

MTR Corporation Limited

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

Baseline Monitoring Report (Part 9)
(Rev 1)

Verified by:



Position:

Independent Environmental Checker

Date:

28 May 2010

MTR Corporation Limited

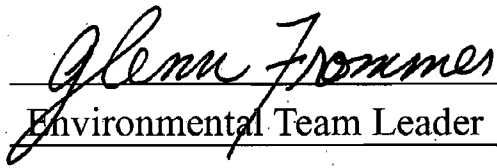
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Environmental Team Leader

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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 3 noise and 2 air quality monitoring locations in the vicinity of Works Area V2 (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).

Monitoring of 1-hour and 24-hr TSP level were conducted between 22/2/2010 and 7/3/2010 at Yaumati Catholic Primary School (Hoi Wang Road)(AM 14). The average 1-hour TSP level at AM 14 was $82.0 \mu\text{g}/\text{m}^3$. The average 24-hour TSP level at AM 14 was $43.4 \mu\text{g}/\text{m}^3$. Monitoring of 1-hour and 24-hr TSP level were conducted from 3/12/2009 to 16/12/2009 and 5/12/2009 to 18/12/2009 respectively at podium floor between Sorrento and The Waterfront (AM 15) and the results of which were covered in Baseline Monitoring Report (Part 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 14 was $303.3 \mu\text{g}/\text{m}^3$ and $158.2 \mu\text{g}/\text{m}^3$ respectively.

Baseline noise monitoring was conducted between 19/4/2010 and 2/5/2010 at Yaumati Catholic Primary School (Hoi Wang Road) (CN 29). In addition to CN 29, baseline noise monitoring was conducted at CN 30 and CN 31, the results of CN 30 and CN 31 were covered in Part 5 and Part 4 of the Baseline Monitoring Report respectively. 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. By comparing with other two noise monitoring stations in vicinity of Works Area V2, the average daytime baseline noise level at CN 29 at Yaumati Catholic Primary (68 dB(A)) was found comparable to CN 31 at Tower 6 of Sorrento (67 dB(A)) but was higher than the baseline noise level taken at CN 30 at Man Cheong Street Refuse Transfer Station (63 dB(A)). Nevertheless, the daytime baseline noise levels of CN 29 is below the Limit Level of 70 dB(A) for educational institutions during normal school days, but exceeded the Limit Level of 65 dB(A) for examination period.

In consideration of this situation, the baseline noise level at CN 29 would be reviewed prior to construction and regularly once every six months to confirm its validity. The review of baseline noise level at CN 29 would be covered in the EM&A Report. During impact monitoring, observations of project-related construction activities and/or non-project related noise sources in the vicinity of CN 29 would be recorded. In case exceedance is recorded, the dominant noise source would be determined based on site observations.

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 9) contains baseline monitoring findings in the vicinity of Works Area V2 (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 14 and AM 15 located in the vicinity of the works areas V2. 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 22/2/2010 – 7/3/2010 to determine the ambient levels of both 1-hour and 24-hour TSP levels respectively at Yaumati Catholic Primary School (Hoi Wang Road) in the vicinity of Works Area V2. Baseline air quality monitoring for other location in the vicinity (AM 15) had been covered in Part 3 of the Baseline Monitoring Report. The locations of the works area and the respective ASR are shown in Figures 1 and 2 respectively. 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 14	Yaumati Catholic Primary School (Hoi Wang Road)	22/2/2010 – 7/3/2010 (1-hr and 24-hr);
AM 15 ¹	Podium floor between Sorrento and The Waterfront	3/12/2009 – 16/12/2009 (1-hr); 5/12/2009 – 18/12/2009(24-hr);

¹ Baseline air quality monitoring result at AM 15 was covered in Baseline Monitoring Report (Part 3)

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 at AM 14 is attached in Appendix C. Please refer to Baseline Monitoring Report (Part 3) for the calibration certificate at AM 15.

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.

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 at AM 14 are summarised in Table 2.3 and 2.4. The monitoring results at AM 15 are also included for reference. The detailed monitoring data of 1-hour and 24-hour of AM 14 is shown in Appendix A. Please

refer to Baseline Monitoring (Part 3) for the detailed monitoring data of AM 15.

Monitoring Location	Average TSP Concentration, $\mu\text{g}/\text{m}^3$ (Range)
Yaumati Catholic Primary School (Hoi Wang Road) (AM 14)	82.0 (43.8-157.2)
Podium Floor between Sorrento and The Waterfront (AM 15)	74.5 (8.0-246.2)

Table 2.3: Summary of baseline 1-hour TSP level

Monitoring Location	Average TSP Concentration, $\mu\text{g}/\text{m}^3$ (Range)
Yaumati Catholic Primary School (Hoi Wang Road) (AM 14)	43.4 (30.0-56.9)
Podium Floor between Sorrento and The Waterfront (AM 15)	59.7 (25.6-115.1)

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
Yaumati Catholic Primary School (Hoi Wang Road) (AM 14)	TSP (24-hour average)	158.2 $\mu\text{g m}^{-3}$	260 $\mu\text{g m}^{-3}$
	TSP (1-hour average)	303.3 $\mu\text{g m}^{-3}$	500 $\mu\text{g m}^{-3}$
Podium Floor between Sorrento and The Waterfront (AM 15)	TSP (24-hour average)	168.8 $\mu\text{g m}^{-3}$	260 $\mu\text{g m}^{-3}$
	TSP (1-hour average)	298.4 $\mu\text{g m}^{-3}$	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-L 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 at CN29, CN30 and CN31 located in the vicinity of Works Area V2. The locations of the NSRs are shown in Figure 3. Monitoring was carried out at the following stations in accordance with the EM&A Manual:

Monitoring Station ID	Noise Monitoring Location	Monitoring period
CN 29	Yaumati Catholic Primary School (Hoi Wang Road)	19/4/2010 to 2/5/2010
CN 30	Man Cheong Street Refuse Transfer Station	15/1/2010 to 1/2/2010 ¹
CN 31	Tower 6, Sorrento	24/12/2009 to 21/1/2010 ²

¹ No noise monitoring was conducted on 21/1 (1900-2300 and 2300-0700), 22/1 to 24/1 and 25/1 (0700-1900) due to rainfall

² No noise monitoring was conducted on 27/12 (1900-2400 hours), 28/12 to 8/1 (0000-1900 hours), 11/1 (0700-2400 hours) and 12/1 due to unstable weather condition.

Table 3.1: Information of Noise Monitoring Stations

3.4 Calibration Requirements

B&K 2250-L 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 at CN 29. 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 at AM 14 are attached in Appendix C. Please refer to Part 5 and Part 4 of the Baseline Monitoring Report for the calibration certificates at CN 30 and CN 31.

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

3.6 Monitoring Results

Baseline noise monitoring was conducted between 19/4/2010 and 2/5/2010 at Yaumati Catholic Primary School (Hoi Wang Road) (CN 29); between 15/1/2010 to 1/2/2010 at Man Cheong Street Refuse Transfer Station (CN 30) and between 24/12/2009 to 21/1/2010 at Tower 6, Sorrento (CN 31). The weather condition was generally fine with occasional rainfall events during the monitoring period. The major noise sources at respective monitoring locations are summarized at the table below:

Monitoring location ID	Monitoring location	Major noise source
CN 29	Yaumati Catholic Primary School (Hoi Wang Road)	Traffic noise
CN 30	Man Cheong Street Refuse Transfer Station	Traffic noise
CN 31	Tower 6, Sorrento	Traffic noise

Table 3.3: Major noise source at noise monitoring locations

Baseline noise monitoring results at CN 29 are summarised in Table 3.4 over the monitoring periods. For reference purpose, monitoring results at CN 30 and CN 31 are also included in the table below. Detailed monitoring data at CN 29 are contained in Appendix B. Graphical presentations of the monitoring results at CN 29 are shown in Appendix B. Please refer to Part 5 and Part 4 of the Baseline Monitoring Report for

the detailed monitoring data and graphical presentations of monitoring results at CN 30 and CN 31.

