

MTR Corporation Limited

HONG KONG SECTION OF GUANGZHOU -
SHENZHEN - HONG KONG EXPRESS RAIL LINK
(No. EP-349/2009)

Baseline Monitoring Report (Part 8)

Certified by: Glenn Frommer
Position: Environmental Team Leader
Date: 23 MAR 2010

Our ref KMY/AFK/JOC/FY/bl/T264090/22.01/L-0042

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Your ref

MTR Corporation Ltd.,
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23 March 2010
By Post and email

Attn : Dr. Glenn Frommer

Dear Sir

**Express Rail Link
Consultancy Agreement No. C806
Independent Environmental Checker (IEC)
Environmental Permit No.: EP-349/2009
Condition 2.42 – Baseline Monitoring Report (Part 8)**

We refer to the confirmation of Baseline Monitoring Report (Part 8) received on 23 March 2010. Pursuant to Condition 2.42 of the Environmental Permit, I hereby verify the Baseline Monitoring Report Part 8.

Yours faithfully,
for MOTT MACDONALD HONG KONG LIMITED



Dr. Anne Kerr
Independent Environmental Checker (IEC)

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EXECUTIVE SUMMARY

The environmental baseline monitoring for the Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link, hereinafter referred to “the XRL” was conducted at 1 noise and 1 air quality monitoring locations in the vicinity of Works Area H (Figure 1). Noise measurements were taken in terms of Leq with L10 and L90 as reference. Air quality was measured in terms of 1-hour and 24-hour average Total Suspended Particulates (TSP).

Given that no access was obtained for installation of dust monitoring station at the location specified in the EM&A Manual, No. 168 of Yau Ma Hom Resite Village (AM 10), the monitoring location was re-located to the vacant lot adjacent to No. 172 of Yau Ma Hom Resite Village. Monitoring of 1-hour and 24-hr TSP level were conducted between 19/1/2010 and 1/2/2010 at the AM 10. The average 1-hour TSP level at AM 10 was 108.2 $\mu\text{g}/\text{m}^3$. The average 24-hour TSP level at AM 10 was 69.0 $\mu\text{g}/\text{m}^3$.

The Action Levels at the monitoring locations were derived based on the baseline monitoring results. The Action Level of 1-hour and 24-hour average TSP levels at AM 10 was 320.3 $\mu\text{g}/\text{m}^3$ and 174.8 $\mu\text{g}/\text{m}^3$ respectively.

As no access was obtained for installation of noise monitoring station at No. 168, Yau Ma Hom Resite Village (CN19), noise monitoring location was relocated to the nearby Sun Fung Centre which is located adjacent to the Works Area H. Baseline noise monitoring was conducted between 23/2/2010 and 8/3/2010 at Sun Fung Centre (CN 19). Baseline noise monitoring was conducted during daytime (0700-1900 hours), evening time (1900-2300 hours) and night-time (2300-0700 hours) on all day during the above-mentioned period. In this report, the measured noise levels on weekdays were presented separately from general holidays and Sundays for easy of reference. As revealed from the monitoring results, baseline noise levels for daytime (0700-1900) during normal weekdays at Sun Fung Centre (CN19) was ranged from 67 to 68 dB(A). The daytime baseline noise levels of CN 19, 68 dB(A), was below the Limit Level of 75 dB(A) for residential premises.

1. INTRODUCTION

1.1 Background

Further to the Government's decision made in April 2008, MTR Corporation (MTR) commenced to plan and design the Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link (hereinafter referred to "the XRL" or "the Project"), which is a committed cross boundary transport infrastructure project.

The XRL will provide high speed rail services between Hong Kong and Guangzhou, and a connection to the national high-speed passenger rail network serving major mainland cities outside of Guangdong province. The Hong Kong section of the XRL is about 26km from new terminus located in West Kowloon (i.e. West Kowloon Terminus (WKT)) to the boundary at Huang gang. Along the railway corridor, there will be a total of eight ventilation buildings/ emergency access point (EAP), stabling sidings and a maintenance facility at Shek Kong (SSS) and an Emergency Rescue Station (ERS) next to SSS serving the operation of the XRL.

1.2 Purpose of the report

In accordance with the Environmental Monitoring and Audit (EM&A) Manual, environmental baseline monitoring was carried out for dust and noise. This Baseline Monitoring Report (Part 8) contains baseline monitoring findings in the vicinity of Works Area H (Figure 1). The purpose of this report is to summarize the findings of this baseline monitoring and to establish the compliance levels for the subsequent environmental impact monitoring during construction stage.

2. AIR QUALITY

2.1 Monitoring Methodology

Monitoring was undertaken to establish baseline levels for both 1-hour and 24-hour Total Suspended Particulates (TSP) at AM 10 located in the vicinity of the Works Area H. This provides data against which any environmental impacts due to construction activities can be compared.

During the construction period impact monitoring will only be conducted for 24-hour TSP, although 1-hour TSP monitoring may also be conducted and used in following up on complaints or exceedances, in order to provide a more rapid indication of the source of the problem at hand.

Baseline monitoring was conducted for both 1-hour and 24-hour TSP using a direct reading meter (MIE Data-RAM Portable Real Time Aerosol Monitor) and a high volume sampler (HVS) according to Part 50 Chapter 1 Appendix B, Title 40 of the Code of Federal Regulations of the USEPA.

2.2 Monitoring Frequency

Three separate 1-hour TSP measurements daily for a period of at least 14 days were made at the monitoring station to establish the ambient 1-hour TSP levels. For 24-hour TSP, monitoring was carried out continuously over a period of at least 14 days at the monitoring stations to establish the ambient 24-hour TSP levels. The monitoring frequency for baseline monitoring of 1-hour and 24-hour TSP is summarized in the table below:

Sampling Parameter	Frequency	Duration
1 hour TSP	• 3 times per day	Consecutive days of at least 2 weeks before commencement of construction works
Continuous 24-hour TSP	• Daily	

Table 2.1: Monitoring frequency for baseline monitoring of 1-hour and 24-hour TSP

2.3 Monitoring location

According to the EM&A Manual, baseline air quality monitoring was carried out during 19/1/2010 – 1/2/2010 to determine the ambient levels of both 1-hour and 24-hour TSP levels respectively at the vacant lot adjacent to No. 172 of Yau Ma Hom Resite Village (AM 10) in the vicinity of Works Area H. The locations of the works area and the respective ASR are shown in Figures 1 and 2 respectively. Photo showing the alternative dust monitoring location is shown in Figure 4. The information of the ASR where baseline air monitoring had been conducted is summarized in the table below:

Monitoring Station ID	Air Quality Monitoring Location	Monitoring period
AM 10	Vacant lot adjacent to No. 172 of Yau Ma Hom Resite Village ¹	19/1/2010 – 1/2/2010 (1-hr and 24-hr);

Table 2.2: Information of Air Sensitive Receiver where dust monitoring was conducted

2.4 Calibration requirements

The flow rate of the high volume sampler with mass flow controller was calibrated using an orifice calibrator. Initial calibration (five points) was conducted upon installation and prior to commissioning. Calibration was carried out every six months. Calibration certificate is attached in Appendix C. Calibration of the MIE by certified laboratory or manufacturer was carried out every two years and properly documented. Calibration certificate is attached in Appendix C.

The samplers shall be properly maintained. Prior to dust monitoring commencing, appropriate checks shall be made to ensure that all equipment and necessary power supply are in good working condition.

¹ Monitoring location was re-located as no access was obtained.

2.5 Monitoring Procedures

1-Hour TSP Levels Monitoring

TSP is sampled by drawing air into the MIE where particulate concentrations are measured instantaneously with an in-built detector sensing light scattered by the particles in the sampled air (optical sensing stage). Continuous TSP levels are indicated on the MIE along with a 'Time Weighted Average' value.

24-Hour TSP Levels Monitoring

The sampling procedure follows to that described Part 50 Chapter 1 Appendix B, Title 40 of the Code of Federal Regulations of the USEPA. TSP is sampled by drawing air through a conditioned, pre-weighed filter paper inside the high volume sampler at a controlled rate. After 24-hour sampling the filter paper with retained particles shall be collected and returned to HOKLAS accredited laboratory (ALS Technichem (HK) Pty Ltd) for drying in a desiccators followed by accurate weighing. TSP levels are calculated from the ratio of the mass of particulate retained on the filter paper to the total volume of air sampled.

2.6 Monitoring Results

During the monitoring period, the weather was mostly fine with occasional rainy days. The major source of dust in the vicinity was observed to originate mainly from the traffic on nearby road.

Monitoring results of 1-hour and 24-hour TSP are summarised in Table 2.3 and 2.4. All monitoring data of 1-hour and 24-hour are shown in Appendix A.

