



**BARBICAN CONSTRUCTION
CO., LTD**

Contract No. HY/2001/18

**Sai Sha Road Widening
between Kam Ying Road and
Future Trunk Road T7 Junction**



**MONTHLY ENVIRONMENTAL
MONITORING & AUDIT REPORT
REPORT NO. 35**



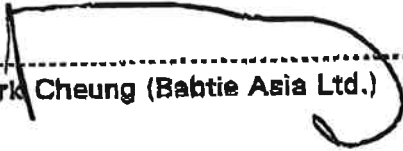
**No. R/2563/048 Issue 1
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Submitted by/ Prepared by

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**Contract No. HY/2001/18
Sai Sha Road Widening between Kam Ying Road and
Proposed Road T7 Junction**

**Monthly Environmental Monitoring & Audit Report
Report No. 35**

Approved for Issue by:	
	
Mr Mark Cheung (Babtie Asia Ltd.)	
Position:	Environmental Team Leader
Date:	14 October 2005
Verified by:	
	
Ms. Lyn Ip (BMT Asia Pacific Limited)	
Position:	Independent Environmental Checker
Date:	15 November 2005

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HONG KONG

CONTRACT NO. HY/2001/18
SAI SHA ROAD WIDENING BETWEEN KAM YING ROAD
AND FUTURE TRUNK ROAD T7 JUNCTION

MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT

REPORT NO. 35

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EXECUTIVE SUMMARY

This is the thirty-fifth EM & A Report for the project of Sai Sha Road Widening between Kam Ying Road and Future Trunk Road T7 Junction.

This report mainly presents the EM & A works undertaken for the above project from 1 August 2005 to 31 August 2005 in accordance with the EM & A Manual under Appendix H.3 of the Particular Specification.

Noise Level

$L_{eq(30min)}$ noise level measurement was performed at CNM 1 and CNM 2. CNM 1 is for noise sensitive receivers (NSRs 1 & 2) Wu Kwai Sha New Village. CNM 2 is for (NSRs 3 & 4) Kam Lung Court/ Lee On Estate. The limit level for all the noise sensitive receivers is 75 dB(A).

Construction noise monitoring was carried out on the 4th, 11th, 18th, and 25th of August 2005. All the measured noise levels recorded at the two monitoring stations were below the noise limit level.

Complaint log

No written or verbal complaints were received during the reporting period.

Others

No notifications of summons, no successful prosecutions were received during the reporting period.

Future Key Issues

Adverse influence on both air quality and noise level is anticipated from future construction activities, such as footbridge construction work near Residential Development at Wu Kwai Sha DD206, drainage construction works near Lee Wing House, footbridge construction works near the Wu Kwai Sha New Village and the machine operation on the unpaved haul road near Lee Wing House. The Contractor should carry out good site practice to minimise the potential air pollution and noise pollution.

The Contractor should provide an effective water spraying system for watering the site area to provide dust suppression especially where excavation works and other earthworks are being undertaken on the unpaved haul road near Lee Wing House.

Construction vehicles should be washed out before leaving the site area. Site runoff including those from wheel washing should be properly treated through a sedimentation tank before being discharged to the stormwater drainage system.

The Contractor should exert himself to prevent the accumulation of stagnant water to avoid the breeding of mosquitoes and the spread of dengue fever.

To improve the hygiene condition of the site, the Contractor should regularly remove the rubbish within the site area and provide rubbish bins as far as possible.

1.0 ENVIRONMENTAL STATUS

1.1 Background

Babtie Asia Ltd was employed by the Contractor to act as the Environmental Team for this project. The Independent Environmental Checker is BMT Asia Pacific Limited.

The purpose of this document is to report the Environmental Monitoring & Audit (EM & A) works in the period between 1 August 2005 and 31 August 2005.

1.2 Contact Details of Key Personnel

Titles, names and contact telephone numbers of the key personnel of the captioned project are tabulated below:

Title	Name	Contact Number
Engineer's Representative (Highways Department)	Mr. Greg Leung	2716 1043
EPD	Mr. Simon Hui	2835 1105
Project Director (Contractor)	Mr. David Kong	2137 5522
Project Manager (Contractor)	Mr. Alan Tam	9161 2991
Site Agent (Contractor)	Mr. Alan Tam	9161 2991
Environmental Team Leader (Babtie Asia Limited)	Mr. Mark Cheung	2738 3803
Independent Environmental Checker (BMT Asia Pacific Limited)	Ms. Lyn Ip	2241 9812

1.3 Construction Programme

The latest construction programme is attached in Appendix A. This construction programme is subject to continuous refinement.

1.4 Site Management Structure

The site organization chart is shown as Appendix B.

1.5 Works undertaken during the reporting period with illustrations

The works for this project are divided into three sections: Section 1, Section 2 and Section 3.

Section 1 comprises all the works for the completion of the subway system connecting the existing vacant subway barrel across Sai Sha Road adjacent to Kam

Ying Road and the local widening of northern Kam Ying Road and all associated landscaping works.

Section 2 comprises all construction works including the new carriageways, two footbridges and all footpath, cycle tracks, subways, village access road, noise barriers, roundabout and associated works comprising drainage works, E&M works, traffic signs and aids, slope works, embankments, retaining walls, subway wing walls, cycle parks, fencing, street lighting and all associated landscaping works, except Section 1 and Section 3.

Section 3 comprises all the works for the new access road to Whitehead and all the works except Section 1 and 2.

The works undertaken during the reporting period were as follows:

- Construction of Noise Barrier 4
- Installation of Noise Barrier panel
- Finishing work at subway

The photos showing the construction works in the reporting period are shown in Appendix C.

1.6 Project Area, Sensitive Receivers & Monitoring Locations

The drawings showing the project area, noise sensitive receivers (NSRs) and the locations of the monitoring stations are shown in Appendix D.

The construction noise monitoring stations are CNM 1 and CNM 2.

CNM 1 is for noise sensitive receivers (NSRs 1 & 2) Wu Kwai Sha New Village. CNM 2 is for (NSRs 3 & 4) Kam Lung Court/ Lee On Estate.

It is noted that the locations of the monitoring stations are the same as those adopted in the Noise Baseline Monitoring.

2.0 IMPLEMENTATION STATUS

According to the EIA report, the following should be implemented for the tenth construction phase quarter.

Location	Reference Section	Environmental Protection Measures	Agent
<i>Construction Noise Mitigation</i>			
Wu Kwai Sha New Village (1)	EIA 3.5.25	Mitigation Option 2	Contractor
Wu Kwai Sha New Village (2)	EIA 3.5.23	Mitigation Option 1	Contractor
Lok Wo Sha (1)	EIA 3.5.23	Mitigation Option 1	Contractor
Lok Wo Sha (2)	EIA 3.5.23	Mitigation Option 1	Contractor
Kam Lung Court (1)	EIA 3.5.25	Mitigation Option 2	Contractor
Kam Lung Court (2)	EIA 3.5.25	Mitigation Option 2	Contractor
Lee On Estate (1)	EIA 3.5.25	Mitigation Option 2	Contractor
Lee On Estate (2)	EIA 3.5.25	Mitigation Option 2	Contractor
Residential Development STTL446	EIA 3.5.23	Mitigation Option 1	Contractor

- Note: The locations of the noise assessment points are shown in the Figure 7 of the EIA Report.

