BASELINE MONITORING REPORT

FOR

IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS – SOUTH WORKS

(Rev. 1)

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EXECUTIVE SUMMARY

A.1 Pursuant to the Environmental Impact Assessment (EIA) Ordinance, the Director of Environmental Protection (DEP) granted the Environmental Permit (No. EP- 494/2015) to the Water Supplies Department (WSD) to construct and operate the designated project for ñIn-situ Reprovisioning of Sha Tin Water Treatment Works - South Worksò (ñThe Projectò).

A.2 Upon the requirement of the Environmental Permit (EP), the Baseline Monitoring Report shall be submitted to the DEP at least two weeks before the commencement of construction of the Project. The submissions shall be certified by the Environmental Team (ET) Leader, verified by the Independent Environmental Checker (IEC) and complied with the requirements set out in the Environmental Monitoring and Audit (EM&A) Manual before submission to the DEP as stipulated in Condition 3.3 of the EP.

A.3 For the EP stipulation, baseline monitoring including continuous air quality and noise was conducted from 21 December 2015 to 3 January 2016. Baseline monitoring on water quality conducted from 15 December 2015 to 8 January 2016. During the baseline monitoring period, no construction activities under the Project were observed; it is however the proposed project area closes to the construction site of Sha Tin to Central Link (SCL) for Hin Keng to Diamond Hill Tunnel and the existing railway for MTR Corporation (MTRC).

A.4 This report summarizes the key findings and presents the process and rationale behind determining a set of Action and Limit Levels (A/L Levels) of construction air quality, noise and water quality based on the baseline data. These A/L Levels will serve as the yardsticks for assessing the acceptability of the environmental impact during construction phase of the Project Works impact monitoring. They are statistical in nature and derived according to the criteria set out in the approved EM&A Manual.

A.5 Results of the derived Action and Limit Levels for air, noise and water are given in Tables A, B and C as follows:

Table A - Action and Limit Levels for Air Quality Monitoring

Monitoring Locations	**Action Level (µg/m3)**	**Limit Level (µg/m3)**
	1-Hour	**1-Hour**
AM1	357	500
AM2	334	500

Table B - Action and Limit Levels for Noise Monitoring

Monitoring Locations	**Action Level**	**Limit Level (dB(A))**
	0700-1900 Hours on Normal Weekdays	
NM1	When one or more documented complaint is received	For domestic premises, 75 dB(A) for NM 1 & 2 For schools 70dB(A) but 65 dB(A) during examination for NM 3
NM2		
NM3		

Remarks: If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the NCA have to be followed.

Table C - Action and Limit Levels for Water Quality Monitoring

Water monitoring station	Dissolved Oxygen (DO) (mg/L)		Suspended Solids (SS) (mg/L)		Turbidity (NTU)		pH	
	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level
C1	7.51	7.44	4.19	6.73	3.99	4.00	Beyond the range 6.6 to 7.9	Beyond the range 6.5 to 8.0
C2	8.10	7.98	4.33	8.16	3.13	3.28	Beyond the range 6.6 to 8.8	Beyond the range 6.5 to 8.9
C3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M1	8.90	8.89	3.30	3.56	4.36	4.48	Beyond the range 6.6 to 8.2	Beyond the range 6.5 to 8.3
M2	8.92	8.91	18.84	26.80	12.64	13.72	Beyond the range 6.6 to 11.0	Beyond the range 6.5 to 11.0
M3	9.16	9.15	1.00	1.00	1.10	1.18	Beyond the range 6.6 to 8.6	Beyond the range 6.5 to 8.7

Remarks: *1. For DO, non-compliance of the water quality limits occurs when monitoring result of either one of the surface, middle or bottom DO is lower than the limits.*
2. For pH, action should be taken if the measured pH falls outside the specified range.
3. *C3 was recorded dry throughout the sampling period.*

A.6 In cases where exceedance of these criteria occurs, actions should be carried out in accordance with the Event Action Plan as shown in the approved EM&A Manual.

1. PROJECT BACKGROUND

1.1 Pursuant to the Environmental Impact Assessment (EIA) Ordinance, the Director of Environmental Protection (DEP) granted the Environmental Permit (No. EP- 494/2015) to the Water Supplies Department (WSD) to construct and operate the designated project for ñIn-situ Reprovisioning of Sha Tin Water Treatment Works - South Worksò (ñThe Projectò).

1.2 Upon the requirement of the Environmental Permit (EP), a Baseline Monitoring Report shall be submitted to the DEP at least two weeks before the commencement of construction of the Project. The submissions shall be certified by the Environmental Team (ET) Leader, verified by the Independent Environmental Checker (IEC) and complied with the requirements set out in the Environmental Monitoring and Audit (EM&A) Manual before submission to the DEP as stipulated in Condition. 3.3 of the EP.

1.3 An EIA Report with EM&A Manual (Register No. AEIAR-187/2015) was approved by DEP in January 2015.

2. OBJECTIVES

2.1 According to the approved EM&A Manual, air quality, noise and water quality baseline monitoring are required to establish ambient conditions before construction work commencement and to demonstrate the suitability of the proposed monitoring stations.

2.2 This report summarizes the key findings and presents the process and rationale behind determining a set of Action and Limit Levels (A/L Levels) of construction air quality, noise and water quality based on the baseline data. These A/L Levels will serve as the yardsticks for assessing the acceptability of the environmental impact during construction phase of the Project Works impact monitoring. They are statistical in nature and derived according to the criteria set out in the approved EM&A Manual.

3. ASSESSMENT METHODLOGY

Air Quality

3.1 Baseline monitoring for air quality had been carried out in accordance with Sections 2.24 & 2.25 of the approved EM&A Manual to determine the ambient 1-hour total suspended particulates (TSP) levels at the monitoring locations prior to the commencement of the Project works. TSP baseline monitoring had been carried out for a continuous period of 2 weeks. 1-hour TSP sampling had been done 3 times per day at each monitoring station when the highest dust impacts are expected. General meteorological conditions (wind speed, direction and precipitation) and notes regarding any significant adjacent dust producing sources had also been recorded throughout the baseline monitoring period.

Noise

3.2 The baseline noise levels had been measured in accordance with Sections 3.10 & 3.11 of approved EM&A Manual for a continuous period of 14 consecutive days at logging interval of 30 minutes for daytime (between 0700 and 1900 hours of normal weekdays) and 15 minutes (as 3 consecutive $L_{eq,\ 5\ min}$ readings) for evening time (between 1900 and 2300 hours on normal weekdays), general holidays including Sundays (between 0700 and 2300 hours) and night-time (between 2300 and 0700 on all days). The L_{eq}, L_{10} and L_{90} had been recorded at the specified intervals. The non-project related construction activity – Sha Tin to Central Link (SCL) for Hin Keng to Diamond Hill Tunnel, in the vicinity of the monitoring stations during the baseline monitoring had been noted and the source and location of this activity had been recorded.

Water Quality

3.3 The baseline monitoring had been taken in accordance with Sections 4.8 & 4.9 of the approved EM&A Manual at all designated monitoring stations in the 2 water courses, 3 days per week, for 4 weeks prior to the commencement of construction works. The interval between 2 sets of monitoring had been more than 36 hours. Replicate in-situ measures had been carried out in each sampling event.

3.4 A summary of baseline monitoring programme is presented in Table 1.

Table1- Summary of Baseline Monitoring Programme

Baseline Monitoring	Duration	Sampling Parameter	Frequency
Air Quality	Consecutive days of 2 weeks before commencement of major construction works	1-hour TSP	3 times per day
Noise	Consecutive days of 2 weeks before the construction commencement	$L_{eq\ 30\ min}$, $L_{eq\ 5\ min}$, L_{10} and L_{90} as reference.	Daily of continuous measurement: ◆ $L_{eq\ 30\ min}$ for normal weekdays from 0700 - 1900; ◆ 3 consecutive $L_{eq\ 5\ min}$ for normal weekdays from 1900 - 2300; ◆ 3 consecutive $L_{eq\ 5\ min}$ for all days from 2300 - 0700 next day; and ◆ 3 consecutive $L_{eq\ 5\ min}$ for general holidays including Sundays from 0700 - 2300
Water Quality	4 weeks prior to the commencement of construction works	Duplicate in-situ measurements: Dissolved Oxygen (DO), Turbidity and pH; HOKLAS-accredited laboratory analysis: Suspended Solids (SS).	3 days per week. The interval between 2 monitoring days will be more than 36 hours.

Remark: Sampling Depth for Water Quality:

(i) 3 depths: 1m below water surface, 1m above bottom and at mid-depth when the water depth exceeds 6m.

(ii) If the water depth is between 3m and 6m, 2 depths: 1m below water surface and 1m above bottom.

(iii) If the water depth is less than 3m, 1 sample at mid-depth is taken.

4. BASELINE MONITORING REQUIREMENTS

4.1 The EM&A requirements for baseline monitoring are set out in the approved EM&A Manual. Environmental aspects such as the construction air quality, noise and water quality were identified as the key issues during the construction phase of the Project.

4.2. A summary of the monitoring parameters is presented in Table 2.

Table 2 - Summary of the monitoring parameters of EM&A Requirements

Environmental Issue	Parameter
Air Quality	● 1-hour TSP Monitoring by Real-Time Portable Dust Meter
Noise	● $L_{eq\ (30min)}$ during normal working hours; and ● $L_{eq\ (15min)}$ during restricted hours
Water Quality	In-situ measurement ● Dissolved Oxygen (mg/L); ● Dissolved Oxygen Saturation (%); ● Turbidity (NTU); ● pH value; ● Water depth (m); and ● Temperature (ºC)
	Laboratory analysis ● Suspended Solids (mg/L)

5. DESIGNATED MONITORING LOCATIONS

Air Quality

5.1 2 designated monitoring stations, AM1 located at the L Louey and AM2 located at Hin Keng Estate - Hin Wan House, were recommended in Section 2.18 of the approved EM&A Manual. In order to identify and seek for the access of the air monitoring locations designated in the EM&A Manual, site visit was conducted among ET, IEC and Environmental Protection Department (EPD).

5.2 During the site visit, all designated monitoring locations were identified. Details of air monitoring stations are described in Table 3. The location plan of air quality monitoring stations is shown in Appendix A.

Table 3 - Location of the Air Quality Monitoring Stations

Air Quality Monitoring Station	Air Sensitive Receiver (ASR) ID in the approved EIA Report	Dust Monitoring Station
AM1	ASR2	The L Louey (at a platform level of about 5m above road level nearby)
AM2	ASR4	Hin Keng Estate - Hin Wan House (at the roof top)

Noise

5.3 According to Section 3.7 of the approved EM&A Manual, 3 noise sensitive receivers designated for the construction noise monitoring. The designated monitoring stations are identified and successfully granted by the premises. The details of noise monitoring stations are described in Table 4 and the location plan of noise monitoring stations is shown in Appendix B.

Table 4 - Details of Noise Monitoring Stations

Noise Monitoring Station	Noise Sensitive Receiver (NSR) ID in the approved EIA Report	Identified Noise Monitoring Station
NM1	HK2	The L Louey (South) (at a platform level of about 5m above road level nearby)
NM2	HK5	Hin Keng Estate - Hin Wan House (at the roof level)
NM3	HK7	C.U.H.K.F.A.A. Thomas Cheung School (at the roof level)

Water Quality

5.4 3 control and 2 impact stations were recommended in the Section 4.7 of the approved EM&A Manual to carry out water quality monitoring. In order to identify and seek for the access of the water monitoring locations designated in the approved EM&A Manual, site visit was conducted among ET, IEC and EPD.

5.5 During the site visit, all designated monitoring locations were identified however one more impact station (M3) along the same water course was introduced due to the concern on multiple site effect, in particular to address the potential impact to M2 from a source at upstream of the water course. Details and coordinates of the monitoring stations are described in Table 5 and the location plan of water quality monitoring stations is shown in Appendix C.

Table 5 - Details of Water Quality Monitoring Station

Water Quality Monitoring Station	Description	Co-ordinates	
		Easting	Northing
C1	Control Stations	835110	824716
C2		835403	824470
C3		835642	824386
M1	Impact Monitoring Stations	835215	824827
M2		835536	824775
M3		835501	824648

6. MONITORING EQUIPMENT

Air Quality

6.1 1-hour TSP levels had been measured with direct reading dust meter. It has been demonstrated its capability in achieving comparable results with high volume sampling method as set out in the Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50).

Noise

6.2 Sound level meter in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications has been used for carrying out the noise monitoring. The sound level meter has been checked using an acoustic calibrator. The wind speed has been checked with a portable wind speed meter capable of measuring the wind speed in m/s.

Water Quality

6.3 Dissolved Oxygen and Temperature Measuring Equipment – The instrument is a portable and weatherproof dissolved oxygen (DO) measuring instrument complete with cable and sensor, and use a DC power source. The equipment is capable of measuring as included a DO level in the range of 0 - 20mg/L and 0 - 200% saturation; and a temperature of 0 - 45°C.

6.4 pH Meter – The instrument consists of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It is readable to 0.1 pH in range of 0 to 14.

6.5 Turbidity (NTU) Measuring Equipment – The instrument is a portable and weatherproof turbidity measuring instrument using a DC power source. It has a photoelectric sensor capable of measuring turbidity between 0 - 1000 NTU.

6.6 Sample Containers and Storage – Water samples for suspended solids (SS) have been stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4°C without being frozen).

6.7 Suspended Solids Analysis – Analysis of SS have been carried out in a HOKLAS or other international accredited laboratory.

7. DETERMINATION OF ACTION/LIMIT (A/L) LEVELS

7.1 The baseline results form the basis for determining the environmental acceptance criteria for the impact monitoring. A summary of determination of Action/Limit (A/L) Levels for air quality, noise and water quality are shown in Tables 6 - 8 respectively.

Table 6 - Determination of Action and Limit Levels for Air Quality

Parameter	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
1-hour TSP ($\mu g/m^3$)	For Baseline Level ≤ 384 $\mu g/m^3$ Action Level= (Baseline Level * 1.3 + Limit Level)/2 For baseline level > 384 $\mu g/m^3$ Action Level = Limit Level	500

Table 7 - Determination of Action and Limit Levels for Noise

Monitoring Location	Action Level	Limit Level (dB(A))
	0700-1900 Hours on Normal Weekdays	
NM1	When one documented complaint is received	For domestic premises: 75 dB(A) for NM1 & NM2
NM2		
NM3		For schools: 70dB(A) during normal teaching periods and 65 dB(A) during examination periods for NM3

Table 8 - Determination of Action and Limit Levels for Water Quality

Parameters	Action Level	Limit Level
DO (mg/L)	Surface, middle, bottom DO ≤5 %-ile of baseline data	Surface, middle DO ≤4 mg/L or 1%-ile of baseline data for surface and middle layer Bottom DO ≤2 mg/L or 1%-ile of baseline data for bottom layer
SS (mg/L)	Depth-average SS >95 %-ile of baseline data or 120% of control station's SS on the same day of measurement	Depth-average SS >99 %-ile of baseline or 130% of control station's SS on the same day of measurement

Turbidity (NTU)	Depth-average SS ó95 %-ile of baseline data or 120% of control stationôs turbidity on the same day of measurement	Depth-average SS ó99 %-ile of baseline or 130% of control station's turbidity on the same day of measurement
pH	Beyond the range 6.6 to 8.4	Beyond the range of 6.5 to 8.5

Remarks: For DO, non-compliance of the water quality limits occurs when monitoring result of either one of the surface, middle or bottom DO is lower than the limits.

8. BASELINE MONITORING METHODOLOGY

8.1 The baseline monitoring program for continuous air quality and noise were conducted from 21 December 2015 to 3 January 2016 whereas the baseline monitoring on water quality was conducted from 15 December 2015 to 8 January 2016. During the baseline monitoring period, no construction activities under the Project were observed. It was however the proposed project area closes to the construction site of Shatin to Central Link (SCL) for Hin Keng to Diamond Hill Tunnel and the existing railway for MTR Corporation (MTRC).

8.2 The monitoring equipment using for the baseline monitoring program was proposed by ET and verified by IEC prior to the commencement of the monitoring work. The details of equipment using for baseline monitoring are listed in Table 9 as below.

Table 9 - Monitoring Equipment Used in Baseline Monitoring Program

Equipment	Model
Air quality	
Portable dust meter ï 1-hour TSP	Sensidyne Gilian Nephelometer dust meter; TSI DustTrak Aerosol Monitor Model 8532
Noise	
Sound Level Meter	Pulsar 95 Sound level meter
Portable Wind Speed Indicator	The Kestrel Pocket Weather Meter
Water quality	
Thermometer & DO meter	YSI Model ProDSS Multi-parameter Water Quality Monitoring System
pH meter	
Turbidmeter	
Sample Container	High density polythene bottles (provided by laboratory)
Storage Container	ôWillowô 33-liter plastic cool box with Ice pad
Suspended Solids	HOKLAS-accredited laboratory (Acumen Laboratory and Testing Limited)

Air Quality

8.3 The 1-hour TSP monitor, portable dust meters (Sensidyne Gilian Nephelometer dust meter or TSI DustTrak Aerosol Monitor Model 8532) were used for baseline monitoring. The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 90^{o} light scattering. The 1-hour TSP monitor consists of the following:

- A pump to draw sample aerosol through the optic chamber where TSP is measured;
- A sheath air system to isolate the aerosol in the chamber to keep the optics clean for maximum reliability; and
- A built-in data logger compatible with based program to facilitate data collection, analysis and reporting.

8.4 The 1-hour TSP meter was calibrated by the manufacturer prior to purchasing. Zero response of the instrument was checked before and after each monitoring event. Operation of the 1-hour TSP meter followed manufacturer's Operation and Service Manual. A valid calibration certificate is attached in Appendix D.

Noise

8.5 Baseline noise monitoring was performed at NM1, NM2 & NM3 from 21 December 2015 to 3 January 2016. The baseline noise monitoring was carried out continuous interval of 5 minutes for 2 weeks.

8.6 All noise measurements were the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (L_{eq}).

8.7 Prior to the baseline noise measurement, the accuracy of the sound level meter was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Regular checking was conducted in baseline monitoring period. The calibration level before and after the noise measurement is agreed to within 1.0 dB.

8.8 An acoustic calibrator and sound level meter using baseline monitoring is within the valid period and were calibrated per year. A set of valid calibration certificates is attached in Appendix E.

8.9 Noise measurements should not be made in presence of fog, rain, wind with a steady speed exceeding 5 ms^{-1} or wind with gusts exceeding 10 ms^{-1}. The wind speed was checked with a portable wind speed meter capable of measuring with speeds in ms^{-1}.

Water Quality

8.10 Before the commencement of the sampling, general information such as the date and time of sampling as well as the personnel responsible for monitoring were recorded on the monitoring field data sheet.

8.11 Water temperature, turbidity, DO, pH and water depth were measured in-situ. Since water depths at C1, C2, M1, M2 and M3 were less than 3 m, all in-situ measurements and sampling conducted at one water depth such as mid-depth are performed. Moreover, C3 was recorded dry throughout the sampling period. Therefore, in-situ measurements and sampling could not be conducted at C3 in accordance with the water monitoring requirements in the approved EM&A Manual.

8.12 At each sampling point, 2 consecutive measurements of temperature, DO, turbidity and pH were measured. The Multi-Parameter Water Quality Monitoring Probe were retrieved out of the water after the first measurement and then re-deployed for the second measurement. Where the difference in the value between the first and second readings of each set was more than 25% of the value of the first reading, the reading was discarded and further readings were taken. The certification of the Multi-parameter Water Quality Monitoring System is showed in Appendix F.

8.13 All water samples were delivered to the Acumen Laboratory and Testing Limited (HOKLAS registration no.: 241). SS testing was used HOKLAS accredited Analytical method APHA 2540 D. The certification of laboratory with HOKLAS accredited analytical tests are provided in Appendix G.

Data Management and Data QA/QC Control

8.14 The baseline monitoring data were handled by ETôs in-house data recording and management system.

8.15 The monitoring data recorded in the equipment were downloaded directly from the equipment at the end of each monitoring day. The downloaded monitoring data were input into computerized database properly. The laboratory results were input directly into the computerized database and checked by personnel other than those who had input the data.

8.16 For monitoring parameters that require laboratory analysis, the local laboratory had followed the QQA/QC requirements as set out under the HOKLAS scheme for the relevant laboratory testing.

9. BASELINE MONITORING RESULTS

9.1 The baseline monitoring schedules are presented in Appendix H and the monitoring results are detailed in the following sub-sections

Air Quality

9.2 Baseline air quality monitoring was carried out from 21 December 2015 to 3 January 2016. The results for 1-hour TSP are summarized in Tables 10 and 11.

Table 10 - Summary of 1-hour TSP Monitoring Results – AM1

Date	1-hour TSP (µg/m^3)				
	Start Time	End Time	1st Measurement	2nd Measurement	3rd Measurement
21/12/2015	14:00	17:00	172	186	180
22/12/2015	11:00	14:00	191	188	196
23/12/2015	10:05	13:05	150	155	147
24/12/2015	12:00	15:00	156	154	165
25/12/2015	11:45	14:45	147	132	142
26/12/2015	13:35	16:35	169	172	187
27/12/2015	12:30	15:30	180	168	175

28/12/2015	13:40	16:40	172	165	158
29/12/2015	14:30	17:30	186	177	191
30/12/2015	15:00	18:00	163	178	188
31/12/2015	10:15	13:15	148	144	138
1/1/2016	13:30	16:30	144	134	133
2/1/2016	10:45	13:45	172	160	159
3/1/2016	11:30	14:30	153	162	165
Average (Range)			164.3		

Table 11 - Summary of 1-hour TSP Monitoring Results – AM2

Date	1-hour TSP (µg/m^3)				
	Start Time	End Time	1st Measurement	2nd Measurement	3rd Measurement
21/12/2015	10:50	14:50	124	119	127
22/12/2015	14:15	17:15	166	159	160
23/12/2015	14:45	17:45	119	121	113
24/12/2015	16:00	19:00	128	141	112
25/12/2015	08:30	11:30	126	121	101
26/12/2015	10:15	13:15	102	113	123
27/12/2015	08:45	11:45	126	119	121
28/12/2015	10:20	13:20	132	148	135
29/12/2015	10:45	13:45	114	128	121
30/12/2015	10:55	13:55	149	146	129
31/12/2015	14:30	17:30	120	118	118
1/1/2016	16:45	19:45	127	131	118
2/1/2016	14:00	17:00	167	170	166
3/1/2016	15:00	18:00	110	108	104
Average (Range)			128.6		

Action/Limit Level for Air Quality

9.3 Following the criteria shown in Tables 10 and 11 of this report, the proposed Action and Limit Levels for 1-hour TSP are listed in Table 12.

