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: *Twenty-second Quarterly EM&A Report*

June 2015

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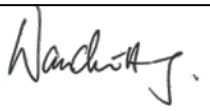
June 2015

Reference 0104887

For and on behalf of ERM-Hong Kong, Limited

Approved by: Frank Wan

Signed: 

Position: Partner

Certified by: 
(Environmental Team Leader – Winnie Ko)

Date: 11 June 2015

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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

3 July 2015
By Post

Attn: Mr. Danny Tang

Dear Sir,

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

Contract No. DC/2007/23
Construction of Sewage Conveyance System from North Point to Stonecutters Island
Submission of 22nd Quarterly EM&A Report for March to May 2015

We refer to the revised 22nd Quarterly EM&A Report for March to May 2015 received on 2 July 2015 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. K Y Chan	By email
	Gammon	Mr. Max Ko	By email
	ERM	Ms. Winnie Ko	By email

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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)** had commenced on 1 December 2009. This is the 22nd quarterly Environmental Monitoring and Audit (EM&A) report presenting the EM&A work carried out during the period from 1 March 2015 to 31 May 2015 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:

- Permanent invert and vault lining in J5 at Production Shaft;
- Rectification of minor defects is completed at Drop Shaft;
- Noise enclosure dismantling is 100% completed at Production Shaft;
- Removal of shaft steelwork at Production Shaft;
- FRP forms installation is on going at Production Shaft; and
- Stoplog leakage test and precast r.c. planks seal up at Drop Shaft.

Environmental Monitoring and Audit Progress

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

• 24-hour averaged TSP Monitoring at each monitoring station (AM1)	17 sets
• 1-hour averaged TSP Monitoring at each monitoring station (AM1)	51 sets
• 24-hour averaged TSP Monitoring at each monitoring station (AM2)	17 sets
• 1-hour averaged TSP Monitoring at each monitoring station (AM2)	51 sets
• Construction Noise Monitoring during Normal Weekdays at NM1	13 times
• Construction Noise Monitoring during Restricted Hours at NM1	13 times
• Joint Environmental Site Inspection	11 times
• Landscape & Visual Monitoring	3 times

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

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

No exceedance of the Noise Limit Levels was recorded at the monitoring station during both normal working hours and restricted hours in the reporting period.

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

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

Wan Chai East Production and Drop Shaft

Summary of Construction Works undertaken during Reporting period

The major construction works undertaken included:

- Permanent invert and vault lining construction at Production Shaft;
- E&M draw pits and ducting construction at Drop Shaft;
- Noise enclosure dismantling is 100% completed at Production Shaft;
- Removal of shaft steelwork at Production Shaft; and
- FRP forms installation is ongoing at Production Shaft.

Environmental Monitoring and Audit Progress

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

• 24-hour averaged TSP Monitoring at AM3	17 sets
• 1-hour averaged TSP Monitoring at AM3	51 sets
• Construction Noise Monitoring during Normal Weekdays at NM2	13 times
• Construction Noise Monitoring during Restricted hours at NM2	13 times
• Joint Environmental Site Inspection	12 times
• Landscape & Visual Monitoring	3 times

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

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

No exceedance of noise limit level was recorded during normal working hours. However, 9 exceedances of noise Limit Level during restricted hours were reported on 1, 10, 15 and 29 March 2015; 12 and 21 April 2015; and 10, 19 and 24 May 2015.

The exceedances were investigated. Referring to the works summary provided by the Contractor, no noisy outdoor construction activity was conducted at the Wan Chai East Production and Drop Shafts during the noise monitoring sessions. Other potential noise sources were also identified in the vicinity (i.e., traffic) to contribute to the measured noise level. In view of no noisy outdoor construction works carried out and contribution from other potential noise source in vicinity (i.e., traffic), it is considered that the exceedances were not due to the Contract 23 construction works. However, the Contractor 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 nuisance.

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

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

Central Drop Shaft

Summary of Construction Works undertaken during the Reporting Period

The major construction works undertaken included:

- Upper shaft construction at Drop Shaft;
- D-wall cutting at Drop Shaft;
- Steel fixing for floor or vortex chamber and intermediate beam at Drop Shaft;
- Steel fixing for walls and cover at Drop Shaft;
- Installation of hand railing at Drop Shaft; and
- Removal of flasework at Drop Shaft.

Environmental Monitoring and Audit Progress

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

• 24-hour averaged TSP Monitoring at AM4	17 sets
• 1-hour averaged TSP Monitoring at AM4	51 sets
• Construction Noise Monitoring during Normal Weekdays at NM3	13 times
• Joint Environmental Site Inspection	9 times
• Landscape & Visual Monitoring	3 times

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

No exceedance of the Action and Limit Levels of the 1-hour and 24-hour averaged TSP was recorded during the reporting period.

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

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

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

Sai Ying Pun Junction Shaft

Summary of Construction Works undertaken during the reporting period

The major construction works undertaken included:

- Dismantling FRP formwork;
- Patching up work;
- Excavation of DO chamber;
- Installation of wailings and struct;
- Permanent invert and vault lining construction;
- Riser shaft tunnel permanent lining construction;
- BCM inspection for Tunnel L lining;
- Segment lining installation;
- Steel fixing for walls;
- Concrete blank flange and cross pipe installation; and
- Steel fixing for walls of DO Chamber.

Environmental Monitoring and Audit Progress

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

• 24-hour averaged TSP Monitoring at AM5	17 sets
• 1-hour averaged TSP Monitoring at AM5	51 sets
• Construction Noise Monitoring during Normal Weekdays at NM4	13 times
• Construction Noise Monitoring during Restricted hours at NM4	13 times
• Joint Environmental Site Inspection	11 times
• Landscape & Visual Monitoring	3 times

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

No exceedance of the Action and Limit Levels of the 1-hour and 24-hour averaged TSP was recorded during the reporting period

No exceedance of the Noise Limit Levels was recorded at the monitoring station during both normal working hours and restricted hours in the reporting period.

No exceedance of maximum limit for safe vibration level (25 mm/s) was recorded during the reporting period.

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

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

Stonecutters Island Production and Riser Shafts

Summary of Construction Works undertaken during the Reporting Period

The major construction works undertaken included:

- BCM inspection for upper riser shaft at Riser Shaft;
- Permanent invert and vault lining construction at Production Shaft;
- Riser shaft tunnel permanent lining construction at Production Shaft; and
- BCM inspection for Tunnel L lining.

Environmental Monitoring and Audit Progress

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

• 24-hour averaged TSP Monitoring at AM6	18 sets
• 1-hour averaged TSP Monitoring at AM6	54 sets
• Construction Noise Monitoring during Normal Weekdays at NM5	13 times
• Construction Noise Monitoring during Restricted Hours at NM5	14 times
• Joint Environmental Site Inspection	13 times
• Landscape & Visual Monitoring	3 times

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

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

No exceedance of the Noise Limit Levels was recorded at the monitoring station during both normal working hours and restricted hours in the reporting period.

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

There was no summon/prosecution received during the reporting period.

1 INTRODUCTION

ERM-Hong Kong, Limited (ERM) has been appointed by Gammon Construction Limited (the Contractor) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme for the Contract - "*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 twenty-second quarterly EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from **1 March 2015 to 31 May 2015**.

1.2 STRUCTURE OF THE REPORT

The structure of the report is as follows:

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

Section 2 : **Project Information**
It summarises the background and scope of the project, site description, project organisation and contact details.

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

- **Construction Activities**
  It summarises the construction activities conducted during the reporting period.
- **Status of Environmental Approval Documents**
  It summarises the required environmental documents submitted under the relevant EP conditions during the reporting period.
- **Environmental Monitoring Requirement**
  It summarises the environmental monitoring including monitoring parameters, programmes, methodologies, frequency, and 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**
  It summarises the implementation of environmental protection measures during the reporting period.
- **Monitoring Results**
  It summarises the monitoring results obtained in the reporting period.
- **Environmental Site Inspection**

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

- **Environmental Non-conformance**

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

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

- **Construction Activities**

  It summarises the construction activities conducted during the reporting period.

- **Status of Environmental Approval Documents**

  It summarises the environmental documents submissions under the EP condition during the reporting period.

- **Environmental Monitoring Requirement**

  It summarises the environmental monitoring including monitoring parameters, programmes, methodologies, frequency, and 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**

  It summarises the implementation of environmental protection measures during the reporting period.

- **Monitoring Results**

  It summarises the monitoring results obtained in the reporting period.

- **Environmental Site Inspection**

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

- **Environmental Non-conformance**

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

Section 5 : **Central Drop Shaft**

- **Construction Activities**

  It summarises the construction activities conducted during the reporting period.

- **Status of Environmental Approval Documents**

  It summarises the environmental documents submissions under the EP condition during the reporting period.

- **Environmental Monitoring Requirement**

  It summarises the environmental monitoring including monitoring parameters, programmes, methodologies, frequency and 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**

It summarises the implementation of environmental protection measures during the reporting period.

- **Monitoring Results**
  It summarises the monitoring results obtained in the reporting period.
- **Environmental Site Inspection**
  It summarises the audit findings of the weekly site inspections undertaken within the reporting period.
- **Environmental Non-conformance**
  It summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

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

- **Construction Activities**
  It summarises the construction activities conducted during the reporting period.
- **Status of Environmental Approval Documents**
  It summarises the environmental documents submissions under the EP condition during the reporting period.
- **Environmental Monitoring Requirement**
  It summarises the environmental monitoring including monitoring parameters, programmes, methodologies, frequency and 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**
  It summarises the implementation of environmental protection measures during the reporting period.
- **Monitoring Results**
  It summarises the monitoring results obtained in the reporting period.
- **Environmental Site Inspection**
  It summarises the audit findings of the weekly site inspections undertaken within the reporting period.
- **Environmental Non-conformance**
  It summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

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

- **Construction Activities**
  It summarises the construction activities conducted during the reporting period.
- **Status of Environmental Approval Documents**
  It summarises the environmental documents submissions under the EP condition during the reporting period.
- **Environmental Monitoring Requirement**

It summarises the environmental monitoring including monitoring parameters, programmes, methodologies, frequency and 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**

  It summarises the implementation of environmental protection measures during the reporting period.

- **Monitoring Results**

  It summarises the monitoring results obtained in the reporting period.

- **Environmental Site Inspection**

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

- **Environmental Non-conformance**

  It summarises 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 a riser shaft and approximately 12 km of tunnel excavation from North Point (NP) via Sai Ying Pun (SYP) to Stonecutters Island (SCI). Shafts vary in depth from 140 m to 170 m below ground with 10 - 12 m 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 (PTW) to Stonecutters Island Sewage Treatment Works (STW) via Wan Chai East (WCE) Preliminary Treatment Works, Central (CEN) Preliminary Treatment Works and Fung Mat Street Sai Ying Pun junction shaft;
- construction of drop shafts at NP PTW, WCE PTW and CEN PTW;
- construction of riser shafts at SCI STW;
- construction of junction shafts 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 tunnels connecting the proposed drop shafts / riser shafts to the facilities of the preliminary treatment works / sewage treatment works;
- carrying out surveys of existing buildings, taking over of existing buildings and installation of new piezometers and ground settlement markers and subsequent vibration monitoring along the alignment of the SCS;
- miscellaneous building, civil, electrical and mechanical works; and
- landscaping 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/F) for the works was granted on 10 Oct 2010. An application for a variation of EP was made by Drainage Service Department (DSD) on 23 Apr 2014, and EP-322/2008/G was issued on 9 May 2014, which superseded EP-322/2008/F. Under the requirements of Condition 4.1 of Environmental Permit EP-322/2008/F and EP-322/2008/G, an 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 2015.

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 November 2008 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)	EP-322/2008/G	Throughout the Contract	• Permit granted on 9 May 2014

Note:

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

(b) Marine deposits from all sites have been disposed of in accordance with their respective disposal methods (ie Type 1, 2, or 3 disposal methods), and no further marine deposit is anticipated to generate. When marine deposits are encountered, relevant dumping permits will be obtained and they will be disposed of properly.

Status of required submissions under the current 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 4.4	Submission of 64th Monthly EM&A Report	13 April 2015
	Submission of 65th Monthly EM&A Report	12 May 2015
	Submission of 66th Monthly EM&A Report	9 June 2015

2.3 PROJECT ORGANISATION

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

3 NORTH POINT PRODUCTION AND DROP SHAFTS

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 March 2015 to 31 May 2015 at North Point Production and Drop Shafts

Worksite	Construction Activities Undertaken
Production Shaft	• Noise enclosure dismantling; • Permanent invert and vault lining in J5; • Noise enclosure dismantling 100% completed; • Removal of shaft steelwork; and • FRP forms installation is ongoing.
Drop Shaft	• Area handover to Contract No. DC/2009/23 for installation of E&M equipment; • Rectification of minor defects is completed; and • Stoplog leakage test and precast r.c. planks seal up.

3.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project in this reporting period 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 WT00019809-2014	22 August 2014 - 31 October 2019	--
	North Point Production Shaft WT00007055-2010	9 July 2010 - 31 March 2015	--
	Discharge License (Public Car Parking Area, North of North Point Preliminary Treatment Plant) WT00012705-2012	12 April 2012 – 30 April 2017	
Chemical Waste Producer Registration	North Point Production Shaft 5213-153-G2484-01	Throughout the Contract	--
	North Point PTW Drop Shaft 5213-153-G2483-01	Throughout the Contract	--
Construction Noise	North Point	10 September	superceded by GW-

Permit/ Licences/ Notification	Reference	Validity Period	Remarks
Permit (CNP)	Production Shaft GW-RS0876-14	2014 – 9 March 2015	RS0187-15
	North Point Drop Shaft GW-RS0187-15	10 March 2015 – 9 September 2015	--
	North Point Drop Shaft GW-RS1114-14	31 October 2014 – 30 April 2015	--

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 averaged 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 Engineer Representative (ER) and Independent Environmental Checker (IEC). Owing to the security issues with the High Volume Sampler (HVS) mounted at the designated monitoring stations CM_NP2 (rooftop of WSD office) especially under adverse weather conditions, an alternative location which is one floor below the 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 refused.
	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 averaged TSP	Once every 6 days
1-hour averaged TSP	3 times every 6 days

Monitoring Equipment

Continuous 24-hour and three 1-hour averaged TSP monitoring were performed using 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)*. The equipment that was deployed for the 24-hour and 1-hour averaged TSP monitoring is listed in *Annex C5*.

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 was provided at AM1 and AM2;
- a minimum of 2 m separation from walls, parapets and penthouses was required for rooftop samplers;
- no furnace or incinerator flues was nearby;
- airflow around the sampler was unrestricted; and
- permission 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 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 did not net vary 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;
- the shelter lid was closed and secured with an aluminium strip;
- the HVSs were warmed-up for about 5 minutes to establish run-temperature conditions;
- a new flow rate 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 (i.e. 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 folded in half so that only surfaces with collected particulate matter were in contact;
- the filter paper was placed in a clean plastic envelope and sealed;
- all monitoring information was recorded on a standard data sheet; and
- filters were sent to SGS Hong Kong Ltd for analysis.

<u>Maintenance and Calibration</u>

- 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 a mass flow controller was calibrated using an orifice calibrator. Initial calibrations of the dust monitoring equipment were conducted upon installation and prior to commissioning. Five-point calibration was carried out for 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. The 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 C5*.

Action and Limit Levels

The Action and Limit levels have been established and are presented in *Table 3.5*.

Table 3.5 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 averaged TSP	AM1	185	260
	AM2	182	260
1-hour averaged 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 refused or not available; alternative locations, therefore, were proposed and agreed by the ER and IEC. Construction activities during restricted hours (1900 – 2300 on weekdays and 0700 – 2300 on public holidays and Sundays) commenced in August 2010. Chan's Creative School (the noise monitoring station NM1) is not accessible during its closing hours (from 1900 to 0700 on normal week days and from 0000 to 2400 on public holidays as well as Sundays). During these hours, noise monitoring would be conducted on the pedestrian walkway adjacent to the school boundary along Tin Chiu Street, which was agreed by the ER and IEC. The construction noise monitoring location for this Contract is listed in *Table 3.6* and shown in *Annex C2*.

Table 3.6 ***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	1900 – 2300 on all days and 0700 – 2300 on general holidays and Sundays

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 was also conducted as per the requirement 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). $L_{Aeq\ (30min)}$ was used as the monitoring parameter for the time period between 0700 – 1900 hours on normal weekdays, and $L_{Aeq\ (5min)}$ was used as the monitoring parameter for all the restricted periods. Supplementary information (two statistical sound levels L_{10} and L_{90}; the levels exceeded for 10 and 90 percent of the time respectively) was also recorded during the monitoring for data auditing. The measured noise levels were logged 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 *Annex C-6*, comply with IEC 651: 1979 and 804:1985 (Type 1)

specification. The calibration certificates of the sound level meters are included in *Annex H*.

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.

Action and Limit Levels

The action and limit levels for noise monitoring during different monitoring periods are summarised in *Table 3.7*.

Table 3.7 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	$L_{Aeq\ (30mins)}$	70	During normal teaching period
	$L_{Aeq\ (30mins)}$	69 (a)	During the school examination period
	$L_{Aeq\ (30mins)}$	75	During school holidays
	$L_{Aeq\ (5mins)}$	70	Evening (1900-2300) and Sundays and public holidays (0700-2300)
	$L_{Aeq\ (5mins)}$	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), exceeded the Limit Level of daytime construction noise during the examination periods (65 dB(A)). Hence it was therefore 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 in the vicinity of the historical buildings listed in the EM&A Manual.

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 as part of 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, Environmental Permit and EM&A Manual. The implementation status during the reporting period is summarized in *Annex C4*.

3.5 MONITORING RESULTS

3.5.1 Air Quality

A total of 17 sets of 24-hour averaged and 51 sets of 1-hour averaged TSP measurements were carried out at AM1 and 17 sets of 24-hour averaged and 51 sets of 1-hour averaged TSP measurements were carried out at AM2 during the reporting period. The monitoring data for 24-hour and 1-hour averaged TSP together with wind data and graphical presentations are presented in *Annex C5*.

The weather condition during the monitoring period varied from rainy to sunny. 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 was recorded during the reporting period.

3.5.2 Noise

A total of 13 sets of 30-minute construction noise measurements were carried out at the monitoring station NM1 during normal working hours of weekdays of the reporting period. 13 sets of 3 x 5-minute construction noise measurements were carried out during restricted hours (between 1900 and 0700 hours on weekdays, and any time on Sundays and public holidays) on 1, 10, 15, 24 and 29 March 2015; 8, 12, 21 and 26 April 2015; and 5, 10, 19 and 24 May 2015. No exceedance of the noise limit level was recorded during the reporting period.

The monitoring results together with their graphical presentations are presented in *Annex C6*.

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. There was no major observation 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 has not commenced in the vicinity of the historical buildings listed in the EM&A Manual.

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. No marine deposit requiring type 1, type 2, or type 3 disposal methods was generated.

The quantity of different types of wastes generated in the reporting period has been shown in the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*).

3.6 ENVIRONMENTAL SITE INSPECTION

Weekly site inspections were carried out by the representatives of the Contractor, Engineer and the ET. Site inspections were conducted on 5, 12 and 19 March 2015; 2, 9, 16, 23 and 29 April 2015; and 7, 14 and 21 May 2015. A representative of the IEC joined the site inspection on 29 April 2015. Because of the scheduled SSEMC meeting on 25 March 2015 and 27 May 2015 immediately after site inspection, inspections were not arranged for the North Point site on those days. There was no non-compliance recorded during this reporting period.

Observations during site inspections and follow-up actions in the reporting period are presented in *Annex K*. All the follow-up actions requested by IEC and Contractor's ET during the site inspection were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during 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 averaged and 24-hour averaged TSP was recorded at monitoring stations during the reporting period.

No exceedance of the Noise Limit Levels was recorded at monitoring station during both normal working hours and restricted hours in the reporting period.

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 C7*.

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 C7*.

4.1 CONSTRUCTION ACTIVITIES DURING THE REPORTING PERIOD

A summary of the major construction activities undertaken during the 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 March 2015 to 31 May 2015 at Wan Chai East Production and Drop Shafts

Worksite	Construction Activities Undertaken
Production Shaft	• Permanent invert and vault lining construction; • Noise enclosure dismantling 100% completed; • Removal of shaft steelwork; and • FRP forms installation is ongoing.
Drop Shaft	• E&M draw pits and ducting construction.

4.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project in this reporting period 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 WT00019901-2014	8 September 2014 - 31 October 2019	--
Chemical Waste Producer Registration	Wan Chai East Production Shaft and Drop Shaft 5213-135-G2308-03	Throughout the Contract	--
Construction Noise Permit (CNP)	Wan Chai East Production Shaft GW-RS1074-14	8 October 2014 – 7 April 2015	--
	Wan Chai East Production Shaft GW-RS0304-15	7 April 2015 – 6 October 2015	--
	Wan Chai East Drop Shaft GW-RS1371-14	24 December 2014 – 23 June 2015	--
Site Work Authorization Certificate (SWAC)	Wan Chai East PTW WCE-515	20 April – 20 July 2015	--

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 averaged 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 was denied or not available, alternative locations, therefore, were proposed and agreed by the ER and 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 (e.g. water tanks) that setup of HVSs for baseline monitoring was 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 averaged TSP	Once every 6 days
1-hour averaged TSP	3 times every 6 days

Monitoring Equipment

*Continuous 24-hour and 1-hour averaged 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). The equipment that was deployed for the 24-hour and 1-hour averaged TSP monitoring is listed in* Annex D5.*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 2 m separation from walls, parapets and penthouses was required for rooftop samplers;
- no furnace or incinerator flues was nearby;
- airflow around the sampler was unrestricted; and
- permission 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 flow rate 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 folded in half so that only surfaces with collected particulate matter were in contact;
- the filter paper was placed in a clean plastic envelope and sealed;
- all monitoring information was recorded on a standard data sheet; and
- 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 was calibrated using an orifice calibrator. Initial calibrations of the dust monitoring equipment were conducted upon installation and prior to commissioning. Five-point calibration was carried out for 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 located at King's Park. The 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 is presented in *Annex D5*.

Action and Limit Levels

The Action and Limit levels have been established and presented in *Table 4.5*.

Table 4.5 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 averaged TSP	AM3	181	260
1-hour averaged 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 was denied or not available, alternative locations were proposed and agreed by the ER and IEC. The construction noise monitoring location for this Contract is listed in *Table 4.6* and shown in *Annex D2*.

Table 4.6 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

Worksite	Construction Noise Monitoring Station				
	ID in EM&A Manual	ID	Location	Type of Measurement	Remark
					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 was also conducted as per required the EM&A Manual when works were carried out during restricted periods. The monitoring programme for this reporting period is shown in *Annex D3*.

The construction noise levels were measured in terms of A-weighted equivalent continuous sound pressure level (L_{eq}) in decibels dB(A). $L_{Aeq(30min)}$ was used as the monitoring parameter for the time period between 0700 – 1900 hours on normal weekdays, and $L_{Aeq(5min)}$ was used as the monitoring parameter for all restricted periods. Supplementary information for data auditing (two statistical sound levels L_{10} and L_{90}which are the levels exceeded for 10 and 90 percent of the time respectively) was also recorded during the monitoring period for reference. The measured noise levels were logged 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 *Annex D6*, complies with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

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.

Action and Limit Levels

The action and limit levels for noise monitoring during different monitoring periods are summarized in *Table 4.7*.

Table 4.7 ***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	$L_{Aeq\ (30mins)}$	75	Normal working hours during weekdays
	$L_{Aeq\ (5mins)}$	70	Evening (1900-2300); and Sundays and public holidays (0700-2300)
	$L_{Aeq\ (5mins)}$	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 blasting of tunnel / shaft works was not carried out in the vicinity of the historical buildings listed in EM&A manual.

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 EAP for landscape and visual monitoring is presented in *Annex I*.

4.4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor had 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 D4*.

4.5 MONITORING RESULTS

4.5.1 Air Quality

A total of 17 sets of 24-hour averaged and 51 sets of 1-hour averaged 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 D5*.

The weather conditions during the monitoring period varied from rainy to sunny. 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 was recorded during the reporting period.

4.5.2 Noise

A total of 13 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. 13 sets of 3 x 5-minute construction noise measurements were carried out during restricted hours (between 1900 and 0700 hours on weekdays, and any time on Sundays and public holidays) on 1, 10, 15, 24 and 29 March 2015; 8, 12, 21 and 26 April 2015; and 5, 10, 19 and 24 May 2015. The monitoring results together with their graphical presentations are presented in *Annex D6*.

No exceedance of limit level was recorded during normal working hours; nevertheless, 9 numbers of exceedance of the limit level were recorded during restricted hours at NM2 on 1, 10, 15 and 29 March 2015; 12 and 21 April 2015; and 10, 19 and 24 May 2015. Investigations had been conducted to identify the potential causes for the recorded noise level. 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 period.

4.5.4 Cultural Heritage

No vibration monitoring is required for this reporting period as blasting of tunnel / shaft works was not carried out in the vicinity of the historical buildings listed in EM&A manual.

4.5.5 Waste Management

Waste generated from this Project includes inert 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. No marine deposit requiring type 1, type 2, or type 3 disposal methods was generated.

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.

The quantity of different types of wastes generated in the reporting period has been shown in the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*).

4.6 ENVIRONMENTAL SITE INSPECTION

Weekly site inspections were carried out by the representatives of the Contractor, Engineer and ET. Site inspections were conducted on 5, 12, 19 and 25 March 2015; 1, 9, 16 and 23 April 2015; and 1, 9, 16, 23 and 27 May 2015. A representative of IEC joined the site inspection on 25 March 2015 and 27 May 2015. Due to the scheduled SSEMC meetings on 29 April 2015 immediately after the joint inspections, inspections was not arranged for the Wan Chai site on that days. No non-compliance was recorded during the site inspections.

Observations during site inspections and follow-up actions in the reporting period are presented in *Annex K*. All the follow-up actions requested by IEC and Contractor's ET during the site inspections were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during 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 averaged TSP were recorded at monitoring stations during the reporting period.

9 numbers of exceedances of noise Limit Level during restricted hours were reported at NM2 on 1, 10, 15 and 29 March 2015; 12 and 21 April 2015; and 10, 19 and 24 May 2015. The exceedances were investigated and they are detailed in *Annex D7*. Referring to the works summary provided by the Contractor, no noisy outdoor construction activities were conducted at the Wan Chai East Production and Drop Shafts during the noise monitoring sessions. Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level. In view of no noisy outdoor construction works were carried out and contribution from other potential noise sources in vicinity (i.e., traffic), it is considered that the exceedances were not due to the Contract 23 construction works. However, the Contractor 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 nuisance.

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 D8*.

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 D8*.

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 March 2015 to 31 May 2015 at Central Drop Shaft

Construction Activities Undertaken
• Upper shaft construction; • D-wall cutting; • Steel fixing for floor or vortex chamber and intermediate beam; • Steel fixing for walls and cover; • Installation of hand railing; and • Removal of flasework.

5.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project in this reporting period 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 WT00020031-2014	30 September 2014 – 31 October 2019	--
Chemical Waste Producer Registration	Central PTW Drop Shaft 5213-115-G2347-06	Throughout the contract	--
Construction Noise Permit (CNP)	Central PTW Drop Shaft GW-RS0136-15	19 February 2015 – 18 August 2015	--

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 averaged 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_2	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. • Since air monitoring station AM4 has to return to DSD for other Work Contract, AM4_2 is the alternative location to replace AM4.

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 averaged TSP	Once every 6 days
1-hour averaged TSP	3 times every 6 days

Monitoring Equipment

Continuous 24-hour and 1-hour TSP monitoring were performed using 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)*. The equipment that was deployed for the 24-hour and 1-hour average TSP monitoring is listed in *Annex E5*.

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 2 m 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 flow rate 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 (i.e. 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 equipment 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 E5*.

Action and Limit Levels

The Action and Limit levels have been established and presented in *Table 5.5*.

Table 5.5 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 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 5.6* and are shown in *Annex E2*.

Table 5.6 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). $L_{Aeq(30min)}$ were used as the monitoring parameter for the time period in between 0700 – 1900 hours on normal weekdays, and $L_{Aeq\ (5min)}$ 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 *Annex E6*, complies with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

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 5.7*.

Table 5.7 Action and Limit Levels for Noise Monitoring at Central Drop Shaft

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

Event and Action Plan

The EAP for noise monitoring is presented in *Annex I*.

5.3.3 Cultural Heritage

No vibration monitoring is required for this reporting period as blasting of tunnel / shaft works was not carried out in the vicinity of the historical buildings listed in EM&A manual.

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 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 summarised in *Annex E4*.

5.5 MONITORING RESULTS

5.5.1 Air Quality

A total of 17 sets of 24-hour averaged and 51 sets of 1-hour averaged TSP measurements were carried out at AM4_2 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 E5*.

The weather conditions during the monitoring period varied from rainy to sunny. The local impacts near the monitoring stations of AM4_2 were mainly associated with vehicle emissions.

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

5.5.2 Noise

A total of 13 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 E6*. 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 finding was observed during the reporting period.

5.5.4 *Cultural Heritage*

No vibration monitoring is required for this reporting period as blasting of tunnel / shaft works was not carried out in the vicinity of the historical buildings listed in EM&A manual.

5.5.5 *Waste Management*

Waste generated from this Project includes inert 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. No marine deposit requiring type 1, type 2, or type 3 disposal methods was generated.

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.

The quantity of different types of wastes generated in the reporting period has been shown in the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*).

5.6 *ENVIRONMENTAL SITE INSPECTION*

Weekly site inspections were carried out by the representatives of the Contractor, Engineer and the ET. Site inspections were conducted on 12 and 19 March 2015; 2, 9, 16 and 23 2015; and 7, 14 and 21 May 2015. Because of the scheduled SSEMC meetings on 25 March 2015, 29 April 2015, and 27 May 2015 immediately after the joint inspections, inspections were not arranged for the Central site on those days.

Observations during site inspections and follow-up actions in the reporting period are presented in *Annex K*. All the follow-up actions requested by IEC and Contractor's ET during the site inspections were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during 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 the 24-hour averaged TSP were recorded at the monitoring station during the reporting period.

No exceedance of the Action and Limit Levels of noise was recorded at the monitoring station 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 E7*.

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 E7*.

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 March 2015 to 31 May 2015 at Sai Ying Pun Junction Shaft

Construction Activities Undertaken
• Dismantling FRP formwork;
• Patching up work;
• Excavation of DO chamber;
• Installation of wailings and struct;
• Permanent invert and vault lining construction;
• Riser shaft tunnel permanent lining construction;
• BCM inspection for Tunnel L lining;
• Segment lining installation;
• Steel fixing for walls;
• Concrete blank flange and cross pipe installation; and
• Steel fixing for walls of DO Chamber.

6.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project in this reporting period 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 WT00020318-2014	10 November 2014 – 31 October 2019	--
Chemical Waste Producer Registration	Sai Ying Pun Junction Shaft 5213-112-G2347-05	Throughout the Contractor	--
Construction Noise Permit (CNP)	Fung Mat Road, Sai Ying Pun Junction Shaft GW-RS1414-14	19 December 2014 – 11 June 2015	Superseded by GW-RS0157-15
	Fung Mat Road, Sai Ying Pun Junction Shaft GW-RS0157-15	13 February 2015 – 5 August 2015	--
Construction Noise Permit (CNP) – Percussive Piling	Fung Mat Road PP-RS0005-15	26 January – 25 July 2015	--

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* in December.

Monitoring Location

In accordance with the EM&A Manual, 24-hour and 1-hour averaged 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

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

Monitoring Equipment

Continuous 24-hour and 1-hour averaged TSP monitoring were performed using 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)*. The equipment that was deployed for the 24-hour and 1-hour averaged TSP monitoring is listed in *Annex F5*.

Monitoring Methodology

Installation

The setup location of the HVS was listed in *Table 6.3*. The HVS was free-standing with no obstruction.

The following criteria have been considered in the installation of the HVSs:

- appropriate support to secure the samplers against gusty wind were provided at AM5;
- a minimum of 2 m 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 did not vary 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;
- 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 flow rate 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 folded in half so that only surfaces with collected particulate matter were in contact;
- the filter paper was placed in a clean plastic envelope and sealed;
- all monitoring information was recorded on a standard data sheet; and
- 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 was calibrated using an orifice calibrator. Initial calibrations of the dust monitoring equipment

were conducted upon installation and prior to commissioning. Five-point calibration was carried out for 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 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 F5*.

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 averaged TSP	AM5	188	260
1-hour averaged TSP	AM5	332	500

Event and Action Plan

The 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 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). $L_{Aeq\ (30min)}$ were used as the monitoring parameter for the time period in between 0700 – 1900 hours on normal weekdays, and $L_{Aeq\ (5min)}$ 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 *Annex F*, complies with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

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 6.7*.

Table 6.7 Action and Limit Levels for Noise Monitoring at Sai Ying Pun Junction Shaft

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

In order to prevent potential damage to historical buildings and structures, maximum limits for safe vibration levels have been set at 25 mm/s. This vibration limit has been applied in controlling vibrations due to blasting operations in Hong Kong by CEDD and MTRC. Vibration monitoring shall be undertaken during blasting for tunnel, shafts and effluent conveyance system in the vicinity of the buildings / structures as a requirement of EM&A programme in such a way that a maximum vibration level of 25 mm/s is not exceeded. To ensure that this maximum limit is not exceeded, a monitoring schedule shall be implemented. The monitoring should be undertaken through the use of measures such as tell tales and tilting monitoring points to the historic buildings and structures on a weekly basis. If vibration levels are found to exceed the maximum limit of 25 mm/s, immediate corrective action shall be taken by reducing the rate of forward progress, as necessary, to bring PPV levels within compliance. Monitoring results should be submitted to the engineer in an agreed format within two days of each monitoring undertaken.

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 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 F4*.

6.5 *MONITORING RESULTS*

6.5.1 *Air Quality*

A total of 17 sets of 24-hour and 51 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 averaged TSP together with wind data and graphical presentations are presented in *Annex F5*. The weather condition during the monitoring period varied from rainy to sunny. The local impacts near the monitoring stations of AM5 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.

6.5.2 Noise

A total of 13 sets of 30-minute construction noise measurements were carried out at the monitoring station NM4 during normal working hours of weekdays of the reporting period. 13 sets of 3 x 5-minute construction noise measurements were carried out during restricted hours (between 1900 and 0700 hours on weekdays, and any time on Sundays and public holidays) on 1, 10, 15, 24 and 29 March 2015; 8, 12, 21 and 26 April 2015; and 5, 10, 19 and 24 May 2015 during the reporting period. The monitoring results together with graphical presentations are presented in *Annex F6*. The local impacts observed near the monitoring stations of NM4 were noise from traffic movement on nearby roads.

No exceedance of limit level for noise monitoring during both normal and restricted hours were recorded.

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 has not commenced in the vicinity of the historical buildings listed in the EM&A Manual.

6.5.5 Waste Management

Waste generated from this Project includes inert 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. No marine deposit requiring type 1, type 2, or type 3 disposal methods was generated. 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.

The quantity of different types of wastes generated in the reporting period has been shown in the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*).

6.6 ENVIRONMENTAL SITE INSPECTION

Weekly site inspections were carried out by the representatives of the Contractor, Engineer and the ET. Site inspections were conducted on 5, 12, and 19 March 2015; 2, 9, 16, 23 and 29 April 2015; 7, 14 and 21 May 2015. The representative of the IEC joined the site inspections on 29 April 2015. Due to the immediate SSEMC meetings after the site inspection on 25 March 2015 and 27 May 2015, no site inspection was conducted for Sai Ying Pun works area on those days. There was no non-compliance recorded during the site inspections. Observations during site inspections and follow-up actions in the reporting period are presented in *Annex K*. All follow-up actions requested by the IEC and the Contractor's ET during the site inspections were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during the reporting period.

6.7 ENVIRONMENTAL NON-CONFORMANCE

6.7.1 *Summary of Monitoring Exceedance*

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

No exceedance of the Noise Limit Levels was recorded at monitoring station during both normal working hours and restricted hours in 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 recorded during the reporting period.

The cumulative complaint log is shown in *Annex F7*.

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 F7*.

7 STONECUTTERS ISLAND PRODUCTION AND RISER SHAFTS

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 March 2015 to 31 May 2015 at Stonecutters Island Production and Riser Shafts

Worksite	Construction Activities Undertaken
Riser Shaft	• BCM inspection for upper riser shaft.
Production Shaft	• Permanent invert and vault lining construction; • Riser shaft tunnel permanent lining construction; and • BCM inspection for Tunnel L lining.

7.2 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project in this reporting period 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 WT00020219-2014	30 October 2014 – 31 October 2019	--
Chemical Waste Producer Registration	Stonecutters Island Production Shaft and Riser Shaft 5213-269-G2449-07	Throughout the Contract	--
Construction Noise Permit (CNP)	Stonecutters Island Production Shaft and Riser Shaft GW-RW0798-14	23 October 2014 – 22 April 2015	--
	Stonecutters Island Production Shaft and Riser Shaft GW-RW0160-15	23 April – 22 October 2015	--
	Stonecutters Island Area K-1 GW-RW0996-14	9 January 2015 – 8 July 2015	--

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 averaged 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 affect 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 averaged TSP	Once every 6 days
1-hour averaged TSP	3 times every 6 days

Monitoring Equipment

Continuous 24-hour and 1-hour averaged TSP monitoring were performed using 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)*. The equipment that was deployed for the 24-hour and 1-hour averaged TSP monitoring is listed in *Annex G5*.

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 2 m 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 flow rate 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 (i.e. 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 equipment 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 G5*.

Action and Limit Levels

The Action and Limit levels have been established and presented in *Table 7.5.* 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 7.5 ***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 averaged TSP	AM6 (with 24-hr TSP data from DF project)	196	260
1-hour averaged TSP	AM6 (with 1-hr TSP data from DF project)	346	500

Event and Action Plan

The 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 7.6* and is shown in *Annex G2*.

Table 7.6 ***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 declined. • 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). $L_{Aeq\ (30min)}$ were used as the monitoring parameter for the time period in between 0700 – 1900 hours on normal weekdays, and $L_{Aeq\ (5min)}$ 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 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 *Annex G6*, complies with IEC 651: 1979 and 804:1985 (Type 1) specification. The calibration certificates of the sound level meters are included in *Annex H*.

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 7.7*.

Table 7.7 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	$L_{Aeq\ (30mins)}$	75	Normal working hours during weekdays
	$L_{Aeq\ (5mins)}$	70	Evening (1900-2300); and Sundays and public holidays (0700-2300)
	$L_{Aeq\ (5mins)}$	55	Night-time (2300-0700)

Event and Action Plan

The EAP for noise monitoring is presented in *Annex I*.

7.3.3 Cultural Heritage

No vibration monitoring is required for this reporting period as blasting of tunnel / shaft works was not carried out in the vicinity of the historical buildings listed in EM&A manual.

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 G4*.

7.5 *MONITORING RESULTS*

7.5.1 *Air Quality*

A total of 18 sets of 24-hour and 54 sets of 1-hour averaged TSP measurements were carried out at AM6 during the reporting period. The monitoring data for 24-hour TSP and 1-hour averaged TSP together with wind data and graphical presentations are presented in *Annex G5*.

The weather condition during the monitoring period varied from sunny to cloudy. 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 was recorded during the reporting period.

7.5.2 *Noise*

A total of 13 sets of 30-minute construction noise measurements were carried out at the monitoring station NM5 during normal weekdays of the reporting period. 14 sets of 3 x 5-minute construction noise measurements were carried out during restricted hours (between 1900 and 0700 hours on weekdays, and any time on Sundays and public holidays) on 1, 8, 17, 22 and 31 March 2015; 5, 14, 19 and 28 April 2015; 3, 12, 17, 26 and 31 May 2015 during the reporting period. The monitoring results together with graphical presentations are presented in *Annex G6*. 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 limit level for noise monitoring during both normal and restricted hours was recorded.

7.5.3 Landscape and Visual

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

7.5.4 Cultural Heritage

No vibration monitoring is required for this reporting period as blasting of tunnel / shaft works was not carried out in the vicinity of the historical buildings listed in EM&A manual.

7.5.5 Waste Management

Waste generated from this Project includes inert 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. No marine deposit requiring type 1, type 2, or type 3 disposal methods was generated. 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.

The quantity of different types of wastes generated in the reporting period has been shown in the Monthly Summary Waste Flow Table prepared by the Contractor (*Annex J*).

7.6 ENVIRONMENTAL SITE INSPECTION

Weekly site inspections were carried out by the representatives of the Contractor, Engineer and the ET. Site inspections were conducted on 5, 12, 19 and 25 March 2015; 2, 9, 16, 23 and 29 April 2015; 7, 14, 21 and 27 May 2015. The representative of the IEC joined the site inspections on 25 March 2015, 29 April 2015 and 27 May 2015. There was no non-compliance recorded during the site inspections.

Observations during site inspections and follow-up actions in the reporting period are presented in *Annex K*. All the follow-up actions requested by IEC and Contractor's ET during the site inspection were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during 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 averaged TSP was recorded at monitoring stations during the reporting period.

No exceedance of Action and Limit Levels for noise monitoring during both normal and restricted hours was recorded.

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 recorded during the reporting period.

The cumulative complaint log is shown in *Annex G7*.

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 G7*.

8 CONCLUSIONS

This Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 1 March 2015 to 31 May 2015 in accordance with EM&A Manual and the relevant requirements under EP-322/2008/G. The conclusions for different sites are summarised below.

8.1 NORTH POINT PRODUCTION AND DROP SHAFTS

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

No exceedance of Limit Levels for construction noise during normal working hours was recorded at the monitoring station during the reporting period.

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

No complaint/summon/prosecution was received during the reporting period.

8.2 WAN CHAI EAST PRODUCTION AND DROP SHAFTS

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

No exceedance of noise limit level was recorded during normal working hours but limit level for construction noise was exceeded on 1, 10, 15 and 29 March 2015; 12 and 21 April 2015; and 10, 19 and 24 May 2015 during the restricted hour at the monitoring station. The findings of the investigation of exceedance on 1, 10, 15 and 29 March 2015; 12 and 21 April 2015; and 10, 19 and 24 May 2015 indicated that the exceedances were attributed to other potential noise sources (such as traffic) but not due to this construction as no outdoor construction activity was being carried out during the period.

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

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

8.3 CENTRAL DROP SHAFT

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

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

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

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

8.4 SAI YING PUN JUNCTION SHAFT

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

No exceedance of Limit Levels for construction noise was recorded at the monitoring station during the reporting period.

No exceedance of maximum limit for safe vibration level (25 mm/s) was recorded during the reporting period.

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

8.5 STONECUTTERS ISLAND PRODUCTION AND RISER SHAFTS

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

No exceedance of Limit Levels for construction noise was recorded at the monitoring station during the reporting period.

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

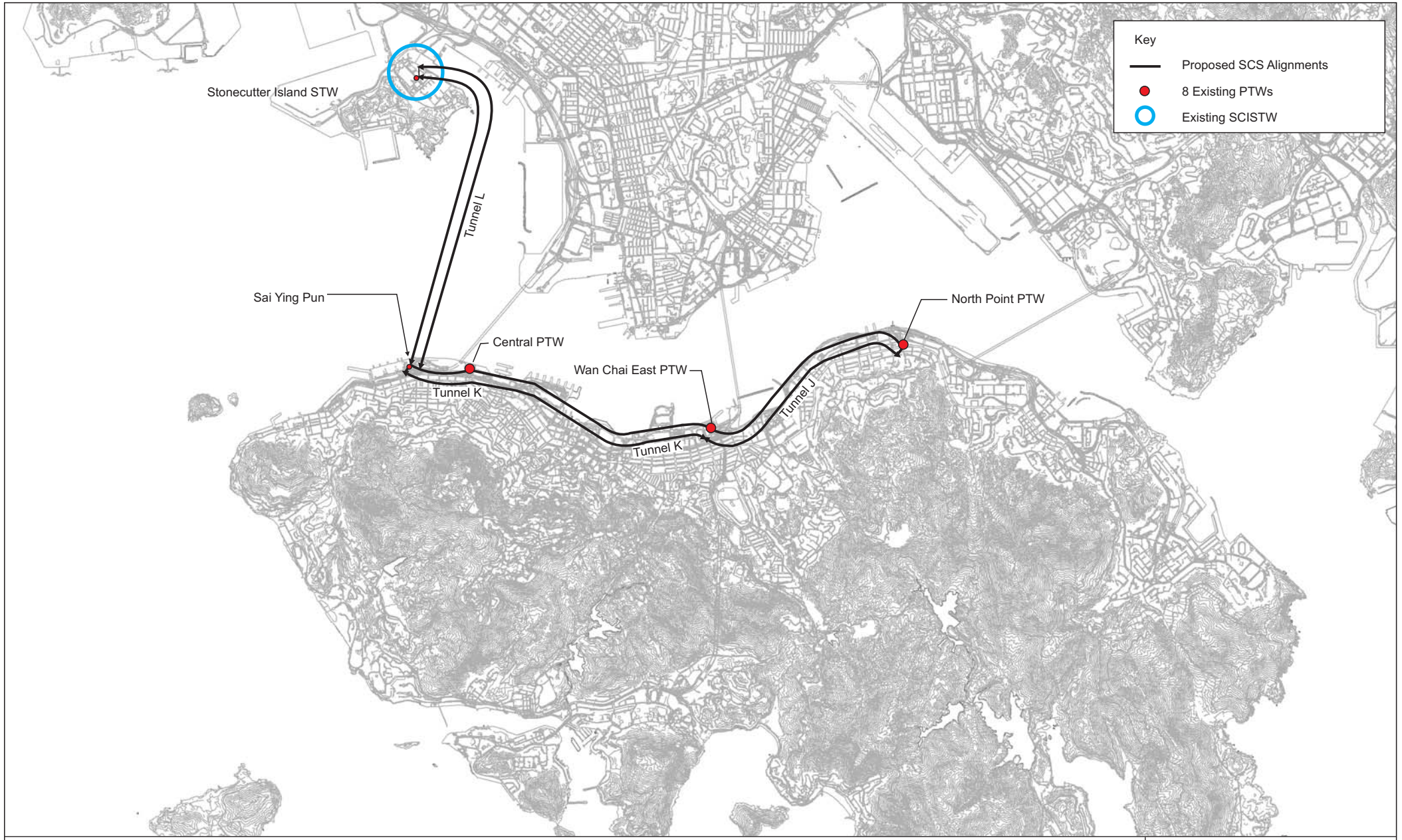
There was no summon/prosecution received during the reporting period.

8.6 OVERALL

The ET has followed the EM&A programme to monitor compliance status of environmental requirements and to verify 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

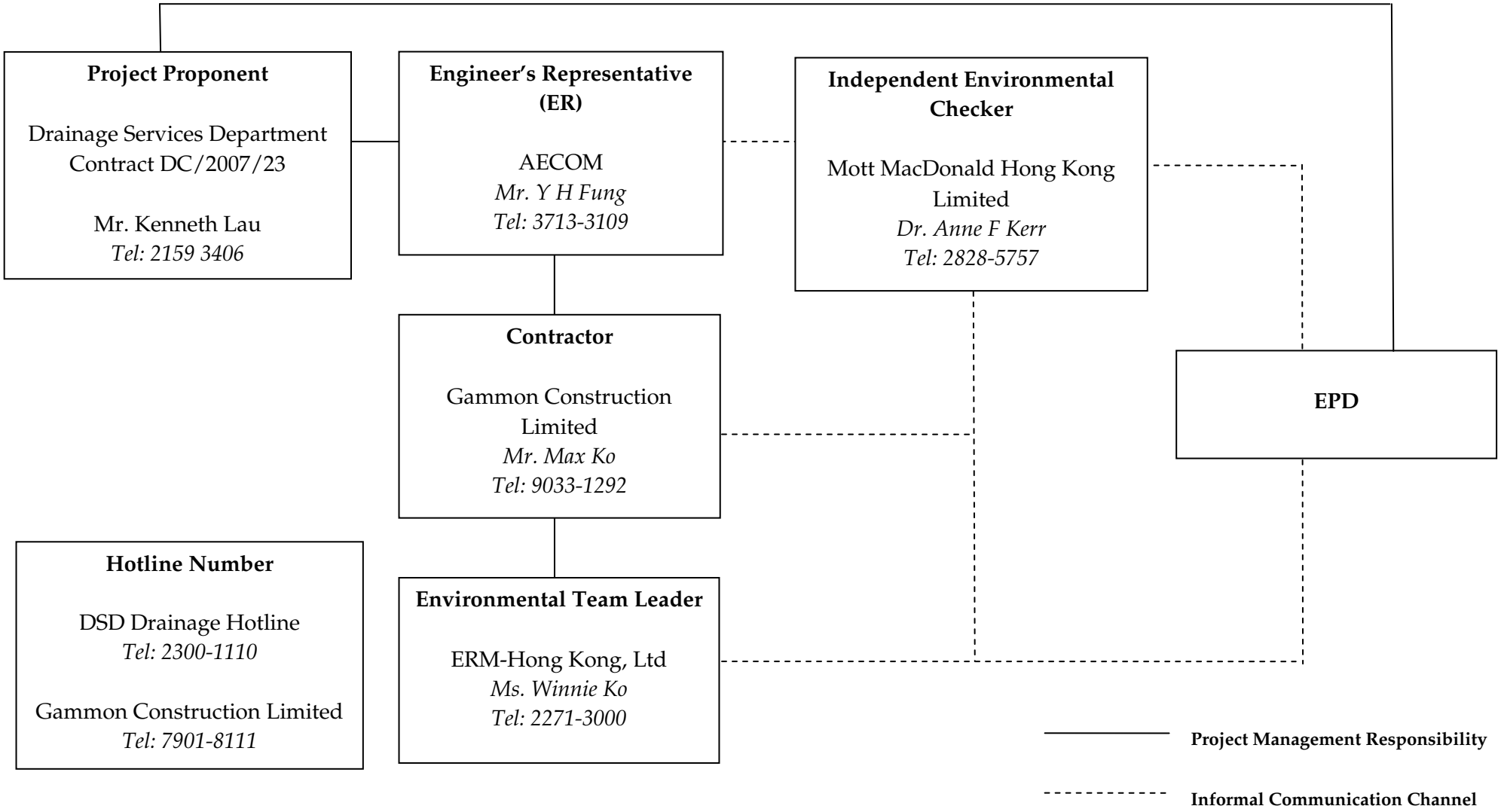
Environmental Resources Management

ERM

Annex B

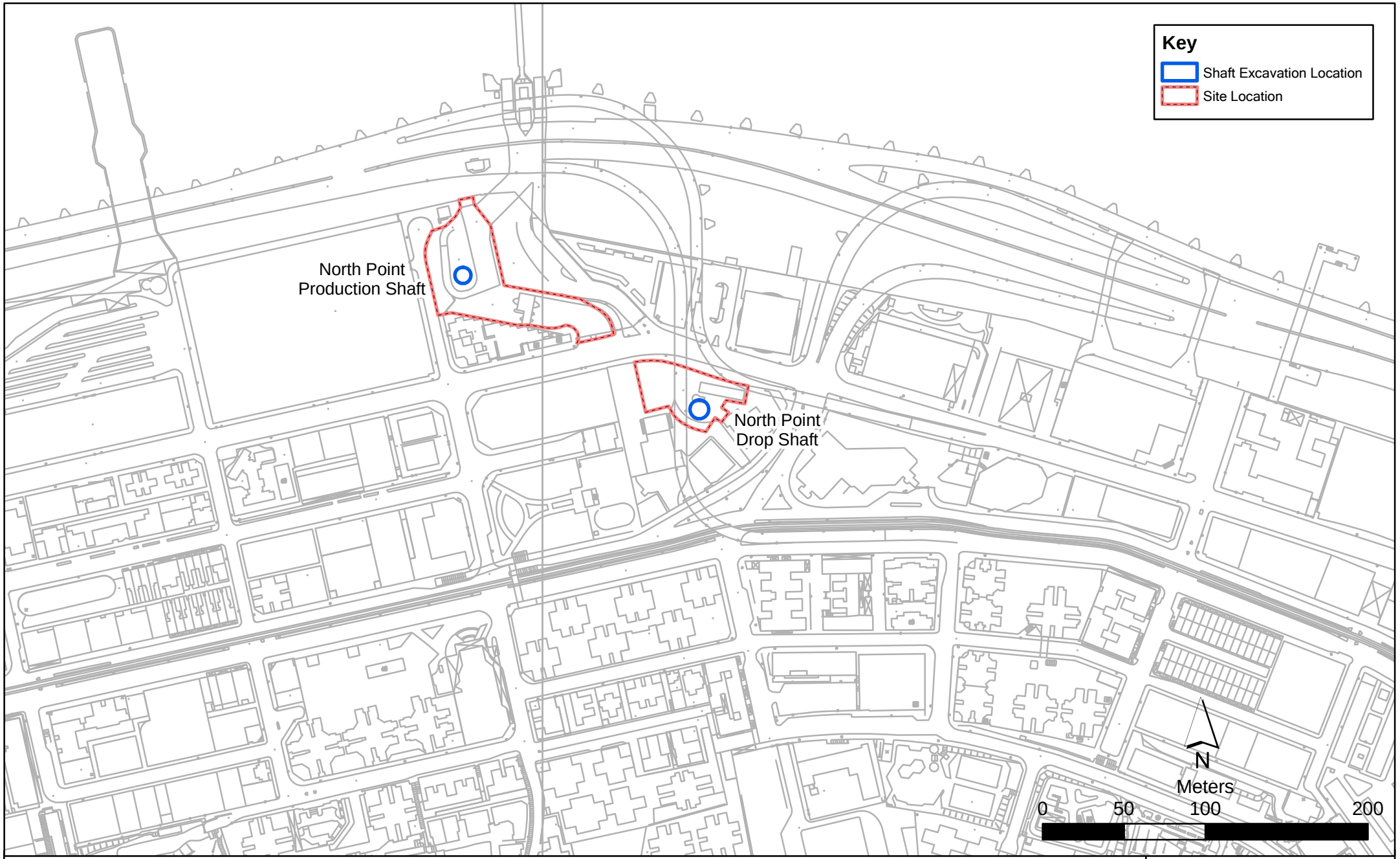
Project Organization Chart and Contact Detail

