Territory Development Department
NT East Development Office

SHA TIN NEW TOWN STAGE II
CONTRACT NO. ST 86/2000
CONSTRUCTION OF ROAD T7 IN MA ON SHAN
ENVIRONMENTAL MONITORING AND AUDIT

MONTHLY EM&A REPORT - MAY 2003

Prepared For:

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Report No.: 23156-29

Job No 23156

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Prepared by Thomas Chan (MCIWEM MIEnvSc CBiol)

Signed
Date 12 June 2003

Checked by Sam Tsoi (CEng FIOA MHKIE MIMechE MIEnvSc)

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Date 12 June 2003

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Signed
Date 12 June 2003

Revision record

Revision Number	Date	Description	Prepared	Checked	Approved

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LIST OF APPENDICES

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ABBREVIATIONS AND ACRONYMS

AQO	Air Quality Objectives
Arup	Ove Arup & Partners Hong Kong Limited
ASR	Area Sensitive Rating
BOD_5	Biochemical Oxygen Demand (5 days)
B&K	Brüel & Kjær
CFM	Cubic Feet per Minute
CHEC	China Harbour Engineering Company
CNP	Construction Noise Permit
CT	Contractor
EA	Environmental Auditor
EIA	Environmental Impact Assessment
EM&A	Environmental Monitoring and Audit
EP	Environmental Permit
EPD	Environmental Protection Department
ER	Engineer / Engineer's Representative
ET	Environmental Team
HKSAR	Hong Kong Special Administrative Region
HOKLAS	The Hong Kong Laboratory Accreditation Scheme
HVS	High Volume Sampler
IEC	International Electrotechnical Commission Publications
K	Degrees Kelvin
MCAL	Maunsell Consultants Asia Limited
NAMAS	National Measurement Accreditation Service
NSR	Noise Sensitive Receiver
TDD NTE	Territory Development Department New Territory East Office
TSP	Total Suspended Particulates

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EXECUTIVE SUMMARY

This monthly EM&A report presents the site inspection findings, air quality and noise impact monitoring works for the period between 1 May 2003 and 31 May 2003.

For noise monitoring, $L_{eq(30min)}$ level was recorded once a week between the period of 0700 and 1900 at Ma On Shan Lutheran Primary School (NM2), Heng Shan House, Heng On Estate (NM3), Kam Yiu House, Kam Ying Court (NM4), Symphony Bay (NM6), Podium of block 15, Monte Vista (NM7) and Roof of block 15, Monte Vista (NM8). $L_{eq(5min)}$ was record three times once a week between the period 1900 and 2300 at NM3, NM4, NM6, NM7 and NM8.

Four measurements were taken at each location during 0700-1900. Four other measurements were taken at NM3, NM4, NM6 and NM8 during 1900-2300 in May 2003. The recorded noise levels were in the range of 61.2 and 72.9 dB(A) during 0700-1900 and in the range of 60.0 and 65.0 dB(A) during 1900-2300. All measurements were below the Limit Level of 70dB(A) for NM2 and 75dB(A) for other monitoring locations during 0700-1900 and Limit Level of 70 dB(A) during 1900-2300 for all monitoring locations.

For air quality monitoring, 1-hour Total Suspended Particulate (TSP) was recorded three times per every six days between the period of 0700 and 1900, and 24-hour TSP was recorded once every six days from 0000 to 2400. Air quality monitoring was conducted at Ma On Shan Lutheran Primary School (AM2), Ma On Shan Joseph's Primary School (AM3), Villa Concerto, Symphony Bay (AM4), Club House, Monte Vista (AM5) and Kam Yiu House of Kam Ying Court (AM6).

A total of six 24-hour TSP monitoring was conducted at each location. The recorded 24-hour TSP levels were in the range of 31.9 and 108.7 $\mu g/m^3$ and were below the Action and Limit Levels.

A total of fifhteen 1-hour TSP measurements was taken at each location. The recorded 1-hour TSP levels were in the range of 129.6 and 232.1 $\mu g/m^3$ and were below the Action and Limit Levels.

A total of four site inspections was conducted in May 2003. Key findings of the site inspections are given below.:-

- The Contractor had received one Construction Noise Permit (CNP) for the construction works near Heng On Estate. Details of the permit conditions are given in CNP No. GW-TN0126-2003 issued on 5 May 2003.
- Silt was observed at stream S28 beside Heng On Estate and U-channel at discharge point no. 6. As instructed by ET, the Contractor had removed the silt immediately.
- As instructed by ET, the Contractor had installed water sprayers at haul road of Portal D and backfilling slope between Monte Vista and Lee On Estate. Performance is satisfactory.
- Exposed slope under TB bridge was hydroseeded for preventing dust and runoff generation. Performance is satisfactory.

- Site effluent was observed being discharged from the site directly at gate no. 6. The Contractor has immediately ceased the discharging and agreed to treat the effluent through sedimentation system before discharge.
- Bore piling was resumed at TD bridge area (beside Cheung Muk Tau Village). The sedimentation system was set up for treating runoff from bore piling activity.

A total of 14 loads of Construction and Demolition Waste (C&D waste) had been disposed of at NENT Landfill in May 2003. The total tonnage of the C&D waste disposal in May 2003 was 121.7 tonnes.

A total of 835 loads of rocks (*f* >400mm) had been reused at the following government project sites in May 2003:

- *Contract No. FL 26/01 River Training for Upper River Indus – Completion of the Remaining Works between Man Kam To Road and KCRC Bridges, and*
- *Contract No. CV/2002/05 Public Filling Barging Point at Kai Tak*

The total quantity of disposed rocks was 5,970.3 m^3 in May 2003.

A total of 286 loads of inert materials had been disposed of at Public Filling Area in May 2003. The total quantity of the disposed inert materials was 1,716.0 m^3 in May 2003.

ET was informed by the CT that EPD had not visited the site in May 2003.

There was no public complaint recorded in May 2003.

There was no exceedance recorded in May 2003.

1. INTRODUCTION

Arup was commissioned by the Territory Development Department New Territory East Office (TDD NTE) via Maunsell Consultant Asia Limited (MCAL) to conduct the Environmental Monitoring and Audit (EM&A) for the project "*Shatin New Town, Stage II Contract No. ST 86/2000 Construction of Road 7 in Ma On Shan*" with the contract commencement on 10 January 2001.

Truck Road T7 in Ma On Shan is constructed as part of the development of the Sha Tin New Town, Stage II, which is managed by the TDD NTE. The project was commenced in January 2001 and anticipated to be completed by the January 2004. The trunk road will connect the existing Ma On Shan Road and Sai Sha Road, allowing traffic destined for north Ma On Shan, Lok Wo Sha and Sai Kung to by-pass the busy Ma On Shan Town Centre. The construction of Road T7 includes the major components listed hereunder:

1. Construction of approximately 3 kilometers of dual carriageway between Ma On Shan Road at Heng On Estate and Sai Sha Road at Cheung Muk Tau Village. About 1 kilometer of the road is on elevated structure.
2. Construction of a grade-separated interchange connecting with the widened Sai Sha Road.
3. Construction of 2 vehicular underpasses at the eastern end of Road T7.
4. Construction of about 1 kilometer of a single 2-lane carriageway starting from the existing Ma On Shan Road/Hang Hong Street roundabout, for replacing the existing access road to Ma On Shan.
5. Construction of the western extension of the existing Nin Fung Road in front of Cheung Muk Tau Village.
6. Construction of a combined pedestrian and cycle bridge across Ma On Shan Road near Ma On Shan Sewage Pumping Station.
7. Construction of 4 pedestrian subways at the western interchange connecting with the widened Sai Sha Road.
8. Construction of noise barriers and noise semi-enclosures.
9. Slope works and landscaping works associated with the above road works.

The Environmental Impact Assessment (EIA) Report[1] has identified the environmental impacts during various stages of the construction and operational stages. These include construction noise and fugitive dust during the construction stage, and the traffic noise and tunnel air quality during the operational stage. The monitoring of these environmental issues is required during the construction and operational stages and in accordance with the Brief for Environmental Monitoring and Audit[2].

The Environmental Permit (EP)[3] has been issued for the Road T7 project under the EIA Ordinance. The EM&A programme has commenced in January 2001 and is anticipated to be completed the February 2005.

1.1 Purpose of the Report

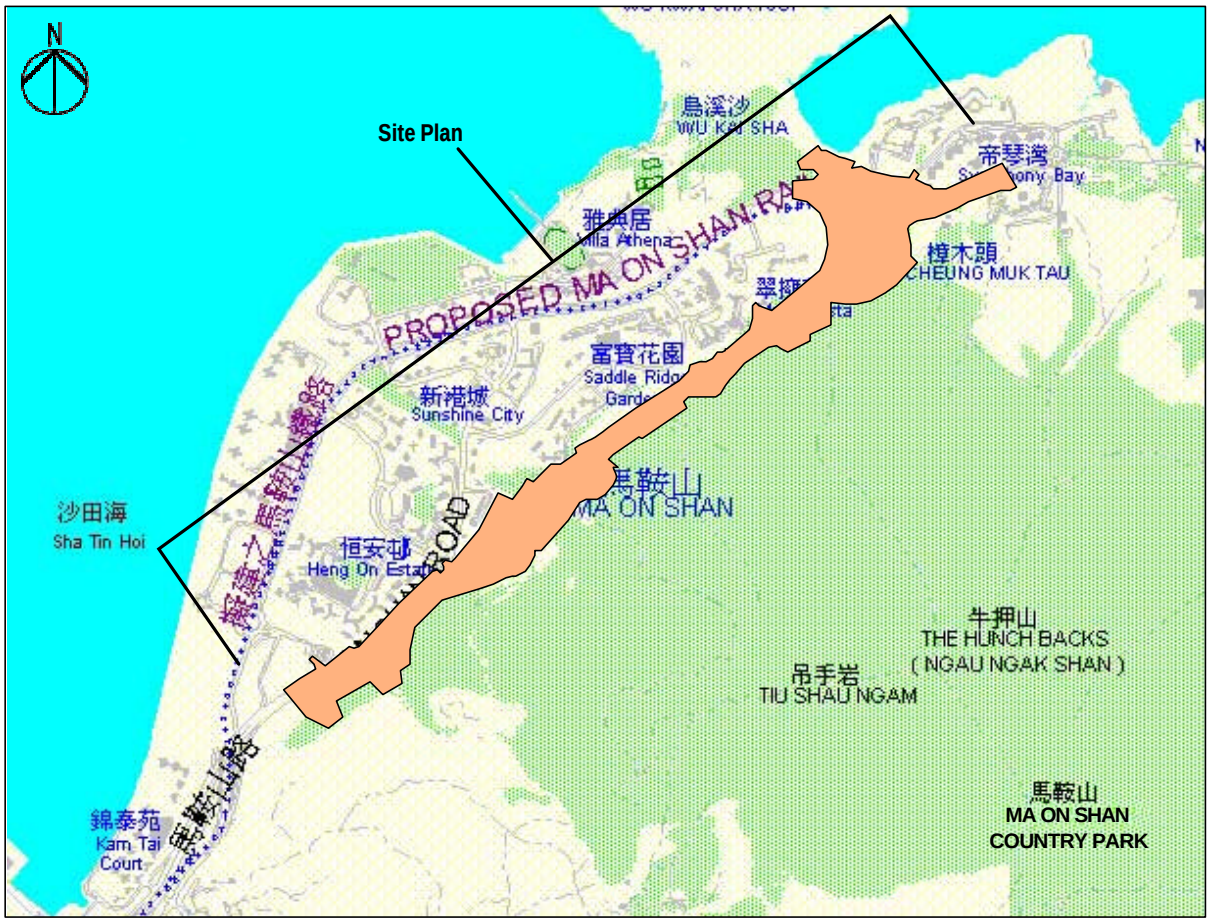
The purpose of the EM&A report is to present the monitoring and audit results of the environmental issues, air quality and noise impacts due to the captioned road construction

project on a monthly and quarterly basis. This is the twenty-ninth monthly EM&A report to summarise the EM&A requirements, the environmental status, equipment, monitoring methodology, monitoring locations, periods, frequencies, results and any observations from the noise and air measurements during May 2003.

1.2 Site Description

The site starts from the existing Ma On Shan Road (close to Heng On Estate), runs along the boundary of Ma On Shan Country Park, and terminates at Sai Sha Road (close to Symphony Bay). The site location plan is shown in Figure 1-1.

Figure 1-1 - Site location plan of construction of Road T7.



2. ENVIRONMENTAL STATUS

2.1 Construction Activities of the Month

The main construction activities in May 2003 were slope formation and bridge construction. Construction works for the retaining wall were carried out near the casting yard. The rock excavation were still in progress at the slope behind Monte Vista. Construction works of tunnel were in progress at Portal D area near Cheung Muk Tau Village. Bridge construction works were in progress at TC bridge area. Backfilling slope between Monte Vista and Lee On Estate and bore piling at TD bridge area was resumed since end of May 2003.

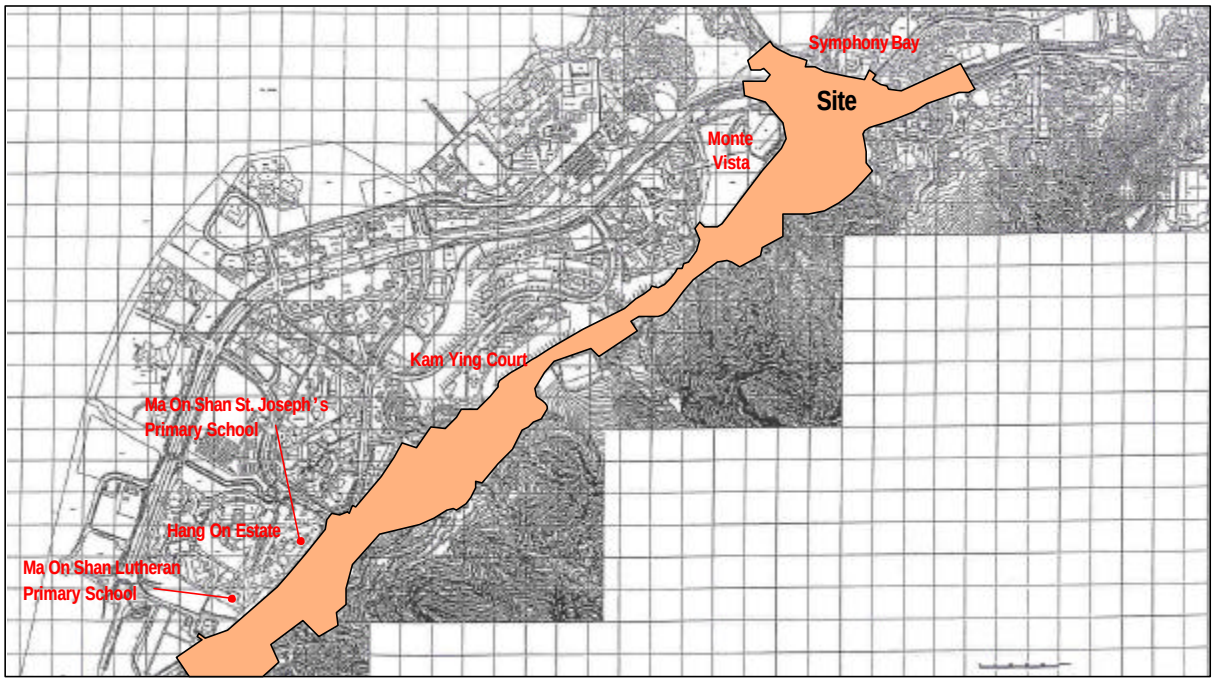
2.2 Environmental Sensitive Receivers

Several residential buildings and schools close to the site have been identified as environmental sensitive receivers in the EIA Report. They included:

- Ma On Shan Lutheran Primary School;
- Ma On Shan St. Joseph' s Primary School;
- Heng On Estate;
- Kam Ying Court;
- Monte Vista; and
- Villa Concerto, Symphony Bay.