Table 12 - Action and Limit Levels for Air Quality Monitoring

Monitoring Location	Action Level (µg/m^3)	Limit Level (µg/m^3)
	1-Hour	1-Hour
AM1	357	500
AM2	334	500

Noise

9.4 The baseline noise monitoring was carried out between 21 December 2015 and 3 January 2016. The measurement data are shown in Appendix I and summarized in Tables 13 - 15.

Table 13 - Summary of Noise Monitoring Results – NM1

Time Period	Parameter	Mean	Max	Min
Normal Weekdays from 0700-1900	$L_{eq\ 5min}$	61.5	70.9	49.8
	$L_{eq\ 30min}$	63.9	67.9	62.2
Normal Weekdays from 1900-2300	$L_{eq\ 5min}$	61.6	70.5	49.8
	$L_{eq\ 15min}$	63.5	64.6	62.1
All Days from 2300-0700 of next day	$L_{eq\ 5min}$	60.6	68.9	50.0
	$L_{eq\ 15min}$	62.7	63.8	61.6
General Holidays including Sundays from 0700-2300	$L_{eq\ 5min}$	61.9	70.7	49.9
	$L_{eq\ 15min}$	64.5	68.0	62.5

Table 14 - Summary of Noise Monitoring Results – NM2

Time Period	Parameter	Mean	Max	Min
Normal Weekdays from 0700-1900	$L_{eq\ 5min}$	59.0	67.5	52.2
	$L_{eq\ 30min}$	59.7	61.7	57.0
Normal Weekdays from 1900-2300	$L_{eq\ 5min}$	56.1	62.9	50.8
	$L_{eq\ 15min}$	55.9	57.6	54.2
All Days from 2300-0700 of next day	$L_{eq\ 5min}$	53.7	59.1	48.7
	$L_{eq\ 15min}$	53.8	54.8	52.7
General Holidays including Sundays from 0700-2300	$L_{eq\ 5min}$	59.5	65.5	53.3
	$L_{eq\ 15min}$	60.9	62.5	58.2

Table 15 - Summary of Noise Monitoring Results – NM3

Time Period	Parameter	Mean	Max	Min
Normal Weekdays from 0700-1900	$L_{eq\ 5min}$	55.5	65.7	49.6
	$L_{eq\ 30min}$	56.1	59.5	54.2
Normal Weekdays from 1900-2300	$L_{eq\ 5min}$	52.2	57.1	48.1
	$L_{eq\ 15min}$	51.9	52.5	50.5
All Days from 2300-0700 of next day	$L_{eq\ 5min}$	51.5	56.7	48.0
	$L_{eq\ 15min}$	51.4	53.6	50.3
General Holidays including Sundays from 0700-2300	$L_{eq\ 5min}$	55.1	60.8	49.6
	$L_{eq\ 15min}$	55.8	57.6	53.6

Action/Limit Level for Noise

9.5 The Action and Limit Levels for noise are illustrated in Table 16.

Table 16 - Action and Limit Levels of Noise Monitoring

Monitoring Location	Action Level	Limit Level (dB(A))
	0700-1900 Hours on Normal Weekdays	
NM1	When one documented complaint is received	For domestic premises: 75 dB(A) for NM1 & NM2
NM2		
NM3		For schools: 70 dB(A) during normal teaching periods and 65 dB(A) during examination periods for NM3

Remark: If the works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the NCA have to be followed.

Water Quality

9.6 The baseline quality monitoring at 6 designated monitoring stations was performed for 4 weeks between 15 December 2015 and 8 January 2016. The details of monitoring schedule are shown in Appendix H.

9.7 The monitoring results are summarized in Table 17. Detailed monitoring results including in-situ measurements and laboratory analysis data are shown in Appendix J.

Table 17 - Summary of Water Quality Monitoring Results

Dissolved Oxygen – Mid Depth (mg/L)	**C1**	**C2**	**C3**	**M1**	**M2**	**M3**
5% -ile	7.51	8.10	N/A	8.90	8.92	9.16
1%-ile	7.44	7.98	N/A	8.89	8.91	9.15
Average	8.38	9.29	N/A	9.33	9.11	9.39
Min.	7.44	7.98	N/A	8.89	8.91	9.15
Max.	9.66	10.11	N/A	9.98	9.36	9.80
Turbidity – Mid Depth (NTU)	**C1**	**C2**	**C3**	**M1**	**M2**	**M3**
95% -ile	3.99	3.13	N/A	4.36	12.64	1.10
99%-ile	4.00	3.28	N/A	4.48	13.72	1.18
Average	2.48	1.90	N/A	3.33	5.16	0.93
Min.	1.50	0.70	N/A	1.50	0.70	0.60
Max.	4.00	3.30	N/A	4.50	13.90	1.20
Suspended Solid – Mid depth (mg/L)	**C1**	**C2**	**C3**	**M1**	**M2**	**M3**
95% -ile	5.52	5.70	N/A	4.35	24.80	1.20
99%-ile	8.86	10.74	N/A	4.68	35.27	1.20
Average	1.26	1.44	N/A	1.15	6.83	0.29
Min.	<1	<1	N/A	<1	<1	<1
Max.	9.70	12.00	N/A	4.70	38.00	1.20
pH value (unit)	**C1**	**C2**	**C3**	**M1**	**M2**	**M3**
Min.	7.70	7.83	N/A	7.81	7.67	7.79
Max.	8.24	9.30	N/A	8.57	11.50	9.06

Action/Limit Level for Water Quality

9.8 The Action and Limit Levels for water quality are illustrated in Table 18.

Table 18 - Action and Limit Levels of Water Quality Monitoring

Water monitoring station	Dissolved Oxygen (DO) (mg/L)		Suspended Solids (SS) (mg/L)		Turbidity (NTU)		pH	
	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level*
C1	7.51	7.44	5.52	8.86	3.99	4.00	Beyond the range 6.6 to 8.2*	Beyond the range 6.5 to 8.3*
C2	8.10	7.98	5.70	10.74	3.13	3.28	Beyond the range 6.6 to 9.2*	Beyond the range 6.5 to 9.3*
C3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M1	8.90	8.89	4.35	4.68	4.36	4.48	Beyond the range 6.6 to 8.5*	Beyond the range 6.5 to 8.6*
M2	8.92	8.91	24.80	35.27	12.64	13.72	Beyond the range 6.6 to 11.4*	Beyond the range 6.5 to 11.5*
M3	9.16	9.15	1.20	1.20	1.10	1.18	Beyond the range 6.6 to 9.0*	Beyond the range 6.5 to 9.1*

Remarks: *1. For DO, non-compliance of the water quality limits occurs when monitoring result of either one of the surface, middle or bottom DO is lower than the limits.*
2. For pH, action should be taken if the measured pH falls outside the specified range.
*3. *For pH, the lower action level and limit level at C1, C2, M1, M2 & M3 adopt the suggested levels at Table 4.3 of the approved EM&A Manual while the upper action level and limit level at C1, C2, M1, M2 & M3 follow the results in Table 17.*
4. C3 was recorded dry throughout the sampling period.

9.9 As the cause of exceedance may due to the seasonal change, the variation between dry season and wet season is calculated as below for the compensation of seasonal change. As the water quality in the Shing Mun River (also referred to as Tin Sum Nullah) is monitored under the EPDâs routine river water quality monitoring programme. Ten years (Year 2005 to 2014) of river water quality data at station TR20B Tin Sum Nullah are extracted from EPDâs database for the calculation of the DO, Turbidity, SS and pH variations between dry season and wet season. Please refer to the map below for the location of TR20B. The raw data are also listed in Table 19 for reference.

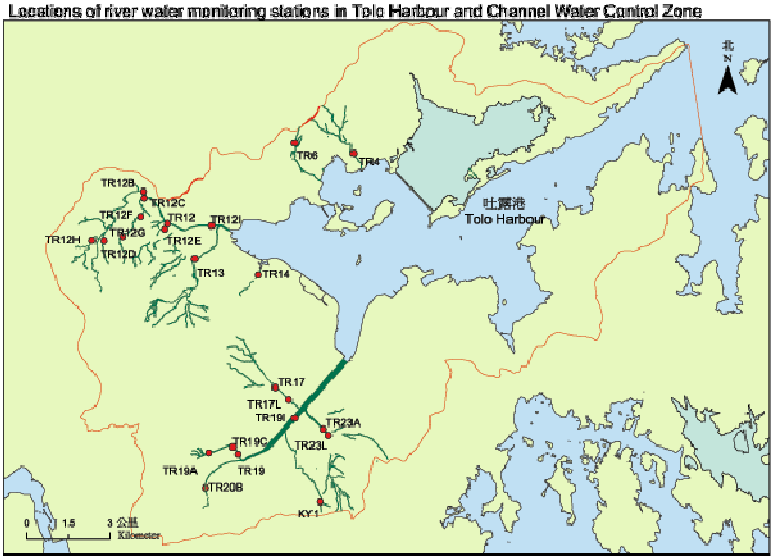


Table 19 - River Water Quality Data (2005-2014)

Date	DO (mg/L)	Turbidity (NTU)	SS (mg/L)	pH
5/1/2005	9.4	1	0.6	8.3
3/2/2005	9.7	1.4	<0.5	7.7
3/3/2005	9.9	1.9	1.8	7.8
7/4/2005	9	0.1	0.9	7.9
4/5/2005	8.4	0.3	1.5	8
1/6/2005	8.4	1.1	1.8	7.5
4/7/2005	7.7	0.2	2	7.2
1/8/2005	7.8	2.6	4.2	8
1/9/2005	7.3	1.8	2	7.4
3/10/2005	8.3	4	1	7.4
2/11/2005	8.8	1.2	2.1	7.4
1/12/2005	9	1.6	2.2	7.9
3/1/2006	9	0.2	0.6	8.2
9/2/2006	9	0.1	0.8	7.8
2/3/2006	9.5	10.1	16	7.9
7/4/2006	8.6	2	1.7	8.3
10/5/2006	8.1	1.5	0.8	7.5
1/6/2006	7.7	3.1	2	7.6
6/7/2006	7.7	13.7	39	7
7/8/2006	7.9	5.2	5.4	7.5
8/9/2006	7.7	11.7	31	8
9/10/2006	8.2	4	2.6	7.8
8/11/2006	8.2	0.3	3	8.1
1/12/2006	8.4	2	0.8	8.3
3/1/2007	8.7	0.3	<0.5	8.1
1/2/2007	9.4	1.3	1.8	8.3
1/3/2007	9.3	1.6	2.3	8.5
12/4/2007	8.8	0.7	1.2	8.2
11/5/2007	8.2	0.7	<0.5	8.4
4/6/2007	7.4	1.4	1.8	8
9/7/2007	9.2	0.1	<0.5	7.7
6/8/2007	8.5	1.9	1.4	7.7
12/9/2007	7.9	0.7	1.4	8
25/10/2007	8.2	2	2.1	8.1
16/11/2007	8.7	1.3	1.4	8.2
12/12/2007	8.8	0.4	1.6	8.2
24/1/2008	9.5	2.1	0.9	8.3
22/2/2008	9.9	2.1	0.9	8.6
12/3/2008	9.2	2.3	1.1	8.2
16/4/2008	8.7	16.5	0.5	8
15/5/2008	8.1	0.2	<0.5	7.5
16/6/2008	8.2	2.3	8.1	7.4
17/7/2008	8.1	1	4.1	7.1
1/8/2008	7.9	0.6	1.4	7.6
19/9/2008	7.5	6.9	6	7.4
16/10/2008	7.9	0.2	1.2	7.4
14/11/2008	8.5	0.1	2.6	8
10/12/2008	8.9	1.4	1.2	8.6
14/1/2009	9.8	1.1	3.1	8.2
18/2/2009	8.8	2.9	3	8
11/3/2009	9	0.7	2.7	8.1
15/4/2009	8.5	0.3	0.8	8.1
14/5/2009	7.9	0.3	0.7	7.9
19/6/2009	7.6	2.5	4.4	7.9
16/7/2009	7.4	0.5	0.6	7.8
19/8/2009	7.8	1	7.6	7.8
30/9/2009	7.9	2.1	3.5	7.8
23/10/2009	8	0.4	1.1	8.2
20/11/2009	9	1.5	1.3	8

14/12/2009	8.8	2.7	1.6	8
13/1/2010	9.7	1.6	3	7.8
3/2/2010	9.1	2	2.1	8.4
24/3/2010	9.1	1.2	2.1	8.5
23/4/2010	8.7	0.6	1.5	8.4
14/5/2010	8.3	1.3	1.2	7.8
10/6/2010	8	10.2	14	7.9
21/7/2010	7.4	2	1	7.6
16/8/2010	7.8	8.4	13	8.1
15/9/2010	7.9	4.3	1.7	7.6
13/10/2010	8.1	2.5	0.9	7.9
19/11/2010	8.6	1.2	1.1	7.9
13/12/2010	8.8	1.5	1.9	8.6
17/1/2011	10	3	0.6	8.1
9/2/2011	9.3	1.5	1.8	8.2
9/3/2011	9.3	1.8	<0.5	8
14/4/2011	8.7	2	2	7.7
19/5/2011	8.3	0.4	0.6	7.8
2/6/2011	8.2	2.8	2.1	7.8
21/7/2011	7.8	2.1	1.1	7.7
19/8/2011	7.7	2.8	0.5	7.9
15/9/2011	7.7	5.1	1.6	7.9
20/10/2011	8.2	0.9	0.8	7.8
17/11/2011	8.3	10.7	30	4.5
15/12/2011	8.8	0.4	<0.5	8.1
9/1/2012	9.6	0.9	0.9	8.3
17/2/2012	9.6	1.8	3.3	8.4
9/3/2012	9.1	4.5	5.6	7.7
25/4/2012	8.3	0.9	1.4	8.2
25/5/2012	8	0.3	1.2	7.8
15/6/2012	7.9	1.8	0.6	7.8
6/7/2012	7.8	0.3	1	8
24/8/2012	7.8	0.8	0.6	7.8
6/9/2012	7.8	3.1	1.3	8
22/10/2012	8.1	0.2	<0.5	7.7
29/11/2012	8.8	1.9	<0.5	7.9
13/12/2012	9.1	0.3	<0.5	7.9
18/1/2013	9.8	0.6	0.5	7.9
21/2/2013	9.2	0.2	1.3	7.5
15/3/2013	9	0.4	<0.5	7.4
19/4/2013	8.6	1.7	4.2	7.8
30/5/2013	8.2	1.4	1	7.5
6/6/2013	8	1.6	1.5	7.7
18/7/2013	7.9	1.8	1.5	7.5
19/8/2013	8	1.3	1.5	7.5
18/9/2013	8.1	2.3	0.6	7.9
21/10/2013	8.2	1	0.6	7.7
14/11/2013	8.5	1	0.8	7.5
9/12/2013	9	4.6	26	7.4
10/1/2014	9.4	1.5	0.8	7.6
20/2/2014	9.9	12.2	41	9.2
20/3/2014	9.2	21.6	110	8.1
23/4/2014	8.4	2.1	1.8	7.7
26/5/2014	8.2	2.4	4.7	7.3
18/6/2014	7.9	10.6	7	7.4
14/7/2014	7.8	5.5	5.7	8.1
15/8/2014	8.1	5	6.8	8.9
15/9/2014	7.7	3.5	1.6	7.9
17/10/2014	8.2	7.5	7.9	8.8
20/11/2014	8.6	6.1	11	9.7
12/12/2014	9	5	23	11.4

9.10 After analyzed the distributions of the ten years data from the above, median of DO, Turbidity, SS and pH for dry season and wet season are used to calculate their variations to eliminate the effect of the lowest and the highest values. The variations for 4 parameters between dry season and wet season variation are calculated by equation (eqt. 9.1)

Variation = (Dry Season – Wet Season) / Dry Season (eqt. 9.1)

9.11 According to EP no.: EP-303/2008 - South-East New Territories Landfill Extension, dry season should be defined from October to April; and the wet season should be defined from May to September. The data from October to April are used for the calculation of dry season; the data from May to September are used for the calculation of wet season. Total 2 sets of results of each parameter are calculated for comparison. Both median and mean of each parameter have been calculated for 10 years data - from Year 2005 to 2014. The results can refer to Tables 20 - 23.

Table 20 - DO Variation between Dry Season and Wet Season
from 2005 to 2014 at Station TR20B, Tin Sum Nullah

Collected Data	DO (mg/L)	Wet Season	Dry Season	Variation
Year 2005-2014	Median	7.90	8.85	10.73%
Year 2005-2014	Mean	7.93	8.91	**10.98%**

9.12 From the results in Table 20, the highest variation value of 10.98% is used to enhance the effect of applying the variation. By applying the variation (10.98%) to the baseline data, a revised set of Action/Limit level for wet season is calculated by equation (eqt. 9.2) and the result are shown in Table 21.

$$\text{Revised Level} = \text{Original Level} \times (1 - \text{highest variation value}) \quad \text{(eqt. 9.2)}$$

Table 21 - New Set of Action/Limit Level of DO by Using the Calculated Variation (10.98%)

Monitoring Station	Original Level (Dry Season)		Revised Level (Wet Season)	
	Action Level	Limit Level	Action Level	Limit Level
C1	7.51	7.44	6.69	6.62
C2	8.10	7.98	7.21	7.10
C3	N/A	N/A	N/A	N/A
M1	8.90	8.89	7.92	7.91
M2	8.92	8.91	7.94	7.93
M3	9.16	9.15	8.15	8.15

Table 22 - Suspended Solid (SS) Variation between Dry Season and Wet Season from 2005 to 2014 at Station TR20B, Tin Sum Nullah

Collected Data	SS (mg/L)	Wet Season	Dry Season	Variation
Year 2005-2014	Median	1.60	1.65	3.03%
Year 2005-2014	Mean	4.34	5.72	**24.03%**

9.13 From the results in Table 22, the highest variation value of 24.03% is used to enhance the effect of applying the variation. By applying the variation (24.03%) to the baseline data, a revised set of Action/Limit level is calculated by equation (eqt. 9.2) and the result are shown in Table 23.

Table 23 - New Set of Action/Limit Level of SS by Using the Calculated Variation (24.03%)

Monitoring Station	Original Level (Dry Season)		Revised Level (Wet Season)	
	Action Level	Limit Level	Action Level	Limit Level
C1	5.52	8.86	4.19	6.73
C2	5.70	10.74	4.33	8.16
C3	N/A	N/A	N/A	N/A
M1	4.35	4.68	3.30	3.56
M2	24.80	35.27	18.84	26.80
M3	1.20	1.20	1.00*	1.00*

Remark: According to the analytical method APHA 2540D, the detection limit for suspended solids (SS) is 1mg/L.

Table 24 - Turbidity Variation between Dry Season and Wet Season from 2005 to 2014 at Station TR20B, Tin Sum Nullah

Collected Data	Turbidity (mg/L)	Wet Season	Dry Season	Variation
Year 2005-2014	Median	1.85	1.5	**-23.33%**
Year 2005-2014	Mean	2.89	2.55	-13.21%

9.14 From the results in Table 24, the highest variation value of -23.33% is used to enhance the effect of applying the variation. By applying the variation (-23.33%) to the baseline data, a revised set of Action/Limit level for wet season is calculated by equation (eqt.9.2) and the result are shown in Table 25.

Table 25 - New Set of Action/Limit Level of Turbidity by Using the Calculated Variation (-23.33%)

Monitoring Station	Original Level (Dry Season)		Revised Level (Wet Season)	
	Action Level	Limit Level	Action Level	Limit Level
C1	3.99	4.00	4.92	4.93
C2	3.13	3.28	3.86	4.05
C3	N/A	N/A	N/A	N/A
M1	4.36	4.48	5.38	5.53
M2	12.64	13.72	15.59	16.92
M3	1.10	1.18	1.36	1.46

Table 26 - pH Variation between Dry Season and Wet Season
from 2005 to 2014 at Station TR20B, Tin Sum Nullah

Collected Data	pH	Wet Season	Dry Season	Variation
Year 2005-2014	Median	7.80	8.05	3.11%
Year 2005-2014	Mean	7.74	8.05	**3.93%**

9.15 From the results in Table 26, the highest variation value of 3.93% is used to enhance the effect of applying the variation. By applying the variation (3.93%) to the baseline data, a revised set of Action/Limit level is calculated by equation (eqt. 9.2) and the result are shown in Table 27.