Location	Reference Section	Environmental Protection Measures	Agent
<i>Landscape and Visual Mitigation Measures for the Construction Phase</i>			
All Scheme Roads	EIA 4.5.1	<ul style="list-style-type: none"> • Conservation of topsoil; • Screening of site construction works by use of hoardings; • Surface treatment of site hoardings to enhance visual interest and harmony with surrounding landscape / townscape; • Locating site offices and other temporary buildings in least visually prominent locations; • Efficient programming of construction works to reduce duration of construction works; • Staging of construction works to minimise areas requiring site hoardings which creates visual intrusion; • Re-routing of pedestrian routes away from the work site where possible; • Retaining existing trees and minimising damage to vegetation where possible. Care shall be taken not to damage those trees identified in the Tree Survey Report to be retained during the construction phase; and • Careful and efficient transplanting of existing vegetation carried out under the supervision of a professional landscape architect 	Contractor

2.1 Advice on the Implementation Status of Environmental Protection & Pollution Control / Mitigation Measures

2.1.1 Construction Noise Mitigation Measures

The Contractor should use silencers or mufflers on construction equipment such as pneumatic breaker and have noisy air compressor completely enclosed to avoid exceeding the noise limit level and nuisance to the nearby sensitive receivers.

Regular maintenance of the construction plant is strongly encouraged to avoid black smoke and excessive noise production. The machines and plant should be shut down or throttled down to a minimum when they are in intermittent use.

The plant known to emit noise strongly in one direction should be orientated to direct noise away from nearby noise sensitive receivers. The mobile plants should be sited as far away from the noise sensitive receivers as possible.

Care should be taken that different mitigation plans (option 1 & option 2) will be applied to different noise sensitive receivers. For mitigation option 2, more stringent environmental control will be required and implemented. The Contractor should pay particular attention to follow and carry out the mitigation measures mentioned in the EIA Report for those sensitive receivers to whom mitigation option 2 should be applied.

It is noted that for different construction phase quarters, the mitigation option will be different. The detailed environmental mitigation implementation schedule is shown in the EIA Report Annex A for different construction phases.

2.1.2 Landscape and Visual Mitigation Measures

Care should be taken not to damage those trees identified in the Tree Survey Report to be retained during the construction phase.

In case of conflict between the construction machine and the trees during the construction activities, the Contractor should consider adopting an alternative construction approach to protect the trees from being damaged. As the last resort, the tree transplanting method may be considered. However, prior to such action, approval from the Engineer, the Environmental Team Leader and the Independent Environmental Checker should be obtained.

Whenever tree transplanting is required, the Contractor should notify the ET in advance and should carry out the works under the supervision of a professional landscape architect as stipulated in the EM & A Manual.

3.0 MONITORING RESULTS

3.1 Graphical plots of the monitored parameters

The graphical presentations of the monitored parameters during the reporting period are shown in Appendix G.

3.2 Major Activities During the Reporting Period

Major activities carried out in August 2005 included the following:

- Construction of Noise Barrier 4
- Installation of Noise Barrier panel
- Finishing work at subway

3.3 Noise Monitoring Methodology

Construction noise monitoring was carried out by using a Sound Level Meter to ensure that exceedance in noise levels could be readily identified and timely action taken to reduce the noise levels to within allowable limits.

3.4 Noise Monitoring Equipment

The approved integrating Sound Level Meter, Model No. CESVA SC20-e, in compliance with the International Electrotechnical Commission (IEC) Publication 651:1979 (Type 1) and 804:1985 (Type 1) specification as referred to in the Technical Memorandum (TM) issued under the Noise Control Ordinance (NCO), was used for construction noise measurement.

3.5 Calibration Details

A sound level calibrator, Model No. CESVA CB-5, was used to calibrate the Sound Level Meter before and after the measurement on site.

The sound level meter and calibrator have been recently taken to a laboratory for full calibration processes. A copy of calibration certificates conducted by Calibration and Testing Laboratory of Sun Creation Engineering Limited for the Sound Level Meter and the Sound Calibrator are attached in Appendix E.

3.6 Noise Parameters

The construction noise levels were measured in terms of equivalent A-weighted sound pressure level (L_{eq}) measured in decibels (dB).

$L_{eq(30min)}$ was used as the monitoring parameter for the time period between (0700 to 1900) hours on normal weekdays.

The two statistical sound levels L_{A10} and L_{A90} , the level exceeded for 10 and 90 percent of the measurement time respectively, were also recorded as supplementary information for reference.

The construction noise monitoring limit and action levels are shown in Appendix I.

3.7 Monitoring Locations

The construction noise monitoring was conducted at two noise sensitive receivers, namely, CNM 1 (Wu Kwai Sha New Village) and CNM 2 (Kam Lung Court/ Lee On Estate).

Both measurement points for CNM 1 and CNM 2 are at façade.

Locations of construction noise monitoring stations and photos are shown in Appendix D.

3.8 Monitoring Date, Time, Frequency and Duration

The monitoring frequency will depend on the scale of the construction activities. The following was adopted as an initial arrangement of measurement on the regular monitoring frequency for each station on a per week basis when noise generating activities are underway:

- (a) one set of measurements between 0700 – 1900 hours on normal weekdays;
- (b) one set of measurements between 1900 – 2300 hours;
- (c) one set of measurements between 2300 – 0700 hours; and
- (d) one set of measurements between 0700 – 1900 hours on holidays

The time and duration of measurement are shown in the Appendix F. The construction noise monitoring schedule for August 2005 are shown in Appendix K.

3.9 Noise Monitoring Results

The data for noise monitoring is presented in Appendix F. Graphical representation of construction noise monitoring data is presented in Appendix G.

For CNM 1, the results show that during the reporting period, the noise level is on average 60.2 dB(A) which is below the noise limit level 75.0 dB(A).

For CNM 2, the results show that during the reporting period, the noise level is on average 65.5 dB(A) which is below the noise limit level 75.0 dB(A).

Construction noise monitoring was carried out on 4th, 11th, 18th, and 25th of August 2005. All the measured noise levels recorded at the two monitoring stations were below the noise limit level.

The major noise sources during the reporting period included the machines operation in Contractor's construction activities such as drainage works and road works near Lee Wing House, and footbridge staircase construction near Residential Development at Wu Kai Sha DD 206.

Moreover, traffic noise of the heavy vehicles like trucks and buses along Sai Sha Road and residential noise are included in the measured noise level.

The major noise sources during the reporting period included the machines operation in Contractor's construction activities such as drainage works and road works near Lee Wing House, and footbridge staircase construction near Residential Development at Wu Kai Sha DD 206.

Moreover, traffic noise of the heavy vehicles like trucks and buses along Sai Sha Road and residential noise are included in the measured noise level.