Detailed locations of the environmental sensitive receivers are shown in Figure 2-1.

Figure 2-1 - Locations of construction site and environmental sensitive receivers.



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3. SUMMARY OF EM&A REQUIREMENTS

Construction noise and air quality were significant environmental impacts identified for the construction period of the project. In accordance with the Brief for EM&A, air quality and noise impact monitoring shall be performed by an ET at all specified monitoring locations during this stage.

3.1 Construction Noise Monitoring

3.1.1 Monitoring Parameters

Construction noise monitoring shall be measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). L_{10} and L_{90} will also be recorded as supplementary reference information for data auditing.

3.1.2 Monitoring Frequency

Construction noise measurements were required to be taken on a weekly basis according to the Brief for EM&A. The monitoring time periods, monitoring parameters and frequency are specified in Table 3-1. The monitoring programme for May 2003 and the planned schedule for June 2003 are provided in Appendix 1 and Appendix 2 respectively.

Table 3-1 - Construction noise monitoring parameters and frequency requirements.

Time Period (when construction activity is found)	Parameters	Monitoring Frequency	No. of measurements for each monitoring
Between 0700-1900 hours on normal weekdays	$L_{eq(30\ min)}$	Once per week	1
Between 1900-2300 hours on normal weekdays	$L_{eq(5\ min)}$*		3 (consecutive)
Between 2300-0700 hours of next day			
Between 0700-1900 hours on holidays			

Remarks: * The $L_{eq(5\ min)}$ will only be measured if construction activities are conducted in holidays and between the period of 1900 and 0700 hours during normal weekdays.

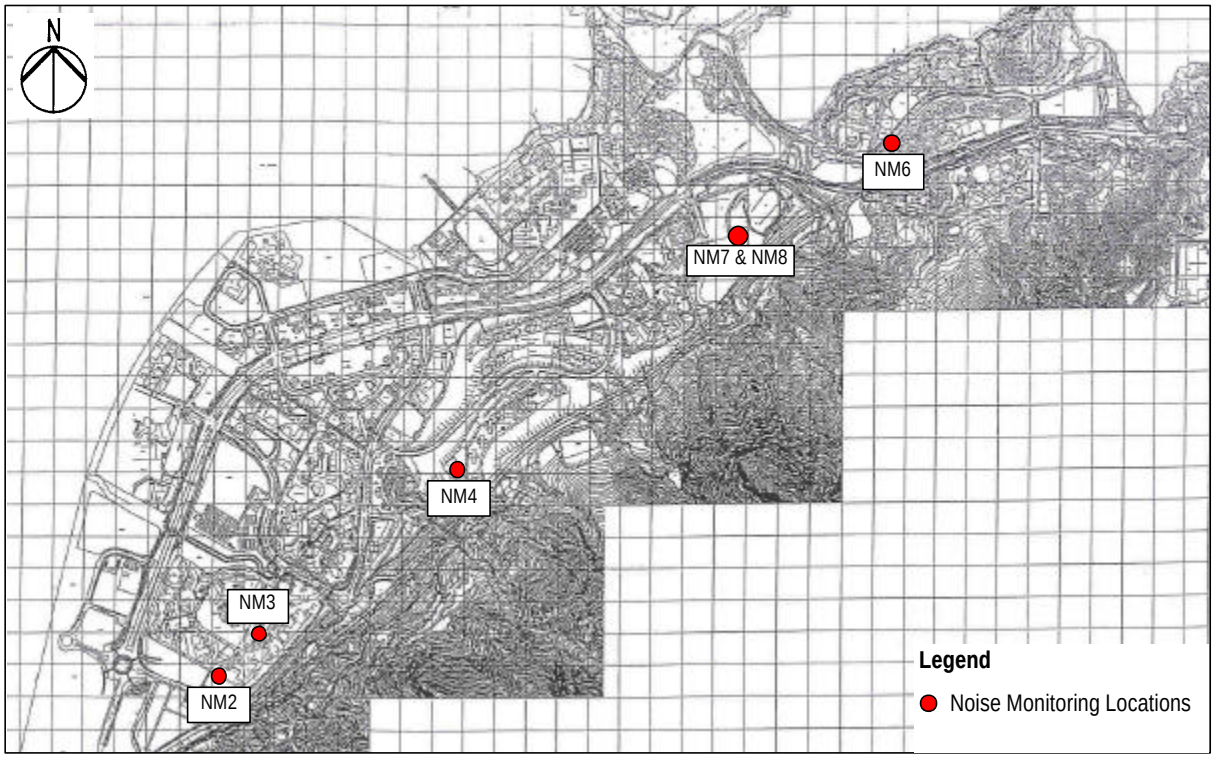
3.1.3 Monitoring Locations

A total of six monitoring locations were specified. They are given in Table 3-2 and shown in Figure 3-1. The measurements shall be taken away from any nearby reflective surface and at a position of 1.2m above ground. No façade correction is required.

Table 3-2 - Noise impact monitoring locations.

NSR No.	Location	Monitoring Point
NM2	Ma On Shan Lutheran Primary School	Roof-top of the school
NM3	Heng Shan House, Heng On Estate	Podium floor of Heng Shan House
NM4	Kam Yiu House, Kam Ying Court	Roof-top of Kam Yiu House
NM6	Villa Concerto, Symphony Bay	Roof-top of Block 1
NM7	Monte Vista, Block 15	Podium floor of Block 15
NM8	Monte Vista, Block 15	Roof floor of Block 15

Figure 3-1 - Location plan showing the noise impact monitoring locations



3.2 Air Quality Monitoring

3.2.1 Monitoring Parameters

Air monitoring shall be measured in terms of the TSP levels for both 24-hour and 1-hour periods.

3.2.2 Monitoring Frequency

24-hour TSP and 1-hour TSP levels shall be monitored during the course of construction according to the Brief for EM&A. The monitoring parameters and frequencies are specific in Table 3-3.

Table 3-3 - TSP monitoring parameters and frequency

Parameters	Monitoring Frequency	Time Period	No. of measurement for each monitoring
24-hour TSP	Once every six days	0000 – 2400	1
1-hour TSP	Three times per every six days	0700 – 1900	1

The monitoring programme for May 2003 and the planned schedule for June 2003 are provided in Appendix 1 and Appendix 2 respectively.

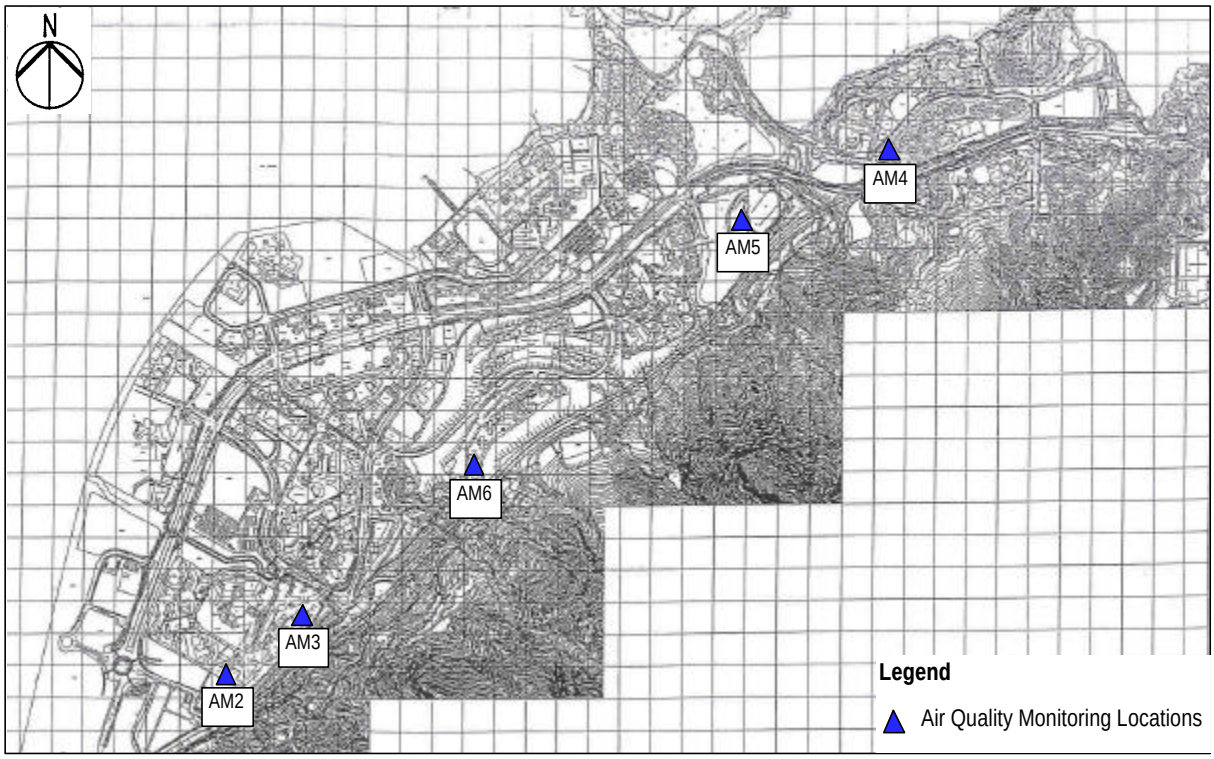
3.2.3 Monitoring Locations

Five monitoring locations nearest to the construction site were specified. They are tabulated in Table 3-4 and shown in Figure 3-2.

Table 3-4 - Air quality monitoring locations.

Sensitive Receptors No.	Location	Monitoring Point
AM2	Ma On Shan Lutheran Primary School	Roof-top of the school
AM3	Ma On Shan St. Joseph's Primary School	Roof-top of the school
AM4	Villa Concerto, Symphony Bay	Roof-top of Block 1
AM5	Monte Vista	Roof-top of Club House
AM6	Kam Ying Court	G/F of Kam Yiu House

Figure 3-2 - Location plan showing the air quality monitoring locations.



3.3 Performance Limits and Event-Action Plans

The monitoring results shall be checked against appropriate standards and requirements. A two-tier system performance limits has been established in the Project Specific EM&A Manual[4]. The "Action Level" and the "Limit Level" are established according to the EPD requirements. Corresponding actions will be taken by ET, ER and CT in accordance with the Event-Action Plans if the monitoring results exceed the performance limits.

3.3.1 Construction Noise Impact

The Action and Limit Levels for the construction noise have been established in Project Specific EM&A Manual[4] and are tabulated in Table 3-5.

Table 3-5 - Action and limit levels for construction noise.

Time Period	Action Level	Limit Level dB(A)
0700 – 1900 hours on weekdays	When one documented complaint is received	75 *
0700 – 2300 hours on General Holidays; & 1900 – 2300 hours on all other days		50 or 55** (1) 65 or 70** (2)
2300 – 0700 hours of next day		55 or 40** (1) 50 or 55** (2)

Remarks: * reduced to 70dB(A) for schools and 65dB(A) during school examination periods.
** to be selected based on Area Sensitivity Rating
(1) for the SPME and prescribed works
(2) for non-SPME and prescribed works
Note: If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.

Table 3-6a and Table 3-6b detail the actions required to be carried out by different parties in the case of an exceedance of performance limits being detected.

Table 3-6a - Event-action plan for construction noise (Action Level).

Action		
ET	**ER**	**CT**
1. Notify ER and CT 2. Carry out investigation 3. Report the result of investigation to ER 4. Increase monitoring frequency to check mitigation effectiveness 5. Review the proposed remedial measures by CT and advise ER accordingly 6. Suggest any improvement or other alternative mitigation measures should the CT's proposal be found ineffective 7. Supervise the implementation of remedial measures 8. If exceedance stops, cease additional monitoring	1. Confirm receipt of notification of failure in writing 2. Notify CT 3. Require CT to propose remedial measures for the noise exceedance 4. Ensure remedial measures are properly implemented	1. Submit noise mitigation proposals to ET 2. Implement noise mitigation proposals

Table 3-6b - Event-action plan for construction noise (Limit Level).

Action		
ET	**ER**	**CT**
1. Notify ER and EPD 2. Identify source 3. Repeat measurement to confirm findings 4. Increase monitoring frequency 5. Discuss amongst ER and CT on the potential remedial actions 6. Review CT's remedial actions whenever necessary to assure their effectiveness and advise ER accordingly 7. Suggest any improvement or other alternative mitigation measures should the CT's proposal be found ineffective 8. Supervise the implementation of remedial measures 9. Inform ER and EPD of the causes for the exceedance 10. Assess effectiveness of CT's remedial actions and keep EPD and ER informed of the results 11. If exceedance stops, cease additional monitoring	1. Confirm receipt of notification of failure in writing 2. Notify CT 3. Require CT to propose remedial measures for the noise exceedance 4. Ensure remedial measures are properly implemented 5. If exceedance continues, consider what portion of the work is responsible and instruct CT to stop that portion of work until the exceedance is abated	1. Take immediate action to avoid further exceedance. 2. Inform ET, ER and EPD of the actions taken for the exceedance. 3. Submit proposals for remedial actions to ET within 3 working days of notification 4. Implement the agreed proposals 5. Resubmit proposals if problem still not under control 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

3.3.2 Air Quality

The action and limit levels for air quality have been established in the Project Specific EM&A Manual[4] and are tabulated in Table 3-7.

Table 3-7 - Action and limit levels for air quality.

Parameters	Action Level	Limit Level
24 Hour TSP Level in μg/m^3	• For baseline level < 108μg/m^3, Action Level = average of baseline level plus 30% and Limit Level • For 108μg/m^3 < baseline level < 154μg/m^3, Action Level = 200μg/m^3 • For baseline level > 154μg/m^3, Action Level = 130% of baseline level	260
1 Hour TSP Level in μg/m^3	• For baseline level < 154μg/m^3, Action Level = average of baseline level plus 30% and Limit Level • For 154μg/m^3 < baseline level < 269μg/m^3, Action Level = 350μg/m^3 • For baseline level > 269μg/m^3, Action Level = 130% of baseline level	500

The baseline checking was conducted in March 2003. There was no significant difference when compare the baseline checking results of March 2003 with previous baseline checking results. Therefore, the current A/L levels for 24-hour TSP and 1-hour TSP monitoring are still representative and valid. In accordance with the Baseline Monitoring Report[5] and Baseline Checking Results in March 2002, the action and limit levels for 24-hour TSP and 1-hour TSP at different locations were established and are tabulated in Table 3-8 and Table 3-9 respectively.

Table 3-8 - Action and limit levels for 24-hour TSP.

Monitoring Location	24-hour TSP Level in $\mu g/m^3$		
	Baseline Level *	Action Level	Limit Level
Ma On Shan Lutheran Primary School	66.0	173	260
Ma On Shan St. Joseph's Primary School	57.7	168	
Villa Concerto, Symphony Bay	60.8	170	
Club House, Monte Vista#	-	185	
Kam Yiu House, Kam Ying Court#	-	194	

Remarks: * Baseline levels were obtained from the Baseline Monitoring Report prepared by Manusell Consultant Asia Limited[5].

\# No baseline monitoring was conducted for Monte Vista (AM5) and Kam Ying Court (AM6) as these two locations were established after the commencement of the construction works. The Action Levels of AM5 and AM6 are established in accordance with the baseline checking results in March 2002.