Table 27 - New Set of Action/Limit Level of pH by Using the Calculated Variation (3.93%)

Monitoring Station	Original Level (Dry Season)		Revised Level (Wet Season)	
	Action Level	Limit Level	Action Level	Limit Level
C1	Beyond the range 6.6 to 8.2	Beyond the range 6.5 to 8.3	Beyond the range 6.3 to 7.9	Beyond the range 6.2 to 8.0
C2	Beyond the range 6.6 to 9.2	Beyond the range 6.5 to 9.3	Beyond the range 6.3 to 8.8	Beyond the range 6.2 to 8.9
C3	N/A	N/A	N/A	N/A
M1	Beyond the range 6.6 to 8.5	Beyond the range 6.5 to 8.6	Beyond the range 6.3 to 8.2	Beyond the range 6.2 to 8.3
M2	Beyond the range 6.6 to 11.4	Beyond the range 6.5 to 11.5	Beyond the range 6.3 to 11.0	Beyond the range 6.2 to 11.0
M3	Beyond the range 6.6 to 9.0	Beyond the range 6.5 to 9.1	Beyond the range 6.3 to 8.6	Beyond the range 6.2 to 8.7

9.16 Based on the above baseline water quality monitoring results for dry season and wet season, the proposed Action and Limit Levels for 4 parameters are summarized in table below:

Table 28 - Recommended Action and Limit Levels of Water Quality Monitoring

Water monitoring station	Dissolved Oxygen (DO) (mg/L)		Suspended Solids (SS) (mg/L)		Turbidity (NTU)		pH	
	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level
C1	7.51	7.44	4.19	6.73	3.99	4.00	Beyond the range 6.6 to 7.9	Beyond the range 6.5 to 8.0
C2	8.10	7.98	4.33	8.16	3.13	3.28	Beyond the range 6.6 to 8.8	Beyond the range 6.5 to 8.9
C3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M1	8.90	8.89	3.30	3.56	4.36	4.48	Beyond the range 6.6 to 8.2	Beyond the range 6.5 to 8.3
M2	8.92	8.91	18.84	26.80	12.64	13.72	Beyond the range 6.6 to 11.0	Beyond the range 6.5 to 11.0
M3	9.16	9.15	1.00	1.00	1.10	1.18	Beyond the range 6.6 to 8.6	Beyond the range 6.5 to 8.7

Remarks: *1. For DO, non-compliance of the water quality limits occurs when monitoring result of either one of the surface, middle or bottom DO is lower than the limits.*
2. For pH, action should be taken if the measured pH falls outside the specified range.
3. The proposed Action/Limit Levels of Turbidity and SS are adopted to be used 95%-ile /99%-ile of baseline data.
4. C3 was recorded dry throughout the sampling period.

9.17 In cases where exceedance of these criteria occurs, actions should be carried out in accordance with the Event Action Plan in the approved EM&A Manual as shown in Appendix K.

10. CONCLUSIONS

10.1 The baseline monitoring program of continuous air and noise were conducted from 21 December 2015 to 3 January 2016. Baseline monitoring on water quality conducted from 15 December 2015 to 8 January 2016 at the designated monitoring stations in accordance with the approved EM&A Manual and the approved EM&A Methodology - Proposed EM&A Programme for Baseline and Impact Monitoring. During the baseline monitoring period, no construction activities under the Project were observed. It was however the proposed project area closes to the construction site of Sha Tin to Central Link (SCL) for Hin Keng to Diamond Hill Tunnel and the existing railway for MTR corporation; and these non-project related construction activities in the vicinity of the monitoring stations during the baseline monitoring of noise and air quality had been noted and the source and location of these activities had been recorded.

10.2 General meteorological conditions (wind speed, direction and precipitation) and notes regarding any significant adjacent dust producing sources had been recorded throughout the baseline monitoring period of air quality.

10.3 Based on the baseline monitoring results, the recommended environmental performance criteria for monitoring of air quality and noise during construction phase are summarized as follows:

Table 29 - Recommended Action and Limit Levels of Air Quality Monitoring

Monitoring Location	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
	1-Hour	1-Hour
AM1	357	500
AM2	334	500

Table 30 - Recommended Action and Limit Levels of Noise Monitoring

Monitoring Location	Action Level	Limit Level in dB(A)
	0700-1900 Hours on Normal Weekdays	
NM1	When one documented complaint is received	For domestic premises: 75 dB(A) for NM1 & NM2
NM2		
NM3		For schools: 70 dB(A) during normal teaching periods and 65 dB(A) during examination periods for NM3

10.4 For the baseline monitoring of water quality, seasonal change had been considered and the variation of 4 parameters between wet season and dry season had been applied. The Action/Limit Level criteria have been adjusted based on the baseline monitoring results so as to reflect the conditions of local river water quality and for the monitoring of the water quality. The recommended environmental performance criteria for water quality during construction phase are summarized as below:

Table 31 - Recommended Action and Limit Levels of Water Quality Monitoring

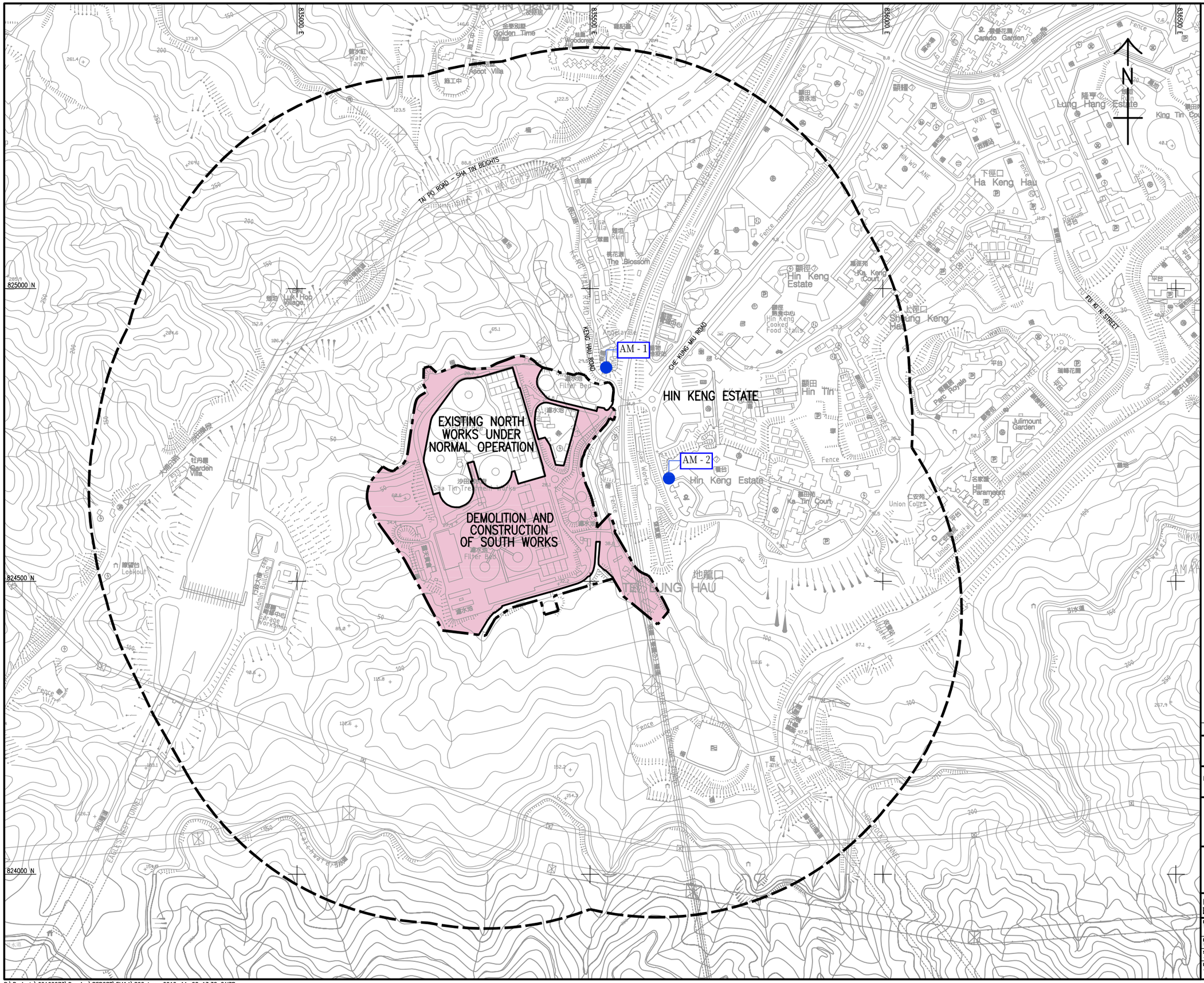
Water monitoring station	Dissolved Oxygen (DO) (mg/L)		Suspended Solids (SS) (mg/L)		Turbidity (NTU)		pH	
	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level	Action Level	Limit Level
C1	7.51	7.44	4.19	6.73	3.99	4.00	Beyond the range 6.6 to 7.9	Beyond the range 6.5 to 8.0
C2	8.10	7.98	4.33	8.16	3.13	3.28	Beyond the range 6.6 to 8.8	Beyond the range 6.5 to 8.9
C3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
M1	8.90	8.89	3.30	3.56	4.36	4.48	Beyond the range 6.6 to 8.2	Beyond the range 6.5 to 8.3
M2	8.92	8.91	18.84	26.80	12.64	13.72	Beyond the range 6.6 to 11.0	Beyond the range 6.5 to 11.0
M3	9.16	9.15	1.00	1.00	1.10	1.18	Beyond the range 6.6 to 8.6	Beyond the range 6.5 to 8.7

Remarks: *1. For DO, non-compliance of the water quality limits occurs when monitoring result of either one of the surface, middle or bottom DO is lower than the limits.*
2. For pH, action should be taken if the measured pH falls outside the specified range.
3. The proposed Action/Limit Levels of Turbidity and SS are adopted to be used 95%-ile / 99%-ile of baseline data.
4. C3 was recorded dry throughout the sampling period.

10.5 Review of the baseline conditions may need to be conducted regularly if the changes in baseline conditions are evident. The environmental performance criteria should be re-established by agreement of the Engineer Representative and IEC and submit to EPD for endorsement.

10.6 According to the approved EM&A Manual, two and three monitoring stations were identified for the impacts monitoring of air quality and noise during construction phase, with locations shown in Appendices A and B respectively. For water quality impact monitoring, 3 control stations C1, C2 and C3 were identified which were located at the upstream and downstream of the works area. Moreover, one more impact station (M3) along the same water course was introduced due to the concern on multiple site effect in particular to address the potential impact to M2 from a source at upstream water course, so as to make it totally three monitoring stations with locations shown in Appendix C.

Appendix A
Location Plan of Air Quality Monitoring Station



REV. 修訂 | DESCRIPTION 內容摘要 | BY 由 | CHECKED 核准 | DATE 日期

水 務 署
WATER SUPPLIES DEPARTMENT

AGREEMENT NO. CE 13/2009 (WS)
IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS-SOUTH WORKS
DESIGN AND CONSTRUCTION

LOCATIONS OF PROPOSED DUST MONITORING STATIONS

AECOM

DRG.NO. 圖紙編號 60162073/EM&A/FIG 3

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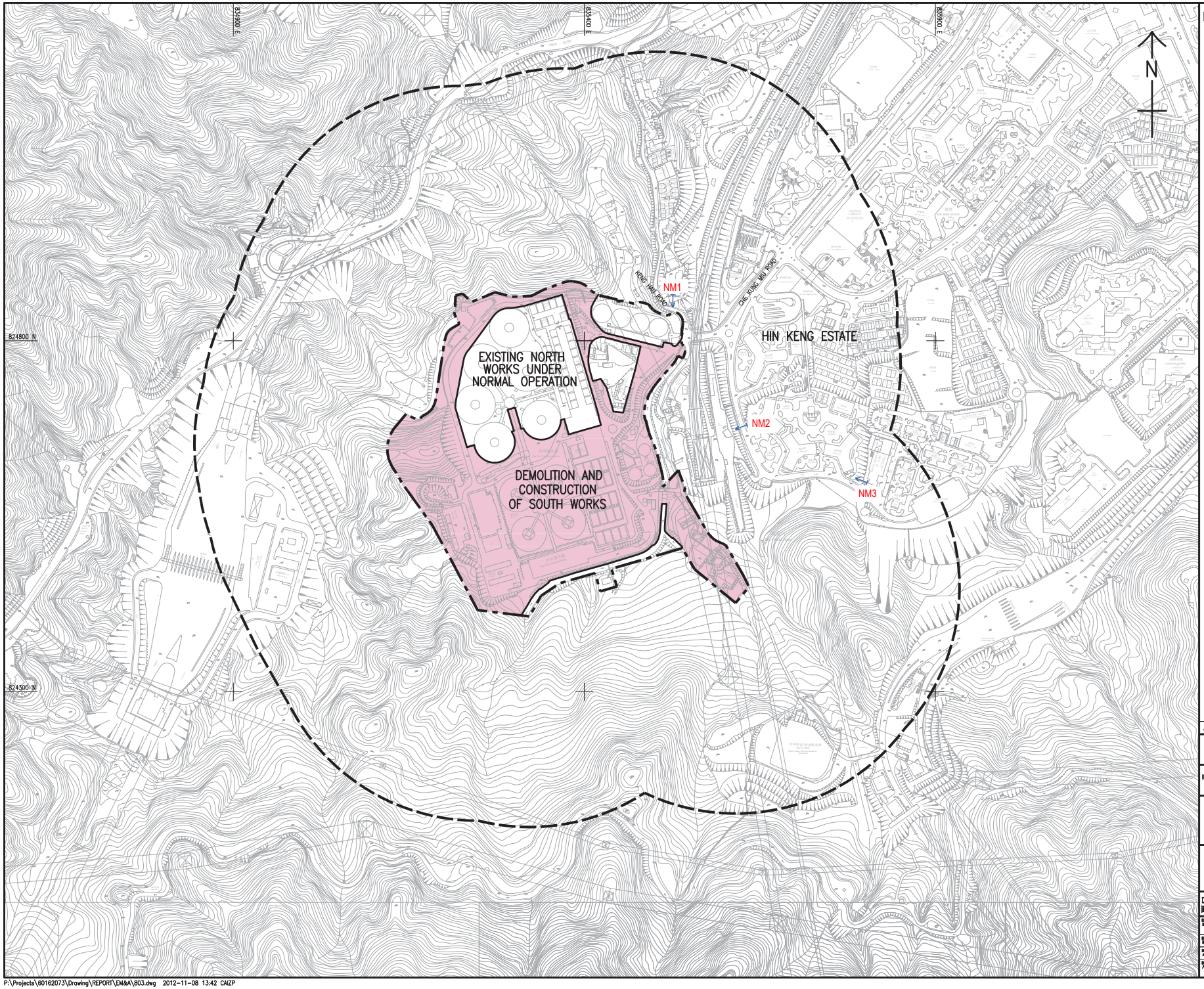
Appendix B
Location Plan of Noise Monitoring Station



LEGEND:

- SITE BOUNDARY OF SHA TIN WATER TREATMENT WORKS
- 300m STUDY AREA
- WORKS AREA
- NM1 — THE L LOUEY (SOUTH)
- NM2 — HIN KENG ESTATE – HIN WAN HOUSE
- NM3 — CUHKFAA THOMAS CHEUNG SCHOOL

REV. 修訂	DESCRIPTION 內容摘要	BY 由	CHECKED 核查	DATE 日期

水務署
WATER SUPPLIES DEPARTMENT

AGREEMENT NO. CE 13/2009 (WS)
IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS – SOUTH WORKS
DESIGN AND CONSTRUCTION

LOCATIONS OF PROPOSED NOISE MONITORING STATIONS

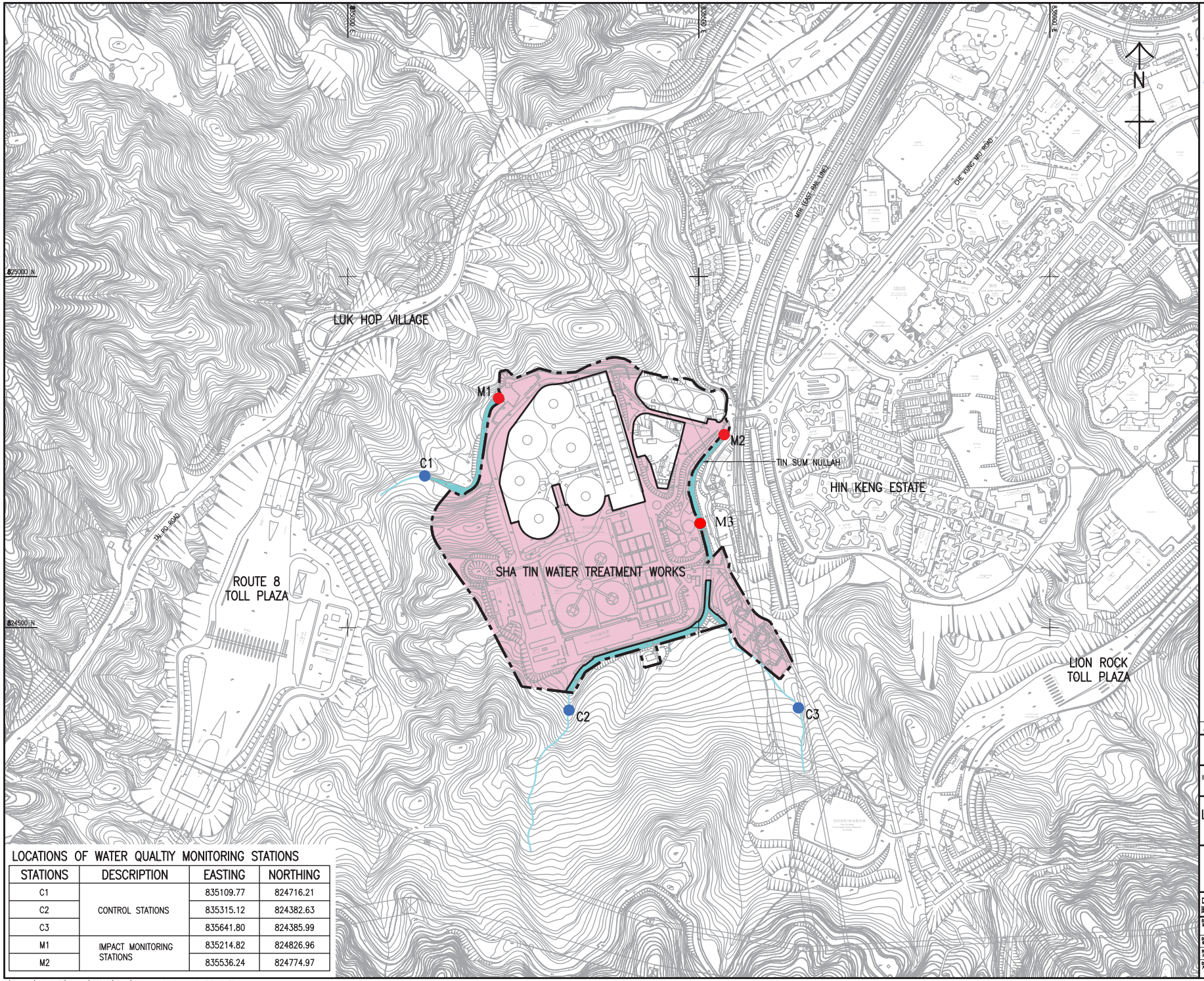
AECOM

DRG. NO. 圖表編號: 60162073/EM&A/FIG 4

DESIGNED BY 設計	CONTRACT NO. 合約編號	P. IN CHARGE 負責人
DRAWN BY 繪圖 NHP	STATUS 狀況	
SCALE 比例 A3 1 : 5000		
DIMENSIONS ARE IN 尺寸單位 METRES	© COPYRIGHT RESERVED 版權所有	

P:\Projects\60162073\Drawing\REPORT\EM&A\803.dwg 2012-11-08 13:42 CAIZP

Appendix C
Location Plan of Water Quality Monitoring Station



LEGEND:

- SITE BOUNDARY OF SHATIN WATER TREATMENT WORKS
- WORKS AREA
- INLAND WATER COURSE
- IMPACT MONITORING STATION
- CONTROL STATION

LOCATIONS OF WATER QUALTIY MONITORING STATIONS

STATIONS	DESCRIPTION	EASTING	NORTHING
C1	CONTROL STATIONS	835109.77	824716.21
C2		835315.12	824382.63
C3		835641.80	824385.99
M1	IMPACT MONITORING STATIONS	835214.82	824826.96
M2		835536.24	824774.97

水務署
WATER SUPPLIES DEPARTMENT

AGREEMENT NO. CE 13/2009 (WS)
IN-SITU REPROVISIONING OF SHA TIN WATER TREATMENT WORKS-SOUTH WORKS
DESIGN AND CONSTRUCTION

LOCATIONS OF PROPOSED WATER QUALITY MONITORING STATIONS

AECOM

DRG.NO. 60162073/EM&A/FIG 5

DESIGNED BY: _
DRAWN BY: DXL
SCALE: A3 1 : 5000
DIMENSIONS ARE IN: METRES

P:\Projects\60162073\Drawing\REPORT\EM&A\801.dwg 2012-11-08 13:39 CAIZP

Appendix D
Calibration Certificates
(Air Monitoring)

CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

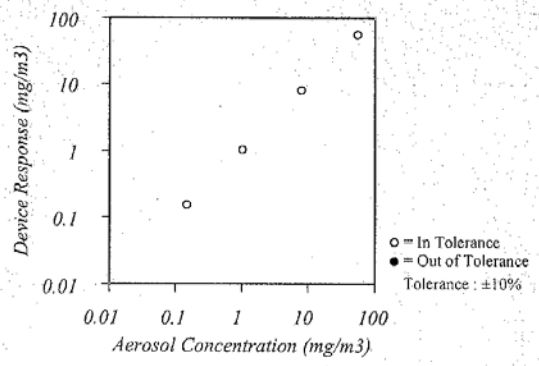
Environment Condition		
Temperature	74.4 (23.6)	°F (°C)
Relative Humidity	42	%RH
Barometric Pressure	29.02 (982.7)	inHg (hPa)

Model	**8532**
Serial Number	**8532114409**

☒ As Left ☐ As Found

☒ In Tolerance ☐ Out of Tolerance

Concentration Linearity Plot



System ID: DTI101-02

FLOW AND PRESSURE VERIFICATION — **SYSTEM DTI101-02**

Parameter	Standard	Measured	Allowable Range	Parameter	Standard	Measured	Allowable Range
Flow lpm	3.1	3.0	2.94 ~ 3.25	Pressure kPa	98.4	98.4	93.48 ~ 103.32

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1

Measurement Variable	System ID	Last Cal.	Cal. Due
Temp/Humidity	E005409	04-16-15	04-16-16
DC Voltage	E003314	12-18-14	12-18-15
Photometer	E003319	02-02-15	08-02-15
1 um PSL	655458	n/a	n/a
10 um PSL	42808	n/a	n/a
Flowmeter	E002471	04-29-15	04-29-16

Measurement Variable	System ID	Last Cal.	Cal. Due
Temp/Humidity	E005410	04-17-15	04-17-16
DC Voltage	E003315	12-18-14	12-18-15
Microbalance	M001324	01-05-15	01-05-17
3 um PSL	43042	n/a	n/a
Pressure	E003511	10-27-14	10-27-15

Calibrated

June 15, 2015
Date

TSI P/N 2300157

Appendix E
Calibration Certificates (Noise)

The Government of
The Hong Kong Special Administrative Region
Standards and Calibration Laboratory
香港特別行政區政府標準及校正實驗所

Certificate of Calibration
校正證書

Certificate No. PA150109 **Page** 1 of 21 pages
證書編號 第 頁 (共 頁)

Customer / 客戶	**Acumen Environmental Engineering & Technologies Co. Ltd.** **Lot 11, Tam Kon Shan Road,** **Tsing Yi (N),** **Hong Kong**
Equipment / 儀器	
Description / 名稱	**Sound Level Meter**
Make / 製造商	**Pulsar**
Model / 型號	**95**
Serial No. / 序號	**B22507**
Date of Receipt / 收件日期	**10 July 2015**
Test Environment / 測試環境	
Temperature / 溫度	**(23 ± 1) °C**
Relative Humidity / 相對濕度	**(45 ± 8) %**
Air Pressure / 氣壓	**(98.7 to 98.9) kPa**
Date of Test / 測試日期	**13 July 2015**

Test Specifications / 測試規格

To calibrate the Sound Level Meter in accordance with the International Standard IEC 61672-3 : 2006

Test Results / 測試結果

The results are detailed in the continuation pages.