Project Organization



Annex C

North Point Production and Drop Shafts



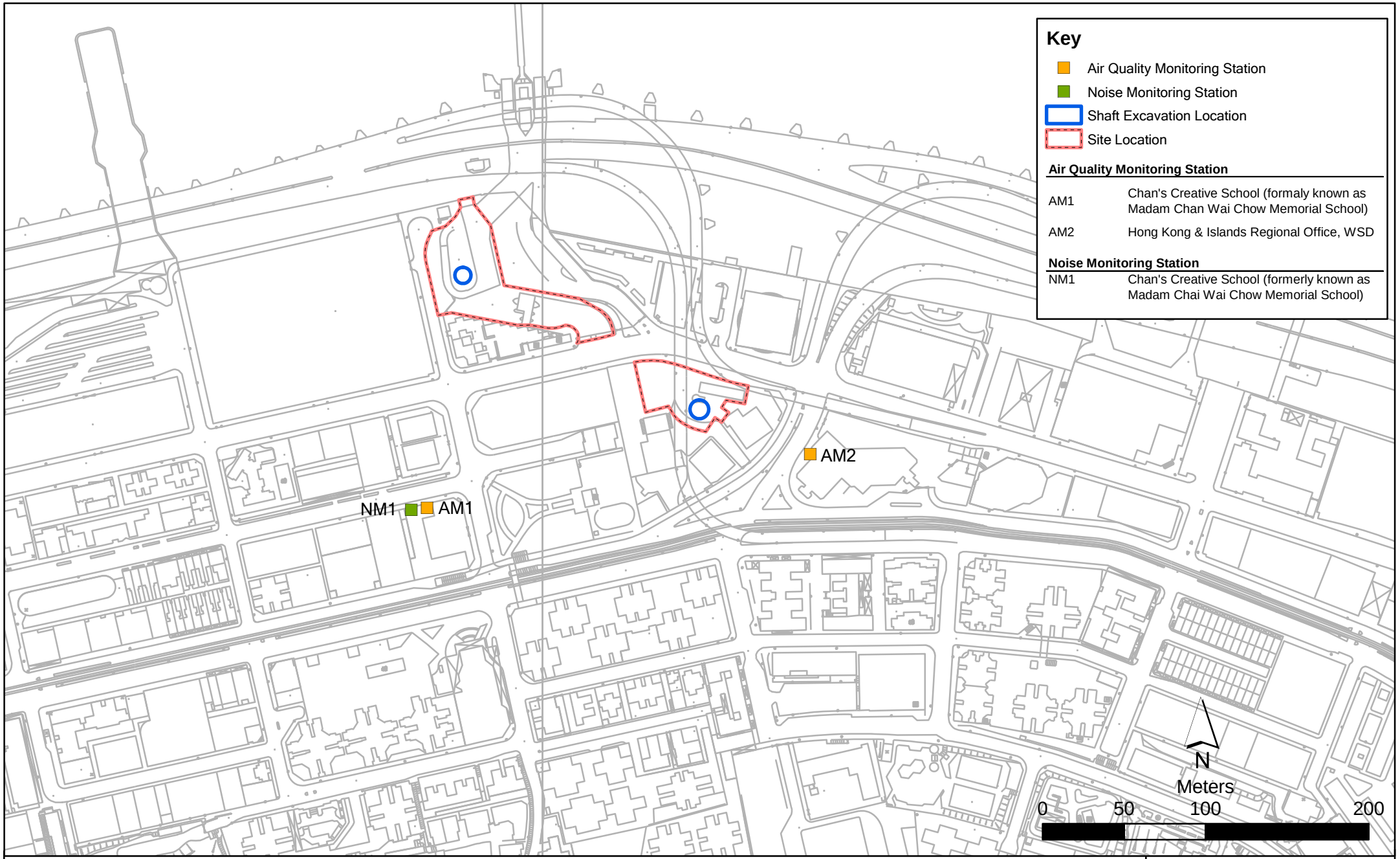
Annex C1

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 minimise 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 minimise 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 deodorisation 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 utilised 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; • Air compressors should be properly labelled with valid noise emission labels. • 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 license for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge license. 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 minimise 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 minimise 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 minimise 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	NA

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, oxidising, 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 harmonise 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 the Contractor
NA Not Applicable

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 minimise 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 minimise 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 deodorisation 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 utilised 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; • Air compressors should be properly labelled with valid noise emission labels. • 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 license for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge license. 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 minimise 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 minimise 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 minimise 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	NA

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, oxidising, 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 harmonise 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 the Contractor
NA Not Applicable

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 minimise 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 minimise 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 deodorisation 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 utilised 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; • Air compressors should be properly labelled with valid noise emission labels. • 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 license for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge license. 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 minimise 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 minimise 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 minimise 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	NA

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, oxidising, 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 harmonise 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 the Contractor
NA Not Applicable

Annex C5 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 (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
02-Mar-15	9:40	10:40	Cloudy	106	340	500	Construction work in progress	18	<5	GMW GS 2310 (S/N 1808)	5355
	10:42	11:42	Cloudy	98	340	500	Construction work in progress	18	<5	GMW GS 2310 (S/N 1808)	5354
	11:44	12:44	Cloudy	99	340	500	Construction work in progress	18	<5	GMW GS 2310 (S/N 1808)	5674
07-Mar-15	9:30	10:30	Fine	114	340	500	Construction work in progress	18	<5	GMW GS 2310 (S/N 1808)	5677
	10:32	11:32	Fine	128	340	500	Construction work in progress	18	<5	GMW GS 2310 (S/N 1808)	5678
	11:34	12:34	Fine	132	340	500	Construction work in progress	18	<5	GMW GS 2310 (S/N 1808)	5698
13-Mar-15	9:32	10:32	Cloudy	109	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	5694
	10:34	11:34	Cloudy	120	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	5693
	11:36	12:36	Cloudy	107	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	5681
19-Mar-15	9:17	10:17	Fine	121	340	500	Construction work in progress	23	<5	GMW GS 2310 (S/N 1808)	5689
	10:19	11:19	Fine	118	340	500	Construction work in progress	23	<5	GMW GS 2310 (S/N 1808)	5688
	11:21	12:21	Fine	116	340	500	Construction work in progress	23	<5	GMW GS 2310 (S/N 1808)	5685
25-Mar-15	10:02	11:02	Cloudy	105	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	5750
	11:04	12:04	Cloudy	132	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	5771
	12:06	13:06	Cloudy	134	340	500	Construction work in progress	20	<5	GMW GS 2310 (S/N 1808)	5769
31-Mar-15	9:57	10:57	Fine	107	340	500	Construction work in progress	24	<5	GMW GS 2310 (S/N 1808)	5765
	10:59	11:59	Fine	117	340	500	Construction work in progress	24	<5	GMW GS 2310 (S/N 1808)	5763
	12:01	13:01	Fine	103	340	500	Construction work in progress	24	<5	GMW GS 2310 (S/N 1808)	5762
			Min.	**98**							
			Max.	**134**							
			Average	**115**							

* Wind Speed data is presented in the Meteorological Data table

Annex C5 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 (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
02-Mar-15	10:00	11:00	Cloudy	112	352	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0145)	5356
	11:02	12:02	Cloudy	109	352	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0145)	5353
	12:04	13:04	Cloudy	103	352	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0145)	5673
07-Mar-15	9:50	10:50	Fine	114	352	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0145)	5700
	10:52	11:52	Fine	120	352	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0145)	5699
	11:54	12:54	Fine	118	352	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0145)	5697
13-Mar-15	9:50	10:50	Cloudy	99	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	5695
	10:52	11:52	Cloudy	109	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	5680
	11:54	12:54	Cloudy	113	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	5682
19-Mar-15	9:35	10:35	Fine	124	352	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 0145)	5690
	10:37	11:37	Fine	121	352	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 0145)	5687
	11:39	12:39	Fine	98	352	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 0145)	5686
25-Mar-15	10:20	11:20	Cloudy	129	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	5749
	11:22	12:22	Cloudy	123	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	5772
	12:24	13:24	Cloudy	117	352	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0145)	5770
31-Mar-15	10:13	11:13	Fine	117	352	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 0145)	5766
	11:15	12:15	Fine	109	352	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 0145)	5764
	12:17	13:17	Fine	107	352	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 0145)	5759
			Min.	**98**							
			Max.	**129**							
			Average	**113**							

* Wind Speed data is presented in the Meteorological Data table

Annex C5 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 (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
02-Apr-15	9:30	10:30	Fine	107	340	500	Construction work in progress	18	<5	GMW GS 2310 (S/N 1808)	5849
	10:32	11:32	Fine	117	340	500	Construction work in progress	18	<5	GMW GS 2310 (S/N 1808)	5754
	11:34	12:34	Fine	163	340	500	Construction work in progress	18	<5	GMW GS 2310 (S/N 1808)	5755
08-Apr-15	10:04	11:04	Cloudy	84	340	500	Construction work in progress	22	<5	GMW GS 2310 (S/N 1808)	5757
	11:06	12:06	Cloudy	94	340	500	Construction work in progress	22	<5	GMW GS 2310 (S/N 1808)	5851
	12:08	13:08	Cloudy	128	340	500	Construction work in progress	22	<5	GMW GS 2310 (S/N 1808)	5854
14-Apr-15	9:32	10:32	Sunny	110	340	500	Construction work in progress	23	<5	GMW GS 2310 (S/N 1808)	5855
	10:34	11:34	Sunny	132	340	500	Construction work in progress	23	<5	GMW GS 2310 (S/N 1808)	5869
	11:36	12:36	Sunny	124	340	500	Construction work in progress	23	<5	GMW GS 2310 (S/N 1808)	5856
20-Apr-15	13:32	14:32	Fine	107	340	500	Construction work in progress	24	<5	GMW GS 2310 (S/N 1808)	5858
	14:34	15:34	Fine	117	340	500	Construction work in progress	24	<5	GMW GS 2310 (S/N 1808)	6001
	15:36	16:36	Fine	129	340	500	Construction work in progress	24	<5	GMW GS 2310 (S/N 1808)	5862
25-Apr-15	9:00	10:00	Sunny	106	340	500	Construction work in progress	26	<5	GMW GS 2310 (S/N 1808)	6002
	10:02	11:02	Sunny	121	340	500	Construction work in progress	26	<5	GMW GS 2310 (S/N 1808)	6003
	11:04	12:04	Sunny	120	340	500	Construction work in progress	26	<5	GMW GS 2310 (S/N 1808)	6006
30-Apr-15	10:02	11:02	Sunny	106	340	500	Construction work in progress	27	<5	GMW GS 2310 (S/N 1808)	6010
	11:04	12:04	Sunny	120	340	500	Construction work in progress	27	<5	GMW GS 2310 (S/N 1808)	6012
	12:06	13:06	Sunny	125	340	500	Construction work in progress	27	<5	GMW GS 2310 (S/N 1808)	6013
			Min.	**84**							
			Max.	**163**							
			Average	**117**							

* Wind Speed data is presented in the Meteorological Data table

Annex C5 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 (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
02-Apr-15	9:50	10:50	Fine	117	352	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0145)	5850
	10:52	11:52	Fine	116	352	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0145)	5753
	11:54	12:54	Fine	101	352	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0145)	5756
08-Apr-15	10:20	11:20	Cloudy	98	352	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0145)	5758
	11:22	12:22	Cloudy	95	352	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0145)	5872
	12:24	13:24	Cloudy	116	352	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0145)	5853
14-Apr-15	9:50	10:50	Sunny	140	352	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 0145)	5890
	10:52	11:52	Sunny	152	352	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 0145)	5868
	11:54	12:54	Sunny	120	352	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 0145)	5867
20-Apr-15	14:00	15:00	Fine	88	352	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 0145)	5865
	15:02	16:02	Fine	94	352	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 0145)	5864
	16:04	17:04	Fine	94	352	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 0145)	5863
25-Apr-15	9:20	10:20	Sunny	147	352	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0145)	5859
	10:22	11:22	Sunny	110	352	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0145)	6004
	11:24	12:24	Sunny	103	352	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0145)	6005
30-Apr-15	10:20	11:20	Sunny	109	352	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 0145)	6009
	11:22	12:22	Sunny	110	352	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 0145)	6011
	12:24	13:24	Sunny	125	352	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 0145)	6014
			Min.	**88**							
			Max.	**152**							
			Average	**113**							

* Wind Speed data is presented in the Meteorological Data table

Annex C5 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
06-May-15	10:02	11:02	Cloudy	101	340	500	Construction work in progress	28	<5	GMW GS 2310 (S/N 1808)	6017
	11:04	12:04	Cloudy	101	340	500	Construction work in progress	28	<5	GMW GS 2310 (S/N 1808)	6019
	12:06	13:06	Cloudy	106	340	500	Construction work in progress	28	<5	GMW GS 2310 (S/N 1808)	6024
12-May-15	10:32	11:32	Sunny	85	340	500	Construction work in progress	26	<5	GMW GS 2310 (S/N 1808)	6200
	11:34	12:34	Sunny	91	340	500	Construction work in progress	26	<5	GMW GS 2310 (S/N 1808)	6198
	12:36	13:36	Sunny	64	340	500	Construction work in progress	26	<5	GMW GS 2310 (S/N 1808)	6195
18-May-15	10:42	11:42	Cloudy	119	340	500	Construction work in progress	28	<5	GMW GS 2310 (S/N 1808)	6191
	11:44	12:44	Cloudy	104	340	500	Construction work in progress	28	<5	GMW GS 2310 (S/N 1808)	6189
	12:46	13:46	Cloudy	105	340	500	Construction work in progress	28	<5	GMW GS 2310 (S/N 1808)	6188
23-May-15	9:30	10:30	Rainy	61	340	500	Construction work in progress	26	<5	GMW GS 2310 (S/N 1808)	6173
	10:32	11:32	Rainy	85	340	500	Construction work in progress	26	<5	GMW GS 2310 (S/N 1808)	6183
	11:34	12:34	Rainy	122	340	500	Construction work in progress	26	<5	GMW GS 2310 (S/N 1808)	6175
29-May-15	14:12	15:12	Sunny	96	340	500	Construction work in progress	31	<5	GMW GS 2310 (S/N 1808)	6181
	15:14	16:14	Sunny	86	340	500	Construction work in progress	31	<5	GMW GS 2310 (S/N 1808)	6180
	16:16	17:16	Sunny	104	340	500	Construction work in progress	31	<5	GMW GS 2310 (S/N 1808)	6374
			Min.	**61**							
			Max.	**122**							
			Average	**95**							

* Wind Speed data is presented in the Meteorological Data table

Annex C5 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
06-May-15	10:20	11:20	Cloudy	98	352	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0145)	6018
	11:22	12:22	Cloudy	101	352	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0145)	6020
	12:24	13:24	Cloudy	103	352	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0145)	6023
12-May-15	10:50	11:50	Sunny	96	352	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0145)	6199
	11:52	12:52	Sunny	103	352	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0145)	6197
	12:54	13:54	Sunny	102	352	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0145)	6196
18-May-15	11:00	12:00	Cloudy	117	352	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0145)	6192
	12:02	13:02	Cloudy	101	352	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0145)	6190
	13:04	14:04	Cloudy	113	352	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0145)	6187
23-May-15	9:50	10:50	Rainy	69	352	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0145)	6184
	10:52	11:52	Rainy	117	352	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0145)	6174
	11:54	12:54	Rainy	111	352	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0145)	6178
29-May-15	14:30	15:30	Sunny	115	352	500	Construction work in progress	31	<5	GMW GS-2310 (S/N 0145)	6182
	15:32	16:32	Sunny	90	352	500	Construction work in progress	31	<5	GMW GS-2310 (S/N 0145)	6179
	16:34	17:34	Sunny	110	352	500	Construction work in progress	31	<5	GMW GS-2310 (S/N 0145)	6376
			Min.	**69**							
			Max.	**117**							
			Average	**103**							

* Wind Speed data is presented in the Meteorological Data table

Annex C5 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	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
02-Mar-15	12:46	03-Mar-15	12:46	Cloudy	2.8639	2.9595	19048.03	19072.03	24.00	1.24	1.24	1.24	54	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	5675
07-Mar-15	12:36	08-Mar-15	12:36	Fine	2.8433	2.9747	19075.03	19099.03	24.00	1.24	1.24	1.24	74	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	5696
13-Mar-15	12:38	14-Mar-15	12:38	Cloudy	2.8448	2.9717	19102.03	19126.03	24.00	1.21	1.21	1.21	73	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	5692
19-Mar-15	12:23	20-Mar-15	12:23	Fine	2.8906	3.0411	19129.03	19153.03	24.00	1.21	1.21	1.21	86	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	5684
25-Mar-15	13:08	26-Mar-15	13:08	Cloudy	2.8696	2.9911	19156.03	19180.03	24.00	1.21	1.21	1.21	70	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	5768
31-Mar-15	13:03	01-Apr-15	13:03	Fine	2.8784	3.0027	19183.03	19207.03	24.00	1.21	1.21	1.21	71	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	5761
												Min.	54					
												Max.	86					
												Average	71					

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	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
02-Mar-15	13:06	03-Mar-15	13:06	Cloudy	2.8774	2.9961	14666.93	14690.93	24.00	1.21	1.21	1.21	68	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	5676
07-Mar-15	12:56	08-Mar-15	12:56	Fine	2.8975	3.0321	14693.93	14717.93	24.00	1.21	1.21	1.21	77	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	5679
13-Mar-15	12:56	14-Mar-15	12:56	Cloudy	2.8602	2.9943	14720.93	14744.93	24.00	1.21	1.21	1.21	77	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	5691
19-Mar-15	12:41	20-Mar-15	12:41	Fine	2.8648	2.9927	14747.93	14771.93	24.00	1.21	1.21	1.21	73	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	5683
25-Mar-15	13:26	26-Mar-15	13:26	Cloudy	2.8720	2.9998	14774.93	14798.93	24.00	1.21	1.21	1.21	73	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	5767
31-Mar-15	13:19	01-Apr-15	13:19	Fine	2.8801	3.0114	14801.93	14825.93	24.00	1.21	1.21	1.21	75	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	5760
												Min.	68					
												Max.	77					
												Average	74					

Annex C5 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	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
02-Apr-15	12:36	03-Apr-15	12:36	Fine	2.8562	2.9727	19210.03	19234.03	24.00	1.21	1.21	1.21	67	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	5751
08-Apr-15	13:10	09-Apr-15	13:10	Cloudy	2.9220	3.0423	19237.03	19261.03	24.00	1.21	1.21	1.21	69	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	5871
14-Apr-15	12:38	15-Apr-15	12:38	Sunny	2.9100	3.0290	19264.03	19288.03	24.00	1.21	1.21	1.21	68	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	5857
20-Apr-15	16:38	21-Apr-15	16:38	Fine	2.9258	3.0311	19291.03	19315.03	24.00	1.21	1.21	1.21	60	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	5861
25-Apr-15	12:06	26-Apr-15	12:06	Sunny	2.8886	3.0042	19318.03	19342.03	24.00	1.21	1.21	1.21	66	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	6007
30-Apr-15	13:08	01-May-15	13:08	Sunny	2.8689	2.9984	19345.03	19369.03	24.00	1.21	1.21	1.21	74	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	6015
												Min.	60					
												Max.	74					
												Average	68					

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	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
02-Apr-15	12:56	03-Apr-15	12:56	Fine	2.8648	2.9960	14828.93	14852.93	24.00	1.21	1.21	1.21	75	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	5752
08-Apr-15	13:26	09-Apr-15	13:26	Cloudy	2.9196	3.0291	14855.93	14879.93	24.00	1.21	1.21	1.21	63	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	5852
14-Apr-15	12:56	15-Apr-15	12:56	Sunny	2.9135	3.0409	14882.93	14906.93	24.00	1.21	1.21	1.21	73	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	5866
20-Apr-15	17:06	21-Apr-15	17:06	Fine	2.9278	3.0291	14909.93	14933.93	24.00	1.21	1.21	1.21	58	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	5860
25-Apr-15	12:26	26-Apr-15	12:26	Sunny	2.8628	2.9911	14936.93	14960.93	24.00	1.21	1.21	1.21	74	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	6008
30-Apr-15	13:26	01-May-15	13:26	Sunny	2.8802	3.0171	14963.93	14987.93	24.00	1.21	1.21	1.21	79	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	6012
												Min.	58					
												Max.	79					
												Average	70					

Annex C5 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	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
06-May-15	13:08	07-May-15	13:08	Cloudy	2.8894	2.9911	19372.03	19396.03	24.00	1.21	1.21	1.21	58	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	6022
12-May-15	13:38	13-May-15	13:38	Sunny	2.8760	2.9622	19399.03	19423.03	24.00	1.21	1.21	1.21	49	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	6194
18-May-15	13:48	19-May-15	13:48	Cloudy	2.8645	2.9600	19426.03	19450.03	24.00	1.22	1.22	1.22	54	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	6186
23-May-15	12:36	24-May-15	12:36	Rainy	2.8784	2.9891	19453.03	19477.03	24.00	1.22	1.22	1.22	63	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	6177
29-May-15	17:18	30-May-15	17:18	Sunny	2.8608	2.9554	19480.03	19504.03	24.00	1.22	1.22	1.22	54	185	260	Construction work in progress	GMW GS 2310 (S/N 1808)	6375
												Min.	**49**					
												Max.	**63**					
												Average	**56**					

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	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
06-May-15	13:26	07-May-15	13:26	Cloudy	2.9067	3.0009	14990.93	15014.93	24.00	1.21	1.21	1.21	54	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	6021
12-May-15	13:56	13-May-15	13:56	Sunny	2.8798	2.9662	15017.93	15041.93	24.00	1.21	1.21	1.21	50	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	6193
18-May-15	14:06	19-May-15	14:06	Cloudy	2.8610	2.9500	15044.93	15068.93	24.00	1.20	1.20	1.20	52	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	6185
23-May-15	13:00	24-May-15	13:00	Rainy	2.8806	2.9900	15071.93	15095.93	24.00	1.20	1.20	1.20	63	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	6176
29-May-15	17:36	30-May-15	17:36	Sunny	2.8815	2.9696	15098.93	15122.93	24.00	1.20	1.20	1.20	51	182	260	Construction work in progress	GMW GS 2310 (S/N 0145)	1728
												Min.	**50**					
												Max.	**63**					
												Average	**54**					

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2015-03-02	Cloudy	17	78-91	Trace	0-21	SE
2015-03-03	Cloudy	20	80-95	0.2	0-22	NW
2015-03-06	Cloudy	16	92-95	0.1	0-23	SE
2015-03-07	Fine	17	86-94	0.2	2-17	SE
2015-03-08	Fine	19	80-91	Trace	0-24	SE
2015-03-12	Cloudy	15	85-96	3.7	0-15	SE/E
2015-03-13	Cloudy	17	71-83	0.0	4-20	SE/E
2015-03-14	Cloudy	19	74-89	Trace	0-23	SE
2015-03-18	Fine	23	84-97	0.0	0-18	SE
2015-03-19	Fine	24	79-96	0.0	0-11	SE
2015-03-20	Fine	24	66-95	0.0	0-18	SE
2015-03-24	Fine	20	66-83	0.0	4-21	SE/E
2015-03-25	Cloudy	18	73-81	Trace	1-24	SE/E
2015-03-26	Cloudy	19	72-96	4.2	0-16	SE
2015-03-30	Fine	23	80-93	0.0	0-15	SE/E
2015-03-31	Fine	23	82-95	Trace	0-14	SE/E
2015-04-01	Fine	24	75-95	0.0	0-13	SE

		Tsing Yi Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-03-02	Cloudy	18	78-91	Trace	0-22	E
2015-03-03	Cloudy	21	80-95	0.2	0-25	NW
2015-03-06	Cloudy	18	92-95	0.1	0-17	SE/E
2015-03-07	Fine	19	86-94	0.2	0-18	E
2015-03-08	Fine	20	80-91	Trace	0-23	NW
2015-03-12	Cloudy	16	85-96	3.7	0-11	SE/E
2015-03-13	Cloudy	18	71-83	0.0	1-18	E
2015-03-14	Cloudy	20	74-89	Trace	3-26	E
2015-03-18	Fine	24	84-97	0.0	0-23	SE
2015-03-19	Fine	25	79-96	0.0	0-13	SE
2015-03-20	Fine	25	66-95	0.0	0-15	SE
2015-03-24	Fine	21	66-83	0.0	4-25	SE/E
2015-03-25	Cloudy	18	73-81	Trace	1-14	SE/E
2015-03-26	Cloudy	19	72-96	4.2	0-12	NW
2015-03-30	Fine	25	80-93	0.0	2-14	SE/E
2015-03-31	Fine	25	82-95	Trace	0-15	SE
2015-04-01	Fine	26	75-95	0.0	0-19	N/NW

		Kai Tak Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-03-02	Cloudy	17	78-91	Trace	7-25	SE/E
2015-03-03	Cloudy	20	80-95	0.2	0-20	SW
2015-03-06	Cloudy	16	92-95	0.1	6-22	SE/E
2015-03-07	Fine	17	86-94	0.2	8-22	E
2015-03-08	Fine	19	80-91	Trace	6-24	SE
2015-03-12	Cloudy	15	85-96	3.7	0-18	SE/E
2015-03-13	Cloudy	17	71-83	0.0	9-24	SE/E
2015-03-14	Cloudy	19	74-89	Trace	7-31	SE
2015-03-18	Fine	23	84-97	0.0	4-21	SE
2015-03-19	Fine	24	79-96	0.0	2-22	SE
2015-03-20	Fine	24	66-95	0.0	0-23	SE
2015-03-24	Fine	20	66-83	0.0	10-28	E
2015-03-25	Cloudy	18	73-81	Trace	4-28	SE/E
2015-03-26	Cloudy	19	72-96	4.2	4-22	SE
2015-03-30	Fine	23	80-93	0.0	3-21	SE
2015-03-31	Fine	23	82-95	Trace	4-20	SE
2015-04-01	Fine	24	75-95	0.0	7-19	SE

		Green Island Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-03-02	Cloudy	17	78-91	Trace	17-44	NE
2015-03-03	Cloudy	20	80-95	0.2	0-45	N
2015-03-06	Cloudy	16	92-95	0.1	20-41	NE
2015-03-07	Fine	17	86-94	0.2	18-43	NE
2015-03-08	Fine	19	80-91	Trace	5-45	NE
2015-03-12	Cloudy	15	85-96	3.7	0-31	NE
2015-03-13	Cloudy	17	71-83	0.0	8-42	NE
2015-03-14	Cloudy	19	74-89	Trace	11-36	NE
2015-03-18	Fine	23	84-97	0.0	0-30	S
2015-03-19	Fine	24	79-96	0.0	0-31	S
2015-03-20	Fine	24	66-95	0.0	0-27	NE
2015-03-24	Fine	20	66-83	0.0	20-50	NE
2015-03-25	Cloudy	18	73-81	Trace	10-50	NE
2015-03-26	Cloudy	19	72-96	4.2	0-40	NE/N
2015-03-30	Fine	23	80-93	0.0	0-26	S
2015-03-31	Fine	23	82-95	Trace	0-21	SE/S
2015-04-01	Fine	24	75-95	0.0	0-30	S

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

Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2015/04/02	Fine	26	74-91	0.0	0-13	NE
2015/04/08	Cloudy	18	69-96	10.0	1-21	NE
2015/04/13	Sunny	22	38-77	0.0	0-13	NE/E
2015/04/14	Sunny	21	29-61	0.0	0-18	NE/E
2015/04/16	Cloudy	22	51-81	0.0	0-15	N/NW
2015/04/18	Cloudy	25	80-90	Trace	1-16	SE
2015/04/20	Fine	26	78-91	0.2	1-13	N/NW
2015/04/22	Fine	23	65-88	Trace	0-22	SE
2015/04/24	Sunny	24	56-83	0.0	0-13	S
2015/04/25	Sunny	24	65-85	0.0	0-18	SE
2015/04/28	Sunny	25	64-90	0.0	0-17	NW/W
2015/04/30	Sunny	28	60-91	0.0	0-12	NW/W

Date	Weather	Tsing Yi Station				
		Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015/04/02	Fine	26	74-91	0.0	0-24	SE
2015/04/08	Cloudy	19	69-96	10.0	2-14	NW
2015/04/13	Sunny	22	38-77	0.0	0-17	SE/E
2015/04/14	Sunny	22	29-61	0.0	0-19	SE/E
2015/04/16	Cloudy	22	51-81	0.0	0-23	SE
2015/04/18	Cloudy	25	80-90	Trace	9-27	SE
2015/04/20	Fine	25	78-91	0.2	1-15	SE
2015/04/22	Fine	24	65-88	Trace	1-20	E
2015/04/24	Sunny	25	56-83	0.0	0-15	SE/E
2015/04/25	Sunny	24	65-85	0.0	0-23	SE/E
2015/04/28	Sunny	25	64-90	0.0	0-15	SE/E
2015/04/30	Sunny	29	60-91	0.0	0-16	SE

Date	Weather	Kai Tak Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015/04/02	Fine	26	74-91	0.0	2-19	SE/E
2015/04/08	Cloudy	18	69-96	10.0	0-17	NE/E
2015/04/13	Sunny	22	38-77	0.0	0-18	SE
2015/04/14	Sunny	21	29-61	0.0	2-22	NE/E
2015/04/16	Cloudy	22	51-81	0.0	0-15	SW
2015/04/18	Cloudy	25	80-90	Trace	2-20	SE
2015/04/20	Fine	26	78-91	0.2	1-21	SW
2015/04/22	Fine	23	65-88	Trace	2-26	SE/E
2015/04/24	Sunny	24	56-83	0.0	4-22	SE
2015/04/25	Sunny	24	65-85	0.0	6-23	E
2015/04/28	Sunny	25	64-90	0.0	0-17	SW
2015/04/30	Sunny	28	60-91	0.0	0-17	SE

Date	Weather	Green Island Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015/04/02	Fine	26	74-91	0.0	12-43	S
2015/04/08	Cloudy	18	69-96	10.0	8-43	N
2015/04/13	Sunny	22	38-77	0.0	0-41	NE
2015/04/14	Sunny	21	29-61	0.0	8-38	NE
2015/04/16	Cloudy	22	51-81	0.0	0-26	S/SW
2015/04/18	Cloudy	25	80-90	Trace	5-45	S
2015/04/20	Fine	26	78-91	0.2	7-34	S/SW
2015/04/22	Fine	23	65-88	Trace	13-58	NE
2015/04/24	Sunny	24	56-83	0.0	0-25	S
2015/04/25	Sunny	24	65-85	0.0	0-35	NE
2015/04/28	Sunny	25	64-90	0.0	0-26	S/SW
2015/04/30	Sunny	28	60-91	0.0	0-34	S/SW

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

Meteorological Data Extracted from the Hong Kong Observatory

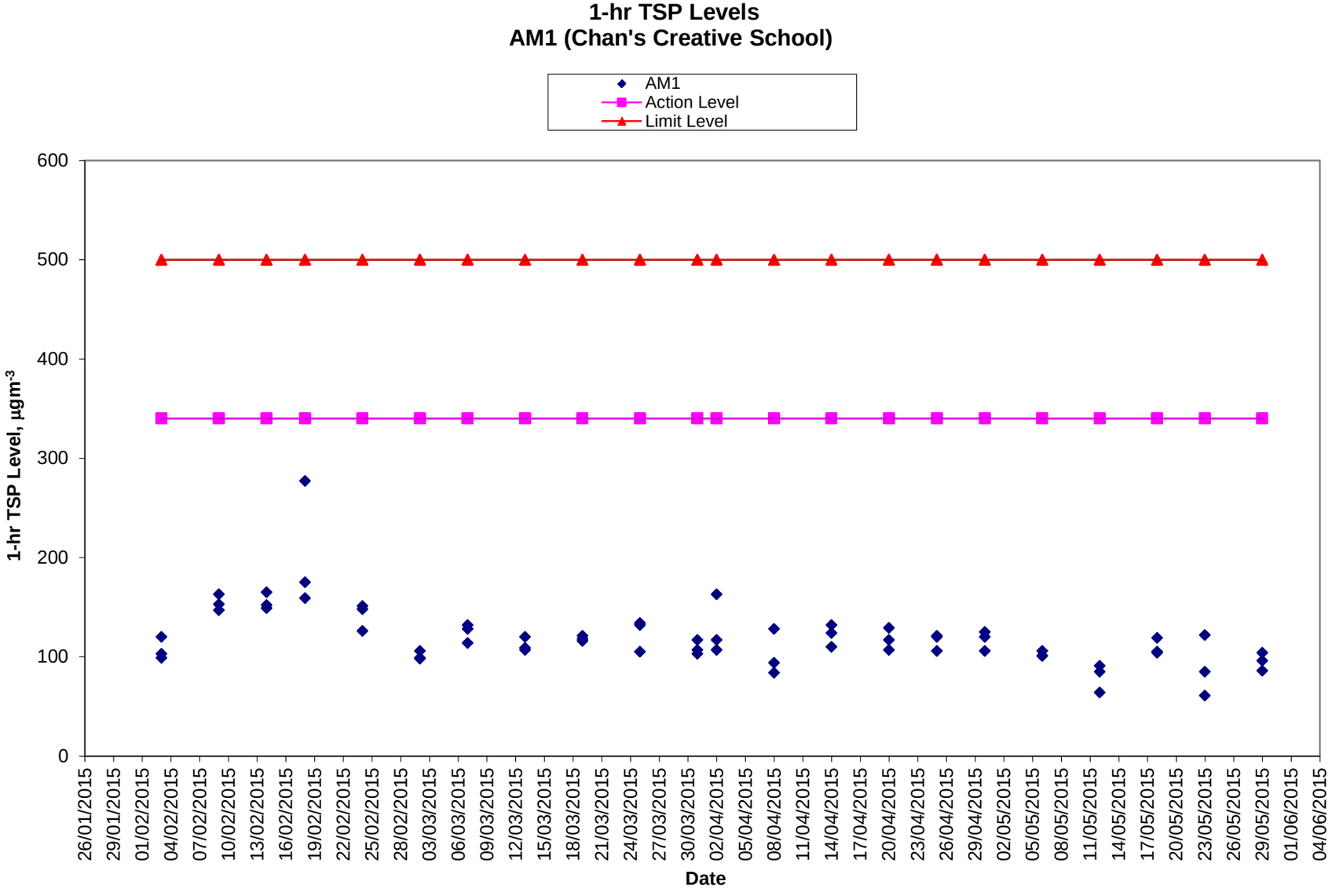
		King's Park Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2015-05-02	Cloudy	28	72-86	Trace	0-19	SW/W
2015-05-06	Cloudy	26	69-96	0.6	0-15	SW/W
2015-05-07	Cloudy	28	75-91	0.3	0-15	SW/W
2015-05-12	Sunny	26	63-92	0.0	0-14	SE
2015-05-13	Cloudy	27	78-90	0.0	0-17	SE
2015-05-18	Cloudy	28	75-94	0.9	0-18	SW
2015-05-19	Cloudy	28	80-88	1.2	3-21	SW
2015-05-22	Cloudy	23	89-96	0.7	6-19	SE
2015-05-23	Rainy	25	94-99	169.4	0-19	SE
2015-05-28	Fine	30	71-90	670.7	0-17	SW
2015-05-29	Fine	31	73-84	0.0	0-17	SW/W

		Tsing Yi Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-05-02	Cloudy	28	72-86	Trace	8-22	SE
2015-05-06	Cloudy	27	69-96	0.6	8-26	SE/E
2015-05-07	Cloudy	28	75-91	0.3	0-19	SE
2015-05-12	Sunny	26	63-92	0.0	0-14	SE/E
2015-05-13	Cloudy	27	78-90	0.0	2-20	E
2015-05-18	Cloudy	25	75-94	0.9	0-21	SE
2015-05-19	Cloudy	28	80-88	1.2	3-24	SE
2015-05-22	Cloudy	24	89-96	0.7	4-20	E
2015-05-23	Rainy	25	94-99	169.4	0-30	SE
2015-05-28	Fine	30	71-90	670.7	6-16	SE
2015-05-29	Fine	25	73-84	0.0	4-15	SE

		Kai Tak Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-05-02	Cloudy	28	72-86	Trace	3-21	SE
2015-05-06	Cloudy	26	69-96	0.6	1-18	SE/E
2015-05-07	Cloudy	28	75-91	0.3	3-17	SE
2015-05-12	Sunny	26	63-92	0.0	0-20	SE
2015-05-13	Cloudy	27	78-90	0.0	6-20	SE/E
2015-05-18	Cloudy	28	75-94	0.9	0-20	SW/S
2015-05-19	Cloudy	28	80-88	1.2	3-23	SW/S
2015-05-22	Cloudy	23	89-96	0.7	18-22	E
2015-05-23	Rainy	25	94-99	169.4	0-40	SE/E
2015-05-28	Fine	30	71-90	670.7	3-21	SW/S
2015-05-29	Fine	31	73-84	0.0	0-18	SW/S

		Green Island Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-05-02	Cloudy	28	72-86	Trace	17-37	S
2015-05-06	Cloudy	26	69-96	0.6	2-35	S
2015-05-07	Cloudy	28	75-91	0.3	3-32	S
2015-05-12	Sunny	26	63-92	0.0	0-30	SW/S
2015-05-13	Cloudy	27	78-90	0.0	0-34	NE
2015-05-18	Cloudy	28	75-94	0.9	11-38	S
2015-05-19	Cloudy	28	80-88	1.2	23-49	S
2015-05-22	Cloudy	23	89-96	0.7	28-47	NE
2015-05-23	Rainy	25	94-99	169.4	0-48	NE
2015-05-28	Fine	30	71-90	670.7	15-35	SW/S
2015-05-29	Fine	31	73-84	0.0	14-35	SW/S

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


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
26/01/2015
29/01/2015
01/02/2015
04/02/2015
07/02/2015
10/02/2015
13/02/2015
16/02/2015
19/02/2015
22/02/2015
25/02/2015
28/02/2015
03/03/2015
06/03/2015
09/03/2015
12/03/2015
15/03/2015
18/03/2015
21/03/2015
24/03/2015
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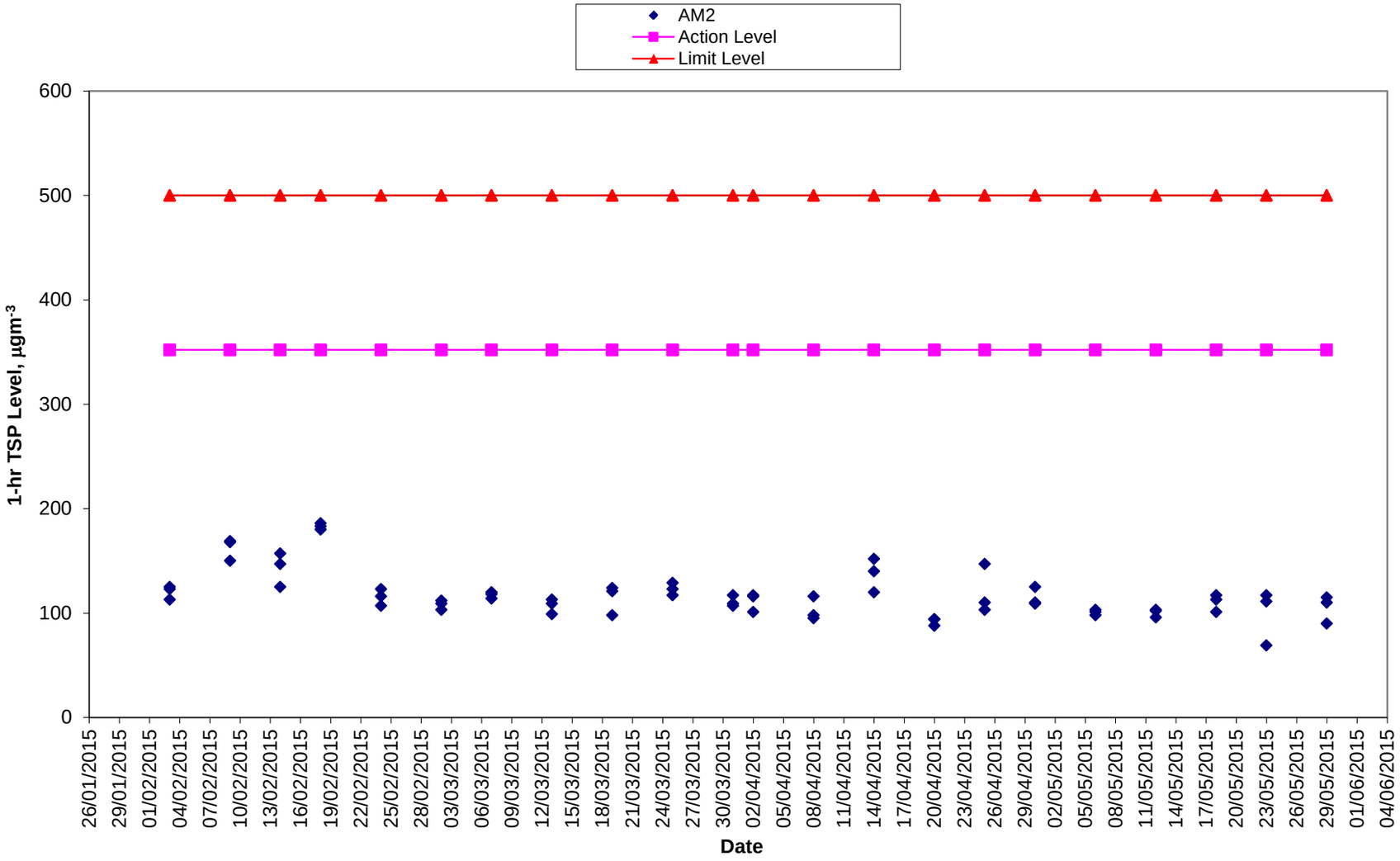
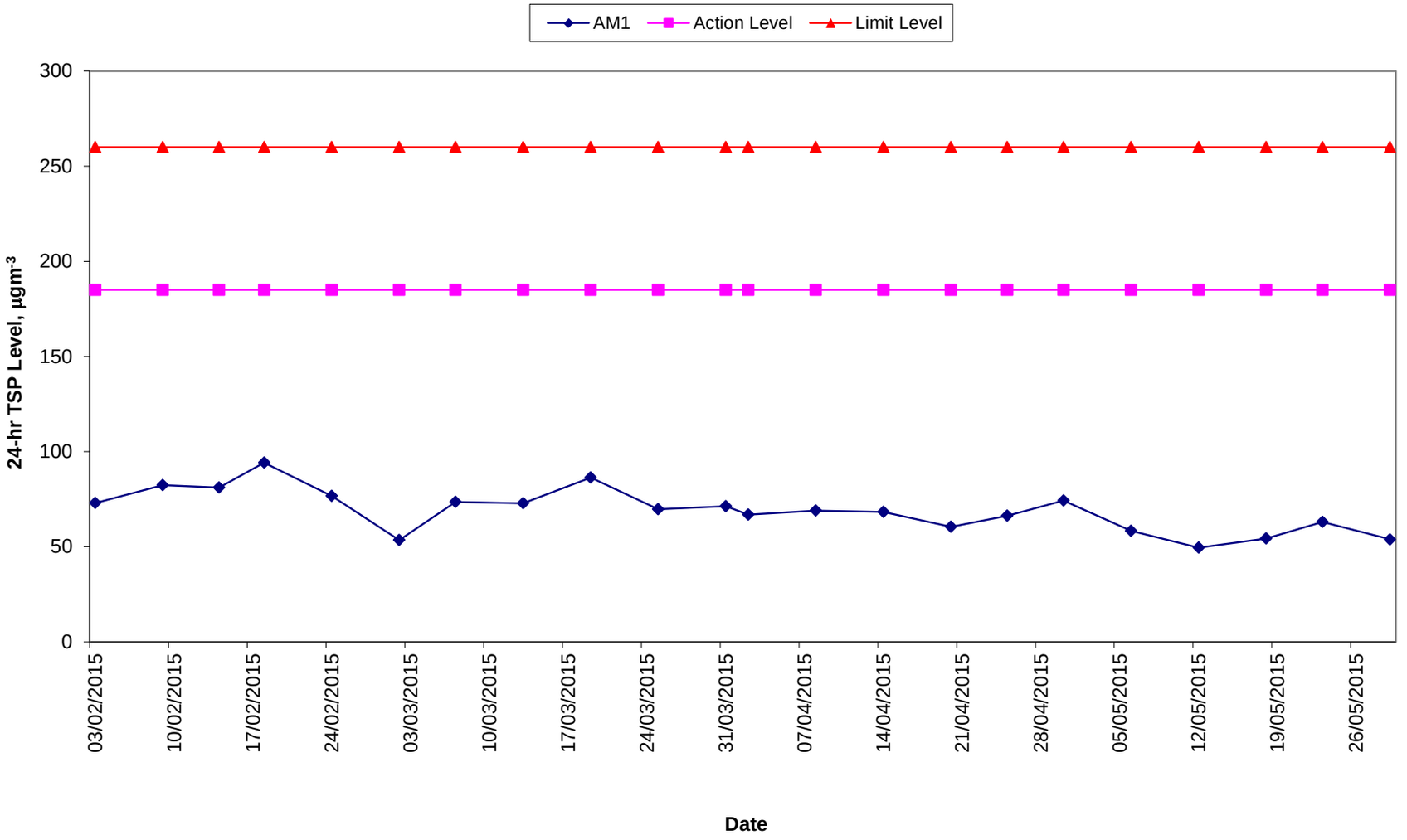
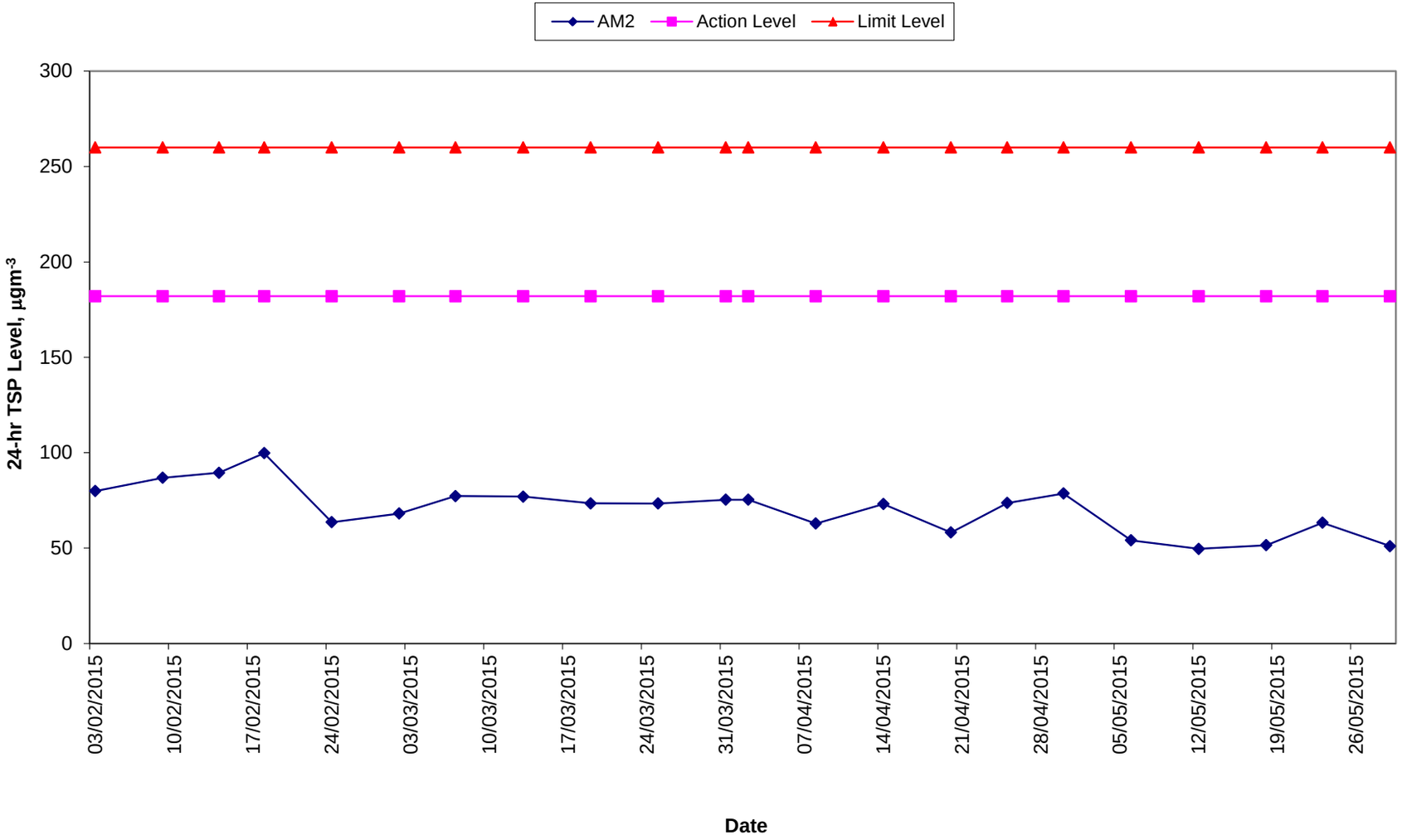
17/04/2015
20/04/2015
23/04/2015
26/04/2015
29/04/2015
02/05/2015
05/05/2015
08/05/2015
11/05/2015
14/05/2015
17/05/2015
20/05/2015
23/05/2015
26/05/2015
29/05/2015
01/06/2015
04/06/2015
Date

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




24-hr TSP Levels
AM1 (Chan's Creative School)
AM1
Action Level
Limit Level
24-hr TSP Level, µgm-3
300
250
200
150
100
50
0
03/02/2015
10/02/2015
17/02/2015
24/02/2015
03/03/2015
10/03/2015
17/03/2015
24/03/2015
31/03/2015
07/04/2015
14/04/2015
21/04/2015
28/04/2015
05/05/2015
12/05/2015
19/05/2015
26/05/2015
Date

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



Annex C6 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. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
02-Mar-15	9:08	9:38	Cloudy	67	69	64	Noise from Nearby Site	Traffic noise	-	17	0.5	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
13-Mar-15	9:00	9:30	Cloudy	67	69	65	Noise from Nearby Site	Traffic noise	-	17	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
19-Mar-15	8:44	9:14	Fine	67	69	65	Noise from Nearby Site	Traffic noise	-	29	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
25-Mar-15	9:30	10:00	Cloudy	68	69	65	Noise from Nearby Site	Traffic noise	-	18	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
31-Mar-15	9:25	9:55	Fine	68	69	65	Noise from Nearby Site	Traffic noise	-	22	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
			Min.	**67**									
			Max.	**68**									

Annex C6 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. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
08-Apr-15	9:32	10:02	Cloudy	67	69	64	Noise from Nearby Site	Traffic noise	-	22	0.5	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
14-Apr-15	9:00	9:30	Sunny	67	69	64	Noise from Nearby Site	Traffic noise	-	23	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
20-Apr-15	13:00	13:30	Fine	67	70	66	Noise from Nearby Site	Traffic noise	-	24	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
30-Apr-15	9:30	10:00	Sunny	68	70	66	Noise from Nearby Site	Traffic noise	-	27	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
			Min.	**67**									
			Max.	**68**									

Annex C6 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. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
06-May-15	9:30	10:00	Cloudy	67	69	65	Noise from Nearby Site	Traffic noise	-	28	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
12-May-15	10:00	10:30	Sunny	67	69	64	Noise from Nearby Site	Traffic noise	-	26	0.5	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
18-May-15	10:10	10:40	Cloudy	67	69	66	Noise from Nearby Site	Traffic noise	-	28	0.5	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
29-May-15	13:40	14:10	Sunny	67	69	65	Noise from Nearby Site	Traffic noise	-	31	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
			Min.	**67**									
			Max.	**67**									

Annex C6 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) Observed	Other Noise Source(s) Observed	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
01-Mar-15	10:12	10:17	Fine	67	70	65	Noise from nearby playground	Traffic Noise	-	19	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	10:17	10:22	Fine	68	71	65			-				
	10:22	10:27	Fine	68	70	64			-				
	10:12	10:27	Fine	68	70	65			-				
10-Mar-15	20:00	20:05	Fine	69	71	66	Noise from nearby playground	Traffic Noise	-	18	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	20:05	20:10	Fine	69	71	66			-				
	20:10	20:15	Fine	68	71	66			-				
	20:00	20:15	Fine	69	71	66			-				
15-Mar-15	13:06	13:11	Fine	68	69	65	-	Traffic Noise	-	21	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	13:11	13:16	Fine	68	69	65			-				
	13:16	13:21	Fine	69	70	65			-				
	13:06	13:21	Fine	68	70	65			-				
24-Mar-15	19:00	19:05	Cloudy	69	71	67	Noise from nearby playground	Traffic Noise	-	20	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	19:05	19:10	Cloudy	68	71	67			-				
	19:10	19:15	Cloudy	69	72	67			-				
	19:00	19:15	Cloudy	69	71	67			-				
29-Mar-15	9:30	9:35	Fine	68	70	66	Noise from playground	Traffic Noise	-	23	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	9:35	9:40	Fine	68	71	65			-				
	9:40	9:45	Fine	69	71	66			-				
	9:30	9:45	Fine	68	71	66			-				
			Min.	**67**									
			Max.	**69**									

[1] No class was held at the school during all the measurement period.

Annex C6 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) Observed	Other Noise Source(s) Observed	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
08-Apr-15	19:20	19:25	Fine	69	70	67	-	Traffic Noise	-	22	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	19:25	19:30	Fine	69	72	67			-				
	19:30	19:35	Fine	68	71	66			-				
	19:20	19:35	Fine	69	71	67			-				
12-Apr-15	14:11	14:16	Sunny	68	71	66	-	Traffic Noise	-	19	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	14:16	14:21	Sunny	68	70	66			-				
	14:21	14:26	Sunny	68	71	65			-				
	14:11	14:26	Sunny	68	70	66			-				
21-Apr-15	20:00	20:05	Fine	68	71	65	Noise from nearby playground	Traffic Noise	-	24	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	20:05	20:10	Fine	67	70	65			-				
	20:10	20:15	Fine	68	72	65			-				
	20:00	20:15	Fine	68	71	65			-				
26-Apr-15	13:10	13:15	Sunny	69	71	66	-	Traffic Noise	-	25	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	13:15	13:20	Sunny	69	72	66			-				
	13:20	13:25	Sunny	69	71	66			-				
	13:10	13:25	Sunny	69	71	66			-				
			Min.	**67**									
			Max.	**69**									

[1] No class was held at the school during all the measurement period.