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 29	68 (63 -73)	70 (65 – 75)	64 (61 -69)
	CN 30	63 (58-69)	64 (59-71)	61 (56-66)
	CN 31	67 (64-71)	68 (65-73)	65 (62-67)
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 29	61 (59 – 64)	63 (61 -67)	58 (56 – 61)
	CN 30	61 (55-69)	63 (56-70)	60 (53-64)
	CN 31	65 (62-71)	66 (64-75)	63 (59-64)
1900 – 2300 (Evening, Normal weekday)	CN 29	63 (60 -66)	65 (62 – 68)	60 (58 -65)
	CN 30	59 (56-67)	61 (57-73)	57 (54-60)
	CN 31	65 (63-71)	66 (64-75)	63 (61-65)
2300 – 0700 (Night-time, all days)	CN 29	57 (54 – 61)	60 (57 – 63)	53 (50 – 58)
	CN 30	56 (47-68)	57 (49-69)	54 (45-62)
	CN 31	61 (55-71)	63 (56-73)	59 (53-64)

Table 3.4: Baseline noise monitoring results

As revealed from the monitoring results, baseline noise levels for daytime (0700-1900) during normal weekdays at the CN 29, range from 63-73 dB(A). By comparing with

other two noise monitoring stations in vicinity of Works Area V2, the average daytime baseline noise level at CN 29 at Yaumati Catholic Primary (68 dB(A)) was found comparable to CN 31 at Tower 6 of Sorrento (67 dB(A)) but was higher than the baseline noise level taken at CN 30 at Man Cheong Street Refuse Transfer Station (63 dB(A)). Nevertheless, the daytime baseline noise levels of CN 29 is below the Limit Level of 70 dB(A) for educational institutions during normal school days but exceeded the Limit Level of 65 dB(A) for examination period.

In consideration of this situation, the baseline noise level at CN 29 would be reviewed prior to construction and regularly once every six months to confirm its validity. The review of baseline noise level at CN 29 would be covered in the EM&A Report.

During impact monitoring, observations of project-related construction activities and/or non-project related noise sources in the vicinity of CN 29 would be recorded. In case exceedance is recorded, the dominant noise source would be determined based on site observations. The monitoring results and observations would be verified by the IEC and reported in the monthly EM&A Report.

4. CONCLUSION

4.1 Air

1-hour TSP

Baseline 1-hour TSP monitoring was conducted at AM 14 between the period 22/2/2010 and 7/3/2010. The weather condition was mostly fine with occasional rainy days. 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 14 was found in the range of 43.8 to 157.2 $\mu\text{g}/\text{m}^3$. The average 1-hour TSP level at AM 14 was recorded to be 82.0 $\mu\text{g}/\text{m}^3$.

24-hour TSP

Baseline 24-hour TSP monitoring was conducted at AM 14 between the period 22/2/2010 and 7/3/2010. Baseline 24-hour TSP monitoring at AM 14 was found in the range of 30.0 to 56.9 $\mu\text{g}/\text{m}^3$. The average 24-hour TSP level was recorded to be 43.4 $\mu\text{g}/\text{m}^3$.

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 14 was 303.3 $\mu\text{g}/\text{m}^3$ and 158.2 $\mu\text{g}/\text{m}^3$ respectively.

4.2 Airborne Construction Noise

Baseline noise monitoring were carried at all two monitoring stations from 19/4/2010 to 2/5/2010. The weather during the baseline monitoring period was generally fine with occasional rainfall events.

As revealed from the monitoring results, baseline noise levels for daytime (0700-1900) during normal weekdays at the CN 29, range from 63-73 dB(A),. By comparing with other two noise monitoring stations in vicinity of Works Area V2, the average daytime baseline noise level at CN 29 at Yaumati Catholic Primary (68 dB(A)) was found comparable to CN 31 at Tower 6 of Sorrento (67 dB(A)) but was higher than the baseline noise level taken at CN 30 at Man Cheong Street Refuse Transfer Station (63 dB(A)). Nevertheless, the daytime baseline noise levels of CN 29 is below the Limit Level of 70 dB(A) for educational institutions during normal school days but exceeded the Limit Level of 65 dB(A) for examination period.

In consideration of this situation, the baseline noise level at CN 29 would be reviewed prior to construction and regularly once every six months to confirm its validity. The review of baseline noise level at CN 29 would be covered in the EM&A Report. During impact monitoring, observations of project-related construction activities and/or non-project related noise sources in the vicinity of CN 29 would be recorded. In case exceedance is recorded, the dominant noise source would be determined based on site observations.

Appendix A

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

Details of 1-hour TSP Level monitoring at AM 14

Month	Date	Receptor No.	Set No.	Time periods		Weather condition	Site condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (µg/m ³)	Remarks
				Start	Finish						
Feb-10	22-Feb-10	AM14	1	13:38	14:38	Cloudy	Normal	18.0	762.0	120.3	
Feb-10	22-Feb-10	AM14	2	14:38	15:38	Cloudy	Normal	18.0	762.0	119.8	
Feb-10	22-Feb-10	AM14	3	15:38	16:38	Cloudy	Normal	18.0	762.0	131.1	
Feb-10	23-Feb-10	AM14	1	13:16	14:16	Cloudy	Normal	20.0	761.0	99.3	
Feb-10	23-Feb-10	AM14	2	14:16	15:16	Cloudy	Normal	20.0	761.0	109.5	
Feb-10	23-Feb-10	AM14	3	15:16	16:16	Cloudy	Normal	20.0	761.0	141.4	
Feb-10	24-Feb-10	AM14	1	13:52	14:52	Fine	Normal	22.0	758.0	140.2	
Feb-10	24-Feb-10	AM14	2	14:52	15:52	Fine	Normal	22.0	758.0	152.3	
Feb-10	24-Feb-10	AM14	3	15:52	16:52	Fine	Normal	22.0	758.0	157.2	
Feb-10	25-Feb-10	AM14	1	13:45	14:45	Fine	Normal	25.0	757.0	92.0	
Feb-10	25-Feb-10	AM14	2	14:45	15:45	Fine	Normal	25.0	757.0	87.0	
Feb-10	25-Feb-10	AM14	3	15:45	16:45	Fine	Normal	25.0	757.0	92.1	
Feb-10	26-Feb-10	AM14	1	14:40	15:40	Fine	Normal	26.0	758.0	90.3	
Feb-10	26-Feb-10	AM14	2	15:40	16:40	Fine	Normal	26.0	758.0	69.6	
Feb-10	26-Feb-10	AM14	3	16:40	17:40	Fine	Normal	26.0	758.0	74.8	
Feb-10	27-Feb-10	AM14	1	13:28	14:28	Fine	Normal	25.0	759.0	61.3	
Feb-10	27-Feb-10	AM14	2	14:28	15:28	Fine	Normal	25.0	759.0	59.6	

Month	Date	Receptor No.	Set No.	Time periods		Weather condition	Site condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (µg/m ³)	Remarks
				Start	Finish						
Feb-10	27-Feb-10	AM14	3	15:28	16:28	Fine	Normal	25.0	759.0	62.3	
Feb-10	28-Feb-10	AM14	1	13:10	14:10	Fine	Normal	24.0	761.0	43.8	
Feb-10	28-Feb-10	AM14	2	14:10	15:10	Fine	Normal	24.0	761.0	45.2	
Feb-10	28-Feb-10	AM14	3	15:10	16:10	Fine	Normal	24.0	761.0	46.3	
Mar-10	01-Mar-10	AM14	1	8:59	9:59	Fine	Normal	22.0	761.0	91.6	
Mar-10	01-Mar-10	AM14	2	9:59	10:59	Fine	Normal	22.0	761.0	89.0	
Mar-10	01-Mar-10	AM14	3	10:59	11:59	Fine	Normal	22.0	761.0	93.5	
Mar-10	02-Mar-10	AM14	1	9:00	10:00	Fine	Normal	25.0	759.0	95.1	
Mar-10	02-Mar-10	AM14	2	10:00	11:00	Fine	Normal	25.0	759.0	75.0	
Mar-10	02-Mar-10	AM14	3	11:00	12:00	Fine	Normal	25.0	759.0	63.7	
Mar-10	03-Mar-10	AM14	1	10:10	11:10	Fine	Normal	25.0	759.0	92.1	
Mar-10	03-Mar-10	AM14	2	11:10	12:10	Fine	Normal	25.0	759.0	89.7	
Mar-10	03-Mar-10	AM14	3	12:10	13:10	Fine	Normal	25.0	759.0	90.8	
Mar-10	04-Mar-10	AM14	1	9:15	10:15	Cloudy	Normal	25.0	758.0	63.6	
Mar-10	04-Mar-10	AM14	2	10:15	11:15	Cloudy	Normal	25.0	758.0	60.6	
Mar-10	04-Mar-10	AM14	3	11:15	12:15	Cloudy	Normal	25.0	758.0	54.9	
Mar-10	05-Mar-10	AM14	1	9:02	10:02	Cloudy	Normal	26.0	758.0	70.8	
Mar-10	05-Mar-10	AM14	2	10:02	11:02	Cloudy	Normal	26.0	758.0	61.9	
Mar-10	05-Mar-10	AM14	3	11:02	12:02	Cloudy	Normal	26.0	758.0	62.7	

