

MTR Corporation Limited

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

Baseline Monitoring Report (Part 11)

Verified by: 
dPosition: Independent Environmental Checker
Date: 17 August 2010

MTR Corporation Limited

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SHENZHEN - HONG KONG EXPRESS RAIL LINK
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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 monitoring location in the vicinity of Works Area M (Figure 1). Noise measurements were taken in terms of Leq with L10 and L90 as reference. With reference to the EM&A Manual, there is no dust monitoring location in the vicinity of the said Works Area, therefore no reporting of baseline air quality is included in this report.

Baseline noise monitoring was conducted between 2/7/2010 and 15/7/2010 at Block I, Lai Chi Kok Reception Centre (CN 22). 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 Block I, Lai Chi Kok Reception Centre (CN22) was ranged from 71 to 73 dB(A). The daytime baseline noise levels of CN 22, 72 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 11) contains baseline monitoring findings in the vicinity of Works Areas M (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

With reference to Chapter 9 of the EM&A Manual, there is no dust monitoring location in the vicinity of the Works Areas M, therefore no reporting of baseline air quality is included in this report.

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 meter, which complies with the above-mentioned specifications, was 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 CN 22 located in the vicinity of Works Area M. The location of the NSR is shown in Figure 2. Monitoring was carried out at the following stations in accordance with the EM&A Manual:

Monitoring Station ID	Noise Monitoring Location	Monitoring period
CN 22	Block I, Lai Chi Kok Reception Centre	2/7/2010 to 15/7/2010

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 at CN 22. The sound level meters and 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 CN 22 are attached in Appendix B.

Immediately prior to and following each noise measurement the accuracy of the sound level meter should be checked using an acoustic calibrator 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 2/7/2010 and 15/7/2010 at Block I, Lai Chi Kok Reception Centre (CN 22). 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 22	Block I, Lai Chi Kok Reception Centre	Traffic noise

Table 3.3: Major noise source at noise monitoring locations

Baseline noise monitoring results at CN 22 are summarised in Table 3.3 over the monitoring periods. Detailed monitoring data at CN 22 is contained in Appendix A. Graphical presentations of the monitoring results at CN 22 are shown in Appendix A.

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 22	72 (71-73)	74 (73-74)	70 (68-70)
0700 – 2300 (General Holiday including Sunday)	CN 22	70 (68-72)	72 (70-75)	67 (64-70)
1900 – 2300 (Evening, Normal weekday)	CN 22	71 (70-73)	73 (72-75)	68 (67-71)
2300 – 0700 (Night-time, all days)	CN 22	67 (64-71)	69 (67-72)	63 (59-68)

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 CN22 range from 71-73 dB(A). It was noted from the monitoring results that the daytime baseline noise level of CN 22, 72 dB(A), was below the Limit Level of 75 dB(A) for residential premises.

4. CONCLUSION

4.1 Air

With reference to Chapter 9 of the EM&A Manual, there is no dust monitoring location in the vicinity of the Works Areas M, therefore no reporting of baseline air quality is included in this report.

4.2 Airborne Construction Noise

Baseline noise monitoring was carried at the monitoring station from 2/7/2010 to 15/7/2010. 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 CN22 range from 71-73 dB(A). It was noted from the monitoring results that the daytime baseline noise level of CN 22, 72 dB(A), was below the Limit Level of 75 dB(A) for residential premises.

Appendix A

Baseline noise monitoring data

Baseline Noise Monitoring Result

Location: CN 22 Block I, Lai Chi Kok Reception Centre

Baseline monitoring period: 2/7/2010 - 15/7/2010

Parameter: Leq

Time Slot Averaged Baselines

1) Weekdays Daytime Noise Level, dB(A)

Time slot	Leq, 30 min	L10	L90
07:00-07:30	70.7	72.7	67.9
07:30-08:00	71.7	73.5	69.2
08:00-08:30	72.2	73.9	69.9
08:30-09:00	72.4	74.1	70.1
09:00-09:30	72.3	74.1	69.8
09:30-10:00	72.3	74.1	70.0
10:00-10:30	72.3	74.0	69.9
10:30-11:00	72.3	74.0	69.9
11:00-11:30	72.2	74.0	69.9
11:30-12:00	72.0	73.7	69.7
12:00-12:30	71.9	73.7	69.6
12:30-13:00	71.8	73.6	69.5
13:00-13:30	72.3	74.0	69.7
13:30-14:00	72.3	74.1	69.9
14:00-14:30	72.3	74.1	70.1
14:30-15:00	72.3	74.0	69.8
15:00-15:30	72.5	74.4	69.8
15:30-16:00	72.2	74.0	69.7
16:00-16:30	72.3	74.0	69.8
16:30-17:00	72.1	73.8	69.7
17:00-17:30	72.3	74.1	69.9
17:30-18:00	72.3	74.0	70.0
18:00-18:30	72.2	73.9	70.0
18:30-19:00	72.1	73.7	69.9
Average	72.2	73.9	69.8
Max	72.5	74.4	70.1
Min	70.7	72.7	67.9

