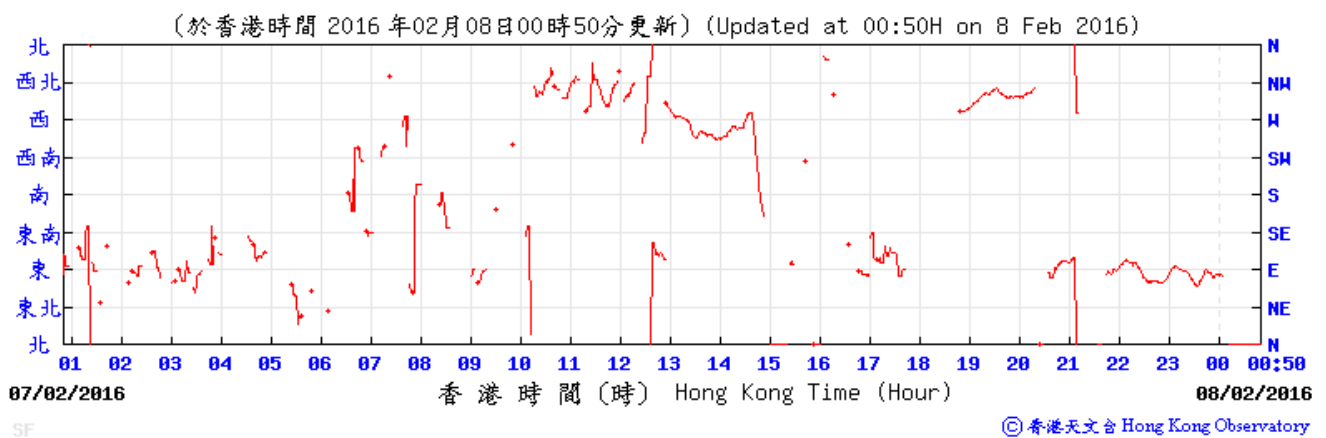
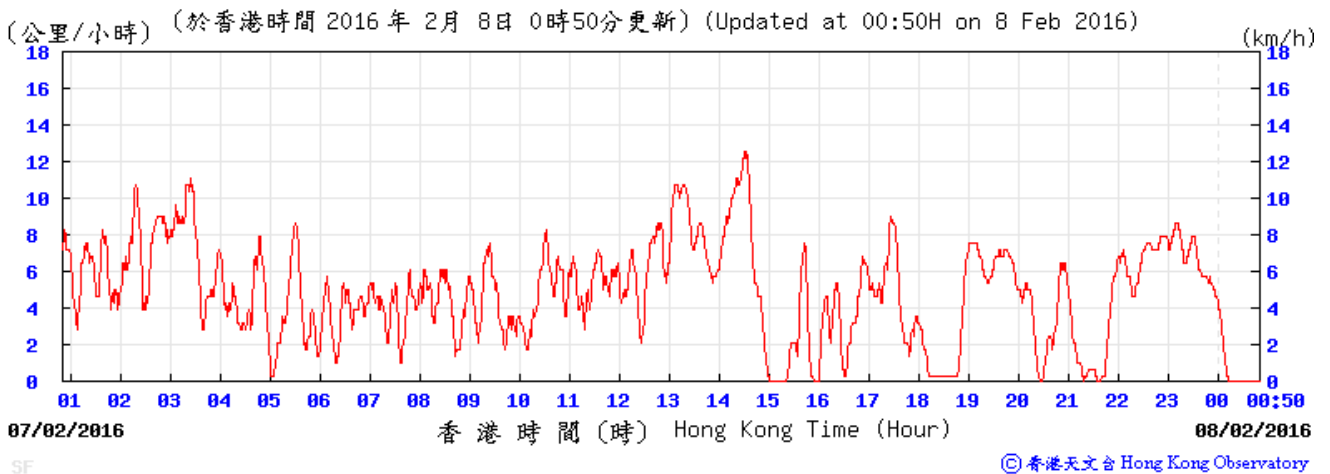
Meteorological Data Recorded from HKO Station (7 February 2016)

(Source: www.hko.gov.hk)

Temperature/Humidity:



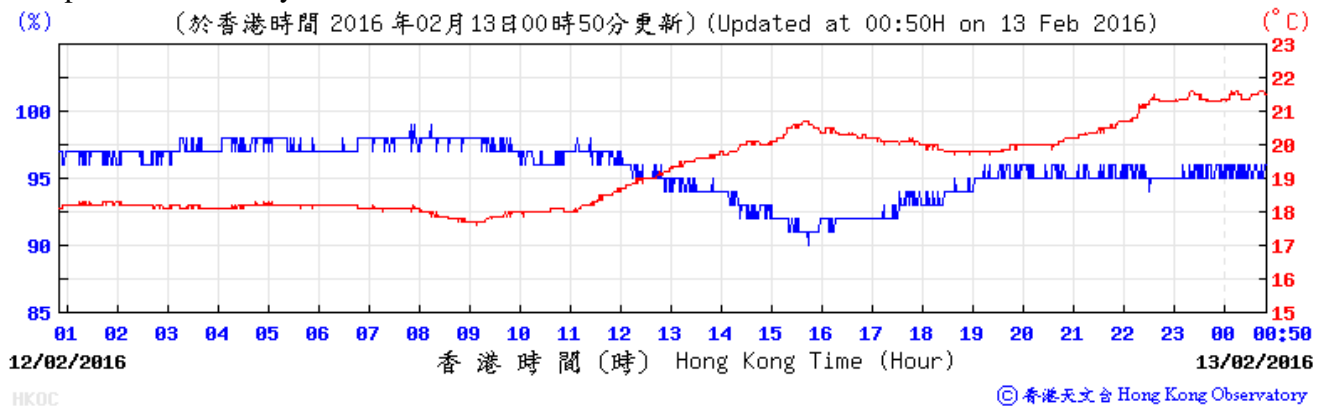
Wind Speed and Direction:



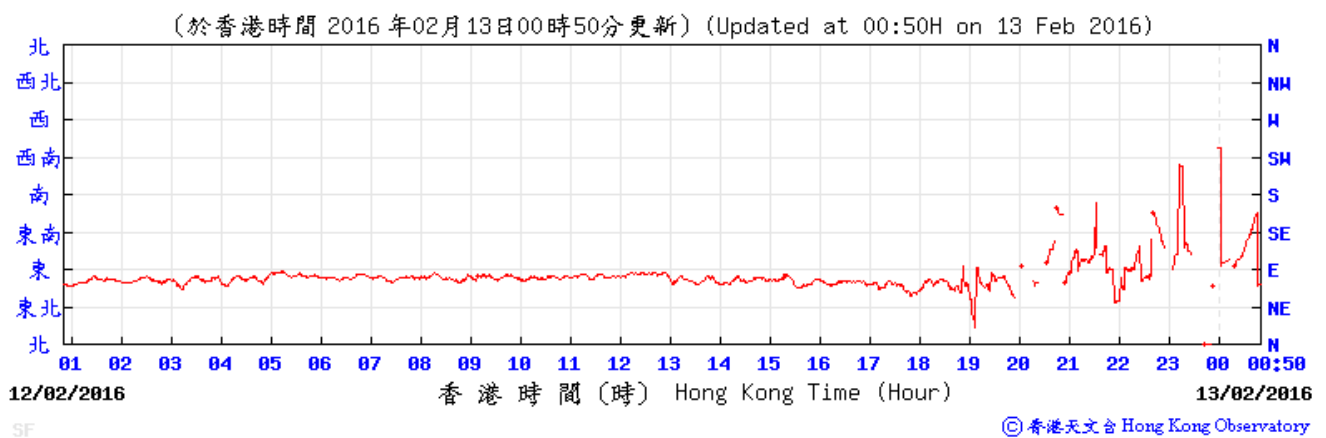
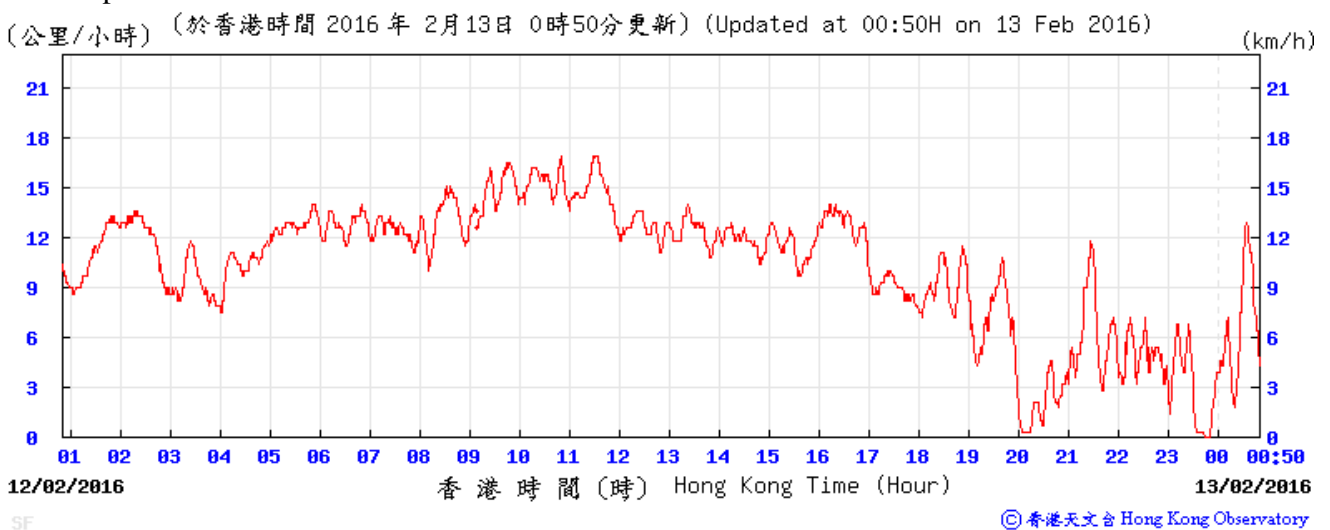
Meteorological Data Recorded from HKO Station (12 February 2016)

(Source: www.hko.gov.hk)

Temperature/Humidity:



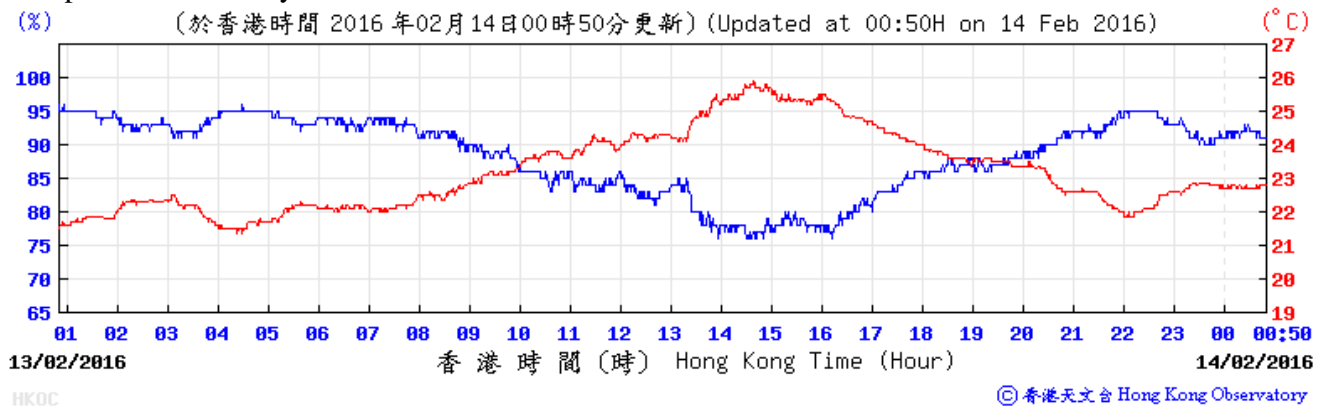
Wind Speed and Direction:



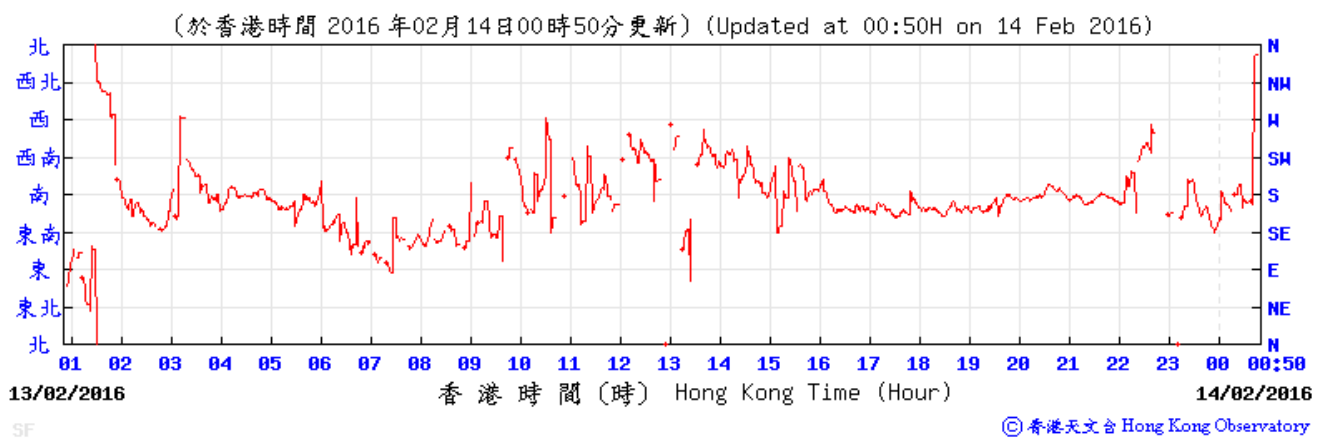
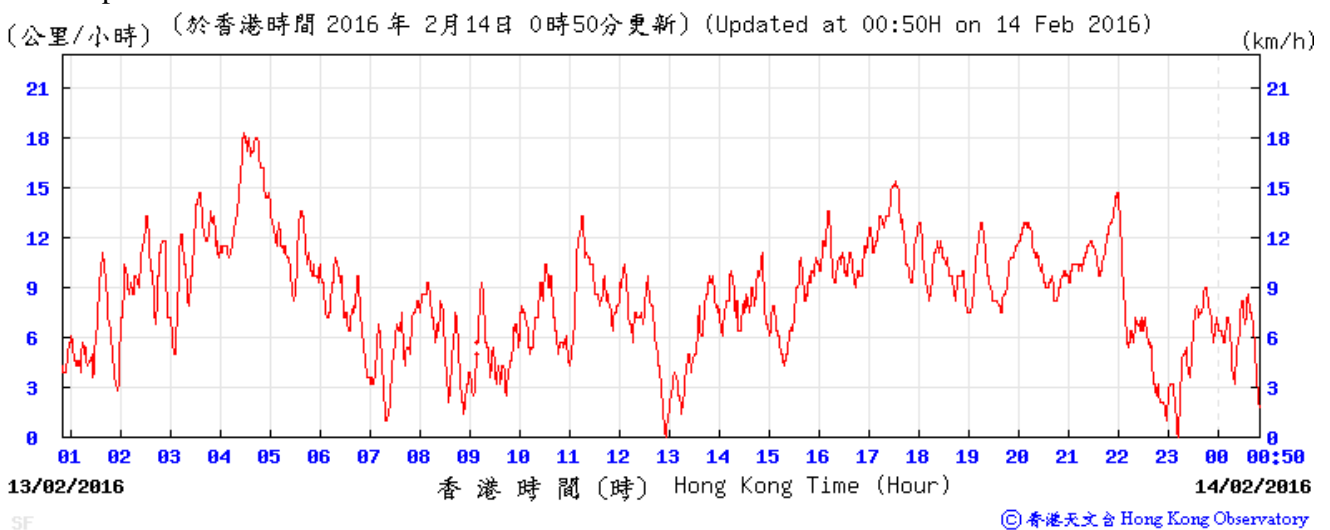
Meteorological Data Recorded from HKO Station (13 February 2016)

(Source: www.hko.gov.hk)

Temperature/Humidity:



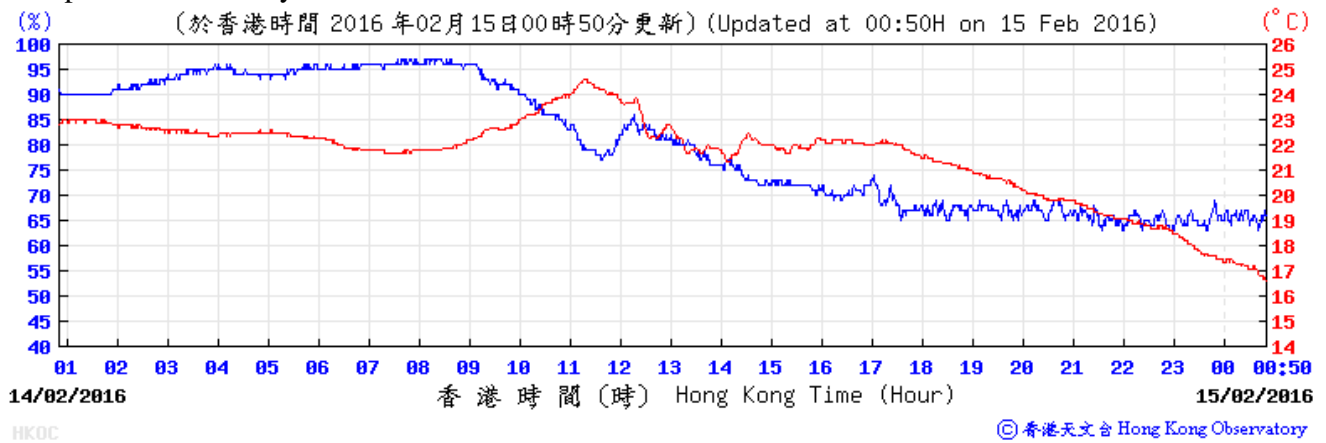
Wind Speed and Direction:



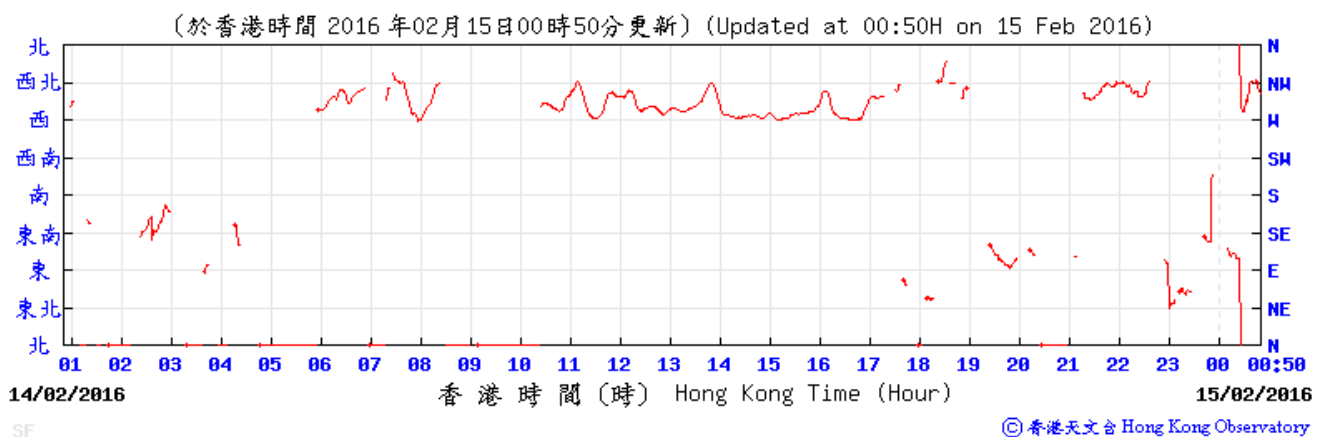
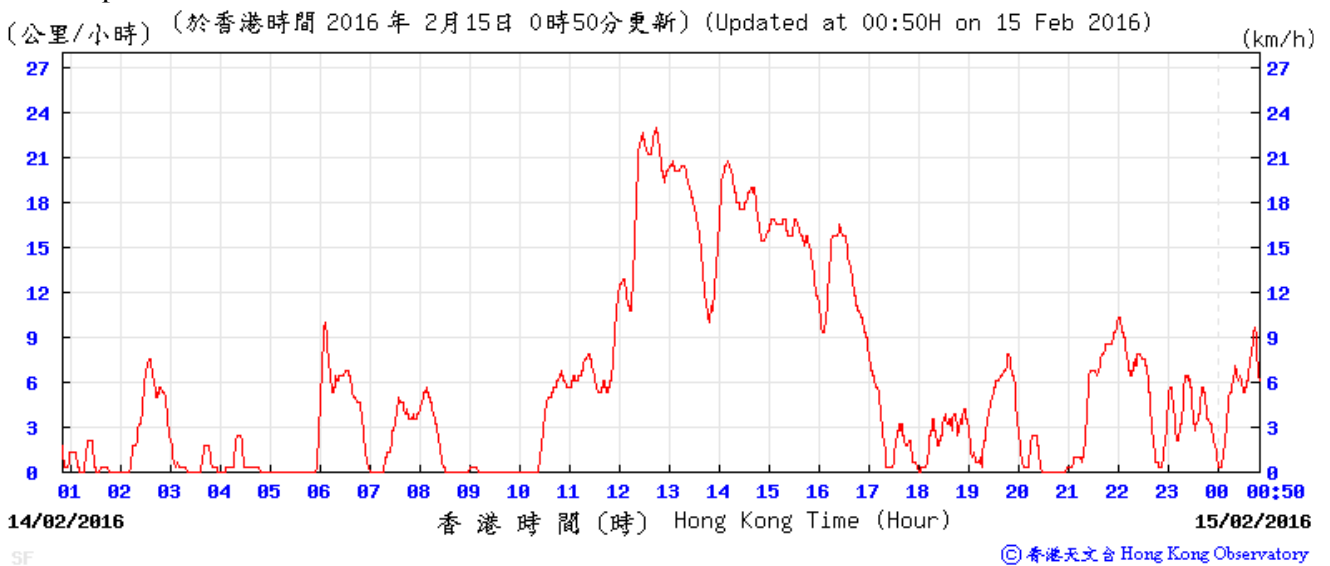
Meteorological Data Recorded from HKO Station (14 February 2016)

(Source: www.hko.gov.hk)

Temperature/Humidity:



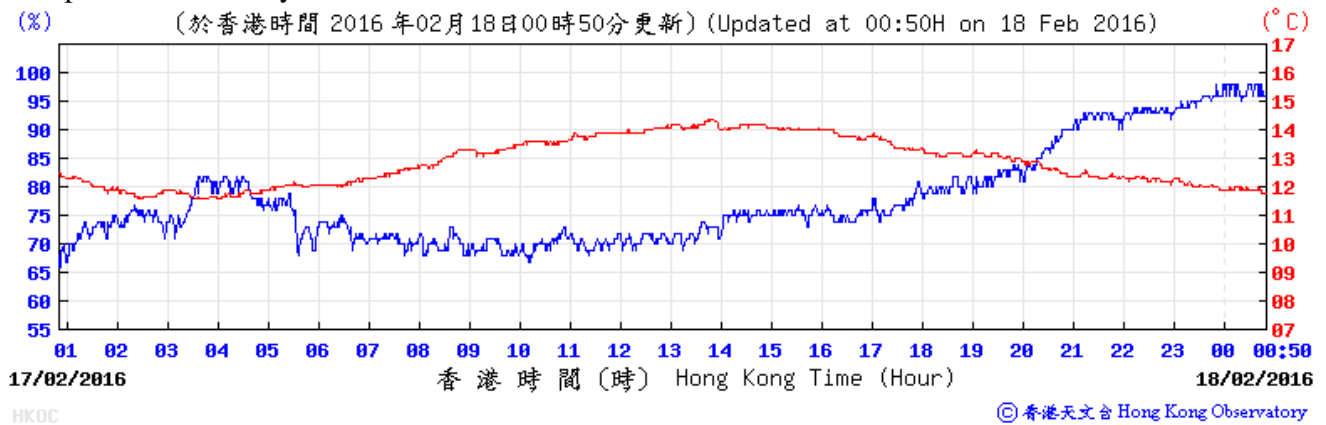
Wind Speed and Direction:



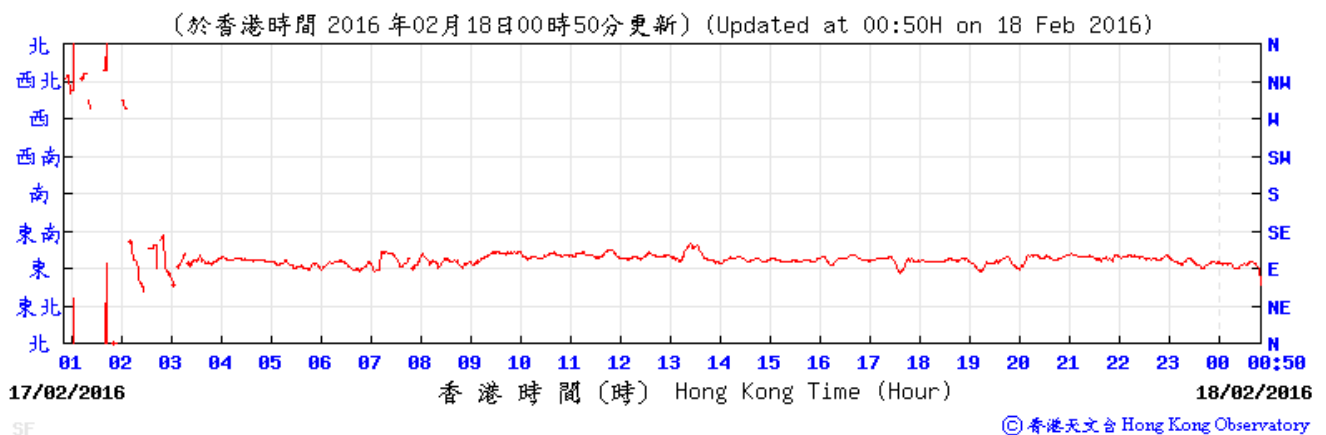
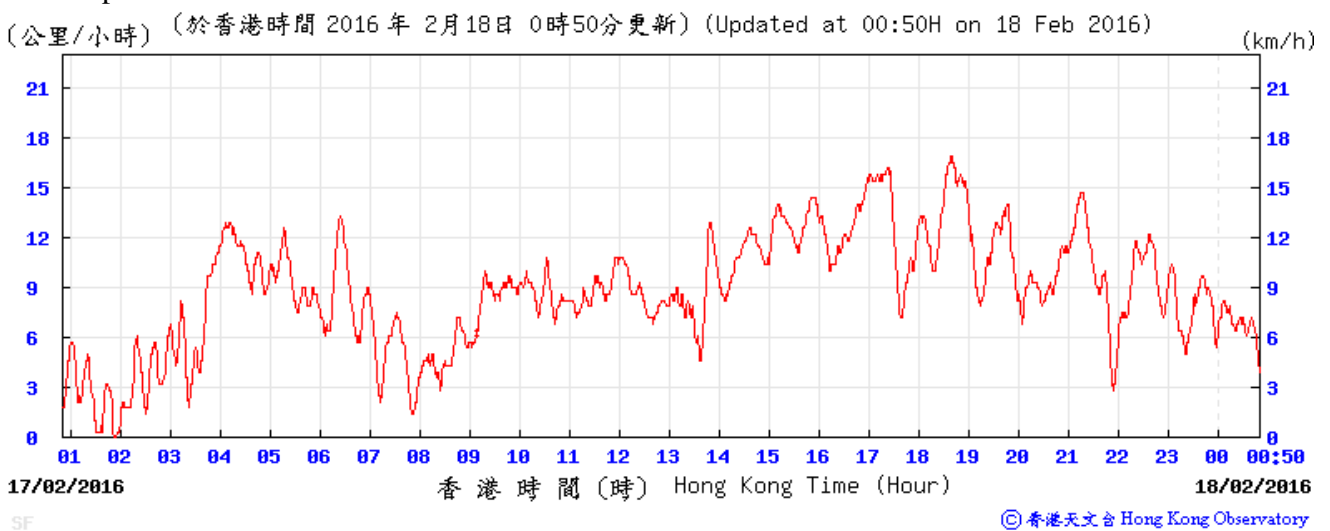
Meteorological Data Recorded from HKO Station (17 February 2016)

(Source: www.hko.gov.hk)

Temperature/Humidity:



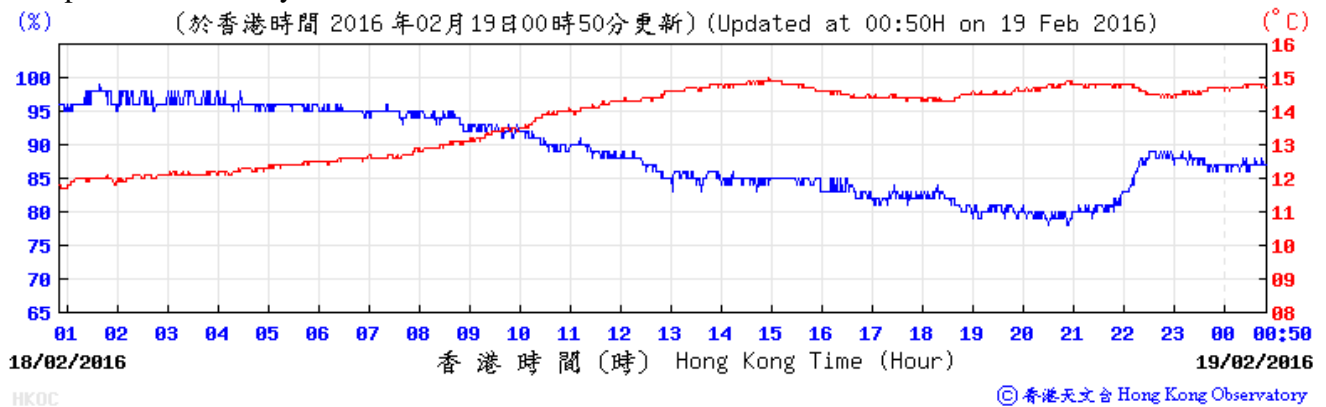
Wind Speed and Direction:



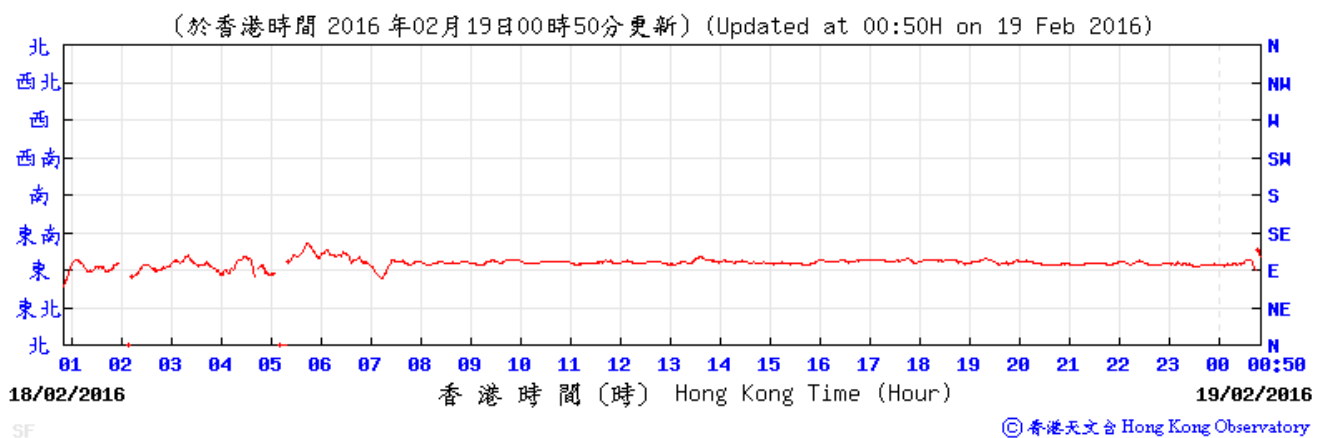
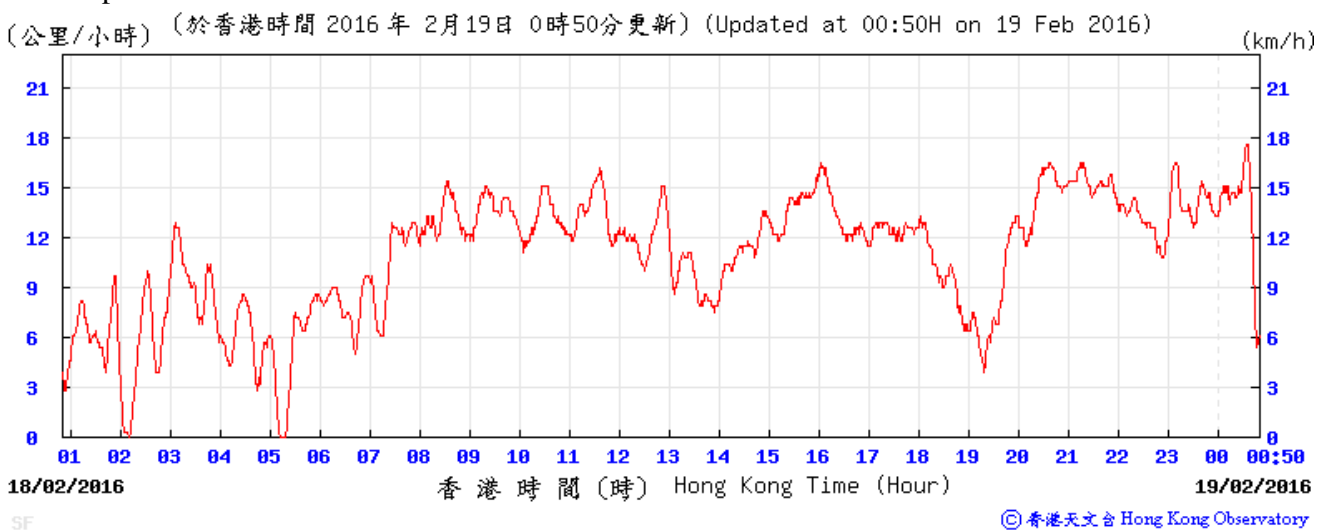
Meteorological Data Recorded from HKO Station (18 February 2016)

(Source: www.hko.gov.hk)

Temperature/Humidity:



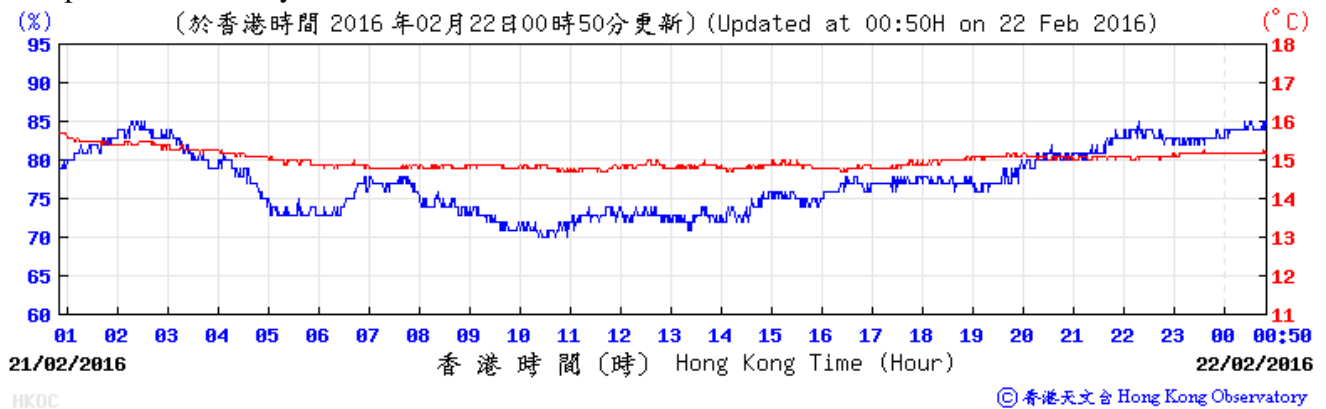
Wind Speed and Direction:



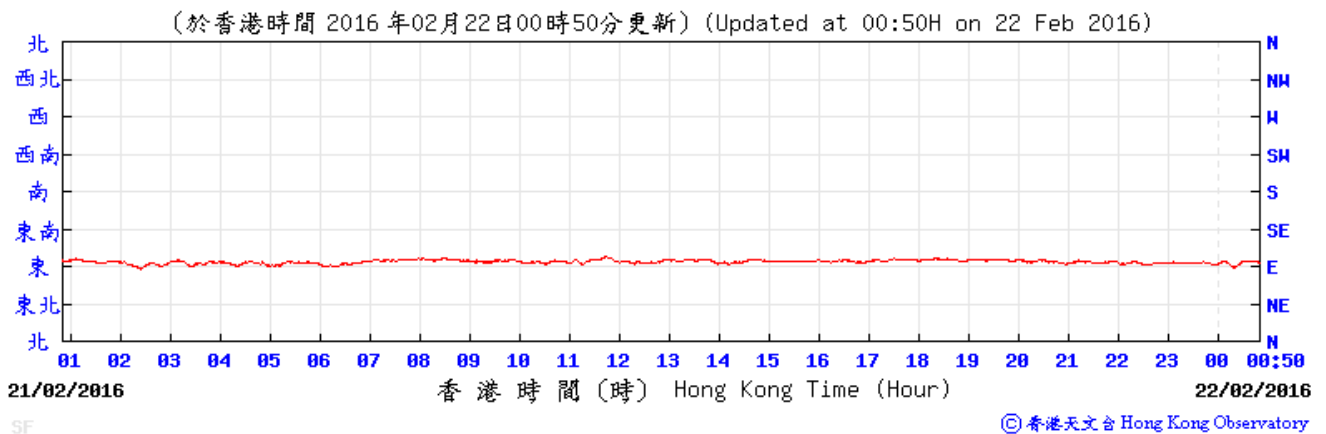
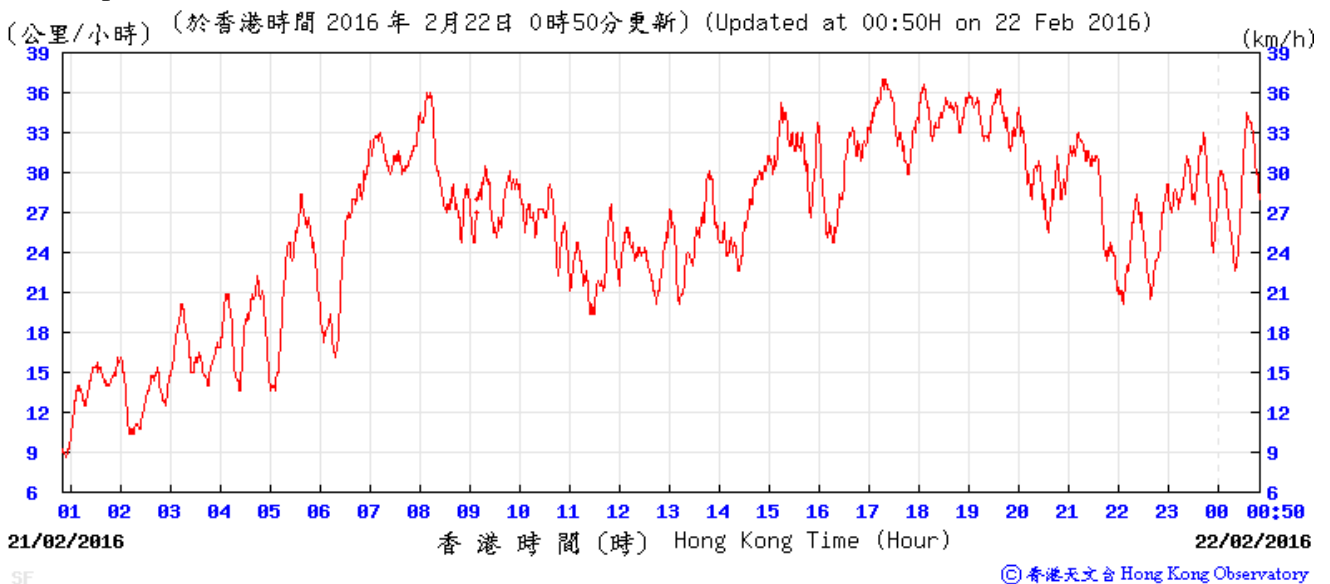
Meteorological Data Recorded from HKO Station (21 February 2016)

(Source: www.hko.gov.hk)

Temperature/Humidity:



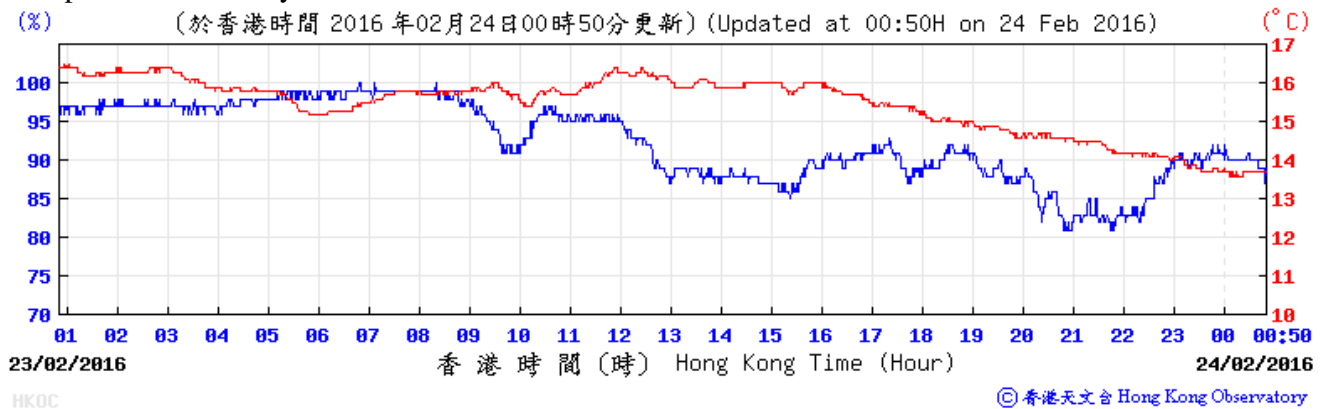
Wind Speed and Direction:



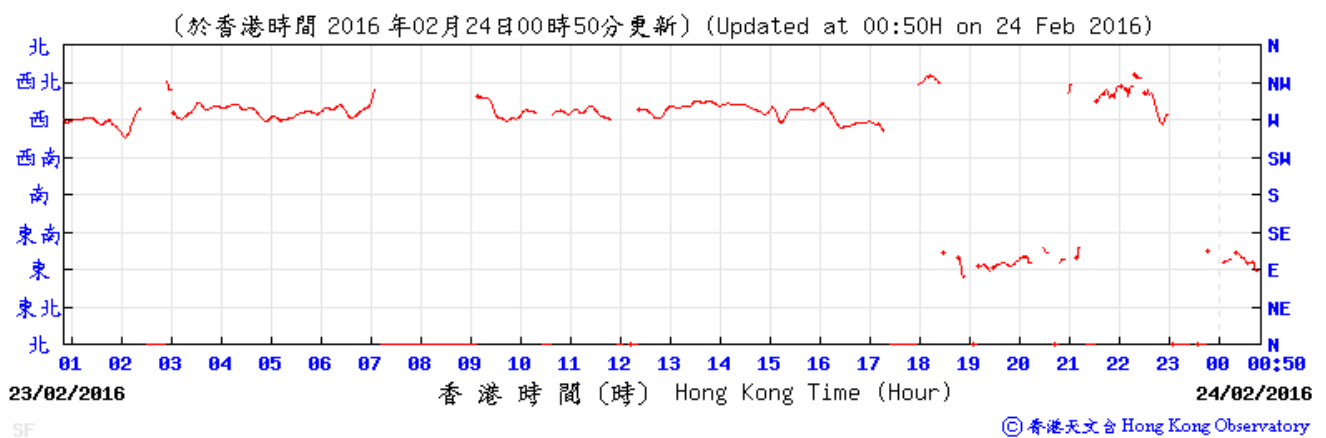
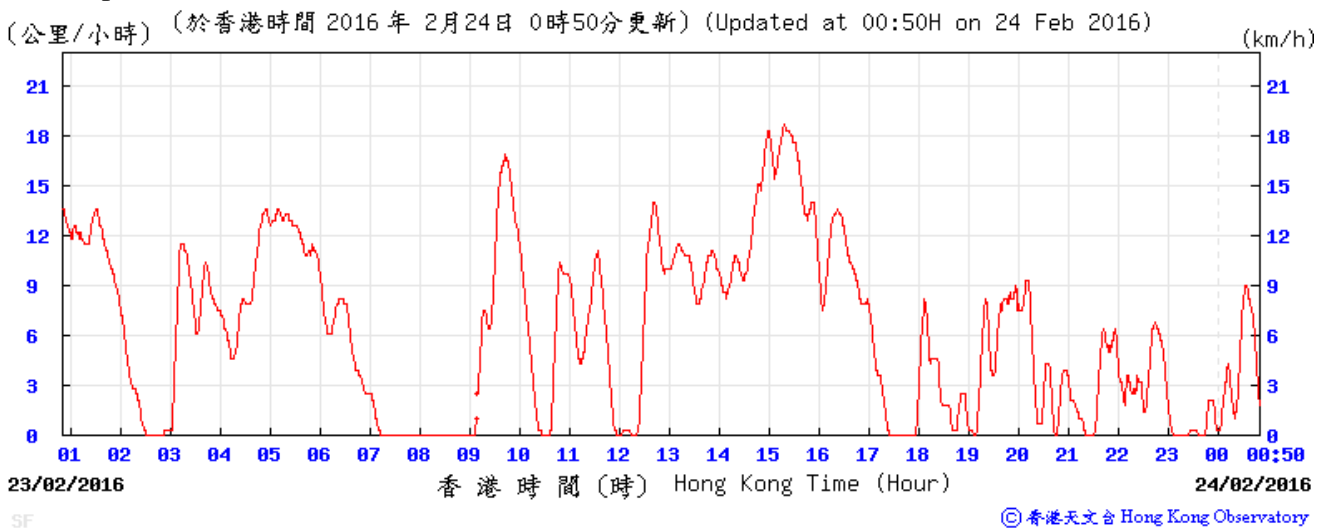
Meteorological Data Recorded from HKO Station (23 February 2016)

(Source: www.hko.gov.hk)

Temperature/Humidity:



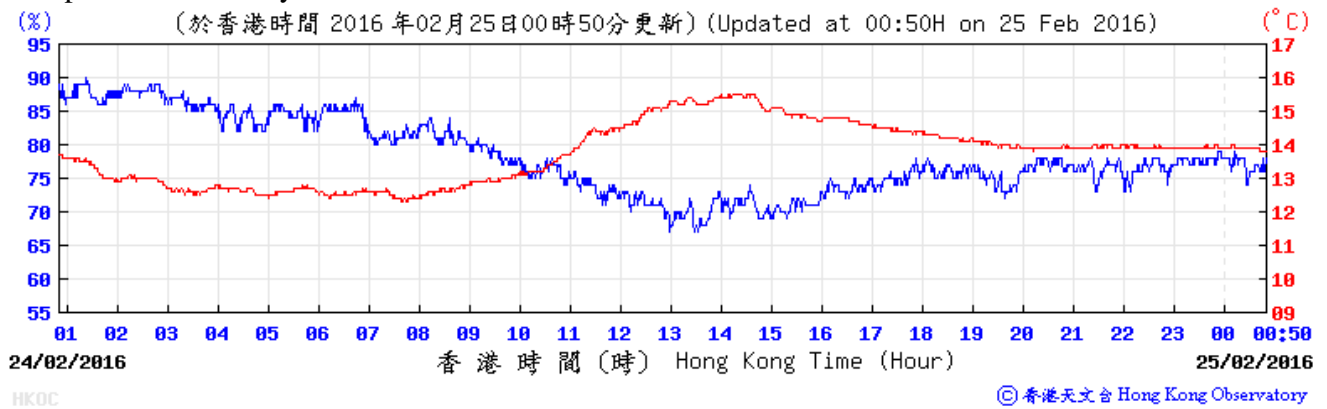
Wind Speed and Direction:



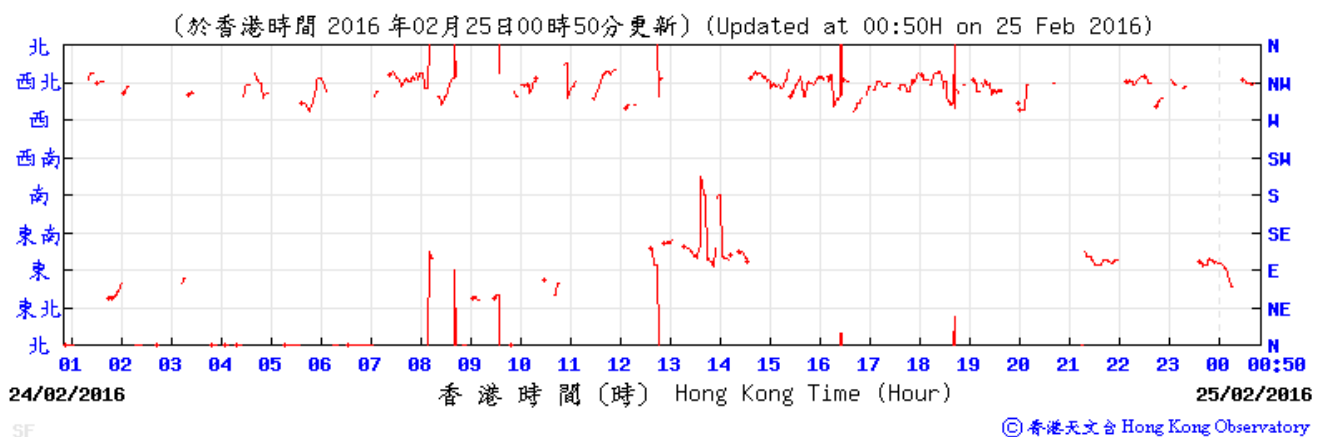
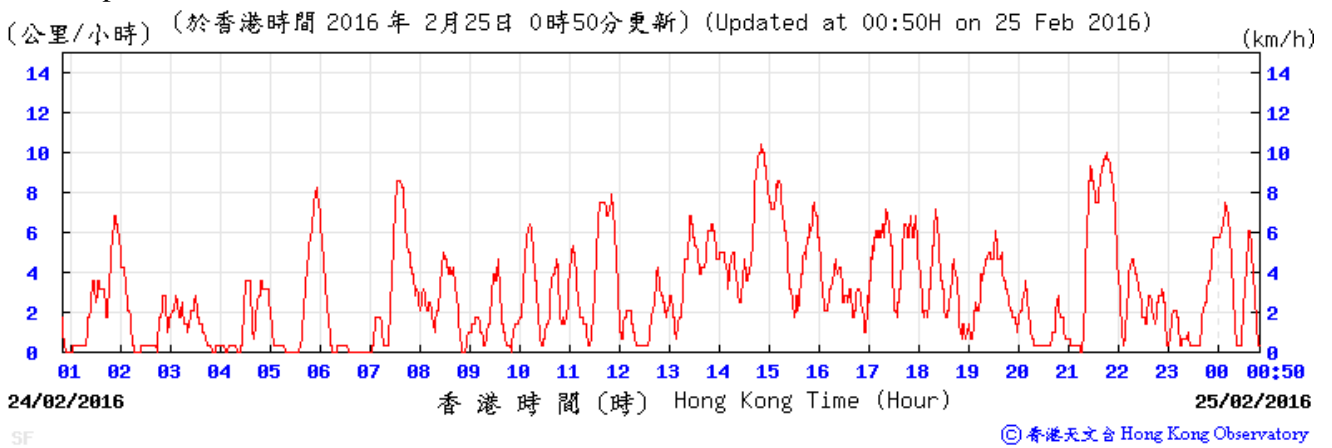
Meteorological Data Recorded from HKO Station (24 February 2016)