Approved Signatory Lam Hoi Shan **Date:** 15 July 2015
批簽 日期

Hong Kong Accreditation Service (HKAS) has accredited this laboratory (HOKLAS 051 - CAL) under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories. The results shown in this certificate are metrologically traceable to the International System of Units (S.I.) or recognised measurement standards.
香港認可局已根據香港實驗所認可計劃，認可本實驗所 (HOKLAS 051 - CAL) 執行（認可實驗所所名冊）內載明的特定活動。本證書所顯示的測量結果可追溯至國際單位制或認可的量度標準。

Main Laboratory : 36/F, Immigration Tower, 7 Gloucester Road, Wan Chai, Hong Kong. Tel : 2829 4830
Branch Laboratory : G04, Public Works Central Laboratory Building, 2B Cheung Yip Street, Kowloon Bay, Kowloon. Tel : 2798 7347
總所：香港灣仔告士打道 7 號入境事務大樓 36 樓 電話：2829 4830
分所：九龍九龍灣祥業街 2 號 B 工務中央試驗所大樓地下 G4 室 電話：2798 7347

M009179

Certificate of Calibration (Continuation Page)
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1. The test equipment (model Pulsar 95 s/n: B22507) is mounted with a detachable microphone (model Pulsar PM1 s/n: 010760C) through a microphone preamplifier (model Pulsar MV200D s/n: 2217).

2. The test equipment's User Manual for Pulsar Model 90 Quantifier Sound Level Meter (Reference Number 05/09/MODEL 90/01) was provided by the client for calibration use.

3. According to the User Manual, the test equipment conforms with IEC 60651 (1979), IEC 60804 (1985) and IEC 61672-1 (2002) Class 1 or 2 Group X requirements.

4. According to the User Manual, the calibration check frequency and reference sound pressure level of the test equipment are 1 kHz and 94 dB respectively.

5. The test equipment was allowed to stabilise in the laboratory environment at 23 °C and 45 % RH for over 24 hours before the test.

6. The power supply to the instrument under test were two 1.5 V batteries.

Calibrated by : Y.C. Kwan
Date : 13 July 2015

Checked by : H.S. Lam
Date : 14 July 2015

Certificate of Calibration (Continuation Page)
校正證書（續頁）

7. Procedures from IEC 61672-3:2006 were used to perform the calibration, which included the following tests :

7.1 Acoustic Measurements :

(1) Indication at the calibration check frequency

Performance tests were carried out in accordance with Section 9 of IEC 61672-3:2006. At the calibration check frequency and reference sound pressure level, indication of the test equipment was checked and adjusted in accordance with the procedures described in "Calibration Level" section (page 38) of the User Manual. Results obtained before and after the adjustment are presented in Tables 1 and 2.

(2) Acoustical signal tests of a frequency weighting
Relevant tests were carried out in accordance with Section 11 of IEC 61672-3:2006. Measurement results are presented in Table 3.

7.2 Electrical Measurements* :

(1) Self-generated noise
Relevant tests were carried out in accordance with Section 10 of IEC 61672-3:2006. Measurement results are presented in Tables 4 and 5.

(2) Electrical signal tests of frequency weightings
Relevant tests were carried out in accordance with Section 12 of IEC 61672-3:2006. Measurement results are presented in Tables 6 to 8.

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(3) Frequency and time weightings at 1 kHz
Relevant tests were carried out in accordance with Section 13 of IEC 61672-3:2006. Measurement results are presented in Table 9.

(4) Level linearity on the reference level range
Relevant tests were carried out in accordance with Section 14 of IEC 61672-3:2006. Measurement results are presented in Table 10.

(5) Level linearity including the level range control
Relevant tests were carried out in accordance with Section 15 of IEC 61672-3:2006. Measurement results are presented in Table 11.

(6) Toneburst response
Relevant tests were carried out in accordance with Section 16 of IEC 61672-3:2006. Measurement results are presented in Table 12.

(7) Peak C sound level
Relevant tests were carried out in accordance with Section 17 of IEC 61672-3:2006. Measurement results are presented in Table 13.

(8) Overload indication
Relevant tests were carried out in accordance with Section 18 of IEC 61672-3:2006. Measurement results are presented in Table 14.

Note * : Item is not included in the CIPM Classification of Services in Acoustics Ultrasound and Vibration, Version 2.0, and is not supported by CIPM MRA.

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Certificate of Calibration (Continuation Page)
校正證書（續頁）

8. The reported deviations in Tables 1 to 3 and 6 to 13 are defined as:

   Deviation = actual meter reading of the test unit - expected meter reading of the test unit

9. The tolerance limits listed in Tables 3 and 6 to 14 are the applicable requirements, design goals or tolerance limits given in the corresponding tests in IEC 61672-3:2006.

10. The Sound Level Meter submitted for testing has successfully completed the Class 1 periodic tests of IEC 61672-3:2006, for the environmental conditions under which the tests were performed. However, no general statement or conclusion can be made about conformance of the Sound Level Meter to the full requirements of IEC 61672-1:2002 because evidence was not publicly available, from an independent testing organization responsible for pattern approvals, to demonstrate that the model of Sound Level Meter fully conformed to the requirements in IEC 61672-1:2002 and because the periodic tests of IEC 61672-3:2006 cover only a limited subset of the specifications in IEC 61672-1:2002.

11. The measurement uncertainty evaluation has been carried out in accordance with principles in the Evaluation of Measurement Data – Guide to the Expression of Uncertainty in Measurement, JCGM 100:2008. The expanded measurement uncertainty U, with its coverage factor k, corresponds to a 95 % probability that the value of the measurand Y lies within the interval y-U to y+U. The combined standard measurement uncertainty u_c can be calculated as $u_c = U/k$ and its degrees of freedom ν_{eff} is given by the t-distribution with the respective k value.

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校正證書（續頁）

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12. The values given in this Certificate of Calibration only relate to the values measured at the time of the test and any measurement uncertainties quoted will not include allowances for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, or the capability of any other laboratory to repeat the measurement.

13. This certificate is consistent with the capabilities that are included in Appendix C of the MRA drawn up by the CIPM. Under the MRA, all participating institutes recognise the validity of each other's calibration and measurement certificates for the quantities, ranges and measurement uncertainties specified in Appendix C (for details see http://www.bipm.org).

CIPM : International Committee for Weights and Measures
MRA : Mutual Recognition Arrangement

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Date : 13 July 2015

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Date : 14 July 2015

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Table 1

Test Results: Indication at the Calibration Check Frequency
(Before Adjustment)

Test Frequency	Pulsar 95 (1) (2)		Measured Deviation [b]-[a]		
				Measurement Uncertainty	
	Expected Reading (dB) [a]	Meter Reading (dB) [b]	Value *y* (dB)	Expanded Measurement Uncertainty *U* (dB)	Coverage Factor *k*
1 kHz	94.1	94.4	+0.3	0.3	2.0

Notes (1) : Pulsar 95 Settings:
Measurement Range : 40-110 dB
Frequency Weighting : A
Time Weighting : Fast

(2) : Microphone used :
Manufacturer : Pulsar
Type : PM1
Serial No. : 010760C

Calibrated by : Y.C. Kwan
Date : 13 July 2015

Checked by : H.S. Lam
Date : 14 July 2015

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Table 2

Test Results: Indication at the Calibration Check Frequency
(After Adjustment)

Test Frequency	Pulsar 95 (1) (2)		Measured Deviation [b]-[a]		
				Measurement Uncertainty	
	Expected Reading (dB) [a]	Meter Reading (dB) [b]	Value *y* (dB)	Expanded Measurement Uncertainty *U* (dB)	Coverage Factor *k*
1 kHz	94.1	94.1	0.0	0.3	2.0

Notes (1) : Pulsar 95 Settings:
Measurement Range : 40-110 dB
Frequency Weighting : A
Time Weighting : Fast

(2) : Microphone used :
Manufacturer : Pulsar
Type : PM1
Serial No. : 010760C

Calibrated by : Y.C. Kwan
Date : 13 July 2015

Checked by : H.S. Lam
Date : 14 July 2015

Table 3

Test Results: Acoustic Signal Tests at Frequency Weighting C [(1) (2)]

Test Frequency	Expected Frequency Weighting [(3)] (dB) [a]	Measured Frequency Weighting (dB) [b]	Measured Deviation [b]-[a]			Tolerance Limits (dB)
			Value y (dB)	Measurement Uncertainty		
				Expanded Measurement Uncertainty U (dB)	Coverage Factor k	
125 Hz	-0.2	-0.3	-0.1	0.5	2.0	±1.5
1 kHz	0.0	0.0	--	--	--	--
4 kHz	-0.8	-0.3	+0.5	0.5	2.0	±1.6
8 kHz	-3.0	-2.2	+0.8	0.6	2.0	+2.1; -3.1

Notes (1) : Pulsar 95 Settings :
Measurement Range : 40-110 dB
Frequency Weighting : C
Time Weighting : Fast

(2) : Microphone used :
Manufacturer : Pulsar
Type : PM1
Serial No. : 010760C

(3) : Refer to Table 2 of IEC 61672-1 (2002) for 'Expected Frequency Weighting'.

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Date : 13 July 2015

Checked by : H.S. Lam
Date : 14 July 2015

Table 4

Test Results: Self-generated Noise
(With the test equipment's microphone installed)

Pulsar 95 [1][2]		Measurement Uncertainty	
Frequency Weighting	Meter Reading y (dB)	Expanded Measurement Uncertainty U (dB)	Coverage Factor k
A	21.2	0.1	2.0

Notes (1) : Pulsar 95 Settings:
Measurement Range : 10-80 dB
Time Weighting : Slow

(2) : Microphone used :
Manufacturer : Pulsar
Type : PM1
Serial No. : 010760C

Calibrated by : Y.C. Kwan
Date : 13 July 2015

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Date : 14 July 2015

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Table 5

Test Results: Self-generated Noise
(With the test equipment's microphone replaced by the electrical input signal device)

Pulsar 95 (1)		Measurement Uncertainty	
Frequency Weighting	Meter Reading y (dB)	Expanded Measurement Uncertainty U (dB)	Coverage Factor k
A	14.3	0.1	2.0
C	17.2	0.1	2.0
Z	29.4	0.1	2.1

Note (1) : Pulsar 95 Settings:
Measurement Range : 10-80 dB
Time Weighting : Slow

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Certificate of Calibration (Continuation Page)
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Table 6

Test Results: Electrical Signal Tests of Frequency Weighting A

Test Frequency	Pulsar 95 (1)		Measured Deviation [b]-[a]			Tolerance Limits (dB)
				Measurement Uncertainty		
	Expected Reading (dB) [a]	Meter Reading (dB) [b]	Value y (dB)	Expanded Measurement Uncertainty U (dB)	Coverage Factor k	
63 Hz	64.9	64.8	-0.1	0.1	2.0	±1.5
125 Hz	64.9	64.8	-0.1	0.1	2.0	±1.5
250 Hz	64.9	64.8	-0.1	0.1	2.0	±1.4
500 Hz	64.9	64.9	0.0	0.1	2.0	±1.4
1 kHz	64.9	64.9	0.0	0.1	2.0	±1.1
2 kHz	64.9	64.9	0.0	0.1	2.0	±1.6
4 kHz	64.9	64.7	-0.2	0.1	2.0	±1.6
8 kHz	64.9	64.8	-0.1	0.1	2.0	+2.1; -3.1
16 kHz	64.9	65.6	+0.7	0.1	2.0	+3.5; -17.0

Note (1): Pulsar 95 Settings :
Measurement Range : 40-110 dB
Frequency Weighting : A
Time Weighting : Fast

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Date : 14 July 2015

Certificate of Calibration (Continuation Page)
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Table 7

Test Results: Electrical Signal Tests of Frequency Weighting C

Test Frequency	Pulsar 95 (1)		Measured Deviation [b]-[a]			Tolerance Limits (dB)
				Measurement Uncertainty		
	Expected Reading (dB) [a]	Meter Reading (dB) [b]	Value y (dB)	Expanded Measurement Uncertainty U (dB)	Coverage Factor k	
63 Hz	65.0	64.9	-0.1	0.1	2.0	±1.5
125 Hz	65.0	65.0	0.0	0.1	2.0	±1.5
250 Hz	65.0	65.0	0.0	0.1	2.0	±1.4
500 Hz	65.0	65.0	0.0	0.1	2.0	±1.4
1 kHz	65.0	65.0	0.0	0.1	2.0	±1.1
2 kHz	65.0	64.9	-0.1	0.1	2.0	±1.6
4 kHz	65.0	64.7	-0.3	0.1	2.0	±1.6
8 kHz	65.0	64.6	-0.4	0.1	2.0	+2.1; -3.1
16 kHz	65.0	65.2	+0.2	0.1	2.0	+3.5; -17.0

Note (1): Pulsar 95 Settings :
Measurement Range : 40-110 dB
Frequency Weighting : C
Time Weighting : Fast

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Table 8

Test Results: Electrical Signal Tests of Frequency Weighting Z

Test Frequency	Pulsar 95 (1)		Measured Deviation [b]-[a]			Tolerance Limits (dB)
				Measurement Uncertainty		
	Expected Reading (dB) [a]	Meter Reading (dB) [b]	Value y (dB)	Expanded Measurement Uncertainty U (dB)	Coverage Factor k	
63 Hz	65.0	64.9	-0.1	0.1	2.0	±1.5
125 Hz	65.0	65.0	0.0	0.1	2.0	±1.5
250 Hz	65.0	65.0	0.0	0.1	2.0	±1.4
500 Hz	65.0	65.0	0.0	0.1	2.0	±1.4
1 kHz	65.0	65.0	0.0	0.1	2.0	±1.1
2 kHz	65.0	64.9	-0.1	0.1	2.0	±1.6
4 kHz	65.0	64.9	-0.1	0.1	2.0	±1.6
8 kHz	65.0	64.9	-0.1	0.1	2.0	+2.1; -3.1
16 kHz	65.0	65.1	+0.1	0.1	2.0	+3.5; -17.0

Note (1): Pulsar 95 Settings :
Measurement Range : 40-110 dB
Frequency Weighting : Z
Time Weighting : Fast

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Date : 14 July 2015

Certificate of Calibration (Continuation Page)
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Table 9

Test Results: Frequency and Time Weightings at 1 kHz

Pulsar 95			Measured Deviation [b]-[a]			Tolerance Limits (dB)
				Measurement Uncertainty		
Settings (1)	Expected Reading (dB) [a]	Meter Reading (dB) [b]	Value y (dB)	Expanded Measurement Uncertainty U (dB)	Coverage Factor k	
S #1	94.0	94.0	0.0	0.1	2.0	±0.3
S #2	94.0	94.0	0.0	0.1	2.0	±0.4
S #3	94.0	94.0	0.0	0.1	2.0	±0.4
S #4	94.0	94.1	+0.1	0.1	2.0	±0.3

Note (1) : Table for Pulsar 95 Settings :

	S #1	S #2	S #3	S #4
Measurement Range	40-110 dB			
Frequency Weighting	A	C	Z	A
Time Weighting	Slow	Fast	Fast	--
Displayed as	-	-	-	LAeqt

Calibrated by : Y.C. Kwan
Date : 13 July 2015

Checked by : H.S. Lam
Date : 14 July 2015

Certificate of Calibration (Continuation Page)
校正證書（續頁）

Certificate No. PA150109
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Table 10
Test Results: Level Linearity on the Reference Level Range
(Test Frequency : 8 kHz)

Pulsar 95 (1)		Measured Deviation [b]-[a]			Tolerance Limits (dB)
			Measurement Uncertainty		
Expected Reading (dB) [a]	Meter Reading (dB) [b]	Value y (dB)	Expanded Measurement Uncertainty U (dB)	Coverage Factor k	
75.0	75.0	0.0	0.1	2.0	±1.1
80.0	80.0	0.0	0.1	2.0	
85.0	85.0	0.0	0.1	2.0	
90.0	90.0	0.0	0.1	2.0	
95.0	95.1	+0.1	0.1	2.0	
100.0	100.1	+0.1	0.1	2.0	
105.0	105.2	+0.2	0.1	2.0	
106.0	106.2	+0.2	0.1	2.0	
107.0	107.3	+0.3	0.1	2.0	
108.0	108.3	+0.3	0.1	2.0	
109.0	109.3	+0.3	0.1	2.0	
110.0	110.4	+0.4	0.1	2.0	

Note (1): Pulsar 95 Settings :
Measurement Range : 40-110 dB
Frequency Weighting : A
Time Weighting : Fast

Calibrated by : Y.C. Kwan
Date : 13 July 2015

Checked by : H.S. Lam
Date : 14 July 2015

Certificate of Calibration (Continuation Page)
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Table 10 (Cont'd)
Test Results: Level Linearity on the Reference Level Range
(Test Frequency : 8 kHz)

Pulsar 95 (1)		Measured Deviation [b]-[a]			Tolerance Limits (dB)
			Measurement Uncertainty		
Expected Reading (dB) [a]	Meter Reading (dB) [b]	Value y (dB)	Expanded Measurement Uncertainty U (dB)	Coverage Factor k	
70.0	70.0	0.0	0.1	2.0	±1.1
65.0	65.1	+0.1	0.1	2.0	
60.0	60.1	+0.1	0.1	2.0	
55.0	55.2	+0.2	0.1	2.0	
50.0	50.4	+0.4	0.1	2.0	
45.0	45.5	+0.5	0.1	2.0	
44.0	44.7	+0.7	0.1	2.0	
43.0	43.7	+0.7	0.1	2.0	
42.0	42.8	+0.8	0.1	2.0	
41.0	41.8	+0.8	0.1	2.0	
40.0	40.9	+0.9	0.1	2.0	

Note (1): Pulsar 95 Settings :
Measurement Range : 40-110 dB
Frequency Weighting : A
Time Weighting : Fast

Calibrated by : Y.C. Kwan
Date : 13 July 2015

Checked by : H.S. Lam
Date : 14 July 2015

Certificate of Calibration (Continuation Page)
校正證書（續頁）

Certificate No. PA150109
證書編號

Table 11

Test Results: Level Linearity Including the Level Range Control
(Test Frequency : 1 kHz)

Pulsar 95 (1)			Measured Deviation [b]-[a]			Tolerance Limits (dB)
				Measurement Uncertainty		
Measurement Range (dB)	Expected Reading (dB) [a]	Meter Reading (dB) [b]	Value y (dB)	Expanded Measurement Uncertainty U (dB)	Coverage Factor k	
10 – 80	70.0	70.0	0.0	0.1	2.0	±1.1
	75.0	75.0	0.0	0.1	2.0	
20 – 90	70.0	70.0	0.0	0.1	2.0	
	85.0	85.2	+0.2	0.1	2.0	
30 – 100	70.0	70.0	0.0	0.1	2.0	
	95.0	95.2	+0.2	0.1	2.0	
40 – 110	70.0	70.0	0.0	0.1	2.0	
	105.0	105.1	+0.1	0.1	2.0	
50 – 120	70.0	70.1	+0.1	0.1	2.0	
	115.0	115.2	+0.2	0.1	2.0	
60 – 130	70.0	70.3	+0.3	0.1	2.0	
	125.0	125.0	0.0	0.1	2.0	
70 – 140	70.0	71.0	+1.0	0.1	2.0	
	135.0	135.1	+0.1	0.1	2.0	