3.10 Weather Conditions

The weather conditions were mainly sunny and did not affect the environmental monitoring works during the reporting period. The weather conditions during the period are shown in the Appendix H.

3.11 Influencing Factors

The traffic noise from Sai Sha Road significantly contributed to the recorded noise level.

3.12 QA/QC Results and Detection Limits

The QC result(Calibration Certificates) is shown in Appendix E. The lower limit of the sound level meter for L_{eq} is 0 dB(A). The upper limit for L_{eq} is 137 dB(A).

4.0 RECORD OF NON-COMPLIANCE OF THE ACTION AND LIMIT LEVELS, COMPLAINTS, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS

4.1 Non-compliance of the Action and Limit Levels

4.1.1 Noise

During the reporting period, the noise levels for the two monitoring stations were within the noise limit level.

4.2 Written Complaints and Verbal Complaints

No written and verbal complaints were received during the reporting period.

The following table shows the summary for all the complaints received since the commencement of the Contract.

TOTAL NO. OF COMPLAINT	NO. OF COMPLAINT RECEIVED WITHIN REPORTING PERIOD	NO. OF COMPLAINT THAT IS STILL UNDER INVESTIGATION	NO. OF CLOSED COMPLAINT
1	0	0	1

The statistics for environmental complaints on the reporting period are shown in Appendix L.

4.3 Notifications of Summons and Successful Prosecutions

No notifications of summons or successful prosecutions were received by the Contractor regarding the non-compliance of the environmental performance of the construction site during the reporting period.

5.0 OTHERS

5.1 Future Key Issue

In the coming month, the following activities will be undertaken.

- Subway Construction
- Noise Barrier Construction

Potential environmental impacts due to the above construction works are associated with construction dust, noise and site runoff.

The Contractor should clean out the sediments which block the stormwater U-channels within the site area. The Contractor should also remove any rubbish within the site area. In addition, the Contractor should exert himself to prevent the presence of accumulation of stagnant water to avoid the breeding of mosquitoes and the spread of dengue fever.

Nonetheless, with the implementation of the following mitigation measures, potential impacts to the surrounding sensitive receivers could be minimised.

Construction Dust

- Provide adequate water supply for the whole site area
- Regular watering of unpaved areas and the dry topsoil
- Regular watering during the demolition works such as the breaking of rigid pavement
- Cover the stockpiles with tarpaulin
- Investigate other dust sources
- Maintain onsite machinery and vehicles regularly
- Limit the speed of construction vehicles
- Maintain the water spraying system regularly

Construction Noise

- Carry out good site practice
- Use silenced plant and equipment
- Adopt quiet working methods
- Enclose powered mechanical equipment such as generators and compressors
- Shut down the machines and plant that may be in intermittent use between work periods or throttle them down to a minimum
- Provide temporary movable vertical barrier

Construction Site Runoff

- Direct the site runoff to the desilting facilities
- Desilt the site runoff before discharging it into the stormwater system.

5.2 Advice on the Solid and Liquid Waste Management Status

5.2.1 General Refuse

General refuse may be generated by site workers. Bins shall be provided for containment prior to disposal. The Contractor should avoid the accumulation of waste materials or rubbish on site and regular waste disposal is required.

If there is any chemical waste or oil generated by the site, it should be properly treated and disposed of as chemical waste. If applicable, the Contractor should register as a chemical waste producer under the registration of the Department of Environmental Protection.

Environmental awareness shall be encouraged in the office so as to reduce volume of office waste.

5.2.2 Liquid Waste Management

The accumulation of stagnant water within the construction site should be avoided to eliminate the breeding of mosquitoes. To achieve this, the Contractor should identify potential stagnant areas on the site, inspect the site regularly and take necessary rectifying action to ensure no mosquitoes can breed.

Larvicidal Oil shall be applied to stagnant water awaiting discharge, and stagnant water shall be discharged regularly to avoid accumulation.

To properly treat the silty water, the Contractor should provide sandbags/ bunds to direct site surface runoff to the desilting facilities such as sedimentation tanks. The desilting facilities should be properly operated and maintained. To avoid the breeding of mosquitoes and other insects, water from the sedimentation tank should be discharged regularly. Care should also be taken to ensure the capacity of the desilting facilities is sufficient to handle the surface runoff and to avoid overflow of the sedimentation tanks.

The desilting facilities should be maintained properly. Regular removal of the accumulated debris with proper disposal is recommended.

For the wastewater generated from the site area, the Contractor should identify the sources and wastewater should be collected and treated prior to disposal.

