Gammon Construction Limited

Contract No. DC/2007/23 Harbour Area Treatment Scheme Stage 2A Construction of Sewage Conveyance System from North Point to Stonecutters Island: *Fifth Quarterly EM&A Report*

April 2011

Environmental Resources Management
21/F Lincoln House
979 King's Road
Taikoo Place
Island East, Hong Kong
Telephone: (852) 2271 3000
Facsimile: (852) 2723 5660
E-mail: post.hk@erm.com
http://www.erm.com

Gammon Construction Limited

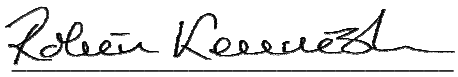
Contract No. DC/2007/23 Harbour Area Treatment Scheme Stage 2A Construction of Sewage Conveyance System from North Point to Stonecutters Island: *Fifth Quarterly EM&A Report*

April 2011

Reference 0104887

For and on behalf of
ERM-Hong Kong, Limited

Approved by: Dr Robin Kennish

Signed: 

Position: Director

Certified by: 
(Environmental Team Leader – Winnie Ko)

Date: 12 April 2011

Our ref KMY/AFK/TK/bw/T261332/22.01/L-0184
T 2828 5757
E Anne.Kerr@mottmac.com.hk
Your ref

Mott MacDonald

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

27 April 2011
By Fax (2833 9162) and 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/2007/23
Construction of Sewage Conveyance System from North Point to Stonecutters Island
Submission of 5th Quarterly EM&A Report for December 2010 to February 2011

We refer to the revised 5th Quarterly EM&A Report for December 2010 to February 2011 received on 30 March 2011 via email. We confirm we have no comment on the said report.

Yours faithfully
for MOTT MACDONALD HONG KONG LIMITED

Dr. Anne F Kerr
Independent Environmental Checker

c.c.	AECOM	Mr. Y H Fung	By email
	Gammon	Mr. Max Ko	By email
	ERM	Ms. Winnie Ko	By email

EXECUTIVE SUMMARY

The construction works of **DC/2007/23 of Harbour Area Treatment Scheme Stage 2A (HATS2A) - Construction of Sewage Conveyance System from North Point to Stonecutters Island (the Project)** commenced on 1 December 2009. This is the fifth quarterly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 1 December 2010 to 28 February 2011 in accordance with the EM&A Manual.

North Point Production and Drop Shafts

Summary of Construction Works undertaken during Reporting Period

The major construction works undertaken included:

- Rock blast and pre-excavation grouting at North Point Production Shaft;
- Shaft sinking at North Point Production Shaft and Drop Shaft; and
- Excavation of excavated marine sediments for further disposal at SYP site.

Environmental Monitoring and Audit Progress

A summary of the monitoring activities in this reporting period is listed below:

• 24-hour TSP Monitoring at each monitoring station (AM1 and AM2)	15 sets
• 1-hour TSP Monitoring at each monitoring station (AM1 and AM2)	45 sets
• Construction Noise Monitoring during Normal Weekdays at NM1	12 sets
• Construction Noise Monitoring during Restricted Hours at NM1	12 time
• Joint Environmental Site Inspection	12 times
• Landscape & Visual Monitoring	3 times

Air Quality

Fifteen sets of 24-hour TSP and forty-five sets of 1-hr TSP measurements were carried out at each of the designated monitoring stations during the reporting period. No exceedance was recorded during the reporting period.

Noise

Twelve sets of 30-minute construction noise measurements were carried out at the monitoring station NM1 during normal weekdays of the reporting period. Twelve sets of 3 x 5-minute construction noise measurements were carried out during restricted hours (between 0700 and 2300 hours on Sundays and public holidays) during the reporting period. Exceedances of limit level was recorded on 10 and 23 December 2010, 7 and 21 January 2011, and 18 February 2011.

Landscape & Visual

Landscape and visual monitoring commenced in December 2009. Details of the audit findings and implementation status are presented in *Section 3.5.3*.

Cultural Heritage

No vibration monitoring was required to be conducted for this reporting period as the blasting of tunnel / shaft works has not started.

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. A total of 30,992.17 tonnes of inert C&D materials, 143.92 tonnes of non-inert C&D materials, 1,200 litres of

chemical waste, and 208m^3 of marine deposit requiring type 1 disposal, 1,232m^3 of marine deposit requiring type 2 disposal, and 63.46 tonnes of marine deposit requiring type 3 disposal were generated for this Project during the reporting period. Non-inert C&D materials are made up of general refuse, steel materials and paper/cardboard packaging materials. The inert C&D materials and general refuse generated from the Project were disposed of at Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill, respectively. Paper/cardboard packaging generated was sent to recyclers for recycling. Marine deposit requiring type 1, type 2 and type 3 disposal methods generated from the Project were disposed of at MP21 with the South Cheung Chau Spoil Disposal Area, the East of Sha Chau Contaminated Mud Disposal and SENT Landfill respectively.

Environmental Site Inspection

Twelve weekly joint environmental site inspections were carried out by the representatives of the Contractor, the Engineer and the Environmental Team (ET). Details of the audit findings and implementation status are presented in *Section 3.6*.

Environmental Exceedance/Non-conformance/Complaint/Summons and Prosecution

Five exceedances of noise Limit Level during restricted hours was reported at NM1 on 10 and 23 December 2010, 7 and 21 January 2011, and 18 February 2011. Investigations into the incident was made and concluded that the road traffic noise in the vicinity of the Project was the major cause of the noise levels recorded. Although the exceedance was not caused by the Project, the Contractor of this Project was reminded to adhere strictly to the Construction Noise Mitigation Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to avoid exceedance of noise limit levels or causing noise nuisance.

No non-compliance event was recorded during the reporting period.

No environmental complaint, summon or prosecutions was received in this reporting period.

Wan Chai East Production and Drop Shaft

Summary of Construction Works undertaken during Reporting period

The major construction works undertaken included:

- Rock blast and pre-excavation grouting at Wan Chai East Production Shaft;
- Shaft sinking at Wan Chai East Production Shaft and Drop Shaft; and
- Excavation of excavated marine sediments for further disposal at SYP site.

Environmental Monitoring and Audit Progress

A summary of the monitoring activities in this reporting period is listed below:

• 24-hour TSP Monitoring at AM3	16 sets
• 1-hour TSP Monitoring at AM3	48 sets
• Construction Noise Monitoring during Normal Weekdays at NM2	13 sets
• Construction Noise Monitoring during Restricted hours at NM2	12 times
• Joint Environmental Site Inspection	12 times
• Landscape & Visual Monitoring	3 times

Air Quality

Sixteen sets of 24-hour TSP and forty-eight sets of 1-hr TSP measurements were carried out at the designated monitoring station during the reporting period. No exceedance was recorded during the reporting period.

Noise

Thirteen sets of 30-minute construction noise measurements were carried out at the monitoring station NM2 during normal weekdays of the reporting period. Twelve sets of 3 x 5-minute construction noise measurements were carried out during restricted hours (between 0700 and 2300 hours on Sundays and public holidays) during the reporting period. Exceedances of limit level were recorded on 10, 19, and 23 December 2010; 2, 7, 16, 21 and 30 January 2011; and 13, 18, and 27 February 2011.

Landscape & Visual

Landscape and visual monitoring commenced in December 2009. The recommended landscape and visual mitigation measures have been fully implemented and maintained. Details of the audit findings and implementation status are presented in *Section 4.5.3*.

Cultural Heritage

No vibration monitoring was required to be conducted for this reporting period as the blasting of tunnel / shaft works has not started.

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. A total of 30,992.17 tonnes of inert C&D materials, 143.92 tonnes of non-inert C&D materials, 1,200 litres of chemical waste, and 208m^3 of marine deposit requiring type 1 disposal, 1,232m^3 of marine deposit requiring Type 2 disposal, and 63.46 tonnes of marine deposit requiring Type 3 disposal were generated for this Project during the reporting period. Non-inert C&D materials are made up of general refuse, steel materials and paper/cardboard packaging materials. The inert C&D materials and general refuse generated from the Project were disposed of at Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill, respectively. Paper/cardboard packaging generated was sent to recyclers for recycling. Marine deposit requiring type 1, type 2 and type 3 disposal methods generated from the Project were disposed of at MP21 with the South Cheung Chau Spoil Disposal Area, the East of Sha Chau Contaminated Mud Disposal and SENT Landfill respectively.

Environmental Site Inspection

Twelve weekly joint environmental site inspections were carried out by the representatives of the Contractor, the Engineer and the Environmental Team (ET). Details of the audit findings and implementation status are presented in *Section 4.6*.

Environmental Exceedance/Non-conformance/Complaint/Summons and Prosecution

No exceedance of Action and Limit Levels of 1-hr and 24-hr TSP were recorded during the reporting period.

Eleven exceedances of noise Limit Level during restricted hours was reported at NM2 on 10, 19, and 23 December 2010; 2, 7, 16, 21 and 30 January 2011; and 13, 18, and 27 February 2011. Investigations into the incident was made and concluded that the road traffic noise in the vicinity of the Project was the major cause of the noise levels recorded. Although the exceedance was not caused by the Project, the Contractor of this Project was reminded to adhere strictly to the Construction Noise Mitigation Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to avoid exceedance of noise limit levels or causing noise nuisance.

No non-compliance event was recorded during the reporting period.

No environmental complaint and summon/prosecution was received in this reporting period.

Central Drop Shaft

Summary of Construction Works undertaken during reporting period

The major construction works undertaken included:

- Grouting and pumping test; and
- Shaft sinking

Environmental Monitoring and Audit Progress

A summary of the monitoring activities in this reporting period is listed below:

• 24-hour TSP Monitoring at AM4	16 sets
• 1-hour TSP Monitoring at AM4	48 sets
• Construction Noise Monitoring during Normal Weekdays at NM3	13 sets
• Joint Environmental Site Inspection	9 times
• Landscape & Visual Monitoring	3 times

Air Quality

Sixteen sets of 24-hour TSP and forty-eight sets of 1-hr TSP measurements were carried out at the designated monitoring station during the reporting period. No exceedance was recorded during the reporting period.

Noise

Thirteen sets of 30-minute construction noise measurements were carried out at the monitoring station NM3 during normal weekdays of the reporting period. No exceedance was recorded during the reporting period.

Landscape & Visual

Landscape and visual monitoring commenced in December 2009. Details of the audit findings and implementation status are presented in *Section 5.5.3*.

Cultural Heritage

No vibration monitoring was required to be conducted for this reporting period as the blasting of tunnel / shaft works has not started.

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. A total of 30,992.17 tonnes of inert C&D materials, 143.92 tonnes of non-inert C&D materials, 1,200 litres of chemical waste, and 208m^3 of marine deposit requiring type 1 disposal, 1,232m^3 of marine deposit requiring Type 2 disposal, and 63.46 tonnes of marine deposit requiring Type 3 disposal were generated for this Project during the reporting period. Non-inert C&D materials are made up of general refuse, steel materials and paper/cardboard packaging materials.

The inert C&D materials and general refuse generated from the Project were disposed of at Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill, respectively. Paper/cardboard packaging generated was sent to recyclers for recycling. Marine deposit requiring type 1, type 2 and type 3 disposal methods generated from the Project were disposed of at MP21 with the South Cheung Chau Spoil Disposal Area, the East of Sha Chau Contaminated Mud Disposal and SENT Landfill respectively.

Environmental Site Inspection

Nine weekly joint environmental site inspections were carried out by the representatives of the Contractor, the Engineer and the Environmental Team (ET). Details of the audit findings and implementation status are presented in *Section 5.6*.

Environmental Exceedance/Non-conformance/Complaint/Summons and Prosecution

No exceedance was recorded during the reporting period.

No non-compliance event was recorded during the reporting period.

No environmental complaint, summon or prosecutions was received in this reporting period.

Sai Ying Pun Junction Shaft

Summary of Construction Works undertaken during Reporting Month

The major construction works undertaken included:

- Shaft sinking;
- Construction of noise enclosure; and
- Marine dumping of excavated marine sediment.

Environmental Monitoring and Audit Progress

A summary of the monitoring activities in this reporting period is listed below:

• 24-hour TSP Monitoring at AM5	16 sets
• 1-hour TSP Monitoring at AM5	48 sets
• Construction Noise Monitoring during Normal Weekdays at NM4	13 sets
• Joint Environmental Site Inspection	9 times
• Landscape & Visual Monitoring	3 times

Air Quality

Sixteen sets of 24-hour TSP and forty-eight sets of 1-hr TSP measurements were carried out at the designated monitoring station during the reporting period. No exceedance was recorded during the reporting period.

Noise

Thirteen sets of 30-minute construction noise measurements were carried out at the monitoring station NM3 during normal weekdays of the reporting period. No exceedance was recorded during the reporting period.

Landscape & Visual

Landscape and visual monitoring commenced in December 2009. Details of the audit findings and implementation status are presented in *Section 6.5.3*.

Cultural Heritage

No vibration monitoring was required to be conducted for this reporting period as the blasting of tunnel / shaft works has not started.

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. A total of 30,992.17 tonnes of inert C&D materials, 143.92 tonnes of non-inert C&D materials, 1,200 litres of chemical waste, and 208m^3 of marine deposit requiring type 1 disposal, 1,232m^3 of marine deposit requiring Type 2 disposal, and 63.46 tonnes of marine deposit requiring Type 3 disposal were generated for this Project during the reporting period. Non-inert C&D materials are made up of

general refuse, steel materials and paper/cardboard packaging materials. The inert C&D materials and general refuse generated from the Project were disposed of at Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill, respectively. Paper/cardboard packaging generated was sent to recyclers for recycling. Marine deposit requiring type 1, type 2 and type 3 disposal methods generated from the Project were disposed of at MP21 with the South Cheung Chau Spoil Disposal Area, the East of Sha Chau Contaminated Mud Disposal and SENT Landfill respectively.

Environmental Site Inspection

Nine weekly joint environmental site inspections were carried out by the representatives of the Contractor, the Engineer and the Environmental Team (ET). Details of the audit findings and implementation status are presented in *Section 6.6*.

Environmental Exceedance/Non-conformance/Complaint/Summons and Prosecution

No exceedance was recorded during the reporting period.

No non-compliance event was recorded during the reporting period.

No environmental complaint, summon or prosecutions was received in this reporting period.

Stonecutters Island Production and Riser Shafts

Summary of Construction Works undertaken during Reporting Period

The major construction works undertaken included:

- Remedial grouting at Stonecutters Island Riser Shaft;
- Shaft sinking at Stonecutters Island Riser Shaft;
- Pre-treatment grouting for connecting adit at Stonecutters Island Production Shaft; and
- Construction of noise enclosure.

Environmental Monitoring and Audit Progress

A summary of the monitoring activities in this reporting period is listed below:

• 24-hour TSP Monitoring at AM6	16 sets
• 1-hour TSP Monitoring at AM6	48 sets
• Construction Noise Monitoring during Normal Weekdays at NM5	12 times
• Construction Noise Monitoring during Restricted Hours at NM5	13 times
• Joint Environmental Site Inspection	12 times
• Landscape & Visual Monitoring	3 times

Air Quality

Sixteen sets of 24-hour TSP and forth-eight sets of 1-hr TSP measurements were carried out at the designated monitoring station during the reporting period. No exceedance was recorded during the reporting period.

Noise

Twelve sets of 30-minute construction noise measurements were carried out at the monitoring station NM5 during normal weekdays of the reporting period. Thirteen sets of 3 x 5-minute construction noise measurements were carried out during restricted hours (between 0700 and 1900 hours on Sundays and public holidays) during the reporting period. No exceedance was recorded during the reporting period.

Landscape & Visual

Landscape and visual monitoring commenced in December 2009. Details of the audit findings and implementation status are presented in *Section 7.5.3*.

Cultural Heritage

No vibration monitoring was required to be conducted for this reporting period as the blasting of tunnel / shaft works has not started.

Waste Management

Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. A total of 30,992.17 tonnes of inert C&D materials, 143.92 tonnes of non-inert C&D materials, 1,200 litres of chemical waste, and 208m^3 of marine deposit requiring type 1 disposal, 1,232m^3 of marine deposit requiring Type 2 disposal, and 63.46 tonnes of marine deposit requiring Type 3 disposal were generated for this Project during the reporting period. Non-inert C&D materials are made up of general refuse, steel materials and paper/cardboard packaging materials. The inert C&D materials and general refuse generated from the Project were disposed of at Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill, respectively. Paper/cardboard packaging generated was sent to recyclers for recycling. Marine deposit requiring type 1, type 2 and type 3 disposal methods generated from the Project were disposed of at MP21 with the South Cheung Chau Spoil Disposal Area, the East of Sha Chau Contaminated Mud Disposal and SENT Landfill respectively.

Environmental Site Inspection

Twelve weekly joint environmental site inspections were carried out by the representatives of the Contractor, the Engineer and the Environmental Team (ET). Details of the audit findings and implementation status are presented in *Section 7.6*.

Environmental Exceedance/Non-conformance/Complaint/Summons and Prosecution

No exceendance was recorded during the reporting period.

No non-compliance event was recorded during the reporting period.

No environmental complaint, summon or prosecution was received in this reporting period.

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LIST OF ANNEXES

1 INTRODUCTION

ERM-Hong Kong, Limited (ERM) was appointed by Gammon Construction Limited (the Contractor) as an Environmental Team (ET) to undertake Environmental Monitoring and Audit (EM&A) programme for the Contract No. *DC/2007/23 of Harbour Area Treatment Scheme Stage 2A (HATS2A) - Construction of Sewage Conveyance System from North Point to Stonecutters Island (*the Project*).*

1.1 PURPOSE OF THE REPORT

This is the fifth quarterly EM&A report which summarizes the impact monitoring results and audit findings for the EM&A programme during the reporting period from **1 December 2010** to **28 February 2011**.

1.2 STRUCTURE OF THE REPORT

The structure of the report is as follows:

Section 1 : **Introduction**
details the scope and structure of the report.

Section 2 : **Project Information**
summarizes background and scope of the project, site description, project organization and contact details

Section 3 : **North Point Production and Drop Shafts**

- **Construction Activities**

summarizes the construction activities conducted during the reporting period.

- **Status of Environmental Approval Documents**

summarizes the environmental documents submissions under the EP condition during the reporting period.

- **Environmental Monitoring Requirement**

summarizes the environmental monitoring including monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, Event and Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

- **Implementation Status on Environmental Mitigation Measures**

summarizes the implementation of environmental protection measures during the reporting period.

- **Monitoring Results**

summarizes the monitoring results obtained in the reporting period.

- **Environmental Site Inspection**

summarizes the audit findings of the weekly site inspections undertaken within the reporting period.

- **Environmental Non-conformance**

summarizes any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 4 : **Wan Chai East Production and Drop Shafts**

- **Construction Activities**

summarizes the construction activities conducted during the reporting period.

- **Status of Environmental Approval Documents**

summarizes the environmental documents submissions under the EP condition during the reporting period.

- **Environmental Monitoring Requirement**

summarizes the environmental monitoring including monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, Event and Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

- **Implementation Status on Environmental Mitigation Measures**

summarizes the implementation of environmental protection measures during the reporting period.

- **Monitoring Results**

summarizes the monitoring results obtained in the reporting period.

- **Environmental Site Inspection**

summarizes the audit findings of the weekly site inspections undertaken within the reporting period.

- **Environmental Non-conformance**

summarizes any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 5 : **Central Drop Shaft**

- **Construction Activities**

summarizes the construction activities conducted during the reporting period.

- **Status of Environmental Approval Documents**

summarizes the environmental documents submissions under the EP condition during the reporting period.

- **Environmental Monitoring Requirement**

summarizes the environmental monitoring including monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, Event and Action Plans, environmental mitigation

measures as recommended in the EIA report and relevant environmental requirements.

- **Implementation Status on Environmental Mitigation Measures**

summarizes the implementation of environmental protection measures during the reporting period.

- **Monitoring Results**

summarizes the monitoring results obtained in the reporting period.

- **Environmental Site Inspection**

summarizes the audit findings of the weekly site inspections undertaken within the reporting period.

- **Environmental Non-conformance**

summarizes any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 6 : **Sai Ying Pun Junction Shaft**

- **Construction Activities**

summarizes the construction activities conducted during the reporting period.

- **Status of Environmental Approval Documents**

summarizes the environmental documents submissions under the EP condition during the reporting period.

- **Environmental Monitoring Requirement**

summarizes the environmental monitoring including monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, Event and Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

- **Implementation Status on Environmental Mitigation Measures**

summarizes the implementation of environmental protection measures during the reporting period.

- **Monitoring Results**

summarizes the monitoring results obtained in the reporting period.

- **Environmental Site Inspection**

summarizes the audit findings of the weekly site inspections undertaken within the reporting period.

- **Environmental Non-conformance**

summarizes any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 7 : **Stonecutters Island Production and Riser Shafts**

- **Construction Activities**

summarizes the construction activities conducted during the reporting period.

- **Status of Environmental Approval Documents**

summarizes the environmental documents submissions under the EP condition during the reporting period.

- **Environmental Monitoring Requirement**

summarizes the environmental monitoring including monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, Event and Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

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summarizes the audit findings of the weekly site inspections undertaken within the reporting period.

- **Environmental Non-conformance**

summarizes any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 8 : **Conclusions**

2 PROJECT INFORMATION

2.1 BACKGROUND AND GENERAL SITE DESCRIPTION

The Project comprises the construction of production shafts, drop shafts and riser shaft and approximately 12km of tunnel excavation from North Point via Sai Ying Pun to Stonecutters Island. Shafts vary in depth from 140m and 170m below ground with 10 - 12m diameter. Tunnel face area ranges from 16 m^2 to 23 m^2. Embedded drainage pipelines will be installed upon the completion of tunnel excavation.

Construction works to be carried out under this Contract include the following major items:

- construction of sewage conveyance system (SCS) from North Point Preliminary Treatment Works (NP PTW) to Stonecutters Island Sewage Treatment Works (SCI STW) via Wan Chai East Preliminary Treatment Works (WCE PTW), Central Preliminary Treatment Works (CEN PTW) and Fung Mat Street Sai Ying Pun (SYP) junction shaft;
- construction of drop shafts at NP PTW, WCE PTW and CEN PTW;
- construction of riser shaft at SCI STW;
- construction of junction shaft at SYP;
- construction of temporary production shafts at NP, WCE and SCI to provide access for the construction of SCS;
- construction of connection channels, pipes, chambers and tunnel connecting the proposed drop shafts / riser shaft to the facilities of the preliminary treatment works / sewage treatment works;
- carrying out survey of existing buildings, taking over of existing and installation of new piezometers and ground settlement markers and subsequent monitoring thereof and vibration monitoring along the alignment of the SCS;
- miscellaneous building, civil, electrical and mechanical works; and
- landscape works.

The potential environmental impacts of the Project have been studied in the *"Harbour Area Treatment Scheme (HATS) Stage 2A"* (EIAO Register No: AEIAR-121/2008). The EIA was approved on 2 June 2008 under the *Environmental Impact Assessment Ordinance* (EIAO) and an updated Environmental Permit (EP-322/2008/E) for the works was granted on 24 November 2010. Under the requirements of Condition 4.1 of Environmental Permit EP-322/2008/E, EM&A programme as set out in the EM&A Manual is required to be implemented.

The construction works of this Project commenced on 1 December 2009 and are scheduled to be completed by 2014.

The general layout plan of the Project is shown in *Annex A*.

2.2 *STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS AND REQUIRED SUBMISSIONS*

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since December 2009 is presented in *Table 2.1.*

Table 2.1 Summary of Environmental Licensing, Notification and Permit Status for the Contract [(a)]

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Environmental Permit	EP-322/2008	Expired on 10 July 2009	• Permit granted on 19 November 2008. • Superseded on 10 July 2009.
	EP-322/2008/A	Expired on 2 November 2009	• Permit granted on 10 July 2009. • Superseded on 2 November 2009.
	EP-322/2008/B	Expired on 14 May 2010	• Permit granted on 2 November 2009. • Superseded on 14 May 2010.
	EP-322/2008/C	Expired on 14 July 2010	• Permit granted on 14 May 2010 • Superseded on 14 July 2010.
	EP-322/2008/D	Expired on 24 November 2010	• Permit granted on 14 July 2010 • Superseded on 24 November 2010
	EP-322/2008/E	Throughout the Contract	• Permit granted on 24 November 2010
Notification of Construction Works under Air Pollution Control (Construction Dust) Regulation	--	04 August 2009 – 06 November 2013	• Reference number for Notification Pursuant to APC (Construction Dust) Regulation: 308136
Marine Dumping Permits			
Type 1 Marine Deposit	EP/MD/11-136	20 February 2011 – 29 June 2011	-
Type 2 Marine Deposit	EP/MD/11-118	14 January 2011 – 13 February 2011	Permit has been applied on 25 February 2011.
Type 3 Marine Deposit	8771	23 July 2010 – 22 January 2011	No marine dumping permit is required as marine deposits requiring Type 3 disposal is not anticipated. Should marine deposits

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
			require Type 3 disposal, Type 3 disposal permit will be applied.

Note:

(a) The status on environmental licensing and permit for each worksite is discussed in the following sections.

Status of required submissions under the EP during the reporting period is presented in *Table 2.2*.

Table 2.2 Status of Required Submission for all Sites

EP Condition	Submission	Submission Date
Condition 1.11	Notification on Commencement of Construction of the Project	17 November 2009
Condition 2.3	Notification on Management Organization of the Main Construction Company	18 September 2009
Condition 4.3	Submission of Baseline Monitoring Report (final version incorporating comments from EPD)	18 December 2009
Condition 4.4	Submission of thirteenth Monthly EM&A Report	14 January 2011
	Submission of fourteenth Monthly EM&A Report	16 February 2011
	Submission of fifteenth Monthly EM&A Report	14 March 2011

2.3 PROJECT ORGANISATION

The project organization chart and contact details are shown in *Annex B*.

3.1 CONSTRUCTION ACTIVITIES DURING THE REPORTING PERIOD

A summary of the major construction activities undertaken in this reporting period is shown in *Table 3.1*. The locations of the construction activities are shown in *Annex C1*.

Table 3.1 Summary of Construction Activities Undertaken from 1 December 2010 to 28 February 2011 at North Point Production and Drop Shafts

Worksite	Construction Activities Undertaken
Production Shaft	• Shaft sinking • Rock blast and pre-excavation grouting
Drop Shaft	• Shaft sinking • Excavation of excavated marine sediments for further disposal at SYP site

3.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since December 2009 is presented in *Table 3.2*.

Table 3.2 Summary of Environmental Licensing, Notification and Permit Status at North Point Production and Drop Shafts

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Wastewater Discharge License	North Point PTW Drop Shaft WT00005153-2009	12 October 2009 - 31 October 2014	--
	North Point Production Shaft WT00007055-2010	9 July 2010 - 31 March 2015	--
Chemical Waste Producer Registration	North Point Production Shaft 5213-153-G2484-01	--	--
	North Point PTW Drop Shaft 5213-153-G2483-01	--	--
Construction Noise Permit	North Point Production Shaft GW-RS0847-10	30 September 2010 – 29 December 2010	Superseded by GW-RS1050-10
	North Point Production Shaft GW-RS1050-10	26 November 2010 – 25 May 2011	--
	North Point PTW Drop Shaft GW-RS0057-10	1 February 2010 - 31 July 2010	Superseded by GW-RS0610-10
	North Point PTW Drop	31 July 2010 – 30	No CNP is required as no

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
	Shaft GW-RS0610-10	January 2011	construction works will take place during restricted hours after January 2011

3.3 ENVIRONMENTAL MONITORING REQUIREMENTS

3.3.1 Air Quality Monitoring

Monitoring Location

In accordance with the EM&A Manual, 24-hour and 1-hour Total Suspended Particulates (TSP) levels should be conducted at designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual were rejected or not available, alternative locations, therefore, were proposed and agreed by the ER and the IEC. Due to security issue of the High Volume Sampler (HVS) mounted on the existing monitoring location (rooftop of WSD office) especially under adverse weather conditions, an alternative location which is one floor below the existing rooftop was identified and agreed by ER and IEC in July 2010.

The construction air quality monitoring stations for this Contract are listed in *Table 3.3* and shown in *Annex C2*.

Table 3.3 Construction Phase Air Monitoring Location at North Point Production and Drop Shafts

Worksite	Construction Air Quality Monitoring Stations			
	ID in EM&A Manual	ID	Location	Remark
North Point	-	AM1	Chan's Creative School (formerly known as Madam Chan Wai Chow Memorial School)	• Access for station setup to K.Wah Centre (CM_NP1) and Tin Chiu Street Children's Playground (CM_NP3) was rejected.
	CM_NP2	AM2	Hong Kong & Islands Regional Office, WSD	

Monitoring Parameters, Frequency and Programme

Air quality monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual (*Table 3.4*).

Table 3.4 TSP Monitoring Parameter and Frequency

Parameter	Frequency
24-hour TSP	Once in every 6 days
1-hour TSP	3 times in every 6 days

Monitoring Equipment

Continuous 24-hour and three 1-hour TSP monitoring were performed using High Volume Samplers (HVS) with appropriate sampling inlets installed and located at the designated monitoring station. The performance specification of HVS complied with the standard method "*Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*" as stipulated in *US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B)*. *Table 3.5* summarizes the equipment that were deployed for the 24-hour and 1-hour TSP monitoring respectively.

Table 3.5 TSP Monitoring Equipment for North Point Production and Drop Shafts Sites

Monitoring Station	Monitoring Equipment (HVS and Calibrator)
24-hr and 1-hr TSP	
AM1	GMW GS-2310 (S/N 1808), CM-AIR-43 (S/N 9833620)
AM2	GMW GS-2310 (S/N 0145), CM-AIR-43 (S/N 9833620)

Monitoring Methodology

Installation

The setup locations of the HVSs at monitoring stations were listed in *Table 3.3*. All HVSs were free-standing with no obstruction.

The following criteria were considered in the installation of the HVSs:

- appropriate support to secure the samplers against gusty wind were provided at AM1 and AM2;
- a minimum of 2m separation from walls, parapets and penthouses was required for rooftop samplers;
- no furnace or incinerator flues were nearby;
- airflow around the sampler was unrestricted; and
- permission was obtained to set up the samplers and to gain access to the monitoring stations.

Preparation of Filter Papers

- glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected;
- all filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was 40%; and
- SGS Hong Kong Ltd, a HOKLAS accredited laboratory, implements comprehensive quality assurance and quality control programmes.

Field Monitoring

- the power supply was checked to ensure that the HVSs were working properly;
- the filter holder and the area surrounding the filter were cleaned;
- the filter holder was removed by loosening the foul bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully;
- the filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter;
- the swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges;
- then the shelter lid was closed and secured with the aluminium strip;
- the HVSs were warmed-up for about 5 minutes to establish run-temperature conditions;
- a new flowrate record sheet was set into the flow recorder;
- the flow rates of the HVSs were checked and adjusted to between 1.22 - 1.37 m^3min^{-1} which were within the range specified in the EM&A Manual (ie 0.6 – 1.7 m^3min^{-1});
- the programmable timer was set for a sampling period of 24 hours ± 1 hour, and the starting time, weather condition and the filter number were recorded;
- the initial elapsed time was recorded;
- at the end of sampling, the sampled filter was removed carefully and folder in half length so that only surfaces with collected particulate matter were in contact;
- it was then placed in a clean plastic envelope and sealed;
- all monitoring information was recorded on a standard data sheet; and
- filters were sent to SGS Hong Kong Ltd for analysis.

Maintenance and Calibration

- the HVSs and their accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply; and
- the flow rate of each HVS with mass flow controller were calibrated using an orifice calibrator. Initial calibrations of the dust monitoring

equipments were conducted upon installation and prior to commissioning. Five-point calibration was carried out for HVSs using CM-AIR-43 Calibration Kit. HVSs are calibrated on a bi-monthly basis. The calibration records for the HVSs are given in *Annex H*.

Wind Data Monitoring

The nearest weather station to North Point Production and Drop Shafts is Kai Tak Station. Average wind data (wind speed and wind direction) during the monitoring period were obtained from the meteorological station at Kai Tak of the Hong Kong Observatory (HKO) and are presented in *Annex C4*.

Action and Limit Levels

The Action and Limit levels have been established and presented in *Table 3.6*.

Table 3.6 Action and Limit Levels for Air Quality at North Point Production and Drop Shafts

Parameter	Air Monitoring Station	Action Level, μgm^{-3}	Limit Level, μgm^{-3}
24-hour TSP	AM1	185	260
	AM2	182	260
1-hour TSP	AM1	340	500
	AM2	352	500

Event and Action Plan

The Event and Action Plan (EAP) for air quality monitoring is presented in *Annex I*.

3.3.2 Noise Monitoring

Monitoring Location

In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual were rejected or not available; alternative locations, therefore, were proposed and agreed by the ER and the IEC. Construction activities during restricted hours (1900 – 2300 on weekdays and 0700 – 2300 on public holidays and Sundays) have commenced in August 2010. As the constraint of Chan's Creative School's schedule (closed from 1900 to 0700 on normal week days and from 0000 to 2400 on public holidays as well as Sundays), the school (noise monitoring station NM1) is not accessible during restricted hours and noise monitoring during restricted hours would therefore be conducted on the pedestrian walkway adjacent to the school boundary along Tin Chiu Street, which was agreed by ER and IEC. The construction noise monitoring location for this Contract is listed in *Table 3.7* and is shown in *Annex C2*.

Table 3.7 ***Construction Phase Noise Monitoring Station at North Point Production and Drop Shafts***

Worksite	Proposed Construction Noise Monitoring Station				
	ID in EM&A Manual	**ID**	**Location**	**Type of Measurement**	**Remark**
North Point	M1	NM1	Rooftop of Chan's Creative School (formerly known as Madam Chan Wai Chow Memorial School)	Façade	0700 to 1900 on normal weekdays
			Pedestrian walkway adjacent to Chan's Creative School (formerly known as Madam Chan Wai Chow Memorial School) boundary along Tin Chiu Street	Façade	Restricted hours

Monitoring Parameters, Frequency and Programme

Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. Additional noise monitoring were also conducted as per required in the EM&A Manual when works were carried out during restricted periods.

The construction noise levels were measured in terms of A-weighted equivalent continuous sound pressure level (L_{eq}) in decibels dB(A). $L_{eq\ (30min)}$ were used as the monitoring parameter for the time period in between 0700 – 1900 hours on normal weekdays, and $L_{eq\ (5min)}$ were used as the monitoring parameter for all restricted periods. Supplementary information for data auditing, two statistical sound levels L_{10} and L_{90}; the levels exceeded for 10 and 90 percent of the time respectively, were also recorded during the monitoring for reference. The measured noise levels were logged in every 5 minutes throughout the impact monitoring period.

Monitoring Equipment and Methodology

Construction noise measurements were conducted in accordance with the calibration and measurement procedures as stated in *Annex – General Calibration and Measurement Procedures* of *Technical Memorandum on Noise from Construction Work other than Percussive Piling* (*GW-TM*) issued under the *Noise Control Ordinance* (*NCO*) (Cap.400).

The sound level meters and calibrator used for the noise measurement, as listed in *Table 3.8*, complies with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

Table 3.8 Noise Monitoring Equipment at North Point Production and Drop Shafts

Monitoring Station	Monitoring Equipment (Sound Level Metre and Calibrator)
NM1	• Calibrator: Rion NC-73 (S/N 10997142) • Sound Level Meters: Rion NL-31 (S/N 00410224) or Rion NL-31 (S/N 00983400)

Immediately prior to and following the noise measurements, the accuracy of the measurement equipment was checked using an acoustic calibrator generating a known sound pressure level at a known frequency.

Measurements were accepted as the calibration level from before and after the noise measurement agree to within 1.0 dB.

Action and Limit Levels

The action and limit levels for noise monitoring during different monitoring periods are summarized in *Table 3.9*.

Table 3.9 Action and Limit Levels for Noise Monitoring at North Point Production and Drop Shafts

Noise Monitoring Location	Measurement Parameter	Noise Criteria (dB(A))	Remark
NM1	$L_{eq(30mins)}$	70	During normal teaching period
	$L_{eq(30mins)}$	69 [(a)]	During the school examination period
	$L_{eq(30mins)}$	75	During school holidays
	$L_{eq(5mins)}$	70	Evening (1900-2300); and Sundays and public holidays (0700-2300)
	$L_{eq(5mins)}$	55	Night-time (2300-0700)

Note:

(a) With reference to the Baseline Monitoring Report, the average $L_{Aeq,30min}$ measured at NM1 between 0700 and 1900 hours is 69.0 dB(A), exceeding the Limit Level of daytime construction noise during examination periods (65 dB(A)), it will therefore be adopted as the Limit Level during the examination period at NM1.

Event and Action Plan

The Event and Action Plan (EAP) for noise monitoring is presented in *Annex I*.

3.3.3 Cultural Heritage

No vibration monitoring is required for this reporting period as no blasting of tunnel / shaft works was carried out.

3.3.4 Landscape and Visual Monitoring

In accordance with the EM&A Manual, landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures are fully achieved. The landscape and visual monitoring is carried out on site within the environmental site inspection. The monitoring procedures and criteria as described in the EM&A Manual were adopted.

Event and Action Plan

The Event and Action Plan (EAP) for landscape and visual monitoring is presented in *Annex I*.

3.4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status during the reporting period is summarized in *Annex C3*.

3.5 MONITORING RESULTS

3.5.1 Air Quality

A total of fifteen sets of 24-hour and forty-five sets of 1-hour TSP measurements were carried out at each of AM1 and AM2 during the reporting period. The monitoring data for 24-hour TSP and 1-hour TSP together with wind data and graphical presentations are presented in *Annex C4*.

The weather condition during the monitoring period varied from sunny to rainy. The local impacts near the monitoring stations of AM1 to AM2 were mainly associated with vehicle emissions. No exceedance of Action and Limit Levels of 1-hr and 24-hr TSP were recorded during the reporting period.

3.5.2 Noise

A total of twelve sets of 30-minute construction noise measurements were carried out at the monitoring station NM1 during normal weekdays of the reporting period. Twelve sets of 3 x 5-minute construction noise measurements were carried out during restricted hours (between 0700 and 1900 hours on Sundays and public holidays) in the reporting period. The monitoring results together with graphical presentations are presented in *Annex C5*. The local impacts observed near the monitoring stations of NM1 included traffic noise from King's Road, Java Road and nearby roads; school bell rings; student noise and the construction works by other parties undertaken in the vicinity. The local impacts during restricted hours observed included traffic noise from King's Road, Java Road and nearby roads and the construction works by other parties undertaken in the vicinity.

Exceedances of the limit level were recorded during restricted hours on 10 and 23 December 2010, 7 and 21 January 2011, and 18 February 2011. Investigations have been conducted to review the potential causes for the noise level recorded. A summary of the investigation results is presented in *Section 3.7.1*.

3.5.3 Landscape and Visual

In accordance with the EM&A Manual, monthly landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures are fully achieved. The monitoring has commenced since December 2009 during weekly site inspections. No major findings were observed during the reporting period.

3.5.4 Cultural Heritage

No vibration monitoring was conducted for this reporting period as the blasting of tunnel / shaft works have not started.

3.5.5 Waste Management

Waste generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials and marine deposit. Non-inert C&D materials are made up of general refuse, steel and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. Marine deposits requiring type 1, type 2, and type 3 disposal methods were generated. Reference has been made on the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*).

The waste statistics provided in this section represent the cumulative quantity of wastes generated from all sites in this Project. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in *Table 3.10*. The inert C&D materials and general refuse generated from the Project were disposed of at Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill respectively. 252 kg of paper/cardboard packaging was generated during the reporting period. Marine deposit requiring type 1, type 2, and type 3 disposal generated from the Project were disposed of at MP21 within the South Cheung Chau Spoil Disposal Area, the East of Sha Chau Contaminated Mud Disposal, and SENT Landfill, respectively, during the reporting period.

Table 3.10 Quantities of Waste Generated from the Project for all Sites

Month / Year	Quantity					
	C&D Materials (inert) [a]	C&D Materials (non-inert) [b]	Chemical Waste	Marine Deposit [c]		
				Type 1 disposal	Type 2 disposal	Type 3 disposal
December 2010 – February 2011	30,992.17 tonnes	143.92 tonnes	1,200 L	208 m^3	1,232 m^3	63.46 tonnes

Notes:

(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil. No inert C&D material was reused in this Project during the reporting period. Non-reused inert C&D materials were disposed of at the Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/ Chai Wan Barging Point.

(b) Non-inert C&D materials include steel, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. The non-inert C&D materials other than steel and paper/cardboard packaging were disposed of at SENT Landfill. No steel material and 252kg of paper/cardboard packaging were sent to recyclers for recycling during the reporting period.

(c) Marine deposits requiring types 1, 2, and 3 disposal methods generated from the Project were disposed of at MP21 within the South Cheung Chau Spoil Disposal Area, the East of Sha Chau Contaminated Mud Disposal, and SENT Landfill, respectively.

3.6 ENVIRONMENTAL SITE INSPECTION

Weekly site inspections were carried out by the representatives of the Contractor, Engineer and the ET. Thirteen site inspections were conducted on 2, 9, 16, 23 and 29 December 2010; 6, 13, 20 and 27 January 2011; and 1, 10, 17 and 24 February 2011. There was no non-compliance recorded during this reporting period.

Major findings and recommendations are summarized as follows:

North Point Production Shaft

- On 16 December, drip trays were observed to be absent for chemical drums. The Contractor was reminded to provide drip trays to avoid potential spillages.
- On 29 December, a small container of chemical waste was placed on the ground adjacent to the chemical waste storage. The access to the chemical waste storage was also blocked by construction materials. The Contractor immediately relocated the chemical waste container into the chemical waste storage. The Contractor was also recommended to clear the access to the chemical waste storage to facilitate usage of chemical waste storage by workers on site.
- On 29 December, empty spray paint cans were observed in the skip for waste metal storage. The Contractor immediately removed the cans from the skip. The Contractor was also recommended to provide toolbox talks and to brief workers about proper waste sorting practices on site.
- On 13 January, a drum of chemical was placed on the ground without drip tray. The Contractor was recommended to provide drip tray for the temporary storage of chemicals on site to avoid potential land

contamination from accidental spillages. Besides, one empty drum of chemical waste was placed adjacent to the chemical waste cabinet. The empty drum should be stored inside the chemical waste cabinet. Access to the chemical waste cabinet should also be provided and kept tidy by the Contractor.

- On 13 January, stagnant water was observed at the southeast corner of the site. Stagnant water should be removed as soon as possible to avoid mosquitoes breeding as part of a good housekeeping practice.
- On 27 January, oil stain was observed on the ground at the production shaft site. It is recommended to clear the oil stain and to dispose of as chemical wastes via licensed collectors. The Contractor was also recommended to investigate the source of the oil stain as soon as possible to avoid future leakages.
- On 10 February, non-metallic items were observed in a skip for stockpiling collected metals/steel materials near the north-western corner of site. The Contractor immediately removed the non-metallic items from the skip. The Contractor was recommended to provide toolbox talks briefing workers on proper material sorting practices on site.
- On 17 February, non-metallic items were not observed in the skip for stockpiling collected metals / steel materials since being cleared last week.
- On 24 February, aluminium cans were observed to have been put inside the collection cage of plastic bottles. The Contractor is recommended to remind the site workers to dispose of the general waste properly according to the designated collection bins provided on site for easier waste sorting through the tool-box talk.

North Point Drop Shaft

- On 2 December, It was observed storage of marine sediments were not properly labeled. It is recommended to label the storage of marine sediments so that the disposal option can be easily distinguished.
- On 13 January, stagnant water was observed near the site fencing area. Stagnant water should be removed after raining to prevent water flowing outside of the site.

Follow-up actions were undertaken as reported by the Contractor and observed in the site inspection conducted in the reporting period.

3.7 ENVIRONMENTAL NON-CONFORMANCE

3.7.1 Summary of Monitoring Exceedance

No exceedance of the Action and Limit Levels of 1-hour and 24-hour TSP were recorded at monitoring stations during the reporting period.

Five exceedances of noise criteria during restricted hours was reported at NM1 on 10 and 23 December 2010, 7 and 21 January 2011, and 18 February 2011. Investigations into the incident was made and concluded that the road traffic noise in the vicinity of the Project was the major cause of the noise levels recorded. Although the exceedance was not caused by the Project, the

Contractor of this Project was reminded to adhere strictly to the Construction Noise Mitigation Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to avoid exceedance of noise limit levels or causing noise nuisance.

Table 3.11 Summary of Record of Exceedance at North Point Production and Drop Shafts and Investigations into the incidents

Station	Record of Exceedance	Result of Investigation
NM1	Exceedance of Limit Level on 10 December 2010 (23:06 - 23:21)	Observations during the noise monitoring indicated that there were no outdoor construction activities at North Point Production and Drop Shafts. Meanwhile, with reference to the works summary provided by the Contractor, there were no construction works taking place during the noise monitoring session. It is believed that the measured noise level was dominant by the continual traffic noise on Java Road. Based on the above, the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site.
NM1	Exceedance of Limit Level on 23 December 2010 (23:08 -23:23)	Observations during the noise monitoring indicated that there were no outdoor construction activities at North Point Production and Drop Shafts. Meanwhile, with reference to the works summary provided by the Contractor, there were no construction works taking place during the noise monitoring session. It is believed that the measured noise level was dominant by the continual traffic noise on Java Road. Based on the above, the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site.

Station	Record of Exceedance	Result of Investigation
NM1	Exceedance of Limit Level on 7 January 2011 (23:00 - 23:15)	Observations during the noise monitoring indicated that there were no outdoor construction activities at North Point Production and Drop Shafts. Traffic noise on Java Road was noticed. Meanwhile, with reference to the works summary provided by the Contractor, on-going construction works in the production shaft included winder operation and the drilling and splitting of rocks at the Production Shaft. All of these activities were conducted within the noise enclosure and were carried out according to the Construction Noise Permits (CNP GW-RS0847-10 and GW-RS0610-10). No work was conducted at the drop shaft. The range of baseline noise level (Leq,5 min) at NM1, which comprises predominantly contributions from road traffic noise, during the period of 2300 to 0700 hrs during nighttime was 56.2 to 76.6 dB(A). Based on the above, the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site.
NM1	Exceedance of Limit Level on 21 January 2011 (23:00 -23:15)	Observations during the noise monitoring indicated that there were no outdoor construction activities at North Point Production and Drop Shafts. Traffic noise on Java Road was noticed. Meanwhile, with reference to the works summary provided by the Contractor, major ongoing work at the Production Shaft included operation in the Tally Room and gas testing. No noisy works were conducted during the time of monitoring. All works were carried out according to the Construction Noise Permits (CNP GW-RS0847-10 and GWRS0610-10). No work was conducted at the drop shaft. The range of baseline noise level (Leq,5 min) at NM1, which comprises predominantly contributions from road traffic noise, during the period of 2300 to 0700 hrs during nighttime was 56.2 to 76.6 dB(A). Based on the above, the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site.

Station	Record of Exceedance	Result of Investigation
NM1	Exceedance of Limit Level on 18 February 2011 (23:00 -23:15)	Observations during the noise monitoring indicated that no outdoor construction activities at North Point Production and Drop Shafts were observed. It was observed that the measured noise level was attributable to the continued traffic noise on Java Road. With reference to the works summary provided by the Contractor, the construction works taking place during the noise monitoring session included winder operation and drilling of blasting holes (production & perimeter) at the shaft floor. These activities were carried out inside the noise enclosure. Since all works were carried out according to the Construction Noise Permits (CNP GW-RS1045-10 and GW-RS0971-10), it is believed that the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site.

3.7.2 Summary of Environmental Non-Compliance

No non-compliance event was recorded during the reporting period.

3.7.3 Summary of Environmental Complaint

No complaint was received during the reporting period. The cumulative complaints log is shown in *Annex C6*.

3.7.4 Summary of Environmental Summon and Successful Prosecution

No summon or prosecution was received during the reporting period. The cumulative summon and prosecution log is shown in *Annex C6*.

4.1 CONSTRUCTION ACTIVITIES DURING THE REPORTING PERIOD

A summary of the major construction activities undertaken in this reporting period is shown in *Table 4.1*. The locations of the construction activities are shown in *Annex D1*.

Table 4.1 Summary of Construction Activities Undertaken from 1 December 2010 to 28 February 2011 at Wan Chai East Production and Drop Shafts

Worksite	Construction Activities Undertaken
Production Shaft	• Shaft sinking • Rock blast and pre-excavation grouting
Drop Shaft	• Shaft sinking • Excavation of excavated marine sediments for disposal to SYP site for further disposal

4.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since December 2009 is presented in *Table 4.2*.

Table 4.2 Summary of Environmental Licensing, Notification and Permit Status at Wan Chai East Production and Drop Shafts

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Wastewater Discharge License	Wan Chai East Production Shaft and Drop Shaft WT00007023-2010	13 July 2010 - 31 October 2014	--
Chemical Waste Producer Registration	Wan Chai East Production Shaft and Drop Shaft 5213-135-G2308-03	--	--
Construction Noise Permit	Wan Chai East Drop Shaft GW-RS0041-10	20 January 2010 - 19 July 2010	Superseded by GW-RS0618-10
	Wan Chai East Drop Shaft GW-RS0618-10	20 July 2010 - 18 January 2011	--
	Wan Chai East Production Shaft GW-RS0728-10	17 August 2010 – 11 February 2011	Superseded by GW-RS0971-10
	Wan Chai East Production Shaft GW-RS0971-10	1 November 2010 – 30 April 2011	

4.3 ENVIRONMENTAL MONITORING REQUIREMENTS

4.3.1 Air Quality Monitoring

Monitoring Location

In accordance with the EM&A Manual, 24-hour and 1-hour Total Suspended Particulates (TSP) levels should be conducted at designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual were rejected or not available, alternative locations, therefore, were proposed and agreed by the ER and the IEC. The construction air quality monitoring station for this Contract is listed in *Table 4.3* and shown in *Annex D2*.

Table 4.3 Construction Phase Air Monitoring Location at Wan Chai East Production and Drop Shafts

Worksite	Construction Air Quality Monitoring Station			
	ID in EM&A Manual	ID	Location	Remark
Wan Chai East	-	AM3	Rooftop of Wan Chai East PTW	• The rooftop of Society for the Prevention of Cruelty to Animals building (CM_WC1) was crowded with existing facilities (eg water tanks) that setup of HVSs for baseline monitoring is not feasible.

Monitoring Parameters, Frequency and Programme

Air quality monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual (*Table 4.4*).

Table 4.4 TSP Monitoring Parameter and Frequency at Wan Chai East Production and Drop Shafts

Parameter	Frequency
24-hour TSP	Once in every 6 days
1-hour TSP	3 times in every 6 days

Monitoring Equipment

Continuous 24-hour and 1-hour TSP monitoring were performed using High Volume Samplers (HVS) with appropriate sampling inlets installed, located at the designated monitoring station. The performance specification of HVS complied with the standard method "*Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*" as stipulated in *US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B)*. *Table 4.5* summarizes the equipment that was deployed for the 24-hour and 1-hour TSP monitoring.

Table 4.5 TSP Monitoring Equipment at Wan Chai East Production and Drop Shafts

Monitoring Station	Monitoring Equipment (HVS and Calibrator)
24-hr and 1-hr TSP	
AM3	GMW GS-2310 (S/N 0481), CM-AIR-43 (S/N 9833620)

Monitoring Methodology

Installation

The setup location of the HVS at monitoring stations was listed in *Table 4.3*. The HVS was free-standing with no obstruction.

The following criteria were considered in the installation of the HVSs:

- appropriate support to secure the sampler against gusty wind was provided at AM3;
- a minimum of 2m separation from walls, parapets and penthouses was required for rooftop samplers;
- no furnace or incinerator flues were nearby;
- airflow around the sampler was unrestricted; and
- permission was obtained to set up the samplers and to gain access to the monitoring stations.

Preparation of Filter Papers

- glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected;
- all filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was 40%; and
- SGS Hong Kong Ltd, a HOKLAS accredited laboratory, implements comprehensive quality assurance and quality control programmes.

Field Monitoring

- the power supply was checked to ensure that the HVSs were working properly;
- the filter holder and the area surrounding the filter were cleaned;
- the filter holder was removed by loosening the foul bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully;

- the filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter;
- the swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges;
- then the shelter lid was closed and secured with the aluminium strip;
- the HVSs were warmed-up for about 5 minutes to establish run-temperature conditions;
- a new flowrate record sheet was set into the flow recorder;
- the flow rates of the HVSs were checked and adjusted to between 1.22 - 1.37 m^3min^{-1} which were within the range specified in the EM&A Manual (ie 0.6 – 1.7 m^3min^{-1});
- the programmable timer was set for a sampling period of 24 hours ± 1 hour, and the starting time, weather condition and the filter number were recorded;
- the initial elapsed time was recorded;
- at the end of sampling, the sampled filter was removed carefully and folder in half length so that only surfaces with collected particulate matter were in contact;
- it was then placed in a clean plastic envelope and sealed;
- all monitoring information was recorded on a standard data sheet; and
- filters were sent to SGS Hong Kong Ltd for analysis.

Maintenance and Calibration

- the HVSs and their accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply; and
- the flow rate of each HVS with mass flow controller were calibrated using an orifice calibrator. Initial calibrations of the dust monitoring equipments were conducted upon installation and prior to commissioning. Five-point calibration was carried out for HVSs using CM-AIR-43 Calibration Kit. HVSs are calibrated on a bi-monthly basis. The calibration record for the HVS is given in *Annex H*.

Wind Data Monitoring

The nearest weather station to Wan Chai East Production and Drop Shafts is King's Park Station. Average wind data (wind speed and wind direction) during the monitoring period were obtained from the meteorological station

at King's Park of the Hong Kong Observatory (HKO) and are presented in *Annex D4*.

Action and Limit Levels

The Action and Limit levels have been established and presented in *Table 4.6*.

Table 4.6 Action and Limit Levels for Air Quality at Wan Chai East Production and Drop Shafts

Parameter	Air Monitoring Station	Action Level, μgm^{-3}	Limit Level, μgm^{-3}
24-hour TSP	AM3	181	260
1-hour TSP	AM3	355	500

Event and Action Plan

The Event and Action Plan (EAP) for air quality monitoring is presented in *Annex I*.

4.3.2 Noise Monitoring

Monitoring Location

In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual were rejected or not available; alternative locations, therefore, were proposed and agreed by the ER and the IEC. The construction noise monitoring location for this Contract is listed in *Table 4.7* and is shown in *Annex D2*.

Table 4.7 Construction Phase Noise Monitoring Station at Wan Chai East Production and Drop Shafts

Worksite	Construction Noise Monitoring Station				
	ID in EM&A Manual	ID	Location	Type of Measurement	Remark
Wan Chai East	-	NM2	Rooftop of Hyde Building	Façade	• No guaranteed access for equipment set-up due to no caretaker of Kei Wah Building (M2) • Alternative location, NM2, is located next to Kei Wah Building and is also the background noise monitoring station in the HATS2A EIA study.

Monitoring Parameters, Frequency and Programme

Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. Additional noise monitoring were also conducted as per required in the EM&A Manual when works were carried out during restricted periods.

The construction noise levels were measured in terms of A-weighted equivalent continuous sound pressure level (L_{eq}) in decibels dB(A). $L_{eq\ (30min)}$ were used as the monitoring parameter for the time period in between 0700 – 1900 hours on normal weekdays, and $L_{eq\ (5min)}$ were used as the monitoring parameter for all restricted periods. Supplementary information for data auditing, two statistical sound levels L_{10} and L_{90}; the levels exceeded for 10 and 90 percent of the time respectively, were also recorded during the monitoring for reference. The measured noise levels were logged in every 5 minutes throughout the impact monitoring period.

Monitoring Equipment and Methodology

Construction noise measurements were conducted in accordance with the calibration and measurement procedures as stated in *Annex – General Calibration and Measurement Procedures* of *Technical Memorandum on Noise from Construction Work other than Percussive Piling* (*GW-TM*) issued under the *Noise Control Ordinance* (*NCO*) (Cap.400).

The sound level meters and calibrator used for the noise measurement, as listed in *Table 4.8*, complies with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

Table 4.8 Noise Monitoring Equipment at Wan Chai East Production and Drop Shafts

Monitoring Station	Monitoring Equipment (Sound Level Metre and Calibrator)
NM2	• Calibrator: Rion NC-73 (S/N 10786708) or Rion NC-73 (S/N 10997142) or B&K4231 (S/N 2699361) • Sound Level Meters: Rion NL-31 (S/N 00320533) or Rion NL-31 (S/N 00410224) or Rion NL-31 (S/N 00983400)

Immediately prior to and following the noise measurements, the accuracy of the measurement equipment was checked using an acoustic calibrator generating a known sound pressure level at a known frequency.

Measurements were accepted as the calibration level from before and after the noise measurement agree to within 1.0 dB.

Action and Limit Levels

The action and limit levels for noise monitoring during different monitoring periods are summarized in *Table 4.9*.

Table 4.9 ***Action and Limit Levels for Noise Monitoring at Wan Chai East Production and Drop Shafts***

Noise Monitoring Location	Measurement Parameter	Noise Criteria (dB(A))	Remark
NM2	$L_{eq(30mins)}$	75	Normal working hours during weekdays
	$L_{eq(5mins)}$	70	Evening (1900-2300); and Sundays and public holidays (0700-2300)
	$L_{eq(5mins)}$	55	Night-time (2300-0700)

Event and Action Plan

The Event and Action Plan (EAP) for noise monitoring is presented in *Annex I*.

4.3.3 Cultural Heritage

No vibration monitoring is required for this reporting period as no blasting of tunnel / shaft works was carried out.

4.3.4 Landscape and Visual Monitoring

In accordance with the EM&A Manual, landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures are fully achieved. The landscape and visual monitoring is carried out on site within the environmental site inspection. The monitoring procedures and criteria as described in the EM&A Manual were adopted.