Note (1) : Pulsar 95 Settings :
Frequency Weighting : A
Time Weighting : Fast

Calibrated by : Y.C. Kwan
Date : 13 July 2015

Checked by : H.S. Lam
Date : 14 July 2015

Certificate of Calibration (Continuation Page)
校正證書（續頁）

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證書編號

Table 12

Test Results: Toneburst Response
(Test Frequency : 4 kHz)

Test Conditions		Pulsar 95			Measured Deviation [b]-[a]			Tolerance Limits (dB)
						Measurement Uncertainty		
Reference Level (dB)	Burst Duration (ms)	Settings (1)	Expected Reading (dB) [a]	Meter Reading (dB) [b]	Value y (dB)	Expanded Measurement Uncertainty U (dB)	Coverage Factor k	
107.0	200	S #1	106.0	106.2	+0.2	0.1	2.0	±0.8
	2		89.0	88.9	-0.1	0.1	2.0	+1.3; -1.8
	0.25		80.0	78.6	-1.4	0.1	2.0	+1.3; -3.3
107.0	200	S #2	99.6	99.9	+0.3	0.1	2.0	±0.8
	2		80.0	78.8	-1.2	0.1	2.0	+1.3; -3.3
107.0	200	S #3	82.2	82.3	+0.1	0.1	2.0	±0.8
	2		62.2	62.4	+0.2	0.1	2.0	+1.3; -1.8
	0.25		53.2	53.3	+0.1	0.1	2.0	+1.3; -3.3

Note (1) : Table for Pulsar 95 Settings:

	S #1	S #2	S #3
Measurement Range	40-110 dB		
Frequency Weighting	A	A	A
Time Weighting	Fast	Slow	--
Displayed as	LAFmax	LASmax	LAeqt
Integration Time	--	--	60 s

Calibrated by : Y.C. Kwan
Date : 13 July 2015

Checked by : H.S. Lam
Date : 14 July 2015

Certificate of Calibration (Continuation Page)
校正證書（續頁）

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Table 13

Test Results: Peak C Sound Level

Test Conditions		Pulsar 95 (1)		Measured Deviation [b]-[a]			Tolerance Limits (dB)
					Measurement Uncertainty		
Test Signal	Reference Level (dB)	Expected Reading (dB) [a]	Meter Reading (dB) [b]	Value y (dB)	Expanded Measurement Uncertainty U (dB)	Coverage Factor k	
8 kHz, one-complete cycle	132.1	135.5	136.6	+1.1	0.1	2.0	±2.4
500 Hz, positive half-cycle	132.0	134.4	135.4	+1.0	0.1	2.0	±1.4
500 Hz, negative half-cycle	132.0	134.4	135.4	+1.0	0.1	2.0	±1.4

Note (1) : Pulsar 95 Settings :
Measurement Range: 70-140 dB
Frequency Weighting : C
Displayed as : LCpeak

Calibrated by : Y.C. Kwan
Date : 13 July 2015

Checked by : H.S. Lam
Date : 14 July 2015

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Certificate of Calibration (Continuation Page)
校正證書（續頁）

Table 14

Test Results: Overload Indication

Test Level that First Caused an Overload Indication on Pulsar 95 [1] (dB)		Measured Difference between the Levels of Positive and Negative One-half-cycle Test Signals that First Caused an Overload Indication			Tolerance Limits (dB)
			Measurement Uncertainty		
At 4 kHz, positive one-half-cycle [a]	At 4 kHz, negative one-half-cycle [b]	Value y (dB) [b]-[a]	Expanded Measurement Uncertainty U (dB)	Coverage Factor k	
140.3	139.7	-0.6	0.1	2.0	±1.8

Note (1) : Pulsar 95 Settings :
Measurement Range : 70-140 dB
Frequency Weighting : A
Displayed as : LAeqt

- END -

Calibrated by : Y.C. Kwan
Date : 13 July 2015

Checked by : H.S. Lam
Date : 14 July 2015

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Certificate of Calibration
校正證書

Certificate No. PA150054 **Page** 1 **of** 6 **pages**
證書編號 **第** 頁 **(共** 頁**)**

Customer / 客戶	**Acumen Environmental Engineering & Technologies Co. Ltd.** **Lot 11, Tam Kon Shan Road,** **Tsing Yi (N),** **Hong Kong**
Equipment / 儀器	
Description / 名稱	**Sound Calibrator**
Make / 製造商	**Pulsar**
Model / 型號	**105**
Serial No. / 序號	**63705**
Date of Receipt / 收件日期	**17 April 2015**
Test Environment / 測試環境	
Temperature / 溫度	**(23 ± 1) °C**
Relative Humidity / 相對濕度	**(45 ± 8) %**
Air Pressure / 氣壓	**99.4 kPa**
Date of Test / 測試日期	**20 April 2015**

Test Specifications / 測試規格

Calibrate the sound pressure level, frequency and total distortion of the acoustical calibrator at 94 dB.

Test Results / 測試結果

The results are detailed in the continuation pages.

Approved Signatory **Lam Hoi Shan** **Date:** **22 April 2015**
批簽 **日期**

Main Laboratory : 36/F, Immigration Tower, 7 Gloucester Road, Wan Chai, Hong Kong. Tel : 2829 4830
Branch Laboratory : G04, Public Works Central Laboratory Building, 2B Cheung Yip Street, Kowloon Bay, Kowloon. Tel : 2798 7347
總所：香港灣仔告士打道 7 號入境事務大樓 36 樓 電話：2829 4830
分所：九龍九龍灣祥業街 2 號 R 工務中央試驗所大樓地下 G4 室 電話：2798 7347

M008850

Certificate of Calibration (Continuation Page)
校正證書（續頁）

Certificate No. PA150054
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1. The test equipment was allowed to stabilise in the laboratory environment at 23 °C and 45 % RH for over 24 hours before the test.

2. The power supply to the instrument under test was one 9 V battery.

3. Procedures from IEC 60942 : 2003 Annex B were used to perform the calibration, which included the following tests :

   (1) Sound pressure level

   Performance tests were carried out in accordance with Section B.3.4 of IEC 60942 : 2003. The sound pressure level generated by the Pulsar 105 was measured by a laboratory B & K 4180 standard microphone. Measurement results are presented in Table 1.

   (2) Frequency

   Relevant tests were carried out in accordance with Section B.3.5 of IEC 60942 : 2003. The frequency of the acoustic signal was measured by a frequency counter. Measurement results are presented in Table 2.

   (3) Total distortion

   Relevant tests were carried out in accordance with B.3.6 of IEC 60942 : 2003. The distortion of the acoustic signal was measured by a distortion meter. Measurement results are presented in Table 3.

4. No adjustment was made to the instrument under test.

Calibrated by : C.H. Au
Date : 20 April 2015

Checked by : H.S. Lam
Date : 21 April 2015

Certificate of Calibration (Continuation Page)
校正證書（續頁）

5. The Sound Calibrator has been shown to conform to the class 1 requirements for periodic testing, described in Annex B of IEC 60942 : 2003 for the sound pressure level, frequency and total distortion stated, for the environmental conditions under which the tests were performed. However, as public evidence was not available, from a testing organization responsible for pattern approval, to demonstrate that the model of sound calibrator conformed to the requirements for pattern evaluation described in Annex A of IEC 60942 : 2003, no general statement or conclusion can be made about conformance of the sound calibrator to the requirements of IEC 60942 : 2003.

6. The measurement uncertainty evaluation has been carried out in accordance with principles in the Evaluation of Measurement Data – Guide to the Expression of Uncertainty in Measurement, JCGM 100:2008. The expanded measurement uncertainty U, with its coverage factor k, corresponds to a 95 % probability that the value of the measurand Y lies within the interval y-U to y+U. The combined standard measurement uncertainty u_c can be calculated as $u_c = U/k$ and its degrees of freedom ν_{eff} is given by the t-distribution with the respective k value.

7. The values given in this Certificate of Calibration only relate to the values measured at the time of the test and any measurement uncertainties quoted will not include allowances for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, or the capability of any other laboratory to repeat the measurement.

8. This certificate is consistent with the capabilities that are included in Appendix C of the MRA drawn up by the CIPM. Under the MRA, all participating institutes recognise the validity of each other's calibration and measurement certificates for the quantities, ranges and measurement uncertainties specified in Appendix C (for details see http://www.bipm.org).

CIPM : International Committee for Weights and Measures
MRA : Mutual Recognition Arrangement

Calibrated by : C.H. Au
Date : 20 April 2015

Checked by : H.S. Lam
Date : 21 April 2015

The Government of
The Hong Kong Special Administrative Region
Standards and Calibration Laboratory
香港特別行政區政府標準及校正實驗所

Certificate of Calibration (Continuation Page)
校正證書（續頁）

Certificate No. PA150054
證書編號

Table 1

Sound Pressure Level Test Results

Pulsar 105 Sound Pressure Level Setting	Measured Sound Pressure Level[1]		
		Measurement Uncertainty	
	Value y	Expanded Measurement Uncertainty U	Coverage Factor k
94 dB	93.84 dB	0.06 dB	2.0

Note (1) : Measurement results at measurement conditions were corrected to the following reference conditions :

Temperature : 23 °C
Humidity : 50 % RH
Pressure : 101.325 kPa

Calibrated by : C.H. Au
Date : 20 April 2015

Checked by : H.S. Lam
Date : 21 April 2015

Certificate of Calibration (Continuation Page)
校正證書（續頁）

Table 2

Frequency Test Results[1]

Pulsar 105 Sound Pressure Level Setting	Measured Frequency		
		Measurement Uncertainty	
	Value *y*	Expanded Measurement Uncertainty *U*	Coverage Factor *k*
94 dB	1 000.319 Hz	0.010 Hz	2.0

Note (1) : Items not supported by CIPM MRA.

Calibrated by : C.H. Au
Date : 20 April 2015

Checked by : H.S. Lam
Date : 21 April 2015

Certificate of Calibration (Continuation Page)
校正證書（續頁）

Table 3

Total Distortion Test Results[1]

Pulsar 105 Sound Pressure Level Setting	Measured Total Distortion		
		Measurement Uncertainty	
	Value y	Expanded Measurement Uncertainty U	Coverage Factor k
94 dB	0.2 %	0.5 %	2.0

Note (1) : Items not supported by CIPM MRA.

- END -

Calibrated by : C.H. Au
Date : 20 April 2015

Checked by : H.S. Lam
Date : 21 April 2015

Appendix F
Calibration Certificate (Water Quality)

Acumen Laboratory and Testing Ltd.

Lot 12, Tam Kon Shan Road, Tsing Yi (N), Hong Kong
Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Job Number : CJO-3113

Completion Date : 11/12/2015

Client Information

Company/ Organization : Acumen Environmental Engineering and Technologies Co. Ltd.

Address : No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.

Project Name : CJO-3113-01

Sample Description : Certificate of Reference Check

Test Information

Laboratory ID : R150211/1-5

Item : YSI ProDSS Multi-parameter Water Quality Monitoring System

Serial No. : 14L103139

Receive Date : 10/12/2015

Test Period : 11/12/2015-11/12/2015

Test Result : The results are presented on page 2

Authorized Signature: 

Hui Wai Fung, Huntington
Laboratory Manager
Chemical Division

Acumen Laboratory and Testing Ltd.

Lot 12, Tam Kon Shan Road, Tsing Yi (N), Hong Kong
Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Job Number : CJO-3113

Completion Date : 11/12/2015

Test Result:

pH

Reference Reading	Recorded Reading
4.00	4.05
7.00	7.09
10.00	10.1
Allowing Deviation	±0.2 unit

Testing Method: APHA 4500-H*B

Temperature

Reference Reading	Recorded Reading
26.5℃	26.8℃
30.6℃	31.0℃
Allowing Deviation	±2.0℃

Testing Method: In-house method

Turbidity

Reference Reading	Recorded Reading
0.0NTU	0.0NTU
4.0NTU	4.0NTU
10.0NTU	9.9NTU
20.0NTU	20.1NTU
50.0NTU	49.8NTU
100NTU	100NTU
Allowing Deviation	±10%

Testing Method: APHA 2130B

Turbidity

Reference Reading	Recorded Reading
5.50mg/L	5.45mg/L
7.80mg/L	7.76mg/L
9.30mg/L	9.27mg/L
Allowing Deviation	±0.2mg/L

Testing Method: APHA 4500-OC & G

----------End of Report----------

Appendix G
The Certification of Laboratory with HOKLAS accredited Analytical Tests

Hong Kong Accreditation Service
香港認可處

Certificate of Accreditation
認可證書

This is to certify that
特此證明

ACUMEN LABORATORY AND TESTING LIMITED
浩科檢測中心有限公司

Lot 12, Tam Kon Shan Road, North Tsing Yi, New Territories, Hong Kong
香港新界青衣北担杆山路12路段

has been accepted by the HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a
在認可諮詢委員會的建議下獲香港認可處執行機關接受為

HOKLAS Accredited Laboratory
「香港實驗所認可計劃」認可實驗所

This laboratory meets the requirements of ISO/IEC 17025:2005 and it has been accredited for performing specific tests or calibrations as listed in the scope of accreditation within the test category of

Environmental Testing

此實驗所符合ISO/IEC 17025:2005所訂的要求
並獲認可進行載於認可範圍內下述測試類別中的指定測試或校正工作

環境測試

This accreditation to ISO/IEC 17025:2005 demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (see joint IAF-ILAC-ISO Communiqué).
此項 ISO/IEC 17025:2005 的認可資格證明此實驗所具備指定範疇內所須的技術能力並實施一套實驗所質量管理體系(見國際認可論壇、國際實驗所認可合作組織及國際標準化組織的聯合公報)。

The common seal of the Hong Kong Accreditation Service is affixed hereto by the authority of the HKAS Executive
現經香港認可處執行機關授權在此蓋上香港認可處的印章

WONG Wang-wah, Executive Administrator
執行幹事 黃宏華
Issue Date : 16 July 2014
簽發日期：二零一四年七月十六日

Registration Number : HOKLAS 241
註冊號碼：

Date of First Registration : 16 July 2014
首次註冊日期：二零一四年七月十六日

This certificate is issued subject to the terms and conditions laid down by HKAS
本證書按照香港認可處訂立的條款及條件發出

L 001195

Appendix H
The Baseline Monitoring Schedules

Contract No. 3/WSD/15: Baseline Monitoring Schedule for Air and Noise

Dec-15						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
20	21 Baseline 1-hour TSP for AM1 & 2: 3 hrs Leq, L10, L90 for NM1, NM2 & NM3 (0700-1900): 0.5hr Leq, L10, L90 for NM1, NM2 & NM3 (1900-2300): 0.25hr Leq, L10, L90 for NM1, NM2 & NM3 (2300-0700): 0.25hr	22 Baseline 1-hour TSP for AM1 & 2: 3 hrs Leq, L10, L90 for NM1, NM2 & NM3 (0700-1900): 0.5hr Leq, L10, L90 for NM1, NM2 & NM3 (1900-2300): 0.25hr Leq, L10, L90 for NM1, NM2 & NM3 (2300-0700): 0.25hr	23 Baseline 1-hour TSP for AM1 & 2: 3 hrs Leq, L10, L90 for NM1, NM2 & NM3 (0700-1900): 0.5hr Leq, L10, L90 for NM1, NM2 & NM3 (1900-2300): 0.25hr Leq, L10, L90 for NM1, NM2 & NM3 (2300-0700): 0.25hr	24 Baseline 1-hour TSP for AM1 & 2: 3 hrs Leq, L10, L90 for NM1, NM2 & NM3 (0700-1900): 0.5hr Leq, L10, L90 for NM1, NM2 & NM3 (1900-2300): 0.25hr Leq, L10, L90 for NM1, NM2 & NM3 (2300-0700): 0.25hr	25 Baseline 1-hour TSP for AM1 & 2: 3 hrs Leq, L10, L90 for NM1, NM2 & NM3 (0700-1900): 0.5hr Leq, L10, L90 for NM1, NM2 & NM3 (1900-2300): 0.25hr Leq, L10, L90 for NM1, NM2 & NM3 (2300-0700) 0.25hr	26 Baseline 1-hour TSP for AM1 & 2: 3 hrs Leq, L10, L90 for NM1, NM2 & NM3 (0700-1900): 0.5hr Leq, L10, L90 for NM1, NM2 & NM3 (1900-2300): 0.25hr Leq, L10, L90 for NM1, NM2 & NM3 (2300-0700): 0.25hr
27 Baseline 1-hour TSP for AM1 & 2: 3 hrs Leq, L10, L90 for NM1, NM2 & NM3 (0700-1900): 0.5hr Leq, L10, L90 for NM1, NM2 & NM3 (1900-2300): 0.25hr Leq, L10, L90 for NM1, NM2 & NM3 (2300-0700): 0.25hr	28 Baseline 1-hour TSP for AM1 & 2: 3 hrs Leq, L10, L90 for NM1, NM2 & NM3 (0700-1900): 0.5hr Leq, L10, L90 for NM1, NM2 & NM3 (1900-2300): 0.25hr Leq, L10, L90 for NM1, NM2 & NM3 (2300-0700): 0.25hr	29 Baseline 1-hour TSP for AM1 & 2: 3 hrs Leq, L10, L90 for NM1, NM2 & NM3 (0700-1900): 0.5hr Leq, L10, L90 for NM1, NM2 & NM3 (1900-2300): 0.25hr Leq, L10, L90 for NM1, NM2 & NM3 (2300-0700): 0.25hr	30 Baseline 1-hour TSP for AM1 & 2: 3 hrs Leq, L10, L90 for NM1, NM2 & NM3 (0700-1900): 0.5hr Leq, L10, L90 for NM1, NM2 & NM3 (1900-2300): 0.25hr Leq, L10, L90 for NM1, NM2 & NM3 (2300-0700): 0.25hr	31 Baseline 1-hour TSP for AM1 & 2: 3 hrs Leq, L10, L90 for NM1, NM2 & NM3 (0700-1900): 0.5hr Leq, L10, L90 for NM1, NM2 & NM3 (1900-2300): 0.25hr Leq, L10, L90 for NM1, NM2 & NM3 (2300-0700): 0.25hr		

Jan-16						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
					1 Baseline 1-hour TSP for AM1 & 2: 3 hrs Leq, L10, L90 for NM1, NM2 & NM3 (0700-1900): 0.5hr Leq, L10, L90 for NM1, NM2 & NM3 (1900-2300): 0.25hr Leq, L10, L90 for NM1, NM2 & NM3 (2300-0700): 0.25hr	2 Baseline 1-hour TSP for AM1 & 2: 3 hrs Leq, L10, L90 for NM1, NM2 & NM3 (0700-1900): 0.5hr Leq, L10, L90 for NM1, NM2 & NM3 (1900-2300): 0.25hr Leq, L10, L90 for NM1, NM2 & NM3 (2300-0700): 0.25hr
3 Baseline 1-hour TSP for AM1 & 2: 3 hrs Leq, L10, L90 for NM1, NM2 & NM3 (0700-1900): 0.5hr Leq, L10, L90 for NM1, NM2 & NM3 (1900-2300): 0.25hr Leq, L10, L90 for NM1, NM2 & NM3 (2300-0700): 0.25hr	4	5	6	7	8	9

Contract No. 3/WSD/15: Baseline Monitoring Schedule for Water Quality

Dec-15						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
13	14	15	16	17	18	19
		Baseline Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Baseline Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Baseline Water Quality monitoring for C1, C2, C3, M1, M2 & M3
20	21	22	23	24	25	26
	Baseline Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Baseline Water Quality monitoring for C1, C2, C3, M1, M2 & M3			Baseline Water Quality monitoring for C1, C2, C3, M1, M2 & M3
27	28	29	30	31		
	Baseline Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Baseline Water Quality monitoring for C1, C2, C3, M1, M2 & M3			

Jan-16						
Sun	Mon	Tue	Wed	Thur	Fri	Sat
					1	2
						Baseline Water Quality monitoring for C1, C2, C3, M1, M2 & M3
3	4	5	6	7	8	9
	Baseline Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Baseline Water Quality monitoring for C1, C2, C3, M1, M2 & M3		Baseline Water Quality monitoring for C1, C2, C3, M1, M2 & M3	

Appendix I
Monitoring Data (Noise)

Noise Level Results at NM1 -The L Louey (South) **Time: 0700-1900 (normal weekdays)**