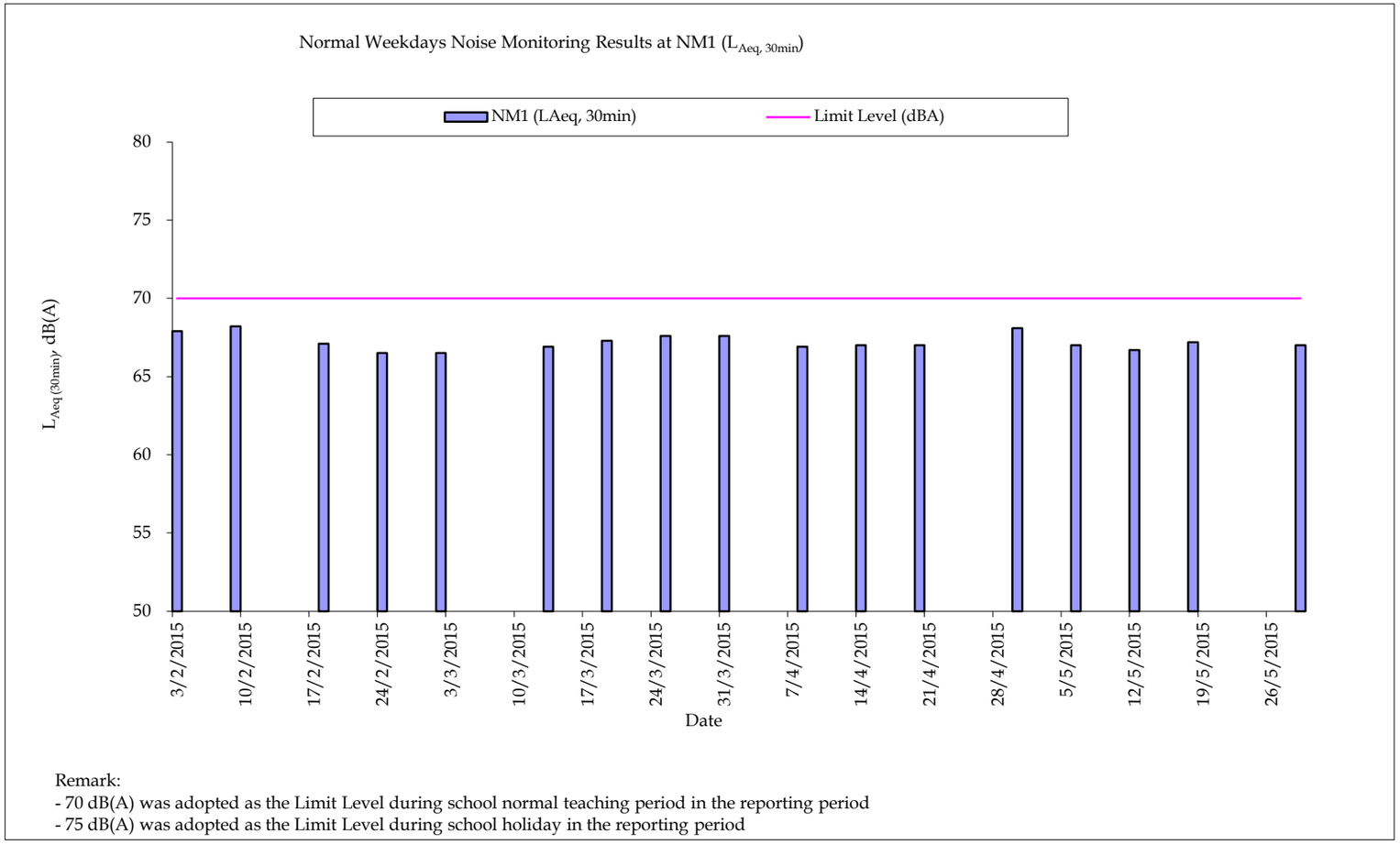
Annex C6 Noise Monitoring Results

Restricted Hours Noise Monitoring Results [1]

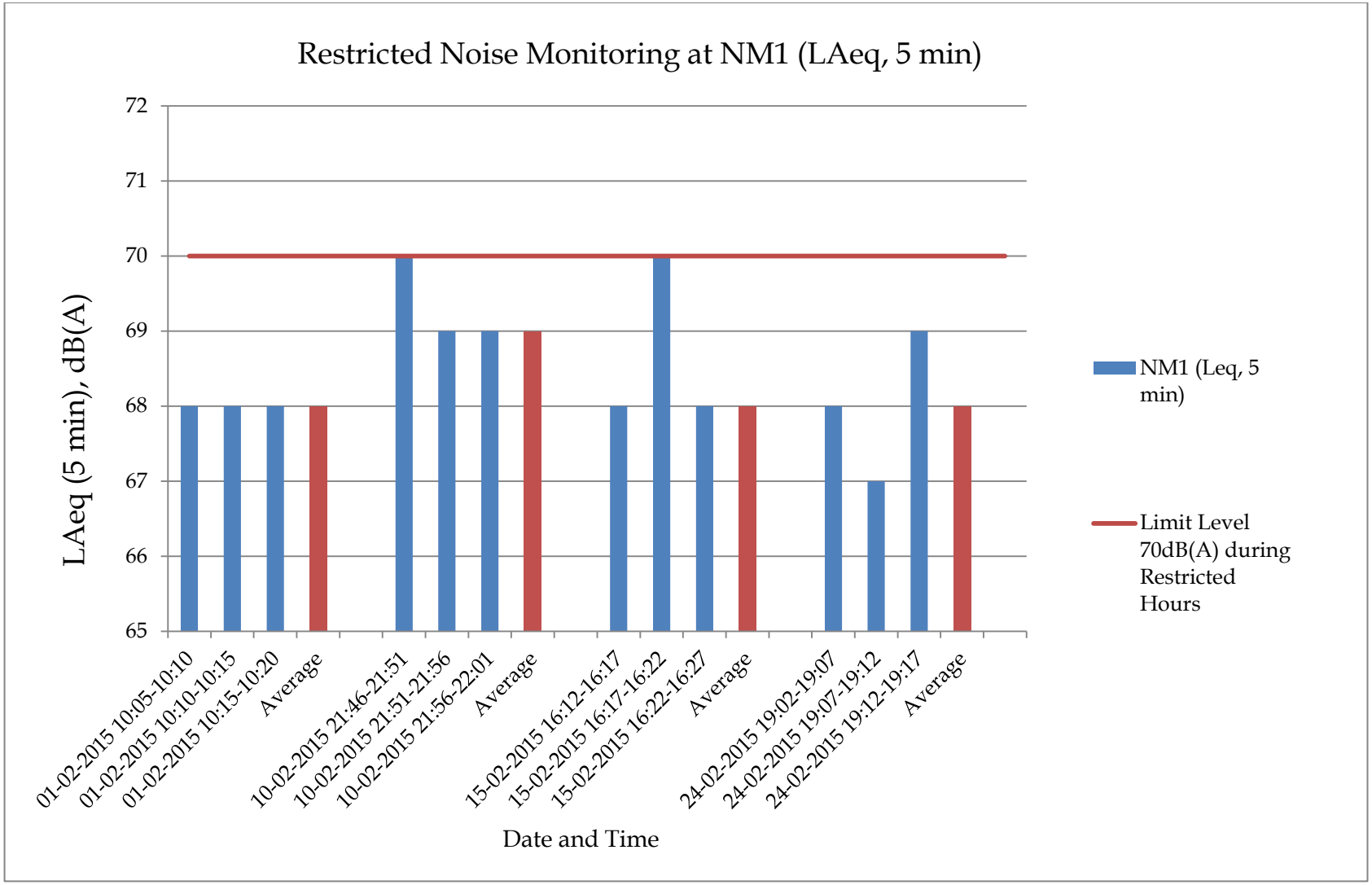
Station NM1

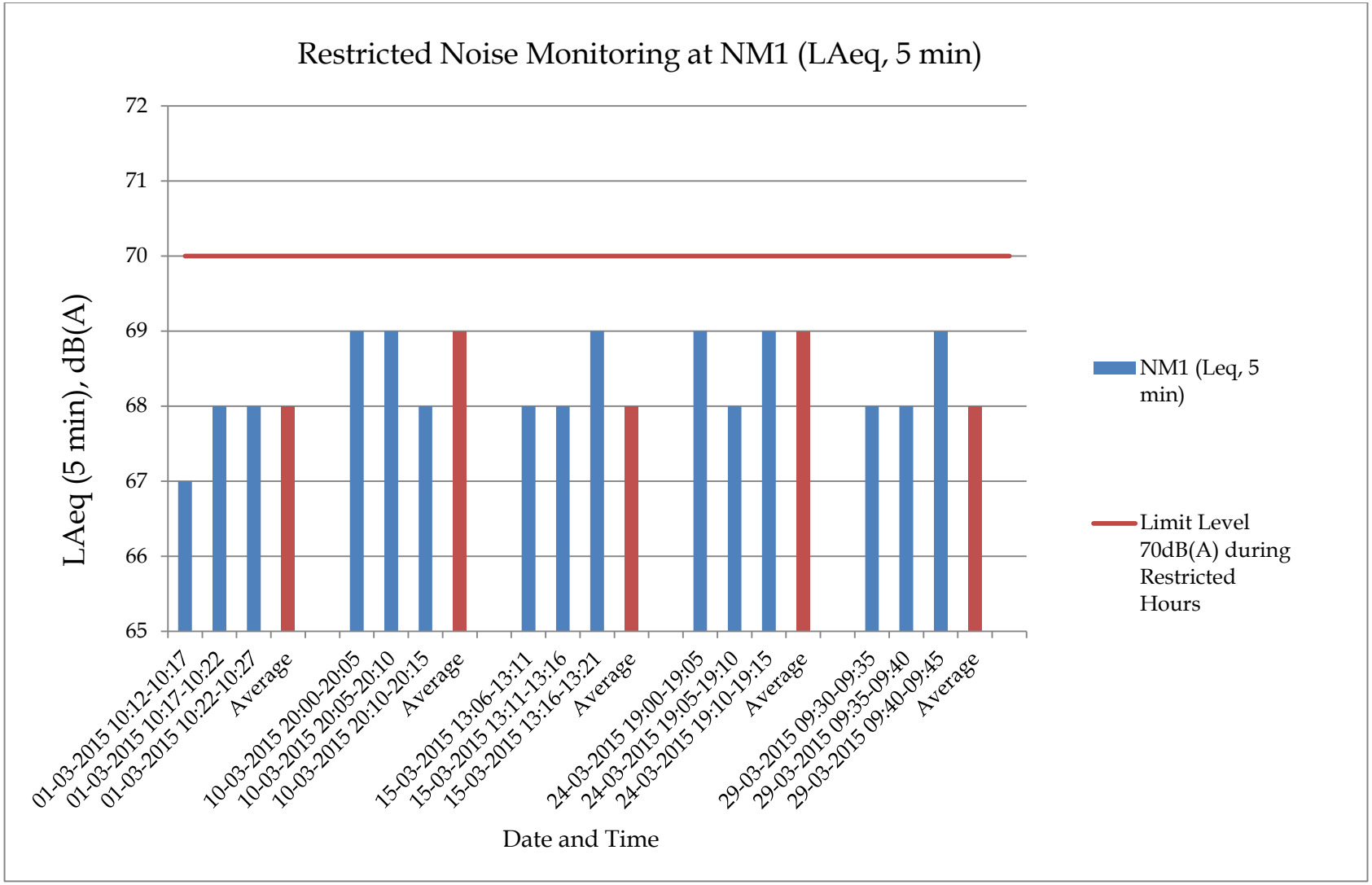
Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
05-May-15	20:05	20:10	Fine	69	70	66	Noise from nearby playground	Traffic Noise	-	28	0.5	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	20:10	20:15	Fine	69	71	66			-				
	20:15	20:20	Fine	68	71	67			-				
	20:05	20:20	Fine	69	71	66			-				
10-May-15	13:10	13:15	Fine	67	69	65	Noise from nearby playground	Traffic Noise	-	27	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	13:15	13:20	Fine	67	69	65			-				
	13:20	13:25	Fine	68	70	65			-				
	13:10	13:25	Fine	67	69	65			-				
19-May-15	20:00	20:05	Cloudy	69	72	66	-	Traffic Noise	-	28	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	20:05	20:10	Cloudy	69	72	67			-				
	20:10	20:15	Cloudy	68	71	66			-				
	20:00	20:15	Cloudy	69	72	66			-				
24-May-15	14:00	14:05	Cloudy	68	70	66	-	Traffic Noise	-	27	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	14:05	14:10	Cloudy	67	70	65			-				
	14:10	14:15	Cloudy	68	70	65			-				
	14:00	14:15	Cloudy	68	70	65			-				
			Min.	**67**									
			Max.	**69**									

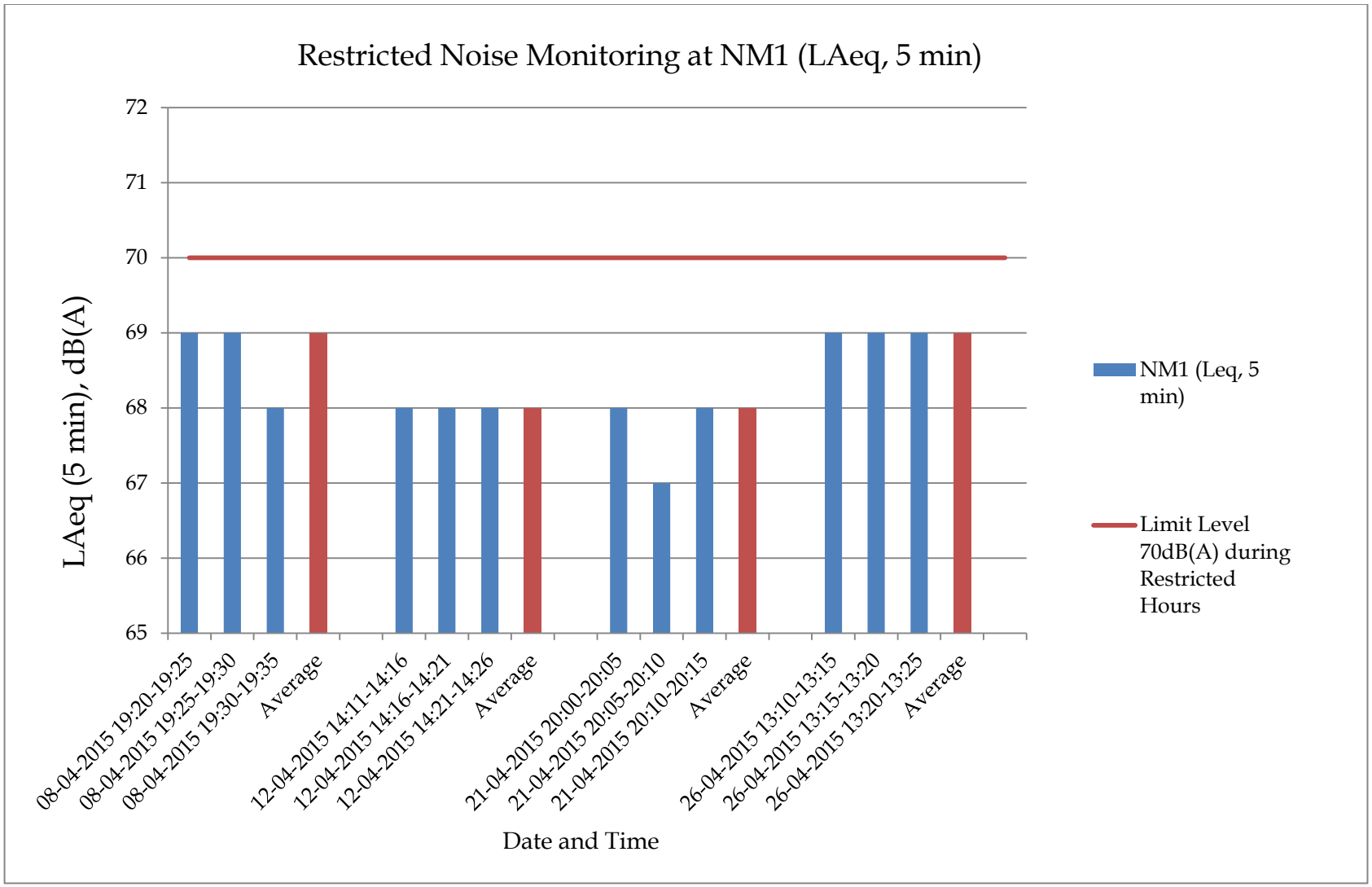
[1] No class was held at the school during all the measurement period.

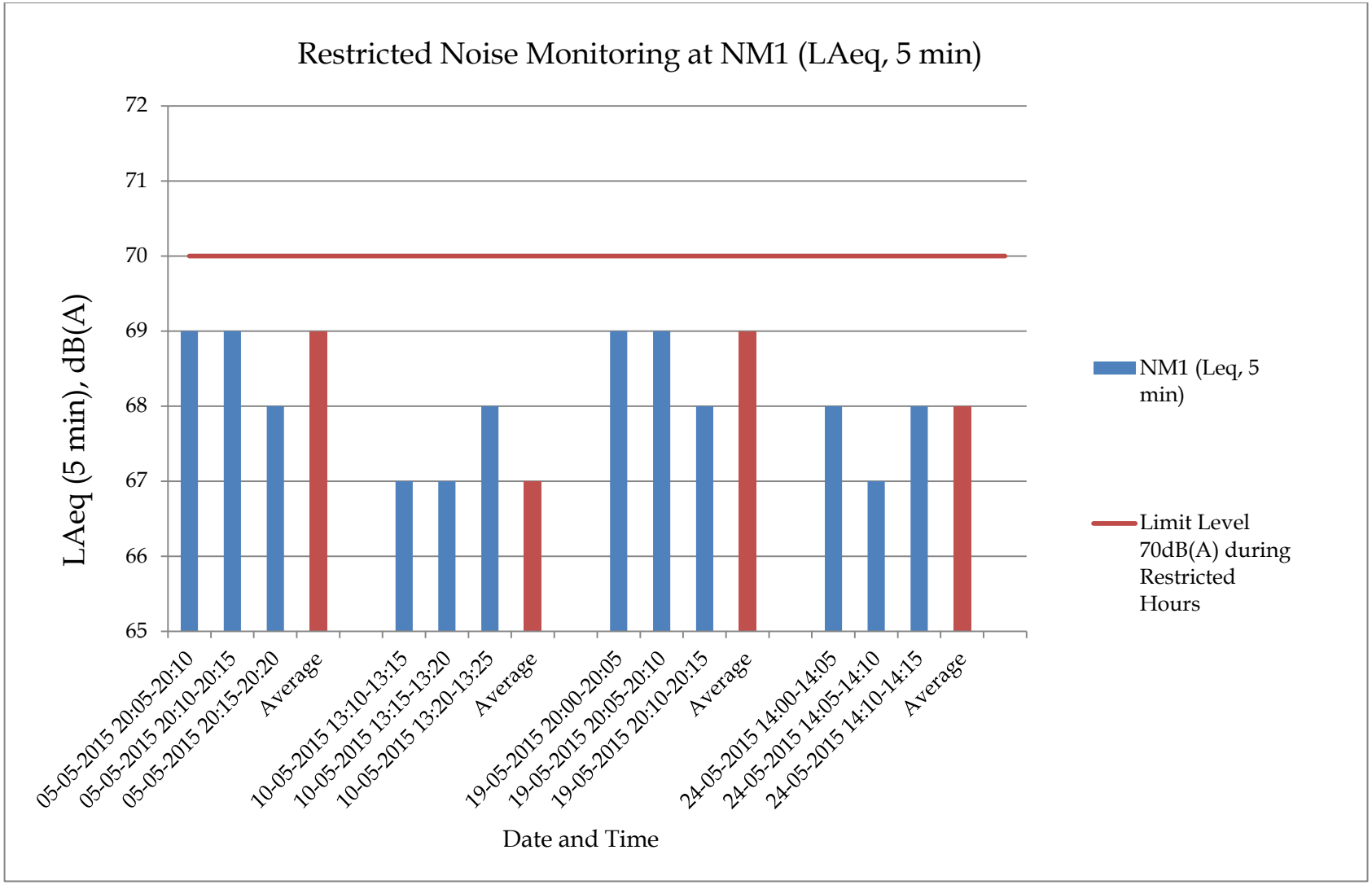


Remark:
- 70 dB(A) was adopted as the Limit Level during school normal teaching period in the reporting period
- 75 dB(A) was adopted as the Limit Level during school holiday in the reporting period


Restricted Noise Monitoring at NM1 (LAeq, 5 min)
LAeq (5 min), dB(A)
72
71
70
69
68
67
66
65
01-02-2015 10:05-10:10
01-02-2015 10:10-10:15
01-02-2015 10:15-10:20
Average
10-02-2015 21:46-21:51
10-02-2015 21:51-21:56
10-02-2015 21:56-22:01
Average
15-02-2015 16:12-16:17
15-02-2015 16:17-16:22
15-02-2015 16:22-16:27
Average
24-02-2015 19:02-19:07
24-02-2015 19:07-19:12
24-02-2015 19:12-19:17
Average
Date and Time
NM1 (Leq, 5 min)
Limit Level 70dB(A) during Restricted Hours


Restricted Noise Monitoring at NM1 (LAeq, 5 min)
LAeq (5 min), dB(A)
72
71
70
69
68
67
66
65
01-03-2015 10:12-10:17
01-03-2015 10:17-10:22
01-03-2015 10:22-10:27
Average
10-03-2015 20:00-20:05
10-03-2015 20:05-20:10
10-03-2015 20:10-20:15
Average
15-03-2015 13:06-13:11
15-03-2015 13:11-13:16
15-03-2015 13:16-13:21
Average
24-03-2015 19:00-19:05
24-03-2015 19:05-19:10
24-03-2015 19:10-19:15
Average
29-03-2015 09:30-09:35
29-03-2015 09:35-09:40
29-03-2015 09:40-09:45
Average
Date and Time
NM1 (Leq, 5 min)
Limit Level 70dB(A) during Restricted Hours


Restricted Noise Monitoring at NM1 (LAeq, 5 min)
LAeq (5 min), dB(A)
72
71
70
69
68
67
66
65
08-04-2015 19:20-19:25
08-04-2015 19:25-19:30
08-04-2015 19:30-19:35
Average
12-04-2015 14:11-14:16
12-04-2015 14:16-14:21
12-04-2015 14:21-14:26
Average
21-04-2015 20:00-20:05
21-04-2015 20:05-20:10
21-04-2015 20:10-20:15
Average
26-04-2015 13:10-13:15
26-04-2015 13:15-13:20
26-04-2015 13:20-13:25
Average
Date and Time
NM1 (Leq, 5 min)
Limit Level 70dB(A) during Restricted Hours


Restricted Noise Monitoring at NM1 (LAeq, 5 min)
LAeq (5 min), dB(A)
72
71
70
69
68
67
66
65
05-05-2015 20:05-20:10
05-05-2015 20:10-20:15
05-05-2015 20:15-20:20
Average
10-05-2015 13:10-13:15
10-05-2015 13:15-13:20
10-05-2015 13:20-13:25
Average
19-05-2015 20:00-20:05
19-05-2015 20:05-20:10
19-05-2015 20:10-20:15
Average
24-05-2015 14:00-14:05
24-05-2015 14:05-14:10
24-05-2015 14:10-14:15
Average
Date and Time
NM1 (Leq, 5 min)
Limit Level 70dB(A) during Restricted Hours

Annex C7 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
March 2011	0	0
April 2011	0	0
May 2011	0	0

Annex C7 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
June 2011	0	0
July 2011	0	0
August 2011	0	0
September 2011	0	0
October 2011	0	0
November 2011	0	0
December 2011	0	0
January 2012	0	0
February 2012	0	0
March 2012	0	0
April 2012	0	0
May 2012	0	0
June 2012	0	0
July 2012	0	0
August 2012	0	0
September 2012	0	0
October 2012	0	0
November 2012	0	0

Annex C7 Cumulative Complaint and Summons/Prosecutions Log

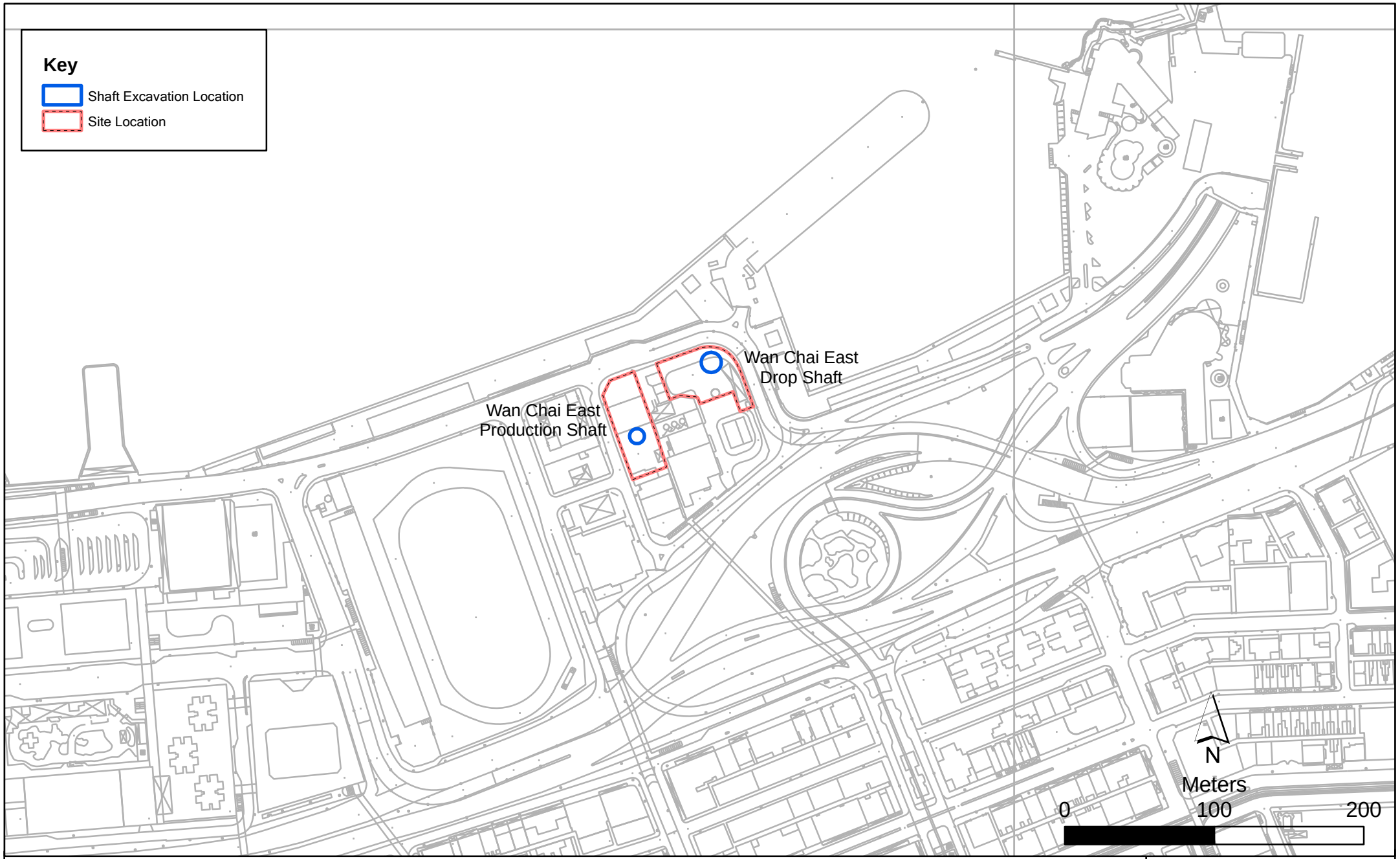
Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2012	0	0
January 2013	0	0
February 2013	0	0
March 2013	0	0
April 2013	0	0
May 2013	0	0
June 2013	0	0
July 2013	0	0
August 2013	0	0
September 2013	0	0
October 2013	0	0
November 2013	0	0
December 2013	0	0
January 2014	0	0
February 2014	0	0
March 2014	0	0
April 2014	0	0
May 2014	0	0

Annex C7 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
June 2014	0	0
July 2014	0	0
August 2014	0	0
September 2014	0	0
October 2014	0	0
November 2014	0	0
December 2014	0	0
January 2015	0	0
February 2015	0	0
March 2015	0	0
April 2015	0	0
May 2015	0	0
Overall Total	0	0

Annex D

Wan Chai East Production and Drop Shafts



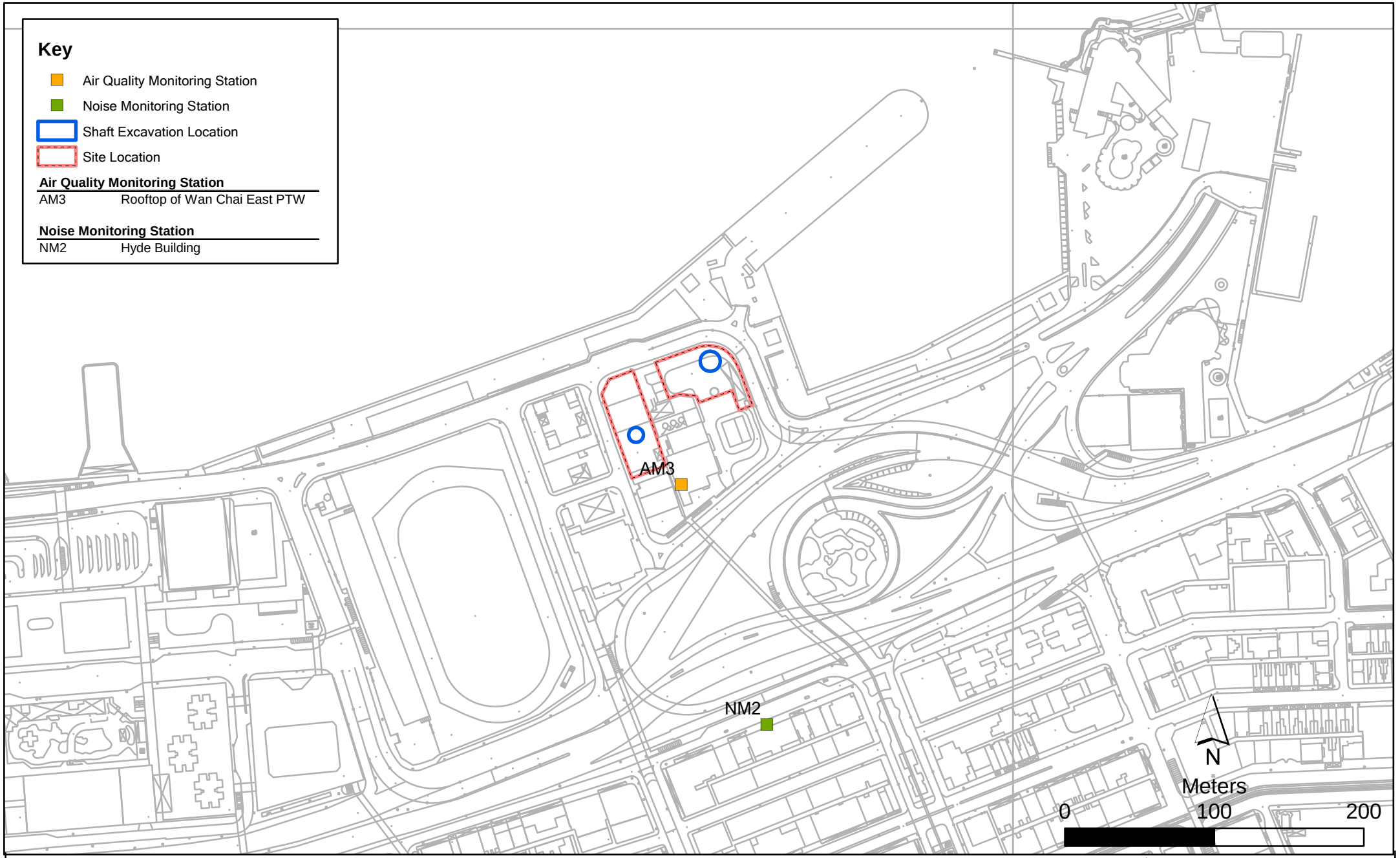
Annex D1

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 minimise 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 minimise 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 deodorisation 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 utilised 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 license for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge license. 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 minimise 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 minimise 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 minimise 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	NA

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, oxidising, 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 harmonise 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

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 minimise 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 minimise 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 deodorisation 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 utilised 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 license for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge license. 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 minimise 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 minimise 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 minimise 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	NA

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, oxidising, 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 harmonise 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

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 minimise 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 minimise 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 deodorisation 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 utilised 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 license for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge license. 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 minimise 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 minimise 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 minimise 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	NA

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, oxidising, 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 harmonise 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 D5 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 (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
02-Mar-15	8:00	9:00	Cloudy	87	355	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0481)	5649
	9:02	10:02	Cloudy	91	355	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0481)	5650
	10:04	11:04	Cloudy	103	355	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0481)	5651
07-Mar-15	8:00	9:00	Fine	117	355	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0481)	5661
	9:02	10:02	Fine	114	355	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0481)	5662
	10:04	11:04	Fine	88	355	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0481)	5663
13-Mar-15	8:00	9:00	Cloudy	98	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	5773
	9:02	10:02	Cloudy	92	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	5774
	10:04	11:04	Cloudy	95	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	5775
19-Mar-15	8:00	9:00	Fine	117	355	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 0481)	5785
	9:02	10:02	Fine	95	355	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 0481)	5786
	10:04	11:04	Fine	100	355	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 0481)	5787
25-Mar-15	8:00	9:00	Cloudy	108	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	5797
	9:02	10:02	Cloudy	110	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	5798
	10:04	11:04	Cloudy	102	355	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0481)	5799
31-Mar-15	8:00	9:00	Fine	107	355	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 0481)	5809
	9:02	10:02	Fine	102	355	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 0481)	5810
	10:04	11:04	Fine	98	355	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 0481)	5811
			Min.	**87**							
			Max.	**117**							
			Average	**101**							

* Wind Speed data is presented in the Meteorological Data table

Annex D5 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 (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
02-Apr-15	8:00	9:00	Fine	92	355	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0481)	5817
	9:02	10:02	Fine	99	355	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0481)	5818
	10:04	11:04	Fine	87	355	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0481)	5819
08-Apr-15	8:00	9:00	Cloudy	110	355	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0481)	5905
	9:02	10:02	Cloudy	103	355	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0481)	5906
	10:04	11:04	Cloudy	106	355	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0481)	5907
14-Apr-15	8:00	9:00	Sunny	110	355	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 0481)	5921
	9:02	10:02	Sunny	121	355	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 0481)	5922
	10:04	11:04	Sunny	115	355	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 0481)	5923
20-Apr-15	12:00	13:00	Fine	106	355	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 0481)	5785
	13:02	14:02	Fine	123	355	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 0481)	6038
	14:04	15:04	Fine	107	355	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 0481)	6079
25-Apr-15	11:43	12:43	Sunny	95	355	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0481)	6105
	12:45	13:45	Sunny	108	355	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0481)	6106
	13:47	14:47	Sunny	96	355	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0481)	6107
30-Apr-15	8:00	9:00	Sunny	112	355	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 0481)	6109
	9:02	10:02	Sunny	112	355	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 0481)	6110
	10:04	11:04	Sunny	121	355	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 0481)	6111
			Min.	**87**							
			Max.	**123**							
			Average	**107**							

* Wind Speed data is presented in the Meteorological Data table

Annex D5 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 (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
06-May-15	7:50	8:50	Cloudy	118	355	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0481)	6117
	8:52	9:52	Cloudy	118	355	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0481)	6118
	9:54	10:54	Cloudy	115	355	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0481)	6119
12-May-15	7:45	8:45	Sunny	104	355	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0481)	6205
	8:47	9:47	Sunny	110	355	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0481)	6206
	9:49	10:49	Sunny	145	355	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0481)	6207
18-May-15	7:35	8:35	Cloudy	104	355	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0481)	6217
	8:37	9:37	Cloudy	91	355	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0481)	6218
	9:39	10:39	Cloudy	82	355	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0481)	6219
23-May-15	8:00	9:00	Rainy	73	355	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0481)	6309
	9:02	10:02	Rainy	76	355	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0481)	6310
	10:06	11:06	Rainy	79	355	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0481)	6311
29-May-15	11:50	12:50	Sunny	83	355	500	Construction work in progress	31	<5	GMW GS-2310 (S/N 0481)	6341
	12:52	13:52	Sunny	84	355	500	Construction work in progress	31	<5	GMW GS-2310 (S/N 0481)	6342
	13:54	14:54	Sunny	91	355	500	Construction work in progress	31	<5	GMW GS-2310 (S/N 0481)	6343
			Min.	**73**							
			Max.	**145**							
			Average	**98**							

* Wind Speed data is presented in the Meteorological Data table

Annex D5 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	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
06-May-15	10:56	07-May-15	10:56	Cloudy	2.8866	3.0229	11661.32	11685.32	24.00	1.23	1.23	1.23	77	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	6120
12-May-15	10:51	13-May-15	10:51	Sunny	2.8922	3.0221	11688.32	11712.32	24.00	1.23	1.23	1.23	73	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	6208
18-May-15	10:41	19-May-15	10:41	Cloudy	2.8911	2.9822	11715.32	11739.32	24.00	1.23	1.23	1.23	51	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	6220
23-May-15	11:10	24-May-15	11:10	Rainy	2.8629	2.9559	11742.32	11766.32	24.00	1.23	1.23	1.23	53	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	6312
29-May-15	14:56	30-May-15	14:56	Sunny	2.8911	2.9924	11769.32	11793.32	24.00	1.23	1.23	1.23	57	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	6344
												Min.	**51**					
												Max.	**77**					
												Average	**62**					

Annex D5 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	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
02-Apr-15	11:06	03-Apr-15	11:06	Fine	2.9253	3.0291	11489.32	11513.32	24.00	1.23	1.23	1.23	59	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	5820
08-Apr-15	11:06	09-Apr-15	11:06	Cloudy	2.8641	2.9866	11516.32	11540.32	24.00	1.23	1.23	1.23	69	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	5908
14-Apr-15	11:06	15-Apr-15	11:06	Sunny	2.9019	3.0400	11543.32	11567.32	24.00	1.23	1.23	1.23	78	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	5924
20-Apr-15	15:10	21-Apr-15	15:10	Fine	2.8955	3.0224	11580.32	11604.32	24.00	1.23	1.23	1.23	72	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	6040
25-Apr-15	14:50	26-Apr-15	14:50	Sunny	2.8933	3.0311	11607.32	11631.32	24.00	1.23	1.23	1.23	78	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	6108
30-Apr-15	11:06	01-May-15	11:06	Sunny	2.8694	2.9912	11634.32	11658.32	24.00	1.23	1.23	1.23	69	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	6112
												Min.	59					
												Max.	78					
												Average	71					

Annex D5 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	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
02-Mar-15	11:06	03-Mar-15	11:06	Cloudy	2.8555	2.9800	11327.32	11351.32	24.00	1.23	1.23	1.23	70	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	5652
07-Mar-15	11:06	08-Mar-15	11:06	Fine	2.8643	2.9912	11354.32	11378.32	24.00	1.23	1.23	1.23	72	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	5664
13-Mar-15	11:06	14-Mar-15	11:06	Cloudy	2.8849	3.0144	11381.32	11405.32	24.00	1.23	1.23	1.23	73	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	5776
19-Mar-15	11:06	20-Mar-15	11:06	Fine	2.8544	2.9787	11408.32	11432.32	24.00	1.23	1.23	1.23	70	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	5788
25-Mar-15	11:06	26-Mar-15	11:06	Cloudy	2.8626	3.0012	11435.32	11459.32	24.00	1.23	1.23	1.23	78	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	5800
31-Mar-15	11:06	01-Apr-15	11:06	Fine	2.9145	3.0308	11462.32	11486.32	24.00	1.23	1.23	1.23	66	181	260	construction work in progress	GMW GS 2310 (S/N 0481)	
												Min.	**70**					
												Max.	**78**					
												Average	**73**					

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2015-03-02	Cloudy	17	78-91	Trace	0-21	SE
2015-03-03	Cloudy	20	80-95	0.2	0-22	NW
2015-03-06	Cloudy	16	92-95	0.1	0-23	SE
2015-03-07	Fine	17	86-94	0.2	2-17	SE
2015-03-08	Fine	19	80-91	Trace	0-24	SE
2015-03-12	Cloudy	15	85-96	3.7	0-15	SE/E
2015-03-13	Cloudy	17	71-83	0.0	4-20	SE/E
2015-03-14	Cloudy	19	74-89	Trace	0-23	SE
2015-03-18	Fine	23	84-97	0.0	0-18	SE
2015-03-19	Fine	24	79-96	0.0	0-11	SE
2015-03-20	Fine	24	66-95	0.0	0-18	SE
2015-03-24	Fine	20	66-83	0.0	4-21	SE/E
2015-03-25	Cloudy	18	73-81	Trace	1-24	SE/E
2015-03-26	Cloudy	19	72-96	4.2	0-16	SE
2015-03-30	Fine	23	80-93	0.0	0-15	SE/E
2015-03-31	Fine	23	82-95	Trace	0-14	SE/E
2015-04-01	Fine	24	75-95	0.0	0-13	SE

		Tsing Yi Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-03-02	Cloudy	18	78-91	Trace	0-22	E
2015-03-03	Cloudy	21	80-95	0.2	0-25	NW
2015-03-06	Cloudy	18	92-95	0.1	0-17	SE/E
2015-03-07	Fine	19	86-94	0.2	0-18	E
2015-03-08	Fine	20	80-91	Trace	0-23	NW
2015-03-12	Cloudy	16	85-96	3.7	0-11	SE/E
2015-03-13	Cloudy	18	71-83	0.0	1-18	E
2015-03-14	Cloudy	20	74-89	Trace	3-26	E
2015-03-18	Fine	24	84-97	0.0	0-23	SE
2015-03-19	Fine	25	79-96	0.0	0-13	SE
2015-03-20	Fine	25	66-95	0.0	0-15	SE
2015-03-24	Fine	21	66-83	0.0	4-25	SE/E
2015-03-25	Cloudy	18	73-81	Trace	1-14	SE/E
2015-03-26	Cloudy	19	72-96	4.2	0-12	NW
2015-03-30	Fine	25	80-93	0.0	2-14	SE/E
2015-03-31	Fine	25	82-95	Trace	0-15	SE
2015-04-01	Fine	26	75-95	0.0	0-19	N/NW

		Kai Tak Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-03-02	Cloudy	17	78-91	Trace	7-25	SE/E
2015-03-03	Cloudy	20	80-95	0.2	0-20	SW
2015-03-06	Cloudy	16	92-95	0.1	6-22	SE/E
2015-03-07	Fine	17	86-94	0.2	8-22	E
2015-03-08	Fine	19	80-91	Trace	6-24	SE
2015-03-12	Cloudy	15	85-96	3.7	0-18	SE/E
2015-03-13	Cloudy	17	71-83	0.0	9-24	SE/E
2015-03-14	Cloudy	19	74-89	Trace	7-31	SE
2015-03-18	Fine	23	84-97	0.0	4-21	SE
2015-03-19	Fine	24	79-96	0.0	2-22	SE
2015-03-20	Fine	24	66-95	0.0	0-23	SE
2015-03-24	Fine	20	66-83	0.0	10-28	E
2015-03-25	Cloudy	18	73-81	Trace	4-28	SE/E
2015-03-26	Cloudy	19	72-96	4.2	4-22	SE
2015-03-30	Fine	23	80-93	0.0	3-21	SE
2015-03-31	Fine	23	82-95	Trace	4-20	SE
2015-04-01	Fine	24	75-95	0.0	7-19	SE

		Green Island Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-03-02	Cloudy	17	78-91	Trace	17-44	NE
2015-03-03	Cloudy	20	80-95	0.2	0-45	N
2015-03-06	Cloudy	16	92-95	0.1	20-41	NE
2015-03-07	Fine	17	86-94	0.2	18-43	NE
2015-03-08	Fine	19	80-91	Trace	5-45	NE
2015-03-12	Cloudy	15	85-96	3.7	0-31	NE
2015-03-13	Cloudy	17	71-83	0.0	8-42	NE
2015-03-14	Cloudy	19	74-89	Trace	11-36	NE
2015-03-18	Fine	23	84-97	0.0	0-30	S
2015-03-19	Fine	24	79-96	0.0	0-31	S
2015-03-20	Fine	24	66-95	0.0	0-27	NE
2015-03-24	Fine	20	66-83	0.0	20-50	NE
2015-03-25	Cloudy	18	73-81	Trace	10-50	NE
2015-03-26	Cloudy	19	72-96	4.2	0-40	NE/N
2015-03-30	Fine	23	80-93	0.0	0-26	S
2015-03-31	Fine	23	82-95	Trace	0-21	SE/S
2015-04-01	Fine	24	75-95	0.0	0-30	S

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

Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2015/04/02	Fine	26	74-91	0.0	0-13	NE
2015/04/08	Cloudy	18	69-96	10.0	1-21	NE
2015/04/13	Sunny	22	38-77	0.0	0-13	NE/E
2015/04/14	Sunny	21	29-61	0.0	0-18	NE/E
2015/04/16	Cloudy	22	51-81	0.0	0-15	N/NW
2015/04/18	Cloudy	25	80-90	Trace	1-16	SE
2015/04/20	Fine	26	78-91	0.2	1-13	N/NW
2015/04/22	Fine	23	65-88	Trace	0-22	SE
2015/04/24	Sunny	24	56-83	0.0	0-13	S
2015/04/25	Sunny	24	65-85	0.0	0-18	SE
2015/04/28	Sunny	25	64-90	0.0	0-17	NW/W
2015/04/30	Sunny	28	60-91	0.0	0-12	NW/W

Date	Weather	Tsing Yi Station				
		Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015/04/02	Fine	26	74-91	0.0	0-24	SE
2015/04/08	Cloudy	19	69-96	10.0	2-14	NW
2015/04/13	Sunny	22	38-77	0.0	0-17	SE/E
2015/04/14	Sunny	22	29-61	0.0	0-19	SE/E
2015/04/16	Cloudy	22	51-81	0.0	0-23	SE
2015/04/18	Cloudy	25	80-90	Trace	9-27	SE
2015/04/20	Fine	25	78-91	0.2	1-15	SE
2015/04/22	Fine	24	65-88	Trace	1-20	E
2015/04/24	Sunny	25	56-83	0.0	0-15	SE/E
2015/04/25	Sunny	24	65-85	0.0	0-23	SE/E
2015/04/28	Sunny	25	64-90	0.0	0-15	SE/E
2015/04/30	Sunny	29	60-91	0.0	0-16	SE

Date	Weather	Kai Tak Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015/04/02	Fine	26	74-91	0.0	2-19	SE/E
2015/04/08	Cloudy	18	69-96	10.0	0-17	NE/E
2015/04/13	Sunny	22	38-77	0.0	0-18	SE
2015/04/14	Sunny	21	29-61	0.0	2-22	NE/E
2015/04/16	Cloudy	22	51-81	0.0	0-15	SW
2015/04/18	Cloudy	25	80-90	Trace	2-20	SE
2015/04/20	Fine	26	78-91	0.2	1-21	SW
2015/04/22	Fine	23	65-88	Trace	2-26	SE/E
2015/04/24	Sunny	24	56-83	0.0	4-22	SE
2015/04/25	Sunny	24	65-85	0.0	6-23	E
2015/04/28	Sunny	25	64-90	0.0	0-17	SW
2015/04/30	Sunny	28	60-91	0.0	0-17	SE

Date	Weather	Green Island Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015/04/02	Fine	26	74-91	0.0	12-43	S
2015/04/08	Cloudy	18	69-96	10.0	8-43	N
2015/04/13	Sunny	22	38-77	0.0	0-41	NE
2015/04/14	Sunny	21	29-61	0.0	8-38	NE
2015/04/16	Cloudy	22	51-81	0.0	0-26	S/SW
2015/04/18	Cloudy	25	80-90	Trace	5-45	S
2015/04/20	Fine	26	78-91	0.2	7-34	S/SW
2015/04/22	Fine	23	65-88	Trace	13-58	NE
2015/04/24	Sunny	24	56-83	0.0	0-25	S
2015/04/25	Sunny	24	65-85	0.0	0-35	NE
2015/04/28	Sunny	25	64-90	0.0	0-26	S/SW
2015/04/30	Sunny	28	60-91	0.0	0-34	S/SW

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

Meteorological Data Extracted from the Hong Kong Observatory

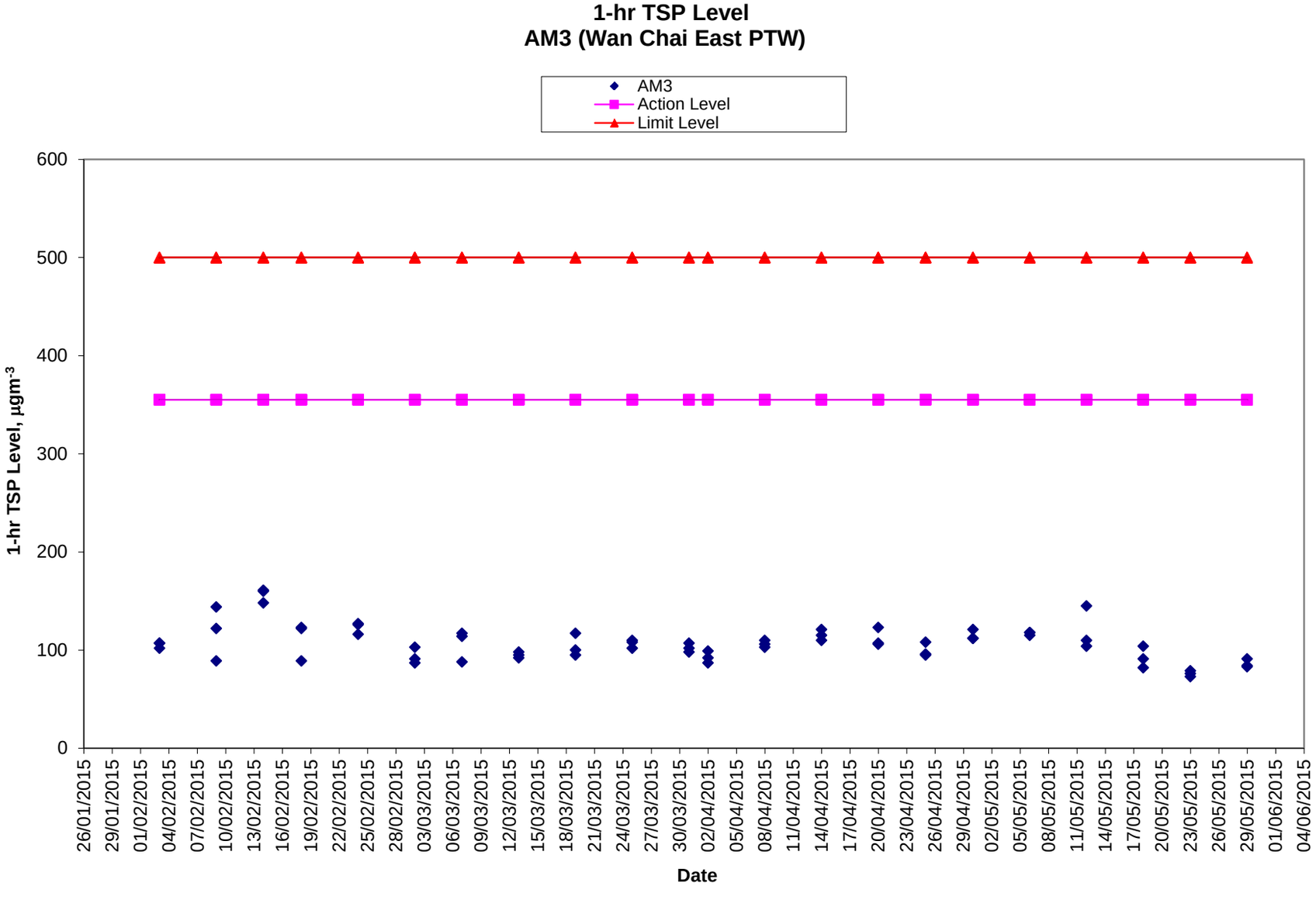
		King's Park Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2015-05-02	Cloudy	28	72-86	Trace	0-19	SW/W
2015-05-06	Cloudy	26	69-96	0.6	0-15	SW/W
2015-05-07	Cloudy	28	75-91	0.3	0-15	SW/W
2015-05-12	Sunny	26	63-92	0.0	0-14	SE
2015-05-13	Cloudy	27	78-90	0.0	0-17	SE
2015-05-18	Cloudy	28	75-94	0.9	0-18	SW
2015-05-19	Cloudy	28	80-88	1.2	3-21	SW
2015-05-22	Cloudy	23	89-96	0.7	6-19	SE
2015-05-23	Rainy	25	94-99	169.4	0-19	SE
2015-05-28	Fine	30	71-90	670.7	0-17	SW
2015-05-29	Fine	31	73-84	0.0	0-17	SW/W

		Tsing Yi Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-05-02	Cloudy	28	72-86	Trace	8-22	SE
2015-05-06	Cloudy	27	69-96	0.6	8-26	SE/E
2015-05-07	Cloudy	28	75-91	0.3	0-19	SE
2015-05-12	Sunny	26	63-92	0.0	0-14	SE/E
2015-05-13	Cloudy	27	78-90	0.0	2-20	E
2015-05-18	Cloudy	25	75-94	0.9	0-21	SE
2015-05-19	Cloudy	28	80-88	1.2	3-24	SE
2015-05-22	Cloudy	24	89-96	0.7	4-20	E
2015-05-23	Rainy	25	94-99	169.4	0-30	SE
2015-05-28	Fine	30	71-90	670.7	6-16	SE
2015-05-29	Fine	25	73-84	0.0	4-15	SE

		Kai Tak Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-05-02	Cloudy	28	72-86	Trace	3-21	SE
2015-05-06	Cloudy	26	69-96	0.6	1-18	SE/E
2015-05-07	Cloudy	28	75-91	0.3	3-17	SE
2015-05-12	Sunny	26	63-92	0.0	0-20	SE
2015-05-13	Cloudy	27	78-90	0.0	6-20	SE/E
2015-05-18	Cloudy	28	75-94	0.9	0-20	SW/S
2015-05-19	Cloudy	28	80-88	1.2	3-23	SW/S
2015-05-22	Cloudy	23	89-96	0.7	18-22	E
2015-05-23	Rainy	25	94-99	169.4	0-40	SE/E
2015-05-28	Fine	30	71-90	670.7	3-21	SW/S
2015-05-29	Fine	31	73-84	0.0	0-18	SW/S

		Green Island Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-05-02	Cloudy	28	72-86	Trace	17-37	S
2015-05-06	Cloudy	26	69-96	0.6	2-35	S
2015-05-07	Cloudy	28	75-91	0.3	3-32	S
2015-05-12	Sunny	26	63-92	0.0	0-30	SW/S
2015-05-13	Cloudy	27	78-90	0.0	0-34	NE
2015-05-18	Cloudy	28	75-94	0.9	11-38	S
2015-05-19	Cloudy	28	80-88	1.2	23-49	S
2015-05-22	Cloudy	23	89-96	0.7	28-47	NE
2015-05-23	Rainy	25	94-99	169.4	0-48	NE
2015-05-28	Fine	30	71-90	670.7	15-35	SW/S
2015-05-29	Fine	31	73-84	0.0	14-35	SW/S

* King's Park's data
\- Data was not available
\# less than 24 hourly observations per day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AM3 (Wan Chai East PTW)
AM3
Action Level
Limit Level
1-hr TSP Level, µgm-3
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500
400
300
200
100
0
26/01/2015
29/01/2015
01/02/2015
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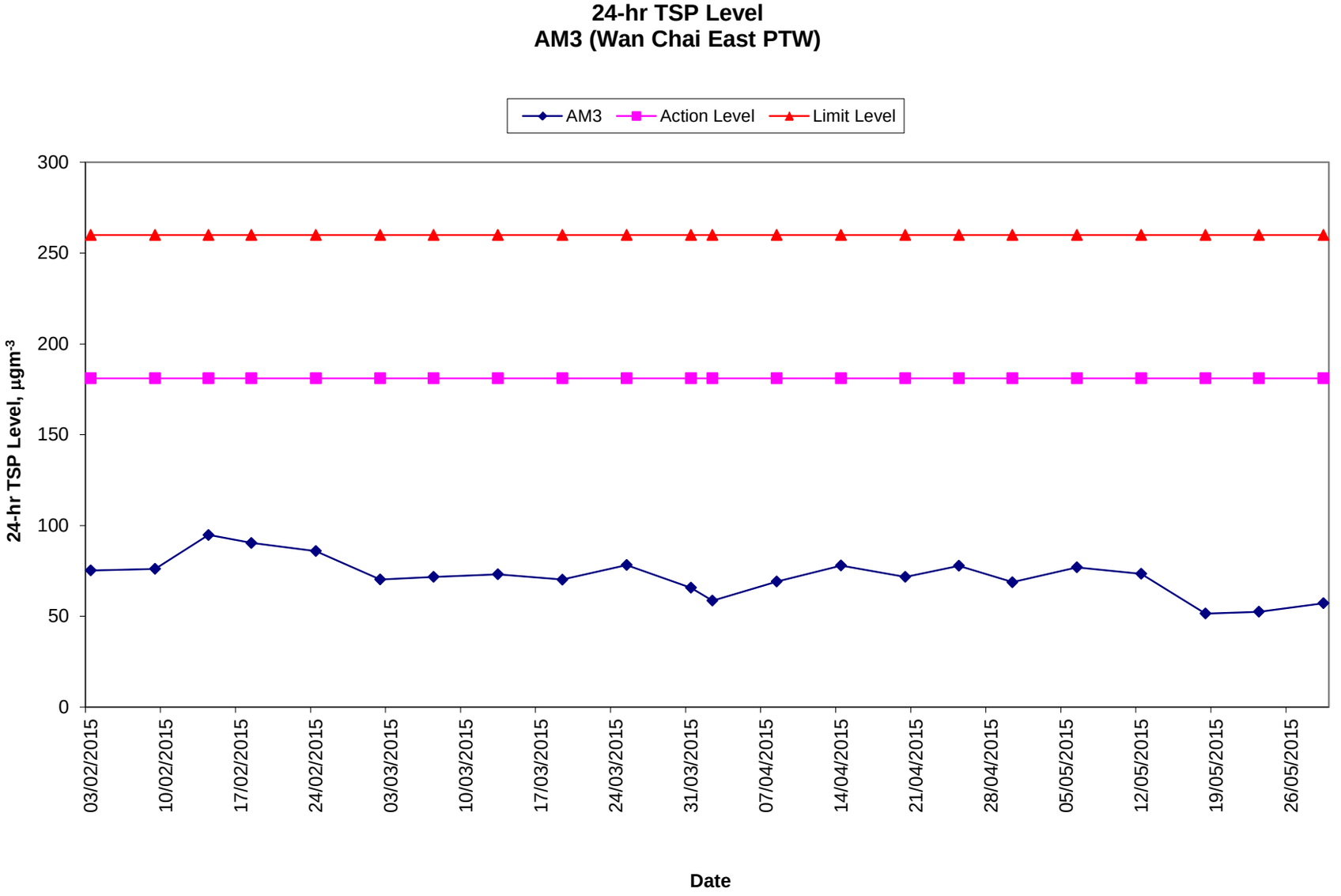
04/06/2015
Date