Appendix A
CONSTRUCTION PROGRAMME

Appendix B
SITE ORGANIZATION CHART

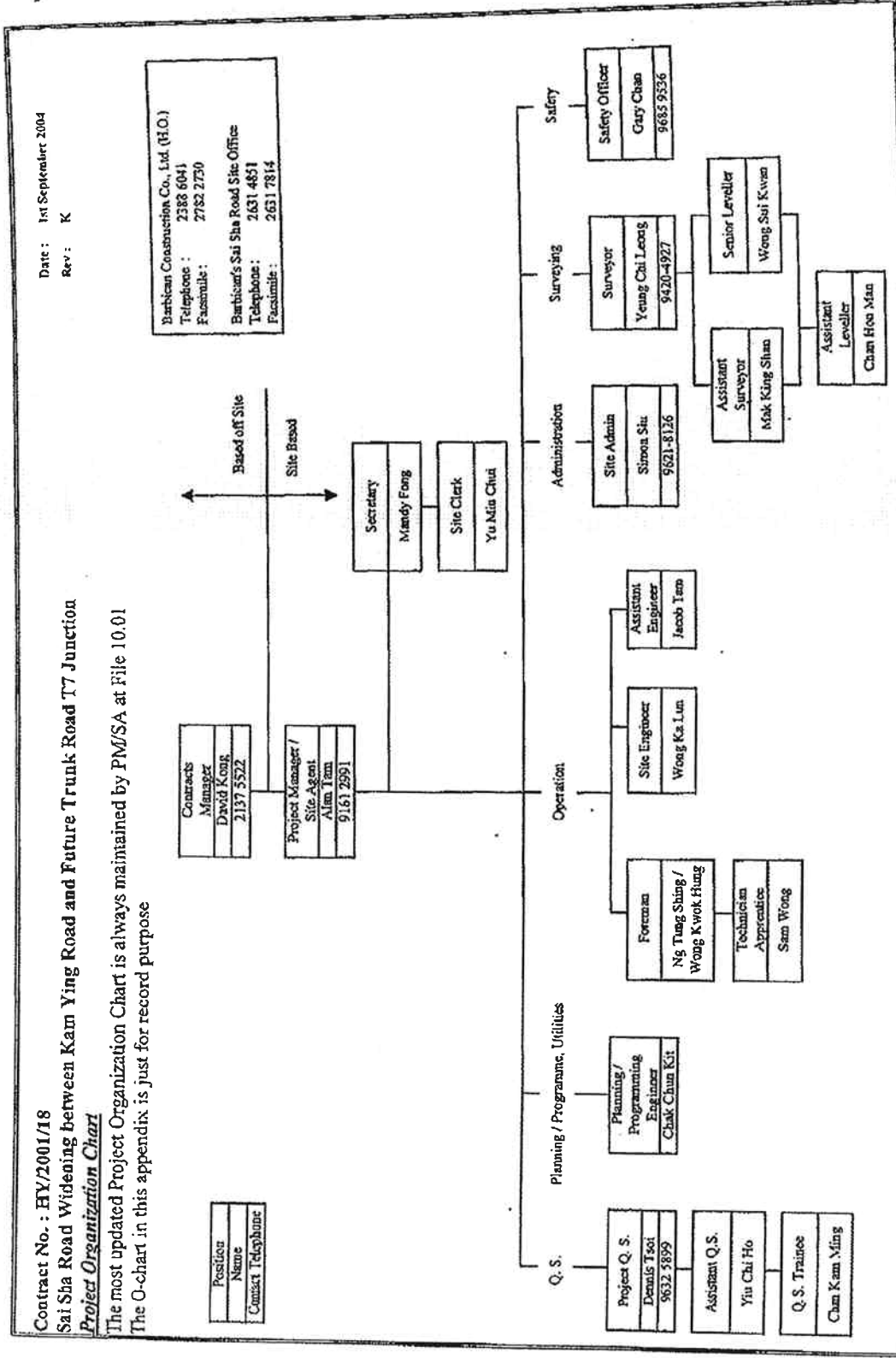
Contract No. : HV/2001/18

Sai Sha Road Widening between Kam Ying Road and Future Trunk Road T7 Junction

Project Organization Chart

The most updated Project Organization Chart is always maintained by PM/SA at File 10.01

The O-chart in this appendix is just for record purpose



Appendix C

RECORD PHOTOS FOR CONSTRUCTION ACTIVITIES

IN AUGUST 2005



Date: 11 August 2005 Works: Construction of Noise Barrier
Location: Near DD206 Wu Kai Sha



Date: 11 August 2005
Location: Near DD206 Wu Kai Sha

Works: Road Work



Date: 18 August 05

Works: Landscaping work

Location: Proposed Residential Development at DD206



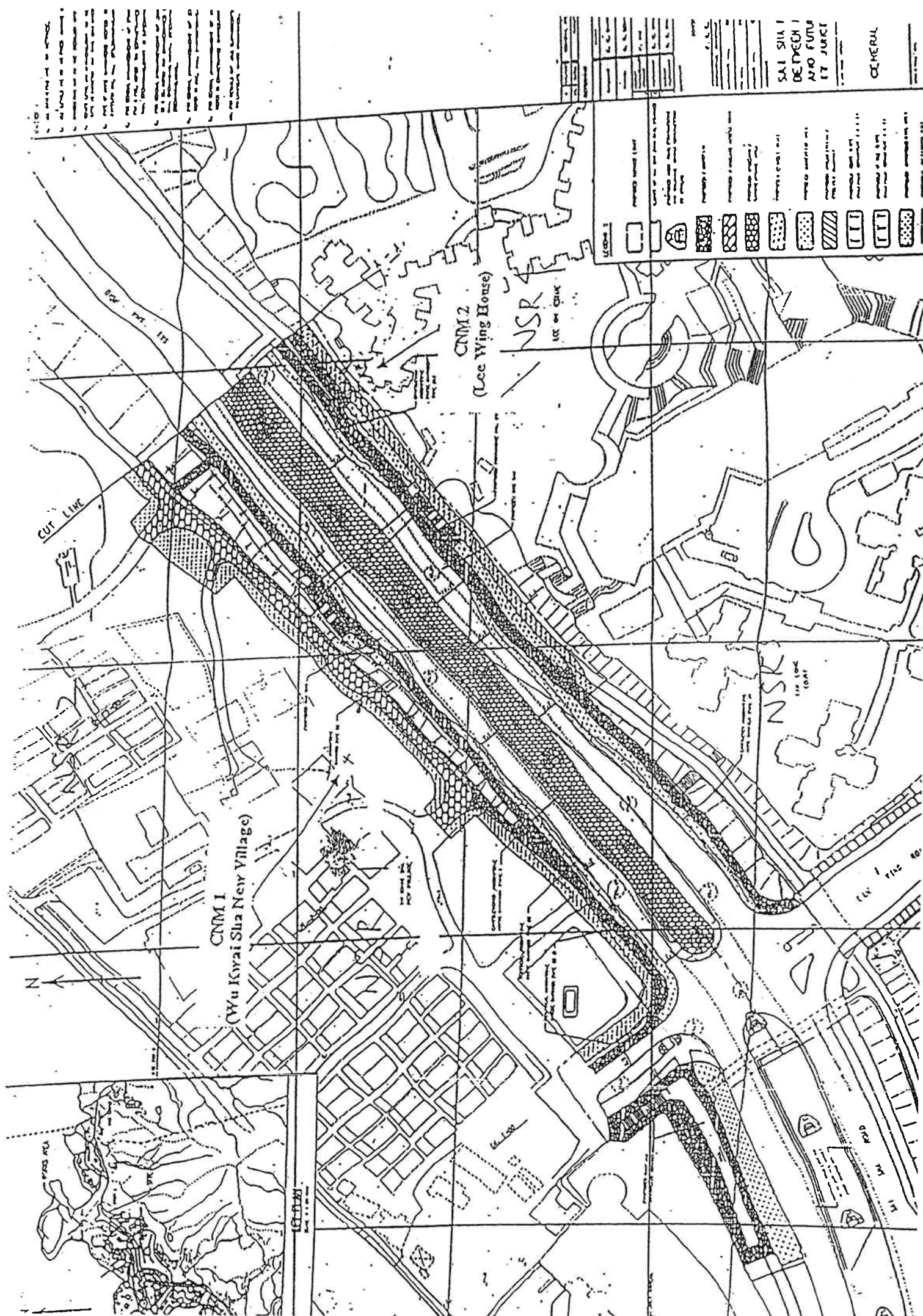
Date: 11 August 05

Works: Formwork for Retaining Wall

Location: Proposed Residential Development at DD206

Appendix D

**THE PROJECT AREA, ENVIRONMENTAL SENSITIVE
RECEIVERS AND THE LOCATIONS OF THE MONITORING
STATIONS**



CNM 1
(Yu Kwai Sia New Village)

CNM 2
(Lee Wing House)

CUT LINE

NSR
LOT OR CROSS

NSK
LOT OR CROSS

NSR
LOT OR CROSS

NSR
LOT OR CROSS

Legend	
[Symbol]	Concrete
[Symbol]	Asphalt
[Symbol]	Gravel
[Symbol]	Soil
[Symbol]	Water
[Symbol]	Vegetation
[Symbol]	Other

SAI SHIA I
DEPEN I
AND FUNG
ET SURT
GENERAL



Monitoring Point CNM 1 – Wu Kwai Sha New Village



Monitoring Point CNM 2 – Lee Wing House of Lee On Estate

Appendix E

CALIBRATION CERTIFICATES FOR SOUND LEVEL METER



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C053977

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Meter (E01-010)