Monitoring Location	Average TSP Concentration, $\mu\text{g}/\text{m}^3$ (Range)
Vacant lot adjacent to No. 172 of Yau Ma Hom Resite Village (AM 10)	108.2 (43.0-272.2)

Table 2.3: Summary of baseline 1-hour TSP level

Monitoring Location	Average TSP Concentration, $\mu\text{g}/\text{m}^3$ (Range)
Vacant lot adjacent to No. 172 of Yau Ma Hom Resite Village (AM 10)	69.0 (48.1-127.3)

Table 2.4: Summary of baseline 24-hour TSP level

2.7 Action and Limit Levels

In accordance with the EM&A Manual, the baseline TSP levels form the basis for derivation of the Action Levels for subsequent impact monitoring, which is summarised in the table below:

Parameter	Action Level ⁽¹⁾	Limit Level
TSP (24 hour average)	• $\text{BL} \leq 200\mu\text{g m}^{-3}$, $\text{AL} = (\text{BL} * 1.3 + \text{LL})/2$ • $\text{BL} > 200\mu\text{g m}^{-3}$, $\text{AL} = \text{LL}$	$260\mu\text{g m}^{-3}$
TSP (1 hour average)	• $\text{BL} \leq 384\mu\text{g m}^{-3}$, $\text{AL} = (\text{BL} * 1.3 + \text{LL})/2$ • $\text{BL} > 384\mu\text{g m}^{-3}$, $\text{AL} = \text{LL}$	$500\mu\text{g m}^{-3}$

(1) BL = Baseline level, AL = Action level, LL = Limit Level.

Table 2.5: Basis for establishing the Action and Limit Levels for Air Quality

In accordance with Table 2.3 and 2.4 regarding results from baseline monitoring, the Action Level for air quality impact monitoring are calculated and presented below:

Location	Parameter	Action Level	Limit Level
Vacant lot adjacent to No. 172 of Yau Ma Hom Resite Village (AM 10)	TSP (24-hour average)	$174.8\mu\text{g m}^{-3}$	$260\mu\text{g m}^{-3}$
	TSP (1-hour average)	$320.3\mu\text{g m}^{-3}$	$500\mu\text{g m}^{-3}$

Table 2.6: Action and Limit Levels for Air Quality Impact Monitoring

3. AIRBORNE CONSTRUCTION NOISE

3.1 Monitoring Methodology

Consecutive noise measurements were undertaken over a period of at least 14 days to establish the ambient noise levels at representative nearest sensitive receivers. Continuous 5 minute A-weighted noise levels were recorded throughout the daytime, evening and night-time on weekdays (Monday to Saturday) and also on Sundays.

As referred to the Technical Memorandum (TM) issued under the NCO, sound level meters in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications shall be used for carrying out the noise monitoring. In this baseline monitoring, B&K 2250 sound level meters, which complies with the above-mentioned specifications, were used.

There should not be any construction activities in the vicinity of the monitoring stations during the baseline monitoring. Any non-project related construction activities in the vicinity of the monitoring stations during the baseline monitoring should be noted and the source and location of such activities should be recorded.

3.2 Monitoring Frequency

The baseline monitoring was measured daily for a continuous period of at least 14 consecutive days at a minimum logging interval of 30 minutes for daytime (between 0700 and 1900 hours of normal weekdays) and 15 minutes (as three consecutive Leq, (5 minutes) readings) for evening time (between 1900 and 2300 hours of normal weekdays), general holidays including Sundays (between 0700 and 2300 hours) and night-time (between 2300 and 0700 of all days). The Leq, L10 and L90 were recorded at the specified interval.

3.3 Monitoring location

Baseline noise monitoring was carried out during 23/2/2010 to 8/3/2010 at CN19 located in the vicinity of Works Area H. The location of the NSR is shown in Figure 3. Photo showing the alternative noise monitoring location is shown in Figure 5. Monitoring was carried out at the following stations in accordance with the EM&A

Manual:

Monitoring Station ID	Noise Monitoring Location	Monitoring period
CN 19	Sun Fung Centre ²	23/2/2010 to 8/3/2010

Table 3.1: Information of Noise Monitoring Stations

3.4 Calibration Requirements

B&K 2250 sound level meters which complied with the International Electrotechnical Commission Publication 651:1979 (Type 1) and 804:1985 (Type 1), specification as referred to in the Technical Memoranda to the NCO were used for the baseline monitoring. The B&K sound level meters and Rion NC 73 calibrator are verified by the certified laboratory or manufacturer once every year to ensure they perform to the same level of accuracy as stated in the manufacturer's specifications. Calibration certificates of the sound level meters and calibrator are attached in Appendix C.

Immediately prior to and following each noise measurement the accuracy of the sound level meter should be checked using an acoustic calibrator (Rion NC 73) generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the difference between calibration levels obtained before and after the noise measurement is less than 1.0 dB.

3.5 Action and Limit Levels

The Action and Limit Levels defined in the EM&A Manual for airborne construction noise is presented below for reference.

Time Period	Action	Limit
0700-1900 hours on normal weekdays	When one documented complaint is received	75 dB(A) for residential premises
		70 dB(A) for school and 65 dB(A) during examination period

Table 3.2: Action and Limit Levels for Airborne Construction Noise

² Monitoring location was re-located as no access was obtained.

3.6 Monitoring Results

Baseline noise monitoring was conducted between 23/2/2010 and 8/3/2010 at Sun Fung Centre (CN 19). The weather condition was generally fine during the monitoring period. The major noise sources at respective monitoring location are summarized at the table below:

Monitoring location ID	Monitoring location	Major noise source
CN 19	Sun Fung Centre	Traffic noise

Table 3.3: Major noise source at noise monitoring locations

Baseline noise monitoring results are summarised in Table 3.3 over the monitoring periods. All monitoring data are contained in Appendix B. Graphical presentations of the monitoring results are shown in Appendix B.

Period	Monitoring Station	L_{eq}(30min) – dB(A) (Range)	L₁₀(30min) – dB(A) (Range)	L₉₀(30min) – dB(A) (Range)
0700 – 1900 (Daytime, Normal weekday)	CN 19	68 (67 - 68)	70 (70 - 71)	64 (62 - 65)
Period	Monitoring Station	L_{eq}(5min) – dB(A) (Range)	L₁₀(5min) – dB(A) (Range)	L₉₀(5min) – dB(A) (Range)
0700 – 2300 (General Holiday including Sunday)	CN 19	65 (64 - 69)	68 (67 - 72)	60 (57 - 62)
1900 – 2300 (Evening, Normal weekday)	CN 19	66 (64 - 69)	69 (68 - 71)	61 (58 - 64)
2300 – 0700 (Night-time, all days)	CN 19	62 (58 - 66)	65 (61 - 69)	56 (51 - 60)

Table 3.4: Baseline noise monitoring results

As revealed from the monitoring results, baseline noise levels for daytime (0700-1900) during normal weekdays at CN19 range from 67-68 dB(A). The daytime baseline noise levels of CN 19, 68 dB(A), was below the Limit Level of 75 dB(A) for residential premises.

4. CONCLUSION

4.1 Air

1-hour TSP

Baseline 1-hour TSP monitoring was conducted at AM 10 between the period 19/1/2010 and 1/2/2010. The weather condition was generally fine. From site observation, it was noted that the major source of dust was originated mainly from traffic on nearby road.

Baseline 1-hour TSP monitoring at AM 10 was found in the range of 43.0 to 272.2 $\mu\text{g}/\text{m}^3$. The average 1-hour TSP level at AM 10 was recorded to be 108.2 $\mu\text{g}/\text{m}^3$.

24-hour TSP

Baseline 24-hour TSP monitoring was conducted at AM 10 between the period 19/1/2010 and 1/2/2010. Baseline 24-hour TSP monitoring at AM 10 was found in the range of 48.1 to 127.3 $\mu\text{g}/\text{m}^3$. The average 24-hour TSP level was recorded to be 69.0 $\mu\text{g}/\text{m}^3$.

The Action Levels at the monitoring locations were derived based on the baseline monitoring results. The Action Level of 1-hour and 24-hour average TSP levels at AM 10 was 320.3 $\mu\text{g}/\text{m}^3$ and 174.8 $\mu\text{g}/\text{m}^3$ respectively.

4.2 Airborne Construction Noise

Baseline noise monitoring were carried at all two monitoring stations from 23/2/2010 to 8/3/2010. The weather during the baseline monitoring period was generally fine.

As revealed from the monitoring results, baseline noise levels for daytime (0700-1900) during normal weekdays at CN19 range from 67-68 dB(A). The daytime baseline noise levels of CN 19, 68 dB(A), was below the Limit Level of 75 dB(A) for residential premises.