24-hr TSP Level
AM3 (Wan Chai East PTW)
AM3
Action Level
Limit Level
24-hr TSP Level, µgm-3
300
250
200
150
100
50
0
03/02/2015
10/02/2015
17/02/2015
24/02/2015
03/03/2015
10/03/2015
17/03/2015
24/03/2015
31/03/2015
07/04/2015
14/04/2015
21/04/2015
28/04/2015
05/05/2015
12/05/2015
19/05/2015
26/05/2015
Date

Annex D6 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. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
02-Mar-15	10:19	10:49	Cloudy	73	74	72	Lifting, Noise from nearby site	Traffic noise	-	17	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
13-Mar-15	10:20	10:50	Cloudy	73	74	72	Lifting	Traffic noise	-	17	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
19-Mar-15	10:20	10:50	Fine	73	74	72	Lifting	Traffic noise	-	29	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
25-Mar-15	8:15	8:45	Cloudy	73	74	71	Lifting, Noise from nearby site	Traffic noise	-	18	0.5	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
31-Mar-15	8:15	8:45	Fine	72	74	71	Lifting	Traffic noise	-	22	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
			Min.	**73**									
			Max.	**73**									

Annex D6 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. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
08-Apr-15	8:15	8:45	Cloudy	73	74	71	-	Traffic noise	-	22	0.5	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
14-Apr-15	10:20	10:50	Sunny	73	74	72	-	Traffic noise	-	23	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
20-Apr-15	14:20	14:50	Fine	72	74	71	Noise from nearby site	Traffic noise	-	24	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
30-Apr-15	8:15	8:45	Sunny	72	74	71	Lifting, Noise from nearby site	Traffic noise	-	27	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
			Min.	**72**									
			Max.	**73**									

Annex D6 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. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
06-May-15	8:05	8:35	Cloudy	72	73	71	Lifting, Noise from nearby site	Traffic noise	-	28	0.5	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
12-May-15	8:00	8:30	Sunny	72	74	71	Lifting, Noise from nearby site	Traffic noise	-	26	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
18-May-15	8:52	9:22	Cloudy	73	74	71	Noise from nearby site	Traffic noise	-	28	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
29-May-15	15:10	15:40	Sunny	72	74	71	Noise from nearby site	Traffic noise	-	31	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
			Min.	**72**									
			Max.	**73**									

Annex D6 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) Observed	Other Noise Source(s) Observed	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
01-Mar-15	15:41	15:46	Fine	72	72	70	-	Traffic noise	-	19	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	15:46	15:51	Fine	71	73	70			-				
	15:51	15:56	Fine	72	73	70			-				
	15:41	15:56	Fine	72	73	70			-				
10-Mar-15	19:06	19:11	Fine	71	72	70	-	Traffic noise	-	18	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	19:11	19:16	Fine	71	72	70			-				
	19:16	19:21	Fine	71	72	69			-				
	19:06	19:21	Fine	71	72	70			-				
15-Mar-15	15:01	15:06	Fine	71	73	70	-	Traffic noise	-	21	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	15:06	15:11	Fine	72	73	70			-				
	15:11	15:16	Fine	71	72	70			-				
	15:01	15:16	Fine	72	73	70			-				
24-Mar-15	22:35	22:40	Cloudy	69	70	68	-	Traffic noise	-	20	0.5	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	22:40	22:45	Cloudy	69	70	68			-				
	22:45	22:50	Cloudy	69	71	68			-				
	22:35	22:50	Cloudy	69	70	68			-				
29-Mar-15	8:40	8:45	Fine	71	73	70	-	Traffic noise	-	23	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	8:45	8:50	Fine	71	73	71			-				
	8:50	8:55	Fine	72	73	70			-				
	8:40	8:55	Fine	71	73	70			-				
	:		**Min.**	**69**									
			Max.	**72**									

Annex D6 Noise Monitoring Results

Restricted Hours Noise Monitoring Results

Station NM2

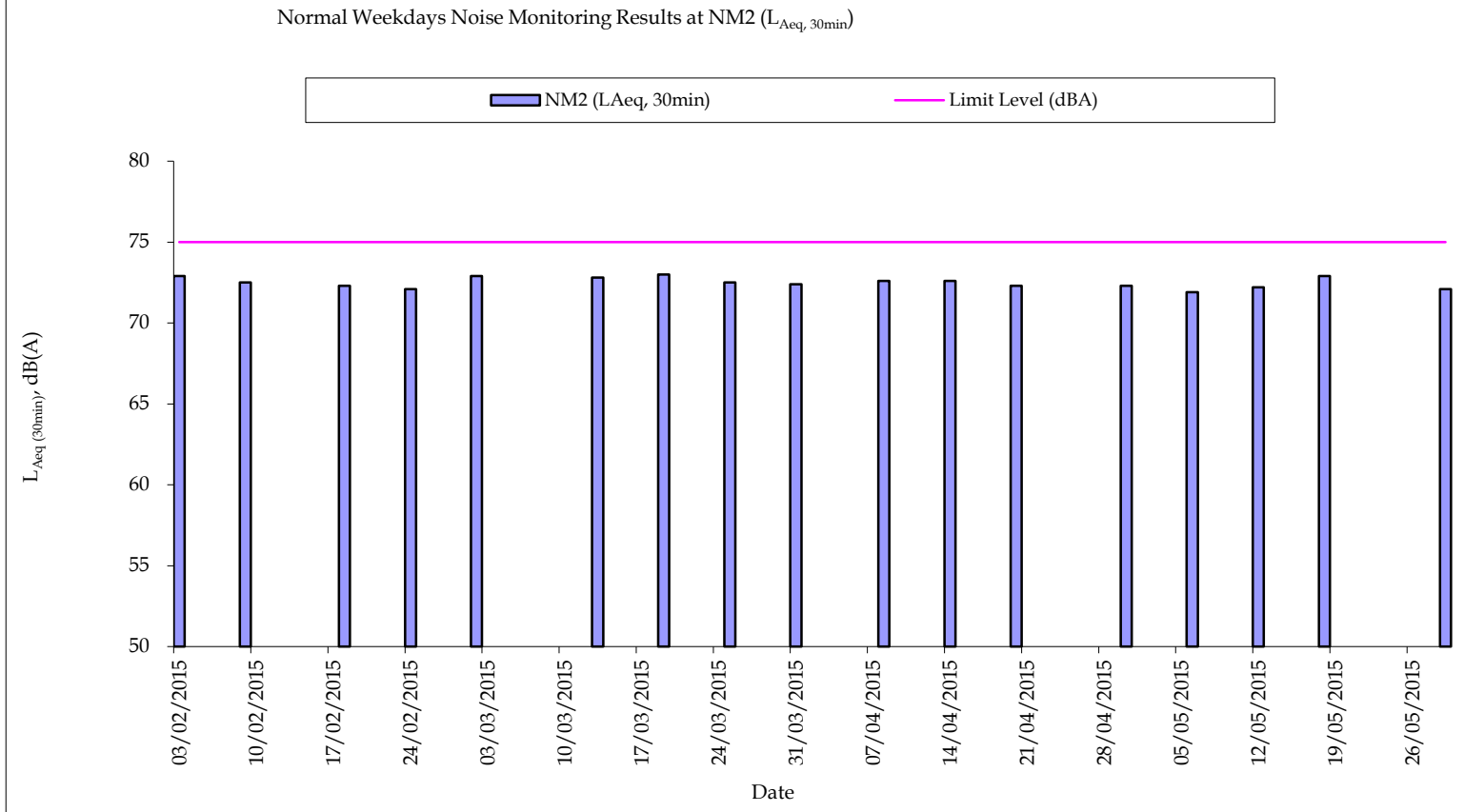
Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
08-Apr-15	20:33	20:38	Cloudy	69	71	68	-	Traffic noise	-	22	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	20:38	20:43	Cloudy	70	71	69			-				
	20:43	20:48	Cloudy	70	71	69			-				
	20:33	20:48	Cloudy	70	71	69			-				
12-Apr-15	19:06	19:11	Fine	71	73	70	-	Traffic noise	-	19	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	19:11	19:16	Fine	71	73	69			-				
	19:16	19:21	Fine	72	73	71			-				
	19:06	19:21	Fine	72	73	70			-				
21-Apr-15	19:08	19:13	Fine	72	73	71	-	Traffic noise	-	24	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	19:13	19:18	Fine	72	73	71			-				
	19:18	19:23	Fine	72	73	70			-				
	19:08	19:23	Fine	72	73	71			-				
26-Apr-15	15:03	15:08	Cloudy	69	71	68	-	Traffic noise	-	25	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	15:08	15:13	Cloudy	69	70	67			-				
	15:13	15:18	Cloudy	69	70	68			-				
	15:03	15:18	Cloudy	69	70	68			-				
			Min.	**69**									
			Max.	**72**									

Annex D6 Noise Monitoring Results

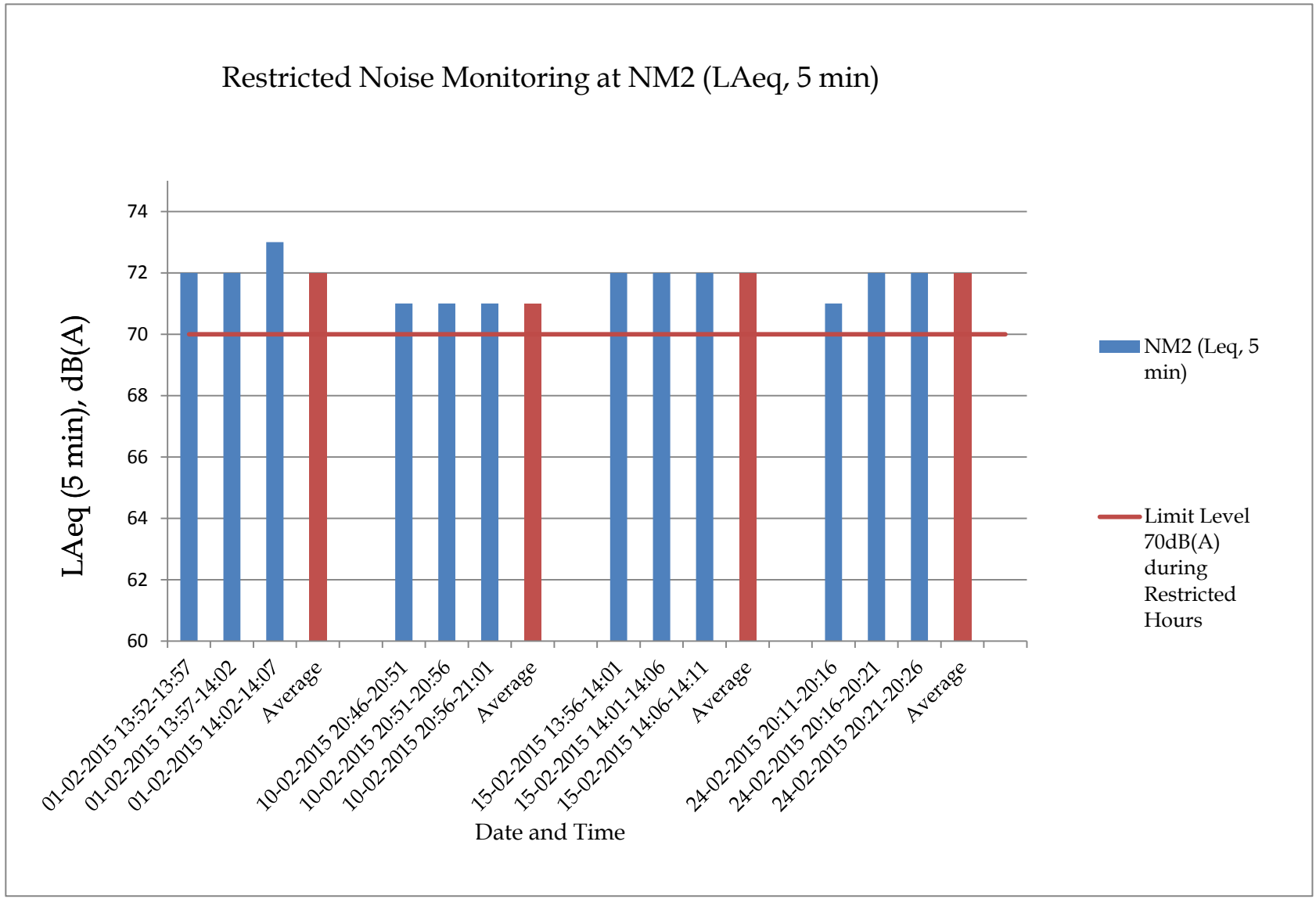
Restricted Hours Noise Monitoring Results

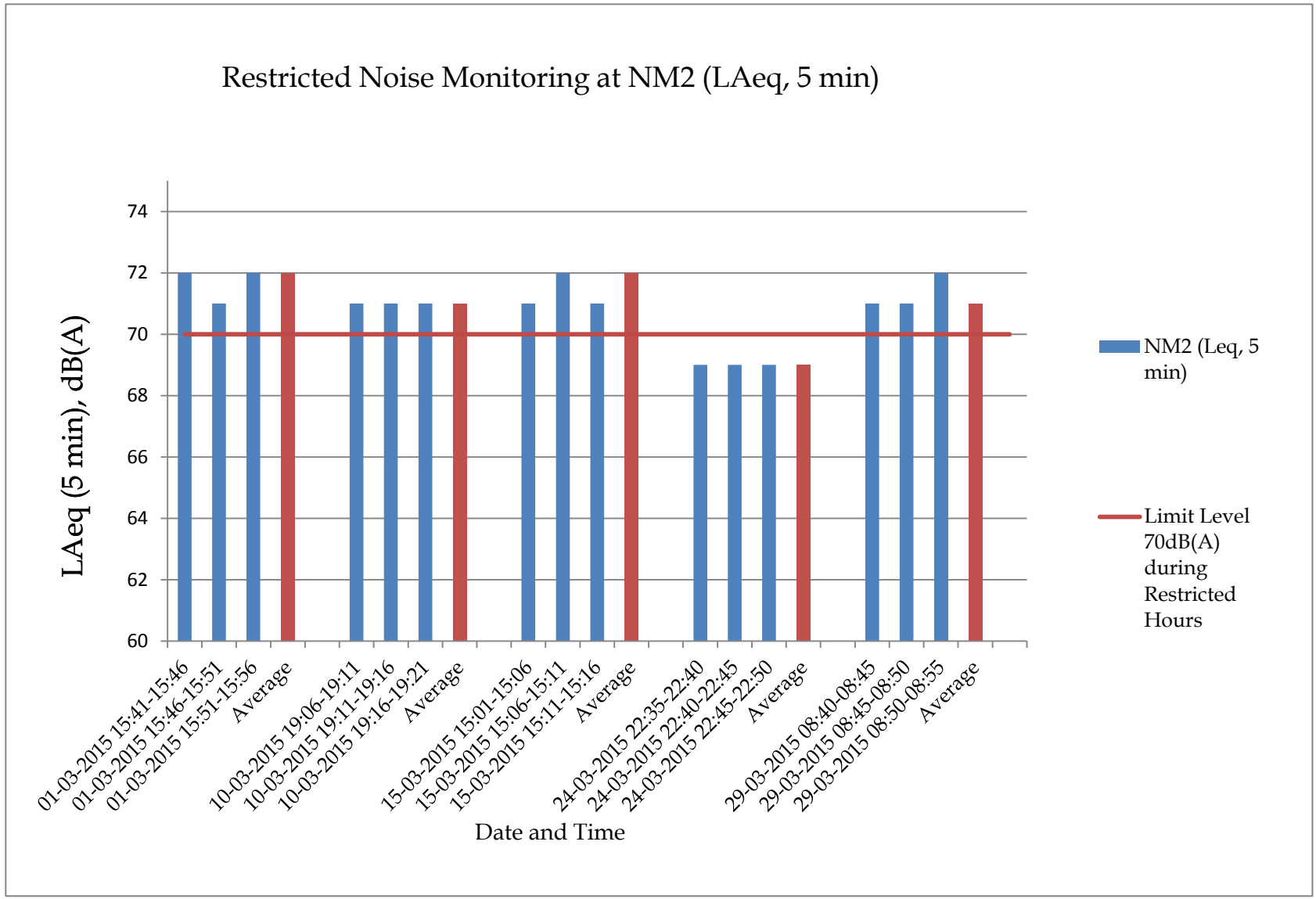
Station NM2

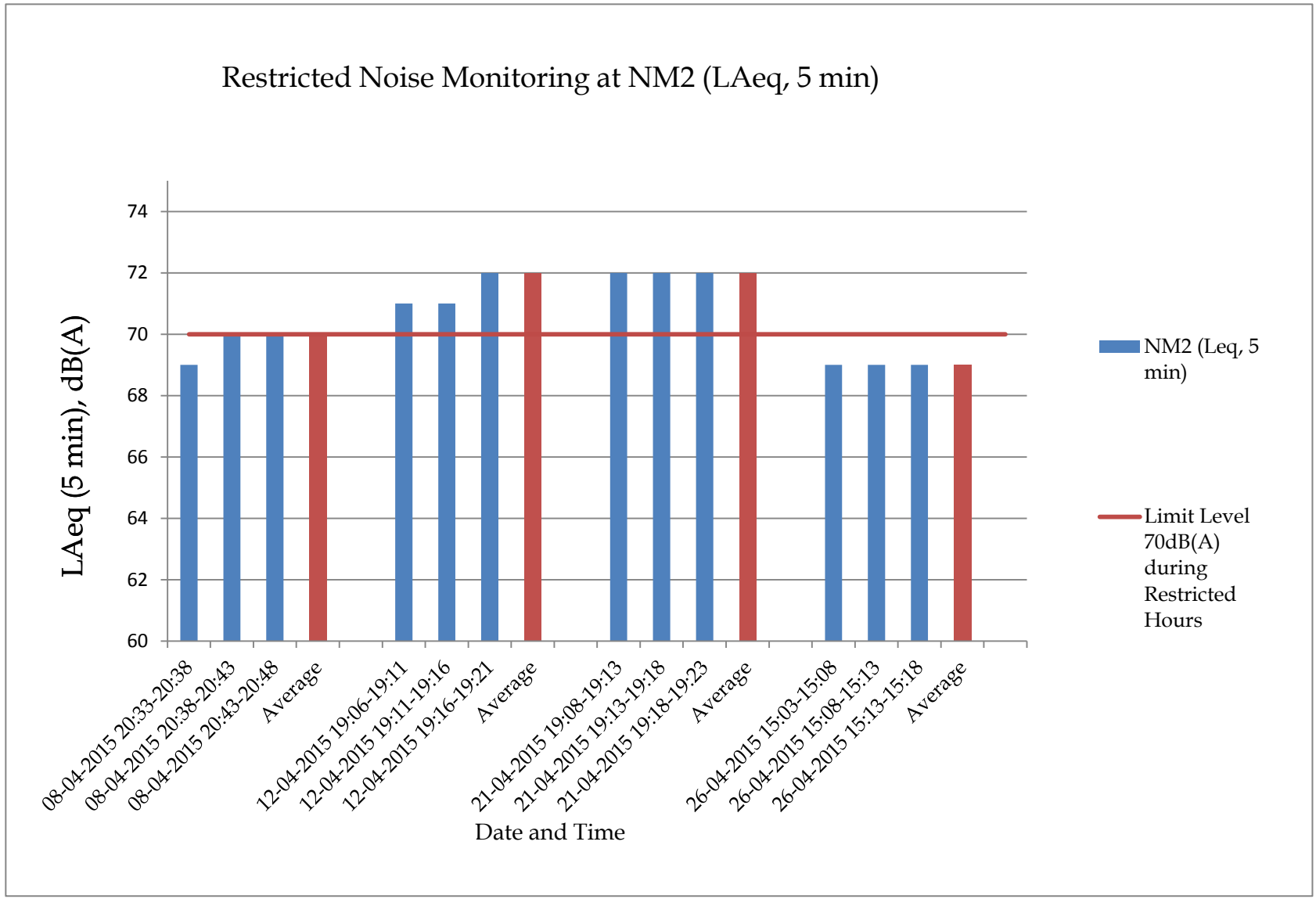
Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
05-May-15	19:06	19:11	Fine	69	70	67	-	Traffic noise	-	28	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	19:11	19:16	Fine	69	70	67			-				
	19:16	19:21	Fine	69	70	67			-				
	19:06	19:21	Fine	69	70	67			-				
10-May-15	18:40	18:45	Fine	71	72	68	-	Traffic noise	-	27	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	18:45	18:50	Fine	71	72	70			-				
	18:50	18:55	Fine	71	72	70			-				
	18:40	18:55	Fine	71	72	70			-				
19-May-15	19:17	19:22	Fine	70	71	69	-	Traffic noise	-	28	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	19:22	19:27	Fine	71	72	69			-				
	19:27	19:32	Fine	71	72	69			-				
	19:17	19:32	Fine	71	72	69			-				
24-May-15	15:20	15:25	Cloudy	72	73	70	-	Traffic noise	-	27	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	15:25	15:30	Cloudy	71	72	69			-				
	15:30	15:35	Cloudy	71	72	69			-				
	15:20	15:35	Cloudy	71	72	70			-				
	:		**Min.**	**69**									
			Max.	**72**									

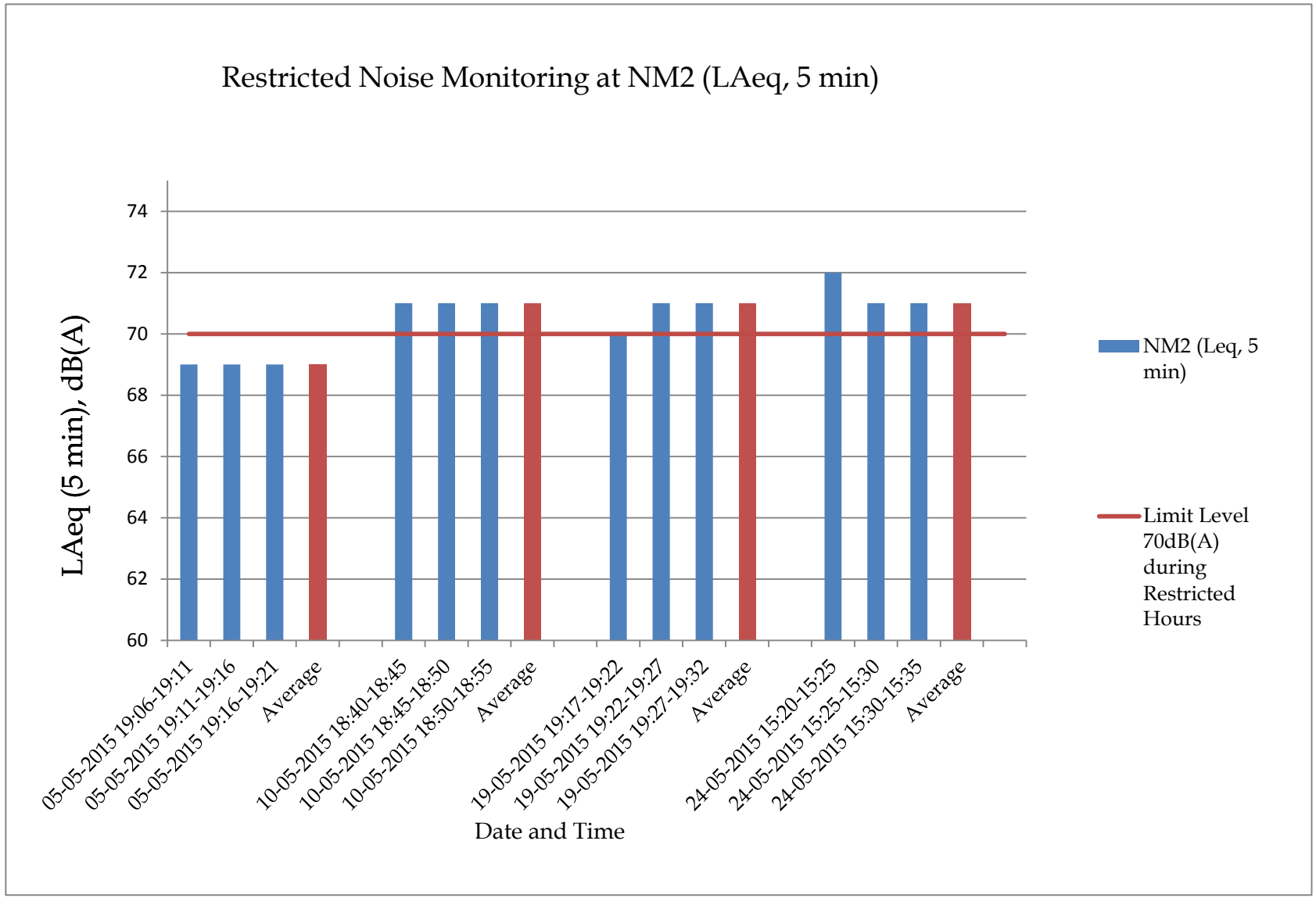


Remark:
- 75dB(A) was adopted as the Limit Level during normal weekdays in the reporting period


Restricted Noise Monitoring at NM2 (LAeq, 5 min)
LAeq (5 min), dB(A)
74
72
70
68
66
64
62
60
01-02-2015 13:52-13:57
01-02-2015 13:57-14:02
01-02-2015 14:02-14:07
Average
10-02-2015 20:46-20:51
10-02-2015 20:51-20:56
10-02-2015 20:56-21:01
Average
15-02-2015 13:56-14:01
15-02-2015 14:01-14:06
15-02-2015 14:06-14:11
Average
24-02-2015 20:11-20:16
24-02-2015 20:16-20:21
24-02-2015 20:21-20:26
Average
Date and Time
NM2 (Leq, 5 min)
Limit Level 70dB(A) during Restricted Hours


Restricted Noise Monitoring at NM2 (LAeq, 5 min)
LAeq (5 min), dB(A)
74
72
70
68
66
64
62
60
01-03-2015 15:41-15:46
01-03-2015 15:46-15:51
01-03-2015 15:51-15:56
Average
10-03-2015 19:06-19:11
10-03-2015 19:11-19:16
10-03-2015 19:16-19:21
Average
15-03-2015 15:01-15:06
15-03-2015 15:06-15:11
15-03-2015 15:11-15:16
Average
24-03-2015 22:35-22:40
24-03-2015 22:40-22:45
24-03-2015 22:45-22:50
Average
29-03-2015 08:40-08:45
29-03-2015 08:45-08:50
29-03-2015 08:50-08:55
Average
Date and Time
NM2 (Leq, 5 min)
Limit Level 70dB(A) during Restricted Hours


Restricted Noise Monitoring at NM2 (LAeq, 5 min)
LAeq (5 min), dB(A)
74
72
70
68
66
64
62
60
08-04-2015 20:33-20:38
08-04-2015 20:38-20:43
08-04-2015 20:43-20:48
Average
12-04-2015 19:06-19:11
12-04-2015 19:11-19:16
12-04-2015 19:16-19:21
Average
21-04-2015 19:08-19:13
21-04-2015 19:13-19:18
21-04-2015 19:18-19:23
Average
26-04-2015 15:03-15:08
26-04-2015 15:08-15:13
26-04-2015 15:13-15:18
Average
Date and Time
NM2 (Leq, 5 min)
Limit Level 70dB(A) during Restricted Hours


Restricted Noise Monitoring at NM2 (LAeq, 5 min)
LAeq (5 min), dB(A)
74
72
70
68
66
64
62
60
05-05-2015 19:06-19:11
05-05-2015 19:11-19:16
05-05-2015 19:16-19:21
Average
10-05-2015 18:40-18:45
10-05-2015 18:45-18:50
10-05-2015 18:50-18:55
Average
19-05-2015 19:17-19:22
19-05-2015 19:22-19:27
19-05-2015 19:27-19:32
Average
24-05-2015 15:20-15:25
24-05-2015 15:25-15:30
24-05-2015 15:30-15:35
Average
Date and Time
NM2 (Leq, 5 min)
Limit Level 70dB(A) during Restricted Hours

Annex D7

Summary of Exceedance Investigation

Harbour Area Treatment Scheme (HATS) Stage 2A
Contract No. DC/2007/23
Construction of Sewage Conveyance from North Point to Stonecutters Island

NOTIFICATION OF EXCEEDANCE and INVESTIGATION REPORT

Log No.	**2007/23/Noise/255**
Date	1 March 2015 (Sunday) (15:41 – 15:46; 15:46 – 15:51; 15:51 – 15:56)
Monitoring Station	NM2 (Wan Chai East)
Worksite	Wan Chai East Production and Drop Shafts
Parameter	$L_{Aeq\ (5min)}$
Action Level	Not applicable for construction works during restricted hours
Limit Level	70dB
Measured Levels	71.5 dB (A) – (15:41 – 15:46) 71.4 dB (A) – (15:46 – 15:51) 71.5 dB (A) – (15:51 – 15:56)
Possible Reason for Action or Limit Level Non-compliance	According to the works summary provided by the Contractor, no works had been performed outside the noise enclosure. Other activities that took place during the noise monitoring session included concrete pouring, clean spillage and removing ventilation duct at TK4; pouring concrete, unloading concrete mix, dewatering and pump maintenance at TJ5; tally control room, alimak operations, installing and maintaining electrical systems, gantry crane operations, kibble winder, lifting operations, repairing equipment, cleaning, servicing and maintenance, and fabrication. These activities were carried out inside the noise enclosure. It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period. Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level. In view of no outdoor construction works was carried out and contribution from other potential noise source in vicinity (i.e. traffic), it is considered that the exceedance was not due to the Contract 23 construction works.
Actions Taken / To Be Taken	Since the exceedance was not attributable to the Contract 23 construction works, no action is therefore required. However, a number of residential buildings and other noise sensitive receivers are located near the Site, the Contractor is 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. The Contractor is also reminded to ensure that the construction plant deployed for the works during restricted hours is in strict compliance with the relevant Construction Noise Permit (CNP) granted.
Remarks	-

Harbour Area Treatment Scheme (HATS) Stage 2A
Contract No. DC/2007/23
Construction of Sewage Conveyance from North Point to Stonecutters Island

NOTIFICATION OF EXCEEDANCE and INVESTIGATION REPORT

Log No.	**2007/23/Noise/256**
Date	10 March 2015 (Tuesday) (19:06 – 19:11; 19:11 – 19:16; 19:16 – 19:21)
Monitoring Station	NM2 (Wan Chai East)
Worksite	Wan Chai East Production and Drop Shafts
Parameter	$L_{Aeq\ (5min)}$
Action Level	Not applicable for construction works during restricted hours
Limit Level	70dB
Measured Levels	70.8 dB (A) – (19:06 – 19:11) 71.0 dB (A) – (19:11 – 19:16) 70.7 dB (A) – (19:16 – 19:21)
Possible Reason for Action or Limit Level Non-compliance	According to the works summary provided by the Contractor, no works had been performed outside the noise enclosure. Other activities that took place during the noise monitoring session included safety toolbox meeting and activity orientation at TK4; tally control room, alimak operations, installing and maintaining electrical systems, gantry crane operations, kibble winder, lifting operations, repairing equipment, cleaning, servicing and maintenance, and fabrication. These activities were carried out inside the noise enclosure. It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period. Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level. In view of no outdoor construction works was carried out and contribution from other potential noise source in vicinity (i.e. traffic), it is considered that the exceedance was not due to the Contract 23 construction works.
Actions Taken / To Be Taken	Since the exceedance was not attributable to the Contract 23 construction works, no action is therefore required. However, a number of residential buildings and other noise sensitive receivers are located near the Site, the Contractor is 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. The Contractor is also reminded to ensure that the construction plant deployed for the works during restricted hours is in strict compliance with the relevant Construction Noise Permit (CNP) granted.
Remarks	-

Harbour Area Treatment Scheme (HATS) Stage 2A
Contract No. DC/2007/23
Construction of Sewage Conveyance from North Point to Stonecutters Island

NOTIFICATION OF EXCEEDANCE and INVESTIGATION REPORT

Log No.	**2007/23/Noise/257**
Date	15 March 2015 (Sunday) (15:01 – 15:06; 15:06 – 15:11; 15:11 – 15:16)
Monitoring Station	NM2 (Wan Chai East)
Worksite	Wan Chai East Production and Drop Shafts
Parameter	$L_{Aeq\ (5min)}$
Action Level	Not applicable for construction works during restricted hours
Limit Level	70dB
Measured Levels	71.4 dB (A) – (15:01 – 15:06) 71.7 dB (A) – (15:06 – 15:11) 71.4 dB (A) – (15:11 – 15:16)
Possible Reason for Action or Limit Level Non-compliance	According to the works summary provided by the Contractor, no works had been performed outside the noise enclosure. Other activities that took place during the noise monitoring session included pump changing, pulling the formwork carrier and setting it, installing horizontal jacks, watering off mud, and pump changing at TK4; tally control room, alimak operations, installing and maintaining electrical systems, gantry crane operations, kibble winder, lifting operations, repairing equipment, cleaning, servicing and maintenance, and fabrication. These activities were carried out inside the noise enclosure. It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period. Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level. In view of no outdoor construction works was carried out and contribution from other potential noise source in vicinity (i.e. traffic), it is considered that the exceedance was not due to the Contract 23 construction works.
Actions Taken / To Be Taken	Since the exceedance was not attributable to the Contract 23 construction works, no action is therefore required. However, a number of residential buildings and other noise sensitive receivers are located near the Site, the Contractor is 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. The Contractor is also reminded to ensure that the construction plant deployed for the works during restricted hours is in strict compliance with the relevant Construction Noise Permit (CNP) granted.
Remarks	-

Harbour Area Treatment Scheme (HATS) Stage 2A
Contract No. DC/2007/23
Construction of Sewage Conveyance from North Point to Stonecutters Island

NOTIFICATION OF EXCEEDANCE and INVESTIGATION REPORT

Log No.	**2007/23/Noise/258**
Date	29 March 2015 (Sunday) (08:40 – 08:45; 08:45 – 08:50; 08:50 – 08:55)
Monitoring Station	NM2 (Wan Chai East)
Worksite	Wan Chai East Production and Drop Shafts
Parameter	$L_{Aeq\ (5min)}$
Action Level	Not applicable for construction works during restricted hours
Limit Level	70dB
Measured Levels	71.1 dB (A) – (08:40 – 08:45) 71.0 dB (A) – (08:45 – 08:50) 71.8 dB (A) – (08:50 – 08:55)
Possible Reason for Action or Limit Level Non-compliance	According to the works summary provided by the Contractor, no works had been performed outside the noise enclosure. Other activities that took place during the noise monitoring session included FRP fixing and setting, concrete loading, water level and dewatering pumps monitoring, big and small vault shutter setting, plication of form oil, water stops installation;; tally control room, alimak operations, installing and maintaining electrical systems, gantry crane operations, kibble winder, lifting operations, repairing equipment, cleaning, servicing and maintenance, and fabrication. These activities were carried out inside the noise enclosure. It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period. Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level. In view of no outdoor construction works was carried out and contribution from other potential noise source in vicinity (i.e. traffic), it is considered that the exceedance was not due to the Contract 23 construction works.
Actions Taken / To Be Taken	Since the exceedance was not attributable to the Contract 23 construction works, no action is therefore required. However, a number of residential buildings and other noise sensitive receivers are located near the Site, the Contractor is 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. The Contractor is also reminded to ensure that the construction plant deployed for the works during restricted hours is in strict compliance with the relevant Construction Noise Permit (CNP) granted.
Remarks	-

Harbour Area Treatment Scheme (HATS) Stage 2A
Contract No. DC/2007/23
Construction of Sewage Conveyance from North Point to Stonecutters Island

NOTIFICATION OF EXCEEDANCE and INVESTIGATION REPORT

Log No.	**2007/23/Noise/259**
Date	12 April 2015 (Sunday) (19:06 – 19:11; 19:11 – 19:16; 19:16 – 19:21)
Monitoring Station	NM2 (Wan Chai East)
Worksite	Wan Chai East Production and Drop Shafts
Parameter	$L_{Aeq\ (5min)}$
Action Level	Not applicable for construction works during restricted hours
Limit Level	70dB
Measured Levels	71.3 dB (A) – (19:06 – 19:11) 71.3 dB (A) – (19:11 – 19:16) 71.8 dB (A) – (19:16 – 19:21)
Possible Reason for Action or Limit Level Non-compliance	According to the works summary provided by the Contractor, no works had been performed outside the noise enclosure. Other activities that took place during the noise monitoring session included concrete pouring to vault shutter; pumping using sany pump, preparation of lower lining works; concrete loading; dewatering pumps monitoring at Tunnel TJ5; tally control room, alimak operations, installing and maintaining electrical systems, gantry crane operations, kibble winder, lifting operations, repairing equipment, cleaning, servicing and maintenance, and fabrication. These activities were carried out inside the noise enclosure. It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period. Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level. In view of no outdoor construction works was carried out and contribution from other potential noise source in vicinity (i.e. traffic), it is considered that the exceedance was not due to the Contract 23 construction works.
Actions Taken / To Be Taken	Since the exceedance was not attributable to the Contract 23 construction works, no action is therefore required. However, a number of residential buildings and other noise sensitive receivers are located near the Site, the Contractor is 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. The Contractor is also reminded to ensure that the construction plant deployed for the works during restricted hours is in strict compliance with the relevant Construction Noise Permit (CNP) granted.
Remarks	-

Harbour Area Treatment Scheme (HATS) Stage 2A
Contract No. DC/2007/23
Construction of Sewage Conveyance from North Point to Stonecutters Island

NOTIFICATION OF EXCEEDANCE and INVESTIGATION REPORT

Log No.	**2007/23/Noise/260**
Date	21 April 2015 (Tuesday) (19:08 – 19:13; 19:13 – 19:18; 19:18 – 19:23)
Monitoring Station	NM2 (Wan Chai East)
Worksite	Wan Chai East Production and Drop Shafts
Parameter	$L_{Aeq\ (5min)}$
Action Level	Not applicable for construction works during restricted hours
Limit Level	70dB
Measured Levels	72.0 dB (A) – (19:08 – 19:13) 71.7 dB (A) – (19:13 – 19:18) 72.0 dB (A) – (19:18 – 19:23)
Possible Reason for Action or Limit Level Non-compliance	According to the works summary provided by the Contractor, no works had been performed outside the noise enclosure. Other activities that took place during the noise monitoring session included concrete loading, underground mechanical and electrical equipment maintenance, tunnel lightings, repair, installation, services, material handling and breaking boulders at grizzly chute; winder, gantry crane, Alimak lift operations at the shaft; concreting upper lining at TK4. These activities were carried out inside the noise enclosure. It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period. Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level. In view of no outdoor construction works was carried out and contribution from other potential noise source in vicinity (i.e. traffic), it is considered that the exceedance was not due to the Contract 23 construction works.
Actions Taken / To Be Taken	Since the exceedance was not attributable to the Contract 23 construction works, no action is therefore required. However, a number of residential buildings and other noise sensitive receivers are located near the Site, the Contractor is 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. The Contractor is also reminded to ensure that the construction plant deployed for the works during restricted hours is in strict compliance with the relevant Construction Noise Permit (CNP) granted.
Remarks	-

Harbour Area Treatment Scheme (HATS) Stage 2A
Contract No. DC/2007/23
Construction of Sewage Conveyance from North Point to Stonecutters Island

NOTIFICATION OF EXCEEDANCE and INVESTIGATION REPORT

Log No.	**2007/23/Noise/261**
Date	10 May 2015 (Sunday) (18:40 – 18:45; 18:45 – 18:50; 18:50 – 18:55)
Monitoring Station	NM2 (Wan Chai East)
Worksite	Wan Chai East Production and Drop Shafts
Parameter	$L_{Aeq\ (5min)}$
Action Level	Not applicable for construction works during restricted hours
Limit Level	70dB
Measured Levels	70.7 dB (A) – (18:40 – 18:45) 71.1 dB (A) – (18:45 – 18:50) 71.2 dB (A) – (18:50 – 18:55)
Possible Reason for Action or Limit Level Non-compliance	According to the works summary provided by the Contractor, no works had been performed outside the noise enclosure. Other activities that took place during the noise monitoring session included concrete lowering to agitator, sany diesel pumping, electrical equipment installation and maintenance; winder, gantry crane, Alimak lift operations; servicing, fabrication and cleaning. These activities were carried out inside the noise enclosure. It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period. Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level. In view of no outdoor construction works was carried out and contribution from other potential noise source in vicinity (i.e. traffic), it is considered that the exceedance was not due to the Contract 23 construction works.
Actions Taken / To Be Taken	Since the exceedance was not attributable to the Contract 23 construction works, no action is therefore required. However, a number of residential buildings and other noise sensitive receivers are located near the Site, the Contractor is 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. The Contractor is also reminded to ensure that the construction plant deployed for the works during restricted hours is in strict compliance with the relevant Construction Noise Permit (CNP) granted.
Remarks	-

Harbour Area Treatment Scheme (HATS) Stage 2A
Contract No. DC/2007/23
Construction of Sewage Conveyance from North Point to Stonecutters Island

NOTIFICATION OF EXCEEDANCE and INVESTIGATION REPORT

Log No.	**2007/23/Noise/262**
Date	19 May 2015 (Tuesday) (19:17 – 19:22; 19:22 – 19:27; 19:27 – 19:32)
Monitoring Station	NM2 (Wan Chai East)
Worksite	Wan Chai East Production and Drop Shafts
Parameter	$L_{Aeq\ (5min)}$
Action Level	Not applicable for construction works during restricted hours
Limit Level	70dB
Measured Levels	70.3 dB (A) – (19:17 – 19:22) 70.6 dB (A) – (19:22 – 19:27) 70.6 dB (A) – (19:27 – 19:32)
Possible Reason for Action or Limit Level Non-compliance	According to the works summary provided by the Contractor, no works had been performed outside the noise enclosure. Other activities that took place during the noise monitoring session included setting of the small vault and stop end at upper lining, preparation for pulling the formwork carrier at lower lining; electrical equipment installation and maintenance; winder, gantry crane, Alimak lift operations; servicing, fabrication and cleaning. These activities were carried out inside the noise enclosure. It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period. Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level. In view of no outdoor construction works was carried out and contribution from other potential noise source in vicinity (i.e. traffic), it is considered that the exceedance was not due to the Contract 23 construction works.
Actions Taken / To Be Taken	Since the exceedance was not attributable to the Contract 23 construction works, no action is therefore required. However, a number of residential buildings and other noise sensitive receivers are located near the Site, the Contractor is 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. The Contractor is also reminded to ensure that the construction plant deployed for the works during restricted hours is in strict compliance with the relevant Construction Noise Permit (CNP) granted.
Remarks	-

Harbour Area Treatment Scheme (HATS) Stage 2A
Contract No. DC/2007/23
Construction of Sewage Conveyance from North Point to Stonecutters Island

NOTIFICATION OF EXCEEDANCE and INVESTIGATION REPORT

Log No.	**2007/23/Noise/263**
Date	24 May 2015 (Sunday) (15:20 – 15:25; 15:25 – 15:30; 15:30 – 15:35)
Monitoring Station	NM2 (Wan Chai East)
Worksite	Wan Chai East Production and Drop Shafts
Parameter	$L_{Aeq\ (5min)}$
Action Level	Not applicable for construction works during restricted hours
Limit Level	70dB
Measured Levels	71.5 dB (A) – (15:20 – 15:25) 70.8 dB (A) – (15:25 – 15:30) 70.8 dB (A) – (15:30 – 15:35)
Possible Reason for Action or Limit Level Non-compliance	According to the works summary provided by the Contractor, no works had been performed outside the noise enclosure. Other activities that took place during the noise monitoring session included pumping, re-connecting pimp lines, finishers working inside small vault, continue shuttering works for invert forms, pouring on vault, concrete lowing to agitator, sany diesel pumping; electrical equipment installation and maintenance; winder, gantry crane, Alimak lift operations; servicing, fabrication and cleaning. These activities were carried out inside the noise enclosure. It was observed no outdoor construction activities at the Wan Chai East Production and Drop Shafts during the noise monitoring session. This is consistent with the works summary provided by the Contractor showing no outdoor construction activities that have taken place during the same period. Other potential noise source was also identified in the vicinity (i.e., traffic) to contribute to the measured noise level. In view of no outdoor construction works was carried out and contribution from other potential noise source in vicinity (i.e. traffic), it is considered that the exceedance was not due to the Contract 23 construction works.
Actions Taken / To Be Taken	Since the exceedance was not attributable to the Contract 23 construction works, no action is therefore required. However, a number of residential buildings and other noise sensitive receivers are located near the Site, the Contractor is 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. The Contractor is also reminded to ensure that the construction plant deployed for the works during restricted hours is in strict compliance with the relevant Construction Noise Permit (CNP) granted.
Remarks	-

Annex D8 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
March 2011	0	0
April 2011	0	0
May 2011	0	0

Annex D8 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
June 2011	0	0
July 2011	0	0
August 2011	0	0
September 2011	0	0
October 2011	0	0
November 2011	1	0
December 2011	0	0
January 2012	0	0
February 2012	0	0
March 2012	0	0
April 2012	0	0
May 2012	0	0
June 2012	0	0
July 2012	0	0
August 2012	0	0
September 2012	0	0
October 2012	0	0
November 2012	0	0

Annex D8 Cumulative Complaint and Summons/Prosecutions Log

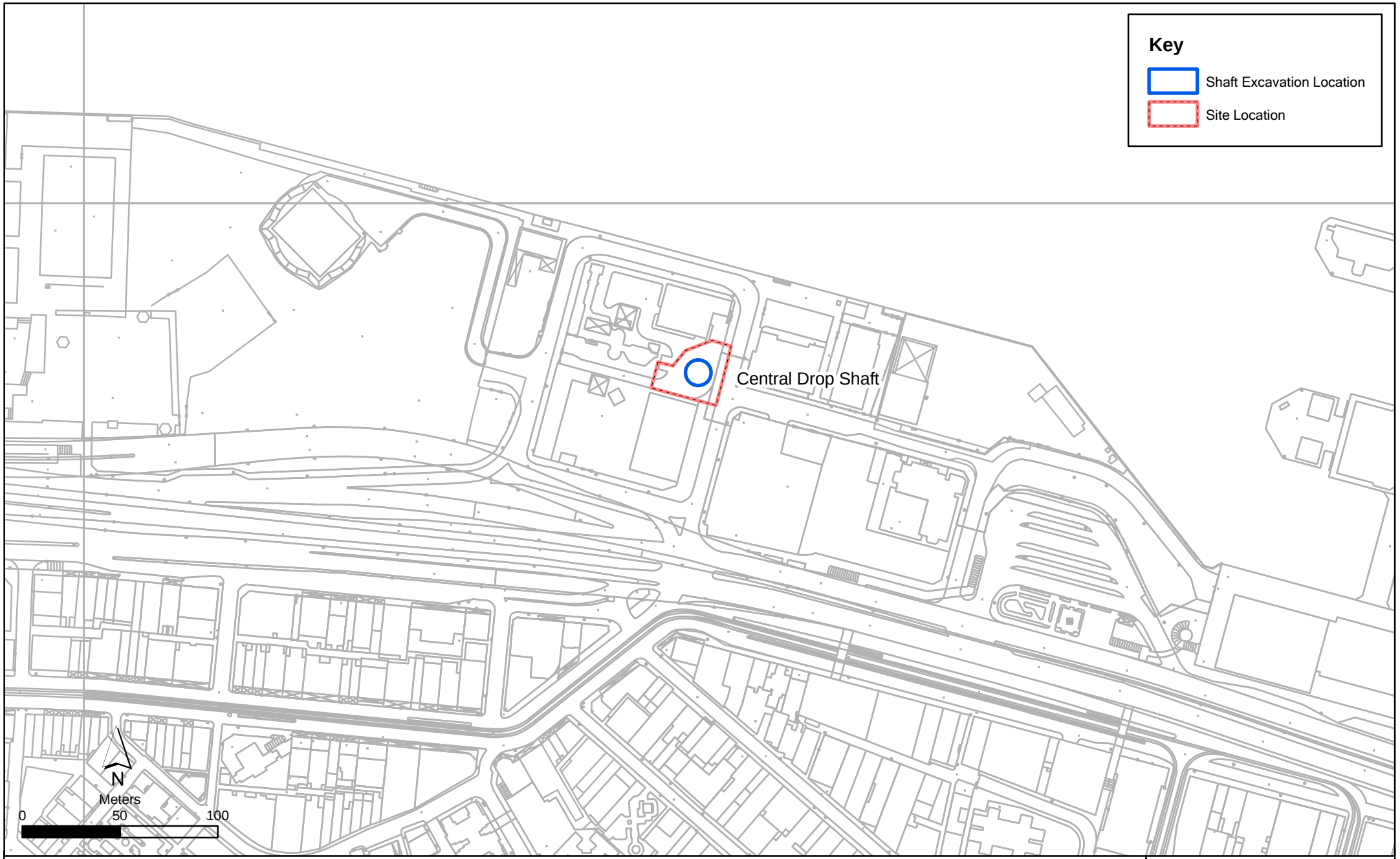
Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2012	0	0
January 2013	0	0
February 2013	0	0
March 2013	0	0
April 2013	0	0
May 2013	0	0
June 2013	0	0
July 2013	0	0
August 2013	0	0
September 2013	0	0
October 2013	0	0
November 2013	0	0
December 2013	0	0
January 2014	0	0
February 2014	0	0
March 2014	0	0
April 2014	0	0
May 2014	0	0

Annex D8 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
June 2014	0	0
July 2014	0	0
August 2014	0	0
September 2014	0	0
October 2014	0	0
November 2014	0	0
December 2014	0	0
January 2015	0	0
February 2015	0	0
March 2015	0	0
April 2015	0	0
May 2015	0	0
Overall Total	1	0

Annex E

Central Drop Shaft



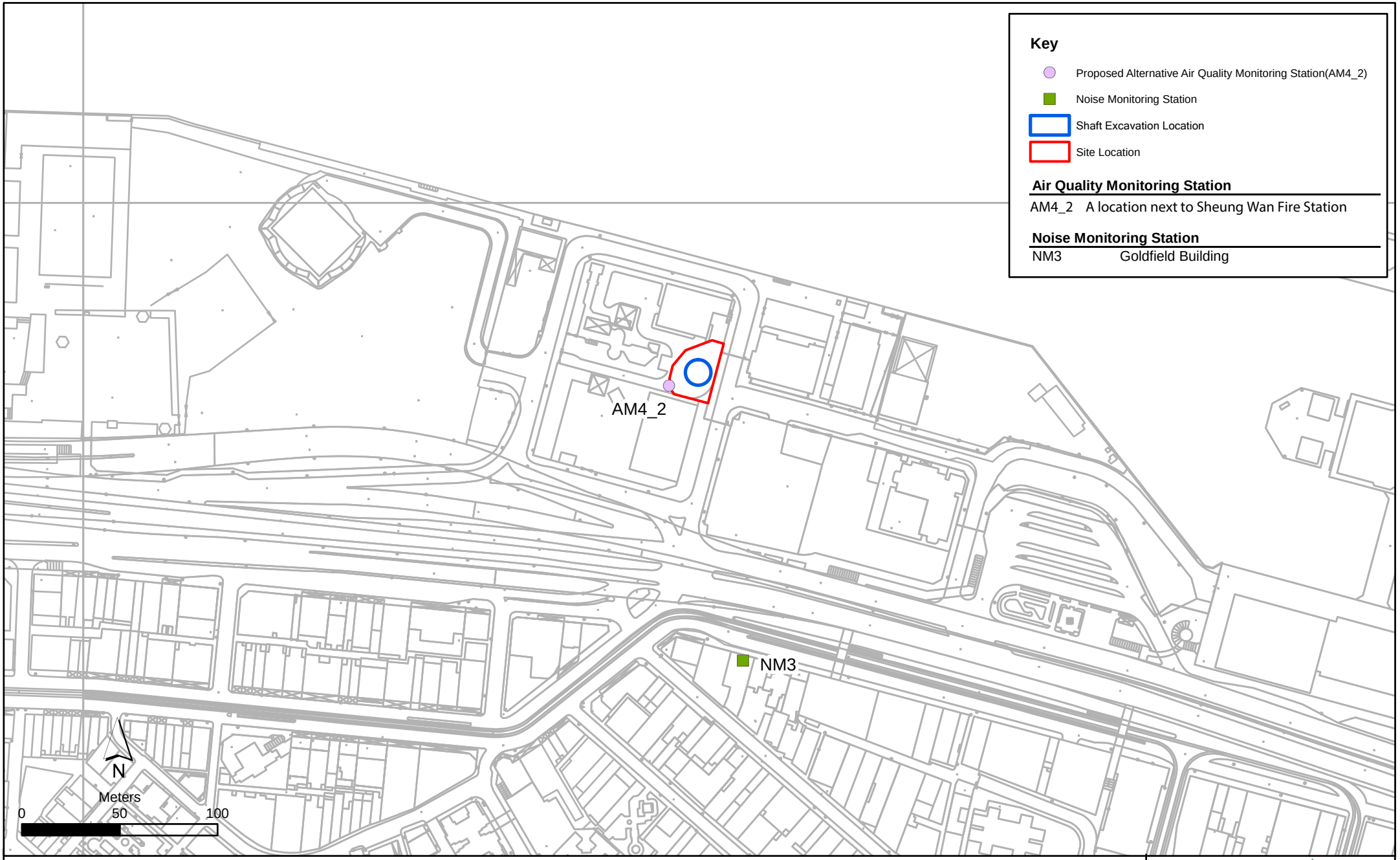
Annex E1

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 stations\
0104887_Centra_NMAM_Annex_Oct2012.mxd
Date: 10-Oct-12

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 minimise 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 minimise 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 deodorisation 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 utilised 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	√
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	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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	√
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 minimise 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 minimise 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 minimise 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	NA
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	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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, oxidising, 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	√
Construction Phase			

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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 harmonise 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			
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.