(Source: www.hko.gov.hk)

Temperature/Humidity:



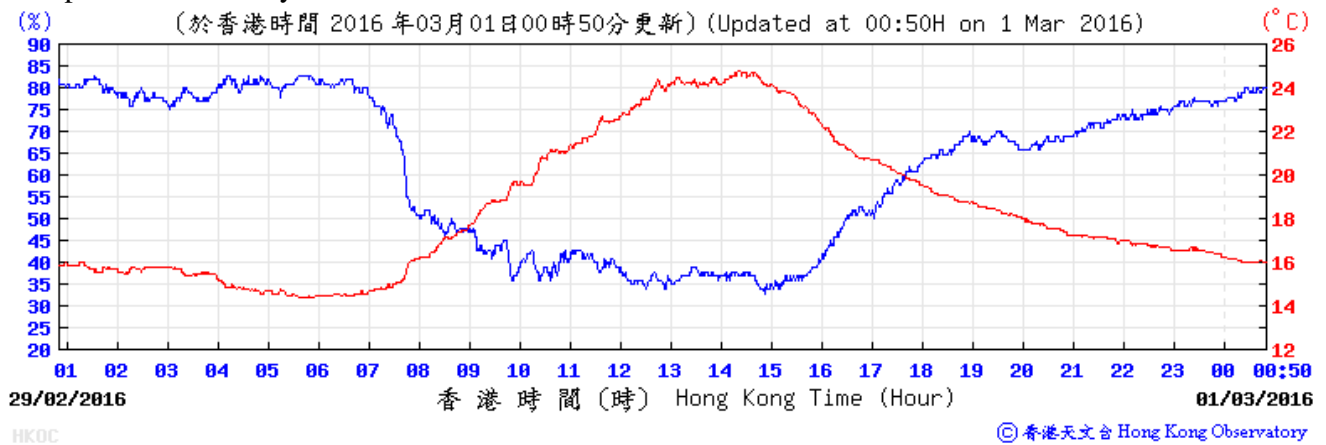
Wind Speed and Direction:



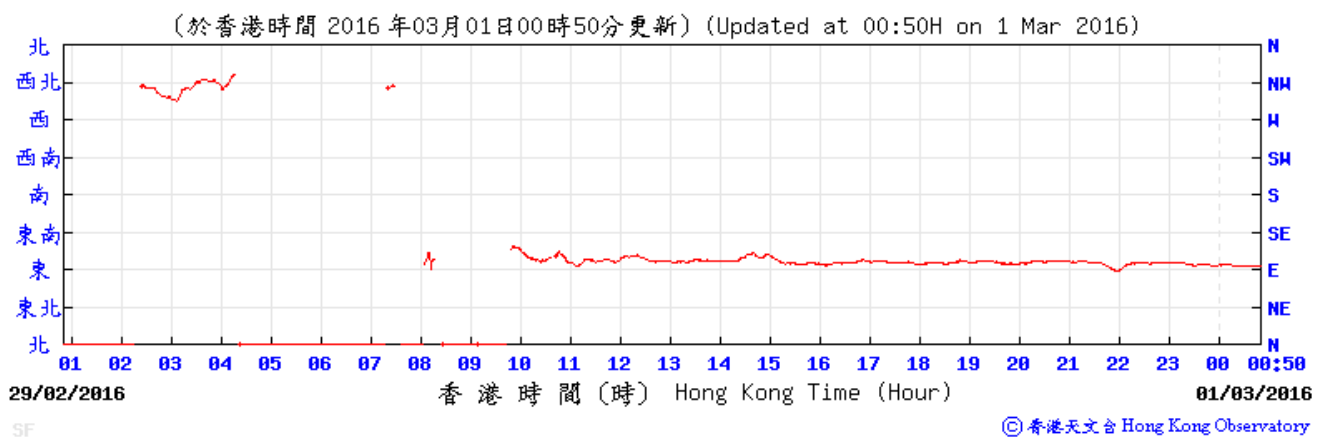
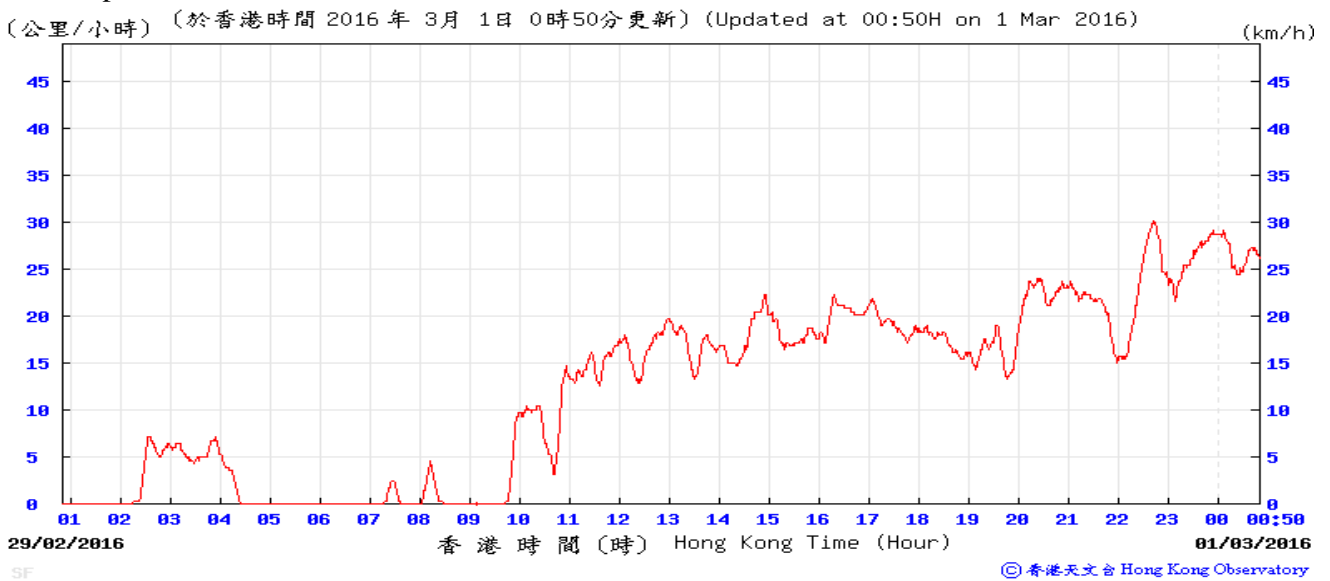
Meteorological Data Recorded from HKO Station (29 February 2016)

(Source: www.hko.gov.hk)

Temperature/Humidity:



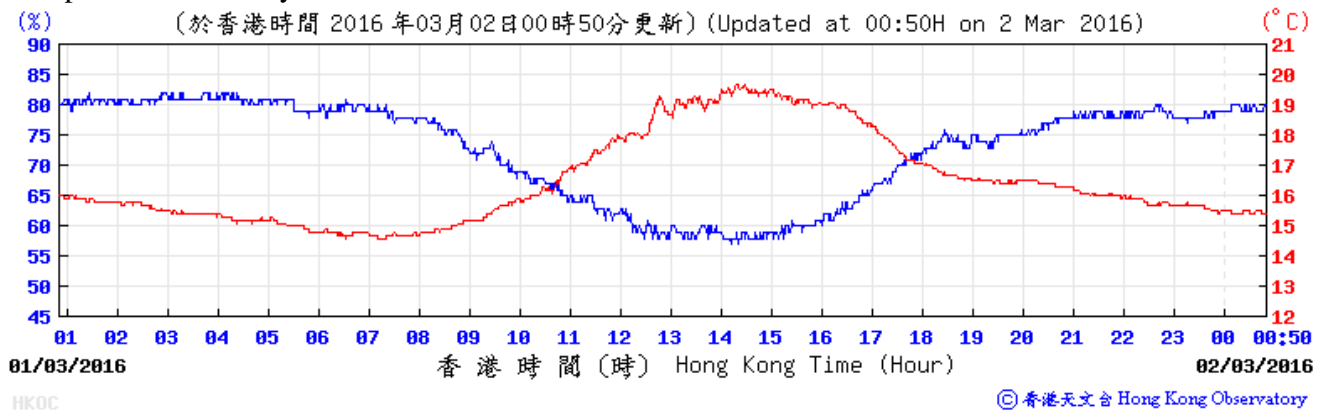
Wind Speed and Direction:



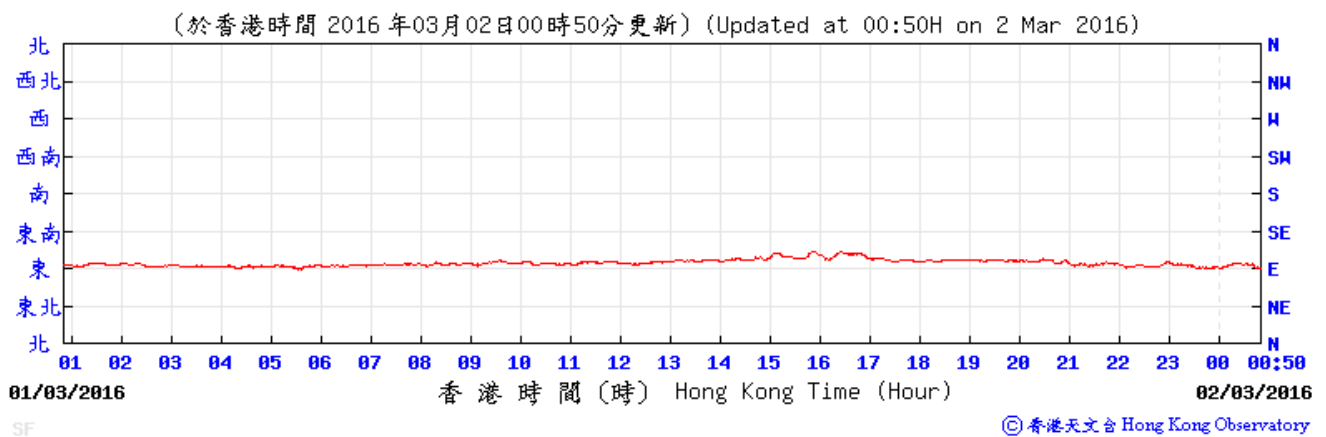
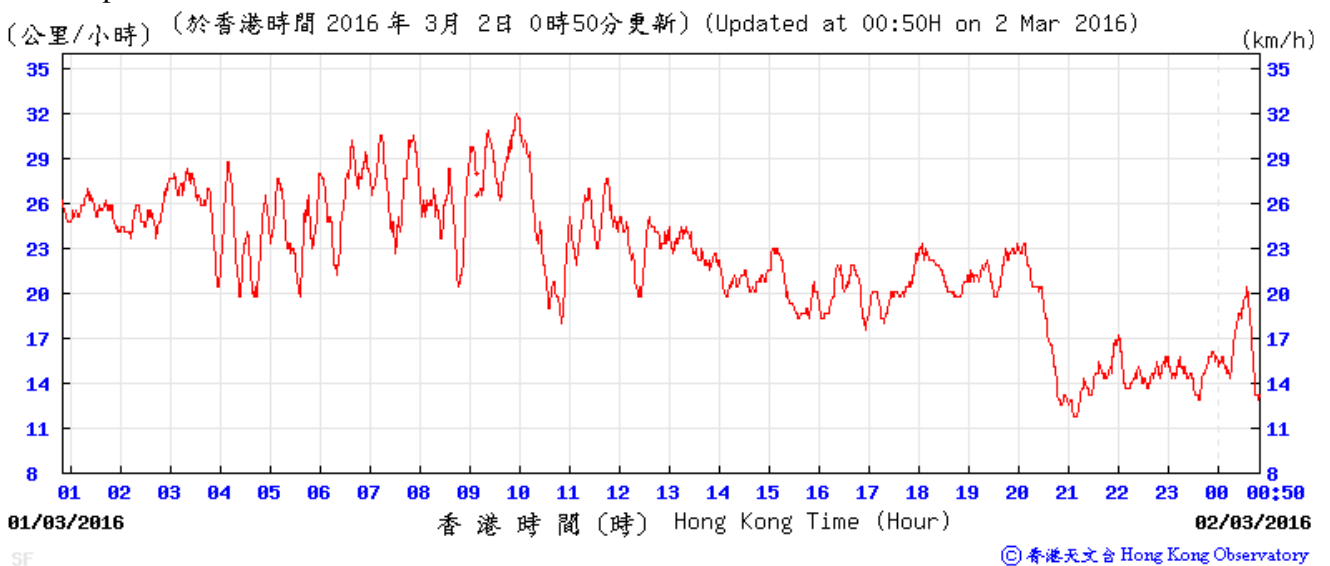
Meteorological Data Recorded from HKO Station (1 March 2016)

(Source: www.hko.gov.hk)

Temperature/Humidity:



Wind Speed and Direction:



**APPENDIX E
1-HOUR AND 24-HOUR TSP
MONITORING RESULTS AND
GRAPHICAL PRESENTATIONS**

Appendix E - 1-hour TSP Monitoring Results

Location AM1 - Chan's Creative School			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
2-Feb-16	13:00	Cloudy	91.6
2-Feb-16	14:00	Cloudy	87.6
2-Feb-16	15:00	Cloudy	95.9
12-Feb-16	13:00	Cloudy	251.7
12-Feb-16	14:00	Cloudy	253.8
12-Feb-16	15:00	Cloudy	253.1
18-Feb-16	13:00	Cloudy	244.0
18-Feb-16	14:00	Cloudy	242.7
18-Feb-16	15:00	Cloudy	242.9
24-Feb-16	13:00	Cloudy	120.1
24-Feb-16	14:00	Cloudy	129.2
24-Feb-16	15:00	Cloudy	123.4
		Average	178.0
		Maximum	253.8
		Minimum	87.6

Location AM2 - Hong Kong & Islands Regional Office, WSD			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
2-Feb-16	13:00	Cloudy	90.1
2-Feb-16	14:00	Cloudy	97.2
2-Feb-16	15:00	Cloudy	94.2
6-Feb-16	13:00	Sunny	148.5
6-Feb-16	14:00	Sunny	137.3
6-Feb-16	15:00	Sunny	139.1
12-Feb-16	13:00	Cloudy	248.9
12-Feb-16	14:00	Cloudy	242.1
12-Feb-16	15:00	Cloudy	244.4
18-Feb-16	13:00	Cloudy	234.8
18-Feb-16	14:00	Cloudy	237.4
18-Feb-16	15:00	Cloudy	242.7
24-Feb-16	13:05	Cloudy	169.6
24-Feb-16	14:05	Cloudy	155.3
24-Feb-16	15:05	Cloudy	158.3
		Average	176.0
		Maximum	248.9
		Minimum	90.1

Appendix E - 1-hour TSP Monitoring Results

Location AM3 - Wan Chai East PTW			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
2-Feb-16	9:00	Cloudy	114.3
2-Feb-16	10:00	Cloudy	110.6
2-Feb-16	11:00	Cloudy	111.6
6-Feb-16	9:00	Sunny	145.7
6-Feb-16	10:00	Sunny	157.1
6-Feb-16	11:00	Sunny	154.1
12-Feb-16	9:00	Cloudy	244.2
12-Feb-16	10:00	Cloudy	236.0
12-Feb-16	11:00	Cloudy	240.6
18-Feb-16	9:00	Cloudy	235.6
18-Feb-16	10:00	Cloudy	241.6
18-Feb-16	11:00	Cloudy	242.1
24-Feb-16	9:00	Cloudy	159.0
24-Feb-16	10:00	Cloudy	158.4
24-Feb-16	11:00	Cloudy	155.5
		Average	197.5
		Maximum	244.2
		Minimum	145.7

Location AM4_2 - A Location next to Sheung Wan Fire Station			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
2-Feb-16	9:00	Cloudy	96.3
2-Feb-16	10:00	Cloudy	100.9
2-Feb-16	11:00	Cloudy	104.9
6-Feb-16	9:00	Sunny	156.2
6-Feb-16	10:00	Sunny	149.9
6-Feb-16	11:00	Sunny	147.0
12-Feb-16	9:00	Cloudy	252.7
12-Feb-16	10:00	Cloudy	245.6
12-Feb-16	11:00	Cloudy	248.1
18-Feb-16	9:00	Cloudy	251.7
18-Feb-16	10:00	Cloudy	236.1
18-Feb-16	11:00	Cloudy	246.3
24-Feb-16	8:45	Cloudy	132.3
24-Feb-16	9:45	Cloudy	131.2
24-Feb-16	10:45	Cloudy	128.4
		Average	175.2
		Maximum	252.7
		Minimum	96.3

Appendix E - 24-hour TSP Monitoring Results

Location AM1 - Chan's Creative School

Start Date	Start Time	Weather Condition	Air Temp. (K)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time (hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)	Filter ID no.
				Initial	Final		Initial	Final		Initial	Final				
1-Feb-16	9:00	Cloudy	283.5	3.3466	3.3949	0.0483	6101.7	6125.7	24.0	1.21	1.21	1.21	1739.7	27.8	160102/057
6-Feb-16	9:00	Sunny	285.5	3.3237	3.4104	0.0867	6125.7	6149.7	24.0	1.21	1.21	1.21	1736.6	49.9	160103/004
12-Feb-16	9:00	Cloudy	292.4	3.2716	3.3365	0.0649	6149.7	6173.7	24.0	1.19	1.19	1.19	1710.5	37.9	160104/019
17-Feb-16	9:00	Cloudy	285.5	3.2980	3.3977	0.0997	6173.7	6197.7	24.0	1.21	1.20	1.21	1735.5	57.4	160104/081
23-Feb-16	9:00	Cloudy	287.4	3.3681	3.4570	0.0889	6197.7	6221.7	24.0	1.20	1.20	1.20	1729.3	51.4	160103/028
29-Feb-16	9:00	Cloudy	291.4	3.3138	3.4608	0.1470	6221.7	6245.7	24.0	1.19	1.19	1.19	1719.7	85.5	160201/072
													Min	27.8	
													Max	85.5	
													Average	51.7	

Location AM2 - Hong Kong & Islands Regional Office, WSD

Start Date	Start Time	Weather Condition	Air Temp. (K)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time (hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)	Filter ID no.
				Initial	Final		Initial	Final		Initial	Final				
1-Feb-16	9:00	Cloudy	283.2	3.2950	3.3358	0.0408	10089.6	10113.6	24.0	1.22	1.21	1.21	1749.4	23.3	160102/058
6-Feb-16	9:00	Sunny	285.1	3.3071	3.4829	0.1758	10113.6	10137.6	24.0	1.21	1.21	1.21	1745.5	100.7	160103/005
12-Feb-16	9:00	Cloudy	292.9	3.3537	3.4328	0.0791	10137.6	10161.6	24.0	1.19	1.19	1.19	1716.5	46.1	151203/023
17-Feb-16	9:00	Cloudy	285.8	3.2779	3.4506	0.1727	10161.6	10185.6	24.0	1.21	1.21	1.21	1743.1	99.1	160104/082
23-Feb-16	9:00	Cloudy	287.3	3.3905	3.5096	0.1191	10185.6	10209.6	24.0	1.21	1.21	1.21	1738.2	68.5	160103/027
29-Feb-16	9:00	Cloudy	292.6	3.3177	3.5563	0.2386	10209.6	10233.6	24.0	1.20	1.20	1.20	1723.7	138.4	160201/073
													Min	23.3	
													Max	138.4	
													Average	79.4	

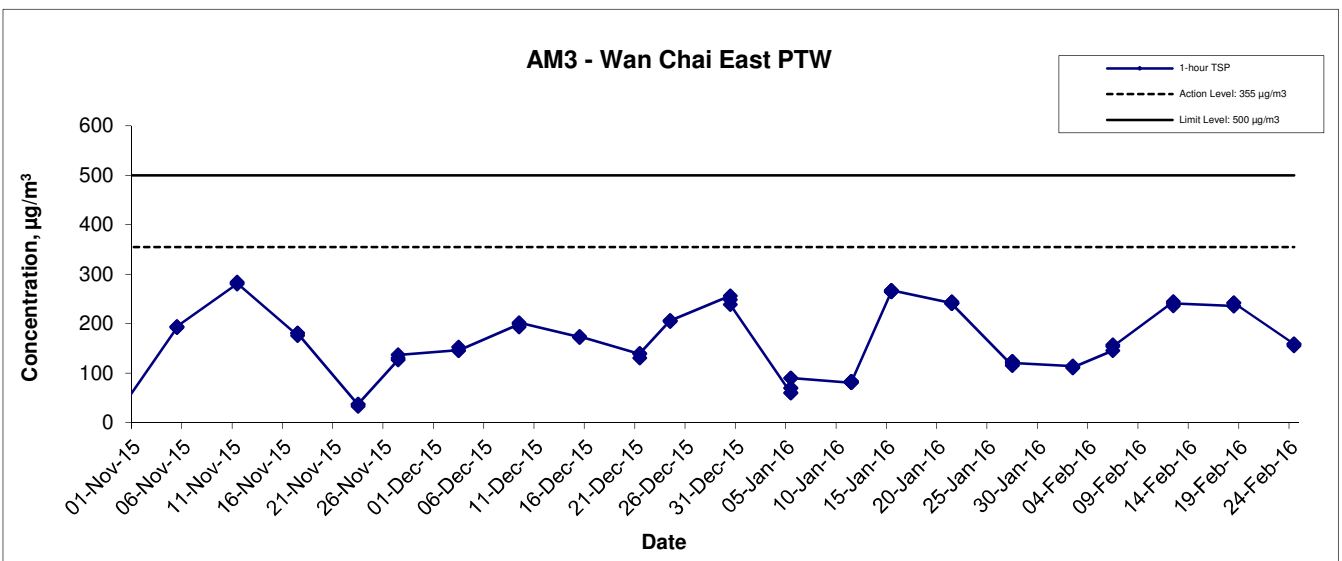
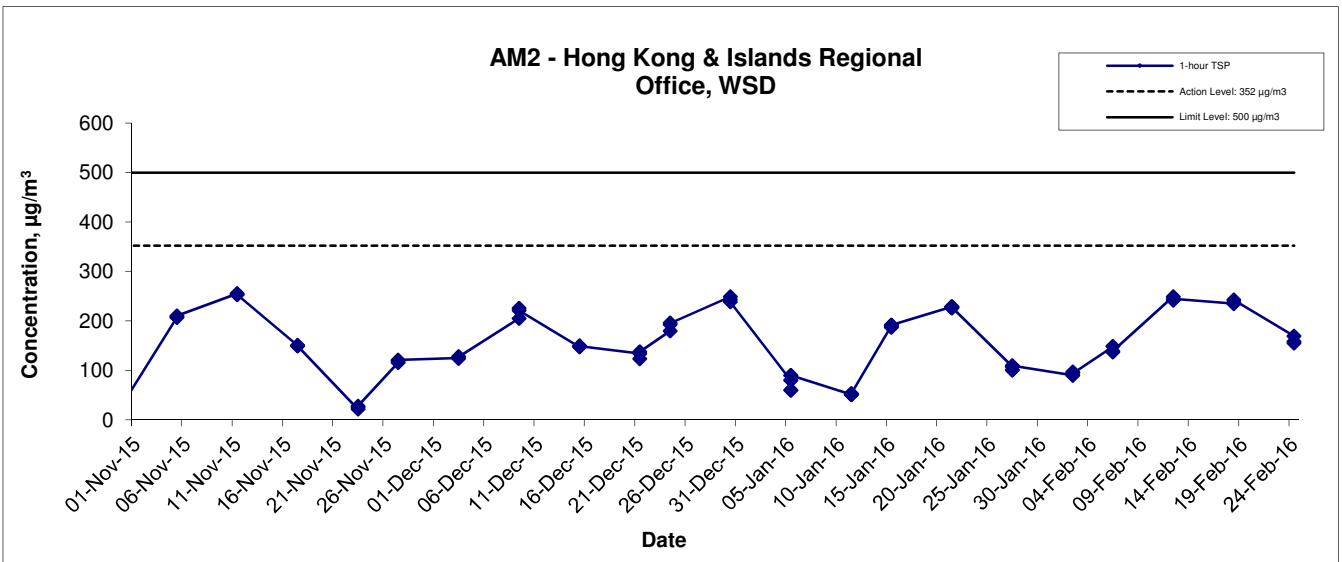
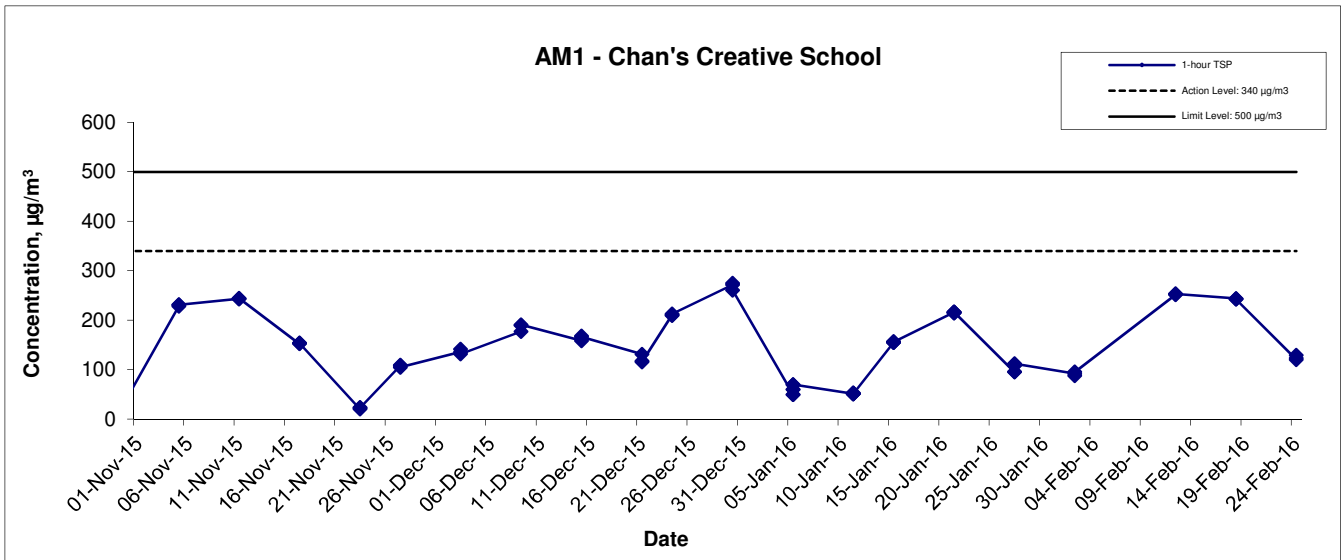
Location AM3 - Wan Chai East PTW