Noise Control Period Averaged Baselines

2) Weekdays Evening Noise Level, dB(A)

Time Slot	Leq, 5min	L10	L90
19:00-19:15	71.9	73.6	69.6
	71.6	73.1	69.4
	72.9	74.5	70.5
19:15-19:30	71.7	73.3	69.4
	72.4	74.1	70.1
	71.4	73.1	69.1
19:30-19:45	71.3	72.9	69.0
	71.0	72.8	68.7
	71.2	72.8	68.9
19:45-20:00	72.0	73.8	69.6
	71.8	73.6	69.3
	71.6	73.3	69.2
20:00-20:15	71.7	73.3	69.2
	71.9	73.8	69.2
	70.7	72.5	68.1
20:15-20:30	71.7	73.4	69.0
	70.6	72.5	67.8
	71.3	73.1	68.7
20:30-20:45	70.4	72.2	67.6
	70.8	72.3	67.7
	71.3	73.0	68.6
20:45-21:00	70.3	72.2	67.4
	70.5	72.6	67.5
	71.0	72.9	68.2
21:00-21:15	70.1	71.7	67.5
	71.1	73.1	68.3
	70.0	71.8	67.6
21:15-21:30	70.2	72.0	67.6
	71.1	73.0	68.5
	70.0	71.7	67.3
21:30-21:45	70.3	72.2	67.6

Time Slot	Leq, 5min	L10	L90
	70.6	72.4	68.0
	70.7	72.4	68.2
21:45-22:00	71.2	72.9	68.7
	70.4	72.3	67.6
	70.2	72.0	67.5
22:00-22:15	70.2	72.1	67.6
	70.5	72.3	67.6
	70.2	72.1	67.5
22:15-22:30	70.9	72.7	68.4
	70.4	72.1	67.5
	70.4	72.1	67.4
22:30-22:45	70.1	72.2	67.3
	71.0	72.8	68.4
	71.2	73.1	68.3
22:45-23:00	70.4	72.3	67.7
	71.5	73.2	68.9
	71.2	73.2	68.4
Average	71.0	72.8	68.4
Max	72.9	74.5	70.5
Min	70.0	71.7	67.3

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

Time Slot	Leq, 5min	L10	L90
0700-07:15	68.0	70.5	64.1
	69.3	71.2	65.3
	68.2	70.3	64.6
07:15-07:30	69.0	70.8	65.6
	68.2	70.1	65.0
	68.7	70.9	65.8
07:30-07:45	68.1	70.3	64.5
	69.2	71.2	65.5
	68.8	70.6	65.7
07:45-08:00	69.1	71.6	65.7
	69.4	71.3	65.9

Time Slot	Leq, 5min	L10	L90
	69.6	71.4	66.0
08:00-08:15	68.8	70.8	65.4
	69.1	71.3	65.4
	69.8	71.8	66.4
08:15-08:30	68.9	71.2	65.8
	69.7	71.9	67.0
	69.6	71.8	66.0
08:30-08:45	70.5	72.7	67.1
	70.0	71.9	67.0
	70.1	71.8	67.3
08:45-09:00	70.3	72.3	67.3
	69.6	71.4	66.5
	69.9	71.8	66.8
09:00-09:15	69.7	71.4	67.4
	70.7	72.4	66.8
	69.8	71.5	67.2
09:15-09:30	70.5	72.2	67.0
	69.9	71.8	67.3
	69.2	71.2	66.1
09:30-09:45	69.6	71.6	66.8
	69.7	71.5	66.7
	69.8	71.7	67.1
09:45-10:00	69.8	71.5	67.3
	69.6	71.3	67.1
	69.6	71.3	67.1
10:00-10:15	70.3	72.0	67.7
	71.7	74.6	67.5
	71.0	73.5	67.1
10:15-10:30	69.6	71.1	67.3
	70.3	72.3	67.4
	70.1	72.0	67.6
10:30-10:45	70.5	72.2	67.4
	70.2	71.9	67.5
	70.4	72.1	67.7
10:45-11:00	70.3	72.2	67.5
	70.1	71.8	67.4