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	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

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 minimise 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 minimise 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 deodorisation 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 utilised 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	√
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	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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	√
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 minimise 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 minimise 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 minimise 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	NA
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	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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, oxidising, 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	√
Construction Phase			

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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 harmonise 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			
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.

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	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

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 minimise 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 minimise 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 deodorisation 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 utilised 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	√
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	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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	√
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 minimise 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 minimise 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 minimise 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	NA
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	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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, oxidising, 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	√
Construction Phase			

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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 harmonise 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			
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.

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	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 E5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM4_2

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 (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
02-Mar-15	11:40	12:40	Cloudy	121	393	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 9315)	5653
	12:42	13:42	Cloudy	122	393	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 9315)	5654
	14:25	15:25	Cloudy	115	393	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 9315)	5655
07-Mar-15	11:50	12:50	Fine	111	393	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 9315)	5665
	12:52	13:52	Fine	118	393	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 9315)	5666
	13:54	14:54	Fine	131	393	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 9315)	5667
13-Mar-15	11:42	12:42	Cloudy	113	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	5777
	12:44	13:44	Cloudy	118	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	5778
	13:46	14:46	Cloudy	119	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	5779
19-Mar-15	11:50	12:50	Fine	96	393	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 9315)	5789
	12:52	13:52	Fine	100	393	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 9315)	5790
	13:55	14:55	Fine	119	393	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 9315)	5791
25-Mar-15	11:45	12:45	Cloudy	154	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	5801
	12:47	13:47	Cloudy	151	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	5802
	13:49	14:49	Cloudy	144	393	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 9315)	5803
31-Mar-15	11:35	12:35	Fine	117	393	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 9315)	5813
	12:37	13:37	Fine	126	393	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 9315)	5814
	13:50	14:50	Fine	146	393	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 9315)	5815
			Min.	**96**							
			Max.	**154**							
			Average	**123**							

* Wind Speed data is presented in the Meteorological Data table

Annex E5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM4_2

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 (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
02-Apr-15	11:50	12:50	Fine	114	393	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 9315)	5653
	12:52	13:52	Fine	118	393	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 9315)	5822
	13:54	14:54	Fine	114	393	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 9315)	5823
08-Apr-15	11:50	12:50	Cloudy	118	393	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 9315)	5909
	12:52	13:52	Cloudy	122	393	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 9315)	5916
	14:35	15:35	Cloudy	119	393	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 9315)	5911
14-Apr-15	11:45	12:45	Sunny	143	393	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 9315)	6025
	12:47	13:47	Sunny	133	393	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 9315)	6026
	13:49	14:49	Sunny	146	393	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 9315)	6027
20-Apr-15	8:00	9:00	Fine	139	393	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 9315)	6033
	9:02	10:02	Fine	121	393	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 9315)	6034
	10:05	11:05	Fine	110	393	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 9315)	6035
25-Apr-15	8:00	9:00	Sunny	99	393	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 9315)	6101
	9:02	10:02	Sunny	135	393	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 9315)	6102
	10:04	11:04	Sunny	113	393	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 9315)	6103
30-Apr-15	11:45	12:45	Sunny	125	393	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 9315)	6113
	12:47	13:47	Sunny	147	393	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 9315)	6114
	14:30	15:30	Sunny	146	393	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 9315)	6115
			Min.	**99**							
			Max.	**147**							
			Average	**126**							

* Wind Speed data is presented in the Meteorological Data table

Annex E5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM4_2

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 (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
06-May-15	11:30	12:30	Cloudy	154	393	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 9315)	6121
	12:32	13:32	Cloudy	161	393	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 9315)	6122
	14:15	15:15	Cloudy	129	393	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 9315)	6123
12-May-15	11:25	12:25	Sunny	140	393	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 9315)	6209
	12:27	13:27	Sunny	142	393	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 9315)	6210
	14:10	15:10	Sunny	143	393	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 9315)	6211
18-May-15	11:20	12:20	Cloudy	84	393	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 9315)	6221
	12:22	13:22	Cloudy	85	393	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 9315)	6222
	13:24	14:24	Cloudy	93	393	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 9315)	6223
23-May-15	11:52	12:52	Rainy	88	393	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 9315)	6313
	12:54	13:54	Rainy	91	393	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 9315)	6314
	13:56	14:56	Rainy	77	393	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 9315)	6315
29-May-15	8:00	9:00	Sunny	93	393	500	Construction work in progress	31	<5	GMW GS-2310 (S/N 9315)	6345
	9:02	10:02	Sunny	77	393	500	Construction work in progress	31	<5	GMW GS-2310 (S/N 9315)	6346
	10:10	11:10	Sunny	80	393	500	Construction work in progress	31	<5	GMW GS-2310 (S/N 9315)	6347
			Min.	**77**							
			Max.	**161**							
			Average	**109**							

* Wind Speed data is presented in the Meteorological Data table

Annex E5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM4_2

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	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
02-Mar-15	15:27	03-Mar-15	15:27	Cloudy	2.8524	2.9900	17499.85	17523.85	24.00	1.23	1.23	1.23	78	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	5656
07-Mar-15	15:00	08-Mar-15	15:00	Fine	2.8465	2.9798	17526.85	17550.85	24.00	1.23	1.23	1.23	75	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	5668
13-Mar-15	14:52	14-Mar-15	14:52	Cloudy	2.8566	2.9949	17553.85	17577.85	24.00	1.20	1.20	1.20	80	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	5780
19-Mar-15	15:10	20-Mar-15	15:10	Fine	2.8421	2.9924	17580.85	17604.85	24.00	1.20	1.20	1.20	87	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	5792
25-Mar-15	15:00	26-Mar-15	15:00	Cloudy	2.9125	3.0703	17607.85	17631.85	24.00	1.20	1.20	1.20	91	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	5804
31-Mar-15	14:52	01-Apr-15	14:52	Fine	2.9085	3.0611	17634.85	17658.85	24.00	1.20	1.20	1.20	88	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	5816
												Min.	75					
												Max.	91					
												Average	82					

Annex E5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM4_2

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	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
02-Apr-15	14:56	03-Apr-15	14:56	Fine	2.9210	3.0497	17661.85	17685.85	24.00	1.20	1.20	1.20	74	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	5824
08-Apr-15	15:37	09-Apr-15	15:37	Cloudy	2.9066	3.0410	17688.85	17712.85	24.00	1.20	1.20	1.20	78	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	5912
14-Apr-15	15:00	15-Apr-15	15:00	Sunny	2.8708	3.0255	17715.85	17739.85	24.00	1.20	1.20	1.20	90	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	6028
20-Apr-15	11:15	21-Apr-15	11:15	Fine	2.9107	3.0345	17742.85	17766.85	24.00	1.20	1.20	1.20	72	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	6036
25-Apr-15	11:06	26-Apr-15	11:06	Sunny	2.8869	3.0071	17769.85	17793.85	24.00	1.20	1.20	1.20	70	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	6104
30-Apr-15	15:32	01-May-15	15:32	Sunny	2.8864	3.0212	17796.85	17820.85	24.00	1.20	1.20	1.20	78	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	6116
												Min.	70					
												Max.	90					
												Average	77					

Annex E5 24-hour and 1-hour TSP Monitoring Results

24-hour TSP Monitoring Results

Station AM4_2

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	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
06-May-15	15:17	07-May-15	15:17	Cloudy	2.9006	3.0498	17823.85	17847.85	24.00	1.20	1.20	1.20	86	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	6124
12-May-15	15:15	13-May-15	15:15	Sunny	2.8623	3.0058	17850.85	17874.85	24.00	1.20	1.20	1.20	83	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	6212
18-May-15	15:55	19-May-15	15:55	Cloudy	2.8725	2.9847	17877.85	17901.85	24.00	1.23	1.23	1.23	63	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	6224
23-May-15	15:00	24-May-15	15:00	Rainy	2.8929	2.9891	17904.85	17928.85	24.00	1.23	1.23	1.23	54	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	6316
29-May-15	11:12	30-May-15	11:12	Sunny	2.8978	2.9991	17931.85	17955.85	24.00	1.23	1.23	1.23	57	211	260	construction work in progress	GMW GS 2310 (S/N 9315)	6348
												Min.	**54**					
												Max.	**86**					
												Average	**69**					

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2015-03-02	Cloudy	17	78-91	Trace	0-21	SE
2015-03-03	Cloudy	20	80-95	0.2	0-22	NW
2015-03-06	Cloudy	16	92-95	0.1	0-23	SE
2015-03-07	Fine	17	86-94	0.2	2-17	SE
2015-03-08	Fine	19	80-91	Trace	0-24	SE
2015-03-12	Cloudy	15	85-96	3.7	0-15	SE/E
2015-03-13	Cloudy	17	71-83	0.0	4-20	SE/E
2015-03-14	Cloudy	19	74-89	Trace	0-23	SE
2015-03-18	Fine	23	84-97	0.0	0-18	SE
2015-03-19	Fine	24	79-96	0.0	0-11	SE
2015-03-20	Fine	24	66-95	0.0	0-18	SE
2015-03-24	Fine	20	66-83	0.0	4-21	SE/E
2015-03-25	Cloudy	18	73-81	Trace	1-24	SE/E
2015-03-26	Cloudy	19	72-96	4.2	0-16	SE
2015-03-30	Fine	23	80-93	0.0	0-15	SE/E
2015-03-31	Fine	23	82-95	Trace	0-14	SE/E
2015-04-01	Fine	24	75-95	0.0	0-13	SE

		Tsing Yi Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-03-02	Cloudy	18	78-91	Trace	0-22	E
2015-03-03	Cloudy	21	80-95	0.2	0-25	NW
2015-03-06	Cloudy	18	92-95	0.1	0-17	SE/E
2015-03-07	Fine	19	86-94	0.2	0-18	E
2015-03-08	Fine	20	80-91	Trace	0-23	NW
2015-03-12	Cloudy	16	85-96	3.7	0-11	SE/E
2015-03-13	Cloudy	18	71-83	0.0	1-18	E
2015-03-14	Cloudy	20	74-89	Trace	3-26	E
2015-03-18	Fine	24	84-97	0.0	0-23	SE
2015-03-19	Fine	25	79-96	0.0	0-13	SE
2015-03-20	Fine	25	66-95	0.0	0-15	SE
2015-03-24	Fine	21	66-83	0.0	4-25	SE/E
2015-03-25	Cloudy	18	73-81	Trace	1-14	SE/E
2015-03-26	Cloudy	19	72-96	4.2	0-12	NW
2015-03-30	Fine	25	80-93	0.0	2-14	SE/E
2015-03-31	Fine	25	82-95	Trace	0-15	SE
2015-04-01	Fine	26	75-95	0.0	0-19	N/NW

		Kai Tak Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-03-02	Cloudy	17	78-91	Trace	7-25	SE/E
2015-03-03	Cloudy	20	80-95	0.2	0-20	SW
2015-03-06	Cloudy	16	92-95	0.1	6-22	SE/E
2015-03-07	Fine	17	86-94	0.2	8-22	E
2015-03-08	Fine	19	80-91	Trace	6-24	SE
2015-03-12	Cloudy	15	85-96	3.7	0-18	SE/E
2015-03-13	Cloudy	17	71-83	0.0	9-24	SE/E
2015-03-14	Cloudy	19	74-89	Trace	7-31	SE
2015-03-18	Fine	23	84-97	0.0	4-21	SE
2015-03-19	Fine	24	79-96	0.0	2-22	SE
2015-03-20	Fine	24	66-95	0.0	0-23	SE
2015-03-24	Fine	20	66-83	0.0	10-28	E
2015-03-25	Cloudy	18	73-81	Trace	4-28	SE/E
2015-03-26	Cloudy	19	72-96	4.2	4-22	SE
2015-03-30	Fine	23	80-93	0.0	3-21	SE
2015-03-31	Fine	23	82-95	Trace	4-20	SE
2015-04-01	Fine	24	75-95	0.0	7-19	SE

		Green Island Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-03-02	Cloudy	17	78-91	Trace	17-44	NE
2015-03-03	Cloudy	20	80-95	0.2	0-45	N
2015-03-06	Cloudy	16	92-95	0.1	20-41	NE
2015-03-07	Fine	17	86-94	0.2	18-43	NE
2015-03-08	Fine	19	80-91	Trace	5-45	NE
2015-03-12	Cloudy	15	85-96	3.7	0-31	NE
2015-03-13	Cloudy	17	71-83	0.0	8-42	NE
2015-03-14	Cloudy	19	74-89	Trace	11-36	NE
2015-03-18	Fine	23	84-97	0.0	0-30	S
2015-03-19	Fine	24	79-96	0.0	0-31	S
2015-03-20	Fine	24	66-95	0.0	0-27	NE
2015-03-24	Fine	20	66-83	0.0	20-50	NE
2015-03-25	Cloudy	18	73-81	Trace	10-50	NE
2015-03-26	Cloudy	19	72-96	4.2	0-40	NE/N
2015-03-30	Fine	23	80-93	0.0	0-26	S
2015-03-31	Fine	23	82-95	Trace	0-21	SE/S
2015-04-01	Fine	24	75-95	0.0	0-30	S

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

Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2015/04/02	Fine	26	74-91	0.0	0-13	NE
2015/04/08	Cloudy	18	69-96	10.0	1-21	NE
2015/04/13	Sunny	22	38-77	0.0	0-13	NE/E
2015/04/14	Sunny	21	29-61	0.0	0-18	NE/E
2015/04/16	Cloudy	22	51-81	0.0	0-15	N/NW
2015/04/18	Cloudy	25	80-90	Trace	1-16	SE
2015/04/20	Fine	26	78-91	0.2	1-13	N/NW
2015/04/22	Fine	23	65-88	Trace	0-22	SE
2015/04/24	Sunny	24	56-83	0.0	0-13	S
2015/04/25	Sunny	24	65-85	0.0	0-18	SE
2015/04/28	Sunny	25	64-90	0.0	0-17	NW/W
2015/04/30	Sunny	28	60-91	0.0	0-12	NW/W

Date	Weather	Tsing Yi Station				
		Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015/04/02	Fine	26	74-91	0.0	0-24	SE
2015/04/08	Cloudy	19	69-96	10.0	2-14	NW
2015/04/13	Sunny	22	38-77	0.0	0-17	SE/E
2015/04/14	Sunny	22	29-61	0.0	0-19	SE/E
2015/04/16	Cloudy	22	51-81	0.0	0-23	SE
2015/04/18	Cloudy	25	80-90	Trace	9-27	SE
2015/04/20	Fine	25	78-91	0.2	1-15	SE
2015/04/22	Fine	24	65-88	Trace	1-20	E
2015/04/24	Sunny	25	56-83	0.0	0-15	SE/E
2015/04/25	Sunny	24	65-85	0.0	0-23	SE/E
2015/04/28	Sunny	25	64-90	0.0	0-15	SE/E
2015/04/30	Sunny	29	60-91	0.0	0-16	SE

Date	Weather	Kai Tak Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015/04/02	Fine	26	74-91	0.0	2-19	SE/E
2015/04/08	Cloudy	18	69-96	10.0	0-17	NE/E
2015/04/13	Sunny	22	38-77	0.0	0-18	SE
2015/04/14	Sunny	21	29-61	0.0	2-22	NE/E
2015/04/16	Cloudy	22	51-81	0.0	0-15	SW
2015/04/18	Cloudy	25	80-90	Trace	2-20	SE
2015/04/20	Fine	26	78-91	0.2	1-21	SW
2015/04/22	Fine	23	65-88	Trace	2-26	SE/E
2015/04/24	Sunny	24	56-83	0.0	4-22	SE
2015/04/25	Sunny	24	65-85	0.0	6-23	E
2015/04/28	Sunny	25	64-90	0.0	0-17	SW
2015/04/30	Sunny	28	60-91	0.0	0-17	SE

Date	Weather	Green Island Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015/04/02	Fine	26	74-91	0.0	12-43	S
2015/04/08	Cloudy	18	69-96	10.0	8-43	N
2015/04/13	Sunny	22	38-77	0.0	0-41	NE
2015/04/14	Sunny	21	29-61	0.0	8-38	NE
2015/04/16	Cloudy	22	51-81	0.0	0-26	S/SW
2015/04/18	Cloudy	25	80-90	Trace	5-45	S
2015/04/20	Fine	26	78-91	0.2	7-34	S/SW
2015/04/22	Fine	23	65-88	Trace	13-58	NE
2015/04/24	Sunny	24	56-83	0.0	0-25	S
2015/04/25	Sunny	24	65-85	0.0	0-35	NE
2015/04/28	Sunny	25	64-90	0.0	0-26	S/SW
2015/04/30	Sunny	28	60-91	0.0	0-34	S/SW

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

Meteorological Data Extracted from the Hong Kong Observatory

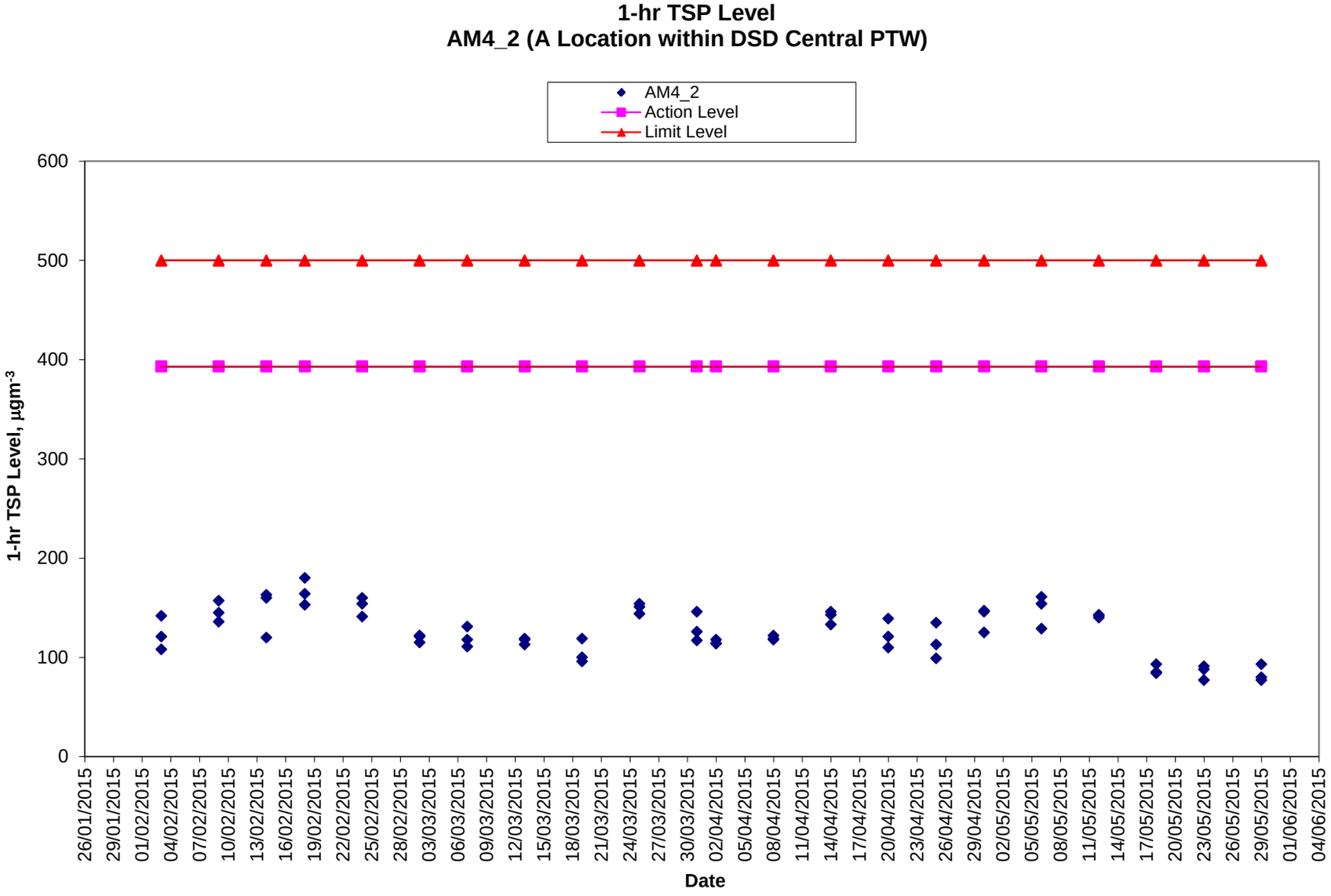
		King's Park Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2015-05-02	Cloudy	28	72-86	Trace	0-19	SW/W
2015-05-06	Cloudy	26	69-96	0.6	0-15	SW/W
2015-05-07	Cloudy	28	75-91	0.3	0-15	SW/W
2015-05-12	Sunny	26	63-92	0.0	0-14	SE
2015-05-13	Cloudy	27	78-90	0.0	0-17	SE
2015-05-18	Cloudy	28	75-94	0.9	0-18	SW
2015-05-19	Cloudy	28	80-88	1.2	3-21	SW
2015-05-22	Cloudy	23	89-96	0.7	6-19	SE
2015-05-23	Rainy	25	94-99	169.4	0-19	SE
2015-05-28	Fine	30	71-90	670.7	0-17	SW
2015-05-29	Fine	31	73-84	0.0	0-17	SW/W

		Tsing Yi Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-05-02	Cloudy	28	72-86	Trace	8-22	SE
2015-05-06	Cloudy	27	69-96	0.6	8-26	SE/E
2015-05-07	Cloudy	28	75-91	0.3	0-19	SE
2015-05-12	Sunny	26	63-92	0.0	0-14	SE/E
2015-05-13	Cloudy	27	78-90	0.0	2-20	E
2015-05-18	Cloudy	25	75-94	0.9	0-21	SE
2015-05-19	Cloudy	28	80-88	1.2	3-24	SE
2015-05-22	Cloudy	24	89-96	0.7	4-20	E
2015-05-23	Rainy	25	94-99	169.4	0-30	SE
2015-05-28	Fine	30	71-90	670.7	6-16	SE
2015-05-29	Fine	25	73-84	0.0	4-15	SE

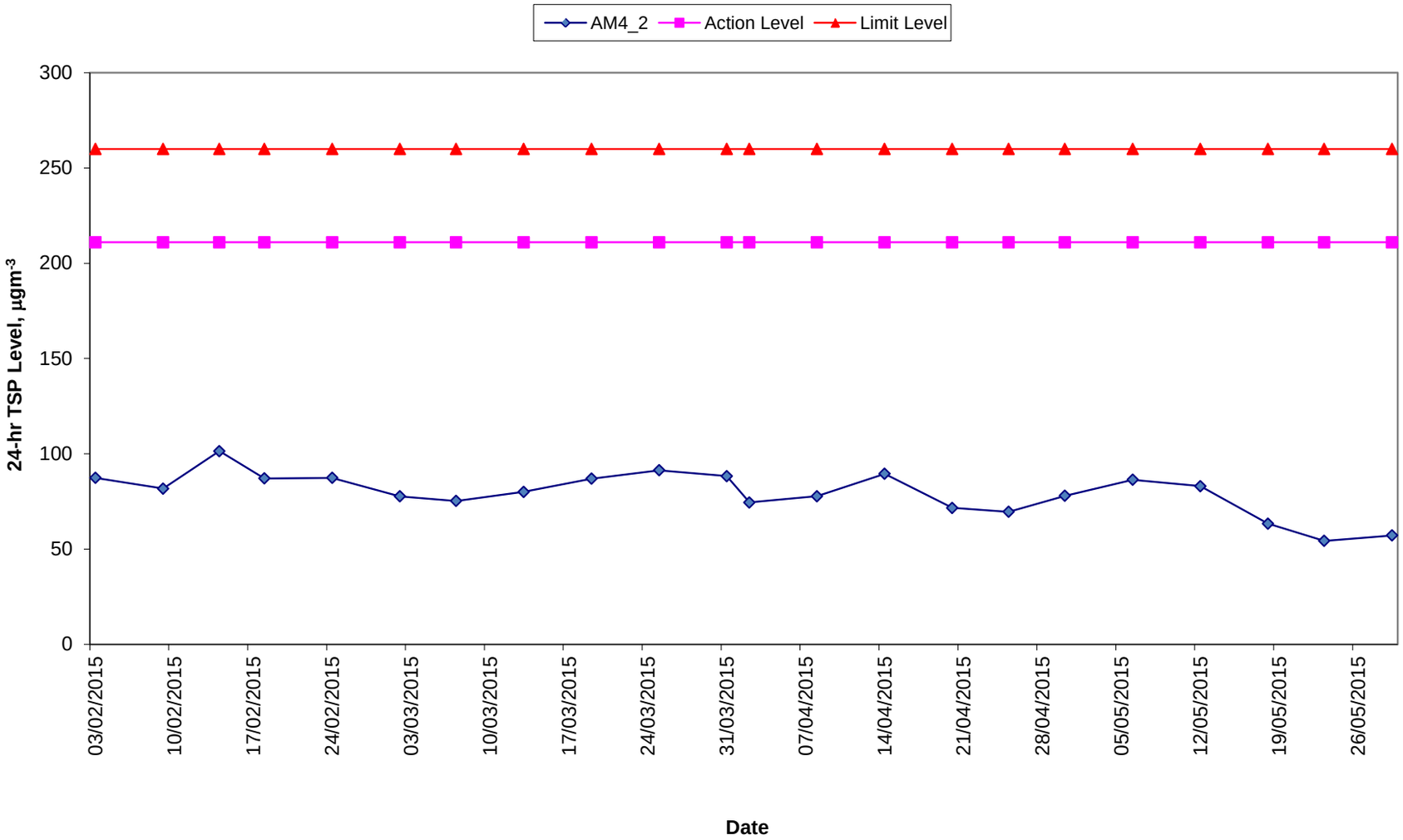
		Kai Tak Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-05-02	Cloudy	28	72-86	Trace	3-21	SE
2015-05-06	Cloudy	26	69-96	0.6	1-18	SE/E
2015-05-07	Cloudy	28	75-91	0.3	3-17	SE
2015-05-12	Sunny	26	63-92	0.0	0-20	SE
2015-05-13	Cloudy	27	78-90	0.0	6-20	SE/E
2015-05-18	Cloudy	28	75-94	0.9	0-20	SW/S
2015-05-19	Cloudy	28	80-88	1.2	3-23	SW/S
2015-05-22	Cloudy	23	89-96	0.7	18-22	E
2015-05-23	Rainy	25	94-99	169.4	0-40	SE/E
2015-05-28	Fine	30	71-90	670.7	3-21	SW/S
2015-05-29	Fine	31	73-84	0.0	0-18	SW/S

		Green Island Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-05-02	Cloudy	28	72-86	Trace	17-37	S
2015-05-06	Cloudy	26	69-96	0.6	2-35	S
2015-05-07	Cloudy	28	75-91	0.3	3-32	S
2015-05-12	Sunny	26	63-92	0.0	0-30	SW/S
2015-05-13	Cloudy	27	78-90	0.0	0-34	NE
2015-05-18	Cloudy	28	75-94	0.9	11-38	S
2015-05-19	Cloudy	28	80-88	1.2	23-49	S
2015-05-22	Cloudy	23	89-96	0.7	28-47	NE
2015-05-23	Rainy	25	94-99	169.4	0-48	NE
2015-05-28	Fine	30	71-90	670.7	15-35	SW/S
2015-05-29	Fine	31	73-84	0.0	14-35	SW/S

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


1-hr TSP Level
AM4_2 (A Location within DSD Central PTW)
AM4_2
Action Level
Limit Level
1-hr TSP Level, µgm-3
600
500
400
300
200
100
0
26/01/2015
29/01/2015
01/02/2015
04/02/2015
07/02/2015
10/02/2015
13/02/2015
16/02/2015
19/02/2015
22/02/2015
25/02/2015
28/02/2015
03/03/2015
06/03/2015
09/03/2015
12/03/2015
15/03/2015
18/03/2015
21/03/2015
24/03/2015
27/03/2015
30/03/2015
02/04/2015
05/04/2015
08/04/2015
11/04/2015
14/04/2015
17/04/2015
20/04/2015
23/04/2015
26/04/2015
29/04/2015
02/05/2015
05/05/2015
08/05/2015
11/05/2015
14/05/2015
17/05/2015
20/05/2015
23/05/2015
26/05/2015
29/05/2015
01/06/2015
04/06/2015
Date

24-hr TSP Level
AM4_2 (A Location within DSD Central PTW)



Annex E6 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. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
02-Mar-15	14:40	15:10	Cloudy	75	76	74	Lifting, Noise from nearby site	Traffic noise	-	17	0.5	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
13-Mar-15	13:00	13:30	Cloudy	75	76	74	Lifting	Traffic noise	-	17	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
19-Mar-15	13:10	13:40	Fine	75	76	73	Lifting, Noise from nearby site	Traffic noise	-	29	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
25-Mar-15	13:02	13:32	Cloudy	75	76	73	Lifting, Noise from nearby site	Traffic noise	-	18	0.5	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
31-Mar-15	14:05	14:35	Fine	75	76	73	Lifting	Traffic noise	-	22	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
			Min.	**75**									
			Max.	**75**									

Annex E6 Noise Monitoring Results

Daytime Noise Monitoring Results

Station NM3

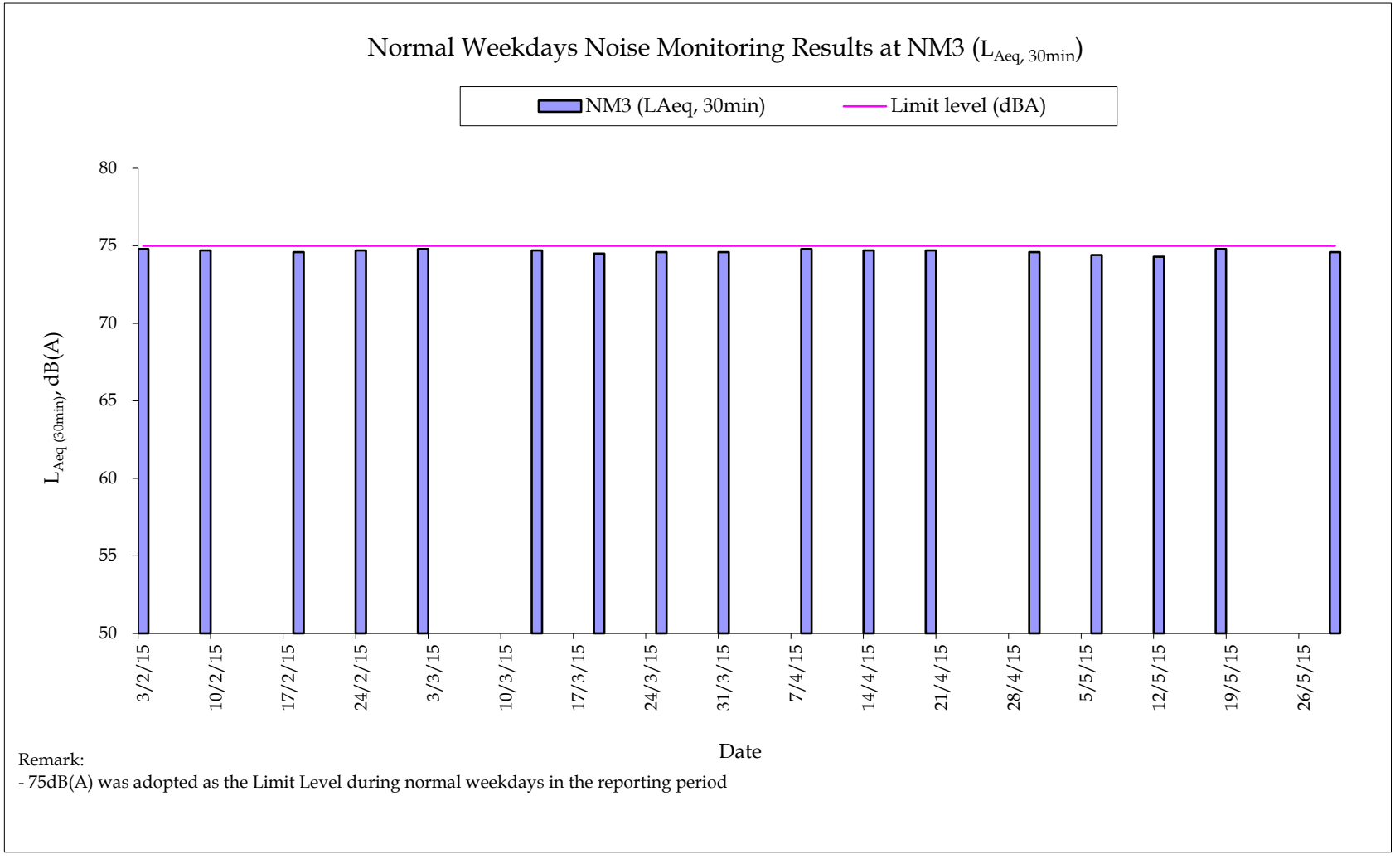
Date	Start Time	End Time	Weather	Noise level (dB(A)), 30 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
08-Apr-15	14:50	15:20	Cloudy	75	76	73	Lifting	Traffic noise	-	22	0.4	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
14-Apr-15	13:00	13:30	Suuny	75	76	73	-	Traffic noise	-	23	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
20-Apr-15	9:20	9:50	Fine	75	76	73	Lifting, Noise from nearby site	Traffic noise	-	24	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
30-Apr-15	14:45	15:15	Sunny	75	76	73	Lifting, Noise from nearby site	Traffic noise	-	27	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
			Min.	**75**									
			Max.	**75**									

Annex E6 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. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
06-May-15	14:30	15:00	Cloudy	74	76	73	Lifting, Noise from nearby site	Traffic noise	-	28	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
12-May-15	14:25	14:55	Suuny	74	76	73	Lifting, Noise from nearby site	Traffic noise	-	26	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
18-May-15	15:10	15:40	Cloidy	75	76	74	Lifting, Noise from nearby site	Traffic noise	-	28	0.5	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
29-May-15	10:25	10:55	Sunny	75	76	73	Lifting, Noise from nearby site	Traffic noise	-	31	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
			Min.	**74**									
			Max.	**75**									



Remark:

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

Annex E7 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
March 2011	0	0
April 2011	0	0
May 2011	0	0

Annex E7 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
June 2011	0	0
July 2011	0	0
August 2011	0	0
September 2011	0	0
October 2011	0	0
November 2011	0	0
December 2011	0	0
January 2012	0	0
February 2012	0	0
March 2012	0	0
April 2012	0	0
May 2012	0	0
June 2012	0	0
July 2012	0	0
August 2012	0	0
September 2012	0	0
October 2012	0	0
November 2012	0	0

Annex E7 Cumulative Complaint and Summons/Prosecutions Log

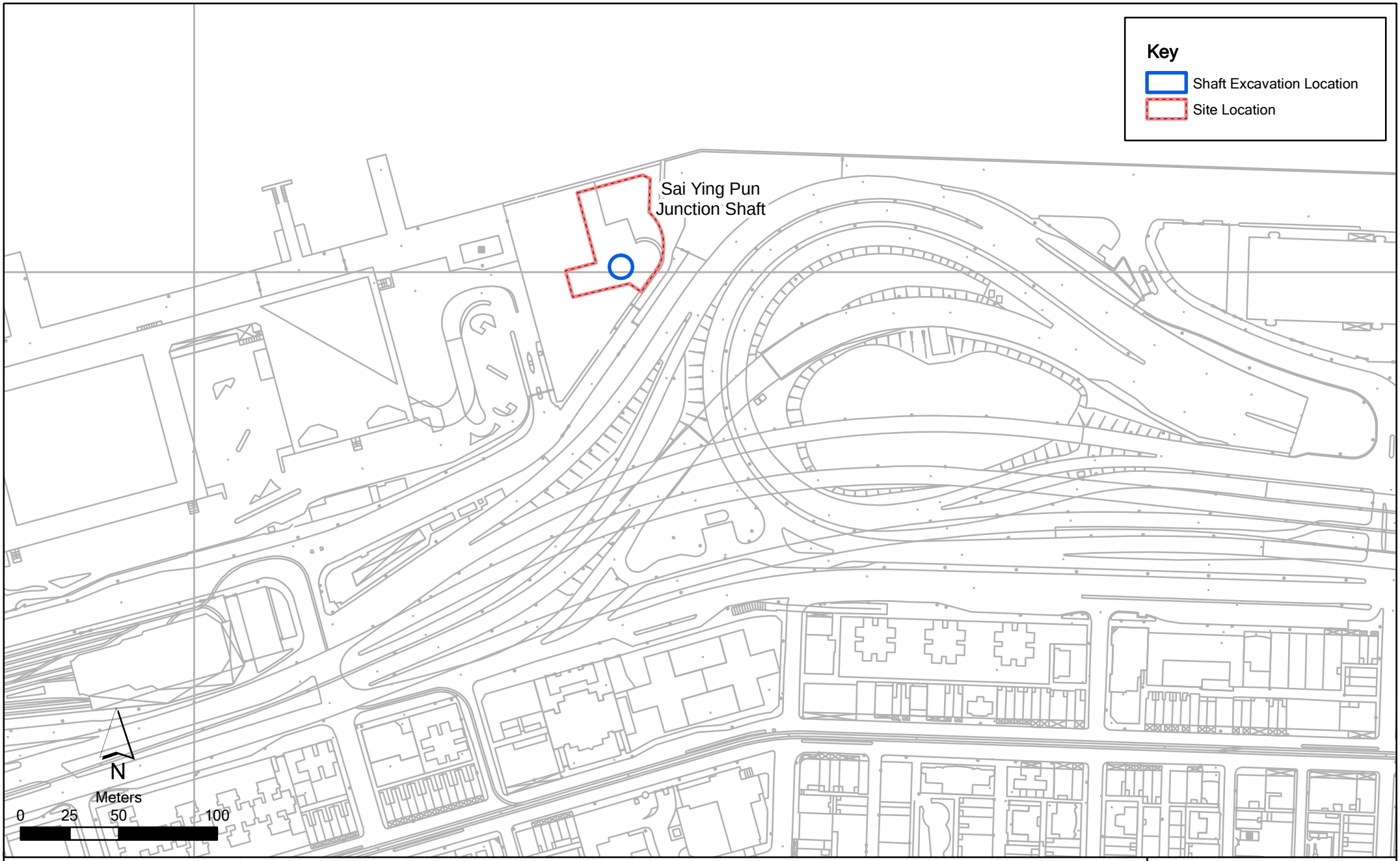
Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2012	0	0
January 2013	0	0
February 2013	0	0
March 2013	0	0
April 2013	0	0
May 2013	0	0
June 2013	0	0
July 2013	0	0
August 2013	0	0
September 2013	0	0
October 2013	0	0
November 2013	0	0
December 2013	0	0
January 2014	0	0
February 2014	0	0
March 2014	0	0
April 2014	0	0
May 2014	0	0

Annex E7 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
June 2014	0	0
July 2014	0	0
August 2014	0	0
September 2014	0	0
October 2014	0	0
November 2014	0	0
December 2014	0	0
January 2015	0	0
February 2015	0	0
March 2015	0	0
April 2015	0	0
May 2015	0	0
Overall Total	0	0

Annex F

Sai Ying Pun Junction Shaft



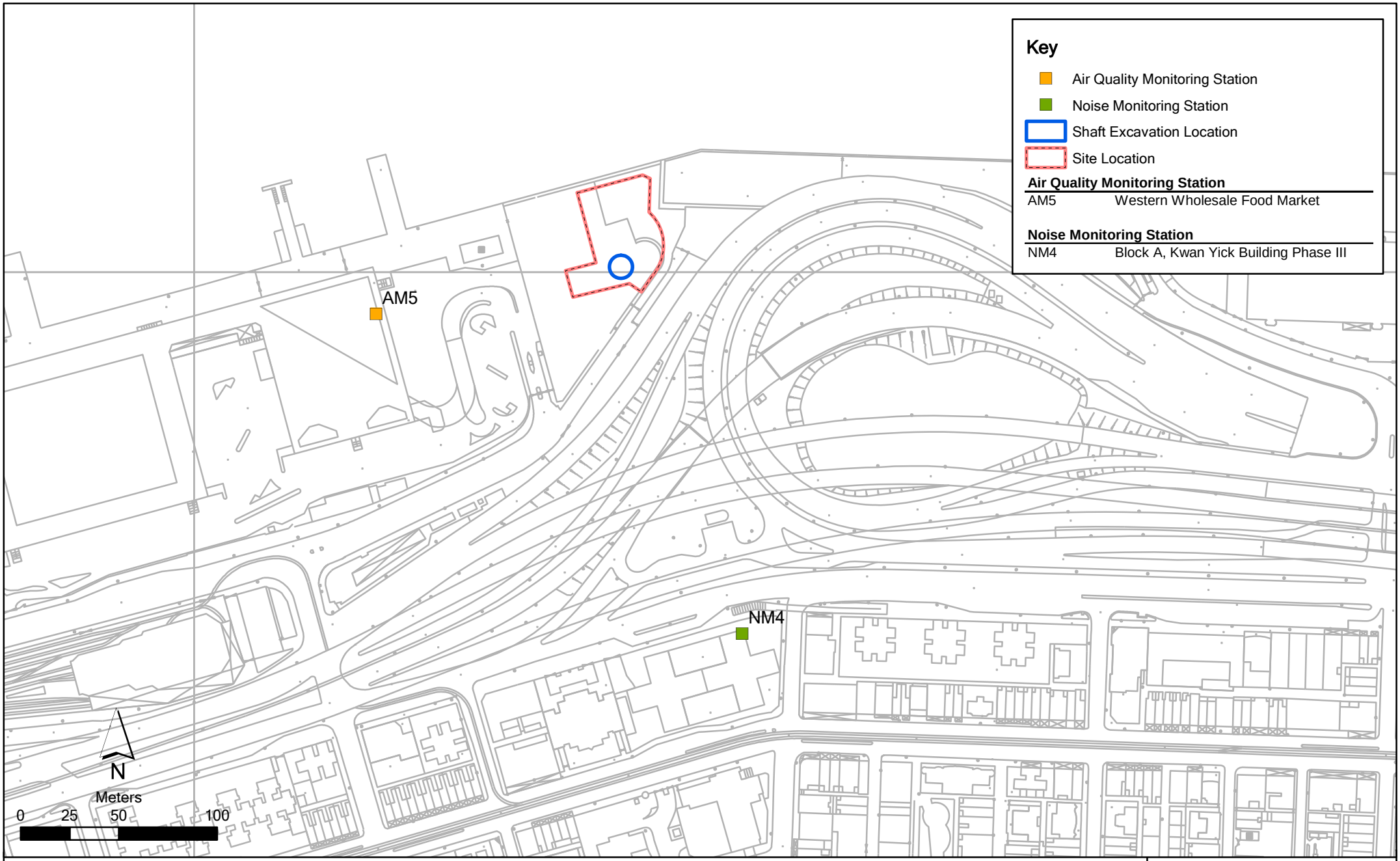
Annex F1

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 minimise 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 minimise 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 deodorisation 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 utilised 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	√
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	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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	√
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 minimise 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 the construction works. • Stockpiles 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 a 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 minimise 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 minimise 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	NA
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	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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, oxidising, 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	√
Construction Phase			

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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 harmonise 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			
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	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	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	√

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

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 minimise 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 minimise 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 deodorisation 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 utilised 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	√
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	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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	√
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 minimise 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 the construction works. • Stockpiles 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 a 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 minimise 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 minimise 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	NA
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	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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, oxidising, 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	√
Construction Phase			

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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 harmonise 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			
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	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	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	√

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

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 minimise 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 minimise 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 deodorisation 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 utilised 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	√
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	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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	√
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 minimise 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 the construction works. • Stockpiles 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 a 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 minimise 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 minimise 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	NA
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	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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, oxidising, 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	√
Construction Phase			

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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 harmonise 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			
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	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
	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	√

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 F5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM5

Date	Start Time	Finish Time	Weather	TSP Concentration (μg/m3)	Action Level (μg/m3)	Limit Level (μg/m3)	Site Conditions / Observations / Remarks	Temperature (°C)	Wind Speed (m/s)	Sampler ID	Filter ID
02-Mar-15	12:00	13:00	Cloudy	92	332	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0143)	5569
	13:02	14:02	Cloudy	83	332	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0143)	5570
	14:04	15:04	Cloudy	93	332	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0143)	5571
06-Mar-15	8:00	9:00	Cloudy	67	332	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0143)	5657
	9:02	10:02	Cloudy	81	332	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0143)	5658
	10:04	11:04	Cloudy	85	332	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0143)	5659
12-Mar-15	13:00	14:00	Fine	46	332	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0143)	5669
	14:02	15:02	Fine	85	332	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0143)	5670
	15:04	16:04	Fine	94	332	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 0143)	5671
18-Mar-15	8:00	9:00	Fine	86	332	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0143)	5781
	9:02	10:02	Fine	104	332	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0143)	5782
	10:04	11:04	Fine	97	332	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0143)	5783
24-Mar-15	9:00	10:00	Fine	94	332	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0143)	5793
	10:02	11:02	Fine	96	332	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0143)	5794
	11:04	12:04	Fine	98	332	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0143)	5795
30-Mar-15	9:00	10:00	Fine	85	332	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 0143)	5805
	10:02	11:02	Fine	93	332	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 0143)	5803
	11:04	12:04	Fine	107	332	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 0143)	5807
			Min.	**46**							
			Max.	**107**							
			Average	**88**							

* Wind Speed data is presented in the Meteorological Data table

Annex F5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM5

Date	Start Time	Finish Time	Weather	TSP Concentration (μg/m3)	Action Level (μg/m3)	Limit Level (μg/m3)	Site Conditions / Observations / Remarks	Temperature (°C)	Wind Speed (m/s)	Sampler ID	Filter ID
02-Apr-15	12:10	13:10	Fine	93	332	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0143)	5901
	13:12	14:12	Fine	89	332	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0143)	5902
	14:14	15:14	Fine	98	332	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 0143)	5903
08-Apr-15	12:10	13:10	Cloudy	68	332	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0143)	1913
	13:12	14:12	Cloudy	75	332	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0143)	5914
	14:14	15:14	Cloudy	66	332	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 0143)	5915
13-Apr-15	8:00	9:00	Sunny	105	332	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 0143)	5918
	9:02	10:02	Sunny	88	332	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 0143)	5919
	10:04	11:04	Sunny	83	332	500	Construction work in progress	23	<5	GMW GS-2310 (S/N 0143)	5920
18-Apr-15	9:00	10:00	Cloudy	96	332	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 0143)	6029
	10:02	11:02	Cloudy	102	332	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 0143)	6030
	11:04	12:04	Cloudy	102	332	500	Construction work in progress	24	<5	GMW GS-2310 (S/N 0143)	6031
24-Apr-15	8:00	9:00	Sunny	96	332	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0143)	6045
	10:00	11:00	Sunny	72	332	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0143)	6046
	14:00	15:00	Sunny	57	332	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0143)	6047
30-Apr-15	12:05	13:05	Sunny	89	332	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 0143)	6041
	13:07	14:07	Sunny	86	332	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 0143)	6042
	14:10	15:10	Sunny	96	332	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 0143)	6043
			Min.	**57**							
			Max.	**105**							
			Average	**87**							

* Wind Speed data is presented in the Meteorological Data table

Annex F5 24-hour and 1-hour TSP Monitoring Results

1-hour TSP Monitoring Results

Station AM5

Date	Start Time	Finish Time	Weather	TSP Concentration (µg/m3)	Action Level (µg/m3)	Limit Level (µg/m3)	Site Conditions / Observations / Remarks	Temperature (°C)	Wind Speed (m/s)	Sampler ID	Filter ID
06-May-15	11:50	12:50	Cloudy	70	332	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0143)	6201
	12:52	13:52	Cloudy	85	332	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0143)	6202
	13:54	14:54	Cloudy	83	332	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0143)	6203
12-May-15	11:45	12:45	Sunny	91	332	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0143)	6213
	12:47	13:47	Sunny	84	332	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0143)	6214
	13:49	14:49	Sunny	99	332	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 0143)	6215
18-May-15	11:40	12:40	Cloudy	95	332	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0143)	6301
	12:42	13:42	Cloudy	87	332	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0143)	6302
	13:44	14:44	Cloudy	106	332	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0143)	6303
22-May-15	14:00	15:00	Cloudy	73	332	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0143)	6305
	15:02	16:02	Cloudy	87	332	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0143)	6306
	16:04	17:04	Cloudy	88	332	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 0143)	6307
28-May-15	10:00	11:00	Fine	91	332	500	Construction work in progress	31	<5	GMW GS-2310 (S/N 0143)	6337
	11:02	12:02	Fine	92	332	500	Construction work in progress	31	<5	GMW GS-2310 (S/N 0143)	6338
	12:04	13:04	Fine	95	332	500	Construction work in progress	31	<5	GMW GS-2310 (S/N 0143)	6339
			Min.	**70**							
			Max.	**106**							
			Average	**88**							

* Wind Speed data is presented in the Meteorological Data table

Annex F5 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	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
02-Mar-15	15:50	03-Mar-15	15:50	Cloudy	2.7947	2.9100	16286.51	16310.51	24.00	1.22	1.22	1.22	66	189	260	construction work in progress	GMW GS-2310 (S/N 0143)	5572
06-Mar-15	11:06	07-Mar-15	11:06	Cloudy	2.8886	3.0104	16313.51	16337.51	24.00	1.22	1.22	1.22	69	189	260	construction work in progress	GMW GS-2310 (S/N 0143)	5660
12-Mar-15	16:06	13-Mar-15	16:06	Fine	2.8648	2.9811	16340.51	16364.51	24.00	1.22	1.22	1.22	66	189	260	construction work in progress	GMW GS-2310 (S/N 0143)	5672
18-Mar-15	11:06	19-Mar-15	11:06	Fine	2.8861	2.9840	16367.51	16391.51	24.00	1.22	1.22	1.22	56	189	260	construction work in progress	GMW GS-2310 (S/N 0143)	5784
24-Mar-15	12:06	25-Mar-15	12:06	Fine	2.8523	2.9719	16394.51	16418.51	24.00	1.22	1.22	1.22	68	189	260	construction work in progress	GMW GS-2310 (S/N 0143)	5796
30-Mar-15	12:06	31-Mar-15	12:06	Fine	2.8976	2.9919	16421.51	16445.51	24.00	1.22	1.22	1.22	54	189	260	construction work in progress	GMW GS-2310 (S/N 0143)	5808
												Min.	56					
												Max.	69					
												Average	64					

Annex F5 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	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
02-Apr-15	15:16	03-Apr-15	15:16	Fine	2.9009	3.0101	16448.51	16472.51	24.00	1.22	1.22	1.22	62	189	260	construction work in progress	GMW GS-2310 (S/N 0143)	5904
08-Apr-15	16:00	09-Apr-15	16:00	Cloudy	2.9003	3.0007	16475.51	16499.51	24.00	1.22	1.22	1.22	57	189	260	construction work in progress	GMW GS-2310 (S/N 0143)	5916
13-Apr-15	11:06	14-Apr-15	11:06	Sunny	2.8292	2.9309	16502.51	16526.51	24.00	1.22	1.22	1.22	58	189	260	construction work in progress	GMW GS-2310 (S/N 0143)	5917
18-Apr-15	12:06	19-Apr-15	12:06	Cloudy	2.9101	3.0200	16529.51	16553.51	24.00	1.22	1.22	1.22	63	189	260	construction work in progress	GMW GS-2310 (S/N 0143)	6032
24-Apr-15	15:02	25-Apr-15	15:02	Sunny	2.8974	2.9902	16556.51	16580.51	24.00	1.22	1.22	1.22	53	189	260	construction work in progress	GMW GS-2310 (S/N 0143)	6048
30-Apr-15	16:00	01-May-15	16:00	Sunny	2.8760	2.9794	16583.51	16607.51	24.00	1.22	1.22	1.22	59	189	260	construction work in progress	GMW GS-2310 (S/N 0143)	6044
												Min.	57					
												Max.	63					
												Average	60					

Annex F5 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	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
06-May-15	15:40	07-May-15	15:40	Cloudy	2.8749	2.9662	16610.51	16634.51	24.00	1.21	1.21	1.21	52	189	260	construction work in progress	GMW GS-2310 (S/N 0143)	6204
12-May-15	15:35	13-May-15	15:35	Sunny	2.8804	2.9819	16637.51	16661.51	24.00	1.21	1.21	1.21	58	189	260	construction work in progress	GMW GS-2310 (S/N 0143)	6216
18-May-15	14:46	19-May-15	14:46	Cloudy	2.8797	2.9706	16664.51	16688.51	24.00	1.21	1.21	1.21	52	189	260	construction work in progress	GMW GS-2310 (S/N 0143)	6304
22-May-15	17:26	23-May-15	17:26	Cloudy	2.8810	2.9700	16691.51	16715.51	24.00	1.21	1.21	1.21	51	189	260	construction work in progress	GMW GS-2310 (S/N 0143)	6308
28-May-15	13:10	29-May-15	13:10	Fine	2.8622	2.9521	16718.51	16742.51	24.00	1.21	1.21	1.21	52	189	260	construction work in progress	GMW GS-2310 (S/N 0143)	6340
												Min.	**51**					
												Max.	**58**					
												Average	**53**					

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2015-03-02	Cloudy	17	78-91	Trace	0-21	SE
2015-03-03	Cloudy	20	80-95	0.2	0-22	NW
2015-03-06	Cloudy	16	92-95	0.1	0-23	SE
2015-03-07	Fine	17	86-94	0.2	2-17	SE
2015-03-08	Fine	19	80-91	Trace	0-24	SE
2015-03-12	Cloudy	15	85-96	3.7	0-15	SE/E
2015-03-13	Cloudy	17	71-83	0.0	4-20	SE/E
2015-03-14	Cloudy	19	74-89	Trace	0-23	SE
2015-03-18	Fine	23	84-97	0.0	0-18	SE
2015-03-19	Fine	24	79-96	0.0	0-11	SE
2015-03-20	Fine	24	66-95	0.0	0-18	SE
2015-03-24	Fine	20	66-83	0.0	4-21	SE/E
2015-03-25	Cloudy	18	73-81	Trace	1-24	SE/E
2015-03-26	Cloudy	19	72-96	4.2	0-16	SE
2015-03-30	Fine	23	80-93	0.0	0-15	SE/E
2015-03-31	Fine	23	82-95	Trace	0-14	SE/E
2015-04-01	Fine	24	75-95	0.0	0-13	SE

		Tsing Yi Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-03-02	Cloudy	18	78-91	Trace	0-22	E
2015-03-03	Cloudy	21	80-95	0.2	0-25	NW
2015-03-06	Cloudy	18	92-95	0.1	0-17	SE/E
2015-03-07	Fine	19	86-94	0.2	0-18	E
2015-03-08	Fine	20	80-91	Trace	0-23	NW
2015-03-12	Cloudy	16	85-96	3.7	0-11	SE/E
2015-03-13	Cloudy	18	71-83	0.0	1-18	E
2015-03-14	Cloudy	20	74-89	Trace	3-26	E
2015-03-18	Fine	24	84-97	0.0	0-23	SE
2015-03-19	Fine	25	79-96	0.0	0-13	SE
2015-03-20	Fine	25	66-95	0.0	0-15	SE
2015-03-24	Fine	21	66-83	0.0	4-25	SE/E
2015-03-25	Cloudy	18	73-81	Trace	1-14	SE/E
2015-03-26	Cloudy	19	72-96	4.2	0-12	NW
2015-03-30	Fine	25	80-93	0.0	2-14	SE/E
2015-03-31	Fine	25	82-95	Trace	0-15	SE
2015-04-01	Fine	26	75-95	0.0	0-19	N/NW