Start Date	Start Time	Weather Condition	Air Temp. (K)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time (hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)	Filter ID no.
				Initial	Final		Initial	Final		Initial	Final				
1-Feb-16	9:00	Cloudy	283.7	3.3507	3.4943	0.1436	9168.2	9192.2	24.0	1.21	1.21	1.21	1747.0	82.2	160102/056
6-Feb-16	9:00	Sunny	285.9	3.3011	3.5133	0.2122	9192.2	9216.2	24.0	1.21	1.21	1.21	1743.3	121.7	160103/003
12-Feb-16	9:00	Cloudy	293.4	3.3566	3.4936	0.1370	9216.2	9240.2	24.0	1.19	1.19	1.19	1713.6	79.9	151203/024
17-Feb-16	9:00	Cloudy	285.0	3.2880	3.5095	0.2215	9240.2	9264.2	24.0	1.21	1.21	1.21	1745.0	126.9	160104/083
23-Feb-16	9:00	Cloudy	287.6	3.3964	3.5725	0.1761	9264.2	9288.2	24.0	1.21	1.21	1.21	1736.8	101.4	160103/026
29-Feb-16	9:00	Cloudy	291.8	3.3518	3.6144	0.2626	9288.2	9312.2	24.0	1.20	1.20	1.20	1726.9	152.1	160201/068
													Min	79.9	
													Max	152.1	
													Average	110.7	

Location AM4_2 - A Location next to Sheung Wan Fire Station

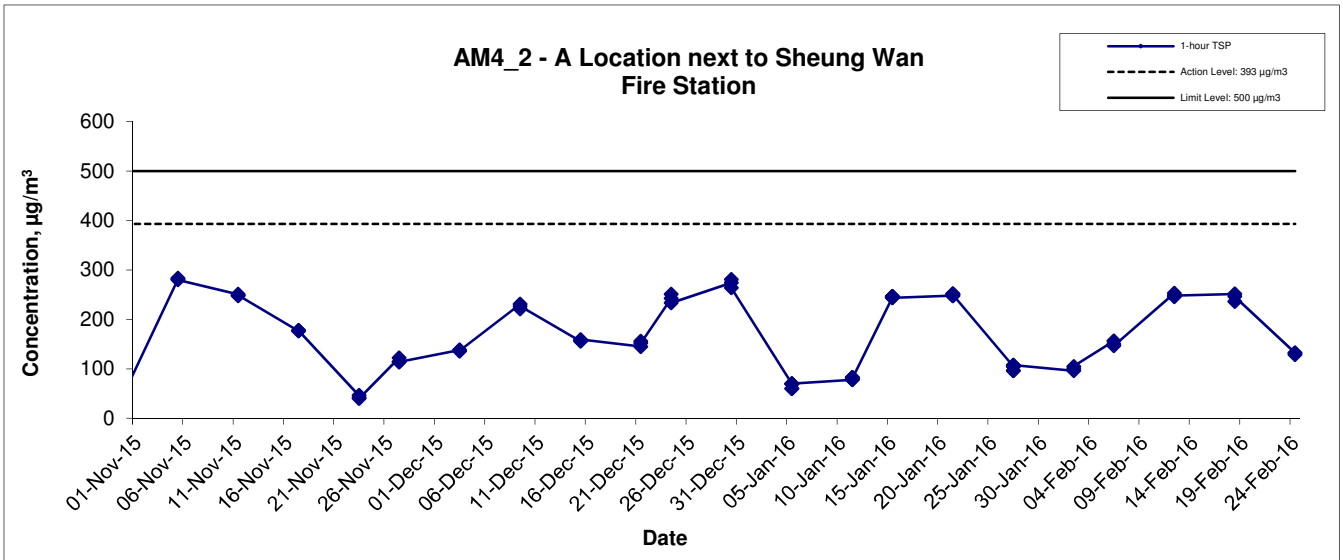
Start Date	Start Time	Weather Condition	Air Temp. (K)	Filter Weight (g)		Particulate Weight (g)	Elapse Time		Sampling Time (hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)	Filter ID no.
				Initial	Final		Initial	Final		Initial	Final				
1-Feb-16	9:00	Cloudy	283.2	3.3347	3.5043	0.1696	10097.4	10121.4	24.0	1.22	1.22	1.22	1751.8	96.8	160102/055
6-Feb-16	9:00	Sunny	285.0	3.3124	3.5538	0.2414	10121.4	10145.4	24.0	1.21	1.21	1.21	1748.3	138.1	160103/002
12-Feb-16	9:00	Cloudy	292.3	3.3644	3.5181	0.1537	10145.4	10169.4	24.0	1.19	1.19	1.19	1718.7	89.4	151203/025
17-Feb-16	9:00	Cloudy	285.6	3.2798	3.5420	0.2622	10169.4	10193.4	24.0	1.21	1.21	1.21	1744.6	150.3	160104/084
23-Feb-16	9:00	Cloudy	287.3	3.3542	3.6145	0.2603	10193.4	10217.4	24.0	1.21	1.21	1.21	1740.5	149.6	160103/029
29-Feb-16	9:00	Cloudy	291.7	3.3191	3.6240	0.3049	10217.4	10241.4	24.0	1.20	1.20	1.20	1728.4	176.4	160201/086
													Min	89.4	
													Max	176.4	
													Average	133.4	

1-hr TSP Concentration Levels



Title Contract No. DC/2009/23 HATS 2A – Upgrading of Preliminary Treatment Works at North Point, Wan Chai East and Central Graphical Presentation of 1-hour TSP Monitoring Results	Scale N.T.S	Project No. MA11003	
	Date Feb 16	Appendix E	

1-hr TSP Concentration Levels



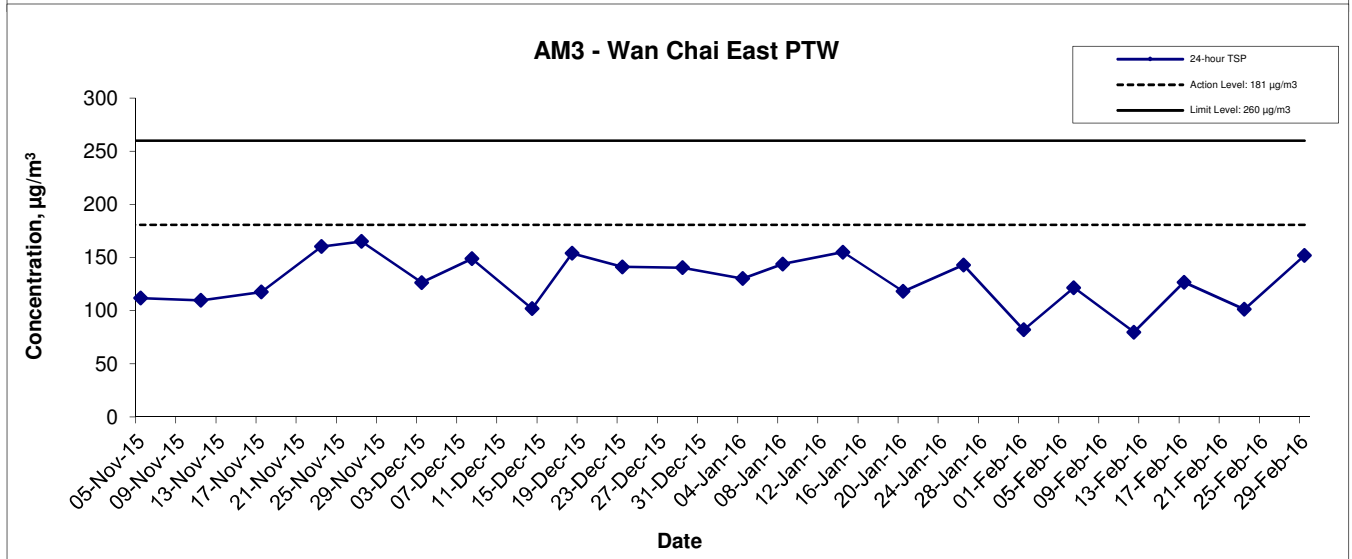
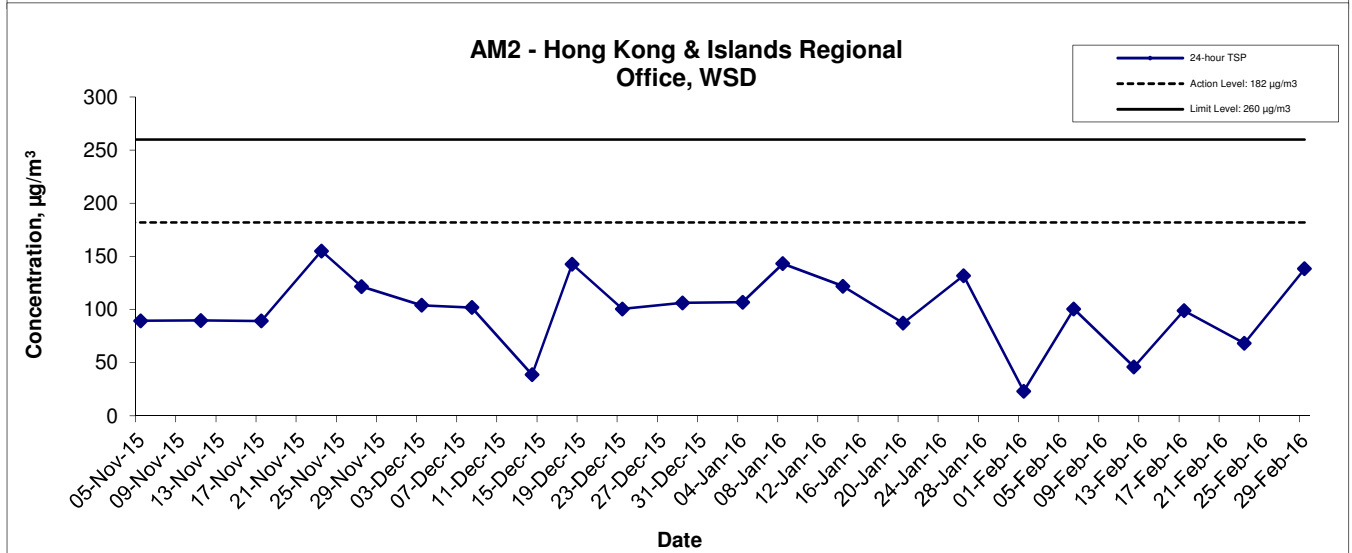
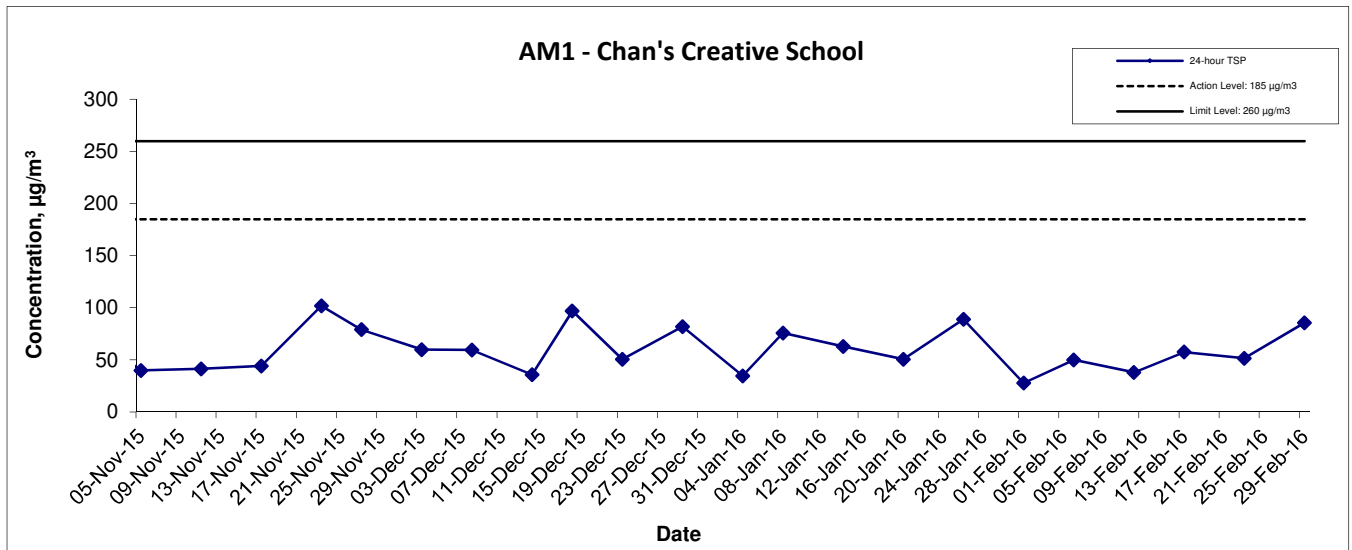
Title Contract No. DC/2009/23
 HATS 2A – Upgrading of Preliminary Treatment Works at North Point, Wan Chai East and Central
 Graphical Presentation of 1-hour TSP Monitoring Results

Scale N.T.S
 Date Feb 16

Project No. MA11003
 Appendix E

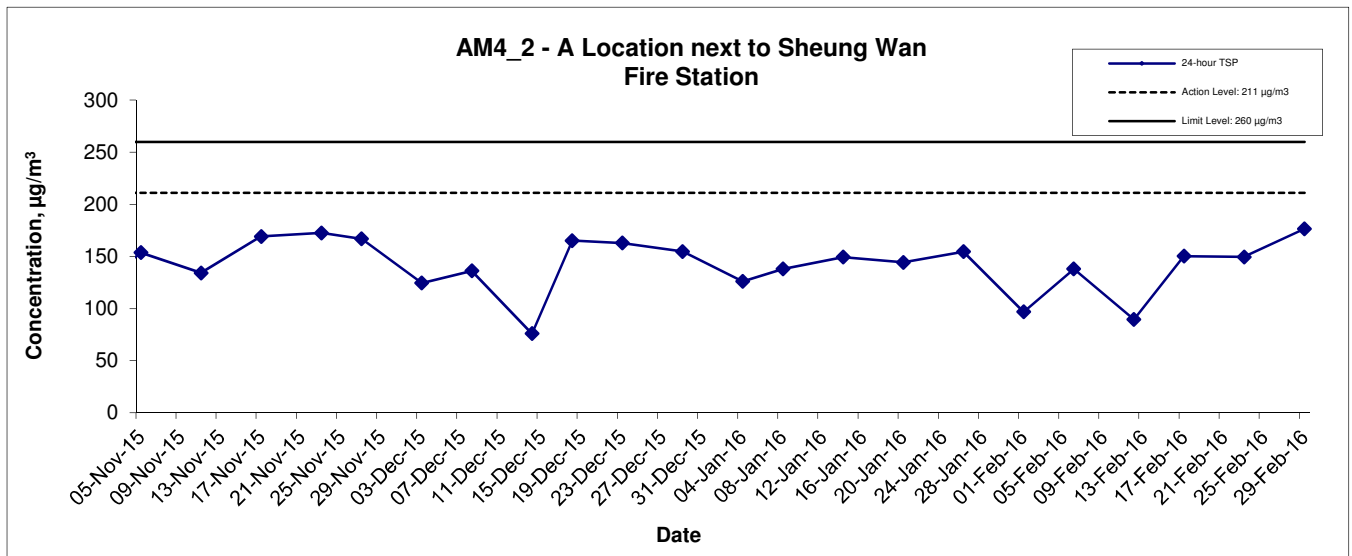


24-hr TSP Concentration Levels



Title Contract No. DC/2009/23 HATS 2A – Upgrading of Preliminary Treatment Works at North Point, Wan Chai East and Central Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA11003	
	Date Feb 16	Appendix E	

24-hr TSP Concentration Levels



Title Contract No. DC/2009/23 HATS 2A – Upgrading of Preliminary Treatment Works at North Point, Wan Chai East and Central Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA11003	
	Date Feb 16	Appendix E	

**APPENDIX F
NOISE MONITORING RESULTS AND
GRAPHICAL PRESENTATIONS**

Appendix F - Noise Monitoring Results

(0700-1900 hrs on Normal Weekdays)

Location NM1 - Chan's Creative School					
Date	Time	Weather	Unit: dB (A) (30-min)		
			Measured Noise Level		
			L _{eq}	L ₁₀	L ₉₀
2-Feb-16	13:10	Cloudy	68.3	69.5	67.0
12-Feb-16	13:00	Cloudy	67.0	68.9	64.3
18-Feb-16	13:00	Cloudy	67.4	68.5	64.2
24-Feb-16	13:30	Cloudy	69.3	71.4	65.8

Location NM2 - Hyde Building					
Date	Time	Weather	Unit: dB (A) (30-min)		
			Measured Noise Level		
			L _{eq}	L ₁₀	L ₉₀
2-Feb-16	11:15	Cloudy	73.3	74.2	70.3
12-Feb-16	10:15	Cloudy	75.3	76.7	73.8
18-Feb-16	17:10	Cloudy	73.8	74.7	72.3
24-Feb-16	09:30	Cloudy	73.1	74.1	71.9

Location NM3 - Goldfield Building					
Date	Time	Weather	Unit: dB (A) (30-min)		
			Measured Noise Level		
			L _{eq}	L ₁₀	L ₉₀
2-Feb-16	09:15	Cloudy	75.0	76.4	73.1
12-Feb-16	09:10	Cloudy	74.3	75.5	71.9
18-Feb-16	11:10	Cloudy	75.8	77.4	73.1
24-Feb-16	10:30	Cloudy	71.9	73.8	70.2

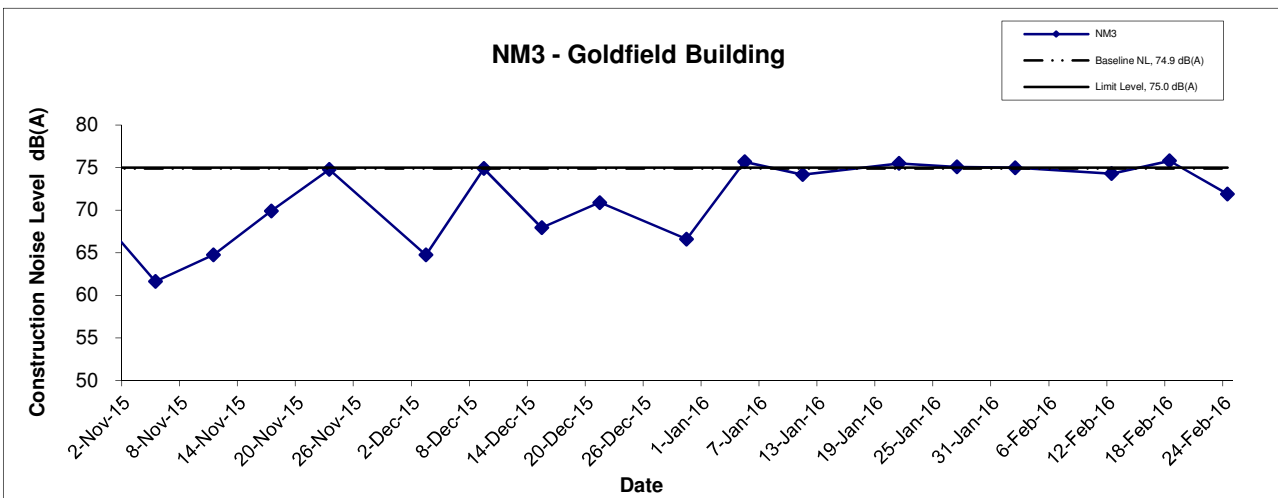
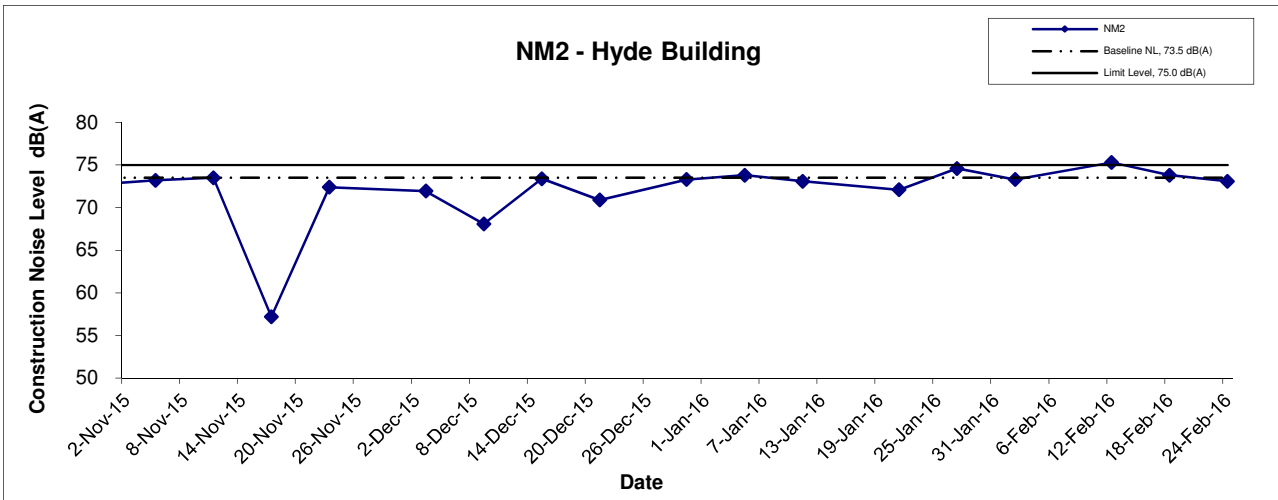
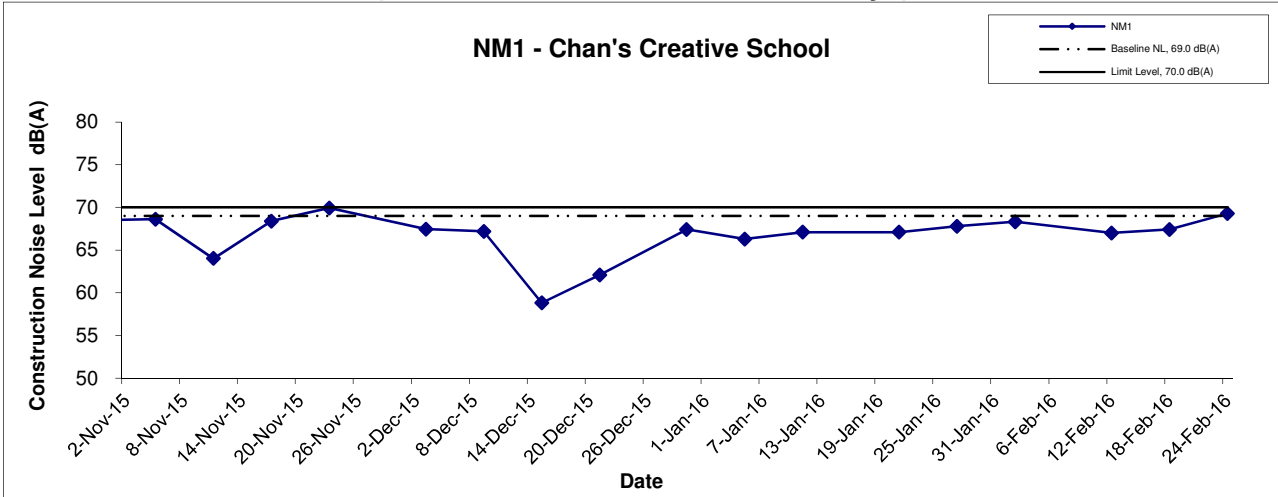
(Restricted Hours - 07:00 to 23:00 holidays & 19:00 to 23:00 on all other days)

Location NM1 - Chan's Creative School						
Date	Time	Weather	dB (A) (5-min)			Average L _{eq}
			L _{eq}	L ₁₀	L ₉₀	
2-Feb-16	19:15	Cloudy	70.1	71.4	69.3	70.1
	19:20		70.4	71.5	69.4	
	19:25		69.9	71.1	69.2	
12-Feb-16	19:00	Cloudy	69.6	72.7	62.1	69.3
	19:05		68.9	71.0	61.8	
	19:10		69.4	70.5	62.3	
14-Feb-16	08:45	Cloudy	71.8	75.8	63.8	72.0
	08:50		72.1	76.3	64.0	
	08:55		72.0	75.9	63.9	
21-Feb-16	09:30	Cloudy	71.4	74.6	68.5	71.3
	09:35		70.8	73.9	68.2	
	09:40		71.7	73.5	69.1	

Location NM2 - Hyde Building						
Date	Time	Weather	dB (A) (5-min)			Average L _{eq}
			L _{eq}	L ₁₀	L ₉₀	
2-Feb-16	20:15	Cloudy	73.1	73.9	71.8	73.1
	20:20		72.8	73.7	71.6	
	20:25		73.5	74.2	72.0	
12-Feb-16	19:30	Cloudy	72.4	72.8	70.5	71.7
	19:35		71.0	72.3	70.0	
	19:40		71.5	72.6	70.8	
14-Feb-16	10:10	Cloudy	74.7	75.8	73.4	74.7
	10:15		74.9	75.8	72.9	
	10:20		74.5	75.9	73.3	
21-Feb-16	10:10	Cloudy	72.3	74.6	70.4	72.7
	10:15		73.2	75.1	71.1	
	10:20		72.5	74.9	70.3	

