

**Sha Tin New Town, Stage II Road D15 Linking Lok Shun Path and
Tai Po Road (Contract No. ST 77/01)**

**Monthly Environmental Monitoring & Audit Report –
January 2003**

Checked in accordance with EML QP22
Environmental Team Leader

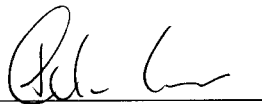
A handwritten signature in black ink, appearing to be 'P. L.', is written over a horizontal line.

Table of Contents

1.	INTRODUCTION	1
1.1	BACKGROUND	1
2.	ENVIRONMENTAL STATUS	3
2.1	AIR QUALITY.....	3
	2.1.1 Monitoring Requirements.....	3
	2.1.2 Monitoring Locations	3
	2.1.3 Summary of Monitoring Results.....	3
2.2	NOISE	6
	2.2.1 Monitoring Requirements.....	6
	2.2.2 Monitoring Locations	6
	2.2.3 Summary of Monitoring Results.....	6
3.	ENVIRONMENTAL AUDIT	9
3.1	GENERAL	9
3.2	ASSESSMENT OF ENVIRONMENTAL MONITORING RESULTS	9
3.3	ENVIRONMENTAL COMPLAINTS	10
3.4	ASSESSMENT OF MITIGATION MEASURES.....	11
4.	FUTURE KEY ISSUE AND RECOMMENDATION	12

Appendix A	Action and Limit Levels
Appendix B	Tentative Schedule for Impact Air Quality and Noise Monitoring
Appendix C	24-Hour TSP Impact Monitoring Results and Plots
Appendix D	1-Hour TSP Impact Monitoring Results and Plots
Appendix E	Daytime 0700-1900Hrs Impact Noise Monitoring Results and Plots
Appendix F	Weather Conditions During Monitoring Periods
Appendix G	Event and Action Plan for Air Quality and Noise
Appendix H	Project Organisation and Contacts of Key Personnel
Appendix I	Summary Records of Complaints Received
Appendix J	Updated Construction Program

List of Tables

Table 2.1	Air Quality Monitoring Locations
Table 2.2	Summary of 24 and 1-hour TSP Monitoring Results
Table 2.3	Noise Monitoring Locations
Table 2.4	Summary of Noise Monitoring Results
Table 3.1	Summary of Site Inspection during the Reporting Period
Table 3.2	Summary of Environmental Monitoring
Table 3.3	Summary of Non-Compliance with Relevant Criteria
Table 3.4	Environmental Complaints / Enquiry Received for the Reporting Month
Table 3.5	Summary of Total Number of Complaints Received to Date
Table 3.6	Summary of Major Mitigation Measures at the Site

List of Figure

Figure 1.1	Project Area
Figure 2.1	Air Quality Monitoring Locations
Figure 2.2	Noise Monitoring Locations

EXECUTIVE SUMMARY

The impact environmental monitoring report was prepared by Environmental Management Limited (EML) for Environmental Monitoring & Audit (EM&A) Services of Sha Tin New Town, Stage II Road D15 Linking Lok Shun Path and Tai Po Road. This report discusses the EM&A services that had been carried out in January 2003.

Environmental monitoring for this Project included both air quality and noise measurements. The parameters measured for air quality are 24-hour and 1-hour Total Suspended Particulate (TSP) while for noise monitoring, the A-weighted continuous sound pressure level (L_{eq}) as well as percentile levels (L_{10} and L_{90}) were measured.

The major construction activities in this reporting period included:

- Utility diversion
- Slope cutting at CH300-400 with associated slope drainage
- Drainage works
- Fabrication precast beams A1-A2-A3 & A4-A5
- Construction of pile caps at A2, A3 A4 and pier A3, A4
- Construction of pile Cap & Pier C2
- Retaining walls and stairs construction
- Noise barrier construction, including demolition existing retaining wall for noise barrier No.1, fabrication noise barrier and piling works.
- Drainage works (other than slope drainage), including construction of 1400 box culvert & 1500 pipe, drainage works at Lok Ha Lo roundabout and remaining drainage works
- Waterworks

Over the reporting period, one exceedance in Limit Level was noted for the monitored noise level while no exceedances were recorded for TSP. The exceedance was measured at monitoring station N1 from 13:00 to 13:30 on 15 January 2003. An ad-hoc site inspection was carried out on 21 January 2003 by ET, MCAL and BCCL to investigate the incident. From the inspection, it was noted that at the time of the exceedance, sheet piling activities were carried out near Station N1 at Noise Barrier No.1. It was recommended to the Contractor that temporary noise barriers should immediately be installed fronting the Noise Sensitive Receivers at the onset of the construction to screen the anticipated high construction noise throughout the construction period. It should be noted that no exceedances were recorded in the following noise monitoring (21 January 2003).

In comparison to last month, it was noted from site inspections that the maintenance of the stream near Lok Shun Path roundabout was still not adequate, therefore it was recommended to the Contractor that more mitigation measures should be installed along the stream, including the additional of sandbags on the banks and the provision of more filters. Meanwhile, it was noted that more sprinklers should be provided along the haul road to minimize the dust impacts.

1. INTRODUCTION

1.1 Background

Environmental Management Limited (EML) was appointed by Maunsell Consultants Asia Ltd. as the Environmental Specialist for the project *Sha Tin New Town, Stage II Road Linking Lok Shun Path and Tai Po Road* (Contract No. ST 77/01).

The responsibilities of the Environmental Team included:

- Monitor the noise and air quality data as required in the Environmental Monitoring and Audit (EM&A) Manual;
- Analyse the monitoring data and review the success of EM&A program to cost effectively confirm the adequacy of mitigatory measures implemented and validity of the Environmental Impact Assessment Study predictions and to identify any adverse environmental impacts arising;
- Carry out site inspection to investigate and audit the Contractor's site practice, equipment and work methodologies with respect to pollution control and environmental mitigation, and anticipate environmental issues for proactive action before problems arise;
- Review the proposal for mitigation measures submitted by Contractor in accordance with Event and Action Plans;
- Propose any improvement or other alternative mitigation measures should Contractor's proposal be found to be inadequate;
- Adhere to the procedures for carrying out complaint investigation;
- Audit and prepare EM&A reports on environmental monitoring data and site environmental conditions and;
- Report on EM&A results to Engineer, the ER and EPD.

This is the monthly EM&A report for January 2003. This monthly report describes the results of the impact air quality and noise monitoring works in the reporting period as well as the environmental status and issues of Road D15 Construction Site. In addition, if required, any remedial/follow-up actions undertaken as a result of non-compliance with relevant environmental criteria or complaints related to Road D15 Construction Site would also be discussed.

The project area of Road D15 Construction Site is shown in **Figure 1.1**.

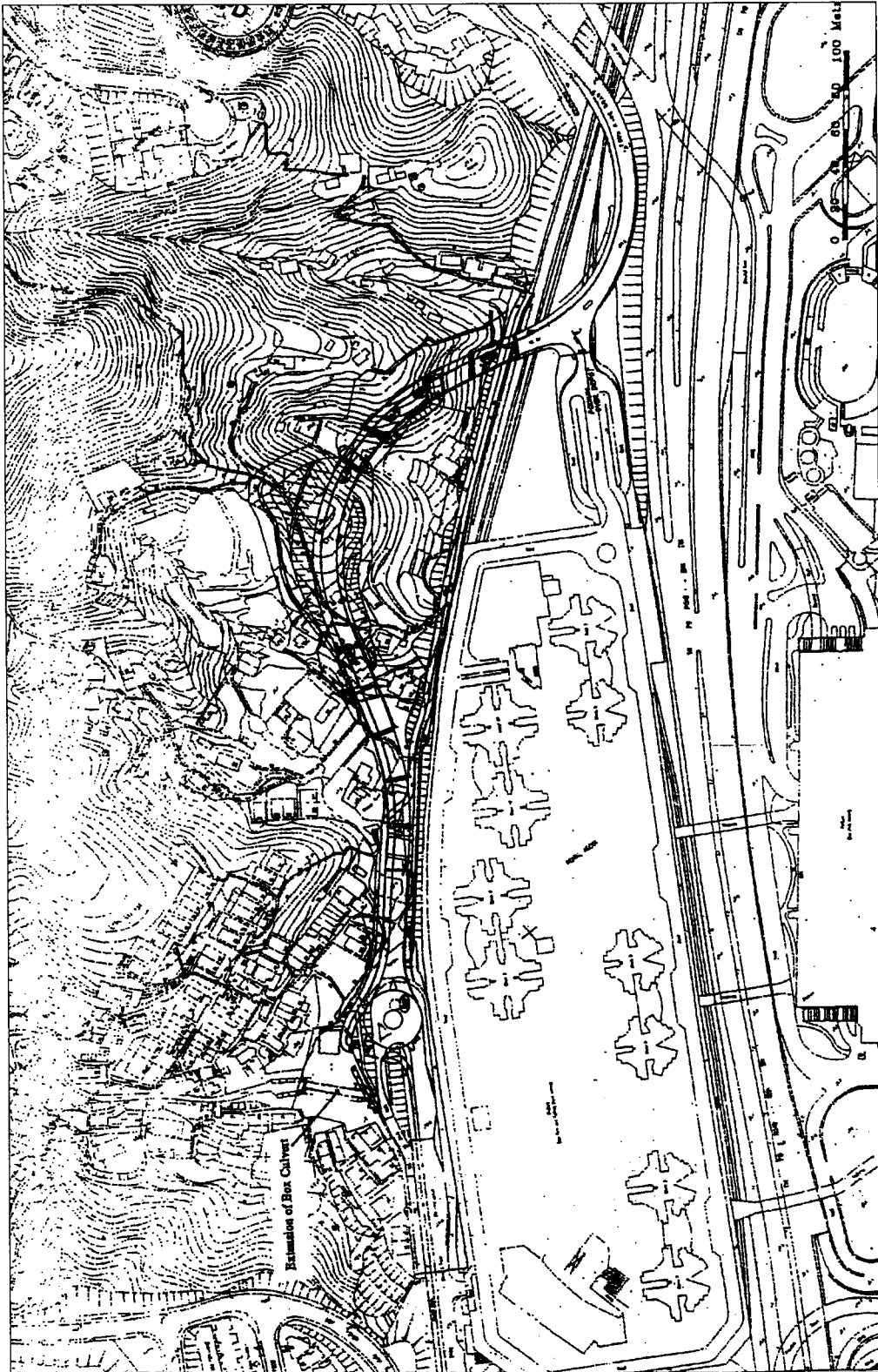


Figure 1.1 Project Area

2. ENVIRONMENTAL STATUS

2.1 Air Quality

2.1.1 Monitoring Requirements

In accordance with the EM&A Manual, air quality impact monitoring was conducted in terms of 1-hour and 24-hour TSP at the designated monitoring locations.

Continuous 24-hour TSP monitoring was performed once in every six days while 1-hour TSP monitoring was performed 3 times in every 6 days. The Action and Limit (AL) levels for air quality is attached in **Appendix A** while the tentative monitoring schedules for the current and next reporting months are attached in **Appendix B**.