Event and Action Plan

The Event and Action Plan (EAP) for landscape and visual monitoring is presented in *Annex I*.

4.4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status during the reporting period is summarized in *Annex D3*.

4.5 MONITORING RESULTS

4.5.1 Air Quality

A total of sixteen sets of 24-hour and forty-eight sets of 1-hour TSP measurements were carried out at AM3 during the reporting period. The monitoring data for 24-hour TSP and 1-hour TSP together with wind data and graphical presentations are presented in *Annex D4*.

The weather condition during the monitoring period varied from sunny to rainy. The local impacts near the monitoring stations of AM3 were mainly associated with vehicle emissions. No exceedance of Action and Limit Levels of 1-hr and 24-hr TSP were recorded during the reporting period.

4.5.2 Noise

A total of thirteen sets of 30-minute construction noise measurements were carried out at the monitoring station NM2 during normal working hours of weekdays of the reporting period. Twelve sets of 3 x 5-minute construction noise measurements were carried out during restricted hours (between 0700 and 1900 hours on Sundays and public holidays) during the reporting period. The monitoring results together with graphical presentations are presented in *Annex D5*. The local impacts observed near the monitoring stations of NM2 were noise from traffic movement on Gloucester Road and Hung Hing Road and occasional helicopter landing on the helipad at Hung Hing Road.

Exceedances of the limit level were recorded for eleven sets of noise measurements during restricted hours at NM2. Investigations have been conducted to review the potential causes for the noise level recorded. A summary of the investigation results is presented in *Section 4.7.1*.

4.5.3 Landscape and Visual

Implementation and maintenance of landscape and visual mitigation measures are fully achieved and no major findings were observed during the reporting month.

4.5.4 Cultural Heritage

No vibration monitoring was conducted for this reporting period as the blasting of tunnel / shaft works have not started.

4.5.5 Waste Management

Waste generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials and marine deposit. Non-inert C&D materials are made up of general refuse, steel and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. Marine deposits requiring type 1, type 2, and type 3 disposal methods were generated. Reference has been made on the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*).

The waste statistics provided in this section represent the cumulative quantity of wastes generated from all sites in this Project. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in *Table 4.10*. The inert C&D materials and general refuse generated from the Project were disposed of at Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai

Wan Barging Point and SENT Landfill respectively. 252 kg of paper/cardboard packaging was generated during the reporting period. Marine deposit requiring type 1, type 2, and type 3 disposal generated from the Project were disposed of at MP21 within the South Cheung Chau Spoil Disposal Area, the East of Sha Chau Contaminated Mud Disposal, and SENT Landfill, respectively, during the reporting period.

Table 4.10 Quantities of Waste Generated from the Project for all Sites

Month / Year	Quantity					
	C&D Materials (inert) [a]	C&D Materials (non-inert) [b]	Chemical Waste	Marine Deposit [c]		
				Type 1 disposal	Type 2 disposal	Type 3 disposal
December 2010 – February 2011	30,992.17 tonnes	143.92 tonnes	1,200 L	208 m^3	1,232 m^3	63.46 tonnes

Notes:

(d) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil. No inert C&D material was reused in this Project during the reporting period. Non-reused inert C&D materials were disposed of at the Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/ Chai Wan Barging Point.

(e) Non-inert C&D materials include steel, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. The non-inert C&D materials other than steel and paper/cardboard packaging were disposed of at SENT Landfill. No steel material and 252kg of paper/cardboard packaging were sent to recyclers for recycling during the reporting period.

(f) Marine deposits requiring types 1, 2, and 3 disposal methods generated from the Project were disposed of at MP21 within the South Cheung Chau Spoil Disposal Area, the East of Sha Chau Contaminated Mud Disposal, and SENT Landfill, respectively.

4.6 ENVIRONMENTAL SITE INSPECTION

Weekly site inspections were carried out by the representatives of the Contractor, Engineer and the ET. Thirteen site inspections were conducted 2, 9, 16, 23, and 29 December 2010; 6, 13, 20 and 27 January 2011; and 1, 10, 17, and 24 February 2011. There was no non-compliance recorded during the site inspections.

Major findings and recommendations are summarized as follows:

Wan Chan East Production Shaft

- On 23 December, clothing was observed to be hanging on a tree. The Contractor was recommended to remove the clothing hung from the tree.
- On 23 December, fence at the tree near the site office was broken. The Contractor was reminded to fix the fence immediately.
- On 23 December, drip tray for a chemical drum was observed to be absent. The Contractor was reminded to provide drip trays for chemical drums in order to avoid spillages.
- On 29 December, an oil stain was observed on concrete flooring under a piece of equipment which was under repair. The Contractor immediately

cleared the oil stain with oil absorbent. The Contractor was recommended to dispose of the oil absorbent as chemical waste via licensed collector.

- On 13 January, a drain was found blocked near the noise enclosure on site and stagnant water was observed at the spot. Materials that blocked the drain should be cleared as soon as possible, and any excess water should be drained away by the Contractor to avoid mosquito breeding as part of a good house-keeping practice.
- On 20 January, chemical drums were placed on the ground without drip tray. The Contractor was recommended to provide drip tray for the temporary storage of chemicals on site to avoid potential land contamination from accidental spillages.
- On 1 February, tyre tracks were observed outside the site entrance on Wan Shing Street. Wheel-wash was not implemented for trucks leaving the site. The Contractor was recommended to clear the tyre tracks as soon as possible and implement wheel wash for trucks leaving the work site at all times to avoid carrying over soil and grit outside site area.
- On 1 February, an oil hose was hooked to the chemical waste storage without spillage containment measures. The Contractor was recommended to relocate the oil hose to a location with spillage containment measure as soon as possible. The Contractor was also recommended to clear and dispose of spillages, if any, via licensed parties as chemical wastes.
- On 10 February, wheel-wash was still not implemented for trucks leaving the site. The Contractor was also recommended to implement wheel wash for trucks leaving the work site at all times to avoid carrying over soil and grit outside site area.

Wan Chai East Drop Shaft

- On 16 December, rusty water was observed near an excavator. The Contractor was reminded to clear the rusty water caused by rain water washes off the machines.
- On 23 December, recycling bins were observed to be put in a fenced area. The Contractor was reminded that proper access for the recycling bins should be made available.
- On 13 January, stagnant water was observed near the site fencing area. Stagnant water should be removed after raining to prevent water flowing outside of the site.
- On 20 January, the fencing of a retained tree on site was observed to be damaged. The Contractor was recommended to repair fencing for retained trees to ensure the no-trespass zone is clearly defined and therefore avoiding potential damages to retained trees from works.
- On 27 January, soil was piled up without covering by sheets at the northern boundary of the drop shaft site. In order to avoid wind-blown dust generated and site runoffs in rainy weather, the soil should be temporarily stored away the site boundary or drainage and covered with tarpaulin sheets.
- On 24 February, water was observed dripping from a tap/hose at the northern site boundary of the site. To avoid it flowing out of the site, the

Contractor is recommended to repair the water tap/hose as soon as possible.

Follow-up actions were undertaken as reported by the Contractor and observed in the weekly site inspection conducted in the reporting period.

4.7 ENVIRONMENTAL NON-CONFORMANCE

4.7.1 Summary of Monitoring Exceedance

No exceedance of the Action and Limit Levels of 1-hour TSP and 24-hour TSP were recorded at monitoring stations during the reporting period.

Eleven exceedances of noise Limit Level during restricted hours was reported at NM2 on 10, 19, and 23 December 2010; 2, 7, 16, 21 and 30 January 2011; and 13, 18, and 27 February 2011. Investigations into the incident was made and concluded that the road traffic noise in the vicinity of the Project was the major cause of the noise levels recorded. Although the exceedance was not caused by the Project, the Contractor of this Project was reminded to adhere strictly to the Construction Noise Mitigation Plan and to implement all relevant noise mitigation measures recommended or specified in the EIA, EM&A Manual, EMP, Method Statements, General and Particular Specifications of this Project to avoid exceedance of noise limit levels or causing noise nuisance.

Table 4.11 Summary of Record of Exceedance at Wan Chai East Production and Drop Shafts and Investigations into the incidents

Station	Record of Exceedance	Result of Investigation
NM2	Exceedance of Limit Level on 10 December 2010 (23:19 - 23:34)	Observations during the noise monitoring indicated that there were no outdoor construction activities of Wan Chai East Production and Drop Shafts. With reference to the works summary provided by the Contractor, the works being undertaken at Wan Chai East Production Shaft during the monitoring period was pumping water from shaft bottom. The construction works were carried out inside the noise enclosed area. No construction works took place during the monitoring session at Wan Chai East Drop Shaft. All works were carried out according to the Construction Noise Permits (CNP GW-RS0618-10 and GW-RS0971-10). It was believed that the continual traffic noise on Gloucester Road is the dominant attributing to the measured noise level. The average baseline noise level ($L_{eq, 5\ min}$) at NM2, which comprises predominantly contributions from road traffic noise, during the period of 2300 to 0700 hrs of all days was 68.7 dB (A) (with the range being 62.5 to 75.3 dB(A)). Based on the above, the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site.
NM2	Exceedance of Limit Level on 19 December 2010 (11:30 -11:45)	Observations during the noise monitoring indicated that there were no outdoor construction activities of Wan Chai East Production and Drop Shafts. With reference to the works summary provided by the Contractor, there were no construction works taking place during the monitoring period. It was believed that the continual traffic noise on Gloucester Road is the dominant attributing to the measured noise level. Based on the above, the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site.

Station	Record of Exceedance	Result of Investigation
NM2	Exceedance of Limit Level on 23 December 2010 (23:11 -23:26)	Observations during the noise monitoring indicated that there were no outdoor construction activities at Wan Chai East Production and Drop Shafts. Meanwhile, with reference to the works summary provided by the Contractor, there were no construction works taking place during the noise monitoring session. It was believed that the continual traffic noise on Gloucester Road is the dominant attributing to the measured noise level. Based on the above, the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site.
NM2	Exceedance of Limit Level on 2 January 2011 (10:07 - 10:22)	Observations during the noise monitoring indicated that there were no major outdoor construction activities at Wan Chai East Production and Drop Shafts but the continued traffic noise on Gloucester Road was the dominant noise sources attributable to the measurement results. With reference to the works summary provided by the Contractor, the works being undertaken at Wan Chai East Production Shaft during the monitoring period was cutting, welding and partial installation of catwalk at the overhead gantry. These construction works were carried out inside the noise enclosed area. At the Wan Chai East Drop Shaft, works undertaken during the monitoring period includes formwork erection for multi part cover and installation of safety net surrounding the staircase platform to the Drop Shaft. All works were carried out according to the Construction Noise Permits (CNP GW-RS1045-10 and GW-RS0971-10). The average baseline noise level ($L_{eq,5\ min}$) at NM2, which comprises predominantly contributions from road traffic noise, during the period of 0700 to 2300 hrs of general holidays (including Sundays) was 71.2 dB (A) (with the range being 68.6 to 76.8 dB(A)). Based on the above, the exceedance observed was considered attributable to the road traffic noise in the vicinity of the Site.

Station	Record of Exceedance	Result of Investigation
NM2	Exceedance of Limit Level on 7 January 2011 (23:15 -23:30)	Observations during the noise monitoring indicated that there were no outdoor construction activities at Wan Chai East Production and Drop Shafts but the continued traffic noise on Gloucester Road was the dominant noise sources attributable to the measurement results. With reference to the works summary provided by the Contractor, the works being undertaken at Wan Chai East Production Shaft during the monitoring period was mucking out of blasted face and storage of soil in enclosure, welding, winder operation and other maintenance works. These construction works were carried out inside the noise enclosed area. At the Wan Chai East Drop Shaft, no work was undertaken during the monitoring period and all works were carried out according to the Construction Noise Permits (CNP GW-RS1045-10 and GW-RS0971-10). The range of baseline noise level ($L_{eq,5\ min}$) at NM2, which comprises predominantly contributions from road traffic noise, during the period of 2300 to 0700 hrs during nighttime was 62.5 to 75.3 dB(A). Based on the above, the exceedance observed was considered attributable to the road traffic noise in the vicinity of the Site.
NM2	Exceedance of Limit Level on 16 January 2011 (10:00 -10:15)	Observations during the noise monitoring indicated that there were no outdoor construction activities at Wan Chai East Production and Drop Shafts but the continued traffic noise on Gloucester Road was the dominant noise sources attributable to the measurement results. With reference to the works summary provided by the Contractor, the works being undertaken at Wan Chai East Production Shaft during the monitoring period was winder operation, hoisting of drill equipment and water pumping. These construction works were carried out inside the noise enclosure. At the Wan Chai East Drop Shaft, works undertaken during the monitoring period includes application of liquid protective membrane to fencing by hand tools and all works were carried out according to the Construction Noise Permits (CNP GW-RS1045-10 and GW-RS0971-10). The average baseline noise level ($L_{eq,5\ min}$) at NM2, which comprises predominantly contributions from road traffic noise, during the period of 0700 to 2300 hrs of general holidays (including Sundays) was 71.2 dB (A) (with the range being 68.6 to 76.8 dB(A)). Based on the above, road traffic noise on Gloucester Road was the dominant noise source and such minor contract works would only contribute very limited noise levels. It is therefore believed that the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site.

Station	Record of Exceedance	Result of Investigation
NM2	Exceedance of Limit Level on 22 January 2011 (00:45 - 01:00)	Observations during the noise monitoring indicated that there were no outdoor construction activities at Wan Chai East Production and Drop Shafts but the continued traffic noise on Gloucester Road was also attributable to the measurement results. With reference to the works summary provided by the Contractor, the works being undertaken at Wan Chai East Production Shaft during the monitoring period was winder operation, clean up of blast holes, shotcrete testing and other maintenance work. These construction works were carried out inside the noise enclosure. No works were carried out at the Wan Chai East Drop Shaft. The average baseline noise level ($L_{eq,5\ min}$) at NM2, which comprises predominantly contributions from road traffic noise, during the period of 0700 to 2300 hrs of general holidays (including Sundays) was 71.2 dB (A) (with the range being 68.6 to 76.8 dB(A)). Based on the above, road traffic noise on Gloucester Road was the dominant noise source and such minor contract works would only contribute very limited noise levels. It is therefore believed that the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site.
NM2	Exceedance of Limit Level on 30 January 2011 (10:45 - 11:00)	Observations during the noise monitoring indicated that there were no outdoor construction activities at Wan Chai East Production and Drop Shafts but the continued traffic noise on Gloucester Road was also attributable to the measurement results. With reference to the works summary provided by the Contractor, the works being undertaken at Wan Chai East Production Shaft during the monitoring period was cable greasing work. These construction works were carried out inside the noise enclosure. Clearance of U-channels near the site entrance was also conducted manually. No works were carried out at the Wan Chai East Drop Shaft. The average baseline noise level ($L_{eq,5\ min}$) at NM2, which comprises predominantly contributions from road traffic noise, during the period of 0700 to 2300 hrs of general holidays (including Sundays) was 71.2 dB (A) (with the range being 68.6 to 76.8 dB(A)). Based on the above, road traffic noise on Gloucester Road was the dominant noise source and such minor contract works would only contribute very limited noise levels. It is therefore believed that the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site.

Station	Record of Exceedance	Result of Investigation
NM2	Exceedance of Limit Level on 13 February 2011 (10:55 - 11:10)	Observations during the noise monitoring indicated that there were no outdoor construction activities at Wan Chai East Production and Drop Shafts. It was also observed that the measured noise level was attributable to the continued traffic noise on Gloucester Road. Meanwhile, with reference to the works summary provided by the Contractor, there were no construction works taking place during the noise monitoring session. Based on the above, the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site.
NM2	Exceedance of Limit Level on 18 February 2011 (23:52 -00:07)	Observations during the noise monitoring indicated that there were no outdoor construction activities at Wan Chai East Production and Drop Shafts. It was observed that the measured noise level was attributable to the continued traffic noise on Gloucester Road. Meanwhile, with reference to the works summary provided by the Contractor, construction works taking place during the noise monitoring session included drilling and installation of dowels, winder /gantry / stage hoist operation, and other monitoring, maintenance and housekeeping works. These activities were carried out inside the noise enclosure. Besides, all works were carried out according to the Construction Noise Permits (CNP GW-RS1045-10 and GW-RS0971-10). It is believed that the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site.
NM2	Exceedance of Limit Level on 27 February 2011 (11:35 - 11:50)	Observations during the noise monitoring indicated that there were no outdoor construction activities at Wan Chai East Production and Drop Shafts. It was also observed that the measured noise level was attributable to the continued traffic noise on Gloucester Road. With reference to the works summary provided by the Contractor, although there were construction work-related activities taking place during the noise monitoring session such as tally room monitoring, winder operation, wetset and sludge pit monitoring, electrical plant monitoring, loading of microfine onto GS and supervision of the works, the relatively quiet nature of these activities are considered irrelevant to the noise exceedance. Based on the above, the exceedance observed is considered attributable to the road traffic noise in the vicinity of the Site.

4.7.2 Summary of Environmental Non-Compliance

No non-compliance event was recorded during the reporting period.

4.7.3 Summary of Environmental Complaint

No complaint was received during the reporting period. The cumulative complaints log is shown in *Annex D6*.

4.7.4 Summary of Environmental Summon and Successful Prosecution

No summon or prosecution was received during the reporting period. The cumulative summon and prosecution log is shown in *Annex D6*.

5 CENTRAL DROP SHAFT

5.1 CONSTRUCTION ACTIVITIES DURING THE REPORTING PERIOD

A summary of the major construction activities undertaken in this reporting period is shown in *Table 5.1*. The location of the construction activities is shown in *Annex E1*.

Table 5.1 Summary of Construction Activities Undertaken from 1 December 2010 to 28 February 2011 at Central Drop Shaft

Construction Activities Undertaken
• Grouting and pumping test • Shaft sinking

5.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since December 2009 is presented in *Table 5.2*.

Table 5.2 Summary of Environmental Licensing, Notification and Permit Status at Central Drop Shaft

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Wastewater Discharge License	Central PTW Drop Shaft WT0005131-2009	09 October 2009 -31 October 2014	--
Chemical Waste Producer Registration	Central PTW Drop Shaft 5213-115-G2347-06	--	--
Construction Noise Permit	Central Drop Shaft GW-RS0042-11	14 January 2011 – 4 July 2011	--

5.3 ENVIRONMENTAL MONITORING REQUIREMENTS

5.3.1 *Air Quality Monitoring*

Monitoring Location

In accordance with the EM&A Manual, 24-hour and 1-hour Total Suspended Particulates (TSP) levels should be conducted at designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual were rejected or not available, alternative locations, therefore, were proposed and agreed by the ER and the IEC. The construction air quality monitoring station for this Contract is listed in *Table 5.3* and shown in *Annex E2*.

Table 5.3 Construction Phase Air Monitoring Location at Central Drop Shaft

Worksite	Construction Air Quality Monitoring Station			
	ID in EM&A Manual	ID	Location	Remark
Central	-	AM4	A Location within the DSD Central PTW	• Access to Sheung Wan Fire Station (CM_C1) was rejected. • All possible locations along Connaught Road West and Connaught Road East have been exhausted and no suitable location is identified due to rejection by the premise owner, security reason, without guaranteed access or inaccessible. AM4 is the alternative location.

Monitoring Parameters, Frequency and Programme

Air quality monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual (*Table 5.4*).

Table 5.4 TSP Monitoring Parameter and Frequency at Central Drop Shaft

Parameter	Frequency
24-hour TSP	Once in every 6 days
1-hour TSP	3 times in every 6 days

Monitoring Equipment

Continuous 24-hour and 1-hour TSP monitoring were performed using High Volume Samplers (HVS) with appropriate sampling inlets installed, located at the designated monitoring station. The performance specification of HVS complied with the standard method "*Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*" as stipulated in *US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B)*. *Table 5.5* summarizes the equipment that was deployed for the 24-hour and 1-hour TSP monitoring.

Table 5.5 TSP Monitoring Equipment at Central Drop Shaft

Monitoring Station	Monitoring Equipment (HVS and Calibrator)
24-hr and 1-hr TSP	
AM4	GMW GS-2310 (S/N 9315), CM-AIR-43 (S/N 9833620)

Monitoring Methodology

Installation

The setup location of the HVS at monitoring stations was listed in *Table 5.3*. The HVS was free-standing with no obstruction.

The following criteria were considered in the installation of the HVSs:

- appropriate support to secure the samplers against gusty wind were provided at AM4;
- a minimum of 2m separation from walls, parapets and penthouses was required for rooftop samplers;
- no furnace or incinerator flues were nearby;
- airflow around the sampler was unrestricted; and
- permission was obtained to set up the samplers and to gain access to the monitoring stations.

Preparation of Filter Papers

- glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected;
- all filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was 40%; and
- SGS Hong Kong Ltd, a HOKLAS accredited laboratory, implements comprehensive quality assurance and quality control programmes.

Field Monitoring

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

- the flow rates of the HVSs were checked and adjusted to between 1.22 - 1.37 m^3min^{-1} which were within the range specified in the EM&A Manual (ie 0.6 – 1.7 m^3min^{-1});

- the programmable timer was set for a sampling period of 24 hours ± 1 hour, and the starting time, weather condition and the filter number were recorded;

- the initial elapsed time was recorded;

- at the end of sampling, the sampled filter was removed carefully and folder in half length so that only surfaces with collected particulate matter were in contact;

- it was then placed in a clean plastic envelope and sealed;

- all monitoring information was recorded on a standard data sheet; and

- filters were sent to SGS Hong Kong Ltd for analysis.

Maintenance and Calibration

- the HVSs and their accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply; and

- the flow rate of each HVS with mass flow controller were calibrated using an orifice calibrator. Initial calibrations of the dust monitoring equipments were conducted upon installation and prior to commissioning. Five-point calibration was carried out for HVSs using CM-AIR-43 Calibration Kit. HVSs are calibrated on a bi-monthly basis. The calibration record for the HVS is given in *Annex H*.

Wind Data Monitoring

The nearest weather stations to at Central Drop Shaft are King's Park Station and Green Island Station. Average wind data (wind speed and wind direction) during the monitoring period were obtained from the meteorological stations at Green Island and King's Park of the Hong Kong Observatory (HKO) and is presented in *Annex E4*.

Action and Limit Levels

The Action and Limit levels have been established and presented in *Table 5.6*.

Table 5.6 Action and Limit Levels for Air Quality at Central Drop Shaft

Parameter	Air Monitoring Station	Action Level, μgm^{-3}	Limit Level, μgm^{-3}
24-hour TSP	AM4	211	260
1-hour TSP	AM4	393	500

Event and Action Plan

The Event and Action Plan (EAP) for air quality monitoring is presented in *Annex I*.

5.3.2 Noise Monitoring

Monitoring Location

In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual were rejected or not available; alternative locations, therefore, were proposed and agreed by the ER and the IEC. The construction noise monitoring locations for this Contract are listed in *Table 5.7* and are shown in *Annex E2*.

Table 5.7 Construction Phase Noise Monitoring Station at Central Drop Shaft

Worksite	Construction Noise Monitoring Station				
	ID in EM&A Manual	ID	Location	Type of Measurement	Remark
Central	-	NM3	Rooftop of Goldfield Building	Façade	• Chi Cheung Building (M4) is not accessible.

Monitoring Parameters, Frequency and Programme

Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. Additional noise monitoring were also conducted as per required in the EM&A Manual when works were carried out during restricted periods.

The construction noise levels were measured in terms of A-weighted equivalent continuous sound pressure level (L_{eq}) in decibels dB(A). $L_{eq\ (30min)}$ were used as the monitoring parameter for the time period in between 0700 – 1900 hours on normal weekdays, and $L_{eq\ (5min)}$ were used as the monitoring parameter for all restricted periods. Supplementary information for data auditing, two statistical sound levels L_{10} and L_{90}; the levels exceeded for 10 and 90 percent of the time respectively, were also recorded during the monitoring for reference. The measured noise levels were logged in every 5 minutes throughout the impact monitoring period.

Monitoring Equipment and Methodology

Construction noise measurements were conducted in accordance with the calibration and measurement procedures as stated in *Annex – General Calibration and Measurement Procedures* of *Technical Memorandum on Noise from Construction Work other than Percussive Piling* (*GW-TM*) issued under the *Noise Control Ordinance* (*NCO*) (Cap.400).

The sound level meters and calibrator used for the noise measurement, as listed in *Table 5.8*, complies with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

Table 5.8 Noise Monitoring Equipment at Central Drop Shaft

Monitoring Station	Monitoring Equipment (Sound Level Metre and Calibrator)
NM3	• Calibrator: Rion NC-73 (S/N 10786708) or RION - NC73 (S/N 10997142) • Sound Level Meters: Rion NL-31 (S/N 00320533) or Rion NL-31 (S/N 00410224) or Rion NL-31 (S/N 00983400)

Immediately prior to and following the noise measurements, the accuracy of the measurement equipment was checked using an acoustic calibrator generating a known sound pressure level at a known frequency.

Measurements were accepted as the calibration level from before and after the noise measurement agree to within 1.0 dB.

Action and Limit Levels

The action and limit levels for the noise monitoring during different monitoring periods are summarized in *Table 5.9*.

Table 5.9 Action and Limit Levels for Noise Monitoring at Central Drop Shaft

Noise Monitoring Location	Measurement Parameter	Noise Criteria (dB(A))	Remark
NM3	$L_{eq(30mins)}$	75	Normal working hours during weekdays
	$L_{eq(5mins)}$	70	Evening (1900-2300); and Sundays and public holidays (0700-2300)
	$L_{eq(5mins)}$	55	Night-time (2300-0700)

Event and Action Plan

The Event and Action Plan (EAP) for noise monitoring is presented in *Annex I*.

5.3.3 Cultural Heritage

No vibration monitoring is required for this reporting period as no blasting of tunnel / shaft works was carried out.

5.3.4 Landscape and Visual Monitoring

In accordance with the EM&A Manual, landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures are fully achieved. The landscape and visual monitoring is carried out on site within the environmental site inspection. The monitoring procedures and criteria as described in the EM&A Manual were adopted.

Event and Action Plan

The Event and Action Plan (EAP) for landscape and visual monitoring is presented in *Annex I*.

5.4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status during the reporting period is summarized in *Annex E3*.

5.5 MONITORING RESULTS

5.5.1 Air Quality

A total of sixteen sets of 24-hour and forty-eight sets of 1-hour TSP measurements were carried out at AM4 during the reporting period. The monitoring data for 24-hour TSP and 1-hour TSP together with wind data and graphical presentations are presented in *Annex E4*.

The weather condition during the monitoring period varied from sunny to fine. The local impacts near the monitoring stations of AM4 were mainly associated with vehicle emissions. No exceedance of Action and Limit Levels of 1-hr and 24-hr TSP were recorded during the reporting period.

5.5.2 Noise

A total of thirteen sets of 30-minute construction noise measurements were carried out at the monitoring station NM3 during normal weekdays of the reporting period. The monitoring results together with graphical presentations are presented in *Annex E5*. The local impacts observed near the monitoring stations of NM3 were traffic noise from Connaught Road Central.

No exceedance of Action and Limit Levels of construction noise was recorded during the reporting period.

5.5.3 Landscape and Visual

Implementation and maintenance of landscape and visual mitigation measures are fully achieved and no major findings were observed during the reporting period.

5.5.4 Cultural Heritage

No vibration monitoring was conducted for this reporting period as the blasting of tunnel / shaft works have not started.

5.5.5 Waste Management

Waste generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials and marine deposit. Non-inert C&D materials are made up of general refuse, steel and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. Marine deposits requiring type 1, type 2, and type 3 disposal methods were generated. Reference has been made on the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*).

The waste statistics provided in this section represent the cumulative quantity of wastes generated from all sites in this Project. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in *Table 5.10*. The inert C&D materials and general refuse generated from the Project were disposed of at Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill respectively. 252 kg of paper/cardboard packaging was generated during the reporting period. Marine deposit requiring type 1, type 2, and type 3 disposal generated from the Project were disposed of at MP21 within the South Cheung Chau Spoil Disposal Area, the East of Sha Chau Contaminated Mud Disposal, and SENT Landfill, respectively, during the reporting period.

Table 5.10 Quantities of Waste Generated from the Project for all Sites

Month / Year	Quantity					
	C&D Materials (inert) [a]	C&D Materials (non-inert) [b]	Chemical Waste	Marine Deposit [c]		
				Type 1 disposal	Type 2 disposal	Type 3 disposal
December 2010 – February 2011	30,992.17 tonnes	143.92 tonnes	1,200 L	208 m^3	1,232 m^3	63.46 tonnes

Notes:

(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil. No inert C&D material was reused in this Project during the reporting period. Non-reused inert C&D materials were disposed of at the Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/ Chai Wan Barging Point.

(b) Non-inert C&D materials include steel, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. The non-inert C&D materials other than steel and paper/cardboard packaging were disposed of at SENT Landfill. No steel material and 252kg of paper/cardboard packaging were sent to recyclers for recycling during the reporting period.

(c) Marine deposits requiring types 1, 2, and 3 disposal methods generated from the Project were disposed of at MP21 within the South Cheung Chau Spoil Disposal Area, the East of Sha Chau Contaminated Mud Disposal, and SENT Landfill, respectively.

5.6 *ENVIRONMENTAL SITE INSPECTION*

Weekly site inspections were carried out by the representatives of the Contractor, Engineer and the ET. Ten site inspections were conducted on 2, 9, 16, and 23 December 2010; 6, 13 and 20 January 2011; and 1, 10, and 17 February 2011.

Major findings and recommendations are summarized as follows:

- On 2 December, leaves of a retained tree along the boundary of the site were observed to be dusty. The Contractor was recommended to remove dust from the leaves as soon as possible. The Contractor was also recommended to implement dust suppression measures to avoid dispersion of dust to nearby sensitive receivers and retained trees.
- On 9 December, chemical waste drums inside the chemical waste storages were observed to be without lids. Some oil stains were observed on the ground outside the chemical storage. The Contractor was recommended to replace the drum lids immediately to avoid potential spillages. The Contractor was also recommended to clear the oil stains immediately and to dispose the collected wastes as chemical wastes via licensed waste collectors.
- On 9 December, the stop plug on a drip tray under drums of chemicals on the northern boundary of site was observed to be missing. Oily water was also observed to be leaking out from the unplugged hole. The Contractor was recommended to replace the stop plug, clear all oily water and to dispose the collected waste as chemical waste via licensed waste collectors.
- On 9 December, piles of chemical drums adjacent to the temporary storage were placed on the ground without drip tray. The Contractor was recommended to provide drip tray for temporary storage of chemical drums to avoid potential spillage on site.
- On 16 December, the label for the waste skip near the western side of the site was observed to be missing. Metals were observed to be placed in the waste skip. The Contractor was recommended to label the waste skip for easy identification by workers. The Contractor was also recommended to provide toolbox talks to brief workers on waste management and sorting practices on site for achieving waste reduction.
- On 16 December, chemical waste drums inside the chemical waste stores were still observed to be without lids. Some oil stains were observed on the ground outside the chemical store. The Contractor was recommended to replace the drum lids immediately to avoid potential spillages. The Contractor was also recommended to clear the oil stains immediately and to dispose the collected wastes as chemical wastes via licensed waste collectors.
- On 16 December, the stop plug on a drip tray under drums of chemicals on the northern boundary of site was still observed to be missing. Oily water was also observed to be leaking out from the unplugged hole. The Contractor was recommended to replace the stop plug, clear all oily water and to dispose the collected wastes as chemical wastes via licensed waste collectors.

- On 16 December, piles of chemical drums adjacent to the temporary storage were still placed on the ground without drip tray. The Contractor was recommended to provide drip tray for temporary storage of chemical drums to avoid potential spillages on site.
- On 23 December, stagnant water was observed in a drip tray near the site office. The Contractor was recommended to clear the stagnant water as part of a good housekeeping practice to avoid potential mosquito breeding on site.
- On 13 January, protective fencing around a retained tree near the south eastern corner of site was observed to be damaged. The Contractor was recommended to repair the fencing as soon as possible to ensure the no trespass zone for the retained tree is clearly defined and therefore avoiding potential damages to retained trees from works.
- On 20 January, the general waste skip near the site entrance was observed to be full. The Contractor was recommended to arrange collection of general waste as soon as possible to avoid accumulation on site.
- On 17 February, as reminded by the ER during the site walk, provision of wastewater treatment facility such as sedimentation tank should be arranged on site by the Contractor as soon as possible for near future use.

Follow-up actions were undertaken as reported by the Contractor and observed in the site inspection conducted in the reporting period.

5.7 ENVIRONMENTAL NON-CONFORMANCE

5.7.1 Summary of Monitoring Exceedance

No exceedance of the Action and Limit Levels of 1-hour TSP and 24-hour TSP were recorded at monitoring stations during the reporting period.

No exceedance of the Action and Limit Levels of noise was recorded at monitoring stations during the reporting period.

5.7.2 Summary of Environmental Non-Compliance

No non-compliance event was recorded during the reporting period.

5.7.3 Summary of Environmental Complaint

No complaint was received during the reporting period. The cumulative complaints log is shown in *Annex E6*.

5.7.4 Summary of Environmental Summon and Successful Prosecution

No summon or prosecution was received during the reporting period. The cumulative summon and prosecution log is shown in *Annex E6*.

6 SAI YING PUN JUNCTION SHAFT

6.1 CONSTRUCTION ACTIVITIES DURING THE REPORTING PERIOD

A summary of the major construction activities undertaken in this reporting period is shown in *Table 6.1*. The location of the construction activities is shown in *Annex F1*.

Table 6.1 Summary of Construction Activities Undertaken from 1 December 2010 to 28 February 2011 at Sai Ying Pun Junction Shaft

Construction Activities Undertaken
• Shaft sinking • Construction of noise enclosure • Marine dumping of excavated marine sediment

6.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since December 2009 is presented in *Table 6.2*.

Table 6.2 Summary of Environmental Licensing, Notification and Permit Status at Sai Ying Pun Junction Shaft

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Wastewater Discharge License	Sai Ying Pun Junction Shaft WT00006884-2010	11 June 2010 - 31 October 2014	--
Chemical Waste Producer Registration	Sai Ying Pun Junction Shaft 5213-112-G2347-05	--	--
Construction Noise Permit	Sai Ying Pun Junction Shaft GW-RS0605-10	16 November 2010 – 15 May 2011	Superseded by GW-RS0104-11
	Sai Ying Pun Junction Shaft GW-RS0104-11	1 February 2011 – 30 July 2011	--

6.3 ENVIRONMENTAL MONITORING REQUIREMENTS

6.3.1 Air Quality Monitoring

Due to contractual arrangements, air quality monitoring was implemented by the Environmental Team of Contract No. *DC/2007/24 of Harbour Area Treatment Scheme Stage 2A (HATS2A) - Construction of Sewage Conveyance System from Aberdeen to Stonecutters Island.*

Monitoring Location

In accordance with the EM&A Manual, 24-hour and 1-hour Total Suspended Particulates (TSP) levels should be conducted at designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual were rejected or not available, alternative locations, therefore, were proposed and agreed by the ER and the IEC. The construction air quality monitoring station for this Contract is listed in *Table 6.3* and shown in *Annex F2*.

Table 6.3 Construction Phase Air Monitoring Location at Sai Ying Pun Junction Shaft

Worksite	Construction Air Quality Monitoring Station			
	ID in EM&A Manual	ID	Location	Remark
Fung Mat Street	CM_FM1	AM5	Western Wholesale Food Market	-

Monitoring Parameters, Frequency and Programme

Air quality monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual (*Table 6.4*).

Table 6.4 TSP Monitoring Parameter and Frequency at Sai Ying Pun Junction Shaft

Parameter	Frequency
24-hour TSP	Once in every 6 days
1-hour TSP	3 times in every 6 days

Wind Data Monitoring

The nearest weather stations to Sai Ying Pun Junction Shaft are King's Park Station and Green Island Station. Average wind data (wind speed and wind direction) during the monitoring period were obtained from the meteorological stations at King's Park and Green Island of the Hong Kong Observatory (HKO) and are presented in *Annex F4*.

Action and Limit Levels

The Action and Limit levels have been established and presented in *Table 6.5*.

Table 6.5 Action and Limit Levels for Air Quality at Sai Ying Pun Junction Shaft

Parameter	Air Monitoring Station	Action Level, μgm^{-3}	Limit Level, μgm^{-3}
24-hour TSP	AM5	188	260
1-hour TSP	AM5	332	500

Event and Action Plan

The Event and Action Plan (EAP) for air quality monitoring is presented in *Annex I*.

6.3.2 Noise Monitoring

Monitoring Location

In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual were rejected or not available; alternative locations, therefore, were proposed and agreed by the ER and the IEC. The construction noise monitoring location for this Contract is listed in *Table 6.6* and is shown in *Annex F2*.

Table 6.6 Construction Phase Noise Monitoring Station at Sai Ying Pun Junction Shaft

Worksite	**Construction Noise Monitoring Station**				
	ID in EM&A Manual	**ID**	**Location**	**Type of Measurement**	**Remark**
Fung Mat Road	M3	NM4	Rooftop of Block A, Kwan Yick Building Phase III	Façade	-

Monitoring Parameters, Frequency and Programme

Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. Additional noise monitoring were also conducted as per required in the EM&A Manual when works were carried out during restricted periods.

The construction noise levels were measured in terms of A-weighted equivalent continuous sound pressure level (L_{eq}) in decibels dB(A). $L_{eq\ (30min)}$ were used as the monitoring parameter for the time period in between 0700 – 1900 hours on normal weekdays, and $L_{eq\ (5min)}$ were used as the monitoring parameter for all restricted periods. Supplementary information for data auditing, two statistical sound levels L_{10} and L_{90}; the levels exceeded for 10 and 90 percent of the time respectively, were also recorded during the monitoring for reference. The measured noise levels were logged in every 5 minutes throughout the impact monitoring period.

Monitoring Equipment and Methodology

Construction noise measurements were conducted in accordance with the calibration and measurement procedures as stated in *Annex – General Calibration and Measurement Procedures* of *Technical Memorandum on Noise from Construction Work other than Percussive Piling* (*GW-TM*) issued under the *Noise Control Ordinance* (*NCO*) (Cap.400).

The sound level meters and calibrator used for the noise measurement, as listed in *Table 6.7*, complies with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

Table 6.7 Noise Monitoring Equipment at Sai Ying Pun Junction Shaft

Monitoring Station	Monitoring Equipment (Sound Level Metre and Calibrator)
NM4	• Calibrator: Rion NC-73 (S/N 10786708) or RION - NC73 (S/N 10997142) • Sound Level Meters: Rion NL-31 (S/N 00320533) or Rion NL-31 (S/N 00410224) or Rion NL-31 (S/N 00983400)

Immediately prior to and following the noise measurements, the accuracy of the measurement equipment was checked using an acoustic calibrator generating a known sound pressure level at a known frequency.

Measurements were accepted as the calibration level from before and after the noise measurement agree to within 1.0 dB.

Action and Limit Levels

The action and limit levels for the noise monitoring during different monitoring periods are summarized in *Table 6.8*.

Table 6.8 Action and Limit Levels for Noise Monitoring at Sai Ying Pun Junction Shaft

Noise Monitoring Location	Measurement Parameter	Noise Criteria (dB(A))	Remark
NM4	$L_{eq(30mins)}$	75	Normal working hours during weekdays
	$L_{eq(5mins)}$	70	Evening (1900-2300); and Sundays and public holidays (0700-2300)
	$L_{eq(5mins)}$	55	Night-time (2300-0700)

Event and Action Plan

The Event and Action Plan (EAP) for noise monitoring is presented in *Annex I*.

6.3.3 Cultural Heritage

No vibration monitoring is required for this reporting period as no blasting of tunnel / shaft works was carried out.

6.3.4 Landscape and Visual Monitoring

In accordance with the EM&A Manual, landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures are fully achieved. The landscape and visual monitoring is carried out on site within the environmental site inspection. The monitoring procedures and criteria as described in the EM&A Manual were adopted.

Event and Action Plan

The Event and Action Plan (EAP) for landscape and visual monitoring is presented in *Annex I*.

6.4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status during the reporting period is summarized in *Annex F3*.

6.5 MONITORING RESULTS

6.5.1 Air Quality

A total of sixteen sets of 24-hour and forty-eight sets of 1-hour TSP measurements were carried out at AM5 during the reporting period. The monitoring data for 24-hour TSP and 1-hour TSP together with wind data and graphical presentations are presented in *Annex F4*.

The weather condition during the monitoring period varied from sunny to fine. The local impacts near the monitoring stations of AM5 were mainly associated with vehicle emissions.

No exceedances of Action and Limit Levels of 1-hr and 24-hr TSP were recorded during the reporting period.

6.5.2 Noise

A total of thirteen sets of 30-minute construction noise measurements were carried out at the monitoring station NM4 during normal weekdays of the reporting period. The monitoring results together with graphical presentations are presented in *Annex F5*. The local impacts observed near the monitoring stations of NM4 were mainly traffic noise from Connaught Road West.

No exceedance of Action and Limit Levels of construction noise was recorded during the reporting period.

6.5.3 Landscape and Visual

Implementation and maintenance of landscape and visual mitigation measures are fully achieved and no major findings were observed during the reporting period.

6.5.4 Cultural Heritage

No vibration monitoring was conducted for this reporting period as the blasting of tunnel / shaft works have not started.

6.5.5 Waste Management

Waste generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials and marine deposit. Non-inert C&D materials are made up of general refuse, steel and paper/cardboard

packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. Marine deposits requiring type 1, type 2, and type 3 disposal methods were generated. Reference has been made on the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*).

The waste statistics provided in this section represent the cumulative quantity of wastes generated from all sites in this Project. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in *Table 6.9*. The inert C&D materials and general refuse generated from the Project were disposed of at Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill respectively. 252 kg of paper/cardboard packaging was generated during the reporting period. Marine deposit requiring type 1, type 2, and type 3 disposal generated from the Project were disposed of at MP21 within the South Cheung Chau Spoil Disposal Area, the East of Sha Chau Contaminated Mud Disposal, and SENT Landfill, respectively, during the reporting period.

Table 6.9 Quantities of Waste Generated from the Project for all Sites

Month / Year	Quantity					
	C&D Materials (inert) [a]	C&D Materials (non-inert) [b]	Chemical Waste	Marine Deposit [c]		
				Type 1 disposal	Type 2 disposal	Type 3 disposal
December 2010 – February 2011	30,992.17 tonnes	143.92 tonnes	1,200 L	208 m^3	1,232 m^3	63.46 tonnes

Notes:

(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil. No inert C&D material was reused in this Project during the reporting period. Non-reused inert C&D materials were disposed of at the Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/ Chai Wan Barging Point.

(b) Non-inert C&D materials include steel, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. The non-inert C&D materials other than steel and paper/cardboard packaging were disposed of at SENT Landfill. No steel material and 252kg of paper/cardboard packaging were sent to recyclers for recycling during the reporting period.

(c) Marine deposits requiring types 1, 2, and 3 disposal methods generated from the Project were disposed of at MP21 within the South Cheung Chau Spoil Disposal Area, the East of Sha Chau Contaminated Mud Disposal, and SENT Landfill, respectively.

6.6 ENVIRONMENTAL SITE INSPECTION

Weekly site inspections were carried out by the representatives of the Contractor, Engineer and the ET. Ten site inspections were conducted on 2, 9, 16 and 23 December 2010; 6, 13 and 20 January 2011; and 1, 10, and 17 February 2011.

There was no non-compliance recorded during the site inspections.

Major findings and recommendations are summarized as follows:

- On 2 December, stagnant water was observed in a drip tray without stop plug under water pump (Permit No. 425). The Contractor immediately replaced the stop plug during the inspection. The Contractor was also recommended to clear stagnant water to avoid mosquito breeding as a good housekeeping practice.
- On 9 December, a bag of in-use bentonite was left open without impervious covering. The Contractor was recommended to cover dusty materials with impervious sheets to avoid dust dispersion to nearby sensitive receivers.
- On 9 December, loose general wastes were observed on the ground behind the temporary storage at the northern end of site. The Contractor was recommended to assign designated waste skips for the collection of general wastes. Toolbox talks should be provided to brief workers on waste management practices on site.
- On 16 December, the drip tray in the northwestern corner was observed to be overloaded with one excess bucket of chemical. The Contractor was recommended to provide sufficient drip trays for the temporary storage of in-use chemicals on site to ensure containment of potential spillages.
- On 16 December, stagnant water was observed along the storm drain along the northern boundary of site after rain. The Contractor was recommended to clear the stagnant water as a good housekeeping practice to avoid potential mosquito breeding on site.
- On 23 December, a pile of excavated soil was observed to be not covered properly. The Contractor was recommended to cover the stockpile properly to avoid dust generation.
- On 13 January, marine sediments were observed in the excavated soil pile near the shaft area. The Contractor immediately mobilized workers to remove marine sediments from the soil pile. The Contractor was recommended to implement proper sorting of excavated soil and marine sediments at all times. Storage, handling and disposal of marine sediments should strictly follow the methodology as stated in the method statement prepared by the Contractor.
- On 20 January, the access to the chemical waste storage was blocked by construction equipment. The Contractor was recommended to clear the access to the chemical waste storage as soon as possible for easy mobilization of any chemical wastes to the storage on site.
- On 1 February, the excavated soil was observed to be piled up and exposed on site without any cover. It is recommended that the Contractor should either remove the soil from the site properly after use or cover it with tarpaulini sheets to avoid fugitive dust.
- On 10 February, sediments observed to be piled up in the vehicle washing facility at the site entrance or exit. The Contractor should clear the sediments as soon as possible to avoid overflow of sediments/water.

Follow-up actions were undertaken as reported by the Contractor and observed in the weekly site inspection conducted in the reporting period.

6.7 ENVIRONMENTAL NON-CONFORMANCE

6.7.1 Summary of Monitoring Exceedance

No exceedances of Action and Limit Levels of 1-hr and 24-hr TSP were recorded during the reporting period.

No exceedance of the Action and Limit Levels of noise was recorded at monitoring stations during the reporting period.

6.7.2 Summary of Environmental Non-Compliance

No non-compliance event was recorded during the reporting period.

6.7.3 Summary of Environmental Complaint

No complaint was received during the reporting period. The cumulative complaints log is shown in *Annex E6*.

6.7.4 Summary of Environmental Summon and Successful Prosecution

No summon or prosecution was received during the reporting period. The cumulative summon and prosecution log is shown in *Annex F6*.

7.1 CONSTRUCTION ACTIVITIES DURING THE REPORTING PERIOD

A summary of the major construction activities undertaken in this reporting period is shown in *Table 7.1*. The locations of the construction activities are shown in *Annex G1*.

Table 7.1 Summary of Construction Activities Undertaken from 1 December 2010 to 28 February 2011 at Stonecutters Island Production and Riser Shafts

Worksite	Construction Activities Undertaken
Riser Shaft	• Remedial grouting • Shaft sinking
Production Shaft	• Pre-treatment grouting for connecting adit • Construction of noise enclosure

7.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project since December 2009 is presented in *Table 7.2*.

Table 7.2 Summary of Environmental Licensing, Notification and Permit Status at Stonecutters Island Production and Riser Shafts

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Wastewater Discharge License	Stonecutters Island Production Shaft and Riser Shaft WT00005069-2009	11 August 2010 - 31 October 2014	--
Chemical Waste Producer Registration	Stonecutters Island Production Shaft and Riser Shaft 5213-269-G2449-07	--	--
Construction Noise Permit	Stonecutters Island Production Shaft and Riser Shaft GW-RW0971-10	1 November 2010 - 30 April 2011	Superseded by GW-RW0689-10
	Stonecutters Island Production Shaft and Riser Shaft GW-RW0689-10	13 December 2010 – 12 June 2011	--

7.3 ENVIRONMENTAL MONITORING REQUIREMENTS

7.3.1 Air Quality Monitoring

Monitoring Location

In accordance with the EM&A Manual, 24-hour and 1-hour Total Suspended Particulates (TSP) levels should be conducted at designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual were rejected or not available, alternative locations, therefore, were proposed and agreed by the ER and the IEC. The construction air quality monitoring station for this Contract is listed in *Table 7.3* and shown in *Annex G2*.

Table 7.3 Construction Phase Air Monitoring Location at Stonecutters Island Production and Riser Shafts

Worksite	Construction Air Quality Monitoring Station			
	ID in EM&A Manual	ID	Location	Remark
SCISTW	-	AM6	Works Site Boundary	• Power Access supply for operation of HVS was not feasible to the rooftop of Government Dockyard Offices (CM_SCI1). • For COSCO HIT Terminal (CM_SCI2), access application was verbally rejected. • Club House (CM_SCI3) is blocked by a high building which will deteriorate the dust levels during measurement. • Work Site Boundary (near Ngong Shuen Chau Barracks Group 2 (CM_SCI4) was designed for the HATS2A Disinfection Facilities works and the station is separated by a small hill. • Baseline dust monitoring data measured under HATS2A – Provision of Disinfection Facilities at SCISTW will also be obtained for the establishment of the action level for the impact monitoring.

Monitoring Parameters, Frequency and Programme

Air quality monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual (*Table 7.4*).

Table 7.4 ***TSP Monitoring Parameter and Frequency at Stonecutters Island Production and Riser Shafts***

Parameter	Frequency
24-hour TSP	Once in every 6 days
1-hour TSP	3 times in every 6 days

Monitoring Equipment

Continuous 24-hour and 1-hour TSP monitoring were performed using High Volume Samplers (HVS) with appropriate sampling inlets installed, located at the designated monitoring station. The performance specification of HVS complied with the standard method "*Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*" as stipulated in *US EPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B)*. *Table 7.5* summarizes the equipment that was deployed for the 24-hour and 1-hour TSP monitoring.

Table 7.5 ***TSP Monitoring Equipment at Stonecutters Island Production and Riser Shafts***

Monitoring Station	Monitoring Equipment (HVS and Calibrator)
24-hr and 1-hr TSP	
AM6	GMW GS-2310 (S/N 1254), CM-AIR-43 (S/N 9833620)

Monitoring Methodology

Installation

The setup location of the HVS at monitoring station was listed in *Table 7.3*. The HVS was free-standing with no obstruction.

The following criteria were considered in the installation of the HVSs:

- appropriate support to secure the samplers against gusty wind were provided at AM6;
- a minimum of 2m separation from walls, parapets and penthouses was required for rooftop samplers;
- no furnace or incinerator flues were nearby;
- airflow around the sampler was unrestricted; and
- permission was obtained to set up the samplers and to gain access to the monitoring stations.

Preparation of Filter Papers

- glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected;

- all filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was 40%; and

- SGS Hong Kong Ltd, a HOKLAS accredited laboratory, implements comprehensive quality assurance and quality control programmes.

Field Monitoring

- the power supply was checked to ensure that the HVSs were working properly;

- the filter holder and the area surrounding the filter were cleaned;

- the filter holder was removed by loosening the foul bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully;

- the filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter;

- the swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges;

- then the shelter lid was closed and secured with the aluminium strip;

- the HVSs were warmed-up for about 5 minutes to establish run-temperature conditions;

- a new flowrate record sheet was set into the flow recorder;

- the flow rates of the HVSs were checked and adjusted to between 1.22 - 1.37 m^3min^{-1} which were within the range specified in the EM&A Manual (ie 0.6 – 1.7 m^3min^{-1});

- the programmable timer was set for a sampling period of 24 hours ± 1 hour, and the starting time, weather condition and the filter number were recorded;

- the initial elapsed time was recorded;

- at the end of sampling, the sampled filter was removed carefully and folder in half length so that only surfaces with collected particulate matter were in contact;

- it was then placed in a clean plastic envelope and sealed;

- all monitoring information was recorded on a standard data sheet; and

- filters were sent to SGS Hong Kong Ltd for analysis.

Maintenance and Calibration

- the HVSs and their accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply; and

- the flow rate of each HVS with mass flow controller were calibrated using an orifice calibrator. Initial calibrations of the dust monitoring equipments were conducted upon installation and prior to commissioning. Five-point calibration was carried out for HVSs using CM-AIR-43 Calibration Kit. HVSs are calibrated on a bi-monthly basis. The calibration record for the HVS is given in *Annex H*.

Wind Data Monitoring

The nearest weather station to Stonecutters Island Production and Riser Shafts is Tsing Yi Station. Average wind data (wind speed and wind direction) during the monitoring period were obtained from the meteorological station at Tsing Yi of the Hong Kong Observatory (HKO) and are presented in *Annex G4*.

Action and Limit Levels

The Action and Limit levels have been established and presented in *Table 7.6*. The baseline air monitoring data (24-hr and 1-hr TSP average) measured under *HATS2A – Provision of Disinfection Facilities at SCISTW* (DF) is also included to establish the Action Level at AM6.

Table 7.6 Action and Limit Levels for Air Quality at Stonecutters Island Production and Riser Shafts

Parameter	Air Monitoring Station	Action Level, μgm^{-3}	Limit Level, μgm^{-3}
24-hour TSP	AM6 (with 24-hr TSP data from DF project)	196	260
1-hour TSP	AM6 (with 1-hr TSP data from DF project)	346	500

Event and Action Plan

The Event and Action Plan (EAP) for air quality monitoring is presented in *Annex I*.

7.3.2 Noise Monitoring

Monitoring Location

In accordance with the EM&A Manual, monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to some of the proposed monitoring locations stated in the EM&A Manual were rejected or not available; alternative locations, therefore, were proposed and agreed by the ER and the IEC. The construction noise

monitoring location for this Contract is listed in *Table 7.7* and is shown in *Annex G2*.

Table 7.7 Construction Phase Noise Monitoring Station at Stonecutters Island Production and Riser Shafts

Worksite	Construction Noise Monitoring Station				
	ID in EM&A Manual	ID	Location	Type of Measurement	Remark
SCISTW	-	NM5	A Location near the FSD Diving Rescue and Diving Training Centre near the Site Boundary	Free-Field (3dB(A) was added to the measured results)	• Access to FSD Fire Rescue and Diving Training Centre (M11) was rejected. • NM5 is located next to the original proposed location.

Monitoring Parameters, Frequency and Programme

Weekly construction noise monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. Additional noise monitoring were also conducted as per required in the EM&A Manual when works were carried out during restricted periods.

The construction noise levels were measured in terms of A-weighted equivalent continuous sound pressure level (L_{eq}) in decibels dB(A). $L_{eq\ (30min)}$ were used as the monitoring parameter for the time period in between 0700 – 1900 hours on normal weekdays, and $L_{eq\ (5min)}$ were used as the monitoring parameter for all restricted periods. Supplementary information for data auditing, two statistical sound levels L_{10} and L_{90}; the levels exceeded for 10 and 90 percent of the time respectively, were also recorded during the monitoring for reference. The measured noise levels were logged in every 5 minutes throughout the impact monitoring period.

Monitoring Equipment and Methodology

Construction noise measurements were conducted in accordance with the calibration and measurement procedures as stated in *Annex – General Calibration and Measurement Procedures* of *Technical Memorandum on Noise from Construction Work other than Percussive Piling* (*GW-TM*) issued under the *Noise Control Ordinance* (*NCO*) (Cap.400).

The sound level meters and calibrator used for the noise measurement, as listed in *Table 7.8*, complies with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

Table 7.8 ***Noise Monitoring Equipment at Stonecutters Island Production and Riser Shafts***

Monitoring Station	Monitoring Equipment (Sound Level Metre and Calibrator)
NM5	• Calibrator: Rion NC-73 (S/N 10786708) or RION - NC73 (S/N 10997142) • Sound Level Meters: Rion NL-31 (S/N 00320533) or Rion NL-31 (S/N 00410224) or Rion NL-31 (S/N 00983400)

Immediately prior to and following the noise measurements, the accuracy of the measurement equipment was checked using an acoustic calibrator generating a known sound pressure level at a known frequency.

Measurements were accepted as the calibration level from before and after the noise measurement agree to within 1.0 dB. A correction of +3dB(A) was made to the free field measurement at NM5.

Action and Limit Levels

The action and limit levels for the noise monitoring during different monitoring periods are summarized in *Table 7.9*.

Table 7.9 ***Action and Limit Levels for Noise Monitoring at Stonecutters Island Production and Riser Shaft***

Noise Monitoring Location	Measurement Parameter	Noise Criteria (dB(A))	Remark
NM5	$L_{eq(30mins)}$	75	Normal working hours during weekdays
	$L_{eq(5mins)}$	70	Evening (1900-2300); and Sundays and public holidays (0700-2300)
	$L_{eq(5mins)}$	55	Night-time (2300-0700)

Event and Action Plan

The Event and Action Plan (EAP) for noise monitoring is presented in *Annex I***.**

7.3.3 Cultural Heritage

No vibration monitoring is required for this reporting period as no blasting of tunnel / shaft works was carried out.

7.3.4 Landscape and Visual Monitoring

In accordance with the EM&A Manual, landscape and visual monitoring is required to ensure that the design, implementation and maintenance of landscape and visual mitigation measures are fully achieved. The landscape and visual monitoring is carried out on site within the environmental site inspection. The monitoring procedures and criteria as described in the EM&A Manual were adopted.

Event and Action Plan

The Event and Action Plan (EAP) for landscape and visual monitoring is presented in *Annex I*.

7.4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status during the reporting period is summarized in *Annex G3*.

7.5 MONITORING RESULTS

7.5.1 *Air Quality*

A total of sixteen sets of 24-hour and forty-eight sets of 1-hour TSP measurements were carried out at AM6 during the reporting period. The monitoring data for 24-hour TSP and 1-hour TSP together with wind data and graphical presentations are presented in *Annex G4*.

The weather condition during the monitoring period varied from sunny to rainy. The local impacts near the monitoring stations of AM6 were mainly associated with vehicle emissions. No exceedance of Action and Limit Levels of 1-hr and 24-hr TSP were recorded during the reporting period.