Noise Levels

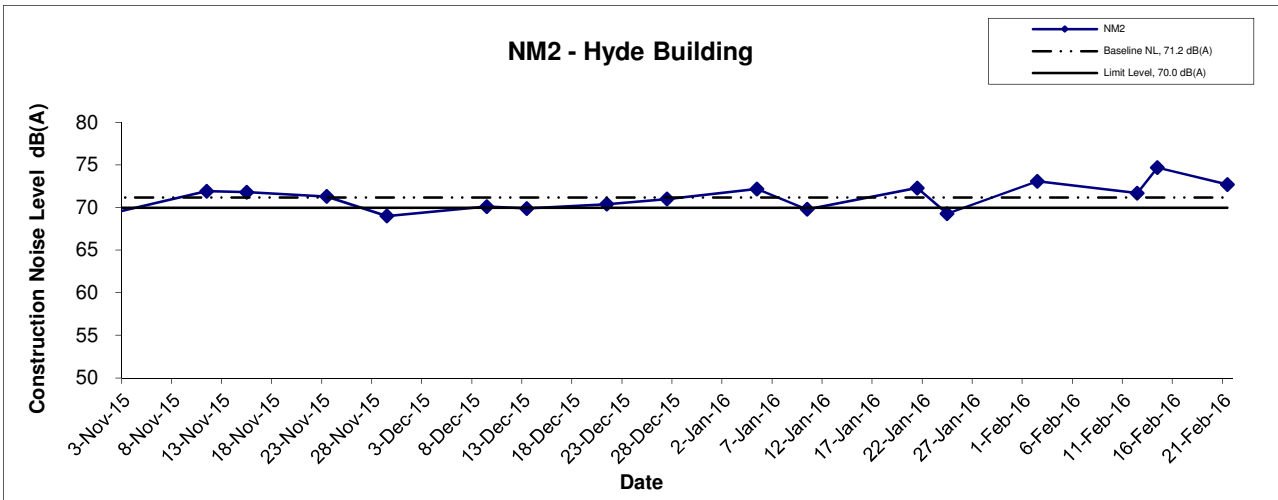
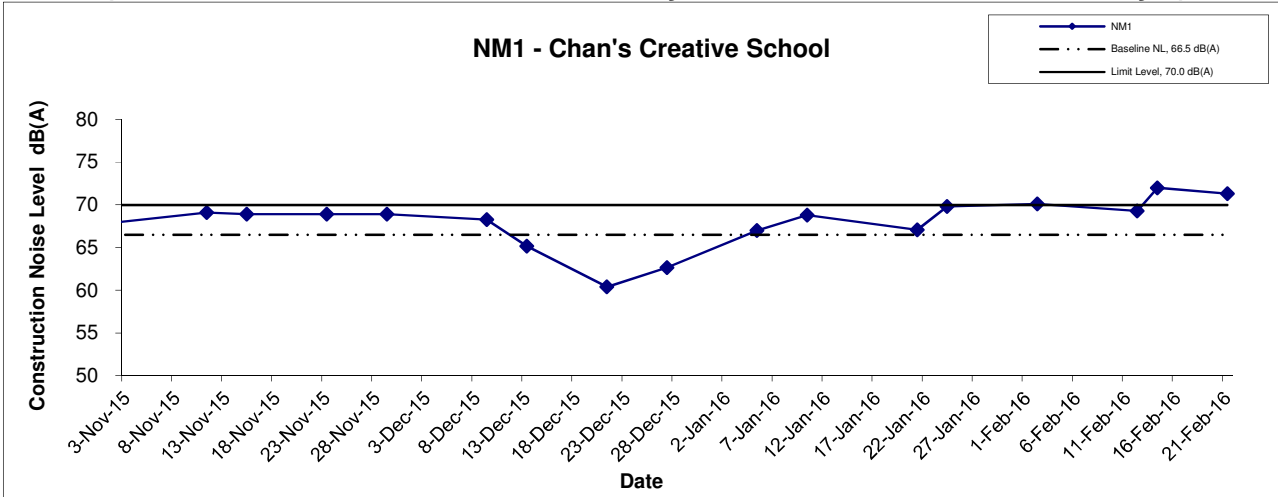
(0700-1900 hrs on Normal Weekdays)



Title Contract No. DC/2009/23 HATS 2A – Upgrading Works at North Point, Wan Chai East and Central Graphical Presentation of Noise Monitoring Result	Scale N.T.S	Project No. MA11003	
	Date Feb 16	Appendix F	

Noise Levels

(Restricted Hours - 07:00 - 23:00 holidays & 19:00 - 23:00 on all other days)



Title Contract No. DC/2009/23 HATS 2A – Upgrading Works at North Point, Wan Chai East and Central Graphical Presentation of Noise Monitoring Result	Scale N.T.S	Project No. MA11003	
	Date Feb 16	Appendix F	

APPENDIX G
SUMMARY OF EXCEEDANCE

APPENDIX G – SUMMARY OF EXCEEDANCE

Reporting Month: February 2016

- a) **Exceedance Report for 1-hr TSP (NIL)**
- b) **Exceedance Report for 24-hr TSP (NIL)**
- c) **Exceedance Report for Construction Noise (9)**

No Action Level exceedance was recorded, while three non-project related Limit Level exceedance were recorded during the restricted hour noise monitoring on 2nd, 14th & 21st February 2016 by the ET of this Project at NM1; five non-project related Limit Level exceedance were recorded during the daytime noise monitoring on 12th February 2016 and during the restricted hour noise monitoring on 2nd, 12th, 14th & 21st February 2016 by the ET of this Project at NM2; and one non-project related Limit Level exceedance was recorded during the daytime noise monitoring on 18th February 2016 by the ET of this Project at NM3. According to the information provided by the Contractor, no construction works were carried out during the restricted hours period on 2nd, 14th & 21st February 2016 at North Point Preliminary Treatment Works under DC/2009/23 and on 2nd, 12th, 14th & 21st February 2016 at Wan Chai East Preliminary Treatment Works under DC/2009/23; and no construction plant for the Contract No. DC/2009/23 was operated during the daytime period on 12th February 2016 at Wan Chai East Preliminary Treatment Works under DC/2009/23 and on 18th February 2016 at Central Preliminary Treatment Works under DC/2009/23.

**APPENDIX H
SUMMARY OF EXCEEDANCE REPORT**

Contract No. DC/2009/23 – HATS Stage 2A

Upgrading of Preliminary Treatment Works at North Point, Wan Chai East and Central

Report No. 160202_noise_NM1_v2

Date of Measurement: 2nd February 2016

Time of Measurement: 19:15 (3 consecutive 5-min measurements)

Location	Parameter	Measured Level (Leq dB(A))	Average Measured Level (Leq dB(A))	Action Level	Limit Level (Leq dB(A))	Level exceeded
NM1	Construction Noise	70.1	70.1	When one documented complaint is received	70.0*	Limit
		70.4				
		69.9				

* 70dB (A) was adopted as the Limit Level during restricted hours in January 2016.

Remarks

(a) Statement of exceedance(s)

Construction noise measured at NM1(North Point PTW) - Pedestrian walkway adjacent to Chan's Creative School boundary along Tin Chiu Street exceeded the construction noise limit (70dB(A)) during the restricted hour (07:00 to 23:00 holidays & 19:00 to 23:00 on all other days).

(b) Cause of exceedance(s)

The exceedance was considered not due to the Contract No. DC/2009/23 based on the following reason(s):-

- 1) During the continuous measurements, the major noise source was the traffic noise.
- 2) According to information provided by the Contractor, no construction works for the Contract No. DC/2009/23 was carried out during the restricted hours noise monitoring.
- 3) Comparing with the similar monitoring period during the baseline noise monitoring, the average of the noise level on 2nd February 2016 is well within the range of baseline noise levels (61.7 – 73.0dB(A)).

Therefore, the exceedance was considered to be non-project related.

(c) Conclusions and Recommendations:

- The exceedance was considered not due to the Contract No. DC/2009/23.
- The Contractor was reminded to review the effectiveness of the implemented noise mitigation measures from time to time during different construction phases.

ETL Signature: _____

Date: _____ 4 March 2016 _____

Contract No. DC/2009/23 – HATS Stage 2A

Upgrading of Preliminary Treatment Works at North Point, Wan Chai East and Central

Report No. 160202_noise_NM2

Date of Measurement: 2nd February 2016

Time of Measurement: 20:15 (3 consecutive 5-min measurements)

Location	Parameter	Measured Level (Leq dB(A))	Average Measured Level (Leq dB(A))	Action Level	Limit Level (Leq dB(A))	Level exceeded
NM2	Construction Noise	73.1	73.1	When one documented complaint is received	70.0*	Limit
		72.8				
		73.5				

* 70dB (A) was adopted as the Limit Level during restricted hours in February 2016.

Remarks

(a) Statement of exceedance(s)

Construction noise measured at NM2(Wan Chai East PTW) - The roof of Hyde Building exceeded the construction noise limit (70dB(A)) during the restricted hour (07:00 to 23:00 holidays & 19:00 to 23:00 on all other days).

(b) Cause of exceedance(s)

The exceedance was considered not due to the Contract No. DC/2009/23 based on the following reason(s):-

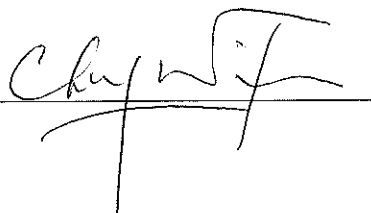
- 1) During the continuous measurements, the major noise source was the traffic noise.
- 2) According to information provided by the Contractor, no construction works for the Contract No. DC/2009/23 was carried out during the restricted hours noise monitoring.
- 3) Comparing with the similar monitoring period during the baseline noise monitoring, the average of the noise level on 2nd February 2016 is well within the range of baseline noise levels (68.6 – 76.8dB(A)).

Therefore, the exceedance was considered to be non-project related.

(c) Conclusions and Recommendations:

- The exceedance was considered not due to the Contract No. DC/2009/23.
- The Contractor was reminded to review the effectiveness of the implemented noise mitigation measures from time to time during different construction phases.

ETL Signature: _____



Date: _____ 11 February 2016 _____

Contract No. DC/2009/23 – HATS Stage 2A

Upgrading of Preliminary Treatment Works at North Point, Wan Chai East and Central

Report No. 160212_noise_NM2

Date of Measurement: 12th February 2016

Time of Measurement: 10:15 (30-min measurement)

Location	Parameter	Measured Level (Leq dB(A))	Action Level	Limit Level (Leq dB(A))	Level exceeded
NM2	Construction Noise	75.3	When one documented complaint is received	75.0	Limit

Remarks

(a) Statement of exceedance(s)

Construction noise measured at NM2(Wan Chai East PTW) - The roof of Hyde Building exceeded the construction noise limit (75dB(A)) during the daytime (07:00 to 19:00 on normal weekdays).

(b) Cause of exceedance(s)

The exceedance was considered not due to the Contract No. DC/2009/23 based on the following reason(s):-

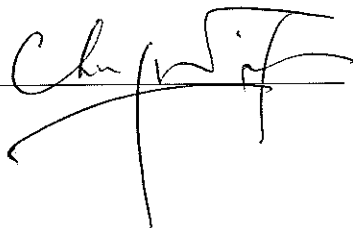
- 1) During the continuous measurements, the major noise source was the traffic noise.
- 2) According to the information from the Contractor of DC/2009/23, no construction plant for the Contract No. DC/2009/23 was operated during the daytime noise monitoring.
- 3) Comparing with the similar monitoring period during the baseline noise monitoring, the average of the noise level on 12th February 2016 is well within the range of baseline noise levels (70.6 – 76.3dB(A)).

Therefore, the exceedance was considered to be non-project related.

(c) Conclusions and Recommendations:

- The exceedance was considered not due to the Contract No. DC/2009/23.
- The Contractor was reminded to review the effectiveness of the implemented noise mitigation measures from time to time during different construction phases.

ETL Signature: _____



Date: _____ 10 March 2016 _____

Contract No. DC/2009/23 – HATS Stage 2A

Upgrading of Preliminary Treatment Works at North Point, Wan Chai East and Central

Report No. 160212_noise_NM2_RN

Date of Measurement: 12th February 2016

Time of Measurement: 19:30 (3 consecutive 5-min measurements)

Location	Parameter	Measured Level (Leq dB(A))	Average Measured Level (Leq dB(A))	Action Level	Limit Level (Leq dB(A))	Level exceeded
NM2	Construction Noise	72.4	71.7	When one documented complaint is received	70.0*	Limit
		71.0				
		71.5				

Remarks

(a) Statement of exceedance(s)

Construction noise measured at NM2(Wan Chai East PFW) - The roof of Hyde Building exceeded the construction noise limit (70dB(A)) during the restricted hour (07:00 to 23:00 holidays & 19:00 to 23:00 on all other days).

(b) Cause of exceedance(s)

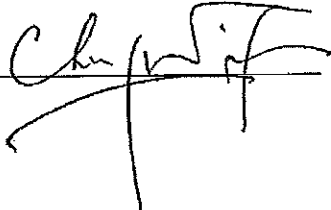
The exceedance was considered not due to the Contract No. DC/2009/23 based on the following reason(s):-

- 1) During the continuous measurements, the major noise source was the traffic noise.
- 2) According to information provided by the Contractor, no construction works for the Contract No. DC/2009/23 was carried out during the restricted hours noise monitoring.
- 3) Comparing with the similar monitoring period during the baseline noise monitoring, the average of the noise level on 12th February 2016 is well within the range of baseline noise levels (68.6 – 76.8dB(A)).

Therefore, the exceedance was considered to be non-project related.

(c) Conclusions and Recommendations:

- The exceedance was considered not due to the Contract No. DC/2009/23.
- The Contractor was reminded to review the effectiveness of the implemented noise mitigation measures from time to time during different construction phases.

ETL Signature: 

Date: 14 March 2016

Contract No. DC/2009/23 – HATS Stage 2A

Upgrading of Preliminary Treatment Works at North Point, Wan Chai East and Central

Report No. 160214_noise_NM1

Date of Measurement: 14th February 2016

Time of Measurement: 08:45 (3 consecutive 5-min measurements)

Location	Parameter	Measured Level (Leq dB(A))	Average Measured Level (Leq dB(A))	Action Level	Limit Level (Leq dB(A))	Level exceeded
NM1	Construction Noise	71.8	72.0	When one documented complaint is received	70.0*	Limit
		72.1				
		72.0				

* 70dB (A) was adopted as the Limit Level during restricted hours in February 2016.

Remarks

(a) Statement of exceedance(s)

Construction noise measured at NM1(North Point PTW) - Pedestrian walkway adjacent to Chan's Creative School boundary along Tin Chiu Street exceeded the construction noise limit (70dB(A)) during the restricted hour (07:00 to 23:00 holidays & 19:00 to 23:00 on all other days).

(b) Cause of exceedance(s)

The exceedance was considered not due to the Contract No. DC/2009/23 based on the following reason(s):-

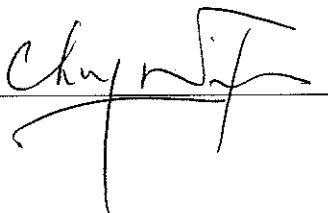
- 1) During the continuous measurements, the major noise source was the traffic noise.
- 2) According to information provided by the Contractor, no construction works for the Contract No. DC/2009/23 was carried out during the restricted hours noise monitoring.
- 3) Comparing with the similar monitoring period during the baseline noise monitoring, the average of the noise level on 14th February 2016 is well within the range of baseline noise levels (61.7 – 73.0dB(A)).

Therefore, the exceedance was considered to be non-project related.

(c) Conclusions and Recommendations:

- The exceedance was considered not due to the Contract No. DC/2009/23.
- The Contractor was reminded to review the effectiveness of the implemented noise mitigation measures from time to time during different construction phases.

ETL Signature: _____



Date: _____ 4 March 2016 _____

Contract No. DC/2009/23 – HATS Stage 2A

Upgrading of Preliminary Treatment Works at North Point, Wan Chai East and Central

Report No. 160214_noise_NM2

Date of Measurement: 14th February 2016

Time of Measurement: 10:10 (3 consecutive 5-min measurements)

Location	Parameter	Measured Level (Leq dB(A))	Average Measured Level (Leq dB(A))	Action Level	Limit Level (Leq dB(A))	Level exceeded
NM2	Construction Noise	74.7	74.7	When one documented complaint is received	70.0*	Limit
		74.9				
		74.5				

* 70dB (A) was adopted as the Limit Level during restricted hours in February 2016.

Remarks

(a) Statement of exceedance(s)

Construction noise measured at NM2(Wan Chai East PTW) - The roof of Hyde Building exceeded the construction noise limit (70dB(A)) during the restricted hour (07:00 to 23:00 holidays & 19:00 to 23:00 on all other days).

(b) Cause of exceedance(s)

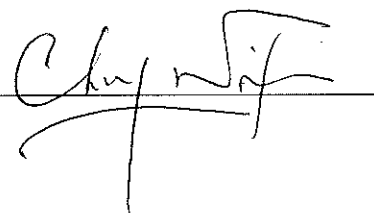
The exceedance was considered not due to the Contract No. DC/2009/23 based on the following reason(s):-

- 1) During the continuous measurements, the major noise source was the traffic noise.
- 2) According to information provided by the Contractor, no construction works for the Contract No. DC/2009/23 was carried out during the restricted hours noise monitoring.
- 3) Comparing with the similar monitoring period during the baseline noise monitoring, the average of the noise level on 14th February 2016 is well within the range of baseline noise levels (68.6 – 76.8dB(A)).

Therefore, the exceedance was considered to be non-project related.

(c) Conclusions and Recommendations:

- The exceedance was considered not due to the Contract No. DC/2009/23.
- The Contractor was reminded to review the effectiveness of the implemented noise mitigation measures from time to time during different construction phases.

ETL Signature: 

Date: 4 March 2016

Contract No. DC/2009/23 – HATS Stage 2A

Upgrading of Preliminary Treatment Works at North Point, Wan Chai East and Central

Report No. 160218_noise_NM3

Date of Measurement: 18th February 2016

Time of Measurement: 11:10 (30-min measurement)

Location	Parameter	Measured Level (Leq dB(A))	Action Level	Limit Level (Leq dB(A))	Level exceeded
NM3	Construction Noise	75.8	When one documented complaint is received	75.0	Limit

Remarks

(a) Statement of exceedance(s)

Construction noise measured at NM3(Central PTW) - The roof of Goldfield Building exceeded the construction noise limit (75dB(A)) during the daytime (07:00 to 19:00 on normal weekdays).

(b) Cause of exceedance(s)

The exceedance was considered not due to the Contract No. DC/2009/23 based on the following reason(s):-

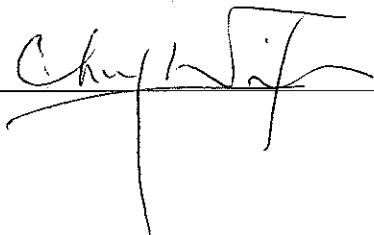
- 1) During the continuous measurements, the major noise source was the traffic noise.
- 2) According to the information from the Contractor of DC/2009/23, no construction plant for the Contract No. DC/2009/23 was operated during the daytime noise monitoring.
- 3) Comparing with the similar monitoring period during the baseline noise monitoring, the average of the noise level on 18th February 2016 is well within the range of baseline noise levels (71.2 – 80.6dB(A)).

Therefore, the exceedance was considered to be non-project related.

(c) Conclusions and Recommendations:

- The exceedance was considered not due to the Contract No. DC/2009/23.
- The Contractor was reminded to review the effectiveness of the implemented noise mitigation measures from time to time during different construction phases.

ETL Signature: _____



Date: _____

10 March 2016

Contract No. DC/2009/23 – HATS Stage 2A

Upgrading of Preliminary Treatment Works at North Point, Wan Chai East and Central

Report No. 160221_noise_NM1

Date of Measurement: 21st February 2016

Time of Measurement: 09:30 (3 consecutive 5-min measurements)

Location	Parameter	Measured Level (Leq dB(A))	Average Measured Level (Leq dB(A))	Action Level	Limit Level (Leq dB(A))	Level exceeded
NM1	Construction Noise	71.4	71.3	When one documented complaint is received	70.0*	Limit
		70.8				
		71.7				

* 70dB (A) was adopted as the Limit Level during restricted hours in February 2016.

Remarks

(a) Statement of exceedance(s)

Construction noise measured at NM1(North Point PTW) - Pedestrian walkway adjacent to Chan’s Creative School boundary along Tin Chiu Street exceeded the construction noise limit (70dB(A)) during the restricted hour (07:00 to 23:00 holidays & 19:00 to 23:00 on all other days).

(b) Cause of exceedance(s)

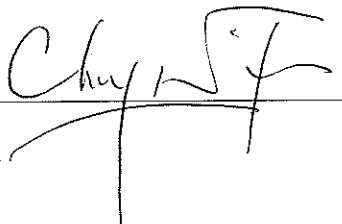
The exceedance was considered not due to the Contract No. DC/2009/23 based on the following reason(s):-

- 1) During the continuous measurements, the major noise source was the traffic noise.
- 2) According to information provided by the Contractor, no construction works for the Contract No. DC/2009/23 was carried out during the restricted hours noise monitoring.
- 3) Comparing with the similar monitoring period during the baseline noise monitoring, the average of the noise level on 21st February 2016 is well within the range of baseline noise levels (61.7 – 73.0dB(A)).

Therefore, the exceedance was considered to be non-project related.

(c) Conclusions and Recommendations:

- The exceedance was considered not due to the Contract No. DC/2009/23.
- The Contractor was reminded to review the effectiveness of the implemented noise mitigation measures from time to time during different construction phases.

ETL Signature: 

Date: 10 March 2016

Contract No. DC/2009/23 – HATS Stage 2A

Upgrading of Preliminary Treatment Works at North Point, Wan Chai East and Central

Report No. 160221_noise_NM2

Date of Measurement: 21st February 2016

Time of Measurement: 10:10 (3 consecutive 5-min measurements)

Location	Parameter	Measured Level (Leq dB(A))	Average Measured Level (Leq dB(A))	Action Level	Limit Level (Leq dB(A))	Level exceeded
NM2	Construction Noise	72.3	72.7	When one documented complaint is received	70.0*	Limit
		73.2				
		72.5				

* 70dB (A) was adopted as the Limit Level during restricted hours in February 2016.

Remarks

(a) Statement of exceedance(s)

Construction noise measured at NM2(Wan Chai East PTW) - The roof of Hyde Building exceeded the construction noise limit (70dB(A)) during the restricted hour (07:00 to 23:00 holidays & 19:00 to 23:00 on all other days).

(b) Cause of exceedance(s)

The exceedance was considered not due to the Contract No. DC/2009/23 based on the following reason(s):-

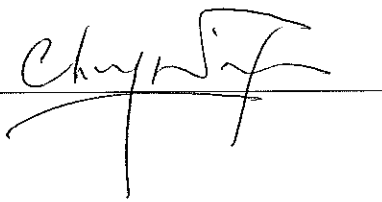
- 1) During the continuous measurements, the major noise source was the traffic noise.
- 2) According to information provided by the Contractor, no construction works for the Contract No. DC/2009/23 was carried out during the restricted hours noise monitoring.
- 3) Comparing with the similar monitoring period during the baseline noise monitoring, the average of the noise level on 21st February 2016 is well within the range of baseline noise levels (68.6 – 76.8dB(A)).

Therefore, the exceedance was considered to be non-project related.

(c) Conclusions and Recommendations:

- The exceedance was considered not due to the Contract No. DC/2009/23.
- The Contractor was reminded to review the effectiveness of the implemented noise mitigation measures from time to time during different construction phases.