Time Slot	Leq, 5min	L10	L90
	70.2	71.8	67.8
11:00-11:15	69.8	71.6	67.1
	69.9	71.8	67.2
	70.7	72.1	67.3
11:15-11:30	70.8	72.8	67.9
	69.9	71.7	67.1
	69.8	71.4	67.3
11:30-11:45	70.3	72.1	67.3
	70.5	72.4	66.5
	69.9	71.7	67.0
11:45-12:00	70.1	71.9	67.6
	70.1	72.0	67.4
	70.2	71.8	67.7
12:00-12:15	72.2	73.9	69.9
	70.3	72.1	67.7
	70.1	71.8	67.7
12:15-12:30	69.8	71.7	67.0
	70.3	72.5	67.2
	70.0	71.7	67.6
12:30-12:45	69.8	71.5	67.5
	69.8	71.9	66.8
	70.1	72.0	67.7
12:45-13:00	70.0	71.8	67.2
	69.8	71.3	67.5
	70.5	72.3	67.4
13:00-13:15	70.6	72.6	67.8
	70.3	72.3	67.7
	70.5	72.1	67.9
13:15-13:30	70.3	72.2	67.6
	69.8	71.5	67.7
	71.9	73.7	68.2
13:30-13:45	70.6	72.7	67.5
	70.5	72.4	67.9
	70.7	72.3	68.1
13:45-14:00	70.6	72.4	67.9
	70.4	72.2	68.1

Time Slot	Leq, 5min	L10	L90
	71.0	72.7	68.4
14:00-14:15	70.6	72.4	68.1
	70.6	72.6	67.8
	70.2	72.3	67.3
14:15-14:30	70.4	72.3	67.8
	70.2	72.1	67.4
	70.7	72.8	67.4
14:30-14:45	71.1	73.1	68.3
	70.6	72.4	68.1
	69.8	71.5	67.4
14:45-15:00	70.4	72.4	67.5
	70.8	72.3	67.8
	70.3	72.3	67.4
15:00-15:15	70.4	72.0	67.8
	70.2	72.0	67.6
	70.1	71.6	67.6
15:15-15:30	70.6	72.4	67.8
	70.2	71.8	67.9
	70.1	71.9	67.2
15:30-15:45	70.7	72.9	67.1
	70.3	72.1	67.7
	70.0	71.7	67.7
15:45-16:00	70.2	72.0	67.5
	70.2	72.2	67.8
	70.3	72.0	67.4
16:00-16:15	70.3	71.8	67.7
	70.1	71.7	67.9
	70.6	72.2	67.8
16:15-16:30	70.1	72.0	67.4
	70.7	72.6	67.6
	70.5	72.3	67.5
16:30-16:45	70.7	72.8	67.8
	70.1	71.8	67.3
	70.0	72.0	67.4
16:45-17:00	70.1	72.0	67.1
	70.1	71.9	67.4

Time Slot	Leq, 5min	L10	L90
	70.7	72.6	67.5
17:00-17:15	70.6	72.2	68.4
	70.3	72.2	67.9
	70.0	71.8	67.4
17:15-17:30	70.1	72.1	67.3
	70.3	72.1	67.1
	70.4	72.1	67.5
17:30-17:45	70.0	71.9	67.4
	70.1	71.9	67.6
	69.7	71.4	67.2
17:45-18:00	70.2	72.0	67.4
	70.1	71.8	67.7
	69.9	71.6	67.6
18:00-18:15	70.4	72.0	68.1
	69.9	71.7	67.1
	70.2	72.3	67.6
18:15-18:30	70.0	71.7	67.3
	70.5	72.6	67.5
	70.2	71.8	67.5
18:30-18:45	70.4	72.2	67.6
	70.5	72.6	67.0
	70.7	72.7	67.5
18:45-19:00	70.8	72.3	67.8
	70.0	71.8	67.5
	70.2	71.9	67.7
19:00-19:15	70.2	72.3	66.7
	70.5	72.4	67.8
	70.1	71.9	67.5
19:15-19:30	70.1	72.3	66.6
	70.6	73.0	66.3
	69.5	71.4	66.9
19:30-19:45	69.6	71.6	66.8
	69.2	70.9	66.6
	69.3	71.0	66.6
19:45-20:00	69.7	71.4	67.1
	69.5	71.4	66.5

