Territory Development Department

Contract No. ST 77/01

Sha Tin New Town, Stage II
Road D15 Linking Lok Shun Path
and Tai Po Road

Monthly Environmental Monitoring & Audit Report - May 2003

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 – May 2003

Checked in accordance with EML QP22 _____
Environmental Team Leader

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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 May 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.

Over the reporting period, all monitored 24-hour TSP, 1-hour TSP and noise (L_{eq}(5min)) monitoring data were below the AL Levels and no remedial actions as listed in the Event and Action Plan **(Appendix G)** were required.

The major construction activities in this reporting period included:

- Provision of KCRC existing fence
- Construction of Bridge A, B and C, including A5 pile cap, abutment wall for Bridge A, bridge deck construction for Bridge A & C, C1 H piles, C2 bridge bearing
- Retaining wall 2, 3, 4, 7 and 8
- Noise barrier construction, including structure for noise barrier No.1, noise barrier steel post and panels
- Box culvert extension
- Underground drainage and utilities
- Staircase (3)

Regular site inspection was conducted in this reporting month and the mitigation measures, as discussed in the relevant documents, were assessed.

In comparison to last month, it was noted from site inspections that the issue of oil leakage from equipments had been fixed. However, stagnant water was still observed occasionally on the site and the Contractor was instructed to remove the stagnant water especially after raining. Meanwhile, it was noted that a couple of chemical contained drums were not properly stored. It was recommended to the Contractor that the drums shall be properly stored and that metal trays be placed underneath the drums to prevent possible land contamination. Any contaminated soil should be removed and treated if necessary. Meanwhile, it was recommended that more regular water spraying be carried out during dry weather in order to prevent fugitive dust emission.

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 May 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**.

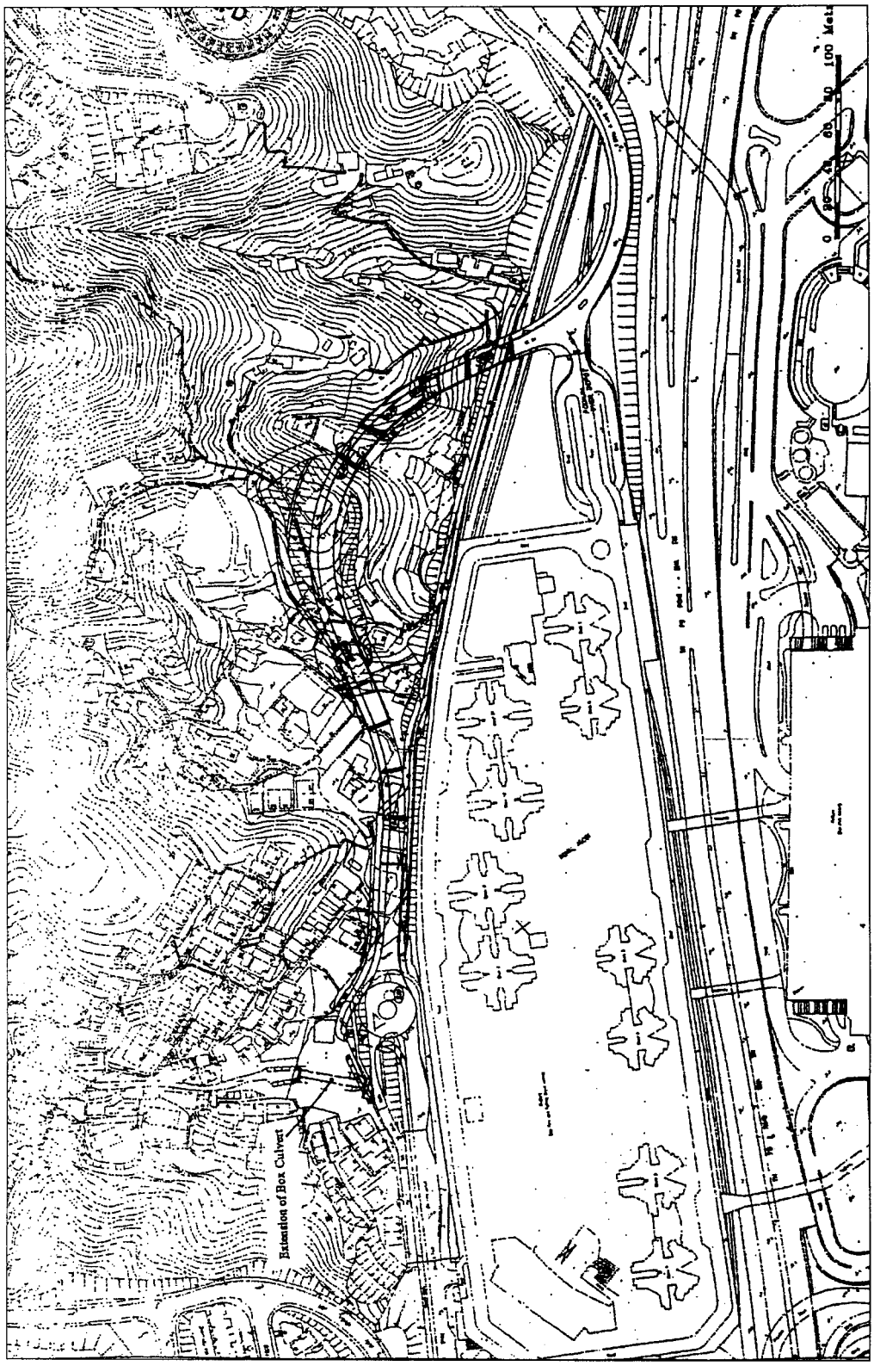


Figure 1.1 Project Area

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 May 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 ($\mu g/m^3$)	Range ($\mu g/m^3$)	No. of Exceedance	
				Action Levels	Limit Levels
24 – hour TSP	A1	76.8	40 – 130	0	0
	A2	74.8	43 - 144	0	0
	A3	72.5	42 - 142	0	0
1 – hour TSP	A1	171.1	71 – 345	0	0
	A2	153.6	87 – 341	0	0
	A3	135.6	96 – 210	0	0

As can be seen from the table above, all measured 24-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 provision of KCRC existing fence, construction of Bridge A, B and C,

retaining wall, noise barrier construction, box culvert extension, underground drainage and utilities and staircases. 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 the monitoring results from last month, the calculated mean 24-hour TSP level at Station A1 and A3 were higher in this reporting month. Meanwhile, the mean 1-hour TSP level at Station A1 was higher in this reporting month while the levels at Stations A2 and A3 were lower than those in April.

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 May 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	63.2 – 72.1	0	0
	N2	61.5 – 73.2	0	0
	N3	58.6 – 62.3	0	0
	N4	63.0 – 69.7	0	0
	N5	58.4 – 62.5	0	0

As shown in the table above, all noise monitoring data recorded 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 sampling were mainly sunny or cloudy, while all monitoring was conducted with wind speed of below 1.0 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 activities of breaking, excavation, and sheet piling, as well as operations of crane and compressor were present in the vicinity of Station N1, N2, N4 and N5 during the monitoring.

Comparing with the monitoring results recorded in the last reporting period, the measured noise level ranges during this reporting month at all stations were slightly higher except Station N4. The highest level was recorded at Station N2 (73.2dB(A)) and occurred in the morning of 30 May. According to the field log, the major noise source at that time was sheet piling operation.

Figure 2.2 Noise Monitoring Locations

3. ENVIRONMENTAL AUDIT

3.1 General

In the last monthly EM&A report, three environmental issues were raised:

- Further improvements to the stream near Lok Shun Path Roundabout;
- Possible land contamination caused by oil leakage from equipments on the site; and
- Occasional observations of stagnant water on the site

It was noted from site inspections that the oil leakage from equipments had been fixed. However, occasional stagnant water was still observed on the site which was removed by the Contractor when instructed.

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
14 May 2003 (Wednesday)	Regular Site Inspection
27 May 2003 (Tuesday)	Regular Site Inspection

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

- Provision of KCRC existing fence
- Construction of Bridge A, B and C, including A5 pile cap, abutment wall for Bridge A, bridge deck construction for Bridge A & C, C1 H piles, C2 bridge bearing
- Retaining wall 2, 3, 4, 7 and 8
- Noise barrier construction, including structure for noise barrier No.1, noise barrier steel post and panels
- Box culvert extension
- Underground drainage and utilities
- Staircase (3)

3.2 Assessment of Environmental Monitoring Results

In this reporting month, there were no exceedance recorded for both impact air quality and noise monitoring. The monitoring result was discussed in **Section 2** of the report and are summarised in **Table 3.2** 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	01/05/03 to 31/05/03	18	0	0
2	1 – hour TSP	01/05/03 to 31/05/03	54	0	0
3	30-minute Noise Measurement (Leq)	01/05/03 to 31/05/03	30	0	0

3.3 Environmental Complaints

No environmental complaints had been received against the construction site in this reporting month. **Table 3.3** shows the summary record for this reporting month while **Table 3.4** 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 3.3 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 3.4 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 3.5 presented the status of the major mitigation measures identified during site inspection.

Table 3.5 Summary of Major Mitigation Measures at the Site

Type	Mitigation Measure	Comments
Noise	Temporary purposed-built Noise Barrier	• Constructed based on the design in the Construction Noise Mitigation Proposal.
Water	Wheel Washing Facility	• Installed and in operation.
	Sand/Silt Removal Facilities	• 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	• 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	• 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

From site inspection, stagnant water was still observed occasionally on the site and the Contractor was instructed to remove the stagnant water especially after raining. Meanwhile, it was noted that a couple of chemical contained drums were not properly stored. It was recommended to the Contractor that the drums shall be stored properly and that metal trays be placed underneath the drums to prevent possible land contamination. Any contaminated soil should be removed and treated if necessary. Meanwhile, it was recommended that more regular water spraying be carried out during dry weather in order to prevent fugitive dust emission.

4. FUTURE KEY ISSUE AND RECOMMENDATION

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

- Stagnant water on the site shall be removed in order to prevent the outbreak of Dengue Fever;
- Implementation of measures to prevent land contamination from chemical contained drums on the site; and
- More frequent water spraying during dry weather to prevent fugitive dust emission.