Month	Date	Receptor No.	Set No.	Time periods		Weather condition	Site condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (µg/m³)	Remarks
				Start	Finish						
Mar-10	06-Mar-10	AM14	1	9:04	10:04	Rainy	Normal	26.0	759.0	47.5	
Mar-10	06-Mar-10	AM14	2	10:04	11:04	Rainy	Normal	26.0	759.0	44.9	
Mar-10	06-Mar-10	AM14	3	11:04	12:04	Rainy	Normal	26.0	759.0	44.3	
Mar-10	07-Mar-10	AM14	1	8:16	9:16	Cloudy	Normal	19.0	762.0	51.4	
Mar-10	07-Mar-10	AM14	2	9:16	10:16	Cloudy	Normal	19.0	762.0	48.7	
Mar-10	07-Mar-10	AM14	3	10:16	11:16	Cloudy	Normal	19.0	762.0	57.4	
									Average	82.0	
									Max	157.2	
									Min	43.8	
									Action Level	303.3	
									Limit Level	500.0	

Details of 24-hour TSP Level monitoring at AM 14

Filter No.	Date	Time periods		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			
100878	22-Feb-10	12:30	12:30	Cloudy	Normal Operation	2.8470	2.9393	0.0923	1.3528	1.3208	1.3368	11073.48	11097.48	1440.00	1924.99	47.9
100880	23-Feb-10	12:35	12:35	Cloudy	Normal Operation	2.8488	2.9308	0.0820	1.3208	1.2875	1.3042	11097.48	11121.48	1440.00	1877.98	43.7
100881	24-Feb-20	12:38	12:38	Fine	Normal Operation	2.8330	2.9088	0.0758	1.3144	1.3077	1.3111	11121.48	11145.48	1440.00	1887.91	40.2
100694	25-Feb-10	12:43	12:43	Fine	Normal Operation	2.8260	2.9033	0.0773	1.3077	1.2798	1.2938	11145.48	11169.48	1440.00	1863.00	41.5
100693	26-Feb-10	12:50	12:50	Fine	Normal Operation	2.7724	2.8785	0.1061	1.2798	1.3092	1.2945	11169.48	11193.48	1440.00	1864.08	56.9
100877	27-Feb-10	12:55	12:55	Fine	Normal Operation	2.8446	2.9489	0.1043	1.2824	1.3128	1.2976	11193.48	11217.48	1440.00	1868.54	55.8
100695	28-Feb-10	13:01	13:01	Fine	Normal Operation	2.7941	2.8784	0.0843	1.2859	1.3168	1.3014	11217.48	11241.48	1440.00	1873.94	45.0
100890	01-Mar-10	13:05	13:05	Fine	Normal Operation	2.8180	2.9122	0.0942	1.3168	1.3092	1.3130	11241.48	11265.48	1440.00	1890.72	49.8
100905	02-Mar-10	13:10	13:10	Fine	Normal Operation	2.8128	2.8693	0.0565	1.3092	1.3092	1.3092	11265.48	11289.48	1440.00	1885.25	30.0
100887	03-Mar-10	13:14	13:14	Fine	Normal Operation	2.8190	2.8957	0.0767	1.3092	1.3085	1.3089	11289.48	11313.48	1440.00	1884.74	40.7
100912	04-Mar-10	13:18	13:18	Cloudy	Normal Operation	2.9013	2.9639	0.0626	1.3085	1.3065	1.3075	11313.48	11337.48	1440.00	1882.80	33.2
100902	05-Mar-10	13:23	13:23	Cloudy	Normal Operation	2.8337	2.9197	0.0860	1.2530	1.2805	1.2668	11337.48	11361.48	1440.00	1824.12	47.1
100904	06-Mar-10	13:25	13:25	Rainy	Normal Operation	2.8030	2.8632	0.0602	1.2805	1.3236	1.3021	11361.48	11385.48	1440.00	1874.95	32.1
100692	07-Mar-10	13:30	13:30	Cloudy	Normal Operation	2.8361	2.9195	0.0834	1.3236	1.3285	1.3261	11385.48	11409.48	1440.00	1909.51	43.7
															Average	43.4
															Max	56.9

Min	30.0
Action Level	158.2
Limit Level	260.0

Appendix B

Baseline noise monitoring data

Baseline Noise Monitoring Result

Location: CN 29 Yaumati Catholic Primary School (Hoi Wang Road)

Baseline monitoring period: 5/2/2010-20/2/2010

Parameter: Leq

Time Slot Averaged Baselines

1) Weekdays Daytime Noise Level, dB(A)

Time slot	Leq, 30 min	L10	L90
07:00-07:30	65.0	66.9	61.3
07:30-08:00	69.4	71.9	64.8
08:00-08:30	64.4	66.3	61.9
08:30-09:00	64.3	66.2	62.0
09:00-09:30	65.3	67.1	62.7
09:30-10:00	72.0	74.2	68.8
10:00-10:30	66.8	69.6	62.6
10:30-11:00	65.4	67.4	62.5
11:00-11:30	65.6	67.5	62.8
11:30-12:00	65.2	67.2	62.5
12:00-12:30	65.0	67.1	62.1
12:30-13:00	67.6	69.4	65.1
13:00-13:30	73.0	75.4	68.6
13:30-14:00	71.9	75.0	66.3
14:00-14:30	66.2	68.5	63.1
14:30-15:00	65.7	67.7	63.0
15:00-15:30	66.0	67.7	63.8
15:30-16:00	67.4	69.3	64.9
16:00-16:30	66.9	69.0	63.9
16:30-17:00	67.1	69.3	63.9
17:00-17:30	66.9	69.3	63.1
17:30-18:00	65.0	67.1	62.1
18:00-18:30	64.4	66.8	61.2
18:30-19:00	62.8	64.5	60.5
Average	67.5	69.8	64.1

Min	62.8	64.5	60.5
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Noise Control Period Averaged Baselines

2) Weekdays Evening Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
19:00-19:15	62.4	64.2	61.0
	62.1	63.9	60.7
	62.9	65.0	60.9
19:15-19:30	63.9	66.3	61.1
	65.7	68.0	64.9
	63.2	65.2	61.2
19:30-19:45	62.5	64.5	60.6
	64.0	66.2	62.3
	63.1	65.3	61.1
19:45-20:00	64.6	66.7	62.7
	63.0	65.2	60.9
	63.7	66.2	60.7
20:00-20:15	63.2	65.4	60.5
	63.8	66.0	62.1
	62.9	65.2	60.4
20:15-20:30	62.9	65.3	60.3
	64.2	66.6	61.7
	62.7	64.9	60.3
20:30-20:45	62.2	64.4	59.8
	63.4	65.9	61.2
	62.1	64.3	59.6
20:45-21:00	61.9	63.7	59.3
	61.6	63.9	59.4
	63.9	65.8	60.8
21:00-21:15	62.8	64.9	61.0
	62.5	64.6	60.6
	62.7	65.0	60.5
21:15-21:30	62.5	64.5	59.3

Time Slot	Leq, 5min	L10	L90
	61.6	63.7	59.3
	62.2	64.6	60.2
21:30-21:45	61.4	63.4	59.0
	62.1	63.9	60.4
	61.7	63.6	60.3
21:45-22:00	60.7	62.7	58.9
	62.0	64.1	60.3
	61.9	64.0	60.2
22:00-22:15	60.8	62.9	58.5
	61.0	63.2	58.9
	62.2	64.3	60.3
22:15-22:30	60.8	63.1	58.5
	61.0	63.4	58.5
	60.8	63.0	58.4
22:30-22:45	61.5	63.9	59.6
	61.1	63.3	59.3
	60.0	62.0	58.1
22:45-23:00	60.9	62.9	59.5
	61.3	63.3	59.4
	61.5	63.5	58.9
Average	62.5	64.7	60.4
Max	65.7	68.0	64.9
Min	60.0	62.0	58.1