7.5.2 *Noise*

A total of thirteen sets of 30-minute construction noise measurements were carried out at the monitoring station NM5 during normal weekdays of the reporting period. Construction work was also conducted on public holidays and Sundays starting on 20 December 2009. Twelve sets of 3 x 5-minute construction noise measurements were carried out during restricted hours (between 0700 and 1900 hours on Sundays and public holidays) during the reporting period. The monitoring results together with graphical presentations are presented in *Annex G5*. The local impacts observed near the monitoring stations of NM5 included operations at the Government Dockyard, other construction sites activities and traffic within the SCI STW in the vicinity.

No exceedance of Action and Limit Levels of construction noise was recorded during normal and restricted hours in the reporting period.

7.5.3 *Landscape and Visual*

Implementation and maintenance of landscape and visual mitigation measures are fully achieved and no major findings were observed during the reporting period.

7.5.4 Cultural Heritage

No vibration monitoring was conducted for this reporting period as the blasting of tunnel / shaft works have not started.

7.5.5 Waste Management

Waste generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials and marine deposit. Non-inert C&D materials are made up of general refuse, steel and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. Marine deposits requiring type 1, type 2, and type 3 disposal methods were generated. Reference has been made on the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*).

The waste statistics provided in this section represent the cumulative quantity of wastes generated from all sites in this Project. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting month are summarised in *Table 7.10*. The inert C&D materials and general refuse generated from the Project were disposed of at Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/Chai Wan Barging Point and SENT Landfill respectively. 252 kg of paper/cardboard packaging was generated during the reporting period. Marine deposit requiring type 1, type 2, and type 3 disposal generated from the Project were disposed of at MP21 within the South Cheung Chau Spoil Disposal Area, the East of Sha Chau Contaminated Mud Disposal, and SENT Landfill, respectively, during the reporting period.

Table 7.10 Quantities of Waste Generated from the Project for all Sites

Month / Year	Quantity					
	C&D Materials (inert) [a]	C&D Materials (non-inert) [b]	Chemical Waste	Marine Deposit [c]		
				Type 1 disposal	Type 2 disposal	Type 3 disposal
December 2010 – February 2011	30,992.17 tonnes	143.92 tonnes	1,200 L	208 m^3	1,232 m^3	63.46 tonnes

Notes:

(a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil. No inert C&D material was reused in this Project during the reporting period. Non-reused inert C&D materials were disposed of at the Tuen Mun Area 38/Tseung Kwan O Area 137 Fill Bank/ Chai Wan Barging Point.

(b) Non-inert C&D materials include steel, paper / cardboard packaging waste, plastics and other wastes such as general refuse. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. The non-inert C&D materials other than steel and paper/cardboard packaging were disposed of at SENT Landfill. No steel material and 252kg of paper/cardboard packaging were sent to recyclers for recycling during the reporting period.

(c) Marine deposits requiring types 1, 2, and 3 disposal methods generated from the Project were disposed of at MP21 within the South Cheung Chau Spoil Disposal Area, the East of Sha Chau Contaminated Mud Disposal, and SENT Landfill, respectively.

7.6 ENVIRONMENTAL SITE INSPECTION

Weekly site inspections were carried out by the representatives of the Contractor, Engineer and the ET. Thirteen site inspections were conducted on 2, 9, 16, 23, and 29 December 2010; 6, 13, 20 and 27 January 2011; and 1, 10, 17, and 24 February 2011. There was no non-compliance recorded during the site inspections.

Major findings and recommendations are summarized as follows:

Riser Shaft

- On 6 January, access to chemical waste storage was observed to be blocked. The Contractor was recommended to clear up a path to provide proper access to the chemical waste storage.
- On 27 January, stagnant water was observed at the northeastern edge of the riser shaft site. The water should be cleared immediately to avoid overflowing to outside works boundary and to prevent the mosquitoes breeding as part of a good housekeeping practice.
- On 10 February, excavated sand/mud was observed accumulated and scattered near the Riser Shaft. The sand/mud should be cleared away as soon as possible to avoid rain water being mixed with it and flushed out of site.
- On 10 February, oil was found leaked from underneath the RP machinery. Oil tray was provided by the Contractor immediately afterwards to prevent further leakage of oil.

Production Shaft

- On 16 December, mills barriers were observed to be leaning against a retained tree near the production shaft. The Contractor was recommended to relocate the mills barriers to avoid loading and subsequently any damages to retained trees on site.
- On 6 January, the sedimentation tank was observed to be quite full of sand. The Contractor was recommended to clear up the sand and sediments inside the tank.
- On 13 January, the sedimentation well near the noise enclosure was observed to be full of water. The Contractor was advised to remove soil and mud accumulated in the well as soon as possible to avoid site discharge from overflowing across the works area.
- On 13 January, two drums of chemicals were placed on the ground near the sedimentation tank without drip tray. The Contractor was recommended to provide drip tray for the temporary storage of chemicals on site to avoid causing potential land contamination as a result of accidental spillages.
- On 20 January, part of the protection fencing for retained trees near the noise enclosure was damaged. The fencing for the retained tree adjacent to the access road was also missing. The Contractor was recommended to repair/provide fencing for retained trees to ensure the no-trespass zone is clearly defined and therefore avoiding potential damages to retained trees from works.
- On 10 February, low wall at site boundary was observed to be broken. It should be repaired to prevent water from flowing out of site.
- On 10 February, washing basins were recommended to be moved to another location so as to avoid sewage being discharged improperly.
- On 10 February, toilets were recommended to be cleaned regularly and the Contractor should make sure that the sewage is discharged properly.

Follow-up actions were undertaken as reported by the Contractor and observed in the site inspection conducted in the reporting period.

7.7 ENVIRONMENTAL NON-CONFORMANCE

7.7.1 Summary of Monitoring Exceedance

No exceedance of the Action and Limit Levels of 1-hour TSP and 24-hour TSP were recorded at monitoring stations during the reporting period.

No exceedance of the Action and Limit Levels of construction noise was recorded at monitoring stations during the reporting period.

7.7.2 Summary of Environmental Non-Compliance

No non-compliance event was recorded during the reporting period.

7.7.3 Summary of Environmental Complaint

No complaint was received during the reporting period. The cumulative complaint log is shown in *Annex G6*.

7.7.3 Summary of Environmental Complaint

No complaint was received during the reporting period. The cumulative complaint log is shown in *Annex G6*.

7.7.4 Summary of Environmental Summon and Successful Prosecution

No summon or prosecution was received during the reporting period. The cumulative summon and prosecution log is shown in *Annex G6*.

8 CONCLUSIONS

The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 December 2010 to 28 February 2011 in accordance with EM&A Manual and the requirement under EP-322/2008/E. The conclusions for different sites are summarised below.

8.1 NORTH POINT PRODUCTION AND DROP SHAFT

No exceedances of Action and Limit Levels of 24-hour TSP and 1-hour TSP were recorded at the air quality monitoring stations during the reporting period.

Five exceedances of noise Limit Level during restricted hours were reported at NM1 on 10 and 23 December 2010, 7 and 21 January 2011, and 18 February 2011. Investigations into the incident was made and concluded that the road traffic noise in the vicinity of the Project was the major cause of the noise levels recorded. However, the Contractor of this Project was reminded to adhere strictly to the Construction Noise Mitigation Plan and to implement all relevant noise mitigation measures to avoid exceedance of noise limit levels or causing noise nuisance.

No non-compliance event was recorded during the reporting period.

There was no complaint or summons/prosecution received during the reporting period.

8.2 WAN CHAI EAST PRODUCTION AND DROP SHAFTS

No exceedances of Action and Limit Levels of 24-hour TSP and 1-hour TSP were recorded at the air quality monitoring station during the reporting period.

Eleven exceedances of noise Limit Level during restricted hours was reported at NM2 on 10, 19, and 23 December 2010; 2, 7, 16, 21 and 30 January 2011; and 13, 18, and 27 February 2011. Investigations into the incident was made and concluded that the road traffic noise in the vicinity of the Project was the major cause of the noise levels recorded. However, the Contractor of this Project was reminded to adhere strictly to the Construction Noise Mitigation Plan and to implement all relevant noise mitigation measures to avoid exceedance of noise limit levels or causing noise nuisance.

No non-compliance event was recorded during the reporting period.

There was no complaint or summons/prosecution received during the reporting period

8.3 CENTRAL DROP SHAFT

No exceedances of Action and Limit Levels of 24-hour TSP and 1-hour TSP were recorded at the air quality monitoring station during the reporting period.

No exceedances of Action and Limit Levels for construction noise were recorded at the monitoring station during the reporting period.

No non-compliance event was recorded during the reporting period.

There was no complaint or summons/prosecution received during the reporting period.

8.4 SAI YING PUN JUNCTION SHAFT

No exceedances of Action and Limit Levels of 24-hour TSP and 1-hour TSP were recorded at the air quality monitoring station during the reporting period.

No exceedances of Action and Limit Levels for construction noise were recorded at the monitoring station during the reporting period.

No non-compliance event was recorded during the reporting period.

There was no complaint or summons/prosecution received during the reporting period.

8.5 STONECUTTERS ISLAND PRODUCTION AND RISER SHAFTS

No exceedances of Action and Limit Levels of 24-hour TSP and 1-hour TSP were recorded at the monitoring stations during the reporting period.

No exceedances of Action and Limit Levels for construction noise were recorded at the monitoring stations during the reporting period.

No non-compliance event was recorded during the reporting period.

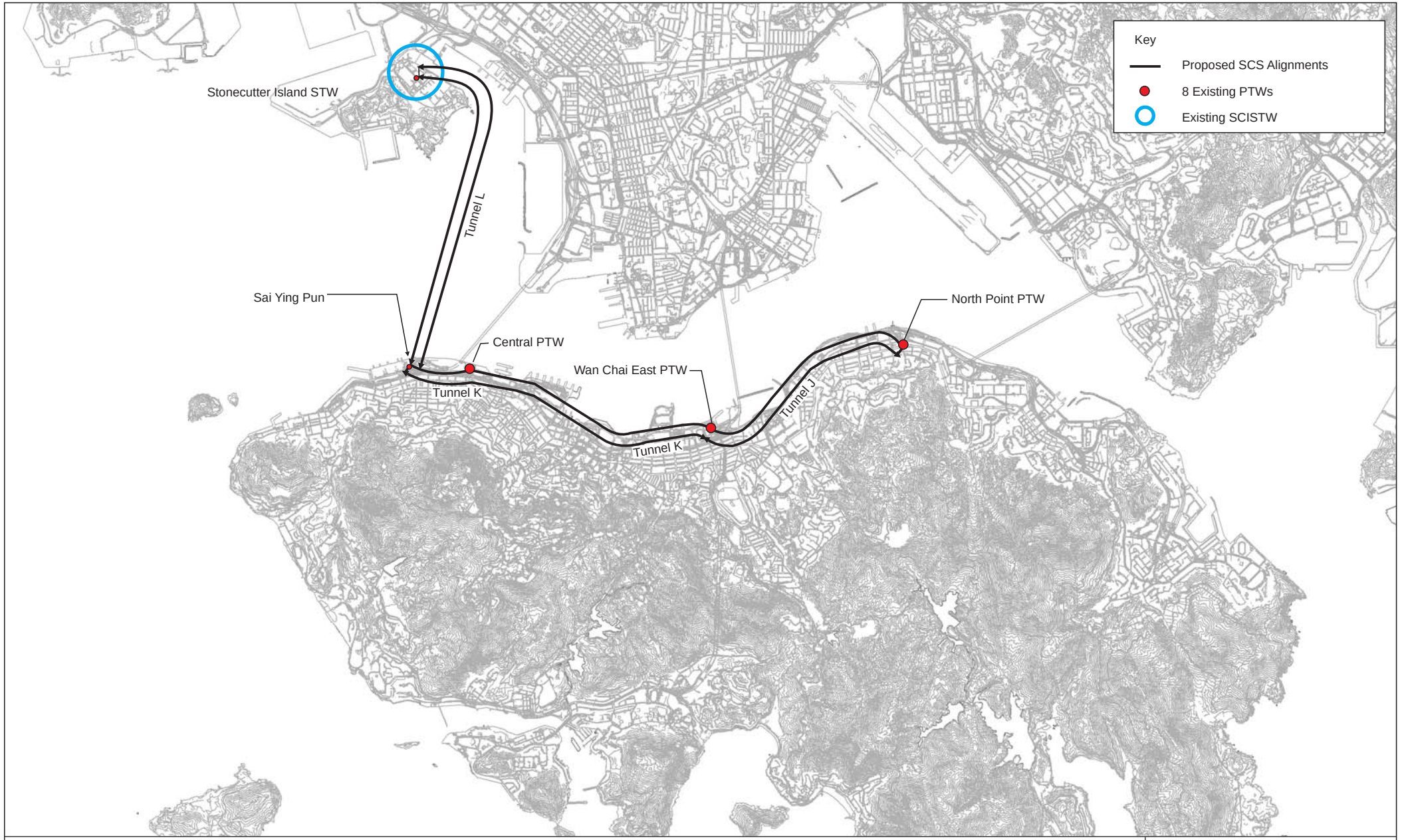
There was no complaint, summon or prosecution received during the reporting period.

8.6 OVERALL

The ET will keep track of the EM&A programme to monitor compliance of environmental requirements and verifying the proper implementation of all necessary mitigation measures.

Annex A

Locations of Works Areas



Annex A

General Layout Plan of HATS Stage 2A

FILE: 0104887h5
DATE: 17/05/2010

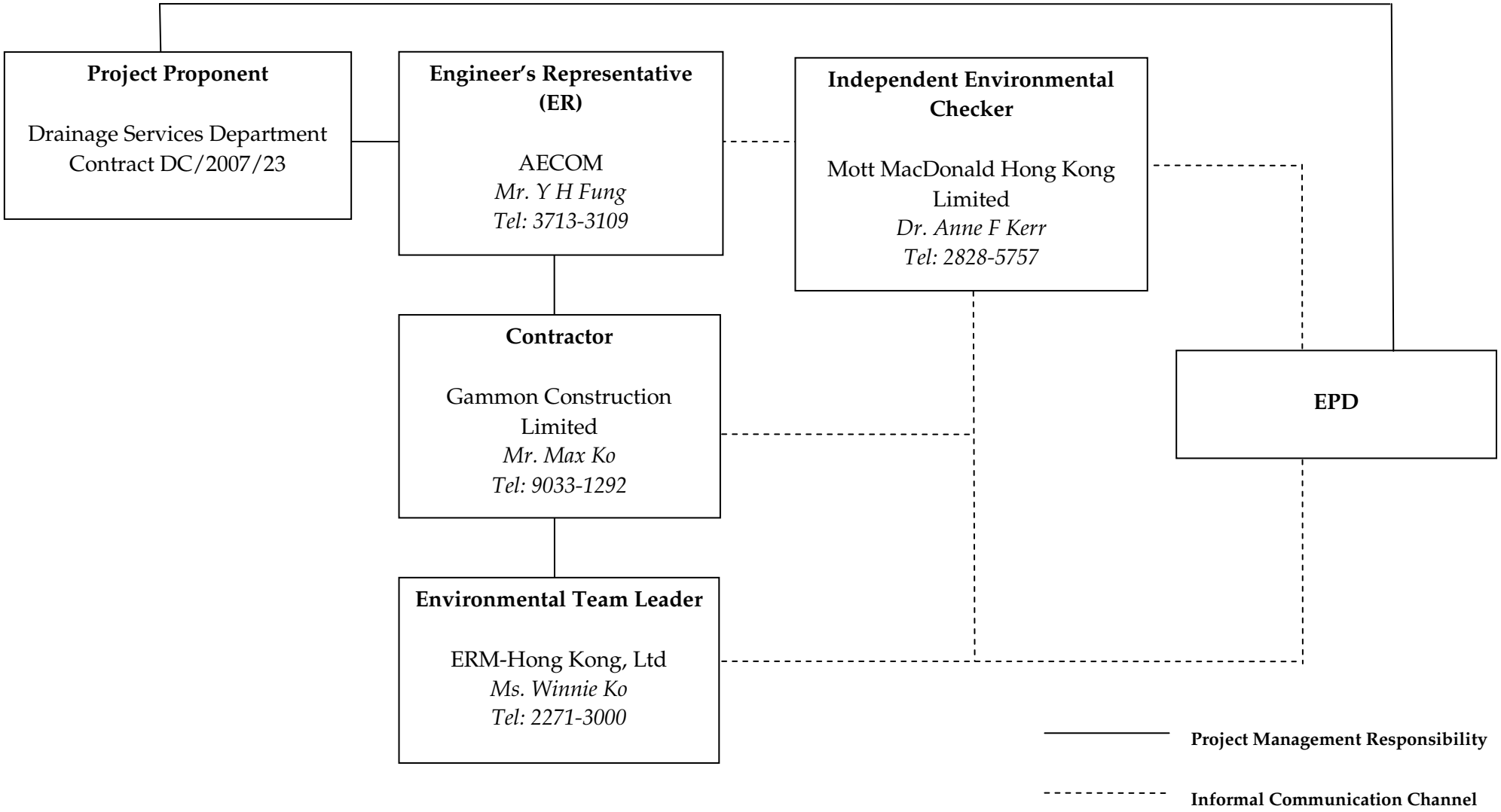
Environmental Resources Management

ERM

Annex B

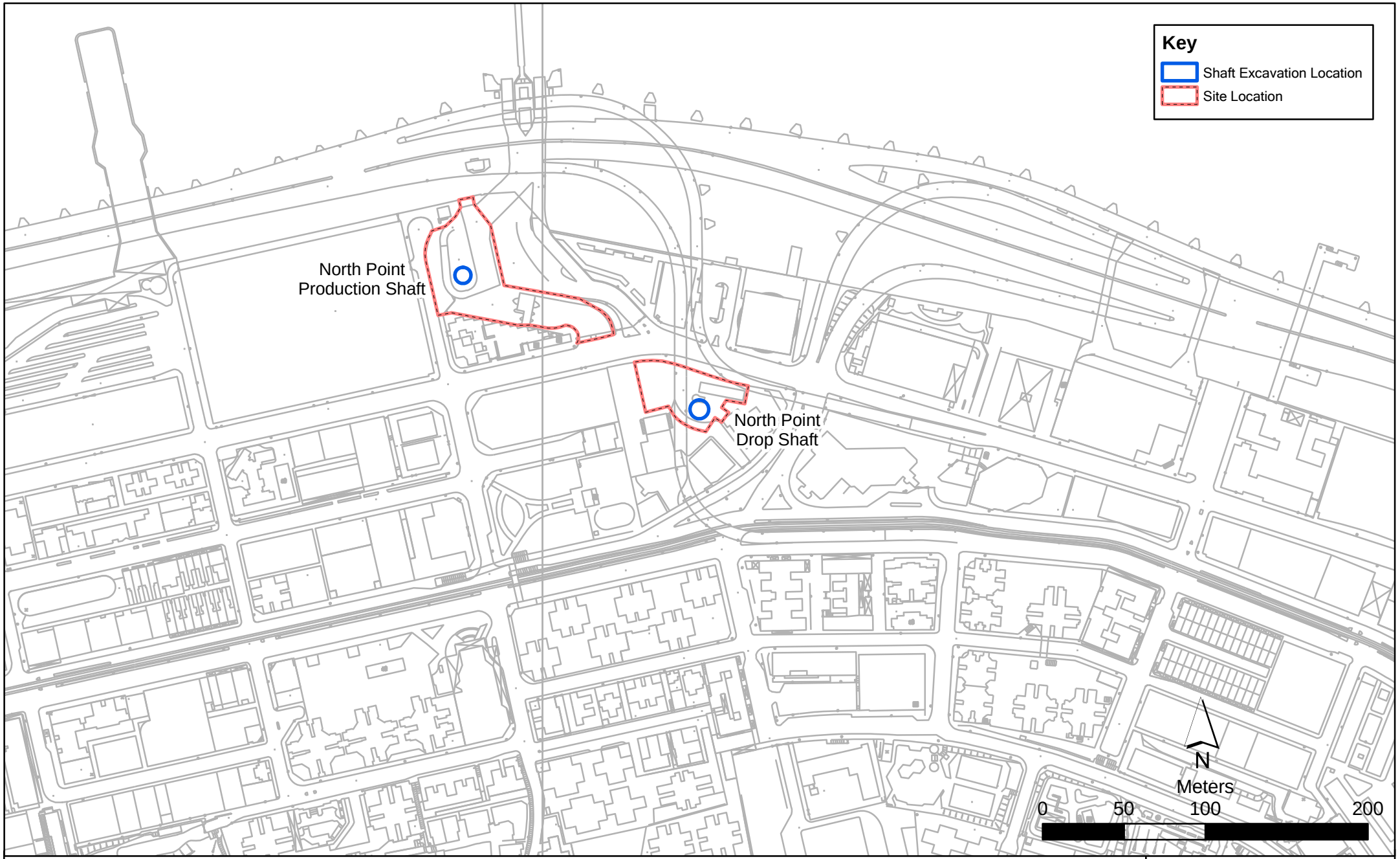
Project Organization Chart and Contact Detail

Project Organization



Annex C

North Point Production and Drop Shafts



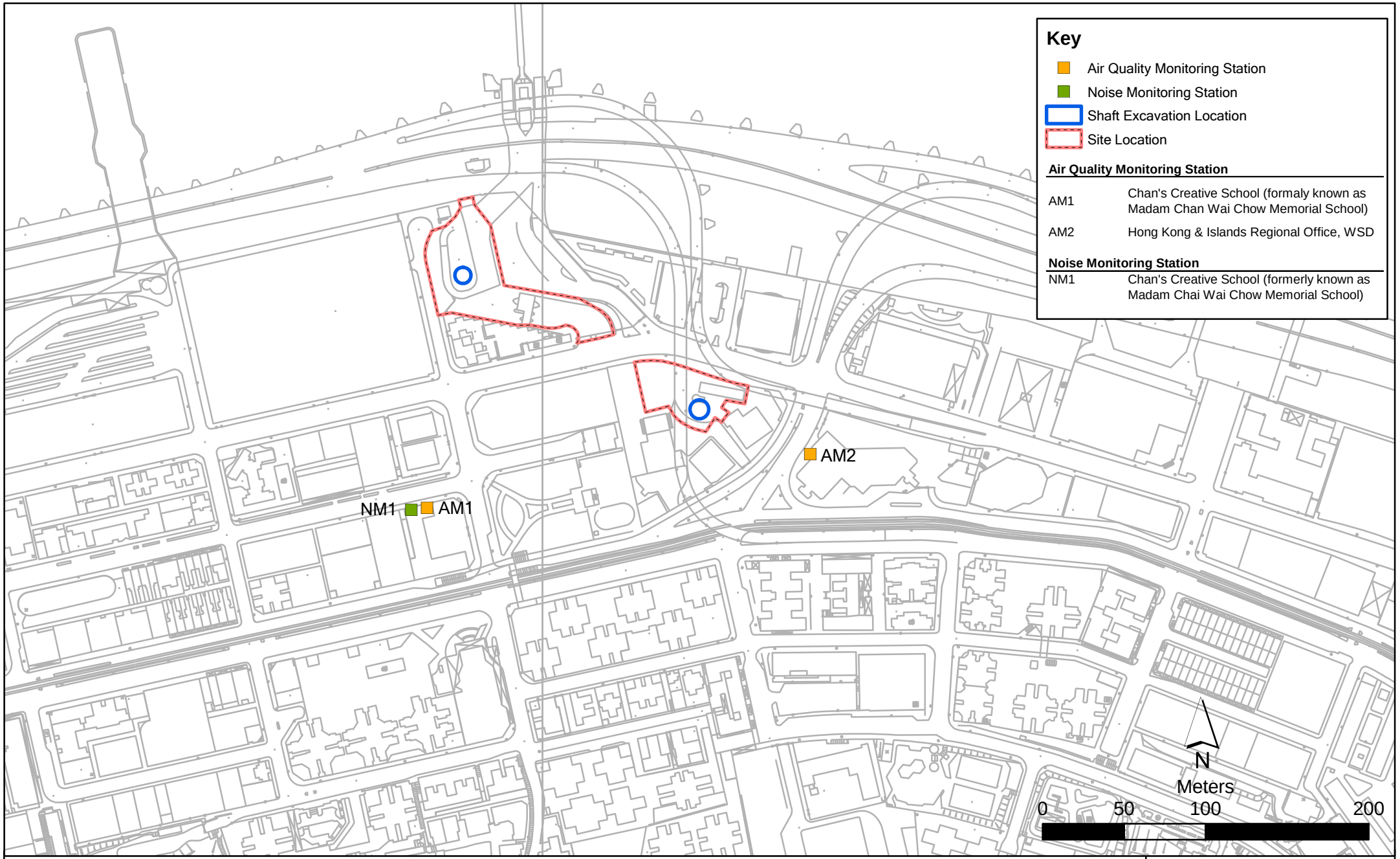
Annex C1

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
Construction Site Locations at North Point

File: EM&A and proposed station\0104887_North Point.mxd
Date: 29/10/2009

Environmental Resources Management

ERM



Annex C2

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
Impact Air Quality & Noise Monitoring Stations (North Point)

File: EM&A and proposed station\0104887_North Point_NMAM.mxd
Date: 03/03/2010

Environmental Resources Management

ERM

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Construction Phase			
Air Quality	The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimize construction dust impact. Control measures relevant to this Project are listed below: • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • 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 hardcores; • where a site boundary adjoins a road, streets or other 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; • 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; • regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather; • site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible; • tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.	All work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Air Quality	The following watering measures for specific site would be required to control the fugitive dust impacts: • watering twice per day within the worksites at North Point PTW; and • watering 8 times per day within worksites at the SCS works area at North Point.	All work sites / during construction	√
Operational Phase			
Air Quality	Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual. • Screens should be cleaned regularly to remove any accumulated organic debris • Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit • Grit and screened materials should be transferred to closed containers to minimize odour escape • Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics • Skim and remove floating solids and grease from primary clarifiers regularly • Frequent sludge withdrawal from tanks is necessary to prevent the production of gases • Sludge cake should be transferred to closed containers • Sludge containers should be flushed with water regularly	All work sites / during construction	NA. Measures not required until commencement of operational phase
Air Quality	Commissioning tests for all deodorization system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	
Construction Phase			
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Noise	Good Site Practice: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; • silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program; • mobile plant, if any, should be sited as far from NSRs as possible; • machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and • material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.	All work sites / during construction	√
Construction Phase			
Water Quality	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 work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	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.	All work sites / during construction	√
Water Quality	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) Regulation should be observed and complied with for control of chemical wastes.	All work sites / during construction	√
Water Quality	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.	All work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	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: • 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.	All work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	Construction Works in Close Proximity of Storm Drains or Seafront 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. • 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 the storm culvert or sea	All work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Operational Phase			
Water Quality	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimize the chance of emergency discharge.	SCISTW and all the Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs.	Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Construction Phase			
Waste	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 work sites / during the construction period	√
Waste	All waste materials should be segregated into categories covering: • 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 work sites / during the construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Recommendations to achieve waste reduction include: • 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; and • Proper storage and site practices to minimise the potential for damage or contamination of construction materials.	All work sites / during the construction period	√
Waste	Recommendations for good site practices during construction activities include:- • 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 • 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. • Provision of sufficient waste disposal points and regular collection of waste • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors	All work sites / during the construction period	<>
Waste	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 work sites / during the construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	All work sites / during the construction period	√
Waste	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	All work sites / during the construction period	Δ
Waste	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.	All work sites / during the construction period	√
Waste	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.	All work sites / during the construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	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.	All work sites / during the construction period	√
Construction Phase			
Landscape & Visual	• Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • 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. • Erection of decorative screen hoarding compatible with the surrounding setting.	All the works areas, PTWs and SCISTW/ during the construction period	√
Operational Phase	•		
Landscape & Visual	• Aesthetic design of the façade of PTW and associated structures to harmonize with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area	All the works areas, PTWs and SCISTW/ during the construction period	NA. Measures not required until commencement of operational phase
Construction Phase			

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.
	Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.

Remark:
√ Compliance of Mitigation Measures
<> Compliance of Mitigation but need improvement
x Non-compliance of Mitigation Measures
Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
NA Not Applicable

Annex C4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM1

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
7-Dec-10	10:10	11:10	Sunny	151	340	500	Construction work in progress	19	<5	1808	7720
7-Dec-10	11:12	12:12	Sunny	152	340	500	Construction work in progress	19	<5	1808	7776
7-Dec-10	12:14	13:14	Sunny	155	340	500	Construction work in progress	19	<5	1808	7721
11-Dec-10	9:00	10:00	Cloudy	174	340	500	Construction work in progress	20	<5	1808	7725
11-Dec-10	10:02	11:02	Cloudy	178	340	500	Construction work in progress	20	<5	1808	7727
11-Dec-10	11:04	12:04	Cloudy	191	340	500	Construction work in progress	20	<5	1808	7728
17-Dec-10	9:50	10:50	Sunny	188	340	500	Construction work in progress	10	<5	1808	7733
17-Dec-10	10:52	11:52	Sunny	180	340	500	Construction work in progress	10	<5	1808	7609
17-Dec-10	11:56	12:56	Sunny	195	340	500	Construction work in progress	10	<5	1808	7610
23-Dec-10	10:50	11:50	Sunny	181	340	500	Construction work in progress	18	<5	1808	7740
23-Dec-10	11:52	12:52	Sunny	177	340	500	Construction work in progress	18	<5	1808	7743
23-Dec-10	12:55	13:55	Sunny	184	340	500	Construction work in progress	18	<5	1808	7744
29-Dec-10	10:00	11:00	Sunny	266	340	500	Construction work in progress	17	<5	1808	7748
29-Dec-10	11:02	12:02	Sunny	204	340	500	Construction work in progress	17	<5	1808	7750
29-Dec-10	12:04	13:04	Sunny	164	340	500	Construction work in progress	17	<5	1808	7752
			Min.	**151**							
			Max.	**266**							
			Average	**183**							

* Wind Speed data is presented in the Meteorological Data table

Annex C4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM1

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
4-Jan-11	10:05	11:05	Cloudy	112	340	500	Construction work in progress	13	0-14	1808	7756
	11:08	12:08	Cloudy	126	340	500	Construction work in progress	13	0-14	1808	7879
	12:12	13:12	Cloudy	116	340	500	Construction work in progress	13	0-14	1808	7882
10-Jan-11	10:00	11:00	Sunny	121	340	500	Construction work in progress	13	0-19	1808	7885
	11:03	12:03	Sunny	119	340	500	Construction work in progress	13	0-19	1808	7887
	12:06	13:06	Sunny	114	340	500	Construction work in progress	13	0-19	1808	7890
15-Jan-11	9:00	10:00	Sunny	168	340	500	Construction work in progress	13	0-20	1808	7892
	10:02	11:02	Sunny	161	340	500	Construction work in progress	13	0-20	1808	7894
	11:06	12:06	Sunny	220	340	500	Construction work in progress	13	0-20	1808	7896
21-Jan-11	9:40	10:40	Fine	191	340	500	Construction work in progress	14	0-20	1808	7899
	10:42	11:42	Fine	168	340	500	Construction work in progress	14	0-20	1808	7967
	11:45	12:45	Fine	149	340	500	Construction work in progress	14	0-20	1808	7970
27-Jan-11	9:35	10:35	Sunny	133	340	500	Construction work in progress	16	0-15	1808	7972
	10:38	11:38	Sunny	119	340	500	Construction work in progress	16	0-15	1808	7974
	11:42	12:42	Sunny	126	340	500	Construction work in progress	16	0-15	1808	7975
			Min.	**112**							
			Max.	**220**							
			Average	**143**							

* Wind Speed data is presented in the Meteorological Data table

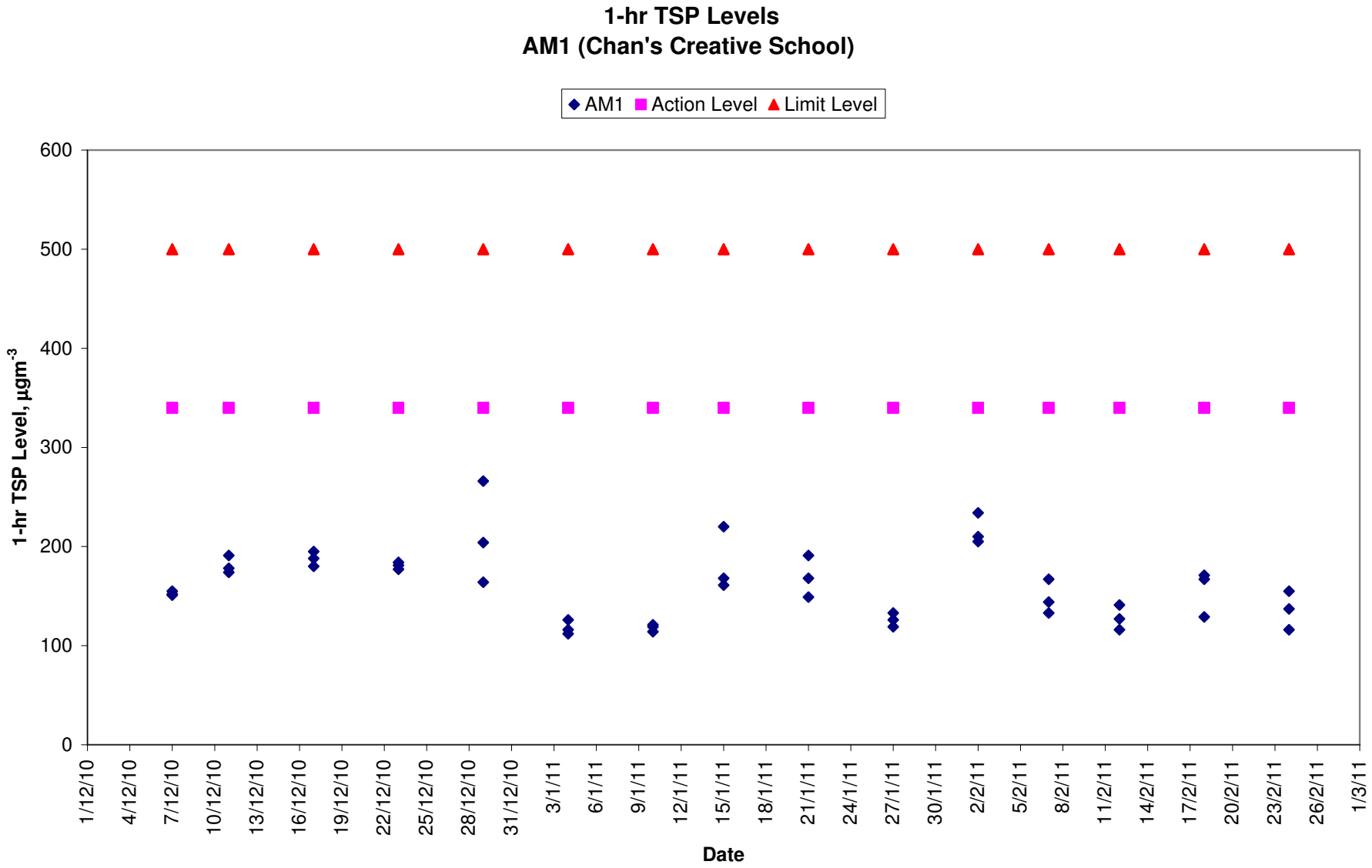
Annex C4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM1

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
2-Feb-11	10:27	11:27	Sunny	205	340	500	Construction work in progress	15	4.7	1808	7979
	11:30	12:30	Sunny	210	340	500	Construction work in progress	15	4.7	1808	7987
	12:32	13:32	Sunny	234	340	500	Construction work in progress	15	4.7	1808	7980
7-Feb-11	11:15	12:15	Sunny	167	340	500	Construction work in progress	19	4.3	1808	8176
	12:20	13:20	Sunny	144	340	500	Construction work in progress	19	4.3	1808	8178
	13:25	14:25	Sunny	133	340	500	Construction work in progress	19	4.3	1808	8181
12-Feb-11	9:00	10:00	Fine	116	340	500	Construction work in progress	14	3.3	1808	8185
	10:06	11:06	Fine	127	340	500	Construction work in progress	14	3.3	1808	8186
	11:10	12:10	Fine	141	340	500	Construction work in progress	14	3.3	1808	8189
18-Feb-11	9:20	10:20	Cloudy	167	340	500	Construction work in progress	14	2.8	1808	7984
	10:22	11:22	Cloudy	171	340	500	Construction work in progress	14	2.8	1808	8198
	11:25	12:25	Cloudy	129	340	500	Construction work in progress	14	2.8	1808	8192
24-Feb-11	9:35	10:35	Sunny	155	340	500	Construction work in progress	20	3.2	1808	8195
	10:38	11:38	Sunny	137	340	500	Construction work in progress	20	3.2	1808	8298
	11:40	12:40	Sunny	116	340	500	Construction work in progress	20	3.2	1808	8300
			Min.	**116**							
			Max.	**234**							
			Average	**157**							

* Wind Speed data is presented in the Meteorological Data table


1-hr TSP Levels
AM1 (Chan's Creative School)
AM1
Action Level
Limit Level
1-hr TSP Level, µgm-3
600
500
400
300
200
100
0
1/12/10
4/12/10
7/12/10
10/12/10
13/12/10
16/12/10
19/12/10
22/12/10
25/12/10
28/12/10
31/12/10
3/1/11
6/1/11
9/1/11
12/1/11
15/1/11
18/1/11
21/1/11
24/1/11
27/1/11
30/1/11
2/2/11
5/2/11
8/2/11
11/2/11
14/2/11
17/2/11
20/2/11
23/2/11
26/2/11
1/3/11
Date

Annex C4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM2

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
7-Dec-10	10:30	11:30	Sunny	149	352	500	Construction work in progress	19	<5	0145	7719
7-Dec-10	11:32	12:32	Sunny	139	352	500	Construction work in progress	19	<5	0145	7735
7-Dec-10	12:35	13:35	Sunny	135	352	500	Construction work in progress	19	<5	0145	7722
11-Dec-10	9:15	10:15	Cloudy	207	352	500	Construction work in progress	20	<5	0145	7728
11-Dec-10	10:17	11:17	Cloudy	239	352	500	Construction work in progress	20	<5	0145	7730
11-Dec-10	11:20	12:20	Cloudy	175	352	500	Construction work in progress	20	<5	0145	7731
17-Dec-10	10:10	11:10	Sunny	193	352	500	Construction work in progress	10	<5	0145	7734
17-Dec-10	11:12	12:12	Sunny	200	352	500	Construction work in progress	10	<5	0145	7612
17-Dec-10	12:14	13:14	Sunny	184	352	500	Construction work in progress	10	<5	0145	7738
23-Dec-10	11:10	12:10	Sunny	191	352	500	Construction work in progress	18	<5	0145	7741
23-Dec-10	12:13	13:13	Sunny	197	352	500	Construction work in progress	18	<5	0145	7742
23-Dec-10	13:15	13:45	Sunny	200	352	500	Construction work in progress	18	<5	0145	7745
29-Dec-10	9:45	10:45	Sunny	261	352	500	Construction work in progress	17	<5	0145	7749
29-Dec-10	10:47	11:47	Sunny	249	352	500	Construction work in progress	17	<5	0145	7751
29-Dec-10	11:49	12:49	Sunny	232	352	500	Construction work in progress	17	<5	0145	7753
			Min.	**135**							
			Max.	**261**							
			Average	**197**							

* Wind Speed data is presented in the Meteorological Data table

Annex C4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM2

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
4-Jan-11	9:50	10:50	Cloudy	135	352	500	Construction work in progress	13	0-14	0145	7757
	10:53	11:53	Cloudy	148	352	500	Construction work in progress	13	0-14	0145	7880
	11:56	12:56	Cloudy	155	352	500	Construction work in progress	13	0-14	0145	7881
10-Jan-11	10:15	11:15	Sunny	174	352	500	Construction work in progress	13	0-19	0145	7886
	11:18	12:18	Sunny	191	352	500	Construction work in progress	13	0-19	0145	7888
	12:23	13:23	Sunny	184	352	500	Construction work in progress	13	0-19	0145	7889
15-Jan-11	9:15	10:15	Sunny	174	352	500	Construction work in progress	13	0-20	0145	7891
	10:18	11:18	Sunny	217	352	500	Construction work in progress	13	0-20	0145	7893
	11:21	12:21	Sunny	187	352	500	Construction work in progress	13	0-20	0145	7895
21-Jan-11	10:00	11:00	Fine	222	352	500	Construction work in progress	14	0-20	0145	7906
	11:03	12:03	Fine	186	352	500	Construction work in progress	14	0-20	0145	7968
	12:06	13:06	Fine	197	352	500	Construction work in progress	14	0-20	0145	7969
27-Jan-11	9:50	10:50	Sunny	154	352	500	Construction work in progress	16	0-15	0145	7971
	10:53	11:53	Sunny	158	352	500	Construction work in progress	16	0-15	0145	7973
	11:56	12:56	Sunny	154	352	500	Construction work in progress	16	0-15	0145	7976
			Min.	**135**							
			Max.	**222**							
			Average	**176**							

* Wind Speed data is presented in the Meteorological Data table

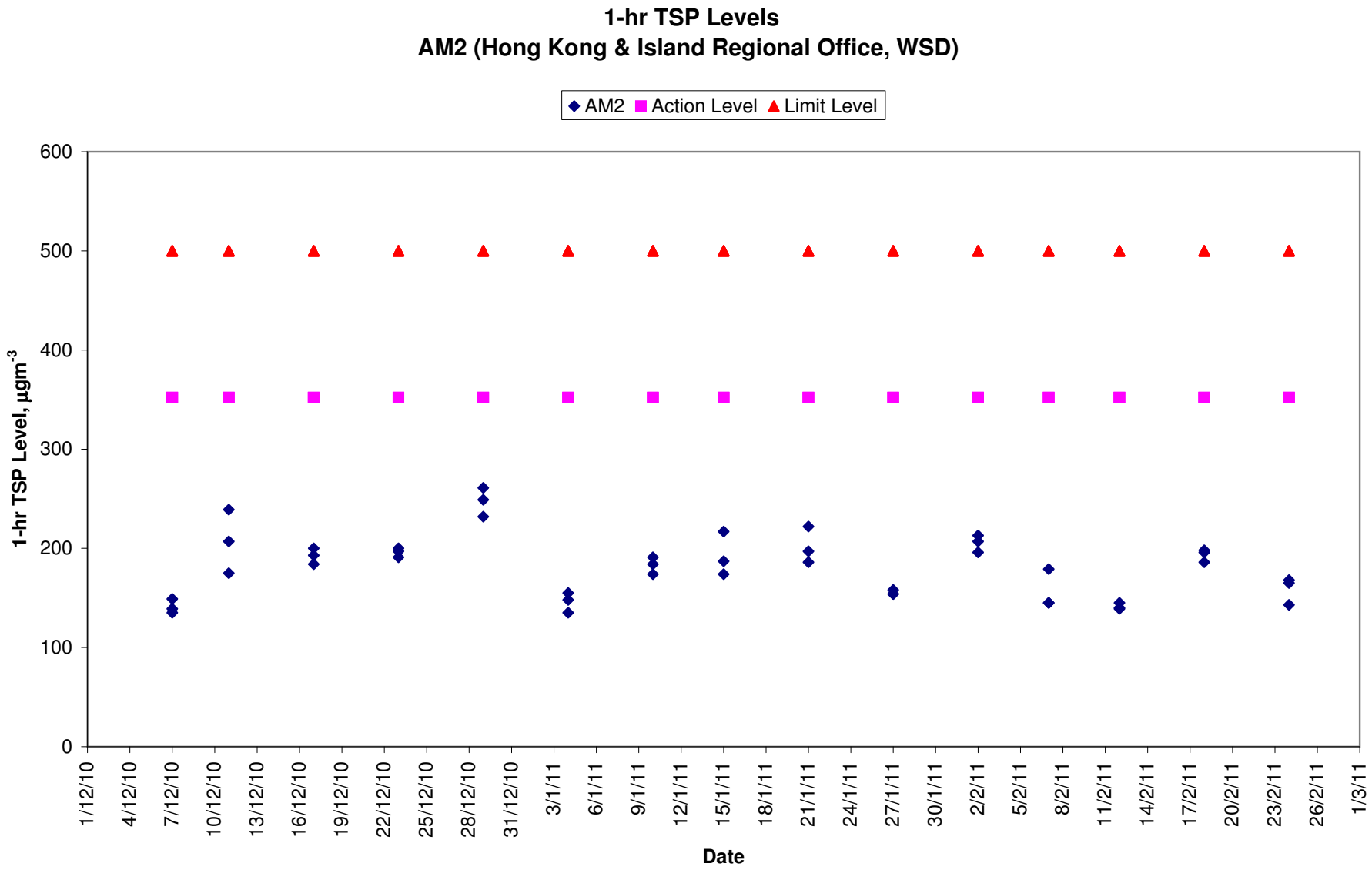
Annex C4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM2

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
2-Feb-11	10:10	11:10	Sunny	196	352	500	Construction work in progress	15	4.7	0145	7988
	11:13	12:13	Sunny	213	352	500	Construction work in progress	15	4.7	0145	7986
	12:16	13:16	Sunny	207	352	500	Construction work in progress	15	4.7	0145	7981
7-Feb-11	11:40	12:40	Sunny	145	352	500	Construction work in progress	19	4.3	0145	8177
	12:45	13:45	Sunny	145	352	500	Construction work in progress	19	4.3	0145	8179
	13:50	14:50	Sunny	179	352	500	Construction work in progress	19	4.3	0145	8180
12-Feb-11	9:20	10:20	Fine	139	352	500	Construction work in progress	14	3.3	0145	8184
	10:22	11:22	Fine	140	352	500	Construction work in progress	14	3.3	0145	8187
	11:23	12:23	Fine	145	352	500	Construction work in progress	14	3.3	0145	8188
18-Feb-11	9:40	10:40	Cloudy	196	352	500	Construction work in progress	14	2.8	0145	7989
	10:43	11:43	Cloudy	186	352	500	Construction work in progress	14	2.8	0145	8191
	11:46	12:46	Cloudy	198	352	500	Construction work in progress	14	2.8	0145	8196
24-Feb-11	10:00	11:00	Sunny	165	352	500	Construction work in progress	20	3.2	0145	8296
	11:02	12:02	Sunny	143	352	500	Construction work in progress	20	3.2	0145	8297
	12:04	13:04	Sunny	168	352	500	Construction work in progress	20	3.2	0145	8299
			Min.	**139**							
			Max.	**213**							
			Average	**171**							

* Wind Speed data is presented in the Meteorological Data table


1-hr TSP Levels
AM2 (Hong Kong & Island Regional Office, WSD)
AM2
Action Level
Limit Level
1-hr TSP Level, µgm-3
600
500
400
300
200
100
0
1/12/10
4/12/10
7/12/10
10/12/10
13/12/10
16/12/10
19/12/10
22/12/10
25/12/10
28/12/10
31/12/10
3/1/11
6/1/11
9/1/11
12/1/11
15/1/11
18/1/11
21/1/11
24/1/11
27/1/11
30/1/11
2/2/11
5/2/11
8/2/11
11/2/11
14/2/11
17/2/11
20/2/11
23/2/11
26/2/11
1/3/11
Date

Annex C4 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM1

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)			
7-Dec-10	17:20	8-Dec-10	17:20	Sunny	2.8698	3.0021	11905.03	11929.03	24.00	1.16	1.16	1.16	79	185	260	Construction work in progress	1808	7723
11-Dec-10	12:10	12-Dec-10	12:10	Cloudy	2.8569	3.0047	11932.03	11956.03	24.00	1.16	1.16	1.16	88	185	260	Construction work in progress	1808	7729
17-Dec-10	13:00	18-Dec-10	13:00	Sunny	2.8461	3.0044	11959.03	11983.03	24.00	1.16	1.16	1.16	95	185	260	Construction work in progress	1808	7611
23-Dec-10	14:00	24-Dec-10	14:00	Sunny	2.8327	2.9966	11986.03	12010.03	24.00	1.16	1.16	1.16	98	185	260	Construction work in progress	1809	7746
29-Dec-10	13:50	30-Dec-10	13:50	Sunny	2.8279	2.9969	12013.03	12037.03	24.00	1.16	1.16	1.16	101	185	260	Construction work in progress	1809	7754
												Min.	**79**					
												Max.	**101**					
												Average	**92**					

24-hour TSP Monitoring Results

Station AM2

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)			
7-Dec-10	13:40	8-Dec-10	13:40	Sunny	2.8346	2.9821	12469.93	12493.93	24.00	1.15	1.15	1.15	89	182	260	Construction work in progress	0145	7724
11-Dec-10	12:30	12-Dec-10	12:30	Cloudy	2.8735	3.0339	12496.93	12520.93	24.00	1.15	1.15	1.15	97	182	260	Construction work in progress	0145	7732
17-Dec-10	13:20	18-Dec-10	13:20	Sunny	2.8801	3.0417	12523.93	12547.93	24.00	1.15	1.15	1.15	98	182	260	Construction work in progress	0145	7739
23-Dec-10	14:20	24-Dec-10	14:20	Sunny	2.8690	3.0223	12550.93	12574.93	24.00	1.15	1.15	1.15	93	182	260	Construction work in progress	0145	7747
29-Dec-10	12:54	30-Dec-10	12:54	Sunny	2.8933	3.0551	12577.93	12601.93	24.00	1.15	1.15	1.15	98	182	260	Construction work in progress	0145	7755
												Min.	**89**					
												Max.	**98**					
												Average	**95**					

Annex C4 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM1

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m^3/min)			TSP Conc. ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
4-Jan-11	13:55	5-Jan-11	13:55	Cloudy	2.8479	2.9847	12040.03	12064.03	24.00	1.16	1.16	1.16	82	185	260	Construction work in progress	1808	7883
10-Jan-11	13:10	11-Jan-11	13:10	Sunny	2.8297	2.9800	12067.03	12091.03	24.00	1.16	1.16	1.16	90	185	260	Construction work in progress	1808	7902
15-Jan-11	12:10	16-Jan-11	12:10	Sunny	2.8907	3.0501	12094.03	12118.03	24.00	1.16	1.16	1.16	95	185	260	Construction work in progress	1808	7897
21-Jan-11	12:50	22-Jan-11	12:50	Fine	2.8467	3.0024	12121.03	12145.03	24.00	1.16	1.16	1.16	93	185	260	Construction work in progress	1809	7989
27-Jan-11	12:45	28-Jan-11	12:45	Sunny	2.8571	2.9910	12148.03	12172.03	24.00	1.18	1.18	1.18	79	185	260	Construction work in progress	1809	7977
												Min.	**79**					
												Max.	**95**					
												Average	**88**					

24-hour TSP Monitoring Results

Station AM2

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m^3/min)			TSP Conc. ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
4-Jan-11	13:00	5-Jan-11	13:00	Cloudy	2.8669	2.9971	12604.93	12628.93	24.00	1.15	1.15	1.15	79	182	260	Construction work in progress	0145	7884
10-Jan-11	13:30	11-Jan-11	13:30	Sunny	2.8806	3.0112	12631.93	12655.93	24.00	1.15	1.15	1.15	79	182	260	Construction work in progress	0145	7901
15-Jan-11	12:25	16-Jan-11	12:25	Sunny	2.8337	3.0112	12658.93	12682.93	24.00	1.15	1.15	1.15	107	182	260	Construction work in progress	0145	7898
21-Jan-11	13:10	22-Jan-11	13:10	Fine	2.8541	3.0177	12685.93	12709.93	24.00	1.15	1.15	1.15	99	182	260	Construction work in progress	0145	7990
27-Jan-11	13:00	28-Jan-11	13:00	Sunny	2.8331	2.9781	12712.93	12736.93	24.00	1.21	1.21	1.21	83	182	260	Construction work in progress	0145	7978
												Min.	**79**					
												Max.	**107**					
												Average	**89**					

Annex C4 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

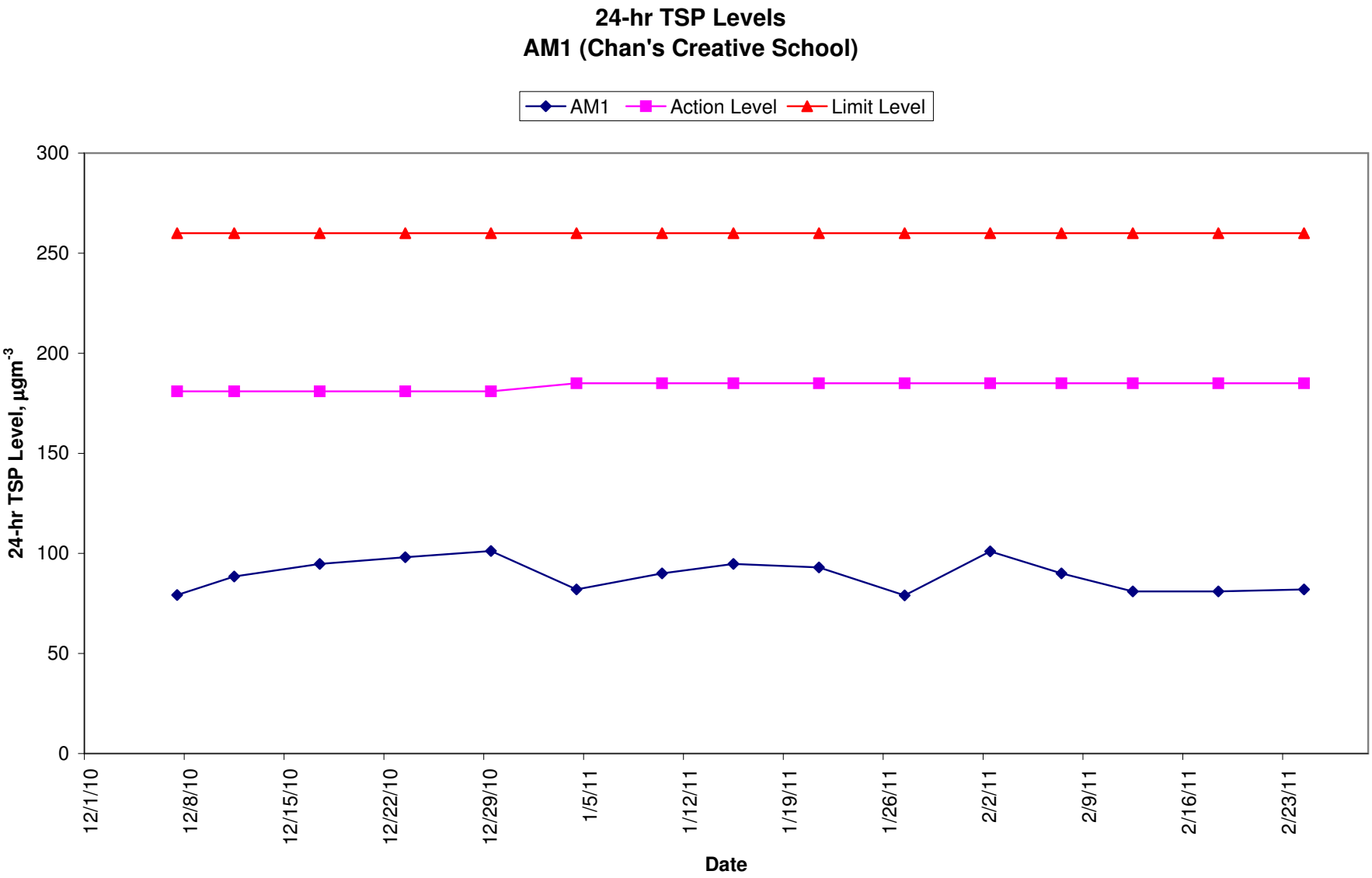
Station AM1

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)			
2-Feb-11	13:35	3-Feb-11	13:35	Sunny	2.8525	3.0249	12175.03	12199.03	24.00	1.18	1.18	1.18	101	185	260	Construction work in progress	1808	7982
7-Feb-11	15:05	8-Feb-11	15:05	Sunny	2.8542	3.0078	12202.03	12226.03	24.00	1.18	1.18	1.18	90	185	260	Construction work in progress	1808	8182
12-Feb-11	12:12	13-Feb-11	12:12	Fine	2.8732	3.0112	12229.03	12253.03	24.00	1.18	1.18	1.18	81	185	260	Construction work in progress	1808	8197
18-Feb-11	12:30	19-Feb-11	12:30	Cloudy	2.8714	3.0084	12256.03	12280.03	24.00	1.18	1.18	1.18	81	185	260	Construction work in progress	1809	8193
24-Feb-11	12:44	25-Feb-11	12:44	Sunny	2.8609	3.0007	12283.03	12307.03	24.00	1.18	1.18	1.18	82	185	260	Construction work in progress	1809	8301
												Min.	**81**					
												Max.	**101**					
												Average	**87**					