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, µg/m3	Limit Level, µg/m^3
A1	156	260
A2	155	
A3	153	

Action and Limit Levels for 1-hour TSP

Location	Action Level, µg/m3	Limit Level, µg/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 – May 2003

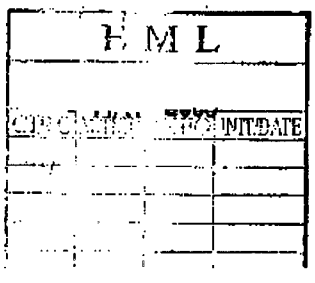
Contract No. ST77/01
Sha Tin New Town, Stage II
Road D15 Linking Lok Shun Path and Tai Po Road

Tentative Time Schedule for Construction Phase Dust Monitoring for May 2003

May-03	Day	Start Time	
		24-hr TSP	1-hr TSP
1	[illegible]	x	x
2	Fri	10:30	09:00
3	Sat	x	x
4	Sun	x	x
5	Mon	x	11:00&14:00
6	Tue	x	x
7	Wed	10:30	09:00
8	Thu	x	x
9	Fri	x	11:00&14:00
10	Sat	x	x
11	Sun	x	x
12	Mon	x	x
13	Tue	10:30	09:00
14	Wed	x	11:00&14:00
15	Thu	x	x
16	Fri	x	x
17	Sat	x	x
18	Sun	x	x
19	Mon	10:30	09:00
20	Tue	x	11:00&14:00
21	Wed	x	x
22	Thu	x	x
23	Fri	10:30	09:00
24	Sat	x	x
25	Sun	x	x
26	Mon	x	11:00&14:00
27	Tue	x	x
28	Wed	x	x
29	Thu	10:30	09:00
30	Fri	x	11:00&14:00
31	Sat	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 May 2003

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



2. **Tentative Schedule for Next Reporting Month – June 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 June 2003

□□-03	Day	Start Time	
		24-hr TSP	1-hr TSP
1	Sun	x	x
2	Mon	x	x
3	Tue	10:30	9:00
4	Wed	x	x
5	Thu	x	11:00&14:00
6	Fri	x	x
7	Sat	x	x
8	Sun	x	x
9	Mon	x	x
10	Tue	10:30	9:00
11	Wed	x	11:00&14:00
12	Thu	x	x
13	Fri	x	x
14	Sat	x	x
15	Sun	x	x
16	Mon	10:30	9:00
17	Tue	x	11:00&14:00
18	Wed	x	x
19	Thu	x	x
20	Fri	10:30	9:00
21	Sat	x	x
22	Sun	x	x
23	Mon	x	11:00&14:00
24	Tue	x	x
25	Wed	x	x
26	Thu	10:30	9:00
27	Fri	x	11:00&14:00
28	Sat	x	x
29	Sun	x	x
30	Mon	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 June 2003

□□-03	Day	Start Time				
		N1	N2	N3	N4	N5
1	Sun	x	x	x	x	x
2	Mon	x	x	x	x	x
3	Tue	x	x	x	x	x
4	Wed	x	x	x	x	x
5	Thu	14:30	13:30	11:30	10:45	10:00
6	Fri	x	x	x	x	x
7	Sat	x	x	x	x	x
8	Sun	x	x	x	x	x
9	Mon	x	x	x	x	x
10	Tue	x	x	x	x	x
11	Wed	14:30	13:30	11:30	10:45	10:00
12	Thu	x	x	x	x	x
13	Fri	x	x	x	x	x
14	Sat	x	x	x	x	x
15	Sun	x	x	x	x	x
16	Mon	x	x	x	x	x
17	Tue	14:30	13:30	11:30	10:45	10:00
18	Wed	x	x	x	x	x
19	Thu	x	x	x	x	x
20	Fri	x	x	x	x	x
21	Sat	x	x	x	x	x
22	Sun	x	x	x	x	x
23	Mon	14:30	13:30	11:30	10:45	10:00
24	Tue	x	x	x	x	x
25	Wed	x	x	x	x	x
26	Thu	x	x	x	x	x
27	Fri	14:30	13:30	11:30	10:45	10:00
28	Sat	x	x	x	x	x
29	Sun	x	x	x	x	x
30	Mon	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-May-03	2.8188	3.0087	1.11	1.11	11438.14	11462.14	1440	119	Fine
7-May-03	2.8263	2.9298	1.11	1.11	11465.14	11489.14	1440	65	Fine
13-May-03	2.8899	2.9724	1.11	1.11	11492.14	11516.14	1440	52	Fine
19-May-03	2.8696	2.9337	1.11	1.11	11519.14	11543.14	1440	40	Cloudy
23-May-03	2.8829	2.9715	1.11	1.11	11546.14	11570.14	1440	55	Fine
29-May-03	2.5968	3.1045	1.11	1.11	11573.14	11597.14	1440	130	Cloudy

Min	40
Max	130
Average	76.8

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

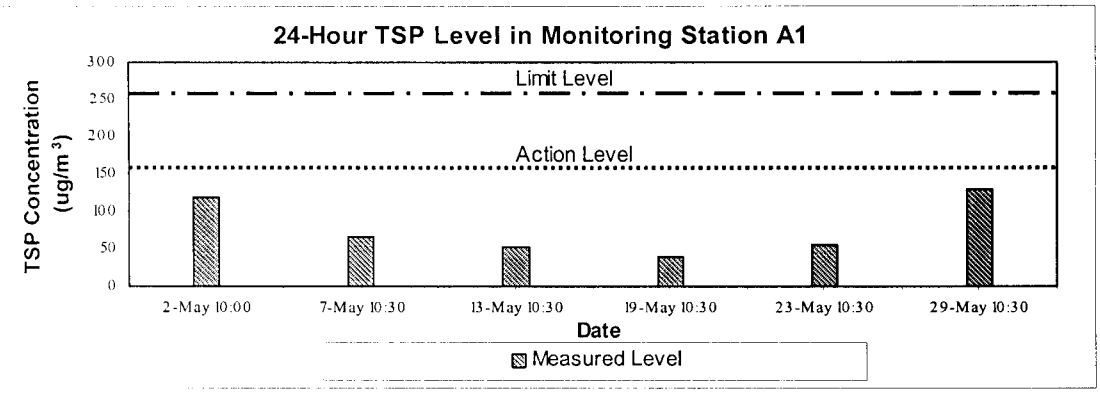
Date	Filter Weight (g)		Flow Rate (m^3/min.)		Elapse Time		Total Sampling Time (min.)	Conc. (µg/m^3)	Weather Condition
	Initial	Final	Initial	Final	Initial	Final			
2-May-03	2.8079	3.0384	1.11	1.11	2008.91	2032.91	1440	144	Fine
7-May-03	2.8420	2.9105	1.11	1.11	2035.91	2059.91	1440	43	Fine
13-May-03	2.8758	2.9627	1.11	1.11	2062.91	2086.91	1440	54	Fine
19-May-03	2.8392	2.9109	1.11	1.11	2089.91	2113.91	1440	45	Cloudy
23-May-03	2.8684	2.9646	1.11	1.11	2116.91	2140.91	1440	60	Fine
29-May-03	2.8114	2.8766	1.11	1.11	2143.91	2167.91	1440	103	Cloudy

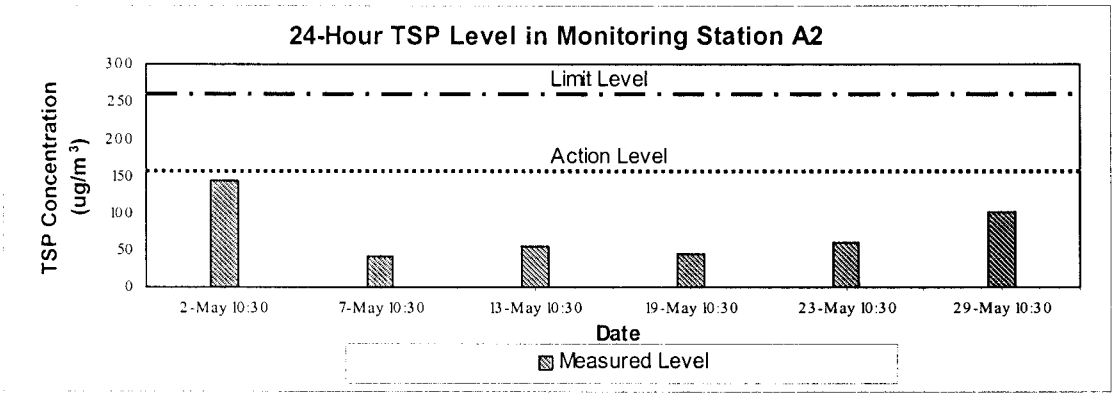
Min	43
Max	144
Average	74.8

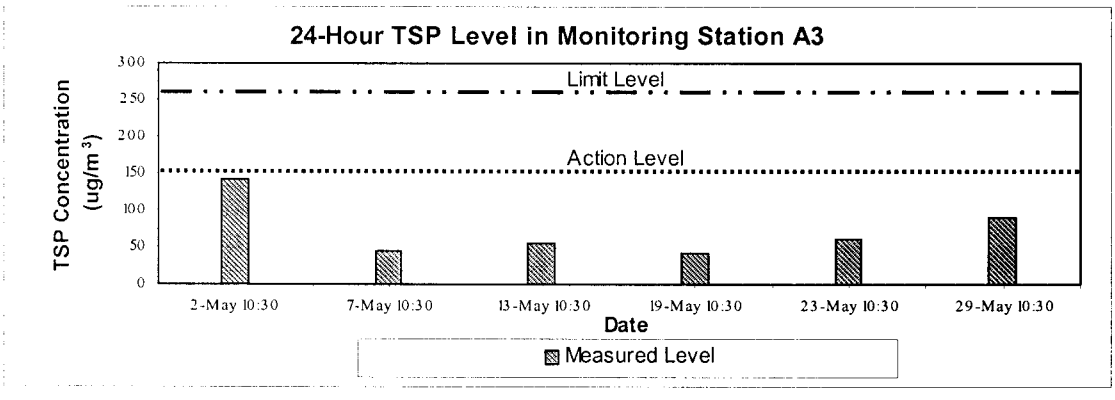
Monitoring Station A3 (Village House near Tsun King Road)

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-May-03	2.8145	3.0421	1.11	1.11	10617.85	10641.85	1440	142	Fine
7-May-03	2.8745	2.9474	1.11	1.11	10644.85	10668.85	1440	46	Fine
13-May-03	2.8761	2.9655	1.11	1.11	10671.85	10695.85	1440	56	Fine
19-May-03	2.8491	2.9155	1.11	1.11	10698.85	10722.85	1440	42	Cloudy
23-May-03	2.8925	2.9886	1.11	1.11	10725.85	10749.85	1440	60	Fine
29-May-03	2.8020	2.9445	1.11	1.11	10752.86	10776.86	1440	89	Cloudy
							Min	42	
							Max	142	
							Average	72.5	

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, $\mu g/m^3$
2-May-03	0900 – 1000	207
5-May-03	1100 – 1200	119
5-May-03	1400 – 1500	108
7-May-03	0900 – 1000	114
9-May-03	1100 – 1200	96
9-May-03	1400 – 1500	71
13-May-03	0900 – 1000	207
14-May-03	1100 – 1200	263
14-May-03	1400 – 1500	345
19-May-03	0900 – 1000	308
20-May-03	1100 – 1200	108
20-May-03	1400 – 1500	140
23-May-03	0900 – 1000	231
26-May-03	1100 – 1200	119
26-May-03	1400 – 1500	129
29-May-03	0900 – 1000	189
30-May-03	1100 – 1200	177
30-May-03	1400 – 1500	149
	Average	171.1
	Min	71
	Max	345

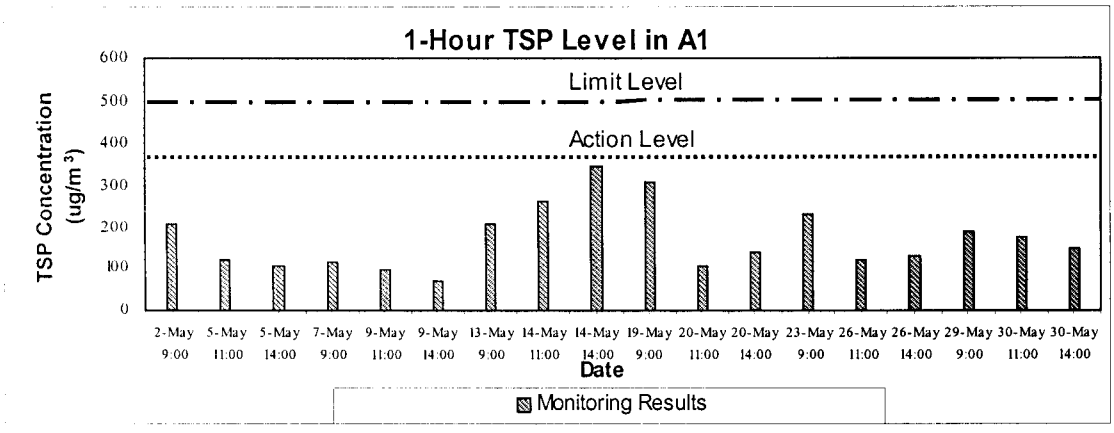
Station A2 (Lok Lo Ha Village House No. 104)