ETL Signature: _____



Date: _____ 10 March 2016 _____

**APPENDIX I
SITE AUDIT SUMMARY**

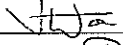

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	160203
Date	3 February 2016 (Wednesday)
Time	09:30 – 11:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
160203-O02	<p>Part A - Water Quality</p> <ul style="list-style-type: none"> Properly clear the debris and sediment in the wheel washing facility at Central-PTW. 	A 13
	<p>Part B – Landscape and Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<p>Part C - Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<p>Part D – Noise</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
160203-O01	<p>Part E –Waste / Chemical Management</p> <ul style="list-style-type: none"> The oil leakage was observed from the excavator at Central-PTW. The Contractor was reminded to provide the maintenance and clear the oil stain properly. 	E 7i
160203-R03	<ul style="list-style-type: none"> Properly clear the oil stain at Central-PTW. 	E 7i
	<p>Part F - Permit / Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<p>Follow up:</p> <ul style="list-style-type: none"> For previous audit session (Ref. No. 160127), outstanding item 160127-R02 is required to be followed up and remarked as 160203-O02 which will be reviewed in the next weekly site inspection (Ref. No. 160212). 	
	<p>Remark:</p> <ul style="list-style-type: none"> -- 	

	Name	Signature	Date
Recorded by	Janet Wai		3 February 2016
Checked by	Dr. Priscilla Choy		3 February 2016

Contract No: DC/2009/23

HATS 2A - Upgrading of PTWs at North Point, Wan Chai East and Central

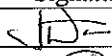

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	160212
Date	12 February 2016 (Friday)
Time	14:00 – 15:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
160212-001	<p>Part A - Water Quality</p> <ul style="list-style-type: none">Properly clear the debris and sediment in the wheel washing facility at Central-PTW. <p>Part B – Landscape and Visual</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part C - Air Quality</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part D – Noise</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part E –Waste / Chemical Management</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part F - Permit / Licenses</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Follow up:</p> <ul style="list-style-type: none">For previous audit session (Ref. No. 160203), outstanding item 160203-O02 is required to be followed up and remarked as 160212-001 which will be reviewed in the next weekly site inspection (Ref. No. 160219). <p>Remark:</p> <ul style="list-style-type: none">--	A 13

	Name	Signature	Date
Recorded by	Janet Wai		12 February 2016
Checked by	Dr. Priscilla Choy		12 February 2016

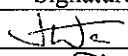

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	160219
Date	19 February 2016 (Friday)
Time	14:00 – 15:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
160219-001	<p>Part A - Water Quality</p> <ul style="list-style-type: none"> Properly clear the debris and sediment in the wheel washing facility at Central-PTW. <p>Part B -- Landscape and Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part C - Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D – Noise</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E –Waste / Chemical Management</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F - Permit / Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Follow up:</p> <ul style="list-style-type: none"> For previous audit session (Ref. No. 160212), outstanding item 160212-001 is required to be followed up and remarked as 160219-001 which will be reviewed in the next weekly site inspection (Ref. No. 160224). <p>Remark:</p> <ul style="list-style-type: none"> -- 	A 13

	Name	Signature	Date
Recorded by	Janet Wai		19 February 2016
Checked by	Dr. Priscilla Choy		19 February 2016

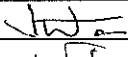
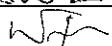
Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	160225
Date	25 February 2016 (Thursday)
Time	14:00 – 15:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
160225-O01	<p>Part A - Water Quality</p> <ul style="list-style-type: none"> The water quality of WetSep at North Point-PTW should be fulfilled the requirement of the WPCO's wastewater discharge license before discharging out. The Contractor was reminded to provide the maintenance of the WetSep. 	A 5i
160225-O03	<ul style="list-style-type: none"> Properly clear the debris and sediment in the wheel washing facility at Central-PTW. 	A 13
160225-R04	<ul style="list-style-type: none"> The bund should be provided to prevent the muddy water runoff to the access road at Central-PTW. 	A 2
	<p>Part B – Landscape and Visual</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<p>Part C - Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<p>Part D – Noise</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
160225-O02	<p>Part E –Waste / Chemical Management</p> <ul style="list-style-type: none"> The oil leakage was observed from the excavators at North Point-PTW and Central-PTW. The Contractor was reminded to provide the maintenance and clear the oil stain properly. 	E 7i
	<p>Part F - Permit / Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	
	<p>Follow up:</p> <ul style="list-style-type: none"> For previous audit session (Ref. No. 160219), outstanding item 160219-O01 is required to be followed up and remarked as 160225-O03 which will be reviewed in the next weekly site inspection (Ref. No. 160302). 	
	<p>Remark:</p> <ul style="list-style-type: none"> -- 	

	Name	Signature	Date
Recorded by	Janet Wai		25 February 2016
Checked by	Dr. Priscilla Choy		25 February 2016

**APPENDIX J
SUMMARY OF AMOUNT OF WASTE
GENERATED**

APPENDIX J MONTHLY SUMMARY WASTE FLOW TABLE FOR February (2016)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly					Special Waste			
	Total Quantity Generated	Broken Concrete (4)	Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Import Fill	Metals	Paper / Cardboard Packaging	Plastics (3)	Chemical Waste	Other, e.g. general refuse	Screening (CPTW)	Grit (CPTW)	Screening (NPPTW)	Grit (NPPTW)
	[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]	[in '000m ³]	[in '000m ³]	[in '000m ³]	
Year2015	24.063	0.000	0.000	0.000	24.063	0.000	72.810	5.557	0.708	1.030	1.485	2.615	1.697	1.022	0.604
JAN	0.205	0.000	0.000	0.000	0.205	0.000	0.000	0.150	0.010	0.000	0.030	0.071	0.030	0.045	0.028
FEB	0.054	0.000	0.000	0.000	0.054	0.000	0.000	0.150	1.010	0.000	0.010	0.075	0.035	0.040	0.026
MAR															
APR															
MAY															
JUN															
SUB-TOTAL	24.322	0.000	0.000	0.000	24.322	0.000	72.810	5.857	1.728	1.030	1.525	2.761	1.762	1.107	0.658
JUL															
AUG															
SEP															
OCT															
NOV															
DEC															
TOTAL	24.322	0.000	0.000	0.000	24.322	0.000	72.810	5.857	1.728	1.030	1.525	2.761	1.762	1.107	0.658

Forecast of Total Quantities of C&D materials to be Generated from the Contracts *											Special Waste		Special Waste	
Total Quantity Generated	Broken Concrete (4)	Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Import Fill	Metals	Paper / Cardboard Packaging	Plastics (3)	Chemical Waste	Other, e.g. general refuse	Screening (CPTW)	Grit (CPTW)	Screening (NPPTW)	Grit (NPPTW)
[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]	[in '000m ³]	[in '000m ³]	[in '000m ³]	
25.3	0.04	0.03	0.03	25.1	0.1	100	8	1	3	3.5	4.5	3	1.5	1

- Notes :
- The performance targets are given in PS Clause 6(14).
 - The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the site.
 - Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material.
 - * The contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where to total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000m³. (PS Clause 25.25S (6)(b) refers).
[Delete Note (4) and the table above on the forecast, where inapplicable].
 - The assumed density (kg/m³) for both C&D material and general refuse.
C&D material 2000kg/m³
General refuse 500kg/m³
 - Conversion factors for reporting purpose:

in-situ: rock = 2.5 tonnes/m ³ ; soil = 2.0 tonnes/m ³	excavated: rock = 2.0 tonnes/m ³ ; soil = 1.8 tonnes/m ³	Special Waste (Grit) = 1.2 tonnes/m ³
broken concrete and bitumen = 2.4 tonnes/m ³	C&D Waste = 0.9 tonnes/m ³	Special Waste (Screening) = 0.31 tonnes/m ³

APPENDIX K
EVENT ACTION PLANS

APPENDIX K – Event / Action Plans

Table K-1 Event / Action Plan For Air Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor’s working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IEC and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial	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 ET 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 Contractor; 3. Ensure remedial measures properly implemented	1. Submit proposals for remedial to ER within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	actions required; 7. If exceedance continues, arrange meeting with IEC and ER; 8. If exceedance stops, cease additional monitoring			
LIMIT LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check 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	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 5. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures 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 notification; 3. Implement the agreed proposals; 4. 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

Table J-2 Event / Action Plan For Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level being exceeded	<ol style="list-style-type: none"> 1. Notify ER, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness 	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals
Limit Level being exceeded	<ol style="list-style-type: none"> 1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 5. Carry out analysis of Contractor's working procedures; 6. Discuss with the IEC, Contractor and ER on remedial measures required; 7. Assess effectiveness of 	<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 ER accordingly. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals; 4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring		until the exceedance is abated	the ER until the exceedance is abated

**APPENDIX L
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)**

APPENDIX L IMPLEMENTATION SCHEDULE OF ENVIRONMENTAL MITIGATION MEASURES (EMIS)

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Status
A	Air Quality		
3.74	Skip hoist for material transport should be totally enclosed by impervious sheeting.	All construction sites	^
	Vehicle washing facilities should be provided at every vehicle exit point.		^
	The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcore.		^
	Where a site boundary adjoins a road, streets or other areas accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length except for a site entrance or exit.		^
	Use of regular watering, with complete coverage, to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather.		^
	Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines.		^
	Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs.		^
	Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations.		^
	Imposition of speed controls for vehicles on unpaved site roads. Ten kilometers per hour is the recommended limit.		^
	Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the 3 sides.		^
	Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.	^	
3.74	Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.	All construction sites	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Status
B	Airborne Noise		
4.56– 4.61	Use of quiet PME, movable barriers and acoustic mats.	All construction sites	^
4.67	Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program.		^
	Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program.		^
	Mobile plant, if any, shall be sited as far away from NSRs as possible.		^
	Machines and plant (such as trucks) that may be in intermittent use shall be shut down between works periods or shall be throttled down to a minimum.		^
4.67	Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.		^
	Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities.		^
C	Water Quality		
6.349 to 6.375	Construction Site Runoff and General Construction Activities The mitigation measures as outlined in the ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable.	All construction sites	*
6.376	Effluent Discharge There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing saltwater intakes.		*
6.377	Accidental Spillage of Chemicals 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)		^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Status
	Regulation should be observed and complied with for control of chemical wastes.		
6.378	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.		#
6.379	<p>Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows:</p> <ul style="list-style-type: none"> • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 		*
6.380	<p>Construction Works in Close Proximity of Storm Drains or Seafront</p> <p>To minimize the potential water quality impacts from the construction works located at or near any watercourse, the practices outlined below should be adopted where applicable.</p> <ul style="list-style-type: none"> • The use of less or smaller construction plants may be specified to reduce the disturbance to the storm water courses or marine environment. • Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works. • Stockpiling of construction materials and dusty materials should be covered and located away from any water courses. • Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers. • Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable. • Proper shoring may need to be erected in order to prevent soil/mud from slipping into 	All construction sites	^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Status
	the storm culvert or sea.		
D	Waste Management		
9.107	Reusable steel or concrete panel shutters, fencing and hoarding and signboard should be used as a preferred alternative to items made of wood, to minimise wastage of wood. Attention should be paid to WBTC No. 19/2001 - Metallic Site Hoardings and Signboards to reduce the amount of timber used on construction sites. Metallic alternatives to timber are readily available and should be used rather than new timber. Precast concrete units should be adopted wherever feasible to minimize the use of timber formwork.	All construction sites	^
9.109	All waste materials should be segregated into categories covering: <ul style="list-style-type: none"> • excavated materials suitable for reuse on-site; • excavated materials suitable for public filling facilities; • remaining C&D waste for landfill; • chemical waste; and • general refuse for landfill. 	All construction sites	^
9.113	Sort C&D waste from demolition of existing facilities to recover recyclable portions such as metals;		^
	Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.		^
	Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force.		^
	Any unused chemicals or those with remaining functional capacity shall be recycled.		^
	Proper storage and site practices to minimise the potential for damage or contamination of construction materials.		^
9.115	Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.		^
	Training of site personnel in proper waste management and chemical waste handling procedures.		^
9.115	Develop and provide toolbox talk for on-site sorting of C&D materials to enhance worker's awareness in handling, sorting, reuse and recycling of C&D materials.		^

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Status
	Provision of sufficient waste disposal points and regular collection of waste.		^
	Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.		^
9.125	Bentonite slurries used in diaphragm wall construction should be reconditioned and reused wherever practicable. The disposal of residual used bentonite slurry should follow the good practice guidelines stated in ProPECC PN 1/94 "Construction Site Drainage"	All construction sites	N/A
9.131	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.		^
9.133	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.		^
9.135	The recyclable component of the municipal waste generated by the workforce, such as aluminium cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.		^
9.137	If chemical wastes are 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 chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.		^
9.142	Prior to excavation of the marine deposit layer, the deposit should be tested in accordance with the ETWB TC(W) No. 34/2002 and the results should be presented in a Preliminary Sediment Quality Report. The marine deposit should be disposed of at the disposal site designated by the Marine Fill Committee (MFC) or Director of Environmental Protection (DEP) depending on the test results.		N/A

EIA Ref.	Recommended Mitigation Measures	Location of the measure	Implementation Status
E Terrestrial Ecology			
10.94	To implement effective noise mitigation measures as recommended in Section 4 of EIA.	All construction sites	N/A
10.95	Dust control practices such as regular watering, complete coverage of any aggregate or dusty material storage piles, and re-schedule of dusty activities during high-wind conditions as well as other measures recommended in Section 3 of EIA, should be implemented.		^
10.96	Fences/hoardings should be erected and installed along the boundary of the works areas.		^
10.97	Standard good site practices as suggested in Section 10 of EIA should be implemented.		N/A
10.98	Provision of proper drainage system and runoff control measures such as use of sand/silt traps, oil/grease separators, sedimentation tanks, etc.		^
F Landscape and Visual			
Table 13.7	Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical.	All construction sites	^
	Existing trees to be retained on site should be carefully protected during construction.		^
	Trees unavoidably affected by the works should be transplanted where practical.		^
	Compensatory tree planting should be provided to compensate for felled trees.		^
	Control of night-time lighting.		^
Table 13.7	Erection of decorative screen hoarding compatible with the surrounding setting.	All construction sites	N/A
G Marine Ecology			
11.137	To minimize the potential indirect impacts on water quality from construction site runoff and various construction activities, the practices outlined in ProPECC PN 1/94 Construction Site Drainage should be adopted.	All construction sites	^
H Hazard to Life			
14A.201	Limiting use of cranes in terms of locations, lifting height, swing angle and setting up safety zone.	Exact location will be determined on construction site by the engineer	^

Remarks:	^ Compliance of mitigation measure;
	N/A Not Applicable;
	* Recommendation was made during site audit but improved/rectified by the contractor.
	# Recommendation was made during site audit and to be improved / rectified by the contractor.
	X Non-compliance of mitigation measure;
	• Non-compliance but rectified by the contractor;

**APPENDIX M
COMPLAINT LOG**

APPENDIX M – COMPLAINT LOG

Reporting Month: February 2016

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

Remarks: No environmental complaint was received in the reporting month.

APPENDIX N
CONSTRUCTION PROGRAMME

Activity ID	Activity Name	Original Duration	Total Float	Early Start	Early Finish	Late Start	Late Finish	2011				2012				2013				2014				2015				2016		
								Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	
DSD - HATSS2 Upgrading of PTW (DC/2009/23)																														
Particulars																														
Key Dates																														
Commencement / Completion																														
FGN0010	Contract Award	0	0	30-Dec-10	06-Jan-11																									
FGN0030	Date of Commencement of Contract	0	0	06-Jan-11	06-Jan-11																									
FGN0040	Time for Completion for Project	1393	0	06-Jan-11	29-Oct-14																									
FGN0050	Date of Completion of the Works	0	0	29-Oct-14	29-Oct-14																									
Portion of the Site																														
North Point																														
Possession / Vacation of Portions																														
FNP0010	H/O Date_NP-1 (135 days after start)	0	0	20-May-11																										
FNP0020	Vacation Date_NP-1 (on Sec. 1 completed)	0	0		01-Jun-13																									
FNP0030	H/O Date_NP-2 (135 days after start)	0	29	20-May-11																										
FNP0040	Vacation Date_NP-2 (on Sec. 3 completed)	0	0		14-Oct-14																									
FNP0050	H/O Date_NP-3 (after Sec. 1 completed)	0	0	02-Jun-13																										
FNP0060	Vacation Date_NP-3 (on Sec. 3 completed)	0	0		14-Oct-14																									
Wan Chai East																														
Possession / Vacation of Portions																														
FWC00010	H/O Date_WCE-1 (135 days after start)	0	0	20-May-11																										
FWC00020	Vacation Date_WCE-1 (on Sec. 5 completed)	0	0		23-Nov-13																									
FWC00030	H/O Date_WCE-2 (135 days after start)	0	0	20-May-11																										
FWC00040	Vacation Date_WCE-2 (on Sec. 4ii completed)	0	0		14-Nov-11																									
FWC00050	H/O Date_WCE-2 (after complete Sec. 5-iv)	0	0	27-Jul-13																										
FWC00060	Vacation Date_WCE-2 (on Sec. 5 completed)	0	0		23-Nov-13																									
FWC00070	H/O Date_WCE-3 (135 days after start)	0	59	20-May-11																										
FWC00080	Vacation Date_WCE-3 (on Sec. 5 completed)	0	0		23-Nov-13																									
FWC00090	H/O Date_WCE-4 (135 days after start)	0	59	20-May-11																										
FWC00100	Vacation Date_WCE-4 (on Sec. 5 completed)	0	0		23-Nov-13																									
FWC00110	H/O Date_WCE-T1 (135 days after start)	0	205	20-May-11																										
FWC00120	Vacation Date_WCE-T1 (on Sec. 6 completed)	0	0		22-May-14																									
FWC00130	H/O Date_WCE-T2 (135 days after start)	0	205	20-May-11																										
FWC00140	Vacation Date_WCE-T2 (on Sec. 6 completed)	0	0		22-May-14																									
Central																														
Possession / Vacation of Portions																														
FCT00110	H/O Date_CTL-1 (45 days after start)	0	0	19-Feb-11																										
FCT00120	Vacation Date_CTL-1 (on Sec. 9 completed)	0	0		25-May-14																									
FCT00130	H/O Date_CTL-2 (45 days after start)	0	50	19-Feb-11																										
FCT00140	Vacation Date_CTL-2 (on Sec. 9 completed)	0	0		25-May-14																									
FCT00150	H/O Date_CTL-3 (after Sec. 8 completed)	0	0	22-Mar-13																										
FCT00160	Vacation Date_CTL-3 (on Sec.10completed)	0	0		29-Oct-14																									
FCT00170	H/O Date_CTL-T	0	806	06-Jan-11																										
FCT00180	Vacation Date_CTL-T (on Sec.10completed)	0	0		29-Oct-14																									
Management Plans and Programmes																														
Contractor's Design, Submission / Approval																														
Particulars																														
FGN0200	Prepare/Submit Clause 16 Programme	60	11	06-Jan-11	06-Mar-11	17-Jan-11	17-Mar-11																							
FGN0210	Comment/Approval of Clause 16 Programme	30	41	07-Mar-11	05-Apr-11	17-Apr-11	16-May-11																							
FGN0220	Prepare/Submit Detailed Works Programme	60	11	07-Mar-11	05-May-11	18-Mar-11	16-May-11																							
FGN0230	Comments/Approval of Detailed Works Programme	30	11	06-May-11	04-Jun-11	17-May-11	15-Jun-11																							
FGN0250	Prepare/Submit Safety Plan	14	159	06-Jan-11	19-Jan-11	14-Jun-11	27-Jun-11																							
FGN0260	Comments/Approval of Safety Plan	60	159	20-Jan-11	28-Mar-11	28-Jun-11	26-Aug-11																							
FGN0300	Prepare/Submit Environmental Manag. Plan	21	152	06-Jan-11	26-Jan-11	07-Jun-11	27-Jun-11																							
FGN0310	Comments/Approval of Environmental Manag. Plan	60	152	27-Jan-11	27-Mar-11	28-Jun-11	26-Aug-11																							
FGN0330	Prepare / Submit Subcontractor Management Plan	30	143	06-Jan-11	04-Feb-11	29-May-11	27-Jun-11																							
FGN0340	Comments/Approval of Subcontractor Manag. Plan	60	143	05-Feb-11	05-Apr-11	28-Jun-11	26-Aug-11																							
FGN0400	Prepare / Submit Interface Management Plan	55	43	06-Jan-11	01-Mar-11	18-Feb-11	13-Apr-11																							
FGN0410	Comments / Approval of Interface Management Plan	45	43	02-Mar-11	15-Apr-11	14-Apr-11	28-May-11																							
FGN0420	Submit Detailed Interface Documents	60	43	16-Apr-11	14-Jun-11	29-May-11	27-Jul-11																							
FGN0430	Approval of Detailed Interface Documents	30	43	15-Jun-11	14-Jul-11	28-Jun-11	26-Aug-11																							
FGN0440	Prepare/Submit Env. Baseline Monitoring report	60	71	19-Feb-11	19-Apr-11	01-May-11	29-Jun-11																							
FGN0445	Comments/Approval Env. Baseline Report	28	71	20-Apr-11	17-May-11	30-Jun-11	27-Jul-11																							
FGN0448	Review/submit Construction Noise Permit	28	129	04-Apr-11	01-May-11	11-Aug-11	07-Sep-11																							
FGN0449	Comments/Approval of Construction Noise Permit	28	129	02-May-11	29-May-11	08-Sep-11	05-Oct-11																							
Technical Information & Drawings																														
FGN0450	Prepare/Submit initial record for CentralPTW	14	50	19-Feb-11	04-Mar-11	10-Apr-11	23-Apr-11																							
FGN0455	Prepare/Submit Tree Survey Report Pt. I	14	50	19-Feb-11	04-Mar-11	10-Apr-11	23-Apr-11																							
FGN0460	Prepare/Submit initial record for remaining area	14	50	20-May-11	02-Jun-11	09-Jul-11	22-Jul-11																							
FGN0465	Prepare/Submit Tree Survey Report Pt. II	14	13	20-May-11	02-Jun-11	02-Jun-11	15-Jun-11																							

Actual Work
 Critical Remaining Work
 Remaining Work
 Milestone

Activity ID	Activity Name	Original Duration	Total Float	Early Start	Early Finish	Late Start	Late Finish	2011				2012				2013				2014				2015				2016
								Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Foundation Works																												
FNP12450	26nos. socket H-pile	65	0	07-Jan-12	11-Mar-12	07-Jan-12	11-Mar-12																					
FNP12480	ELS for pile cap construction for F.S&G.T.Bldg.	15	5	12-Mar-12	26-Mar-12	17-Mar-12	31-Mar-12																					
FNP12490	Construction of pile cap for F.S&G.T. Bldg.	25	5	27-Mar-12	20-Apr-12	01-Apr-12	25-Apr-12																					
RC Structural Works																												
FNP12550	R.C. Structure for Chamber FC-1	45	0	12-Mar-12	25-Apr-12	12-Mar-12	25-Apr-12																					
FNP12600	Construct floor slab for F.Screen,GritTrap Bldg.	47	0	26-Apr-12	11-Jun-12	26-Apr-12	11-Jun-12																					
FNP12610	Construct column&wall of F.Screen,GritTrap Bldg	14	0	12-Jun-12	25-Jun-12	12-Jun-12	25-Jun-12																					
FNP12620	Construct roof slab of FineScreen,Grit Trap Bldg	14	0	26-Jun-12	09-Jul-12	26-Jun-12	09-Jul-12																					
Drainage Works																												
FNP12250	Install New DN1800 & DN1650 Sewer pipes	45	0	09-Oct-11	22-Nov-11	09-Oct-11	22-Nov-11																					
FNP12260	Construct new sewer manholes	30	0	23-Nov-11	23-Dec-11	23-Nov-11	22-Dec-11																					
FNP12265	Connect to Extg. DN1800 & DN1650 Overflow Sewer	15	0	23-Dec-11	06-Jan-12	23-Dec-11	06-Jan-12																					
FNP12750	Construct new FC-2a flow chamber	30	57	12-Mar-12	10-Apr-12	08-May-12	06-Jun-12																					
FNP12755	Laying of Pipes from Fine Screen Bldg. to FC-2	30	47	21-Apr-12	20-May-12	07-Jun-12	06-Jul-12																					
FNP12765	Laying of Pipes from FC-2 to FC-2a	30	57	11-Apr-12	10-May-12	07-Jun-12	06-Jul-12																					
FNP12770	Construct new FC-2 flow chamber	30	47	21-May-12	19-Jun-12	07-Jul-12	05-Aug-12																					
FNP12780	Laying of Pipes from FC-2 to FC-3	30	47	20-Jun-12	19-Jul-12	06-Aug-12	04-Sep-12																					
FNP12800	Construct new FC-3 flow chamber	75	82	20-Jul-12	02-Oct-12	10-Oct-12	23-Dec-12																					
FNP12850	Modification works for existing flow chamber	70	47	20-Jul-12	27-Sep-12	05-Sep-12	13-Nov-12																					
FNP12900	Construct Seawater Intake Chamber	40	47	28-Sep-12	06-Nov-12	14-Nov-12	23-Dec-12																					
FNP13150	Relocate Extg. Rising Mains in NP-3 & NP-4	70	0	24-Dec-12	03-Mar-13	24-Dec-12	03-Mar-13																					
Electrical and Mechanical Works																												
FNP12290	Modification of existing Deodorization Plant	30	158	03-Jun-11	02-Jul-11	08-Nov-11	07-Dec-11																					
FNP12300	Demolish Extg. Deodorization Plant	30	60	09-Oct-11	07-Nov-11	08-Dec-11	06-Jan-12																					
Architectural Works																												
FNP12700	Internal Finishes for F.Screen&Grit Trap Bldg.	30	0	10-Jul-12	08-Aug-12	10-Jul-12	08-Aug-12																					
Transplantation, landscape works																												
FNP12100	2 nos.Trees Transplant	50	11	05-Jun-11	24-Jul-11	16-Jun-11	04-Aug-11																					
Mechanical Installation																												
Electrical and Mechanical Works																												
FNP13100	Install Fine Screen Equipment	60	0	09-Aug-12	07-Oct-12	09-Aug-12	07-Oct-12																					
FNP13110	Install Fine Screen conveyor system	40	0	08-Oct-12	16-Nov-12	08-Oct-12	16-Nov-12																					
FNP13120	Install compactors & equipment	20	27	17-Nov-12	06-Dec-12	14-Dec-12	02-Jan-13																					
FNP13130	Install Grit removal equipment	60	0	17-Nov-12	15-Jan-13	17-Nov-12	15-Jan-13																					
FNP13200	Install Temp. Air Duct to Extg. Deodorizer	21	66	07-Dec-12	27-Dec-12	11-Feb-13	03-Mar-13																					
FNP13250	New Treatment Facilities to Flow Meter Chamber	60	27	07-Dec-12	04-Feb-13	03-Jan-13	03-Mar-13																					
Electrical Installation																												
Electrical and Mechanical Works																												
FNP13500	Modify Extg. Switchboard	45	313	11-Jan-12	24-Feb-12	19-Nov-12	02-Jan-13																					
FNP13550	Install New Switchboard	45	102	09-Aug-12	22-Sep-12	19-Nov-12	02-Jan-13																					
FNP13600	Laying Power Supply Cables (including Termination)	60	47	17-Nov-12	15-Jan-13	03-Jan-13	03-Mar-13																					
FNP13650	Install UPS System	50	97	09-Aug-12	27-Sep-12	14-Nov-12	02-Jan-13																					
FNP13700	Install Electrical Equipments	45	177	28-Sep-12	11-Nov-12	24-Mar-13	07-May-13																					
FNP31800	Install Earthing & Lightning System	60	97	28-Sep-12	26-Nov-12	03-Jan-13	03-Mar-13																					
Control and Monitoring System																												
FNP14100	Install Monitoring & Control System	90	117	09-Aug-12	06-Nov-12	04-Dec-12	03-Mar-13																					
Building Services Installation																												
FNP12650	Construct U/G Drains, Cable Pits & Ducting	90	87	10-Jul-12	07-Oct-12	05-Oct-12	02-Jan-13																					
FNP14500	Install Building Services	75	197	09-Aug-12	22-Oct-12	22-Feb-13	07-May-13																					
Testing and Commissioning																												
FNP15200	T&C of Building Services	25	112	16-Jan-13	09-Feb-13	08-May-13	01-Jun-13																					
FNP15300	T&C of PTW System	90	0	04-Mar-13	01-Jun-13	04-Mar-13	01-Jun-13																					
FNP15500	Complete the Works of Section 1	0	0		01-Jun-13		01-Jun-13																					
Works for Section 2																												
North Point																												
E&M Equipment / Material Delivery on Site																												
FNP20010	Deodorisation System Delivery on Site	7	53	05-Oct-13	11-Oct-13	27-Nov-13	03-Dec-13																					
FNP20060	Control & Monitoring System Delivery on Site	7	108	05-Oct-13	11-Oct-13	21-Jan-14	27-Jan-14																					
Civil Works																												
Site Clearance & Prep. Works																												
FNP20100	Possession of NP-3 (after Sec. 1 completed)	0	0	02-Jun-13		02-Jun-13																						
Demolition Works																												
FNP20200	Demolish the Extg. Fine Screen Chamber	30	0	23-Jun-13	22-Jul-13	23-Jun-13	22-Jul-13																					
Site Investigation																												
FNP20210	6nos. Pre-drill holes	19	0	23-Jul-13	10-Aug-13	23-Jul-13	10-Aug-13																					
Foundation Works																												
FNP20250	Piling Works for Deodorization Bldg.	55	0	11-Aug-13	04-Oct-13	11-Aug-13	04-Oct-13																					
Drainage Works																												
FNP20150	Relocate DN300 Sewer	50	20	02-Jun-13	21-Jul-13	22-Jun-13	10-Aug-13																					
RC Structural Works																												
FNP20400	Construct Deodorization Bldg. including finishes	60	0	05-Oct-13	03-Dec-13	05-Oct-13	03-Dec-13																					
FNP20450	Construct U/G Drains, Cable Pits & Ducting	24	91	05-Oct-13	28-Oct-13	04-Jan-14	27-Jan-14																					
Mechanical Installation																												