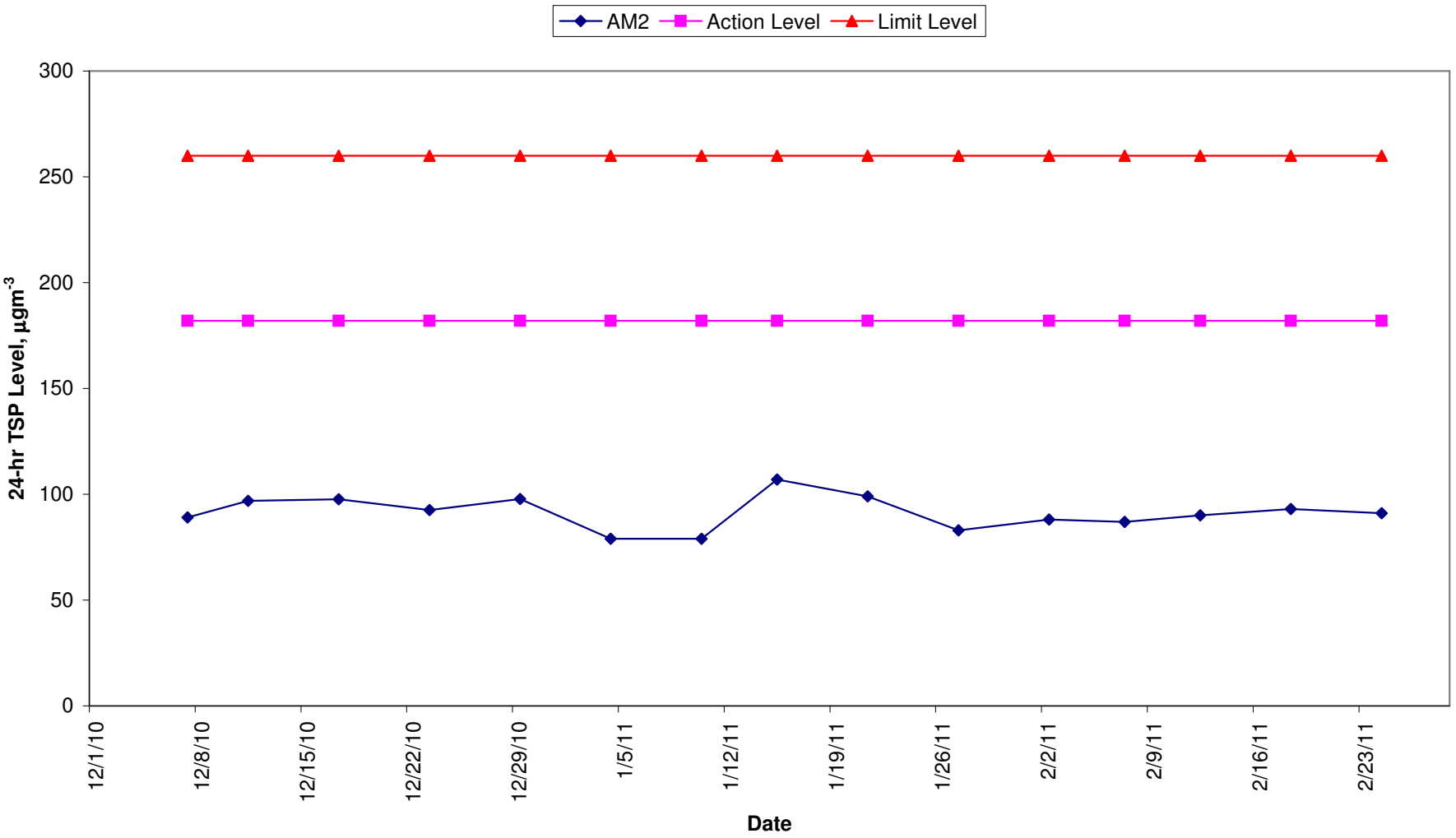
24-hour TSP Monitoring Results

Station AM2

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)			
2-Feb-11	13:20	3-Feb-11	13:20	Sunny	2.8806	3.0344	12739.93	12763.93	24.00	1.21	1.21	1.21	88	182	260	Construction work in progress	0145	7983
7-Feb-11	15:20	8-Feb-11	15:20	Sunny	2.8707	3.0219	12766.93	12790.93	24.00	1.21	1.21	1.21	87	182	260	Construction work in progress	0145	8183
12-Feb-11	12:25	13-Feb-11	12:25	Fine	2.8359	2.9924	12793.93	12817.93	24.00	1.21	1.21	1.21	90	182	260	Construction work in progress	0145	8190
18-Feb-11	12:50	19-Feb-11	12:50	Cloudy	2.8098	2.9727	12820.93	12844.93	24.00	1.21	1.21	1.21	93	182	260	Construction work in progress	0145	8194
24-Feb-11	13:10	25-Feb-11	13:10	Sunny	2.8834	3.0416	12847.93	12871.93	24.00	1.21	1.21	1.21	91	182	260	Construction work in progress	0145	8302
												Min.	**87**					
												Max.	**93**					
												Average	**90**					


24-hr TSP Levels
AM1 (Chan's Creative School)
AM1
Action Level
Limit Level
300
250
200
150
100
50
0
24-hr TSP Level, µgm-3
12/1/10
12/8/10
12/15/10
12/22/10
12/29/10
1/5/11
1/12/11
1/19/11
1/26/11
2/2/11
2/9/11
2/16/11
2/23/11
Date

24-hr TSP Levels
AM2 (Hong Kong & Island Regional Office, WSD)



Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
12/1/2010	Fine	21	65-81	0.0	0-14	E
12/5/2010	Fine	22	57-84	0.0	-	E
12/7/2010	Fine	19	42-66	0.0	0-26	NE
12/10/2010	Fine	19	66-79	0.0	0-20	E
12/11/2010	Fine	20	64-79	0.0	2-23	E
12/12/2010	Fine	19	81-88	0.0	5-23	E
12/13/2010	Fine	22	85-94	0.0	0-21	E
12/17/2010	Fine	10	28-50	0.0	0-24	NE
12/18/2010	Fine	14	46-77	0.0	0-13	E
12/19/2010	Fine	19	67-80	0.0	0-18	E
12/23/2010	Fine	18	53-82	0.0	0-20	E
12/24/2010	Fine	19	66-84	0.0	0-19	E
12/26/2010	Rainy	12	33-75	0.2	0-21	NE
12/29/2010	Fine	17	55-83	0.0	0-14	SE
12/30/2010	Fine	18	39-85	0.0	0-18	E

		Tsing Yi Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
12/1/2010	Fine	22	65-81	0.0	0-15	SE
12/5/2010	Fine	24	57-84	0.0	0-13	NW
12/7/2010	Fine	19	42-66	0.0	0-21	N
12/10/2010	Fine	19	66-79	0.0	3-24	E
12/11/2010	Fine	20	64-79	0.0	2-20	E
12/12/2010	Fine	20	81-88	0.0	4-21	E
12/13/2010	Fine	24	85-94	0.0	3-20	E
12/17/2010	Fine	10	28-50	0.0	2-31	NW
12/18/2010	Fine	14	46-77	0.0	0-27	E
12/19/2010	Fine	20	67-80	0.0	2-20	NE
12/23/2010	Fine	20	53-82	0.0	1-23	E
12/24/2010	Fine	20	66-84	0.0	1-18	E
12/26/2010	Rainy	13	33-75	0.2	3-32	NW
12/29/2010	Fine	18	55-83	0.0	0-10	NE
12/30/2010	Fine	19	39-85	0.0	0-18	E

		Kai Tak Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
12/1/2010	Fine	21	65-81	0.0	0-15	NE
12/5/2010	Fine	22	57-84	0.0	0-21	SE
12/7/2010	Fine	19	42-66	0.0	0-20	NE
12/10/2010	Fine	19	66-79	0.0	4-23	E
12/11/2010	Fine	20	64-79	0.0	4-25	E
12/12/2010	Fine	19	81-88	0.0	10-32	E
12/13/2010	Fine	22	85-94	0.0	2-30	E
12/17/2010	Fine	10	28-50	0.0	3-30	NW
12/18/2010	Fine	14	46-77	0.0	0-13	NE
12/19/2010	Fine	19	67-80	0.0	3-24	SE
12/23/2010	Fine	18	53-82	0.0	3-26	E
12/24/2010	Fine	19	66-84	0.0	7-23	E
12/26/2010	Rainy	12	33-75	0.2	3-33	N
12/29/2010	Fine	17	55-83	0.0	0-20	SE
12/30/2010	Fine	18	39-85	0.0	0-24	E

		Green Island Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
12/1/2010	Fine	21	65-81	0.0	3-29	N
12/5/2010	Fine	22	57-84	0.0	0-37	NE
12/7/2010	Fine	19	42-66	0.0	0-45	NE
12/10/2010	Fine	19	66-79	0.0	15-44	NE
12/11/2010	Fine	20	64-79	0.0	22-45	NE
12/12/2010	Fine	19	81-88	0.0	34-57	NE
12/13/2010	Fine	22	85-94	0.0	21-52	NE
12/17/2010	Fine	10	28-50	0.0	22-58	N
12/18/2010	Fine	14	46-77	0.0	9-35	N
12/19/2010	Fine	19	67-80	0.0	7-36	NE
12/23/2010	Fine	18	53-82	0.0	12-39	NE
12/24/2010	Fine	19	66-84	0.0	14-37	NE
12/26/2010	Rainy	12	33-75	0.2	18-53	N
12/29/2010	Fine	17	55-83	0.0	3-24	N
12/30/2010	Fine	18	39-85	0.0	5-48	NE

* King's Park's data
\- Data were not available
\# less than 24 hourly observations per day

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
1/2/2011	Fine	15	56-72	0.0	1-25	N
1/4/2011	Rainy	13	76-90	1.2	0-14	NE
1/5/2011	Fine	16	71-82	0.0	0-17	E
1/7/2011	Fine	11	55-69	0.0	0-18	N
1/9/2011	Fine	15	46-65	0.0	0-12	E
1/10/2011	Fine	13	46-62	0.0	0-19	N
1/11/2011	Rainy	10	52-74	Trace	0-17	N
1/14/2011	Fine	17	60-81	0.0	0-14	NE
1/15/2011	Fine	13	45-76	0.0	0-20	N
1/16/2011	Fine	11	50-70	0.0	5-25	N
1/17/2011	Fine	12	47-75	0.0	0-17	NE
1/20/2011	Fine	16	57-89	0.0	-	-
1/21/2011	Fine	14	51-68	0.0	0-20	NE
1/22/2011	Fine	13	64-75	0.0	0-16	N
1/23/2011	Fine	15	57-80	0.0	0-16	E
1/26/2011	Fine	15	57-84	0.0	0-17	E
1/27/2011	Fine	16	62-85	0.0	0-15	E
1/28/2011	Fine	15	56-86	0.0	0-18	E
1/30/2011	Fine	12	44-59	0.0	0-22	N

		Tsing Yi Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
1/2/2011	Fine	15	56-72	0.0	1-22	E
1/4/2011	Rainy	12	76-90	1.2	2-17	NW
1/5/2011	Fine	16	71-82	0.0	2-15	NW
1/7/2011	Fine	10	55-69	0.0	2-23	NW
1/9/2011	Fine	15	46-65	0.0	0-10	NE
1/10/2011	Fine	13	46-62	0.0	1-21	NW
1/11/2011	Rainy	10	52-74	Trace	0-21	NW
1/14/2011	Fine	17	60-81	0.0	0-15	NW
1/15/2011	Fine	13	45-76	0.0	0-20	NW
1/16/2011	Fine	11	50-70	0.0	3-30	NW
1/17/2011	Fine	13	47-75	0.0	1-14	E
1/20/2011	Fine	16	57-89	0.0	-	-
1/21/2011	Fine	13	51-68	0.0	2-24	NW
1/22/2011	Fine	13	64-75	0.0	0-20	NW
1/23/2011	Fine	15	57-80	0.0	0-15	SE
1/26/2011	Fine	15	57-84	0.0	0-12	NW
1/27/2011	Fine	17	62-85	0.0	0-16	S
1/28/2011	Fine	15	56-86	0.0	1-19	SE
1/30/2011	Fine	13	44-59	0.0	2-18	NW

		Kai Tak Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
1/2/2011	Fine	15	56-72	0.0	10-30	E
1/4/2011	Rainy	13	76-90	1.2	1-20	NE
1/5/2011	Fine	16	71-82	0.0	2-21	E
1/7/2011	Fine	11	55-69	0.0	3-23	NW
1/9/2011	Fine	15	46-65	0.0	0-20	N
1/10/2011	Fine	13	46-62	0.0	0-21	NW
1/11/2011	Rainy	10	52-74	Trace	0-17	NW
1/14/2011	Fine	17	60-81	0.0	0-24	SE
1/15/2011	Fine	13	45-76	0.0	0-26	N
1/16/2011	Fine	11	50-70	0.0	4-31	NE
1/17/2011	Fine	12	47-75	0.0	0-23	NE
1/20/2011	Fine	16	57-89	0.0	-	-
1/21/2011	Fine	14	51-68	0.0	0-26	NW
1/22/2011	Fine	13	64-75	0.0	0-18	NW
1/23/2011	Fine	15	57-80	0.0	0-20	SE
1/26/2011	Fine	15	57-84	0.0	0-21	E
1/27/2011	Fine	16	62-85	0.0	0-23	SE
1/28/2011	Fine	15	56-86	0.0	0-24	E
1/30/2011	Fine	12	44-59	0.0	1-21	NE

		Green Island Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
1/2/2011	Fine	15	56-72	0.0	26-60	N
1/4/2011	Rainy	13	76-90	1.2	15-45	N
1/5/2011	Fine	16	71-82	0.0	13-42	-
1/7/2011	Fine	11	55-69	0.0	15-46	-
1/9/2011	Fine	15	46-65	0.0	0-27	-
1/10/2011	Fine	13	46-62	0.0	0-40	-
1/11/2011	Rainy	10	52-74	Trace	5-44	N
1/14/2011	Fine	17	60-81	0.0	6-32	N
1/15/2011	Fine	13	45-76	0.0	0-45	N
1/16/2011	Fine	11	50-70	0.0	23-47	N
1/17/2011	Fine	12	47-75	0.0	12-42	N
1/20/2011	Fine	16	57-89	0.0	-	-
1/21/2011	Fine	14	51-68	0.0	5-50	N
1/22/2011	Fine	13	64-75	0.0	15-36	N
1/23/2011	Fine	15	57-80	0.0	11-38	N
1/26/2011	Fine	15	57-84	0.0	3-32	NE
1/27/2011	Fine	16	62-85	0.0	0-34	NE
1/28/2011	Fine	15	56-86	0.0	3-41	NE
1/30/2011	Fine	12	44-59	0.0	2-37	N

* King's Park's data
\- Data were not available
\# less than 24 hourly observations per day

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2/1/2011	Fine	14	54-80	0.0	0-17	E
2/2/2011	Sunny	15	47-79	0.0	0-14	NE
2/7/2011	Sunny	19	45-84	0.0	0-18	E
2/8/2011	Sunny	21	60-91	0.0	0-20	E
2/11/2011	Cloudy	16	61-92	Trace	0-19	-
2/12/2011	Fine	14	63-76	0.0	0-15	N
2/14/2011	Cloudy	10	60-88	0.6	0-17	N
2/17/2011	Cloudy	16	88-98	Trace	0-15	E
2/18/2011	Cloudy	14	86-95	Trace	0-16	E
2/19/2011	Cloudy	12	85-94	2.0	0-18	E
2/20/2011	Cloudy	14	70-94	0.9	0-13	N
2/23/2011	Cloudy	18	56-82	0.0	3-23	E
2/24/2011	Cloudy	19	65-89	0.0	0-17	E
2/25/2011	Cloudy	20	66-88	0.0	0-15	E
2/27/2011	Cloudy	21	62-91	Trace	1-22	E

		Tsing Yi Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2/1/2011	Fine	15	54-80	0.0	1-14	E
2/2/2011	Sunny	16	47-79	0.0	0-17	N
2/7/2011	Sunny	20	45-84	0.0	0-15	N
2/8/2011	Sunny	22	60-91	0.0	2-23	SE
2/11/2011	Cloudy	16	61-92	Trace	0-16	E
2/12/2011	Fine	14	63-76	0.0	0-13	NW
2/14/2011	Cloudy	10	60-88	0.6	0-23	N
2/17/2011	Cloudy	16	88-98	Trace	0-9	NW
2/18/2011	Cloudy	14	86-95	Trace	0-20	NW
2/19/2011	Cloudy	12	85-94	2.0	0-14	E
2/20/2011	Cloudy	14	70-94	0.9	0-14	NW
2/23/2011	Cloudy	19	56-82	0.0	0-21	E
2/24/2011	Cloudy	20	65-89	0.0	0-12	S
2/25/2011	Cloudy	20	66-88	0.0	0-14	S
2/27/2011	Cloudy	22	62-91	Trace	0-22	SE

		Kai Tak Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2/1/2011	Fine	14	54-80	0.0	3-22	E
2/2/2011	Sunny	15	47-79	0.0	0-17	N
2/7/2011	Sunny	19	45-84	0.0	7-24	SE
2/8/2011	Sunny	21	60-91	0.0	6-28	E
2/11/2011	Cloudy	16	61-92	Trace	2-27	E
2/12/2011	Fine	14	63-76	0.0	4-20	NE
2/14/2011	Cloudy	10	60-88	0.6	0-21	NW
2/17/2011	Cloudy	16	88-98	Trace	4-18	SE
2/18/2011	Cloudy	14	86-95	Trace	0-20	E
2/19/2011	Cloudy	12	85-94	2.0	2-22	E
2/20/2011	Cloudy	14	70-94	0.9	0-18	NW
2/23/2011	Cloudy	18	56-82	0.0	6-28	E
2/24/2011	Cloudy	19	65-89	0.0	3-20	SE
2/25/2011	Cloudy	20	66-88	0.0	6-22	SE
2/27/2011	Cloudy	21	62-91	Trace	4-31	SE

		Green Island Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2/1/2011	Fine	14	54-80	0.0	5-40	NE
2/2/2011	Sunny	15	47-79	0.0	0-23	NE
2/7/2011	Sunny	19	45-84	0.0	1-35	NE
2/8/2011	Sunny	21	60-91	0.0	3-45	NE
2/11/2011	Cloudy	16	61-92	Trace	0-47	NE
2/12/2011	Fine	14	63-76	0.0	2-32	N
2/14/2011	Cloudy	10	60-88	0.6	4-38	N
2/17/2011	Cloudy	16	88-98	Trace	2-38	NE
2/18/2011	Cloudy	14	86-95	Trace	3-36	NW
2/19/2011	Cloudy	12	85-94	2.0	13-43	NE
2/20/2011	Cloudy	14	70-94	0.9	5-32	N
2/23/2011	Cloudy	18	56-82	0.0	4-51	NE
2/24/2011	Cloudy	19	65-89	0.0	1-27	NE
2/25/2011	Cloudy	20	66-88	0.0	2-32	NE
2/27/2011	Cloudy	21	62-91	Trace	0-62	NE

* King's Park's data
\- Data were not available
\# less than 24 hourly observations per day

Annex C5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM1

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
7-Dec-10	9:35	10:05	Sunny	67.2	69.2	64.0	No construction noise was being heard	Traffic Noise	-	19	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
17-Dec-10	9:15	9:45	Sunny	64.8	67.0	62.1	Minor cuttingnoise from custom building	Traffic Noise	-	10	1.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
23-Dec-10	10:16	10:46	Sunny	66.6	68.5	64.1	Cutting noise from Custom Building	Traffic noise, noise from nearby plyaground	-	18	0.3	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
29-Dec-10	13:18	13:48	Sunny	69.3	71.0	66.1	Noise from nearby playground	Traffic Noise	-	17	0.4	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
			Min.	**64.8**									
			Max.	**69.3**									

Annex C5 Noise Monitoring Results

Restricted Hours Noise Monitoring Results [1]

Station NM1

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s)	Other Noise Source(s)	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
5-Dec-10	10:00	10:05	Sunny	66.0	67.9	61.3	Noise from nearby playground and idling of private bus nearby (the last 10min)	Mainly traffic noise	-	22	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	10:05	10:10	Sunny	68.5	70.4	65.8			-				
	10:10	10:15	Sunny	68.4	70.4	66.1			-				
	10:00	10:15	Sunny	67.8	69.7	64.9			Average results during 15 min monitoring				
10-Dec-10	23:06	23:11	Fine	63.5	64.0	56.0	-	Mainly traffic noise	-	19	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	23:11	23:16	Fine	60.3	62.6	56.1			-				
	23:16	23:21	Fine	64.0	64.3	56.9			-				
	23:06	23:21	Fine	62.9	63.7	56.4			Average results during 15 min monitoring				
19-Dec-10	10:00	10:05	Sunny	64.9	67.0	62.0	-	Traffic noise	-	19	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	10:05	10:10	Sunny	68.8	70.9	62.9			-				
	10:10	10:15	Sunny	67.1	69.9	63.2			-				
	10:00	10:15	Sunny	67.2	69.6	62.7			Average results during 15 min monitoring				
23-Dec-10	23:08	23:13	Sunny	63.4	63.9	56.3	-	Traffic noise	-	18	0.2	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	23:13	23:18	Sunny	62.0	62.5	56.5			-				
	23:18	23:23	Sunny	62.6	63.0	56.0			-				
	23:08	23:23	Sunny	62.7	63.2	56.3			Average results during 15 min monitoring				
			Min.	**60.3**									
			Max.	**68.8**									

[1] No class was held at the school during the measurement period on 5, 10, 19, and 23 December 2010.

Annex C5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM1

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
4-Jan-11	13:20	13:50	Cloudy	66.4	68.4	63.5	-	Mainly traffic noise	-	13	0.8	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
10-Jan-11	9:25	9:55	Sunny	66.4	68.9	63.0	-	Mainly traffic noise	-	13	0.5	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
21-Jan-11	9:05	9:35	Sunny	66.8	68.9	63.1	Noise from unloading of goods from truck	Mainly traffic noise	-	14	0.5	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
27-Jan-11	9:00	9:30	Sunny	67.0	69.1	63.9	-	Mainly traffic noise	-	16	0.7	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
			Min.	**66.4**									
			Max.	**67.0**									

Annex C5 Noise Monitoring Results

Restricted Hours Noise Monitoring Results [1]

Station NM1

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s)	Other Noise Source(s)	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
2-Jan-11	15:44	15:49	Cloudy	67.9	68.6	66.9	Noise from nearby playgroud	Traffic noise	-	15	0.6	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	15:49	15:54	Cloudy	70.5	70.8	69.8			-				
	15:54	15:59	Cloudy	62.7	63.3	62.5			-				
	15:44	15:59	Cloudy	68.1	68.5	67.3			Average results during 15 min monitoring				
7-Jan-11	23:00	23:05	Fine	63.6	65.4	57.4	-	Mainly traffic noise	-	11	0.8	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	23:05	23:10	Fine	61.9	64.1	57.2			-				
	23:10	23:15	Fine	64.2	65.4	56.0			-				
	23:00	23:15	Fine	63.3	65.0	56.9			Average results during 15 min monitoring				
16-Jan-11	11:35	11:40	Sunny	66.9	68.7	61.0	Noise from nearby playgroud	Traffic noise	-	11	1.6	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	11:40	11:45	Sunny	65.3	68.3	61.3			-				
	11:45	11:50	Sunny	67.4	68.5	60.6			-				
	11:35	11:50	Sunny	66.6	68.5	61.0			Average results during 15 min monitoring				
21-Jan-11	23:00	23:05	Fine	62.7	63.8	58.0	-	Mainly traffic noise	-	14	0.5	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	23:05	23:10	Fine	62.0	63.9	58.9			-				
	23:10	23:15	Fine	60.2	61.9	57.3			-				
	23:00	23:15	Fine	61.8	63.3	58.1			Average results during 15 min monitoring				
30-Jan-11	11:35	11:40	Sunny	66.7	68.9	61.2	-	Traffic noise, passer-by and nearby playground	-	12	0.5	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	11:40	11:45	Sunny	66.3	68.5	61.4			-				
	11:45	11:50	Sunny	67.0	68.2	61.6			-				
	11:35	11:50	Sunny	66.7	68.5	61.4			Average results during 15 min monitoring				
			Min.	**60.2**									
			Max.	**70.5**									

[1] No class was held at the school during the measurement period on 2, 7, 16, 21 and 30 January 2011.

Annex C5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM1

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
2-Feb-11	14:40	15:10	Sunny	67.6	69.9	64.0	-	Traffic noise	-	15	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
7-Feb-11	14:30	15:00	Sunny	66.8	69.2	63.1	-	Traffic noise, noise from nearby playground	-	19	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
18-Feb-11	15:40	15:55	Trace Rain	66.2	68.1	61.5	Noise from pass-by and nearby playgroudn	Traffic noise	-	14	0.6	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
24-Feb-11	9:00	9:30	Sunny	66.9	69.0	63.9	-	Mainly traffic noise	-	19	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
			Min.	**66.2**									
			Max.	**67.6**									

Annex C5 Noise Monitoring Results

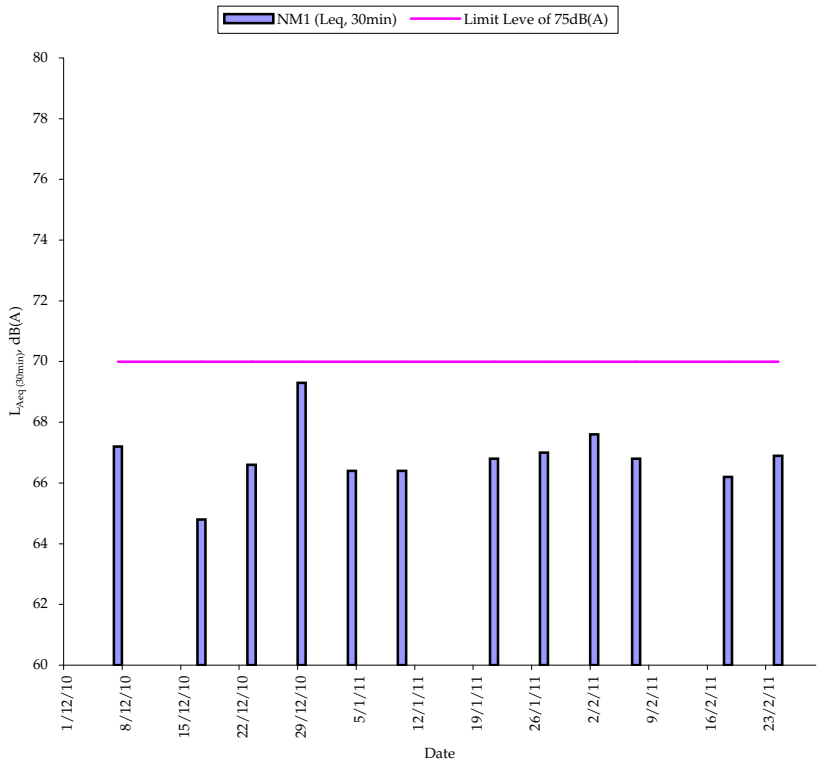
Restricted Hours Noise Monitoring Results [1]

Station NM1

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s)	Other Noise Source(s)	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
13-Feb-11	15:40	15:45	Trace Rain	65.6	67.9	60.8	Noise from traffic pass-by and nearby playground	Traffic noise	-	12	0.6	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	15:45	15:50	Trace Rain	66.0	68.1	61.2			-				
	15:50	15:55	Trace Rain	66.8	68.4	61.7			-				
	15:40	15:55	Trace Rain	66.2	68.1	61.2			-				
18-Feb-11	23:00	23:05	Fine	62.4	63.7	57.9	-	Mainly traffic noise	-	14	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	23:05	23:10	Fine	61.1	63.9	58.0			-				
	23:10	23:15	Fine	61.5	62.9	58.2			-				
	23:00	23:15	Fine	61.7	63.5	58.0			-				
27-Feb-11	9:50	9:55	Sunny	68.1	70.2	60.9	-	traffic noise and nearby playground	-	21	0.2	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
	9:55	10:00	Sunny	64.4	66.1	60.7			-				
	10:00	10:05	Sunny	64.0	66.5	60.9			-				
	9:50	10:05	Sunny	65.9	68.0	60.8			-				
			Min.	**61.1**									
			Max.	**68.1**									

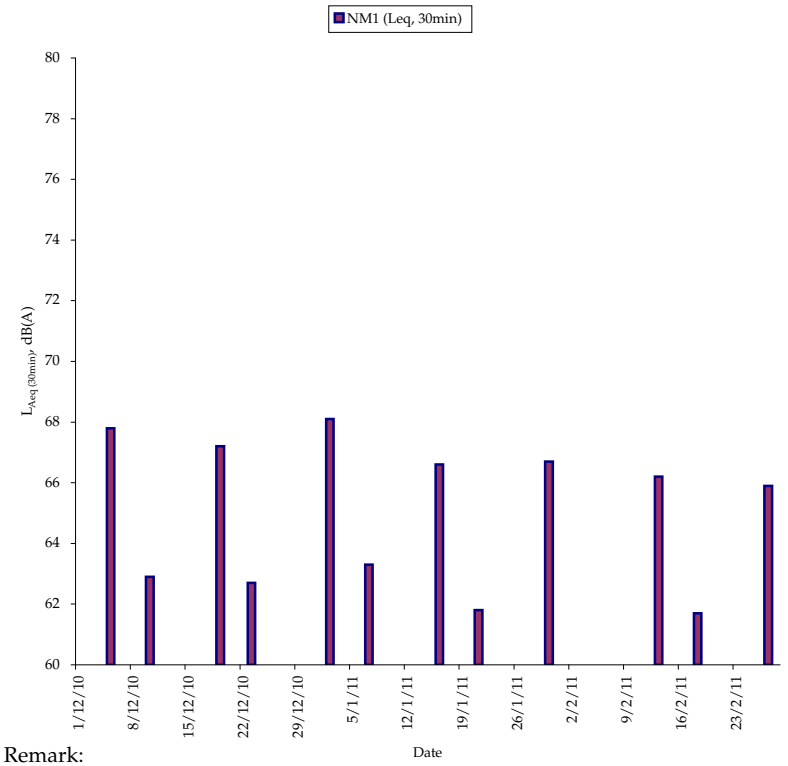
[1] No class was held at the school during the measurement period on 13, 18 and 27 February 2011.

Noise Monitoring Results at NM1 ($L_{eq, 30min}$)



Remark:
- 75 dB(A) was adopted as the Limit Level during school holiday in the reporting period

Restricted Hours Noise Monitoring Results at NM1 ($L_{eq, 30min}$)



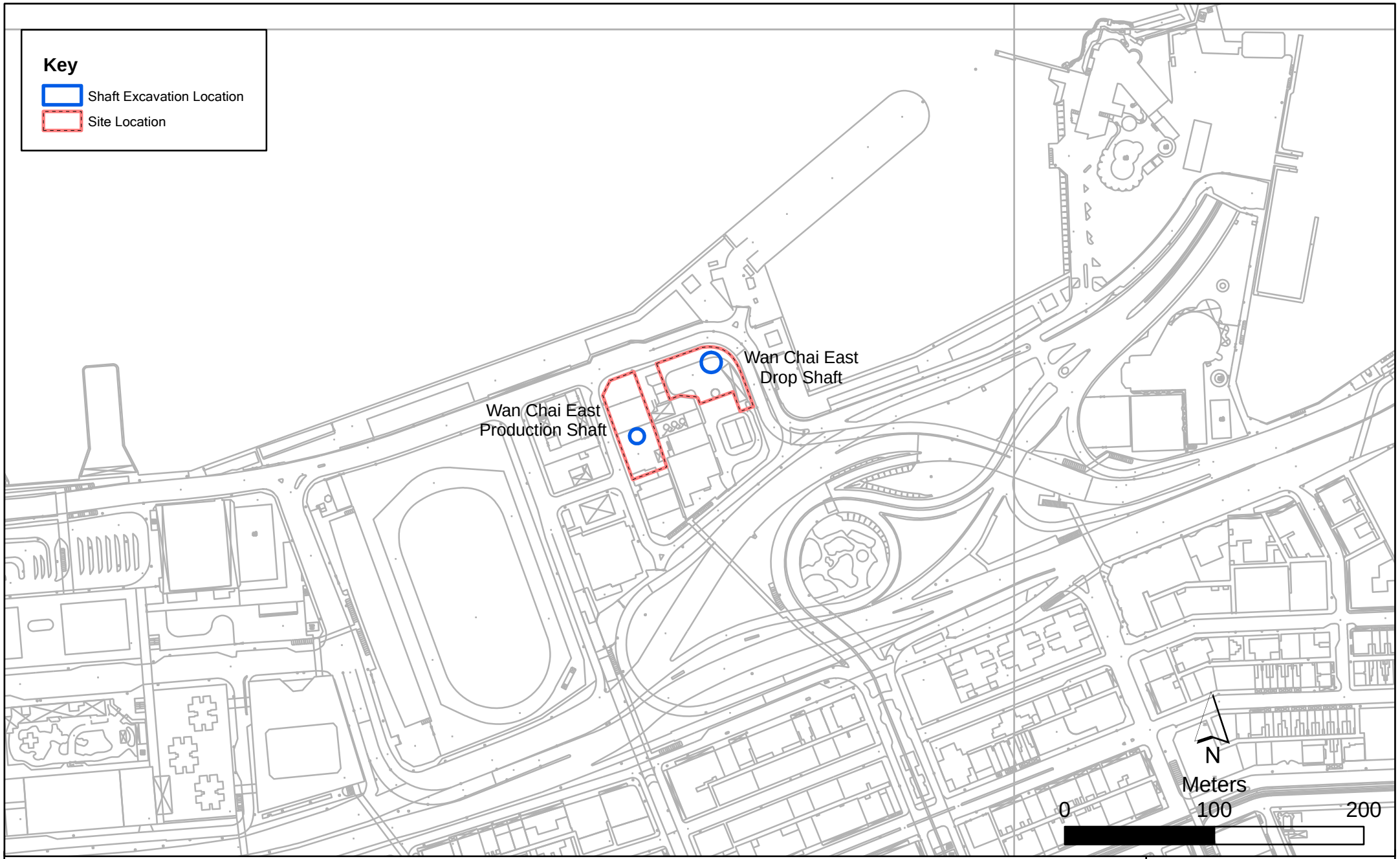
Remark:
- 69dB(A) was adopted as the Limit Level during school examination period in the reporting period
- 70dB(A) was adopted as the Limit Level during school normal teaching period in the reporting period

Annex C6 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2009	0	0
January 2010	0	0
February 2010	0	0
March 2010	0	0
April 2010	0	0
May 2010	0	0
June 2010	0	0
July 2010	0	0
August 2010	0	0
September 2010	0	0
October 2010	0	0
November 2010	0	0
December 2010	0	0
January 2011	0	0
February 2011	0	0
Overall Total	0	0

Annex D

Wan Chai East Production and Drop Shafts



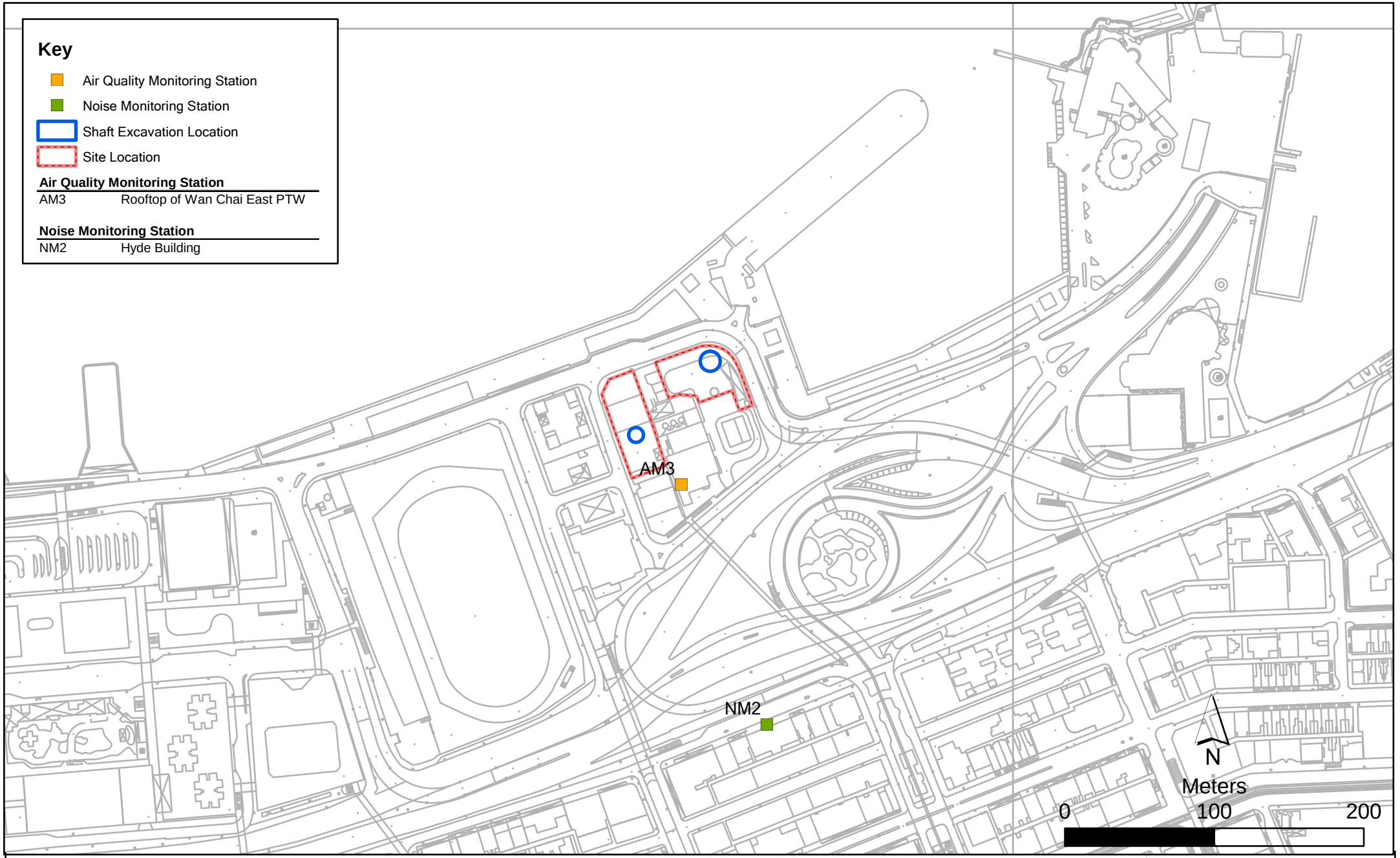
Annex D1

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
Construction Site Locations at Wai Chai East

File: EM&A and proposed station\0104887_Wan Chai.mxd
Date: 29/10/2009

Environmental Resources Management

ERM



Annex D2

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
Impact Air Quality & Noise Monitoring Stations (Wan Chai East)

File: EM&A and proposed station\0104887_Wan Chai_NMAM.mxd
Date: 03/03/2010

Environmental Resources Management

ERM

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Construction Phase			
Air Quality	The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimize construction dust impact. Control measures relevant to this Project are listed below: • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • 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 hardcores; • where a site boundary adjoins a road, streets or other 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; • 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; • regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather; • site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible; • tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.	All work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Air Quality	The following watering measures for specific site would be required to control the fugitive dust impacts: • watering twice per day within the worksites at Wan Chai East PTW; • the barging points should be continuous watering throughout the whole unloading process; and • watering 8 times per day within worksites at the SCS works area at Wan Chai East.	All work sites / during construction	√
Operational Phase			
Air Quality	Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual. • Screens should be cleaned regularly to remove any accumulated organic debris • Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit • Grit and screened materials should be transferred to closed containers to minimize odour escape • Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics • Skim and remove floating solids and grease from primary clarifiers regularly • Frequent sludge withdrawal from tanks is necessary to prevent the production of gases • Sludge cake should be transferred to closed containers • Sludge containers should be flushed with water regularly	All work sites / during construction	NA. Measures not required until commencement of operational phase
Air Quality	Commissioning tests for all deodorization system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	NA. Measures not required until commencement of operational phase
Construction Phase			
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Noise	Good Site Practice: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; • silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program; • mobile plant, if any, should be sited as far from NSRs as possible; • machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and • material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.	All work sites / during construction	√
Construction Phase			
Water Quality	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 work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	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.	All work sites / during construction	√
Water Quality	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) Regulation should be observed and complied with for control of chemical wastes.	All work sites / during construction	√
Water Quality	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.	All work sites / during construction	<>

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	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: • 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.	All work sites / during construction	<>

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	Construction Works in Close Proximity of Storm Drains or Seafront 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. • 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 the storm culvert or sea	All work sites / during construction	<>

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Operational Phase			
Water Quality	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimize the chance of emergency discharge.	SCISTW and all the Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs.	Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Construction Phase			
Waste	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 work sites / during the construction period	√
Waste	All waste materials should be segregated into categories covering: • 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 work sites / during the construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Recommendations to achieve waste reduction include: • 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; and • Proper storage and site practices to minimise the potential for damage or contamination of construction materials.	All work sites / during the construction period	√
Waste	Recommendations for good site practices during construction activities include:- • 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 • 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. • Provision of sufficient waste disposal points and regular collection of waste • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors	All work sites / during the construction period	√
Waste	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 work sites / during the construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	All work sites / during the construction period	√
Waste	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	All work sites / during the construction period	√
Waste	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.	All work sites / during the construction period	√
Waste	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.	All work sites / during the construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	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.	All work sites / during the construction period	√
Construction Phase			
Landscape & Visual	• Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • 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. • Erection of decorative screen hoarding compatible with the surrounding setting.	All the works areas, PTWs and SCISTW/ during the construction period	√
Operational Phase	•		
Landscape & Visual	• Aesthetic design of the façade of PTW and associated structures to harmonize with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area	All the works areas, PTWs and SCISTW/ during the construction period	NA. Measures not required until commencement of operational phase
Construction Phase			

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.
	Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.

Remark:
√ Compliance of Mitigation Measures
<> Compliance of Mitigation but need improvement
x Non-compliance of Mitigation Measures
Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
NA Not Applicable

Annex D4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM3

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
1-Dec-10	12:00	13:00	Sunny	177	355	500	Construction work in progress	21	<5	0481	0745
1-Dec-10	13:02	14:02	Sunny	168	355	500	Construction work in progress	21	<5	0481	0746
1-Dec-10	14:06	15:06	Sunny	184	355	500	Construction work in progress	21	<5	0481	0748
7-Dec-10	12:10	13:10	Sunny	277	355	500	Construction work in progress	19	<5	0481	0749
7-Dec-10	13:12	14:12	Sunny	206	355	500	Construction work in progress	19	<5	0481	0750
7-Dec-10	14:15	15:15	Sunny	258	355	500	Construction work in progress	19	<5	0481	0751
13-Dec-10	8:00	9:00	Sunny	195	355	500	Construction work in progress	22	<5	0481	0752
13-Dec-10	9:02	10:02	Sunny	211	355	500	Construction work in progress	22	<5	0481	0754
13-Dec-10	10:05	11:05	Sunny	186	355	500	Construction work in progress	22	<5	0481	0755
18-Dec-10	12:00	13:00	Sunny	155	355	500	Construction work in progress	14	<5	0481	0756
18-Dec-10	13:02	14:02	Sunny	146	393	500	Construction work in progress	14	<5	0481	0757
18-Dec-10	14:04	15:04	Sunny	162	355	500	Construction work in progress	14	<5	0481	0758
24-Dec-10	13:10	14:10	Sunny	147	355	500	Construction work in progress	19	<5	0481	0760
24-Dec-10	14:12	15:12	Sunny	147	355	500	Construction work in progress	19	<5	0481	0761
24-Dec-10	15:15	16:15	Sunny	122	355	500	Construction work in progress	19	<5	0481	0774
30-Dec-10	12:10	13:10	Sunny	125	355	500	Construction work in progress	18	<5	0481	0775
30-Dec-10	13:12	14:12	Sunny	158	393	500	Construction work in progress	18	<5	0481	0776
30-Dec-10	14:16	15:16	Sunny	136	355	500	Construction work in progress	18	<5	0481	0778
			Min.	**122**							
			Max.	**277**							
			Average	**176**							

* Wind Speed data is presented in the Meteorological Data table

Annex D4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM3

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
5-Jan-11	8:45	9:45	Fine	117	355	500	Construction work in progress	16	0-17	0481	0779
	9:48	10:48	Fine	162	355	500	Construction work in progress	16	0-17	0481	0780
	10:52	11:52	Fine	155	355	500	Construction work in progress	16	0-17	0481	0781
11-Jan-11	12:00	13:00	Fine	119	355	500	Construction work in progress	10	0-17	0481	0789
	13:03	14:03	Fine	145	355	500	Construction work in progress	10	0-17	0481	0790
	14:06	15:06	Fine	137	355	500	Construction work in progress	10	0-17	0481	0791
17-Jan-11	12:10	13:10	Sunny	124	355	500	Construction work in progress	12	0-17	0481	0792
	13:12	14:12	Sunny	204	355	500	Construction work in progress	12	0-17	0481	0794
	14:20	15:20	Sunny	155	355	500	Construction work in progress	12	0-17	0481	0801
22-Jan-11	8:15	9:15	Cloudy	165	355	500	Construction work in progress	13	0-16	0481	0802
	9:18	10:18	Cloudy	199	393	500	Construction work in progress	13	0-16	0481	0804
	10:20	11:20	Cloudy	136	355	500	Construction work in progress	13	0-16	0481	0805
28-Jan-11	13:00	14:00	Sunny	109	355	500	Construction work in progress	15	0-18	0481	0806
	14:02	15:02	Sunny	154	355	500	Construction work in progress	15	0-18	0481	0807
	15:05	16:05	Sunny	132	355	500	Construction work in progress	15	0-18	0481	0809
			Min.	**109**							
			Max.	**204**							
			Average	**148**							

* Wind Speed data is presented in the Meteorological Data table

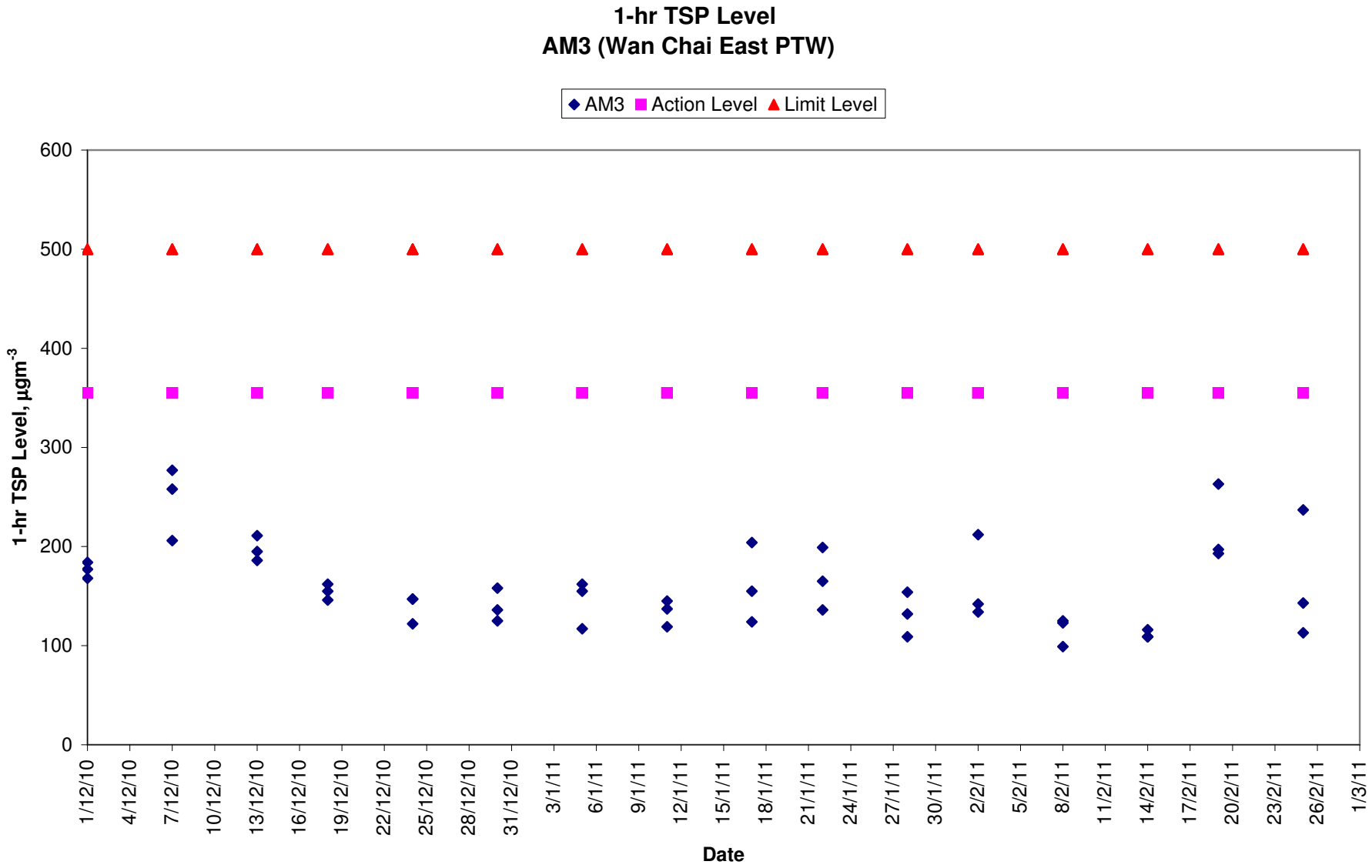
Annex D4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM3

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
2-Feb-11	13:10	14:10	Sunny	142	355	500	Construction work in progress	15	2.4	0481	0812
	14:12	15:12	Sunny	134	355	500	Construction work in progress	15	2.4	0481	0811
	15:16	16:16	Sunny	212	355	500	Construction work in progress	15	2.4	0481	0828
8-Feb-11	13:00	14:00	Sunny	99	355	500	Construction work in progress	21	2.8	0481	0829
	14:02	15:02	Sunny	123	355	500	Construction work in progress	21	2.8	0481	0830
	15:10	16:10	Sunny	125	355	500	Construction work in progress	21	2.8	0481	0832
14-Feb-11	8:30	9:30	Cloudy	109	355	500	Construction work in progress	10	2.4	0481	0833
	9:32	10:32	Cloudy	116	355	500	Construction work in progress	10	2.4	0481	0834
	10:34	11:34	Cloudy	109	355	500	Construction work in progress	10	2.4	0481	0836
19-Feb-11	8:30	9:30	Cloudy	263	355	500	Construction work in progress	12	3.3	0481	0837
	9:32	10:32	Cloudy	197	393	500	Construction work in progress	12	3.3	0481	0838
	10:35	11:35	Cloudy	193	355	500	Construction work in progress	12	3.3	0481	0840
25-Feb-11	12:05	13:05	Sunny	143	355	500	Construction work in progress	20	3.9	0481	0841
	13:07	14:07	Sunny	237	393	500	Construction work in progress	20	3.9	0481	0842
	14:10	15:10	Sunny	113	355	500	Construction work in progress	20	3.9	0481	0861
			Min.	**99**							
			Max.	**263**							
			Average	**154**							

* Wind Speed data is presented in the Meteorological Data table


1-hr TSP Level
AM3 (Wan Chai East PTW)
AM3
Action Level
Limit Level
1-hr TSP Level, µgm-3
600
500
400
300
200
100
0
1/12/10
4/12/10
7/12/10
10/12/10
13/12/10
16/12/10
19/12/10
22/12/10
25/12/10
28/12/10
31/12/10
3/1/11
6/1/11
9/1/11
12/1/11
15/1/11
18/1/11
21/1/11
24/1/11
27/1/11
30/1/11
2/2/11
5/2/11
8/2/11
11/2/11
14/2/11
17/2/11
20/2/11
23/2/11
26/2/11
1/3/11
Date

Annex D4 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM3

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m^3/min)			TSP Conc. ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
1-Dec-10	15:15	2-Dec-10	15:15	Sunny	2.8944	3.0428	4061.32	4085.32	24.00	1.13	1.13	1.13	91	181	260	Construction work in progress	0481	0744
7-Dec-10	15:20	8-Dec-10	15:20	Sunny	2.9645	3.1538	4088.32	4112.32	24.00	1.13	1.13	1.13	116	181	260	Construction work in progress	0481	0747
13-Dec-10	11:08	14-Dec-10	11:08	Sunny	2.8815	3.0258	4115.32	4139.32	24.00	1.13	1.13	1.13	89	181	260	Construction work in progress	0481	0753
18-Dec-10	15:06	19-Dec-10	15:06	Sunny	2.8904	3.0108	4142.32	4166.32	24.00	1.13	1.13	1.13	74	181	260	Construction work in progress	0481	0759
24-Dec-10	16:20	25-Dec-10	16:20	Sunny	2.8461	2.9908	4169.32	4193.32	24.00	1.13	1.13	1.13	89	181	260	Construction work in progress	0481	0773
30-Dec-10	15:20	31-Dec-10	15:20	Sunny	2.8553	3.0045	4196.32	4220.32	24.00	1.13	1.13	1.13	92	181	260	Construction work in progress	0481	0777
												Min.	74					
												Max.	116					
												Average	92					

Annex D4 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM3

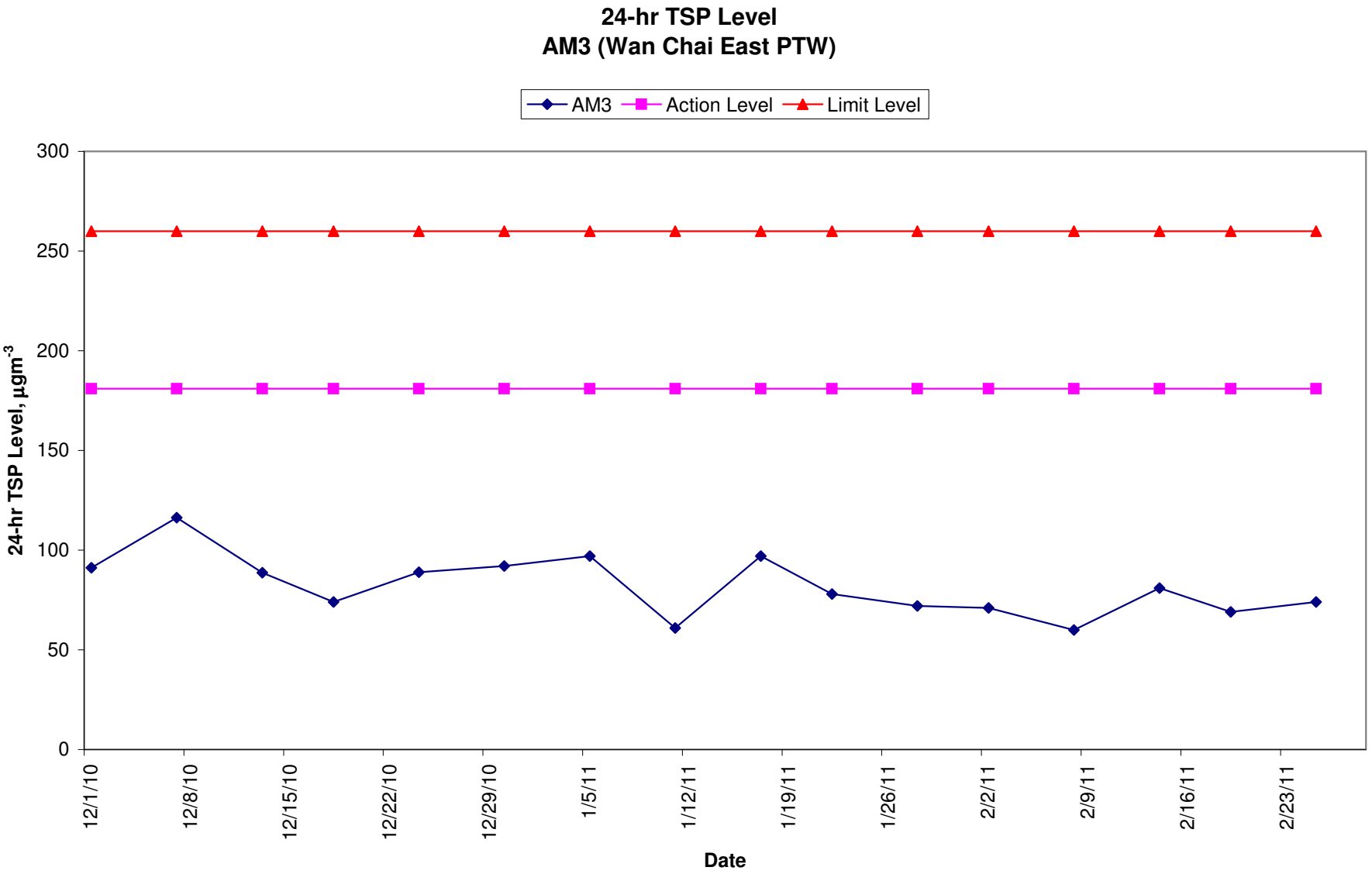
Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m^3/min)			TSP Conc. ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
5-Jan-11	11:55	6-Jan-11	11:55	Fine	2.8870	3.0444	4224.32	4248.32	24.00	1.13	1.13	1.13	97	181	260	Construction work in progress	0481	0788
11-Jan-11	15:12	12-Jan-11	15:12	Fine	2.8580	2.9573	4251.32	4275.32	24.00	1.13	1.13	1.13	61	181	260	Construction work in progress	0481	0793
17-Jan-11	15:25	18-Jan-11	15:25	Sunny	2.8440	3.0023	4278.32	4302.32	24.00	1.13	1.13	1.13	97	181	260	Construction work in progress	0481	0795
22-Jan-11	11:23	23-Jan-11	11:23	Cloudy	2.8481	2.9744	4305.32	4329.32	24.00	1.13	1.13	1.13	78	181	260	Construction work in progress	0481	0803
28-Jan-11	16:10	29-Jan-11	16:10	Sunny	2.8495	2.9742	4332.32	4356.32	24.00	1.21	1.21	1.21	72	181	260	Construction work in progress	0481	0808
												Min.	61					
												Max.	97					
												Average	81					