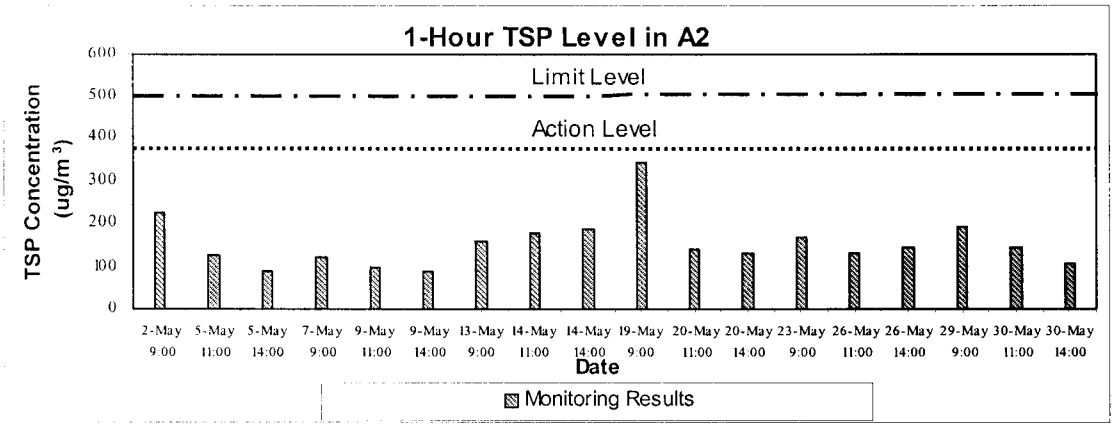
Date	Time of sampling	Concentration, $\mu g/m^3$
2-May-03	0900 – 1000	225
5-May-03	1100 – 1200	126
5-May-03	1400 – 1500	87
7-May-03	0900 – 1000	123
9-May-03	1100 – 1200	99
9-May-03	1400 – 1500	90
13-May-03	0900 – 1000	158
14-May-03	1100 – 1200	176
14-May-03	1400 – 1500	186
19-May-03	0900 – 1000	341
20-May-03	1100 – 1200	141
20-May-03	1400 – 1500	131
23-May-03	0900 – 1000	168
26-May-03	1100 – 1200	132
26-May-03	1400 – 1500	144
29-May-03	0900 – 1000	189
30-May-03	1100 – 1200	144
30-May-03	1400 – 1500	105
	Average	153.6
	Min	87
	Max	341

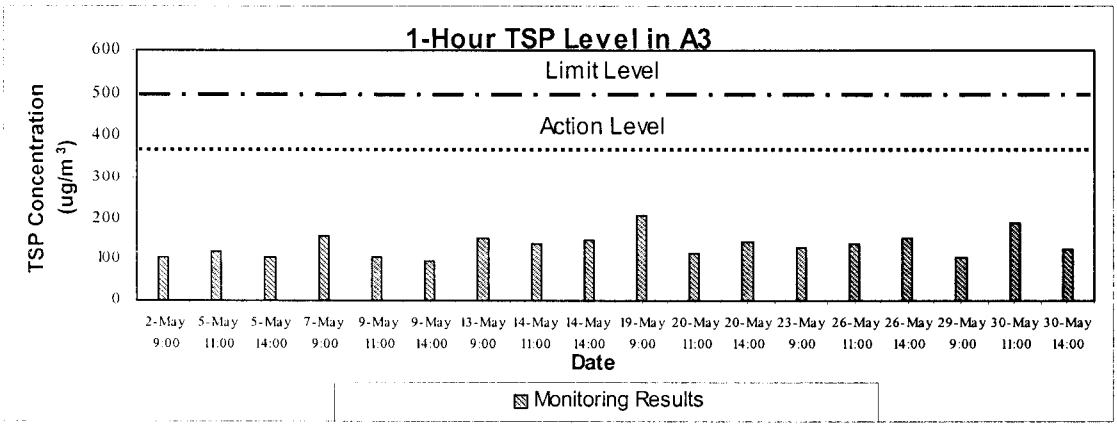
Station A3 (Village House near Tsun King Road)

Date	Time of sampling	Concentration, $\mu g/m^3$
2-May-03	0900 – 1000	104
5-May-03	1100 – 1200	122
5-May-03	1400 – 1500	104
7-May-03	0900 – 1000	156
9-May-03	1100 – 1200	108
9-May-03	1400 – 1500	96
13-May-03	0900 – 1000	153
14-May-03	1100 – 1200	137
14-May-03	1400 – 1500	150
19-May-03	0900 – 1000	210
20-May-03	1100 – 1200	117
20-May-03	1400 – 1500	141
23-May-03	0900 – 1000	131
26-May-03	1100 – 1200	137
26-May-03	1400 – 1500	152
29-May-03	0900 – 1000	108
30-May-03	1100 – 1200	189
30-May-03	1400 – 1500	125
	Average	135.6
	Min	96
	Max	210

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}
5-May-03	1300 – 1330	63.2	64.9	55.8
9-May-03	1058 – 1128	66.4	68.2	60.8
14-May-03	0943 – 1013	69.3	72.0	64.5
20-May-03	1042 – 1112	63.6	65.7	59.0
26-May-03	0937 – 1007	71.4	73.0	69.7
30-May-03	0950 – 1020	72.1	74.4	68.1
	Min	63.2	64.9	55.8
	Max	72.1	74.4	69.7

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}
5-May-03	1340 – 1410	61.5	63.8	55.6
9-May-03	1020 – 1050	64.0	67.1	59.2
14-May-03	1018 – 1048	69.8	72.8	63.7
20-May-03	1005 – 1035	65.0	67.6	58.7
26-May-03	1015 – 1045	70.2	73.5	64.2
30-May-03	1026 – 1056	73.2	76.4	69.3
	Min	61.5	63.8	55.6
	Max	73.2	76.4	69.3

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}
5-May-03	1425 – 1455	59.7	62.3	52.9
9-May-03	1300 – 1330	59.7	62.7	54.7
14-May-03	1300 – 1330	58.6	61.6	53.5
20-May-03	1130 – 1200	60.6	63.5	57.0
26-May-03	1300 – 1330	62.3	64.7	58.1
30-May-03	1300 – 1330	61.5	64.4	57.6
	Min	58.6	61.6	52.9
	Max	62.3	64.7	58.1

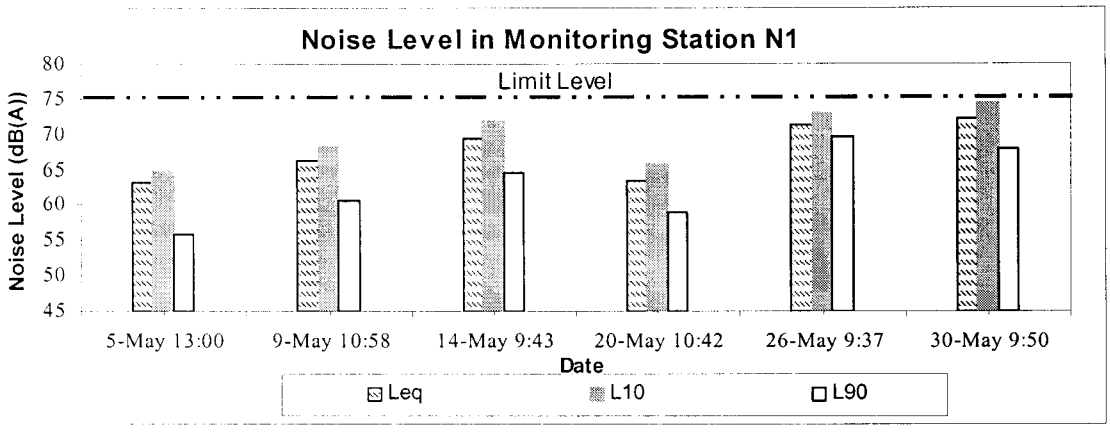
Monitoring Station N4 (Lok Lo Ha Village House No.97)

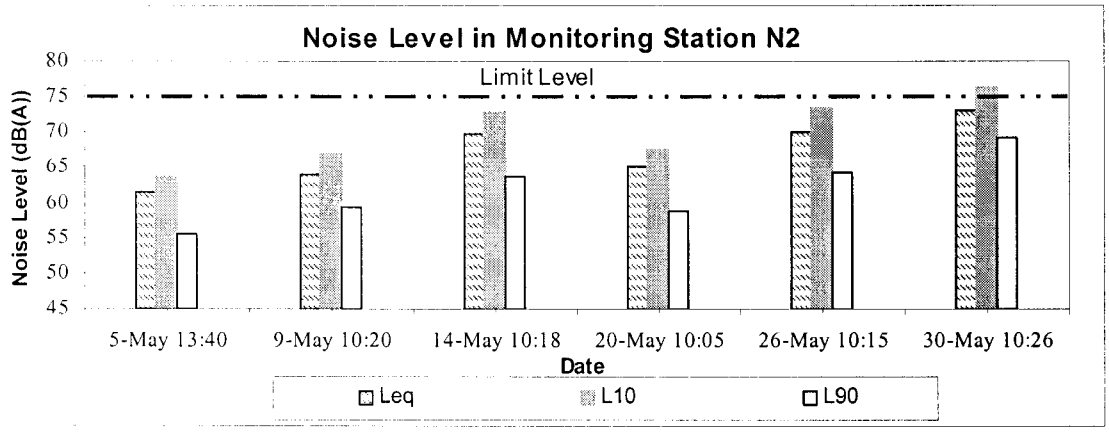
Date	Noise Level for 30 min, dB(A)			
	Time of Sampling	L_{eq}	L_{10}	L_{90}
5-May-03	1135 – 1205	63.0	65.6	55.6
9-May-03	0910 – 0940	63.2	65.3	54.5
14-May-03	1053 – 1123	69.7	71.3	68.5
20-May-03	0900 – 0930	66.7	69.5	56.3
26-May-03	1050 – 1120	65.8	67.8	63.3
30-May-03	1101 – 1131	67.6	70.6	59.0
	Min	63.0	65.3	54.5
	Max	69.7	71.3	68.5

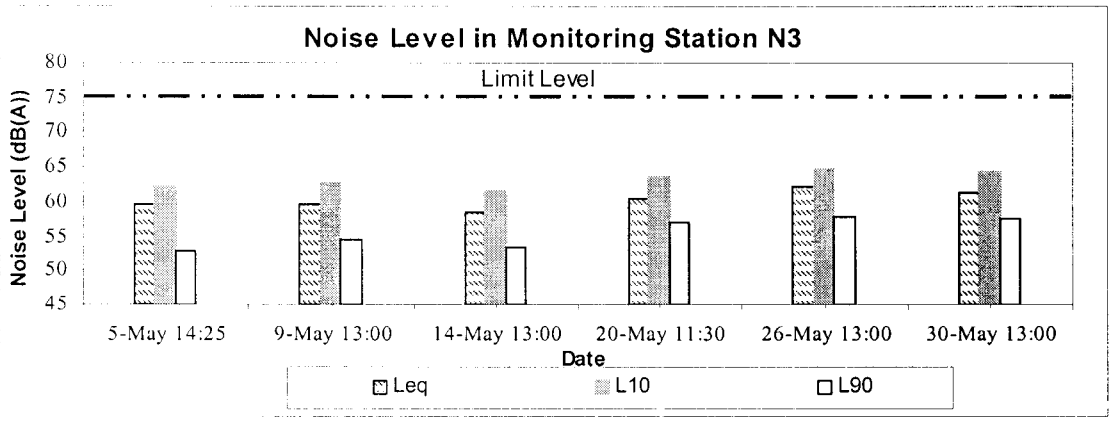
Monitoring Station N5 (Village House near Royal Ascot)