		Kai Tak Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-03-02	Cloudy	17	78-91	Trace	7-25	SE/E
2015-03-03	Cloudy	20	80-95	0.2	0-20	SW
2015-03-06	Cloudy	16	92-95	0.1	6-22	SE/E
2015-03-07	Fine	17	86-94	0.2	8-22	E
2015-03-08	Fine	19	80-91	Trace	6-24	SE
2015-03-12	Cloudy	15	85-96	3.7	0-18	SE/E
2015-03-13	Cloudy	17	71-83	0.0	9-24	SE/E
2015-03-14	Cloudy	19	74-89	Trace	7-31	SE
2015-03-18	Fine	23	84-97	0.0	4-21	SE
2015-03-19	Fine	24	79-96	0.0	2-22	SE
2015-03-20	Fine	24	66-95	0.0	0-23	SE
2015-03-24	Fine	20	66-83	0.0	10-28	E
2015-03-25	Cloudy	18	73-81	Trace	4-28	SE/E
2015-03-26	Cloudy	19	72-96	4.2	4-22	SE
2015-03-30	Fine	23	80-93	0.0	3-21	SE
2015-03-31	Fine	23	82-95	Trace	4-20	SE
2015-04-01	Fine	24	75-95	0.0	7-19	SE

		Green Island Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-03-02	Cloudy	17	78-91	Trace	17-44	NE
2015-03-03	Cloudy	20	80-95	0.2	0-45	N
2015-03-06	Cloudy	16	92-95	0.1	20-41	NE
2015-03-07	Fine	17	86-94	0.2	18-43	NE
2015-03-08	Fine	19	80-91	Trace	5-45	NE
2015-03-12	Cloudy	15	85-96	3.7	0-31	NE
2015-03-13	Cloudy	17	71-83	0.0	8-42	NE
2015-03-14	Cloudy	19	74-89	Trace	11-36	NE
2015-03-18	Fine	23	84-97	0.0	0-30	S
2015-03-19	Fine	24	79-96	0.0	0-31	S
2015-03-20	Fine	24	66-95	0.0	0-27	NE
2015-03-24	Fine	20	66-83	0.0	20-50	NE
2015-03-25	Cloudy	18	73-81	Trace	10-50	NE
2015-03-26	Cloudy	19	72-96	4.2	0-40	NE/N
2015-03-30	Fine	23	80-93	0.0	0-26	S
2015-03-31	Fine	23	82-95	Trace	0-21	SE/S
2015-04-01	Fine	24	75-95	0.0	0-30	S

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

Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2015/04/02	Fine	26	74-91	0.0	0-13	NE
2015/04/08	Cloudy	18	69-96	10.0	1-21	NE
2015/04/13	Sunny	22	38-77	0.0	0-13	NE/E
2015/04/14	Sunny	21	29-61	0.0	0-18	NE/E
2015/04/16	Cloudy	22	51-81	0.0	0-15	N/NW
2015/04/18	Cloudy	25	80-90	Trace	1-16	SE
2015/04/20	Fine	26	78-91	0.2	1-13	N/NW
2015/04/22	Fine	23	65-88	Trace	0-22	SE
2015/04/24	Sunny	24	56-83	0.0	0-13	S
2015/04/25	Sunny	24	65-85	0.0	0-18	SE
2015/04/28	Sunny	25	64-90	0.0	0-17	NW/W
2015/04/30	Sunny	28	60-91	0.0	0-12	NW/W

Date	Weather	Tsing Yi Station				
		Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015/04/02	Fine	26	74-91	0.0	0-24	SE
2015/04/08	Cloudy	19	69-96	10.0	2-14	NW
2015/04/13	Sunny	22	38-77	0.0	0-17	SE/E
2015/04/14	Sunny	22	29-61	0.0	0-19	SE/E
2015/04/16	Cloudy	22	51-81	0.0	0-23	SE
2015/04/18	Cloudy	25	80-90	Trace	9-27	SE
2015/04/20	Fine	25	78-91	0.2	1-15	SE
2015/04/22	Fine	24	65-88	Trace	1-20	E
2015/04/24	Sunny	25	56-83	0.0	0-15	SE/E
2015/04/25	Sunny	24	65-85	0.0	0-23	SE/E
2015/04/28	Sunny	25	64-90	0.0	0-15	SE/E
2015/04/30	Sunny	29	60-91	0.0	0-16	SE

Date	Weather	Kai Tak Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015/04/02	Fine	26	74-91	0.0	2-19	SE/E
2015/04/08	Cloudy	18	69-96	10.0	0-17	NE/E
2015/04/13	Sunny	22	38-77	0.0	0-18	SE
2015/04/14	Sunny	21	29-61	0.0	2-22	NE/E
2015/04/16	Cloudy	22	51-81	0.0	0-15	SW
2015/04/18	Cloudy	25	80-90	Trace	2-20	SE
2015/04/20	Fine	26	78-91	0.2	1-21	SW
2015/04/22	Fine	23	65-88	Trace	2-26	SE/E
2015/04/24	Sunny	24	56-83	0.0	4-22	SE
2015/04/25	Sunny	24	65-85	0.0	6-23	E
2015/04/28	Sunny	25	64-90	0.0	0-17	SW
2015/04/30	Sunny	28	60-91	0.0	0-17	SE

Date	Weather	Green Island Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015/04/02	Fine	26	74-91	0.0	12-43	S
2015/04/08	Cloudy	18	69-96	10.0	8-43	N
2015/04/13	Sunny	22	38-77	0.0	0-41	NE
2015/04/14	Sunny	21	29-61	0.0	8-38	NE
2015/04/16	Cloudy	22	51-81	0.0	0-26	S/SW
2015/04/18	Cloudy	25	80-90	Trace	5-45	S
2015/04/20	Fine	26	78-91	0.2	7-34	S/SW
2015/04/22	Fine	23	65-88	Trace	13-58	NE
2015/04/24	Sunny	24	56-83	0.0	0-25	S
2015/04/25	Sunny	24	65-85	0.0	0-35	NE
2015/04/28	Sunny	25	64-90	0.0	0-26	S/SW
2015/04/30	Sunny	28	60-91	0.0	0-34	S/SW

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

Meteorological Data Extracted from the Hong Kong Observatory

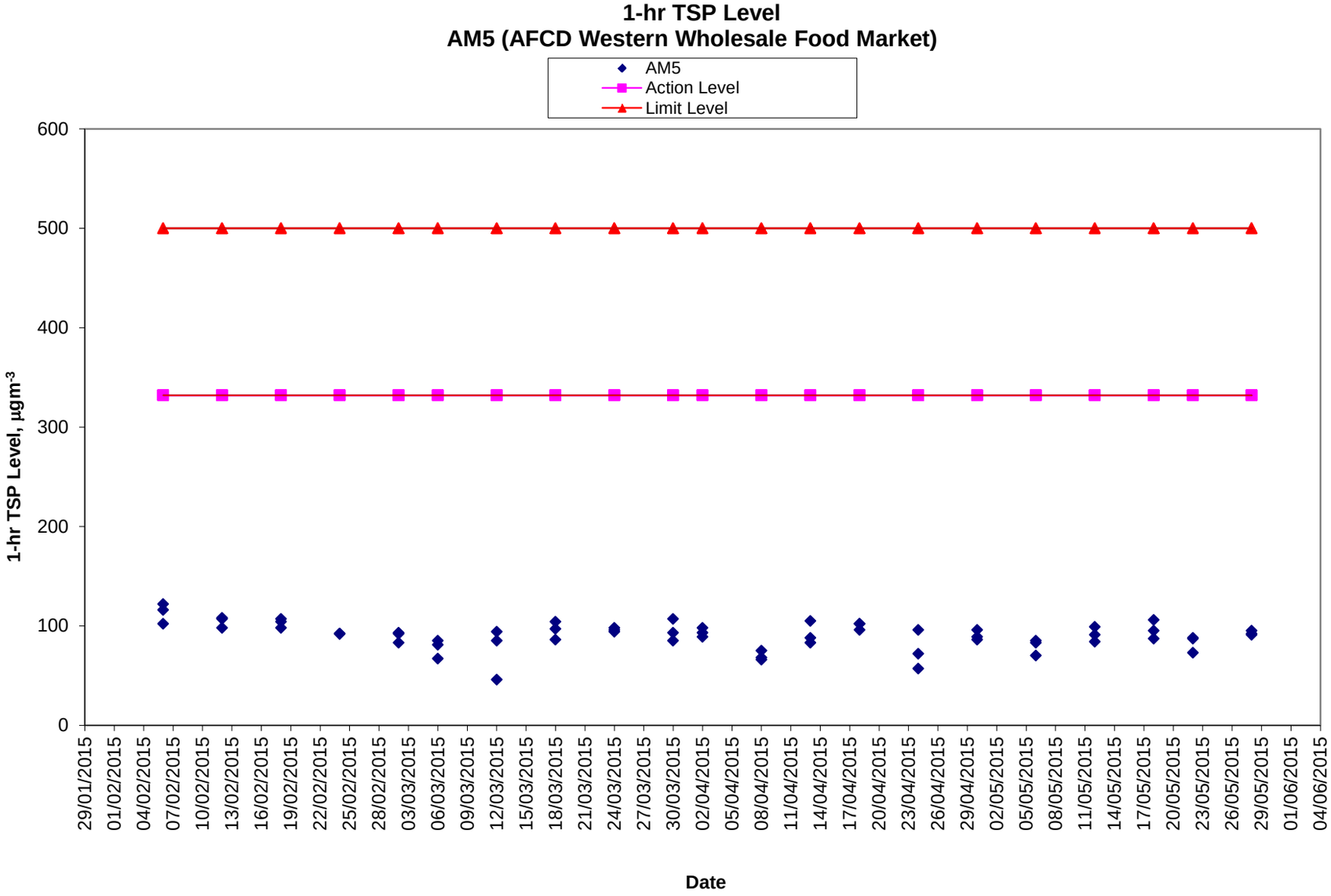
		King's Park Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2015-05-02	Cloudy	28	72-86	Trace	0-19	SW/W
2015-05-06	Cloudy	26	69-96	0.6	0-15	SW/W
2015-05-07	Cloudy	28	75-91	0.3	0-15	SW/W
2015-05-12	Sunny	26	63-92	0.0	0-14	SE
2015-05-13	Cloudy	27	78-90	0.0	0-17	SE
2015-05-18	Cloudy	28	75-94	0.9	0-18	SW
2015-05-19	Cloudy	28	80-88	1.2	3-21	SW
2015-05-22	Cloudy	23	89-96	0.7	6-19	SE
2015-05-23	Rainy	25	94-99	169.4	0-19	SE
2015-05-28	Fine	30	71-90	670.7	0-17	SW
2015-05-29	Fine	31	73-84	0.0	0-17	SW/W

		Tsing Yi Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-05-02	Cloudy	28	72-86	Trace	8-22	SE
2015-05-06	Cloudy	27	69-96	0.6	8-26	SE/E
2015-05-07	Cloudy	28	75-91	0.3	0-19	SE
2015-05-12	Sunny	26	63-92	0.0	0-14	SE/E
2015-05-13	Cloudy	27	78-90	0.0	2-20	E
2015-05-18	Cloudy	25	75-94	0.9	0-21	SE
2015-05-19	Cloudy	28	80-88	1.2	3-24	SE
2015-05-22	Cloudy	24	89-96	0.7	4-20	E
2015-05-23	Rainy	25	94-99	169.4	0-30	SE
2015-05-28	Fine	30	71-90	670.7	6-16	SE
2015-05-29	Fine	25	73-84	0.0	4-15	SE

		Kai Tak Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-05-02	Cloudy	28	72-86	Trace	3-21	SE
2015-05-06	Cloudy	26	69-96	0.6	1-18	SE/E
2015-05-07	Cloudy	28	75-91	0.3	3-17	SE
2015-05-12	Sunny	26	63-92	0.0	0-20	SE
2015-05-13	Cloudy	27	78-90	0.0	6-20	SE/E
2015-05-18	Cloudy	28	75-94	0.9	0-20	SW/S
2015-05-19	Cloudy	28	80-88	1.2	3-23	SW/S
2015-05-22	Cloudy	23	89-96	0.7	18-22	E
2015-05-23	Rainy	25	94-99	169.4	0-40	SE/E
2015-05-28	Fine	30	71-90	670.7	3-21	SW/S
2015-05-29	Fine	31	73-84	0.0	0-18	SW/S

		Green Island Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-05-02	Cloudy	28	72-86	Trace	17-37	S
2015-05-06	Cloudy	26	69-96	0.6	2-35	S
2015-05-07	Cloudy	28	75-91	0.3	3-32	S
2015-05-12	Sunny	26	63-92	0.0	0-30	SW/S
2015-05-13	Cloudy	27	78-90	0.0	0-34	NE
2015-05-18	Cloudy	28	75-94	0.9	11-38	S
2015-05-19	Cloudy	28	80-88	1.2	23-49	S
2015-05-22	Cloudy	23	89-96	0.7	28-47	NE
2015-05-23	Rainy	25	94-99	169.4	0-48	NE
2015-05-28	Fine	30	71-90	670.7	15-35	SW/S
2015-05-29	Fine	31	73-84	0.0	14-35	SW/S

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


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
29/01/2015
01/02/2015
04/02/2015
07/02/2015
10/02/2015
13/02/2015
16/02/2015
19/02/2015
22/02/2015
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28/02/2015
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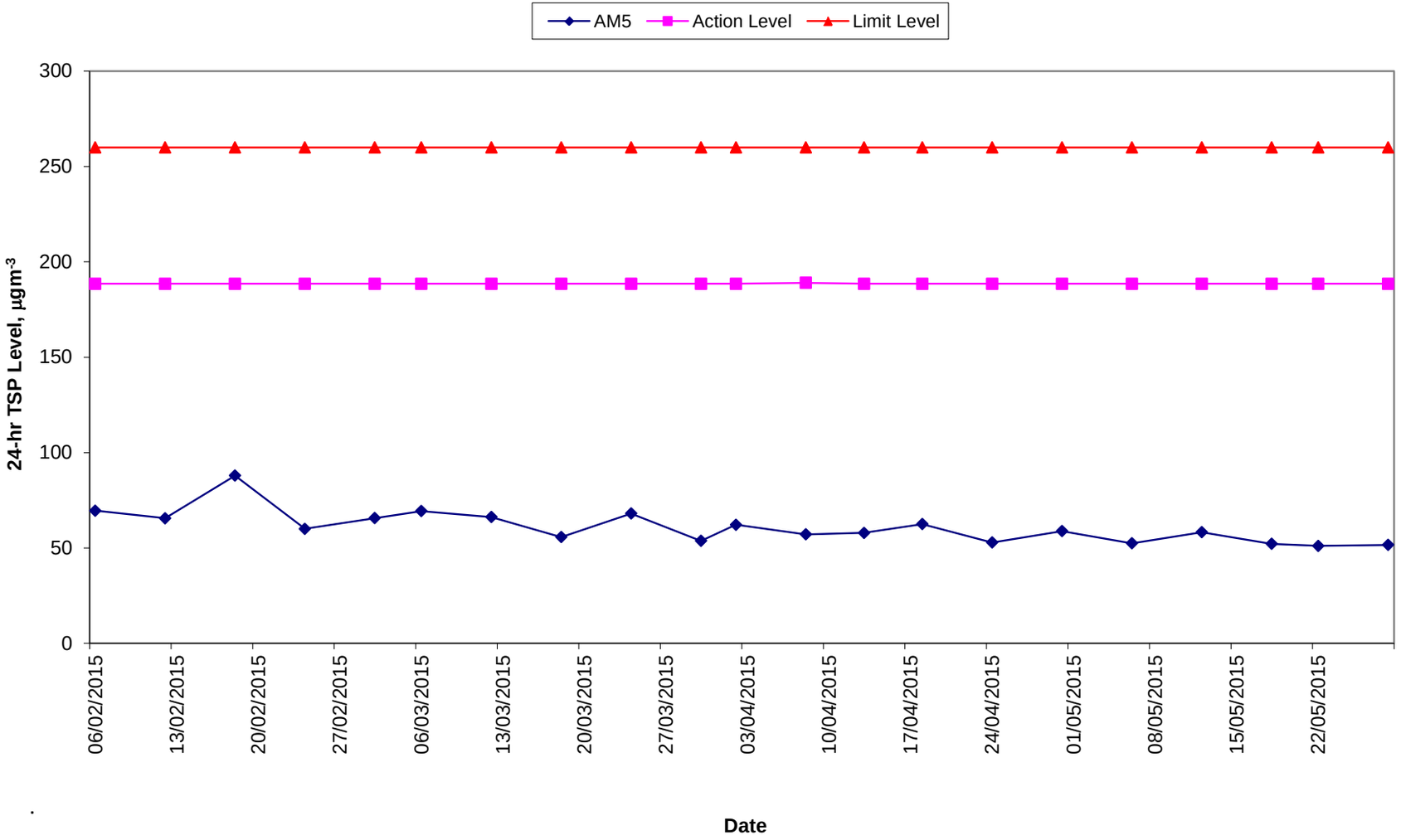
26/04/2015
29/04/2015
02/05/2015
05/05/2015
08/05/2015
11/05/2015
14/05/2015
17/05/2015
20/05/2015
23/05/2015
26/05/2015
29/05/2015
01/06/2015
04/06/2015
Date

24-hr TSP Level
AM5 (AFCD Western Wholesale Food Market)



Annex F6 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. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
02-Mar-15	13:17	13:47	Cloudy	68	70	66	Lifting, Excavation	Traffic Noise	-	17	0.5	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
13-Mar-15	14:03	14:33	Cloudy	68	69	66	Lifting, Excavation	Traffic Noise	-	17	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
19-Mar-15	14:20	14:50	Fine	68	69	66	Excavation, Crawler crane	Traffic Noise	-	29	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
25-Mar-15	14:10	14:40	Cloudy	67	69	66	Lifting, Excavation	Traffic Noise	-	18	0.5	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
31-Mar-15	13:00	13:30	Fine	67	69	66	Lifting, Excavation	Traffic Noise	-	22	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
			Min.	**67**									
			Max.	**68**									

Annex F6 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. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
08-Apr-15	13:30	14:00	Cloudy	67	68	65	Lifting, Excavation	Traffic Noise	-	22	0.4	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
14-Apr-15	14:10	14:40	Sunny	67	69	66	Lifting, Excavation	Traffic Noise	-	23	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
20-Apr-15	10:25	10:55	Fine	67	69	66	Excavation, Crawler Crane	Traffic Noise	-	24	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
30-Apr-15	13:22	13:52	Sunny	67	68	65	Crawler Crane, Excavation	Traffic Noise	-	27	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
			Min.	**67**									
			Max.	**67**									

Annex F6 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. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
06-May-15	13:07	13:37	Cloudy	67	68	65	Excavation, Crawler Crane	Traffic Noise	-	28	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
12-May-15	13:00	13:30	Sunny	67	68	65	Excavation, Crawler Crane	Traffic Noise	-	26	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
18-May-15	14:00	14:30	Cloudy	67	68	65	Excavation, Crawler Crane	Traffic Noise	-	28	0.5	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
29-May-15	9:22	9:52	Sunny	67	69	65	Crawler Crane, Excavation	Traffic Noise	-	31	0.5	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
			Min.	**67**									
			Max.	**67**									

Annex F6 Noise Monitoring Results

Restricted Hours Noise Monitoring Results

Station NM4

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
01-Mar-15	17:11	17:16	Fine	68	70	64	-	Traffic noise	-	19	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	17:16	17:21	Fine	67	69	65			-				
	17:21	17:26	Fine	67	68	65			-				
	17:11	17:26	Fine	67	68	65			-				
10-Mar-15	21:11	21:16	Fine	65	66	63	-	Traffic noise	-	18	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	21:16	21:21	Fine	65	67	63			-				
	21:21	21:26	Fine	66	68	63			-				
	21:11	21:26	Fine	65	67	63			-				
15-Mar-15	10:17	10:22	Fine	67	68	65	-	Traffic noise	-	21	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	10:22	10:27	Fine	66	68	64			-				
	10:27	10:32	Fine	66	68	64			-				
	10:17	10:32	Fine	66	68	64			-				
24-Mar-15	21:41	21:46	Cloudy	65	66	63	-	Traffic noise	-	20	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	21:46	21:51	Cloudy	66	68	63			-				
	21:51	21:56	Cloudy	64	66	63			-				
	21:41	21:56	Cloudy	65	67	63			-				
29-Mar-15	7:55	8:00	Fine	66	68	64	-	Traffic noise	-	23	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	8:00	8:05	Fine	66	67	63			-				
	8:05	8:10	Fine	65	68	63			-				
	7:55	8:10	Fine	65	68	63			-				
			Min.	**64**									
			Max.	**68**									

Annex F6 Noise Monitoring Results

Restricted Hours Noise Monitoring Results

Station NM4

Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
08-Apr-15	21:30	21:35	Cloudy	65	67	62	-	Traffic noise	-	22	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	21:35	21:40	Cloudy	64	65	62			-				
	21:40	21:45	Cloudy	64	65	62			-				
	21:30	21:45	Cloudy	64	66	62			-				
12-Apr-15	16:42	16:47	Sunny	68	69	65	-	Traffic noise	-	19	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	16:47	16:52	Sunny	67	68	65			-				
	16:52	16:57	Sunny	68	69	65			-				
	16:42	16:57	Sunny	67	69	65			-				
21-Apr-15	21:10	21:15	Fine	65	66	62	-	Traffic noise	-	24	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	21:15	21:20	Fine	66	68	63			-				
	21:20	21:25	Fine	67	68	64			-				
	21:10	21:25	Fine	66	68	63			-				
26-Apr-15	17:11	17:16	Sunny	64	66	61	-	Traffic noise	-	25	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	17:16	17:21	Sunny	64	66	62			-				
	17:21	17:26	Sunny	63	65	61			-				
	17:11	17:26	Sunny	64	66	61			-				
			Min.	**63**									
			Max.	**68**									

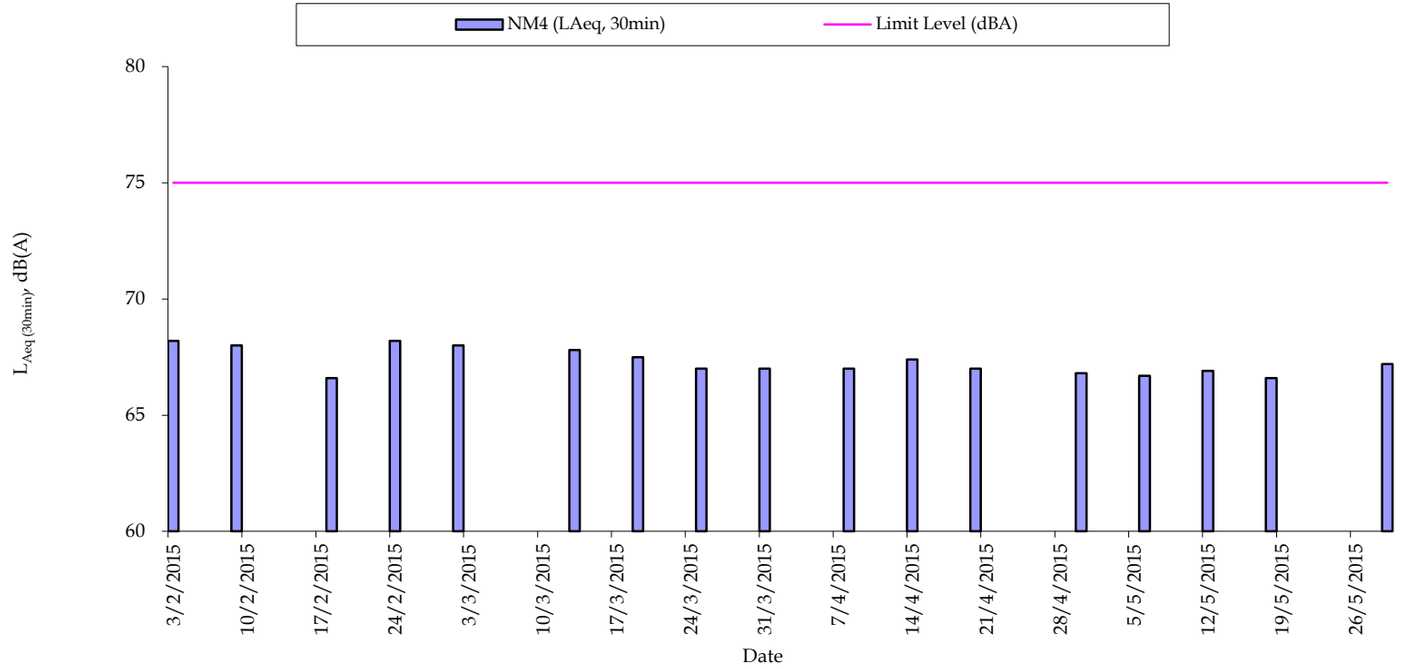
Annex F6 Noise Monitoring Results

Restricted Hours Noise Monitoring Results

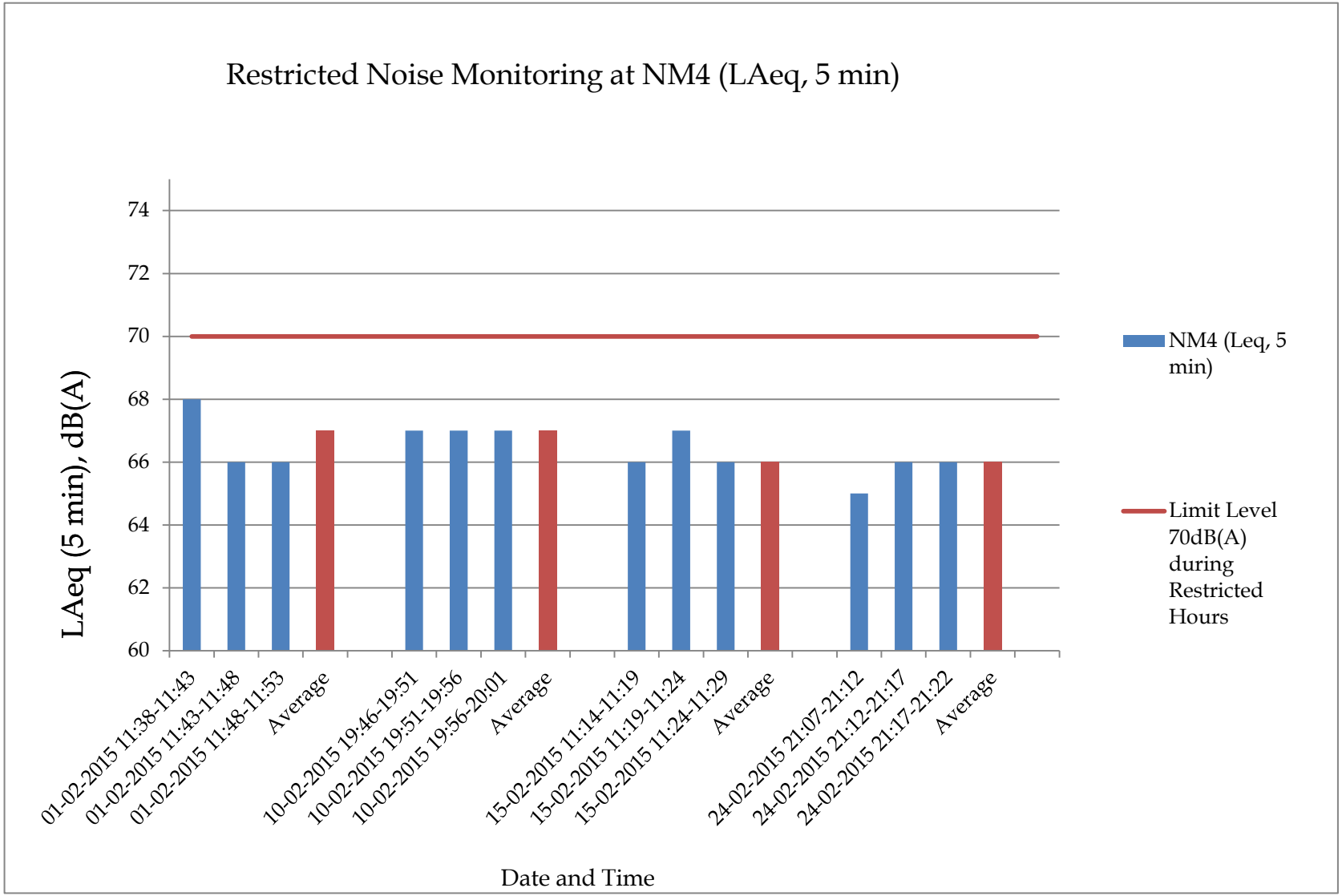
Station NM4

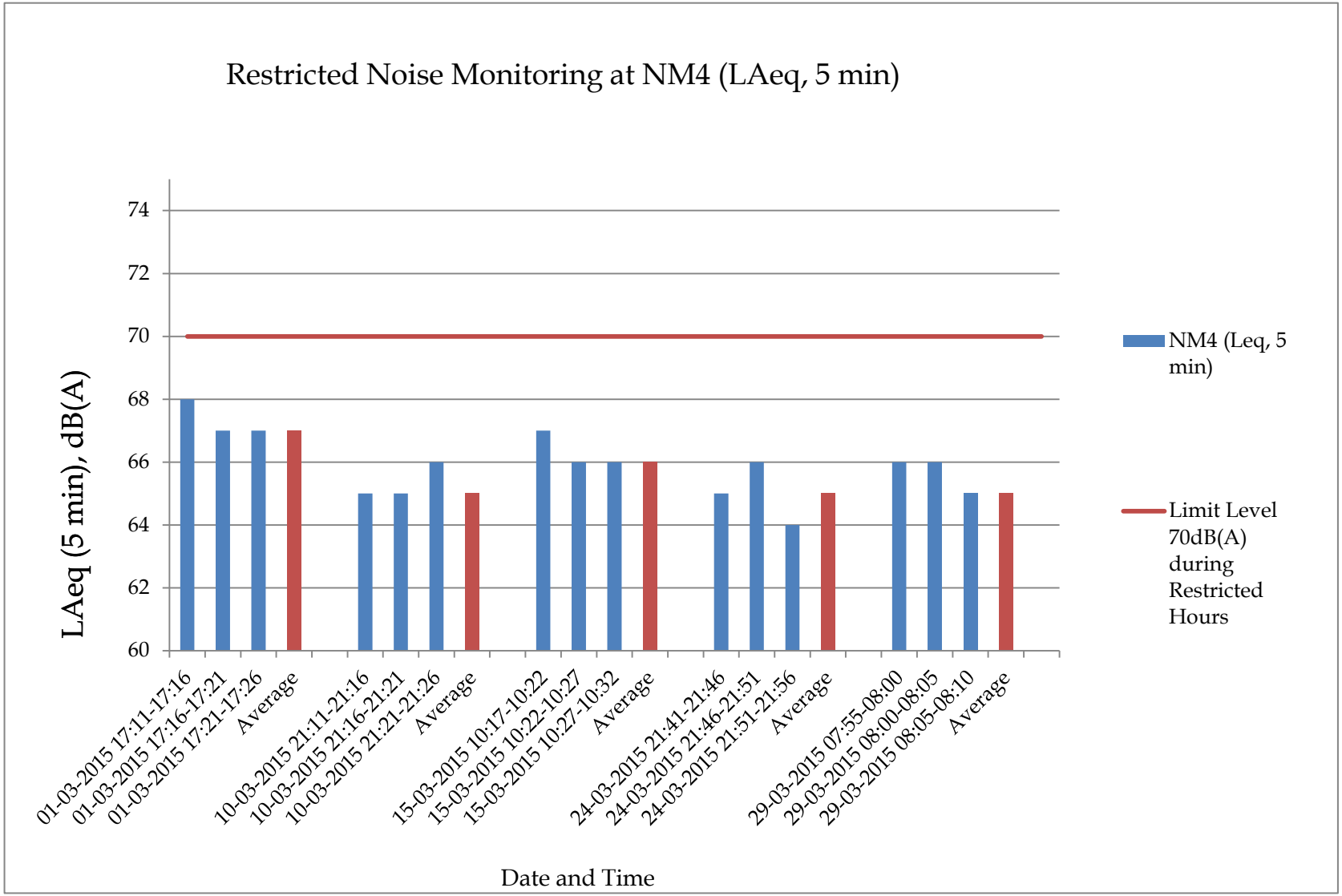
Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
05-May-15	21:11	21:16	Cloudy	64	66	61	-	Traffic noise	-	28	0.2	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	21:16	21:21	Cloudy	62	64	61			-				
	21:21	21:26	Cloudy	64	66	62			-				
	21:11	21:26	Cloudy	64	65	62			-				
10-May-15	11:44	11:49	FIne	66	67	64	-	Traffic noise	-	27	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	11:49	11:54	FIne	66	67	64			-				
	11:54	11:59	FIne	66	67	65			-				
	11:44	11:59	FIne	66	67	64			-				
19-May-15	21:16	21:21	Cloudy	64	66	61	-	Traffic noise	-	28	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	21:21	21:26	Cloudy	65	66	63			-				
	21:26	21:31	Cloudy	66	68	63			-				
	21:16	21:31	Cloudy	65	67	62			-				
24-May-15	17:32	17:37	Cloudy	66	68	63	-	Traffic noise	-	27	0.3	Casella CEL-633A (S/N 3521757)	Casella CEL-120/1 (S/N 3421612)
	17:37	17:42	Cloudy	66	68	65			-				
	17:42	17:47	Cloudy	67	69	66			-				
	17:32	17:47	Cloudy	67	68	65			-				
			Min.	**62**									
			Max.	**67**									

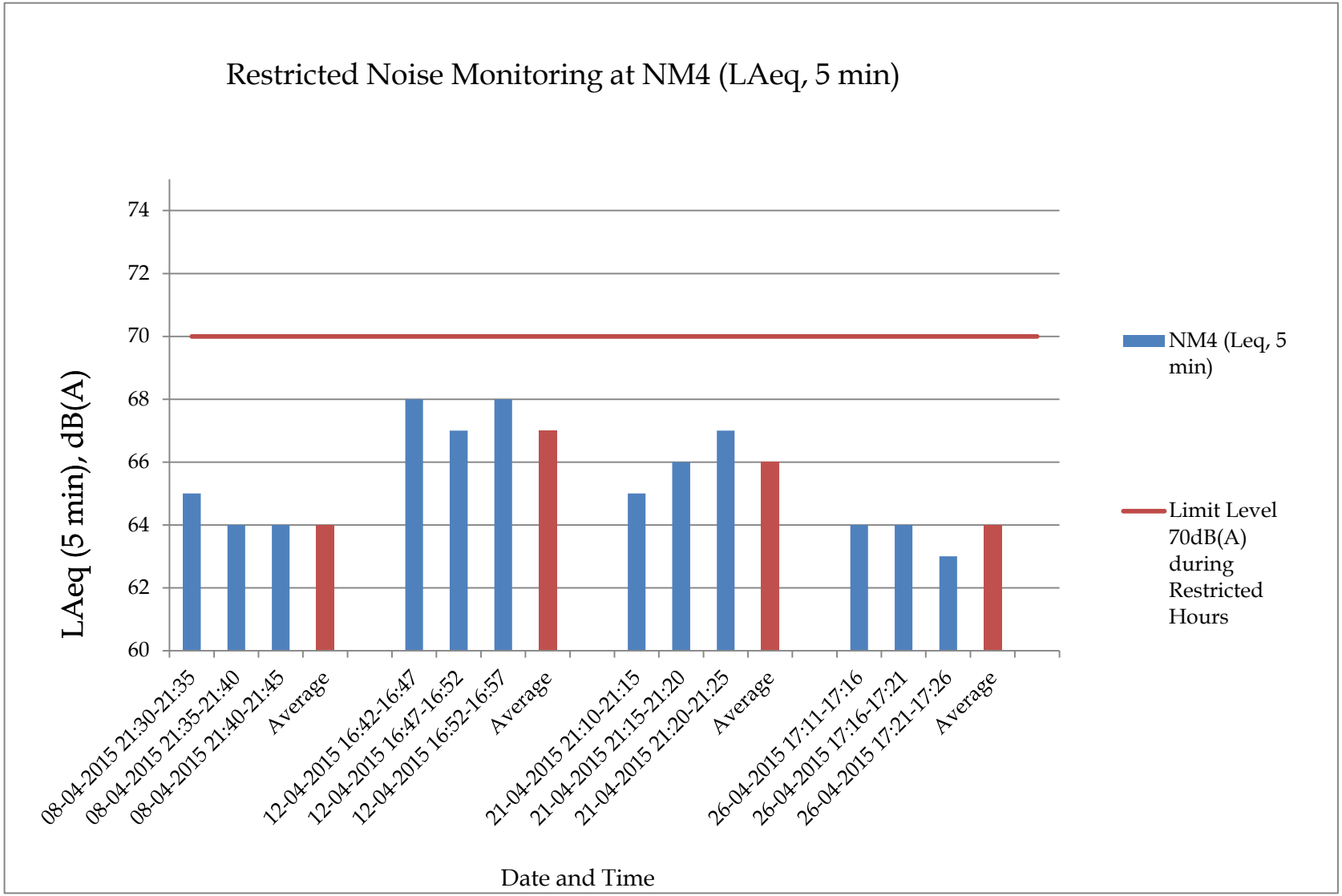
Normal Weekdays Noise Monitoring Results at NM4 ($L_{Aeq, 30min}$)

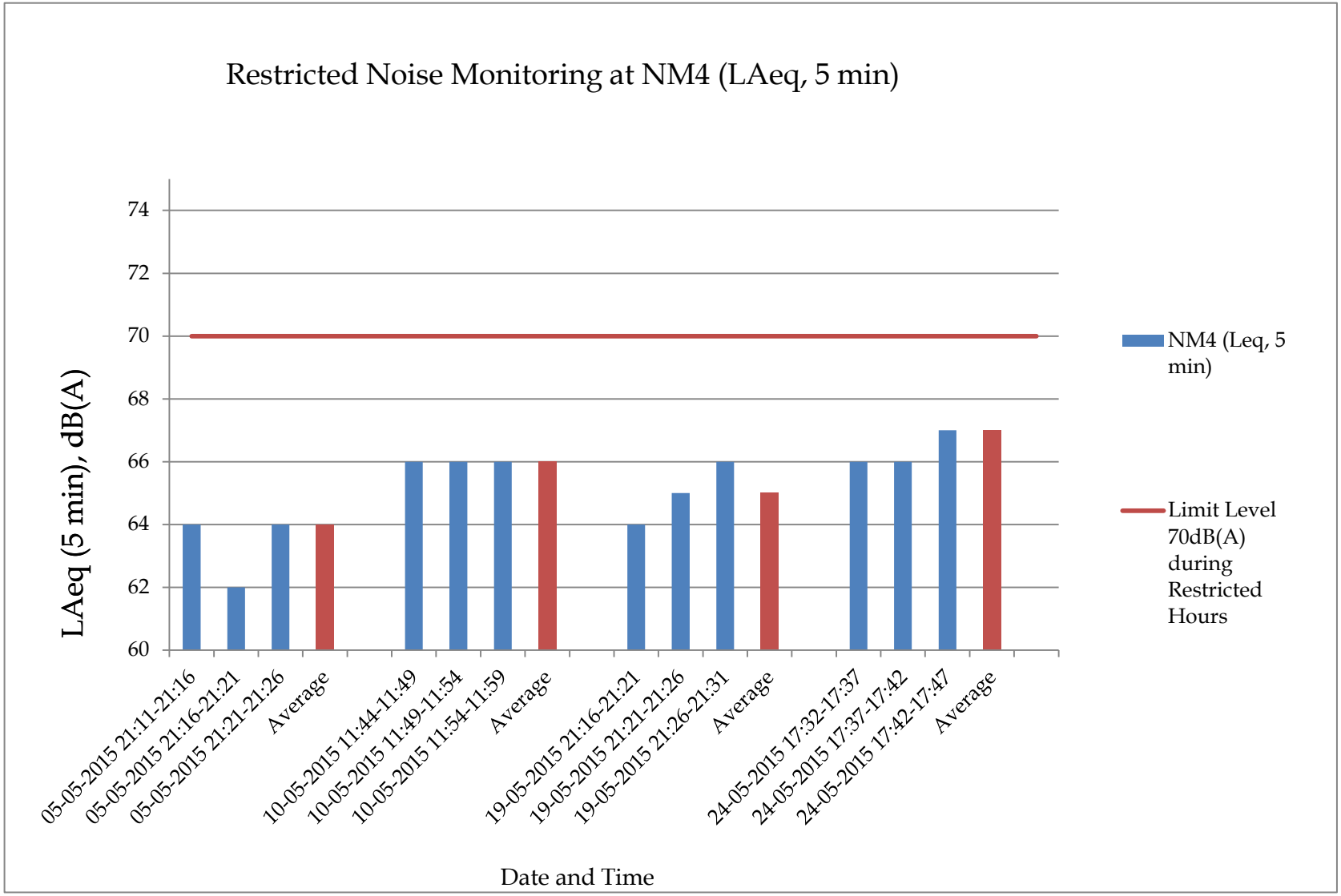


Remark:
- 75dB(A) was adopted as the Limit Level during normal weekdays in the reporting period


Restricted Noise Monitoring at NM4 (LAeq, 5 min)
LAeq (5 min), dB(A)
74
72
70
68
66
64
62
60
01-02-2015 11:38-11:43
01-02-2015 11:43-11:48
01-02-2015 11:48-11:53
Average
10-02-2015 19:46-19:51
10-02-2015 19:51-19:56
10-02-2015 19:56-20:01
Average
15-02-2015 11:14-11:19
15-02-2015 11:19-11:24
15-02-2015 11:24-11:29
Average
24-02-2015 21:07-21:12
24-02-2015 21:12-21:17
24-02-2015 21:17-21:22
Average
Date and Time
NM4 (Leq, 5 min)
Limit Level 70dB(A) during Restricted Hours


Restricted Noise Monitoring at NM4 (LAeq, 5 min)
LAeq (5 min), dB(A)
74
72
70
68
66
64
62
60
01-03-2015 17:11-17:16
01-03-2015 17:16-17:21
01-03-2015 17:21-17:26
Average
10-03-2015 21:11-21:16
10-03-2015 21:16-21:21
10-03-2015 21:21-21:26
Average
15-03-2015 10:17-10:22
15-03-2015 10:22-10:27
15-03-2015 10:27-10:32
Average
24-03-2015 21:41-21:46
24-03-2015 21:46-21:51
24-03-2015 21:51-21:56
Average
29-03-2015 07:55-08:00
29-03-2015 08:00-08:05
29-03-2015 08:05-08:10
Average
Date and Time
NM4 (Leq, 5 min)
Limit Level 70dB(A) during Restricted Hours


Restricted Noise Monitoring at NM4 (LAeq, 5 min)
LAeq (5 min), dB(A)
74
72
70
68
66
64
62
60
08-04-2015 21:30-21:35
08-04-2015 21:35-21:40
08-04-2015 21:40-21:45
Average
12-04-2015 16:42-16:47
12-04-2015 16:47-16:52
12-04-2015 16:52-16:57
Average
21-04-2015 21:10-21:15
21-04-2015 21:15-21:20
21-04-2015 21:20-21:25
Average
26-04-2015 17:11-17:16
26-04-2015 17:16-17:21
26-04-2015 17:21-17:26
Average
Date and Time
NM4 (Leq, 5 min)
Limit Level 70dB(A) during Restricted Hours


Restricted Noise Monitoring at NM4 (LAeq, 5 min)
LAeq (5 min), dB(A)
74
72
70
68
66
64
62
60
05-05-2015 21:11-21:16
05-05-2015 21:16-21:21
05-05-2015 21:21-21:26
Average
10-05-2015 11:44-11:49
10-05-2015 11:49-11:54
10-05-2015 11:54-11:59
Average
19-05-2015 21:16-21:21
19-05-2015 21:21-21:26
19-05-2015 21:26-21:31
Average
24-05-2015 17:32-17:37
24-05-2015 17:37-17:42
24-05-2015 17:42-17:47
Average
Date and Time
NM4 (Leq, 5 min)
Limit Level 70dB(A) during Restricted Hours

Annex F7 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
March 2011	0	0
April 2011	0	0
May 2011	0	0

Annex F7 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
June 2011	0	0
July 2011	0	0
August 2011	0	0
September 2011	0	0
October 2011	0	0
November 2011	0	0
December 2011	0	0
January 2012	0	0
February 2012	0	0
March 2012	0	0
April 2012	1	0
May 2012	0	0
June 2012	0	0
July 2012	0	0
August 2012	0	0
September 2012	0	0
October 2012	0	0
November 2012	0	0

Annex F7 Cumulative Complaint and Summons/Prosecutions Log

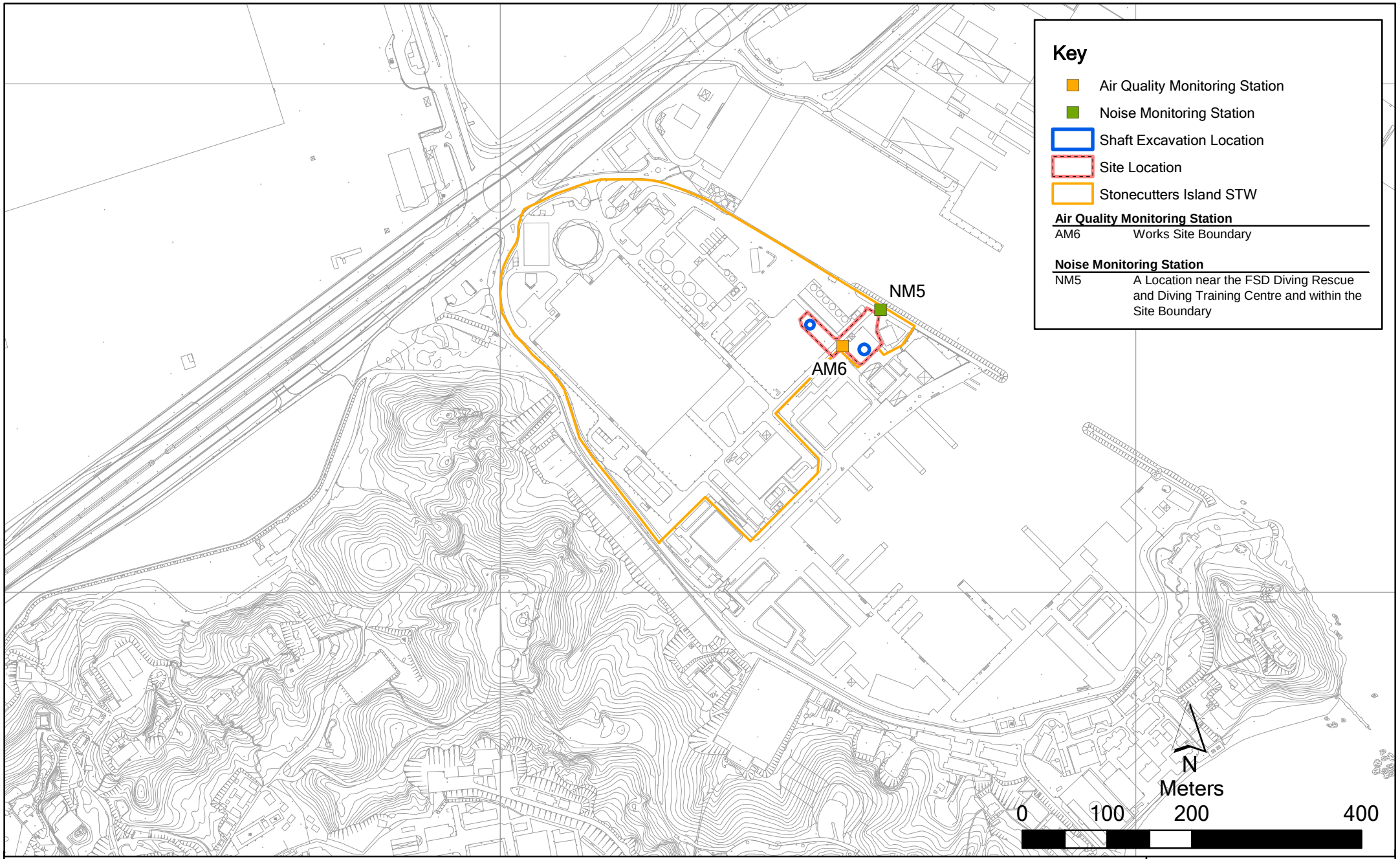
Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
December 2012	1	0
January 2013	0	0
February 2013	0	0
March 2013	0	0
April 2013	0	0
May 2013	0	0
June 2013	0	0
July 2013	0	0
August 2013	0	0
September 2013	0	0
October 2013	0	0
November 2013	0	0
December 2013	0	0
January 2014	0	0
February 2014	0	0
March 2014	0	0
April 2014	0	0
May 2014	0	0

Annex F7 Cumulative Complaint and Summons/Prosecutions Log

Reporting Month	Number of Complaints in Reporting Month	Number of Summons/Prosecutions in Reporting Month
June 2014	0	0
July 2014	0	0
August 2014	0	0
September 2014	0	0
October 2014	0	0
November 2014	0	0
December 2014	0	0
January 2015	0	0
February 2015	0	0
March 2015	0	0
April 2015	0	0
May 2015	0	0
Overall Total	7	0

Annex G

Stonecutters Island Production and Riser Shafts



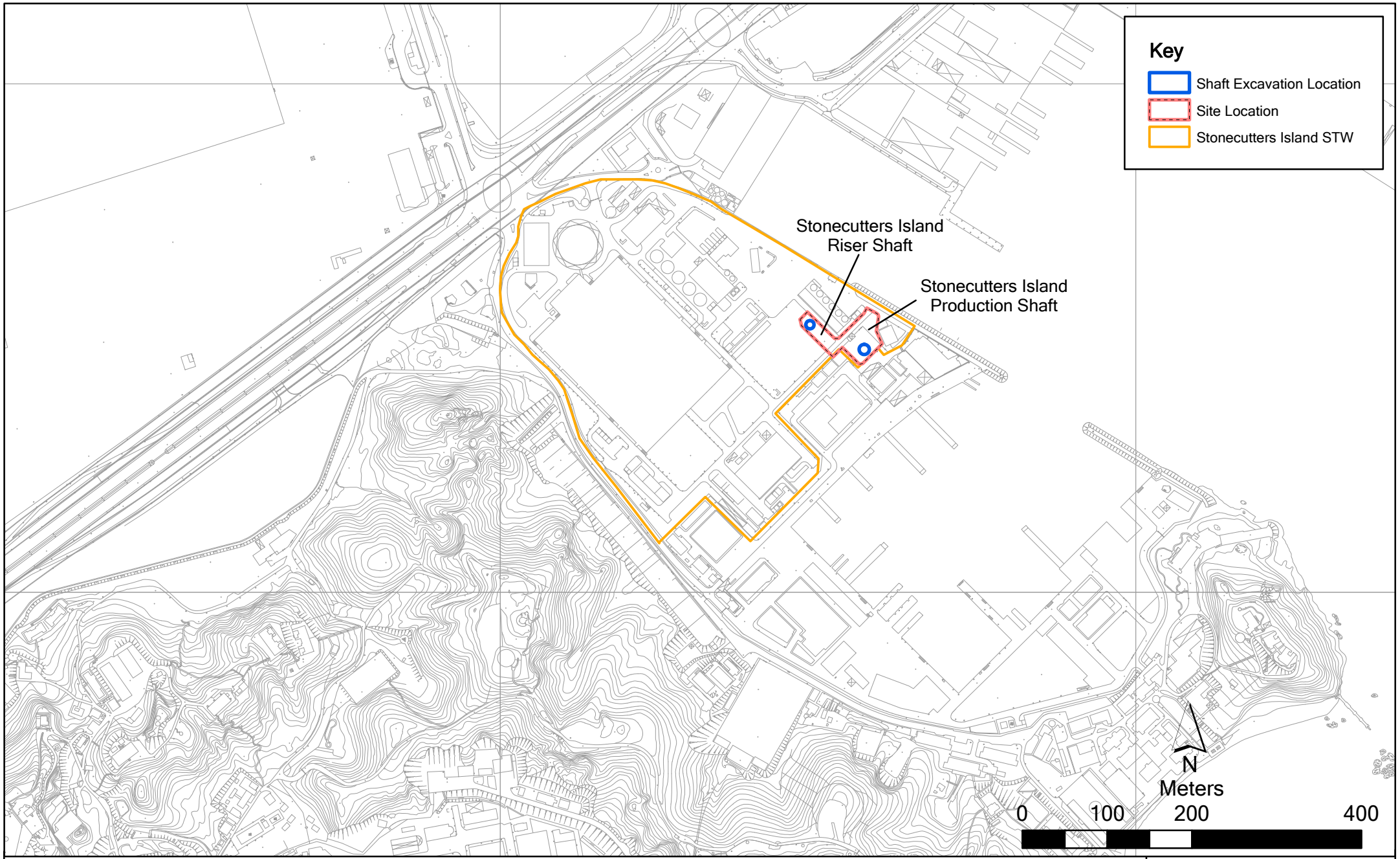
Annex G2

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



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

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 minimise 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 minimise 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 deodorisation system, the extraction vent(s) of the deodorisation 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 deodorisation 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 utilised 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	√
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 minimise 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 minimise 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 minimise 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 minimise 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
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

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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 oxidised 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 / minimise the potential TIN exceedances.	SCISTW / 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 minimise 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	NA
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	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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, oxidising, 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			

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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
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 harmonise 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

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Construction Phase	•		
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

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 minimise 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 minimise 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 deodorisation system, the extraction vent(s) of the deodorisation 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 deodorisation 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 utilised 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	√
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 minimise 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 minimise 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 minimise 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 minimise 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
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

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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 oxidised 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 / minimise the potential TIN exceedances.	SCISTW / 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 minimise 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	NA
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	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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, oxidising, 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			

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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
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 harmonise 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

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Construction Phase	•		
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

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 minimise 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 minimise 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 deodorisation system, the extraction vent(s) of the deodorisation 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 deodorisation 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 utilised 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	√
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 minimise 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 minimise 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 minimise 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 minimise 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
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

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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 oxidised 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 / minimise the potential TIN exceedances.	SCISTW / 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 minimise 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	NA
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	√

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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, oxidising, 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			

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
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
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 harmonise 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

Type of Impact	Environmental Protection Measures	Location/ Timing	Status
Construction Phase	•		
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 G5 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 (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
02-Mar-15	14:09	15:09	Cloudy	148	346	500	Construction work in progress	19	<5	GMW GS-2310 (S/N 1254)	5410
	15:11	16:11	Cloudy	141	346	500	Construction work in progress	19	<5	GMW GS-2310 (S/N 1254)	5411
	16:13	17:13	Cloudy	137	346	500	Construction work in progress	19	<5	GMW GS-2310 (S/N 1254)	5412
06-Mar-15	14:06	15:06	Cloudy	187	346	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 1254)	5414
	15:08	16:08	Cloudy	165	346	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 1254)	5415
	16:10	17:10	Cloudy	171	346	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 1254)	5416
12-Mar-15	14:35	15:35	Cloudy	141	346	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 1254)	5418
	15:37	16:37	Cloudy	149	346	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 1254)	5419
	16:39	17:39	Cloudy	159	346	500	Construction work in progress	18	<5	GMW GS-2310 (S/N 1254)	5420
18-Mar-15	14:33	15:33	Cloudy	120	346	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 1254)	5422
	15:35	16:35	Cloudy	135	346	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 1254)	5423
	16:37	17:37	Cloudy	142	346	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 1254)	5424
24-Mar-15	14:00	15:00	Cloudy	130	346	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 1254)	5825
	15:02	16:02	Cloudy	141	346	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 1254)	5826
	16:04	17:04	Cloudy	149	346	500	Construction work in progress	22	<5	GMW GS-2310 (S/N 1254)	5827
30-Mar-15	13:50	14:50	Sunny	153	346	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 1254)	5829
	14:52	15:52	Sunny	169	346	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 1254)	5830
	15:54	16:54	Sunny	157	346	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 1254)	5831
			Min.	**120**							
			Max.	**187**							
			Average	**150**							