2.1.2 Monitoring Locations

The designated impact air quality monitoring stations are listed in **Table 2.1** and are shown in **Figure 2.1**.

Table 2.1 Air Quality Monitoring Locations

Monitoring Station	Location
A1	Village house at Lok Lo Ha Village
A2	Lok Lo Ha Village House No. 104
A3	Village House near Tsun King Road

2.1.3 Summary of Monitoring Results

In this report, the results for the impact air quality monitoring conducted in January 2003 at the three designated locations were evaluated. **Table 2.2** summarises the ranges and mean of the 24-hour and 1-hour TSP monitoring results carried out in the reporting period. Detailed results, including graphical plots and relevant field logs, are presented in **Appendix C** and **D**. Meanwhile, **Appendix F** shows the meteorological conditions during the monitoring days.

Table 2.2 Summary of 24 and 1-hour TSP Monitoring Results

Parameter	Monitoring Location	Mean TSP Levels ($\mu\text{g}/\text{m}^3$)	Range ($\mu\text{g}/\text{m}^3$)	No. of Exceedance	
				Action Levels	Limit Levels
24 – hour TSP	A1	88.3	48 – 124	0	0
	A2	84.8	41 – 121	0	0
	A3	90.7	71 – 106	0	0
1 – hour TSP	A1	200.3	89 – 300	0	0
	A2	154.6	96 – 222	0	0
	A3	162.4	89 – 237	0	0

As can be seen from the table above, all measured 24-hour TSP and 1-hour TSP monitoring data were below the criteria as set out in the Action and Limit Levels in **Appendix A**.

Over the reporting period, the local weather conditions during the monitoring were mainly sunny or cloudy. From field logs, the major dust sources during samplings near the designated stations included road dusts, vehicle emissions from traffic in Lok Shun Path and construction works at Road D15 Site. The major construction works carried out at Road D15 Site over the reporting period were mainly utility diversion, slope cutting, drainage works, fabrication precast beams,

construction of pile caps and piers, construction of retaining walls & stairs, noise barrier and waterworks. Meanwhile, it was also observed that there were construction activities carried out by sites that were not related to this Project in the vicinity of the monitoring stations.

Comparing with last month monitoring results (December 2002), the calculated mean 24-hour TSP and 1-hour TSP levels at all stations are higher in this reporting period.

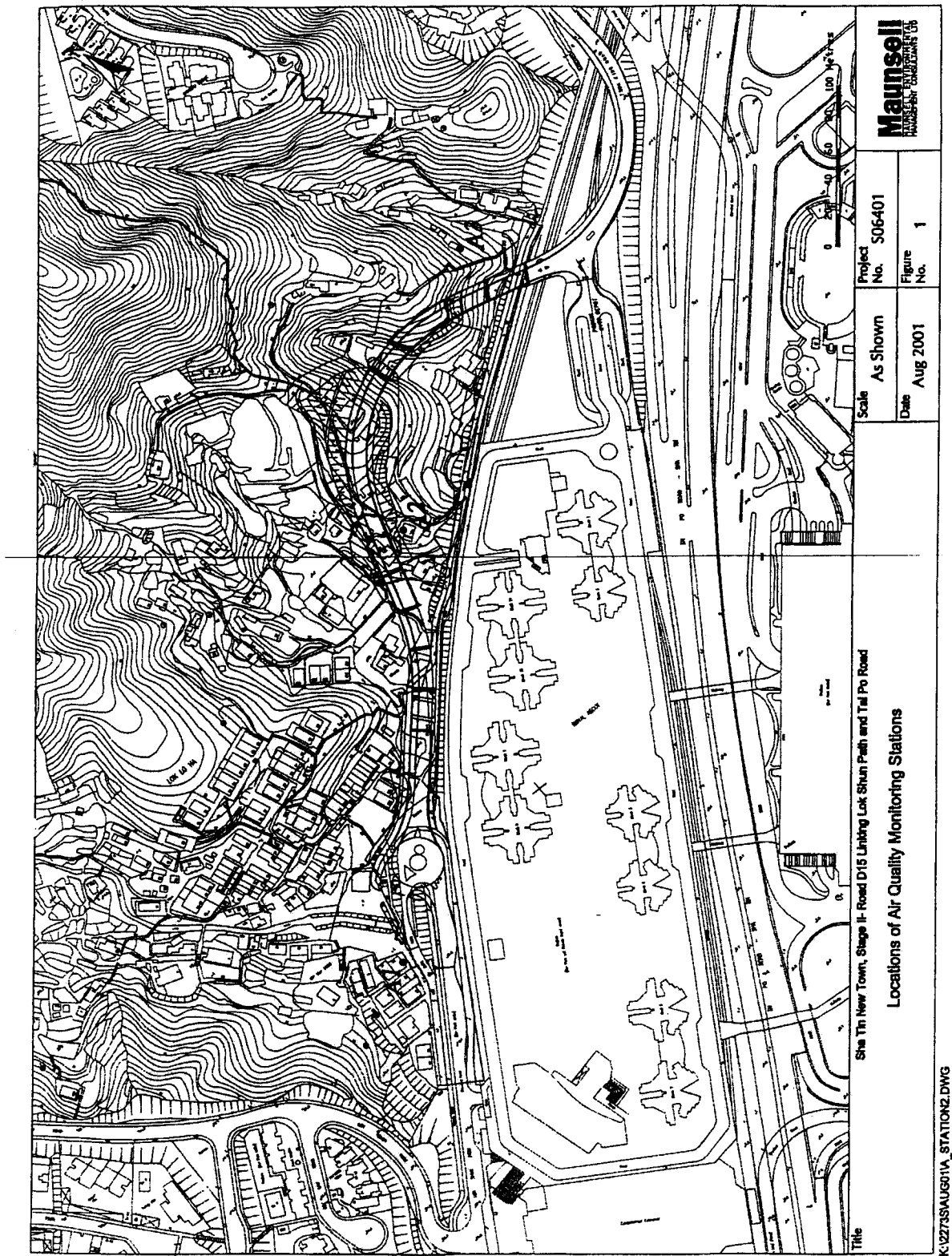


Figure 2.1 Air Quality Monitoring Locations

2.2 Noise

2.2.1 Monitoring Requirements

Impact noise monitoring was conducted once in every six days at the five designated monitoring locations in accordance with specifications in the EM&A Manual. The duration of sampling was 30 minutes. The Action and Limit levels for noise monitoring are attached in **Appendix A** while the tentative monitoring schedules for the current and next reporting months are attached in **Appendix B**.

2.2.2 Monitoring Locations

The impact noise monitoring locations are presented in **Table 2.3** and shown in **Figure 2.2**.

Table 2.3 Noise Monitoring Locations

Monitoring Location	Measurement	Location
N1	Façade	Lok Lo Ha Village House No. 3B
N2	Façade	Lok Lo Ha Village House No. 32A
N3	Façade	Royal Ascot Block 9, Flat C
N4	Façade	Lok Lo Ha Village House No. 97
N5	Façade	Village near Royal Ascot

2.2.3 Summary of Monitoring Results

In this report, the results for the impact noise monitoring conducted in January 2003 at the five designated locations were evaluated. The monitoring results obtained are summarised in **Table 2.4** below. Detailed results, including graphical plots and relevant field logs, are presented in **Appendix E**. Meanwhile, **Appendix F** shows the meteorological conditions during the monitoring days.

Table 2.4 Summary of Noise Monitoring Results

Parameter	Monitoring Location	Range of Results dB(A)	No. of Exceedance	
			Action Levels	Limit Levels
30-minute Noise Measurement (Leq)	N1	62.1 – 90.0	0	1
	N2	63.7 – 69.4		0
	N3	60.9 – 61.7		0
	N4	58.0 – 62.0		0
	N5	58.8 – 67.5		0

One measured noise level at monitoring station N1 had exceeded the relevant Limit Level as shown in **Appendix A**. The measured level of 90.0 dB(A) is 15 dB(A) above the Limit Level and was monitored on 15 January 2003 (Time 13:00 to 13:30). Consequently, the Event and Action Plan for Noise as set out in **Appendix G** was triggered and the details are discussed in **Section 3.2**.

Over the reporting period, the local weather conditions during the sampling were mainly sunny or cloudy, while all monitoring was conducted with wind speed of below 1.4 m/s. Traffic and construction activities were the major noise sources identified at the five monitoring locations. Meanwhile it was noted from field log that excavation and sheet piling activities, crane operations

and movement of heavy vehicles (including dump truck) were present in the vicinity of the five monitoring stations during the monitoring.

Comparing with the monitoring results recorded in the last reporting period, apart from the exceedance, the measured noise levels during this reporting month at all stations were similar. According to the ad-hoc site inspection, at the time of exceedance, sheet piling activities were conducted near Station N1 at Noise Barrier No. 1.

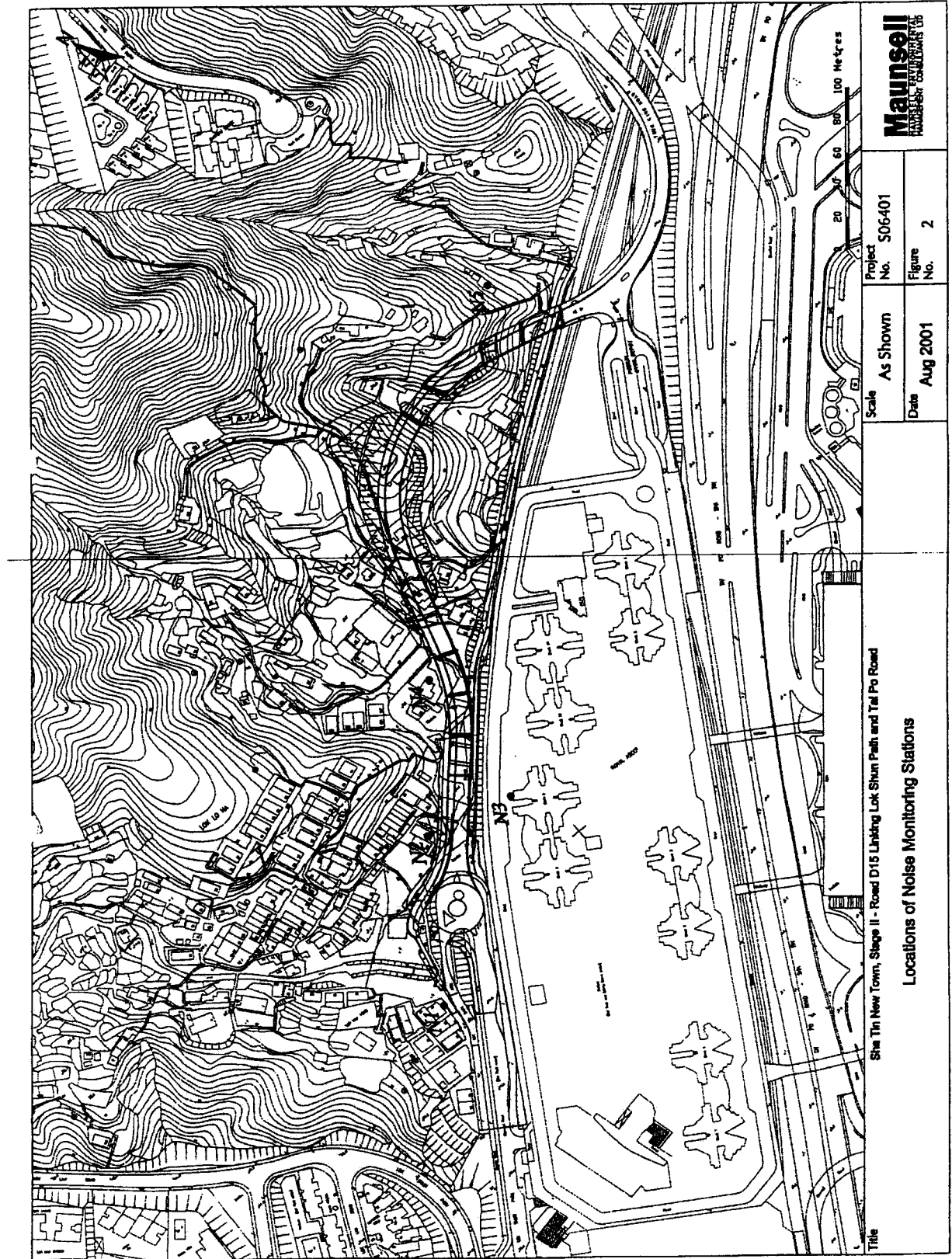


Figure 2.2 Noise Monitoring Locations

3. ENVIRONMENTAL AUDIT

3.1 General

In the last monthly EM&A report, one environmental issue was raised:

- Improvements in the implementation of mitigation measures of the stream near Lok Shun Path roundabout are required.

From site inspection, it was noted that the maintenance of the stream near Lok Shun Path roundabout was still not adequate. **Table 3.1** summarises the date and type of site inspections carried out during the reporting period.

Table 3.1 Summary of Site Inspection during the Reporting Period

Date	Type of Inspection
10 January 2003 (Friday)	Regular Site Inspection
17 January 2003 (Friday)	Regular Site Inspection
21 January 2003 (Tuesday)	Regular / Ad-hoc Site Inspection
28 January 2003 (Tuesday)	Regular Site Inspection

Over the reporting period, the major construction work at the Site include:

- Utility diversion
- Slope cutting at CH300-400 with associated slope drainage
- Drainage works
- Fabrication precast beams A1-A2-A3 & A4-A5
- Construction of pile caps at A2, A3 A4 and pier A3, A4
- Construction of pile Cap & Pier C2
- Retaining walls and stairs construction
- Noise barrier construction, including demolition existing retaining wall for noise barrier No.1, fabrication noise barrier and piling works.
- Drainage works (other than slope drainage), including construction of 1400 box culvert & 1500 pipe, drainage works at Lok Ha Lo roundabout and remaining drainage works
- Waterworks

3.2 Assessment of Environmental Monitoring Results

In this reporting month, there was in total one incident where the monitoring result had exceeded the Limit Level specified in **Appendix A**. The exceedance occurred for Noise measured at 13:00 to 13:30 on 15 January 2003 at monitoring station N1. The monitoring result was already discussed in **Section 2** of the report and are summarised in **Table 3.2** and **Table 3.3** below.

Table 3.2 Summary of Environmental Monitoring

Item	Parameter	Monitoring Period	Total No. of Samples Taken (on all stations)	No. of Exceedance	
				Action Levels	Limit Levels
1	24 – hour TSP	01/01/03 to 31/01/03	18	0	0
2	1 – hour TSP	01/01/03 to 31/01/03	48	0	0
3	30-minute Noise Measurement (Leq)	01/01/03 to 31/01/03	25	0	1

Table 3.3 Summary of Non-Compliance with Relevant Criteria

Location	Parameter	Date & Time of Exceedance	Measured Level (dB(A))	Action Level (dB(A))	Type of Exceedance
Lok Lo Ha Village House No. 3B (Station N1)	30-minute Noise Measurement (Leq)	15 January 2003 13:00 to 13:30	90.0	75.0	Limit Level (by 15dB(A))

As shown in **Table 3.3**, the measured level of 90.0dB(A) at Station N1 is 15dB(A) above the Limit Level. Since exceedances in Limit Level had occurred, the Event and Action Plan for Noise attached in **Appendix G** was triggered. An ad-hoc site inspection was carried out on 21 January 2003 by ET, MCAL and BCCL to investigate the exceedance. From discussion with MCAL, it was noted that at the time of the exceedances, sheet piling activities were carried out near Station N1 at Noise Barrier No. 1. In order to minimise noise impacts, it is reminded to the Contractor that temporary noise barrier should immediately be installed fronting the Noise Sensitive Receiver at the onset of construction to screen the anticipated high construction noise throughout the construction period. A Follow-up Action Check-list was set up in regard to the exceedance in Limit Level. It was noted that no exceedances were recorded in the subsequent noise monitoring on 21 January 2003.

3.3 Environmental Complaints

No environmental complaints had been received against the construction site in this reporting month. **Table 3.4** shows the summary record for this reporting month while **Table 3.5** summarises the complaint statistics from the commencement of the Project to date. **Appendix I** listed the details of all the complaints received on the construction site.

Table 3.4 Environmental Complaints / Enquiry Received in the Reporting Month

Complaint No.	Received date & Time	Description (inc. location/ nature of complaint)	Follow-up Action Taken	Recommended Mitigation Measures	Status/ Remarks
N/a	N/a	N/a	N/a	N/a	N/a

Table 3.5 Summary of Total Number of Complaints Received to date

Total No. of Complaints to date	No. of Complaints in this reporting period	No. of Active Complaints	No. of Inactive/Closed Complaints
2	0	N/a	2

3.4 Assessment of Mitigation Measures

Table 3.6 presented the status of the major mitigation measures identified during site inspection.

Table 3.6 Summary of Major Mitigation Measures at the Site

Type	Mitigation Measure	Comments
Noise	Temporary purposed-built Noise Barrier	<ul style="list-style-type: none"> Constructed based on the design in the Construction Noise Mitigation Proposal.
Water	Wheel Washing Facility	<ul style="list-style-type: none"> Installed and in operation.
	Sand/Silt Removal Facilities	<ul style="list-style-type: none"> Wastewater treatment systems are installed to treat site-runoffs and water from piling works Another treatment system was installed to treat wastewater from pilling works near Bridge C.
	Measures along stream-banks north-east of Lok Shun Path Roundabout	<ul style="list-style-type: none"> Concrete, sandbags, sump pits and pumps were placed/installed along the banks to prevent construction debris and site run-off from entering the stream untreated.
	Diversion of Stream Course via drainage pipe	<ul style="list-style-type: none"> Installed at the existing channel.
Wastewater	Water Reuse at wheel washing facility and site investigation drilling works.	Implemented
Land Contamination	Metal trays are placed underneath stationary machines where there are potential of oil leakage	Implemented
Air	Provide plastic sheeting covers on exposed soils	Implemented
	Regular water spraying on areas where there is likely generation of dust	Implemented
	Impervious sheeting was placed around the working area near monitoring station A1	Implemented

It was noted from the site inspection that maintenance of the stream near Lok Shun Path roundabout was still not adequate, therefore it was recommended to the Contractor that more mitigation measures should be installed along the stream, including the additional of sandbags on the banks and the provision of more filters. Meanwhile, it was noted that more sprinklers should be provided along the haul road to minimize the dust impacts.

4. FUTURE KEY ISSUE AND RECOMMENDATION

There are two environmental issues that will need to be addressed in the next reporting month:

- Improvements in the implementation of mitigation measures of the stream near Lok Shun Path roundabout are required;
- More sprinklers should be provided along the haul road.

The updated work program for the following months are attached in **Appendix J** while the monitoring tentative schedule for the next reporting month are attached in **Appendix B**.

APPENDIX A:

Action and Limit Levels

Action and Limit Levels for 24-hour TSP

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
A1	156	260
A2	155	
A3	153	

Action and Limit Levels for 1-hour TSP

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
A1	371	500
A2	378	
A3	368	

Action / Limit Levels for Construction Noise

Time Period	Action Level	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		60/65/70** dB(A)
2300- 0700 hours of next day		45/50/55** dB(A)

** to be selected based on Area Sensitivity Rating

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.

APPENDIX B:

**Tentative Schedule for Impact
Air Quality and Noise
Monitoring**

1. Tentative Schedule for Current Reporting Month – January 2003

Contract No. ST77/01
 Sha Tin New Town, Stage II
 Road D15 Linking Lok Shun Path and Tai Po Road

Tentative Time Schedule for Construction Phase Dust Monitoring for January 2003

Jan-03	Day	Start Time	
		24-hr TSP	1-hr TSP
1	Wed	x	x
2	Thu	10:30	09:00
3	Fri	x	11:00&14:00
4	Sat	x	x
5	Sun	x	x
6	Mon	x	x
7	Tue	x	x
8	Wed	10:30	09:00
9	Thu	x	11:00&14:00
10	Fri	x	x
11	Sat	x	x
12	Sun	x	x
13	Mon	x	x
14	Tue	10:30	09:00
15	Wed	x	11:00&14:00
16	Thu	x	x
17	Fri	x	x
18	Sat	x	x
19	Sun	x	x
20	Mon	10:30	09:00
21	Tue	x	11:00&14:00
22	Wed	x	x
23	Thu	x	x
24	Fri	10:30	09:00
25	Sat	x	x
26	Sun	x	x
27	Mon	x	11:00&14:00
28	Tue	x	x
29	Wed	x	x
30	Thu	10:30	09:00
31	Fri	x	x

Contract No. ST77/01
 Sha Tin New Town, Stage II
 Road D15 Linking Lok Shun Path and Tai Po Road
 Tentative Time Schedule for Construction Phase Noise Monitoring for January 2003

Jan-03	Day	Start Time				
		N1	N2	N3	N4	N5
1	Wed	x	x	x	x	x
2	Thu	x	x	x	x	x
3	Fri	14:30	13:30	11:30	10:45	10:00
4	Sat	x	x	x	x	x
5	Sun	x	x	x	x	x
6	Mon	x	x	x	x	x
7	Tue	x	x	x	x	x
8	Wed	x	x	x	x	x
9	Thu	14:30	13:30	11:30	10:45	10:00
10	Fri	x	x	x	x	x
11	Sat	x	x	x	x	x
12	Sun	x	x	x	x	x
13	Mon	x	x	x	x	x
14	Tue	x	x	x	x	x
15	Wed	14:30	13:30	11:30	10:45	10:00
16	Thu	x	x	x	x	x
17	Fri	x	x	x	x	x
18	Sat	x	x	x	x	x
19	Sun	x	x	x	x	x
20	Mon	x	x	x	x	x
21	Tue	14:30	13:30	11:30	10:45	10:00
22	Wed	x	x	x	x	x
23	Thu	x	x	x	x	x
24	Fri	x	x	x	x	x
25	Sat	x	x	x	x	x
26	Sun	x	x	x	x	x
27	Mon	14:30	13:30	11:30	10:45	10:00
28	Tue	x	x	x	x	x
29	Wed	x	x	x	x	x
30	Thu	x	x	x	x	x
31	Fri	x	x	x	x	x