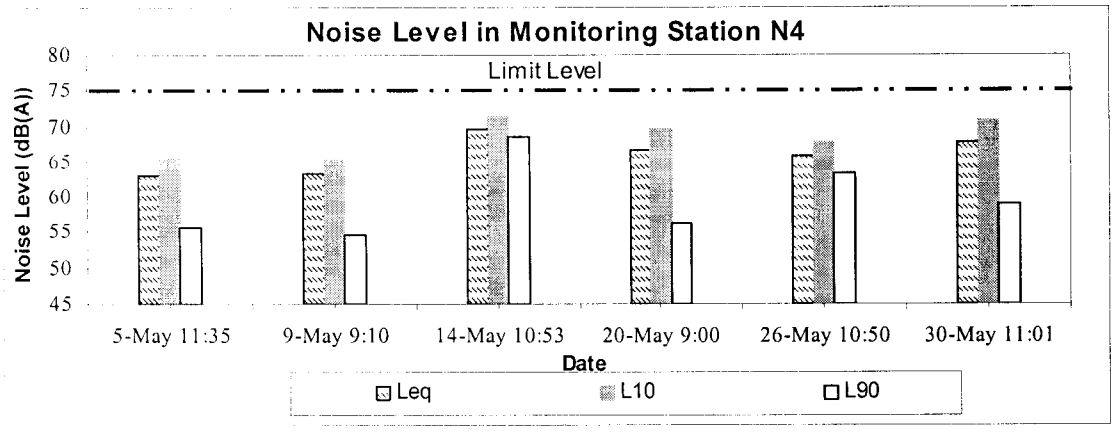
Date	Noise Level for 30 min, dB(A)			
	Time of Sampling	L_{eq}	L_{10}	L_{90}
5-May-03	1058– 1128	59.0	63.3	53.9
9-May-03	0832 – 0902	58.4	62.2	53.8
14-May-03	0900 – 0930	60.3	64.3	54.5
20-May-03	0821 – 0851	61.7	64.0	53.9
26-May-03	0857 – 0927	62.5	65.6	58.6
30-May-03	0900 – 0930	60.0	63.9	55.1
	Min	58.4	62.2	53.8
	Max	62.5	65.6	58.6

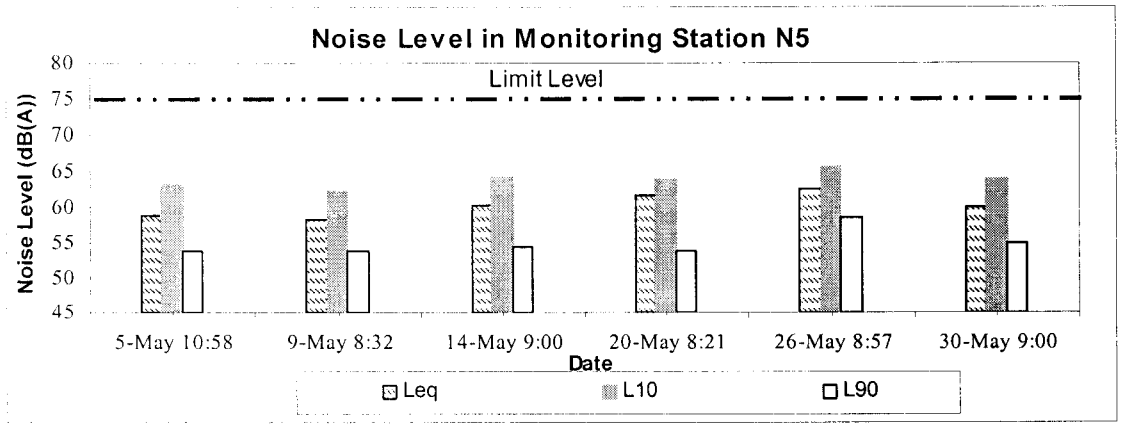
2. Plots of Noise Monitoring Results








Noise Level in Monitoring Station N4
Limit Level
Noise Level (dB(A))
80
75
70
65
60
55
50
45
5-May 11:35
9-May 9:10
14-May 10:53
20-May 9:00
26-May 10:50
30-May 11:01
Date
Leq
L10
L90


Noise Level in Monitoring Station N5
Limit Level
Noise Level (dB(A))
80
75
70
65
60
55
50
45
5-May 10:58
9-May 8:32
14-May 9:00
20-May 8:21
26-May 8:57
30-May 9:00
Date
Leq
L10
L90

APPENDIX F:

Weather Conditions During Monitoring Periods

Weather Condition during Monitoring Period
(From 1 to 31 May 2003)

Date	Weather	Mean Air Temperature (°C)	Wind Speed (m/s)	Mean Relative Humidity (%)
2-May-03	Fine	24.1	0.8 – 1.0	82
5-May-03	Cloudy	24.9	0.5	93
7-May-03	Fine	28.5	0.5	83
9-May-03	Cloudy	25.5	1.2	83
13-May-03	Fine	27.2	1.0	85
14-May-03	Fine	28.0	1.0	80
19-May-03	Cloudy	25.4	0.5	84
20-May-03	Fine	26.9	0.5	80
23-May-03	Fine	28.0	1.0	80
26-May-03	Fine	27.1	1.0	79
29-May-03	Cloudy	26.4	1.0	82
30-May-03	Fine	28.1	1.0	77

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	1. Identify source; 2. Inform the Engineer and Contractor; 3. Repeat measurement to confirm finding; and 4. Increase monitoring frequency to daily.	1. Notify Contractor; and 2. Check monitoring data and Contractor's working methods.	1. Rectify any unacceptable practice, if any; and 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	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.	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.	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	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.	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.	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	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	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.	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.

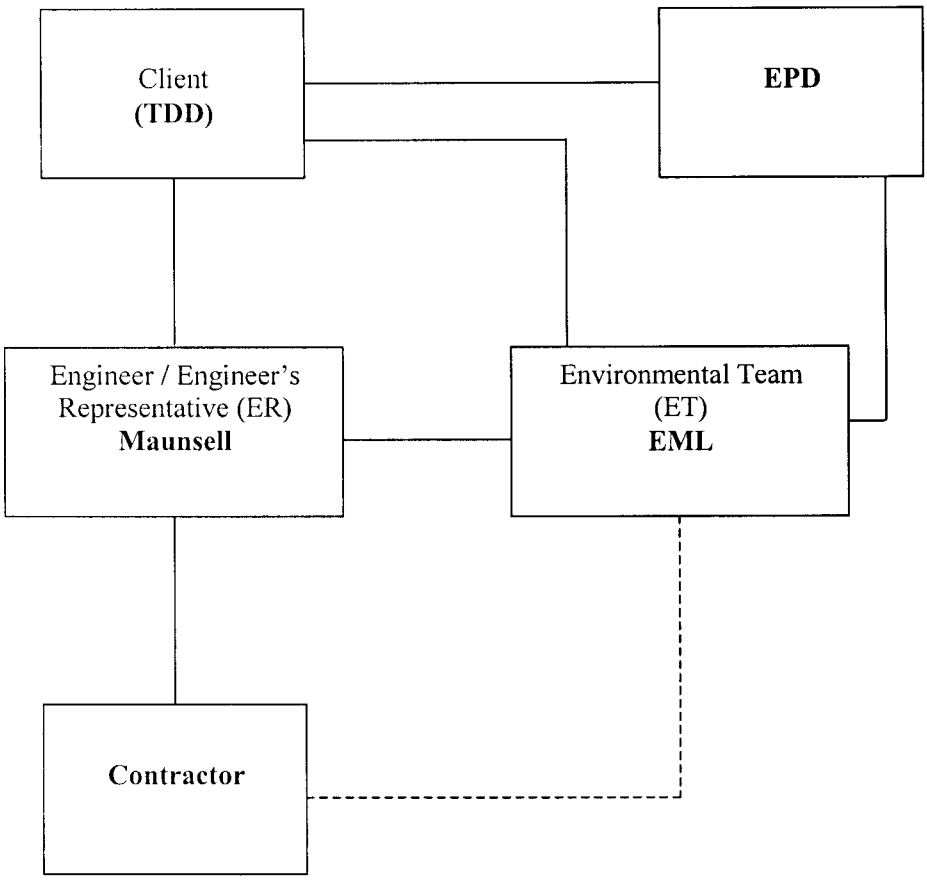
Event / Action Plan for Construction Noise

EVENT	ACTION	
	ET	Contractor
Action Level	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.	1. Submit noise mitigation proposals to Environmental Team and the Engineer; and 2. Implement noise mitigation proposals.
Limit Level	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.	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 Mitigation Measures	Status/ Remarks
C02-N1	Morning, 29/7/2002	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	• 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.	Mitigation actions: • 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.	The complaint was considered as ad hoc rather than continuous. It is therefore considered not necessary to increase the noise monitoring frequency File Closed.
C02-N2	Night-time, 7 August, 2002	• 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.	• 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.	Mitigation actions: • 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.	File Closed.

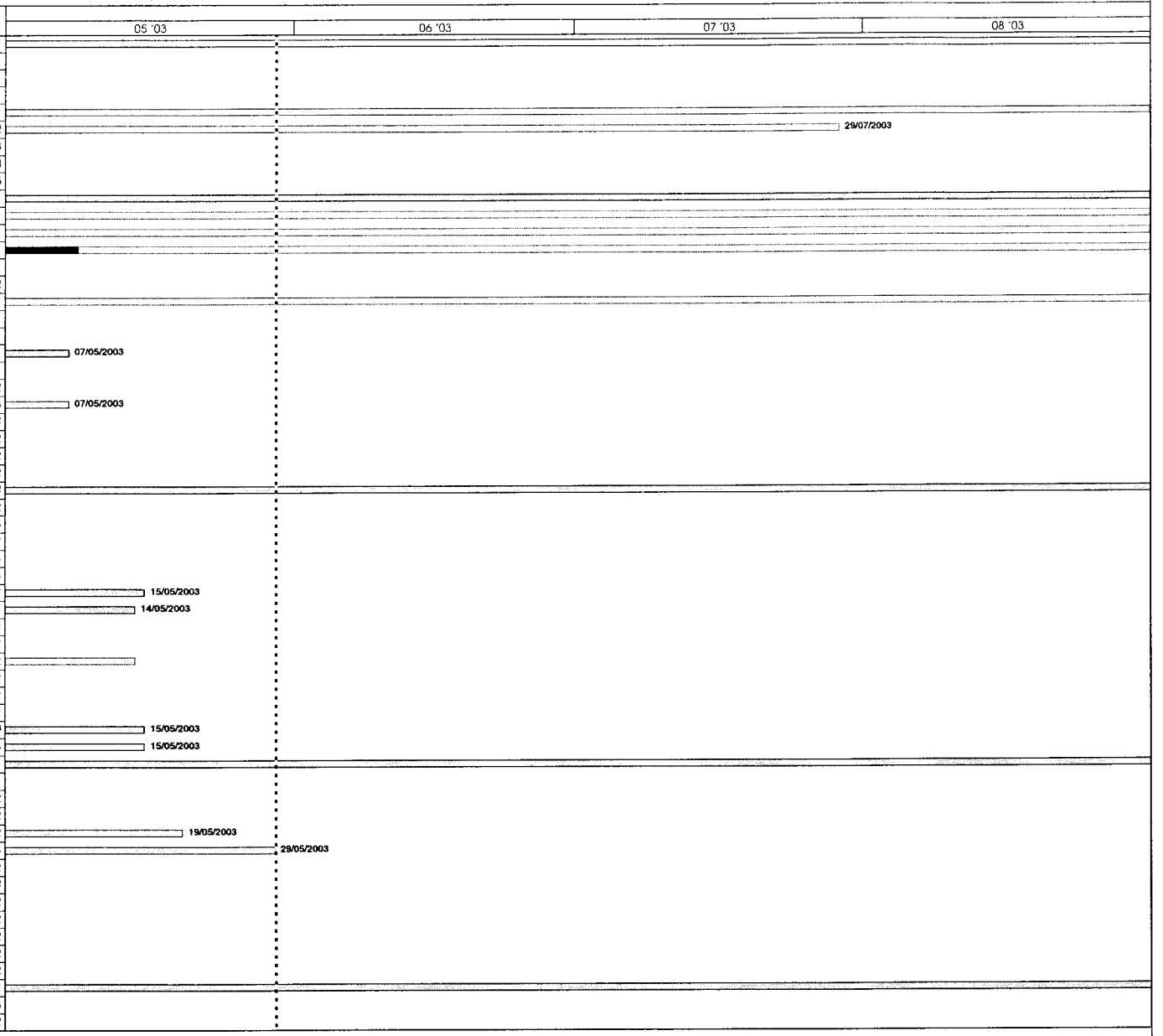
APPENDIX J:

Updated Construction Program

MASTER PROGRAMME (ST77/01/MP/10)

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

ID	Task Name	Duration	Start
0	**Road D15 Construction Programme**	**1113 days**	**Wed 12/12/01**
1	1.1 Works in Section I (345 days)	345 days	Wed 12/12/01
2	1.2 Works in Section IA (475 Days)	475 days	Wed 12/12/01
3	1.2 Works in Section II (822 days)	822 days	Wed 12/12/01
4	1.3 Landscape Work in Section III (1187 Days)	1187 days	Wed 12/12/01
5	2.1 Section I Extension of Time	249.5 days	Fri 22/11/02
6	2.1 Section IA Extension of Time	0 days	Mon 31/03/03
7	2.1 Section II Extension of Time	162 days	Sat 13/03/04
8	2.1 Section III Extension of Time	162 days	Sun 13/03/05
9	**3 Preliminary & Site Establishment**	**650 days**	**Wed 12/12/01**
10	3.1 Waste Mgt & Envtal Control Manual for EPD approval	600 days	Wed 12/12/01
11	3.2 Submission of mitigation proposal	600 days	Wed 12/12/01
12	3.3Method Statement/ICE/Material Submission & Approval	600 days	Wed 12/12/01
13	3.4 Site clearance including existing asbestos houses at Bridge A	57 days	Wed 12/12/01
14	3.5 Site clearance including existing houses at Bridge C	61 days	Sat 23/02/02
15	3.6 Utilities undertakers Co-ordination	650 days	Wed 12/12/01
16	3.8 Fabrication / Erection of RE Office	90 days	Wed 12/12/01
17	3.9 Condition Survey / Defect Survey	60 days	Wed 12/12/01
18	**3.10 Erection of Fencing & Hoarding**	**414 days**	**Wed 12/12/01**
19	3.10.1 Site Hoarding and Fence	60 days	Wed 12/12/01
20	3.10.2 Relocation of extg fence at House 85B	79 days	Tue 10/09/02
21	3.10.3 Reprovision of Extg KCRC Fence	40 days	Mon 17/03/03
22	**3.12 Form Temporary Site Access**	**151 days**	**Tue 19/03/02**
23	3.12.1 From Bridge A to Bridge B	45 days	Tue 19/03/02
24	3.12.2 From Bridge B to Bridge C	18 days	Mon 17/06/02
25	3.12.3 From Bridge A to C2	40 days	Sat 03/08/02
26	**4 Earthworks**	**445 days**	**Thu 13/06/02**
27	4.1 Forming access to Main Cutting CH 300-400	50 days	Thu 13/06/02
28	4.2 Slope Work /Drainage At CH 300-400	59 days	Sat 25/01/03
29	4.3 Forming access to CH 400-500	19 days	Mon 24/06/02
30	4.4 Remaining Slope Cutting at RW7 & CH300	20 days	Sat 04/10/03
31	4.5 Remove Temporary Access road to RW7	8 days	Thu 27/11/03
32	**5 Entrustment Works (Section I & 1A)**	**394 days**	**Tue 15/01/02**
33	**5.1 Section 1**	**393 days**	**Tue 15/01/02**
34	5.1.1 General Clearance & Trial Pits Excavation	27 days	Tue 15/01/02
35	5.1.2 Drainage Works (1.019-1.024 , 7.022 & 15.000)	114 days	Tue 16/04/02
36	5.1.3 Drainage Works (pipelines 1.024-1.026)	280 days	Wed 05/06/02
37	5.1.4 Drainage Works (pipeline 1.011-1.013)	70 days	Wed 05/06/02
38	5.1.5 Drainage Works (pipeline 1.014-1.016)	150 days	Tue 21/05/02
39	5.1.6 Drainage Works (1.000-1.004, 2.000-2.001,3.000-3.001,3.0	120 days	Sat 29/06/02
40	**5.2 Section 1A**	**40 days**	**Mon 24/03/03**
41	5.2.1 Drainage Works (pipeline 3.002-3.004)	40 days	Mon 24/03/03
42	**6 Bridge A & General**	**787 days**	**Wed 12/12/01**
43	6.1 Design Submission of Alternative Design (I Beam)	180 days	Wed 12/12/01
44	6.2 Procurement,manufacturing and testing of bridge bearing	63.2 days	Tue 14/05/02
45	6.3 Engineer's Approval of Off Site Casting Yard	180 days	Mon 04/02/02
46	6.4 Fabrication precast beams	150 days	Wed 13/11/02
47	6.5 Fabrication PC panel permanent formwork	100 days	Fri 24/01/03
48	6.6 Ground Investigation	62 days	Fri 17/05/02
49	**6.7 Piling Works at A1 to A5**	**76 days**	**Fri 10/05/02**
50	6.7.1 A1 Piling Work	52 days	Fri 10/05/02
51	6.7.2 A2 Piling Work	45 days	Sat 18/05/02
52	6.7.3 A3 Piling Work	34 days	Fri 28/06/02
53	6.7.4 A4 Piling Work	26 days	Fri 21/06/02
54	6.7.5 A5 Piling Work	35 days	Sat 29/06/02
55	**6.8 Pile Caps Construction A1 to A5**	**304 days**	**Sat 19/10/02**
56	6.8.1 A1 Pile Cap	50 days	Thu 13/02/03
57	6.8.2 A2 Pile Cap	24 days	Thu 12/12/02



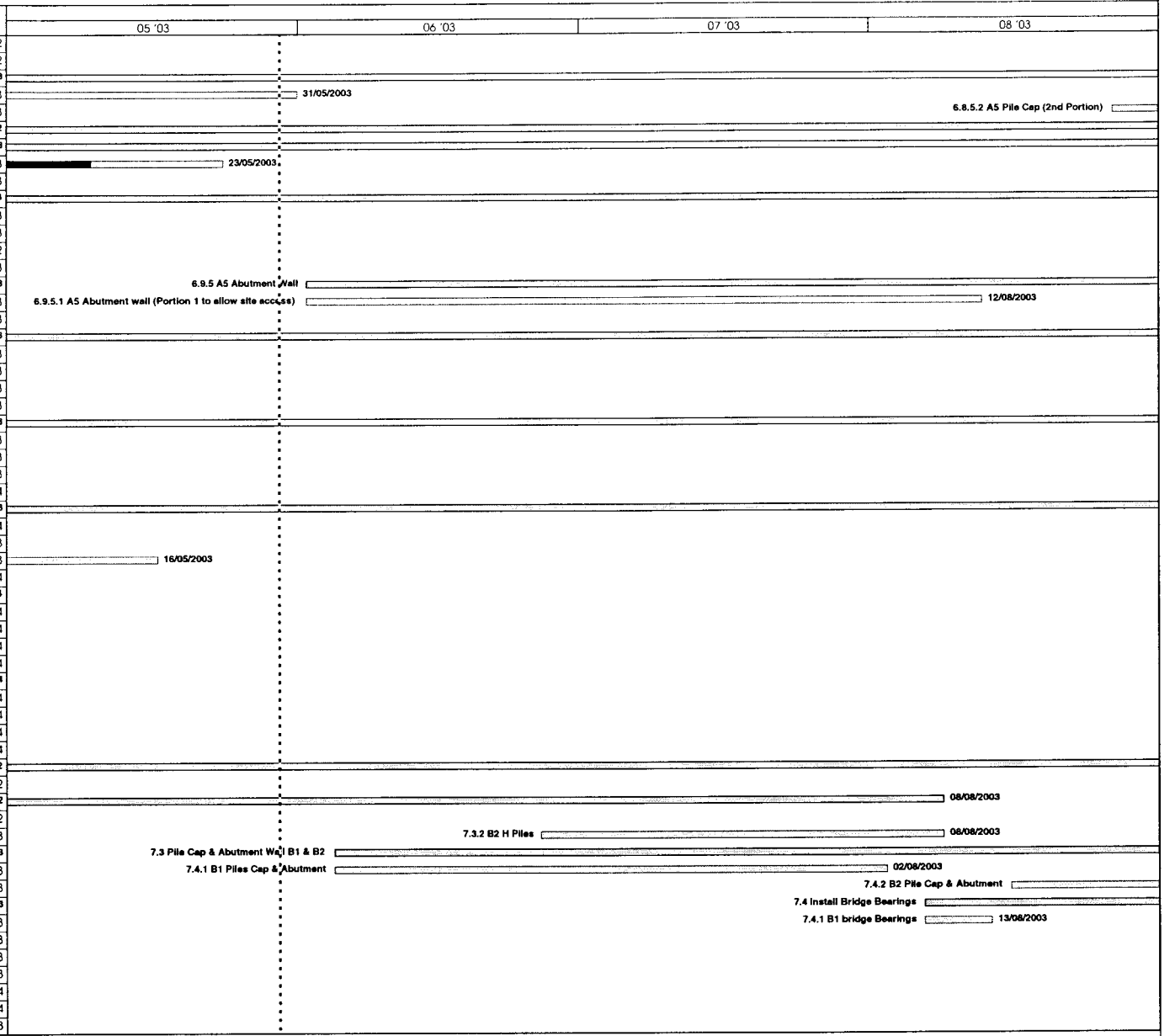
Date: 1/4/2003

Task | Task Progress | Critical Task | Critical Task Progress | Milestone | Summary | Rolled Up Task | Rolled Up Critical Task | Rolled Up Milestone | Rolled Up Progress | Split | External Tasks | Project Summary

MASTER PROGRAMME (ST77/01/MP/10)