Manufacturer : Cesva

Model No. : SC-20e

Serial No. : T214258

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C053977.*

The equipment is supplied by

Co. Name : Honkei Technology Hong Kong Limited

*Address : Rm. 2501, 25/F., Ho King Comm. Centre, 2-16 Fa Yuen St.,
Mong Kok, Kowloon*

Date of Issue : 14 September 2005

Certified by :


C F Leung

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. : C053977

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Meter (E01-010)
MANUFACTURER : Cesva
MODEL NO. : SC-20e
SERIAL NO. : T214258

TEST CONDITIONS

AMBIENT TEMPERATURE : $(23 \pm 2)^{\circ}\text{C}$ RELATIVE HUMIDITY : $(55 \pm 20)\%$
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 14 September 2005


JOB NO. : IC05-2439

TEST RESULTS

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

The test equipment used for calibration are traceable to National Standards via :
- The Brüel & Kjær Calibration Laboratory, Denmark

Tested by :


S K Ho

Date : 14 September 2005

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 3



Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
2. Self-calibration using external calibrator, Cesva CB-5 S/N. 031198, was performed before the test.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL281	Multifunction Acoustic Calibrator	12909

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting		Applied Value		UUT Reading (dB)	IEC 651 Type 1 Spec. (dB)
Response	Frequency Weighting	Level (dB)	Freq. (kHz)		
L _F	A	94.00	1	94.1	± 0.7

6.1.2 Linearity

UUT Setting		Applied Value		UUT Reading (dB)
Response	Frequency Weighting	Level (dB)	Freq. (kHz)	
L _F	A	94.00	1	94.1 (Ref.)
		104.00		104.1
		114.00		114.1

IEC 651 Type 1 Spec. : ±0.4dB per 10 dB step and ±0.7dB for overall different.

6.2 Time Weighting

UUT Setting		Applied Value		UUT Reading (dB)	IEC 651 Type 1 Spec. (dB)
Response	Frequency Weighting	Level (dB)	Freq. (kHz)		
L _F	A	94.00	1	94.1	Ref.
L _S				94.1	± 0.1

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 Report

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting		Applied Value		UUT Reading (dB)	IEC 651 Type 1 Spec. (dB)
Response	Frequency Weighting	Level (dB)	Freq. (Hz)		
L _F	A	94.00	31.5	54.8	-39.4 ± 1.5
			63	68.0	-26.2 ± 1.5
			125	78.1	-16.1 ± 1.0
			500	90.9	-3.2 ± 1.0
			1 k	94.1	Ref.
			2 k	94.9	+1.2 ± 1.0

6.3.2 C-Weighting

UUT Setting		Applied Value		UUT Reading (dB)	IEC 651 Type 1 Spec. (dB)
Response	Frequency Weighting	Level (dB)	Freq. (Hz)		
L _F	C	94.00	31.5	91.2	-3.0 ± 1.5
			63	93.5	-0.8 ± 1.5
			125	94.1	-0.2 ± 1.0
			500	94.2	-0.0 ± 1.0
			1 k	94.1	Ref.
			2 k	93.6	-0.2 ± 1.0

Remarks : - Mfr's Spec. : IEC 651 Type 1

- Uncertainties of Applied Value :

94 dB : 31.5 Hz - 125 Hz	: ± 0.35 dB
500 Hz	: ± 0.30 dB
1 kHz	: ± 0.20 dB
2 kHz	: ± 0.35 dB
104 dB : 1 kHz	: ± 0.30 dB
114 dB : 1 kHz	: ± 0.30 dB

- 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.

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.



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C053985

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Calibrator (E01-011)

Manufacturer : Cesva

Model No. : CB-5

Serial No. : 031198

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C053985.*

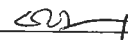
The equipment is supplied by

Co. Name : Honkei Technology Hong Kong Limited

*Address : Rm. 2501, 25/F., Ho King Comm. Centre, 2-16 Fa Yuen St.,
Mong Kok, Kowloon*

Date of Issue : 15 September 2005

Certified by :


C F Leung

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. : C053985

Calibration Report

ITEM TESTED

DESCRIPTION : Sound Level Calibrator (E01-011)
MANUFACTURER : Cesva
MODEL NO. : CB-5
SERIAL NO. : 031198

TEST CONDITIONS

AMBIENT TEMPERATURE : $(23 \pm 2)^{\circ}\text{C}$ RELATIVE HUMIDITY : $(55 \pm 20)\%$
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 14 September 2005

JOB NO. : IC05-2439

TEST RESULTS

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

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

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- The Brüel & Kjær Calibration Laboratory, Denmark

Tested by :

S K Ho

Date : 15 September 2005

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

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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 :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL126	Sound Level Meter	C053287
CL130	Universal Counter	C052533
CL281	Multifunction Acoustic Calibrator	12909

4. Test procedure : MA100N.

5. Results :

- 5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Measurement Uncertainty (dB)
94 dB, 1 kHz	94.0	± 0.3	± 0.2
104 dB, 1 kHz	103.9		± 0.3

- 5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (Hz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	990.7	1 kHz ± 1.5 %	± 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.

Appendix F
DATA OF NOISE MONITORING

Contract No. HY/2001/18
Sai Sha Road Widening between Kam Ying Road
and Future Trunk Road T7 Junction
Monitoring Location: Wu Kwai Sha New Village (CNM 1)
Time Period 7:00-19:00