Date	Time	Weather	Noise Level, dB(A)																		$L_{eq-30min}$, dB(A)	$L_{10\ eq-30min}$, dB(A)	$L_{90\ eq-30min}$, dB(A)
			Reading (1)			Reading (2)			Reading (3)			Reading (4)			Reading (5)			Reading (6)					
			L_{eq}-5min	L_{10eq}-5min	L_{90eq}-5min	L_{eq}-5min	L_{10eq}-5min	L_{90eq}-5min	L_{eq}-5min	L_{10eq}-5min	L_{90eq}-5min	L_{eq}-5min	L_{10eq}-5min	L_{90eq}-5min	L_{eq}-5min	L_{10eq}-5min	L_{90eq}-5min	L_{eq}-5min	L_{10eq}-5min	L_{90eq}-5min			
21/12/2015	12:34-13:04	Sunny	62.8	67.2	52.5	61.9	66.6	52.7	62.1	66.9	52.9	61.7	67.1	51.8	62.5	67.5	52.2	62.3	66.8	52.1	62.2	67.0	52.4
22/12/2015	12:20-12:50	Cloudy	63.6	68.2	51.8	62.1	66.7	51.6	65.8	70.7	51.5	63.4	67.9	51.3	64.1	68.9	52.4	62.9	67.5	52.9	63.8	68.5	52.0
23/12/2015	15:30-16:00	Sunny	65.2	69.3	52.8	66.2	68.9	53.1	63.5	68.1	51.9	64.9	68.3	52.0	65.3	69.5	52.7	63.9	67.2	51.2	64.9	68.6	52.3
24/12/2015	17:10-17:40	Sunny	60.8	63.2	52.5	62.3	68.0	52.9	64.0	69.6	53.1	63.1	68.7	52.8	62.9	67.4	51.8	63.4	68.6	51.8	62.9	68.0	52.5
25/12/2015	07:45-08:15	Cloudy	68.8	70.0	55.7	67.2	68.8	55.3	68.0	69.5	55.5	67.8	68.3	54.5	68.2	69.0	53.9	66.9	69.4	54.1	67.9	69.2	54.9
26/12/2015	10:55-11:25	Cloudy	60.6	62.4	50.5	64.0	70.1	49.9	62.1	67.2	49.9	65.8	68.9	49.9	63.1	69.1	49.8	63.6	69.4	50.3	63.5	68.4	50.1
27/12/2015	09:40-10:10	Cloudy	61.3	68.9	52.3	64.3	70.7	52.5	64.5	69.3	53.2	63.2	68.5	54.7	62.8	68.7	52.3	61.7	70.2	51.9	63.1	69.5	52.9
28/12/2015	11:00-11:30	Cloudy	62.3	67.0	54.2	62.4	68.0	51.6	61.4	67.3	50.4	61.1	67.4	54.2	65.5	70.9	54.5	63.3	68.9	51.5	62.9	68.5	53.0
29/12/2015	11:15-11:45	Sunny	63.6	69.7	53.7	60.7	62.5	53.3	63.0	68.2	53.7	62.6	66.6	54.0	62.5	68.4	54.3	63.7	69.4	53.1	62.8	68.0	53.7
30/12/2015	12:15-12:45	Cloudy	67.0	70.7	50.2	63.2	68.8	50.4	61.2	65.1	50.3	64.1	70.7	50.4	63.1	67.5	50.7	64.1	69.8	50.6	64.2	69.2	50.4
31/12/2015	10:30-11:00	Sunny	62.1	65.7	54.0	64.4	70.0	54.5	63.8	68.5	55.1	63.6	68.5	55.1	63.1	68.4	54.1	61.6	64.9	54.8	63.2	68.0	54.6
1/1/2016	13:30-14:00	Fine	61.5	62.5	57.5	64.3	70.7	52.5	61.7	70.2	51.9	63.6	69.3	51.8	65.8	68.9	49.9	61.4	65.9	52.3	63.4	68.7	53.4
2/1/2016	10:50-11:20	Fine	63.4	68.1	53.8	62.0	64.0	52.4	63.4	68.8	53.6	62.7	66.5	54.2	63.7	69.1	54.6	63.4	68.9	52.9	63.1	67.9	53.6
3/1/2016	17:10-17:40	Cloudy	64.1	66.8	58.3	61.8	64.2	60.5	62.5	68.8	54.8	63.8	69.0	55.6	63.3	66.8	55.4	62.2	68.7	57.8	63.0	67.7	57.5

Noise Level Results at NM2 -Hin Keng Estate - Hin Wan House **Time: 0700-1900 (normal weekdays)**

Date	Time	Weather	Noise Level, dB(A)																		$L_{eq\text{-}30min}$, dB(A)	$L_{10\ eq\text{-}30min}$, dB(A)	$L_{90\ eq\text{-}30min}$, dB(A)
			Reading (1)			Reading (2)			Reading (3)			Reading (4)			Reading (5)			Reading (6)					
			L_{eq}-5min	L_{10eq}-5min	L_{90eq}-5min	L_{eq}-5min	L_{10eq}-5min	L_{90eq}-5min	L_{eq}-5min	L_{10eq}-5min	L_{90eq}-5min	L_{eq}-5min	L_{10eq}-5min	L_{90eq}-5min	L_{eq}-5min	L_{10eq}-5min	L_{90eq}-5min	L_{eq}-5min	L_{10eq}-5min	L_{90eq}-5min			
21/12/2015	11:00-11:30	Fine	58.5	60.9	55.3	58.9	61.7	56.2	58.4	60.8	55.2	59.1	62.4	55.9	58.2	60.3	54.8	59.2	61.1	56.1	58.7	61.3	55.6
22/12/2015	14:20-14:50	Cloudy	60.0	63.7	55.9	58.4	60.6	56.0	64.6	67.5	55.9	62.5	64.9	54.6	61.8	63.5	55.1	60.3	63.2	54.9	61.7	64.4	55.4
23/12/2015	14:50-15:20	Sunny	59.0	62.9	54.2	58.9	63.3	56.8	58.7	63.8	55.4	59.1	62.1	53.9	58.9	64.2	54.8	58.9	62.9	52.8	58.9	63.3	54.8
24/12/2015	16:25-16:55	Sunny	58.1	60.4	55.8	57.8	60.0	55.1	57.9	60.8	55.3	58.9	61.0	54.9	59.1	61.5	55.8	57.3	60.8	54.4	58.2	60.8	55.2
25/12/2015	09:10-09:40	Cloudy	61.9	65.3	54.2	59.2	63.3	53.8	61.0	64.4	55.7	57.1	59.4	53.8	61.6	65.7	54.6	58.3	59.8	55.7	60.2	63.6	54.7
26/12/2015	10:10-10:40	Cloudy	58.3	58.8	57.7	62.3	63.4	58.5	64.1	61.2	56.3	58.5	59.2	58.2	59.2	60.0	58.8	58.8	59.5	58.0	60.8	60.7	58.0
27/12/2015	08:55-09:25	Cloudy	58.1	58.7	57.5	58.9	59.3	57.1	60.8	62.3	58.3	60.4	61.9	58.8	58.7	59.8	57.5	62.1	64.5	59.2	60.1	61.6	58.1
28/12/2015	10:15-10:45	Cloudy	57.9	59.7	55.9	58.0	60.8	54.9	59.1	60.2	55.7	58.7	59.8	54.9	59.1	60.3	55.2	58.2	59.9	55.8	58.5	60.1	55.4
29/12/2015	10:30-11:00	Sunny	58.7	60.3	56.0	57.7	59.1	56.5	58.1	59.7	56.6	58.6	60.2	57.1	59.6	60.5	58.2	57.8	58.8	56.5	58.5	59.8	56.9
30/12/2015	10:42-11:12	Cloudy	59.2	60.7	55.4	60.2	62.3	56.7	58.0	59.8	55.5	60.8	62.7	56.1	59.7	61.9	55.9	58.3	60.9	55.5	59.5	61.5	55.9
31/12/2015	11:10-11:40	Sunny	60.4	61.0	59.6	60.5	61.6	59.8	60.0	60.9	59.2	60.5	61.6	59.6	60.5	61.6	59.7	60.0	60.9	59.3	60.3	61.3	59.5
1/1/2016	14:10-14:40	Fine	61.9	63.7	59.8	63.6	65.4	55.9	61.7	65.5	53.3	58.8	63.0	57.4	58.0	62.4	55.9	60.1	64.5	56.2	61.1	64.2	56.9
2/1/2016	11:40-12:10	Fine	57.9	59.5	56.3	58.8	60.8	56.7	63.3	64.7	57.7	59.0	61.1	57.1	58.8	61.0	57.0	59.7	61.5	57.8	60.0	61.8	57.1
3/1/2016	18:30-19:00	Cloudy	55.7	56.1	55.1	55.1	56.2	52.2	55.1	56.0	54.4	54.8	56.1	53.7	58.7	60.9	54.6	59.8	62.7	54.5	57.0	59.0	54.2

Noise Level Results at NM3 -C.U.H.K.F.A.A.
Thomas Cheung School

Time: 0700-1900 (normal weekdays)

Date	Time	Weather	Noise Level, dB(A)																			$L_{eq-30min}$, dB(A)	$L_{10\ eq-30min}$, dB(A)	$L_{90\ eq-30min}$, dB(A)
			Reading (1)			Reading (2)			Reading (3)			Reading (4)			Reading (5)			Reading (6)						
			L_{eq}-5min	L_{10eq}-5min	L_{90eq}-5min	L_{eq}-5min	L_{10eq}-5min	L_{90eq}-5min	L_{eq}-5min	L_{10eq}-5min	L_{90eq}-5min	L_{eq}-5min	L_{10eq}-5min	L_{90eq}-5min	L_{eq}-5min	L_{10eq}-5min	L_{90eq}-5min	L_{eq}-5min	L_{10eq}-5min	L_{90eq}-5min			
21/12/2015	11:41-12:11	Sunny	55.4	57.2	53.4	55.9	57.6	53.9	55.2	57.4	53.1	56.2	58.3	54.9	55.3	56.9	53.4	55.9	57.8	53.2	55.7	57.6	53.7
22/12/2015	13:40-14:10	Cloudy	56.3	59.3	52.4	56.7	59.7	52.2	54.7	56.2	52.5	53.1	54.4	51.7	53.9	55.8	52.0	54.7	56.9	53.0	55.1	57.5	52.3
23/12/2015	14:15-14:45	Sunny	56.0	58.9	52.9	55.8	58.3	53.1	54.3	57.3	52.9	54.1	58.8	52.3	54.0	59.0	52.7	54.3	58.7	51.4	54.8	58.5	52.6
24/12/2015	15:40-16:10	Sunny	55.2	56.1	54.3	55.4	56.7	54.0	60.6	62.5	55.1	57.3	60.2	54.9	55.4	57.3	54.2	56.0	59.9	54.7	57.1	59.4	54.6
25/12/2015	09:45-10:15	Cloudy	55.6	58.1	52.5	56.8	56.2	51.5	57.1	59.4	53.8	54.4	58.7	51.8	55.2	59.3	52.6	58.1	61.3	53.5	56.4	59.1	52.7
26/12/2015	09:30-10:00	Cloudy	53.0	55.2	50.9	53.8	56.1	50.7	55.7	58.8	50.6	54.6	56.5	51.5	56.2	58.3	52.4	59.7	61.9	55.0	56.1	58.4	52.2
27/12/2015	08:15-08:45	Cloudy	52.1	54.3	49.6	53.5	56.2	50.3	54.7	56.7	50.9	56.2	58.4	51.8	55.3	57.1	50.7	56.3	58.9	52.3	54.9	57.2	51.0
28/12/2015	09:35-10:05	Cloudy	55.1	56.6	52.3	55.4	58.4	52.8	56.0	59.7	53.1	54.8	57.9	52.4	56.1	58.1	52.7	55.7	57.8	51.7	55.5	58.2	52.5
29/12/2015	09:55-10:25	Sunny	57.5	60.0	54.2	56.0	58.4	53.9	54.4	55.4	53.5	56.6	58.7	54.0	56.8	59.1	54.1	55.8	57.2	53.5	56.3	58.4	53.9
30/12/2015	11:25-11:55	Cloudy	54.5	56.3	51.7	53.1	54.9	51.4	54.1	55.1	51.9	56.2	58.0	54.3	55.6	57.3	54.1	54.8	56.9	53.2	54.8	56.6	52.9
31/12/2015	12:00-12:30	Sunny	57.2	59.3	54.3	58.3	60.3	56.3	56.7	58.5	55.3	56.0	57.3	55.0	56.0	56.9	54.9	55.8	56.9	55.0	56.8	58.4	55.2
1/1/2016	15:00-15:30	Fine	58.1	60.8	55.8	56.7	60.1	55.0	58.0	60.8	55.3	57.1	59.4	53.8	61.6	65.7	54.6	62.3	63.4	58.5	59.5	62.3	55.8
2/1/2016	12:20-12:50	Fine	54.2	56.3	51.9	54.6	56.6	52.3	55.3	58.1	51.5	54.3	56.3	51.3	53.0	55.1	50.9	53.2	54.1	51.0	54.2	56.3	51.5
3/1/2016	17:50-18:20	Cloudy	55.3	57.8	51.9	56.5	58.9	52.4	54.3	59.2	50.4	55.1	56.4	52.8	52.7	55.1	50.8	54.2	56.1	52.0	54.8	57.5	51.8

Noise Level Results at NM1 -The L Louey (South) **Time: 1900-2300 (restrict hour)**

Date	Time	Weather	Noise Level, dB(A)									$L_{eq-15min}$, dB(A)	$L_{10\ eq-15min}$, dB(A)	$L_{90\ eq-15min}$, dB(A)
			Reading (1)			Reading (2)			Reading (3)					
			$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$	$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$	$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$			
21/12/2015	19:35-19:50	Fine	61.9	66.9	52.3	61.8	66.4	52.1	62.5	67.1	53.1	62.1	66.8	52.5
22/12/2015	20:00-20:15	Cloudy	62.8	67.1	51.1	64.1	68.8	51.5	63.1	68.5	52.1	63.4	68.2	51.6
23/12/2015	21:00-21:15	Fine	61.5	66.0	50.9	61.9	66.9	51.8	62.8	67.8	53.4	62.1	67.0	52.2
24/12/2015	22:40-22:55	Fine	61.7	66.5	49.9	63.1	69.6	49.8	67.1	70.5	50.1	64.6	69.2	49.9
25/12/2015	19:00-19:15	Cloudy	64.3	68.7	53.1	65.2	69.1	53.3	63.8	69.6	52.7	64.5	69.1	53.0
26/12/2015	20:00-20:15	Cloudy	62.1	66.7	52.1	62.9	67.2	51.9	63.0	68.0	52.2	62.7	67.3	52.1
27/12/2015	19:35-19:50	Cloudy	63.2	68.9	53.4	63.1	69.3	54.2	62.1	68.3	52.8	62.8	68.9	53.5
28/12/2015	20:20-20:35	Cloudy	64.2	69.3	54.2	63.7	69.1	54.0	63.1	68.0	52.6	63.7	68.8	53.7
29/12/2015	19:55-20:10	Fine	63.9	68.7	55.1	64.3	69.1	54.9	63.5	68.2	54.9	63.9	68.7	55.0
30/12/2015	19:35-19:50	Cloudy	64.9	69.2	54.2	64.2	68.6	53.0	63.4	68.1	53.7	64.2	68.7	53.7
31/12/2015	19:08-19:23	Fine	62.2	70.0	53.9	63.1	68.9	54.1	62.7	69.6	53.2	62.7	69.5	53.8
1/1/2016	20:00-20:15	Fine	63.4	70.1	54.8	63.8	69.6	53.8	63.6	69.7	53.9	63.6	69.8	54.2
2/1/2016	19:10-19:25	Fine	63.0	69.8	53.4	62.8	69.5	53.4	63.1	68.9	52.8	63.0	69.4	53.2
3/1/2016	20:15-20:30	Cloudy	64.5	68.9	52.8	63.9	67.9	52.1	64.2	68.7	53.1	64.2	68.5	52.7

Noise Level Results at NM2 -Hin Keng Estate -Hin Wan House **Time: 1900-2300 (restrict hour)**

Date	Time	Weather	Noise Level, dB(A)									$L_{eq-15min}$, dB(A)	$L_{10\ eq-15min}$, dB(A)	$L_{90\ eq-15min}$, dB(A)
			Reading (1)			Reading (2)			Reading (3)					
			$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$	$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$	$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$			
21/12/2015	20:15-20:30	Fine	55.6	58.7	53.9	55.0	57.8	54.0	55.5	57.2	54.9	55.4	57.9	54.3
22/12/2015	20:42-20:57	Fine	57.6	60.2	56.1	58.2	62.8	53.2	56.9	61.3	54.1	57.6	61.6	54.6
23/12/2015	21:40-21:55	Fine	56.8	61.8	57.1	56.7	62.9	54.2	55.8	62.3	54.8	56.5	62.4	55.6
24/12/2015	22:10-22:25	Fine	55.0	60.1	53.7	55.8	60.5	53.0	54.5	58.3	52.7	55.1	59.7	53.2
25/12/2015	19:30-19:45	Cloudy	56.0	59.8	55.2	56.2	60.1	55.0	55.7	59.5	53.8	56.0	59.8	54.7
26/12/2015	20:25-20:40	Cloudy	55.1	58.7	54.0	56.8	59.2	54.2	56.1	60.0	55.1	56.1	59.3	54.5
27/12/2015	20:00-20:15	Cloudy	54.7	57.8	52.8	54.1	57.2	53.0	56.7	60.9	54.8	55.3	59.0	53.6
28/12/2015	20:50-21:05	Cloudy	53.9	56.7	52.0	54.6	58.3	53.5	54.1	57.1	53.0	54.2	57.4	52.9
29/12/2015	20:26-20:41	Fine	55.4	59.4	51.9	56.0	59.1	52.3	55.1	58.7	51.8	55.5	59.1	52.0
30/12/2015	20:00-20:15	Cloudy	54.1	58.1	50.8	54.9	59.4	51.3	54.3	57.6	52.1	54.4	58.4	51.4
31/12/2015	19:40-19:55	Fine	56.1	59.7	51.2	55.7	58.2	50.9	55.2	58.8	51.0	55.7	58.9	51.0
1/1/2016	20:30-20:45	Fine	55.0	58.6	52.3	55.5	59.1	51.7	54.8	58.1	51.1	55.1	58.6	51.7
2/1/2016	19:45-20:00	Fine	56.7	59.9	51.8	56.1	59.0	52.3	56.4	60.0	51.2	56.4	59.7	51.8
3/1/2016	19:00-19:15	Cloudy	58.1	61.7	55.6	57.2	60.5	54.2	56.6	60.1	54.6	57.3	60.8	54.8

Noise Level Results at NM3 -C.U.H.K.F.A.A.
Thomas Cheung School

Time: 1900-2300 (restrict hour)

Date	Time	Weather	Noise Level, dB(A)									$L_{eq-15min}$, dB(A)	$L_{10\ eq-15min}$, dB(A)	$L_{90\ eq-15min}$, dB(A)
			Reading (1)			Reading (2)			Reading (3)					
			$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$	$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$	$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$			
21/12/2015	20:45-21:00	Fine	51.2	53.4	49.9	51.8	53.9	50.2	52.1	53.8	49.8	51.7	53.7	50.0
22/12/2015	21:20-21:35	Fine	52.3	54.7	50.1	52.8	55.1	50.9	52.3	54.5	50.7	52.5	54.8	50.6
23/12/2015	22:30-22:45	Fine	51.9	53.9	49.8	52.1	54.3	49.7	53.1	55.6	50.5	52.4	54.7	50.0
24/12/2015	21:45-22:00	Fine	51.9	53.4	50.4	52.1	52.9	50.2	52.9	53.8	50.7	52.3	53.4	50.4
25/12/2015	20:00-20:15	Cloudy	51.2	54.3	50.1	51.9	55.3	50.8	51.5	54.7	50.4	51.5	54.8	50.4
26/12/2015	20:55-21:10	Cloudy	50.5	53.8	48.2	50.8	53.9	48.1	51.6	54.7	49.1	51.0	54.2	48.5
27/12/2015	20:30-20:45	Cloudy	51.8	54.5	49.2	51.6	54.2	49.8	50.9	53.4	50.2	51.5	54.1	49.8
28/12/2015	21:25-21:40	Cloudy	50.1	52.9	49.8	50.5	53.6	49.6	50.8	53.4	49.9	50.5	53.3	49.8
29/12/2015	20:55-21:10	Fine	52.8	55.3	48.9	50.6	53.4	49.1	52.2	53.7	50.1	52.0	54.2	49.4
30/12/2015	20:25-20:40	Cloudy	53.0	56.0	50.6	51.8	54.8	49.8	51.7	54.8	50.2	52.2	55.2	50.2
31/12/2015	20:15-20:30	Fine	51.6	55.8	50.1	51.8	55.0	50.3	52.7	54.7	50.7	52.1	55.2	50.4
1/1/2016	21:05-21:20	Fine	52.2	56.9	50.6	51.7	56.1	51.1	52.1	56.2	50.3	52.0	56.4	50.7
2/1/2016	20:05-20:20	Fine	52.4	57.0	50.3	52.8	57.1	50.7	51.9	56.5	50.2	52.4	56.9	50.4
3/1/2016	19:30-19:45	Cloudy	51.9	56.2	49.9	52.1	56.9	50.1	51.2	55.7	49.8	51.8	56.3	49.9

Noise Level Results at NM1 -The L Louey (South) **Time: 2300 – 0700 next day (restrict hour)**