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

ID	Task Name	Duration	Start
58	6.8.3 A3 Pile Cap	22 days	Sat 19/10/02
59	6.8.4 A4 Pile Cap	24 days	Fri 25/10/02
60	**6.8.5 A5 Pile Cap**	**182 days**	**Mon 17/03/03**
61	6.8.5.1 A5 Pile Cap (1st Portion)	60 days	Mon 17/03/03
62	6.8.5.2 A5 Pile Cap (2nd Portion)	50 days	Wed 27/08/03
63	**6.9 Abutment Wall A1 to A5**	**310 days**	**Fri 29/11/02**
64	**6.9.1 A1 Abutment Wall**	**200 days**	**Mon 14/04/03**
65	6.9.1.2 A1 (1st portion to allow site access to C2)	30 days	Mon 14/04/03
66	6.9.1.2 A1 (2nd Portion After Bridge C Beams Completed	30 days	Sat 08/11/03
67	**6.9.2 A2 Pier & Cross Head**	**212 days**	**Wed 29/01/03**
68	6.9.2.1 Pier only To allow access to C2	22 days	Wed 29/01/03
69	6.9.2.2 A2 Crosshead	24 days	Thu 18/09/03
70	6.9.3 A3 Pier & Cross Head	30 days	Fri 29/11/02
71	6.9.4 A4 Pier & Cross Head	12 days	Thu 02/01/03
72	**6.9.5 A5 Abutment Wall**	**162 days**	**Mon 02/06/03**
73	6.9.5.1 A5 Abutment wall (Portion 1 to allow site access)	60 days	Mon 02/06/03
74	6.9.5.2 A5 Abutment wall (Portion 2)	40 days	Mon 27/10/03
75	**6.10 Install bridge bearings A1 to A5**	**276 days**	**Thu 23/01/03**
76	6.10.1 A1 - A2 Bridge Bearings	6 days	Wed 17/12/03
77	6.10.2 A2 - A3 Bridge Bearings	6 days	Tue 21/10/03
78	6.10.3 A3 - A4 Bridge Bearings	6 days	Thu 23/01/03
79	6.10.4 A4 - A5 Bridge Bearings	6 days	Tue 16/12/03
80	**6.11 Install Precast Beams A1 to A5**	**330 days**	**Fri 14/02/03**
81	6.11.1 A1 to A2 PC Beams	6 days	Tue 30/12/03
82	6.11.2 A2 to A3 PC Beams	6 days	Fri 31/10/03
83	6.11.3 A3 to A4 PC Beams	3 days	Fri 14/02/03
84	6.11.4 A4 to A5 PC Beams	6 days	Wed 17/03/04
85	**6.12 Bridge Deck Construction A1 to A5**	**366 days**	**Mon 24/02/03**
86	6.12.1 A1 to A2 Bridge Deck	40 days	Wed 07/01/04
87	6.12.2 A2 to A3 Bridge Deck	40 days	Mon 10/11/03
88	6.12.3 A3 to A4 Bridge Deck	60 days	Mon 24/02/03
89	6.12.4 A4 to A5 Bridge Deck	40 days	Thu 25/03/04
90	**6.13 Bridge Deck Drainage**	**83 days**	**Wed 17/03/04**
91	6.13.1 A1 to A2 Drainage Pipe, M/H cover & Gully	18 days	Wed 17/03/04
92	6.13.2 A2 to A3 Drainage Pipe, M/H cover & Gully	18 days	Mon 12/04/04
93	6.13.3 A3 to A4 Drainage Pipe, M/H cover & Gully	18 days	Thu 06/05/04
94	6.13.4 A4 to A5 Drainage Pipe, M/H cover & Gully	18 days	Fri 04/06/04
95	**6.14 Bridge deck Parapet & Curb**	**103 days**	**Thu 01/04/04**
96	6.14.1 A1 to A2 Parapet & Curb	24 days	Thu 01/04/04
97	6.14.2 A2 to A3 Parapet & Curb	24 days	Wed 05/05/04
98	6.14.3 A3 to A4 Parapet & Curb	24 days	Tue 08/06/04
99	6.14.4 A4 to A5 Parapet & Curb	20 days	Mon 12/07/04
100	**7 Bridge B**	**509 days**	**Wed 11/09/02**
101	7.1 Ground Investigation	36 days	Wed 11/09/02
102	**7.2 Pre Bore H-Piles**	**192 days**	**Fri 13/12/02**
103	7.3.1 B1 H Piles	29 days	Fri 13/12/02
104	7.3.2 B2 H Piles	36 days	Fri 27/06/03
105	**7.3 Pile Cap & Abutment Wall B1 & B2**	**101 days**	**Thu 05/06/03**
106	7.4.1 B1 Piles Cap & Abutment	50 days	Thu 05/06/03
107	7.4.2 B2 Pile Cap & Abutment	40 days	Sat 16/08/03
108	**7.4 Install Bridge Bearings**	**57 days**	**Thu 07/08/03**
109	7.4.1 B1 bridge Bearings	6 days	Thu 07/08/03
110	7.4.2 B2 Bridge Bearings	6 days	Wed 08/10/03
111	7.5 Install Precast Beams B1 to B2	6 days	Sat 13/12/03
112	7.6 Bridge Deck Construction B1 to B2	40 days	Sat 20/12/03
113	7.7 Bridge deck Drainage B1 to B2	18 days	Thu 12/02/04
114	7.8 Bridge Deck Parapet & Curb B1 to B2	16 days	Thu 11/03/04
115	7.9 Remove Temp Platform(Underneath Bridge Deck)	60 days	Sat 04/10/03



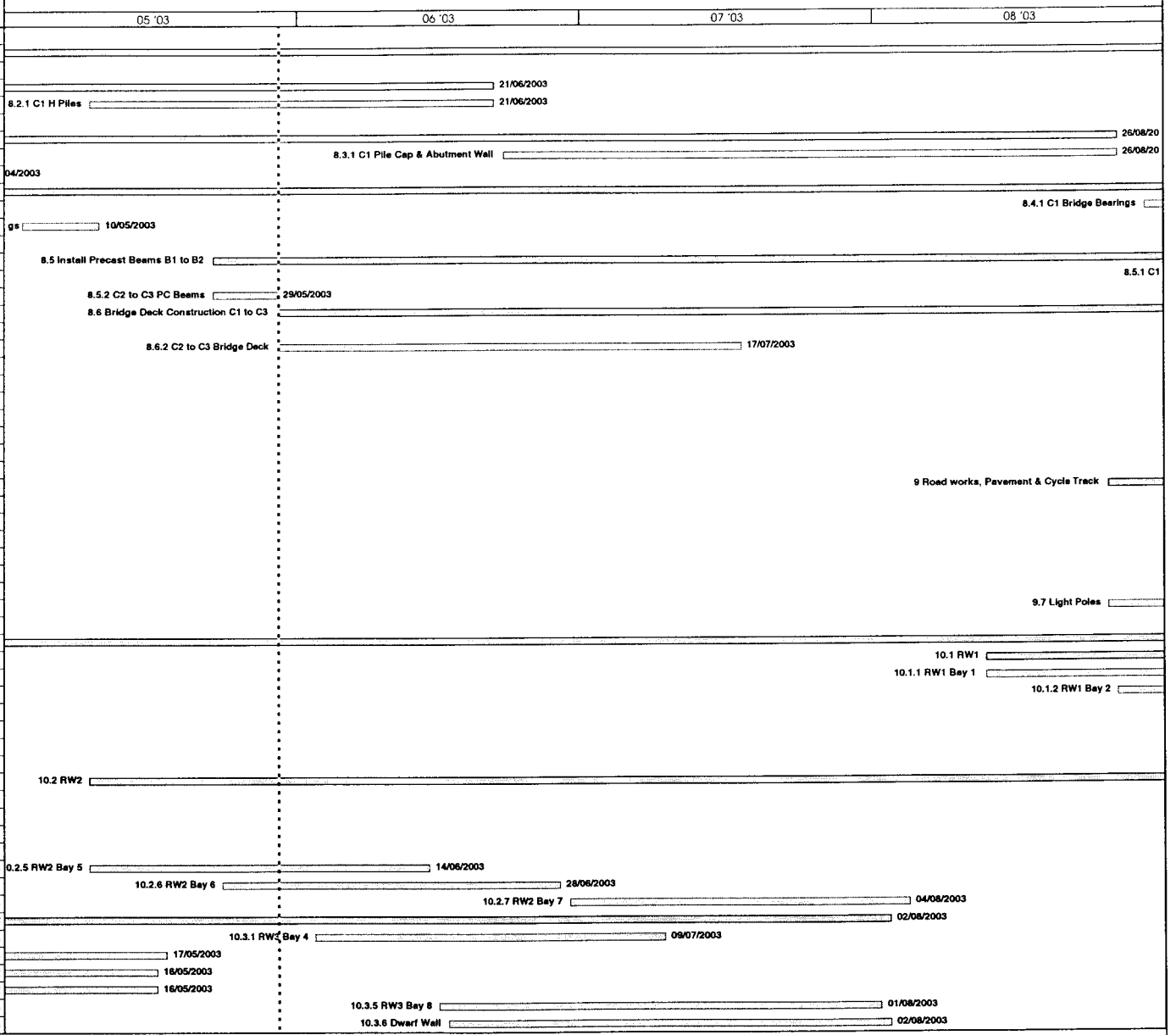
Date: 1/4/2003

Task | Task Progress | Critical Task | Critical Task Progress | Milestone | Summary | Rolled Up Task | Rolled Up Critical Task | Rolled Up Milestone | Rolled Up Progress | Split | External Tasks | Project Summary

MASTER PROGRAMME (ST77/01/MP/10)