Time Slot	Leq, 5min	L10	L90
	69.5	71.5	66.6
20:00-20:15	69.5	71.4	66.8
	69.9	71.7	67.0
	70.0	71.6	67.1
20:15-20:30	70.2	72.2	66.8
	70.6	72.5	68.3
	69.3	71.0	66.6
20:30-20:45	69.4	71.5	66.6
	69.9	71.8	67.1
	70.1	71.6	66.9
20:45-21:00	69.6	71.5	67.0
	69.8	71.6	66.3
	69.5	71.4	66.6
21:00-21:15	69.8	71.4	67.5
	70.3	72.0	67.7
	70.0	71.8	67.2
21:15-21:30	70.1	71.9	67.2
	70.3	72.0	67.6
	69.9	71.7	67.5
21:30-21:45	69.6	71.5	66.7
	70.4	71.9	67.4
	69.9	71.9	66.9
21:45-22:00	69.8	71.5	67.1
	69.6	71.6	66.6
	69.7	71.4	67.2
22:00-22:15	69.5	71.6	66.6
	70.1	71.8	67.1
	69.7	71.4	66.9
22:15-22:30	69.9	71.9	67.1
	69.9	71.5	67.3
	69.1	71.2	65.9
22:30-22:45	69.9	71.6	67.4
	70.2	71.6	66.9
	69.3	71.0	67.0
22:45-23:00	69.6	71.5	66.8
	69.5	71.5	66.5

Time Slot	Leq, 5min	L10	L90
	69.4	71.4	66.4
Average	70.1	71.9	67.2
Max	72.2	74.6	69.9
Min	68.0	70.1	64.1

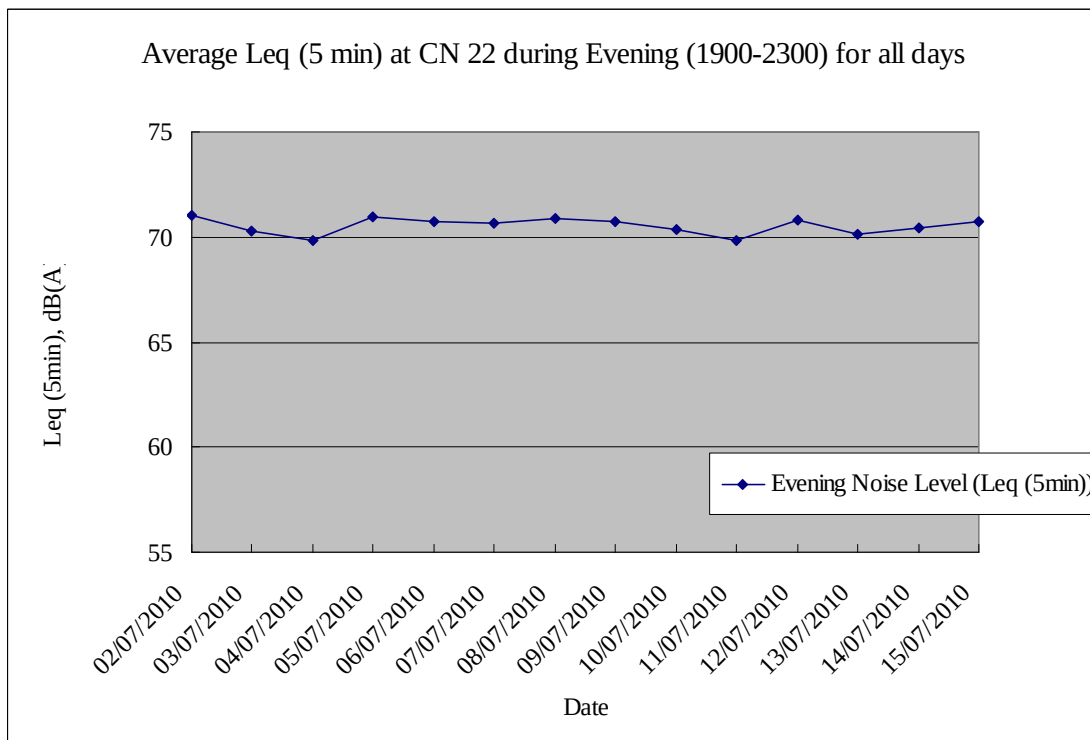
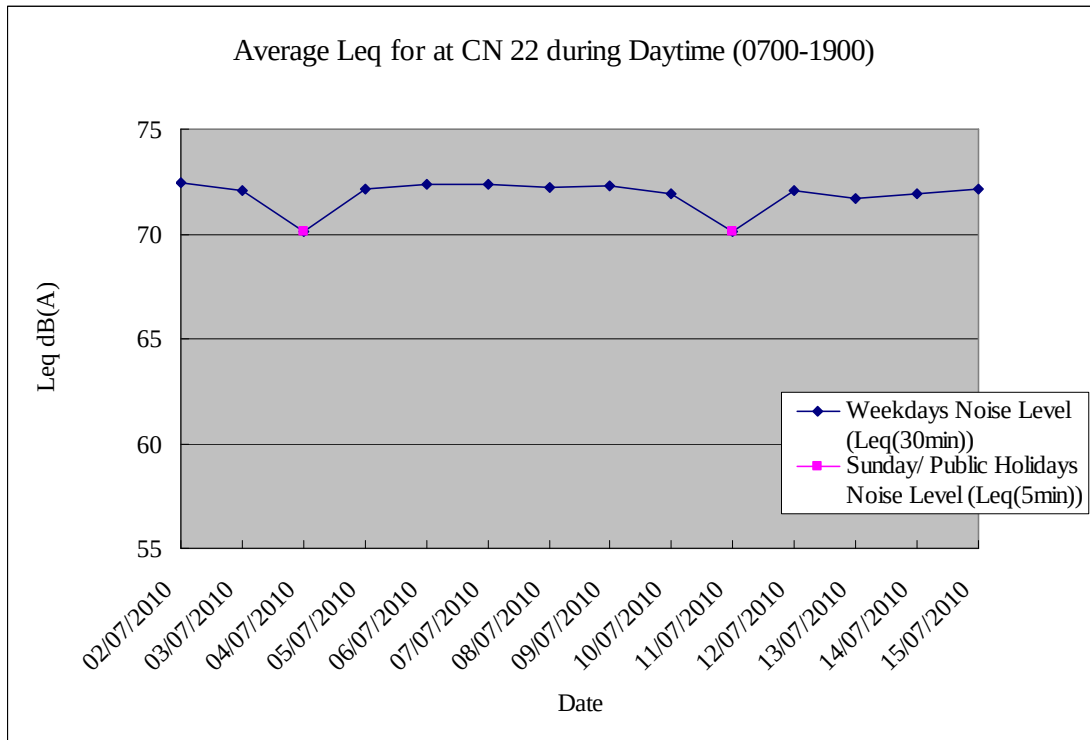
4) Night-time (for all days) Noise Level, dB(A)