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

Time Slot	Leq, 5min	L10	L90
0700-07:15	59.5	62.0	55.9
	58.9	61.1	55.7
	58.9	61.0	55.9
07:15-07:30	59.3	61.4	56.3
	60.0	62.2	56.8
	59.5	61.7	56.1
07:30-07:45	60.3	63.2	56.2
	59.9	62.4	56.3

Time Slot	Leq, 5min	L10	L90
	60.6	63.3	57.1
07:45-08:00	59.4	61.5	56.4
	60.1	62.3	57.0
	62.8	65.7	57.9
08:00-08:15	61.1	63.9	57.5
	60.8	63.0	57.5
	60.9	63.5	57.6
08:15-08:30	61.4	63.5	58.1
	61.4	63.5	58.0
	63.1	64.5	61.0
08:30-08:45	62.4	65.3	58.0
	61.4	64.2	57.6
	61.1	63.3	57.6
08:45-09:00	62.2	64.9	57.9
	61.6	63.4	58.2
	62.2	64.9	58.6
09:00-09:15	61.6	63.7	58.1
	61.3	63.6	58.3
	61.5	63.8	58.6
09:15-09:30	61.5	63.6	58.1
	61.6	63.7	59.2
	61.0	63.2	58.0
09:30-09:45	61.6	64.0	58.6
	61.6	63.4	59.2
	63.9	66.2	59.6
09:45-10:00	61.3	63.6	58.3
	61.4	63.4	58.0
	61.8	64.3	58.6
10:00-10:15	61.9	63.4	58.5
	61.5	63.5	58.3
	62.4	64.1	58.9
10:15-10:30	62.0	64.6	58.5
	61.7	64.0	58.8
	61.0	62.8	58.4
10:30-10:45	61.9	63.6	59.1
	61.9	63.9	59.2

Time Slot	Leq, 5min	L10	L90
	63.4	66.6	59.2
10:45-11:00	61.6	63.8	59.1
	61.4	63.7	58.7
	61.4	63.3	58.8
11:00-11:15	61.5	63.7	58.4
	62.3	64.4	59.3
	62.9	65.2	59.6
11:15-11:30	61.4	63.2	58.9
	61.8	63.5	58.7
	61.8	63.7	59.4
11:30-11:45	62.0	63.7	59.7
	61.0	62.4	59.1
	61.8	63.6	59.2
11:45-12:00	62.0	64.0	59.4
	62.3	64.4	59.2
	62.1	64.1	59.4
12:00-12:15	63.0	66.7	59.2
	61.1	62.7	58.8
	61.1	62.7	58.9
12:15-12:30	61.4	63.0	59.3
	61.8	63.4	59.1
	62.3	64.3	58.9
12:30-12:45	61.3	63.1	58.9
	61.1	62.7	58.7
	62.0	64.1	59.1
12:45-13:00	61.3	63.0	59.0
	61.7	63.5	58.9
	61.8	63.8	59.0
13:00-13:15	61.5	63.0	59.4
	61.2	63.3	58.4
	61.5	63.1	58.9
13:15-13:30	62.6	64.5	58.9
	62.8	65.6	58.9
	62.0	64.0	59.3
13:30-13:45	61.3	63.1	58.9
	61.8	63.6	58.6

Time Slot	Leq, 5min	L10	L90
	61.5	63.2	59.1
13:45-14:00	61.2	62.6	59.0
	61.6	63.8	58.9
	61.3	62.8	59.0
14:00-14:15	61.8	63.8	59.0
	61.5	63.2	59.2
	61.6	63.4	59.1
14:15-14:30	62.0	63.9	59.0
	61.0	62.6	58.6
	62.9	65.7	59.6
14:30-14:45	61.1	62.9	58.3
	62.0	63.8	58.9
	62.0	64.0	58.1
14:45-15:00	62.5	64.8	59.2
	60.8	62.7	58.3
	61.3	63.0	59.0
15:00-15:15	61.3	62.8	58.4
	61.4	63.3	58.8
	61.7	63.6	59.0
15:15-15:30	61.6	63.4	59.1
	61.1	63.0	58.4
	61.6	63.5	59.1
15:30-15:45	61.3	63.4	58.7
	61.9	63.8	58.8
	61.6	63.8	58.5
15:45-16:00	61.3	63.2	58.4
	60.9	62.6	58.8
	61.7	63.4	59.1
16:00-16:15	60.9	62.6	58.7
	61.8	63.5	59.3
	61.6	63.6	59.0
16:15-16:30	61.3	63.4	58.7
	60.8	62.4	58.1
	61.3	63.2	58.5
16:30-16:45	61.8	63.7	59.4
	61.9	64.0	59.2

Time Slot	Leq, 5min	L10	L90
	62.0	64.3	59.4
16:45-17:00	62.2	64.5	59.7
	61.1	63.0	58.7
	62.2	63.7	59.5
17:00-17:15	62.0	64.1	59.1
	60.8	62.7	58.2
	62.7	64.3	58.6
17:15-17:30	61.2	63.2	59.0
	61.3	63.3	58.7
	60.8	62.6	58.4
17:30-17:45	60.9	63.0	58.1
	61.0	63.0	58.4
	60.9	62.7	58.6
17:45-18:00	61.3	63.4	58.8
	60.9	62.8	57.9
	61.8	64.3	59.3
18:00-18:15	61.7	63.9	58.8
	60.8	62.6	58.6
	60.8	62.6	58.4
18:15-18:30	61.3	63.2	58.6
	61.4	62.9	58.2
	61.2	63.2	58.8
18:30-18:45	60.9	62.5	58.9
	61.2	63.3	58.2
	60.9	62.7	58.5
18:45-19:00	61.8	64.1	58.8
	61.3	63.2	59.0
	61.0	62.8	58.4
19:00-19:15	60.9	62.8	58.6
	60.8	62.7	58.1
	60.2	62.1	57.7
19:15-19:30	61.8	63.8	57.9
	61.0	63.1	58.0
	61.3	63.5	58.2
19:30-19:45	60.2	62.1	57.8
	59.8	61.7	57.2

Time Slot	Leq, 5min	L10	L90
	60.9	62.9	57.8
19:45-20:00	60.6	62.8	57.3
	61.5	64.0	57.3
	60.4	62.5	57.5
20:00-20:15	60.1	61.9	57.5
	60.0	61.7	57.5
	61.7	63.9	57.7
20:15-20:30	60.5	62.7	57.0
	61.1	63.1	57.7
	61.5	63.8	58.7
20:30-20:45	60.1	62.0	57.3
	59.9	61.9	57.1
	60.5	62.3	57.8
20:45-21:00	60.7	63.0	57.9
	61.0	63.4	57.6
	60.5	62.3	57.7
21:00-21:15	60.7	62.3	57.9
	60.7	62.4	58.1
	60.6	62.9	57.9
21:15-21:30	60.6	62.5	57.9
	61.2	63.6	58.0
	60.7	62.7	58.1
21:30-21:45	61.2	63.7	57.6
	61.7	64.7	57.8
	60.7	63.1	57.5
21:45-22:00	60.1	62.0	57.3
	60.8	63.0	57.5
	60.7	63.1	57.8
22:00-22:15	60.0	61.9	57.3
	60.5	62.6	57.5
	60.6	62.8	57.7
22:15-22:30	60.4	62.5	57.8
	60.3	62.4	57.0
	60.2	62.1	57.4
22:30-22:45	60.4	62.9	57.3
	59.7	61.7	57.0

Time Slot	Leq, 5min	L10	L90
	60.4	62.2	57.4
22:45-23:00	59.6	61.6	56.7
	60.6	61.9	56.8
	59.9	61.6	56.8
Average	61.3	63.4	58.4
Max	63.9	66.7	61.0
Min	58.9	61.0	55.7