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

ID	Task Name	Duration	Start
116	7.10 Reinstate Extg Valley	60 days	Tue 16/03/04
117	**8 Bridge C**	**504 days**	**Thu 01/08/02**
118	8.1 Ground Investigation	62 days	Thu 01/08/02
119	**8.2 Pre Bore H-Piles**	**174 days**	**Mon 18/11/02**
120	8.2.1 C1 H Piles	36 days	Sat 10/05/03
121	8.2.2 C2 H Piles	52 days	Mon 18/11/02
122	**8.3 Pile Cap & Abutment Wall C1 & C2**	**149 days**	**Tue 25/02/03**
123	8.3.1 C1 Pile Cap & Abutment Wall	55 days	Mon 23/06/03
124	8.3.2 C2 Pile Cap & Pier	50 days	Tue 25/02/03
125	**8.4 Install Bridge Bearings**	**327.8 days**	**Fri 02/08/02**
126	8.4.1 C1 Bridge Bearings	6 days	Sat 30/08/03
127	8.4.2 C2 Bridge Bearings	6 days	Sat 03/05/03
128	8.4.3 C3 Bridge Bearings	6 days	Fri 02/08/02
129	**8.5 Install Precast Beams B1 to B2**	**98 days**	**Fri 23/05/03**
130	8.5.1 C1 to C2 PC Beams	6 days	Wed 10/09/03
131	8.5.2 C2 to C3 PC Beams	6 days	Fri 23/05/03
132	**8.6 Bridge Deck Construction C1 to C3**	**132 days**	**Fri 30/05/03**
133	8.6.1 C1 to C2 Bridge Deck	40 days	Thu 18/09/03
134	8.6.2 C2 to C3 Bridge Deck	40 days	Fri 30/05/03
135	**8.7 Bridge deck Dreinage C1 to C3**	**36 days**	**Wed 05/11/03**
136	8.7.1 C1 to C2 Drainage Pipe, M/H cover & Gully	18 days	Wed 05/11/03
137	8.7.2 C2 to C3 Drainage Pipe, M/H cover & Gully	18 days	Wed 26/11/03
138	**8.8 Bridge Deck Parapet & Curb C1 to C3**	**76 days**	**Wed 03/12/03**
139	8.8.1 C1 to C2 Parapet & Curb	36 days	Wed 03/12/03
140	8.8.2 C2 to C3 Parapet & Curb	40 days	Sat 17/01/04
141	8.9 Bridge A, B & C Movement Joint installation	90 days	Wed 17/12/03
142	**9 Road works, Pavement & Cycle Track**	**295 days**	**Tue 26/08/03**
143	9.1 Drainage to on Grade Road	75 days	Fri 12/03/04
144	9.2 Utilities at on Grade Road	75 days	Wed 21/04/04
145	9.3 Carriage way Wearing Course	6 days	Sat 07/08/04
146	9.4 Road Marking & road furniture	6 days	Sat 14/08/04
147	9.5 Foot path	150 days	Wed 18/02/04
148	9.6 Cycle Track	90 days	Thu 06/05/04
149	9.7 Light Poles	150 days	Tue 26/08/03
150	9.8 Road Work Finishings	120 days	Thu 26/02/04
151	**10 Retaining Walls**	**691 days**	**Wed 12/12/01**
152	**10.1 RW1**	**90 days**	**Wed 13/08/03**
153	10.1.1 RW1 Bay 1	40 days	Wed 13/08/03
154	10.1.2 RW1 Bay 2	40 days	Wed 27/08/03
155	10.1.3 RW1 Bay 3	40 days	Wed 10/09/03
156	10.1.4 RW1 Bay 4	30 days	Thu 25/09/03
157	10.1.5 RW1 Bay 5	30 days	Fri 10/10/03
158	10.1.6 RW1 Bay 6	30 days	Fri 24/10/03
159	**10.2 RW2**	**217 days**	**Sat 10/05/03**
160	10.2.1 RW2 Bay 1	40 days	Fri 07/11/03
161	10.2.2 RW2 Bay 2	40 days	Fri 21/11/03
162	10.2.3 RW2 Bay 3	40 days	Fri 05/12/03
163	10.2.4 RW2 Bay 4	30 days	Fri 19/12/03
164	10.2.5 RW2 Bay 5	30 days	Sat 10/05/03
165	10.2.6 RW2 Bay 6	30 days	Sat 24/05/03
166	10.2.7 RW2 Bay 7	30 days	Mon 30/06/03
167	**10.3 RW3**	**185 days**	**Mon 16/12/02**
168	10.3.1 RW3 Bay 4	30 days	Tue 03/06/03
169	10.3.2 RW3 Bay 5	50 days	Fri 14/03/03
170	10.3.3 RW3 Bay 6	120 days	Mon 16/12/02
171	10.3.4 RW3 Bay 7	120 days	Mon 16/12/02
172	10.3.5 RW3 Bay 8	40 days	Mon 16/06/03
173	10.3.6 Dwarf Wall	40 days	Tue 17/06/03



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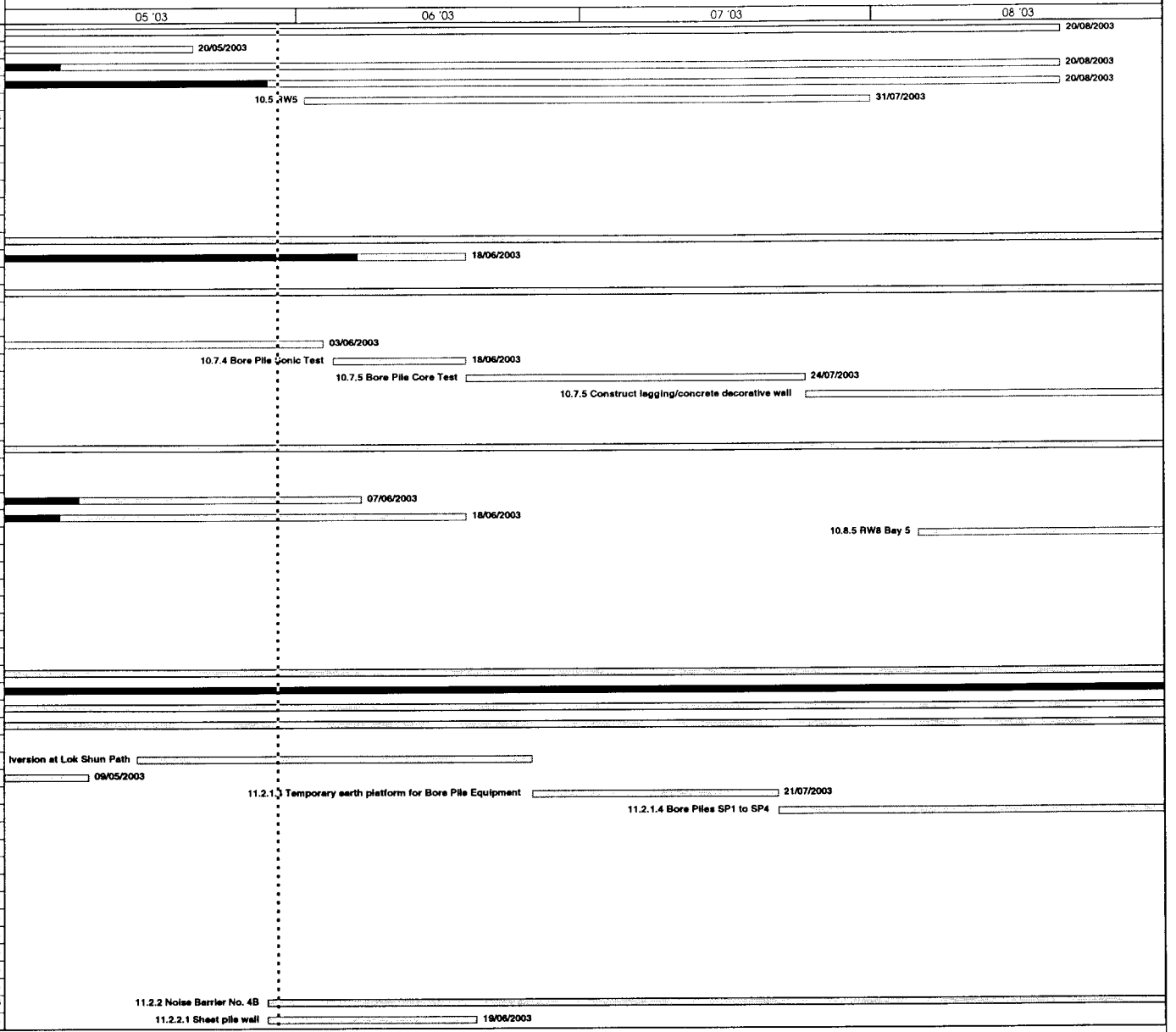
Task Progress	Milestone	Rolled Up Critical Task	Split		
Critical Task	Summary	Rolled Up Milestone	External Tasks		

MASTER PROGRAMME (ST77/01/MP/10)

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

ID	Task Name	Duration	Start
174	10.4 RW4	**177 days**	**Wed 15/01/03**
175	10.4.1 RW4 Bay 1	100 days	Wed 15/01/03
176	10.4.2 RW4 Bay 2	100 days	Tue 22/04/03
177	10.4.3 RW4 Bay 3	100 days	Tue 22/04/03
178	10.5 RW5	50 days	Mon 02/06/03
179	**10.6 RW6**	**90 days**	**Fri 21/11/03**
180	10.6.1 Sheet pile walls	12 days	Fri 21/11/03
181	10.6.2 Excavation to +16.5	12 days	Fri 05/12/03
182	10.6.3 Bay 1	24 days	Fri 19/12/03
183	10.6.4 Bay 2	24 days	Tue 20/01/04
184	10.6.5 Backfil to +22	12 days	Fri 20/02/04
185	10.6.6 Remove sheet piles	6 days	Fri 05/03/04
186	**10.7 RW7**	**465 days**	**Mon 16/09/02**
187	10.7.1 Pre-drill holes (21 nos)	47 days	Tue 22/04/03
188	10.7.2 Forming working platform	24 days	Mon 16/09/02
189	**10.7.3 Install bored pile (21nos)**	**443 days**	**Tue 15/10/02**
190	10.7.3.0 Completed Bore Piles	183 days	Tue 15/10/02
191	10.7.3.1 B4 Bore Pile	6 days	Mon 14/04/03
192	10.7.3.2 B10,B11,B13,B14	50 days	Mon 31/03/03
193	10.7.4 Bore Pile Sonic Test	12 days	Thu 05/06/03
194	10.7.5 Bore Pile Core Test	30 days	Thu 19/06/03
195	10.7.5 Construct lagging/concrete decorative wall	60 days	Fri 25/07/03
196	10.7.6 Construct extension section above bored pile	60 days	Sat 06/12/03
197	10.7.7 Construct Capping Beam	40 days	Sat 21/02/04
198	10.8 RW8	**325 days**	**Tue 08/10/02**
199	10.8.1 RW8 Bay 1	120 days	Tue 08/10/02
200	10.8.2 RW8 Bay 2	100 days	Wed 20/11/02
201	10.8.3 RW8 Bay 3	100 days	Sat 01/02/03
202	10.8.4 RW8 Bay 4	80 days	Mon 10/03/03
203	10.8.5 RW8 Bay 5	80 days	Wed 06/08/03
204	**10.9 RW11**	**222 days**	**Wed 12/12/01**
205	10.9.1 Alternative Design & Approval	90 days	Wed 12/12/01
206	10.9.2 Construct RW11	100 days	Wed 15/05/02
207	**10.10 RW12**	**78 days**	**Sat 27/09/03**
208	10.10.1 Rw12 Bay 1	30 days	Sat 27/09/03
209	10.10.2 RW12 Bay 2	30 days	Mon 27/10/03
210	10.10.3 RW12 Bay 3	30 days	Mon 24/11/03
211	**11.0 Noise Barriers Preliminary**	**782 days**	**Wed 12/12/01**
212	11.1 Temporary Work Submission & Approval	300 days	Mon 02/09/02
213	**11.2 Noise Barrier Structures**	**408 days**	**Fri 11/10/02**
214	**11.2.1 Noise Barrier No. 1**	**408 days**	**Fri 11/10/02**
215	11.2.1.1 Site investigation	30 days	Fri 11/10/02
216	11.2.1.2 Traffic Diversion at Lok Shun Path	30 days	Thu 15/05/03
217	11.2.1.3 Demolish Extg Retaining Wall Footing	60 days	Mon 17/02/03
218	11.2.1.4 Temporary earth platform for Bore Pile Equipmer	18 days	Thu 26/06/03
219	11.2.1.4 Bore Piles SP1 to SP4	60 days	Tue 22/07/03
220	11.2.1.5 Bore Piles Coring Test	18 days	Tue 14/10/03
221	11.2.1.6 Temporary Shoring & Excavation	30 days	Fri 07/11/03
222	11.2.1.7 Construct Pile Caps	60 days	Tue 14/10/03
223	11.2.1.8 RW Panel 1	40 days	Fri 19/12/03
224	11..2.1.9 RW Panel 2	40 days	Tue 06/01/04
225	11.2.1.10 RW Panel 3	40 days	Wed 26/11/03
226	11.2.1.11 RW Panel 4	30 days	Thu 15/01/04
227	11.2.1.12 RW Panel 5	24 days	Wed 15/10/03
228	11.2.1.13 RW Panel 6	24 days	Wed 22/10/03
229	11.2.1.14 RW Panel 7	24 days	Wed 29/10/03
230	**11.2.2 Noise Barrier No. 4B**	**148 days**	**Thu 29/05/03**
231	11.2.2.1 Sheet pile wall	18 days	Thu 29/05/03