* Wind Speed data is presented in the Meteorological Data table

Annex G5 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 (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
02-Apr-15	13:57	14:57	Cloudy	167	346	500	Construction work in progress	25	<5	GMW GS-2310 (S/N 1254)	5833
	14:59	15:59	Cloudy	160	346	500	Construction work in progress	25	<5	GMW GS-2310 (S/N 1254)	5834
	16:01	17:01	Cloudy	171	346	500	Construction work in progress	25	<5	GMW GS-2310 (S/N 1254)	5835
08-Apr-15	14:47	15:47	Cloudy	195	346	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 1254)	5837
	15:49	16:49	Cloudy	150	346	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 1254)	5838
	16:51	17:51	Cloudy	160	346	500	Construction work in progress	20	<5	GMW GS-2310 (S/N 1254)	5839
13-Apr-15	9:00	10:00	Sunny	138	346	500	Construction work in progress	25	<5	GMW GS-2310 (S/N 1254)	5841
	10:02	11:02	Sunny	149	346	500	Construction work in progress	25	<5	GMW GS-2310 (S/N 1254)	5842
	11:04	12:04	Sunny	158	346	500	Construction work in progress	25	<5	GMW GS-2310 (S/N 1254)	5848
16-Apr-15	13:10	14:10	Cloudy	82	346	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 1254)	3845
	14:12	15:12	Cloudy	105	346	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 1254)	5846
	15:14	16:14	Cloudy	102	346	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 1254)	5847
22-Apr-15	14:09	15:09	Cloudy	133	346	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 1254)	5873
	15:11	16:11	Cloudy	146	346	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 1254)	5874
	16:13	17:13	Cloudy	156	346	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 1254)	5875
28-Apr-15	8:30	9:30	Sunny	161	346	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 1254)	5877
	9:32	10:32	Sunny	167	346	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 1254)	5878
	10:34	11:34	Sunny	182	346	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 1254)	5879
			Min.	**82**							
			Max.	**195**							
			Average	**149**							

* Wind Speed data is presented in the Meteorological Data table

Annex G5 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 (°C)	Wind Speed * (m/s)	Sampler ID	Filter ID
02-May-15	8:30	9:30	Cloudy	143	346	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 1254)	5881
	9:32	10:32	Cloudy	152	346	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 1254)	5882
	10:34	11:34	Cloudy	160	346	500	Construction work in progress	27	<5	GMW GS-2310 (S/N 1254)	5883
07-May-15	14:45	15:45	Cloudy	148	346	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 1254)	5885
	15:57	16:57	Cloudy	141	346	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 1254)	5886
	16:49	17:49	Cloudy	143	346	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 1254)	5887
13-May-15	15:05	16:05	Cloudy	120	346	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 1254)	5889
	16:07	17:07	Cloudy	100	346	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 1254)	5890
	17:09	18:09	Cloudy	123	346	500	Construction work in progress	28	<5	GMW GS-2310 (S/N 1254)	5893
19-May-15	9:10	10:10	Cloudy	117	346	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 1254)	5894
	10:12	11:12	Cloudy	105	346	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 1254)	5895
	11:14	12:14	Cloudy	81	346	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 1254)	5896
23-May-15	8:30	9:30	Rainy	120	346	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 1254)	5897
	9:32	10:32	Rainy	141	346	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 1254)	5898
	10:34	11:34	Rainy	141	346	500	Construction work in progress	26	<5	GMW GS-2310 (S/N 1254)	5899
29-May-15	8:40	9:40	Fine	96	346	500	Construction work in progress	32	<5	GMW GS-2310 (S/N 1254)	6273
	9:42	10:42	Fine	102	346	500	Construction work in progress	32	<5	GMW GS-2310 (S/N 1254)	6274
	10:44	11:44	Fine	100	346	500	Construction work in progress	32	<5	GMW GS-2310 (S/N 1254)	6275
			Min.	**81**							
			Max.	**160**							
			Average	**124**							

* Wind Speed data is presented in the Meteorological Data table

Annex G5 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	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
02-Mar-15	17:15	03-Mar-15	17:15	Cloudy	2.8876	3.0421	14787.03	14811.03	24.00	1.24	1.24	1.24	87	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	5413
06-Mar-15	17:12	07-Mar-15	17:12	Cloudy	2.8778	3.0221	14814.03	14838.03	24.00	1.24	1.24	1.24	81	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	5417
12-Mar-15	17:41	13-Mar-15	17:41	Cloudy	2.8882	3.0498	14841.03	14865.03	24.00	1.24	1.24	1.24	91	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	5421
18-Mar-15	17:39	19-Mar-15	17:39	Cloudy	2.8818	3.0256	14868.03	14892.03	24.00	1.22	1.22	1.22	82	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	5425
24-Mar-15	17:06	25-Mar-15	17:06	Cloudy	2.9145	3.0701	14895.03	14919.03	24.00	1.22	1.22	1.22	89	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	5828
30-Mar-15	16:56	31-Mar-15	16:56	Sunny	2.9117	3.0725	14922.03	14946.03	24.00	1.22	1.22	1.22	92	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	5832
												Min.	81					
												Max.	91					
												Average	86					

Annex G5 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	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
02-Apr-15	17:03	03-Apr-15	17:03	Cloudy	2.9353	3.0904	14949.03	14973.03	24.00	1.22	1.22	1.22	88	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	5836
08-Apr-15	17:53	09-Apr-15	17:53	Cloudy	2.9324	3.0717	14976.03	15000.03	24.00	1.22	1.22	1.22	79	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	5840
13-Apr-15	12:06	14-Apr-15	12:06	Sunny	2.9283	3.0907	15003.03	15027.03	24.00	1.22	1.22	1.22	92	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	5844
16-Apr-15	16:16	17-Apr-15	16:16	Cloudy	2.9260	3.0262	15030.03	15054.03	24.00	1.22	1.22	1.22	57	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	5848
22-Apr-15	17:15	23-Apr-15	17:15	Cloudy	2.9416	3.1001	15057.03	15081.03	24.00	1.22	1.22	1.22	90	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	5876
28-Apr-15	11:36	29-Apr-15	11:36	Sunny	2.9368	3.0798	15084.03	15108.03	24.00	1.22	1.22	1.22	81	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	5880
												Min.	57					
												Max.	92					
												Average	81					

Annex G5 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	Flow Rate (m^3/min)			TSP Conc.	Action Level	Limit Level	Observations / Remarks	Sampler	Filter
Date	Time	Date	Time		Initial	Final	Initial	Final	(hrs)	Initial	Final	Average	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)		ID	ID
02-May-15	11:36	03-May-15	11:36	Cloudy	2.9303	3.0521	15111.03	15135.03	24.00	1.22	1.22	1.22	69	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	5884
07-May-15	17:51	08-May-15	17:51	Cloudy	2.9456	3.0711	15138.03	15162.03	24.00	1.22	1.22	1.22	71	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	5888
13-May-15	18:11	14-May-15	18:11	Cloudy	2.9552	3.0798	15165.03	15189.03	24.00	1.22	1.22	1.22	71	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	5892
19-May-15	12:16	20-May-15	12:16	Cloudy	2.9578	3.0621	15192.03	15216.03	24.00	1.22	1.22	1.22	59	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	5891
23-May-15	11:36	24-May-15	11:36	Rainy	2.9164	3.0566	15195.03	15219.03	24.00	1.22	1.22	1.22	80	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	3900
29-May-15	11:46	30-May-15	11:46	Fine	2.8919	3.0227	15222.03	15246.03	24.00	1.22	1.22	1.22	74	196	260	Construction work in progress	GMW GS 2310 (S/N 1254)	6276
												Min.	**59**					
												Max.	**80**					
												Average	**71**					

Meteorological Data Extracted from the Hong Kong Observatory

		King's Park Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2015-03-02	Cloudy	17	78-91	Trace	0-21	SE
2015-03-03	Cloudy	20	80-95	0.2	0-22	NW
2015-03-06	Cloudy	16	92-95	0.1	0-23	SE
2015-03-07	Fine	17	86-94	0.2	2-17	SE
2015-03-08	Fine	19	80-91	Trace	0-24	SE
2015-03-12	Cloudy	15	85-96	3.7	0-15	SE/E
2015-03-13	Cloudy	17	71-83	0.0	4-20	SE/E
2015-03-14	Cloudy	19	74-89	Trace	0-23	SE
2015-03-18	Fine	23	84-97	0.0	0-18	SE
2015-03-19	Fine	24	79-96	0.0	0-11	SE
2015-03-20	Fine	24	66-95	0.0	0-18	SE
2015-03-24	Fine	20	66-83	0.0	4-21	SE/E
2015-03-25	Cloudy	18	73-81	Trace	1-24	SE/E
2015-03-26	Cloudy	19	72-96	4.2	0-16	SE
2015-03-30	Fine	23	80-93	0.0	0-15	SE/E
2015-03-31	Fine	23	82-95	Trace	0-14	SE/E
2015-04-01	Fine	24	75-95	0.0	0-13	SE

		Tsing Yi Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-03-02	Cloudy	18	78-91	Trace	0-22	E
2015-03-03	Cloudy	21	80-95	0.2	0-25	NW
2015-03-06	Cloudy	18	92-95	0.1	0-17	SE/E
2015-03-07	Fine	19	86-94	0.2	0-18	E
2015-03-08	Fine	20	80-91	Trace	0-23	NW
2015-03-12	Cloudy	16	85-96	3.7	0-11	SE/E
2015-03-13	Cloudy	18	71-83	0.0	1-18	E
2015-03-14	Cloudy	20	74-89	Trace	3-26	E
2015-03-18	Fine	24	84-97	0.0	0-23	SE
2015-03-19	Fine	25	79-96	0.0	0-13	SE
2015-03-20	Fine	25	66-95	0.0	0-15	SE
2015-03-24	Fine	21	66-83	0.0	4-25	SE/E
2015-03-25	Cloudy	18	73-81	Trace	1-14	SE/E
2015-03-26	Cloudy	19	72-96	4.2	0-12	NW
2015-03-30	Fine	25	80-93	0.0	2-14	SE/E
2015-03-31	Fine	25	82-95	Trace	0-15	SE
2015-04-01	Fine	26	75-95	0.0	0-19	N/NW

		Kai Tak Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-03-02	Cloudy	17	78-91	Trace	7-25	SE/E
2015-03-03	Cloudy	20	80-95	0.2	0-20	SW
2015-03-06	Cloudy	16	92-95	0.1	6-22	SE/E
2015-03-07	Fine	17	86-94	0.2	8-22	E
2015-03-08	Fine	19	80-91	Trace	6-24	SE
2015-03-12	Cloudy	15	85-96	3.7	0-18	SE/E
2015-03-13	Cloudy	17	71-83	0.0	9-24	SE/E
2015-03-14	Cloudy	19	74-89	Trace	7-31	SE
2015-03-18	Fine	23	84-97	0.0	4-21	SE
2015-03-19	Fine	24	79-96	0.0	2-22	SE
2015-03-20	Fine	24	66-95	0.0	0-23	SE
2015-03-24	Fine	20	66-83	0.0	10-28	E
2015-03-25	Cloudy	18	73-81	Trace	4-28	SE/E
2015-03-26	Cloudy	19	72-96	4.2	4-22	SE
2015-03-30	Fine	23	80-93	0.0	3-21	SE
2015-03-31	Fine	23	82-95	Trace	4-20	SE
2015-04-01	Fine	24	75-95	0.0	7-19	SE

		Green Island Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-03-02	Cloudy	17	78-91	Trace	17-44	NE
2015-03-03	Cloudy	20	80-95	0.2	0-45	N
2015-03-06	Cloudy	16	92-95	0.1	20-41	NE
2015-03-07	Fine	17	86-94	0.2	18-43	NE
2015-03-08	Fine	19	80-91	Trace	5-45	NE
2015-03-12	Cloudy	15	85-96	3.7	0-31	NE
2015-03-13	Cloudy	17	71-83	0.0	8-42	NE
2015-03-14	Cloudy	19	74-89	Trace	11-36	NE
2015-03-18	Fine	23	84-97	0.0	0-30	S
2015-03-19	Fine	24	79-96	0.0	0-31	S
2015-03-20	Fine	24	66-95	0.0	0-27	NE
2015-03-24	Fine	20	66-83	0.0	20-50	NE
2015-03-25	Cloudy	18	73-81	Trace	10-50	NE
2015-03-26	Cloudy	19	72-96	4.2	0-40	NE/N
2015-03-30	Fine	23	80-93	0.0	0-26	S
2015-03-31	Fine	23	82-95	Trace	0-21	SE/S
2015-04-01	Fine	24	75-95	0.0	0-30	S

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

Meteorological Data Extracted from the Hong Kong Observatory

Date	Weather	King's Park Station				
		Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2015/04/02	Fine	26	74-91	0.0	0-13	NE
2015/04/08	Cloudy	18	69-96	10.0	1-21	NE
2015/04/13	Sunny	22	38-77	0.0	0-13	NE/E
2015/04/14	Sunny	21	29-61	0.0	0-18	NE/E
2015/04/16	Cloudy	22	51-81	0.0	0-15	N/NW
2015/04/18	Cloudy	25	80-90	Trace	1-16	SE
2015/04/20	Fine	26	78-91	0.2	1-13	N/NW
2015/04/22	Fine	23	65-88	Trace	0-22	SE
2015/04/24	Sunny	24	56-83	0.0	0-13	S
2015/04/25	Sunny	24	65-85	0.0	0-18	SE
2015/04/28	Sunny	25	64-90	0.0	0-17	NW/W
2015/04/30	Sunny	28	60-91	0.0	0-12	NW/W

Date	Weather	Tsing Yi Station				
		Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015/04/02	Fine	26	74-91	0.0	0-24	SE
2015/04/08	Cloudy	19	69-96	10.0	2-14	NW
2015/04/13	Sunny	22	38-77	0.0	0-17	SE/E
2015/04/14	Sunny	22	29-61	0.0	0-19	SE/E
2015/04/16	Cloudy	22	51-81	0.0	0-23	SE
2015/04/18	Cloudy	25	80-90	Trace	9-27	SE
2015/04/20	Fine	25	78-91	0.2	1-15	SE
2015/04/22	Fine	24	65-88	Trace	1-20	E
2015/04/24	Sunny	25	56-83	0.0	0-15	SE/E
2015/04/25	Sunny	24	65-85	0.0	0-23	SE/E
2015/04/28	Sunny	25	64-90	0.0	0-15	SE/E
2015/04/30	Sunny	29	60-91	0.0	0-16	SE

Date	Weather	Kai Tak Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015/04/02	Fine	26	74-91	0.0	2-19	SE/E
2015/04/08	Cloudy	18	69-96	10.0	0-17	NE/E
2015/04/13	Sunny	22	38-77	0.0	0-18	SE
2015/04/14	Sunny	21	29-61	0.0	2-22	NE/E
2015/04/16	Cloudy	22	51-81	0.0	0-15	SW
2015/04/18	Cloudy	25	80-90	Trace	2-20	SE
2015/04/20	Fine	26	78-91	0.2	1-21	SW
2015/04/22	Fine	23	65-88	Trace	2-26	SE/E
2015/04/24	Sunny	24	56-83	0.0	4-22	SE
2015/04/25	Sunny	24	65-85	0.0	6-23	E
2015/04/28	Sunny	25	64-90	0.0	0-17	SW
2015/04/30	Sunny	28	60-91	0.0	0-17	SE

Date	Weather	Green Island Station				
		Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015/04/02	Fine	26	74-91	0.0	12-43	S
2015/04/08	Cloudy	18	69-96	10.0	8-43	N
2015/04/13	Sunny	22	38-77	0.0	0-41	NE
2015/04/14	Sunny	21	29-61	0.0	8-38	NE
2015/04/16	Cloudy	22	51-81	0.0	0-26	S/SW
2015/04/18	Cloudy	25	80-90	Trace	5-45	S
2015/04/20	Fine	26	78-91	0.2	7-34	S/SW
2015/04/22	Fine	23	65-88	Trace	13-58	NE
2015/04/24	Sunny	24	56-83	0.0	0-25	S
2015/04/25	Sunny	24	65-85	0.0	0-35	NE
2015/04/28	Sunny	25	64-90	0.0	0-26	S/SW
2015/04/30	Sunny	28	60-91	0.0	0-34	S/SW

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

Meteorological Data Extracted from the Hong Kong Observatory

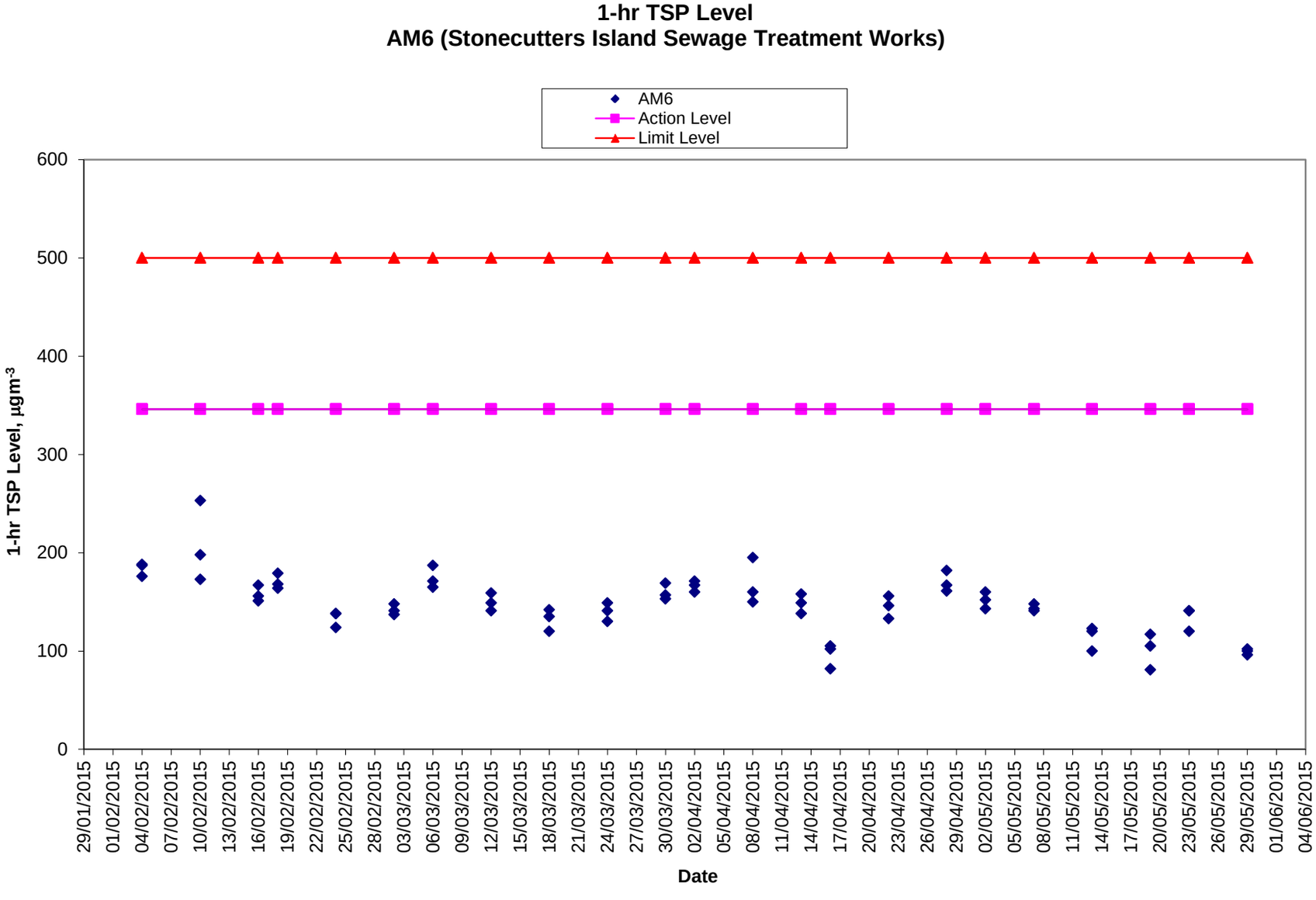
		King's Park Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%)	Total Rainfall (mm)	Average Wind Speed (km/h)	Wind Direction
2015-05-02	Cloudy	28	72-86	Trace	0-19	SW/W
2015-05-06	Cloudy	26	69-96	0.6	0-15	SW/W
2015-05-07	Cloudy	28	75-91	0.3	0-15	SW/W
2015-05-12	Sunny	26	63-92	0.0	0-14	SE
2015-05-13	Cloudy	27	78-90	0.0	0-17	SE
2015-05-18	Cloudy	28	75-94	0.9	0-18	SW
2015-05-19	Cloudy	28	80-88	1.2	3-21	SW
2015-05-22	Cloudy	23	89-96	0.7	6-19	SE
2015-05-23	Rainy	25	94-99	169.4	0-19	SE
2015-05-28	Fine	30	71-90	670.7	0-17	SW
2015-05-29	Fine	31	73-84	0.0	0-17	SW/W

		Tsing Yi Station				
Date	Weather	Average Air Temperature (°C)	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-05-02	Cloudy	28	72-86	Trace	8-22	SE
2015-05-06	Cloudy	27	69-96	0.6	8-26	SE/E
2015-05-07	Cloudy	28	75-91	0.3	0-19	SE
2015-05-12	Sunny	26	63-92	0.0	0-14	SE/E
2015-05-13	Cloudy	27	78-90	0.0	2-20	E
2015-05-18	Cloudy	25	75-94	0.9	0-21	SE
2015-05-19	Cloudy	28	80-88	1.2	3-24	SE
2015-05-22	Cloudy	24	89-96	0.7	4-20	E
2015-05-23	Rainy	25	94-99	169.4	0-30	SE
2015-05-28	Fine	30	71-90	670.7	6-16	SE
2015-05-29	Fine	25	73-84	0.0	4-15	SE

		Kai Tak Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-05-02	Cloudy	28	72-86	Trace	3-21	SE
2015-05-06	Cloudy	26	69-96	0.6	1-18	SE/E
2015-05-07	Cloudy	28	75-91	0.3	3-17	SE
2015-05-12	Sunny	26	63-92	0.0	0-20	SE
2015-05-13	Cloudy	27	78-90	0.0	6-20	SE/E
2015-05-18	Cloudy	28	75-94	0.9	0-20	SW/S
2015-05-19	Cloudy	28	80-88	1.2	3-23	SW/S
2015-05-22	Cloudy	23	89-96	0.7	18-22	E
2015-05-23	Rainy	25	94-99	169.4	0-40	SE/E
2015-05-28	Fine	30	71-90	670.7	3-21	SW/S
2015-05-29	Fine	31	73-84	0.0	0-18	SW/S

		Green Island Station				
Date	Weather	Average Air Temperature (°C) *	Average Relative Humidity (%) *	Total Rainfall (mm) *	Average Wind Speed (km/h)	Wind Direction
2015-05-02	Cloudy	28	72-86	Trace	17-37	S
2015-05-06	Cloudy	26	69-96	0.6	2-35	S
2015-05-07	Cloudy	28	75-91	0.3	3-32	S
2015-05-12	Sunny	26	63-92	0.0	0-30	SW/S
2015-05-13	Cloudy	27	78-90	0.0	0-34	NE
2015-05-18	Cloudy	28	75-94	0.9	11-38	S
2015-05-19	Cloudy	28	80-88	1.2	23-49	S
2015-05-22	Cloudy	23	89-96	0.7	28-47	NE
2015-05-23	Rainy	25	94-99	169.4	0-48	NE
2015-05-28	Fine	30	71-90	670.7	15-35	SW/S
2015-05-29	Fine	31	73-84	0.0	14-35	SW/S

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


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
29/01/2015
01/02/2015
04/02/2015
07/02/2015
10/02/2015
13/02/2015
16/02/2015
19/02/2015
22/02/2015
25/02/2015
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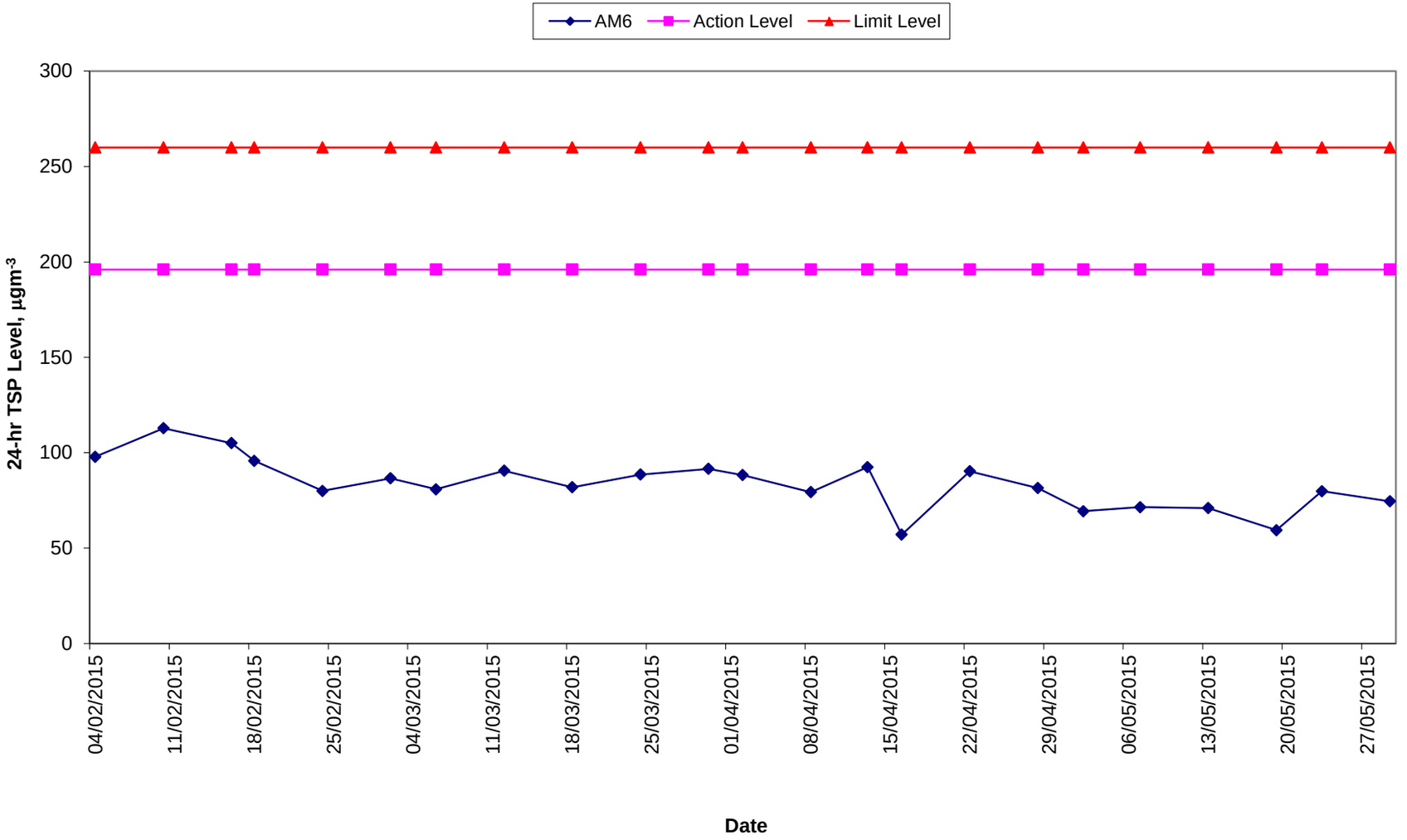
08/05/2015
11/05/2015
14/05/2015
17/05/2015
20/05/2015
23/05/2015
26/05/2015
29/05/2015
01/06/2015
04/06/2015
Date

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



Annex G6 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. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
02-Mar-15	16:18	16:48	Cloudy	61	64	58	Concrete lorry mixer, drill rig, welding machine	Traffic Noise	-	19	0.3	RION- NL31 (S/N 00603867)	RION-NL73 (S/N 10997142)
12-Mar-15	16:20	16:50	Cloudy	60	63	57	Concrete lorry mixer, 'Drill rig, welding machine	Traffic Noise	-	18	0.5	RION- NL31 (S/N 00603867)	RION-NL73 (S/N 10997142)
18-Mar-15	15:47	16:17	Cloudy	61	63	57	Concrete lorry mixer, 'Drill rig, welding machine, dump truck	Traffic Noise	-	27	0.5	RION- NL31 (S/N 00603867)	RION-NL73 (S/N 10997142)
24-Mar-15	16:18	16:48	Sunny	61	63	58	Concrete lorry mixer, Drill rig, welding machine	Traffic Noise	-	22	0.4	RION- NL31 (S/N 00603867)	RION-NL73 (S/N 10997142)
30-Mar-15	16:00	16:30	Sunny	61	63	58	Concrete lorry mixer, drill rig, dump truck	Traffic Noise	-	27	0.3	RION- NL31 (S/N 00603867)	RION-NL73 (S/N 10997142)
			Min.	**60**									
			Max.	**61**									

Annex G6 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. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
08-Apr-15	15:55	16:25	Cloudy	60	62	57	Concrete lorry mixer, 'Drill rig, welding machine	Traffic Noise	-	20	0.4	RION- NL31 (S/N 00603867)	RION-NL73 (S/N 10997142)
13-Apr-15	11:10	11:40	Sunny	61	63	57	Concrete lorry mixer, 'Drill rig, welding machine, dump truck	Traffic Noise	-	25	0.3	RION- NL31 (S/N 00603867)	RION-NL73 (S/N 10997142)
22-Apr-15	14:16	14:46	Cloudy	62	64	60	Drill rig, welding machine, excavator	Traffic Noise	-	27	0.4	RION- NL31 (S/N 00603867)	RION-NL73 (S/N 10997142)
28-Apr-15	10:55	11:25	Sunny	60	62	57	Concrete lorry mixer, drill rig, dump truck	Traffic Noise	-	26	0.4	RION- NL31 (S/N 00603867)	RION-NL73 (S/N 10997142)
			Min.	**60**									
			Max.	**62**									

Annex G6 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. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
07-May-15	16:03	16:33	Cloudy	60	62	57	Drill rig, welding machine	Traffic Noise	-	28	0.3	RION- NL31 (S/N 00603867)	RION-NL73 (S/N 10997142)
13-May-15	16:15	16:45	Cloudy	60	61	56	Concrete lorry mixer, Drill rig, welding machine	Traffic Noise	-	26	0.5	RION- NL31 (S/N 00603867)	RION-NL73 (S/N 10997142)
19-May-15	10:33	11:03	Cloudy	60	62	56	Concrete lorry mixer, piling, diaphram wall, hydraulic extractor, excavator, dump truck	Traffic Noise	-	27	0.4	RION- NL31 (S/N 00603867)	RION-NL73 (S/N 10997142)
29-May-15	9:00	9:30	Fine	59	61	56	Welding machine, excavator	Traffic Noise	-	32	0.5	RION- NL31 (S/N 00603867)	RION-NL73 (S/N 10997142)
			Min.	**59**									
			Max.	**60**									

Annex G6 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) Observed	Other Noise Source(s) Observed	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
01-Mar-15	19:01	19:06	Cloudy	59	61	56	Drill rig	Traffic noise	-	19	0.3	RION- NL31 (S/N 00603867)	RION - NC73 (S/N 10997142)
	19:06	19:11	Cloudy	60	62	57			-				
	19:11	19:16	Cloudy	59	62	57			-				
	19:01	19:16	Cloudy	59	61	57			-				
08-Mar-15	9:10	9:15	Cloudy	58	60	57	Drill rig	Traffic noise	-	18	0.6	RION- NL31 (S/N 00603867)	RION - NC73 (S/N 10997142)
	9:15	9:20	Cloudy	60	61	57			-				
	9:20	9:25	Cloudy	60	61	57			-				
	9:10	9:25	Cloudy	59	61	57			-				
17-Mar-15	19:05	19:10	Cloudy	58	59	56	Drill rig	Traffic noise	-	21	0.3	RION- NL31 (S/N 00603867)	RION - NC73 (S/N 10997142)
	19:10	19:15	Cloudy	59	60	56			-				
	19:15	19:20	Cloudy	60	62	57			-				
	19:05	19:20	Cloudy	59	61	56			-				
22-Mar-15	9:55	10:00	Sunny	60	63	57	Drill rig	Traffic noise	-	27	0.3	RION- NL31 (S/N 00603867)	RION - NC73 (S/N 10997142)
	10:00	10:05	Sunny	59	62	57			-				
	10:05	10:10	Sunny	58	60	57			-				
	9:55	10:10	Sunny	59	62	57			-				
31-Mar-15	19:03	19:08	Cloudy	57	59	55	Drill rig	Traffic noise	-	24	0.5	RION- NL31 (S/N 00603867)	RION - NC73 (S/N 10997142)
	19:08	19:13	Cloudy	60	61	55			-				
	19:13	19:18	Cloudy	59	61	56			-				
	19:03	19:18	Cloudy	59	60	55			-				
			Min.	**57**									
			Max.	**60**									

Annex G6 Noise Monitoring Results

Restricted Hours Noise Monitoring Results

Station NM5

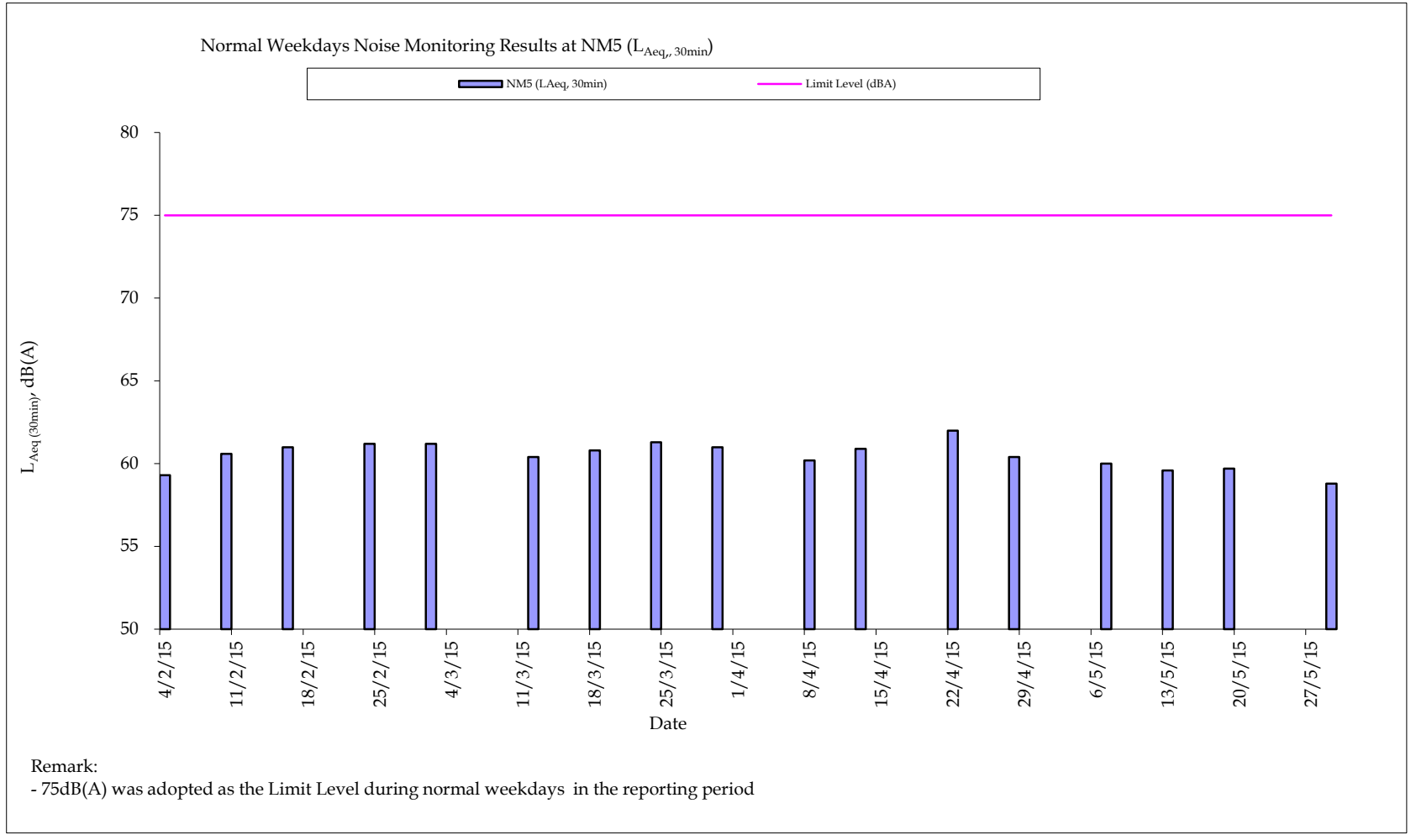
Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
05-Apr-15	10:35	10:40	Sunny	60	62	56	Drill rig	Traffic noise	-	31	0.4	RION- NL31 (S/N 00603867)	RION - NC73 (S/N 10997142)
	10:40	10:45	Sunny	59	63	56			-				
	10:45	10:50	Sunny	58	60	55			-				
	10:35	10:50	Sunny	59	62	56			-				
14-Apr-15	19:00	19:05	Sunny	58	58	58	Drill rig	Traffic noise	-	23	0.4	RION- NL31 (S/N 00603867)	RION - NC73 (S/N 10997142)
	19:05	19:10	Sunny	58	59	55			-				
	19:10	19:15	Sunny	58	59	55			-				
	19:00	19:15	Sunny	58	59	55			-				
19-Apr-15	11:02	11:07	Cloudy	61	63	58	Drill rig	Traffic noise	-	26	0.5	RION- NL31 (S/N 00603867)	RION - NC73 (S/N 10997142)
	11:07	11:12	Cloudy	62	63	58			-				
	11:12	11:17	Cloudy	60	62	58			-				
	11:02	11:17	Cloudy	61	63	58			-				
28-Apr-15	19:03	19:08	Fine	59	61	56	Drill rig	Traffic noise	-	26	0.3	RION- NL31 (S/N 00603867)	RION - NC73 (S/N 10997142)
	19:08	19:13	Fine	59	60	56			-				
	19:13	19:18	Fine	58	59	56			-				
	19:03	19:18	Fine	59	60	56			-				
			Min.	**58**									
			Max.	**62**									

Annex G6 Noise Monitoring Results

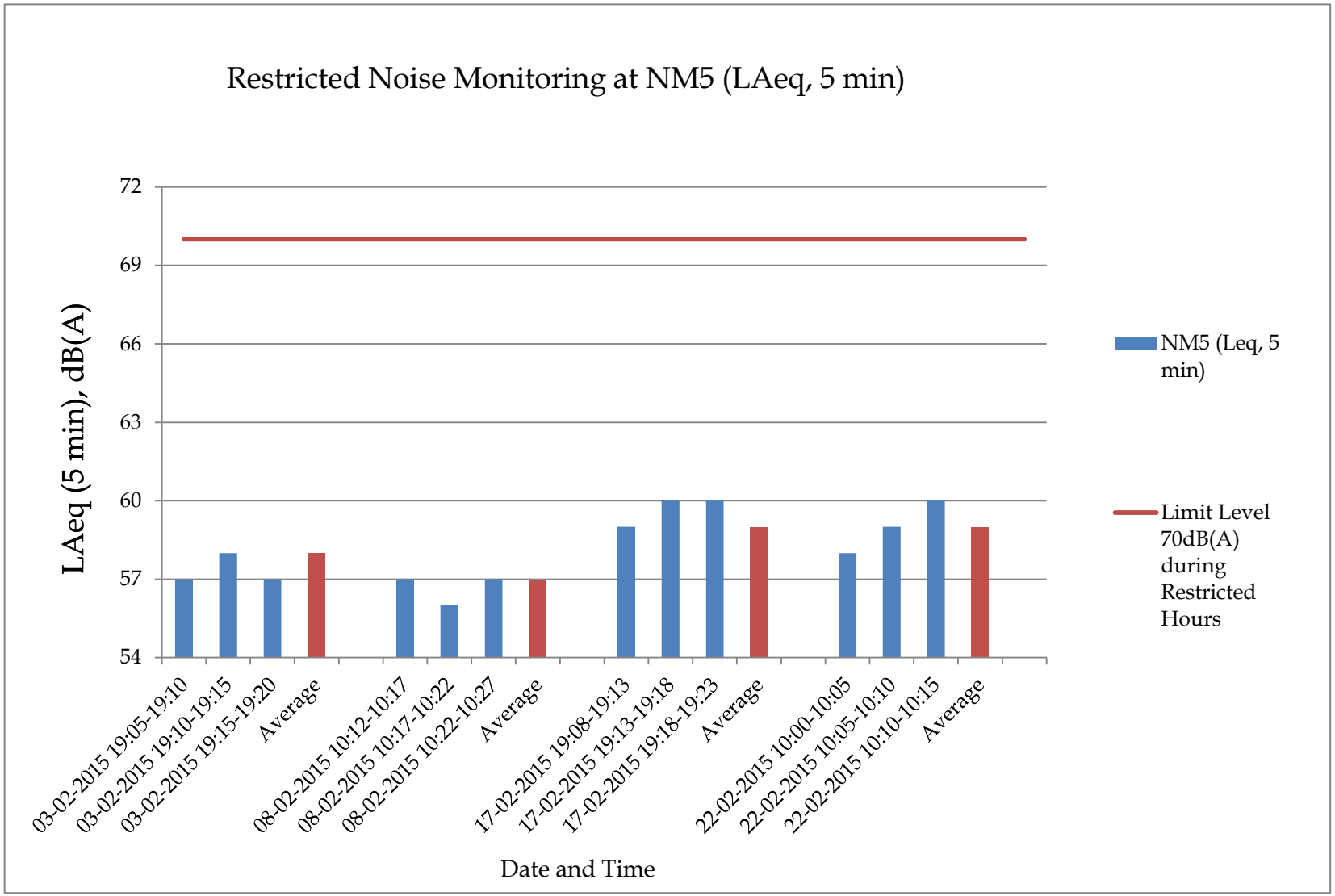
Restricted Hours Noise Monitoring Results

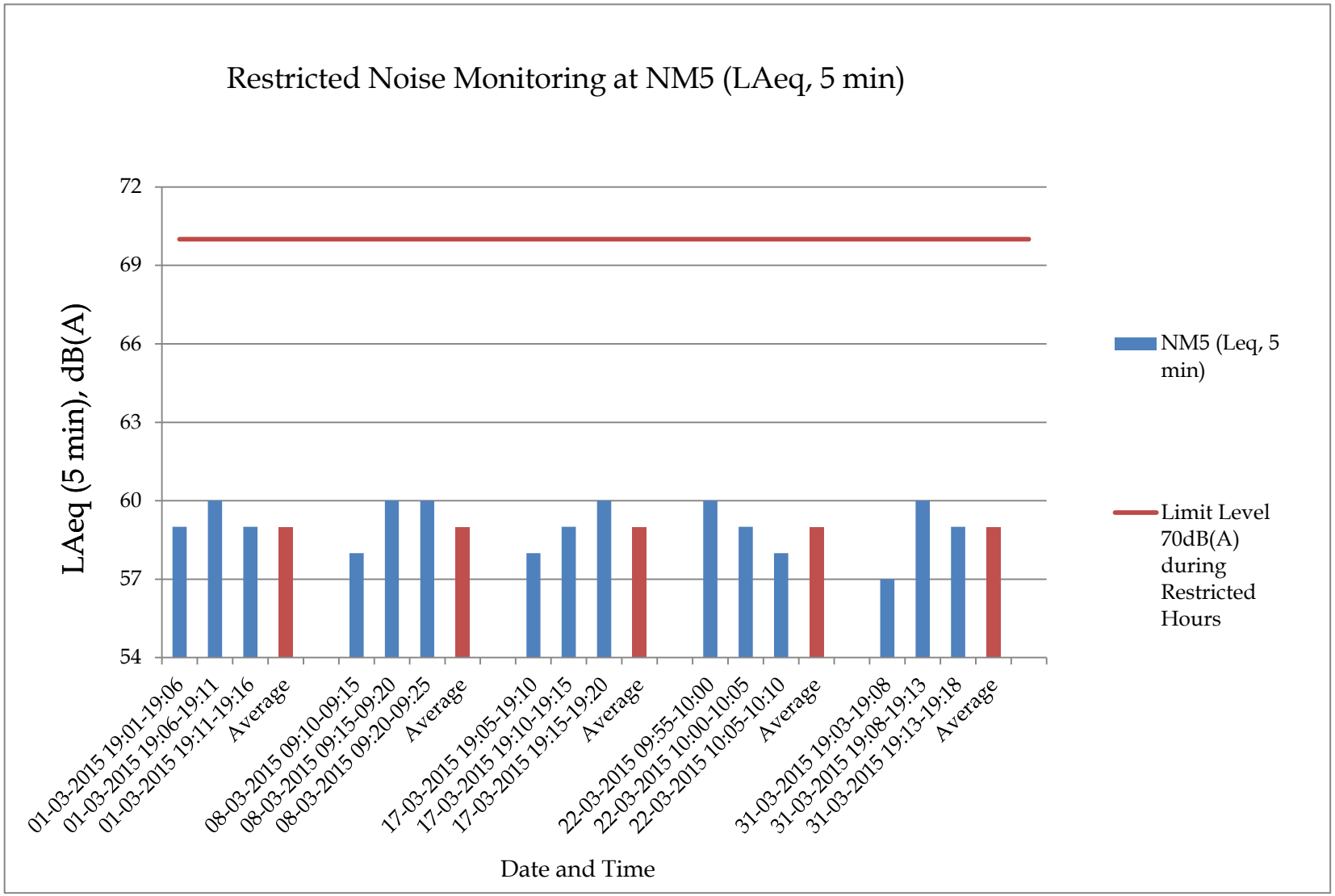
Station NM5

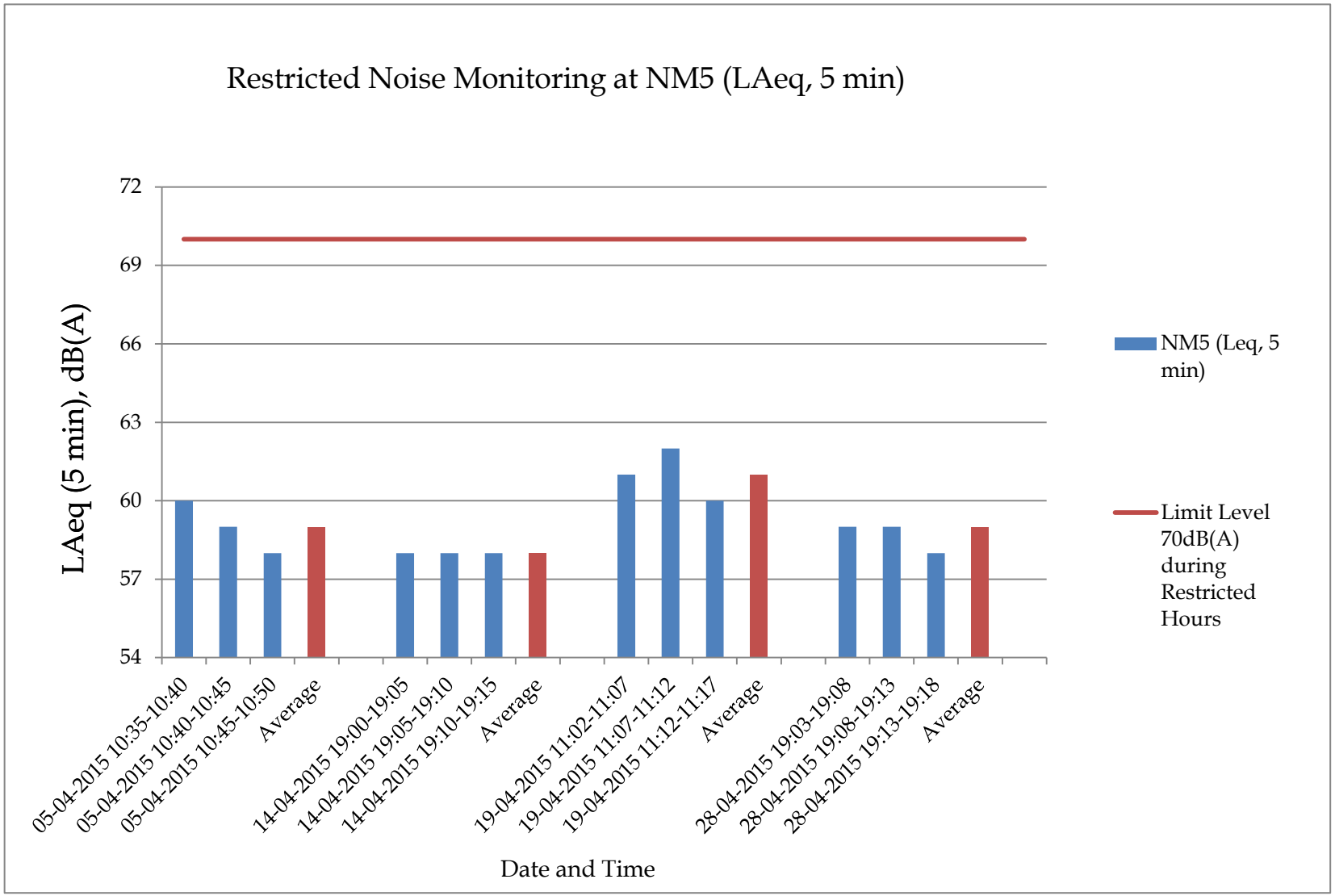
Date	Start Time	End Time	Weather	Noise level (dB(A)), 5 min			Major Construction Noise Source(s) Observed	Other Noise Source(s) Observed	Remarks	Temp. (°C)	Wind Speed (m/s)	Noise Meter Model / ID	Calibrator Model / ID
				Leq	L10	L90							
03-May-15	9:05	9:10	Sunny	58	59	56	Drill rig	Traffic noise	-	28	0.6	RION- NL31 (S/N 00603867)	RION - NC73 (S/N 10997142)
	9:10	9:15	Sunny	60	61	56			-				
	9:15	9:20	Sunny	58	59	56			-				
	9:05	9:20	Sunny	58	60	56			-				
12-May-15	19:06	19:11	Cloudy	59	61	56	Drill rig	Traffic noise	-	27	0.4	RION- NL31 (S/N 00603867)	RION - NC73 (S/N 10997142)
	19:11	19:16	Cloudy	58	60	56			-				
	19:16	19:21	Cloudy	59	61	57			-				
	19:06	19:21	Cloudy	59	61	56			-				
17-May-15	14:55	15:00	Cloudy	57	58	55	Concrete lorry mixer, welding machine	Traffic noise	-	25	0.6	RION- NL31 (S/N 00603867)	RION - NC73 (S/N 10997142)
	15:00	15:05	Cloudy	56	58	55			-				
	15:05	15:10	Cloudy	56	58	55			-				
	14:55	15:10	Cloudy	57	58	55			-				
26-May-15	19:07	19:12	Cloudy	59	63	55	Drill rig	Traffic noise	-	23	0.6	RION- NL31 (S/N 00603867)	RION - NC73 (S/N 10997142)
	19:12	19:17	Cloudy	59	62	55			-				
	19:17	19:22	Cloudy	57	59	55			-				
	19:07	19:22	Cloudy	59	61	55			-				
31-May-15	9:20	9:25	Cloudy	59	61	55	Concrete lorry mixer, welding machine	Traffic noise	-	30	0.4	RION- NL31 (S/N 00603867)	RION - NC73 (S/N 10997142)
	9:25	9:30	Cloudy	59	61	55			-				
	9:30	9:35	Cloudy	59	59	55			-				
	9:20	9:35	Cloudy	58	61	55			-				
			Min.	**56**									
			Max.	**60**									

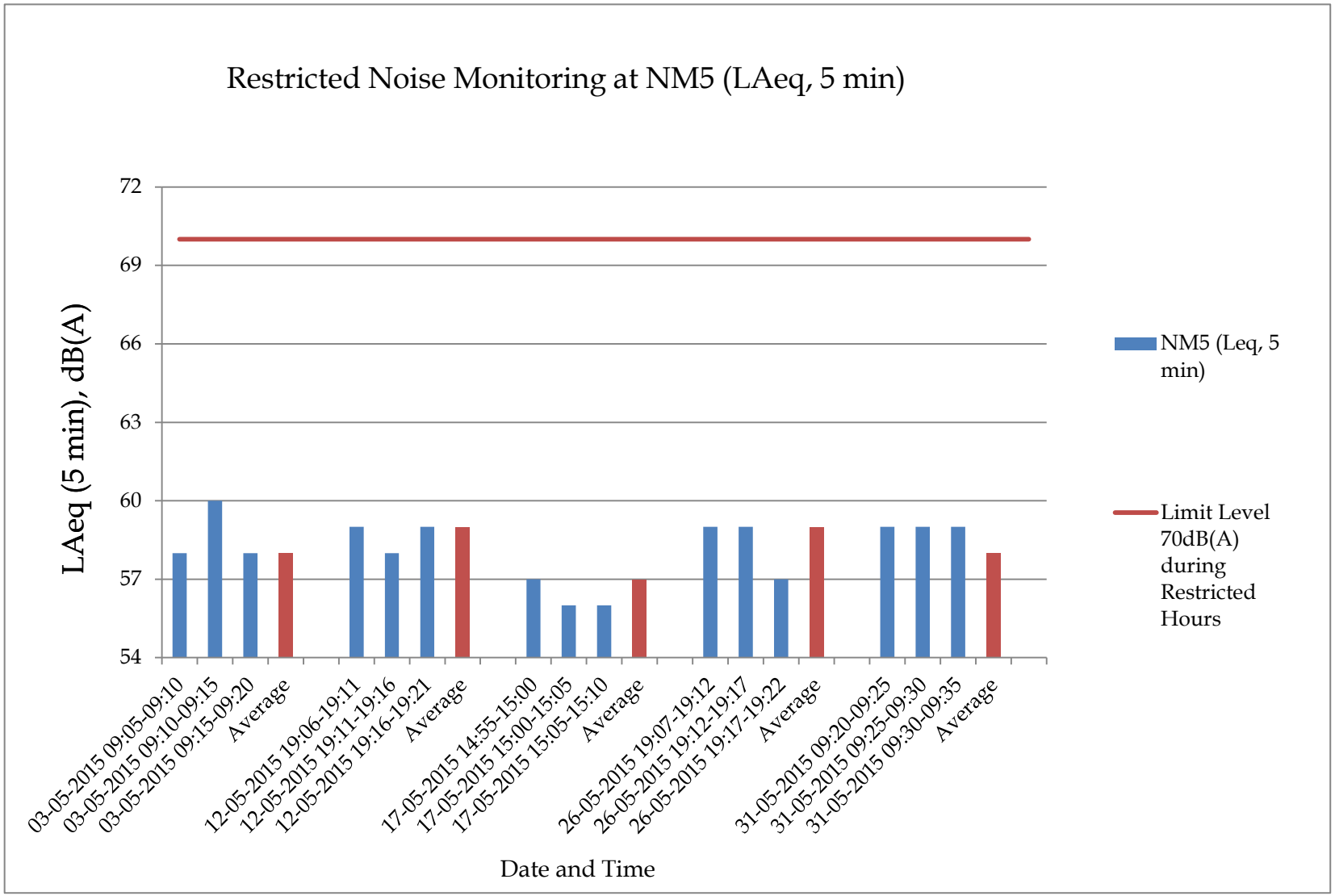


Remark:
- 75dB(A) was adopted as the Limit Level during normal weekdays in the reporting period