Table 3-9 - Action and limit levels for 1-hour TSP.

Monitoring Location	1-hour TSP Level in $\mu g/m^3$		
	Baseline Level *	Action Level #	Limit Level
Ma On Shan Lutheran Primary School	274	350	500
Ma On Shan St. Joseph's Primary School	274	350	
Villa Concerto, Symphony Bay	273	347	
Club House, Monte Vista#	-	350	
Kam Yiu House, Kam Ying Court#	-	349	

Remarks: * Baseline levels were obtained from the Baseline Monitoring Report prepared by Maunsell Consultant Asia Limited[5].

\# The Action Levels of AM2, AM3 and AM4 have been revised in accordance with the baseline checking results in March 2002.

\# No baseline monitoring was conducted for Monte Vista (AM5) and Kam Ying Court (AM6) as these two locations were established after the commencement of the construction works. The Action Levels for AM5 and AM6 were established in accordance with the baseline checking results in March 2002.

Table 3-10a and Table 3-10b detail the actions required to be carried out by different parties in case of an exceedance of performance limits being detected.

Table 3-10a - Event-action plan for air quality (Action Level).

Action		
ET	**ER**	**CT**
Action Level 1 – Exceedance for one sample		
1. Identify source 2. Inform ER 3. Repeat measurement to confirm findings 4. Review the proposed remedial measures by CT and advise ER accordingly 5. Suggest any improvement or other alternative mitigation measures should the CT's proposal be found ineffective 6. Supervise the implementation of remedial measures 7. Increase monitoring frequency to demonstrate efficacy of remedial measures 8. If exceedance stops, cease additional monitoring	1. Notify CT 2. Check monitoring data and CT's working methods	1. Rectify any unacceptable practice 2. Amend working methods if appropriate
Action Level 2 –Exceedance for two or more consecutive samples		
1. Identify source 2. Inform ER 3. Repeat measurement to confirm findings 4. Review the proposed remedial measures by CT and advise ER accordingly 5. Discuss with ER for remedial actions required 6. Suggest any improvement or other alternative mitigation measures should the CT's proposal be found ineffective 7. Supervise the implementation of remedial measures 8. Increase monitoring frequency to demonstrate efficacy of remedial measures 9. If exceedance continues, arrange meeting with ER 10. If exceedance stops, cease additional monitoring	1. Confirm receipt of notification of failure in writing 2. Notify CT 3. Check monitoring data and CT's working methods 4. Discuss with Environmental Supervisor and CT on potential remedial actions 5. Ensure remedial actions are properly implemented	1. Submit proposals for remedial actions to ER within 3 working days of notification 2. Implement the agreed proposals 3. Amend proposal if appropriate

Note: If source of exceedance is clearly identified as being not works related no further action is necessary by any party.

Table 3-10b - Event-action plan for air quality (Limit Level).

Action		
ET	**ER**	**CT**
Limit Level 1 – Exceedance for one sample		
1. Identify source 2. Inform ER 3. Repeat measurement to confirm findings 4. Discuss with ER for remedial actions required 5. Suggest any improvement or other alternative mitigation measures should the CT's proposal be found ineffective 6. Supervise the implementation of remedial measures 7. Increase monitoring frequency to demonstrate efficacy of remedial measures 8. If exceedance stops, cease additional monitoring	1. Confirm receipt of notification of failure in writing 2. Notify CT 3. Check monitoring data and CT's working methods 4. Discuss with ET and CT on potential remedial actions 5. Ensure remedial actions are properly implemented	1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to ER within 3 working days of notification 3. Implement the agreed proposals 4. Amend proposal if appropriate
Limit Level 2 – Exceedance for two or more consecutive samples		
1. Identify source 2. Inform ER the causes and actions taken for the exceedance 3. Repeat measurement to confirm findings 4. Investigate the causes of exceedance 5. Arrange meeting with ER to discuss the remedial actions to be taken 6. Suggest any improvement or other alternative mitigation measures should the CT's proposal be found ineffective 7. Supervise the implementation of remedial measures 8. Increase monitoring frequency to demonstrate efficacy of remedial measures 9. If exceedance stops, cease additional monitoring	1. Confirm receipt of notification of failure in writing 2. Notify CT 3. Carry out analysis of CT's working procedures to determine possible mitigation to be implemented 4. Discuss amongst ET and CT on potential remedial actions 5. Review CT's remedial actions whenever necessary to assure their effectiveness 6. If exceedance continues, consider what portion of the work is responsible and instruct CT to stop that portion of work until the exceedance is abated	1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to ER within 3 working days of notification 3. Implement the agreed proposals 4. Resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by ER until the exceedance is abated

Note: If source of exceedance is clearly identified as being not works related no further action is necessary by any party.

3.4 Site Inspection and Environmental Complaint Handling

3.4.1 Site Inspection Frequency and Areas Covered

Regular site inspections will be carried out on a weekly basis. The areas of inspection will cover different environmental impacts, such as air, noise, water & waste, and their pollution controls and mitigation measures for both within and outside the site area.

Ad hoc site inspection will be carried out if significant environmental non-compliance is identified. Inspections may also be carried out subsequent to receipt of any environmental complaints, or as part of the investigation work, as specified in the Event-Action Plans.

3.4.2 Site Inspection Procedures

a) The Environmental Auditor (EA) will be advised by the CT and/or ER of all information on any environmental related aspects.
b) The EA will conduct discussion with the CT and/or ER to sort out and forecast any potential environmental impact.
c) The EA will conduct a site walk with the CT and/or ER, particularly the areas with extensive construction works.
d) The EA will conduct inspection for the main environmental facilities and measures such as the wheel washing facilities located at the site exits, water spraying truck, temporary noise barrier, and the internal noise-reducing measures of the heavy equipment etc, to ensure that these environmental facilities operate normally and effectively.
e) The EA will fill up a site inspection checklist during the site inspection for recording of any special observations.
f) The EA will conduct post-discussion with the CT and/or ER for the establishment of additional/special measures if any non-conformance is found. The completion date for such additional measures will be confirmed during the post-discussion.
g) The EA will propose a reasonable timeframe together with the CT and/or ER, for the preparation of the proposal for the remediation of environmental non-compliance.
h) The completed site inspection checklist will be signed by the EA, the CT and/or ER, for reference and for taking actions in accordance with the agreed procedures, reporting systems and time frame.

3.4.3 Environmental Complaints

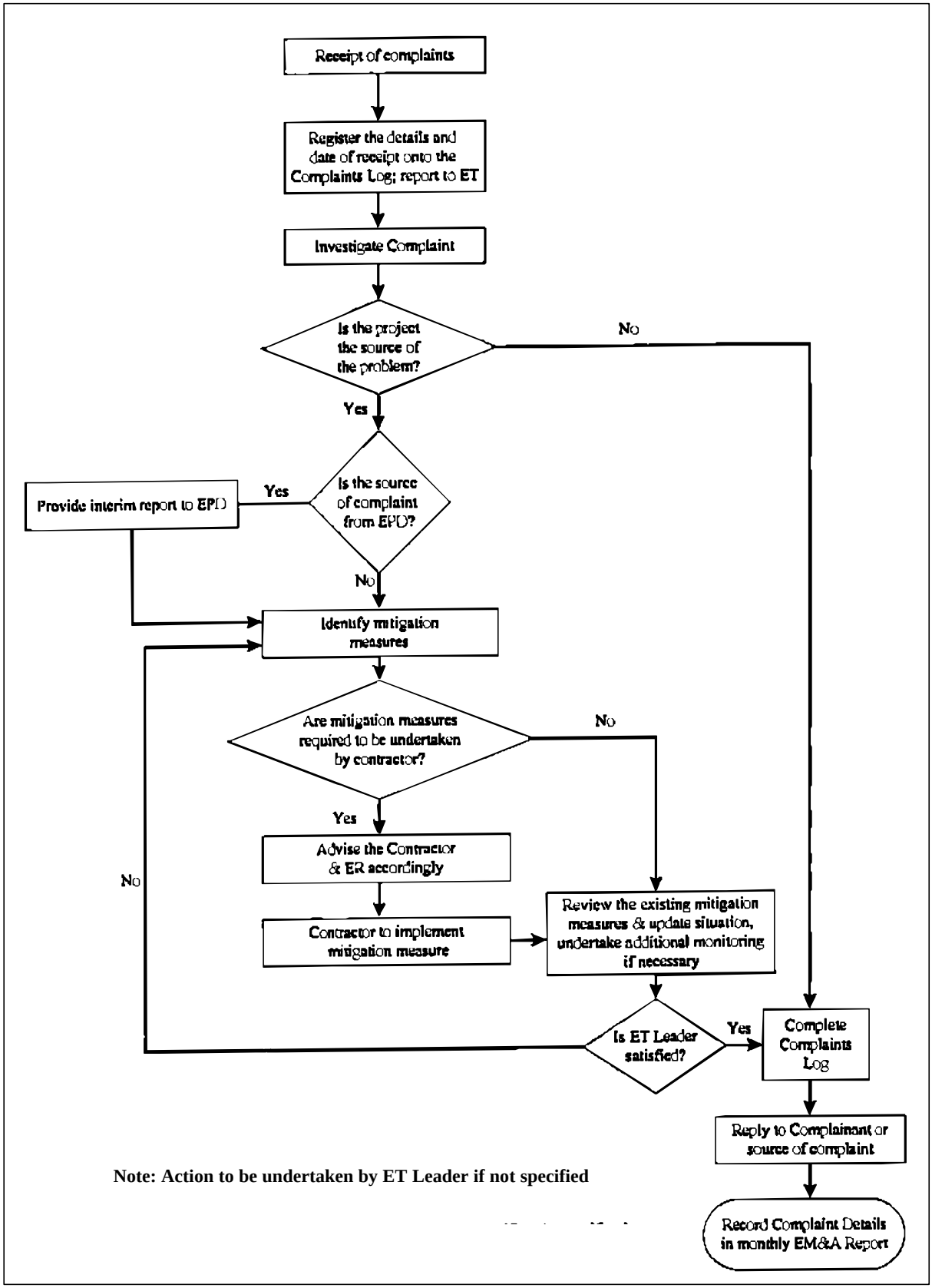
In accordance with the Brief of EM&A, environmental complaints will be referred to the ET for initiation of the complaint investigation procedures. The ET will undertake the following procedures upon receipt of the complaints:

a) The ET will record the details of the complaint and the date of receipt onto the complaint database, and inform ER immediately.
b) The ET will perform compliant investigation to determine its validity, and to assess whether the source of the problem is due to work activities.
c) The ER will instruct the CT to identify mitigation measures in consultation with the ET, if the compliant is valid and due to works.
d) The ET will liaise with the CT on their mitigation measure proposals and implementation, if required.
e) The ET will conduct review of the CT's response on the identified mitigation measures, and of the updated situation.
f) The ET will submit interim report to EPD if the complaint is received via EPD. The interim report will clearly state the status of the complaint investigation and the follow-up action within the time frame assigned by EPD.
g) The ET will undertake additional monitoring and audit to verify the situation if necessary, and ensure that any valid reason for complaint does not recur.
h) The ET will report on the investigation results and the subsequent actions to the source of complaint for responding to the complainant (If the source of complaint is via EPD, the results will be reported within the time frame assigned by EPD).
i) The ET will record the details of the complaint, investigation, subsequent actions and results in the monthly EM&A reports.

During the complaint investigation work undertaken by the ET, the CT and ER shall corporate with the ET in providing all the necessary information and assistance for completion of the investigation. If mitigation measures are identified as necessary in the investigation, the CT shall promptly carry out the required mitigation to the satisfaction of ET. The ER shall ensure that such identified measures have been carried out by the CT.

A flow chart of the complaint response procedures is shown in Figure 3-3 for reference.

Figure 3-3 - Flow chart of the complaint response procedure



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4. CONSTRUCTION NOISE MONITORING

4.1 Monitoring Equipment

An integrated sound level meter was used for the noise monitoring. The sound level meter complies with the International Electrotechnical Commission Publications (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications. An acoustical calibrator in compliance with IEC 942:1988 (Type 1) was used to calibrate the sound level meter before and after each set of measurements to confirm that the data drift was less than 1dB(A). The detailed descriptions of the noise measurement equipment are listed in Table 4-1.

Table 4-1 - Equipment list for construction noise monitoring.

Equipment	Manufacturer & Model No.	Precision Grade	Qty.
Integrated sound level meter	Brüel & Kjær 2231	IEC 651 Type 1 IEC 804 Type 1	2
½ " free-field microphone	Brüel & Kjær 4155		2
Rion Sound Level Meter	NA-27		1
Rion ½"microphone	UC53A		1
Windshield	Brüel & Kjær UA0237		4
Acoustical calibrator	Brüel & Kjær 4230	IEC 942 Type 1	1
Acoustical calibrator	Brüel & Kjær 4226		1
LCD wind speed indicator	Kestrel Vane Anemometer	--	1

4.2 Methodology

4.2.1 Field Measurement

- The sound level meter and the battery were checked to ensure that they were in proper condition.
- The sound level meter was set on a tripod at 1.2m above ground and at least 1m from the exterior of the building façade.
- Before conducting the measurement, the sound level meter was calibrated by an acoustical calibrator.
- The measurement parameter was set to A-weighted sound pressure level. The time weighting was set in fast response and the time period of measurement at 30 minutes.
- The wind speed was checked during noise monitoring to ensure the steady wind speed did not exceed 5m/s, or wind with gusts did not exceed 10m/s.
- Any abnormal conditions that generated intrusive noise during the measurement were recorded on the field record sheet.
- After each measurement, the equivalent continuous sound pressure level (L_{eq}), L_{10} and L_{90} were recorded on the field record sheet.
- The sound level meter was re-calibrated by the acoustical calibrator to confirm that there was no significant drift of reading.

4.2.2 Equipment Maintenance and Calibration

The sound level meter complies with the standards of IEC 651 (Fast, Slow, Impulse rms detector tests) and IEC 804 (L_{eq} functions). The acoustical calibrator model no. 4230 is in compliance with IEC 942. Both equipment are calibrated annually in-house using Brüel & Kjær (B&K) calibrator model no. 4226.

The B&K calibrator model no. 4226 is annually calibrated by the National Physical Laboratory in Teddington, London, which is accredited by National Measurement Accreditation Service (NAMAS). All in-house calibrations that are undertaken can be traced back to the National Physical Laboratory. The latest calibration certificates for the sound level meter and acoustic calibrators are given in the Monthly EM&A Report – August 2002 (23156-20)[6].

4.3 Results

Four measurements were taken at each location on daytime (0700-1900) and four measurements were taken at NM3, NM4, NM6 and NM8 during 1900-2300 in May 2003. All the noise measurements were taken between 0700-2300 hours on normal weekdays during which the construction site was under normal operation. The construction daytime and evening time noise monitoring results in May 2003 are tabulated in Table 4-2 and Table 4-3 respectively. Detailed weather conditions and the monitoring period are given in Appendix 3.

Table 4-2- Construction day-time noise monitoring results for May 2003.