Actual Work Remaining Work Critical Remaining Work Milestone

Activity ID	Activity Name	Original Duration	Total Float	Early Start	Early Finish	Late Start	Late Finish	2011				2012				2013				2014				2015				2016
								Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Electrical and Mechanical Works																												
FNP21100	Decommission the Existing Grit Traps, Fine Screens	21	0	02-Jun-13	22-Jun-13	02-Jun-13	22-Jun-13																					
FNP21150	Install New Deodorization System	55	0	04-Dec-13	27-Jan-14	04-Dec-13	27-Jan-14																					
Electrical Installation																												
Electrical and Mechanical Works																												
FNP21200	Install Switchgear	45	10	04-Dec-13	17-Jan-14	14-Dec-13	27-Jan-14																					
FNP21400	Power Cables Laying (including termination)	20	0	28-Jan-14	16-Feb-14	28-Jan-14	16-Feb-14																					
FNP21500	Install Earthing & Lightning System	45	10	04-Dec-13	17-Jan-14	14-Dec-13	27-Jan-14																					
Control and Monitoring System																												
FNP23500	Install Control & Monitoring System	20	0	28-Jan-14	16-Feb-14	28-Jan-14	16-Feb-14																					
Building Services Installation																												
FNP24500	Install Building Services System	20	0	28-Jan-14	16-Feb-14	28-Jan-14	16-Feb-14																					
Testing and Commissioning																												
FNP25000	T&C of Deodorization System	30	0	17-Feb-14	18-Mar-14	17-Feb-14	18-Mar-14																					
FNP25500	Completion of the Works of Section 2	0	0		18-Mar-14		18-Mar-14																					
Works for Section 3																												
North Point																												
E&M Equipment / Material Delivery on Site																												
FNP31100	Delivery of Seawater Pumps on Site	10	140	01-Aug-13	10-Aug-13	19-Dec-13	28-Dec-13																					
FNP31150	Delivery of Pipes, Valve, Penstock & Accessories	14	206	02-Jun-13	15-Jun-13	25-Dec-13	07-Jan-14																					
FNP31250	Delivery of Control & Instrumentation	10	55	25-Oct-13	03-Nov-13	19-Dec-13	28-Dec-13																					
Civil Works																												
Site Clearance & Prep. Works																												
FNP32050	Possession of NP-3 (after Sec. 1 completed)	0	0	02-Jun-13		02-Jun-13																						
FNP33100	Demolish Extg. Deodour. Plant & Screen Chamber	30	0	02-Jun-13	01-Jul-13	02-Jun-13	01-Jul-13																					
Foundation Works																												
FNP32150	Construct substructure of Seawater Pump. Station	30	60	02-Jul-13	31-Jul-13	31-Aug-13	29-Sep-13																					
RC Structural Works																												
FNP32160	Construct superstructural for Seawater Pump. St.	90	60	01-Aug-13	29-Oct-13	30-Sep-13	28-Dec-13																					
FNP32200	Construct Twin Seawater Pumping Main	90	0	02-Jul-13	29-Sep-13	02-Jul-13	29-Sep-13																					
FNP32350	Construct U/G Drains, Cable Pits & Ducting	90	0	30-Sep-13	28-Dec-13	30-Sep-13	28-Dec-13																					
Drainage Works																												
FNP32300	Laying pipes between FC-3,FC-3a,FC-3b &FC-4	40	105	02-Jul-13	10-Aug-13	15-Oct-13	23-Nov-13																					
FNP32310	Construct Chamber FC3a,FC-3,FC-4&Flume Channels	35	105	11-Aug-13	14-Sep-13	24-Nov-13	28-Dec-13																					
Road Works																												
FNP32320	Roadworks for PTW	60	65	24-Mar-14	22-May-14	28-May-14	26-Jul-14																					
Transplantation, landscape works																												
FNP32330	Planting and landscape works for PTW	80	65	23-May-14	10-Aug-14	27-Jul-14	14-Oct-14																					
Mechanical Installation																												
Electrical and Mechanical Works																												
FNP33150	Install Seawater Pump Sets	120	60	30-Oct-13	26-Feb-14	29-Dec-13	27-Apr-14																					
Electrical Installation																												
Electrical and Mechanical Works																												
FNP34150	Install Switchgear	30	0	29-Dec-13	27-Jan-14	29-Dec-13	27-Jan-14																					
FNP34250	Power Cables Laying	60	0	28-Jan-14	28-Mar-14	28-Jan-14	28-Mar-14																					
FNP34300	Install Earthing & Lightning System	55	35	28-Jan-14	23-Mar-14	04-Mar-14	27-Apr-14																					
Control and Monitoring System																												
FNP35100	Install DCS Outstation & Instrumentation	90	0	29-Dec-13	28-Mar-14	29-Dec-13	28-Mar-14																					
Building Services Installation																												
FNP36100	Install Building Services	60	0	27-Feb-14	27-Apr-14	27-Feb-14	27-Apr-14																					
Testing and Commissioning																												
FNP37100	T&C of Building Services and E&M Equipment	80	0	28-Apr-14	16-Jul-14	28-Apr-14	16-Jul-14																					
FNP37110	Final T&C of North Point PTW	30	0	17-Jul-14	15-Aug-14	17-Jul-14	15-Aug-14																					
FNP37115	Submission of Draft O&M Manuals for North Point	0	0	09-Jun-12*		08-Jun-12																						
FNP37116	Submission of Updated Draft O&M Manuals for North Point	0	0	16-Oct-12*		15-Oct-12																						
FNP37120	Modified O&M Manuals for North Point	60	30	17-Jul-14	14-Sep-14	16-Aug-14	14-Oct-14																					
FNP37125	Submission of Modified O&M Manuals for North Point	0	30		14-Sep-14		14-Oct-14																					
FNP37130	As-Built Drawings for North Point	60	30	17-Jul-14	14-Sep-14	16-Aug-14	14-Oct-14																					
FNP37140	FSD submission, application and inspection for North Point	60	0	16-Aug-14	14-Oct-14	16-Aug-14	14-Oct-14																					
FNP37150	Completion of the Works of Section 3	0	0		14-Oct-14		14-Oct-14																					
Water Supply from WSD for North Point PTW																												
Key Dates																												
FNP40000	Application for Water Connection	60	5	28-Apr-14	26-Jun-14	03-May-14	01-Jul-14																					
FNP40010	Inspection from representative of WSD	1	5	27-Jun-14	27-Jun-14	02-Jul-14	02-Jul-14																					
FNP40020	Release of Completion Certificate by WSD	7	5	28-Jun-14	04-Jul-14	03-Jul-14	09-Jul-14																					
FNP40030	Installation of Water Meter and Main line connection	7	5	05-Jul-14	11-Jul-14	10-Jul-14	16-Jul-14																					
Works for Section 4																												
Wan Chai East																												
Statutory Submission / Approval / Inspection																												
FWC00270	Application of temporary D.G. Store Licence	0	0	02-May-11		02-May-11																						
FWC00320	Approval of temp. D.G. Store Licence	30	0	02-May-11	31-May-11	02-May-11	31-May-11																					
FWC00370	Application of temp. D.G. Store Inspection	0	0	17-Aug-11		17-Aug-11																						
FWC00420	Temp. D.G. Store Inspection by FSD	35	0	17-Aug-11	20-Sep-11	17-Aug-11	20-Sep-11																					
FWC00470	Obtain Temp. D.G. Store Licence	0	0		20-Sep-11		20-Sep-11																					

Actual Work Remaining Work Critical Remaining Work Milestone

Activity ID	Activity Name	Original Duration	Total Float	Early Start	Early Finish	Late Start	Late Finish	2011 2012 2013 2014 2015 2016																											
								Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1		
Civil Works Material Delivery on Site																																			
FWC00500	Ordering of Temp. Workshop Material	7	0	02-May-11	08-May-11	02-May-11	08-May-11	■ Ordering of Temp. Workshop Material																											
FWC00550	Manufacturing / Shipment of Temp. Workshop	60	0	09-May-11	07-Jul-11	09-May-11	07-Jul-11	■ Manufacturing / Shipment of Temp. Workshop																											
FWC00600	Temp. Workshop Material Delivery on Site	10	0	08-Jul-11	17-Jul-11	08-Jul-11	17-Jul-11	■ Temp. Workshop Material Delivery on Site																											
Civil Works																																			
Site Clearance & Prep. Works																																			
FWC01100	Construct Temp. Workshop, General Store	60	0	18-Jul-11	15-Sep-11	18-Jul-11	15-Sep-11	■ Construct Temp. Workshop, General Store																											
FWC01150	Construct Temp. D.G. Store	30	0	18-Jul-11	16-Aug-11	18-Jul-11	16-Aug-11	■ Construct Temp. D.G. Store																											
Demolition Works																																			
FWC01450	Demolish Extg. Workshop, General & D.G. Store	60	0	20-Nov-11	18-Jan-12	20-Nov-11	18-Jan-12	■ Demolish Extg. Workshop, General & D.G. Store																											
Building Service Works																																			
FWC01200	Modify Extg. Office to new control room	180	0	20-May-11	15-Nov-11	20-May-11	15-Nov-11	■ Modify Extg. Office to new control room																											
FWC01205	Lay new cable trench for new control room	30	0	17-Sep-11	16-Oct-11	17-Sep-11	16-Oct-11	■ Lay new cable trench for new control room																											
FWC01210	Modify Ex. of f.pantry, locker rm. to new WSoft	90	0	19-Jul-11	16-Oct-11	19-Jul-11	16-Oct-11	■ Modify Ex. of f.pantry, locker rm. to new WSoft																											
FWC01220	Modify & install new staircase to G/F	90	0	19-Jul-11	16-Oct-11	19-Jul-11	16-Oct-11	■ Modify & install new staircase to G/F																											
Transplantation, landscape works																																			
FWC01050	2nos. Tree Transplant	28	31	20-May-11	16-Jun-11	20-Jun-11	17-Jul-11	■ 2nos. Tree Transplant																											
E&M Installation																																			
FWC01500	Temporary Relocation of Workshop	60	0	16-Sep-11	14-Nov-11	16-Sep-11	14-Nov-11	■ Temporary Relocation of Workshop																											
FWC01550	Temporary Relocation of D.G. Store	60	0	21-Sep-11	19-Nov-11	21-Sep-11	19-Nov-11	■ Temporary Relocation of D.G. Store																											
FWC01600	Relocate Existing Control Rm. to Modified Ctrl Rm	70	0	17-Oct-11	25-Dec-11	17-Oct-11	25-Dec-11	■ Relocate Existing Control Rm. to Modified Ctrl Rm																											
Testing and Commissioning																																			
FWC01650	T&C of Relocated Control System	34	0	26-Dec-11	28-Jan-12	26-Dec-11	28-Jan-12	■ T&C of Relocated Control System																											
FWC01700	Completion of the Works of Sec. 4(ii)	0	0		14-Nov-11		14-Nov-11	◆ Completion of the Works of Sec. 4(ii)																											
FWC01800	Completion of the Works of Sec. 4	0	0		28-Jan-12		28-Jan-12	◆ Completion of the Works of Sec. 4																											
Works for Section 5																																			
Wan Chai East																																			
Possession / Vacation of Portions																																			
FWC01860	Second Possession WCE-2	0	0	27-Jul-13		27-Jul-13		◆ Second Possession WCE-2																											
Statutory Submission / Approval / Inspection																																			
FWC02300	Application of D.G. Store License	0	0	29-Jan-12		29-Jan-12		◆ Application of D.G. Store License																											
FWC02350	Approval of D.G. Store License	30	0	29-Jan-12	27-Feb-12	29-Jan-12	27-Feb-12	■ Approval of D.G. Store License																											
FWC02400	Application of D.G. Store Inspection	0	101	29-Jun-13		08-Oct-13		◆ Application of D.G. Store Inspection																											
FWC02450	D.G. Store Inspection by FSD	35	101	01-Jul-13	04-Aug-13	10-Oct-13	13-Nov-13	■ D.G. Store Inspection by FSD																											
FWC02500	Obtain D.G. Store Licence	0	101		14-Aug-13		23-Nov-13	◆ Obtain D.G. Store Licence																											
FWC02600	Submit F314 (as-built) & F501	0	46	23-Aug-13		08-Oct-13		◆ Submit F314 (as-built) & F501																											
FWC02650	FSD Inspection	35	46	25-Aug-13	28-Sep-13	10-Oct-13	13-Nov-13	■ FSD Inspection																											
FWC02700	Issuance of F.S. Certificate	0	46		08-Oct-13		23-Nov-13	◆ Issuance of F.S. Certificate																											
Civil Works																																			
Site Clearance & Prep. Works																																			
FWC10100	Complete Demolish of Extg. Workshop, D.G. Store	0	0		18-Jan-12		18-Jan-12	◆ Complete Demolish of Extg. Workshop, D.G. Store																											
FWC10120	Site Utilities Supply	60	124	20-May-11	18-Jul-11	21-Sep-11	19-Nov-11	■ Site Utilities Supply																											
Demolition Works																																			
FWC10400	Demolition of Temp. Workshop & D.G. Store	21	0	06-Jul-13	26-Jul-13	06-Jul-13	26-Jul-13	■ Demolition of Temp. Workshop & D.G. Store																											
FWC10410	Install Instrumentation Monitoring Pts.	28	167	08-Jul-11	04-Aug-11	22-Dec-11	18-Jan-12	■ Install Instrumentation Monitoring Pts.																											
Site Investigation																																			
FWC10110	12 nos. Pre-drill holes	60	0	20-Nov-11	18-Jan-12	20-Nov-11	18-Jan-12	■ 12 nos. Pre-drill holes																											
Foundation Works																																			
FWC10150	24nos. socket H-piles	96	0	19-Jan-12	23-Apr-12	19-Jan-12	23-Apr-12	■ 24nos. socket H-piles																											
FWC10160	ELS for pile cap for New Admin. Bldg	28	0	24-Apr-12	21-May-12	24-Apr-12	21-May-12	■ ELS for pile cap for New Admin. Bldg																											
FWC10170	Construct pile cap for New Admin. Bldg.	48	0	22-May-12	08-Jul-12	22-May-12	08-Jul-12	■ Construct pile cap for New Admin. Bldg.																											
RC / Structural Works																																			
FWC10200	Construct New Admin. Bldg. Workshop & DG Store	48	0	09-Jul-12	25-Aug-12	09-Jul-12	25-Aug-12	■ Construct New Admin. Bldg. Workshop & DG Store																											
FWC10210	Construct columns & walls for new Admin. Bldg.,	48	0	19-Aug-12	05-Oct-12	19-Aug-12	05-Oct-12	■ Construct columns & walls for new Admin. Bldg.,																											
FWC10220	Construct roof slab for new Admin. Bldg.	48	0	06-Oct-12	22-Nov-12	06-Oct-12	22-Nov-12	■ Construct roof slab for new Admin. Bldg.																											
Building Service Works																																			
FWC10300	Fitting Out Electrical Works for New Ad.Bldg.	30	0	23-Nov-12	22-Dec-12	23-Nov-12	22-Dec-12	■ Fitting Out Electrical Works for New Ad.Bldg.																											
FWC10320	Fitting Out Mech. Works for New Ad.Bldg.	30	0	14-Dec-12	12-Jan-13	14-Dec-12	12-Jan-13	■ Fitting Out Mech. Works for New Ad.Bldg.																											
FWC10330	Fitting Out Works for New Workshop	30	0	13-Jan-13	11-Feb-13	13-Jan-13	11-Feb-13	■ Fitting Out Works for New Workshop																											
FWC10350	Construct Cable Pits & Ducting inside Bldg.	21	0	12-Feb-13	04-Mar-13	12-Feb-13	04-Mar-13	■ Construct Cable Pits & Ducting inside Bldg.																											
FWC10360	Construct Drains, cable& Ducting at roof slab	21	0	05-Mar-13	25-Mar-13	05-Mar-13	25-Mar-13	■ Construct Drains, cable& Ducting at roof slab																											
Architectural Works																																			
FWC10250	Int'l Finishes for new Bldg.	30	0	26-Mar-13	24-Apr-13	26-Mar-13	24-Apr-13	■ Int'l Finishes for new Bldg.																											
FWC10260	Installation windows, louvre, windows & doors	28	7	25-Apr-13	22-May-13	02-May-13	29-May-13	■ Installation windows, louvre, windows & doors																											
E&M Installation																																			
FWC21150	Relocate Control System, T&C	85	0	12-Apr-13	05-Jul-13	12-Apr-13	05-Jul-13	■ Relocate Control System, T&C																											
FWC21200	Relocate D.G. Store	30	7	30-May-13	28-Jun-13	06-Jun-13	05-Jul-13	■ Relocate D.G. Store																											
FWC21300	Relocate Workshop Facilities	75	4	18-Apr-13	01-Jul-13	22-Apr-13	05-Jul-13	■ Relocate Workshop Facilities																											
FWC21350	Completion of the Works for Section 5 (iv)	0	0		26-Jul-13		26-Jul-13	◆ Completion of the Works for Section 5 (iv)																											
Electrical Installation																																			
FWC10450	Modify Extg. Flow Distribution Chamber	30	0	27-Jul-13	25-Aug-13	27-Jul-13	25-Aug-13	■ Modify Extg. Flow Distribution Chamber																											
FWC10460	Modify Ex. Connection chamber incl. E&M works	30	0	27-Jul-13	25-Aug-13	27-Jul-13	25-Aug-13	■ Modify Ex. Connection chamber incl. E&M works																											
FWC10500	Install E&M Equipment in Flume Channels	45	0	26-Aug-13	09-Oct-13	26-Aug-13	09-Oct-13	■ Install E&M Equipment in Flume Channels																											

■ Actual Work ■ Critical Remaining Work
 ■ Remaining Work ◆ Milestone

Activity ID	Activity Name	Original Duration	Total Float	Early Start	Early Finish	Late Start	Late Finish	2011 2012 2013 2014 2015 2016																											
								Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1		
Building Service Installation																																			
FWC23250	Install Building Services	60	46	25-Apr-13	23-Jun-13	10-Jun-13	08-Aug-13																												
FWC23300	Install F.S. System	60	46	24-Jun-13	22-Aug-13	09-Aug-13	07-Oct-13																												
Testing and Commissioning																																			
FWC23350	Testing & Commissioning	45	0	10-Oct-13	23-Nov-13	10-Oct-13	23-Nov-13																												
FWC23400	Completion of the Works of Section 5	0	0		23-Nov-13		23-Nov-13																												
Works for Section 6																																			
Wan Chai East																																			
Possession / Vacation of Portions																																			
FWC30110	ST2 approval for working in Area WCE-5	0	338	05-Aug-11		08-Jul-12																													
Civil Works Material Delivery on Site																																			
FWC32100	Ordering of Building Materials	14	209	02-May-11	15-May-11	27-Nov-11	10-Dec-11																												
FWC32150	Manufacturing & Delivery of Building Materials	210	205	20-May-11	15-Dec-11	11-Dec-11	07-Jul-12																												
E&M Equipment / Material Delivery on Site																																			
FWC33100	Sewage Pumps Delivery on Site	10	371	07-Jul-12	16-Jul-12	13-Jul-13	22-Jul-13																												
FWC33150	Pipes & Valves Delivery on Site	14	127	04-Mar-12	17-Mar-12	09-Jul-12	22-Jul-12																												
FWC33200	Electrical Equipment Delivery on Site	7	59	01-Aug-12	07-Aug-12	29-Sep-12	05-Oct-12																												
FWC33250	Deodorization Equipment Delivery on Site	10	191	04-Jan-12	13-Jan-12	13-Jul-12	22-Jul-12																												
FWC33300	Control & monitoring Equipment Delivery on Site	14	97	29-Nov-12	12-Dec-12	06-Mar-13	19-Mar-13																												
Civil Works																																			
RC Structural Works																																			
FWC33310	Modify existing boundary wall	70	219	10-Mar-13	18-May-13	15-Oct-13	23-Dec-13																												
Transplantation, landscape works																																			
FWC33320	Planting and landscape works	90	30	24-Nov-13	21-Feb-14	24-Dec-13	23-Mar-14																												
Modification of Existing Fine Screen Grit Trap / Pumping Station Building																																			
FWC35100	Demolition works for existing Roof Landscape & Advertising Sign	90	205	16-Dec-11	14-Mar-12	08-Jul-12	05-Oct-12																												
FWC35110	Removal of Existing Pipes and Ladders	60	219	15-Mar-12	13-May-12	20-Oct-12	18-Dec-12																												
FWC35120	External Finishing Works	300	219	14-May-12	09-Mar-13	19-Dec-12	14-Oct-13																												
Mechanical Installation																																			
FWC50100	Install Sewage Pumps(phase 1)	50	202	02-Jan-13*	20-Feb-13	23-Jul-13	10-Sep-13																												
FWC50105	Install Pipes, Valves & Accessories (phase1)	50	202	02-Jan-13	20-Feb-13	23-Jul-13	10-Sep-13																												
FWC50110	Install Sewage Pumps(phase2)	50	0	01-Oct-13*	19-Nov-13	01-Oct-13	19-Nov-13																												
FWC50115	Install Pipes, Valves & Accessories (phase2)	50	0	01-Oct-13	19-Nov-13	01-Oct-13	19-Nov-13																												
FWC50120	Install Sewage Pumps(phase3)	50	0	10-Dec-13	28-Jan-14	10-Dec-13	28-Jan-14																												
FWC50125	Install Pipes, Valves & Accessories(phase3)	50	0	10-Dec-13	28-Jan-14	10-Dec-13	28-Jan-14																												
FWC50200	Lay new Deodorization pipeline/ducting	120	127	18-Mar-12	15-Jul-12	23-Jul-12	19-Nov-12																												
FWC50210	Install new Deodorization equipments	60	127	16-Jul-12	13-Sep-12	20-Nov-12	18-Jan-13																												
FWC50220	Connect the new Deod. system to PTW	30	127	14-Sep-12	13-Oct-12	19-Jan-13	17-Feb-13																												
FWC50230	Removal of existing Deod. system	30	127	14-Oct-12	12-Nov-12	18-Feb-13	19-Mar-13																												
Electrical Installation																																			
FWC50106	Electrical Modification on pumps (phase 1)	50	202	02-Jan-13	20-Feb-13	23-Jul-13	10-Sep-13																												
FWC50116	Electrical Modification on pumps (phase 2)	50	0	01-Oct-13	19-Nov-13	01-Oct-13	19-Nov-13																												
FWC50126	Electrical Modification on pumps (phase 3)	50	0	10-Dec-13	28-Jan-14	10-Dec-13	28-Jan-14																												
FWC51100	Install LV Switchboard	90	59	08-Aug-12	05-Nov-12	06-Oct-12	03-Jan-13																												
FWC51200	Install MCBs	75	59	06-Nov-12	19-Jan-13	04-Jan-13	19-Mar-13																												
FWC51500	Laying Power Cables (Including Termination)	60	74	17-Sep-13	15-Nov-13	30-Nov-13	28-Jan-14																												
Control and Monitoring System																																			
FWC52100	Install Control & Monitoring System	120	59	20-Jan-13	19-May-13	20-Mar-13	17-Jul-13																												
Building Services Installation																																			
FWC53100	Install Building Services	120	59	20-May-13	16-Sep-13	18-Jul-13	14-Nov-13																												
Testing and Commissioning																																			
FWC55000	T&C for Pump (Phase 1)	20	202	21-Feb-13	12-Mar-13	11-Sep-13	30-Sep-13																												
FWC55010	T&C for Pump (Phase 2)	20	0	20-Nov-13	09-Dec-13	20-Nov-13	09-Dec-13																												
FWC55020	T&C for Pump (Phase 3)	20	0	29-Jan-14	17-Feb-14	29-Jan-14	17-Feb-14																												
FWC55100	T&C of Building Services and E&M Equipment	30	0	29-Jan-14	27-Feb-14	29-Jan-14	27-Feb-14																												
FWC55110	Final T&C of Wan Chai East PTW	54	0	29-Jan-14	23-Mar-14	29-Jan-14	23-Mar-14																												
FWC55115	Submission of Draft O&M Manuals for Wan Chai East	0	0	19-Apr-12*		18-Apr-12																													
FWC55116	Submission of Updated Draft O&M Manuals for Wan Chai East	0	0	21-Nov-12*		21-Nov-12																													
FWC55120	Modified O&M Manuals for Wan Chai East	60	24	28-Feb-14	28-Apr-14	24-Mar-14	22-May-14																												
FWC55125	Submission of Modified Draft O&M Manuals for Wan Chai East	0	24		28-Apr-14		22-May-14																												
FWC55130	As-Built Drawings for Wan Chai East	60	24	28-Feb-14	28-Apr-14	24-Mar-14	22-May-14																												
FWC55140	FSD submission, application and inspection for Wan Chai East	60	0	24-Mar-14	22-May-14	24-Mar-14	22-May-14																												
FWC55150	Completion of the Works of Section 6	0	0		22-May-14		22-May-14																												
Water Supply from WSD for Wan Chai East PTW																																			
Key Dates																																			
FWC60000	Application for Water Connection	60	59	17-Sep-13	15-Nov-13	15-Nov-13	13-Jan-14																												
FWC60010	Inspection from representative of WSD	1	59	16-Nov-13	16-Nov-13	14-Jan-14	14-Jan-14																												
FWC60020	Release of Completion Certificate by WSD	7	59	17-Nov-13	23-Nov-13	15-Jan-14	21-Jan-14																												
FWC60030	Installation of Water Meter and Main line connection	7	59	24-Nov-13	30-Nov-13	22-Jan-14	28-Jan-14																												
Works for Section 7																																			
Central																																			
Possession / Vacation of Portions																																			
FCT00250	ST2 approval for working in Area CTL-4	0	431	29-Jul-11		02-Oct-12																													