Annex D4 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM3

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m^3/min)			TSP Conc. ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
2-Feb-11	16:20	3-Feb-11	16:20	Sunny	2.8652	2.9889	4359.32	4383.32	24.00	1.21	1.21	1.21	71	181	260	Construction work in progress	0481	0810
8-Feb-11	16:14	9-Feb-11	16:14	Sunny	2.8876	2.9915	4386.32	4410.32	24.00	1.21	1.21	1.21	60	181	260	Construction work in progress	0481	0831
14-Feb-11	11:40	15-Feb-11	11:40	Cloudy	2.8633	3.0053	4413.22	4437.32	24.10	1.21	1.21	1.21	81	181	260	Construction work in progress	0481	1835
19-Feb-11	11:38	20-Feb-11	11:38	Cloudy	2.8567	2.9763	4439.32	4463.32	24.00	1.21	1.21	1.21	69	181	260	Construction work in progress	0481	0839
25-Feb-11	15:12	26-Feb-11	15:12	Sunny	2.8108	2.9406	4466.32	4490.32	24.00	1.21	1.21	1.21	74	181	260	Construction work in progress	0481	0860
												Min.	**60**					
												Max.	**81**					
												Average	**71**					


24-hr TSP Level
AM3 (Wan Chai East PTW)
AM3
Action Level
Limit Level
300
250
200
150
100
50
0
24-hr TSP Level, µgm-3
12/1/10
12/8/10
12/15/10
12/22/10
12/29/10
1/5/11
1/12/11
1/19/11
1/26/11
2/2/11
2/9/11
2/16/11
2/23/11
Date

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
12/1/2010	Fine	21	65-81	0.0	0-14	E
12/5/2010	Fine	22	57-84	0.0	-	E
12/7/2010	Fine	19	42-66	0.0	0-26	NE
12/10/2010	Fine	19	66-79	0.0	0-20	E
12/11/2010	Fine	20	64-79	0.0	2-23	E
12/12/2010	Fine	19	81-88	0.0	5-23	E
12/13/2010	Fine	22	85-94	0.0	0-21	E
12/17/2010	Fine	10	28-50	0.0	0-24	NE
12/18/2010	Fine	14	46-77	0.0	0-13	E
12/19/2010	Fine	19	67-80	0.0	0-18	E
12/23/2010	Fine	18	53-82	0.0	0-20	E
12/24/2010	Fine	19	66-84	0.0	0-19	E
12/26/2010	Rainy	12	33-75	0.2	0-21	NE
12/29/2010	Fine	17	55-83	0.0	0-14	SE
12/30/2010	Fine	18	39-85	0.0	0-18	E

		Tsing Yi Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
12/1/2010	Fine	22	65-81	0.0	0-15	SE
12/5/2010	Fine	24	57-84	0.0	0-13	NW
12/7/2010	Fine	19	42-66	0.0	0-21	N
12/10/2010	Fine	19	66-79	0.0	3-24	E
12/11/2010	Fine	20	64-79	0.0	2-20	E
12/12/2010	Fine	20	81-88	0.0	4-21	E
12/13/2010	Fine	24	85-94	0.0	3-20	E
12/17/2010	Fine	10	28-50	0.0	2-31	NW
12/18/2010	Fine	14	46-77	0.0	0-27	E
12/19/2010	Fine	20	67-80	0.0	2-20	NE
12/23/2010	Fine	20	53-82	0.0	1-23	E
12/24/2010	Fine	20	66-84	0.0	1-18	E
12/26/2010	Rainy	13	33-75	0.2	3-32	NW
12/29/2010	Fine	18	55-83	0.0	0-10	NE
12/30/2010	Fine	19	39-85	0.0	0-18	E

		Kai Tak Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
12/1/2010	Fine	21	65-81	0.0	0-15	NE
12/5/2010	Fine	22	57-84	0.0	0-21	SE
12/7/2010	Fine	19	42-66	0.0	0-20	NE
12/10/2010	Fine	19	66-79	0.0	4-23	E
12/11/2010	Fine	20	64-79	0.0	4-25	E
12/12/2010	Fine	19	81-88	0.0	10-32	E
12/13/2010	Fine	22	85-94	0.0	2-30	E
12/17/2010	Fine	10	28-50	0.0	3-30	NW
12/18/2010	Fine	14	46-77	0.0	0-13	NE
12/19/2010	Fine	19	67-80	0.0	3-24	SE
12/23/2010	Fine	18	53-82	0.0	3-26	E
12/24/2010	Fine	19	66-84	0.0	7-23	E
12/26/2010	Rainy	12	33-75	0.2	3-33	N
12/29/2010	Fine	17	55-83	0.0	0-20	SE
12/30/2010	Fine	18	39-85	0.0	0-24	E

		Green Island Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
12/1/2010	Fine	21	65-81	0.0	3-29	N
12/5/2010	Fine	22	57-84	0.0	0-37	NE
12/7/2010	Fine	19	42-66	0.0	0-45	NE
12/10/2010	Fine	19	66-79	0.0	15-44	NE
12/11/2010	Fine	20	64-79	0.0	22-45	NE
12/12/2010	Fine	19	81-88	0.0	34-57	NE
12/13/2010	Fine	22	85-94	0.0	21-52	NE
12/17/2010	Fine	10	28-50	0.0	22-58	N
12/18/2010	Fine	14	46-77	0.0	9-35	N
12/19/2010	Fine	19	67-80	0.0	7-36	NE
12/23/2010	Fine	18	53-82	0.0	12-39	NE
12/24/2010	Fine	19	66-84	0.0	14-37	NE
12/26/2010	Rainy	12	33-75	0.2	18-53	N
12/29/2010	Fine	17	55-83	0.0	3-24	N
12/30/2010	Fine	18	39-85	0.0	5-48	NE

* King's Park's data
\- Data were not available
\# less than 24 hourly observations per day

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
1/2/2011	Fine	15	56-72	0.0	1-25	N
1/4/2011	Rainy	13	76-90	1.2	0-14	NE
1/5/2011	Fine	16	71-82	0.0	0-17	E
1/7/2011	Fine	11	55-69	0.0	0-18	N
1/9/2011	Fine	15	46-65	0.0	0-12	E
1/10/2011	Fine	13	46-62	0.0	0-19	N
1/11/2011	Rainy	10	52-74	Trace	0-17	N
1/14/2011	Fine	17	60-81	0.0	0-14	NE
1/15/2011	Fine	13	45-76	0.0	0-20	N
1/16/2011	Fine	11	50-70	0.0	5-25	N
1/17/2011	Fine	12	47-75	0.0	0-17	NE
1/20/2011	Fine	16	57-89	0.0	-	-
1/21/2011	Fine	14	51-68	0.0	0-20	NE
1/22/2011	Fine	13	64-75	0.0	0-16	N
1/23/2011	Fine	15	57-80	0.0	0-16	E
1/26/2011	Fine	15	57-84	0.0	0-17	E
1/27/2011	Fine	16	62-85	0.0	0-15	E
1/28/2011	Fine	15	56-86	0.0	0-18	E
1/30/2011	Fine	12	44-59	0.0	0-22	N

		Tsing Yi Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
1/2/2011	Fine	15	56-72	0.0	1-22	E
1/4/2011	Rainy	12	76-90	1.2	2-17	NW
1/5/2011	Fine	16	71-82	0.0	2-15	NW
1/7/2011	Fine	10	55-69	0.0	2-23	NW
1/9/2011	Fine	15	46-65	0.0	0-10	NE
1/10/2011	Fine	13	46-62	0.0	1-21	NW
1/11/2011	Rainy	10	52-74	Trace	0-21	NW
1/14/2011	Fine	17	60-81	0.0	0-15	NW
1/15/2011	Fine	13	45-76	0.0	0-20	NW
1/16/2011	Fine	11	50-70	0.0	3-30	NW
1/17/2011	Fine	13	47-75	0.0	1-14	E
1/20/2011	Fine	16	57-89	0.0	-	-
1/21/2011	Fine	13	51-68	0.0	2-24	NW
1/22/2011	Fine	13	64-75	0.0	0-20	NW
1/23/2011	Fine	15	57-80	0.0	0-15	SE
1/26/2011	Fine	15	57-84	0.0	0-12	NW
1/27/2011	Fine	17	62-85	0.0	0-16	S
1/28/2011	Fine	15	56-86	0.0	1-19	SE
1/30/2011	Fine	13	44-59	0.0	2-18	NW

		Kai Tak Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
1/2/2011	Fine	15	56-72	0.0	10-30	E
1/4/2011	Rainy	13	76-90	1.2	1-20	NE
1/5/2011	Fine	16	71-82	0.0	2-21	E
1/7/2011	Fine	11	55-69	0.0	3-23	NW
1/9/2011	Fine	15	46-65	0.0	0-20	N
1/10/2011	Fine	13	46-62	0.0	0-21	NW
1/11/2011	Rainy	10	52-74	Trace	0-17	NW
1/14/2011	Fine	17	60-81	0.0	0-24	SE
1/15/2011	Fine	13	45-76	0.0	0-26	N
1/16/2011	Fine	11	50-70	0.0	4-31	NE
1/17/2011	Fine	12	47-75	0.0	0-23	NE
1/20/2011	Fine	16	57-89	0.0	-	-
1/21/2011	Fine	14	51-68	0.0	0-26	NW
1/22/2011	Fine	13	64-75	0.0	0-18	NW
1/23/2011	Fine	15	57-80	0.0	0-20	SE
1/26/2011	Fine	15	57-84	0.0	0-21	E
1/27/2011	Fine	16	62-85	0.0	0-23	SE
1/28/2011	Fine	15	56-86	0.0	0-24	E
1/30/2011	Fine	12	44-59	0.0	1-21	NE

		Green Island Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
1/2/2011	Fine	15	56-72	0.0	26-60	N
1/4/2011	Rainy	13	76-90	1.2	15-45	N
1/5/2011	Fine	16	71-82	0.0	13-42	-
1/7/2011	Fine	11	55-69	0.0	15-46	-
1/9/2011	Fine	15	46-65	0.0	0-27	-
1/10/2011	Fine	13	46-62	0.0	0-40	-
1/11/2011	Rainy	10	52-74	Trace	5-44	N
1/14/2011	Fine	17	60-81	0.0	6-32	N
1/15/2011	Fine	13	45-76	0.0	0-45	N
1/16/2011	Fine	11	50-70	0.0	23-47	N
1/17/2011	Fine	12	47-75	0.0	12-42	N
1/20/2011	Fine	16	57-89	0.0	-	-
1/21/2011	Fine	14	51-68	0.0	5-50	N
1/22/2011	Fine	13	64-75	0.0	15-36	N
1/23/2011	Fine	15	57-80	0.0	11-38	N
1/26/2011	Fine	15	57-84	0.0	3-32	NE
1/27/2011	Fine	16	62-85	0.0	0-34	NE
1/28/2011	Fine	15	56-86	0.0	3-41	NE
1/30/2011	Fine	12	44-59	0.0	2-37	N

* King's Park's data
\- Data were not available
\# less than 24 hourly observations per day

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2/1/2011	Fine	14	54-80	0.0	0-17	E
2/2/2011	Sunny	15	47-79	0.0	0-14	NE
2/7/2011	Sunny	19	45-84	0.0	0-18	E
2/8/2011	Sunny	21	60-91	0.0	0-20	E
2/11/2011	Cloudy	16	61-92	Trace	0-19	-
2/12/2011	Fine	14	63-76	0.0	0-15	N
2/14/2011	Cloudy	10	60-88	0.6	0-17	N
2/17/2011	Cloudy	16	88-98	Trace	0-15	E
2/18/2011	Cloudy	14	86-95	Trace	0-16	E
2/19/2011	Cloudy	12	85-94	2.0	0-18	E
2/20/2011	Cloudy	14	70-94	0.9	0-13	N
2/23/2011	Cloudy	18	56-82	0.0	3-23	E
2/24/2011	Cloudy	19	65-89	0.0	0-17	E
2/25/2011	Cloudy	20	66-88	0.0	0-15	E
2/27/2011	Cloudy	21	62-91	Trace	1-22	E

		Tsing Yi Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2/1/2011	Fine	15	54-80	0.0	1-14	E
2/2/2011	Sunny	16	47-79	0.0	0-17	N
2/7/2011	Sunny	20	45-84	0.0	0-15	N
2/8/2011	Sunny	22	60-91	0.0	2-23	SE
2/11/2011	Cloudy	16	61-92	Trace	0-16	E
2/12/2011	Fine	14	63-76	0.0	0-13	NW
2/14/2011	Cloudy	10	60-88	0.6	0-23	N
2/17/2011	Cloudy	16	88-98	Trace	0-9	NW
2/18/2011	Cloudy	14	86-95	Trace	0-20	NW
2/19/2011	Cloudy	12	85-94	2.0	0-14	E
2/20/2011	Cloudy	14	70-94	0.9	0-14	NW
2/23/2011	Cloudy	19	56-82	0.0	0-21	E
2/24/2011	Cloudy	20	65-89	0.0	0-12	S
2/25/2011	Cloudy	20	66-88	0.0	0-14	S
2/27/2011	Cloudy	22	62-91	Trace	0-22	SE

		Kai Tak Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2/1/2011	Fine	14	54-80	0.0	3-22	E
2/2/2011	Sunny	15	47-79	0.0	0-17	N
2/7/2011	Sunny	19	45-84	0.0	7-24	SE
2/8/2011	Sunny	21	60-91	0.0	6-28	E
2/11/2011	Cloudy	16	61-92	Trace	2-27	E
2/12/2011	Fine	14	63-76	0.0	4-20	NE
2/14/2011	Cloudy	10	60-88	0.6	0-21	NW
2/17/2011	Cloudy	16	88-98	Trace	4-18	SE
2/18/2011	Cloudy	14	86-95	Trace	0-20	E
2/19/2011	Cloudy	12	85-94	2.0	2-22	E
2/20/2011	Cloudy	14	70-94	0.9	0-18	NW
2/23/2011	Cloudy	18	56-82	0.0	6-28	E
2/24/2011	Cloudy	19	65-89	0.0	3-20	SE
2/25/2011	Cloudy	20	66-88	0.0	6-22	SE
2/27/2011	Cloudy	21	62-91	Trace	4-31	SE

		Green Island Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2/1/2011	Fine	14	54-80	0.0	5-40	NE
2/2/2011	Sunny	15	47-79	0.0	0-23	NE
2/7/2011	Sunny	19	45-84	0.0	1-35	NE
2/8/2011	Sunny	21	60-91	0.0	3-45	NE
2/11/2011	Cloudy	16	61-92	Trace	0-47	NE
2/12/2011	Fine	14	63-76	0.0	2-32	N
2/14/2011	Cloudy	10	60-88	0.6	4-38	N
2/17/2011	Cloudy	16	88-98	Trace	2-38	NE
2/18/2011	Cloudy	14	86-95	Trace	3-36	NW
2/19/2011	Cloudy	12	85-94	2.0	13-43	NE
2/20/2011	Cloudy	14	70-94	0.9	5-32	N
2/23/2011	Cloudy	18	56-82	0.0	4-51	NE
2/24/2011	Cloudy	19	65-89	0.0	1-27	NE
2/25/2011	Cloudy	20	66-88	0.0	2-32	NE
2/27/2011	Cloudy	21	62-91	Trace	0-62	NE

* King's Park's data
\- Data were not available
\# less than 24 hourly observations per day

Annex D5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM2

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
1-Dec-10	14:20	14:50	Sunny	73.2	74.5	72.1	Pre-bored pililng (near site)	Traffic noise	-	21	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
7-Dec-10	13:30	14:00	Sunny	71.4	72.3	70.4	Lifting	Traffic noise	-	19	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
13-Dec-10	9:15	9:45	Fine	71.9	72.9	70.7	Excavation work	Traffic noise	-	22	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
24-Dec-10	14:30	15:00	Sunny	71.9	73.2	70.3	Lifting, excavation work	Traffic noise	-	19	0.5	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
30-Dec-10	14:30	15:00	Sunny	72.6	73.6	71.5	Lifting, excavation work	Traffic noise	-	18	1.2	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
			Min.	**71.4**									
			Max.	**73.2**									

Annex D5 Noise Monitoring Results

Restricted Hours Noise Monitoring Results

Station NM2

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s)	Other Noise Source(s)	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
5-Dec-10	8:00	8:05	Sunny	70.2	71.5	68.6	No outdoor construction activities observed	Traffic noise	-	22	0.8	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	8:05	8:10	Sunny	70.1	71.3	71.2			-				
	8:10	8:15	Sunny	70.0	71.2	70.0			-				
	8:00	8:15	Sunny	70.1	71.3	68.8			Average results during 15 min monitoring				
10-Dec-10	23:19	23:24	Fine	70.4	71.7	69.1	No outdoor construction activities observed	Traffic noise	-	19	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	23:24	23:29	Fine	70.3	72.2	68.7			-				
	23:29	23:34	Fine	70.5	71.8	69.2			-				
	23:19	23:34	Fine	70.4	71.9	69.0			Average results during 15 min monitoring				
19-Dec-10	11:30	11:35	Sunny	71.9	72.9	70.6	No outdoor construction work	Traffic noise	-	19	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	11:35	11:40	Sunny	72.0	73.0	70.6			-				
	11:40	11:45	Sunny	71.8	72.8	70.4			-				
	11:30	11:45	Sunny	71.9	72.9	70.5			Average results during 15 min monitoring				
23-Dec-10	23:11	23:16	Sunny	71.0	71.9	70.0	No outdoor construction noise	Traffic noise	-	18	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	23:16	23:21	Sunny	70.7	71.7	69.6			-				
	23:21	23:26	Sunny	70.4	71.4	69.2			-				
	23:11	23:26	Sunny	71.0	71.7	69.6			Average results during 15 min monitoring				
			Min.	**70.0**									
			Max.	**72.0**									

Annex D5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM2

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
5-Jan-11	10:03	10:33	Fine	74.1	75.6	72.7	Excavation, Lifting	Mainly traffic noise	-	16	1.0	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
11-Jan-11	14:20	14:50	Fine	73.7	74.5	72.8	Excavation, Lifting	Traffic noise	-	10	0.7	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
17-Jan-11	13:28	13:58	Fine	72.3	73.4	71.8	Excavation, Lifting	Traffic noise	-	12	1.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
28-Jan-11	14:20	14:50	Sunny	73.9	75.6	71.8	Sheet Piling (near site)	Mainly traffic noise	-	15	0.8	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
			Min.	**72.3**									
			Max.	**74.1**									

Annex D5 Noise Monitoring Results

Restricted Hours Noise Monitoring Results

Station NM2

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s)	Other Noise Source(s)	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
2-Jan-11	10:07	10:12	Cloudy	71.9	72.8	71.0	No outdoor construction activity observed	Traffic noise	-	15	0.6	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	10:12	10:17	Cloudy	72.2	73.3	70.8			-				
	10:17	10:22	Cloudy	72.3	73.3	71.2			-				
	10:07	10:22	Cloudy	72.1	73.1	71.0			Average results during 15 min monitoring				
7-Jan-11	23:15	23:20	Fine	71.3	72.4	70.2	No outdoor construction activity observed	Traffic noise	-	11	0.9	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	23:20	23:25	Fine	71.5	72.6	70.3			-				
	23:25	23:30	Fine	71.5	72.6	70.3			-				
	23:15	23:30	Fine	71.4	72.5	70.3			Average results during 15 min monitoring				
16-Jan-11	10:00	10:05	Sunny	72.5	73.6	71.1	No outdoor construction noise	Traffic noise	-	11	1.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	10:05	10:10	Sunny	71.9	72.9	70.8			-				
	10:10	10:15	Sunny	72.5	73.6	71.4			-				
	10:00	10:15	Sunny	72.3	73.4	71.1			Average results during 15 min monitoring				
21-Jan-11	0:45	0:50	Fine	67.6	68.9	65.9	No outdoor construction noise	Traffic noise	-	14	0.5	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	0:50	0:55	Fine	67.5	68.7	66.1			-				
	0:55	1:00	Fine	67.4	68.9	65.6			-				
	0:45	1:00	Fine	67.5	68.8	65.9			Average results during 15 min monitoring				
30-Jan-11	10:45	10:50	Sunny	73.1	73.9	72.0	No outdoor construction noise	Mainly Traffic Noise	-	12	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	10:50	10:55	Sunny	72.6	73.6	71.4			-				
	10:55	11:00	Sunny	72.6	73.7	71.5			-				
	10:45	11:00	Sunny	72.8	73.7	71.6			Average results during 15 min monitoring				
			Min.	**67.4**									
			Max.	**73.1**									

Annex D5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM2

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
2-Feb-11	15:30	16:00	Sunny	72.7	73.7	71.6	No outdoor construction noise	Mainly traffic noise	-	15	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
8-Feb-11	14:20	14:50	Sunny	72.8	74.0	71.7	No outdoor construction noise, sheet piling (near site)	Mainly traffic noise	-	21	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
14-Feb-11	10:48	11:48	Cloudy	73.4	74.2	72.5	Breaker noise, sheet piling (near site)	Mainly traffic noise	-	10	0.5	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
25-Feb-11	13:22	13:52	Sunny	72.8	74.0	71.6	Excavation work (near site)	Mainly traffic noise	-	20	0.3	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
			Min.	**72.7**									
			Max.	**73.4**									

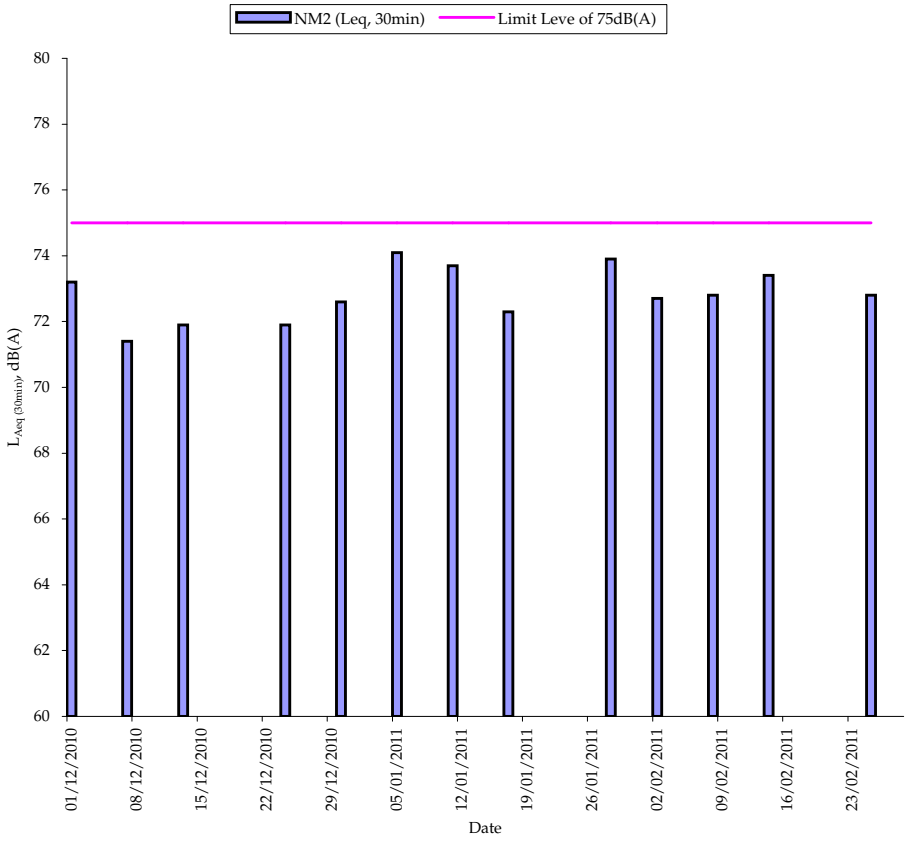
Annex D5 Noise Monitoring Results

Restricted Hours Noise Monitoring Results

Station NM2

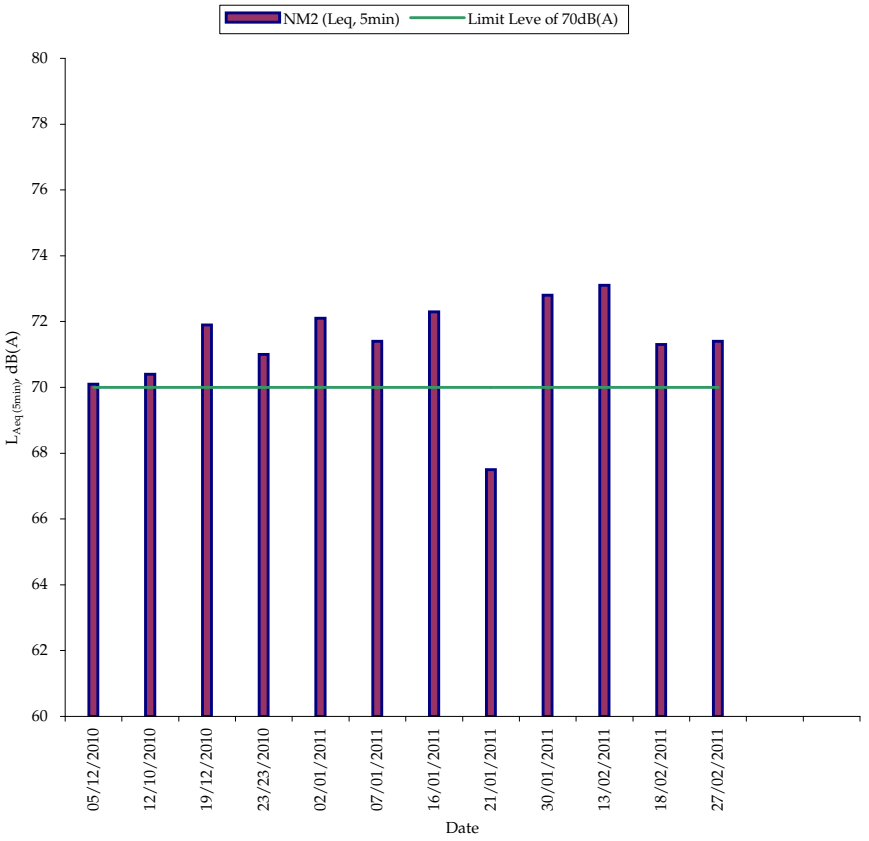
Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s)	Other Noise Source(s)	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
13-Feb-11	10:55	11:00	Cloudy	72.8	73.7	72.0	no outdoor construction noise	Mainly traffic noise	-	12	0.5	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	11:00	11:05	Cloudy	73.3	73.8	72.1			-				
	11:05	11:10	Cloudy	73.2	73.9	72.2			-				
	10:55	11:10	Cloudy	73.1	73.8	72.1			-				
18-Feb-11	23:52	23:57	Fine	71.2	72.6	69.5	no outdoor construction noise	Mainly traffic noise	-	14	0.5	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	23:57	0:02	Fine	71.7	73.0	70.0			-				
	0:02	0:07	Fine	71.1	72.1	70.1			-				
	23:52	0:07	Fine	71.3	72.6	69.9			-				
27-Feb-11	11:35	11:40	Sunny	71.5	72.4	70.2	no outdoor construction noise	Mainly traffic noise	-	21	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
	11:40	11:45	Sunny	71.4	72.5	70.0			-				
	11:45	11:50	Sunny	71.2	72.1	70.2			-				
	11:35	11:50	Sunny	71.4	72.3	70.1			-				
			Min.	**71.1**									
			Max.	**73.3**									

Normal Weekdays Noise Monitoring Results at NM2 ($L_{eq, 30min}$)



Remark:
- 75dB(A) was adopted as the Limit Level during normal weekdays in the reporting period

Restricted Hours Noise Monitoring Results at NM2 ($L_{eq, 5min}$)



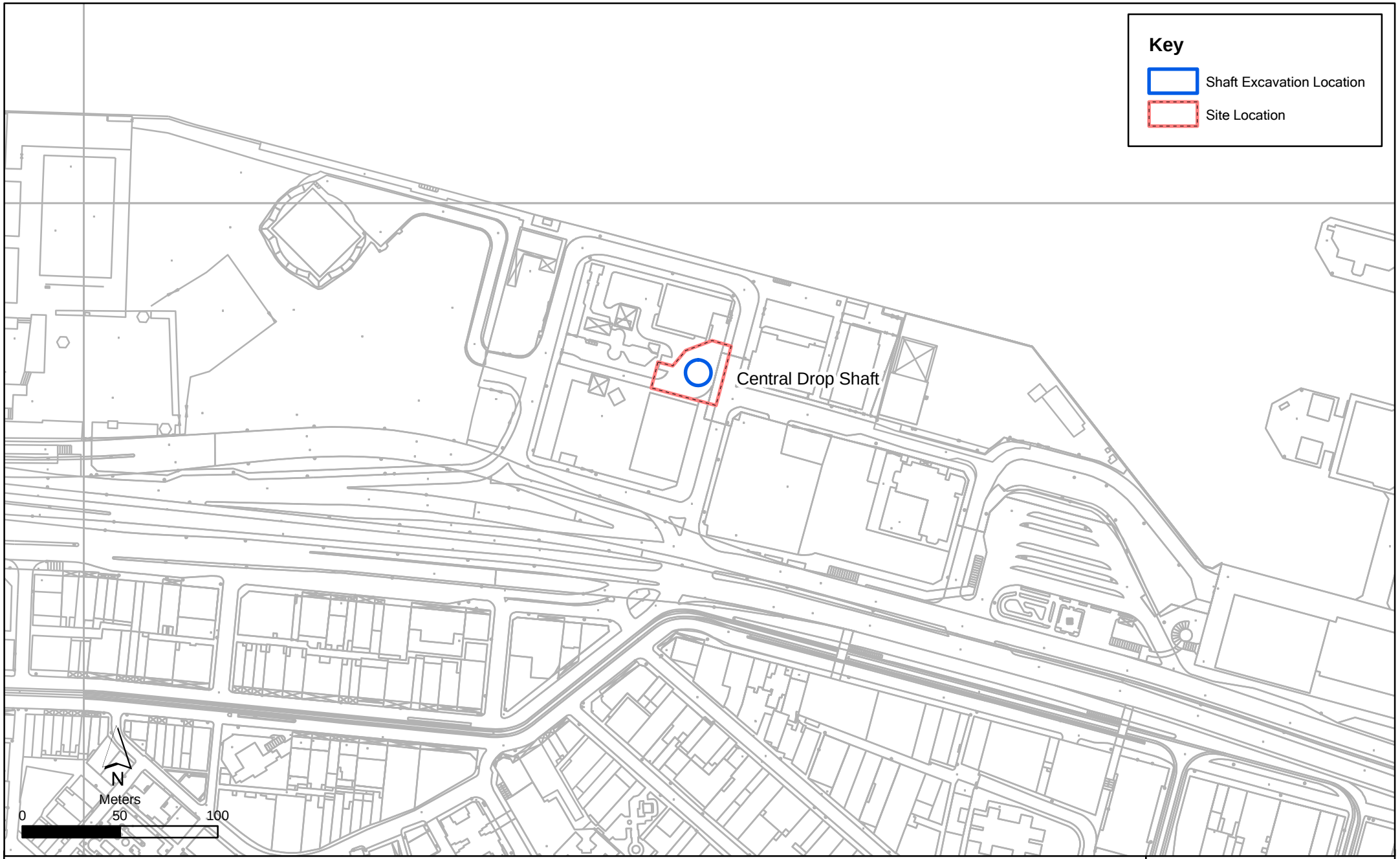
Remark:
- 70dB(A) was dopted as the Limit Level during restricted hours in the reporting period

Annex D6 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2009	0	0
January 2010	0	0
February 2010	0	0
March 2010	0	0
April 2010	0	0
May 2010	0	0
June 2010	0	0
July 2010	0	0
August 2010	0	0
September 2010	0	0
October 2010	0	0
November 2010	0	0
December 2010	0	0
January 2011	0	0
February 2011	0	0
Overall Total	0	0

Annex E

Central Drop Shaft



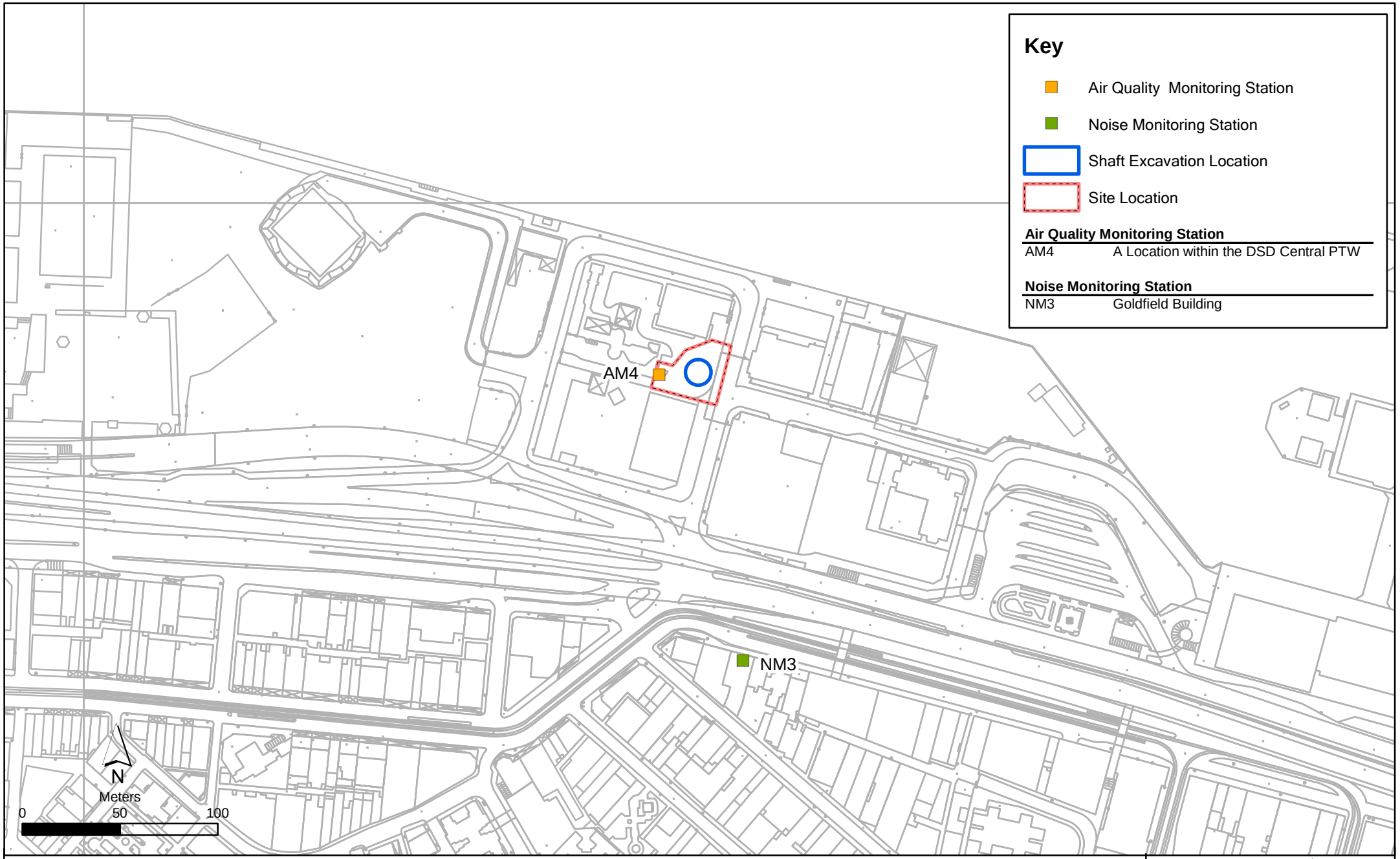
Annex E1

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
Construction Site Locations at Central

File: EM&A and proposed station\0104887_Central.mxd
Date: 03/03/2010

Environmental Resources Management

ERM



Annex E2

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
Impact Air Quality & Noise Monitoring Stations (Central)

File: EM&A and proposed station\0104887_Centra_NMAM.mxd
Date: 03/03/2010

Environmental Resources Management

ERM

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Construction Phase			
Air Quality	The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimize construction dust impact. Control measures relevant to this Project are listed below: • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • 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 hardcores; • where a site boundary adjoins a road, streets or other 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; • 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; • regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather; • site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible; • tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.	All work sites / during construction	√
Air Quality	The following watering measures for specific site would be required to control the fugitive dust impacts: • watering four times per day within worksites at the Central PTW.	All work sites / during construction	√
Operational Phase			

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Air Quality	Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual. • Screens should be cleaned regularly to remove any accumulated organic debris • Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit • Grit and screened materials should be transferred to closed containers to minimize odour escape • Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics • Skim and remove floating solids and grease from primary clarifiers regularly • Frequent sludge withdrawal from tanks is necessary to prevent the production of gases • Sludge cake should be transferred to closed containers • Sludge containers should be flushed with water regularly	All work sites / during construction	NA. Measures not required until commencement of operational phase
Air Quality	Commissioning tests for all deodorization system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	NA. Measures not required until commencement of operational phase
Construction Phase			
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Noise	Good Site Practice: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; • silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program; • mobile plant, if any, should be sited as far from NSRs as possible; • machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and • material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.	All work sites / during construction	√
Construction Phase			
Water Quality	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 work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	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.	All work sites / during construction	√
Water Quality	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) Regulation should be observed and complied with for control of chemical wastes.	All work sites / during construction	√
Water Quality	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.	All work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	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: • 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.	All work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	Construction Works in Close Proximity of Storm Drains or Seafront 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. • 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 the storm culvert or sea	All work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Operational Phase			
Water Quality	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimize the chance of emergency discharge.	SCISTW and all the Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs.	Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Construction Phase			
Waste	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 work sites / during the construction period	√
Waste	All waste materials should be segregated into categories covering: • 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 work sites / during the construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Recommendations to achieve waste reduction include: • 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; and • Proper storage and site practices to minimise the potential for damage or contamination of construction materials.	All work sites / during the construction period	√
Waste	Recommendations for good site practices during construction activities include:- • 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 • 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. • Provision of sufficient waste disposal points and regular collection of waste • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors	All work sites / during the construction period	√
Waste	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 work sites / during the construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	All work sites / during the construction period	√
Waste	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	All work sites / during the construction period	√
Waste	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.	All work sites / during the construction period	√
Waste	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.	All work sites / during the construction period	Δ

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	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.	All work sites / during the construction period	√
Construction Phase			
Landscape & Visual	• Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • 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. • Erection of decorative screen hoarding compatible with the surrounding setting.	All the works areas, PTWs and SCISTW/ during the construction period	√
Operational Phase	•		
Landscape & Visual	• Aesthetic design of the façade of PTW and associated structures to harmonize with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area	All the works areas, PTWs and SCISTW/ during the construction period	NA. Measures not required until commencement of operational phase
Construction Phase			

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.
	Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.

Remark:
√ Compliance of Mitigation Measures
<> Compliance of Mitigation but need improvement
x Non-compliance of Mitigation Measures
Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
NA Not Applicable

Annex E4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM4

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
1-Dec-10	8:00	9:00	Sunny	209	393	500	Construction work in progress	21	<5	9315	0728
1-Dec-10	9:02	10:02	Sunny	**341**	393	500	Construction work in progress	21	<5	9315	0729
1-Dec-10	10:10	11:10	Sunny	308	393	500	Construction work in progress	21	<5	9315	0730
7-Dec-10	8:00	9:00	Sunny	292	393	500	Construction work in progress	19	<5	9315	0731
7-Dec-10	9:05	10:05	Sunny	284	393	500	Construction work in progress	19	<5	9315	0733
7-Dec-10	10:10	11:10	Sunny	291	393	500	Construction work in progress	19	<5	9315	0734
13-Dec-10	12:00	13:00	Sunny	**375**	393	500	Construction work in progress	22	<5	0481	0735
13-Dec-10	13:02	14:02	Sunny	319	393	500	Construction work in progress	22	<5	0481	0736
13-Dec-10	14:05	15:05	Sunny	306	393	500	Construction work in progress	22	<5	0481	0738
18-Dec-10	8:00	9:00	Sunny	194	393	500	Construction work in progress	14	<5	9315	0739
18-Dec-10	9:02	10:02	Sunny	307	393	500	Construction work in progress	14	<5	9315	0740
18-Dec-10	10:04	11:04	Sunny	304	393	500	Construction work in progress	14	<5	9315	0763
24-Dec-10	9:00	10:00	Sunny	**360**	393	500	Construction work in progress	19	<5	9315	0776
24-Dec-10	10:02	11:02	Sunny	**352**	393	500	Construction work in progress	19	<5	9315	0766
24-Dec-10	11:10	12:10	Sunny	310	393	500	Construction work in progress	19	<5	9315	0767
30-Dec-10	8:10	9:10	Sunny	192	393	500	Construction work in progress	18	<5	9315	0768
30-Dec-10	9:12	10:12	Sunny	292	393	500	Construction work in progress	18	<5	9315	0770
30-Dec-10	10:55	11:15	Sunny	317	393	500	Construction work in progress	18	<5	9315	0771
			Min.	**192**							
			Max.	**375**							
			Average	**297**							

Annex E4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM4

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
5-Jan-11	13:00	14:00	Fine	313	393	500	Construction work in progress	16	0-17	9315	0772
	14:08	15:08	Fine	**364**	393	500	Construction work in progress	16	0-17	9315	0782
	15:10	16:10	Fine	230	393	500	Construction work in progress	16	0-17	9315	0784
11-Jan-11	8:00	9:00	Fine	197	393	500	Construction work in progress	10	0-17	9315	0785
	9:02	10:02	Fine	189	393	500	Construction work in progress	10	0-17	9315	0786
	10:10	11:10	Fine	211	393	500	Construction work in progress	10	0-17	9315	0800
17-Jan-11	8:00	9:00	Sunny	238	393	500	Construction work in progress	12	0-17	0481	0796
	9:02	10:02	Sunny	187	393	500	Construction work in progress	12	0-17	0481	0797
	10:05	11:05	Sunny	238	393	500	Construction work in progress	12	0-17	0481	0799
22-Jan-11	12:10	13:10	Cloudy	322	393	500	Construction work in progress	13	0-16	9315	0813
	13:14	14:14	Cloudy	308	393	500	Construction work in progress	13	0-16	9315	0814
	14:18	15:18	Cloudy	234	393	500	Construction work in progress	13	0-16	9315	0815
28-Jan-11	8:30	9:30	Sunny	306	393	500	Construction work in progress	15	0-18	9315	0816
	9:35	10:35	Sunny	286	393	500	Construction work in progress	15	0-18	9315	0819
	10:45	11:45	Sunny	278	393	500	Construction work in progress	15	0-18	9315	0820
			Min.	**187**							
			Max.	**364**							
			Average	**260**							

* Wind Speed data is presented in the Meteorological Data table

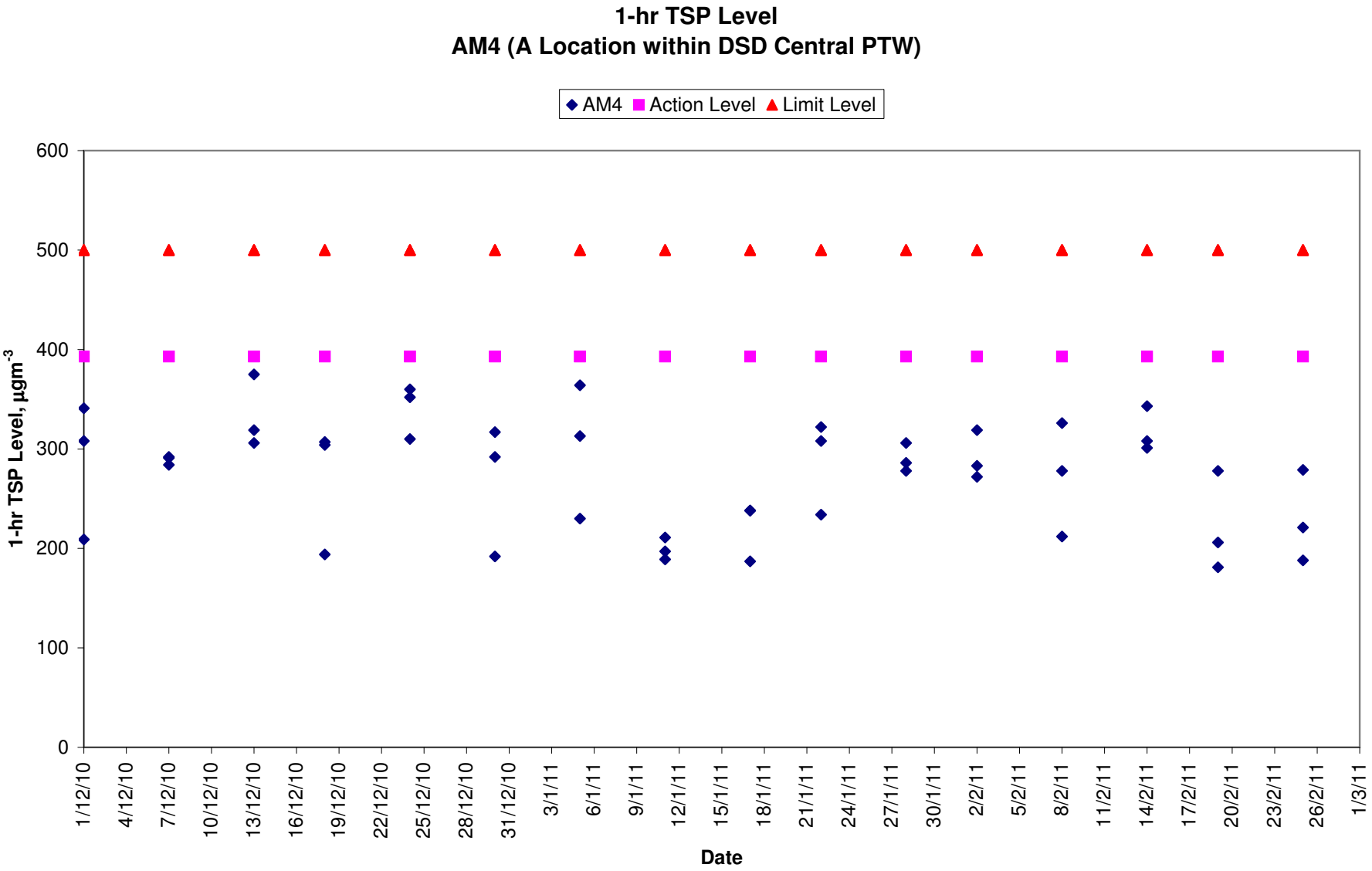
Annex E4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM4

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
2-Feb-11	9:00	10:00	Sunny	272	393	500	Construction work in progress	15	2.4	9315	0621
	10:05	11:05	Sunny	283	393	500	Construction work in progress	15	2.4	9315	0623
	11:15	12:15	Sunny	319	393	500	Construction work in progress	15	2.4	9315	0624
8-Feb-11	8:30	9:30	Sunny	326	393	500	Construction work in progress	21	2.8	9315	0627
	9:33	10:33	Sunny	278	393	500	Construction work in progress	21	2.8	9315	0625
	10:40	11:40	Sunny	212	393	500	Construction work in progress	21	2.8	9315	0643
14-Feb-11	12:30	13:30	Cloudy	301	393	500	Construction work in progress	10	2.4	0481	0844
	13:32	14:32	Cloudy	308	393	500	Construction work in progress	10	2.4	0481	0845
	14:40	15:40	Cloudy	**343**	393	500	Construction work in progress	10	2.4	0481	0846
19-Feb-11	12:15	13:15	Cloudy	278	393	500	Construction work in progress	12	3.3	9315	0649
	13:18	14:18	Cloudy	181	393	500	Construction work in progress	12	3.3	9315	0850
	14:20	15:20	Cloudy	206	393	500	Construction work in progress	12	3.3	9315	0851
25-Feb-11	8:10	9:10	Sunny	188	393	500	Construction work in progress	20	3.9	9315	0852
	9:12	10:12	Sunny	279	393	500	Construction work in progress	20	3.9	9315	0854
	10:14	11:14	Sunny	221	393	500	Construction work in progress	20	3.9	9315	0855
			Min.	**181**							
			Max.	**343**							
			Average	**266**							

* Wind Speed data is presented in the Meteorological Data table


1-hr TSP Level
AM4 (A Location within DSD Central PTW)
AM4
Action Level
Limit Level
1-hr TSP Level, µgm-3
600
500
400
300
200
100
0
1/12/10
4/12/10
7/12/10
10/12/10
13/12/10
16/12/10
19/12/10
22/12/10
25/12/10
28/12/10
31/12/10
3/1/11
6/1/11
9/1/11
12/1/11
15/1/11
18/1/11
21/1/11
24/1/11
27/1/11
30/1/11
2/2/11
5/2/11
8/2/11
11/2/11
14/2/11
17/2/11
20/2/11
23/2/11
26/2/11
1/3/11
Date

Annex E4 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM4

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m^3/min)			TSP Conc. ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
1-Dec-10	11:15	2-Dec-10	11:15	Sunny	2.9051	3.1543	18314.85	18338.85	24.00	1.14	1.14	1.14	152	211	260	Construction work in progress	9315	0732
7-Dec-10	11:15	8-Dec-10	11:15	Sunny	2.8701	3.0701	18341.85	18365.85	24.00	1.14	1.14	1.14	122	211	260	Construction work in progress	9315	0737
13-Dec-10	15:15	14-Dec-10	15:15	Sunny	2.8664	3.0445	18368.85	18392.85	24.00	1.14	1.14	1.14	108	211	260	Construction work in progress	9315	0741
18-Dec-10	11:06	19-Dec-10	11:06	Sunny	2.8701	3.0678	18395.85	18419.85	24.00	1.14	1.14	1.14	120	211	260	Construction work in progress	9315	0762
24-Dec-10	12:12	25-Dec-10	12:12	Sunny	2.8798	3.0874	18422.85	18446.85	24.00	1.14	1.14	1.14	126	211	260	Construction work in progress	9315	0765
30-Dec-10	11:25	31-Dec-10	11:25	Sunny	2.9000	3.0861	18449.85	18476.85	27.00	1.14	1.14	1.14	101	211	260	Construction work in progress	9315	0769
												Min.	**101**					
												Max.	**152**					
												Average	**122**					

Annex E4 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM4

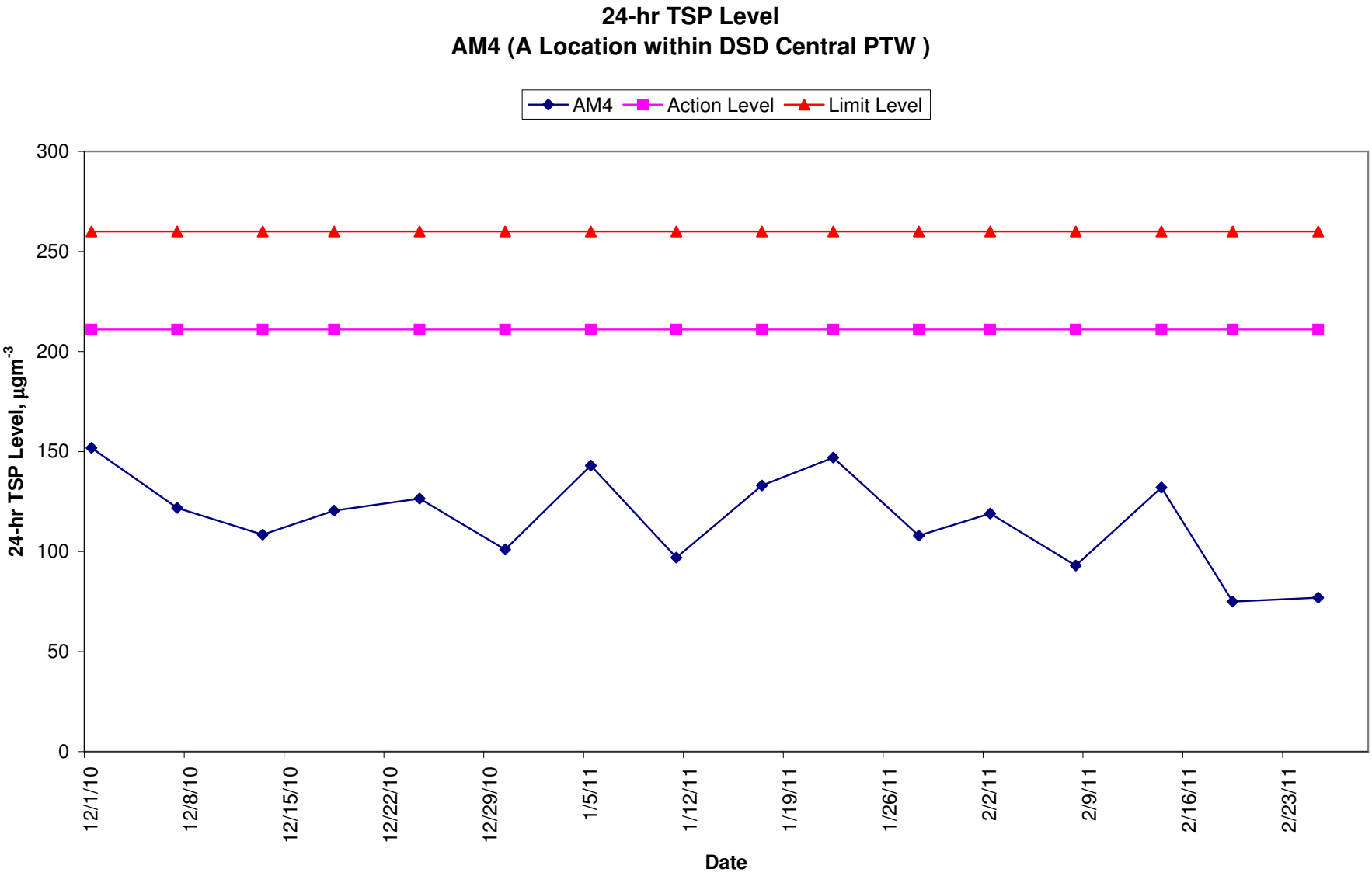
Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m^3/min)			TSP Conc. ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
5-Jan-11	16:15	6-Jan-11	16:15	Fine	2.8769	3.1109	18476.85	18500.85	24.00	1.14	1.14	1.14	143	211	260	Construction work in progress	9315	0783
11-Jan-11	11:12	12-Jan-11	11:12	Fine	2.8802	3.0395	18503.85	18527.85	24.00	1.14	1.14	1.14	97	211	260	Construction work in progress	9315	0787
17-Jan-11	11:15	18-Jan-11	11:15	Sunny	2.8733	3.0920	18530.85	18554.85	24.00	1.14	1.14	1.14	133	211	260	Construction work in progress	9315	0798
22-Jan-11	15:20	23-Jan-11	15:20	Cloudy	2.8163	3.0571	18557.85	18581.85	24.00	1.14	1.14	1.14	147	211	260	Construction work in progress	9315	0817
28-Jan-11	11:48	29-Jan-11	11:48	Sunny	2.8389	3.0249	18584.85	18608.85	24.00	1.20	1.20	1.20	108	211	260	Construction work in progress	9315	0818
												Min.	**97**					
												Max.	**147**					
												Average	**125**					

Annex E4 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM4

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m^3/min)			TSP Conc. ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
2-Feb-11	12:20	3-Feb-11	12:20	Sunny	2.8457	3.0521	18611.85	18635.85	24.00	1.20	1.20	1.20	119	211	260	Construction work in progress	9315	0622
8-Feb-11	11:50	9-Feb-11	11:50	Sunny	2.8357	2.9969	18638.85	18662.85	24.00	1.20	1.20	1.20	93	211	260	Construction work in progress	9315	0626
14-Feb-11	16:02	15-Feb-11	16:02	Cloudy	2.8736	3.1022	18665.85	18689.85	24.00	1.20	1.20	1.20	132	211	260	Construction work in progress	9315	0847
19-Feb-11	15:24	20-Feb-11	15:24	Cloudy	2.8665	2.9967	18692.65	18716.65	24.00	1.20	1.20	1.20	75	211	260	Construction work in progress	9315	0848
25-Feb-11	11:20	26-Feb-11	11:20	Sunny	2.8590	2.9924	18719.85	18743.85	24.00	1.20	1.20	1.20	77	211	260	Construction work in progress	9315	0853
												Min.	**75**					
												Max.	**132**					
												Average	**100**					


24-hr TSP Level
AM4 (A Location within DSD Central PTW)
AM4
Action Level
Limit Level
300
250
200
150
100
50
0
24-hr TSP Level, µgm-3
12/1/10
12/8/10
12/15/10
12/22/10
12/29/10
1/5/11
1/12/11
1/19/11
1/26/11
2/2/11
2/9/11
2/16/11
2/23/11
Date

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
12/1/2010	Fine	21	65-81	0.0	0-14	E
12/5/2010	Fine	22	57-84	0.0	-	E
12/7/2010	Fine	19	42-66	0.0	0-26	NE
12/10/2010	Fine	19	66-79	0.0	0-20	E
12/11/2010	Fine	20	64-79	0.0	2-23	E
12/12/2010	Fine	19	81-88	0.0	5-23	E
12/13/2010	Fine	22	85-94	0.0	0-21	E
12/17/2010	Fine	10	28-50	0.0	0-24	NE
12/18/2010	Fine	14	46-77	0.0	0-13	E
12/19/2010	Fine	19	67-80	0.0	0-18	E
12/23/2010	Fine	18	53-82	0.0	0-20	E
12/24/2010	Fine	19	66-84	0.0	0-19	E
12/26/2010	Rainy	12	33-75	0.2	0-21	NE
12/29/2010	Fine	17	55-83	0.0	0-14	SE
12/30/2010	Fine	18	39-85	0.0	0-18	E

		Tsing Yi Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
12/1/2010	Fine	22	65-81	0.0	0-15	SE
12/5/2010	Fine	24	57-84	0.0	0-13	NW
12/7/2010	Fine	19	42-66	0.0	0-21	N
12/10/2010	Fine	19	66-79	0.0	3-24	E
12/11/2010	Fine	20	64-79	0.0	2-20	E
12/12/2010	Fine	20	81-88	0.0	4-21	E
12/13/2010	Fine	24	85-94	0.0	3-20	E
12/17/2010	Fine	10	28-50	0.0	2-31	NW
12/18/2010	Fine	14	46-77	0.0	0-27	E
12/19/2010	Fine	20	67-80	0.0	2-20	NE
12/23/2010	Fine	20	53-82	0.0	1-23	E
12/24/2010	Fine	20	66-84	0.0	1-18	E
12/26/2010	Rainy	13	33-75	0.2	3-32	NW
12/29/2010	Fine	18	55-83	0.0	0-10	NE
12/30/2010	Fine	19	39-85	0.0	0-18	E