Date of Monitoring		Monitoring Parameters	Monitoring Results, dB(A) (30 min)					
			NM2	NM3	NM4	NM6	NM7	NM8
Week 1	06/05/03 (Tue)	L_{eq}	61.2	65.0	69.5	67.0	70.5	71.0
		L_{10}	63.5	68.5	74.5	70.5	73.0	76.5
		L_{90}	58.0	60.0	61.5	62.8	64.5	62.5
Week 2	15/05/03 (Thu)	L_{eq}	63.7	64.0	66.5	68.5	69.5	72.0
		L_{10}	67.5	66.5	69.0	72.0	72.5	74.5
		L_{90}	61.0	60.0	61.5	62.5	64.0	65.0
Week 3	22/05/03 (Thu)	L_{eq}	63.8	64.1	67.4	63.3	62.2	61.4
		L_{10}	65.5	65.5	68.0	64.5	64.5	62.5
		L_{90}	61.0	61.5	60.0	61.0	58.5	58.0
Week 4	28/05/03 (Wed)	L_{eq}	68.2	63.6	65.8	65.1	63.9	72.9
		L_{10}	69.5	66.0	67.5	66.5	65.5	76.5
		L_{90}	66.0	57.5	57.0	61.5	60.5	59.5

Table 4-3 - Construction evening time noise monitoring results for May 2003**.**

Date of Monitoring		Monitoring Results, L_{eq} dB(A) (5 min)				
		NM3	**NM4**	**NM6**	**NM7***	**NM8**
Week 1	06/05/03 (Tue)	61.5	62.5	63.5	-	61.0
		60.0	61.5	64.5	-	62.0
		60.5	62.0	64.0	-	61.5
Week 2	15/05/03 (Thu)	60.5	63.0	61.5	-	61.5
		61.0	62.8	63.0	-	62.0
		60.5	63.5	62.0	-	60.0
Week 3	21/05/03 (Wed)	60.5	62.0	63.5	-	63.5
		60.0	63.0	65.0	-	62.5
		60.0	61.5	62.5	-	64.5
Week 4	28/05/03 (Wed)	60.0	62.5	61.5	-	62.0
		60.5	63.0	63.0	-	61.0
		61.0	62.0	61.0	-	61.0

Noted: ***** Evening time noise monitoring is not required at monitoring station NM7 as no construction works was conducted near this station.

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5. AIR QUALITY MONITORING

Air quality was measured in terms of 24-hour and 1-hour levels of TSP. This indicated the impacts of construction dust on air quality. The 24-hour and 1-hour TSP levels were measured according to the standard high volume sampling method and laser scanning method respectively. All relevant data including temperature, pressure, weather conditions, start and stop time of the sampler, and other special phenomena and work progress of the monitoring locations were also recorded.

5.1 Monitoring Equipment

The high volume sampling method complies with the USEPA ambient air reference method standard for primary and secondary ambient particulate matter (*40 C$FR_{50\text{-}B}$*)[7].

HVS in compliance with the specifications of *40 $CFR_{50\text{-}B}$* were used for carrying out the 24-hour TSP. A photometric aerosol monitor was used for 1-hour TSP monitoring. The details of the HVS, photometric aerosol monitor and the calibration kit used are listed in Table 5-1.

Table 5-1 - Equipment list for TSP monitoring.

Equipment	Manufacturer & Model No.	Measurement Parameter	Qty.
High Volume Sampler	GMWS-2310-105	24-hour TSP	5
Fibreglass Filter	G810		--
HVS Calibration Kit	GMW-2535		1
Photometric Aerosol Monitor	MIE *personal*DataRAM	1-hour TSP	5
Hand Held Barometer	Cole-Parmer EB833	Pa, Temperature	1

5.2 Methodology

5.2.1 24-hour TSP Monitoring

- The HVS was set up at fixed monitoring location under the following criteria:
  - it was placed on a horizontal platform;
  - the filter of HVS was at least 1.3m above ground;
  - it was separated from any obstacle by at least twice the height of the obstacle protruding above the sampler;
  - there were no furnaces or incineration flues operating near the sampler;
  - it has unrestricted airflow 270° around the sampler; and
  - the wire fence and gate did not cause obstruction to the air flow.
- The flow rate of the HVS was set within the range of 1.1m^3/min and 1.7m^3/min, (39CFM - 60CFM) as specified in *40 C$FR_{50\text{-}B}$*.
- The power supply was checked to ensure the HVS worked properly
- The HVS was switched on and allowed to operate for 5 minutes before placing any filter on the supporting screen.

- The filter holding frame was removed by loosening the four wing nuts and allowing the brass bolts and washers to swing down out of the way.
- The fibreglass filter (G810) for TSP sampling was prepared by a HOKLAS accredited laboratory for weighing before and after sampling. Before weighing, the filter was equilibrated in a conditioned environment of:
  - temperature between 25°C and 30°C and not vary by more than 3°C; and
  - relative humidity <50% and not vary by more than 5%.
- The pre-weighted, conditioned and numbered fibreglass filter was centred, with rougher side up, on the supporting screen. The filter was aligned so that the gasket of the frame formed an airtight seal on the outer edges of the filter.
- The filter holding frame was placed onto the filter and then tightened with the brass bolts and washers with sufficient pressure to avoid air leakage from the edges.
- Any dirt accumulation from around the filter holder was wiped out and then closed the shelter lid and secured with the aluminum strip.
- A piece of flow record chart was inserted onto the flow rate recorder and placed under the chart guide clip and the time index clip so that it will rotate freely without binding. Set the time by rotating the drive hub clockwise until the correct time on chart was aligned with time index pointer.
- The flow recorder pen was checked to ensure it was inking and pressed the pen on the chart with sufficient pressure to make a visible trace.
- The timer was programmed and the start time was recorded on specified field record sheet. Other information such as the filter identification number, the weather and site conditions were also recorded.

5.2.2 1-hour TSP Monitoring

- The MIE monitor was switched on by pressing the ON/OFF button. The NEXT button was pressed to select Run or Ready mode.
- The NEXT button was pressed subsequently to check the following settings:
  - data logging function being switched on;
  - 5-min. log period;
  - the tag number for storage;
  - the analog output of 0-4.000mg/m^3;
  - the calibration factor of 1.0;
  - the averaging time of 10s;
  - enough battery charge; and
  - enough remaining memory.
- The monitoring was started by pressing ENTER. The real-time concentration was displayed as CONC and the time-averaged concentration was displayed as TWA.
- The monitoring was stopped by pressing EXIT and ENTER buttons.
- The date and start time, weather, site condition and the downloaded monitoring results were recorded on specified field record sheet.

5.2.3 Maintenance and Calibration

The HVS and their accessories were frequently checked and maintained in accordance with the manufacturer's operation & maintenance manual. Maintenance includes the checking of the supporting screen and the gasket, and routine replacement of motor carbon brushes for the blower motor. The power cords and power supply were checked each time before sampling to ensure proper operation.

The HVS are calibrated at 2-month intervals using GMW-2535 Calibration Kit which will be re-calibrated by the manufacturer after one year of use. The calibration certificate of Calibration Orifice is given in the Monthly EM&A Report – April 2003 (Report No. 23156-28)[8]. The calibration certificates of the HVS are given in Appendix 4.

The MIE monitor and its accessories were frequently checked and maintained in accordance with the manufacturer's operation & maintenance manual to ensure proper operation. Maintenance includes the checking of batteries, zero and sensitive adjustment and filter replacement.

The MIE monitor is returned to the manufacturer for calibration bi-annually. The calibration certificates of the MIE monitor are given in the Monthly EM&A Report – April 2002 (Report No. 23156-16)[9].

5.3 Results

Air quality monitoring was conducted at monitoring stations Ma On Shan Lutheran Primary School (AM2), Ma On Shan Joseph's Primary School (AM3), Villa Concerto, Symphony Bay (AM4), Club House, Monte Vista (AM5) and Kam Yiu House, Kam Ying Court.

A total of six 24-hour TSP monitoring were conducted at each location. The 24-hour TSP monitoring results are tabulated in Table 5-2. Detailed monitoring data are given in Appendix 5.

Table 5-2 - 24-hour TSP monitoring results for May 2003.

Date of Monitoring	24-hour TSP Monitoring Results,(μg/m³)				
	AM2	AM3	AM4	AM5	AM6
02/05/03 (Fri)	86.1	79.6	-	98.5	80.4
06/05/03 (Tue)*	-	-	42.4	-	-
07/05/03 (Wed)	34.5	31.9	41.0	32.8	31.9
13/05/03 (Tue)	47.7	-	57.1	67.5	46.8
15/05/03 (Thu)*	-	52.2	-	-	-
19/05/03 (Mon)	37.1	35.6	40.3	50.5	39.4
24/05/03 (Sat)	41.6	47.3	42.7	47.6	45.5
31/05/03 (Sat)	90.8	93.0	86.5	108.7	88.5

Noted: * The 24-hour TSP monitoring at AM4 and AM3 was postponed from 02/05/03 and 13/05/03 to 06/05/03 and 15/05/03 respectively due to shortage of power supply.

A total of fifteen 1-hour TSP monitoring were conducted at each location. The monitoring results are tabulated in Table 5-3 and the detailed monitoring data are given in Appendix 6.

Table 5-3 - 1-hour TSP monitoring results for May 2003.

Date of Monitoring	1-hour TSP Monitoring Results,(μg/m³)				
	AM2	AM3	AM4	AM5	AM6
06/05/03 (Tue)	164.7	153.0	159.0	153.2	156.3
	150.3	145.0	146.9	155.9	154.8
	142.6	137.8	133.2	163.2	169.2
09/05/03 (Fri)	201.7	189.7	202.7	226.8	210.5
	201.0	186.2	194.9	217.4	208.7
	206.6	195.2	203.7	228.8	210.5
15/05/03 (Thu)	196.0	186.0	183.3	209.3	186.2
	217.8	182.5	172.5	205.2	181.7
	231.4	129.6	160.8	174.7	142.1
22/05/03 (Thu)	181.0	204.3	194.8	187.1	205.8
	193.0	196.6	202.4	179.8	185.3
	178.5	226.7	204.4	201.6	212.7
28/05/03 (Wed)	183.5	210.8	201.7	202.0	224.0
	183.3	209.8	198.2	199.9	222.9
	184.5	211.2	198.9	201.8	232.1

6. SITE INSPECTION, ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE RECORDS

6.1 Inspection Results

Four weekly site inspections were conducted in May 2003. Key findings of the site inspections are given below: -

- The Contractor had received one Construction Noise Permit (CNP) for the construction works near Heng On Estate. Details of the permit conditions are given in CNP No. GW-TN0126-2003 issued on 5 May 2003. Copy of the CNP is given in Appendix 7.

- Silt was observed at stream S28 beside Heng On Estate and U-channel at discharge point no. 6. As instructed by ET, the Contractor had removed the silt immediately. Photos showing the silty channel at stream S28 and discharge point no. 6 are given in Figure 6-1 and Figure 6-2 respectively.

Figure 6-1 – The silty channel near stream S28.

Figure 6-2 - The silty channel at discharge point no. 6

- As instructed by ET, the Contractor had installed water sprayers at haul road of Portal D and backfilling slope between Monte Vista and Lee On Estate. Performance is satisfactory. Photos showing the water sprayers at Portal D area and backfilling slope are given in Figure 6-3 and Figure 6-4 respectively.

Figure 6-3 – Water sprayers are operating at Portal D area.

Figure 6-4 - Water sprayers are operating at backfilling slope.

- Exposed slope under TB bridge was hydroseeded for preventing dust and runoff generation. Performance is satisfactory. Photo showing the hydroseeded slope under TB bridge is given in Figure 6-5.

Figure 6-5 – The hydroseeded slope under TB bridge.

- Site effluent was observed being discharged from the site directly at gate no. 6. The Contractor has immediately ceased the discharging and agreed to treat the effluent through sedimentation system before discharge. Photo showing the direct discharge runoff from the site is given in Figure 6-6.

Figure 6-6 - The direct discharge runoff from the site

- Bore piling was resumed at TD bridge area (beside Cheung Muk Tau Village). The sedimentation system was set up for treating runoff from bore piling activity. Photo showing the bore piling machine and sedimentation tanks at TD bridge area is given in Figure 6-7.

Figure 6-7 - The bore piling machine and sedimentation tanks at TD bridge area

6.2 Waste Disposal

The waste disposal data for May 2003 is given below:

A total of 14 loads of Construction and Demolition Waste (C&D waste) had been disposed of at NENT Landfill in May 2003. The total tonnage of the C&D waste disposal in May 2003 was 121.7 tonnes.

A total of 835 loads of rocks (*f* >400mm) had been reused at the following government project sites in May 2003:

- *Contract No. FL 26/01 River Training for Upper River Indus – Completion of the Remaining Works between Man Kam To Road and KCRC Bridges, and*
- *Contract No. CV/2002/05 Public Filling Barging Point at Kai Tak*

The total quantity of disposed rocks was 5,970.3 m^3 in May 2003.

A total of 286 loads of inert materials had been disposed of at Public Filling Area in May 2003. The total quantity of the disposed inert materials was 1,716.0 m^3 in May 2003.

6.3 EPD Site Inspection

ET was informed by the CT that EPD had not visited the site in May 2003.

6.4 Complaint Record

There was no public complaint recorded in May 2003.

6.5 Non-compliance Record

There was no exceedance recorded in May 2003.

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7. REFERENCES

[1] Truck Road T7 in Ma On Shan - Environmental Impact Assessment Study, Final Assessment Report, Maunsell Consultants Asia Limited.

[2] Brief for Environmental Monitoring and Audit for the Sha Tin New Town, stage II Contract No. ST 86/2000 Construction of Road T7 in Ma On Shan, Maunsell Consultants Asia Limited.

[3] Environmental Permit No. EP-057/2000 for the Designated Project "Truck Road T7 in Ma On Shan", Environmental Protection Department, HKSAR.

[4] Trunk Road T7 in Ma On Shan - Environmental Monitoring and Audit Manual, Maunsell Consultant Asia Limited, HKSAR.

[5] Sha Tin New Town, Stage II Contract No. ST 86/2000 Construction of Road T7 in Ma On Shan - Baseline Monitoring Report, Maunsell Consultants Asia Ltd.

[6] Sha Tin New Town, Stage II Contract No. ST 86/2000 Construction of Road T7 in Ma On Shan Monthly EM&A Report – August 2002, Ove Arup & Partners Hong Kong Limited.

[7] Title 40 of the Code of Federal Regulations, Chapter 1, Part 50 - National Primary and Secondary Ambient Air Quality Standards, Appendix B - Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere (High-volume Method), Environmental Protection Agency, US.

[8] Sha Tin New Town, Stage II Contract No. ST 86/2000 Construction of Road T7 in Ma On Shan Monthly EM&A Report – April 2003, Ove Arup & Partners Hong Kong Limited.

[9] Sha Tin New Town, Stage II Contract No. ST 86/2000 Construction of Road T7 in Ma On Shan Monthly EM&A Report – April 2002, Ove Arup & Partners Hong Kong Limited.