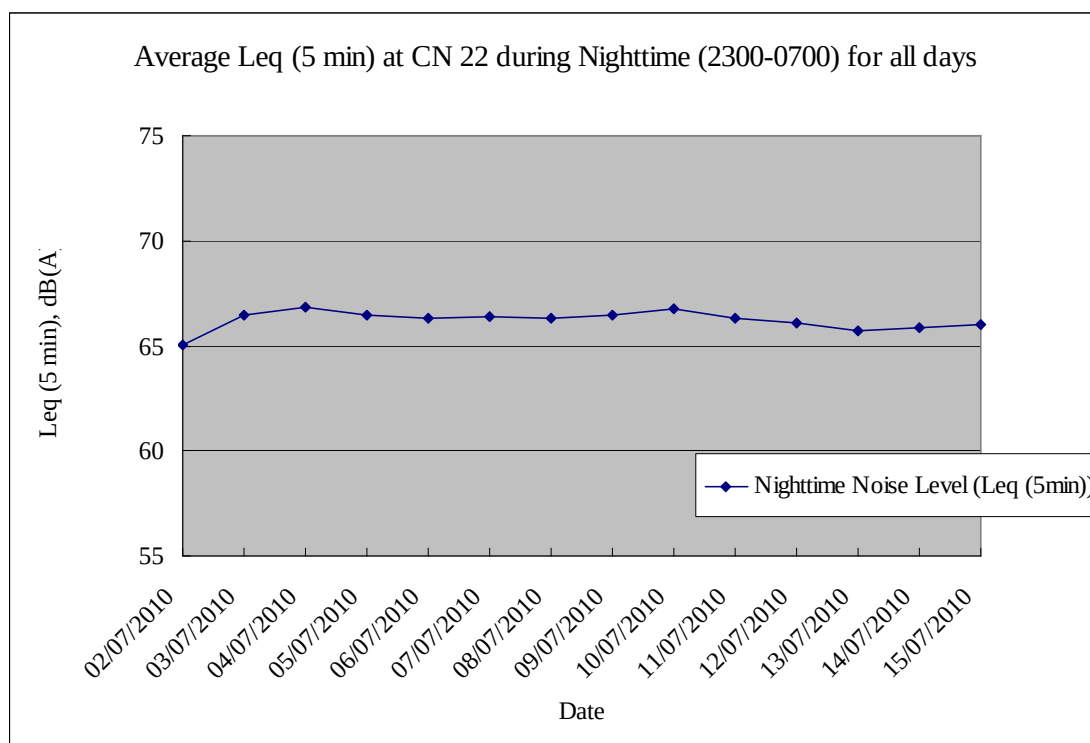
Time Slot	Leq, 5min	L10	L90
23:00-23:15	70.5	72.4	67.5
	70.4	72.3	67.6
	69.9	71.6	67.1
23:15-23:30	69.9	71.9	67.1
	70.1	72.1	67.3
	69.6	71.6	66.5
23:30-23:45	69.7	71.8	66.4
	69.8	72.0	66.6
	69.5	71.5	66.2
23:45-00:00	69.6	71.6	66.4
	69.0	71.0	65.9
	69.4	71.5	66.2
00:00-00:15	69.4	71.5	65.9
	69.2	71.3	65.7
	69.2	71.4	65.8
00:15-00:30	68.8	71.0	65.2
	68.7	70.8	65.1
	68.7	71.1	65.2
00:30-00:45	69.1	71.1	65.4
	68.2	70.4	64.5
	68.2	70.4	64.6
00:45:01:00	67.9	70.2	64.1
	67.2	69.5	63.5
	67.7	70.0	63.6
01:00-01:15	67.1	69.4	63.1
	66.5	68.8	62.6
	66.9	69.3	62.8
01:15-01:30	66.5	68.8	62.4