		Kai Tak Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
12/1/2010	Fine	21	65-81	0.0	0-15	NE
12/5/2010	Fine	22	57-84	0.0	0-21	SE
12/7/2010	Fine	19	42-66	0.0	0-20	NE
12/10/2010	Fine	19	66-79	0.0	4-23	E
12/11/2010	Fine	20	64-79	0.0	4-25	E
12/12/2010	Fine	19	81-88	0.0	10-32	E
12/13/2010	Fine	22	85-94	0.0	2-30	E
12/17/2010	Fine	10	28-50	0.0	3-30	NW
12/18/2010	Fine	14	46-77	0.0	0-13	NE
12/19/2010	Fine	19	67-80	0.0	3-24	SE
12/23/2010	Fine	18	53-82	0.0	3-26	E
12/24/2010	Fine	19	66-84	0.0	7-23	E
12/26/2010	Rainy	12	33-75	0.2	3-33	N
12/29/2010	Fine	17	55-83	0.0	0-20	SE
12/30/2010	Fine	18	39-85	0.0	0-24	E

		Green Island Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
12/1/2010	Fine	21	65-81	0.0	3-29	N
12/5/2010	Fine	22	57-84	0.0	0-37	NE
12/7/2010	Fine	19	42-66	0.0	0-45	NE
12/10/2010	Fine	19	66-79	0.0	15-44	NE
12/11/2010	Fine	20	64-79	0.0	22-45	NE
12/12/2010	Fine	19	81-88	0.0	34-57	NE
12/13/2010	Fine	22	85-94	0.0	21-52	NE
12/17/2010	Fine	10	28-50	0.0	22-58	N
12/18/2010	Fine	14	46-77	0.0	9-35	N
12/19/2010	Fine	19	67-80	0.0	7-36	NE
12/23/2010	Fine	18	53-82	0.0	12-39	NE
12/24/2010	Fine	19	66-84	0.0	14-37	NE
12/26/2010	Rainy	12	33-75	0.2	18-53	N
12/29/2010	Fine	17	55-83	0.0	3-24	N
12/30/2010	Fine	18	39-85	0.0	5-48	NE

* King's Park's data
\- Data were not available
\# less than 24 hourly observations per day

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
1/2/2011	Fine	15	56-72	0.0	1-25	N
1/4/2011	Rainy	13	76-90	1.2	0-14	NE
1/5/2011	Fine	16	71-82	0.0	0-17	E
1/7/2011	Fine	11	55-69	0.0	0-18	N
1/9/2011	Fine	15	46-65	0.0	0-12	E
1/10/2011	Fine	13	46-62	0.0	0-19	N
1/11/2011	Rainy	10	52-74	Trace	0-17	N
1/14/2011	Fine	17	60-81	0.0	0-14	NE
1/15/2011	Fine	13	45-76	0.0	0-20	N
1/16/2011	Fine	11	50-70	0.0	5-25	N
1/17/2011	Fine	12	47-75	0.0	0-17	NE
1/20/2011	Fine	16	57-89	0.0	-	-
1/21/2011	Fine	14	51-68	0.0	0-20	NE
1/22/2011	Fine	13	64-75	0.0	0-16	N
1/23/2011	Fine	15	57-80	0.0	0-16	E
1/26/2011	Fine	15	57-84	0.0	0-17	E
1/27/2011	Fine	16	62-85	0.0	0-15	E
1/28/2011	Fine	15	56-86	0.0	0-18	E
1/30/2011	Fine	12	44-59	0.0	0-22	N

		Tsing Yi Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
1/2/2011	Fine	15	56-72	0.0	1-22	E
1/4/2011	Rainy	12	76-90	1.2	2-17	NW
1/5/2011	Fine	16	71-82	0.0	2-15	NW
1/7/2011	Fine	10	55-69	0.0	2-23	NW
1/9/2011	Fine	15	46-65	0.0	0-10	NE
1/10/2011	Fine	13	46-62	0.0	1-21	NW
1/11/2011	Rainy	10	52-74	Trace	0-21	NW
1/14/2011	Fine	17	60-81	0.0	0-15	NW
1/15/2011	Fine	13	45-76	0.0	0-20	NW
1/16/2011	Fine	11	50-70	0.0	3-30	NW
1/17/2011	Fine	13	47-75	0.0	1-14	E
1/20/2011	Fine	16	57-89	0.0	-	-
1/21/2011	Fine	13	51-68	0.0	2-24	NW
1/22/2011	Fine	13	64-75	0.0	0-20	NW
1/23/2011	Fine	15	57-80	0.0	0-15	SE
1/26/2011	Fine	15	57-84	0.0	0-12	NW
1/27/2011	Fine	17	62-85	0.0	0-16	S
1/28/2011	Fine	15	56-86	0.0	1-19	SE
1/30/2011	Fine	13	44-59	0.0	2-18	NW

		Kai Tak Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
1/2/2011	Fine	15	56-72	0.0	10-30	E
1/4/2011	Rainy	13	76-90	1.2	1-20	NE
1/5/2011	Fine	16	71-82	0.0	2-21	E
1/7/2011	Fine	11	55-69	0.0	3-23	NW
1/9/2011	Fine	15	46-65	0.0	0-20	N
1/10/2011	Fine	13	46-62	0.0	0-21	NW
1/11/2011	Rainy	10	52-74	Trace	0-17	NW
1/14/2011	Fine	17	60-81	0.0	0-24	SE
1/15/2011	Fine	13	45-76	0.0	0-26	N
1/16/2011	Fine	11	50-70	0.0	4-31	NE
1/17/2011	Fine	12	47-75	0.0	0-23	NE
1/20/2011	Fine	16	57-89	0.0	-	-
1/21/2011	Fine	14	51-68	0.0	0-26	NW
1/22/2011	Fine	13	64-75	0.0	0-18	NW
1/23/2011	Fine	15	57-80	0.0	0-20	SE
1/26/2011	Fine	15	57-84	0.0	0-21	E
1/27/2011	Fine	16	62-85	0.0	0-23	SE
1/28/2011	Fine	15	56-86	0.0	0-24	E
1/30/2011	Fine	12	44-59	0.0	1-21	NE

		Green Island Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
1/2/2011	Fine	15	56-72	0.0	26-60	N
1/4/2011	Rainy	13	76-90	1.2	15-45	N
1/5/2011	Fine	16	71-82	0.0	13-42	-
1/7/2011	Fine	11	55-69	0.0	15-46	-
1/9/2011	Fine	15	46-65	0.0	0-27	-
1/10/2011	Fine	13	46-62	0.0	0-40	-
1/11/2011	Rainy	10	52-74	Trace	5-44	N
1/14/2011	Fine	17	60-81	0.0	6-32	N
1/15/2011	Fine	13	45-76	0.0	0-45	N
1/16/2011	Fine	11	50-70	0.0	23-47	N
1/17/2011	Fine	12	47-75	0.0	12-42	N
1/20/2011	Fine	16	57-89	0.0	-	-
1/21/2011	Fine	14	51-68	0.0	5-50	N
1/22/2011	Fine	13	64-75	0.0	15-36	N
1/23/2011	Fine	15	57-80	0.0	11-38	N
1/26/2011	Fine	15	57-84	0.0	3-32	NE
1/27/2011	Fine	16	62-85	0.0	0-34	NE
1/28/2011	Fine	15	56-86	0.0	3-41	NE
1/30/2011	Fine	12	44-59	0.0	2-37	N

* King's Park's data
\- Data were not available
\# less than 24 hourly observations per day

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2/1/2011	Fine	14	54-80	0.0	0-17	E
2/2/2011	Sunny	15	47-79	0.0	0-14	NE
2/7/2011	Sunny	19	45-84	0.0	0-18	E
2/8/2011	Sunny	21	60-91	0.0	0-20	E
2/11/2011	Cloudy	16	61-92	Trace	0-19	-
2/12/2011	Fine	14	63-76	0.0	0-15	N
2/14/2011	Cloudy	10	60-88	0.6	0-17	N
2/17/2011	Cloudy	16	88-98	Trace	0-15	E
2/18/2011	Cloudy	14	86-95	Trace	0-16	E
2/19/2011	Cloudy	12	85-94	2.0	0-18	E
2/20/2011	Cloudy	14	70-94	0.9	0-13	N
2/23/2011	Cloudy	18	56-82	0.0	3-23	E
2/24/2011	Cloudy	19	65-89	0.0	0-17	E
2/25/2011	Cloudy	20	66-88	0.0	0-15	E
2/27/2011	Cloudy	21	62-91	Trace	1-22	E

		Tsing Yi Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2/1/2011	Fine	15	54-80	0.0	1-14	E
2/2/2011	Sunny	16	47-79	0.0	0-17	N
2/7/2011	Sunny	20	45-84	0.0	0-15	N
2/8/2011	Sunny	22	60-91	0.0	2-23	SE
2/11/2011	Cloudy	16	61-92	Trace	0-16	E
2/12/2011	Fine	14	63-76	0.0	0-13	NW
2/14/2011	Cloudy	10	60-88	0.6	0-23	N
2/17/2011	Cloudy	16	88-98	Trace	0-9	NW
2/18/2011	Cloudy	14	86-95	Trace	0-20	NW
2/19/2011	Cloudy	12	85-94	2.0	0-14	E
2/20/2011	Cloudy	14	70-94	0.9	0-14	NW
2/23/2011	Cloudy	19	56-82	0.0	0-21	E
2/24/2011	Cloudy	20	65-89	0.0	0-12	S
2/25/2011	Cloudy	20	66-88	0.0	0-14	S
2/27/2011	Cloudy	22	62-91	Trace	0-22	SE

		Kai Tak Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2/1/2011	Fine	14	54-80	0.0	3-22	E
2/2/2011	Sunny	15	47-79	0.0	0-17	N
2/7/2011	Sunny	19	45-84	0.0	7-24	SE
2/8/2011	Sunny	21	60-91	0.0	6-28	E
2/11/2011	Cloudy	16	61-92	Trace	2-27	E
2/12/2011	Fine	14	63-76	0.0	4-20	NE
2/14/2011	Cloudy	10	60-88	0.6	0-21	NW
2/17/2011	Cloudy	16	88-98	Trace	4-18	SE
2/18/2011	Cloudy	14	86-95	Trace	0-20	E
2/19/2011	Cloudy	12	85-94	2.0	2-22	E
2/20/2011	Cloudy	14	70-94	0.9	0-18	NW
2/23/2011	Cloudy	18	56-82	0.0	6-28	E
2/24/2011	Cloudy	19	65-89	0.0	3-20	SE
2/25/2011	Cloudy	20	66-88	0.0	6-22	SE
2/27/2011	Cloudy	21	62-91	Trace	4-31	SE

		Green Island Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2/1/2011	Fine	14	54-80	0.0	5-40	NE
2/2/2011	Sunny	15	47-79	0.0	0-23	NE
2/7/2011	Sunny	19	45-84	0.0	1-35	NE
2/8/2011	Sunny	21	60-91	0.0	3-45	NE
2/11/2011	Cloudy	16	61-92	Trace	0-47	NE
2/12/2011	Fine	14	63-76	0.0	2-32	N
2/14/2011	Cloudy	10	60-88	0.6	4-38	N
2/17/2011	Cloudy	16	88-98	Trace	2-38	NE
2/18/2011	Cloudy	14	86-95	Trace	3-36	NW
2/19/2011	Cloudy	12	85-94	2.0	13-43	NE
2/20/2011	Cloudy	14	70-94	0.9	5-32	N
2/23/2011	Cloudy	18	56-82	0.0	4-51	NE
2/24/2011	Cloudy	19	65-89	0.0	1-27	NE
2/25/2011	Cloudy	20	66-88	0.0	2-32	NE
2/27/2011	Cloudy	21	62-91	Trace	0-62	NE

* King's Park's data
\- Data were not available
\# less than 24 hourly observations per day

Annex E5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM3

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
1-Dec-10	9:18	9:48	Sunny	74.9	76.3	73.0	Lifting	Traffic noise	-	21	0.4	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
7-Dec-10	9:20	9:50	Sunny	74.4	75.9	72.4	Lifting	Traffic noise	-	19	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
13-Dec-10	13:20	13:50	Fine	74.6	75.9	72.7	Lifting work	Traffic noise	-	22	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
24-Dec-10	9:15	9:45	Sunny	74.6	76.2	72.8	Drilling work	Traffic noise	-	19	0.4	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
30-Dec-10	9:25	9:55	Sunny	74.7	76.0	72.6	Drilling work	Traffic noise	-	18	1.5	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
			Min.	**74.4**									
			Max.	**74.9**									

Annex E5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM3

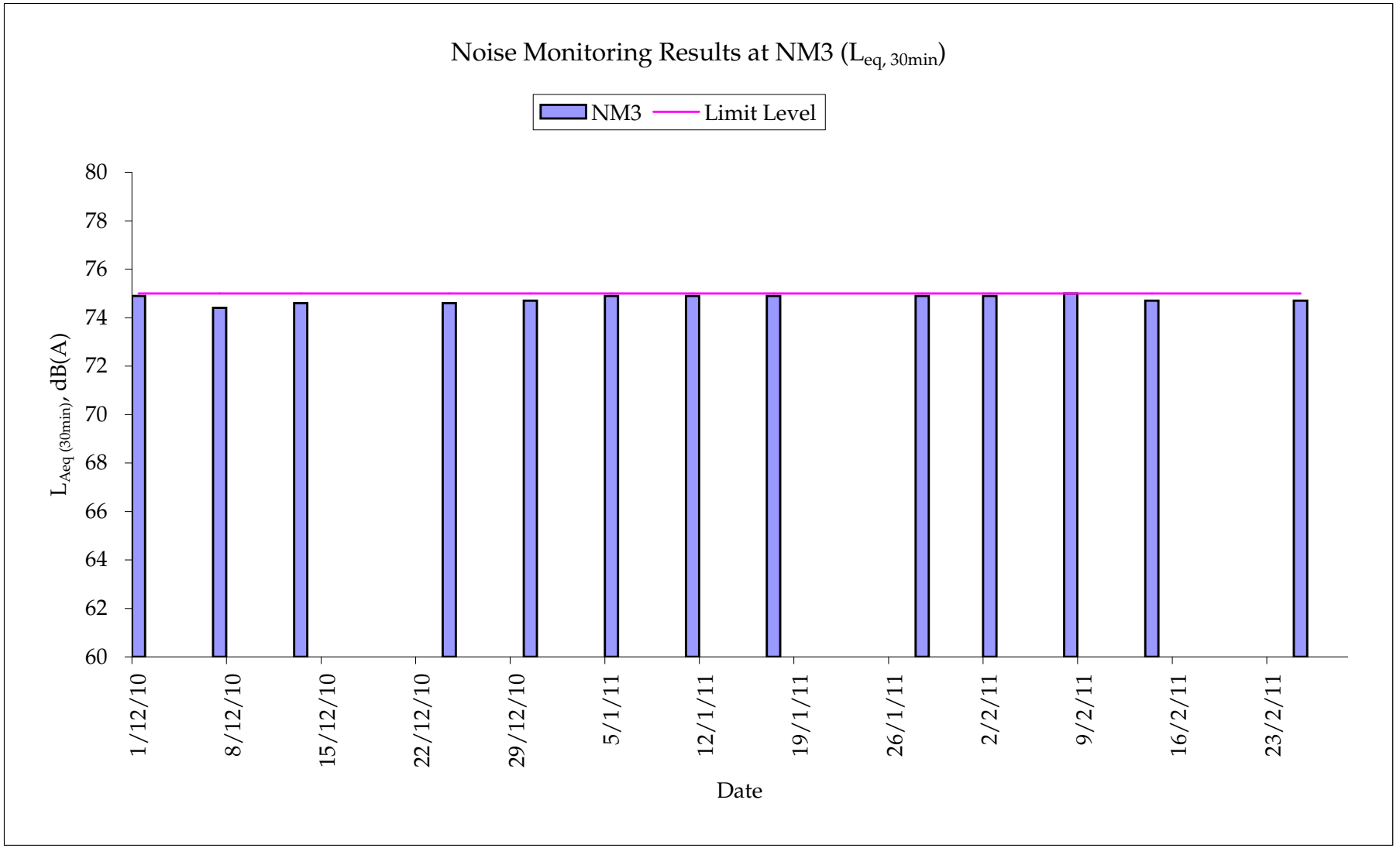
Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
5-Jan-11	15:26	15:56	Fine	74.9	76.7	72.9	Piling works	Traffic noise	-	16	1.0	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
11-Jan-11	8:14	8:44	Fine	74.9	76.3	72.3	Excavation, piling	Traffic noise	-	10	0.7	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
17-Jan-11	9:15	9:45	Fine	74.9	76.5	72.9	Drilling Work	Traffic noise	-	12	1.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
28-Jan-11	8:48	9:18	Sunny	74.9	76.5	73.1	Breaker noise	Mainly traffic noise	-	15	0.3	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
			Min.	**74.9**									
			Max.	**74.9**									

Annex E5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM3

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
2-Feb-11	9:15	9:45	Sunny	74.9	76.5	72.7	Breaker noise	Mainly traffic noise	-	15	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
8-Feb-11	9:48	10:18	Sunny	75.0	76.2	73.0	Breaker noise	Mainly traffic noise	-	21	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
14-Feb-11	13:46	14:16	Cloudy	74.7	76.7	72.6	Breaker noise	Mainly traffic noise	-	10	0.8	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
25-Feb-11	9:25	9:55	Sunny	74.7	76.1	72.7	Excavation work	Mainly traffic noise	-	20	0.3	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
			Min.	**74.7**									
			Max.	**75.0**									

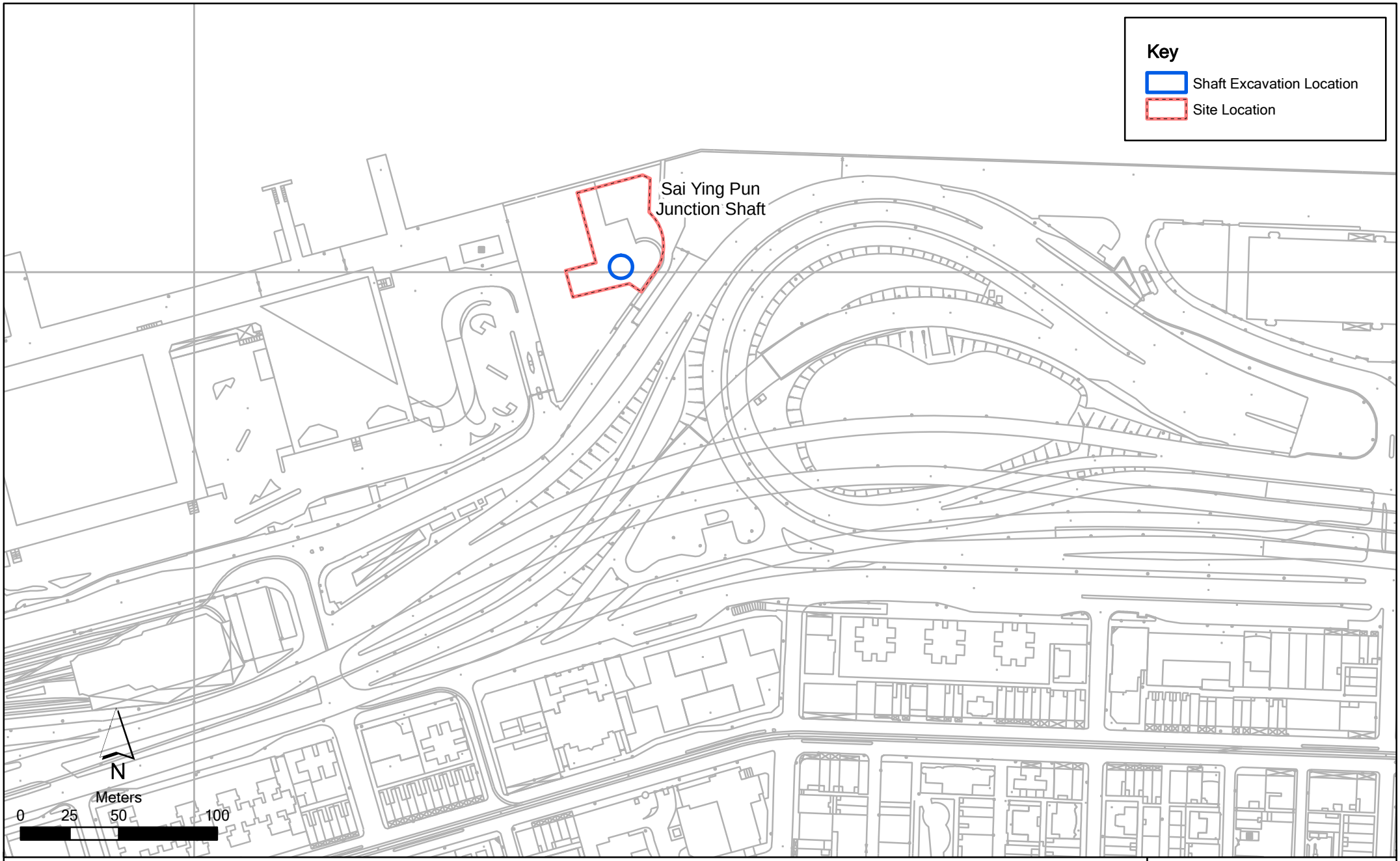

Noise Monitoring Results at NM3 ($L_{eq, 30min}$)
NM3
Limit Level
80
78
76
74
72
70
68
66
64
62
60
$L_{Aeq\ (30min)}$, dB(A)
1/12/10
8/12/10
15/12/10
22/12/10
29/12/10
5/1/11
12/1/11
19/1/11
26/1/11
2/2/11
9/2/11
16/2/11
23/2/11
Date

Annex E6 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2009	0	0
January 2010	0	0
February 2010	0	0
March 2010	0	0
April 2010	0	0
May 2010	0	0
June 2010	0	0
July 2010	0	0
August 2010	0	0
September 2010	0	0
October 2010	0	0
November 2010	0	0
December 2010	0	0
January 2011	0	0
February 2011	0	0
Overall Total	0	0

Annex F

Sai Ying Pun Junction Shaft



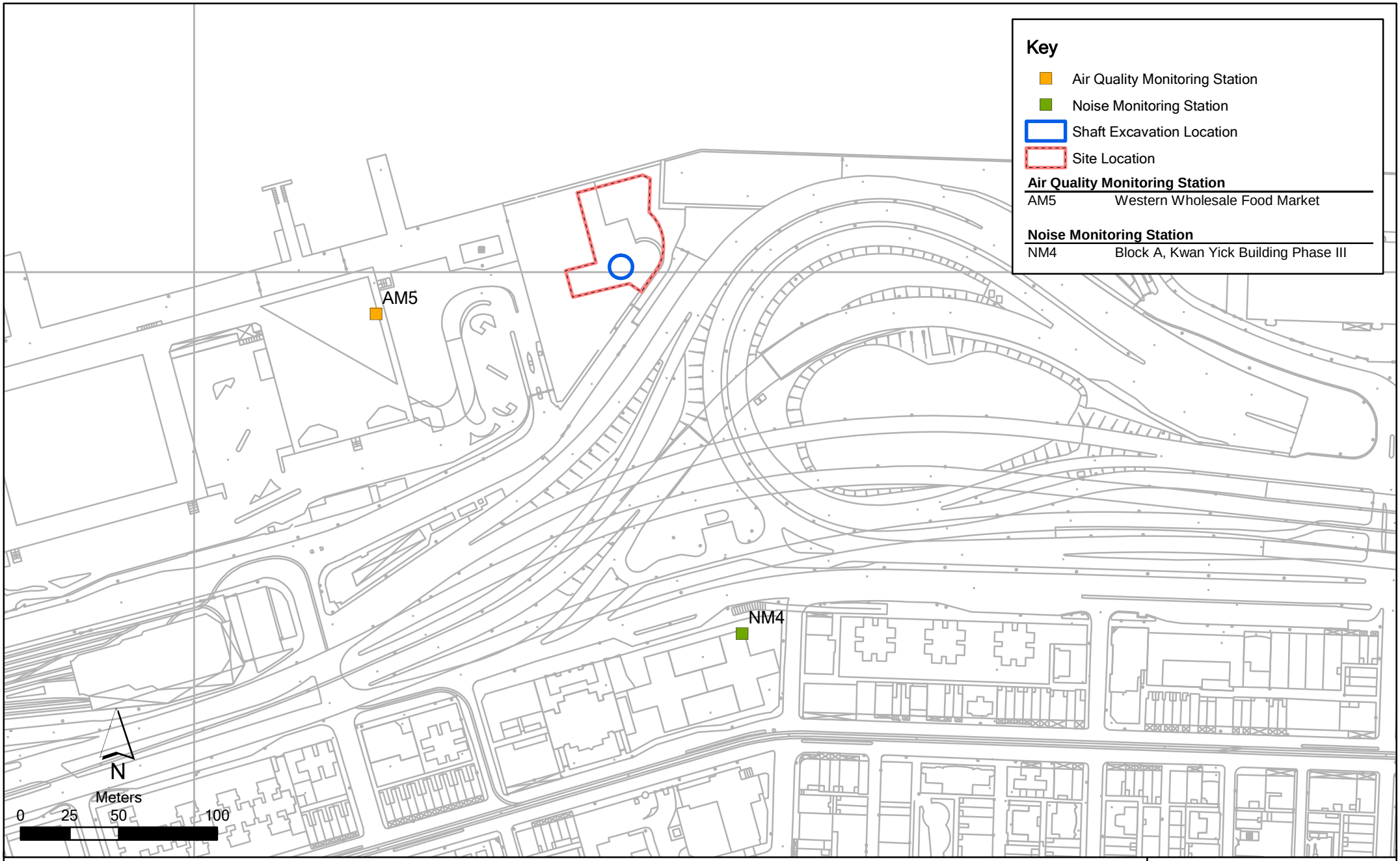
Annex F1

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
Construction Site Locations at Sai Ying Pun

File: EM&A and proposed station\0104887_Sai Ying Pun.mxd
Date: 03/03/2010

Environmental Resources Management

ERM



Annex F2

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
Impact Air Quality & Noise Monitoring Stations (Fung Mat Road)

File: EM&A and proposed station\
0104887_Sai Ting Pun_NMAM.mxd
Date: 03/03/2010

Environmental Resources Management

ERM

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Construction Phase			
Air Quality	The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimize construction dust impact. Control measures relevant to this Project are listed below: • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • 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 hardcores; • where a site boundary adjoins a road, streets or other 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; • 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; • regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather; • site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible; • tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.	All work sites / during construction	<>

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Air Quality	The following watering measures for specific site would be required to control the fugitive dust impacts: • watering twice per day within the worksites at Fung Mat Road Site; • the barging points should be continuous watering throughout the whole unloading process.	All work sites / during construction	√
Operational Phase			
Air Quality	Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual. • Screens should be cleaned regularly to remove any accumulated organic debris • Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit • Grit and screened materials should be transferred to closed containers to minimize odour escape • Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics • Skim and remove floating solids and grease from primary clarifiers regularly • Frequent sludge withdrawal from tanks is necessary to prevent the production of gases • Sludge cake should be transferred to closed containers • Sludge containers should be flushed with water regularly	All work sites / during construction	NA. Measures not required until commencement of operational phase
Air Quality	Commissioning tests for all deodorization system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	NA. Measures not required until commencement of operational phase
Construction Phase			
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Noise	Good Site Practice: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; • silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program; • mobile plant, if any, should be sited as far from NSRs as possible; • machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and • material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.	All work sites / during construction	√
Construction Phase			
Water Quality	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 work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	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.	All work sites / during construction	√
Water Quality	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) Regulation should be observed and complied with for control of chemical wastes.	All work sites / during construction	Δ
Water Quality	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.	All work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	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: • 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.	All work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	Construction Works in Close Proximity of Storm Drains or Seafront 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. • 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 the storm culvert or sea	All work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Operational Phase			
Water Quality	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimize the chance of emergency discharge.	SCISTW and all the Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	Standby unit(s) and dual (backup) power supply would be provided at all the Stage 2 PTWs to reduce the risk of equipment breakdown at the PTWs.	Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Construction Phase			
Waste	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 work sites / during the construction period	√
Waste	All waste materials should be segregated into categories covering: • 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 work sites / during the construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Recommendations to achieve waste reduction include: • 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; and • Proper storage and site practices to minimise the potential for damage or contamination of construction materials.	All work sites / during the construction period	√
Waste	Recommendations for good site practices during construction activities include:- • 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 • 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. • Provision of sufficient waste disposal points and regular collection of waste • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors	All work sites / during the construction period	√
Waste	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 work sites / during the construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	All work sites / during the construction period	√
Waste	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	All work sites / during the construction period	√
Waste	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.	All work sites / during the construction period	√
Waste	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.	All work sites / during the construction period	Δ

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	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.	All work sites / during the construction period	√
Construction Phase			
Landscape & Visual	• Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • 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. • Erection of decorative screen hoarding compatible with the surrounding setting.	All the works areas, PTWs and SCISTW/ during the construction period	√
Operational Phase	•		
Landscape & Visual	• Aesthetic design of the façade of PTW and associated structures to harmonize with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area	All the works areas, PTWs and SCISTW/ during the construction period	NA. Measures not required until commencement of operational phase
Construction Phase			

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.
	Monitoring of vibration limits shall be conducted and reported as a requirement of EM&A programme	Identified historical buildings/structures as mentioned in Tables 15.8 and 15.9. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.

Remark:
√ Compliance of Mitigation Measures
<> Compliance of Mitigation but need improvement
x Non-compliance of Mitigation Measures
Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
NA Not Applicable

Annex F4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM5

Date	Start Time	Finish Time	Weather	TSP Concentration (µg/m^3)	Action Level (µg/m^3)	Limit Level (µg/m^3)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
1-Dec-10	8:00	9:00	Sunny	287	331.9	500	Loading activities	21	<5	Western Wholesale Food Market	392
1-Dec-10	9:35	10:35	Sunny	157	331.9	500	Operation of oscillator	21	<5	Western Wholesale Food Market	393
1-Dec-10	10:40	11:40	Sunny	106	331.9	500	Operation of oscillator	21	<5	Western Wholesale Food Market	394
7-Dec-10	8:00	9:00	Sunny	290	331.9	500	Loading activities	19	<5	Western Wholesale Food Market	398
7-Dec-10	9:15	10:15	Sunny	285	331.9	500	Operation of oscillator	19	<5	Western Wholesale Food Market	399
7-Dec-10	10:20	11:20	Sunny	324	331.9	500	Operation of oscillator	19	<5	Western Wholesale Food Market	400
13-Dec-10	8:00	9:00	Sunny	263	331.9	500	Loading activities	22	<5	Western Wholesale Food Market	407
13-Dec-10	9:32	10:32	Sunny	153	331.9	500	Drilling and contraction of noise encloseure sub structure	22	<5	Western Wholesale Food Market	405
13-Dec-10	10:35	11:35	Sunny	86	331.9	500	Drilling and contraction of noise encloseure sub structure	22	<5	Western Wholesale Food Market	406
17-Dec-10	8:00	9:00	Sunny	208	331.9	500	Loading activities	10	<5	Western Wholesale Food Market	412
17-Dec-10	13:40	14:40	Sunny	195	331.9	500	Contraction of noise encloseure sub structure	10	<5	Western Wholesale Food Market	413
17-Dec-10	14:45	15:45	Sunny	177	331.9	500	Contraction of noise encloseure sub structure	10	<5	Western Wholesale Food Market	414
23-Dec-10	8:00	9:00	Sunny	266	331.9	500	Contraction of noise encloseure sub structure	18	<5	Western Wholesale Food Market	420
23-Dec-10	13:40	14:40	Sunny	197	331.9	500	Contraction of noise encloseure sub structure	18	<5	Western Wholesale Food Market	419
23-Dec-10	14:45	15:45	Sunny	138	331.9	500	Contraction of noise encloseure sub structure	18	<5	Western Wholesale Food Market	421
29-Dec-10	8:00	9:00	Fine	163	331.9	500	Contraction of noise encloseure sub structure	17	<5	Western Wholesale Food Market	426
29-Dec-10	13:10	14:10	Fine	209	331.9	500	Contraction of noise encloseure sub structure	17	<5	Western Wholesale Food Market	427
29-Dec-10	14:20	15:20	Fine	158	331.9	500	Contraction of noise encloseure sub structure	17	<5	Western Wholesale Food Market	428
			Min.	**86**							
			Max.	**324**							
			Average	**203**							

* Wind Speed data is presented in the Meteorological Data table

Annex F4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM5

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
4-Jan-11	8:00	9:00	Fine	86	332	500	Contraction of noise encloseure sub structure	13	0-14	Western Wholesale Food Market	433
	9:15	10:15	Fine	60	332	500	Contraction of noise encloseure sub structure	13	0-14	Western Wholesale Food Market	434
	10:25	11:25	Fine	41	332	500	Contraction of noise encloseure sub structure	13	0-14	Western Wholesale Food Market	435
10-Jan-11	8:00	9:00	Fine	220	332	500	Contraction of noise encloseure sub structure	13	0-19	Western Wholesale Food Market	440
	9:40	10:40	Fine	63	332	500	Contraction of noise encloseure sub structure	13	0-19	Western Wholesale Food Market	441
	10:50	11:50	Fine	175	332	500	Contraction of noise encloseure sub structure	13	0-19	Western Wholesale Food Market	442
14-Jan-11	8:00	9:00	Fine	192	332	500	Contraction of noise encloseure sub structure	17	0-14	Western Wholesale Food Market	447
	13:30	14:30	Fine	141	332	500	Contraction of noise encloseure sub structure	17	0-14	Western Wholesale Food Market	448
	14:45	15:45	Fine	215	332	500	Contraction of noise encloseure sub structure	17	0-14	Western Wholesale Food Market	449
20-Jan-11	8:00	9:00	Fine	322	332	500	Contraction of noise encloseure sub structure	16	-	Western Wholesale Food Market	454
	9:35	10:35	Fine	239	332	500	Contraction of noise encloseure sub structure	16	-	Western Wholesale Food Market	455
	10:45	11:45	Fine	242	332	500	Contraction of noise encloseure sub structure	16	-	Western Wholesale Food Market	456
26-Jan-11	8:00	9:00	Fine	322	332	500	Contraction of noise encloseure sub structure	15	0-17	Western Wholesale Food Market	459
	9:35	10:35	Fine	239	332	500	Contraction of noise encloseure sub structure	15	0-17	Western Wholesale Food Market	460
	10:45	11:45	Fine	242	332	500	Contraction of noise encloseure sub structure	15	0-17	Western Wholesale Food Market	461
			Min.	**41**							
			Max.	**322**							
			Average	**187**							

* Wind Speed data is presented in the Meteorological Data table

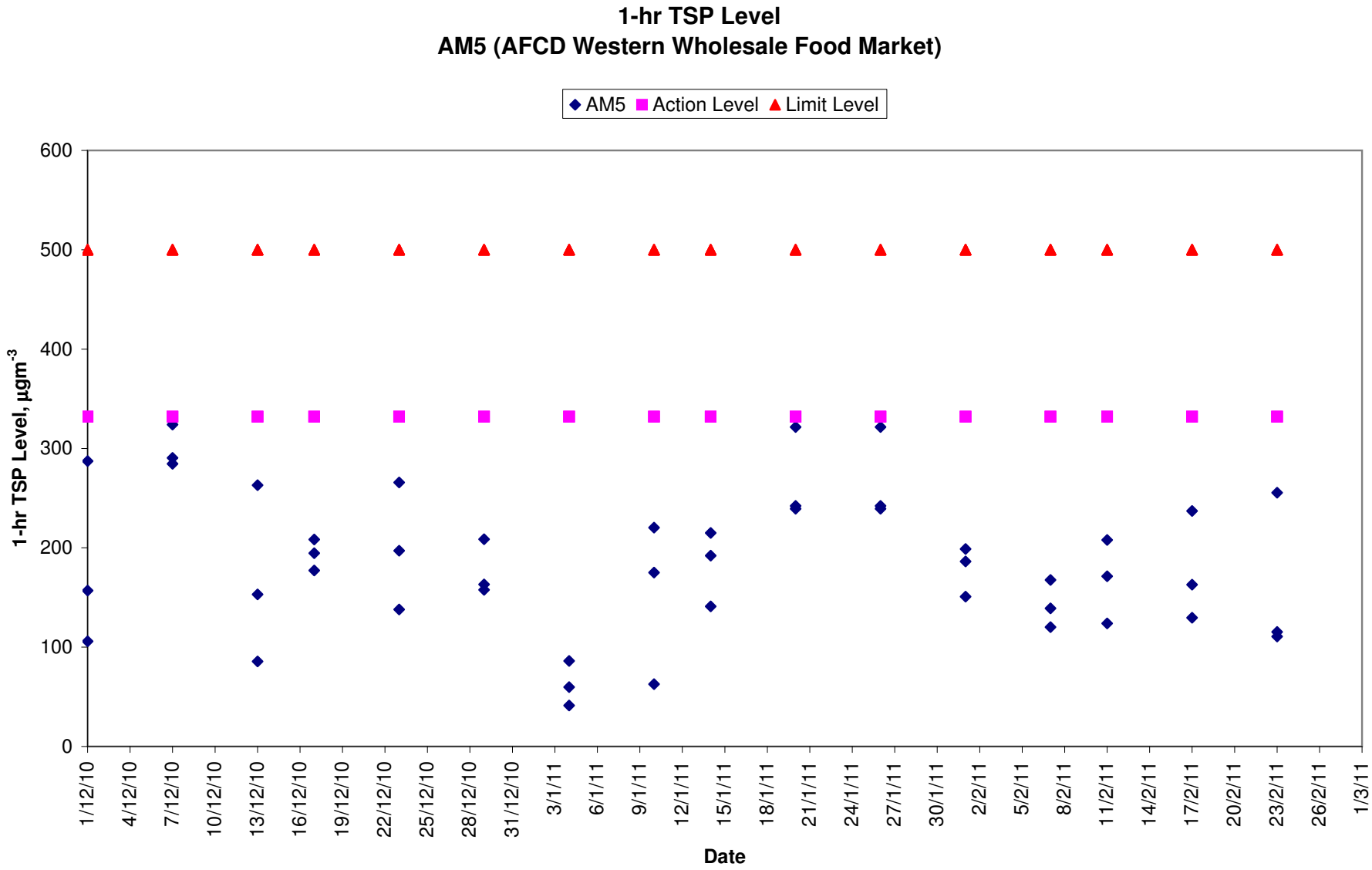
Annex F4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM5

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
1-Feb-11	8:00	9:00	Fine	186	331.9	500	Loading activities	14	<5	Western Wholesale Food Market	466
	13:05	14:05	Fine	151	331.9	500	Pumping test	14	<5	Western Wholesale Food Market	467
	16:35	17:35	Fine	199	331.9	500	Pumping test	14	<5	Western Wholesale Food Market	468
7-Feb-11	8:00	9:00	Fine	168	331.9	500	Loading activities	18.7	<5	Western Wholesale Food Market	473
	11:00	12:00	Fine	139	331.9	500	Pumping test and loading activities	18.7	<5	Western Wholesale Food Market	474
	15:10	16:10	Fine	120	331.9	500	Pumping test	18.7	<5	Western Wholesale Food Market	475
11-Feb-11	8:00	9:00	Shower	208	331.9	500	Installating of high voltage cable and pumping test	16.5	<5	Western Wholesale Food Market	480
	14:00	15:00	Shower	124	331.9	500	Installating of high voltage cable and pumping test	16.5	<5	Western Wholesale Food Market	481
	15:15	16:15	Shower	171	331.9	500	Installating of high voltage cable and pumping test	16.5	<5	Western Wholesale Food Market	482
17-Feb-11	8:00	9:00	Foggy	237	331.9	500	Installating of high voltage cable and pumping test	15.2	<5	Western Wholesale Food Market	487
	10:00	11:00	Foggy	163	331.9	500	Installating of high voltage cable and pumping test	15.2	<5	Western Wholesale Food Market	488
	11:05	12:05	Foggy	130	331.9	500	Installating of high voltage cable and pumping test	15.2	<5	Western Wholesale Food Market	489
23-Feb-11	8:00	9:00	Fine	255	331.9	500	No major construction works	17.4	<5	Western Wholesale Food Market	494
	14:50	15:50	Fine	115	331.9	500	Installating of piezometers	17.4	<5	Western Wholesale Food Market	495
	16:10	17:10	Fine	111	331.9	500	Installating of piezometers	17.4	<5	Western Wholesale Food Market	496
			Min.	**111**							
			Max.	**255**							
			Average	**165**							

* Wind Speed data is presented in the Meteorological Data table


1-hr TSP Level
AM5 (AFCD Western Wholesale Food Market)
AM5
Action Level
Limit Level
1-hr TSP Level, µgm-3
600
500
400
300
200
100
0
1/12/10
4/12/10
7/12/10
10/12/10
13/12/10
16/12/10
19/12/10
22/12/10
25/12/10
28/12/10
31/12/10
3/1/11
6/1/11
9/1/11
12/1/11
15/1/11
18/1/11
21/1/11
24/1/11
27/1/11
30/1/11
2/2/11
5/2/11
8/2/11
11/2/11
14/2/11
17/2/11
20/2/11
23/2/11
26/2/11
1/3/11
Date

Annex F4 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM5

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m^3/min)			TSP Conc. ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
1-Dec-10	13:00	2-Dec-10	13:00	Sunny	2.8002	3.0470	1571.05	1595.05	24.00	1.18	1.18	1.18	145	188.5	260	Grouting works	Western Wholesale Food Market	395
7-Dec-10	11:30	8-Dec-10	11:30	Sunny	2.8015	3.0159	1598.05	1622.05	24.00	1.13	1.13	1.13	132	188.5	260	Grouting works	Western Wholesale Food Market	401
13-Dec-10	13:00	14-Dec-10	13:00	Sunny	2.8067	3.0266	1625.05	1649.05	24.00	1.12	1.12	1.12	136	188.5	260	Contraction of noise encloseure sub structure	Western Wholesale Food Market	408
17-Dec-10	15:50	18-Dec-10	15:50	Sunny	2.7915	2.9812	1652.05	1676.05	24.00	1.15	1.15	1.15	115	188.5	260	Contraction of noise encloseure sub structure	Western Wholesale Food Market	415
23-Dec-10	12:20	24-Dec-10	12:20	Sunny	2.7893	3.0473	1679.05	1703.05	24.00	1.13	1.13	1.13	158	188.5	260	Contraction of noise encloseure sub structure	Western Wholesale Food Market	422
29-Dec-10	15:30	30-Dec-10	15:30	Fine	2.7810	3.0359	1706.05	1730.05	24.00	1.13	1.13	1.13	156	188.5	260	Contraction of noise encloseure sub structure	Western Wholesale Food Market	429
												Min.	**115**					
												Max.	**158**					
												Average	**140**					

Annex F4 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM5

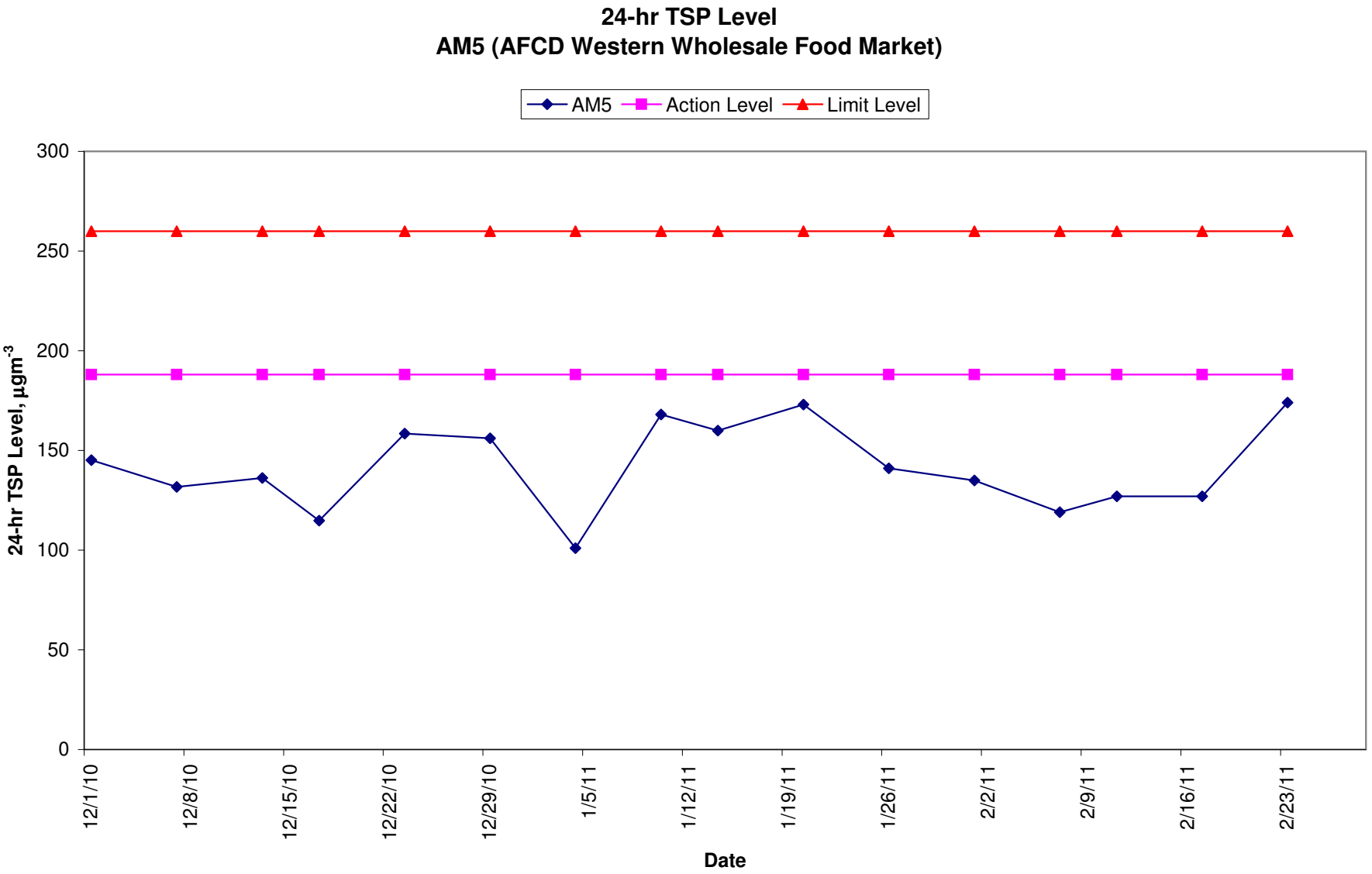
Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m^3/min)			TSP Conc. ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
4-Jan-11	11:34	5-Jan-11	11:34	Fine	2.8349	3.0017	1733.06	1757.06	24.00	1.14	1.14	1.14	101	188.5	260	Contraction of noise encloseure sub structure	Western Wholesale Food Market	436
10-Jan-11	11:55	11-Jan-11	11:55	Fine	2.7722	3.0482	1760.05	1784.05	24.00	1.14	1.14	1.14	168	188.5	260	Contraction of noise encloseure sub structure	Western Wholesale Food Market	443
14-Jan-11	16:55	15-Jan-11	16:55	Fine	2.9670	3.2284	1787.05	1811.05	24.00	1.14	1.14	1.14	160	188.5	260	Contraction of noise encloseure	Western Wholesale Food Market	450
20-Jan-11	11:50	21-Jan-11	11:50	Fine	2.8704	3.1537	1813.05	1837.05	24.00	1.14	1.14	1.14	173	188.5	260	Contraction of noise encloseure	Western Wholesale Food Market	457
26-Jan-11	16:50	27-Jan-11	16:50	Fine	2.7978	3.0286	1841.05	1865.05	24.00	1.14	1.14	1.14	173	188.5	260	Loading activities	Western Wholesale Food Market	462
												Min.	**101**					
												Max.	**173**					
												Average	**155**					

Annex F4 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM5

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m^3/min)			TSP Conc. ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
1-Feb-11	17:45	2-Feb-11	17:45	Fine	2.8128	3.0074	1868.05	1892.05	24.00	0.9998	0.9998	0.9998	135	188.5	260	Pumping test	Western Wholesale Food Market	469
7-Feb-11	16:30	8-Feb-11	16:30	Fine	2.8023	2.9945	1895.05	1919.05	24.00	1.1239	1.1239	1.1239	119	188.5	260	Pumping test	Western Wholesale Food Market	476
11-Feb-11	16:30	12-Feb-11	16:30	Shower	2.8253	3.0373	1922.05	1946.05	24.00	1.1576	1.1576	1.1576	127	188.5	260	Pumping test and installating of high voltage cable	Western Wholesale Food Market	483
17-Feb-11	12:10	18-Feb-11	12:10	Foggy	2.8253	3.0373	1949.05	1973.05	24.00	1.1600	1.1600	1.1600	127	188.5	260	Pumping test and installating of high voltage cable	Western Wholesale Food Market	490
23-Feb-11	17:20	24-Feb-11	17:20	Fine	2.8044	3.0937	1976.05	2000.05	24.00	1.1562	1.1562	1.1562	174	188.5	260	Installating of piezometers	Western Wholesale Food Market	497
												Min.	**119**					
												Max.	**174**					
												Average	**136**					


24-hr TSP Level
AM5 (AFCD Western Wholesale Food Market)
AM5
Action Level
Limit Level
300
250
200
150
100
50
0
24-hr TSP Level, µgm-3
12/1/10
12/8/10
12/15/10
12/22/10
12/29/10
1/5/11
1/12/11
1/19/11
1/26/11
2/2/11
2/9/11
2/16/11
2/23/11
Date

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
12/1/2010	Fine	21	65-81	0.0	0-14	E
12/5/2010	Fine	22	57-84	0.0	-	E
12/7/2010	Fine	19	42-66	0.0	0-26	NE
12/10/2010	Fine	19	66-79	0.0	0-20	E
12/11/2010	Fine	20	64-79	0.0	2-23	E
12/12/2010	Fine	19	81-88	0.0	5-23	E
12/13/2010	Fine	22	85-94	0.0	0-21	E
12/17/2010	Fine	10	28-50	0.0	0-24	NE
12/18/2010	Fine	14	46-77	0.0	0-13	E
12/19/2010	Fine	19	67-80	0.0	0-18	E
12/23/2010	Fine	18	53-82	0.0	0-20	E
12/24/2010	Fine	19	66-84	0.0	0-19	E
12/26/2010	Rainy	12	33-75	0.2	0-21	NE
12/29/2010	Fine	17	55-83	0.0	0-14	SE
12/30/2010	Fine	18	39-85	0.0	0-18	E

		Tsing Yi Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
12/1/2010	Fine	22	65-81	0.0	0-15	SE
12/5/2010	Fine	24	57-84	0.0	0-13	NW
12/7/2010	Fine	19	42-66	0.0	0-21	N
12/10/2010	Fine	19	66-79	0.0	3-24	E
12/11/2010	Fine	20	64-79	0.0	2-20	E
12/12/2010	Fine	20	81-88	0.0	4-21	E
12/13/2010	Fine	24	85-94	0.0	3-20	E
12/17/2010	Fine	10	28-50	0.0	2-31	NW
12/18/2010	Fine	14	46-77	0.0	0-27	E
12/19/2010	Fine	20	67-80	0.0	2-20	NE
12/23/2010	Fine	20	53-82	0.0	1-23	E
12/24/2010	Fine	20	66-84	0.0	1-18	E
12/26/2010	Rainy	13	33-75	0.2	3-32	NW
12/29/2010	Fine	18	55-83	0.0	0-10	NE
12/30/2010	Fine	19	39-85	0.0	0-18	E

		Kai Tak Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
12/1/2010	Fine	21	65-81	0.0	0-15	NE
12/5/2010	Fine	22	57-84	0.0	0-21	SE
12/7/2010	Fine	19	42-66	0.0	0-20	NE
12/10/2010	Fine	19	66-79	0.0	4-23	E
12/11/2010	Fine	20	64-79	0.0	4-25	E
12/12/2010	Fine	19	81-88	0.0	10-32	E
12/13/2010	Fine	22	85-94	0.0	2-30	E
12/17/2010	Fine	10	28-50	0.0	3-30	NW
12/18/2010	Fine	14	46-77	0.0	0-13	NE
12/19/2010	Fine	19	67-80	0.0	3-24	SE
12/23/2010	Fine	18	53-82	0.0	3-26	E
12/24/2010	Fine	19	66-84	0.0	7-23	E
12/26/2010	Rainy	12	33-75	0.2	3-33	N
12/29/2010	Fine	17	55-83	0.0	0-20	SE
12/30/2010	Fine	18	39-85	0.0	0-24	E

		Green Island Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
12/1/2010	Fine	21	65-81	0.0	3-29	N
12/5/2010	Fine	22	57-84	0.0	0-37	NE
12/7/2010	Fine	19	42-66	0.0	0-45	NE
12/10/2010	Fine	19	66-79	0.0	15-44	NE
12/11/2010	Fine	20	64-79	0.0	22-45	NE
12/12/2010	Fine	19	81-88	0.0	34-57	NE
12/13/2010	Fine	22	85-94	0.0	21-52	NE
12/17/2010	Fine	10	28-50	0.0	22-58	N
12/18/2010	Fine	14	46-77	0.0	9-35	N
12/19/2010	Fine	19	67-80	0.0	7-36	NE
12/23/2010	Fine	18	53-82	0.0	12-39	NE
12/24/2010	Fine	19	66-84	0.0	14-37	NE
12/26/2010	Rainy	12	33-75	0.2	18-53	N
12/29/2010	Fine	17	55-83	0.0	3-24	N
12/30/2010	Fine	18	39-85	0.0	5-48	NE

* King's Park's data
\- Data were not available
\# less than 24 hourly observations per day

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
1/2/2011	Fine	15	56-72	0.0	1-25	N
1/4/2011	Rainy	13	76-90	1.2	0-14	NE
1/5/2011	Fine	16	71-82	0.0	0-17	E
1/7/2011	Fine	11	55-69	0.0	0-18	N
1/9/2011	Fine	15	46-65	0.0	0-12	E
1/10/2011	Fine	13	46-62	0.0	0-19	N
1/11/2011	Rainy	10	52-74	Trace	0-17	N
1/14/2011	Fine	17	60-81	0.0	0-14	NE
1/15/2011	Fine	13	45-76	0.0	0-20	N
1/16/2011	Fine	11	50-70	0.0	5-25	N
1/17/2011	Fine	12	47-75	0.0	0-17	NE
1/20/2011	Fine	16	57-89	0.0	-	-
1/21/2011	Fine	14	51-68	0.0	0-20	NE
1/22/2011	Fine	13	64-75	0.0	0-16	N
1/23/2011	Fine	15	57-80	0.0	0-16	E
1/26/2011	Fine	15	57-84	0.0	0-17	E
1/27/2011	Fine	16	62-85	0.0	0-15	E
1/28/2011	Fine	15	56-86	0.0	0-18	E
1/30/2011	Fine	12	44-59	0.0	0-22	N

		Tsing Yi Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
1/2/2011	Fine	15	56-72	0.0	1-22	E
1/4/2011	Rainy	12	76-90	1.2	2-17	NW
1/5/2011	Fine	16	71-82	0.0	2-15	NW
1/7/2011	Fine	10	55-69	0.0	2-23	NW
1/9/2011	Fine	15	46-65	0.0	0-10	NE
1/10/2011	Fine	13	46-62	0.0	1-21	NW
1/11/2011	Rainy	10	52-74	Trace	0-21	NW
1/14/2011	Fine	17	60-81	0.0	0-15	NW
1/15/2011	Fine	13	45-76	0.0	0-20	NW
1/16/2011	Fine	11	50-70	0.0	3-30	NW
1/17/2011	Fine	13	47-75	0.0	1-14	E
1/20/2011	Fine	16	57-89	0.0	-	-
1/21/2011	Fine	13	51-68	0.0	2-24	NW
1/22/2011	Fine	13	64-75	0.0	0-20	NW
1/23/2011	Fine	15	57-80	0.0	0-15	SE
1/26/2011	Fine	15	57-84	0.0	0-12	NW
1/27/2011	Fine	17	62-85	0.0	0-16	S
1/28/2011	Fine	15	56-86	0.0	1-19	SE
1/30/2011	Fine	13	44-59	0.0	2-18	NW

		Kai Tak Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
1/2/2011	Fine	15	56-72	0.0	10-30	E
1/4/2011	Rainy	13	76-90	1.2	1-20	NE
1/5/2011	Fine	16	71-82	0.0	2-21	E
1/7/2011	Fine	11	55-69	0.0	3-23	NW
1/9/2011	Fine	15	46-65	0.0	0-20	N
1/10/2011	Fine	13	46-62	0.0	0-21	NW
1/11/2011	Rainy	10	52-74	Trace	0-17	NW
1/14/2011	Fine	17	60-81	0.0	0-24	SE
1/15/2011	Fine	13	45-76	0.0	0-26	N
1/16/2011	Fine	11	50-70	0.0	4-31	NE
1/17/2011	Fine	12	47-75	0.0	0-23	NE
1/20/2011	Fine	16	57-89	0.0	-	-
1/21/2011	Fine	14	51-68	0.0	0-26	NW
1/22/2011	Fine	13	64-75	0.0	0-18	NW
1/23/2011	Fine	15	57-80	0.0	0-20	SE
1/26/2011	Fine	15	57-84	0.0	0-21	E
1/27/2011	Fine	16	62-85	0.0	0-23	SE
1/28/2011	Fine	15	56-86	0.0	0-24	E
1/30/2011	Fine	12	44-59	0.0	1-21	NE