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APPENDIX 1

EM&A Programme for May 2003

Environmental Monitoring and Audit Programme - May 2003

Note 1: L30 denotes $L_{eq(30\ min)}$
Note 2: L5 denotes $L_{eq(5\ min)}$
Note 3: TSP denotes Total Suspended Particulate
Note 4: * denotes the starting day of 6-days cycle

May-2003

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2 24-hour TSP monitoring (AM2, AM3, AM5, AM6) *	3
4	5	6 L30 monitoring (day time) 3xL5 monitoring (evening time) 3 x 1-hour TSP monitoring 24-hour TSP monitoring (AM4)	7 Site inspection 24-hour TSP monitoring	8 *	9 3 x 1-hour TSP monitoring	10
11	12 Site inspection	13 24-hour TSP monitoring (AM2, AM4, AM5, AM6)	14	15 L30 monitoring (day time) 3xL5 monitoring (evening time) 3 x 1-hour TSP monitoring 24-hour TSP monitoring (AM3) *	16	17
18	19 Site inspection 24-hour TSP monitoring	20 *	21 3xL5 monitoring (evening time)	22 L30 monitoring (day time) 3 x 1-hour TSP monitoring	23	24 24-hour TSP monitoring
25	26 *	27	28 Site inspection L30 monitoring (day time) 3xL5 monitoring (evening time) 3 x 1-hour TSP monitoring	29	30	31 24-hour TSP monitoring

APPENDIX 2

EM&A Schedule for June 2003

Environmental Monitoring and Audit Schedule - June 2003

Note 1: L30 denotes $L_{eq(30\ min)}$
Note 2: L5 denotes $L_{eq(5\ min)}$
Note 3: TSP denotes Total Suspended Particulate
Note 4: * denotes the starting day of 6-days cycle

Jun-2003

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 *	2	3 Site inspection L30 monitoring (day time) 3xL5 monitoring (evening time) 3 x 1-hour TSP monitoring	4	5	6 24-hour TSP monitoring	7 *
8	9	10 L30 monitoring (day time) 3xL5 monitoring (evening time) 3 x 1-hour TSP monitoring	11 Site inspection	12 24-hour TSP monitoring	13 *	14
15 24-hour TSP monitoring 3 x 1-hour TSP monitoring (Baseline ambient checking)	16	17 L30 monitoring (day time) 3xL5 monitoring (evening time) 3 x 1-hour TSP monitoring	18 Site inspection 24-hour TSP monitoring	19 *	20	21
22	23 3 x 1-hour TSP monitoring	24 24-hour TSP monitoring	25 Site inspection *	26 L30 monitoring (day time) 3xL5 monitoring (evening time) 3 x 1-hour TSP monitoring	27	28
29	30 24-hour TSP monitoring					

APPENDIX 3

Noise Impact Monitoring Results for May 2003

Details of Day Time Noise Impact Monitoring

Month	Date	NSR No.	Time periods		Weather condition	Avg. wind speed (m/s)	Noise Level dB(A)		
			Start	Finish			L_{eq}	L_{10}	L_{90}
May-03	06-May-03	NM2	8:30	9:00	Fine	0.5	61.2	63.5	58.0
May-03	06-May-03	NM3	11:30	12:00	Fine	0.4	65.0	68.5	60.0
May-03	06-May-03	NM4	10:55	11:25	Fine	0.4	69.5	74.5	61.5
May-03	06-May-03	NM6	10:15	10:45	Fine	0.5	67.0	70.5	62.8
May-03	06-May-03	NM7	9:00	9:30	Fine	0.5	70.5	73.0	64.5
May-03	06-May-03	NM8	9:35	10:05	Fine	0.4	71.0	76.5	62.5
May-03	15-May-03	NM2	8:00	8:30	Sunny	0.4	63.7	67.5	61.0
May-03	15-May-03	NM3	8:45	9:15	Sunny	0.4	64.0	66.5	60.0
May-03	15-May-03	NM4	9:20	9:50	Sunny	0.6	66.5	69.0	61.5
May-03	15-May-03	NM6	11:20	11:50	Sunny	0.5	68.5	72.0	62.5
May-03	15-May-03	NM7	10:00	10:30	Sunny	0.6	69.5	72.5	64.0
May-03	15-May-03	NM8	10:35	11:05	Sunny	0.5	72.0	74.5	65.0
May-03	22-May-03	NM2	13:40	14:10	sunny	0.5	63.8	65.5	61.0
May-03	22-May-03	NM3	13:00	13:30	sunny	0.4	64.1	65.5	61.5
May-03	22-May-03	NM4	11:30	12:00	sunny	0.5	67.4	68.0	60.0
May-03	22-May-03	NM6	9:13	9:43	sunny	0.6	63.3	64.5	61.0
May-03	22-May-03	NM7	9:55	10:25	sunny	0.8	62.2	64.5	58.5
May-03	22-May-03	NM8	10:35	11:05	sunny	0.8	61.4	62.5	58.0
May-03	28-May-03	NM2	9:00	9:30	sunny	0.6	68.2	69.5	66.0
May-03	28-May-03	NM3	11:15	11:45	sunny	0.4	63.6	66.0	57.5
May-03	28-May-03	NM4	13:05	13:35	sunny	0.4	65.8	67.5	57.0
May-03	28-May-03	NM6	9:10	9:40	sunny	0.6	65.1	66.5	61.5
May-03	28-May-03	NM7	9:50	10:20	sunny	0.4	63.9	65.5	60.5
May-03	28-May-03	NM8	10:30	11:00	sunny	0.6	72.9	76.5	59.5

Details of Evening time Noise Impact Monitoring

Month	Date	Set No.	NSR No.	Time periods		Weather condition	Avg. wind speed (m/s)	Noise Level dB(A)		
				Start	Finish			L_{eq}	L_{10}	L_{90}
May-03	06-May-03	1	NM3	19:00	19:05	fine	0.4	61.5	63.0	58.0
May-03	06-May-03	2	NM3	19:05	19:10	fine	0.4	60.0	63.5	58.5
May-03	06-May-03	3	NM3	19:10	19:15	fine	0.4	60.5	63.0	59.0
May-03	06-May-03	1	NM4	19:40	19:45	fine	0.4	62.5	65.0	60.0
May-03	06-May-03	2	NM4	19:45	19:50	fine	0.4	61.5	63.0	59.5
May-03	06-May-03	3	NM4	19:50	19:55	fine	0.4	62.0	63.5	60.0
May-03	06-May-03	1	NM6	20:40	20:45	fine	0.3	63.5	66.0	60.5
May-03	06-May-03	2	NM6	20:45	20:50	fine	0.3	64.5	66.0	60.0
May-03	06-May-03	3	NM6	20:50	20:55	fine	0.3	64.0	66.5	60.5
May-03	06-May-03	1	NM8	20:15	20:20	fine	0.4	61.0	62.5	59.5
May-03	06-May-03	2	NM8	20:20	20:25	fine	0.4	62.0	63.0	61.5
May-03	06-May-03	3	NM8	20:25	20:30	fine	0.4	61.5	63.0	60.0
May-03	15-May-03	1	NM3	19:00	19:05	fine	0.4	60.5	63.0	58.5
May-03	15-May-03	2	NM3	19:05	19:10	fine	0.4	61.0	63.0	58.0
May-03	15-May-03	3	NM3	19:10	19:15	fine	0.4	60.5	63.5	58.0
May-03	15-May-03	1	NM4	19:30	19:35	fine	0.4	63.0	65.5	60.5
May-03	15-May-03	2	NM4	19:35	19:40	fine	0.4	62.8	65.0	60.0
May-03	15-May-03	3	NM4	19:40	19:45	fine	0.4	63.5	65.5	60.5
May-03	15-May-03	1	NM6	20:05	20:10	fine	0.5	61.5	64.5	60.5
May-03	15-May-03	2	NM6	20:10	20:15	fine	0.5	63.0	65.0	61.0
May-03	15-May-03	3	NM6	20:15	20:20	fine	0.5	62.0	64.0	60.0
May-03	15-May-03	1	NM8	20:35	20:40	fine	0.4	61.5	63.0	58.0
May-03	15-May-03	2	NM8	20:40	20:45	fine	0.4	62.0	64.5	59.5
May-03	15-May-03	3	NM8	20:45	20:50	fine	0.4	60.0	62.0	59.0
May-03	21-May-03	1	NM3	20:30	20:35	fine	0.5	60.5	63.0	58.5
May-03	21-May-03	2	NM3	20:35	20:40	fine	0.5	60.0	62.0	59.0
May-03	21-May-03	3	NM3	20:40	20:45	fine	0.5	60.0	63.5	59.0
May-03	21-May-03	1	NM4	20:05	20:10	fine	0.4	62.0	65.0	60.0
May-03	21-May-03	2	NM4	20:10	20:15	fine	0.4	63.0	66.0	60.5
May-03	21-May-03	3	NM4	20:15	20:20	fine	0.4	61.5	64.0	60.0
May-03	21-May-03	1	NM6	19:30	19:35	fine	0.7	63.5	65.5	61.5
May-03	21-May-03	2	NM6	19:35	19:40	fine	0.7	65.0	67.5	62.0
May-03	21-May-03	3	NM6	19:40	19:45	fine	0.7	62.5	65.0	61.5
May-03	21-May-03	1	NM8	19:00	19:05	fine	0.7	63.5	65.5	60.5
May-03	21-May-03	2	NM8	19:05	19:10	fine	0.7	62.5	64.5	60.0
May-03	21-May-03	3	NM8	19:10	19:15	fine	0.7	64.5	66.0	61.5
May-03	28-May-03	1	NM3	19:00	19:05	fine	0.4	60.0	62.0	57.5
May-03	28-May-03	2	NM3	19:05	19:10	fine	0.4	60.5	62.0	58.0
May-03	28-May-03	3	NM3	19:10	19:15	fine	0.4	61.0	62.5	58.0
May-03	28-May-03	1	NM4	19:30	19:35	fine	0.5	62.5	64.5	57.0
May-03	28-May-03	2	NM4	19:35	19:40	fine	0.5	63.0	65.0	57.5
May-03	28-May-03	3	NM4	19:40	19:45	fine	0.5	62.0	64.5	57.5
May-03	28-May-03	1	NM6	20:00	20:05	fine	0.4	61.5	63.0	58.0
May-03	28-May-03	2	NM6	20:05	20:10	fine	0.4	63.0	65.0	59.5
May-03	28-May-03	3	NM6	20:10	20:15	fine	0.4	61.0	63.5	58.5
May-03	28-May-03	1	NM8	20:30	20:35	fine	0.4	62.0	64.5	60.0
May-03	28-May-03	2	NM8	20:35	20:40	fine	0.4	61.0	63.0	60.0
May-03	28-May-03	3	NM8	20:40	20:45	fine	0.4	61.0	62.0	59.5

APPENDIX 4

Calibration Certificates of HVS

Ove Arup Partners (Hong Kong) Limited

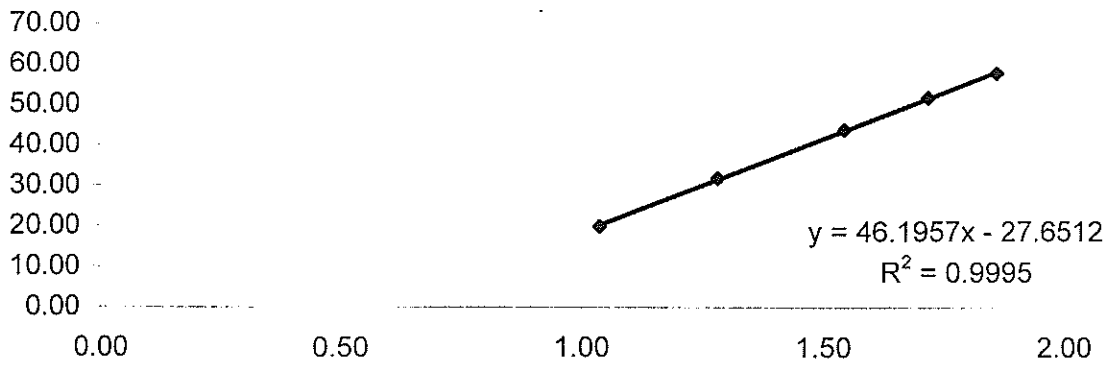
High Volume Air Sampler Calibration Worksheet

Calibration date	09-May-03	**Barometric pressure**	760 mm Hg
Next Calibration date	08-Jul-03	**Tempature (°C)**	27 °C
Sampler location	Roof, Ma On Shan Lutheran Primar	**Tempature (K)**	300 K
Sampler model	GMWS-2310-105	**P_{std}**	760 mm Hg
Sampler serial number	1387	**T_{std}**	298 K

Calibrator model	GMW-2535
Calibrator serial number	1378
Slope of the standard curve, m_s	2.000011
Intercept of the standard curve, b_s	-0.08159

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	4.00	20.00	1.04	19.93
7	6.20	32.00	1.28	31.89
10	9.10	44.00	1.54	43.85
13	11.30	52.00	1.72	51.83
18	13.30	58.00	1.86	57.81

Calibration Curve



Linear Regression

Sampler slope (m) :	**46.1957**
Sampler intercept (b) :	**-27.6512**
Correlation coefficient (R^2) :	**0.9995**

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

Performed by: Porky Date: 09/05/03

Checked by: [signature] Date: 09/05/03

Ove Arup Partners (Hong Kong) Limited

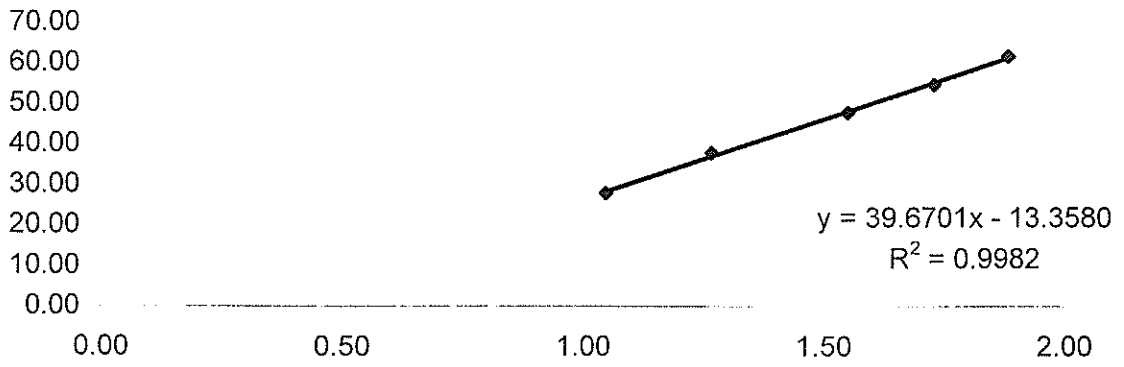
High Volume Air Sampler Calibration Worksheet

Calibration date	09-May-03	**Barometric pressure**	760 mm Hg
Next Calibration date	08-Jul-03	**Tempature (°C)**	28 °C
Sampler location	Roof, Ma On Shan St.Joseph's Prin	**Tempature (K)**	301 K
Sampler model	GMWS-2310-105	**P_{std}**	760 mm Hg
Sampler serial number	1278	**T_{std}**	298 K

Calibrator model	0
Calibrator serial number	1378
Slope of the standard curve, m_s	2.000011
Intercept of the standard curve, b_s	-0.08159

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	4.10	28.00	1.05	27.86
7	6.10	38.00	1.27	37.81
10	9.20	48.00	1.55	47.76
13	11.50	55.00	1.73	54.73
18	13.70	62.00	1.88	61.69

Calibration Curve



Linear Regression

Sampler slope (m) :	**39.6701**
Sampler intercept (b) :	**-13.3580**
Correlation coefficient (R^2) :	**0.9982**

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

Performed by: Porky Date: 09/05/03

Checked by: [signature] Date: 09/05/03

Ove Arup Partners (Hong Kong) Limited

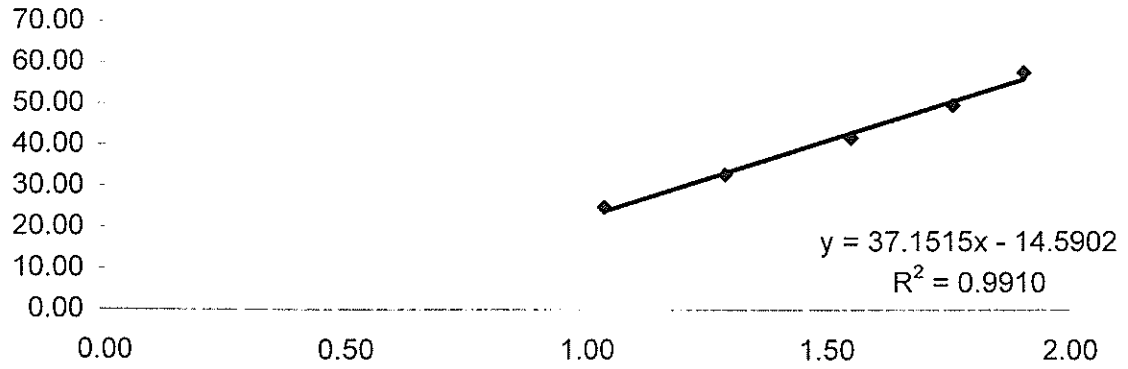
High Volume Air Sampler Calibration Worksheet