2. Tentative Schedule for Next Reporting Month – February 2003

Contract No. ST77/01

Sha Tin New Town, Stage II

Road D15 Linking Lok Shun Path and Tai Po Road

Tentative Time Schedule for Construction Phase Dust Monitoring for February 2003

Feb-03	Day	Start Time	
		24-hr TSP	1-hr TSP
1	Sat	x	x
2	Sun	x	x
3	Mon	x	x
4	Tue	x	x
5	Wed	x	x
6	Thu	10:30	9:00
7	Fri	x	11:00&14:00
8	Sat	x	x
9	Sun	x	x
10	Mon	x	x
11	Tue	x	x
12	Wed	10:30	9:00
13	Thu	x	11:00&14:00
14	Fri	x	x
15	Sat	x	x
16	Sun	x	x
17	Mon	x	x
18	Tue	10:30	9:00
19	Wed	x	11:00&14:00
20	Thu	x	x
21	Fri	x	x
22	Sat	x	x
23	Sun	x	x
24	Mon	10:30	9:00
25	Tue	x	11:00&14:00
26	Wed	x	x
27	Thu	x	x
28	Fri	10:30	9:00

Contract No. ST77/01

Sha Tin New Town, Stage II

Road D15 Linking Lok Shun Path and Tai Po Road

Tentative Time Schedule for Construction Phase Noise Monitoring for February 2003

Feb-03	Day	Start Time				
		N1	N2	N3	N4	N5
1	Sat	x	x	x	x	x
2	Sun	x	x	x	x	x
3	Mon	x	x	x	x	x
4	Tue	x	x	x	x	x
5	Wed	x	x	x	x	x
6	Thu	x	x	x	x	x
7	Fri	14:30	13:30	11:30	10:45	10:00
8	Sat	x	x	x	x	x
9	Sun	x	x	x	x	x
10	Mon	x	x	x	x	x
11	Tue	x	x	x	x	x
12	Wed	x	x	x	x	x
13	Thu	14:30	13:30	11:30	10:45	10:00
14	Fri	x	x	x	x	x
15	Sat	x	x	x	x	x
16	Sun	x	x	x	x	x
17	Mon	x	x	x	x	x
18	Tue	x	x	x	x	x
19	Wed	14:30	13:30	11:30	10:45	10:00
20	Thu	x	x	x	x	x
21	Fri	x	x	x	x	x
22	Sat	x	x	x	x	x
23	Sun	x	x	x	x	x
24	Mon	x	x	x	x	x
25	Tue	14:30	13:30	11:30	10:45	10:00
26	Wed	x	x	x	x	x
27	Thu	x	x	x	x	x
28	Fri	x	x	x	x	x

APPENDIX C:

**24-Hour TSP Impact
Monitoring Results and Plots**

1. 24-hour TSP Monitoring Results

Monitoring Station A1 (Lok Lo Ha Village House No. 3B)

Date	Filter Weight (g)		Flow Rate (m ³ /min.)		Elapse Time		Total Sampling Time (min.)	Conc. (µg/m ³)	Weather Condition
	Initial	Final	Initial	Final	Initial	Final			
2-Jan-03	2.8185	2.9532	1.11	1.11	10873.12	10897.12	1440	84	Cloudy
8-Jan-03	2.8540	2.9382	1.11	1.11	10900.12	10924.12	1440	48	Fine
14-Jan-03	2.8143	2.9671	1.11	1.11	10927.12	10951.12	1440	92	Fine
20-Jan-03	2.8225	3.0206	1.11	1.11	10954.12	10978.12	1440	124	Fine
24-Jan-03	2.8165	2.9816	1.11	1.11	10981.12	11005.12	1440	103	Cloudy
30-Jan-03	2.8395	2.9652	1.11	1.11	11008.12	11032.12	1440	79	Fine
							Min	48	
							Max	124	
							Average	88.3	

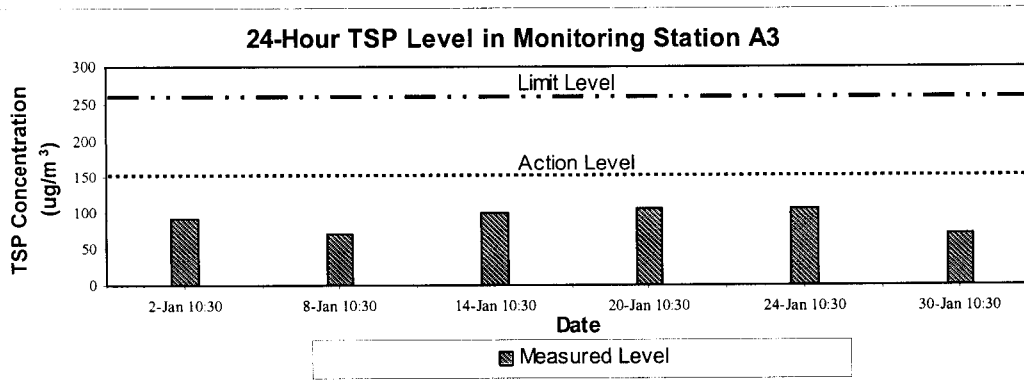
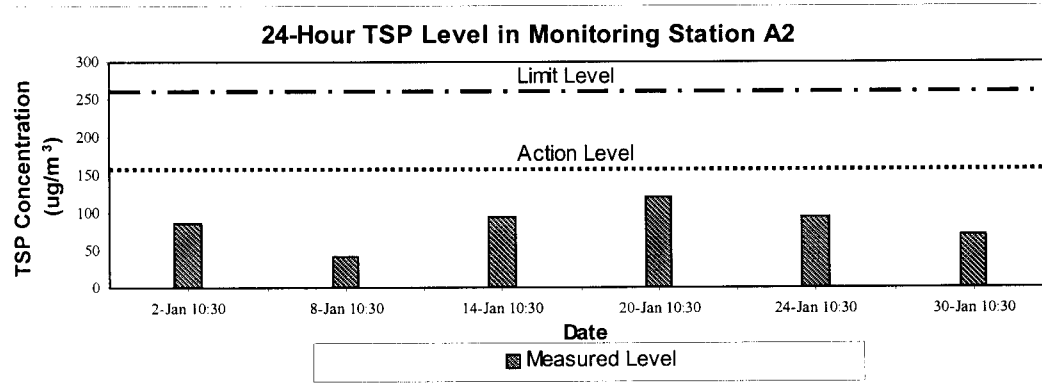
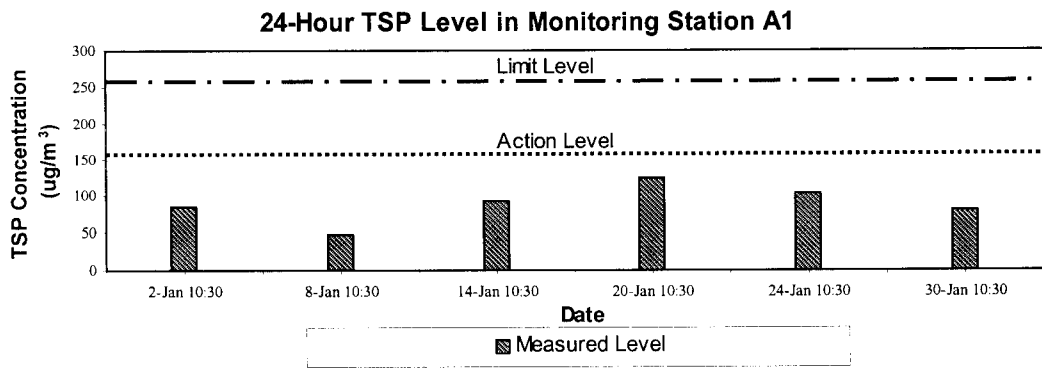
Monitoring Station A2 (Lok Lo Ha Village House No. 104)

Date	Filter Weight (g)		Flow Rate (m ³ /min.)		Elapse Time		Total Sampling Time (min.)	Conc. (µg/m ³)	Weather Condition
	Initial	Final	Initial	Final	Initial	Final			
2-Jan-03	2.8020	2.9589	1.27	1.27	1328.45	1352.45	1440	86	Cloudy
8-Jan-03	2.8602	2.9546	1.27	1.27	1355.45	1379.45	1440	41	Fine
14-Jan-03	2.8096	2.9830	1.27	1.27	1382.45	1406.45	1440	95	Fine
20-Jan-03	2.8978	3.7198	1.27	1.27	1409.45	1433.45	1440	121	Fine
24-Jan-03	2.8337	3.6076	1.27	1.27	1436.45	1460.45	1440	95	Cloudy
30-Jan-03	2.7843	2.9740	1.27	1.27	1463.45	1487.45	1440	71	Fine
							Min	41	
							Max	121	
							Average	84.8	

Monitoring Station A3 (Village House near Tsun King Road)

Date	Filter Weight (g)		Flow Rate (m ³ /min.)		Elapse Time		Total Sampling Time (min.)	Conc. (µg/m ³)	Weather Condition
	Initial	Final	Initial	Final	Initial	Final			
2-Jan-03	2.8032	2.9655	1.24	1.24	10051.84	10075.84	1440	91	Cloudy
8-Jan-03	2.7929	2.9196	1.24	1.24	10078.84	10102.84	1440	71	Fine
14-Jan-03	2.7998	2.9806	1.24	1.24	10105.84	10129.84	1440	101	Fine
20-Jan-03	2.8712	3.0600	1.24	1.24	10133.84	10157.84	1440	106	Fine
24-Jan-03	2.8115	2.9972	1.24	1.24	10160.84	10184.84	1440	104	Cloudy
30-Jan-03	2.7888	2.9554	1.24	1.24	10187.84	10211.84	1440	71	Fine
							Min	71	
							Max	106	
							Average	90.7	

2. Plots for 24-hour Monitoring Results



APPENDIX D:

**1-Hour TSP Impact
Monitoring Results and Plots**

1. 1-hour TSP Monitoring Results

Station A1 (Lok Lo Ha Village House No. 3B)

Date	Time of sampling	Concentration, $\mu\text{g}/\text{m}^3$
02-Jan-03	0900 – 1000	140
03-Jan-03	1100 – 1200	117
03-Jan-03	1400 – 1500	158
08-Jan-03	0900 – 1000	287
09-Jan-03	1100 – 1200	180
09-Jan-03	1400 – 1500	164
14-Jan-03	0900 – 1000	185
15-Jan-03	1100 – 1200	213
15-Jan-03	1400 – 1500	197
20-Jan-03	0900 – 1000	261
21-Jan-03	1100 – 1200	224
21-Jan-03	1400 – 1500	258
24-Jan-03	0900 – 1000	300
27-Jan-03	1100 – 1200	171
27-Jan-03	1400 – 1500	89
30-Jan-03	0900 – 1000	261
	Average	200.3
	Min	89
	Max	300