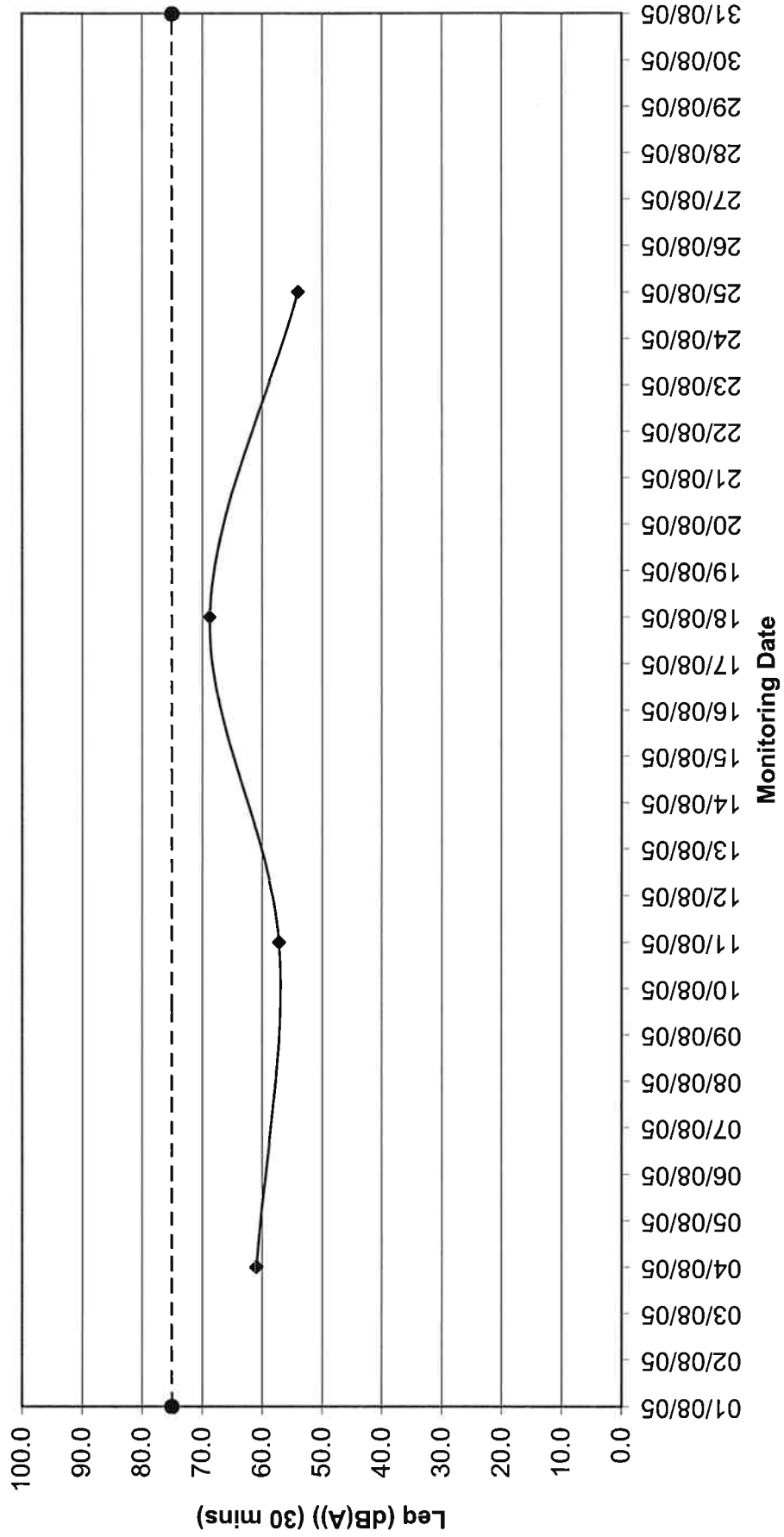
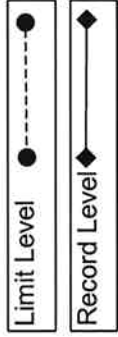
Date	Start Time	Duration (min)	Measurement Results								
			L ₉₀ (dB(A))	L ₁₀ (dB(A))	L _{eq} (dB(A)) (5 mins)			L _{eq} (dB(A)) (30 mins)			
08/04/05	10:45	30	49.0	64.7	59.3	61.1	62.4	68.8	60.8	53.5	61.0
08/11/05	10:40	30	49.0	61.5	61.3	56.3	55.8	52.9	56.6	59.9	57.1
08/18/05	10:50	30	55.2	72.5	61.7	61.2	72.2	71.1	72.6	73.7	68.8
08/25/05	10:50	30	47.7	56.5	57.0	54.1	52.4	53.3	54.5	52.5	54.0

Contract No. HY/2001/18
Sai Sha Road Widening between Kam Ying Road
and Future Trunk Road T7 Junction
Monitoring Location: Kam Lung Court (CNM 2)
Time Period 7:00-19:00

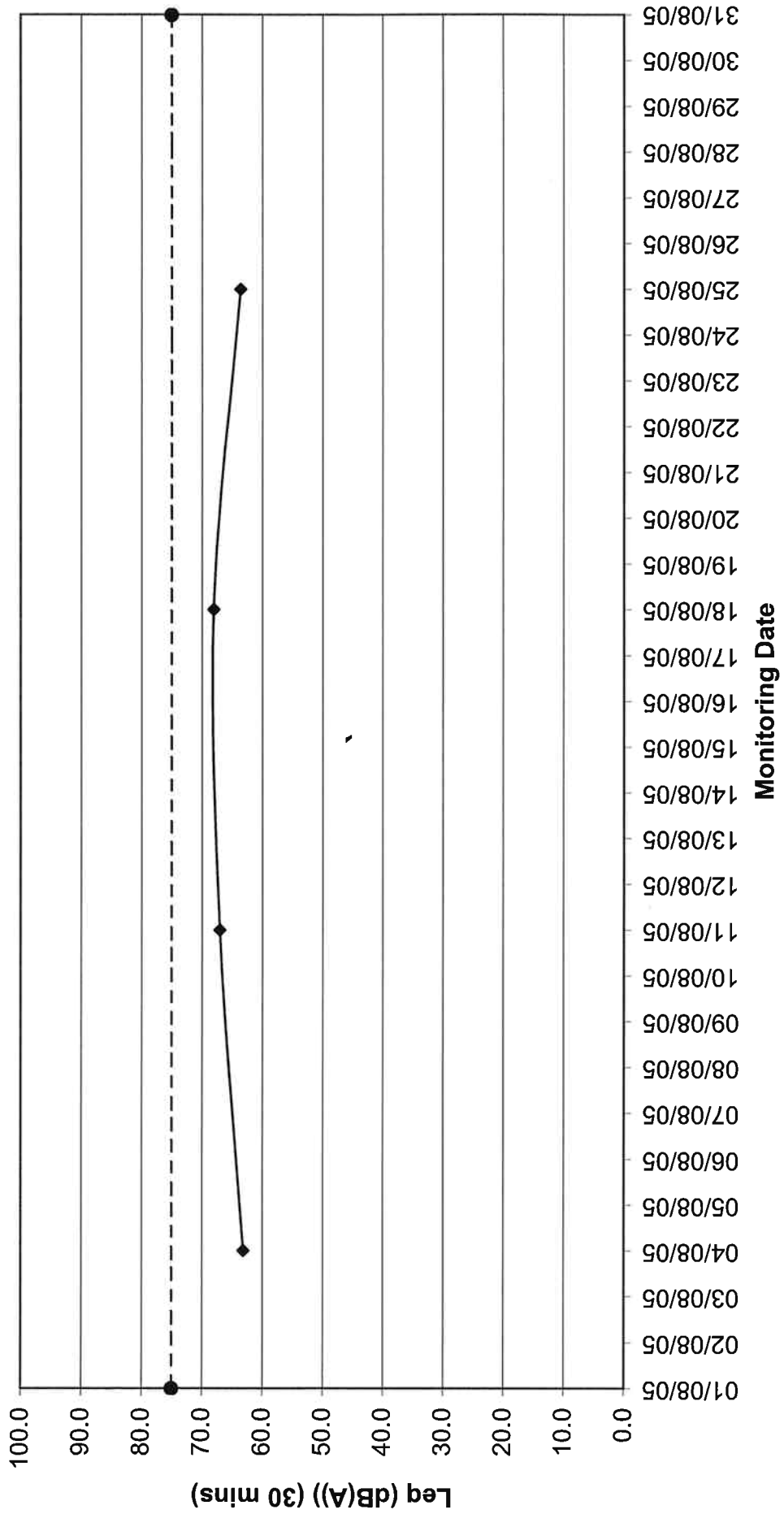
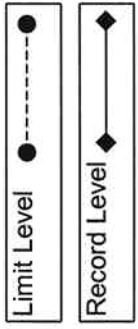
Date	Start Time	Duration (min)	Measurement Results								
			L ₉₀ (dB(A))	L ₁₀ (dB(A))	L _{eq} (dB(A)) (5 mins)			L _{eq} (dB(A)) (30 mins)			
08/04/05	10:10	30	59.7	65.4	62.9	63.0	61.7	65.3	63.1	62.9	63.2
08/11/05	10:05	30	60.5	71.1	65.0	74.0	71.0	65.2	62.8	64.2	67.0
08/18/05	10:15	30	62.1	69.8	65.2	65.8	65.4	65.5	73	70.8	68.1
08/25/05	10:10	30	59.8	66.0	66.8	64.5	63.3	63.4	62.3	61.4	63.6