Appendix A

Baseline air quality (1-hr and 24-hr TSP) monitoring data

Details of 1-hour TSP Level monitoring at AM 10

Month	Date	Receptor		Time periods		Weather condition	Site condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (µg/m³)	Remarks
		No.	Set No.	Start	Finish						
Jan-10	19-Jan-10	AM10	1	9:10	10:10	Fine	Normal	18.0	766.0	86.8	
Jan-10	19-Jan-10	AM10	2	10:10	11:10	Fine	Normal	18.0	766.0	72.3	
Jan-10	19-Jan-10	AM10	3	11:10	12:10	Fine	Normal	18.0	766.0	82.6	
Jan-10	20-Jan-10	AM10	1	9:03	10:03	Fine	Normal	21.0	765.0	65.0	
Jan-10	20-Jan-10	AM10	2	10:03	11:03	Fine	Normal	21.0	765.0	63.2	
Jan-10	20-Jan-10	AM10	3	11:03	12:03	Fine	Normal	21.0	765.0	63.3	
Jan-10	21-Jan-10	AM10	1	8:46	9:46	Fine	Normal	22.0	764.0	72.3	
Jan-10	21-Jan-10	AM10	2	9:46	10:46	Fine	Normal	22.0	764.0	51.8	
Jan-10	21-Jan-10	AM10	3	10:46	11:46	Fine	Normal	22.0	764.0	47.1	
Jan-10	22-Jan-10	AM10	1	8:37	9:37	Fine	Normal	18.0	767.0	74.6	
Jan-10	22-Jan-10	AM10	2	9:37	10:37	Fine	Normal	18.0	767.0	74.3	
Jan-10	22-Jan-10	AM10	3	10:37	11:37	Fine	Normal	18.0	767.0	76.3	
Jan-10	23-Jan-10	AM10	1	8:35	9:35	Fine	Normal	16.0	767.0	52.4	
Jan-10	23-Jan-10	AM10	2	9:35	10:35	Fine	Normal	16.0	767.0	43.0	
Jan-10	23-Jan-10	AM10	3	10:35	11:35	Fine	Normal	16.0	767.0	44.7	
Jan-10	24-Jan-10	AM10	1	9:42	10:42	Fine	Normal	16.0	766.0	145.5	
Jan-10	24-Jan-10	AM10	2	10:42	11:42	Fine	Normal	16.0	766.0	162.8	

Month	Date	Receptor		Time periods		Weather condition	Site condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (µg/m³)	Remarks
		No.	Set No.	Start	Finish						
Jan-10	24-Jan-10	AM10	3	11:42	12:42	Fine	Normal	16.0	766.0	191.3	
Jan-10	25-Jan-10	AM10	1	9:41	10:41	Fine	Normal	18.0	766.0	146.7	
Jan-10	25-Jan-10	AM10	2	10:41	11:41	Fine	Normal	18.0	766.0	135.7	
Jan-10	25-Jan-10	AM10	3	11:41	12:41	Fine	Normal	18.0	766.0	151.6	
Jan-10	26-Jan-10	AM10	1	13:44	14:44	Fine	Normal	16.0	767.0	77.4	
Jan-10	26-Jan-10	AM10	2	14:44	15:44	Fine	Normal	16.0	767.0	84.6	
Jan-10	26-Jan-10	AM10	3	15:44	16:44	Fine	Normal	16.0	767.0	72.8	
Jan-10	27-Jan-10	AM10	1	14:02	15:02	Fine	Normal	17.0	765.0	76.2	
Jan-10	27-Jan-10	AM10	2	15:02	16:02	Fine	Normal	17.0	765.0	84.9	
Jan-10	27-Jan-10	AM10	3	16:02	17:02	Fine	Normal	17.0	765.0	95.7	
Jan-10	28-Jan-10	AM10	1	13:52	14:52	Cloudy	Normal	19.0	763.0	258.8	
Jan-10	28-Jan-10	AM10	2	14:52	15:52	Cloudy	Normal	19.0	763.0	262.7	
Jan-10	28-Jan-10	AM10	3	15:52	16:52	Cloudy	Normal	19.0	763.0	272.2	
Jan-10	29-Jan-10	AM10	1	13:44	14:44	Cloudy	Normal	21.0	766.0	95.6	
Jan-10	29-Jan-10	AM10	2	14:44	15:44	Cloudy	Normal	21.0	766.0	86.2	
Jan-10	29-Jan-10	AM10	3	15:44	16:44	Cloudy	Normal	21.0	766.0	88.1	
Jan-10	30-Jan-10	AM10	1	13:52	14:52	Fine	Normal	21.0	767.0	138.0	
Jan-10	30-Jan-10	AM10	2	14:52	15:52	Fine	Normal	21.0	767.0	123.8	
Jan-10	30-Jan-10	AM10	3	15:52	16:52	Fine	Normal	21.0	767.0	133.0	

Month	Date	Receptor		Time periods		Weather condition	Site condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (µg/m³)	Remarks
		No.	Set No.	Start	Finish						
Jan-10	31-Jan-10	AM10	1	14:07	15:07	Fine	Normal	23.0	766.0	99.8	
Jan-10	31-Jan-10	AM10	2	15:07	16:07	Fine	Normal	23.0	766.0	73.8	
Jan-10	31-Jan-10	AM10	3	16:07	17:07	Fine	Normal	23.0	766.0	80.1	
Feb-10	01-Feb-10	AM10	1	13:50	14:50	Fine	Normal	23.0	767.0	136.0	
Feb-10	01-Feb-10	AM10	2	14:50	15:50	Fine	Normal	23.0	767.0	146.2	
Feb-10	01-Feb-10	AM10	3	15:50	16:50	Fine	Normal	23.0	767.0	155.0	
									Average	108.2	
									Max	272.2	
									Min	43.0	
									Action Level	320.3	
									Limit Level	500.0	

Details of 24-hour TSP Level monitoring at AM 10

Filter No.	Date	Time periods		Receptor No.	Weather condition	Site condition	Filter Weight (g)		TSP weight (g)	Flow Rate (m³/min)		Average Flow Rate (m³/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m³)	24-hour TSP Level (µg /m³)
		Start	Finish				Initial	Final		Initial	Final		Start	Finish			
100815	19-Jan-10	11:05	11:05	AM10	Fine	Normal Operation	2.8322	2.9474	0.1152	1.4209	1.5572	1.4891	7968.39	7992.39	1440.00	2144.23	53.7
100817	20-Jan-10	11:10	11:10	AM10	Fine	Normal Operation	2.8478	2.9403	0.0925	1.2395	1.2367	1.2381	7992.39	8016.39	1440.00	1782.86	51.9
100819	21-Jan-10	11:13	11:13	AM10	Fine	Normal Operation	2.8561	2.9619	0.1058	1.2943	1.3055	1.2999	8016.39	8040.39	1440.00	1871.86	56.5
100821	22-Jan-10	11:15	11:15	AM10	Fine	Normal Operation	2.8610	2.9496	0.0886	1.2764	1.2807	1.2786	8040.39	8064.39	1440.00	1841.11	48.1
100816	23-Jan-10	11:18	11:18	AM10	Fine	Normal Operation	2.8423	2.9674	0.1251	1.3098	1.3090	1.3094	8064.39	8088.39	1440.00	1885.54	66.3
100823	24-Jan-10	11:20	11:20	AM10	Fine	Normal Operation	2.8800	3.0258	0.1458	1.2507	1.2466	1.2487	8088.39	8112.39	1440.00	1798.06	81.1
100647	25-Jan-10	11:25	11:25	AM10	Fine	Normal Operation	2.8356	2.9307	0.0951	1.2466	1.3098	1.2782	8112.39	8136.39	1440.00	1840.61	51.7
100649	26-Jan-10	11:28	11:28	AM10	Fine	Normal Operation	2.8386	2.9715	0.1329	1.2807	1.2478	1.2643	8136.39	8160.39	1440.00	1820.52	73.0
100651	27-Jan-10	11:30	11:30	AM10	Cloudy	Normal Operation	2.8237	2.9810	0.1573	1.2769	1.2420	1.2595	8160.39	8184.39	1440.00	1813.61	86.7
100653	28-Jan-10	11:33	11:33	AM10	Cloudy	Normal Operation	2.8265	3.0541	0.2276	1.2420	1.2403	1.2412	8184.39	8208.39	1440.00	1787.26	127.3
100658	29-Jan-10	11:38	11:38	AM10	Fine	Normal Operation	2.8443	2.9949	0.1506	1.2403	1.2411	1.2407	8209.39	8233.39	1440.00	1786.61	84.3
100657	30-Jan-10	11:42	11:42	AM10	Fine	Normal Operation	2.8102	2.9293	0.1191	1.2411	1.2362	1.2387	8233.39	8257.39	1440.00	1783.66	66.8
100660	31-Jan-10	11:48	11:48	AM10	Fine	Normal Operation	2.8264	2.9231	0.0967	1.2362	1.1505	1.1934	8257.39	8281.39	1440.00	1718.42	56.3
100662	01-Feb-10	11:55	11:55	AM10	Cloudy	Normal Operation	2.8120	2.9245	0.1125	1.2946	1.2403	1.2675	8281.39	8305.39	1440.00	1825.13	61.6
																Average	69.0
																Max	127.3