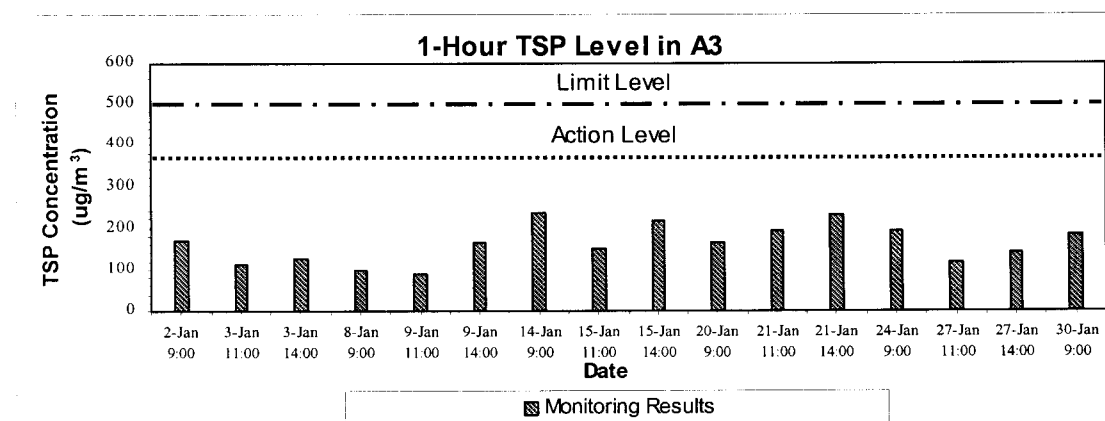
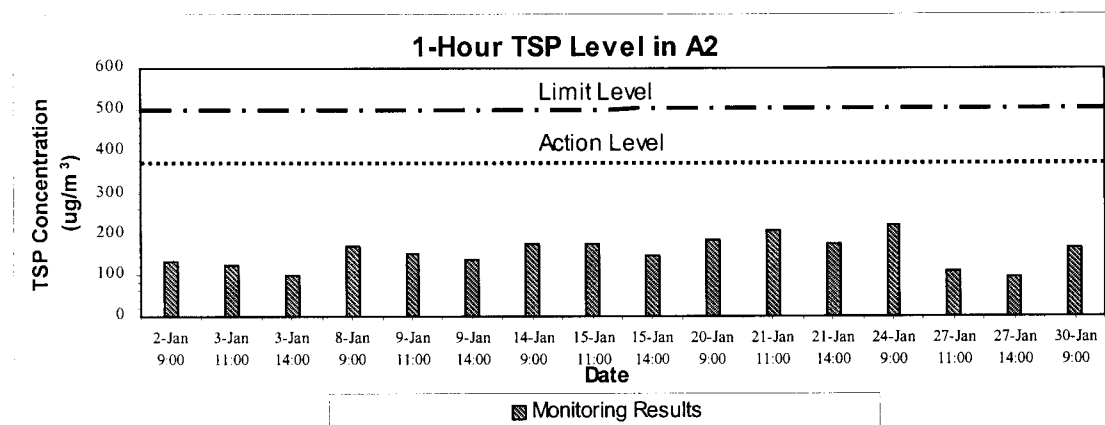
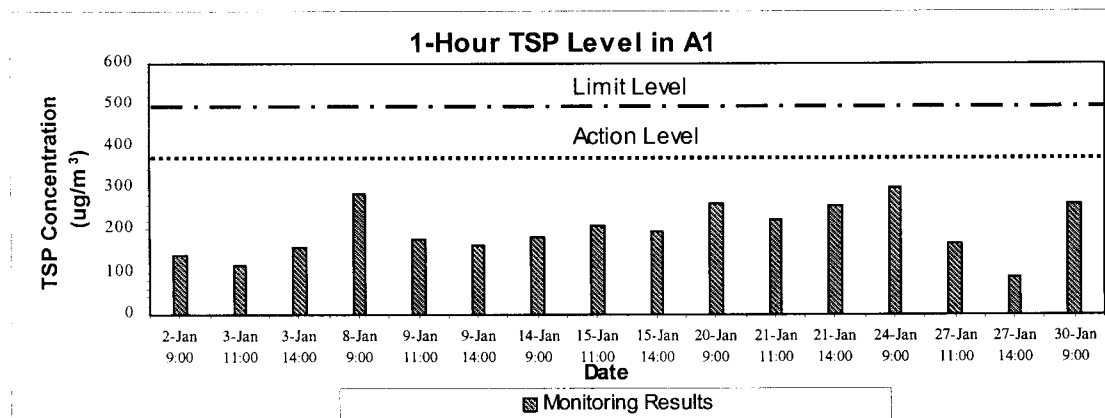
Station A2 (Lok Lo Ha Village House No. 104)

Date	Time of sampling	Concentration, $\mu\text{g}/\text{m}^3$
02-Jan-03	0900 – 1000	133
03-Jan-03	1100 – 1200	125
03-Jan-03	1400 – 1500	101
08-Jan-03	0900 – 1000	171
09-Jan-03	1100 – 1200	151
09-Jan-03	1400 – 1500	135
14-Jan-03	0900 – 1000	176
15-Jan-03	1100 – 1200	177
15-Jan-03	1400 – 1500	147
20-Jan-03	0900 – 1000	182
21-Jan-03	1100 – 1200	207
21-Jan-03	1400 – 1500	175
24-Jan-03	0900 – 1000	222
27-Jan-03	1100 – 1200	109
27-Jan-03	1400 – 1500	96
30-Jan-03	0900 – 1000	167
	Average	154.6
	Min	96
	Max	222

Station A3 (Village House near Tsun King Road)

Date	Time of sampling	Concentration, $\mu\text{g}/\text{m}^3$
02-Jan-03	0900 – 1000	169
03-Jan-03	1100 – 1200	114
03-Jan-03	1400 – 1500	126
08-Jan-03	0900 – 1000	99
09-Jan-03	1100 – 1200	89
09-Jan-03	1400 – 1500	163
14-Jan-03	0900 – 1000	237
15-Jan-03	1100 – 1200	152
15-Jan-03	1400 – 1500	216
20-Jan-03	0900 – 1000	167
21-Jan-03	1100 – 1200	196
21-Jan-03	1400 – 1500	231
24-Jan-03	0900 – 1000	194
27-Jan-03	1100 – 1200	117
27-Jan-03	1400 – 1500	144
24-Jan-03	0900 – 1000	185
	Average	162.4
	Min	89
	Max	237

2. Plots of 1-hour TSP Monitoring Results



APPENDIX E:

**Daytime 07:00 -19:00Hrs
Impact Noise Monitoring
Results and Plots**

1. Noise Monitoring Results

Monitoring Station N1 (Lok Lo Ha Village House No.3B)

Date	Noise Level for 30 min, dB(A)			
	Time of Sampling	L _{eq}	L ₁₀	L ₉₀
3-Jan-03	0920 - 0950	62.1	65.1	60.1
9-Jan-03	1040 - 1110	68.5	71.9	61.0
15-Jan-03	1300 - 1330	90.0	93.1	70.2
21-Jan-03	1130 - 1200	65.4	67.3	61.4
27-Jan-03	1340 - 1410	68.3	71.4	59.8

Min	62.1	65.1	59.8
Max	90.0	93.1	70.2

Monitoring Station N2 (Lok Lo Ha Village House No.32A)

Date	Noise Level for 30 min, dB(A)			
	Time of Sampling	L _{eq}	L ₁₀	L ₉₀
3-Jan-03	1300 - 1330	63.7	68.5	55.7
9-Jan-03	1300 - 1330	64.0	67.0	59.4
15-Jan-03	1335 - 1405	69.4	72.7	64.9
21-Jan-03	1300 - 1330	67.3	68.7	65.9
27-Jan-03	1300 - 1330	66.9	71.4	61.4

Min	63.7	67.0	55.7
Max	69.4	72.7	65.9

Monitoring Station N3 (Royal Ascot Block 9, Flat C)

Date	Noise Level for 30 min, dB(A)			
	Time of Sampling	L _{eq}	L ₁₀	L ₉₀
3-Jan-03	1115 - 1145	60.9	63.8	55.8
9-Jan-03	1130 - 1200	60.9	64.4	56.0
15-Jan-03	1115 - 1145	61.7	64.8	57.2
21-Jan-03	1045 - 1115	61.2	65.0	57.5
27-Jan-03	1130 - 1200	61.3	65.2	56.6

Min	60.9	63.8	55.8
Max	61.7	65.2	57.5

Monitoring Station N4 (Lok Lo Ha Village House No.97)

Date	Noise Level for 30 min, dB(A)			
	Time of Sampling	L _{eq}	L ₁₀	L ₉₀
3-Jan-03	0835 - 0905	59.8	62.2	55.0
9-Jan-03	1335 - 1405	60.0	62.8	56.9
15-Jan-03	1015 - 1045	61.8	64.0	58.9
21-Jan-03	1000 - 1030	62.0	64.2	58.1
27-Jan-03	1044 - 1114	58.0	61.0	54.3