Time Slot	Leq, 5min	L10	L90
	66.0	68.4	62.2
	66.6	68.8	62.5
01:30-01:45	66.3	68.7	61.8
	65.7	68.1	61.8
	66.5	68.7	61.6
01:45-02:00	65.6	67.8	61.8
	65.2	67.6	61.5
	66.3	68.7	61.4
02:00-02:15	65.2	67.6	60.9
	65.3	67.7	60.9
	65.9	68.3	61.6
02:15-02:30	65.1	67.6	60.8
	65.3	67.8	61.0
	65.7	68.1	60.8
02:30-02:45	65.7	68.0	61.3
	64.9	67.5	60.3
	65.7	68.2	60.6
02:45-03:00	64.7	67.2	60.0
	64.0	66.6	59.6
	65.3	67.6	60.5
03:00-03:15	64.7	67.1	59.7
	64.2	66.8	59.6
	64.9	67.3	60.0
03:15-03:30	64.4	67.2	59.2
	64.5	66.7	59.5
	65.1	67.6	60.1
03:30-03:45	64.1	66.7	59.6
	64.0	66.7	59.6
	65.0	67.4	59.7
03:45-04:00	64.0	66.6	58.6
	64.3	66.7	58.6
	64.3	66.8	58.7
04:00-04:15	64.1	66.7	59.4
	64.5	67.2	59.2
	64.9	67.3	59.6
04:15-04:30	63.9	66.7	59.2

Time Slot	Leq, 5min	L10	L90
	64.2	66.9	59.5
	65.7	68.1	61.1
04:30-04:45	65.3	67.7	60.9
	65.5	67.9	61.0
	65.7	68.1	60.8
04:45-05:00	65.0	67.6	60.6
	64.6	67.1	60.5
	65.6	67.9	61.0
05:00-05:15	65.4	67.9	61.1
	65.2	67.6	61.2
	65.7	68.2	61.4
05:15-05:30	65.8	68.2	62.2
	65.8	68.3	61.7
	65.8	68.3	61.8
05:30-05:45	66.1	68.3	62.3
	65.8	68.1	61.9
	66.6	69.0	62.6
05:45-06:00	66.8	69.2	63.1
	66.9	69.2	63.2
	67.4	69.8	63.7
06:00-06:15	67.2	69.5	63.5
	67.7	69.8	64.0
	68.4	70.6	64.6
06:15-06:30	68.4	70.7	64.8
	68.6	70.8	65.2
	68.9	71.0	65.4
06:30-06:45	68.9	71.1	65.6
	68.6	70.8	65.4
	69.2	71.1	66.1
06:45-07:00	69.7	71.7	66.5
	69.2	71.2	66.2
	69.9	71.8	66.9
Average	67.2	69.4	63.5
Max	70.5	72.4	67.6
Min	63.9	66.6	58.6

Log average was used.