Date	Time	Weather	Noise Level, dB(A)									$L_{eq-15min}$, dB(A)	$L_{10\ eq-15min}$, dB(A)	$L_{90\ eq-15min}$, dB(A)
			Reading (1)			Reading (2)			Reading (3)					
			$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$	$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$	$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$			
21/12/2015	23:05-23:20	Fine	60.9	65.8	51.9	62.1	66.1	52.6	61.7	66.2	51.8	61.6	66.0	52.1
22/12/2015	23:10-23:25	Cloudy	61.2	66.1	52.3	62.9	67.2	53.6	61.4	65.8	52.7	61.9	66.4	52.9
23/12/2015	00:30-00:45	Fine	62.1	67.4	53.2	61.8	65.4	52.1	61.9	67.9	53.1	61.9	67.0	52.8
24/12/2015	23:05-23:20	Fine	60.6	63.3	50.0	62.8	64.5	50.3	61.9	66.8	50.7	61.9	65.1	50.3
25/12/2015	23:55-00:10	Cloudy	62.8	65.7	50.0	62.1	64.8	50.1	62.7	66.1	50.2	62.5	65.6	50.1
26/12/2015	00:15-00:30	Cloudy	61.8	66.0	51.9	62.9	66.6	53.9	61.2	65.8	52.3	62.0	66.1	52.8
27/12/2015	00:40-00:55	Cloudy	62.9	67.8	52.0	63.3	68.2	52.3	61.7	67.2	53.4	62.7	67.8	52.6
28/12/2015	23:00-23:15	Cloudy	63.0	68.1	53.1	63.5	68.5	53.4	62.0	67.6	53.7	62.9	68.1	53.4
29/12/2015	00:05-00:20	Fine	63.9	67.2	54.3	64.1	67.9	53.7	63.4	66.4	52.0	63.8	67.2	53.4
30/12/2015	23:05-23:20	Cloudy	64.1	68.2	52.9	63.2	67.7	52.8	63.0	68.1	53.0	63.5	68.0	52.9
31/12/2015	23:55-00:10	Fine	62.1	67.4	51.8	62.8	68.3	52.1	63.7	68.2	54.0	62.9	68.0	52.7
1/1/2016	23:30-23:45	Fine	63.6	68.9	52.3	62.3	67.1	52.0	63.1	68.0	52.8	63.0	68.1	52.4
2/1/2016	23:01-23:16	Fine	62.9	67.6	53.1	63.1	67.5	53.6	61.8	66.4	51.9	62.6	67.2	52.9
3/1/2016	23:30-23:45	Cloudy	62.3	67.1	53.2	63.7	66.8	53.1	63.8	68.9	52.0	63.3	67.7	52.8

Noise Level Results at NM2 -Hin Keng Estate - Hin Wan House **Time: 2300 – 0700 next day (restrict hour)**

Date	Time	Weather	Noise Level, dB(A)									$L_{eq-15min}$, dB(A)	$L_{10\ eq-15min}$, dB(A)	$L_{90\ eq-15min}$, dB(A)
			Reading (1)			Reading (2)			Reading (3)					
			$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$	$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$	$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$			
21/12/2015	23:45-00:00	Fine	54.8	57.3	52.1	55.1	58.6	52.2	54.6	57.4	52.7	54.8	57.8	52.3
22/12/2015	23:55-00:10	Fine	53.9	57.1	50.3	54.2	58.0	50.9	53.8	58.1	51.5	54.0	57.8	50.9
23/12/2015	23:50-00:05	Fine	54.3	56.3	50.1	53.8	57.9	50.2	53.4	56.9	50.8	53.8	57.1	50.4
24/12/2015	23:30-23:45	Fine	53.0	55.1	49.6	53.6	54.2	51.0	53.5	54.5	49.7	53.4	54.6	50.1
25/12/2015	23:05-23:20	Cloudy	54.8	55.9	48.7	53.7	54.9	48.9	55.1	57.2	49.8	54.6	56.1	49.2
26/12/2015	23:35-23:50	Cloudy	53.1	56.2	50.0	52.8	55.8	49.9	53.8	56.7	50.0	53.3	56.2	50.0
27/12/2015	00:20-00:35	Cloudy	53.7	56.9	49.9	53.1	56.1	49.9	54.2	55.9	49.7	53.7	56.3	49.8
28/12/2015	23:35-23:50	Cloudy	54.0	57.8	50.1	54.5	57.1	50.7	54.9	58.0	51.0	54.5	57.7	50.6
29/12/2015	23:30-23:45	Fine	53.9	58.1	50.0	54.2	58.7	50.1	53.8	58.4	50.9	54.0	58.4	50.4
30/12/2015	23:30-23:45	Cloudy	53.3	57.9	50.3	54.7	57.8	50.0	54.1	58.2	53.1	54.1	58.0	51.4
31/12/2015	00:25-00:40	Fine	52.9	56.7	49.7	52.5	56.7	49.5	52.7	56.0	49.7	52.7	56.5	49.6
1/1/2016	23:55-00:10	Fine	52.6	57.1	50.2	53.2	58.2	50.8	53.6	59.1	50.4	53.2	58.2	50.5
2/1/2016	23:25-23:40	Fine	53.1	56.8	50.3	52.9	57.8	50.0	52.5	56.1	49.9	52.8	57.0	50.1
3/1/2016	23:55-00:10	Cloudy	52.9	55.8	49.8	52.8	56.0	50.3	53.8	56.5	50.8	53.2	56.1	50.3

Noise Level Results at NM3 -C.U.H.K.F.A.A. Thomas Cheung School

Time: 2300 – 0700 next day (restrict hour)

Date	Time	Weather	Noise Level, dB(A)									$L_{eq-15min}$, dB(A)	$L_{10\ eq-15min}$, dB(A)	$L_{90\ eq-15min}$, dB(A)
			Reading (1)			Reading (2)			Reading (3)					
			$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$	$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$	$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$			
21/12/2015	00:30-00:45	Fine	50.9	52.9	48.7	50.4	52.7	48.5	50.2	52.3	48.7	50.5	52.6	48.6
22/12/2015	00:40-00:55	Fine	51.8	55.6	50.3	51.6	55.8	50.0	52.2	56.1	50.1	51.9	55.8	50.1
23/12/2015	23:00-23:15	Fine	51.2	54.3	49.9	51.1	53.9	48.6	51.8	55.3	49.3	51.4	54.5	49.3
24/12/2015	23:50-00:05	Fine	51.1	51.5	50.9	49.8	51.2	50.7	50.2	51.8	50.5	50.4	51.5	50.7
25/12/2015	23:30-23:45	Cloudy	50.6	52.3	49.6	50.9	52.7	49.9	51.3	53.1	50.4	50.9	52.7	50.0
26/12/2015	23:05-23:20	Cloudy	50.1	53.2	48.5	50.3	53.7	48.9	50.4	54.1	49.2	50.3	53.7	48.9
27/12/2015	23:50-00:05	Cloudy	51.0	53.7	48.6	51.9	54.3	48.3	51.1	54.2	49.0	51.4	54.1	48.6
28/12/2015	00:00-00:15	Cloudy	52.1	54.3	49.6	53.5	56.2	50.3	54.7	56.7	50.9	53.6	55.8	50.3
29/12/2015	23:05-23:20	Fine	51.5	54.0	48.8	51.8	53.4	48.0	51.3	53.7	48.1	51.5	53.7	48.3
30/12/2015	23:55-00:10	Cloudy	51.2	53.8	48.7	50.8	52.9	48.1	51.6	53.9	48.5	51.2	53.6	48.4
31/12/2015	00:55-01:10	Fine	51.8	53.3	48.9	52.3	55.3	49.2	52.0	54.3	49.5	52.0	54.4	49.2
1/1/2016	00:25-00:40	Fine	51.1	53.0	48.5	51.9	53.2	49.0	51.7	54.0	49.6	51.6	53.4	49.1
2/1/2016	00:00-00:15	Fine	50.9	52.8	48.5	51.8	53.9	48.9	51.1	53.7	49.0	51.3	53.5	48.8
3/1/2016	00:20-00:35	Cloudy	51.4	53.8	48.9	51.3	54.0	49.1	51.0	54.0	48.5	51.2	53.9	48.8

Noise Level Results at NM1 -The L Louey (South) **Time: 0700 – 2300 (Sunday or public holiday**

Date	Time	Weather	Noise Level, dB(A)									$L_{eq-15min}$, dB(A)	$L_{10\ eq-15min}$, dB(A)	$L_{90\ eq-15min}$, dB(A)
			Reading (1)			Reading (2)			Reading (3)					
			$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$	$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$	$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$			
25/12/2015	07:45-08:00	Cloudy	68.8	70.0	55.7	67.2	68.8	55.3	68.0	69.5	55.5	68.0	69.5	55.5
26/12/2015	10:55-11:10	Cloudy	60.6	62.4	50.5	64.0	70.1	49.9	62.1	67.2	49.9	62.5	67.6	50.1
27/12/2015	09:40-09:55	Cloudy	61.3	68.9	52.3	64.3	70.7	52.5	64.5	69.3	53.2	63.6	69.7	52.7
1/1/2016	13:30-13:45	Fine	61.5	62.5	57.5	64.3	70.7	52.5	61.7	70.2	51.9	62.7	69.0	54.7
3/1/2016	17:10-17:25	Cloudy	64.1	66.8	58.3	61.8	64.2	60.5	62.5	68.8	54.8	62.9	67.0	58.5

Noise Level Results at NM2 -Hin Keng Estate - Hin Wan House Time: 0700 – 2300 (Sunday or public holiday

Date	Time	Weather	Noise Level, dB(A)									$L_{eq-15min}$, dB(A)	$L_{10\ eq-15min}$, dB(A)	$L_{90\ eq-15min}$, dB(A)
			Reading (1)			Reading (2)			Reading (3)					
			$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$	$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$	$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$			
25/12/2015	09:10-09:40	Cloudy	61.9	65.3	54.2	59.2	63.3	53.8	61.0	64.4	55.7	60.8	64.4	54.6
26/12/2015	10:10-10:25	Cloudy	58.3	58.8	57.7	62.3	63.4	58.5	64.1	61.2	56.3	62.2	61.5	57.6
27/12/2015	08:55-09:10	Cloudy	58.1	58.7	57.5	58.9	59.3	57.1	60.8	62.3	58.3	59.4	60.4	57.7
1/1/2016	14:10-14:25	Fine	61.9	63.7	59.8	63.6	65.4	55.9	61.7	65.5	53.3	62.5	64.9	57.2
3/1/2016	18:45-19:00	Cloudy	54.8	56.1	53.7	58.7	60.9	54.6	59.8	62.7	54.5	58.2	60.7	54.3

Noise Level Results at NM3 -C.U.H.K.F.A.A. Thomas Cheung School **Time: 0700 – 2300 (Sunday or public holiday**

Date	Time	Weather	Noise Level, dB(A)									$L_{eq-15min}$, dB(A)	$L_{10\ eq-15min}$, dB(A)	$L_{90\ eq-15min}$, dB(A)
			Reading (1)			Reading (2)			Reading (3)					
			$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$	$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$	$L_{eq-5min}$	$L_{10eq-5min}$	$L_{90eq-5min}$			
25/12/2015	09:45-10:00	Cloudy	55.6	58.1	52.5	56.8	56.2	51.5	57.1	59.4	53.8	56.5	58.1	52.7
26/12/2015	09:30-09:45	Cloudy	53.0	55.2	50.9	53.8	56.1	50.7	55.7	58.8	50.6	54.3	57.0	50.7
27/12/2015	08:15-08:30	Cloudy	52.1	54.3	49.6	53.5	56.2	50.3	54.7	56.7	50.9	53.6	55.8	50.3
1/1/2016	15:00-15:15	Fine	58.1	60.8	55.8	56.7	60.1	55.0	58.0	60.8	55.3	57.6	60.6	55.4
3/1/2016	17:50-18:05	Cloudy	55.3	57.8	51.9	56.5	58.9	52.4	54.3	59.2	50.4	55.5	58.7	51.6

Appendix J
Monitoring Results including In-Situ Measurements and Laboratory Analysis Data (Water Quality)

Date	Time	Weather	Location	Co-ordinates		Water Depth	Sample Depth	Temp.		DO con.		DO Saturation		Turbidity		pH		SS
				East	North	m	m	°C		mg/L		%		NTU		unit		mg/L
15/12/2015	11:48	Sunny	C1	835110	824716	0.04	0.02	22	22	8.35	8.33	95.6	95.6	3.1	3.8	7.97	7.94	9.7
	10:33	Sunny	C2	835403	824470	0.02	0.01	21.5	21.6	8.72	8.70	98.9	98.7	1.8	1.7	7.85	7.83	4.3
	N/A	N/A	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12:10	Sunny	M1	835215	824827	0.8	0.4	21.2	21.2	9.11	9.09	102.6	102.4	1.5	1.5	8.05	8.05	<1
	11:28	Sunny	M2	835536	824775	0.05	0.025	21.3	21.3	9.03	9.00	101.9	101.6	6.7	6.9	9.94	9.93	17.0
	10:12	Sunny	M3	835501	824648	0.02	0.01	21.3	21.4	9.15	9.16	102.8	103.0	0.9	0.8	8.08	8.1	<1
17/12/2015	11:35	Sunny	C1	835110	824716	0.04	0.02	16.8	16.9	9.63	9.66	99.4	99.3	3.9	3.8	8.22	8.21	5.3
	11:05	Sunny	C2	835403	824470	0.02	0.01	14.5	14.5	10.03	10.01	98.6	98.4	3.3	3.2	8.7	8.69	12.0
	N/A	N/A	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11:45	Sunny	M1	835215	824827	0.8	0.4	16.9	16.9	9.96	9.98	103.2	103	2.0	1.9	8.55	8.57	4.6
	10:35	Sunny	M2	835536	824775	0.05	0.025	19.4	19.3	9.36	9.36	101.8	101.8	10.0	9.9	11.27	11.25	25.0
	10:49	Sunny	M3	835501	824648	0.02	0.01	17.5	17.5	9.80	9.78	102.8	102.8	1.1	0.9	8.5	8.2	<1
19/12/2015	11:10	Cloudy	C1	835110	824716	0.04	0.02	18.9	19	8.74	8.71	94.3	93.8	1.9	1.9	7.95	7.97	1.1
	10:45	Cloudy	C2	835403	824470	0.02	0.01	15.4	15.3	10.11	10.09	100.5	100.7	2.1	1.9	8.21	8.23	1.7
	N/A	N/A	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11:30	Cloudy	M1	835215	824827	0.8	0.4	16.3	16.2	9.85	9.87	100.4	100.5	3.6	3.4	8.35	8.33	4.7
	10:03	Cloudy	M2	835536	824775	0.05	0.025	19.6	19.6	9.29	9.30	101.4	101.4	2.7	2.5	11.06	11.05	4.7
	10:20	Cloudy	M3	835501	824648	0.02	0.01	18.1	18.1	9.61	9.61	101.7	101.6	0.9	1.0	9.03	9.06	<1
21/12/2015	13:06	Sunny	C1	835110	824716	0.04	0.02	21.5	21.5	8.14	8.14	92.2	92.2	2.0	2.2	7.72	7.7	2.0
	12:55	Sunny	C2	835403	824470	0.02	0.01	18.9	19.1	9.27	9.30	102.1	102.4	0.7	0.8	7.92	7.91	<1
	N/A	N/A	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	13:20	Sunny	M1	835215	824827	0.8	0.4	19.7	19.4	9.14	9.17	99.8	99.7	3.7	3.6	7.89	7.88	2.1
	12:36	Sunny	M2	835536	824775	0.05	0.025	21.1	21.0	8.97	8.98	100.8	101	3.0	2.8	10.14	10.11	7.3
	12:42	Sunny	M3	835501	824648	0.02	0.01	19.4	19.3	9.31	9.30	101.2	101.4	1.0	1.1	8.05	8.03	<1
23/12/2015	15:55	Cloudy	C1	835110	824716	0.04	0.02	22.4	22.2	7.91	7.89	91.4	91.2	2.1	2.0	7.75	7.75	1.9
	15:45	Cloudy	C2	835403	824470	0.02	0.01	19.9	19.9	9.27	9.30	100.9	110.1	1.5	1.7	9.27	9.30	<1
	N/A	N/A	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	16:05	Cloudy	M1	835215	824827	0.8	0.4	20.5	20.4	8.89	8.89	98.7	98.7	3.3	3.4	7.90	7.89	1.7
	15:20	Cloudy	M2	835536	824775	0.05	0.025	21.1	21.2	8.91	8.92	100.4	100.2	1.5	1.6	9.89	9.87	4.0
	15:28	Cloudy	M3	835501	824648	0.02	0.01	19.8	19.9	9.16	9.17	100.4	100.5	0.9	0.9	8.74	8.73	<1
26/12/2015	13:20	Cloudy	C1	835110	824716	0.04	0.02	18.3	18.50	7.88	7.90	91.1	91.3	2.3	2.5	8.05	8.03	<1
	12:55	Cloudy	C2	835403	824470	0.02	0.01	19.4	19.60	9.27	9.30	101.2	101.4	1.1	1.0	8.70	8.70	1.6
	N/A	N/A	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	13:35	Cloudy	M1	835215	824827	0.8	0.4	18.7	18.6	9.37	9.35	100.2	100.0	3.7	3.6	8.36	8.37	1.9
	12:30	Cloudy	M2	835536	824775	0.05	0.025	20.2	20.2	9.13	9.14	101	101.1	4.0	3.9	11.5	11.49	38.0
	12:43	Cloudy	M3	835501	824648	0.02	0.01	19.1	19.0	9.35	9.37	100.9	110.1	0.9	1.1	8.73	8.72	<1

28/12/2015	12:45	Cloudy	C1	835110	824716	0.04	0.02	20.3	20.4	7.91	7.91	87.7	87.6	1.7	1.8	7.73	7.74	1.9
	12:05	Cloudy	C2	835403	824470	0.02	0.01	18.6	18.6	9.49	9.50	101.8	101.9	1.6	1.5	7.93	7.92	<1
	N/A	N/A	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12:30	Cloudy	M1	835215	824827	0.8	0.4	18.1	18.1	9.49	9.50	100.6	100.6	3.4	3.3	7.88	7.89	2.1
	11:35	Cloudy	M2	835536	824775	0.05	0.025	20.1	20.3	9.22	9.19	101.9	102	13.1	13.9	10.11	10.13	21.0
	11:50	Cloudy	M3	835501	824648	0.02	0.01	18.8	18.8	9.49	9.50	101.9	101.9	0.7	0.6	8.26	8.25	<1
30/12/2015	12:46	Cloudy	C1	835110	824716	0.04	0.02	20.5	20.5	8.61	8.60	95.5	95.5	1.8	1.8	7.78	7.79	1.5
	12:27	Cloudy	C2	835403	824470	0.02	0.01	18.2	18.2	9.14	9.14	97.6	97.4	2.6	2.7	7.96	7.95	2.3
	N/A	N/A	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	13:02	Cloudy	M1	835215	824827	0.8	0.4	18.5	18.4	9.46	9.45	100.8	100.7	3.5	3.4	7.81	7.81	2.0
	10:30	Cloudy	M2	835536	824775	0.05	0.025	20.0	20.0	9.28	9.27	102	102	2.3	2.0	8.2	8.23	1.9
	10:40	Cloudy	M3	835501	824648	0.02	0.01	18.7	18.7	9.49	9.50	101.7	101.8	0.7	0.7	7.81	7.79	1.3
2/1/2016	11:35	Fine	C1	835110	824716	0.04	0.02	18.9	18.8	9.22	9.23	98.7	98.8	2.7	2.6	7.89	7.88	<1
	12:15	Fine	C2	835403	824470	0.02	0.01	19.9	19.8	9.38	9.39	100.8	100.8	2.1	2.1	7.98	7.99	1.2
	N/A	N/A	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11:19		M1	835215	824827	0.8	0.4	19.0	19.0	9.30	9.28	100.2	100.3	3.3	3.3	8.06	8.05	1.3
	10:47	Fine	M2	835536	824775	0.05	0.025	20.5	20.5	9.06	9.06	100.7	100.7	1.8	1.7	7.67	7.67	<1
	10:55	Fine	M3	835501	824648	0.02	0.01	19.1	19.1	9.37	9.38	101.3	101.4	0.9	1.0	8.19	8.19	1.2
4/1/2016	11:50	Cloudy	C1	835110	824716	0.04	0.02	22.1	22.0	7.45	7.44	85.3	85.4	1.6	1.5	7.74	7.74	<1
	11:38	Cloudy	C2	835403	824470	0.02	0.01	20.1	20.0	9.41	9.42	100.4	100.3	1.8	1.9	7.94	7.95	1.6
	N/A	N/A	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	12:05	Cloudy	M1	835215	824827	0.8	0.4	20.1	20.1	9.03	9.03	99.7	99.8	4.1	4.0	7.87	7.87	2.0
	10:50	Cloudy	M2	835536	824775	0.05	0.025	21.2	21.2	8.99	9.00	101.3	101.2	7.5	7.6	10.03	10.02	10.0
	11:10	Cloudy	M3	835501	824648	0.02	0.01	19.7	19.8	9.26	9.25	101.2	101.2	0.8	0.9	8.11	8.10	1.1
6/1/2016	11:40	Sunny	C1	835110	824716	0.04	0.02	21.8	21.8	7.88	7.87	89.8	89.8	2.2	2.3	7.72	7.72	<1
	11:57	Sunny	C2	835403	824470	0.02	0.01	20.8	20.9	7.99	7.98	99.9	100.0	2.3	2.3	8.02	8.03	5.0
	N/A	N/A	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	11:24	Sunny	M1	835215	824827	0.8	0.4	21.1	21.1	8.97	8.97	100.9	110.0	4.5	4.4	8.36	8.37	2.0
	11:00	Sunny	M2	835536	824775	0.05	0.025	21.0	21.0	8.94	8.94	100.4	100.3	1.4	1.3	10.52	10.51	2.2
	11:07	Sunny	M3	835501	824648	0.02	0.01	19.5	19.6	9.25	9.26	100.8	100.7	1.1	1.2	8.44	8.44	1.2
8/1/2016	10:58	Sunny	C1	835110	824716	0.04	0.02	18.8	18.7	8.91	8.90	89.3	89.5	4.0	4.0	8.24	8.23	1.3
	11:15	Sunny	C2	835403	824470	0.02	0.01	19.5	19.4	9.41	9.40	99.8	99.9	1.9	1.9	8.38	8.39	<1
	N/A	N/A	C3	835642	824386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	10:35	Sunny	M1	835215	824827	0.8	0.4	19.0	19.1	9.33	9.33	100.5	100.5	3.8	3.6	8.43	8.43	1.9
	10:13	Sunny	M2	835536	824775	0.05	0.025	20.3	20.3	9.17	9.17	101.6	101.6	7.9	7.8	10.12	10.13	<1
	10:21	Sunny	M3	835501	824648	0.02	0.01	19.1	19.1	9.38	9.38	101.3	101.4	1.1	1.0	8.26	8.25	1.1

Acumen Laboratory and Testing Limited

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Test Report

Report Number	: Q150003aR150246
Job Number	: R150246
Issue Date	: 17/12/2015
Name of Applicant	: Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant	: No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name	: CJO-3113-01
Sample Description	: SS test
Laboratory ID	: R150246/1-5
Date of Sampling	: 15/12/2015
Date Received	: 15/12/2015
Test Period	: 16/12/2015 – 16/12/2015
Test Required	: 1. Suspended Solids (SS)
Method Used	: 1. QPL-15e, APHA 22ed 2540 D
Test Result	: Refer to the results on page 2.