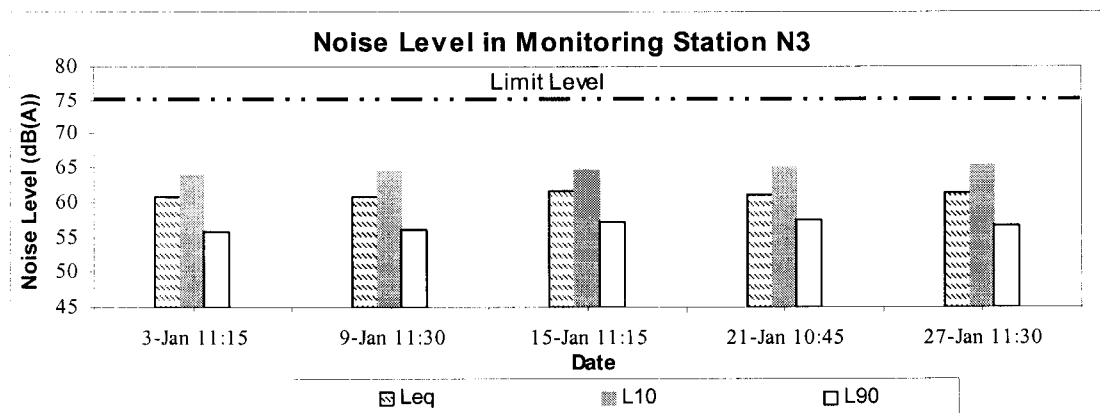
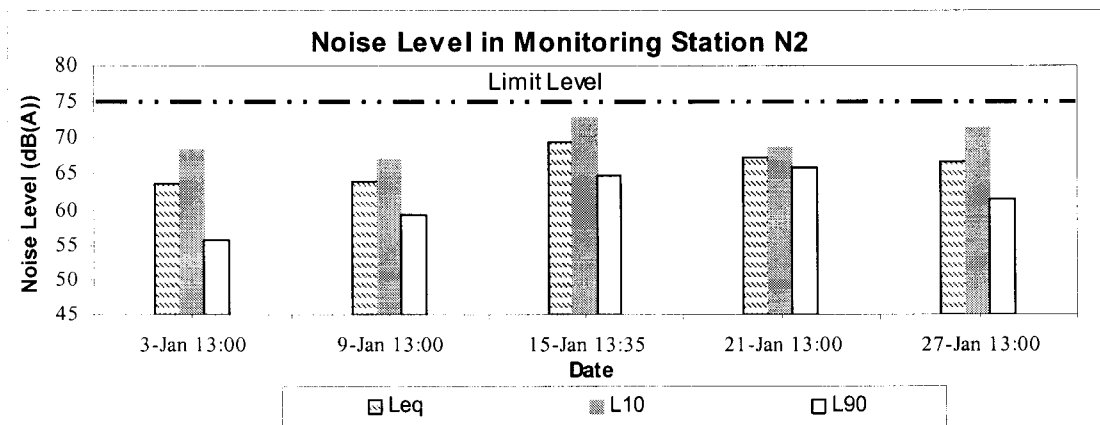
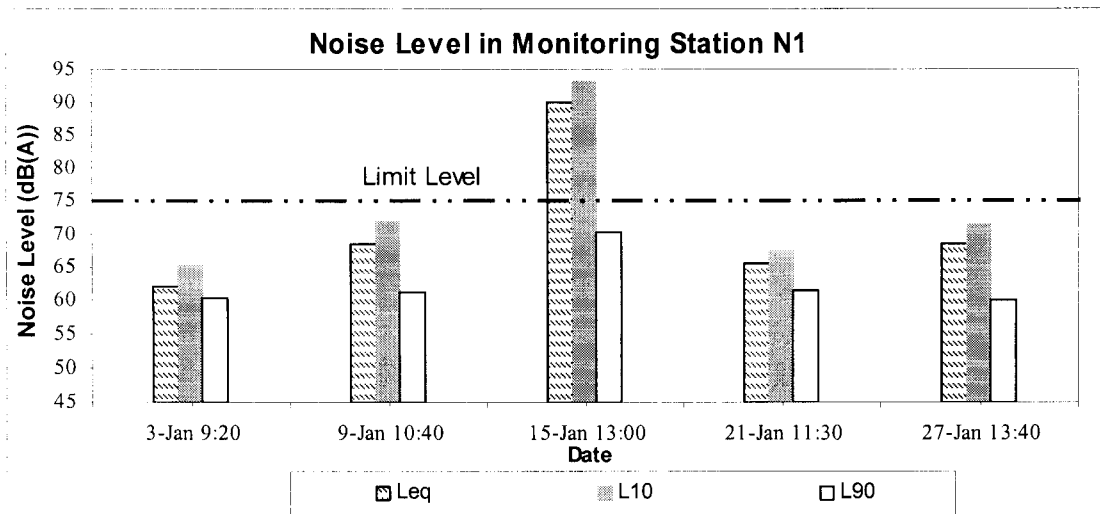
Min 58.0 61.0 54.3
 Max 62.0 64.2 58.9

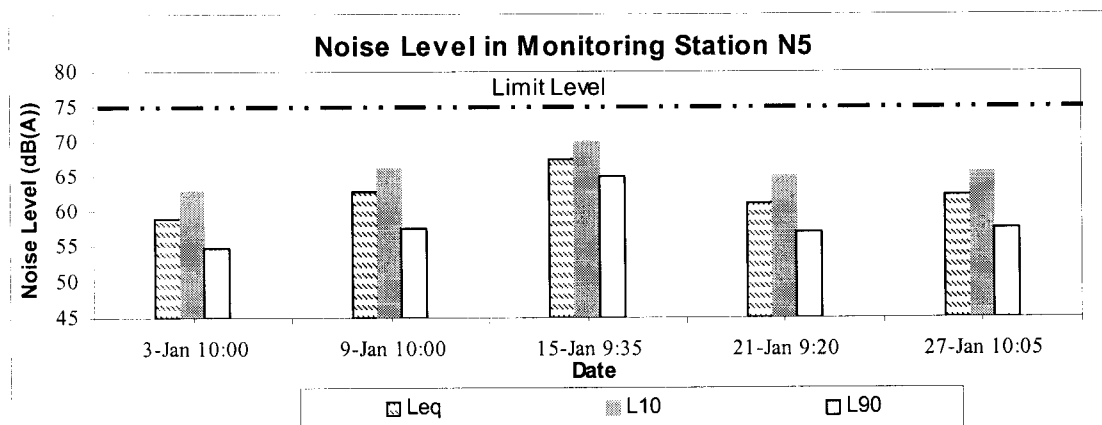
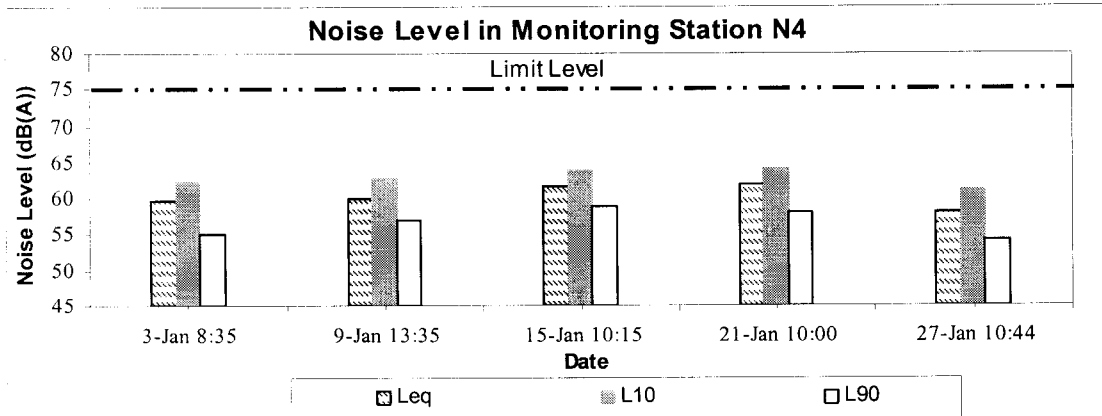
Monitoring Station N5 (Village House near Royal Ascot)

Date	Noise Level for 30 min, dB(A)			
	Time of Sampling	L _{eq}	L ₁₀	L ₉₀
3-Jan-03	1000 - 1030	58.8	62.7	54.7
9-Jan-03	1000 - 1030	62.8	66.1	57.5
15-Jan-03	0935 - 1005	67.5	70.0	65.0
21-Jan-03	0920 - 0950	61.2	65.1	56.9
27-Jan-03	1005 - 1035	62.3	65.5	57.6

Min 58.8 62.7 54.7
 Max 67.5 70.0 65.0

2. Plots of Noise Monitoring Results





APPENDIX F:

**Weather Conditions During
Monitoring Periods**

**Weather Condition during Monitoring Period
(From 2 to 30 January 2003)**

Date	Weather	Mean Air Temperature (°C)	Wind Speed (m/s)	Mean Relative Humidity (%)
2-Jan-03	Cloudy	16.4	0.9	78
3-Jan-03	Cloudy	15.5	0.9	66
8-Jan-03	Fine	13.0	1.3	72
9-Jan-03	Fine	15.2	1.3	68
14-Jan-03	Fine	16.9	1.0 – 1.3	57
15-Jan-03	Fine	16.3	1.3	64
20-Jan-03	Fine	18.1	1.3	73
21-Jan-03	Fine	16.9	1.3	74
24-Jan-03	Cloudy	16.3	1.5	79
27-Jan-03	Fine	15.2	1.3 – 1.5	69
30-Jan-03	Fine	16.0	1.3 – 1.5	74

APPENDIX G:

**Event and Action Plan for Air
Quality and Noise**

Event / Action Plan for Air Quality

EVENT	ACTION		
	ET	Engineer	CONTRACTOR
ACTION LEVEL			
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source; 2. Inform the Engineer and Contractor; 3. Repeat measurement to confirm finding; and 4. Increase monitoring frequency to daily. 	<ol style="list-style-type: none"> 1. Notify Contractor; and 2. Check monitoring data and Contractor's working methods. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice, if any; and 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source; 2. Inform the Engineer and Contractor; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily. 5. Discuss with Engineer for remedial actions required; 6. If exceedance continues, arrange meeting with the engineer; and 7. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Check monitoring data and Contractor's working methods; 4. Discuss with ET and Contractor on potential remedial actions; and 5. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Submit proposals for mitigation measures to the Engineer within 3 working days of notification; 2. Implement the agreed proposals; and 3. Amend proposal if appropriate.
LIMIT LEVEL			
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source; 2. Inform the Engineer and Contractor; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep EPD and the Engineer informed of results. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Check monitoring data and Contractor's working methods; 4. Discuss with ET and Contractor on potential remedial actions; and 5. Ensure remedial action properly implemented. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to the Engineer within 3 working days of notification; 3. Implement the agreed proposals; and 4. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source; 2. Inform the Engineer and Contractor; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily. 5. Investigate the causes of exceedance; 6. Arrange meeting with EPD and the Engineer to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep EPD and the Engineer informed of the results; and 8. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 4. Discuss among ET and Contractor on potential remedial actions; 5. Review Contractor's remedial action whenever necessary to assure their effectiveness; and 6. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to the Engineer 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 the Engineer until the exceedance is abated.

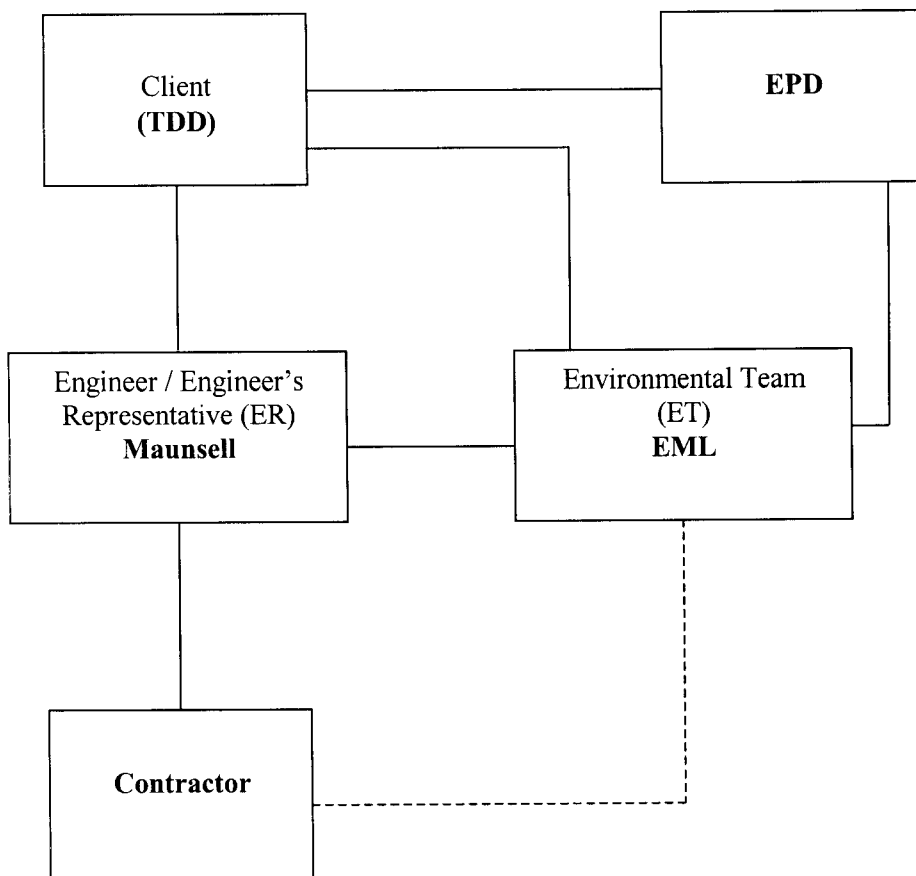
Event / Action Plan for Construction Noise

EVENT	ACTION	
	ET	Contractor
Action Level	<ol style="list-style-type: none"> 1. Notify the Engineer and Contractor; 2. Analyze investigation; 3. Require Contractor to propose measures for the analyzed noise problem; and 4. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to Environmental Team and the Engineer; and 2. Implement noise mitigation proposals.
Limit Level	<ol style="list-style-type: none"> 1. Notify the Engineer and Contractor; 2. Notify EPD; and 3. Require Contractor to implement mitigation measures; and increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Implement mitigation measures; and 2. Prove to Environmental Team and the Engineer effectiveness of measures applied.