Min	48.1
Action Level	174.8
Limit Level	260.0

Appendix B

Baseline noise monitoring data

Baseline Noise Monitoring Result

Location: CN 19 Sun Fung Centre

Baseline monitoring period: 23/2/2010-8/3/2010

Parameter: Leq

Time Slot Averaged Baselines

1) Weekdays Daytime Noise Level, dB(A)

Time slot	Leq, 30 min	L10	L90
07:00-07:30	66.9	69.7	62.1
07:30-08:00	67.7	70.2	63.2
08:00-08:30	67.9	70.2	64.1
08:30-09:00	68.0	70.2	64.5
09:00-09:30	68.1	70.5	64.5
09:30-10:00	68.1	70.4	64.3
10:00-10:30	67.7	70.1	63.9
10:30-11:00	67.7	70.2	63.8
11:00-11:30	67.7	70.1	63.8
11:30-12:00	67.5	69.9	63.6
12:00-12:30	67.3	69.7	63.4
12:30-13:00	67.2	69.7	63.0
13:00-13:30	67.4	69.9	63.3
13:30-14:00	67.4	69.8	63.5
14:00-14:30	67.4	70.0	63.6
14:30-15:00	67.3	69.8	63.5
15:00-15:30	67.7	70.1	63.5
15:30-16:00	67.3	69.8	63.2
16:00-16:30	67.5	70.0	63.3
16:30-17:00	67.4	70.0	63.3
17:00-17:30	67.5	70.0	63.3
17:30-18:00	67.5	70.2	63.3
18:00-18:30	67.5	70.2	63.4
18:30-19:00	67.3	70.0	62.7
Average	67.6	70.0	63.5
Max	68.1	70.5	64.5
Min	66.9	69.7	62.1

Noise Control Period Averaged Baselines

2) Weekdays Evening Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
19:00-19:15	67.8	70.6	63.5
	68.6	71.2	63.0
	67.6	70.3	62.7
19:15-19:30	67.7	70.7	62.5
	67.9	71.0	62.9
	67.2	69.9	62.4
19:30-19:45	68.4	70.8	62.9
	67.2	70.0	62.4
	67.7	70.6	62.9
19:45-20:00	67.4	70.2	62.4
	66.8	69.6	62.0
	66.2	68.8	60.7
20:00-20:15	66.7	69.8	61.3
	66.8	70.0	61.0
	66.5	69.5	61.0
20:15-20:30	66.8	69.8	61.0
	66.6	69.5	60.8
	66.7	69.3	61.1
20:30-20:45	66.1	69.3	60.4
	66.8	69.9	60.8
	65.3	68.4	59.4
20:45-21:00	65.4	68.5	59.6
	65.0	67.9	59.7
	65.0	67.9	59.6
21:00-21:15	65.5	68.3	59.7
	64.8	67.8	59.0
	65.4	68.4	58.9
21:15-21:30	65.0	68.1	58.6
	65.2	68.4	59.2
	64.8	68.0	58.9
21:30-21:45	65.4	68.6	59.1

Time Slot	Leq, 5min	L10	L90
	64.9	68.0	58.9
	65.3	68.3	59.3
	65.5	68.4	59.3
21:45-22:00	64.8	67.9	59.1
	65.7	68.8	59.3
	65.0	67.9	59.1
22:00-22:15	65.3	68.2	59.4
	64.9	68.0	58.7
	65.1	68.0	58.9
22:15-22:30	65.1	68.2	59.2
	64.9	68.2	58.3
	65.4	68.3	59.6
22:30-22:45	64.6	67.6	58.8
	65.5	68.6	59.0
	64.4	67.5	58.2
22:45-23:00	64.8	67.9	58.6
	64.5	67.5	58.4
	66.1	69.1	60.5
Average	66.1	69.1	60.5
Max	68.6	71.2	63.5
Min	64.4	67.5	58.2

3) General Holidays (including Sundays) (0700-2300) Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
0700-07:15	64.8	68.1	58.7
	64.6	67.6	58.8
	65.2	67.8	60.1
07:15-07:30	65.6	68.8	57.3
	65.2	68.1	59.2
	65.1	68.2	58.2
07:30-07:45	68.8	71.8	58.6
	64.7	68.0	57.9
	64.8	67.7	59.2
07:45-08:00	65.0	68.1	57.5
	65.0	68.2	59.3

Time Slot	Leq, 5min	L10	L90
	65.4	68.6	59.7
08:00-08:15	65.3	68.3	59.0
	64.5	67.5	58.9
	64.4	67.3	58.4
08:15-08:30	65.1	68.0	59.4
	66.0	69.1	60.1
	65.5	68.7	60.4
08:30-08:45	63.9	67.0	57.8
	65.3	68.3	59.7
	65.3	68.4	58.8
08:45-09:00	64.1	67.4	58.2
	65.1	68.3	59.6
	64.9	67.8	58.8
09:00-09:15	66.7	69.8	59.7
	64.7	67.7	59.1
	65.5	68.4	59.6
09:15-09:30	65.2	68.0	59.9
	65.4	68.3	59.3
	65.5	68.7	58.6
09:30-09:45	66.3	69.2	59.7
	65.8	68.9	59.4
	65.8	69.2	59.2
09:45-10:00	65.5	68.1	61.0
	65.8	68.4	61.2
	65.9	68.9	59.7
10:00-10:15	65.8	68.6	60.3
	65.3	67.7	60.0
	65.0	67.6	59.8
10:15-10:30	66.3	69.0	60.3
	65.4	68.1	60.4
	65.9	69.3	60.0
10:30-10:45	65.0	67.8	59.9
	65.6	68.6	59.9
	65.1	68.0	59.1
10:45-11:00	65.4	68.1	60.5
	65.4	68.4	59.4

Time Slot	Leq, 5min	L10	L90
	66.2	68.9	59.0
11:00-11:15	64.7	67.3	59.5
	66.0	68.9	60.4
	65.3	68.3	58.5
11:15-11:30	65.7	68.5	59.9
	64.7	67.4	59.8
	64.8	68.1	59.6
11:30-11:45	65.8	69.1	60.2
	64.8	67.6	58.8
	65.3	68.4	60.2
11:45-12:00	65.3	68.1	60.0
	65.7	68.5	60.2
	65.5	68.3	59.8
12:00-12:15	65.4	67.7	60.1
	65.9	68.7	61.4
	65.8	68.9	59.6
12:15-12:30	65.5	68.1	59.8
	65.1	68.0	59.9
	65.7	68.6	60.4
12:30-12:45	65.8	68.7	60.5
	66.7	69.4	61.9
	65.7	68.4	59.6
12:45-13:00	65.5	68.0	59.8
	65.8	68.8	60.0
	65.9	69.0	61.0
13:00-13:15	65.6	68.4	60.5
	66.1	68.7	61.6
	66.3	69.2	61.4
13:15-13:30	66.4	67.9	61.5
	65.2	68.0	60.2
	66.2	68.9	61.7
13:30-13:45	65.8	68.8	59.9
	65.7	68.6	60.6
	65.9	68.8	60.4
13:45-14:00	65.8	68.2	61.2
	65.5	68.4	61.2

Time Slot	Leq, 5min	L10	L90
	65.9	68.8	60.2
14:00-14:15	66.0	69.2	60.1
	65.9	68.7	61.0
	66.1	68.2	58.7
14:15-14:30	65.7	68.6	60.4
	66.0	69.0	60.7
	65.8	68.9	59.7
14:30-14:45	65.5	68.6	59.9
	65.3	68.2	60.0
	65.3	68.4	59.9
14:45-15:00	65.0	67.7	59.9
	66.1	69.4	59.8
	64.8	67.6	59.8
15:00-15:15	65.0	67.5	60.6
	65.2	68.2	60.1
	65.5	68.5	59.3
15:15-15:30	65.8	68.3	60.5
	65.8	68.7	60.3
	64.8	67.5	60.3
15:30-15:45	66.4	69.4	61.0
	65.6	68.6	60.3
	65.3	68.2	59.6
15:45-16:00	64.6	67.3	59.7
	65.6	68.2	59.9
	64.9	68.0	59.4
16:00-16:15	65.7	68.6	59.1
	65.1	67.7	59.9
	65.1	68.4	59.2
16:15-16:30	66.0	68.7	60.4
	65.8	68.4	60.5
	64.7	68.1	58.9
16:30-16:45	65.1	68.0	59.8
	65.0	68.0	59.7
	66.4	69.5	60.2
16:45-17:00	65.5	68.2	60.7
	65.5	68.7	59.1