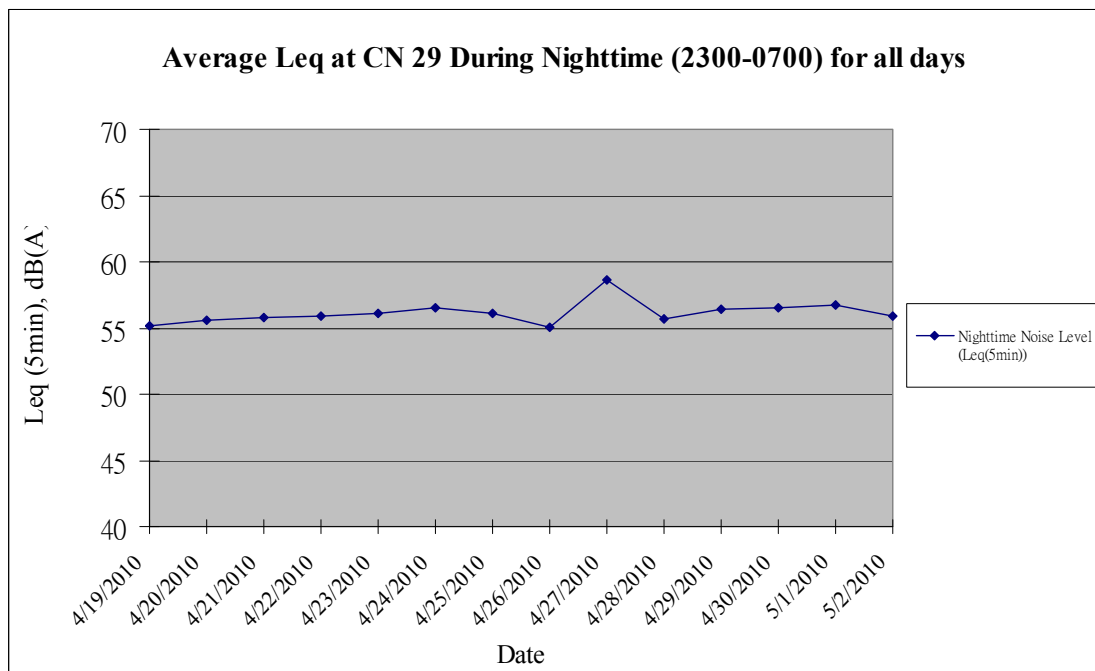
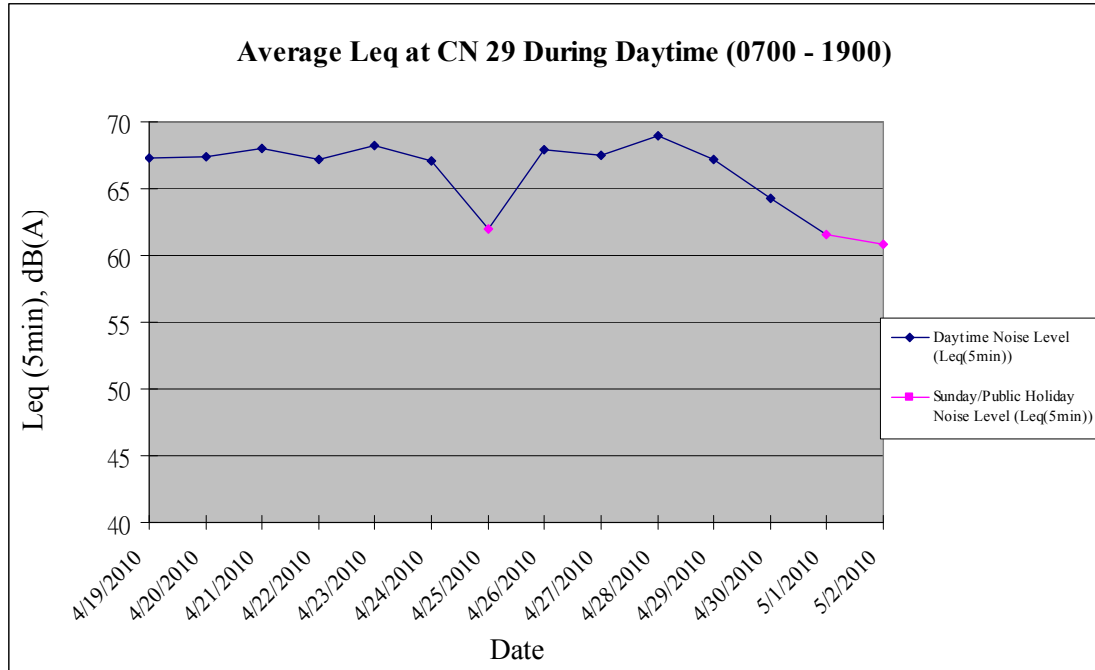
4) Night-time (for all days) Noise Level, dB(A)

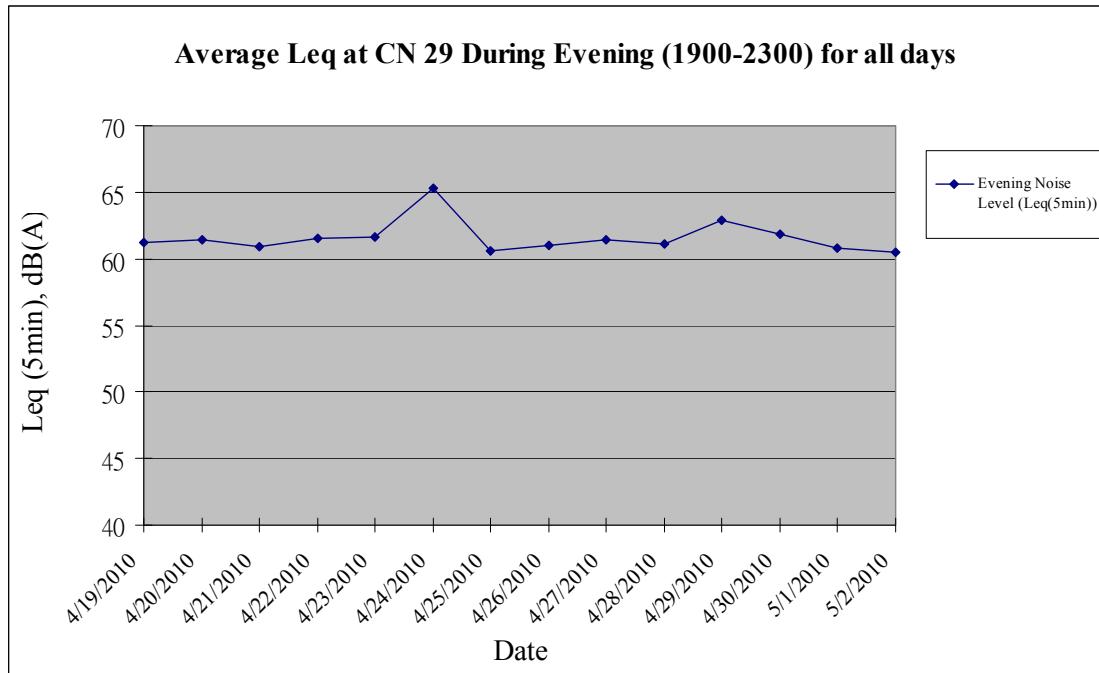
Time Slot	Leq, 5min	L10	L90
23:00-23:15	59.9	62.0	56.6
	59.4	61.4	56.5
	59.4	61.6	56.4
23:15-23:30	59.6	61.5	56.5
	59.4	61.5	56.7
	59.6	61.7	56.5
23:30-23:45	59.3	61.4	56.2
	58.9	61.0	56.3
	58.8	60.9	55.8
23:45-00:00	58.6	60.6	55.6
	58.7	60.9	55.5
	58.6	60.6	55.6
00:00-00:15	58.4	60.4	55.5
	58.7	60.8	55.4
	58.0	60.2	54.6
00:15-00:30	57.9	60.0	54.7
	58.0	60.0	54.4
	57.0	59.1	53.9
00:30-00:45	57.0	59.6	53.5
	56.8	59.0	53.7
	57.2	59.3	53.7
00:45:01:00	56.5	58.8	53.1
	56.4	58.6	53.0
	56.2	58.4	52.8
01:00-01:15	56.8	59.0	53.1