Appendix G
GRAPHICAL REPRESENTATION OF
CONSTRUCTION NOISE MONITORING DATA

Construction Noise Monitoring Results Wu Kwai Sha New Village (CNM 1)



Construction Noise Monitoring Results Kam Lung Court (CNM 2)



Appendix H
WEATHER CONDITIONS
DURING THE MONITORING PERIOD

Contract No. HY/2001/18
Sai Sha Road Widening between Kam Ying Road
and Future Trunk Road T7 Junction
Major Activity and Weather Condition During Baseline Monitoring
Monitoring Location: Wu Kwai Sha New Village (CNM 1)

Date	Start Time	Weather Condition	Major Activities	Other Activities
08/04/05	10:45	Sunny	Nil	Traffic , Pedestrian
08/11/05	10:40	Sunny	Nil	Traffic , Pedestrian
08/18/05	10:50	Sunny	Nil	Traffic , Pedestrian
08/25/05	10:50	Sunny	Nil	Traffic , Pedestrian

Contract No. HY/2001/18
Sai Sha Road Widening between Kam Ying Road
and Future Trunk Road T7 Junction
Major Activity and Weather Condition During Baseline Monitoring
Monitoring Location: Kam Lung Court (CNM 2)

Date	Start Time	Weather Condition	Major Activities	Other Activities
08/04/05	10:10	Sunny	Nil	Traffic , Pedestrian
08/11/05	10:05	Sunny	Nil	Traffic , Pedestrian
08/18/05	10:20	Sunny	Nil	Traffic , Pedestrian
08/25/05	10:10	Sunny	Nil	Traffic , Pedestrian

Appendix I

CONSTRUCTION NOISE MONITORING LIMIT ACTION LEVEL

According to Section 2.7 of the *EM & A Manual*, the Action and Limit Noise Levels are summarised in the following table:

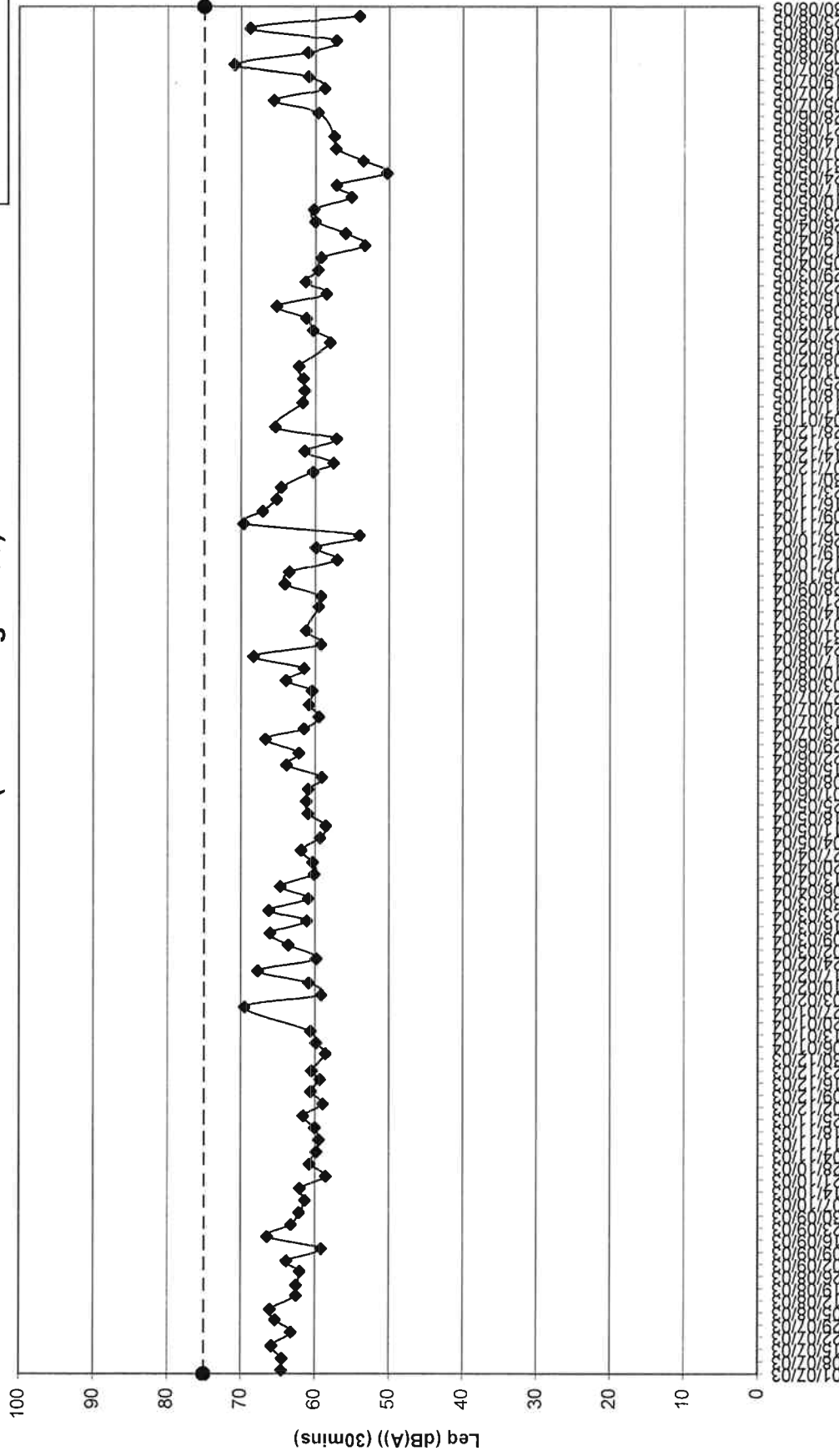
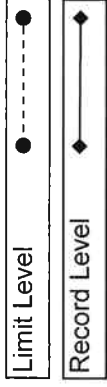
Time Period	Action	Limit Level
0700-1900 hours on normal weekdays	When one documented complaint is received	75 dB(A)
0700-2300 hours on holidays; and 1900-2300 hours on all other days		70 dB(A)
2300-0700 hours of next day		55 dB(A)

Note: The noise limit level for all the NSRs within this contract is 75dB(A).