Time Slot	Leq, 5min	L10	L90
	65.4	68.5	58.5
17:00-17:15	66.1	69.1	60.9
	65.4	68.5	59.6
	65.7	68.6	60.5
17:15-17:30	65.5	68.6	59.4
	66.3	69.4	60.5
	65.4	68.4	60.3
17:30-17:45	65.3	68.3	59.7
	65.6	68.7	60.1
	66.0	69.7	60.0
17:45-18:00	65.9	68.7	60.9
	66.0	68.6	61.3
	65.6	68.6	59.4
18:00-18:15	65.7	68.3	60.6
	66.7	69.6	60.9
	65.3	68.4	59.5
18:15-18:30	65.3	68.5	60.9
	66.2	68.9	61.0
	65.4	68.6	59.3
18:30-18:45	65.9	68.8	59.6
	64.9	68.0	58.8
	64.7	67.4	58.3
18:45-19:00	66.4	69.9	60.1
	65.9	68.7	60.5
	65.7	68.2	60.2
19:00-19:15	66.2	69.2	60.7
	64.2	67.3	58.8
	65.3	68.7	59.5
19:15-19:30	65.0	68.4	59.0
	64.3	67.1	59.0
	65.1	68.0	59.1
19:30-19:45	64.5	67.4	58.7
	65.3	68.2	58.2
	64.3	67.3	57.8
19:45-20:00	65.2	68.6	59.7
	64.9	67.9	59.1

Time Slot	Leq, 5min	L10	L90
	66.2	69.0	61.1
20:00-20:15	65.2	68.4	59.0
	64.5	67.3	58.6
	65.2	68.6	58.2
20:15-20:30	64.8	68.1	57.1
	64.1	67.1	58.4
	65.1	68.5	58.8
20:30-20:45	65.1	68.1	59.2
	64.2	67.0	57.9
	64.3	67.4	58.9
20:45-21:00	65.1	68.0	58.9
	64.6	67.5	57.5
	64.6	67.8	58.4
21:00-21:15	64.5	67.8	58.0
	64.6	67.8	58.9
	64.6	67.6	59.1
21:15-21:30	65.1	68.4	58.8
	65.0	67.6	59.9
	65.2	68.3	58.7
21:30-21:45	64.5	67.7	57.8
	65.4	68.4	59.0
	66.0	69.4	58.8
21:45-22:00	64.5	67.5	59.1
	64.6	67.8	58.4
	64.5	67.6	59.1
22:00-22:15	65.1	68.4	59.4
	65.3	68.0	59.5
	64.8	67.8	58.0
22:15-22:30	66.0	69.1	59.7
	64.8	67.7	59.2
	65.3	68.2	58.8
22:30-22:45	65.1	67.9	59.5
	63.8	66.7	57.3
	65.0	68.5	59.0
22:45-23:00	65.5	69.2	59.2
	64.0	66.7	58.0

Time Slot	Leq, 5min	L10	L90
	64.0	67.1	58.1
Average	65.4	68.4	59.7
Max	68.8	71.8	61.9
Min	63.8	66.7	57.1

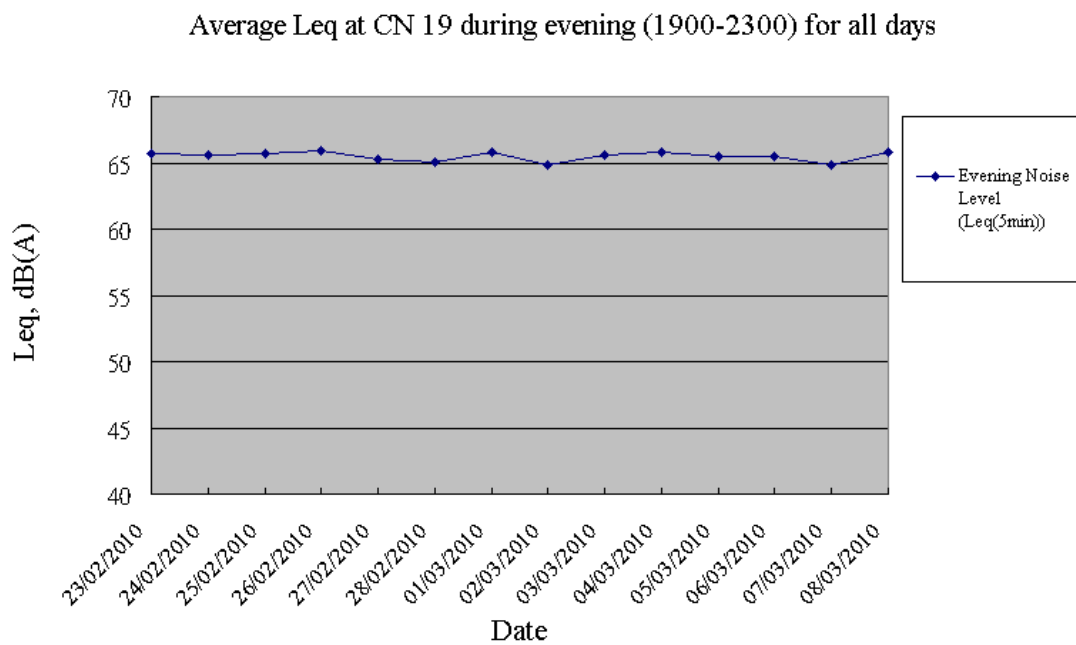
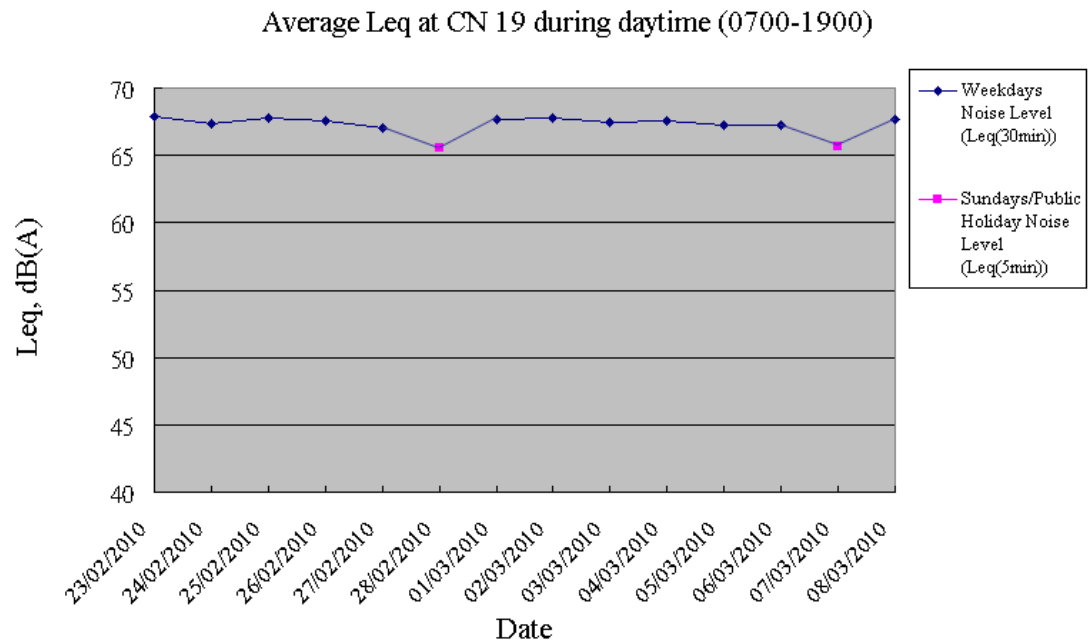
4) Night-time (for all days) Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
23:00-23:15	65.1	68.2	58.8
	64.6	68.0	58.0
	65.1	68.4	58.4
23:15-23:30	64.9	68.0	58.1
	64.7	68.0	58.2
	64.7	67.7	57.9
23:30-23:45	64.4	67.6	57.7
	64.3	67.6	57.7
	64.3	67.5	57.2
23:45-00:00	64.3	67.6	57.2
	64.4	67.8	57.3
	64.1	67.5	57.7
00:00-00:15	63.5	66.7	56.9
	64.1	67.6	57.2
	63.6	67.1	56.3
00:15-00:30	63.3	66.7	56.1
	63.8	67.1	56.4
	63.2	66.5	56.0
00:30-00:45	63.2	66.7	55.6
	62.1	65.7	54.5
	61.6	64.9	54.4
00:45:01:00	60.9	64.3	54.1
	61.0	64.2	54.3
	60.4	63.8	53.4
01:00-01:15	60.4	63.7	53.4
	60.5	63.7	53.4
	60.3	63.4	53.2
01:15-01:30	60.0	63.2	53.2