Time Slot	Leq, 5min	L10	L90
	56.3	59.0	52.3
	56.3	58.8	52.6
01:15-01:30	55.7	58.0	51.6
	56.3	58.6	52.5
	55.9	57.9	51.6
01:30-01:45	55.8	58.3	51.6
	56.0	58.4	52.0
	55.5	58.0	51.7
01:45-02:00	55.1	57.6	51.3
	55.5	58.0	51.3
	55.5	58.1	51.3
02:00-02:15	56.2	58.8	51.5
	56.5	59.3	51.4
	55.6	58.2	51.3
02:15-02:30	55.6	58.1	51.5
	54.9	57.6	51.0
	55.0	57.7	50.9
02:30-02:45	55.2	57.8	51.2
	55.0	57.6	50.8
	54.6	57.3	50.4
02:45-03:00	54.8	57.4	50.3
	54.5	57.2	50.1
	54.3	56.9	50.4
03:00-03:15	54.9	57.5	50.2
	55.0	57.6	50.2
	54.6	57.2	50.2
03:15-03:30	54.5	57.0	49.8
	54.6	57.3	50.2
	55.2	57.9	50.3
03:30-03:45	54.7	57.4	50.2
	54.4	57.3	49.8
	54.7	57.5	50.5
03:45-04:00	54.5	57.5	50.3
	55.0	57.8	50.6
	55.1	58.0	50.7
04:00-04:15	54.7	57.3	50.8

Time Slot	Leq, 5min	L10	L90
	54.8	57.4	50.4
	55.0	57.7	50.4
04:15-04:30	54.2	57.1	50.2
	55.2	58.1	50.6
	54.9	57.8	50.5
04:30-04:45	55.4	58.1	51.2
	55.8	58.7	51.2
	55.4	58.3	50.6
04:45-05:00	55.0	57.9	50.5
	55.0	57.6	50.7
	55.4	58.2	50.9
05:00-05:15	55.3	57.9	51.2
	56.2	59.3	51.4
	56.4	59.0	52.0
05:15-05:30	56.0	58.6	52.2
	56.3	58.8	52.0
	55.9	58.3	52.0
05:30-05:45	56.2	58.9	52.0
	56.6	59.3	52.7
	56.6	59.0	52.8
05:45-06:00	56.7	59.1	52.8
	57.3	59.6	53.6
	58.0	60.2	53.9
06:00-06:15	58.1	60.5	54.1
	58.6	61.3	54.7
	59.0	61.2	55.6
06:15-06:30	59.2	61.4	55.9
	59.5	62.0	55.7
	60.0	62.4	56.2
06:30-06:45	59.6	62.0	56.0
	61.0	63.3	56.9
	59.9	62.1	56.8
06:45-07:00	60.1	62.3	57.0
	60.6	62.6	57.6
	61.2	63.3	57.9
Average	57.1	59.5	53.5

Time Slot	Leq, 5min	L10	L90
Max	61.2	63.3	57.9
Min	54.2	56.9	49.8





Appendix C

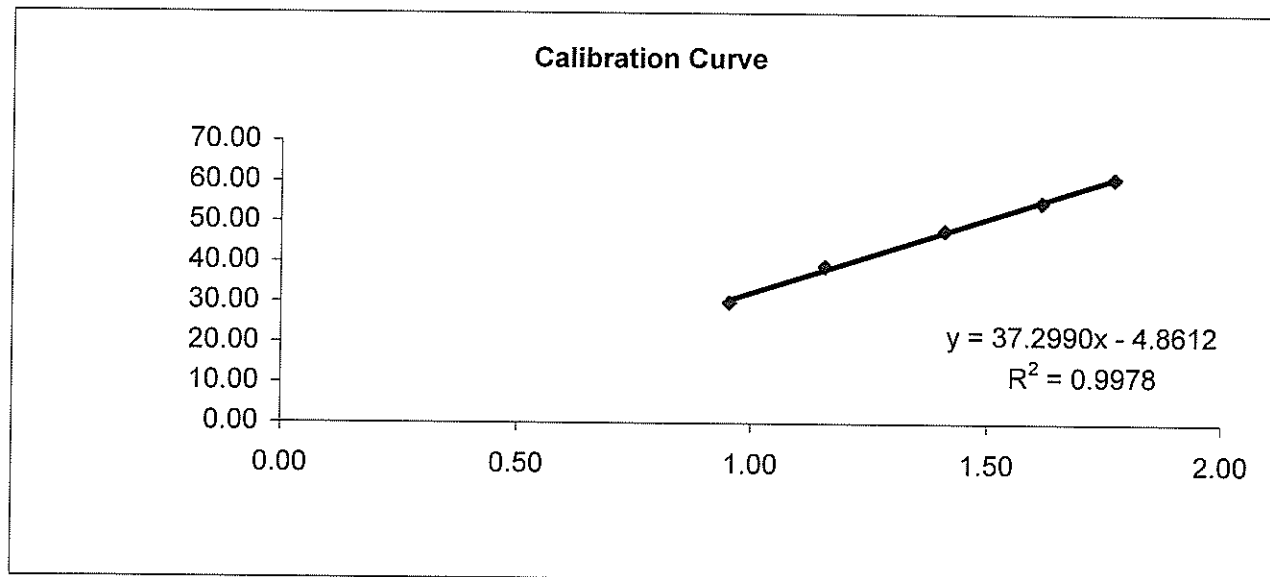
Calibration Certificates for Monitoring Equipments

Ove Arup Partners (Hong Kong) Limited

High Volume Air Sampler Calibration Worksheet

Calibration date	10-Feb-10	Barometric pressure	761 mm Hg
Next Calibration date	9-Aug-10	Temperature (°C)	25 °C
Sampler location	AM14 Yaumati Catholic Primary School, Rooftop	Temperature (K)	298 K
Sampler model	TE-5170	P _{std}	760 mm Hg
Sampler serial number	407	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	30.00	0.95	30.02
7	5.30	39.00	1.16	39.03
10	7.90	48.00	1.41	48.03
13	10.40	55.00	1.62	55.04
18	12.50	61.00	1.77	61.04



Linear Regression

Sampler slope (m) : **37.2990**
 Sampler intercept (b) : **-4.8612**
 Correlation coefficient (R²) : **0.9978**

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

Performed by: [Signature]

Date: 10-2-2010

Checked by: [Signature]

Date: 10/2/2010

Approved by: [Signature]

Date: 12/02/2010



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C101749

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Calibrator

Manufacturer : ---

Model No. : ND9

Serial No. : N435849

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C101749.*

The equipment is supplied by

Co. Name : EDMS Tech Ltd.

*Address : Room 1009, 10/F., World Wide House,
19 Des Voeux Road Central, Hong Kong*

Date of Issue : 30 March 2010

Certified by :

K C Lee

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration and Testing Laboratory of Sun Creation Engineering Limited

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C101749

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Calibrator
MANUFACTURER : ---
MODEL NO. : ND9
SERIAL NO. : N435849

TEST CONDITIONS

AMBIENT TEMPERATURE : $(23 \pm 2)^{\circ}\text{C}$
LINE VOLTAGE : ---

RELATIVE HUMIDITY : $(55 \pm 20)\%$

TEST SPECIFICATIONS

Calibration

DATE OF TEST : 30 March 2010

JOB NO. : IC10-0777

TEST RESULTS

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification. (after adjustment)
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies, USA
- Fluke Everett Service Center, USA
- Rohde & Schwarz Laboratory, Germany

Tested by :


L L Cheung

Date : 30 March 2010

The test equipment used for calibration are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration and Testing Laboratory of Sun Creation Engineering Limited

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

Page 1 of 2

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours before the commencement of the test.
2. The results presented are the mean of 3 measurements at each calibration point.
3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C093122
CL281	Multifunction Acoustic Calibrator	DC090052
TST150A	Measuring Amplifier	C101008

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)		Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
	Before Adj.	After Adj.		
94 dB, 1 kHz	* 95.1	94.0	± 0.3	± 0.2
114 dB, 1 kHz	* 115.3	114.1		± 0.3

* Out of Mfr's Spec.

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)		Mfr's Spec.	Uncertainty of Measured Value (Hz)
	Before Adj.	After Adj.		
1	1.000	1.000	1 kHz ± 0.1 %	± 0.1

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

Note :

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

CERTIFICATE OF CALIBRATION**Certificate No. :** 2KS100208-16**Page** 1 **of** 2**Calibration of :**

Description :	Sound Level Meter	,	Microphone
Manufacture :	Brüel & Kjær		
Type No. :	2250	,	4950
Serial No. :	2701815		2678773

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 :

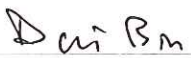
Brüel & Kjær's Sound Level Meter Calibration System B&K 9600 CAL2238A, Ver.25.10.1999
The standard(s) and instrument(s) used in the calibration are traceable to international standard and are calibrated on a schedule which is adjusted to maintain the required accuracy level.