Actual Work Remaining Work Critical Remaining Work Milestone

Activity ID	Activity Name	Original Duration	Total Float	Early Start	Early Finish	Late Start	Late Finish	2011 2012 2013 2014 2015 2016																											
								Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1		
E&M Equipment / Material Delivery on Site-1																																			
FCT01100	Main Sewage Pump Delivery on Site	10	137	08-May-12	17-May-12	22-Sep-12	01-Oct-12																												
FCT01150	Elect. & Associated Equip't Delivery on Site	14	58	10-Sep-12	23-Sep-12	07-Nov-12	20-Nov-12																												
FCT01200	Monitoring & Control Equipment Delivery on Site	10	72	31-Aug-12	09-Sep-12	11-Nov-12	20-Nov-12																												
E&M Installation																																			
FCT03200	Install sewage pump Ph1 & Associated equip.	50	0	02-Oct-12*	20-Nov-12	02-Oct-12	20-Nov-12																												
FCT03210	Modify connections on Pump Ph1	50	0	02-Oct-12	20-Nov-12	02-Oct-12	20-Nov-12																												
FCT03211	Electrical Modification on Pump Ph1	50	0	02-Oct-12	20-Nov-12	02-Oct-12	20-Nov-12																												
FCT03230	Install sewage pump Ph2 & Associated equip.	40	164	11-Dec-12	19-Jan-13	24-May-13	02-Jul-13																												
FCT03235	Modify connections on Pump Ph2	40	164	11-Dec-12	19-Jan-13	24-May-13	02-Jul-13																												
FCT03236	Electrical Modification on Pump Ph2	40	164	11-Dec-12	19-Jan-13	24-May-13	02-Jul-13																												
FCT03240	Install sewage pump Ph3 & Associated equip.	40	164	09-Feb-13	20-Mar-13	23-Jul-13	31-Aug-13																												
FCT03241	Modify connections on Pump Ph3	40	164	09-Feb-13	20-Mar-13	23-Jul-13	31-Aug-13																												
FCT03242	Electrical Modification on Pump Ph3	40	164	09-Feb-13	20-Mar-13	23-Jul-13	31-Aug-13																												
FCT03245	Install sewage pump Ph4 & Associated equip.	50	164	10-Apr-13	29-May-13	21-Sep-13	09-Nov-13																												
FCT03250	Modify connections on Pump Ph4	50	164	10-Apr-13	29-May-13	21-Sep-13	09-Nov-13																												
FCT03251	Electrical Modification on Pump Ph4	50	164	10-Apr-13	29-May-13	21-Sep-13	09-Nov-13																												
Control and Monitoring System																																			
FCT04350	Modify Extg. Monitoring & Control System	284	0	21-Nov-12	31-Aug-13	21-Nov-12	31-Aug-13																												
FCT04400	T&C of Monitoring & Control System	90	0	01-Sep-13	29-Nov-13	01-Sep-13	29-Nov-13																												
Testing and Commissioning																																			
FCT05100	T&C of Pump Phase 1	20	164	21-Nov-12	10-Dec-12	04-May-13	23-May-13																												
FCT05110	T&C of Pump Phase 2	20	164	20-Jan-13	08-Feb-13	03-Jul-13	22-Jul-13																												
FCT05120	T&C of Pump Phase 3	20	164	21-Mar-13	09-Apr-13	01-Sep-13	20-Sep-13																												
FCT05130	T&C of Pump Phase 4	20	164	30-May-13	18-Jun-13	10-Nov-13	29-Nov-13																												
FCT05150	Completion of the Works of Section 7	0	0		29-Nov-13		29-Nov-13																												
Works for Section 8																																			
Central																																			
Order / Manufacturing / Shipment / Delivery																																			
FCT07400	Order, Delivery of Screening & Grit Handling Sys.	135	0	23-Apr-11	04-Sep-11	23-Apr-11	04-Sep-11																												
FCT07450	Screening & Grit Handling Sys. Delivery on Site	10	0	05-Sep-11	14-Sep-11	05-Sep-11	14-Sep-11																												
Statutory Submission / Approval / Inspection																																			
FCT07300	Submit Temp. Works Proposal for PTW facilities	35	0	19-Feb-11	25-Mar-11	19-Feb-11	25-Mar-11																												
FCT07350	Approval of Temp. PTW Proposal	28	0	26-Mar-11	22-Apr-11	26-Mar-11	22-Apr-11																												
E&M Equipment / Material Delivery on Site																																			
FCT06300	Delivery of PTW Equip't for Temp. Works	10	0	05-Sep-11	14-Sep-11	05-Sep-11	14-Sep-11																												
FCT06350	PTW Equipment Delivery on Site	21	112	03-May-12	23-May-12	23-Aug-12	12-Sep-12																												
FCT06400	Pipes & Valves Delivery on Site	14	119	03-May-12	16-May-12	30-Aug-12	12-Sep-12																												
FCT06450	Electrical Equipment Delivery on Site	10	13	30-Sep-12	09-Oct-12	13-Oct-12	22-Oct-12																												
FCT06500	Deodorization Equipment Delivery on Site	10	20	14-Aug-12	23-Aug-12	03-Sep-12	12-Sep-12																												
FCT06550	Control & monitoring Equipment Delivery on Site	14	39	31-Aug-12	13-Sep-12	09-Oct-12	22-Oct-12																												
CTL-1 & CTL-2 Demolition / Modification Works																																			
Site Clearance & Prep. Works																																			
FCT07200	Erection of Fencing	14	75	19-Feb-11	04-Mar-11	05-May-11	18-May-11																												
FCT07210	Site Utilities Supply	60	75	19-Feb-11	19-Apr-11	05-May-11	03-Jul-11																												
Demolition Works																																			
FCT07550	Dismantle Extg. Screening & Grit Handling Sys.	45	15	15-Sep-11	29-Oct-11	30-Sep-11	13-Nov-11																												
FCT07650	Demolish Extg. Structure of Screening & Grit Sys	21	49	30-Oct-11	19-Nov-11	18-Dec-11	07-Jan-12																												
Transplantation, landscape works																																			
FCT07250	3nos. Tree Transplant	30	42	05-Jun-11	04-Jul-11	17-Jul-11	15-Aug-11																												
Temp. Works for Screening & Grit Handling																																			
FCT07700	Temp. Structure for Screening & Grit Handling Sys	60	42	05-Jul-11	02-Sep-11	16-Aug-11	14-Oct-11																												
FCT07800	Install Temp. Screening & Grit Handling Sys.	60	0	15-Sep-11	13-Nov-11	15-Sep-11	13-Nov-11																												
Civil Works																																			
Geotechnical / Structural Monitoring																																			
FCT07810	Install Instrumentation Monitoring Pts.	28	50	30-Apr-11	27-May-11	19-Jun-11	16-Jul-11																												
Foundation Works																																			
FCT08050	10nos. Pre-drill holes	55	0	14-Nov-11	07-Jan-12	14-Nov-11	07-Jan-12																												
FCT08100	Piling works for Fine Screen Bldg. G.L. A-D/1-5	85	0	08-Jan-12	01-Apr-12	08-Jan-12	01-Apr-12																												
FCT08150	ELS for pile cap for new F.S.Bldg.	26	0	02-Apr-12	27-Apr-12	02-Apr-12	27-Apr-12																												
FCT08160	Construction of pile cap for new F.S. Bldg.	28	0	28-Apr-12	25-May-12	28-Apr-12	25-May-12																												
RC Structural Works																																			
FCT08250	Construct base slab partial F.S./G.Trap Bldg.	20	0	26-May-12	14-Jun-12	26-May-12	14-Jun-12																												
FCT08260	Construct columns/walls partial F.S./G.T. Bldg.	30	0	15-Jun-12	14-Jul-12	15-Jun-12	14-Jul-12																												
FCT08270	Construct roof slab for partial F.S./G.T. Bldg.	30	0	15-Jul-12	13-Aug-12	15-Jul-12	13-Aug-12																												
FCT08300	Construct Grit Trap & Associated Channels	30	0	14-Aug-12	12-Sep-12	14-Aug-12	12-Sep-12																												
Drainage Works																																			
FCT08350	Relocate Extg. DN1600 Rising Mains	70	160	15-Jun-12	23-Aug-12	22-Nov-12	30-Jan-13																												
Building Service Works																																			
FCT09300	Int'l Finishes for E&M Rooms, Works Area	35	5	13-Sep-12	17-Oct-12	18-Sep-12	22-Oct-12																												
Architectural Works																																			
FCT09350	Ext'l Finishes for Fine Screen Bldg.	50	140	13-Sep-12	01-Nov-12	31-Jan-13	21-Mar-13																												
Mechanical Installation																																			

Actual Work Remaining Work Critical Remaining Work Milestone

Activity ID	Activity Name	Original Duration	Total Float	Early Start	Early Finish	Late Start	Late Finish	2011 2012 2013 2014 2015 2016																			
								Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1		
Electrical and Mechanical Works																											
FCT10050	Provision of Deod. facility to temp. Sr.&Grit	30	0	15-Oct-11	13-Nov-11	15-Oct-11	13-Nov-11																		■ Provision of Deod. facility to temp. Sr.&Grit		
Other Works																											
FCT07850	Provision of Deod. Facilities to F.S. Bldg.	160	0	13-Sep-12	19-Feb-13	13-Sep-12	19-Feb-13																		■ Provision of Deod. Facilities to F.S. Bldg.		
FCT10100	Install Fine Screen in F.S.Bldg.	160	0	13-Sep-12	19-Feb-13	13-Sep-12	19-Feb-13																		■ Install Fine Screen in F.S.Bldg.		
FCT10110	Install compactor equip. in F.S. Bldg.	160	0	13-Sep-12	19-Feb-13	13-Sep-12	19-Feb-13																		■ Install compactor equip. in F.S. Bldg.		
FCT10120	Install grit removal & conveyor in F.S. Bldg.	160	0	13-Sep-12	19-Feb-13	13-Sep-12	19-Feb-13																		■ Install grit removal & conveyor in F.S. Bldg.		
Electrical Installation																											
FCT11110	Electrical Installation	120	0	23-Oct-12	19-Feb-13	23-Oct-12	19-Feb-13																		■ Electrical Installation		
Control and Monitoring System																											
FCT12100	Install Monitoring & Control System	120	0	23-Oct-12	19-Feb-13	23-Oct-12	19-Feb-13																		■ Install Monitoring & Control System		
Building Service Installation																											
FCT13100	Building Services Installation	60	617	22-Dec-12	19-Feb-13	31-Aug-14	29-Oct-14																		■ Building Services Installation		
Testing and Commissioning																											
FCT14100	T&C of Fine Screen & Grit Trap System	30	0	20-Feb-13	21-Mar-13	20-Feb-13	21-Mar-13																		■ T&C of Fine Screen & Grit Trap System		
FCT14150	Completion of the Works of Section 8	0	0		21-Mar-13		21-Mar-13																		◆ Completion of the Works of Section 8		
Works for Section 9																											
Central																											
Possession / Vacation of Portions																											
FCT16150	Possession of Works Area CTL-3	0	0	22-Mar-13		22-Mar-13																			◆ Possession of Works Area CTL-3		
E&M Equipment / Material Delivery on Site																											
FCT19100	PTW Equipment Delivery on Site	14	64	25-Sep-13	08-Oct-13	28-Nov-13	11-Dec-13																		■ PTW Equipment Delivery on Site		
FCT19150	Pipes & Valves Delivery on Site	10	83	26-Aug-13	04-Sep-13	17-Nov-13	26-Nov-13																		■ Pipes & Valves Delivery on Site		
FCT19200	Electrical Equipment Delivery on Site	10	98	25-Sep-13	04-Oct-13	01-Jan-14	10-Jan-14																		■ Electrical Equipment Delivery on Site		
FCT19250	Control & monitoring Equipment Delivery on Site	14	49	25-Oct-13	07-Nov-13	13-Dec-13	26-Dec-13																		■ Control & monitoring Equipment Delivery on Site		
CTL-3 Demolition / Modification Works																											
Site Investigation																											
FCT20460	5 nos. of Pre-drill holes	20	0	10-May-13	29-May-13	10-May-13	29-May-13																		■ 5 nos. of Pre-drill holes		
Other Works																											
FCT20400	Dismantle Extg. PTW Sys. in Portion CTL-3	35	0	22-Mar-13	25-Apr-13	22-Mar-13	25-Apr-13																		■ Dismantle Extg. PTW Sys. in Portion CTL-3		
FCT20450	Excavate & removal Extg. Structure in CTL-3	14	0	26-Apr-13	09-May-13	26-Apr-13	09-May-13																		■ Excavate & removal Extg. Structure in CTL-3		
Temp. Works for Screening & Grit Handling																											
FCT21300	Demolish Temp. Screening Facilities in CTL-1	45	24	22-Mar-13	05-May-13	15-Apr-13	29-May-13																		■ Demolish Temp. Screening Facilities in CTL-1		
Civil Works																											
Foundation Works																											
FCT21500	Remaining 8 Nos. Piling works in CTL-3	30	0	30-May-13	28-Jun-13	30-May-13	28-Jun-13																		■ Remaining 8 Nos. Piling works in CTL-3		
FCT21700	ELS for pile cap for remaining S&G.Bldg.	14	0	29-Jun-13	12-Jul-13	29-Jun-13	12-Jul-13																		■ ELS for pile cap for remaining S&G.Bldg.		
FCT21710	Construct pile cap for remaining S&G.Bldg.	28	0	13-Jul-13	09-Aug-13	13-Jul-13	09-Aug-13																		■ Construct pile cap for remaining S&G.Bldg.		
Other Works																											
FCT21800	Construct remaining base slab - S & G Bldg.	30	0	10-Aug-13	08-Sep-13	10-Aug-13	08-Sep-13																		■ Construct remaining base slab - S & G Bldg.		
FCT21810	Construct remaining columns/walls - S&G Bldg.	30	0	09-Sep-13	08-Oct-13	09-Sep-13	08-Oct-13																		■ Construct remaining columns/walls - S&G Bldg.		
FCT21820	Construct remaining roof - F & G Bldg.	35	0	09-Oct-13	12-Nov-13	09-Oct-13	12-Nov-13																		■ Construct remaining roof - F & G Bldg.		
FCT30100	Int'l Finishes for E&M Rooms, Works Area	25	0	13-Nov-13	07-Dec-13	13-Nov-13	07-Dec-13																		■ Int'l Finishes for E&M Rooms, Works Area		
FCT30500	Ext'l Finishes for Fine Screen Bldg.	110	84	13-Nov-13	02-Mar-14	05-Feb-14	25-May-14																		■ Ext'l Finishes for Fine Screen Bldg.		
Mechanical Installation																											
FCT32100	Install PTW Equip't for Fine Screen Bldg.	105	4	08-Dec-13	22-Mar-14	12-Dec-13	26-Mar-14																		■ Install PTW Equip't for Fine Screen Bldg.		
FCT32200	Pipework for PTW System	120	0	27-Nov-13	26-Mar-14	27-Nov-13	26-Mar-14																		■ Pipework for PTW System		
Electrical Installation																											
FCT33100	Installation of Electrical System	75	34	08-Dec-13	20-Feb-14	11-Jan-14	26-Mar-14																		■ Installation of Electrical System		
Control and Monitoring System																											
FCT34100	Modify Monitoring & Control Sys. for Sec. 8 & 9	60	49	08-Dec-13	05-Feb-14	26-Jan-14	26-Mar-14																		■ Modify Monitoring & Control Sys. for Sec. 8 & 9		
FCT34200	Install Monitoring & Control System	60	19	08-Dec-13	05-Feb-14	27-Dec-13	24-Feb-14																		■ Install Monitoring & Control System		
FCT34300	T&C of Monitoring and Control System	30	19	06-Feb-14	07-Mar-14	25-Feb-14	26-Mar-14																		■ T&C of Monitoring and Control System		
Building Services Installation																											
FCT35100	Building Services Installation	60	19	08-Dec-13	05-Feb-14	27-Dec-13	24-Feb-14																		■ Building Services Installation		
Testing and Commissioning																											
FCT36100	T&C for PTW System	60	0	27-Mar-14	25-May-14	27-Mar-14	25-May-14																		■ T&C for PTW System		
FCT36110	FSD Submission, application and inspection for Fine Screen Bldg.	60	0	27-Mar-14	25-May-14	27-Mar-14	25-May-14																		■ FSD Submission, application and inspection for Fine Screen Bldg.		
FCT36200	Completion of the Works of Section 9	0	0		25-May-14		25-May-14																		◆ Completion of the Works of Section 9		
Works for Section 10																											
Central																											
Possession / Vacation of Portions																											
FCT40200	Possession of Works Area CTL-3	0	0	22-Mar-13		22-Mar-13																			◆ Possession of Works Area CTL-3		
Statutory Submission / Approval / Inspections																											
FCT40550	Submit F314(as-built) & F501 for FS Inspection	0	127		18-May-14		22-Sep-14																		◆ Submit F314(as-built) & F501 for FS Inspection		
FCT40600	F.S. Inspection	35	127	21-May-14	24-Jun-14	25-Sep-14	29-Oct-14																		■ F.S. Inspection		
FCT40650	Issuance of F.S. Certificate	0	127		24-Jun-14		29-Oct-14																		◆ Issuance of F.S. Certificate		
FCT40700	Application of D.G. Store License	0	109	10-May-13		27-Aug-13																			◆ Application of D.G. Store License		
FCT40710	Approval of D.G. Store License	30	109	10-May-13	08-Jun-13	27-Aug-13	25-Sep-13																		■ Approval of D.G. Store License		
FCT40800	Application of D.G. Store Inspection	0	32	29-May-14		30-Jun-14																			◆ Application of D.G. Store Inspection		
FCT40850	D.G. Store Inspection by FSD	35	32	31-May-14	04-Jul-14	02-Jul-14	05-Aug-14																		■ D.G. Store Inspection by FSD		
FCT40900	Obtain D.G. Store Licence	0	32		04-Jul-14		05-Aug-14																		◆ Obtain D.G. Store Licence		
E&M Equipment / Material Delivery on Site																											

■ Actual Work ■ Critical Remaining Work
■ Remaining Work ◆ Milestone

Activity ID	Activity Name	Original Duration	Total Float	Early Start	Early Finish	Late Start	Late Finish	2011 2012 2013 2014 2015 2016																									
								Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
FCT41100	Deodorization Equipment Delivery on Site	14	36	30-Nov-13	13-Dec-13	05-Jan-14	18-Jan-14																										
FCT41200	Electrical Equipment Delivery on Site	10	140	25-Oct-13	03-Nov-13	14-Mar-14	23-Mar-14																										
FCT41300	Control & monitoring Equipment Delivery on Site	14	82	25-Oct-13	07-Nov-13	15-Jan-14	28-Jan-14																										
Civil Works																																	
Demolition Works																																	
FCT42100	Extg. Screening & Grit Removal Sys. Demolished	0	0		09-May-13		09-May-13																										
FCT43550	Demolish Extg. Deodou. Sys. in CTL-4	25	9	28-Jul-14	21-Aug-14	06-Aug-14	30-Aug-14																										
Site Investigation																																	
FCT42110	18nos. Pre-drill holes	27	0	10-May-13	05-Jun-13	10-May-13	05-Jun-13																										
Foundation Works																																	
FCT42200	22nos socket H-piles for Deo. Rm. Gen./D.G.Store	70	0	06-Jun-13	14-Aug-13	06-Jun-13	14-Aug-13																										
FCT42300	ELS for pile cap for new Bldg.	14	0	15-Aug-13	28-Aug-13	15-Aug-13	28-Aug-13																										
FCT42310	Construct pile cap for new Bldg.	28	0	29-Aug-13	25-Sep-13	29-Aug-13	25-Sep-13																										
RC Structural Works																																	
FCT42400	Structure - Deodour. Rm., Gen. & D.G. Store	65	0	26-Sep-13	29-Nov-13	26-Sep-13	29-Nov-13																										
FCT42710	Modify the boundary walls	60	19	13-Jun-14	11-Aug-14	02-Jul-14	30-Aug-14																										
Drainage Works																																	
FCT42500	Construct Flume Channels	75	19	30-Nov-13	12-Feb-14	19-Dec-13	03-Mar-14																										
Building Service Works																																	
FCT42600	Int'l Finishes for E&M Rooms, Works Area	50	0	30-Nov-13	18-Jan-14	30-Nov-13	18-Jan-14																										
Architectural Works																																	
FCT42700	Ext'l Finishes for Deodou. & D.G. Bldg.	120	19	13-Feb-14	12-Jun-14	04-Mar-14	01-Jul-14																										
FCT42720	Planting & landscape works	60	9	22-Aug-14	20-Oct-14	31-Aug-14	29-Oct-14																										
Mechanical Installation																																	
FCT43100	Install Deodorization System in Portion CTL-3	130	0	19-Jan-14	28-May-14	19-Jan-14	28-May-14																										
FCT43200	Install Lifting Appliance	45	145	19-Jan-14	04-Mar-14	13-Jun-14	27-Jul-14																										
FCT43500	T&C - Deodour. Sys. in Portion CTL-4	45	24	29-May-14	12-Jul-14	22-Jun-14	05-Aug-14																										
Electrical Installation																																	
FCT44100	Install Electrical System	90	64	19-Jan-14	18-Apr-14	24-Mar-14	21-Jun-14																										
Control and Monitoring System																																	
FCT45100	Install New Control System	120	10	19-Jan-14	18-May-14	29-Jan-14	28-May-14																										
FCT45150	T&C of New Control System	60	0	29-May-14	27-Jul-14	29-May-14	27-Jul-14																										
Building Services Installation																																	
FCT46100	Install Building Services	120	59	19-Jan-14	18-May-14	19-Mar-14	16-Jul-14																										
Testing and Commissioning																																	
FCT47100	T&C of Building Services and E&M Equipment	34	0	28-Jul-14	30-Aug-14	28-Jul-14	30-Aug-14																										
FCT47110	Final T&C for Central	30	30	31-Aug-14	29-Sep-14	30-Sep-14	29-Oct-14																										
FCT47115	Submission of Draft O&M Manuals for Central	0	0	15-Jul-12*		14-Jul-12																											
FCT47116	Submission of Updated Draft O&M Manuals for Central	0	0	21-Aug-12*		21-Aug-12																											
FCT47120	Modified O&M for Central	60	0	31-Aug-14	29-Oct-14	31-Aug-14	29-Oct-14																										
FCT47125	Submission of Modified O&M for Central	0	0		29-Oct-14		29-Oct-14																										
FCT47130	As-Built Drawing for Central	60	0	31-Aug-14	29-Oct-14	31-Aug-14	29-Oct-14																										
FCT47140	FSD Submission, application and inspection for Central	60	0	31-Aug-14	29-Oct-14	31-Aug-14	29-Oct-14																										
FCT47150	Completion of the Works of Section 10	0	0		29-Oct-14		29-Oct-14																										
Water supply from WSD for Central PTW																																	
Key Dates																																	
FCT50000	Application for Water Connection	60	59	19-May-14	17-Jul-14	17-Jul-14	14-Sep-14																										
FCT50010	Inspection from representative of WSD	1	59	18-Jul-14	18-Jul-14	15-Sep-14	15-Sep-14																										
FCT50020	Release of Completion Certificate by WSD	7	59	19-Jul-14	25-Jul-14	16-Sep-14	22-Sep-14																										
FCT50030	Installation of Water Meter and Main line connection	7	59	26-Jul-14	01-Aug-14	23-Sep-14	29-Sep-14																										
Works for Section 11																																	
SCISTW																																	
Time for Completion																																	
FCT50100	Time for Completion of Section 11	1393	0	06-Jan-11	29-Oct-14	06-Jan-11	29-Oct-14																										
DCS Design Development																																	
FCT51000	Interface Management Plan Approved	0	43		14-Jul-11		26-Aug-11																										
FCT51100	Co-ordination with Interface Contractor	180	43	15-Jul-11	10-Jan-12	27-Aug-11	22-Feb-12																										
FCT52000	Prepare DCS Hardware & Software Design	120	43	11-Jan-12	09-May-12	23-Feb-12	21-Jun-12																										
FCT52050	Submit DCS Design for Approval	90	43	10-May-12	07-Aug-12	22-Jun-12	19-Sep-12																										
FCT52150	DCS Design Approved	0	43		07-Aug-12		19-Sep-12																										
FCT52200	DCS System Development	180	43	08-Aug-12	03-Feb-13	20-Sep-12	18-Mar-13																										
FCT52250	DCS Factory Test / Submit Test Report	60	43	04-Feb-13	04-Apr-13	19-Mar-13	17-May-13																										
DCS Installation																																	
FCT53300	DCS System Installation	60	43	05-Apr-13	03-Jun-13	18-May-13	16-Jul-13																										
FCT53350	Connection to Control Sys. under this Contract	290	43	04-Jun-13	20-Mar-14	17-Jul-13	02-May-14																										
FCT53400	T&C of the Whole of DCS	90	43	21-Mar-14	18-Jun-14	03-May-14	31-Jul-14																										
FCT53405	Draft O&M Manuals for DCS System	60	223	08-Aug-12	06-Oct-12	19-Mar-13	17-May-13																										
FCT53410	O&M for DCS Systems	90	43	19-Jun-14	16-Sep-14	01-Aug-14	29-Oct-14																										
FCT53420	As-Built Drawings for DCS System (Section 11)	60	73	19-Jun-14	17-Aug-14	31-Aug-14	29-Oct-14																										
FCT53450	Completion of the Works of Section 11	0	0		29-Oct-14*		29-Oct-14																										

Actual Work Remaining Work Critical Remaining Work Milestone