Calibration date	09-May-03	**Barometric pressure**	760 mm Hg
Next Calibration date	08-Jul-03	**Tempature (°C)**	28 °C
Sampler location	Roof, Block 1, Symphony Bay	**Tempature (K)**	301 K
Sampler model	GMWS-2310-105	**P_{std}**	760 mm Hg
Sampler serial number	1391	**T_{std}**	298 K

Calibrator model	GMW-2535
Calibrator serial number	1378
Slope of the standard curve, m_s	2.000011
Intercept of the standard curve, b_s	-0.08159

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	4.00	25.00	1.04	24.88
7	6.30	33.00	1.29	32.84
10	9.20	42.00	1.55	41.79
13	11.90	50.00	1.76	49.75
18	14.00	58.00	1.90	57.71

Calibration Curve



Linear Regression

Sampler slope (m) : **37.1515**
Sampler intercept (b) : **-14.5902**
Correlation coefficient (R^2) : **0.9910**

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

Performed by: _____ Date: 09/05/03

Checked by: _____ Date: 09/05/03

Ove Arup Partners (Hong Kong) Limited

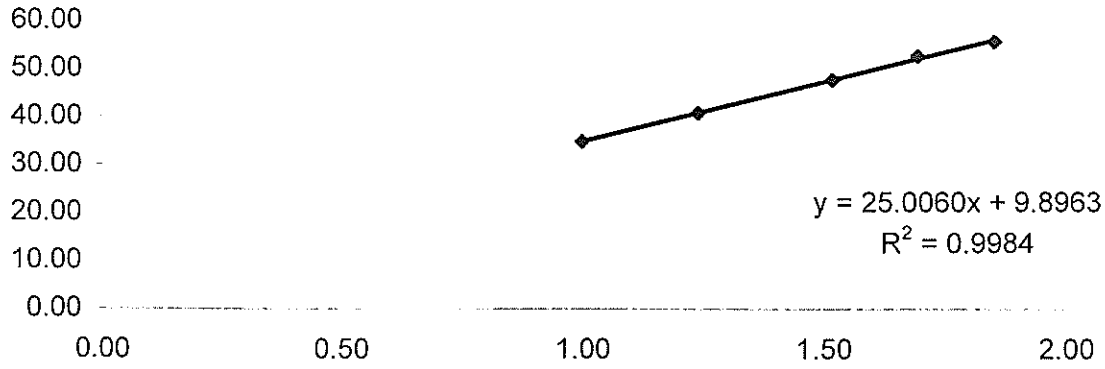
High Volume Air Sampler Calibration Worksheet

Calibration date	09-May-03	**Barometric pressure**	760 mm Hg
Next Calibration date	08-Jul-03	**Tempature (°C)**	28 °C
Sampler location	Roof, Club House, Monte Vista	**Tempature (K)**	301 K
Sampler model	GMWS-2310-105	**P_{std}**	760 mm Hg
Sampler serial number	1763	**T_{std}**	298 K

Calibrator model	GMW-2535
Calibrator serial number	1378
Slope of the standard curve, m_s	2.000011
Intercept of the standard curve, b_s	-0.08159

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	3.70	35.00	1.00	34.83
7	5.80	41.00	1.24	40.80
10	8.80	48.00	1.52	47.76
13	11.00	53.00	1.69	52.74
18	13.20	56.00	1.85	55.72

Calibration Curve



Linear Regression

Sampler slope (m) :	**25.0060**
Sampler intercept (b) :	**9.8963**
Correlation coefficient (R^2) :	**0.9984**

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

Performed by: Porky Date: 09/05/03

Checked by: M. Chan Date: 09/05/03

Ove Arup Partners (Hong Kong) Limited

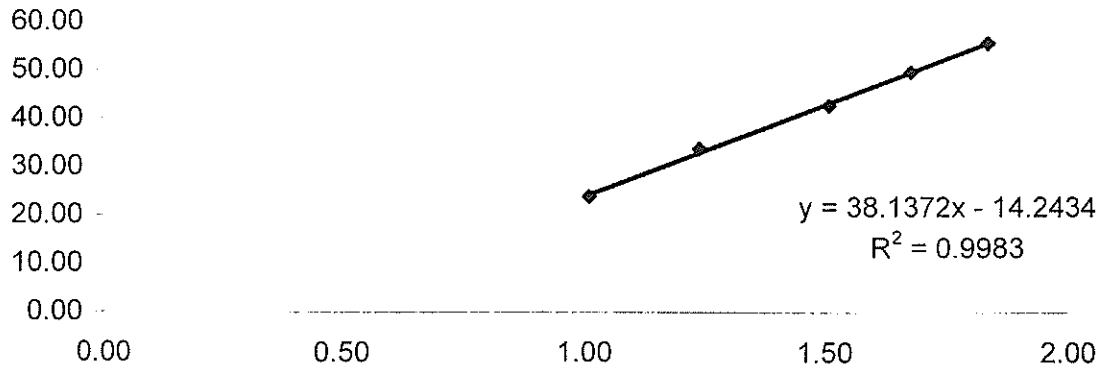
High Volume Air Sampler Calibration Worksheet

Calibration date	09-May-03	**Barometric pressure**	760 mm Hg
Next Calibration date	08-Jul-03	**Tempature (°C)**	28 °C
Sampler location	Kam Yiu House,Kam Ying Court	**Tempature (K)**	301 K
Sampler model	TE-5170	**P_{std}**	760 mm Hg
Sampler serial number	0513	**T_{std}**	298 K

Calibrator model	GMW-2535
Calibrator serial number	1378
Slope of the standard curve, m_s	2.000011
Intercept of the standard curve, b_s	-0.08159

Resistance Plate No.	Manometer Reading (inch H_2O)	Flow Recorder Reading (CFM)	Calculated Q_{std} (m^3/min)	Continuous Flow Recorder Reading IC (CFM)
5	3.80	24.00	1.01	23.88
7	5.80	34.00	1.24	33.83
10	8.70	43.00	1.51	42.79
13	10.80	50.00	1.68	49.75
18	13.00	56.00	1.83	55.72

Calibration Curve



Linear Regression

Sampler slope (m) :	**38.1372**
Sampler intercept (b) :	**-14.2434**
Correlation coefficient (R^2) :	**0.9983**

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

Performed by: _____ Date: 09/05/03

Checked by: _____ Date: 09/05/03

Appendix 5

24-hour TSP Monitoring Results for May 2003

Details of 24-Hour TSP Monitoring

Filter No.	Month	Date	Receptor No.	Weather condition	Site condition	Filter Weight (g)		TSP weight (g)	Flow Rate (m^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m^3)	24-hour TSP Level ($\mu g/m^3$)
						Initial	Final		Initial	Final		Start	Finish			
EB33	May-03	02-May-03	AM2	Fine	normal operation	3.4735	3.6272	0.1537	1.2406	1.2395	1.2401	3387.52	3411.51	1439.40	1784.93	86.1
EB34	May-03	02-May-03	AM3	Fine	normal operation	3.4865	3.6273	0.1408	1.2284	1.2271	1.2278	3318.92	3342.92	1440.00	1767.96	79.6
EB35	May-03	06-May-03	AM4	Fine	normal operation	3.4483	3.5362	0.0879	1.4415	1.4399	1.4407	3374.23	3398.23	1440.00	2074.61	42.4
EB36	May-03	02-May-03	AM5	Fine	normal operation	3.4763	3.6741	0.1978	1.3957	1.3939	1.3948	2914.88	2938.88	1440.00	2008.51	98.5
EB37	May-03	02-May-03	AM6	Fine	normal operation	3.4679	3.6657	0.1978	1.7096	1.7077	1.7087	1504.70	1528.70	1440.00	2460.46	80.4
EB87	May-03	07-May-03	AM2	Fine	normal operation	3.4676	3.5282	0.0606	1.2162	1.2204	1.2183	3411.51	3435.51	1440.00	1754.35	34.5
EB88	May-03	07-May-03	AM3	Fine	normal operation	3.4502	3.5067	0.0565	1.2271	1.2322	1.2297	3342.92	3366.92	1440.00	1770.70	31.9
EC05	May-03	07-May-03	AM4	Fine	normal operation	3.4425	3.5186	0.0761	1.2871	1.2927	1.2899	3398.23	3422.23	1440.00	1857.46	41.0
EB90	May-03	07-May-03	AM5	Fine	normal operation	3.4572	3.5218	0.0646	1.3633	1.3702	1.3668	2938.88	2962.88	1440.00	1968.12	32.8
EB91	May-03	07-May-03	AM6	Fine	normal operation	3.4449	3.5222	0.0773	1.6781	1.6857	1.6819	1528.70	1552.70	1440.00	2421.94	31.9
EB89	May-03	13-May-03	AM2	Sunny	normal operation	3.4492	3.5382	0.0890	1.2926	1.2837	1.2882	3435.51	3459.63	1447.20	1864.21	47.7
EC08	May-03	15-May-03	AM3	Sunny	normal operation	3.4371	3.5320	0.0949	1.2459	1.2343	1.2401	3366.92	3391.34	1465.20	1816.99	52.2
EC09	May-03	13-May-03	AM4	Sunny	normal operation	3.4127	3.5179	0.1052	1.2826	1.2713	1.2770	3422.23	3446.26	1441.80	1841.11	57.1
EC10	May-03	13-May-03	AM5	Sunny	normal operation	3.4399	3.5679	0.1280	1.3270	1.3051	1.3161	2962.88	2986.88	1440.00	1895.11	67.5
EC11	May-03	13-May-03	AM6	Sunny	normal operation	3.4392	3.5280	0.0888	1.3192	1.3071	1.3132	1552.70	1576.76	1443.60	1895.66	46.8
EC43	May-03	19-May-03	AM2	Sunny	normal operation	3.7158	3.7844	0.0686	1.2837	1.2858	1.2848	3459.63	3483.63	1440.00	1850.04	37.1
EC44	May-03	19-May-03	AM3	Sunny	normal operation	3.7034	3.7668	0.0634	1.2343	1.2370	1.2357	3391.34	3415.34	1440.00	1779.34	35.6
EC45	May-03	19-May-03	AM4	Sunny	normal operation	3.7292	3.8015	0.0723	1.2447	1.2472	1.2460	3446.26	3470.26	1440.00	1794.17	40.3
EC46	May-03	19-May-03	AM5	Sunny	normal operation	3.7415	3.8337	0.0922	1.2655	1.2705	1.2680	2986.88	3010.88	1440.00	1825.92	50.5
EC47	May-03	19-May-03	AM6	Sunny	normal operation	3.7684	3.8426	0.0742	1.3071	1.3100	1.3086	1576.76	1600.76	1440.00	1884.31	39.4
EF02	May-03	24-May-03	AM2	Sunny	normal operation	3.5244	3.6014	0.0770	1.2858	1.2842	1.2850	3483.63	3507.64	1440.60	1851.17	41.6
EF03	May-03	24-May-03	AM3	Sunny	normal operation	3.5136	3.5978	0.0842	1.2370	1.2349	1.2360	3415.34	3439.35	1440.60	1780.51	47.3
EF04	May-03	24-May-03	AM4	Sunny	normal operation	3.5074	3.5857	0.0783	1.2739	1.2719	1.2729	3470.26	3494.27	1440.60	1833.74	42.7
EF05	May-03	24-May-03	AM5	Sunny	normal operation	3.5246	3.6116	0.0870	1.2705	1.2666	1.2686	3010.88	3034.89	1440.60	1827.47	47.6
EF06	May-03	24-May-03	AM6	Sunny	normal operation	3.5299	3.6146	0.0847	1.3100	1.3078	1.3089	1600.76	1624.44	1420.80	1859.69	45.5
EF42	May-03	31-May-03	AM2	Sunny	normal operation	3.4498	3.6180	0.1682	1.2842	1.2887	1.2865	3507.64	3531.64	1440.00	1852.49	90.8
EF43	May-03	31-May-03	AM3	Sunny	normal operation	3.4592	3.6249	0.1657	1.2349	1.2408	1.2379	3439.35	3463.35	1440.00	1782.50	93.0
EF44	May-03	31-May-03	AM4	Sunny	normal operation	3.4482	3.6036	0.1554	1.2452	1.2509	1.2481	3494.27	3518.27	1440.00	1797.19	86.5
EF45	May-03	31-May-03	AM5	Sunny	normal operation	3.4426	3.6418	0.1992	1.2666	1.2776	1.2721	3034.89	3058.89	1440.00	1831.82	108.7
EF46	May-03	31-May-03	AM6	Sunny	normal operation	3.4529	3.6232	0.1703	1.3597	1.3139	1.3368	1624.44	1648.44	1440.00	1924.99	88.5