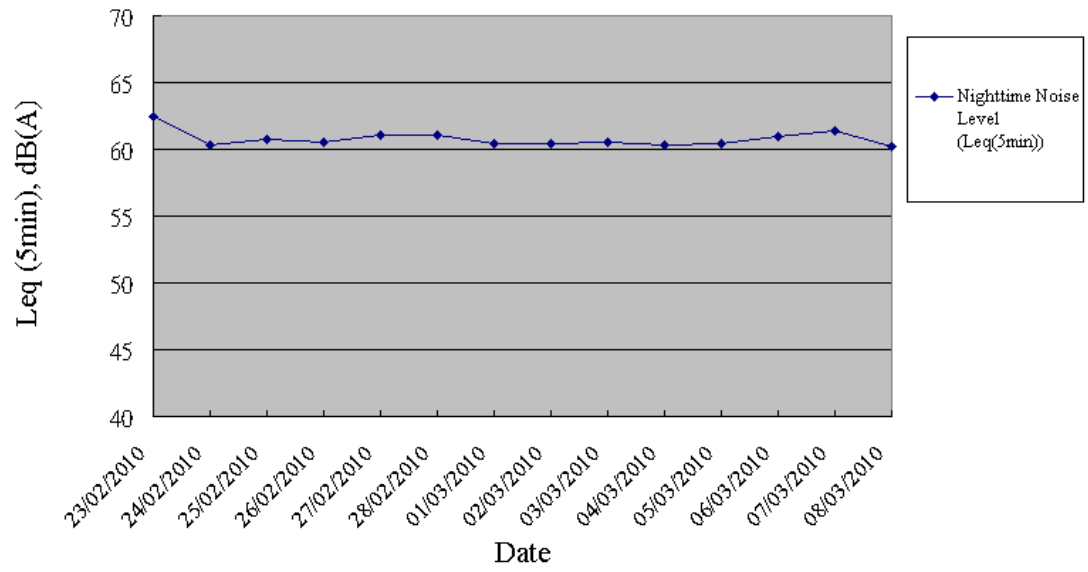
Time Slot	Leq, 5min	L10	L90
	59.7	62.9	52.7
	59.3	62.6	52.7
01:30-01:45	59.3	62.8	52.3
	59.1	62.4	52.7
	59.4	62.4	52.4
01:45-02:00	61.2	64.5	53.7
	60.5	63.6	53.3
	59.8	63.0	52.8
02:00-02:15	59.1	62.6	52.4
	59.4	62.6	52.4
	58.9	62.3	52.2
02:15-02:30	58.9	62.4	52.2
	58.7	61.9	51.9
	58.6	62.1	51.9
02:30-02:45	58.7	62.1	52.1
	58.6	62.0	52.1
	58.1	61.4	51.9
02:45-03:00	58.3	61.5	52.4
	58.2	61.7	52.1
	58.2	61.7	51.7
03:00-03:15	57.7	61.1	51.6
	57.5	60.9	51.4
	58.0	61.4	51.9
03:15-03:30	58.2	61.6	51.8
	58.4	61.9	52.2
	58.0	61.6	51.7
03:30-03:45	58.6	62.0	51.9
	58.6	62.1	52.6
	58.5	61.8	52.3
03:45-04:00	58.8	62.2	52.4
	58.4	61.9	52.2
	58.0	61.4	51.8
04:00-04:15	59.0	62.4	52.4
	58.3	61.7	51.8
	59.3	62.7	52.2
04:15-04:30	59.2	62.6	52.5

Time Slot	Leq, 5min	L10	L90
	59.1	62.3	52.8
	59.6	63.0	52.7
04:30-04:45	59.3	62.7	52.5
	59.5	63.0	52.8
	59.5	63.0	53.3
04:45-05:00	59.2	62.6	53.0
	59.9	63.2	53.2
	60.6	64.2	53.2
05:00-05:15	60.7	64.0	54.3
	61.6	64.7	54.2
	62.1	65.5	54.9
05:15-05:30	61.8	65.4	54.8
	61.1	64.4	54.7
	61.6	65.0	55.0
05:30-05:45	61.8	65.4	55.4
	61.5	64.7	55.8
	62.4	65.5	55.9
05:45-06:00	62.9	66.2	56.7
	62.8	66.0	56.1
	63.6	66.8	57.1
06:00-06:15	63.8	67.0	57.7
	64.4	67.8	57.4
	64.2	67.2	58.6
06:15-06:30	64.3	67.4	58.5
	64.5	67.6	58.0
	65.4	68.6	58.9
06:30-06:45	65.1	68.1	59.2
	65.6	68.7	59.6
	65.1	68.2	59.1
06:45-07:00	66.1	69.3	60.2
	66.0	69.0	60.4
	66.2	69.3	60.3
Average	62.1	65.3	55.5
Max	66.2	69.3	60.4
Min	57.5	60.9	51.4

Log average was used

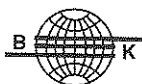


Average Leq (5min) at CN 19 during nighttime (2300-0700) for all days



Appendix C

Calibration Certificates for Monitoring Equipments



CERTIFICATE OF CALIBRATION

Certificate No. : 2KS100208-6

Page 1 of 2

Calibration of :

Description :	Sound Level Meter	,	Microphone
Manufacture :	Brüel & Kjær		
Type No. :	2250	,	4950
Serial No. :	2701821		2678779

Client :

EDMS Tech Ltd
1009, 10/F World Wide House
19 Des Douex Road, Central
Hong Kong

Calibration Conditions :

Air Temperature :	23	°C
Air Pressure :	101.9	kPa
Relative Humidity :	62	%

Test Specifications :

The Sound Level Meter has been calibrated in accordance with the requirements as specified in IEC 60651 and IEC 60804 type 1, and vendor specific procedures.

The measurements has been performed with the assistance of :

Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999

The standard(s) and instrument(s) used in the calibration are traceable to international standard and are calibrated on a schedule which is adjusted to maintain the required accuracy level.

Test Result :

A list of the performed (sub) tests is stated on page 2 of this certificate. Actual Measurement are documented on worksheet.

Date of Calibration : 19 February, 2010
Calibrated By :

Certificate issued : 22 February, 2010
Approved signatory :

Dai Bin

Jacky Leung

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CERTIFICATE OF CALIBRATION

Certificate No. : 2KS100208-6

Page 2 **of** 2

Results :

List of performed (sub) test with test status:

"OK" Means the result of the (sub)test is Inside the tolerances stated in the test specifications.

" - " Means the result of the (sub)test is Outside these tolerances.

Test :	Subtest :	Status :
Noise	A	OK
Noise	C	OK
Noise	Lin	OK
Frequency Weighting	A	OK
Frequency Weighting	C	OK
Frequency Weighting	Lin	OK
Level Range Control	1000 Hz	OK
Linearity Range	SPL 10dB 4000 Hz	OK
Linearity Range	SPL 1dB 1000 Hz	OK
Linearity Range	Leq	OK
Linearity Range	SEL	OK
RMS Detector	CF 3	OK
RMS Detector	CF 5	OK
RMS Detector	CF 10	OK
RMS Detector	Symmetry	OK
Time Weighting	Difference Indication	OK
Time Weighting	Single Burst FAST	OK
Time Weighting	Single Burst SLOW	OK
Time Weighting	Single Burst IMPULSE	OK
Time Weighting	Repetitive Burst	OK
Time Weighting	Peak	OK
Time Averaging		OK
Pulse Range		OK
Overload	SPL	OK
Overload	SEL	OK
Acoustic Response	A	OK
Acoustic Response	Lin	OK

Calibration Equipment :

Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999				
Description :	Make & Model :	Serial No. :	Last Cal. Date :	Traceable to:
Digital Multi-meter	Datron 1281	27361	30 Sept, 2009	HKSCS (HOKLAS)
Sine/Noise Generator	B&K 1049	1314978	Test	B&K Conformance
Test Waveform Generator	B&K 5918	1482949	Test	B&K Conformance
Acoustical Calibrator	B&K 4226	1551627	13 May 2009	NPL via B&K (DANAK)

 Calibrated By : *Dan Rm*
 Date : 19 February, 2010

 Checked By : *ferdy*
 Date : 22 February, 2010



CERTIFICATE OF CALIBRATION

Certificate No.: 09CA0523 02-02A

Page: 1 of 2

Item tested

Description: Acoustical Calibrator (Class 1)
Manufacturer: Rion Co., Ltd.
Type/Model No.: NC-73
Serial/Equipment No.: 10186489
Adaptors used: -

Item submitted by

Customer: Allied Environmental Consultants Limited
Address of Customer: 1001, Shanghai Industrial Investment Building, 48 Hennessy Road, Wanchai
Request No.: -
Date of request: 22-May-2009

Date of test: 23-May-2009

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	29-Jun-2009	SCL
Preamplifier	B&K 2673	2239857	02-Dec-2009	CEPREI
Measuring amplifier	B&K 2610	2346941	03-Dec-2009	CEPREI
Signal generator	DS 360	61227	18-Jul-2009	CEPREI
Digital multi-meter	34401A	US36087050	03-Dec-2009	CIGISMEC
Audio analyzer	8903B	GB41300350	27-Nov-2009	CEPREI
Universal counter	53132A	MY40003662	11-Jul-2009	CEPREI

Ambient conditions

Temperature: 23 ± 1 °C
Relative humidity: 60 ± 10 %
Air pressure: 1000 ± 10 hPa

Test specifications

- 1, The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- 2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- 3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on page 2 of this certificate.