		Green Island Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
1/2/2011	Fine	15	56-72	0.0	26-60	N
1/4/2011	Rainy	13	76-90	1.2	15-45	N
1/5/2011	Fine	16	71-82	0.0	13-42	-
1/7/2011	Fine	11	55-69	0.0	15-46	-
1/9/2011	Fine	15	46-65	0.0	0-27	-
1/10/2011	Fine	13	46-62	0.0	0-40	-
1/11/2011	Rainy	10	52-74	Trace	5-44	N
1/14/2011	Fine	17	60-81	0.0	6-32	N
1/15/2011	Fine	13	45-76	0.0	0-45	N
1/16/2011	Fine	11	50-70	0.0	23-47	N
1/17/2011	Fine	12	47-75	0.0	12-42	N
1/20/2011	Fine	16	57-89	0.0	-	-
1/21/2011	Fine	14	51-68	0.0	5-50	N
1/22/2011	Fine	13	64-75	0.0	15-36	N
1/23/2011	Fine	15	57-80	0.0	11-38	N
1/26/2011	Fine	15	57-84	0.0	3-32	NE
1/27/2011	Fine	16	62-85	0.0	0-34	NE
1/28/2011	Fine	15	56-86	0.0	3-41	NE
1/30/2011	Fine	12	44-59	0.0	2-37	N

* King's Park's data
\- Data were not available
\# less than 24 hourly observations per day

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2/1/2011	Fine	14	54-80	0.0	0-17	E
2/2/2011	Sunny	15	47-79	0.0	0-14	NE
2/7/2011	Sunny	19	45-84	0.0	0-18	E
2/8/2011	Sunny	21	60-91	0.0	0-20	E
2/11/2011	Cloudy	16	61-92	Trace	0-19	-
2/12/2011	Fine	14	63-76	0.0	0-15	N
2/14/2011	Cloudy	10	60-88	0.6	0-17	N
2/17/2011	Cloudy	16	88-98	Trace	0-15	E
2/18/2011	Cloudy	14	86-95	Trace	0-16	E
2/19/2011	Cloudy	12	85-94	2.0	0-18	E
2/20/2011	Cloudy	14	70-94	0.9	0-13	N
2/23/2011	Cloudy	18	56-82	0.0	3-23	E
2/24/2011	Cloudy	19	65-89	0.0	0-17	E
2/25/2011	Cloudy	20	66-88	0.0	0-15	E
2/27/2011	Cloudy	21	62-91	Trace	1-22	E

		Tsing Yi Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2/1/2011	Fine	15	54-80	0.0	1-14	E
2/2/2011	Sunny	16	47-79	0.0	0-17	N
2/7/2011	Sunny	20	45-84	0.0	0-15	N
2/8/2011	Sunny	22	60-91	0.0	2-23	SE
2/11/2011	Cloudy	16	61-92	Trace	0-16	E
2/12/2011	Fine	14	63-76	0.0	0-13	NW
2/14/2011	Cloudy	10	60-88	0.6	0-23	N
2/17/2011	Cloudy	16	88-98	Trace	0-9	NW
2/18/2011	Cloudy	14	86-95	Trace	0-20	NW
2/19/2011	Cloudy	12	85-94	2.0	0-14	E
2/20/2011	Cloudy	14	70-94	0.9	0-14	NW
2/23/2011	Cloudy	19	56-82	0.0	0-21	E
2/24/2011	Cloudy	20	65-89	0.0	0-12	S
2/25/2011	Cloudy	20	66-88	0.0	0-14	S
2/27/2011	Cloudy	22	62-91	Trace	0-22	SE

		Kai Tak Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2/1/2011	Fine	14	54-80	0.0	3-22	E
2/2/2011	Sunny	15	47-79	0.0	0-17	N
2/7/2011	Sunny	19	45-84	0.0	7-24	SE
2/8/2011	Sunny	21	60-91	0.0	6-28	E
2/11/2011	Cloudy	16	61-92	Trace	2-27	E
2/12/2011	Fine	14	63-76	0.0	4-20	NE
2/14/2011	Cloudy	10	60-88	0.6	0-21	NW
2/17/2011	Cloudy	16	88-98	Trace	4-18	SE
2/18/2011	Cloudy	14	86-95	Trace	0-20	E
2/19/2011	Cloudy	12	85-94	2.0	2-22	E
2/20/2011	Cloudy	14	70-94	0.9	0-18	NW
2/23/2011	Cloudy	18	56-82	0.0	6-28	E
2/24/2011	Cloudy	19	65-89	0.0	3-20	SE
2/25/2011	Cloudy	20	66-88	0.0	6-22	SE
2/27/2011	Cloudy	21	62-91	Trace	4-31	SE

		Green Island Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2/1/2011	Fine	14	54-80	0.0	5-40	NE
2/2/2011	Sunny	15	47-79	0.0	0-23	NE
2/7/2011	Sunny	19	45-84	0.0	1-35	NE
2/8/2011	Sunny	21	60-91	0.0	3-45	NE
2/11/2011	Cloudy	16	61-92	Trace	0-47	NE
2/12/2011	Fine	14	63-76	0.0	2-32	N
2/14/2011	Cloudy	10	60-88	0.6	4-38	N
2/17/2011	Cloudy	16	88-98	Trace	2-38	NE
2/18/2011	Cloudy	14	86-95	Trace	3-36	NW
2/19/2011	Cloudy	12	85-94	2.0	13-43	NE
2/20/2011	Cloudy	14	70-94	0.9	5-32	N
2/23/2011	Cloudy	18	56-82	0.0	4-51	NE
2/24/2011	Cloudy	19	65-89	0.0	1-27	NE
2/25/2011	Cloudy	20	66-88	0.0	2-32	NE
2/27/2011	Cloudy	21	62-91	Trace	0-62	NE

* King's Park's data
\- Data were not available
\# less than 24 hourly observations per day

Annex F5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM4

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
1-Dec-10	10:30	11:00	Sunny	69.0	70.4	66.7	Pre-bored piling, lifting	Traffic Noise	-	21	0.4	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
7-Dec-10	10:30	11:00	Sunny	69.3	70.7	67.0	Pre-bored piling, lifting	Traffic Noise	-	19	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
13-Dec-10	14:32	15:02	Fine	68.9	70.2	66.9	Pre-bored piling, lifting	Traffic Noise	-	22	0.4	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
24-Dec-10	10:20	10:50	Sunny	68.6	70.0	66.1	Pre-bored piling, lifting	Traffic Noise	-	19	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
30-Dec-10	10:33	11:03	Sunny	69.1	70.3	66.9	Lifting, excavation work	Traffic Noise	-	18	0.2	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
			Min.	**68.6**									
			Max.	**69.3**									

Annex F5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM4

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
5-Jan-11	13:20	13:50	Fine	68.7	69.8	67.1	Excavation, lifting	Traffic Noise	-	16	0.5	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
11-Jan-11	9:20	9:50	Fine	69.2	71.1	67.0	Lifting, excavation work, breaker (near site)	Traffic Noise	-	10	0.8	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
17-Jan-11	10:20	10:50	Fine	69.1	70.4	67.7	Lifting, excavation work (near site)	Traffic Noise	-	12	1.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
28-Jan-11	9:52	10:22	Sunny	68.8	70.4	67.0	Lifting, weldin, excavation (near site)	Traffic Noise	-	15	0.8	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
			Min.	**68.7**									
			Max.	**69.2**									

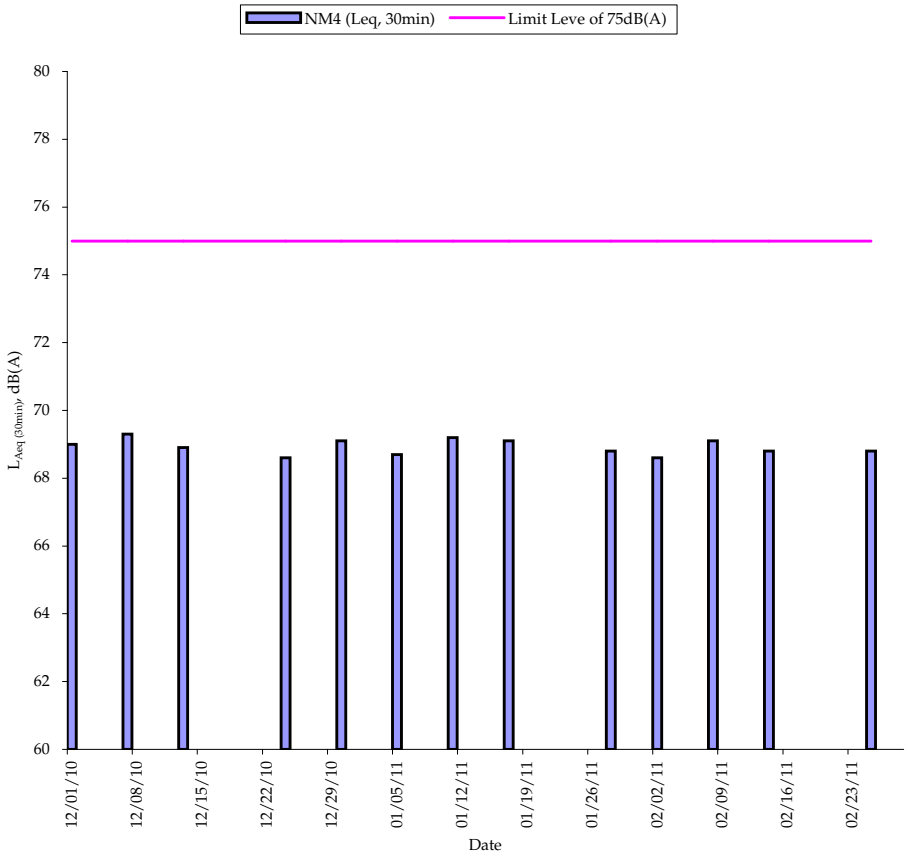
Annex F5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM4

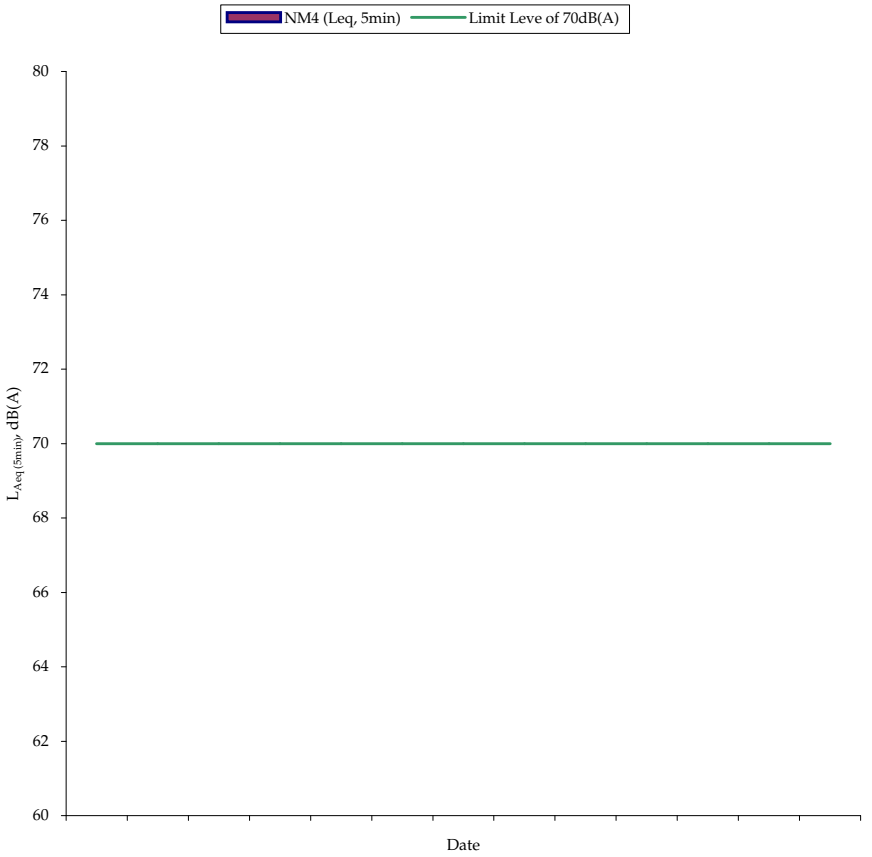
Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
2-Feb-11	10:22	10:52	Sunny	68.6	69.8	66.2	Excavation, lifting	Mainly traffic noise	-	15	0.3	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
8-Feb-11	11:00	11:30	Sunny	69.1	70.4	66.9	Crane, excavation work	Mainly traffic noise	-	21	0.2	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
14-Feb-11	15:00	15:30	Cloudy	68.8	70.0	67.2	Excavation work	Traffic noise	-	10	0.5	RION- NL31 (S/N 00983400)	RION - NC73 (S/N 10997142)
25-Feb-11	10:33	11:03	Sunny	68.8	70.1	66.1	Excavation, lifting	Mainly traffic noise	-	20	0.5	RION- NL31 (S/N 00410224)	RION - NC73 (S/N 10997142)
			Min.	**68.6**									
			Max.	**69.1**									

Normal Weekdays Noise Monitoring Results at NM4 ($L_{eq, 30min}$)



Remark:
- 75dB(A) was adopted as the Limit Level during normal weekdays in the reporting period

Restricted Hours Noise Monitoring Results at NM4 ($L_{eq, 5min}$)



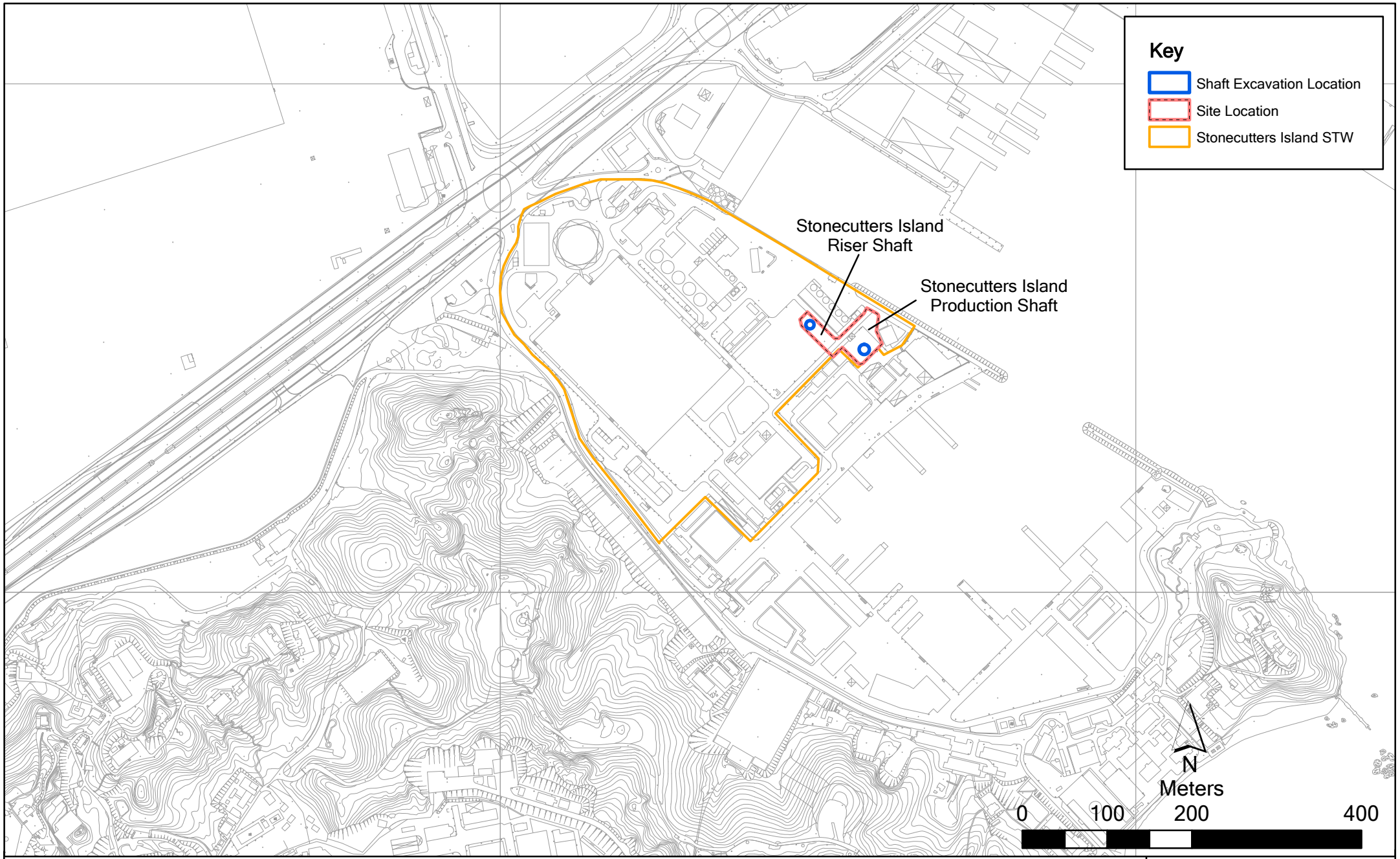
Remark:
- 70dB(A) was dopted as the Limit Level during restricted hours in the reporting period

Annex F6 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2009	0	0
January 2010	0	0
February 2010	1	0
March 2010	0	0
April 2010	1	0
May 2010	2	0
June 2010	0	0
July 2010	1	0
August 2010	0	0
September 2010	0	0
October 2010	0	0
November 2010	0	0
December 2010	0	0
January 2011	0	0
February 2011	0	0
Overall Total	5	0

Annex G

Stonecutters Island Production and Riser Shafts



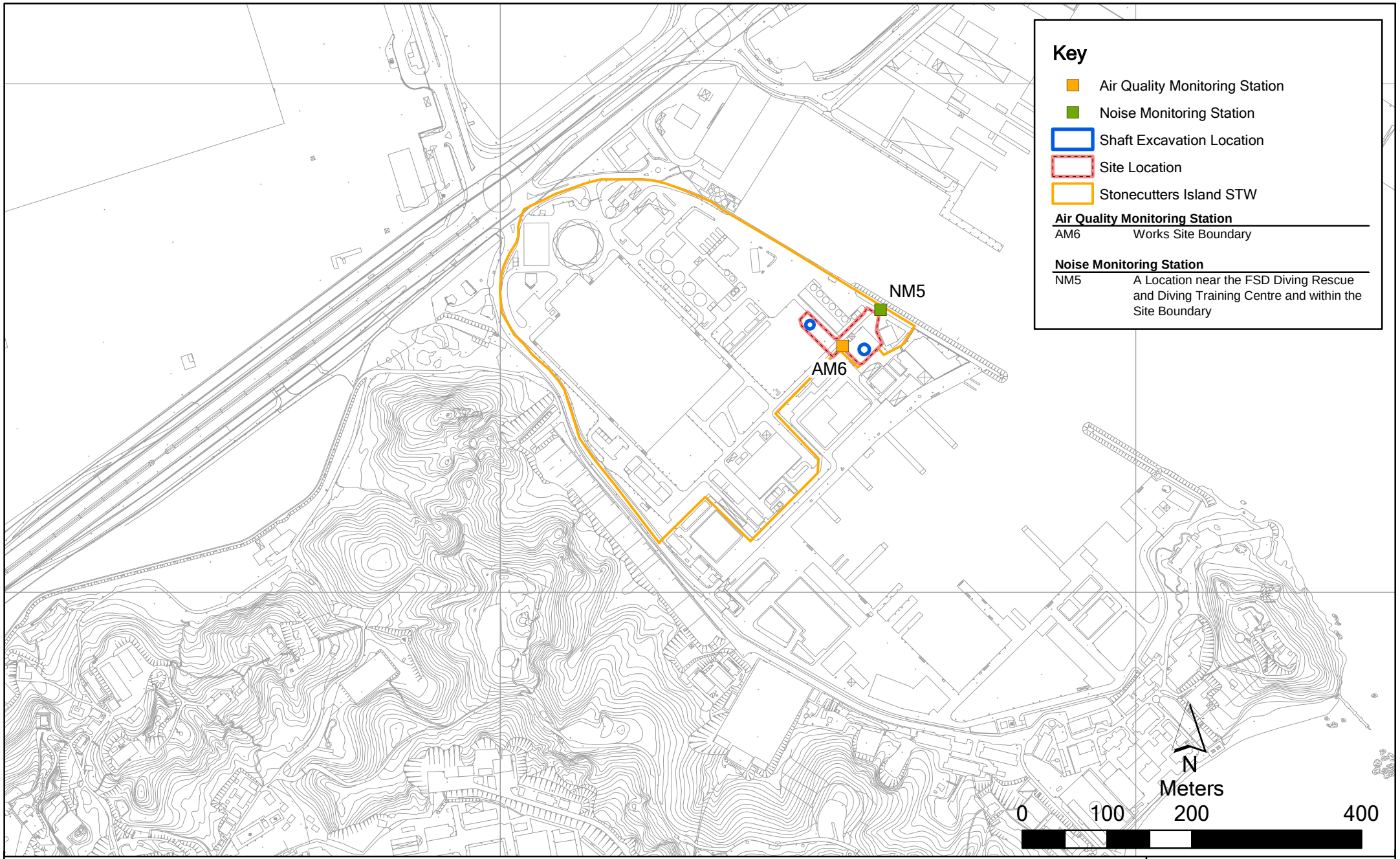
Annex G1

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
Construction Site Locations at Stonecutters Island STW

File: EM&A and proposed station\
0104887_Stonecutters Island.mxd
Date: 03/03/2010

Environmental Resources Management

ERM



Annex G2

Contract No. DC/2007/23
Harbour Area Treatment Scheme Stage 2A
Construction of Sewage Conveyance System from North Point to Stonecutters Island
Impact Air Quality & Noise Monitoring Station (Stonecutters Island STW)

File: EM&A and proposed station\
0104887_Stonecutters Island_NMAM.mxd
Date: 03/03/2010

Environmental Resources Management

ERM

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Construction Phase			
Air Quality	The Air Pollution Control (Construction Dust) Regulation shall be implemented and good site practices shall be incorporated in the contract clauses to minimize construction dust impact. Control measures relevant to this Project are listed below: • skip hoist for material transport should be totally enclosed by impervious sheeting; • every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; • 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 hardcores; • where a site boundary adjoins a road, streets or other 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; • 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; • regular watering, with complete coverage, to reduce dust emission from exposed site surfaces and unpaved roads, particularly during dry weather; • site enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • open stock piles should be avoided or covered and prevent placing dusty material storage piles near ASRs if possible; • tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; and • instigation of an environmental monitoring auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.	All work sites / during construction	<>

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Air Quality	The following watering measures for specific site would be required to control the fugitive dust impacts: • the barging points should be continuous watering throughout the whole unloading process; and • watering 8 times per day within worksites at the SCS works area at SCISTW and the Disinfection Facilities of SCISTW.	All work sites / during construction	√
Operational Phase			
Air Quality	Good housekeeping for SCISTW and PTWs listed below should be followed to ameliorate any odour impact from the plant and these standard practices should be included in the plant operator manual. • Screens should be cleaned regularly to remove any accumulated organic debris • Grit and screening transfer systems should be flushed regularly with water to remove organic debris and grit • Grit and screened materials should be transferred to closed containers to minimize odour escape • Scum and grease collection wells and troughs should be emptied and flushed regularly to prevent putrefaction of accumulated organics • Skim and remove floating solids and grease from primary clarifiers regularly • Frequent sludge withdrawal from tanks is necessary to prevent the production of gases • Sludge cake should be transferred to closed containers • Sludge containers should be flushed with water regularly	All work sites / during construction	NA. Measures not required until commencement of operational phase
Air Quality	To avoid excessive extraction of the foul air from the drop shafts of the sedimentation tanks and also from the effluent flume structure of SCISTW to deodorization system, the extraction vent(s) of the deodorization system should be located away from the top openings of the drop shafts.	SCISTW /during operational phase	NA. Measures not required until commencement of operational phase
Air Quality	Commissioning tests for all deodorization system should be included in the Design and Construction Contract Document.	All PTW and SCISTW/ during operational phase	NA. Measures not required until commencement of operational phase
Construction Phase			

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Noise	Use of quiet PME, movable barriers and acoustic mats	All work sites / during construction	√
Noise	Good Site Practice: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; • silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program; • mobile plant, if any, should be sited as far from NSRs as possible; • machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and • material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; Environmental audit shall be carried out to ensure that appropriate noise control measures would be properly implemented.	All work sites / during construction	√
Construction Phase			
Water Quality	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 work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	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.	All work sites / during construction	<>
Water Quality	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) Regulation should be observed and complied with for control of chemical wastes.	All work sites / during construction	√
Water Quality	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.	All work sites / during construction	<>

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	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: • 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.	All work sites / during construction	Δ

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	Construction Works in Close Proximity of Storm Drains or Seafront 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. • 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 the storm culvert or sea	All work sites / during construction	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	Temporary Sewage Bypass It is recommended that the temporary sewage bypass required for (i) the modification to the existing pumping station at SCISTW and (ii) the interconnection between the existing main pumping station and the new pumping station on Stonecutters Island, if needed, should be scheduled at the same time as far as practicable in order to minimise the temporary discharge duration. It is also recommended that all the modification and interconnection to the existing facilities (including the modification to the existing NWKPS) should be programmed to avoid temporary sewage bypass in wet or bathing season (March to October) to minimize the potential impacts. Relevant government departments including EPD and LCSD should be informed of the planned sewage bypass prior to any discharge. During the sewage bypass period, water quality monitoring should be carried out at the water sensitive receivers to quantify the water quality impacts and to determine when the baseline water quality conditions are restored. Also, a framework of the response procedures has been formulated to minimize the impact of temporary discharges. Details are provided in the standalone EM&A Manual.	SCISTW/ construction period	√
Operational Phase			
Water Quality	Dual power supply, standby facilities for the main treatment units and standby equipment parts / accessories should be provided as far as possible at the SCISTW to minimize the chance of emergency discharge.	SCISTW and all the Stage 2 PTWs / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	The response procedure and monitoring requirements for emergency discharge as stated in EM&A Manual should be followed.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Water Quality	In case of total power outage of the dechlorination plant, the uninterruptible power supply (UPS) system to be provided would switch the power supply of the sodium bisulphite dosing pump to a backup battery almost instantaneously, allowing continuous dosage of sodium bisulphite for at least half an hour so that sufficient time can be provided for shutting down the chlorination plant to avoid the possibility of discharge of chlorinated effluent.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	The model predicted that if Stage 2B is not implemented for HATS in 2021 as scheduled, the nutrient contents (both P and N) in the marine water would ultimately increase to exceed the baseline Stage 1 level when the HATS flow is reaching its design capacity of 2.45M m3/day. It is recommended that the future review study for Stage 2B should review the validity of the model predictions provided in this EIA and confirm the need of enhanced nutrient removal for HATS after 2021.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase
Water Quality	It should be noted that the mixing zone for TIN predicted for Stage 2B was large with an area of about 30 km2 and the area of exceedance would encroach on the nearby water sensitive receivers (e.g. Ma Wan Fish Culture Zone). This is due to the elevated oxidized nitrogen assumed for the proposed nitrification process at Stage 2B as well as the increased HATS effluent flow assumed for Stage 2B. It is recommended that these water quality issues should be further investigated / assessed under the future EIA for Stage 2B. Further mitigation measures / alternative treatment designs should also be considered under the future EIA for Stage 2B to mitigate / minimize the potential TIN exceedances.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase
Construction Phase			

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	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 work sites / during the construction period	√
Waste	All waste materials should be segregated into categories covering: • 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 work sites / during the construction period	√
Waste	Recommendations to achieve waste reduction include: • 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; and • Proper storage and site practices to minimise the potential for damage or contamination of construction materials.	All work sites / during the construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Recommendations for good site practices during construction activities include:- • 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 • 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. • Provision of sufficient waste disposal points and regular collection of waste • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors	All work sites / during the construction period	√
Waste	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 work sites / during the construction period	√
Waste	Adequate number of portable toilets at temporary works areas or the PTWs to ensure that sewage from site staff would be properly collected.	All work sites / during the construction period	√
Waste	General refuse should be stored in enclosed bins, skips or compaction units separating from C&D material and disposed of at designated landfill.	All work sites / during the construction period	Δ
Waste	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.	All work sites / during the construction period	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	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.	All work sites / during the construction period	√
Waste	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.	All work sites / during the construction period	√
Operation Phase			
Waste	The sludge tanks should be air-tighten. Rotating brushes or other alternative devises should be installed at the upper frame of the sludge tank washing facilities to provide better cleaning of the surface around the top loading opening of the sludge tanks. Prior to making such provision, the top covers of the sludge transfer tanks should be water cleaned manually after unloading.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Waste	Since the air tightness of tankers highly relies on the effectiveness of rubber seals at the loading openings and unloading doors, odour leakage from tankers are commonly resulted from the aging rubber seals. It is recommended to develop a preventive maintenance programme for rubber seals of loading openings and unloading doors of sludge transfer tanks to ensure the tightness of covers and doors. Rubber seals should be regularly replaced within its design life as specified by suppliers.	SCISTW / Operation Stage	NA. Measures not required until commencement of operational phase
Construction Phase			
Landscape & Visual	• Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical. • 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. • Erection of decorative screen hoarding compatible with the surrounding setting.	All the works areas, PTWs and SCISTW/ during the construction period	√
Operational Phase	•		
Landscape & Visual	• Aesthetic design of the façade of PTW and associated structures to harmonize with the surrounding settings. • Shrub and Climbing Plants to soften proposed structures / Roof Greening. • Buffer Tree and Shrub Planting to screen proposed associated structures. • Reinstated of disturbed area	All the works areas, PTWs and SCISTW/ during the construction period	NA. Measures not required until commencement of operational phase
Construction Phase	•		

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Cultural Heritage	The construction vibration control limit (ppv of 25mm/s) shall be strictly followed.	Identified historical buildings/structures as mentioned in Tables 15.10 and 15.11. During blasting for tunnel, shafts, effluent conveyance system and disinfection facilities in the vicinity of the buildings/ structures	NA. Vibration monitoring has not been launched during the reporting period.

Remark:

√ Compliance of Mitigation Measures
<> Compliance of Mitigation but need improvement
x Non-compliance of Mitigation Measures
Δ Deficiency of Mitigation Measures but rectified by Gammon Construction Limited
NA Not Applicable

Annex G4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM6

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
1-Dec-10	14:25	15:25	Sunny	230	346	500	Construction work in progress	21	<5	1254	7698
1-Dec-10	15:27	16:27	Sunny	278	346	500	Construction work in progress	21	<5	1254	7699
1-Dec-10	16:29	17:29	Sunny	303	346	500	Construction work in progress	21	<5	1254	7700
7-Dec-10	13:20	14:20	Cloudy	241	346	500	Construction work in progress	19	<5	1254	7701
7-Dec-10	14:22	15:22	Cloudy	246	346	500	Construction work in progress	19	<5	1254	7702
7-Dec-10	15:24	16:24	Cloudy	255	346	500	Construction work in progress	19	<5	1254	7703
13-Dec-10	13:50	14:50	Cloudy	196	346	500	Construction work in progress	22	<5	1254	7705
13-Dec-10	14:52	15:52	Cloudy	196	346	500	Construction work in progress	22	<5	1254	7706
13-Dec-10	15:54	16:54	Cloudy	201	346	500	Construction work in progress	22	<5	1254	7707
17-Dec-10	13:00	14:00	Fine	149	346	500	Construction work in progress	10	<5	1254	7709
17-Dec-10	14:02	15:02	Fine	187	346	500	Construction work in progress	10	<5	1254	7710
17-Dec-10	15:04	16:04	Fine	146	346	500	Construction work in progress	10	<5	1254	7783
23-Dec-10	14:04	15:04	Sunny	300	346	500	Construction work in progress	18	<5	1254	7785
23-Dec-10	15:06	16:06	Sunny	325	346	500	Construction work in progress	18	<5	1254	7786
23-Dec-10	16:08	17:08	Sunny	274	346	500	Construction work in progress	18	<5	1254	7787
29-Dec-10	13:08	14:08	Sunny	191	346	500	Construction work in progress	17	<5	1254	7789
29-Dec-10	14:10	15:10	Sunny	191	346	500	Construction work in progress	17	<5	1254	7790
29-Dec-10	15:12	16:12	Sunny	181	346	500	Construction work in progress	17	<5	1254	7791
			Min.	**146**							
			Max.	**325**							
			Average	**227**							

* Wind Speed data is presented in the Meteorological Data table

Annex G4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM6

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
4-Jan-11	13:25	14:25	Cloudy	291	346	500	Construction work in progress	13	0-14	1254	7793
	14:27	15:27	Cloudy	306	346	500	Construction work in progress	13	0-14	1254	7794
	15:29	16:29	Cloudy	284	346	500	Construction work in progress	13	0-14	1254	7795
10-Jan-11	14:05	15:05	Sunny	252	346	500	Construction work in progress	13	0-19	1254	7797
	15:07	16:07	Sunny	230	346	500	Construction work in progress	13	0-19	1254	7798
	16:09	17:09	Sunny	225	346	500	Construction work in progress	13	0-19	1254	7799
14-Jan-11	13:10	14:10	Sunny	289	346	500	Construction work in progress	17	0-14	1254	8002
	14:12	15:12	Sunny	310	346	500	Construction work in progress	17	0-14	1254	8003
	15:14	16:14	Sunny	281	346	500	Construction work in progress	17	0-14	1254	8004
20-Jan-11	14:04	15:04	Sunny	246	346	500	Construction work in progress	16	-	1254	8006
	15:06	16:06	Sunny	259	346	500	Construction work in progress	16	-	1254	8007
	16:09	17:09	Sunny	259	346	500	Construction work in progress	16	-	1254	8008
26-Jan-11	13:10	14:10	Sunny	228	346	500	Construction work in progress	15	0-17	1254	8010
	14:12	15:12	Sunny	246	346	500	Construction work in progress	15	0-17	1254	8011
	15:14	16:14	Sunny	267	346	500	Construction work in progress	15	0-17	1254	8012
			Min.	**225**							
			Max.	**310**							
			Average	**265**							

* Wind Speed data is presented in the Meteorological Data table

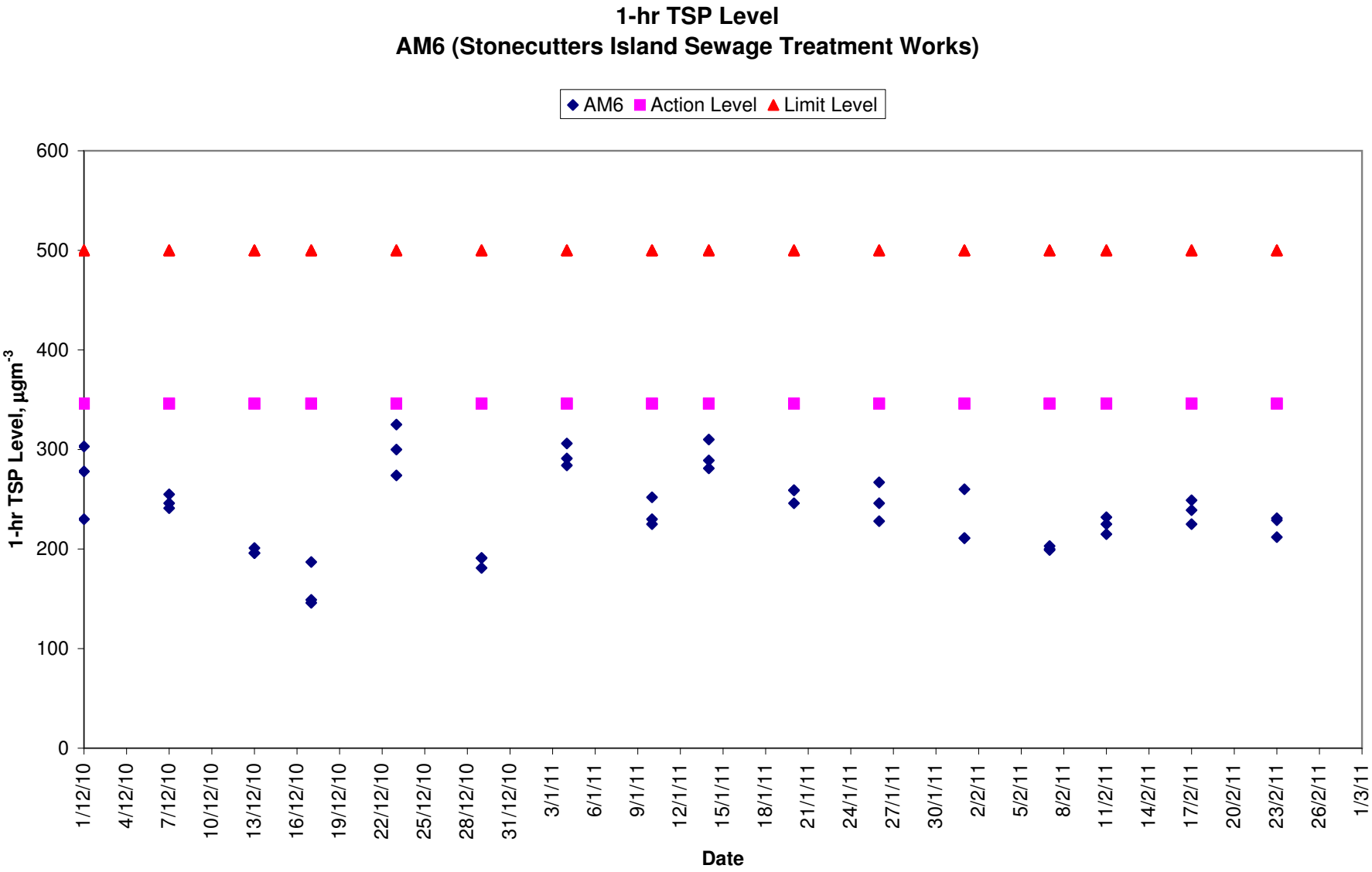
Annex G4 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM6

Date	Start Time	Finish Time	Weather	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Site Conditions / Observations / Remarks	Temperature (℃)	Wind Speed * (m/s)	Sampler ID	Filter ID
1-Feb-11	8:30	9:30	Fine	211	346	500	Construction work in progress	14	3.9	1254	8014
	9:32	10:32	Fine	211	346	500	Construction work in progress	14	3.9	1254	8015
	10:34	11:34	Fine	260	346	500	Construction work in progress	14	3.9	1254	8016
7-Feb-11	13:10	14:10	Sunny	199	346	500	Construction work in progress	19	4.2	1254	8090
	14:12	15:12	Sunny	200	346	500	Construction work in progress	19	4.2	1254	8091
	15:14	16:14	Sunny	203	346	500	Construction work in progress	19	4.2	1254	8092
11-Feb-11	13:30	14:30	Cloudy	225	346	500	Construction work in progress	16	4.4	1254	8175
	14:32	15:32	Cloudy	232	346	500	Construction work in progress	16	4.4	1254	8236
	15:34	16:34	Cloudy	215	346	500	Construction work in progress	16	4.4	1254	8237
17-Feb-11	13:10	14:10	Cloudy	249	346	500	Construction work in progress	16	2.5	1254	8238
	14:12	15:12	Cloudy	225	346	500	Construction work in progress	16	2.5	1254	8239
	15:14	16:14	Cloudy	239	346	500	Construction work in progress	16	2.5	1254	8240
23-Feb-11	13:20	14:20	Cloudy	229	346	500	Construction work in progress	18	2.9	1254	8242
	14:22	15:22	Cloudy	212	346	500	Construction work in progress	18	2.9	1254	8243
	15:24	16:24	Cloudy	231	346	500	Construction work in progress	18	2.9	1254	8244
			Min.	**199**							
			Max.	**260**							
			Average	**223**							

* Wind Speed data is presented in the Meteorological Data table


1-hr TSP Level
AM6 (Stonecutters Island Sewage Treatment Works)
AM6
Action Level
Limit Level
1-hr TSP Level, µgm-3
600
500
400
300
200
100
0
1/12/10
4/12/10
7/12/10
10/12/10
13/12/10
16/12/10
19/12/10
22/12/10
25/12/10
28/12/10
31/12/10
3/1/11
6/1/11
9/1/11
12/1/11
15/1/11
18/1/11
21/1/11
24/1/11
27/1/11
30/1/11
2/2/11
5/2/11
8/2/11
11/2/11
14/2/11
17/2/11
20/2/11
23/2/11
26/2/11
1/3/11
Date

Annex G4 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM6

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m^3/min)			TSP Conc. ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
1-Dec-10	17:31	2-Dec-10	17:31	Sunny	2.8734	3.0299	7275.03	7299.03	24.00	1.15	1.15	1.15	95	196	260	Construction work in progress	1254	7697
7-Dec-10	16:26	8-Dec-10	16:26	Cloudy	2.8250	3.0015	7302.03	7326.03	24.00	1.15	1.15	1.15	107	196	260	Construction work in progress	1254	7704
13-Dec-10	16:56	14-Dec-10	16:56	Cloudy	2.8114	2.9978	7329.03	7353.03	24.00	1.15	1.15	1.15	113	196	260	Construction work in progress	1254	7708
17-Dec-10	16:06	18-Dec-10	16:06	Fine	2.8259	2.9829	7356.03	7380.03	24.00	1.15	1.15	1.15	95	196	260	Construction work in progress	1254	7784
23-Dec-10	17:10	24-Dec-10	17:10	Sunny	2.8356	3.0121	7383.03	7407.03	24.00	1.15	1.15	1.15	107	196	260	Construction work in progress	1254	7788
29-Dec-10	16:14	30-Dec-10	16:14	Sunny	2.8351	3.0179	7410.03	7434.03	24.00	1.15	1.15	1.15	110	196	260	Construction work in progress	1255	7792
												Min.	**95**					
												Max.	**113**					
												Average	**104**					

Annex G4 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM6

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m^3/min)			TSP Conc. ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
4-Jan-11	16:31	5-Jan-11	16:31	Cloudy	2.8625	3.0696	7437.03	7461.03	24.00	1.15	1.15	1.15	125	196	260	Construction work in progress	1254	7796
10-Jan-11	17:11	11-Jan-11	17:11	Sunny	2.8351	3.0214	7464.03	7488.03	24.00	1.15	1.15	1.15	113	196	260	Construction work in progress	1254	7800
14-Jan-11	10:16	15-Jan-11	10:16	Sunny	2.8403	3.0298	7491.03	7515.03	24.00	1.15	1.15	1.15	114	196	260	Construction work in progress	1254	8005
20-Jan-11	17:11	21-Jan-11	17:11	Sunny	2.8525	3.0359	7518.03	7542.03	24.00	1.15	1.15	1.15	111	196	260	Construction work in progress	1254	8009
26-Jan-11	16:16	27-Jan-11	16:16	Sunny	2.8525	3.0498	7542.03	7569.03	27.00	1.20	1.20	1.20	101	196	260	Construction work in progress	1254	8013
												Min.	101					
												Max.	125					
												Average	113					

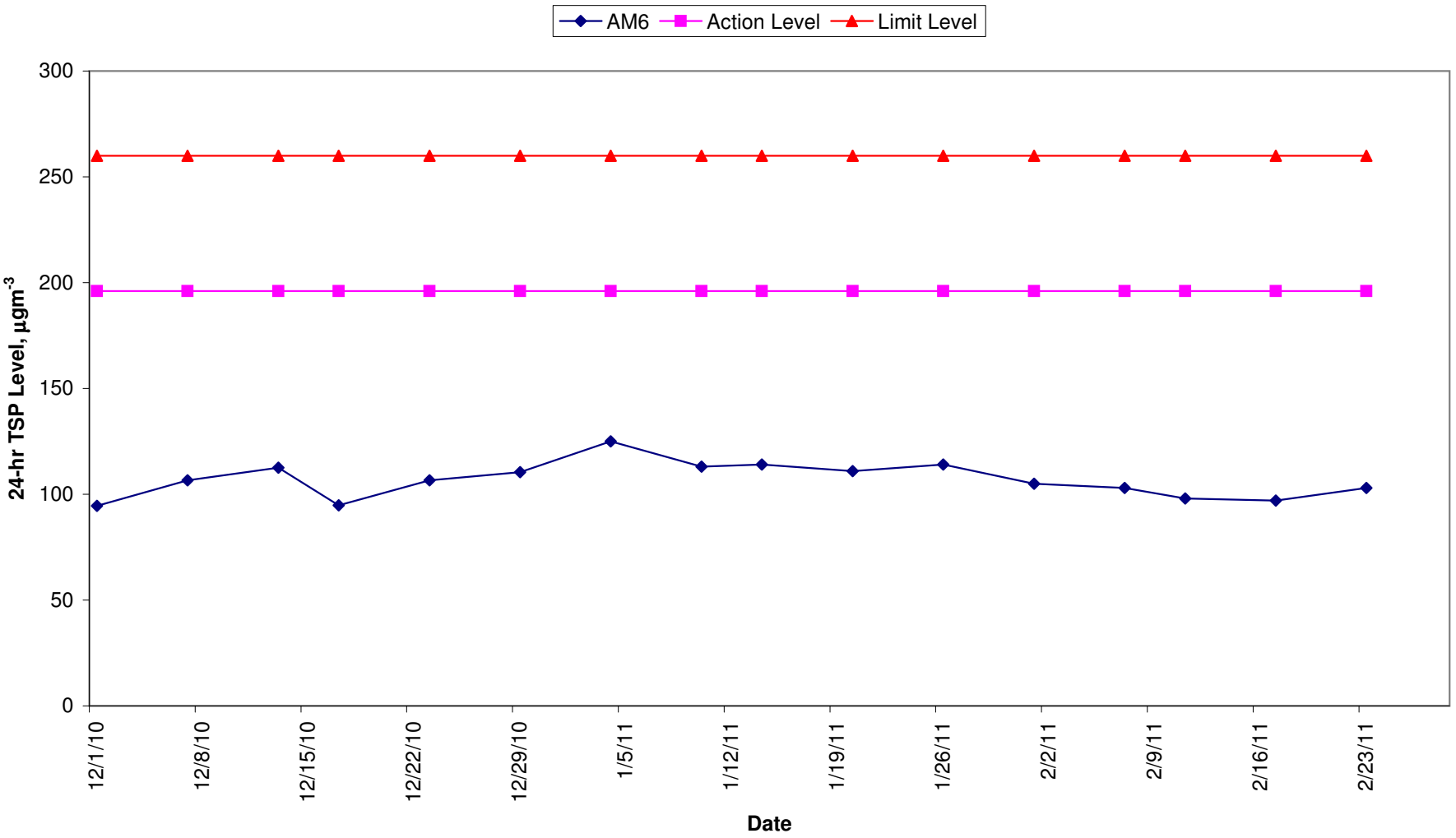
Annex G4 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM6

Start		Finish		Weather	Filter Weight (g)		Elapsed Time Reading		Sampling Time (hrs)	Flow Rate (m^3/min)			TSP Conc. ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Observations / Remarks	Sampler ID	Filter ID
Date	Time	Date	Time		Initial	Final	Initial	Final		Initial	Final	Average						
1-Feb-11	11:36	2-Feb-11	11:36	Fine	2.8595	3.0411	7572.03	7596.03	24.00	1.20	1.20	1.20	105	196	260	Construction work in progress	1254	8017
7-Feb-11	16:16	8-Feb-11	16:16	Sunny	2.8321	3.0097	7599.03	7623.03	24.00	1.20	1.20	1.20	103	196	260	Construction work in progress	1254	8093
11-Feb-11	16:36	12-Feb-11	16:36	Cloudy	2.8123	2.9809	7626.03	7650.03	24.00	1.20	1.20	1.20	98	196	260	Construction work in progress	1254	8174
17-Feb-11	16:16	18-Feb-11	16:16	Cloudy	2.8431	3.0101	7653.03	7677.03	24.00	1.20	1.20	1.20	97	196	260	Construction work in progress	1254	8241
23-Feb-11	16:26	24-Feb-11	16:26	Cloudy	2.8635	3.0414	7680.03	7704.03	24.00	1.20	1.20	1.20	103	196	260	Construction work in progress	1254	8245
												Min.	**97**					
												Max.	**105**					
												Average	**101**					

24-hr TSP Level
AM6 (Stonecutters Island Sewage Treatment Works



Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
12/1/2010	Fine	21	65-81	0.0	0-14	E
12/5/2010	Fine	22	57-84	0.0	-	E
12/7/2010	Fine	19	42-66	0.0	0-26	NE
12/10/2010	Fine	19	66-79	0.0	0-20	E
12/11/2010	Fine	20	64-79	0.0	2-23	E
12/12/2010	Fine	19	81-88	0.0	5-23	E
12/13/2010	Fine	22	85-94	0.0	0-21	E
12/17/2010	Fine	10	28-50	0.0	0-24	NE
12/18/2010	Fine	14	46-77	0.0	0-13	E
12/19/2010	Fine	19	67-80	0.0	0-18	E
12/23/2010	Fine	18	53-82	0.0	0-20	E
12/24/2010	Fine	19	66-84	0.0	0-19	E
12/26/2010	Rainy	12	33-75	0.2	0-21	NE
12/29/2010	Fine	17	55-83	0.0	0-14	SE
12/30/2010	Fine	18	39-85	0.0	0-18	E

		Tsing Yi Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
12/1/2010	Fine	22	65-81	0.0	0-15	SE
12/5/2010	Fine	24	57-84	0.0	0-13	NW
12/7/2010	Fine	19	42-66	0.0	0-21	N
12/10/2010	Fine	19	66-79	0.0	3-24	E
12/11/2010	Fine	20	64-79	0.0	2-20	E
12/12/2010	Fine	20	81-88	0.0	4-21	E
12/13/2010	Fine	24	85-94	0.0	3-20	E
12/17/2010	Fine	10	28-50	0.0	2-31	NW
12/18/2010	Fine	14	46-77	0.0	0-27	E
12/19/2010	Fine	20	67-80	0.0	2-20	NE
12/23/2010	Fine	20	53-82	0.0	1-23	E
12/24/2010	Fine	20	66-84	0.0	1-18	E
12/26/2010	Rainy	13	33-75	0.2	3-32	NW
12/29/2010	Fine	18	55-83	0.0	0-10	NE
12/30/2010	Fine	19	39-85	0.0	0-18	E

		Kai Tak Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
12/1/2010	Fine	21	65-81	0.0	0-15	NE
12/5/2010	Fine	22	57-84	0.0	0-21	SE
12/7/2010	Fine	19	42-66	0.0	0-20	NE
12/10/2010	Fine	19	66-79	0.0	4-23	E
12/11/2010	Fine	20	64-79	0.0	4-25	E
12/12/2010	Fine	19	81-88	0.0	10-32	E
12/13/2010	Fine	22	85-94	0.0	2-30	E
12/17/2010	Fine	10	28-50	0.0	3-30	NW
12/18/2010	Fine	14	46-77	0.0	0-13	NE
12/19/2010	Fine	19	67-80	0.0	3-24	SE
12/23/2010	Fine	18	53-82	0.0	3-26	E
12/24/2010	Fine	19	66-84	0.0	7-23	E
12/26/2010	Rainy	12	33-75	0.2	3-33	N
12/29/2010	Fine	17	55-83	0.0	0-20	SE
12/30/2010	Fine	18	39-85	0.0	0-24	E

		Green Island Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
12/1/2010	Fine	21	65-81	0.0	3-29	N
12/5/2010	Fine	22	57-84	0.0	0-37	NE
12/7/2010	Fine	19	42-66	0.0	0-45	NE
12/10/2010	Fine	19	66-79	0.0	15-44	NE
12/11/2010	Fine	20	64-79	0.0	22-45	NE
12/12/2010	Fine	19	81-88	0.0	34-57	NE
12/13/2010	Fine	22	85-94	0.0	21-52	NE
12/17/2010	Fine	10	28-50	0.0	22-58	N
12/18/2010	Fine	14	46-77	0.0	9-35	N
12/19/2010	Fine	19	67-80	0.0	7-36	NE
12/23/2010	Fine	18	53-82	0.0	12-39	NE
12/24/2010	Fine	19	66-84	0.0	14-37	NE
12/26/2010	Rainy	12	33-75	0.2	18-53	N
12/29/2010	Fine	17	55-83	0.0	3-24	N
12/30/2010	Fine	18	39-85	0.0	5-48	NE

* King's Park's data
\- Data were not available
\# less than 24 hourly observations per day

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
1/2/2011	Fine	15	56-72	0.0	1-25	N
1/4/2011	Rainy	13	76-90	1.2	0-14	NE
1/5/2011	Fine	16	71-82	0.0	0-17	E
1/7/2011	Fine	11	55-69	0.0	0-18	N
1/9/2011	Fine	15	46-65	0.0	0-12	E
1/10/2011	Fine	13	46-62	0.0	0-19	N
1/11/2011	Rainy	10	52-74	Trace	0-17	N
1/14/2011	Fine	17	60-81	0.0	0-14	NE
1/15/2011	Fine	13	45-76	0.0	0-20	N
1/16/2011	Fine	11	50-70	0.0	5-25	N
1/17/2011	Fine	12	47-75	0.0	0-17	NE
1/20/2011	Fine	16	57-89	0.0	-	-
1/21/2011	Fine	14	51-68	0.0	0-20	NE
1/22/2011	Fine	13	64-75	0.0	0-16	N
1/23/2011	Fine	15	57-80	0.0	0-16	E
1/26/2011	Fine	15	57-84	0.0	0-17	E
1/27/2011	Fine	16	62-85	0.0	0-15	E
1/28/2011	Fine	15	56-86	0.0	0-18	E
1/30/2011	Fine	12	44-59	0.0	0-22	N

		Tsing Yi Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
1/2/2011	Fine	15	56-72	0.0	1-22	E
1/4/2011	Rainy	12	76-90	1.2	2-17	NW
1/5/2011	Fine	16	71-82	0.0	2-15	NW
1/7/2011	Fine	10	55-69	0.0	2-23	NW
1/9/2011	Fine	15	46-65	0.0	0-10	NE
1/10/2011	Fine	13	46-62	0.0	1-21	NW
1/11/2011	Rainy	10	52-74	Trace	0-21	NW
1/14/2011	Fine	17	60-81	0.0	0-15	NW
1/15/2011	Fine	13	45-76	0.0	0-20	NW
1/16/2011	Fine	11	50-70	0.0	3-30	NW
1/17/2011	Fine	13	47-75	0.0	1-14	E
1/20/2011	Fine	16	57-89	0.0	-	-
1/21/2011	Fine	13	51-68	0.0	2-24	NW
1/22/2011	Fine	13	64-75	0.0	0-20	NW
1/23/2011	Fine	15	57-80	0.0	0-15	SE
1/26/2011	Fine	15	57-84	0.0	0-12	NW
1/27/2011	Fine	17	62-85	0.0	0-16	S
1/28/2011	Fine	15	56-86	0.0	1-19	SE
1/30/2011	Fine	13	44-59	0.0	2-18	NW

		Kai Tak Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
1/2/2011	Fine	15	56-72	0.0	10-30	E
1/4/2011	Rainy	13	76-90	1.2	1-20	NE
1/5/2011	Fine	16	71-82	0.0	2-21	E
1/7/2011	Fine	11	55-69	0.0	3-23	NW
1/9/2011	Fine	15	46-65	0.0	0-20	N
1/10/2011	Fine	13	46-62	0.0	0-21	NW
1/11/2011	Rainy	10	52-74	Trace	0-17	NW
1/14/2011	Fine	17	60-81	0.0	0-24	SE
1/15/2011	Fine	13	45-76	0.0	0-26	N
1/16/2011	Fine	11	50-70	0.0	4-31	NE
1/17/2011	Fine	12	47-75	0.0	0-23	NE
1/20/2011	Fine	16	57-89	0.0	-	-
1/21/2011	Fine	14	51-68	0.0	0-26	NW
1/22/2011	Fine	13	64-75	0.0	0-18	NW
1/23/2011	Fine	15	57-80	0.0	0-20	SE
1/26/2011	Fine	15	57-84	0.0	0-21	E
1/27/2011	Fine	16	62-85	0.0	0-23	SE
1/28/2011	Fine	15	56-86	0.0	0-24	E
1/30/2011	Fine	12	44-59	0.0	1-21	NE

		Green Island Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
1/2/2011	Fine	15	56-72	0.0	26-60	N
1/4/2011	Rainy	13	76-90	1.2	15-45	N
1/5/2011	Fine	16	71-82	0.0	13-42	-
1/7/2011	Fine	11	55-69	0.0	15-46	-
1/9/2011	Fine	15	46-65	0.0	0-27	-
1/10/2011	Fine	13	46-62	0.0	0-40	-
1/11/2011	Rainy	10	52-74	Trace	5-44	N
1/14/2011	Fine	17	60-81	0.0	6-32	N
1/15/2011	Fine	13	45-76	0.0	0-45	N
1/16/2011	Fine	11	50-70	0.0	23-47	N
1/17/2011	Fine	12	47-75	0.0	12-42	N
1/20/2011	Fine	16	57-89	0.0	-	-
1/21/2011	Fine	14	51-68	0.0	5-50	N
1/22/2011	Fine	13	64-75	0.0	15-36	N
1/23/2011	Fine	15	57-80	0.0	11-38	N
1/26/2011	Fine	15	57-84	0.0	3-32	NE
1/27/2011	Fine	16	62-85	0.0	0-34	NE
1/28/2011	Fine	15	56-86	0.0	3-41	NE
1/30/2011	Fine	12	44-59	0.0	2-37	N

* King's Park's data
\- Data were not available
\# less than 24 hourly observations per day