APPENDIX 6

1-hour TSP Monitoring Results for May 2003

Details of 1-Hour TSP Monitoring

Month	Date	Receptor No.	Set No.	Time periods		Weather condition	Site condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (μg/g³)
				Start	Finish					
May-03	06-May-03	AM2	1	8:32	9:32	Fine	normal operation	27.0	760.0	164.7
May-03	06-May-03	AM2	2	9:32	10:32	Fine	normal operation	27.0	760.0	150.3
May-03	06-May-03	AM2	3	10:32	11:32	Fine	normal operation	27.0	760.0	142.6
May-03	06-May-03	AM3	1	8:34	9:34	Fine	normal operation	27.0	760.0	153.0
May-03	06-May-03	AM3	2	9:34	10:34	Fine	normal operation	27.0	760.0	145.0
May-03	06-May-03	AM3	3	10:34	11:34	Fine	normal operation	27.0	760.0	137.8
May-03	06-May-03	AM4	1	8:30	9:30	Fine	normal operation	27.0	760.0	159.0
May-03	06-May-03	AM4	2	9:30	10:30	Fine	normal operation	27.0	760.0	146.9
May-03	06-May-03	AM4	3	10:30	11:30	Fine	normal operation	27.0	760.0	133.2
May-03	06-May-03	AM5	1	13:03	14:03	Fine	normal operation	27.0	760.0	153.2
May-03	06-May-03	AM5	2	14:03	15:03	Fine	normal operation	27.0	760.0	155.9
May-03	06-May-03	AM5	3	15:03	16:03	Fine	normal operation	27.0	760.0	163.2
May-03	06-May-03	AM6	1	13:02	14:02	Fine	normal operation	27.0	760.0	156.3
May-03	06-May-03	AM6	2	14:02	15:02	Fine	normal operation	27.0	760.0	154.8
May-03	06-May-03	AM6	3	15:02	16:02	Fine	normal operation	27.0	760.0	169.2
May-03	09-May-03	AM2	1	9:53	10:53	Fine	normal operation	25.0	762.8	201.7
May-03	09-May-03	AM2	2	10:53	11:53	Fine	normal operation	25.0	762.8	201.0
May-03	09-May-03	AM2	3	13:53	14:53	Fine	normal operation	25.0	762.8	206.6
May-03	09-May-03	AM3	1	9:48	10:48	Fine	normal operation	25.0	762.8	189.7
May-03	09-May-03	AM3	2	10:48	11:48	Fine	normal operation	25.0	762.8	186.2
May-03	09-May-03	AM3	3	13:48	14:48	Fine	normal operation	25.0	762.8	195.2
May-03	09-May-03	AM4	1	10:10	11:10	Fine	normal operation	25.0	762.8	202.7
May-03	09-May-03	AM4	2	13:10	14:10	Fine	normal operation	25.0	762.8	194.9
May-03	09-May-03	AM4	3	14:10	15:10	Fine	normal operation	25.0	762.8	203.7
May-03	09-May-03	AM5	1	10:25	11:25	Fine	normal operation	25.0	762.8	226.8
May-03	09-May-03	AM5	2	13:25	14:25	Fine	normal operation	25.0	762.8	217.4
May-03	09-May-03	AM5	3	14:25	15:25	Fine	normal operation	25.0	762.8	228.8
May-03	09-May-03	AM6	1	10:04	11:04	Fine	normal operation	25.0	762.8	210.5
May-03	09-May-03	AM6	2	13:04	14:04	Fine	normal operation	25.0	762.8	208.7
May-03	09-May-03	AM6	3	14:04	15:04	Fine	normal operation	25.0	762.8	210.5
May-03	15-May-03	AM2	1	8:16	9:16	Sunny	normal operation	30.0	756.0	196.0
May-03	15-May-03	AM2	2	9:16	10:16	Sunny	normal operation	30.0	756.0	217.8
May-03	15-May-03	AM2	3	10:16	11:16	Sunny	normal operation	30.0	756.0	231.4
May-03	15-May-03	AM3	1	8:04	9:04	Sunny	normal operation	30.0	756.0	186.0
May-03	15-May-03	AM3	2	9:04	10:04	Sunny	normal operation	30.0	756.0	182.5
May-03	15-May-03	AM3	3	10:04	11:04	Sunny	normal operation	30.0	756.0	129.6
May-03	15-May-03	AM4	1	8:06	9:06	Sunny	normal operation	30.0	756.0	183.3
May-03	15-May-03	AM4	2	9:06	10:06	Sunny	normal operation	30.0	756.0	172.5
May-03	15-May-03	AM4	3	10:06	11:06	Sunny	normal operation	30.0	756.0	160.8
May-03	15-May-03	AM5	1	8:12	9:12	Sunny	normal operation	30.0	756.0	209.3
May-03	15-May-03	AM5	2	9:12	10:12	Sunny	normal operation	30.0	756.0	205.2
May-03	15-May-03	AM5	3	10:12	11:12	Sunny	normal operation	30.0	756.0	174.7
May-03	15-May-03	AM6	1	8:06	9:06	Sunny	normal operation	30.0	756.0	186.2
May-03	15-May-03	AM6	2	9:06	10:06	Sunny	normal operation	30.0	756.0	181.7
May-03	15-May-03	AM6	3	10:06	11:06	Sunny	normal operation	30.0	756.0	142.1
May-03	22-May-03	AM2	1	7:43	8:43	Sunny	normal operation	29.0	758.0	181.0
May-03	22-May-03	AM2	2	8:43	9:43	Sunny	normal operation	29.0	758.0	193.0
May-03	22-May-03	AM2	3	9:43	10:43	Sunny	normal operation	29.0	758.0	178.5
May-03	22-May-03	AM3	1	8:48	9:48	Sunny	normal operation	29.0	758.0	204.3
May-03	22-May-03	AM3	2	9:48	10:48	Sunny	normal operation	29.0	758.0	196.6
May-03	22-May-03	AM3	3	10:48	11:48	Sunny	normal operation	29.0	758.0	226.7
May-03	22-May-03	AM4	1	8:39	9:39	Sunny	normal operation	29.0	758.0	194.8
May-03	22-May-03	AM4	2	9:39	10:39	Sunny	normal operation	29.0	758.0	202.4
May-03	22-May-03	AM4	3	10:39	11:39	Sunny	normal operation	29.0	758.0	204.4
May-03	22-May-03	AM5	1	8:55	9:55	Sunny	normal operation	29.0	758.0	187.1
May-03	22-May-03	AM5	2	9:55	10:55	Sunny	normal operation	29.0	758.0	179.8
May-03	22-May-03	AM5	3	10:55	11:55	Sunny	normal operation	29.0	758.0	201.6
May-03	22-May-03	AM6	1	8:34	9:34	Sunny	normal operation	29.0	758.0	205.8
May-03	22-May-03	AM6	2	9:34	10:34	Sunny	normal operation	29.0	758.0	185.3
May-03	22-May-03	AM6	3	10:34	11:34	Sunny	normal operation	29.0	758.0	212.7

Details of 1-Hour TSP Monitoring

Month	Date	Receptor No.	Set No.	Time periods		Weather condition	Site condition	Temp. (°C)	Pressure (mmHg)	1-hour TSP Level (μg/g³)
				Start	Finish					
May-03	28-May-03	AM2	1	9:17	10:17	Cloudy	normal operation	26.0	753.0	183.5
May-03	28-May-03	AM2	2	10:17	11:17	Cloudy	normal operation	26.0	753.0	183.3
May-03	28-May-03	AM2	3	11:17	12:17	Cloudy	normal operation	26.0	753.0	184.5
May-03	28-May-03	AM3	1	8:47	9:47	Cloudy	normal operation	26.0	753.0	210.8
May-03	28-May-03	AM3	2	9:47	10:47	Cloudy	normal operation	26.0	753.0	209.8
May-03	28-May-03	AM3	3	10:47	11:47	Cloudy	normal operation	26.0	753.0	211.2
May-03	28-May-03	AM4	1	9:07	10:07	Cloudy	normal operation	26.0	753.0	201.7
May-03	28-May-03	AM4	2	10:07	11:07	Cloudy	normal operation	26.0	753.0	198.2
May-03	28-May-03	AM4	3	11:07	12:07	Cloudy	normal operation	26.0	753.0	198.9
May-03	28-May-03	AM5	1	9:21	10:21	Cloudy	normal operation	26.0	753.0	202.0
May-03	28-May-03	AM5	2	10:21	11:21	Cloudy	normal operation	26.0	753.0	199.9
May-03	28-May-03	AM5	3	11:21	12:21	Cloudy	normal operation	26.0	753.0	201.8
May-03	28-May-03	AM6	1	13:00	14:00	Cloudy	normal operation	26.0	753.0	224.0
May-03	28-May-03	AM6	2	14:00	15:00	Cloudy	normal operation	26.0	753.0	222.9
May-03	28-May-03	AM6	3	15:00	16:00	Cloudy	normal operation	26.0	753.0	232.1

APPENDIX 7

Construction Noise Permit No. GW-TN0126-2003

本署檔號 OUR REF: (5) in EP531/N01/TN0126-03
來函檔號 YOUR REF:
電話 TEL. NO.: 2158 5823
圖文傳真 FAX NO.: 2685 1133
電子郵件 E-MAIL:
網址 Homepage: http://www.info.gov.hk/epd/

Environmental Protection Department
Local Control Office/Territory North
10/F, Sha Tin Government Offices,
No. 1 Sheung Wo Che Road,
Sha Tin, New Territories,
Hong Kong.

環境保護署
污染管制辦事處
(新界北)
香港新界沙田
上禾輋路一號
沙田政府合署 10 樓

Registered Post

CHINA HARBOUR ENG., CO, (GROUP)
Contract T 7 - Ma On Shan
- 6 MAY 2003
RECEIVED
Subject File : 02.03 I
Serial No : 04838

5 May 2003

To: China Harbour Engineering Company (Group)
9 Lok Wo Sha Lane,
Ma On Shan, N.T.

Dear Sir,

Notice of Issue of Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance (Cap. 400)

I write to inform you that, under section 8(6) of the Noise Control Ordinance, the Authority has decided to issue a construction noise permit in respect of your application, which was received by the Authority on 17 April 2003 , **for the use of powered mechanical equipment for carrying out construction work** at **Road T7 near Heng On Estate, Ma On Shan, N.T.**

The construction noise permit No. **GW-TN0126-03** is enclosed.

You are advised to read the conditions of the permit carefully and to ensure compliance with these conditions. Any breaching of the conditions may lead to cancellation of the permit, subsequent prosecution action and the Authority's refusal to issue further permit for the above construction site.

Yours faithfully,

(SZETO Wing-Kwok)
for Authority

FORM 3 [reg.5(a)]
NOISE CONTROL ORDINANCE
(Chapter 400)
SECTION 8(9)

CONSTRUCTION NOISE PERMIT FOR THE USE OF POWERED MECHANICAL EQUIPMENT FOR THE PURPOSE OF CARRYING OUT CONSTRUCTION WORK OTHER THAN PERCUSSIVE PILING AND/OR THE CARRYING OUT OF PRESCRIBED CONSTRUCTION WORK

CONSTRUCTION NOISE PERMIT NO. GW-TN0126-03

To : China Harbour Engineering Company (Group)

This construction noise permit is issued in accordance with section 8 of the Noise Control Ordinance. Permission is granted for the use of powered mechanical equipment for the purpose of carrying out construction work other than percussive piling and/or the carrying out of prescribed construction work, subject to the conditions set out below. The carrying out of construction work otherwise than in accordance with the conditions may result in the permit being cancelled and in a prosecution for an offence.

CONDITIONS

1. Construction site where the powered mechanical equipment and/or prescribed construction work may be employed :

   Full address : Road T7 near Heng On Estate, Ma On Shan, N.T.

   Lot No. ------

   The site boundary, that is, the boundary of the area within which the powered mechanical equipment may be used and the prescribed construction work may be carried out is delineated on the attached plan which forms part of this construction noise permit.

2. *~~PART~~/WHOLE of the site falls *~~WITHIN~~/OUTSIDE a designated area

3. Powered Mechanical Equipment

   a. Items of powered mechanical equipment which may be used inside the site boundary :

Identification code of item of powered mechanical equipment (if applicable)	*Description of item of Powered mechanical equipment*	*No. of units*
	Refer to attached sheet	

   b. Validity of the construction noise permit for the use of the powered mechanical equipment:

   Date and time of commencement : 15 May 2003 at 1900 hours

   Days and hours : General holidays including Sundays between 07:00 and 23:00 hours and any day not being a general holidays including Sundays between 19:00 and 23:00

   This part of the permit expires on : 14 November 2003 at 2300 hours

   c. One photograph, endorsed by the Authority, of each item of powered mechanical equipment described in this construction noise permit is required to be kept on the construction site and made available for inspection by the Authority.

   d. Other conditions imposed on the use of the powered mechanical equipment:

   Refer to attached sheet.

4. Prescribed Construction Work

a. Type of prescribed construction work which may be carried out inside the site boundary:

Identification code of type of prescribed construction work	*Description of type of prescribed construction work*
	Nil

b. Validity of the construction noise permit for the carrying out of the prescribed construction work:

Date and time of commencement : Not applicable at Not applicable

Days and hours : Not applicable

This part of the permit expires on : Not applicable at Not applicable

c. Site layout plan(s), endorsed by the Authority, may be attached with the permit to indicate the locations permitted for the carrying out of prescribed construction work described in this permit. The layout plan(s) is(are) required to be kept on the construction site and made available for inspection by the Authority.

d. Other conditions imposed on the carrying out of the prescribed construction work:

Not applicable

5. This construction noise permit or a copy thereof must be displayed on the construction site at all vehicular site entrances/exits for public information at all times when the powered mechanical equipment covered by this permit are being used for carrying out construction work.

Dated this 5th Day of May 2003

Signed:

(SZETO Wing-kwok)

for Authority

* Delete as necessary

表格 3 [第 5(a)條]

噪音管制條例
(第400章)
第8(9)條

建築噪音許可證
爲進行建築工程（撞擊式打樁除外）而使用機動設備及／或進行訂明建築工程

建築噪音許可證編號: GW-TN0126-03

致：中國港灣建設(集團)總公司

本建築噪音許可證是按照《噪音管制條例》第 8 條的規定而發出的。現准予使用機動設備以進行撞擊式打樁工程以外的建築工程及／或進行訂明建築工程，但須受以下條件規限。若不按照該等條件進行建築工程，許可證可遭撤銷，而且會受到檢控。

條 件

1. 可使用機動設備及／或進行訂明建築工程的建築地盤：

   詳細地址： 新界馬鞍山 T7 公路近恒安邨

   地段編號: ------

   地盤範圍(即可使用機動設備及進行訂明建築工程的地方範圍)已描劃於夾附的圖則上，而該圖則是本建築噪音許可證的一部分。

2. 該地盤部~~份~~/全部*位於指定範圍之~~內~~/外*

3. 機動設備

   a. 在地盤範圍內可使用的各項機動設備：

各項機動設備的識辨代碼 (如適用的話)	*各項機動設備的說明*	*數目*
	參見附頁	

   b. 可使用機動設備的建築噪音許可證有效期：

   生效日期及時間： 二零零三年五月十五日晚上七時正

   日期及時間： 一般假期包括星期日早上七時正至晚上十一時正及一般假日包括星期日以外的任何一天晚上七時正至晚上十一時正

   此部分許可證屆滿日期及時間： 二零零三年十一月十四日晚上十一時正

   日期 時間

   c. 建築地盤須備有本建築噪音許可證所述每件機動設備的照片各一幀，供監督隨時查看；該等照片須經監督認可。

   d. 規限使用機動設備的其他條件：

   參照附頁

EPD76B(s)

4. 訂明建築工程

a. 在地盤範圍內可進行的訂明建築工程：

訂明建築工程的識辨代碼	*訂明建築工程的類別的說明*
	無

b. 可進行訂明建築工程的建築噪音許可證有效期：

生效日期及時間： 不適用

日期及時間： 不適用

此部分許可證屆滿日期及時間： 不適用

c. 本許可證可夾附經監督認可的地盤圖則，以顯示本許可證准予進行訂明建築工程的地點。該地盤圖則須存放於建築地盤供監督隨時查看。

d. 規限進行訂明建築工程的其他條件：

不適用

5. 本建築噪音許可證或其副本必須展示於建築地盤的 所有車輛進出口處，以便在使用此證內載列機動設備進行建築工程的任何時候，給予公眾人仕參閱.