Approved Signatory:

Huang Jian Min/Feng Jun Qi

Date: 05-Oct-2009

Company Chop:



Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.



CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 09CA0523 02-02A

Page: 2 of 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

(Output level in dB re 20 μ Pa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Uncertainty dB
1000	94.00	93.83	0.1

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz STF = 0.005 dB

Estimated uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz Actual Frequency = 986.4 Hz

Estimated uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

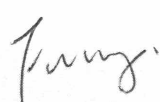
At 1000 Hz TND = 0.5%

Estimated uncertainty 0.7%

The uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95 %. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by: C.Y. Fung
Date: 23-May-2009

Checked by: 
Date: 05-Oct-2009

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

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SCIENTIFIC
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PDR1000 CALIBRATION CERTIFICATE

This calibration is traceable to the National Institute of Standards and Testing

<u>SERIAL NUMBER:</u>	<u>3893</u>	
<u>CALIBRATION RATIO:</u>	<u>1.007</u>	
<u>AVG. PDR CONCENTRATION:</u>	<u>2.25</u>	<u>mg/m3</u>
<u>MASTER AVG CONCENTRATION:</u>	<u>2.05</u>	<u>mg/m3</u>
<u>PDR BACKGROUND CONCENTRATION:</u>	<u>0.172</u>	<u>mg/m3</u>
<u>PDR BKGRND PRIOR TO CLEANING:</u>	<u>0.379</u>	<u>mg/m3</u>

<u>TEMPERATURE:</u>	69	F
<u>RH:</u>	15	%

CALIBRATION MASTER:	D325
LAST CALIBRATED:	12/8/2009

TECHNICIAN: DMC

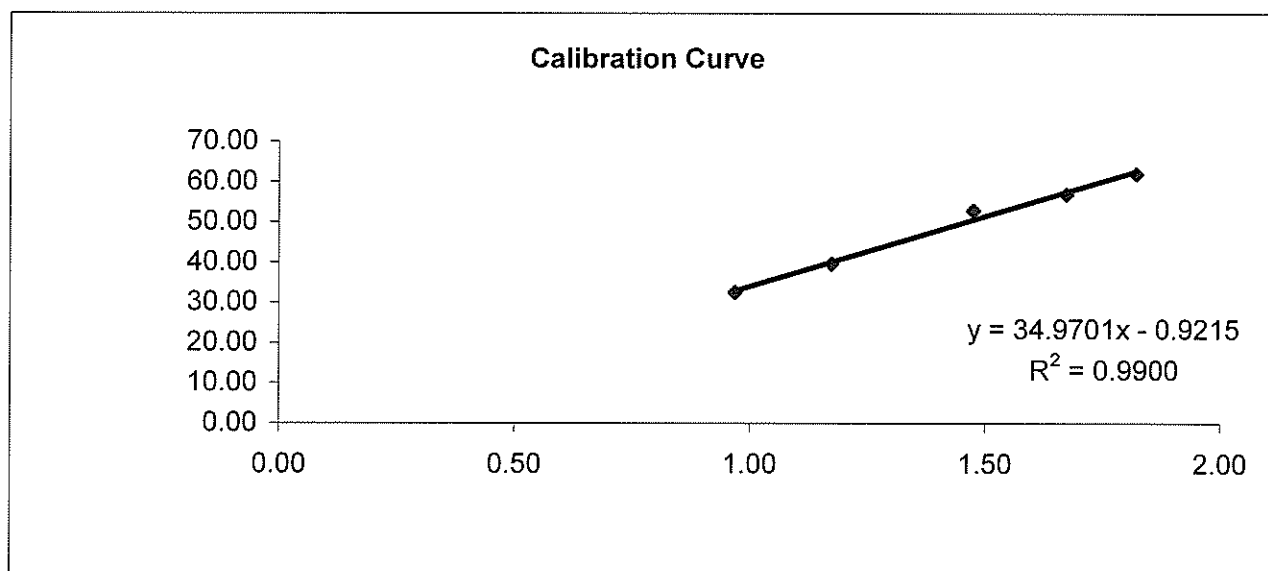
DATE: 12/18/2009

Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	19-Jan-10	Barometric pressure	767 mm Hg
Next Calibration date	18-Jul-10	Temperature (°C)	18 °C
Sampler location	AM10 Ya Ma Hom Resite Village	Temperature (K)	291 K
Sampler model	TE-5170	P _{std}	760 mm Hg
Sampler serial number	509	T _{std}	298 K
Calibrator model	GMW-2535		
Calibrator serial number	1378		
Slope of the standard curve, m _s	2.00826		
Intercept of the standard curve, b _s	-0.01649		

Resistance Plate No.	Manometer Reading (inch H ₂ O)	Flow Recorder Reading (CFM)	Calculated Q _{std} (m ³ /min)	Continuous Flow Recorder Reading IC (CFM)
5	3.60	32.00	0.97	32.53
7	5.30	39.00	1.17	39.65
10	8.40	52.00	1.48	52.86
13	10.80	56.00	1.67	56.93
18	12.80	61.00	1.82	62.01



Linear Regression

Sampler slope (m) : **34.9701**
Sampler intercept (b) : **-0.9215**
Correlation coefficient (R²) : **0.9900**

Correlation coefficient is greater than 0.9900 and the calibration result is accepted.

Performed by: 

Date: 19-1-2010

Checked by: 

Date: 19/1/2010

Approved by: 