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2/1/2011	Fine	14	54-80	0.0	0-17	E
2/2/2011	Sunny	15	47-79	0.0	0-14	NE
2/7/2011	Sunny	19	45-84	0.0	0-18	E
2/8/2011	Sunny	21	60-91	0.0	0-20	E
2/11/2011	Cloudy	16	61-92	Trace	0-19	-
2/12/2011	Fine	14	63-76	0.0	0-15	N
2/14/2011	Cloudy	10	60-88	0.6	0-17	N
2/17/2011	Cloudy	16	88-98	Trace	0-15	E
2/18/2011	Cloudy	14	86-95	Trace	0-16	E
2/19/2011	Cloudy	12	85-94	2.0	0-18	E
2/20/2011	Cloudy	14	70-94	0.9	0-13	N
2/23/2011	Cloudy	18	56-82	0.0	3-23	E
2/24/2011	Cloudy	19	65-89	0.0	0-17	E
2/25/2011	Cloudy	20	66-88	0.0	0-15	E
2/27/2011	Cloudy	21	62-91	Trace	1-22	E

		Tsing Yi Station				
Date	Weather	Average Air Temperature (℃)	Average Relative Humiditiy (%) *	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2/1/2011	Fine	15	54-80	0.0	1-14	E
2/2/2011	Sunny	16	47-79	0.0	0-17	N
2/7/2011	Sunny	20	45-84	0.0	0-15	N
2/8/2011	Sunny	22	60-91	0.0	2-23	SE
2/11/2011	Cloudy	16	61-92	Trace	0-16	E
2/12/2011	Fine	14	63-76	0.0	0-13	NW
2/14/2011	Cloudy	10	60-88	0.6	0-23	N
2/17/2011	Cloudy	16	88-98	Trace	0-9	NW
2/18/2011	Cloudy	14	86-95	Trace	0-20	NW
2/19/2011	Cloudy	12	85-94	2.0	0-14	E
2/20/2011	Cloudy	14	70-94	0.9	0-14	NW
2/23/2011	Cloudy	19	56-82	0.0	0-21	E
2/24/2011	Cloudy	20	65-89	0.0	0-12	S
2/25/2011	Cloudy	20	66-88	0.0	0-14	S
2/27/2011	Cloudy	22	62-91	Trace	0-22	SE

		Kai Tak Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2/1/2011	Fine	14	54-80	0.0	3-22	E
2/2/2011	Sunny	15	47-79	0.0	0-17	N
2/7/2011	Sunny	19	45-84	0.0	7-24	SE
2/8/2011	Sunny	21	60-91	0.0	6-28	E
2/11/2011	Cloudy	16	61-92	Trace	2-27	E
2/12/2011	Fine	14	63-76	0.0	4-20	NE
2/14/2011	Cloudy	10	60-88	0.6	0-21	NW
2/17/2011	Cloudy	16	88-98	Trace	4-18	SE
2/18/2011	Cloudy	14	86-95	Trace	0-20	E
2/19/2011	Cloudy	12	85-94	2.0	2-22	E
2/20/2011	Cloudy	14	70-94	0.9	0-18	NW
2/23/2011	Cloudy	18	56-82	0.0	6-28	E
2/24/2011	Cloudy	19	65-89	0.0	3-20	SE
2/25/2011	Cloudy	20	66-88	0.0	6-22	SE
2/27/2011	Cloudy	21	62-91	Trace	4-31	SE

		Green Island Station				
Date	Weather	Average Air Temperature (℃) *	Average Relative Humiditiy (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2/1/2011	Fine	14	54-80	0.0	5-40	NE
2/2/2011	Sunny	15	47-79	0.0	0-23	NE
2/7/2011	Sunny	19	45-84	0.0	1-35	NE
2/8/2011	Sunny	21	60-91	0.0	3-45	NE
2/11/2011	Cloudy	16	61-92	Trace	0-47	NE
2/12/2011	Fine	14	63-76	0.0	2-32	N
2/14/2011	Cloudy	10	60-88	0.6	4-38	N
2/17/2011	Cloudy	16	88-98	Trace	2-38	NE
2/18/2011	Cloudy	14	86-95	Trace	3-36	NW
2/19/2011	Cloudy	12	85-94	2.0	13-43	NE
2/20/2011	Cloudy	14	70-94	0.9	5-32	N
2/23/2011	Cloudy	18	56-82	0.0	4-51	NE
2/24/2011	Cloudy	19	65-89	0.0	1-27	NE
2/25/2011	Cloudy	20	66-88	0.0	2-32	NE
2/27/2011	Cloudy	21	62-91	Trace	0-62	NE

* King's Park's data
\- Data were not available
\# less than 24 hourly observations per day

Annex G5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM5

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
1-Dec-10	16:40	17:10	Sunny	60.3	61.7	58.5	Mobile crans movement, generator, and dump truck	Traffic Noise, aircraft noise	-	23	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
7-Dec-10	15:50	16:20	Cloudy	65.6	66.9	63.7	Mobile cranes movement, generator and drill rig	Traffic Noise	-	20	0.8	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
13-Dec-10	16:10	16:40	Cloudy	60.6	62.2	58.4	Mobile crane movemnt, generator	Aircraft noise, traffic noise	-	21	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
23-Dec-10	16:15	16:45	Sunny	62.6	64.5	60.9	Mobile crane movemnt, generator	Aircraft noise, traffic noise	-	20	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
29-Dec-10	15:22	15:52	Sunny	65.3	66.8	62.9	Mobile crans movement, generator, breaker	Aircraft noise, traffic noise	-	19	0.3	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
			Min.	**60.3**									
			Max.	**65.6**									

Annex G5 Noise Monitoring Results

Restricted Hours Noise Monitoring Results

Station NM5

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s)	Other Noise Source(s)	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
5-Dec-10	11:02	11:07	Sunny	60.6	61.8	59.0	Mobile cranes movement, and generator	Aircraft noise and traffic noise	-	22	0.3	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	11:07	11:12	Sunny	60.4	61.7	58.8			-				
	11:12	11:17	Sunny	60.3	61.6	58.8			-				
	11:02	11:17	Sunny	60.4	61.7	58.9			Average results during 15 min monitoring				
12-Dec-10	13:10	13:15	Sunny	61.3	62.2	60.3	Generator	Aircraft noise and traffic noise	-	19	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	13:15	13:20	Sunny	61.1	61.8	60.4			-				
	13:20	13:25	Sunny	61.4	62.3	60.5			-				
	13:10	13:25	Sunny	61.3	62.1	60.4			Average results during 15 min monitoring				
19-Dec-10	10:50	10:55	Sunny	59.6	61.2	57.8	Generator	Aircraft noise and traffic noise	-	18	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	10:55	11:00	Sunny	59.3	61.1	57.6			-				
	11:00	11:05	Sunny	59.3	61.0	57.5			-				
	10:50	11:05	Sunny	59.4	61.1	57.6			Average results during 15 min monitoring				
26-Dec-10	14:12	14:17	Sunny	58.5	60.1	56.2	Generator	Aircraft noise and traffic noise	-	20	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	14:17	14:22	Sunny	58.2	60.0	56.0			-				
	14:22	14:27	Sunny	58.4	60.2	56.4			-				
	14:12	14:27	Sunny	58.4	60.1	56.2			Average results during 15 min monitoring				
			Min.	**59.3**									
			Max.	**61.4**									

Annex G5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM5

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
4-Jan-11	15:50	16:20	Cloudy	62.7	64.9	60.2	Mobile cranes movement and generator	Aircraft noise, traffic noise	-	14	0.8	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
10-Jan-11	16:20	16:50	Sunny	60.6	61.7	59.7	Generator	Aircraft noise, traffic noise	-	14	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
20-Jan-11	15:50	16:20	Cloudy	62.0	63.7	60.0	Generator, Excavator and Dump Truck	Aircraft noise, traffic noise	-	15	0.3	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
26-Jan-11	15:20	15:50	Sunny	64.3	66.6	62.2	Concrete lorry mixer, generator, and excavator	Aircraft noise, traffic noise	-	15	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
			Min.	**60.6**									
			Max.	**64.3**									

Annex G5 Noise Monitoring Results

Restricted Hours Noise Monitoring Results

Station NM5

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s)	Other Noise Source(s)	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
2-Jan-11	9:15	9:20	Cloudy	58.8	60.3	56.6	Generator	Aircraft noise, Traffic noise	-	15	0.6	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	9:20	9:25	Cloudy	58.3	60.0	56.5			-				
	9:25	9:30	Cloudy	58.5	60.1	56.5			-				
	9:15	9:30	Cloudy	58.5	60.1	56.5			Average results during 15 min monitoring				
9-Jan-11	10:20	10:25	Fine	61.6	63.0	60.1	Generator	Aircraft noise, Traffic noise	-	15	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	10:25	10:30	Fine	61.3	62.3	60.2			-				
	10:30	10:35	Fine	62.1	63.7	59.9			-				
	10:20	10:35	Fine	61.7	63.0	60.1			Average results during 15 min monitoring				
16-Jan-11	15:05	15:10	Sunny	62.1	63.8	60.7	Generator	Aircraft noise, Traffic noise	-	14	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	15:10	15:15	Sunny	62.3	63.9	60.9			-				
	15:15	15:20	Sunny	62.0	63.2	60.8			-				
	15:05	15:20	Sunny	62.2	63.6	60.8			Average results during 15 min monitoring				
23-Jan-11	15:15	15:20	Sunny	63.0	64.7	60.8	Generator	Aircraft noise, Traffic noise	-	15	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	15:20	15:25	Sunny	62.2	64.9	60.5			-				
	15:25	15:30	Sunny	62.0	63..7	60.7			-				
	15:15	15:30	Sunny	62.4	64.5	60.7			Average results during 15 min monitoring				
30-Jan-11	13:50	13:55	Sunny	60.6	61.6	59.6	Generator	Aircraft noise, Traffic noise	-	12	0.8	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	13:55	14:00	Sunny	60.7	62.0	59.5			-				
	14:00	14:05	Sunny	60.5	61.8	59.4			-				
	13:50	14:05	Sunny	60.6	61.8	59.5			Average results during 15 min monitoring				
			Min.	**58.3**									
			Max.	**62.3**									

Annex G5 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM5

Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
1-Feb-11	9:00	9:30	Sunny	62.5	63.9	61.1	Generator, drill rig, excavator	Aircraft noise, traffic noise	-	13	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
7-Feb-11	14:20	14:50	Sunny	61.7	63.6	59.5	Generator, drill rig	Aircraft noise, traffic noise	-	19	0.8	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
17-Feb-11	14:30	15:00	Cloudy	61.8	63.0	60.7	Generator, drill rig, others (breaker)	Traffic Noise	-	16	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
23-Feb-11	14:40	15:00	Cloudy	60.0	61.1	59.0	Generator, drill rig, excavator	Aircraft noise, traffic noise	-	17	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
			Min.	**60.0**									
			Max.	**62.5**									

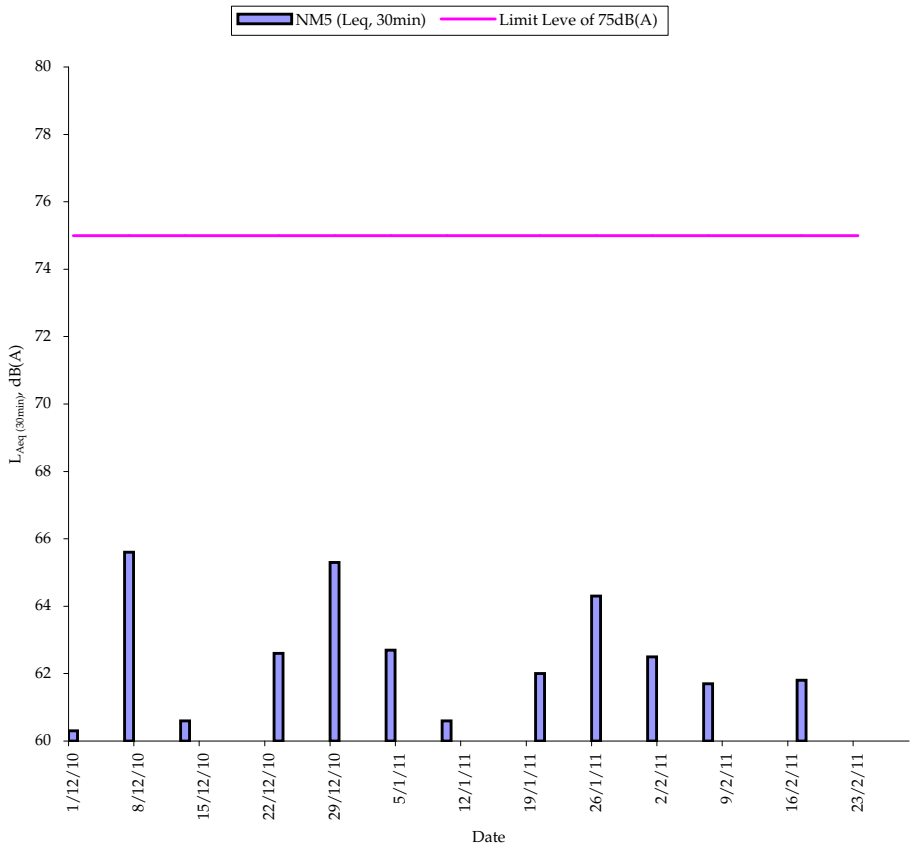
Annex G5 Noise Monitoring Results

Restricted Hours Noise Monitoring Results

Station NM5

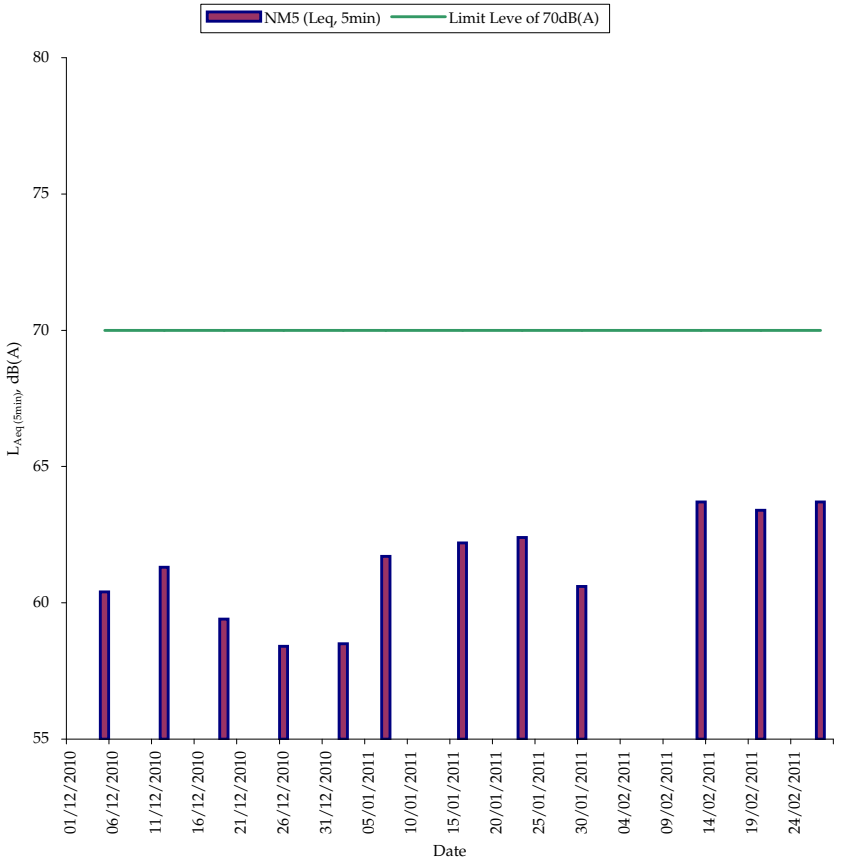
Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s)	Other Noise Source(s)	Remarks	Temp. (℃)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
13-Feb-11	10:00	10:05	Cloudy	63.7	64.4	63.1	Generator	Traffic noise	-	11	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	10:05	10:10	Cloudy	63.7	64.5	63.1			-				
	10:10	10:15	Cloudy	63.6	64.3	63.0			-				
	10:00	10:15	Cloudy	63.7	64.4	63.1			-				
20-Feb-11	16:45	16:50	Cloudy	63.2	64.6	62.2	Generator	Aircraft noise, traffic noise	-	14	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	16:50	16:55	Cloudy	63.0	64.4	61.9			-				
	16:55	17:00	Cloudy	64.0	65.1	62.2			-				
	16:45	17:00	Cloudy	63.4	64.7	62.1			-				
27-Feb-11	16:40	16:45	Sunny	63.4	64.2	62.6	Generator, crane operation	Traffic noise	-	21	0.5	RION- NL31 (S/N 00320533)	RION - NC73 (S/N 10786708)
	16:45	16:50	Sunny	63.7	64.9	62.6			-				
	16:50	16:55	Sunny	63.9	65.1	62.7			-				
	16:40	16:55	Sunny	63.7	64.8	62.6			-				
			Min.	**63.0**									
			Max.	**64.0**									

Nromal Weekdays Noise Monitoring Results at NM5 ($L_{eq, 30min}$)



Remark:
- 75dB(A) was adopted as the Limit Level during normal weekdays in the reporting period

Restricted Hours Noise Monitoring Results at NM5 ($L_{eq, 5min}$)



Remark:
- 70dB(A) was dopted as the Limit Level during restricted hours in the reporting period

Annex G6 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2009	0	0
January 2010	0	0
February 2010	0	0
March 2010	0	0
April 2010	0	0
May 2010	0	0
June 2010	0	0
July 2010	0	0
August 2010	0	0
September 2010	0	0
October 2010	0	0
November 2010	0	0
December 2010	0	0
January 2011	0	0
February 2011	0	0
Overall Total	0	0

Annex H

Calibration Reports for Sound Level Meters for All Sites

TSP Monitoring Equipment

Monitoring Station ID	Location	Monitoring Equipment		Last Calibration Date	Next Calibration Date
24-hr and 1-hr TSP		**HVS**	**Calibrator**		
AM1	Chan's Creative School (formerly known as Madam Chan Wai Chow Memorial School)	GMW GS-2310 (S/N 1808)	CM-AIR-43 (S/N 9833620)	24 November 2010	24 January 2011
AM2	Rooftop of Hong Kong & Islands Regional Office, WSD	GMW GS-2310 (S/N 0145)	CM-AIR-43 (S/N 9833620)	24 November 2010	24 January 2011
AM3	Rooftop of Wan Chai East PTW	GMW GS-2310 (S/N 0481)	CM-AIR-43 (S/N 9833620)	24 November 2010	24 January 2011
AM4	A Location within the DSD Central PTW	GMW GS-2310 (S/N 9315)	CM-AIR-43 (S/N 9833620)	24 November 2010	24 January 2011
AM5	Western Wholesale Food Market	GMW GS-2310 (S/N 2146)	CM-AIR-43 (S/N 9833620)	25 November 2010	25 January 2011
AM6	Works Site Boundary	GMW GS-2310 (S/N 1254)	CM-AIR-43 (S/N 9833620)	24 November 2010	24 January 2011

TSP Monitoring Equipment

Monitoring Station ID	Location	Monitoring Equipment		Last Calibration Date	Next Calibration Date
24-hr and 1-hr TSP		**HVS**	**Calibrator**		
AM1	Chan's Creative School (formerly known as Madam Chan Wai Chow Memorial School)	GMW GS-2310 (S/N 1808)	CM-AIR-43 (S/N 9833620)	20 January 2011	20 March 2011
AM2	Rooftop of Hong Kong & Islands Regional Office, WSD	GMW GS-2310 (S/N 0145)	CM-AIR-43 (S/N 9833620)	20 January 2011	20 March 2011
AM3	Rooftop of Wan Chai East PTW	GMW GS-2310 (S/N 0481)	CM-AIR-43 (S/N 9833620)	20 January 2011	20 March 2011
AM4	A Location within the DSD Central PTW	GMW GS-2310 (S/N 9315)	CM-AIR-43 (S/N 9833620)	20 January 2011	20 March 2011
AM5	Western Wholesale Food Market	GMW GS-2310 (S/N 2146)	CM-AIR-43 (S/N 9833620)	25 January 2011	25 March 2011
AM6	Works Site Boundary	GMW GS-2310 (S/N 1254)	CM-AIR-43 (S/N 9833620)	20 January 2011	20 March 2011

Monitoring Equipment

Monitoring Station ID	Monitoring Equipment	Model & Serial No.	Last Calibration Date	Next Calibration Date
NM1 – NM5 [a]	Calibrator	Rion NC-73 (S/N 10786708)	13 July 2010	13 July 2011
		Rion NC-73 (S/N 10997142)	13 July 2010	13 July 2011
	Sound Level Meter	Rion NL-31 (S/N 00320533)	13 July 2010	13 July 2011
		Rion NL-31 (S/N 00410224)	31 May 2010	31 May 2011
		Rion NL-31 (S/N 00983400)	26 October 2010	26 October 2011

[a] The sound level meter (Rion NL-31 (S/N 00320533) or Rion NL-31 (S/N 00410224) or Rion NL-31 (S/N 00983400)) and the calibrator (Rion NC-73 (S/N 10786708) or Rion NC-73 (S/N 10997142)) is used in NM1, NM2, NM3, NM4 and NM5.

Remarks

Monitoring Station ID	Location
NM1	Rooftop of Chan's Creative School (formerly known as Madam Chan Wai Chow Memorial School)
NM2	Rooftop of Hyde Building
NM3	Rooftop of Goldfield Building
NM4	Rooftop of Block A, Kwan Yick Building Phase III
NM5	A Location near the FSD Diving Rescue and Diving Training Centre near the Site Boundary

TISCH ENVIROMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, OH 45002
513.467.9000
877.263.7610 TOLL FREE
513.467.9009 FAX
WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 10, 2010 Rootsmeter S/N 9833620 Ta (K) - 296
Operator Tisch Orifice I.D. - 1785 Pa (mm) - 750.57

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.3960	3.2	2.00
2	NA	NA	1.00	0.9840	6.4	4.00
3	NA	NA	1.00	0.8790	7.9	5.00
4	NA	NA	1.00	0.8390	8.7	5.50
5	NA	NA	1.00	0.6940	12.7	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9900	0.7092	1.4102		0.9957	0.7133	0.8881
0.9858	1.0018	1.9943		0.9915	1.0076	1.2560
0.9837	1.1191	2.2296		0.9894	1.1256	1.4042
0.9827	1.1713	2.3385		0.9884	1.1781	1.4728
0.9774	1.4084	2.8203		0.9830	1.4165	1.7762
Qstd slope (m) =		2.01637		Qa slope (m) =		1.26262
intercept (b) =		-0.02316		intercept (b) =		-0.01458
coefficient (r) =		0.99996		coefficient (r) =		0.99996
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}

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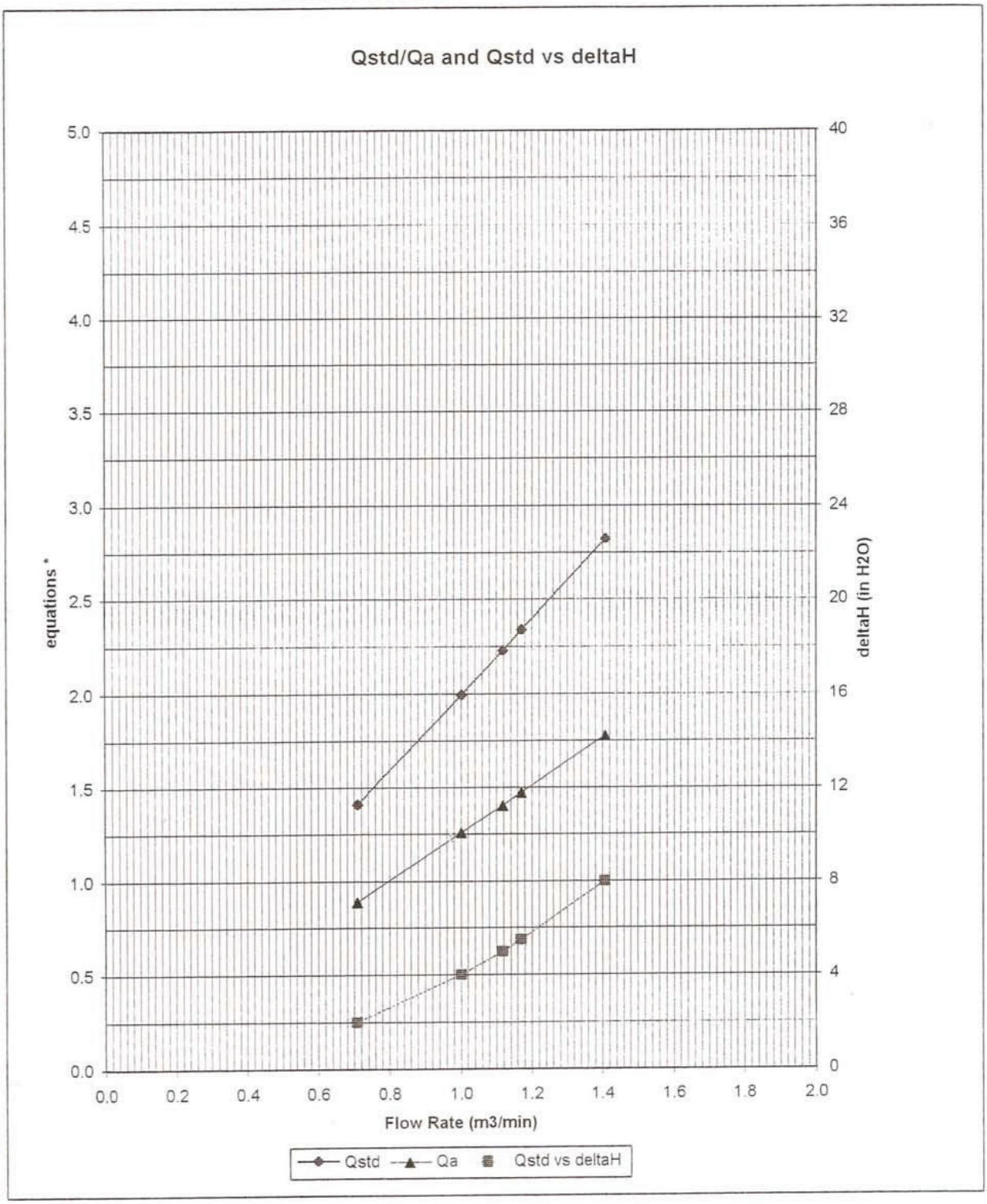
AIR POLLUTION MONITORING EQUIPMENT



* y-axis equations:

Qstd series: $\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$

Qa series: $\sqrt{(\Delta H\ (Ta\ /\ Pa))}$

#1785

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM1
Calibrated by : K.T.Ho
Date : 21/11/2010

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 1808

Calibration Orfice and Standard Calibration Relationship
Serial Number : 1785
Service Date : 10 May 2010
Slope (m) : 2.01637
Intercept (b) : -0.02316
Correlation Coefficient(r) : 0.99996

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

Calibration Condition
Pa (hpa) : 1013
Ta(K) : 297

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.2	3.352	1.674	61	61.1
2	13 holes	9.2	3.038	1.518	55	55.1
3	10 holes	6.6	2.573	1.288	45	45.1
4	7 holes	4.8	2.195	1.100	37	37.1
5	5 holes	2.7	1.646	0.828	26	26.0

Sampler Calibration Relationship

Slope(m):47.764 Intercept(b): -8.647 Correlation Coefficient(r): 0.9999

Checked by: Magnum Fan Date: 24/11/2010

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM2
Calibrated by : K.T.Ho
Date : 21/11/2010

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 0145

Calibration Orfice and Standard Calibration Relationship
Serial Number : 1785
Service Date : 10 May 2010
Slope (m) : 2.01637
Intercept (b) : -0.02316
Correlation Coefficient(r) : 0.99996

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

Calibration Condition
Pa (hpa) : 1013
Ta(K) : 297

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	10.4	3.230	1.614	62	62.1
2	13 holes	9.0	3.005	1.502	57	57.1
3	10 holes	7.2	2.688	1.304	49	49.1
4	7 holes	4.6	2.148	1.007	37	37.1
5	5 holes	2.8	1.676	0.843	25	25.0

Sampler Calibration Relationship

Slope(m):47.896 Intercept(b): -15.033 Correlation Coefficient(r): 0.9998

Checked by: Magnum Fan Date: 24/11/2010

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AM3
Calibrated by	:	K.T.Ho
Date	:	21/11/2010

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 0481

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	1785
Service Date	:	10 May 2010
Slope (m)	:	2.01637
Intercept (b)	:	-0.02316
Correlation Coefficient(r)	:	0.99996

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1013
Ta(K)	:	297

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.4	3.382	1.689	61	61.1
2	13 holes	9.5	3.087	1.543	56	56.0
3	10 holes	7.6	2.761	1.381	49	49.1
4	7 holes	4.8	2.195	1.099	39	39.1
5	5 holes	2.8	1.676	0.843	29	29.1

Sampler Calibration Relationship

Slope(m):37.971 Intercept(b): -2.902 Correlation Coefficient(r): 0.9996

Checked by: Magnum Fan Date: 24/11/2010

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AM4
Calibrated by	:	K.T.Ho
Date	:	21/11/2010

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 9315

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	1785
Service Date	:	10 May 2009
Slope (m)	:	2.01637
Intercept (b)	:	-0.02316
Correlation Coefficient(r)	:	0.99996

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1013
Ta(K)	:	297

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.2	3.352	1.674	63	63.1
2	13 holes	9.0	3.005	1.502	56	56.1
3	10 holes	7.2	2.688	1.344	49	49.0
4	7 holes	5.2	2.284	1.144	40	40.1
5	5 holes	3.0	1.735	0.872	28	28.0

Sampler Calibration Relationship

Slope(m):43.955 Intercept(b): -10.183 Correlation Coefficient(r): 0.9999

Checked by: Magnum Fan Date: 24/11/2010

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	Sai Ying Pun
Calibrated by	:	K.T.Ho
Date	:	22/11/2010

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 2146

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	1785
Service Date	:	10 May 2009
Slope (m)	:	2.01637
Intercept (b)	:	-0.02316
Correlation Coefficient(r)	:	0.99996

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1011
Ta(K)	:	297

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.4	3.390	1.693	59	59.2
2	13 holes	9.8	3.143	1.570	54	54.2
3	10 holes	7.9	2.822	1.411	49	49.2
4	7 holes	4.8	2.199	1.102	37	37.2
5	5 holes	2.8	1.680	0.845	28	28.1

Sampler Calibration Relationship

Slope(m):36.683 Intercept(b): -2.993 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan Date: 25/11/2010

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AM6
Calibrated by	:	P.F.Yeung
Date	:	21/11/2010

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 1254

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	1785
Service Date	:	10 May 2010
Slope (m)	:	2.01637
Intercept (b)	:	-0.02316
Correlation Coefficient(r)	:	0.99996

Standard Condition

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

Calibration Condition

Pa (hpa)	:	1013
Ta(K)	:	297

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	10.0	3.168	1.582	64	64.1
2	13 holes	7.8	2.798	1.399	56	56.1
3	10 holes	5.6	2.370	1.187	48	48.1
4	7 holes	4.5	2.12	1.065	42	42.1
5	5 holes	2.2	1.486	0.748	29	29.0

Sampler Calibration Relationship

Slope(m):41.966 Intercept(b): -2.329 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan Date: 24/11/2010

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM1
Calibrated by : K.T.Ho
Date : 20/01/2011

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 1808

Calibration Orfice and Standard Calibration Relationship
Serial Number : 1785
Service Date : 10 May 2010
Slope (m) : 2.01637
Intercept (b) : -0.02316
Correlation Coefficient(r) : 0.99996

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

Calibration Condition
Pa (hpa) : 1013
Ta(K) : 297

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	12.6	3.609	1.801	67	68.1
2	13 holes	10.0	3.215	1.606	58	59.0
3	10 holes	7.8	2.839	1.420	50	50.8
4	7 holes	5.0	2.273	1.139	38	38.6
5	5 holes	3.1	1.790	0.899	27	27.5

Sampler Calibration Relationship

Slope(m):44.753 Intercept(b): -12.646 Correlation Coefficient(r): 0.9999

Checked by: Magnum Fan Date: 24/01/2011

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM2
Calibrated by : K.T.Ho
Date : 20/01/2011

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 0145

Calibration Orfice and Standard Calibration Relationship
Serial Number : 1785
Service Date : 10 May 2010
Slope (m) : 2.01637
Intercept (b) : -0.02316
Correlation Coefficient(r) : 0.99996

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

Calibration Condition
Pa (hpa) : 1013
Ta(K) : 297

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.8	3.492	1.743	64	65.1
2	13 holes	9.4	3.117	1.557	57	58.0
3	10 holes	7.2	2.728	1.364	49	49.8
4	7 holes	4.6	2.181	1.093	39	39.7
5	5 holes	2.8	1.701	0.855	29	29.5

Sampler Calibration Relationship

Slope(m):39.917 Intercept(b): -4.403 Correlation Coefficient(r): 0.9998

Checked by: Magnum Fan Date: 24/01/2011

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM3
Calibrated by : K.T.Ho
Date : 20/01/2011

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 0481

Calibration Orfice and Standard Calibration Relationship
Serial Number : 1785
Service Date : 10 May 2010
Slope (m) : 2.01637
Intercept (b) : -0.02316
Correlation Coefficient(r) : 0.99996

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

Calibration Condition
Pa (hpa) : 1013
Ta(K) : 297

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	12.3	3.566	1.780	64	65.1
2	13 holes	9.2	3.084	1.541	54	54.9
3	10 holes	6.9	2.671	1.336	45	45.8
4	7 holes	4.5	2.157	1.081	34	34.6
5	5 holes	2.7	1.671	0.840	23	23.4

Sampler Calibration Relationship

Slope(m):44.334 Intercept(b): -13.590 Correlation Coefficient(r): 0.9999

Checked by: Magnum Fan Date: 24/01/2011

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM4
Calibrated by : K.T.Ho
Date : 20/01/2011

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 9315

Calibration Orfice and Standard Calibration Relationship
Serial Number : 1785
Service Date : 10 May 2009
Slope (m) : 2.01637
Intercept (b) : -0.02316
Correlation Coefficient(r) : 0.99996

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

Calibration Condition
Pa (hpa) : 1013
Ta(K) : 297

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	12.2	3.551	1.773	64	65.1
2	13 holes	9.0	3.050	1.524	54	54.9
3	10 holes	7.0	2.690	1.346	47	47.8
4	7 holes	4.7	2.204	1.105	38	38.6
5	5 holes	2.8	1.701	0.855	28	28.5

Sampler Calibration Relationship

Slope(m):36.689 Intercept(b): -5.436 Correlation Coefficient(r): 0.9999

Checked by: Magnum Fan Date: 24/01/2011

High-Volume TSP Sampler
5-Point Calibration Record

Location	**:**	**Sai Ying Pun**
Calibrated by	**:**	**K.T.Ho**
Date	**:**	**21/01/2011**

Sampler

Model	**:**	**GMWS-2310 ACCU-VOL**
Serial Number	**:**	**S/N 2146**

Calibration Orfice and Standard Calibration Relationship

Serial Number	**:**	**1785**
Service Date	**:**	**10 May 2010**
Slope (m)	**:**	**2.01637**
Intercept (b)	**:**	**-0.02316**
Correlation Coefficient(r)	**:**	**0.99996**

Standard Condition

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

Calibration Condition

Pa (hpa)	**:**	**1015**
Ta(K)	**:**	**293**

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	8.8	2.935	1.467	60	59.4
2	13 holes	7.2	2.654	1.328	54	53.4
3	10 holes	5.4	2.299	1.152	46	45.5
4	7 holes	3.5	1.851	0.929	36	35.6
5	5 holes	2.8	1.655	0.832	31	30.7

Sampler Calibration Relationship

Slope(m):37.151 Intercept(b): -3.359 Correlation Coefficient(r): 0.9999

Checked by: Magnum Fan Date: 25/01/2011

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM6
Calibrated by : P.F.Yeung
Date : 20/01/2011

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 1254

Calibration Orfice and Standard Calibration Relationship
Serial Number : 1785
Service Date : 10 May 2010
Slope (m) : 2.01637
Intercept (b) : -0.02316
Correlation Coefficient(r) : 0.99996

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

Calibration Condition
Pa (hpa) : 1013
Ta(K) : 297

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	10.0	3.215	1.606	56	56.9
2	13 holes	8.0	2.876	1.438	49	49.8
3	10 holes	6.2	2.532	1.267	42	42.7
4	7 holes	4.4	2.133	1.069	34	34.6
5	5 holes	3.0	1.761	0.885	27	27.5

Sampler Calibration Relationship

Slope(m):40.972 Intercept(b): -9.039 Correlation Coefficient(r): 0.9998

Checked by: Magnum Fan Date: 24/01/2011

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

Certificate No. : C103766

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Calibrator

Manufacturer : Rion

Model No. : NC-73

Serial No. : 10786708

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C103766.

The equipment is supplied by

Co. Name : Envirotech Services Co.

Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

Date of Issue : 13 July 2010

Certified by : K C Lee

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

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

Report No. : C103766

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Calibrator
MANUFACTURER : Rion
MODEL NO. : NC-73
SERIAL NO. : 10786708

TEST CONDITIONS

AMBIENT TEMPERATURE : (23 ± 2)°C RELATIVE HUMIDITY : (55 ± 20)%
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 12 July 2010 ***JOB NO.*** : IC10-1738

TEST RESULTS

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

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

Tested by : *L L Cheung* *Date : 13 July 2010*

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

Report No. : C103766

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours before the commencement of the test.

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

3. Test equipment :

Equipment ID	Description	Certificate No.
TST150A	Measuring Amplifier	C101008
CL130	Universal Counter	C103289
CL281	Multifunction Acoustic Calibrator	C1005490

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.5	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.991 0	1 kHz ± 2 %	± 0.1

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

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

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

Certificate No. : C103778

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Meter

Manufacturer : Rion

Model No. : NL-31

Serial No. : 00320533

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C103778.

The equipment is supplied by

Co. Name : Envirotech Services Co.

Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong

Date of Issue : 13 July 2010

Certified by : K C Lee

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

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

Report No. : C103778

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Meter
MANUFACTURER : Rion
MODEL NO. : NL-31
SERIAL NO. : 00320533

TEST CONDITIONS

AMBIENT TEMPERATURE : (23 ± 2)°C RELATIVE HUMIDITY : (55 ± 20)%
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 12 July 2010 ***JOB NO.*** : IC10-1738

TEST RESULTS

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

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

Tested by : *L L Cheung* *Date : 13 July 2010*

Report No. : C103778

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

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

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C100067
CL281	Multifunction Acoustic Calibrator	C1005490

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	94.3	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 120	L_A	A	Fast	94.00	1	94.3 (Ref.)
				104.00		104.3
				114.00		114.3

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	94.3	Ref.
			Slow			94.2	± 0.1

Report No. : C103778

Calibration Report

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L_A	A	Fast	94.00	31.5 Hz	55.3	-39.4 ± 1.5
					63 Hz	68.4	-26.2 ± 1.5
					125 Hz	78.4	-16.1 ± 1.0
					250 Hz	85.8	-8.6 ± 1.0
					500 Hz	91.1	-3.2 ± 1.0
					1 kHz	94.3	Ref.
					2 kHz	95.3	+1.2 ± 1.0
					4 kHz	94.5	+1.0 ± 1.0
					8 kHz	90.5	-1.1 (+1.5 ; -3.0)
					12.5 kHz	85.0	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L_C	C	Fast	94.00	31.5 Hz	91.5	-3.0 ± 1.5
					63 Hz	93.7	-0.8 ± 1.5
					125 Hz	94.2	-0.2 ± 1.0
					250 Hz	94.4	0.0 ± 1.0
					500 Hz	94.4	0.0 ± 1.0
					1 kHz	94.3	Ref.
					2 kHz	94.0	-0.2 ± 1.0
					4 kHz	92.8	-0.8 ± 1.0
					8 kHz	88.7	-3.0 (+1.5 ; -3.0)
					12.5 kHz	82.4	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
20 - 110	L_{Aeq}	A	60 sec.	4	1	$1/10^3$	110.0	80	80.7	± 1.0
			5 min.			$1/10^4$		70	70.7	± 1.0

Report No. : C103778

Calibration Report

Remarks : - Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

94 dB	:	31.5 Hz - 125 Hz	: ± 0.35 dB
		250 Hz - 1 kHz	: ± 0.30 dB
		2 kHz - 4 kHz	: ± 0.35 dB
		8 kHz	: ± 0.45 dB
		12.5 kHz	: ± 0.70 dB
104 dB	:	1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	:	1 kHz	: ± 0.10 dB (Ref. 94 dB)

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

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

輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C102904

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Meter

Manufacturer : Rion

Model No. : NL-31

Serial No. : 00410224

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C102904.

The equipment is supplied by

Co. Name : Envirotech Services Co.

Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

Date of Issue : 31 May 2010

Certified by :

K C Lee

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

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

Report No. : C102904

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Meter
MANUFACTURER : Rion
MODEL NO. : NL-31
SERIAL NO. : 00410224

TEST CONDITIONS

AMBIENT TEMPERATURE : (23 ± 2)°C RELATIVE HUMIDITY : (55 ± 20)%
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 31 May 2010 ***JOB NO.*** : IC10-1356

TEST RESULTS

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

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

Tested by : *L L Cheung* *Date : 31 May 2010*

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

Report No. : C102904

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

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

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C100067
CL179	Acoustical Calibrator	C095223

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	93.9	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 120	L_A	A	Fast	94.00	1	93.9 (Ref.)
				114.00		113.9

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	93.9	Ref.
			Slow			93.8	± 0.1

Report No. : C102904

Calibration Report

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L_A	A	Fast	94.00	31.5 Hz	54.2	-39.4 ± 1.5
					63 Hz	67.6	-26.2 ± 1.5
					125 Hz	77.7	-16.1 ± 1.0
					250 Hz	85.2	-8.6 ± 1.0
					500 Hz	90.6	-3.2 ± 1.0
					1 kHz	93.9	Ref.
					2 kHz	95.2	+1.2 ± 1.0
					4 kHz	95.0	+1.0 ± 1.0
					8 kHz	92.9	-1.1 (+1.5 ; -3.0)
					12.5 kHz	90.0	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L_C	C	Fast	94.00	31.5 Hz	90.6	-3.0 ± 1.5
					63 Hz	93.1	-0.8 ± 1.5
					125 Hz	93.7	-0.2 ± 1.0
					250 Hz	93.9	0.0 ± 1.0
					500 Hz	93.9	0.0 ± 1.0
					1 kHz	93.9	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.3	-0.8 ± 1.0
					8 kHz	91.0	-3.0 (+1.5 ; -3.0)
					12.5 kHz	88.1	-6.2 (+3.0 ; -6.0)

Report No. : C102904

Calibration Report

6.4 Time Averaging

UUT Setting				Applied Value					UUT	IEC 60804
Range (dB)	Mode	Frequency Weighting	Time Weighting	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)	Reading (dB)	Type 1 Spec. (dB)
20 - 110	L_{Aeq}	A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5
						$1/10^2$		90	90.0	± 0.5
			60 sec.			$1/10^3$		80	80.0	± 1.0
			5 min.			$1/10^4$		70	70.0	± 1.0

Remarks : - Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value : 94 dB : 31.5 Hz - 125 Hz : ± 0.35 dB
  250 Hz - 1 kHz : ± 0.30 dB
  2 kHz - 4 kHz : ± 0.35 dB
  8 kHz : ± 0.45 dB
  12.5 kHz : ± 0.70 dB
  114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)

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

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

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

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

Certificate No. : C105886

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Meter

Manufacturer : Rion

Model No. : NL-31

Serial No. : 00983400

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C105886.

The equipment is supplied by

Co. Name : Envirotech Services Co.

Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong

Date of Issue : 26 October 2010

Certified by : K C Lee

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

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

Report No. : C105886

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Meter
MANUFACTURER : Rion
MODEL NO. : NL-31
SERIAL NO. : 00983400

TEST CONDITIONS

AMBIENT TEMPERATURE : (23 ± 2)°C RELATIVE HUMIDITY : (55 ± 20)%
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 25 October 2010 ***JOB NO.*** : IC10-2726

TEST RESULTS

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

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

Tested by : *L L Cheung* *Date : 26 October 2010*

Report No. : C105886

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

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

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C100067
CL281	Multifunction Acoustic Calibrator	C1006860

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	94.0	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 120	L_A	A	Fast	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.1

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

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L_A	A	Fast	94.00	1	94.0	Ref.
			Slow			93.9	± 0.3

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Calibration Report

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L_A	A	Fast	94.00	63 Hz	67.6	-26.2 ± 1.5
					125 Hz	77.7	-16.1 ± 1.5
					250 Hz	85.2	-8.6 ± 1.4
					500 Hz	90.7	-3.2 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	95.3	+1.2 ± 1.6
					4 kHz	95.1	+1.0 ± 1.6
					8 kHz	93.0	-1.1 (+2.1 ; -3.1)
					12.5 kHz	90.1	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L_C	C	Fast	94.00	63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.5
					250 Hz	94.0	0.0 ± 1.4
					500 Hz	94.0	0.0 ± 1.4
					1 kHz	94.0	Ref.
					2 kHz	93.9	-0.2 ± 1.6
					4 kHz	93.4	-0.8 ± 1.6
					8 kHz	91.1	-3.0 (+2.1 ; -3.1)
					12.5 kHz	88.3	-6.2 (+3.0 ; -6.0)

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Calibration Report

Remarks : - Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

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

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

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

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

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

Certificate No. : C103765

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Calibrator

Manufacturer : Rion

Model No. : NC-73

Serial No. : 10997142

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C103765.

The equipment is supplied by

Co. Name : Envirotech Services Co.

Address : Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

Date of Issue : 13 July 2010

Certified by : K C Lee

Calibration and Testing Laboratory of Sun Creation Engineering Limited
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

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

Report No. : C103765

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Calibrator
MANUFACTURER : Rion
MODEL NO. : NC-73
SERIAL NO. : 10997142

TEST CONDITIONS

AMBIENT TEMPERATURE : (23 ± 2)°C RELATIVE HUMIDITY : (55 ± 20)%
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 12 July 2010 ***JOB NO.*** : IC10-1738

TEST RESULTS

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

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

Tested by : *L L Cheung* *Date* : *13 July 2010*

Report No. : C103765

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours before the commencement of the test.

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

3. Test equipment :

Equipment ID	Description	Certificate No.
TST150A	Measuring Amplifier	C101008
CL130	Universal Counter	C103289
CL281	Multifunction Acoustic Calibrator	C1005490

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.1	± 0.5	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.991 1	1 kHz ± 2 %	± 0.1

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

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

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c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

Annex I

Event /Action Plans for Air Quality, Noise and Landscape and Visual Monitoring

Table I1 Event Action Plan for Air Quality Monitoring

Action Level/Limit Level	Environmental Team Leader (ETL)	Independent Environmental Checker (IEC)	Engineer's Representative (ER)	Contractor
Action Level				
Exceedance for one sample	• Identify source, investigate the causes of exceedance and propose remedial measures; • Inform IEC and ER; • Repeat measurement to confirm finding; and, • Increase monitoring frequency to daily.	• Check monitoring data submitted by ET; and, • Check Contractor's working method.	• Notify Contractor	• Rectify any unacceptable practice; and, • Amend working methods if appropriate.
Exceedance for two or more consecutive samples	• Identify source; • Inform IEC and ER; • Advise the ER on the effectiveness of the proposed remedial measures; • Repeat measurements to confirm findings; • Increase monitoring frequency to daily; and, • Discuss with IEC and Contractor on remedial actions required;	• Check monitoring data submitted by ET; • Check Contractor's working method; • Discuss with ET and Contractor on possible remedial measures; • Advise the ET on the effectiveness of the proposed remedial measures; and, • Supervise Implementation of remedial measures.	• Confirm receipt of notification of failure in writing; • Notify Contractor, and, • Ensure remedial measures properly implemented.	• Submit proposals for remedial to ER within 3 working days of notification; • Implement the agreed proposals; • Amend proposal if appropriate.

Action Level/Limit Level	Environmental Team Leader (ETL)	Independent Environmental Checker (IEC)	Engineer's Representative (ER)	Contractor
Limit Level				
Exceedance for one sample	• Identify source, investigate the causes of exceedance and propose remedial measures; • Inform ER, Contractor and EPD; • Repeat measurement to confirm finding; • Increase monitoring frequency to daily; and, • Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	• Check monitoring data submitted by ET; • Check Contractor's working method; • Discuss with ET and Contractor on possible remedial measures; • Advise the ER on the effectiveness of the proposed remedial measures; and, • Supervise implementation of remedial measures.	• Confirm receipt of notification of failure in writing; • Notify Contractor; and, • Ensure remedial measures properly implemented.	• Take immediate action to avoid further exceedance; • Submit proposals for remedial actions to IEC within 3 working days of notification; • Implement the agreed proposals; and, • Amend proposal if appropriate.
Exceedance for two or more consecutive samples	• Notify IEC, ER, Contractor and EPD; • Identify source; • Repeat measurement to confirm findings; • Increase monitoring frequency to daily; • Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; • Arrange meeting with IEC and ER to discuss the remedial actions to be taken; • Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; and, • If exceedance stops, cease additional monitoring.	• Check monitoring data submitted by ET; • Check Contractor's working method; • Discuss amongst ER, ET, and Contractor on the potential remedial actions; • Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; and, • Supervise the implementation of remedial measures.	• Confirm receipt of notification of failure in writing; • Notify Contractor; • In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; • Ensure remedial measures properly implemented; and, • 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.	• Take immediate action to avoid further exceedance; • Submit proposals for remedial actions to IEC within 3 working days of notification; • Implement the agreed proposals; • Resubmit proposals if problem still not under control; and, • Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Table I2 Event Action Plan for Noise Monitoring

Action Level/Limit Level	Environmental Team Leader (ETL)	Independent Environmental Checker (IEC)	Engineer's Representative (ER)	Contractor
Action Level being exceeded	• Notify ER, IEC and Contractor; • Carry out investigation; • Report the results of investigation to the IEC, ER and Contractor; • Discuss with the IEC and Contractor on remedial measures required; and, • Increase monitoring frequency to check mitigation effectiveness.	• Review the investigation results submitted by the ET; • Review the proposed remedial measures by the Contractor and advise the ER accordingly; and, • Advise the ER on the effectiveness of the proposed remedial measures.	• Confirm receipt of notification of failure in writing; • Notify Contractor; • In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; and, • Supervise the implementation of remedial measures.	• Submit noise mitigation proposals to IEC and ER; and, • Implement noise mitigation proposals.

Action Level/Limit Level	Environmental Team Leader (ETL)	Independent Environmental Checker (IEC)	Engineer's Representative (ER)	Contractor
Limit Level being exceeded	• Inform IEC, ER, Contractor and EPD; • Repeat measurements to confirm findings; • Increase monitoring frequency; • Identify source and investigate the cause of exceedance; • Carry out analysis of Contractor's working procedures; • Discuss with the IEC, Contractor and ER on remedial measures required; • Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; and, • If exceedance stops, cease additional monitoring.	• Discuss amongst ER, ET, and Contractor on the potential remedial actions; and, • Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly.	• Confirm receipt of notification of failure in writing; • Notify Contractor; • In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; • Supervise the implementation of remedial measures; and, • If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated.	• Take immediate action to avoid further exceedance; • Submit proposals for remedial actions to IEC and ER within 3 working days of notification; • Implement the agreed proposals; • Submit further proposal if problem still not under control; and, • Stop the relevant portion of works as instructed by the ER until the exceedance is abated.

Table I3 Event and Action Plan for Landscape and Visual Impact - Construction Phase

Action Level	Environmental Team Leader (ETL)	Independent Environmental Checker (IEC)	Engineer's Representative (ER)	Contractor
Non-conformity on one occasion	Identify source Inform the IEC and the ER Discuss remedial actions with the IEC, the ER and the Contractor Monitor remedial action until rectification has been completed	Check report Check the Contractor's working method Discuss with the ER and the Contractor on possible remedial measures Advise the ER on effectiveness of proposed remedial measures	Notify the Contractor Ensure remedial measures are properly implemented	Amend working methods Rectify damage and undertake remedial measures or any necessary replacement
Repeated Non-conformity	Identify source Inform the IEC and the ER Increase monitoring (site audit) frequency Discuss remedial actions with the IEC, the ER and the Contractor Monitor remedial actions until rectification has been completed If exceedance stops, cease additional monitoring (site audit)	Check report Check the Contractor's working method Discuss with the ER and the Contractor on possible remedial measures Advise the ER on effectiveness of proposed remedial measures Supervise implementation of remedial measures	Notify the Contractor Ensure remedial measures are properly implemented	Amend working methods Rectify damage and undertake remedial measures or any necessary replacement

Annex J

Waste Flow Table

Harbour Area Treatment Scheme Stage 2A – Construction of Sewage Conveyance System from North Point to Stonecutters Island

Contract No. : DC/2007/23

Monthly Summary Waste Flow Table for 2009 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete (see Note 4)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill		Metals (see Note 2)	Paper/ cardboard packaging (see Note 2)	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)		(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg / '000L)	(in '000m³)
Jan											
Feb											
Mar											
Apr											
May											
June											
Sub-total											
July	0	0	0	0	0		0	0	0	0	0
Aug	0	0	0	0	0		0	0	0	0	0
Sept	0.016	0	0	0	Dry	Wet	0	0	0	0	0.068
					0.016	0					
Oct	0.523	0	0	0	0.523	0	0	0	0	0	0.086
Nov	2.331	0	0	0	2.275	0.056	99.2	0.036	0	0	0.129
Dec	3.803	0	0	0	3.004	0.799	1	0	0	0	0.120
Total	6.673	0	0	0	5.818	0.855	100.2	0.036	0	0	0.403

Notes:
(1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(2) Metal and paper/cardboard packaging will be collected by recycler for recycling.
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material and the wastes are collected by recycler for recycling.
(4) Broken concrete for recycling into aggregates
(5) If necessary, use the conversion factor: 1 full load of dumping truck being equivalent to 6.5 m^3 by volume.
(6) For chemical waste, the actual quantities of empty paint cans will be in kilogram (kg) and spent lubrication oil will be in litre (L).

Harbour Area Treatment Scheme Stage 2A – Construction of Sewage Conveyance System from North Point to Stonecutters Island

Contract No. : DC/2007/23

Monthly Summary Waste Flow Table for 2010 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete (see Note 4)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill		Metals (see Note 2)	Paper/ cardboard packaging (see Note 2)	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)		(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg / '000L)	(in '000m³)
Jan	5.341	0	0	0	Dry	Wet	0	0.144	0	0.8	0.178
					3.066	2.275					
Feb	3.328	0	0	0	1.541	1.787	0	0	0	0	0.167
Mar	4.486	0	0	0	2.019	2.467	0	0.09	0	0	0.148
Apr	4.864	0	0	0	1.756	3.108	0	0.054	0	0	0.160
May	7.092	0	0	0	3.383	3.709	0	0.144	0	0.3	0.157
June	6.190	0	0	0	1.083	5.107	0	0.09	0	0.4	0.455
Sub-total	31.301	0	0	0	12.848	18.453	0	0.522	0	1.5	1.265
July	5.031	0	0	0	1.006	4.025	0	0.162	0	0	0.212
Aug	5.140	0	0	0.23	1.970	2.940	0	0.09	0	0.4	0.312
Sept	3.593	0.15	0	0.35	1.771	1.322	0	0.09	0	1	0.146
Oct	2.324	0	0	0	1.429	0.895	0	0.144	0	0	0.078
Nov	5.927	0	0	0	4.383	1.544	0	0	0	0.8	0.078
Dec	4.963	0	0	0	4.840	0.123	0	0.072	0	0	0.078
Total	58.279	0.15	0	0.58	28.247	29.302	0	1.080	0	3.7	2.166

Notes:
(1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(2) Metal and paper/cardboard packaging will be collected by recycler for recycling.
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material and the wastes are collected by recycler for recycling.
(4) Broken concrete for recycling into aggregates
(5) If necessary, use the conversion factor: 1 full load of dumping truck being equivalent to 6.5 m^3 by volume.
(6) For chemical waste, the actual quantities of empty paint cans will be in kilogram (kg) and spent lubrication oil will be in litre (L).

Harbour Area Treatment Scheme Stage 2A – Construction of Sewage Conveyance System from North Point to Stonecutters Island

Contract No. : DC/2007/23

Monthly Summary Waste Flow Table for 2011 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete (see Note 4)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill		Metals (see Note 2)	Paper/ cardboard packaging (see Note 2)	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)		(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg / '000L)	(in '000m³)
Jan	8.423	0	0	0	Dry	Wet	0	0.09	0	1.2	0.124
					8.236	0.187					
Feb	7.794	0	0	0.799	6.814	0.181	0	0.09	0	0	0.138
Mar	0	0	0	0	0	0	0	0	0	0	0
Apr	0	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0	0	0	0
June	0	0	0	0	0	0	0	0	0	0	0
Sub-total	16.217	0	0	0.799	15.050	0.368	0	0.18	0	1.2	0.262
July	0	0	0	0	0	0	0	0	0	0	0
Aug	0	0	0	0	0	0	0	0	0	0	0
Sept	0	0	0	0	0	0	0	0	0	0	0
Oct	0	0	0	0	0	0	0	0	0	0	0
Nov	0	0	0	0	0	0	0	0	0	0	0
Dec	0	0	0	0	0	0	0	0	0	0	0
Total	16.217	0	0	0.799	15.050	0.368	0	0.18	0	1.2	0.262

Notes:
(1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(2) Metal and paper/cardboard packaging will be collected by recycler for recycling.
(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material and the wastes are collected by recycler for recycling.
(4) Broken concrete for recycling into aggregates
(5) If necessary, use the conversion factor: 1 full load of dumping truck being equivalent to 6.5 m^3 by volume.
(6) For chemical waste, the actual quantities of empty paint cans will be in kilogram (kg) and spent lubrication oil will be in litre (L).