日期： 二零零三年五月五日

簽署: _____

(司徒永國代行)

監督

* 刪去不適用者

建築噪音許可證
編號GW-TN0126-03的附頁（共一頁）

3a. 在地盤範圍內可使用的各項機動設備:

各項機動設備的識辨代碼(如適用的話)	各項機動設備的說明	數目
A組 : CNP 048	起重機，流動（油渣）	壹
CNP 065	鑽，手提型(電動)	壹
CNP 103	發電機，超低噪音型在7米距離時 70 分貝（A）	壹
CNP 201	圓型木鋸	壹
B組 : CNP 044	混凝土攪拌車	壹
CNP 048	起重機，流動（油渣）	壹
CNP 103	發電機，超低噪音型在7米距離時 70 分貝（A）	壹
CNP 170	混凝土震動機，手提	壹

3d. 規限使用機動設備的其他條件 :

i. 在任何時間內，祇可使用一組上述的機動設備。

ii. 發電機，超低噪音型在7米距離時70分貝(A)(CNP 103)祇可在隔音罩內操作。該隔音罩必須由四件則板障及一件上板障所組成及必須以不少於50毫米厚的木板或1毫米厚的鐵板外皮造成。

iii. 混凝土震動機，手提(CNP 170) 祇可在隔音屏障後操作，使該設備的任何部份均無法在任何鄰近噪音感應強的地方內見到。

iv. 當使用許可證編號 GW-TN0039-2003 或 GW-TN0055-2003的機動設備時，不可使用此許可證內載列的機動設備。

v. 在任何時間內展示兩頁載有本建築噪音許可證內「主要資料」之A3尺寸告示的彩色副本於本建築噪音許可證旁。

vi. 本許可證持有人須確保竭力從速完成該等建築工程，並小心防範會引起的噪音干擾。

ENVIRONMENTAL PROTECTION DEPARTMENT
HONG KONG
環境保護署

簽署：_____
監督
（司徒永國代行）

Sheet Attached to Construction
Noise Permit No. GW-TN0126-03

3a. Items of powered mechanical equipment which may be used inside the site boundary:

Identification code of item of powered mechanical equipment (if applicable)	*Description of item of Powered mechanical equipment*	*No. of units*
Group A : CNP048	Crane, mobile (diesel)	One
CNP065	Drill, hand-held (electric)	One
CNP103	Generator, super silenced, 70 dB(A) at 7 m	One
CNP201	Saw, circular, wood	One
Group B : CNP044	Concrete lorry mixer	One
CNP048	Crane, mobile (diesel)	One
CNP103	Generator, super silenced, 70 dB(A) at 7 m	One
CNP170	Poker, vibratory, hand-held	One

3d. Other conditions imposed on the use of the powered mechanical equipment :

i. Only one group of the above powered mechanical equipment shall be allowed to be operated at any time.

ii. The generator, super silenced, 70 dB(A) at 7m (CNP 103) shall only be operated inside an acoustic enclosure . The acoustic enclosure shall be composed of four side-panels and one top-panel. The panels shall be made of minimum 10mm thick plywood or 1mm thick steel outer skin and minimum 50mm thick sound absorbing lining.

iii. Poker, vibratory, hand-held (CNP 170) shall be operated behind an acoustic barrier so that no part of such equipment is visible from any nearby noise sensitive receiver.

iv. The above powered mechanical equipment shall not be operated when any powered mechanical equipment covered by the CNP GW-TN0039-2003 or GW-TN0055-2003 is being operated.

v. Colour copies of two pages of A3 size notice showing "Key Information" of this Construction Noise Permit shall be displayed at all times next to copies of this Construction Noise Permit.

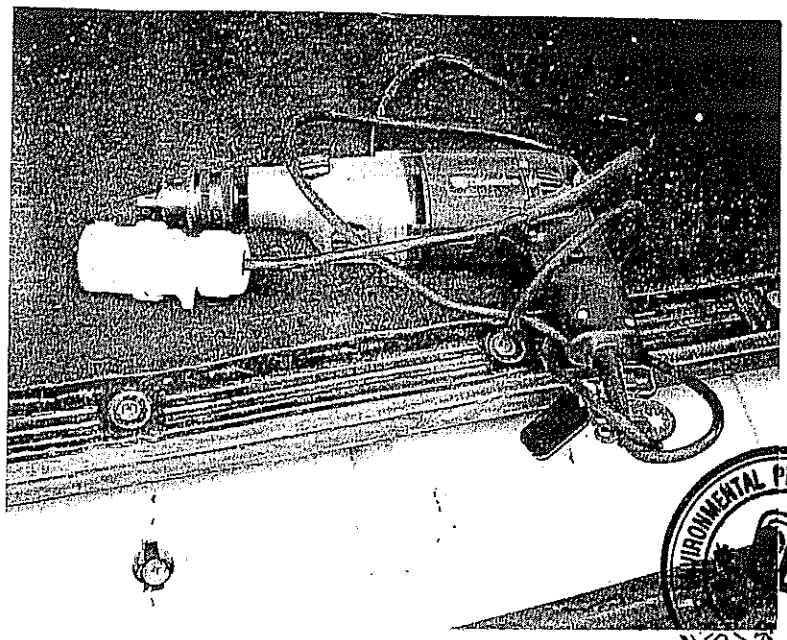
vi. All care shall be taken to ensure that the construction work is carried out as quickly as possible with due regard for the potential noise intrusion which may result.

ENVIRONMENTAL PROTECTION DEPARTMENT – HONG KONG – 香港環境保護署

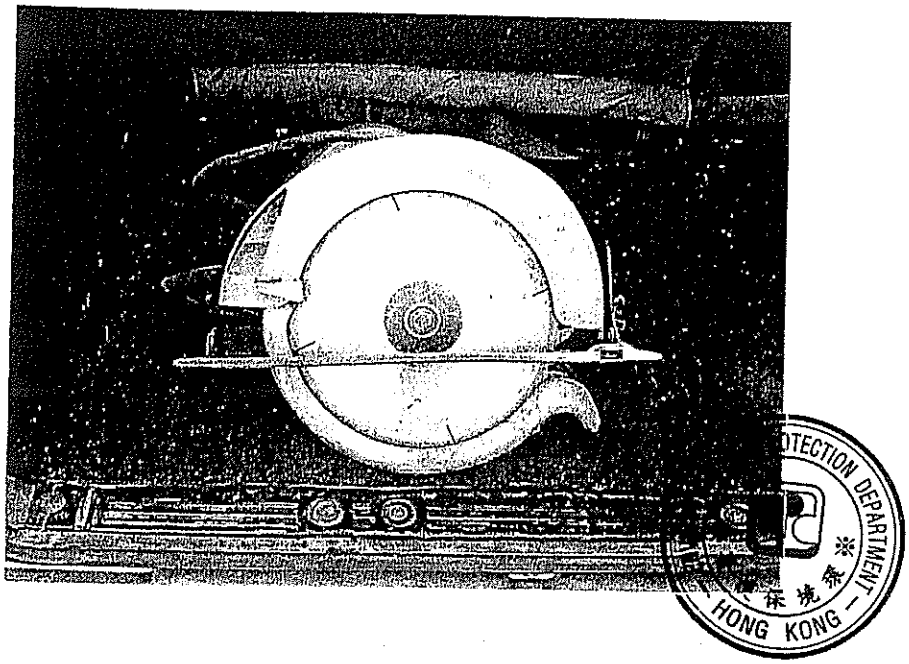
Signed : _____
(SZETO Wing-kwok)
for Authority

Photographs attached to Construction

Noise Permit No. GW-TN0126-03



Drill, hand-held (electric)

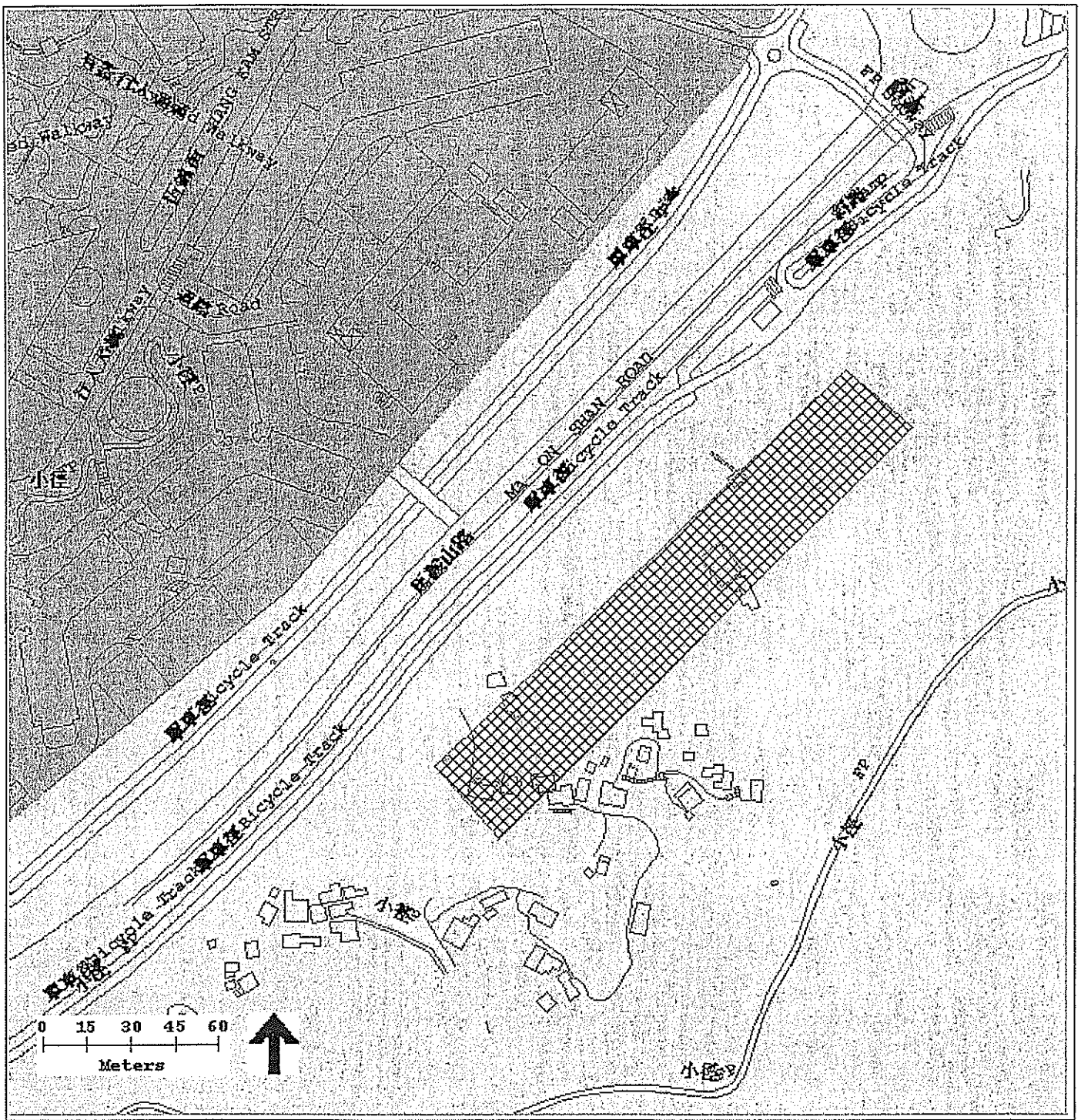


Saw, circular, wood

Signed: _____

(SZETO Wing-kwok)

for Authority



Environmental Protection Department Noise Control Authority 環境保護署 噪音管制監督	Scale 比例 1:2,000	Legend 圖例	Construction Site 建築地盤

Plan attached to Construction Noise Permit No. GW-TN0126-03
建築噪音許可證編號 GW-TN0126-03 的附圖

ENVIRONMENTAL PROTECTION DEPARTMENT
環境保護署
HONG KONG

其他

如欲了解其他獲准使用的機動設備或限制條件，請參閱建築噪音許可證 **GW-TN0126-03**。

投訴或查詢

如需即時協助請致電馬鞍山分區警署，電話 **2640-0109**。

如有需要，請於辦公時間內致電 **環境保護署** 要求跟進，電話 **2838-3111**。

*在星期一至六(假日除外)的上午 7 時至下午 7 時所進行的建築工程不受噪音管制條例管制。

Others

Please refer to the Construction Noise Permit GW-TN0126-03 for other permitted powered mechanical equipment or conditions.

Complaint or Enquiry

Please call **Ma On Shan Division Police Station** at **2640-0109** for **immediate assistance**.

Please call **Environmental Protection Department** during office hours at **2838-3111** for follow-up action, if necessary.

Construction work conducted between 7am – 7pm from Mon. to Sat. (except public holidays) is not controlled under the Noise Control Ordinance.

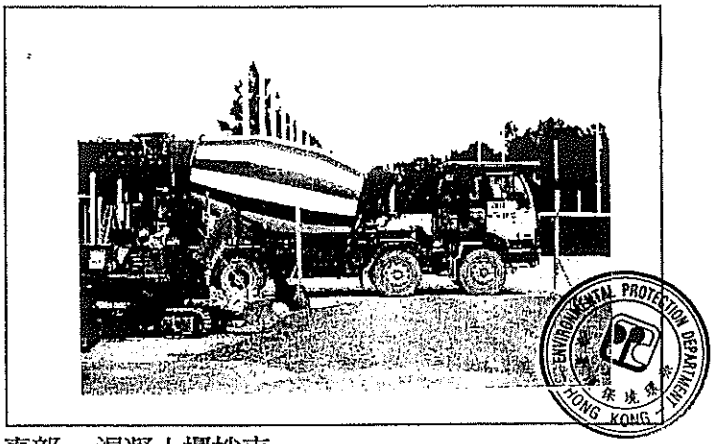
主要資料 Key Information

建築噪音許可證編號:
Construction Noise Permit No.: GW-TN0126-03

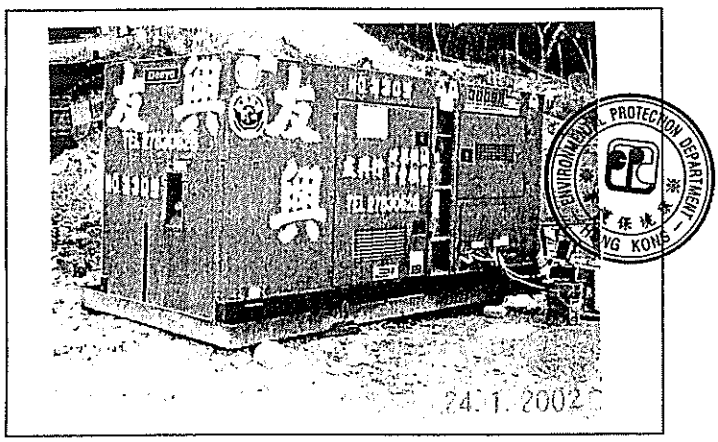
許可證持有人:	中國港灣建設(集團)總公司
地點:	新界馬鞍山 T7 公路近恒安
有效期:	2003 年 5 月 15 至 2003 年 11 月 14 日
生效時間:	星期一至六(假日除外) 晚上 7 時正至晚上 11 時正
	一般假日 早上 7 時正至晚上 11 時正
Permit Holder:	**China Harbour Engineering Company (Group)**
Location:	**Road T7 in Ma On Shan near Heng On Estate, N.T.**
Validity period:	**15 May 2003 to 14 November 2003**
Permitted Hours:	**Mon.-Sat.(except holidays) 07:00pm to 11:00pm**
	General holiday 07:00am to 11:00pm

准許
Permit

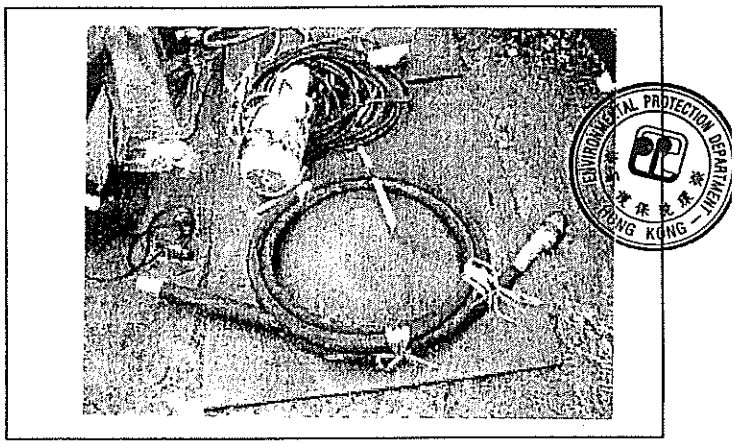
壹部 起重機，流動（油渣）
One Crane, mobile (diesel)



壹部 混凝土攪拌車
One **Concrete lorry mixer**



壹部 發電機，超低噪音型在 7 米距離時70分貝(A)（必須在隔音罩內使用）
One Generator, super silenced, 70dB(A) at 7m (must be used inside an acoustic enclosure)



壹部 混凝土震動機，手提(必須在隔音罩後使用)
One Poker, vibratory, hand-held (must be used behind an acoustic enclosure)