Appendix J

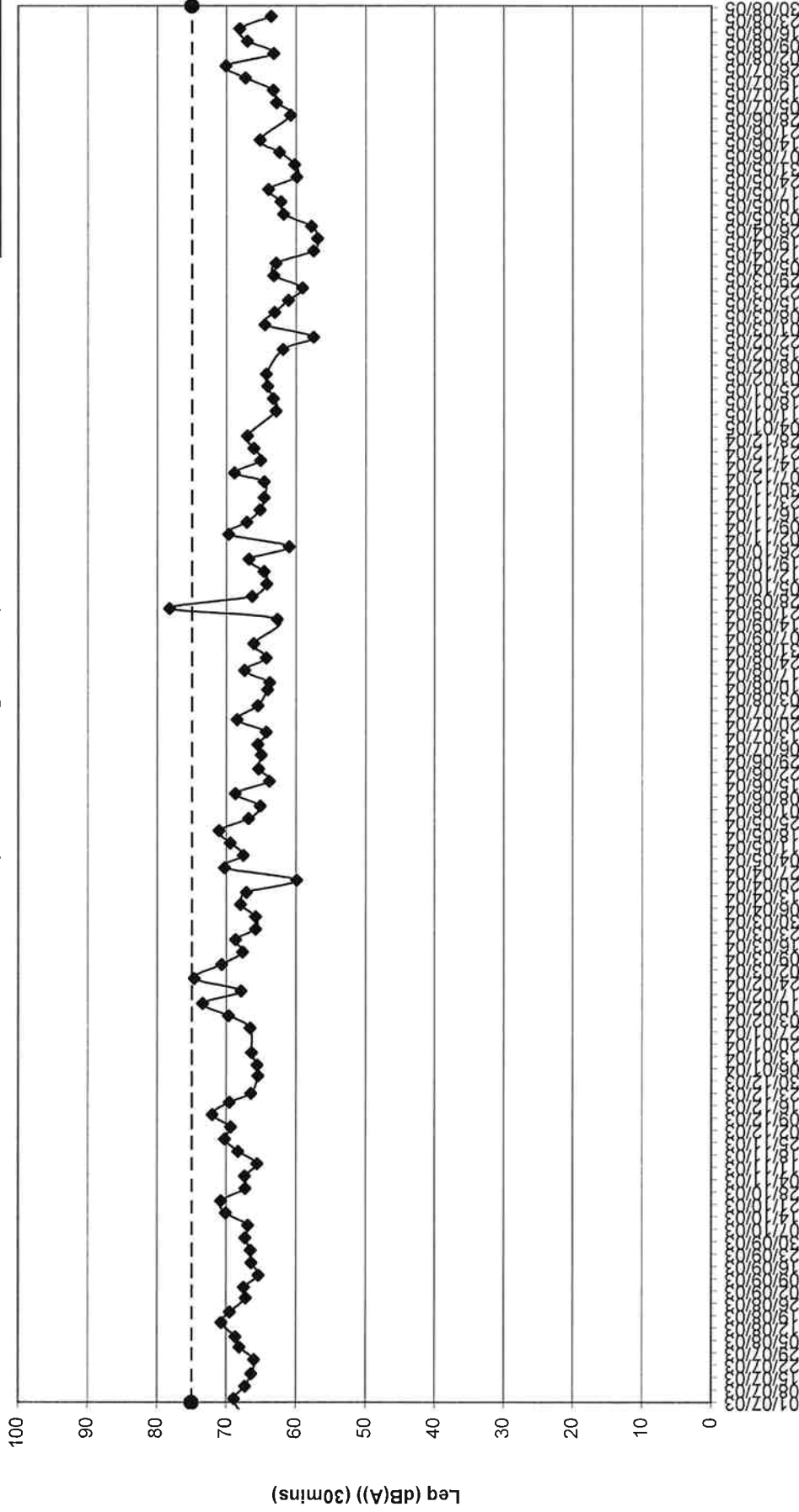
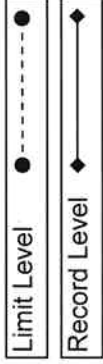
GRAPHICAL PLOTS OF TRENDS OF MONITORED PARAMETERS

Graphical Noise Parameters for Wu Kwai Sha New Village (CNM 1) (Jul 03 - August 05)



Monitoring Date

Graphical Noise Parameters for Kam Lung Court (CNM 2) (Jul 03 - August 05)



Monitoring Date

Appendix K

CONSTRUCTION NOISE MONITORING AND SITE AUDIT SCHEDULES

AUGUST 2005

Construction Noise Monitoring Schedule**Aug 2005 – Sep 2005**

Location Point	Monitoring Parameter	Measurement Start Time			
		4/08/2005 (Thursday)	11/08/2005 (Thursday)	18/08/2005 (Thursday)	25/08/2005 (Thursday)
CNM 1	L _{eq} (30 min)	10:45	10:40	10:50	10:50
CNM 2	L _{eq} (30 min)	10:10	10:05	10:20	10:10

Location Point	Monitoring Parameter	Measurement Start Time		
		9/09/2005 (Thursday)	16/09/2005 (Thursday)	23/09/2005 (Thursday)
CNM 1	L _{eq} (30 min)	11:00	11:00	11:00
CNM 2	L _{eq} (30 min)	10:30	10:30	10:30

* Note: In case of poor weather condition on the monitoring date, we will inform the Contractor to arrange another construction noise impact monitoring in a day in the same week.

Job No. : G/2563.01
 Contract No. HY/2001/18
 Sai Sha Road Widening between Kam Ying Road and Future Trunk Road T7 Junction

Schedule for Site Environmental Audit

Jul 2005 – Sep 2005

Audit Start Time			
07/7/2005 (Thursday) 10:00	14/7/2005 (Thursday) 10:00	21/7/2005 (Thursday) 10:00	28/7/2005 (Thursday) 10:00
		4/8/2005 (Thursday) 10:00	11/8/2005 (Thursday) 10:00
			18/8/2005 (Thursday) 10:00

Audit Start Time			
25/8/2005 (Thursday) 10:00	1/9/2005 (Thursday) 10:00	8/9/2005 (Thursday) 10:00	15/9/2005 (Thursday) 10:00
		22/9/2005 (Thursday) 10:00	29/9/2005 (Thursday) 10:00

* Note: In case of poor weather condition that the audit is found inappropriate, we will inform the Contractor to arrange another day for site environmental audit within the same week if feasible. In case of continuous poor weather, the ET will liaise with the Contractor for proper arrangement

Appendix L

STATISTICS FOR ENVIRONMENTAL COMPLAINTS

**Contract No. HY/2001/18
Sai Sha Road Widening between Kam Ying Road
and Future Trunk Road T7 Junction**

**Statistic for Environmental Complaint
August 2005**