Restricted Noise Monitoring at NM5 (LAeq, 5 min)
LAeq (5 min), dB(A)
72
69
66
63
60
57
54
03-02-2015 19:05-19:10
03-02-2015 19:10-19:15
03-02-2015 19:15-19:20
Average
08-02-2015 10:12-10:17
08-02-2015 10:17-10:22
08-02-2015 10:22-10:27
Average
17-02-2015 19:08-19:13
17-02-2015 19:13-19:18
17-02-2015 19:18-19:23
Average
22-02-2015 10:00-10:05
22-02-2015 10:05-10:10
22-02-2015 10:10-10:15
Average
Date and Time
NM5 (Leq, 5 min)
Limit Level 70dB(A) during Restricted Hours


Restricted Noise Monitoring at NM5 (LAeq, 5 min)
LAeq (5 min), dB(A)
72
69
66
63
60
57
54
01-03-2015 19:01-19:06
01-03-2015 19:06-19:11
01-03-2015 19:11-19:16
Average
08-03-2015 09:10-09:15
08-03-2015 09:15-09:20
08-03-2015 09:20-09:25
Average
17-03-2015 19:05-19:10
17-03-2015 19:10-19:15
17-03-2015 19:15-19:20
Average
22-03-2015 09:55-10:00
22-03-2015 10:00-10:05
22-03-2015 10:05-10:10
Average
31-03-2015 19:03-19:08
31-03-2015 19:08-19:13
31-03-2015 19:13-19:18
Average
Date and Time
NM5 (Leq, 5 min)
Limit Level 70dB(A) during Restricted Hours


Restricted Noise Monitoring at NM5 (LAeq, 5 min)
LAeq (5 min), dB(A)
72
69
66
63
60
57
54
05-04-2015 10:35-10:40
05-04-2015 10:40-10:45
05-04-2015 10:45-10:50
Average
14-04-2015 19:00-19:05
14-04-2015 19:05-19:10
14-04-2015 19:10-19:15
Average
19-04-2015 11:02-11:07
19-04-2015 11:07-11:12
19-04-2015 11:12-11:17
Average
28-04-2015 19:03-19:08
28-04-2015 19:08-19:13
28-04-2015 19:13-19:18
Average
Date and Time
NM5 (Leq, 5 min)
Limit Level 70dB(A) during Restricted Hours


Restricted Noise Monitoring at NM5 (LAeq, 5 min)
LAeq (5 min), dB(A)
72
69
66
63
60
57
54
03-05-2015 09:05-09:10
03-05-2015 09:10-09:15
03-05-2015 09:15-09:20
Average
12-05-2015 19:06-19:11
12-05-2015 19:11-19:16
12-05-2015 19:16-19:21
Average
17-05-2015 14:55-15:00
17-05-2015 15:00-15:05
17-05-2015 15:05-15:10
Average
26-05-2015 19:07-19:12
26-05-2015 19:12-19:17
26-05-2015 19:17-19:22
Average
31-05-2015 09:20-09:25
31-05-2015 09:25-09:30
31-05-2015 09:30-09:35
Average
Date and Time
NM5 (Leq, 5 min)
Limit Level 70dB(A) during Restricted Hours

Annex H

Calibration Reports for HVSs and 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 0438320)	18 January 2015	18 March 2015
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 0438320)	18 March 2015	18 May 2015
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 0438320)	18 May 2015	18 July 2015
AM2	Rooftop of Hong Kong & Islands Regional Office, WSD	GMW GS-2310 (S/N 0145)	CM-AIR-43 (S/N 0438320)	18 January 2015	18 March 2015
AM2	Rooftop of Hong Kong & Islands Regional Office, WSD	GMW GS-2310 (S/N 0145)	CM-AIR-43 (S/N 0438320)	18 March 2015	18 May 2015
AM2	Rooftop of Hong Kong & Islands Regional Office, WSD	GMW GS-2310 (S/N 0145)	CM-AIR-43 (S/N 0438320)	18 May 2015	18 July 2015
AM3	Rooftop of Wan Chai East PTW	GMW GS-2310 (S/N 0481)	CM-AIR-43 (S/N 0438320)	18 January 2015	18 March 2015
AM3	Rooftop of Wan Chai East PTW	GMW GS-2310 (S/N 0481)	CM-AIR-43 (S/N 0438320)	18 March 2015	18 May 2015
AM3	Rooftop of Wan Chai East PTW	GMW GS-2310 (S/N 0481)	CM-AIR-43 (S/N 0438320)	18 May 2015	18 July 2015
AM4_2	A location next to Sheung Wan Fire Station	GMW GS-2310 (S/N 9315)	CM-AIR-43 (S/N 0438320)	18 January 2015	18 March 2015
AM4_2	A location next to Sheung Wan Fire Station	GMW GS-2310 (S/N 9315)	CM-AIR-43 (S/N 0438320)	18 March 2015	18 May 2015
AM4_2	A location next to Sheung Wan Fire Station	GMW GS-2310 (S/N 9315)	CM-AIR-43 (S/N 0438320)	18 May 2015	18 July 2015
AM5	Western Wholesale Food Market	GMW GS-2310 (S/N 0143)	CM-AIR-43 (S/N 0438320)	2 January 2014	2 March 2015

Monitoring Station ID	Location	Monitoring Equipment		Last Calibration Date	Next Calibration Date
AM5	Western Wholesale Food Market	GMW GS-2310 (S/N 0143)	CM-AIR-43 (S/N 0438320)	2 March 2015	2 May 2015
AM5	Western Wholesale Food Market	GMW GS-2310 (S/N 0143)	CM-AIR-43 (S/N 0438320)	2 May 2015	2 July 2015
AM6	Works Site Boundary	GMW GS-2310 (S/N 1254)	CM-AIR-43 (S/N 0438320)	18 January 2015	18 March 2015
AM6	Works Site Boundary	GMW GS-2310 (S/N 1254)	CM-AIR-43 (S/N 0438320)	18 March 2015	18 May 2015
AM6	Works Site Boundary	GMW GS-2310 (S/N 1254)	CM-AIR-43 (S/N 0438320)	18 May 2015	18 July 2015

Monitoring Equipment

Monitoring Station ID	Monitoring Equipment	Model & Serial No.	Last Calibration Date	Next Calibration Date
NM1 – NM4 (a)	Calibrator	Casella CEL-120/1 (S/N 3421612)	14 December 2014	14 December 2015
NM5 (a)	Calibrator	Rion NC-73 (S/N 10997142)	28 June 2014	28 June 2015
NM1-NM4	Sound Level Meter	Casella CEL-633A (S/N 3521757)	14 December 2014	14 December 2015
NM5	Sound Level Meter	Rion NL-31 (S/N 00603867)	29 July 2014	29 July 2015

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

High-Volume TSP Sampler
5-Point Calibration Record

Location : AM1
Calibrated by : K.T.Ho
Date : 18/01/2015

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 1808

Calibration Orfice and Standard Calibration Relationship
Serial Number : 2454
Service Date : 24 Mar 2014
Slope (m) : 2.07593
Intercept (b) : -0.00102
Correlation Coefficient(r) : 0.99996

Standard Condition
Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition
Pa (hpa) : 1022
Ta(K) : 287

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.4	3.462	1.668	62	63.57
2	13 holes	9.8	3.210	1.547	56	57.42
3	10 holes	7.2	2.751	1.326	48	49.21
4	7 holes	4.6	2.199	1.060	38	38.96
5	5 holes	2.9	1.746	0.842	29	29.73

Sampler Calibration Relationship

Slope(m): 40.108 Intercept(b): -3.894 Correlation Coefficient(r): 0.9993

Checked by: Magnum Fan Date: 23/01/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AM1
Calibrated by	:	K.T.Ho
Date	:	18/03/2015

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 1808

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	24 Mar 2014
Slope (m)	:	2.07593
Intercept (b)	:	-0.00102
Correlation Coefficient(r)	:	0.99996

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1020
Ta(K)	:	289

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.1	3.395	1.636	60	61.14
2	13 holes	9.6	3.157	1.521	55	56.04
3	10 holes	7.0	2.696	1.299	47	47.89
4	7 holes	4.5	2.162	1.042	36	36.68
5	5 holes	2.8	1.705	0.822	28	28.53

Sampler Calibration Relationship

Slope(m): 40.110 Intercept(b): -4.641 Correlation Coefficient(r): 0.9996

Checked by: Magnum Fan Date: 23/03/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AM1
Calibrated by	:	K.T.Ho
Date	:	18/05/2015

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 1808

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	14 Mar 2015
Slope (m)	:	2.09532
Intercept (b)	:	-0.03812
Correlation Coefficient(r)	:	0.99994

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1008
Ta(K)	:	301

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	10.8	3.262	1.575	59	58.56
2	13 holes	8.8	2.944	1.423	53	52.60
3	10 holes	6.8	2.588	1.253	46	45.66
4	7 holes	4.4	2.082	1.012	36	35.73
5	5 holes	2.6	1.600	0.782	25	24.81

Sampler Calibration Relationship

Slope(m): 40.110 Intercept(b): -4.641 Correlation Coefficient(r): 0.9996

Checked by: Magnum Fan Date: 22/05/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AM2
Calibrated by	:	K.T.Ho
Date	:	18/01/2015

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 0145

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	24 Mar 2014
Slope (m)	:	2.07593
Intercept (b)	:	-0.00102
Correlation Coefficient(r)	:	0.99996

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1022
Ta(K)	:	287

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	9.9	3.226	1.554	63	64.59
2	13 holes	7.5	2.808	1.353	56	57.42
3	10 holes	6.0	2.511	1.210	51	52.29
4	7 holes	3.8	1.999	0.963	42	43.06
5	5 holes	2.1	1.486	0.716	32	32.81

Sampler Calibration Relationship

Slope(m):37.807 Intercept(b):6.198 Correlation Coefficient(r): 0.9994

Checked by: Magnum Fan Date: 23/01/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AM2
Calibrated by	:	K.T.Ho
Date	:	18/03/2015

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 0145

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	24 Mar 2014
Slope (m)	:	2.07593
Intercept (b)	:	-0.00102
Correlation Coefficient(r)	:	0.99996

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1020
Ta(K)	:	289

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	9.7	3.174	1.529	61	62.16
2	13 holes	7.2	2.734	1.318	53	54.00
3	10 holes	5.7	2.432	1.172	48	48.91
4	7 holes	3.6	1.933	0.932	40	40.76
5	5 holes	2.0	1.441	0.695	30	30.57

Sampler Calibration Relationship

Slope(m):37.250 Intercept(b):5.2208 Correlation Coefficient(r): 0.9991

Checked by: Magnum Fan Date: 23/03/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AM2
Calibrated by	:	K.T.Ho
Date	:	18/05/2015

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 0145

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	14 Mar 2015
Slope (m)	:	2.09532
Intercept (b)	:	-0.03812
Correlation Coefficient(r)	:	0.99994

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1008
Ta(K)	:	301

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	10.2	3.170	1.531	63	62.53
2	13 holes	7.5	2.718	1.315	55	54.59
3	10 holes	6.0	2.431	1.179	50	49.63
4	7 holes	3.8	1.935	0.942	40	39.70
5	5 holes	2.5	1.569	0.767	33	32.75

Sampler Calibration Relationship

Slope(m):37.250 Intercept(b):5.2208 Correlation Coefficient(r): 0.9991

Checked by: Magnum Fan Date: 22/05/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AM3
Calibrated by	:	K.T.Ho
Date	:	18/01/2015

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 0481

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	24 Mar 2014
Slope (m)	:	2.07593
Intercept (b)	:	-0.00102
Correlation Coefficient(r)	:	0.99996

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1022
Ta(K)	:	287

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.2	3.431	1.653	60	61.52
2	13 holes	8.6	3.007	1.449	51	52.29
3	10 holes	6.2	2.553	1.230	43	44.09
4	7 holes	4.3	2.126	1.025	35	35.89
5	5 holes	2.7	1.685	0.812	26	26.66

Sampler Calibration Relationship

Slope(m): 40.871 Intercept(b): -6.341 Correlation Coefficient(r): 0.9996

Checked by: Magnum Fan Date: 23/01/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AM3
Calibrated by	:	K.T.Ho
Date	:	18/03/2015

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 0481

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	24 Mar 2014
Slope (m)	:	2.07593
Intercept (b)	:	-0.00102
Correlation Coefficient(r)	:	0.99996

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1020
Ta(K)	:	289

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.0	3.379	1.628	60	61.14
2	13 holes	8.5	2.971	1.432	51	51.97
3	10 holes	6.0	2.496	1.203	42	42.80
4	7 holes	4.2	2.088	1.006	34	34.64
5	5 holes	2.5	1.611	0.777	25	25.47

Sampler Calibration Relationship

Slope(m):41.620 Intercept(b): -7.122 Correlation Coefficient(r): 0.9996

Checked by: Magnum Fan Date: 23/03/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AM3
Calibrated by	:	K.T.Ho
Date	:	18/05/2015

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 0481

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	14 Mar 2015
Slope (m)	:	2.09532
Intercept (b)	:	-0.03812
Correlation Coefficient(r)	:	0.99994

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1008
Ta(K)	:	301

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	10.8	3.262	1.575	60	59.55
2	13 holes	8.6	2.911	1.407	52	51.61
3	10 holes	6.0	2.431	1.179	42	41.69
4	7 holes	4.4	2.082	1.012	35	34.74
5	5 holes	2.8	1.661	0.811	26	25.81

Sampler Calibration Relationship

Slope(m):41.620 Intercept(b): -7.122 Correlation Coefficient(r): 0.9996

Checked by: Magnum Fan Date: 22/05/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AM4
Calibrated by	:	K.T.Ho
Date	:	18/01/2015

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 9315

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	24 Mar 2014
Slope (m)	:	2.07593
Intercept (b)	:	-0.00102
Correlation Coefficient(r)	:	0.99996

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1022
Ta(K)	:	287

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	9.8	3.210	1.547	59	60.49
2	13 holes	7.8	2.863	1.380	52	53.32
3	10 holes	6.0	2.511	1.210	43	44.09
4	7 holes	4.3	2.126	1.025	36	36.91
5	5 holes	2.5	1.621	0.781	24	24.61

Sampler Calibration Relationship

Slope(m): 46.790 Intercept(b): -11.731 Correlation Coefficient(r): 0.9991

Checked by: Magnum Fan Date: 23/01/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AM4
Calibrated by	:	K.T.Ho
Date	:	18/03/2015

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 9315

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	24 Mar 2014
Slope (m)	:	2.07593
Intercept (b)	:	-0.00102
Correlation Coefficient(r)	:	0.99996

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1020
Ta(K)	:	289

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	9.8	3.190	1.537	60	61.14
2	13 holes	7.5	2.791	1.345	52	52.99
3	10 holes	5.8	2.454	1.183	44	44.83
4	7 holes	4.2	2.088	1.006	37	37.70
5	5 holes	2.4	1.579	0.761	25	25.47

Sampler Calibration Relationship

Slope(m): 45.867 Intercept(b): -9.070 Correlation Coefficient(r): 0.9991

Checked by: Magnum Fan Date: 23/03/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AM4
Calibrated by	:	K.T.Ho
Date	:	18/05/2015

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 9315

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	14 Mar 2015
Slope (m)	:	2.09532
Intercept (b)	:	-0.03812
Correlation Coefficient(r)	:	0.99994

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1008
Ta(K)	:	301

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	9.9	3.123	1.509	62	61.54
2	13 holes	7.7	2.754	1.333	54	53.60
3	10 holes	5.9	2.411	1.169	45	44.66
4	7 holes	4.4	2.082	1.012	38	37.72
5	5 holes	2.6	1.600	0.782	27	26.80

Sampler Calibration Relationship

Slope(m): 45.867 Intercept(b): -9.070 Correlation Coefficient(r): 0.9991

Checked by: Magnum Fan Date: 22/05/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AM5
Calibrated by	:	K.T.Ho
Date	:	02/01/2015

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 0143

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	24 Mar 2014
Slope (m)	:	2.07593
Intercept (b)	:	-0.00102
Correlation Coefficient(r)	:	0.99996

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1025
Ta(K)	:	289

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.4	3.449	1.662	58	59.24
2	13 holes	9.6	3.165	1.525	53	54.14
3	10 holes	6.8	2.664	1.284	44	44.94
4	7 holes	5.2	2.329	1.123	37	37.79
5	5 holes	3.0	1.769	0.853	26	26.56

Sampler Calibration Relationship

Slope(m): 40.489 Intercept(b): -7.661 Correlation Coefficient(r): 0.9995

Checked by: Magnum Fan Date: 05/01/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AM5
Calibrated by	:	K.T.Ho
Date	:	02/03/2015

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 0143

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	24 Mar 2014
Slope (m)	:	2.07593
Intercept (b)	:	-0.00102
Correlation Coefficient(r)	:	0.99996

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1016
Ta(K)	:	291

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	10.9	3.346	1.614	61	61.82
2	13 holes	8.7	2.989	1.443	54	54.73
3	10 holes	6.8	2.643	1.277	46	46.62
4	7 holes	4.6	2.174	1.053	36	36.48
5	5 holes	2.9	1.726	0.839	26	26.35

Sampler Calibration Relationship

Slope(m): 46.005 Intercept(b): -12.287 Correlation Coefficient(r): 0.9998

Checked by: Magnum Fan Date: 06/03/2015

High-Volume TSP Sampler
5-Point Calibration Record

Location	:	AM5
Calibrated by	:	K.T.Ho
Date	:	02/05/2015

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 0143

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	14 Mar 2015
Slope (m)	:	2.09532
Intercept (b)	:	-0.03812
Correlation Coefficient(r)	:	0.99994

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1008
Ta(K)	:	301

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.2	3.322	1.603	62	61.54
2	13 holes	9.5	3.059	1.478	56	55.58
3	10 holes	7.0	2.626	1.271	47	46.65
4	7 holes	4.5	2.106	1.023	37	36.72
5	5 holes	2.8	1.661	0.811	26	25.81

Sampler Calibration Relationship

Slope(m):44.221 Intercept(b): -9.459 Correlation Coefficient(r): 0.9992

Checked by: Magnum Fan Date: 08/05/2015

High-Volume TSP Sampler
5-Point Calibration Record9

Location	:	AM6
Calibrated by	:	P.F.Yeung
Date	:	18/01/2015

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 1254

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	24 Mar 2014
Slope (m)	:	2.07593
Intercept (b)	:	-0.00102
Correlation Coefficient(r)	:	0.99996

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1022
Ta(K)	:	287

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	10.7	3.354	1.616	57	58.44
2	13 holes	8.8	3.041	1.466	52	53.32
3	10 holes	6.5	2.614	1.260	44	45.11
4	7 holes	4.5	2.175	1.048	36	36.91
5	5 holes	2.6	1.653	0.797	25	25.63

Sampler Calibration Relationship

Slope(m):40.044 Intercept(b): -5.664 Correlation Coefficient(r): 0.9991

Checked by: Magnum Fan Date: 23/01/2015

High-Volume TSP Sampler
5-Point Calibration Record9

Location	:	AM6
Calibrated by	:	P.F.Yeung
Date	:	18/03/2015

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 1254

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	24 Mar 2014
Slope (m)	:	2.07593
Intercept (b)	:	-0.00102
Correlation Coefficient(r)	:	0.99996

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1020
Ta(K)	:	289

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.4	3.440	1.658	61	62.16
2	13 holes	9.2	3.091	1.489	55	56.04
3	10 holes	6.4	2.578	1.242	46	46.87
4	7 holes	4.2	2.088	1.006	38	38.72
5	5 holes	2.7	1.674	0.807	30	30.57

Sampler Calibration Relationship

Slope(m):36.838 Intercept(b): 1.173 Correlation Coefficient(r): 0.9997

Checked by: Magnum Fan Date: 23/03/2015

High-Volume TSP Sampler
5-Point Calibration Record9

Location	:	AM6
Calibrated by	:	P.F.Yeung
Date	:	18/05/2015

Sampler

Model	:	GMWS-2310 ACCU-VOL
Serial Number	:	S/N 1254

Calibration Orfice and Standard Calibration Relationship

Serial Number	:	2454
Service Date	:	14 Mar 2015
Slope (m)	:	2.09532
Intercept (b)	:	-0.03812
Correlation Coefficient(r)	:	0.99994

Standard Condition

Pstd (hpa)	:	1013
Tstd (K)	:	298.18

Calibration Condition

Pa (hpa)	:	1008
Ta(K)	:	301

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	11.8	3.410	1.645	60	59.55
2	13 holes	9.5	3.059	1.478	53	52.60
3	10 holes	7.0	2.626	1.271	46	45.66
4	7 holes	4.6	2.129	1.034	38	37.72
5	5 holes	2.8	1.661	0.811	30	29.78

Sampler Calibration Relationship

Slope(m):35.159 Intercept(b): 1.183 Correlation Coefficient(r): 0.9994

Checked by: Magnum Fan Date: 22/05/2015

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

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Mar 24, 2015 Rootsmeter S/N 0438320 Ta (K) - 292
Operator Tisch Orifice I.D. - 2454 Pa (mm) - 756.92

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	1.4460	3.2	2.00
2	NA	NA	1.00	1.0300	6.4	4.00
3	NA	NA	1.00	0.9180	7.9	5.00
4	NA	NA	1.00	0.8780	8.7	5.50
5	NA	NA	1.00	0.7240	12.6	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0121	0.6999	1.4258		0.9958	0.6886	0.8784
1.0078	0.9785	2.0163		0.9916	0.9627	1.2422
1.0057	1.0955	2.2543		0.9895	1.0779	1.3888
1.0047	1.1443	2.3644		0.9885	1.1258	1.4566
0.9994	1.3805	2.8515		0.9833	1.3582	1.7568
Qstd slope (m) =		2.09532		Qa slope (m) =		1.31205
intercept (b) =		-0.03812		intercept (b) =		-0.02349
coefficient (r) =		0.99994		coefficient (r) =		0.99994
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}

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

Certificate of Calibration
校正證書

Certificate No. : C147473
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-3079) Date of Receipt / 收件日期 : 5 December 2014

Description / 儀器名稱	:	Acoustic Calibrator
Manufacturer / 製造商	:	Casella
Model No. / 型號	:	CEL-120/1
Serial No. / 編號	:	3421612
Supplied By / 委託者	:	Envirotech Services Co. Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%

Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 14 December 2014

TEST RESULTS / 測試結果

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 / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By 測試 : K C Lee, Project Engineer

Certified By 核證 : K K Wong, Engineer

Date of Issue 簽發日期 : 17 December 2014

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C147473
證書編號

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

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

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C143868
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C141558

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	± 0.25	± 0.2
114 dB, 1 kHz	114.1		

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000 0	1 kHz ± 5 Hz	± 0.1

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

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

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

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

Certificate of Calibration
校正證書

Certificate No. : C143980
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-1497) Date of Receipt / 收件日期 : 23 June 2014

Description / 儀器名稱	:	Sound Level Calibrator
Manufacturer / 製造商	:	Rion
Model No. / 型號	:	NC-73
Serial No. / 編號	:	10997142
Supplied By / 委託者	:	Envirotech Services Co. Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%

Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 28 June 2014

TEST RESULTS / 測試結果

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 測試 : K C Lee, Project Engineer

Certified By 核證 : K M Wu, Engineer

Date of Issue 簽發日期 : 2 July 2014

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

Certificate of Calibration
校正證書

Certificate No. : C143980
證書編號

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

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

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C143868
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C141558

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	93.7	± 0.5	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	0.987	1 kHz ± 2 %	± 1

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

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

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
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輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C147474
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-3079) Date of Receipt / 收件日期 : 5 December 2014

Description / 儀器名稱	:	Sound Level Meter
Manufacturer / 製造商	:	Casella
Model No. / 型號	:	CEL-633A
Serial No. / 編號	:	3521757
Supplied By / 委託者	:	Envirotech Services Co. Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%

Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 14 December 2014

TEST RESULTS / 測試結果

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 / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By 測試 : K C Lee, Project Engineer

Certified By 核證 : K K Wong, Engineer

Date of Issue 簽發日期 : 17 December 2014

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C147474
證書編號

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

2. Self-calibration using the Casella Acoustic Calibrator CEL-120/1, S/N : 3421612 was performed before the test.

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

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C140016
CL281	Multifunction Acoustic Calibrator	DC130171

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)
Time Weighting	Frequency Weighting	Level (dB)	Freq. (kHz)		
L_F	A	114.00	1	113.9	± 1.1

6.1.2 Linearity

UUT Setting		Applied Value		UUT Reading (dB)
Time Weighting	Frequency Weighting	Level (dB)	Freq. (kHz)	
L_F	A	114.00	1	113.9 (Ref.)
		104.00		103.9
		94.00		93.9

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)
Time Weighting	Frequency Weighting	Level (dB)	Freq. (kHz)		
L_F	A	114.00	1	113.9	Ref.
L_S				113.9	± 0.3
L_I				113.9	

Certificate of Calibration
校正證書

Certificate No. : C147474
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting		Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Time Weighting	Frequency Weighting	Level (dB)	Freq.		
L_F	A	94.00	63 Hz	87.6	-26.2 ± 1.5
			125 Hz	97.7	-16.1 ± 1.5
			250 Hz	105.2	-8.6 ± 1.4
			500 Hz	110.6	-3.2 ± 1.4
			1 kHz	113.9	Ref.
			2 kHz	115.1	+1.2 ± 1.6
			4 kHz	114.7	+1.0 ± 1.6
			8 kHz	112.4	-1.1(+2.1 ; -3.1)
			12.5 kHz	108.3	-4.3(+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting		Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Time Weighting	Frequency Weighting	Level (dB)	Freq.		
L_F	C	94.00	63 Hz	113.0	-0.8 ± 1.5
			125 Hz	113.7	-0.2 ± 1.0
			250 Hz	113.8	0.0 ± 1.0
			500 Hz	113.9	0.0 ± 1.0
			1 kHz	113.9	Ref.
			2 kHz	113.7	-0.2 ± 1.0
			4 kHz	112.9	-0.8 ± 1.0
			8 kHz	110.5	-3.0 (+1.5 ; -3.0)
			12.5 kHz	106.4	-6.2 (+3.0 ; -6.0)

Remarks : - UUT Microphone Model No. : CEL-251 & S/N : 1950

- Mfr's Spec. : IEC 61672 Class 1

- Uncertainties of Applied Value :

114 dB	: 63 Hz - 125 Hz	: ± 0.45 dB
	250 Hz - 500 Hz	: ± 0.40 dB
	1 kHz	: ± 0.30 dB
	2 kHz - 4 kHz	: ± 0.45 dB
	8 kHz	: ± 0.55 dB
	12.5 kHz	: ± 0.80 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 114 dB)
94 dB	: 1 kHz	: ± 0.10 dB (Ref. 114 dB)

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

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

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

Certificate of Calibration
校正證書

Certificate No. : C144558
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC14-1853) Date of Receipt / 收件日期 : 22 July 2014

Description / 儀器名稱 : Sound Level Meter
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-31
Serial No. / 編號 : 00603867
Supplied By / 委託者 : Envirotech Services Co.
Shop 6, G/F., Casio Mansion, 209 Shaukeiwan Road,
Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 29 July 2014

TEST RESULTS / 測試結果

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 測試 : K C Lee, Project Engineer

Certified By 核證 : K M Wu, Engineer

Date of Issue 簽發日期 : 30 July 2014

Certificate of Calibration
校正證書

Certificate No. : C144558
證書編號

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

2. Self-calibration 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	C140016
CL281	Multifunction Acoustic Calibrator	DC130171

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	93.6	± 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	93.6 (Ref.)
				104.00		103.6
				114.00		113.6

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	93.6	Ref.
			Slow			93.5	± 0.3

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Certificate of Calibration
校正證書

Certificate No. : C144558
證書編號

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	67.3	-26.2 ± 1.5
					125 Hz	77.3	-16.1 ± 1.5
					250 Hz	84.9	-8.6 ± 1.4
					500 Hz	90.3	-3.2 ± 1.4
					1 kHz	93.6	Ref.
					2 kHz	94.9	+1.2 ± 1.6
					4 kHz	94.7	+1.0 ± 1.6
					8 kHz	92.5	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.7	-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	92.7	-0.8 ± 1.5
					125 Hz	93.4	-0.2 ± 1.5
					250 Hz	93.6	0.0 ± 1.4
					500 Hz	93.6	0.0 ± 1.4
					1 kHz	93.6	Ref.
					2 kHz	93.5	-0.2 ± 1.6
					4 kHz	92.9	-0.8 ± 1.6
					8 kHz	90.6	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.8	-6.2 (+3.0 ; -6.0)

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

Certificate of Calibration
校正證書

Certificate No. : C144558
證書編號

Remarks : - UUT Microphone Model No. : UC-53A & S/N : 316987

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

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Annex I

Event /Action Plans for Air Quality, Noise and Landscape and Visual Monitoring for All Sites

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	2.169

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	9.641	0	0	0.576	9.007	0.058	0	0.19	0	0	0.059
Apr	8.841	0	0	2.014	6.730	0.097	0	0.09	0	0.2	0.069
May	5.416	0	0	0.887	4.280	0.249	0	0.09	0	0	0.077
June	7.507	0	0	0.665	6.245	0.597	0	0.337	0.028	1.0	0.072
Sub-total	47.622	0	0	4.941	41.312	1.369	0	0.887	0.028	2.4	0.539
July	5.31	0	0	2.372	2.795	0.143	0	0.162	0	0	0.109
Aug	5.381	0	0	2.553	2.530	0.298	0	0.248	0.035	0.4	0.097
Sept	6.963	0	0	2.814	3.974	0.175	0	0.289	0.032	0	0.155
Oct	5.330	0	0	0.794	4.385	0.151	0	0.254	0.015	0	0.128
Nov	5.009	0	0	0.995	3.760	0.254	0	0.270	0	0.6	0.116
Dec	5.429	0	0.159	1.430	3.522	0.318	0	0.216	0	0	0.117
Total	81.044	0	0.159	15.899	62.278	2.708	0	2.326	0.11	3.4	1.261

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 2012 (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	6.208	0	0	1.615	Dry	Wet	0	0.108	0	0.4	0.117
					4.277	0.316					
Feb	6.006	0	0	0.443	5.148	0.415	0	0.108	0	0	0.063
Mar	8.370	0	0	1.226	6.871	0.273	0	0.108	0	0	0.181
Apr	8.899	0	0	1.101	7.581	0.217	0	0.036	0	0	0.685
May	6.789	0	0	0.716	5.931	0.142	0	0.108	0	0.4	0.103
June	7.585	0	0.021	5.565	1.786	0.213	0.014	0.256	0	0.0	0.197
Sub-total	43.857	0	0.021	10.666	31.594	1.576	0.014	0.724	0	0.8	1.346
July	9.128	0	0	5.240	3.730	0.158	8.356	0.055	0	0.8	0.171
Aug	5.756	0	0	3.836	1.640	0.280	0.008	0.062	0	0.2	0.126
Sept	7.809	0	0.172	2.103	5.062	0.472	0.007	0.172	0	0.4	0.105
Oct	12.073	0	0	7.279	4.427	0.367	0.007	0.028	0	0	0.123
Nov	16.713	0	0	15.626	0.853	0.234	0.005	0.303	0	1.6	0.088
Dec	16.760	0	0	16.362	0.192	0.206	0.005	0.102	0	0.8	0.111
Total	112.096	0	0.193	61.112	47.498	3.293	8.402	1.446	0	4.6	2.070

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) and will be collected by licensed collector.
(7) Inert C&D Materials shall be dumped at Chai Wan Barging Point, TKO Area 137 and Tuen Mun Area 38 and General refuses shall be dumped at SENT.

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 2013 (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	13.689	0	0	12.331	Dry	Wet	0.005	0.030	0	0.4	0.129
					1.141	0.217					
Feb	15.098	0	0	5.320	9.521	0.257	0.005	0.181	0	0.4	0.078
Mar	17.449	0	0	9.229	8.005	0.215	0	0.111	0	0	0.110
Apr	17.440	0	0	9.884	7.097	0.459	0.003	0.155	0	0	0.142
May	15.293	0	0	7.911	7.006	0.376	0.001	0.101	0	1.8	0.120
June	19.809	0	0	9.620	9.872	0.317	0.001	0.100	0	0.4	0.198
Sub-total	98.778	0	0	54.295	42.642	1.841	0.015	0.678	0	3	0.777
July	19.977	0	0	14.009	5.613	0.355	0.004	0.145	0	0.4	0.178
Aug	18.468	0	0	12.644	5.365	0.459	0.002	0.074	0	0	0.206
Sept	21.668	0	0	14.693	6.690	0.285	0.005	0.155	0	0.2	0.224
Oct	18.939	0	0	13.895	4.623	0.421	0.003	0.108	0	0	0.182
Nov	19.797	0	0	17.751	1.688	0.358	0.004	0.072	0	1	0.150
Dec	15.749	0.016	0	14.306	1.034	0.393	0.005	0.144	0	0.4	0.129
Total	213.376	0.016	0	141.593	67.655	4.112	0.038	1.376	0	5	1.846

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) and will be collected by licensed collector.
(7) Inert C&D Materials shall be dumped at Chai Wan Barging Point, TKO Area 137 and Tuen Mun Area 38 and General refuses shall be dumped at SENT.

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 2014 (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	14.837	0	0	13.864	Dry	Wet	0.007	0.054	0	0.4	0.099
					0.324	0.649					
Feb	14.772	0	0	12.084	1.636	1.052	0.006	0	0	0	0.152
Mar	14.770	0	0	12.401	2.200	0.169	0.008	0.18	0	0	0.174
Apr	13.433	0	0	12.159	1.054	0.220	0.004	0	0	0	0.121
May	16.433	0	0	15.833	0.255	0.345	0.009	0	0	0	0.136
June	16.169	0	0	15.235	0.601	0.333	0.002	0.144	0	0	0.236
Sub-total	90.414	0	0	81.576	6.070	2.768	0.036	0.378	0	0.4	0.918
July	13.835	0	0	12.980	0.554	0.301	0.005	0	0	0	0.166
Aug	11.464	0	0	9.611	0.600	1.253	0.008	0	0	0	0.208
Sept	6.198	0	0	3.796	0.988	1.414	0.006	0	0	0.6	0.244
Oct	3.249	0	0	0	1.892	1.357	0.004	0.198	0	0	0.261
Nov	2.984	0	0	0	1.337	1.647	0.003	0.108	0	0.4	0.258
Dec	1.043	0	0	0	0.608	0.435	0.005	0.144	0	0	0.301
Total	129.187	0	0	107.963	12.049	9.175	0.067	0.936	0	1.6	2.356

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) and will be collected by licensed collector.
(7) Inert C&D Materials shall be dumped at Chai Wan Barging Point, TKO Area 137 and Tuen Mun Area 38 and General refuses shall be dumped at SENT.

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 2015 (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	0.795	0	0	0	Dry 0.460	Wet 0.335	7	0	0	1.6	0.235
Feb	1.352	0	0	0	1.019	0.333	7	0	0	0	0.283
Mar	2.510	0	0	0	2.199	0.311	0	0.27	0	0	0.328
Apr	0.403	0	0	0	0.132	0.271	0	0.36	0	4	0.420
May	0.834	0	0	0	0.551	0.283	0	0	0	0	0.175
June	0	0	0	0	0	0	0	0	0	0	0.000
Sub-total	5.894	0	0	0	4.361	1.533	14	0.63	0	5.6	1.441
July	0	0	0	0	0	0	0	0	0	0	0.000
Aug	0	0	0	0	0	0	0	0	0	0	0.000
Sept	0	0	0	0	0	0	0	0	0	0	0.000
Oct	0	0	0	0	0	0	0	0	0	0	0.000
Nov	0	0	0	0	0	0	0	0	0	0	0.000
Dec	0	0	0	0	0	0	0	0	0	0	0.000
Total	5.894	0	0	0	4.361	1.533	14	0.63	0	5.6	1.441

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) and will be collected by licensed collector.
(7) Inert C&D Materials shall be dumped at Chai Wan Barging Point, TKO Area 137 and Tuen Mun Area 38 and General refuses shall be dumped at SENT.

Harbour Area Treatment Scheme Stage 2A – Construction of Sewage Conveyance System from North Point to Stonecutters Island

Contract No. : DC/2007/23

Yearly Summary Waste Flow Table

Year	Estimated (Est.) and Actual (Act.) Annual Quantities of Inert C&D Materials										Estimated (Est.) and Actual (Act.) Annual Quantities of C&D Wastes									
	(a)=(b)+(c)+(d)+(e) Total Quantity Generated		(b) Broken Concrete (see Note 4)		(c) Reused in the Contract		(d) Reused in other Projects		(e) Disposed as Public Fill		(f) Metals		(g) Paper/ cardboard packaging		(h) Plastics (see Note 3)		(i) Chemical Waste		(j) Others, e.g. general refuse disposed at Landfill (See Note 5)	
	(in '000m^3)		(in '000m^3)		(in '000m^3)		(in '000m^3)		(in '000m^3)		(in '000 kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000m³)	
	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.
2009 (3rd)	(Note 4)	0.016	(Note 4)	0	(Note 4)	0	(Note 4)	0	(Note 4)	0.016	(Note 4)	0	(Note 4)	0	(Note 4)	0	(Note 4)	0	(Note 4)	0.068
2009 (4th)		6.657		0		0		0		6.657		101.2		0.036		0		0		0.335
2010 (1st)		13.155		0		0		0		13.155		0		0.234		0		0.8		0.493
2010 (2nd)		18.146		0		0		0		18.146		0		0.288		0		0.7		0.772
2010 (3rd)		13.764		0.15		0		0.58	Dry / Wet	13.034		0		0.342		0		1.4		0.67
2010 (4th)		13.214		0		0		0		13.214		0		0.216		0		0.8		0.234
2011 (1st)		25.858		0		0		1.375		24.483		0		0.19		0		1.2		0.321
2011 (2nd)		21.764		0		0		3.556		18.198		0		0.517		0.028		1.2		0.218
2011 (3rd)		17.654		0		0		7.739		9.915		0		0.699		0.067		0.4		0.361
2011 (4th)	56.468	15.768	0.7	0	0	0.159	43.630	3.219	11.946	12.39	7	0	0.25	0.74	0.1	0.015	1.2	0.6	0.077	0.361
2012 (1st)	76.033	20.584	0.379	0	0	0	66.440	3.284	9.022	17.3	7	0	0.25	0.324	0.1	0	1.2	0.4	0.015	0.361
2012 (2nd)	76.249	23.273	0.266	0	0	0.021	66.455	7.382	9.336	15.87	7	0.014	0.25	0.4	0.1	0	1.2	0.4	0.017	0.985
2012 (3rd)	79.259	22.693	0.178	0	0	0.172	70.535	11.179	8.354	11.342	7	8.371	0.25	0.289	0.1	0	1.2	1.4	0.017	0.402

2012 (4th)	58.550	45.546	0	0	0	0	52.168	39.267	6.190	0.192	6.279	7	0.017	0.25	0.433	0.1	0	1.2	2.4	0.011	0.322
2013 (1st)	58.474	46.236	0.46	0	0	0	52.114	26.88	5.708	0.192	19.356	2	0.01	0.25	0.322	0.1	0	1.2	0.8	0.009	0.317
2013 (2nd)	45.516	52.542	0	0	0	0	39.963	27.415	5.361	0.192	25.127	2	0.005	0.25	0.356	0.1	0	1.2	2.2	0.063	0.460
2013 (3rd)	11.124	60.113	0	0	0	0	8.765	41.346	2.167	0.192	18.767	2	0.011	0.25	0.374	0.1	0	1.2	0.6	0.072	0.608
2013 (4th)	10.95	15.878	0	0.016	0	0	5.23	7.345	2.12	3.6	8.517	2	0.012	0.25	0.324	0.1	0	1.2	1.4	0.086	0.461
2014 (1st)	32.89	44.379	0	0	0	0	26.600	38.349	2.09	4.2	6.03	1	0.021	0.25	0.234	0	0	0.8	0	0.12	0.425
2014 (2nd)	32.1	46.035	0	0	0	0	24.700	43.227	2.1	5.3	2.808	1	0.015	0.25	0.144	0	0	0	0	0.48	0.236
2014 (3rd)	25.45	31.497	0	0	0	0	18.900	26.387	2.05	4.5	5.11	1	0.019	0.25	0.108	0	0	0	0.8	0.56	0.618
2014 (4th)	11.2	7.276	0	0	0	0	5.200	0	2.5	3.5	7.276	1	0.012	0.25	0.45	0	0	0.8	0.4	0.56	0.82
2015 (1st)	2	4.657	0	0	0	0	0	0	0.8	1.2	4.657	1	14	0.25	0.27	0	0	0	1.6	0.42	0.846
2015 (2nd)	1	0	0	0	0	0	0	0	0.5	0.5	0	1	0	0.2	0	0	0	0.5	0	0.42	0
2015 (3rd)	0.5	0	0	0	0	0	0	0	0.3	0.2	0	1	0	0.2	0	0	0	0	0	0.42	0
2015 (4th)	0.5	0	0	0	0	0	0	0	0.3	0.2	0	1	0	0.1	0	0	0	0.2	0	0.42	0
Grand Total	701.935	566.705	1.983	0.166	0	0.352	488.418	288.540	209.551		277.647	109	122.707	4.25	7.47	1.7	0.11	20.8	19.9	7.235	10.694

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) Plastic refer to plastic bottles/containers, plastic sheets/foam from packaging material
(3) Broken concrete for recycling into aggregates
(4) The Yearly Waste Flow Table shown above was updated in Jan 2015, and it will be further updated if there is any changed.

Annex K

Summary of Observations and Follow-up Actions of Environmental Site Inspections for All Sites

Annex K Summary of Site Inspections Observations and Follow-ups

Inspection date: 5 March 2015

Follow-up Actions Taken after Previous Site Audit

Stonecutters Island Production Shaft

- The Contractor had provided sufficient drip trays for the chemical containers on the rooftop.
- The Contractor had already removed the general refuse next to the drip tray near the noise enclosure.

Central Production Shaft

- This area has not been covered during site inspection and item will be checked upon in subsequent site inspection.

Wan Chai East Production Shaft

- The Contractor had removed the newspaper inside the chemical storage area.

Observations and Recommendations

Stonecutters Island Production Shaft

- There was no major observation during site inspection.

Sai Ying Pun Production Shaft

- There was no major observation during site inspection.

Wan Chai East Drop Shaft

- The Contractor was reminded to remove wooden beam from the tree protection zone of retained tree N05.
- The Contractor was reminded to maintain good housekeeping around the chemical waste storage area.

North Point Drop Shaft

- The Contractor was reminded to collect and sort waste and recyclables and maintain good housekeeping around the waste skip.

Inspection date: 12 March 2015

Follow-up Actions Taken after Previous Site Audit

Central Production Shaft

- The Contractor had already removed the chemical containers.

Wan Chai East Production Shaft

- The Contractor had removed the wooden beam from the tree protection zone of retained tree N05.
- The Contractor had maintained good housekeeping around the chemical waste storage area.

North Point Drop Shaft

- The Contractor had already collected and sorted waste and recyclables, and maintained good housekeeping around the waste skip.

Observations and Recommendations

Stonecutters Island Production Shaft

- There was no major observation during site inspection.

Sai Ying Pun Production Shaft

- There was no major observation during site inspection.

Central Production Shaft

- There was no major observation during site inspection.

Wan Chai East Drop Shaft

- There was no major observation during site inspection.

North Point Drop Shaft

- There was no major observation during site inspection.

Inspection date: 19 March 2015

Follow-up Actions Taken after Previous Site Audit

Nil.

Observations and Recommendations

Stonecutters Island Production Shaft

- There was no major observation during site inspection.

Sai Ying Pun Production Shaft

- There was no major observation during site inspection.

Central Production Shaft

- The Contractor was reminded to provide sufficient drip trays for the chemical containers.

Wan Chai East Drop Shaft

- The Contractor was reminded to remove waste diesel oil and dispose of appropriately as chemical waste.

North Point Drop Shaft

- The Contractor was reminded to cover exposed stockpiles.

Inspection date: 25 March 2015

Follow-up Actions Taken after Previous Site Audit

Central Production Shaft

- This area has not been covered during site inspection and item will be checked upon in subsequent site inspection.

Wan Chai East Drop Shaft

- The Contractor had already removed diesel oil and disposed as chemical waste.

North Point Drop Shaft

- This area has not been covered during site inspection and item will be checked upon in subsequent site inspection.

Observations and Recommendations

Stonecutters Island Production Shaft

- The Contractor was reminded to remove the oil stain near the chemical storage.
- The Contractor was reminded to provide a plug for the drip tray near the noise enclosure.

Wan Chai East Drop Shaft

- There was no major observation during site inspection.

Annex K Summary of Site Inspections Observations and Follow-ups

Inspection date: 2 April 2015

Follow-up Actions Taken after Previous Site Audit

Stonecutters Island Production Shaft

- The Contractor had already inserted a plug for the drip tray near the noise enclosure.
- The Contractor had already removed the oil stain near the noise enclosure.

North Point Production Shaft

- Soil stockpiles were still observed to be exposed. Please see Recommendation for NPPS.

Observations and Recommendations

Stonecutters Island Production Shaft

- The Contractor was reminded to remove waste diesel oil and dispose of appropriately as chemical waste.
- The Contractor was reminded to remove the general refuse near the chemical storage area.
- The Contractor was reminded to provide sufficient drip trays for chemical containers.

Sai Ying Pun Production Shaft

- The Contractor was reminded to provide sufficient drip trays for chemical containers,
- The Contractor was reminded to place the chemical containers at the chemical storage area.

Central Production Shaft

- The Contractor was reminded to provide sufficient drip trays for chemical containers,
- The Contractor was reminded to cover the cement stock entirely by impervious sheeting.

Wan Chai East Production Shaft

- There were no major observations during site inspection.

North Point Production Shaft

- The Contractor was reminded to cover the soil stockpile with tarpaulin.

Inspection date: 9 April 2015

Follow-up Actions Taken after Previous Site Audit

Stonecutters Island Production Shaft

- The Contractor had already removed waste diesel oil and disposed of as chemical waste.
- The Contractor had removed the general refuse near the chemical storage area.
- The Contractor had provided sufficient drip trays for chemical containers.

Sai Ying Pun Production Shaft

- The Contractor had provided sufficient drip trays for chemical containers,
- The Contractor had placed the chemical containers at the chemical storage area.

Central Drop Shaft

- The Contractor had provided sufficient drip trays for chemical containers,
- The Contractor had covered the cement stock entirely by impervious sheeting.

North Point Production Shaft

- Soil stockpiles were still observed to be exposed. Please see Recommendation for NPPS.

Observations and Recommendations

Stonecutters Island Production Shaft
- The Contractor was reminded to remove the stagnant water from the drip trays.
- The Contractor was reminded to remove the general refuse near the noise enclosure technical room.

Sai Ying Pun Production Shaft
- There were no major observations during site inspection.

Central Drop Shaft
- There were no major observations during site inspection.

Wan Chai East Production Shaft
- The Contractor was reminded to empty the drip trays in the chemical storage area of accumulated chemicals and oil and dispose of appropriately as chemical waste.

North Point Production Shaft
- There were no major observations during site inspection.

Inspection date: 16 April 2015

Follow-up Actions Taken after Previous Site Audit

Stonecutters Island Production Shaft
- The Contractor had already removed the stagnant water from the drip trays.
- The Contractor had removed the general refuse near the noise enclosure technical room.

Wan Chai East Production Shaft
- The drip trays in the chemical storage area of accumulated chemicals and oil had not be emptied or disposed of appropriately.

Observations and Recommendations

Stonecutters Island Production Shaft
- The Contractor was reminded to remove the stagnant water from the drip trays near noise enclosure.
- The Contractor was reminded to place the chemical waste at the chemical storage area and ensure the area is well maintained.
- The Contractor was reminded to remove the general refuse at the riser shaft.
- The Contractor was reminded to provide sufficient drip traps for chemical containers at the explosive storage area.

Sai Ying Pun Production Shaft
- There were no major observations during site inspection.

Central Drop Shaft
- There were no major observations during site inspection.

Wan Chai East Production Shaft
- The Contractor was reminded to empty the drip trays in the chemical storage area of accumulated chemicals and oil and dispose of appropriately as chemical waste.
- The Contractor was reminded to maintain access to the chemical waste storage and good housekeeping around the storage area.

North Point Production Shaft

- There were no major observations during site inspection.

Inspection date: 23 April 2015

Follow-up Actions Taken after Previous Site Audit

Stonecutters Island Production Shaft

- The Contractor had removed the stagnant water from the drip trays near noise enclosure.
- The Contractor had placed the chemical waste at the chemical storage area.
- The Contractor had removed the general refuse at the riser shaft.
- The Contractor had provided sufficient drip traps for chemical containers at the explosive storage area.

Wan Chai East Production Shaft

- The drip trays in the chemical storage area of accumulated chemicals and oil had not be emptied.
- The Contractor had maintained access to the chemical waste storage and good housekeeping around the storage area.

Observations and Recommendations

Stonecutters Island Production Shaft

- The Contractor was reminded to remove the general refuse inside the tree protection zone.
- The Contractor was reminded to remove the stagnant water near the noise enclosure.
- The Contractor was reminded to provide regular collection for the disposal.

Sai Ying Pun Production Shaft

- There were no major observations during site inspection.

Central Drop Shaft

- There were no major observations during site inspection.

Wan Chai East Production Shaft

- The Contractor was reminded to provide sufficient drip tray for the chemical containers.
- The Contractor was reminded to clear the residual oil from the drip trays in the chemical storage area.
- The Contractor was reminded to improve the efficiency of the vehicle washing facility.

North Point Production Shaft

- There were no major observations during site inspection.

Inspection date: 29 April 2015

Follow-up Actions Taken after Previous Site Audit

Stonecutters Island Production Shaft

- The general refuse inside the tree protection zone had not been removed.
- The stagnant water in the water tank near noise enclosure had not been removed.
- The Contractor had provided regular collection of waste for disposal.

Observations and Recommendations

Stonecutters Island Production Shaft

- Stagnant water in the water tank near noise enclosure was observed and the Contractor had removed it immediately.
- The Contractor was reminded to remove the general refuse inside the tree protection zone.

- The Contractor was reminded to maintain good housekeeping at the chemical waste storage area.

Sai Ying Pun Production Shaft

- The Contractor was reminded to provide a larger drip tray for the air compressor.
- The Contractor was reminded to provide sufficient drip trays for the chemical containers.
- The Contractor was reminded to remove the oil stain and dispose the oil appropriately as chemical waste.

North Point Production Shaft

- The Contractor was reminded to maintain good housekeeping at the access road near the storage room.
- The Contractor was reminded to remove the stagnant water and general refuse inside the container tank.

Annex K Summary of Site Inspections Observations and Follow-ups

Inspection date: 7 May 2015

Follow-up Actions Taken after Previous Site Audit

Stonecutters Island Production Shaft

- The Contractor had removed the general refuse inside the tree protection zone.
- The Contractor had maintained good housekeeping at the chemical waste storage area.

Sai Ying Pun Production Shaft

- The Contractor had provided sufficient drip trays for the chemical containers.

North Point Production Shaft

- The Contractor had maintained good housekeeping at the access road near the storage room.
- The Contractor had removed the stagnant water and general refuse inside the container tank.

Observations and Recommendations

Stonecutters Island Production Shaft

- The Contractor was reminded to remove the stagnant water on the tarpaulin.

Sai Ying Pun Production Shaft

- The Contractor was reminded to remove the oil stain and dispose of appropriately as chemical waste.
- The Contractor was reminded to remove the stagnant water inside the drip tray of the air compressor.

Central Drop Shaft

- There were no major observations during site inspection.

Wan Chai East Production Shaft

- The Contractor was reminded to maintain good housekeeping in the tree protection zone.

Wan Chai East Drop Shaft

- The Contractor was reminded to remove stagnant water from holes in concrete blocks and take measures to avoid further accumulation.

North Point Production Shaft

- There were no major observations during site inspection.

Inspection date: 14 May 2015

Follow-up Actions Taken after Previous Site Audit

Stonecutters Island Production Shaft

- The Contractor had removed the stagnant water on the tarpaulin.

Sai Ying Pun Production Shaft

- The Contractor had removed the oil stain and disposed of appropriately as chemical waste.
- The Contractor had removed the stagnant water inside the drip tray of the air compressor.

Wan Chai East Production Shaft

- The Contractor had maintained good housekeeping in the tree protection zone.

Wan Chai East Drop Shaft
The Contractor had removed stagnant water from holes in concrete blocks.

Observations and Recommendations

Stonecutters Island Production Shaft
- The Contractor was reminded to remove the stagnant water inside the water tank and at the area near the toilet.
- The Contractor was reminded to remove the general refuse inside the tree protection zone.
- The Contractor was reminded to empty the rubbish bin and arrange regular collection for disposal.
- The Contractor was suggested to apply larvicide to prevent breeding of mosquito.

Sai Ying Pun Production Shaft
- The Contractor was reminded to remove the stagnant water inside the water tank by connecting to the pump.

Central Drop Shaft
- There were no major observations during site inspection.

Wan Chai East Production Shaft
- There were no major observations during site inspection.

Wan Chai East Drop Shaft
- There were no major observations during site inspection.

North Point Production Shaft
- There were no major observations during site inspection.

Inspection date: 21 May 2015

Follow-up Actions Taken after Previous Site Audit

Stonecutters Island Production Shaft
- The Contractor had removed the stagnant water inside the water tank and at the area near the toilet.
- The Contractor had removed the general refuse inside the tree protection zone.
- The Contractor had emptied the rubbish bin and arranged regular collection for disposal.

Sai Ying Pun Production Shaft
- The Contractor had removed the stagnant water inside the water tank.

Observations and Recommendations

Stonecutters Island Production Shaft
- The Contractor was reminded to remove the stagnant water from the holes in steel formwork, digging bucket, cement block and water tank; and to take measures to avoid further accumulation during rainy season.
- The Contractor was reminded to store and dispose of the chemical waste near the toilet appropriately.
- The Contractor was reminded to remove the sand and silt inside the drip tray.
- The Contractor was suggested to apply larvicide to prevent breeding of mosquito.

Sai Ying Pun Production Shaft
- The Contractor was reminded to remove the stagnant water and take measures to avoid further accumulation during rainy season.

Central Drop Shaft

- The Contractor was reminded to remove the stagnant water and take measures to avoid further accumulation during rainy season.

Wan Chai East Production Shaft
- There were no major observations during site inspection.

Wan Chai East Drop Shaft
- There were no major observations during site inspection.

North Point Production Shaft
- Oil stains were observed in large water puddles next to the entrance of the site office.

Inspection date: 27 May 2015

Follow-up Actions Taken after Previous Site Audit

Stonecutters Island Production Shaft
- The Contractor had removed the stagnant water.

Observations and Recommendations

Stonecutters Island Production Shaft
- The Contractor was reminded to place the chemical container near the noise enclosure at the chemical waste storage area or provide drip tray.

Wan Chai East Production Shaft
- Oil leakage was observed at the backhoe. The Contractor was reminded to fix the backhoe and remove the oil stains.