Appendix B

Calibration Certificates for Monitoring Equipments



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. : 2KS100504-3

Page 1 of 2

Calibration of :

Description :	Sound Level Meter	,	Microphone
Manufacture :	Brüel & Kjær		
Type No. :	2250	,	4950
Serial No. :	2709427		2662406

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 : 11 May, 2010

Calibrated By :

Certificate issued : 11 May, 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. : 2KS100504-3

Page 2 of 2

Results :

List of performed (sub) test with test status:

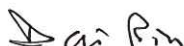
“OK” Means the result of the (sub)test is Inside the tolerances stated in the test specifications.

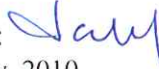
“ - ” Means the result of the (sub)test is Outside these tolerances.

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	1843103	14 Aug 2009	NPL via B&K (DANAK)

Calibrated By : 
Date : 11 May, 2010

Checked By : 
Date : 11 May, 2010

Appendix C

Figures

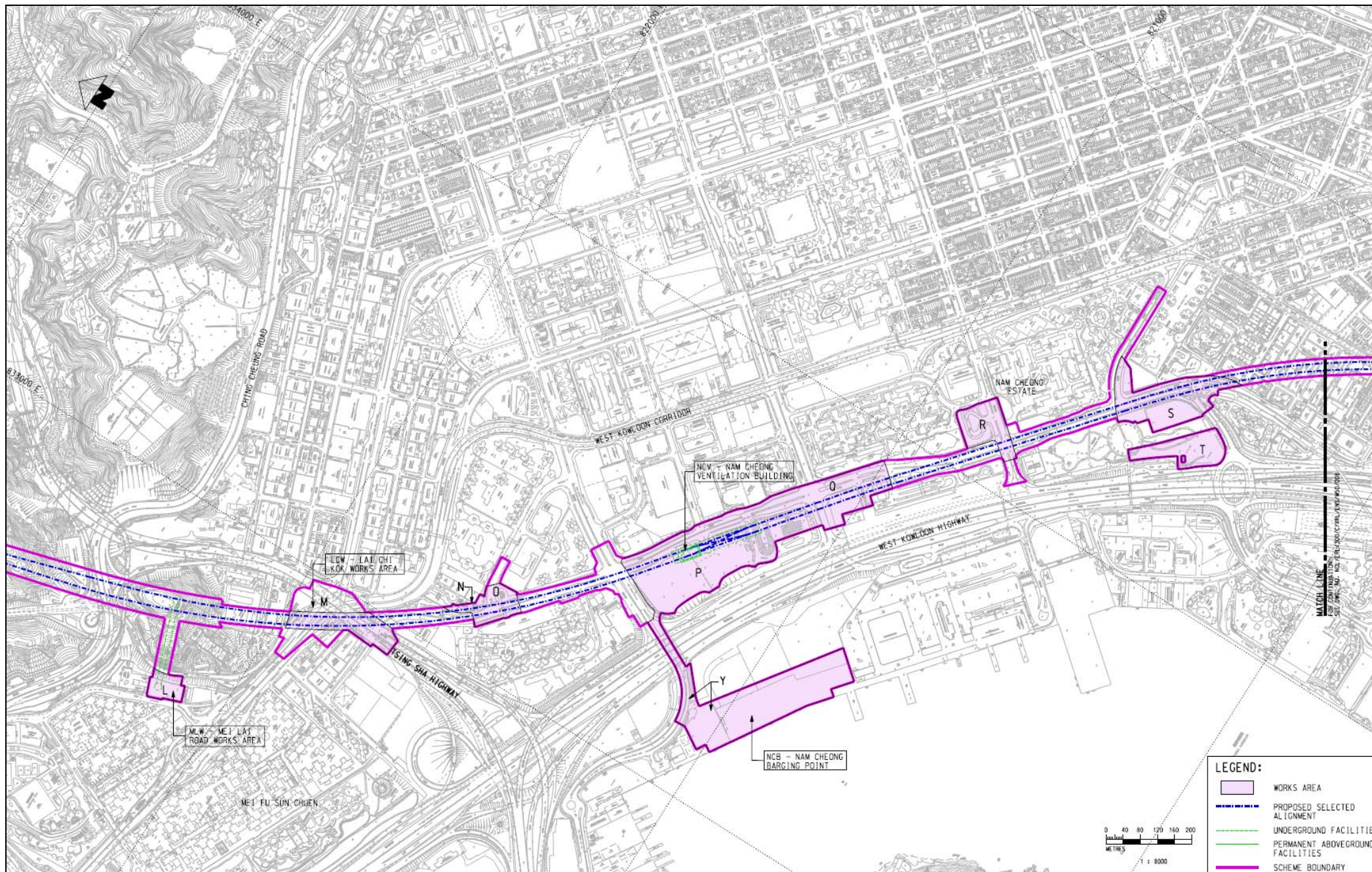


Figure 1 – Works Area M

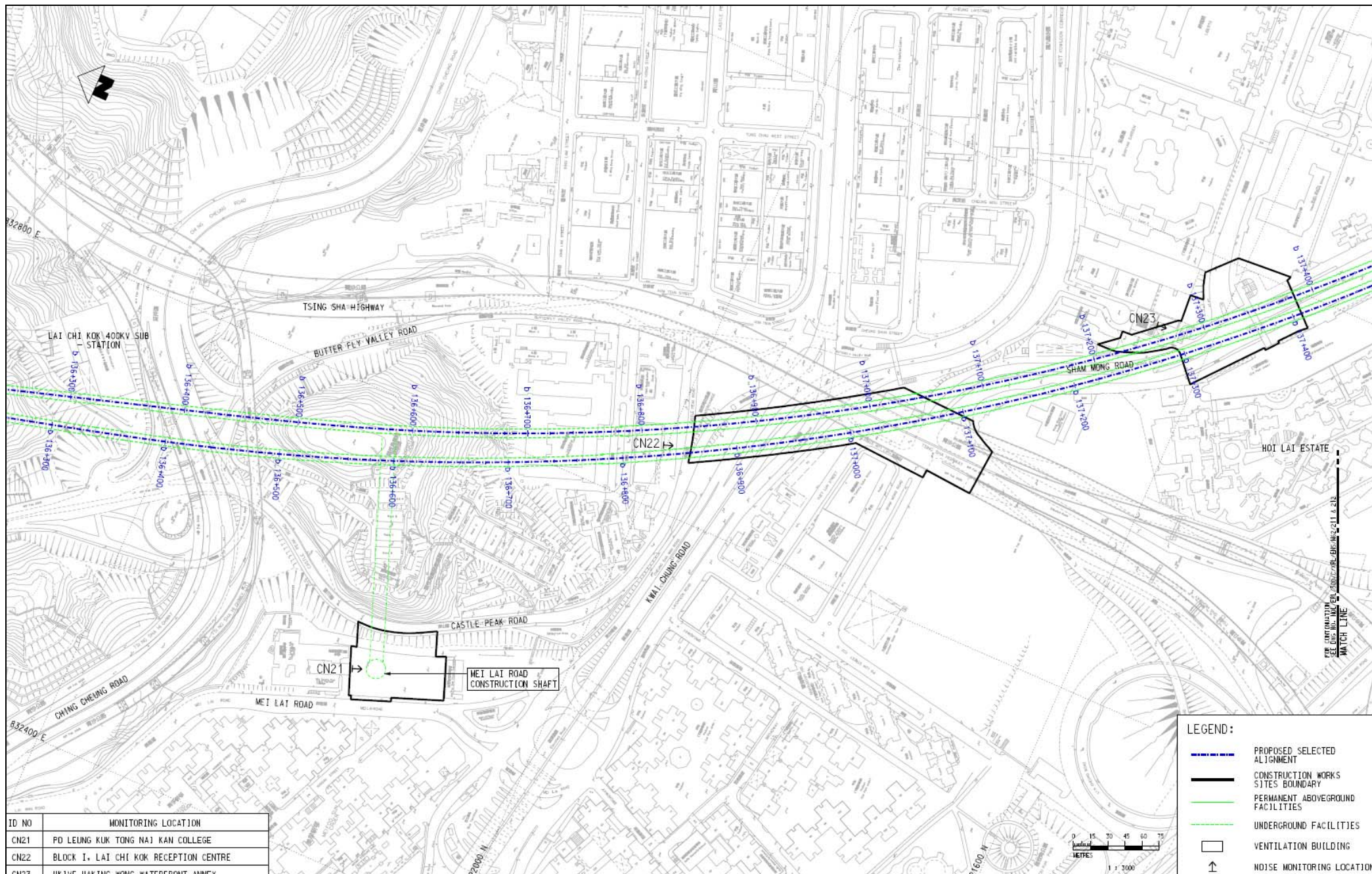


Figure 2 – Noise Monitoring Location