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature: _____

Hui Wai Fung, Huntington
Laboratory Manager
Chemical Division

Acumen Laboratory and Testing Limited

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Test Report

Report Number : Q150003aR150246

Job Number : R150246

Issue Date : 17/12/2015

Test Result:

Lab ID	Date of Sampling	Client Sample ID	Suspended Solids (SS), mg/L
R150246/1	15/12/2015	C1	9.7
R150246/2	15/12/2015	C2	4.3
R150246/3	15/12/2015	M1	<1
R150246/4	15/12/2015	M2	17
R150246/5	15/12/2015	M3	<1

Note:
1. mg/L indicates milligram per liter
2. mg O_2/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

Acumen Laboratory and Testing Limited

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Test Report

Report Number	: Q150003aR150250
Job Number	: R150250
Issue Date	: 18/12/2015
Name of Applicant	: Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant	: No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name	: CJO-3113-02
Sample Description	: SS test
Laboratory ID	: R150250/1-5
Date of Sampling	: 17/12/2015
Date Received	: 17/12/2015
Test Period	: 18/12/2015 – 18/12/2015
Test Required	: 1. Suspended Solids (SS)
Method Used	: 1. QPL-15e, APHA 22ed 2540 D
Test Result	: Refer to the results on page 2.

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature: _____

Hui Wai Fung, Huntington
Laboratory Manager
Chemical Division

Acumen Laboratory and Testing Limited

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Test Report

Report Number : Q150003aR150250

Job Number : R150250

Issue Date : 18/12/2015

Test Result:

Lab ID	Date of Sampling	Client Sample ID	Suspended Solids (SS), mg/L
R150250/1	17/12/2015	C1	5.3
R150250/2	17/12/2015	C2	12
R150250/3	17/12/2015	M1	4.6
R150250/4	17/12/2015	M2	25
R150250/5	17/12/2015	M3	<1

Note:
1. mg/L indicates milligram per liter
2. mg O_2/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

Acumen Laboratory and Testing Limited

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Test Report

Report Number	: Q150003aR150256
Job Number	: R150256
Issue Date	: 24/12/2015
Name of Applicant	: Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant	: No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name	: CJO-3113-03
Sample Description	: SS test
Laboratory ID	: R150256/1-5
Date of Sampling	: 19/12/2015
Date Received	: 19/12/2015
Test Period	: 19/12/2015 – 19/12/2015
Test Required	: 1. Suspended Solids (SS)
Method Used	: 1. QPL-15e, APHA 22ed 2540 D
Test Result	: Refer to the results on page 2.

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature: _____

Hui Wai Fung, Huntington
Laboratory Manager
Chemical Division

Acumen Laboratory and Testing Limited

Lot 12, Tam Kon Shan Road, Tsing Yi (N), Hong Kong
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Test Report

Report Number : Q150003aR150256

Job Number : R150256

Issue Date : 24/12/2015

Test Result:

Lab ID	Date of Sampling	Client Sample ID	Suspended Solids (SS), mg/L
R150256/1	19/12/2015	C1	1.1
R150256/2	19/12/2015	C2	1.7
R150256/3	19/12/2015	M1	4.7
R150256/4	19/12/2015	M2	4.7
R150256/5	19/12/2015	M3	<1

Note:
1. mg/L indicates milligram per liter
2. mg O_2/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

Acumen Laboratory and Testing Limited

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Test Report

Report Number	: Q150003aR150257
Job Number	: R150257
Issue Date	: 24/12/2015
Name of Applicant	: Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant	: No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name	: CJO-3113-04
Sample Description	: SS test
Laboratory ID	: R150257/1-5
Date of Sampling	: 21/12/2015
Date Received	: 21/12/2015
Test Period	: 22/12/2015 – 22/12/2015
Test Required	: 1. Suspended Solids (SS)
Method Used	: 1. QPL-15e, APHA 22ed 2540 D
Test Result	: Refer to the results on page 2.

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature: _____

Hui Wai Fung, Huntington
Laboratory Manager
Chemical Division

Acumen Laboratory and Testing Limited

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Test Report

Report Number : Q150003aR150257

Job Number : R150257

Issue Date : 24/12/2015

Test Result:

Lab ID	Date of Sampling	Client Sample ID	Suspended Solids (SS), mg/L
R150257/1	21/12/2015	C1	2.0
R150257/2	21/12/2015	C2	<1
R150257/3	21/12/2015	M1	2.1
R150257/4	21/12/2015	M2	7.3
R150257/5	21/12/2015	M3	<1

Note:
1. mg/L indicates milligram per liter
2. mg O_2/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

Acumen Laboratory and Testing Limited

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Test Report

Report Number	: Q150003aR150287
Job Number	: R150287
Issue Date	: 05/01/2016
Name of Applicant	: Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant	: No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name	: CJO-3113-05
Sample Description	: SS test
Laboratory ID	: R150287/1-5
Date of Sampling	: 23/12/2015
Date Received	: 23/12/2015
Test Period	: 24/12/2015 – 24/12/2015
Test Required	: 1. Suspended Solids (SS)
Method Used	: 1. QPL-15e, APHA 22ed 2540 D
Test Result	: Refer to the results on page 2.

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature: _____

Hui Wai Fung, Huntington
Laboratory Manager
Chemical Division

Acumen Laboratory and Testing Limited

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Test Report

Report Number : Q150003aR150287

Job Number : R150287

Issue Date : 05/01/2016

Test Result:

Lab ID	Date of Sampling	Client Sample ID	Suspended Solids (SS), mg/L
R150287/1	23/12/2015	C1	1.9
R150287/2	23/12/2015	C2	<1
R150287/3	23/12/2015	M1	1.7
R150287/4	23/12/2015	M2	4.0
R150287/5	23/12/2015	M3	<1

Note:
1. mg/L indicates milligram per liter
2. mg O_2/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

Acumen Laboratory and Testing Limited

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Test Report

Report Number	: Q150003aR150288
Job Number	: R150288
Issue Date	: 05/01/2016
Name of Applicant	: Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant	: No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name	: CJO-3113-06
Sample Description	: SS test
Laboratory ID	: R150288/1-5
Date of Sampling	: 26/12/2015
Date Received	: 26/12/2015
Test Period	: 27/12/2015 – 27/12/2015
Test Required	: 1. Suspended Solids (SS)
Method Used	: 1. QPL-15e, APHA 22ed 2540 D
Test Result	: Refer to the results on page 2.

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature: _____

Hui Wai Fung, Huntington
Laboratory Manager
Chemical Division

Acumen Laboratory and Testing Limited

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Test Report

Report Number : Q150003aR150288

Job Number : R150288

Issue Date : 05/01/2016

Test Result:

Lab ID	Date of Sampling	Client Sample ID	Suspended Solids (SS), mg/L
R150288/1	26/12/2015	C1	<1
R150288/2	26/12/2015	C2	1.6
R150288/3	26/12/2015	M1	1.9
R150288/4	26/12/2015	M2	38
R150288/5	26/12/2015	M3	<1

Note:
1. mg/L indicates milligram per liter
2. mg O_2/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

Acumen Laboratory and Testing Limited

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Test Report

Report Number	: Q150003aR150289
Job Number	: R150289
Issue Date	: 05/01/2016
Name of Applicant	: Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant	: No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name	: CJO-3113-07
Sample Description	: SS test
Laboratory ID	: R150289/1-5
Date of Sampling	: 28/12/2015
Date Received	: 28/12/2015
Test Period	: 29/12/2015 – 29/12/2015
Test Required	: 1. Suspended Solids (SS)
Method Used	: 1. QPL-15e, APHA 22ed 2540 D
Test Result	: Refer to the results on page 2.

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature: _____

Hui Wai Fung, Huntington
Laboratory Manager
Chemical Division

Acumen Laboratory and Testing Limited

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Test Report

Report Number : Q150003aR150289

Job Number : R150289

Issue Date : 05/01/2016

Test Result:

Lab ID	Date of Sampling	Client Sample ID	Suspended Solids (SS), mg/L
R150289/1	28/12/2015	C1	1.9
R150289/2	28/12/2015	C2	<1
R150289/3	28/12/2015	M1	2.1
R150289/4	28/12/2015	M2	21
R150289/5	28/12/2015	M3	<1

Note:
1. mg/L indicates milligram per liter
2. mg O_2/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

Acumen Laboratory and Testing Limited

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Test Report

Report Number	: Q150003aR150301
Job Number	: R150301
Issue Date	: 14/01/2016
Name of Applicant	: Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant	: No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name	: CJO-3113-08
Sample Description	: SS test
Laboratory ID	: R150301/1-5
Date of Sampling	: 30/12/2015
Date Received	: 30/12/2015
Test Period	: 31/12/2015 – 31/12/2015
Test Required	: 1. Suspended Solids (SS)
Method Used	: 1. QPL-15e, APHA 22ed 2540 D
Test Result	: Refer to the results on page 2.

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature:

Hui Wai Fung, Huntington
Laboratory Manager
Chemical Division

Acumen Laboratory and Testing Limited

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Test Report

Report Number : Q150003aR150301

Job Number : R150301

Issue Date : 14/01/2016

Test Result:

Lab ID	Date of Sampling	Client Sample ID	Suspended Solids (SS), mg/L
R150301/1	30/12/2015	C1	1.5
R150301/2	30/12/2015	C2	2.3
R150301/3	30/12/2015	M1	2.0
R150301/4	30/12/2015	M2	1.9
R150301/5	30/12/2015	M3	1.3

Note:
1. mg/L indicates milligram per liter
2. mg O_2/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

Acumen Laboratory and Testing Limited

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Test Report

Report Number	: Q150003aR160002
Job Number	: R160002
Issue Date	: 14/01/2016
Name of Applicant	: Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant	: No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name	: CJO-3113-09
Sample Description	: SS test
Laboratory ID	: R160002/1-5
Date of Sampling	: 02/01/2016
Date Received	: 02/01/2016
Test Period	: 02/01/2016 – 02/01/2016
Test Required	: 1. Suspended Solids (SS)
Method Used	: 1. QPL-15e, APHA 22ed 2540 D
Test Result	: Refer to the results on page 2.

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature: _____

Hui Wai Fung, Huntington
Laboratory Manager
Chemical Division

Acumen Laboratory and Testing Limited

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Test Report

Report Number : Q150003aR160002

Job Number : R160002

Issue Date : 14/01/2016

Test Result:

Lab ID	Date of Sampling	Client Sample ID	Suspended Solids (SS), mg/L
R160002/1	02/01/2016	C1	<1
R160002/2	02/01/2016	C2	1.2
R160002/3	02/01/2016	M1	1.3
R160002/4	02/01/2016	M2	<1
R160002/5	02/01/2016	M3	1.2

Note:
1. mg/L indicates milligram per liter
2. mg O_2/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

Acumen Laboratory and Testing Limited

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Test Report

Report Number	: Q150003aR160004
Job Number	: R160004
Issue Date	: 14/01/2016
Name of Applicant	: Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant	: No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name	: CJO-3113-10
Sample Description	: SS test
Laboratory ID	: R160004/1-5
Date of Sampling	: 04/01/2016
Date Received	: 04/01/2016
Test Period	: 05/01/2016 – 05/01/2016
Test Required	: 1. Suspended Solids (SS)
Method Used	: 1. QPL-15e, APHA 22ed 2540 D
Test Result	: Refer to the results on page 2.

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature: _____

Hui Wai Fung, Huntington
Laboratory Manager
Chemical Division

Acumen Laboratory and Testing Limited

Lot 12, Tam Kon Shan Road, Tsing Yi (N), Hong Kong
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Test Report

Report Number : Q150003aR160004

Job Number : R160004

Issue Date : 14/01/2016

Test Result:

Lab ID	Date of Sampling	Client Sample ID	Suspended Solids (SS), mg/L
R160004/1	04/01/2016	C1	<1
R160004/2	04/01/2016	C2	1.6
R160004/3	04/01/2016	M1	2.0
R160004/4	04/01/2016	M2	10
R160004/5	04/01/2016	M3	1.1

Note:
1. mg/L indicates milligram per liter
2. mg O_2/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

Acumen Laboratory and Testing Limited

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Test Report

Report Number	: Q150003aR160016
Job Number	: R160016
Issue Date	: 14/01/2016
Name of Applicant	: Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant	: No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name	: CJO-3113-11
Sample Description	: SS test
Laboratory ID	: R160016/1-5
Date of Sampling	: 06/01/2016
Date Received	: 06/01/2016
Test Period	: 07/01/2016 – 07/01/2016
Test Required	: 1. Suspended Solids (SS)
Method Used	: 1. QPL-15e, APHA 22ed 2540 D
Test Result	: Refer to the results on page 2.

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature: _____

Hui Wai Fung, Huntington
Laboratory Manager
Chemical Division

Acumen Laboratory and Testing Limited

Lot 12, Tam Kon Shan Road, Tsing Yi (N), Hong Kong
Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Report Number : Q150003aR160016

Job Number : R160016

Issue Date : 14/01/2016

Test Result:

Lab ID	Date of Sampling	Client Sample ID	Suspended Solids (SS), mg/L
R160016/1	06/01/2016	C1	<1
R160016/2	06/01/2016	C2	5.0
R160016/3	06/01/2016	M1	2.0
R160016/4	06/01/2016	M2	2.2
R160016/5	06/01/2016	M3	1.2

Note:
1. mg/L indicates milligram per liter
2. mg O_2/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

Acumen Laboratory and Testing Limited

Lot 12, Tam Kon Shan Road, Tsing Yi (N), Hong Kong
Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Report Number	: Q150003aR160023
Job Number	: R160023
Issue Date	: 14/01/2016
Name of Applicant	: Acumen Environmental Engineering and Technologies Co., Ltd.
Address of Applicant	: No. 12, Tam Kon Shan Road, Tsing Yi (North), N.T.
Project Name	: CJO-3113-12
Sample Description	: SS test
Laboratory ID	: R160023/1-5
Date of Sampling	: 08/01/2016
Date Received	: 08/01/2016
Test Period	: 09/01/2016 – 09/01/2016
Test Required	: 1. Suspended Solids (SS)
Method Used	: 1. QPL-15e, APHA 22ed 2540 D
Test Result	: Refer to the results on page 2.

For and on behalf of

Acumen Laboratory and Testing Limited

Authorized Signature: _____

Hui Wai Fung, Huntington
Laboratory Manager
Chemical Division

Acumen Laboratory and Testing Limited

Lot 12, Tam Kon Shan Road, Tsing Yi (N), Hong Kong
Tel: (852) 2333 6823 Fax: (852) 2333 1316

Test Report

Report Number : Q150003aR160023

Job Number : R160023

Issue Date : 14/01/2016

Test Result:

Lab ID	Date of Sampling	Client Sample ID	Suspended Solids (SS), mg/L
R160023/1	08/01/2016	C1	1.3
R160023/2	08/01/2016	C2	<1
R160023/3	08/01/2016	M1	1.9
R160023/4	08/01/2016	M2	<1
R160023/5	08/01/2016	M3	1.1

Note:
1. mg/L indicates milligram per liter
2. mg O_2/ L indicates milligram oxygen per liter
3. < indicates less than.
4. > indicates more than.
5. NA indicates Not Applicable.

End of Report

Appendix K
Event/Action Plan

Air Quality

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	1. Inform the Contractor, IEC and ER; 2. Discuss with the Contractor on the remedial measures required; 3. Repeat measurement to confirm findings; and 4. Increase monitoring frequency.	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing.	1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; and 3. Amend working methods agreed with the ER as appropriate.
2. Exceedance for two or more consecutive samples	1. Inform the Contractor, IEC and ER; 2. Discuss with the ER and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues,	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures.	1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; and

	arrange meeting with the IEC, ER and Contractor; and 6. If exceedance stops, cease additional monitoring.			4. Amend proposal as appropriate.
LIMIT LEVEL				
1. Exceedance for one sample	1. Inform the Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; and 4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER and Contractor on possible remedial measures; and 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; 4. Implement the agreed proposals; and 5. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	1. Notify Contractor, IEC, EPD and ER; 2. Repeat measurement to	1. Check monitoring data submitted by the ET; 2. Check the Contractor's	1. Confirm receipt of notification of exceedance in writing;	1. Identify source(s) and investigate the causes of exceedance;

	confirm findings; 3. Increase monitoring frequency to daily; 4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 7. If exceedance stops, cease additional monitoring.	working method; 3. Discuss with ET, ER, and Contractor on the potential remedial measures; and 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. 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.	2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL	1. Notify the Contractor, IEC and ER; 2. Discuss with the ER and Contractor on the remedial measures required; and 3. Increase monitoring frequency to check mitigation effectiveness.	1. Review the investigation results submitted by the Contractor; and 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of complaint in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures.	1. Investigate the complaint and propose remedial measures; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within three working days of notification; and 4. Implement noise mitigation proposals.
LIMIT LEVEL	1. Notify the Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Carry out analysis of	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures;	1. Confirm receipt of notification of failure in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be	1. Identify source and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER

	Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 7. If exceedance stops, cease	and 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	implemented; 3. Supervise the implementation of remedial measures; and 4. 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.	with copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Water Quality

EVENT	ACTION			
	ET Leader	IEC	ER	CONTRACTOR
Action level being exceeded by one sampling day	● Repeat *in situ* measurement to confirm findings; ● Identify reasons for non-compliance and source(s) of impact; ● Inform IEC and Contractor; ● Check monitoring data, all plant, equipment and Contractor's working methods; ● Discuss mitigation measures with IEC and Contractor; ● Repeat measurement on next day of exceedance.	● Discuss with ET and Contractor on the mitigation measures; ● Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; ● Assess the effectiveness of the Implemented mitigation measures.	● Discuss with IEC on the proposed mitigation measures; ● Make agreement on the mitigation measures to be implemented. ● Assess the effectiveness of the implemented mitigation measures.	● Inform the ER and confirm notification of the non-compliance in writing; ● Rectify unacceptable practice; ● Check all plant and equipment; ● Consider changes of working methods; ● Discuss with ET and IEC and propose mitigation measures to IEC and ER; ● Implement the agreed mitigation measures.
Action level being exceeded by more than one	● Repeat *in situ* measurement to	● Discuss with ET and Contractor on the	● Discuss with IEC on the proposed mitigation	● Inform the ER and confirm notification of

consecutive sampling day	confirm findings; ● Identify reasons for non-compliance and source(s) of impact; ● Inform IEC and Contractor; ● Check monitoring data, all plant, equipment and Contractor's working methods; ● Discuss mitigation measures with IEC and Contractor; ● Ensure mitigation measures are implemented; ● Prepare to increase the monitoring frequency to daily; ● Repeat measurement on next day of exceedance.	mitigation measures; ● Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; ● Assess the effectiveness of the implemented mitigation measures.	measures; ● Make agreement on the mitigation measures to be implemented; ● Assess the effectiveness of the implemented mitigation measures.	the non-compliance in writing; ● Rectify unacceptable practice; ● Check all plant and equipment; ● Consider changes of working methods; ● Discuss with ET and IEC and propose mitigation measures to IEC and ER within three working days; ● Implement the agreed mitigation measures.

Limit level being exceeded by one sampling day	● Repeat *in situ* measurement to confirm findings; ● Identify reasons for non-compliance and source(s) of impact; ● Inform IEC Contractor and EPD; ● Check monitoring data, all plant, equipment and Contractor's working methods; ● Discuss mitigation measures with IEC, ER and Contractor; ● Ensure mitigation measures are implemented; ● Increase the monitoring frequency to daily until no exceedance of Limit level.	● Discuss with ET and Contractor on the mitigation measures; ● Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; ● Assess the effectiveness of the implemented mitigation measures.	● Discuss with IEC, ET and Contractor on the proposed mitigation measures; ● Request Contractor to critically review the working methods; ● Make agreement on the mitigation measures to be implemented; ● Assess the effectiveness of the implemented mitigation measures.	● Inform the ER and confirm notification of the non-compliance in writing; ● Rectify unacceptable practice; ● Check all plant and equipment; ● Consider changes of working methods; ● Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within three working days; ● Implement the agreed mitigation measures.

Limit level being exceeded by more than one consecutive sampling day	● Repeat *in situ* measurement to confirm findings; ● Identify reasons for non-compliance and source(s) of impact; ● Inform IEC Contractor and EPD; ● Check monitoring data, all plant, equipment and Contractor's working methods; ● Discuss mitigation measures with IEC, ER and Contractor; ● Ensure mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.	● Discuss with ET and Contractor on the mitigation measures; ● Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; ● Assess the effectiveness of the implemented mitigation measures.	● Discuss with IEC, ET and Contractor on the proposed mitigation measures; ● Request Contractor to critically review the working methods; ● Make agreement on the mitigation measures to be implemented; ● Assess the effectiveness of the implemented mitigation measures; ● Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level.	● Inform the ER and confirm notification of the non-compliance in writing; ● Rectify unacceptable practice; ● Check all plant and equipment; ● Consider changes of working methods; ● Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within three working days; ● Implement the agreed mitigation measures; ● As directed by the ER, to slow down or to stop all or part of the construction activities.