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 : 22 February, 2010
Calibrated By :

Certificate issued : 22 February, 2010
Approved signatory :


Dai Bin


Jacky Leung

Reproduction of the complete certificate is allowed. Parts of the certificate may only be reproduced after written permission.

CERTIFICATE OF CALIBRATION

Certificate No. : 2KS100208-16

Page 2 **of** 2

Results :

List of performed (sub) test with test status:

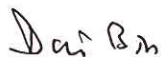
"OK" Means the result of the (sub)test is Inside the tolerances stated in the test specifications.

" - " 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 :

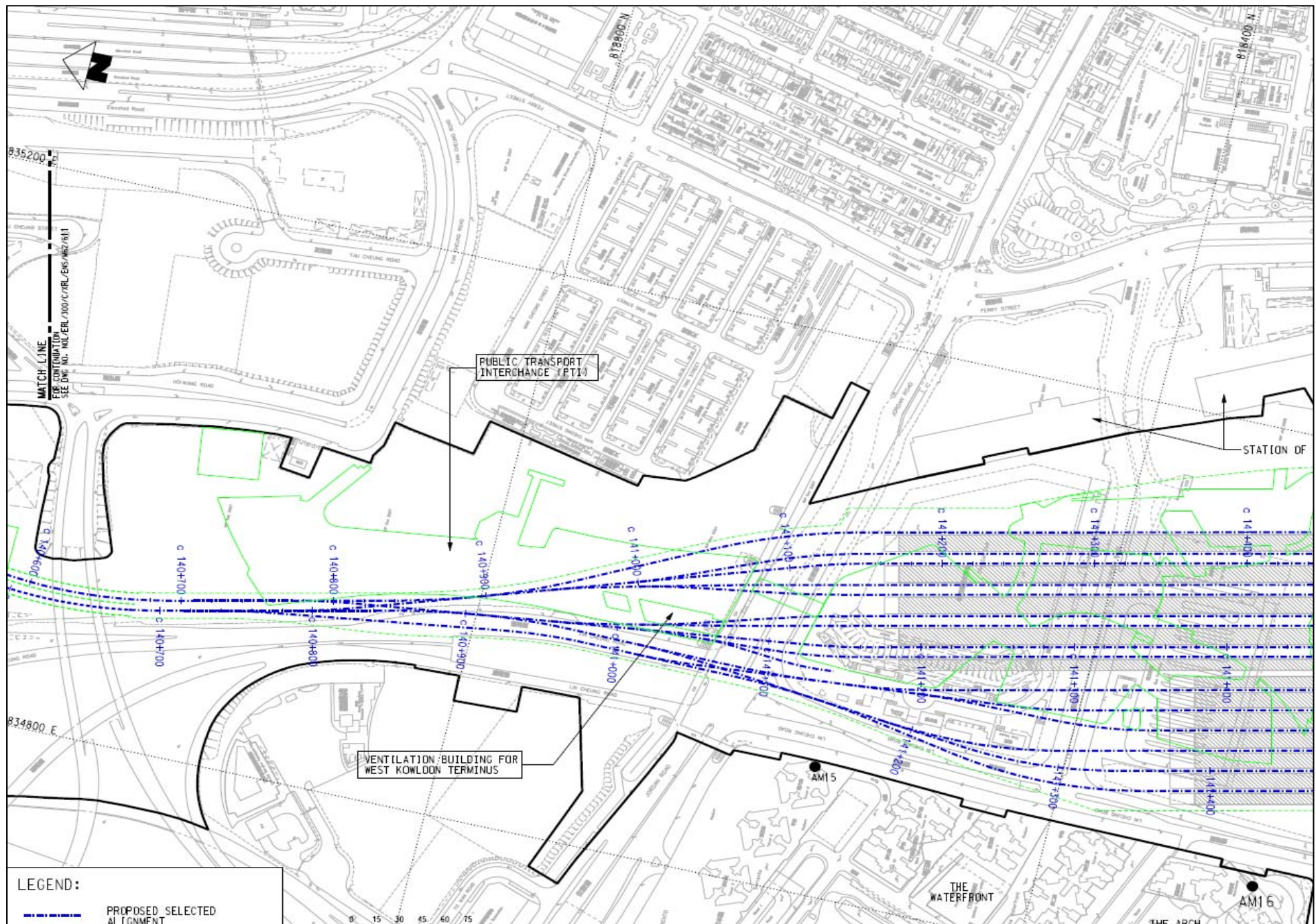
Brüel & Kjær's Sound	Level Meter Calibration System	B&K 9600 CAL2238A, Ver.25.10.1999
Description :	Make & Model :	Serial No. :
Digital Multi-meter	Datron 1281	27361
Sine/Noise Generator	B&K 1049	1314978
Test Waveform Generator	B&K 5918	1482949
Acoustical Calibrator	B&K 4226	1551627
		Last Cal. Date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