APPENDIX H:

**Project Organisation and
Contacts of Key Personnel**

Figure H.1: Project Management Structure



Contacts of Key Personnel:

Organisation	Nature of Duty	Contact Personnel	Contact Number	
			Telephone	Fax
Territory Development Department (TDD)	Client	Mr. Stephen Wong	2301-1376	2721-8630
Maunsell Consultants Asia Ltd. (MCAL)	Engineer	Mr. Alan Kwong	2602-3433	2691-2649
Environmental Management Ltd. (EML)	Environmental Team	Mr. Lawrence Tso	2890-1090	2890-6901

APPENDIX I:

**Summary Records of
Complaints Received**

Complaint No.	Received date & Time	Description (inc. location/ nature of complaint)	Follow-up Action Taken	Recommended Measures	Status/ Remarks
C02-N1	Morning, 29/7/2002	<p>Around 9:30am on 29/7/02, police came on site to investigate a complaint of noise pollution emitted during rock breaking which carried out by the Contractor near the Site Office (near the box culvert and north Lok Shun Path Roundabout). The Contractor immediately halted the activity in response to police's advice</p>	<ul style="list-style-type: none"> Ad hoc site inspection was carried out on 31/7/02, jointly with the Engineer and Contractor The complaint log sheet, the investigation findings and recommendations on mitigation measures were submitted to the Engineer and Contractor. A letter, addressing to the complainant, will be sent to the police. 	<p>Mitigation actions:</p> <ul style="list-style-type: none"> Excavator-mounted breaker shall not be carried out within 125m from any nearby noise sensitive receivers and; Temporary purposed built barrier should be installed whenever there are high noise level construction activities. 	<p>The complaint was considered as ad hoc rather than continuous. It is therefore considered not necessary to increase the noise monitoring frequency</p> <p>File Closed.</p>
C02-N2	Night-time, 7 August, 2002	<ul style="list-style-type: none"> Nearby residents complained to police that a generator in Road D15 Site was operating in night-time near Lok Lo Ha Village. Police came to the site to investigate the complaint and inform watchmen to turn off the operating generator at around 8:30pm. The complaint was valid as it concerned with construction noise during the restricted hours. 	<ul style="list-style-type: none"> Ad hoc site inspection was carried out on 8 August 02, jointly with the Engineer and Contractor and ET. The complaint log sheet, the investigation findings and recommendations on mitigation measures were submitted to the Engineer and Contractor. A letter in both English and Chinese, addressing to the complainant, has been sent to the police. 	<p>Mitigation actions:</p> <ul style="list-style-type: none"> Under the Noise Control Ordinance, the carrying out of general construction work using powered mechanical equipment (including generators) during the restricted hours (between 7 p.m. and 7 a.m. or at any time on a general holiday (including Sunday) is prohibited unless a valid Construction Noise Permit is in force; A watchmen or site staff should be employed to check daily that all generators and plats are switched off after the permissible working hours. 	<p>File Closed.</p>

APPENDIX J:

**Updated Construction
Program**

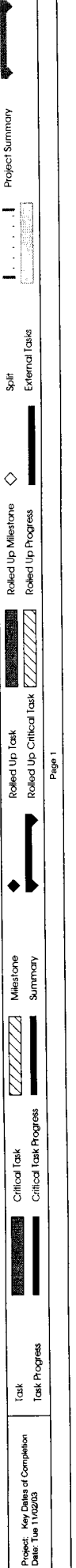
2003

Jan '03

Feb '03

Mar '03

ID	Task Name	Duration	Start
0	Key Dates of Completion	871 days	Wed 12/12/01
1	1 Section I (345 days + 13 working days F O 1)	360 days	Wed 12/12/01
2	2 Section II (822 days + 38 working days E O 1)	871 days	Wed 12/12/01
3			
4	3 General	682 days	Wed 12/12/01
5	3.1 Seeking EPD approval	53 days	Wed 12/12/01
6	3.2 Submission of mitigation proposal	97 days	Sun 03/02/02
7	3.3 Submission of Material, Method statement & ICE to RE	690 days	Wed 12/12/01
8	3.4 Site clearance including existing asbestos houses at Block	57 days	Sun 03/02/02
9	3.5 Site clearance including existing houses at Bridge C	61 days	Mon 01/04/02
10	3.6 Works with utility undertakers	690 days	Wed 12/12/01
11	3.7 Utility Diversion	590 days	Wed 03/04/02
12	3.8 Fabrication / Erection of RE Office	90 days	Tue 01/01/02
13	3.9 Condition Survey / Defect Survey	36 days	Thu 03/01/02
14	3.10 Erection of Temp. Fencing & Hoarding	141 days	Sun 10/02/02
15	3.11 Relocation of existing fence wall at house no. 85 B	79 days	Fri 15/03/02
16	3.12 Form temp access (from bridge A to B) & (from bridge C	130 days	Mon 25/02/02
17			
18	4 Earthworks	488 days	Tue 16/04/02
19	4.1 Forming access to Main Cutting CH 300-400	61 days	Tue 16/04/02
20	4.2 Slope Cutting at CH 300-400 with associated slope drain	151 days	Tue 01/10/02
21	4.3 Forming access to CH 400-500	61 days	Sat 01/06/02
22	4.4 Remaining slope cutting at retaining wall 7 and CH 400-	20 days	Sat 31/05/03
23	4.5 Remove the temporary access road to retaining wall 7	8 days	Wed 20/03/03
24	4.6 Formation of Cycle Track and Footpath nearby KCRC Rc	48 days	Mon 23/06/03
25			
26	5 Enticement Works (Section 1 & 1A)	422 days	Sun 02/02/02
27	5.1 General Clearance & Trial Pits Excavation	27 days	Sun 03/02/02
28	5.2 Drainage Works (pipelines 1.019-1.024, 7.022 & 15.000	275 days	Sat 02/03/02
29	5.4 Drainage Works (pipeline 1.011-1.013)	50 days	Fri 02/08/02
30	5.5 Drainage Works (pipeline 1.014-1.016)	77 days	Sat 21/09/02
31	5.6 Drainage Works (pipeline 1.000-1.004 & 2.000-2.001, 3.000	160 days	Sun 30/06/02
32	5.7 Drainage Works (pipeline 3.002-3.004)	31 days	Sat 01/03/03
33			
34	6 Bridge A	724 days	Mon 01/04/02
35	6.1 Procurement and Approval of Alternative I-beams	121 days	Wed 01/05/02
36	6.2 Set up Precast Yard	62 days	Fri 30/08/02
37	6.3 Fabrication precast beams A3-A4	42 days	Thu 31/10/02
38	6.4 Fabrication precast beams A1-A2, A3 & A4-A5	97 days	Thu 19/12/02
39	6.5 Ground Investigation	51 days	Mon 01/04/02
40	6.6 Piling Works at A1, A2, A3, A4 & A5	141 days	Wed 22/05/02
41	6.7 Construction of Pile Caps at A2, A3, A4 and Piers A3, A4	102 days	Thu 10/10/02
42	6.8 Construction of Abutment A5 and installation of bearing	60 days	Thu 28/08/03
43	6.9 Procurement, manufacturing and testing of bridge beam	176 days	Sat 15/06/02
44	6.10 Installation of bridge bearings at Pier A3 & A4	4 days	Mon 20/01/03
45	6.11 Erection of precast beams between A3 and A4	6 days	Fri 14/02/03
46	6.12 Cast in-situ decking between A3 & A4	60 days	Thu 20/02/03
47	6.13 Construction of Abutment A1 & Piers A2	96 days	Fri 11/04/03
48	6.14 Installation of bridge bearing at A1 & A2	4 days	Wed 16/07/03



ID	Task Name	Duration	Start	Dec 02	Jan 03	Feb 03	Mar 03
49	6.15 Erection of precast beams between A1 & A2	4 days	Sun 20/07/03				
50	6.16 Cast in-situ decking between A1 & A2	44 days	Thu 24/07/03				
51	6.17 Erection of precast beams between A2 & A3	4 days	Mon 27/10/03				
52	6.18 Cast in-situ decking between A2 & A3	44 days	Fri 31/10/03				
53	6.19 Erection of precast beams between A4 & A5	4 days	Sun 14/12/03				
54	6.20 Cast in-situ decking between A4 & A5	45 days	Thu 18/12/03				
55	6.21 Edge parapet A1-A4	31 days	Sun 01/02/04				
56	6.22 Edge parapet between A4 & A5	32 days	Sun 01/02/04				
57	6.23 Paving	21 days	Thu 04/03/04				
58							
59	7 Bridge B	648 days	Mon 08/02/02				
60	7.1 Fabrication of precast beams	62 days	Sat 12/04/03				
61	7.2 Form Temporary Access (B1-B2)	25 days	Mon 03/06/02				
62	7.3 Ground Investigation	45 days	Fri 02/08/02				
63	7.4 Piling Works at Abutment B1 & B2	199 days	Wed 13/11/02				
64	a) Piling Work at B1	45 days	Wed 13/11/02				
65	b) Piling Work at B2	34 days	Sun 27/04/03				
66	7.5 Construction of Abutment B1, B2 and stair 6	125 days	Wed 10/04/03				
67	a) Abutment B1	70 days	Wed 10/04/03				
68	b) Abutment B2	70 days	Sat 31/05/03				
69	c) Stair 6	45 days	Sat 05/07/03				
70	7.6 Procurement, manufacturing and testing of bridge beams	200 days	Sat 15/06/02				
71	7.7 Installation of bridge bearing at B1 & B2	14 days	Sat 09/08/03				
72	7.8 Erection of precast beams from B1 to B2	7 days	Fri 24/10/03				
73	7.9 Cast in-situ decking between B1 and B2	54 days	Fri 31/10/03				
74	7.10 Edge parapet	35 days	Wed 24/12/03				
75	7.11 Paving	45 days	Wed 26/01/04				
76							
77	8 Bridge C	658 days	Wed 22/05/02				
78	8.1 Fabrication of precast beams	63 days	Thu 12/12/02				
79	8.2 Ground Investigation at Pier C2	29 days	Wed 22/05/02				
80	8.3 Ground Investigation at Abutment C1	29 days	Fri 28/06/02				
81	8.4 Piling Works for Abutment C1	45 days	Sun 27/04/03				
82	8.5 Piling Works for Pier C2	67 days	Wed 18/09/02				
83	8.6 Construction of Abutment C1	70 days	Wed 11/06/03				
84	8.7 Construction of Pile Cap & Pier C2	115 days	Sun 24/11/02				
85	8.8 Procurement, manufacturing and testing of bridge beam	160 days	Sat 15/06/02				
86	8.9 Installation of bridge bearing at C2 & existing deck	5 days	Wed 19/03/03				
87	8.10 Erection of precast beams from existing deck to C2	5 days	Tue 08/04/03				
88	8.11 Cast in-situ decking from existing deck to C2	60 days	Sun 13/04/03				
89	8.12 Installation of bridge bearing at C1	8 days	Wed 20/08/03				
90	8.13 Erection of precast beams from C1 to C2	7 days	Thu 28/09/03				
91	8.14 Cast in-situ decking between C1 and C2	50 days	Thu 04/09/03				
92	8.15 Edge parapet	83 days	Fri 24/10/03				
93	8.16 Paving	55 days	Thu 15/01/04				
94							
95	9 Retaining Walls & Stairs	602 days	Sat 09/02/02				
96	9.1 Wall 1/Noise Barrier NO.3 Concrete Support	340 days	Wed 26/02/03				
97	9.2 Wall 2	332 days	Thu 06/03/03				