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Task Progress	Milestone	Rolled Up Critical Task	Split		
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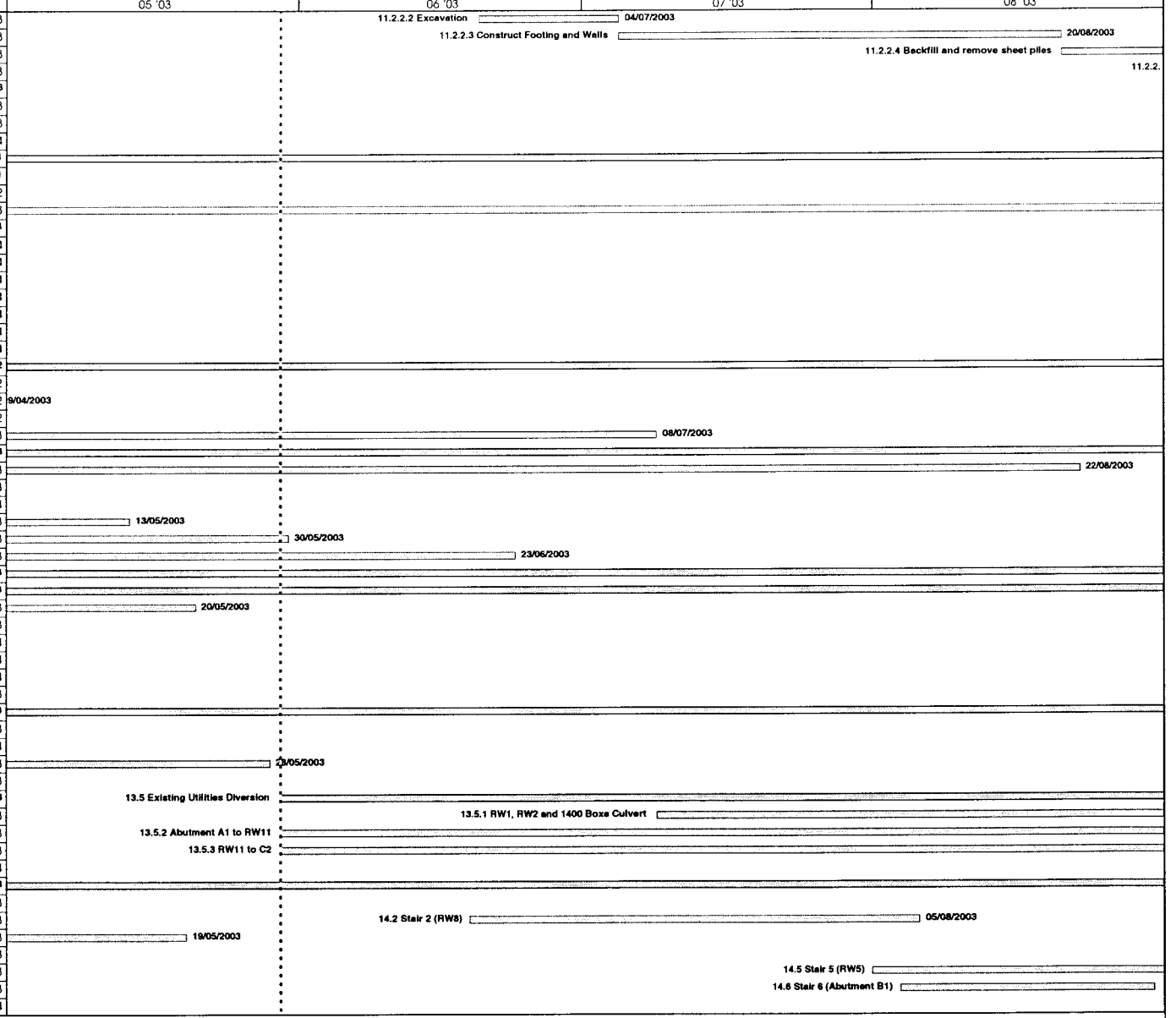
MASTER PROGRAMME (ST77/01/MP/10)

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

ID	Task Name	Duration	Start
232	11.2.2.2 Excavation	12 days	Fri 20/06/03
233	11.2.2.3 Construct Footing and Walls	40 days	Sat 05/07/03
234	11.2.2.4 Backfill and remove sheet piles	18 days	Thu 21/08/03
235	11.2.2.5 Granite Cladding	60 days	Thu 11/09/03
236	**11.2.3 Noise Barrier No. 5**	**100 days**	**Fri 19/09/03**
237	11.2.3.1 Excavation	18 days	Fri 19/09/03
238	11.2.3.2 Construct Footing and Walls	70 days	Sat 11/10/03
239	11.2.3.3 Backfill	12 days	Mon 05/01/04
240	**11.3 Noise Barrier Steel Post & Panels**	**782 days**	**Wed 12/12/01**
241	11.3.1 Procurement and Fabrication of Noise barrier	150 days	Wed 12/12/01
242	11.3.2 DesignSubmission for approval	250 days	Wed 19/06/02
243	11.3.3 Fabrication and Delivery	200 days	Thu 17/04/03
244	**11.3.4 Noise Barrier Installation**	**128 days**	**Wed 25/02/04**
245	11.3.4.1 Noise Barrier No.1	60 days	Wed 25/02/04
246	11.3.4.2 Noise Barrier No. 2	60 days	Fri 05/03/04
247	11.3.4.3 Noise Barrier No. 3	60 days	Sat 10/04/04
248	11.3.4.4 Noise Barrier No. 4A	60 days	Fri 05/03/04
249	11.3.4.5 Noise Barrier No. 4B	60 days	Thu 20/05/04
250	11.3.4.6 Noise Barrier No. 4C	30 days	Thu 18/03/04
251	11.3.4.7 Noise Barrier No. 5	60 days	Tue 27/04/04
252	**12 Box Culvert Extension**	**619 days**	**Thu 27/06/02**
253	12.1 Remove existing iniet, water diversion	158 days	Thu 27/06/02
254	12.2 Box culvert	156 days	Sat 19/10/02
255	12.3 Flood Wall	29 days	Mon 21/10/02
256	12.4 Construct 1400 box culvert	70 days	Thu 10/04/03
257	**12.5 Construct 1500 pipe**	**373 days**	**Thu 24/04/03**
258	12.5.1 Construct 1500 pipe CH 0 to CH 30	100 days	Thu 24/04/03
259	12.5.2 Construct 1500 pipe CH 30 to CH 62	44 days	Wed 26/11/03
260	12.5.3 Construct 1500 pipe CH 60 to CH 82	70 days	Fri 30/04/04
261	12.6 Construct CP15	40 days	Fri 21/03/03
262	12.7 Construct M/H31	60 days	Sat 15/03/03
263	12.8 Construct 1200 U Channel	50 days	Wed 23/04/03
264	**13.0 Underground Draunage & Utilities**	**422 days**	**Wed 15/01/03**
265	**13.1 Drainage works at Lok Ha Lo roundabout**	**422 days**	**Wed 15/01/03**
266	13.1.1 Drainage works at stage 2 of TTM	100 days	Wed 15/01/03
267	13.1.2 Drainage works at stage 3 of TTM	44 days	Wed 26/11/03
268	13.1.3 Drainage works at stage 4 of TTM	40 days	Tue 20/01/04
269	13.1.3 Drainage works at stage 5 of TTM	40 days	Wed 10/03/04
270	13.1.4 Drainage works at stage 6 of TTM	40 days	Fri 30/04/04
271	13.2 CLP Cable Ducts	30 days	Wed 26/11/03
272	**13.3 Water pipes and associated Works**	**369 days**	**Sat 01/03/03**
273	13.3.1 Water Mains for irrigation system	120 days	Wed 31/12/03
274	13.3.2 Fire Service Pipe & Hydrant	60 days	Fri 30/01/04
275	13.3.3 Water Main Diversion(1400 Box Culvert)	70 days	Sat 01/03/03
276	13.4 Telephone Ducts	40 days	Mon 29/12/03
277	**13.5 Existing Utilities Diversion**	**286 days**	**Fri 30/05/03**
278	13.5.1 RW1, RW2 and 1400 Boxe Culvert	72 days	Wed 09/07/03
279	13.5.2 Abutment A1 to RW11	120 days	Fri 30/05/03
280	13.5.3 RW11 to C2	100 days	Fri 30/05/03
281	13.5.4 At Lok King Street	100 days	Sat 10/01/04
282	**14 Staircases**	**463 days**	**Tue 28/01/03**
283	14.1 Stair 1(NB 4C)	12 days	Thu 11/09/03
284	14.2 Stair 2 (RW8)	40 days	Thu 19/06/03
285	14.3 Stair 3 (RW3)	50 days	Sat 15/03/03
286	14.4 Stair 4 (RW11)	30 days	Wed 31/12/03
287	14.5 Stair 5 (RW5)	30 days	Fri 01/08/03
288	14.6 Stair 6 (Abutment B1)	24 days	Mon 04/08/03
289	14.7 Stair 7 (RW7)	12 days	Tue 27/04/04



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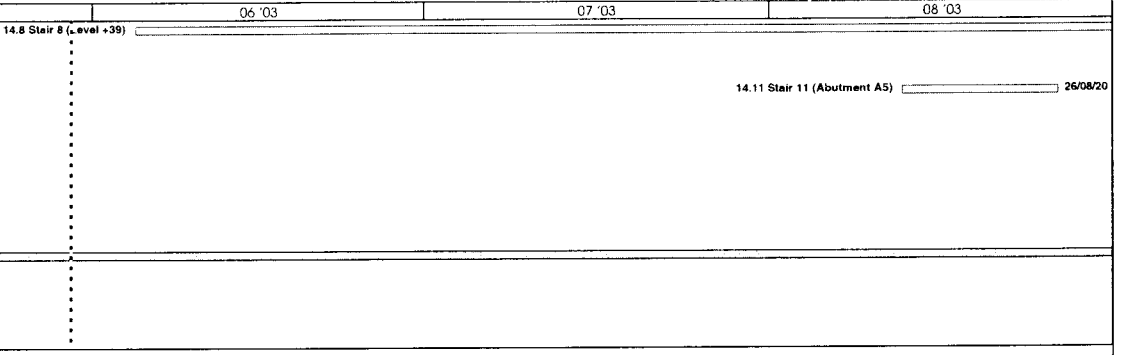
MASTER PROGRAMME (ST77/01/MP/10)

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

ID	Task Name	Duration	Start
290	14.8 Stair 8 (Level +39)	100 days	Thu 05/06/03
291	14.9 Stair 9 (CH300)	12 days	Mon 15/03/04
292	14.10 Stair 10 (RW12)	18 days	Wed 31/12/03
293	14.11 Stair 11 (Abutment A5)	12 days	Wed 13/08/03
294	14.12 Stair 12 (House 102)	6 days	Fri 13/08/04
295	14.13 Stair 13 (Slope CH350 - 400)	18 days	Tue 28/01/03
296	15 Standard Refuse Collection Point	60 days	Wed 25/02/04
297	16 Rain Shelter no.1&2	60 days	Mon 01/03/04
298	**17 Landscaping**	**103 days**	**Wed 14/01/04**
299	17.1 Tree Planting	60 days	Mon 08/03/04
300	17.2 Turfing	30 days	Wed 14/01/04
301	**18 Project Completion & Handover**	**694 days**	**Wed 14/05/03**
302	18.1 Section I Completion	0 days	Wed 14/05/03
303	18.2 Section IA Completion	0 days	Thu 15/05/03
304	18.3 Section II Completion	0 days	Sat 21/08/04
305	18.4 Section III Completion	0 days	Mon 12/09/05



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