 Calibrated By : 
 Date : 22 February, 2010

 Checked By : 
 Date : 22 February, 2010

Appendix D

Figures



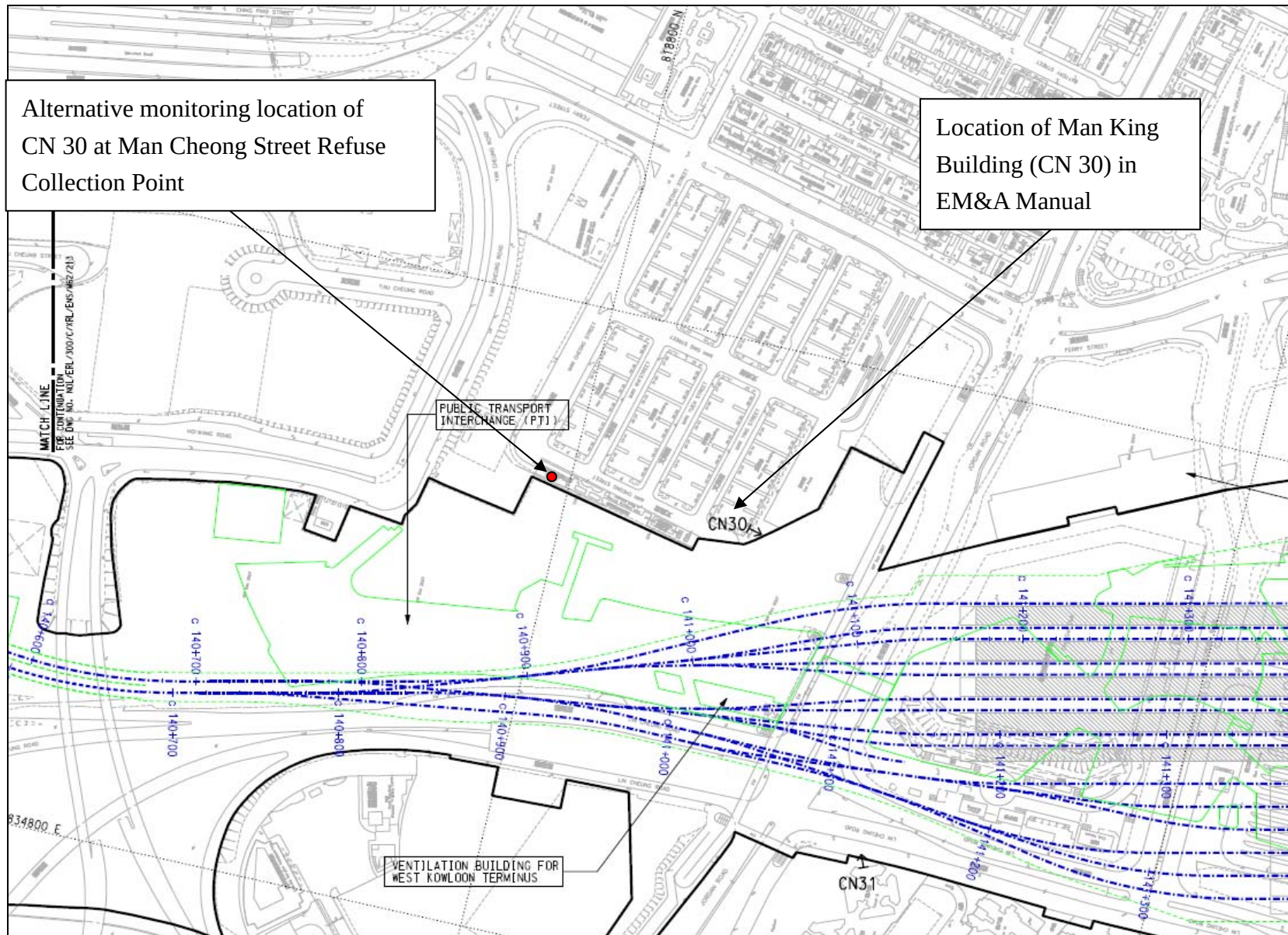


Figure 3a – Noise Monitoring Location

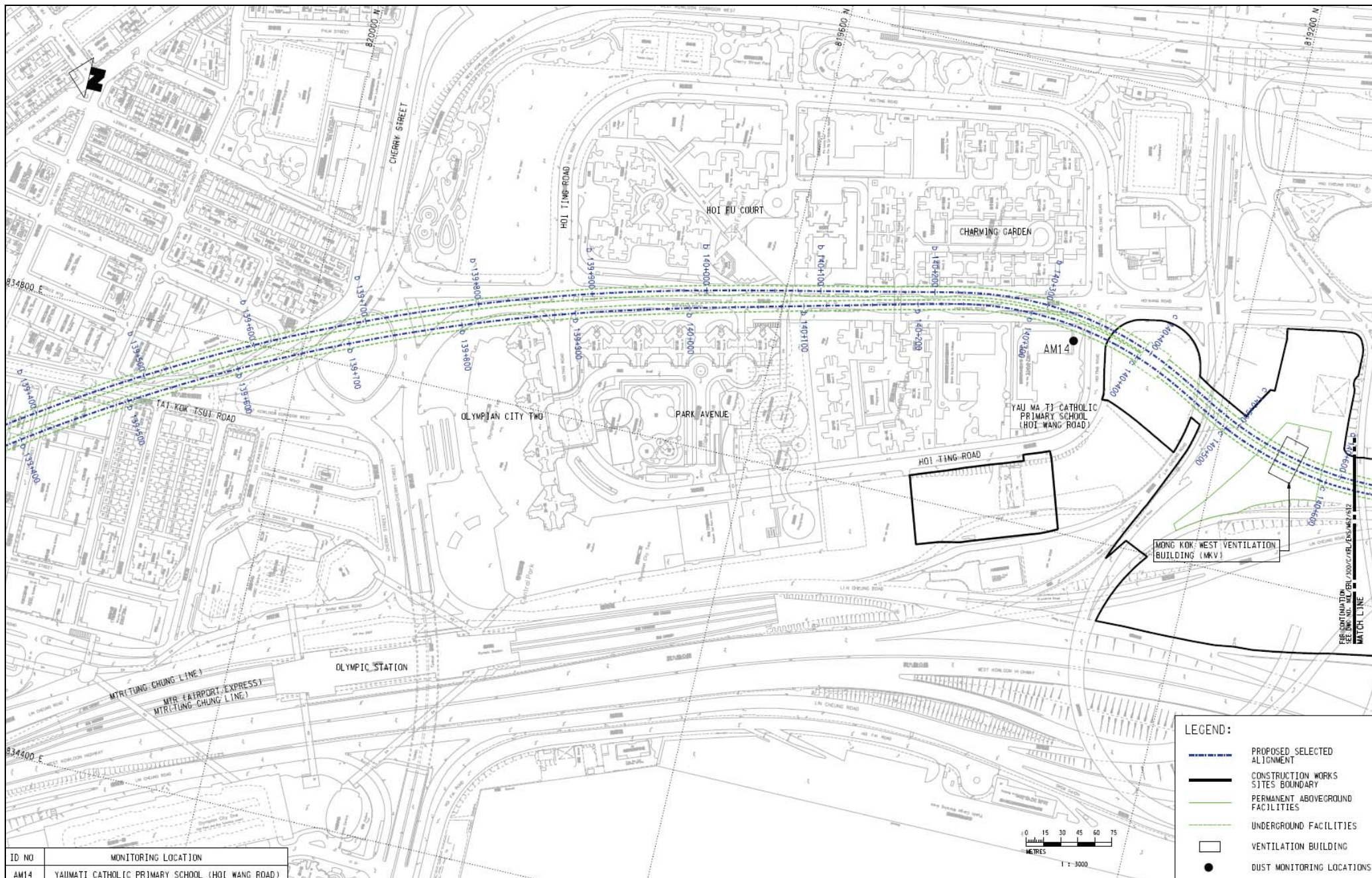


Figure 2b – Dust Monitoring Locations

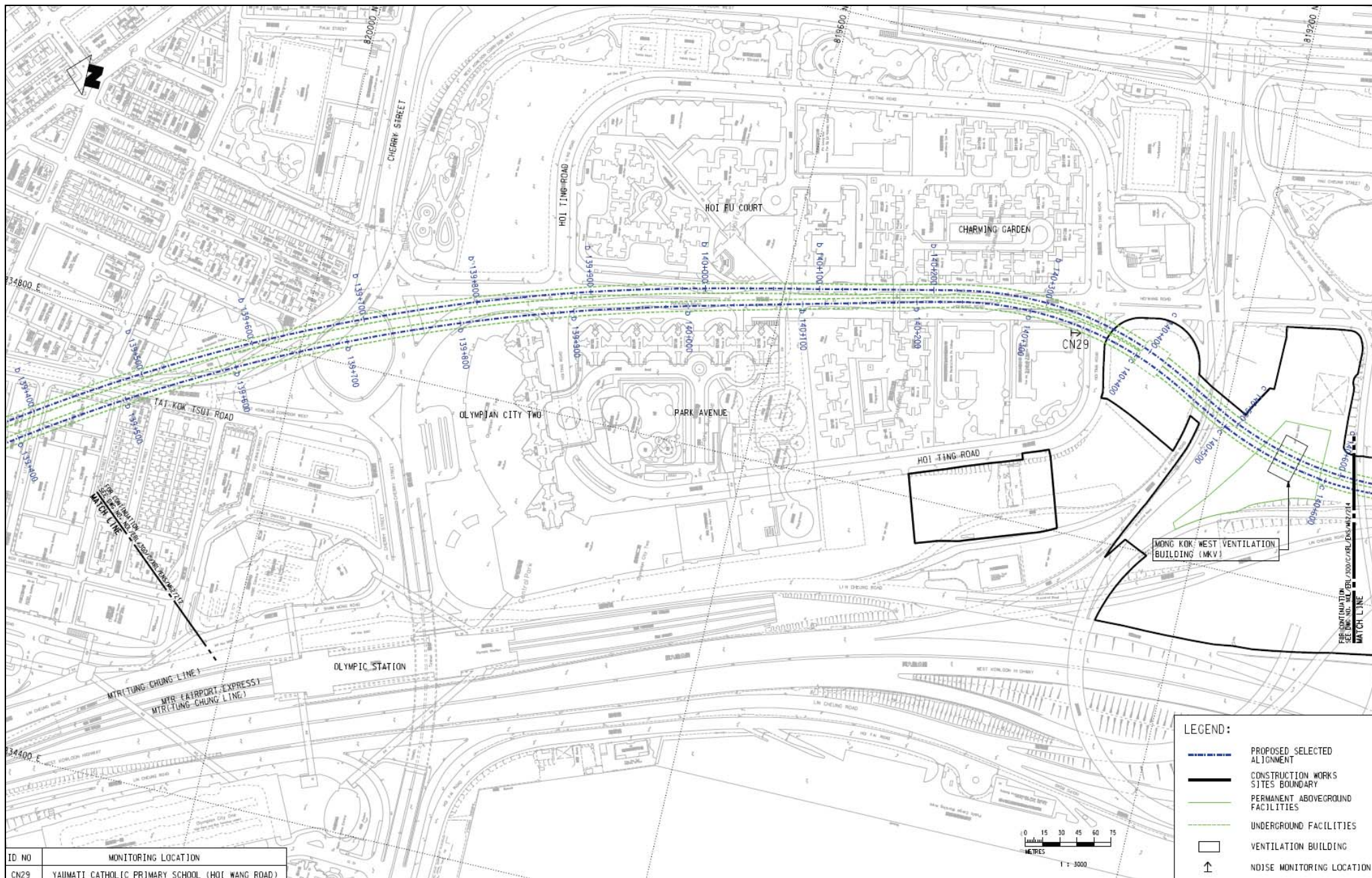


Figure 3b – Noise Monitoring Locations