Project: Key Dates of Completion Date: Tue 11/02/03

Task: Task Progress

Milestone Summary

Rolled Up Milestone

Rolled Up Critical Task

Rolled Up Progress

Split External Tasks

Project Summary

8.9 Installation of bridge bearing at C2 & existing deck

8.10 Erection of precast beams from existing deck to C2

8.11 Cast in-situ decking from existing deck to C2

8.2 Wall 2

8.3 Wall 3

8.4 Wall 4

8.5 Wall 5

8.6 Wall 6

8.7 Wall 7

8.8 Wall 8

8.9 Wall 9

8.10 Wall 10

8.11 Wall 11

8.12 Wall 12

8.13 Wall 13

8.14 Wall 14

8.15 Wall 15

8.16 Wall 16

8.17 Wall 17

8.18 Wall 18

8.19 Wall 19

8.20 Wall 20

8.21 Wall 21

8.22 Wall 22

8.23 Wall 23

8.24 Wall 24

8.25 Wall 25

8.26 Wall 26

8.27 Wall 27

8.28 Wall 28

8.29 Wall 29

8.30 Wall 30

8.31 Wall 31

8.32 Wall 32

8.33 Wall 33

8.34 Wall 34

8.35 Wall 35

8.36 Wall 36

8.37 Wall 37

8.38 Wall 38

8.39 Wall 39

8.40 Wall 40

8.41 Wall 41

8.42 Wall 42

8.43 Wall 43

8.44 Wall 44

8.45 Wall 45

8.46 Wall 46

8.47 Wall 47

8.48 Wall 48

8.49 Wall 49

8.50 Wall 50

8.51 Wall 51

8.52 Wall 52

8.53 Wall 53

8.54 Wall 54

8.55 Wall 55

8.56 Wall 56

8.57 Wall 57

8.58 Wall 58

8.59 Wall 59

8.60 Wall 60

8.61 Wall 61

8.62 Wall 62

8.63 Wall 63

8.64 Wall 64

8.65 Wall 65

8.66 Wall 66

8.67 Wall 67

8.68 Wall 68

8.69 Wall 69

8.70 Wall 70

8.71 Wall 71

8.72 Wall 72

8.73 Wall 73

8.74 Wall 74

8.75 Wall 75

8.76 Wall 76

8.77 Wall 77

8.78 Wall 78

8.79 Wall 79

8.80 Wall 80

8.81 Wall 81

8.82 Wall 82

8.83 Wall 83

8.84 Wall 84

8.85 Wall 85

8.86 Wall 86

8.87 Wall 87

8.88 Wall 88

8.89 Wall 89

8.90 Wall 90

8.91 Wall 91

8.92 Wall 92

8.93 Wall 93

8.94 Wall 94

8.95 Wall 95

8.96 Wall 96

8.97 Wall 97

8.98 Wall 98

8.99 Wall 99

9.00 Wall 100

9.01 Wall 101

9.02 Wall 102

9.03 Wall 103

9.04 Wall 104

9.05 Wall 105

9.06 Wall 106

9.07 Wall 107

9.08 Wall 108

9.09 Wall 109

9.10 Wall 110

9.11 Wall 111

9.12 Wall 112

9.13 Wall 113

9.14 Wall 114

9.15 Wall 115

9.16 Wall 116

9.17 Wall 117

9.18 Wall 118

9.19 Wall 119

9.20 Wall 120

9.21 Wall 121

9.22 Wall 122

9.23 Wall 123

9.24 Wall 124

9.25 Wall 125

9.26 Wall 126

9.27 Wall 127

9.28 Wall 128

9.29 Wall 129

9.30 Wall 130

9.31 Wall 131

9.32 Wall 132

9.33 Wall 133

9.34 Wall 134

9.35 Wall 135

9.36 Wall 136

9.37 Wall 137

9.38 Wall 138

9.39 Wall 139

9.40 Wall 140

9.41 Wall 141

9.42 Wall 142

9.43 Wall 143

9.44 Wall 144

9.45 Wall 145

9.46 Wall 146

9.47 Wall 147

9.48 Wall 148

9.49 Wall 149

9.50 Wall 150

9.51 Wall 151

9.52 Wall 152

9.53 Wall 153

9.54 Wall 154

9.55 Wall 155

9.56 Wall 156

9.57 Wall 157

9.58 Wall 158

9.59 Wall 159

9.60 Wall 160

9.61 Wall 161

9.62 Wall 162

9.63 Wall 163

9.64 Wall 164

9.65 Wall 165

9.66 Wall 166

9.67 Wall 167

9.68 Wall 168

9.69 Wall 169

9.70 Wall 170

9.71 Wall 171

9.72 Wall 172

9.73 Wall 173

9.74 Wall 174

9.75 Wall 175

9.76 Wall 176

9.77 Wall 177

9.78 Wall 178

9.79 Wall 179

9.80 Wall 180

9.81 Wall 181

9.82 Wall 182

9.83 Wall 183

9.84 Wall 184

9.85 Wall 185

9.86 Wall 186

9.87 Wall 187

9.88 Wall 188

9.89 Wall 189

9.90 Wall 190

9.91 Wall 191

9.92 Wall 192

9.93 Wall 193

9.94 Wall 194

9.95 Wall 195

9.96 Wall 196

9.97 Wall 197

9.98 Wall 198

9.99 Wall 199

10.00 Wall 200

ID	Task Name	Duration	Start	2003	2003	2003
98	9.3 Wall 3 & Stairs 2, 3	174 days	Mon 16/12/02	Dec '02	Jan '03	Mar '03
99	9.4 Wall 4	150 days	Thu 02/01/03			
100	9.5 Wall 5 & Stair 5, 11	64 days	Wed 09/07/03			
101	9.6 Wall 6	60 days	Fri 31/10/03			
102	9.7 Wall 7 & Stair 7	516 days	Sat 29/06/02			
103	9.7.1 Pre-drill holes (21 nos)	47 days	Sat 29/06/02			
104	9.7.2 Forming working platform	14 days	Tue 10/09/02			
105	9.7.3 Install boxed pile (2 nos)	183 days	Tue 15/10/02			
106	9.7.4 Construct the extension section above boxed pile	60 days	Wed 16/04/03			
107	9.7.5 Construct lagging/concrete decorative wall	80 days	Tue 15/07/03			
108	9.7.6 Stair 7	45 days	Mon 13/10/03			
109	9.8 Wall 8	110 days	Wed 08/01/03			
110	9.9 Stair 8	90 days	Wed 29/01/03			
111	9.10 Wall 11 & Stair 4	356 days	Fri 16/08/02			
112	9.11 Wall 12 and Stair 9, 10, 12	90 days	Tue 01/04/03			
113						
114	10 Noise Barriers	545 days	Thu 29/06/02			
115	10.1 Noise Barrier No 1	363 days	Thu 29/06/02			
116	10.1.1 Site investigation	30 days	Thu 29/06/02			
117	10.1.2 Piling Works (incl. TTM Implement)	150 days	Thu 28/11/02			
118	10.1.3 R C Structure	95 days	Sat 03/05/03			
119	10.1.4 Demolition of Existing Retaining Wall	41 days	Wed 06/08/03			
120	10.2 Procurement and Fabrication of Noise barrier	157 days	Thu 17/10/02			
121	10.3 Concrete footing for remaining noise barriers & stair no	94 days	Thu 26/06/03			
122	10.3 Installation of Noise barriers	150 days	Sun 28/09/03			
123						
124	11 Box Culvert Extension	262 days	Tue 19/02/02			
125	11.1 Remove existing metal water diversion	29 days	Tue 19/02/02			
126	11.2 Box culvert	156 days	Tue 05/03/02			
127	11.3 Flood Wall	67 days	Thu 22/08/02			
128	11.4 Backfilling	68 days	Sun 01/09/02			
129						
130	12 Drainage Works (other than slope drainages)	557 days	Tue 01/02/02			
131	12.1 Construct 1400 box culvert	90 days	Thu 28/11/02			
132	12.2 Construct 1500 pipe	384 days	Fri 10/01/03			
133	12.3 Drainage works at Lok Ha Lo roundabout	438 days	Wed 06/01/03			
134	a) Drainage works at stage 2 of TTM	78 days	Wed 09/01/03			
135	b) Drainage works at stage 3 of TTM	90 days	Thu 27/03/03			
136	c) Drainage works at stage 4 of TTM	80 days	Wed 25/06/03			
137	d) Drainage works at stage 5 of TTM	90 days	Sat 13/09/03			
138	e) Drainage works at stage 6 of TTM	100 days	Fri 12/12/03			
139	12.4 Remaining drainage works	450 days	Tue 01/04/02			
140	13 Waterworks (DN255/DN40)	334 days	Mon 13/01/03			
141	14 Standard RCP	60 days	Thu 16/10/03			
142	15 Rain Shelter no. 1&2	30 days	Sat 17/01/04			
143	16 Road works excluding road marking & road furniture	368 days	Wed 29/01/03			
144	17 Road marking & road furniture	37 days	Thu 26/03/04			
145	18 Landscape Works (other than establishment works)	147 days	Fri 17/10/03			

Project: Key Dates of Completion Date: Tue 11/02/03

Task: Task Progress

Critical Task: Critical Task Progress

Milestone Summary

Rollled Up Task: Rollled Up Critical Task

Rollled Up Milestone: Rollled Up Progress

Split: External Tasks

Project Summary

Page 3