Date: 20/01/2010

Appendix D

Figures

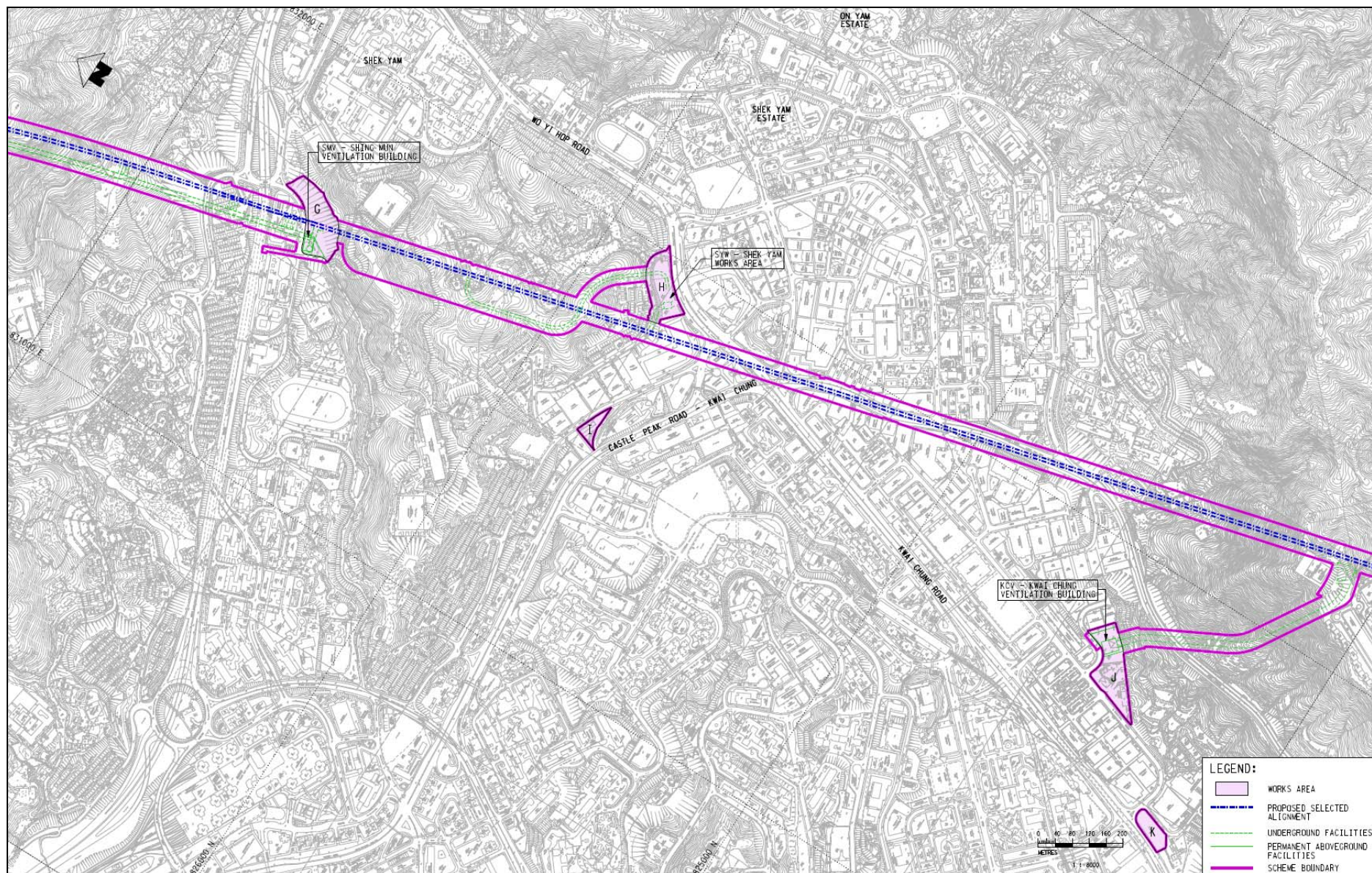


Figure 1 – Works Area

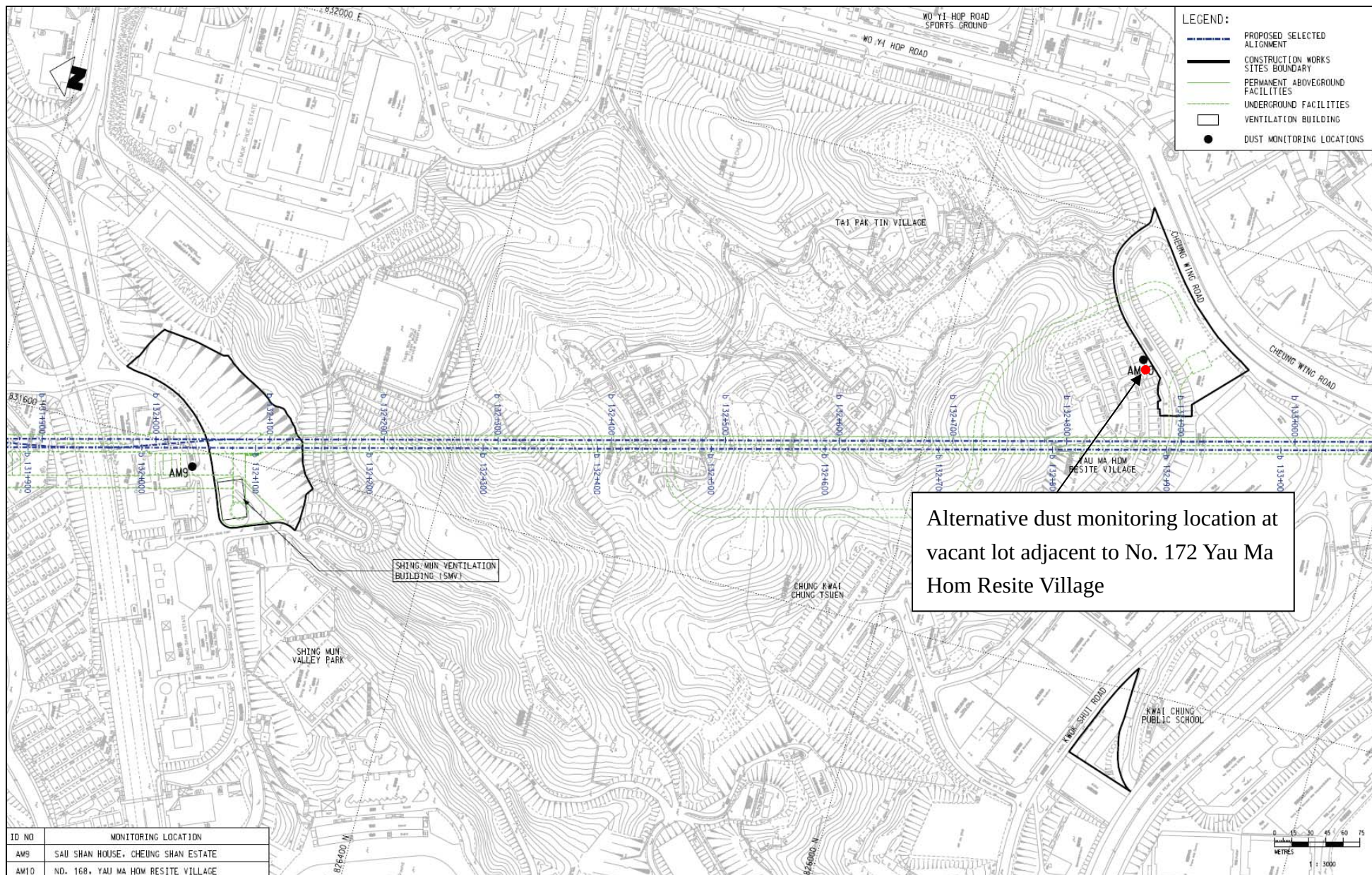


Figure 2 - Dust Monitoring Location

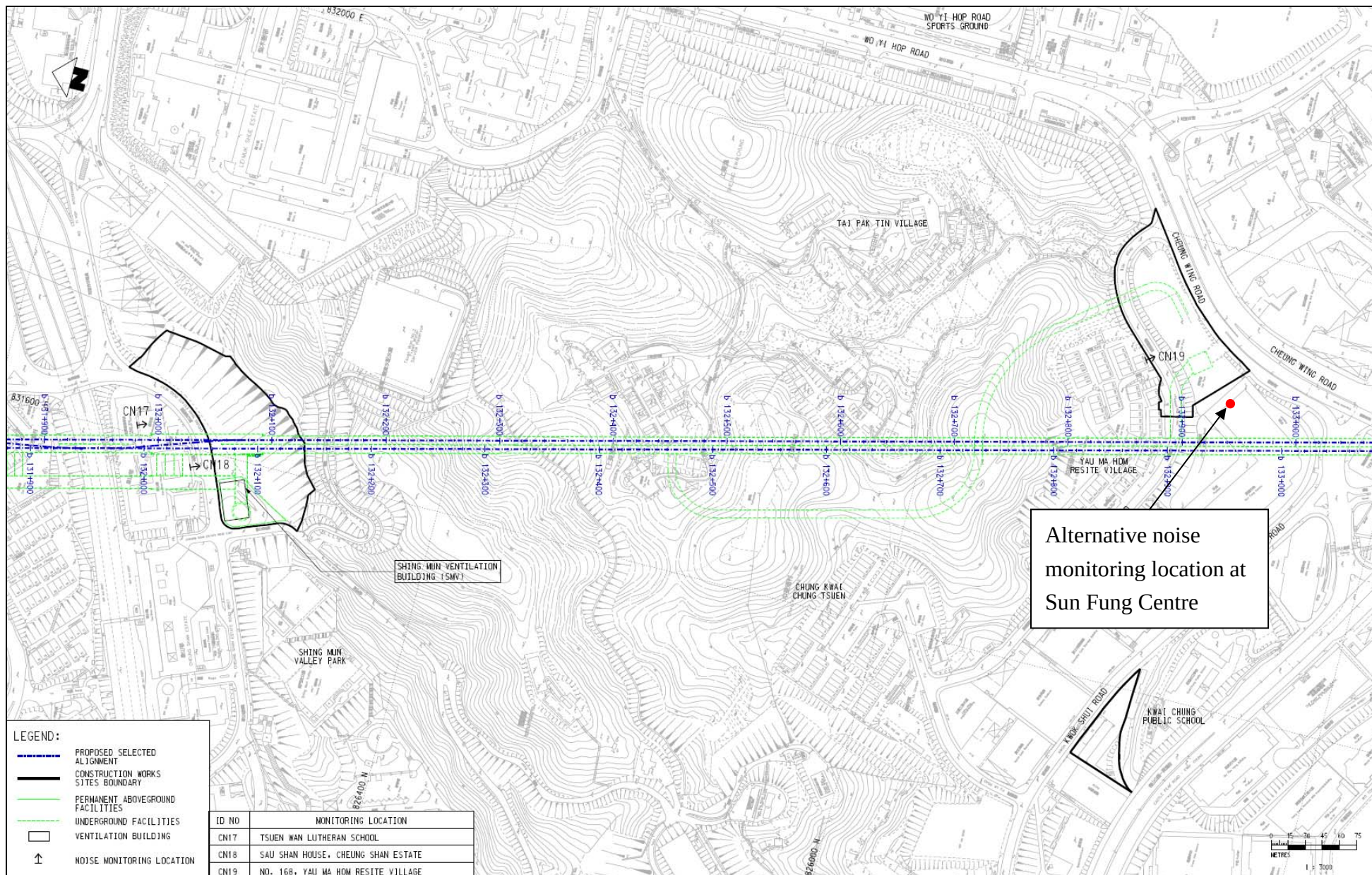


Figure 3 – Noise Monitoring Location



Alternative monitoring location of AM 10 –
Vacant lot adjacent to No. 172 of Yau Ma Hom Resite Village

Figure 4 – Photo of Alternative Dust Monitoring Location



Alternative monitoring location of CN 19 – Sun Fung Centre

Figure 5 – Photo of Alternative Noise Monitoring Location