MONTHLY ENVIRONMENTAL MONITORING & AUDIT REPORT

Highways Department

Route 9 Between Tsing Yi and Cheung Sha Wan – Phase 1 Ngong Shuen Chau Viaduct: *Monthly Environmental Monitoring & Audit Report (29th March – 28th April 2003)*

EP – 085/2000/C
Route 9 Between Tsing Yi and Cheung Sha Wan – Phase 1
Ngong Shuen Chau Viaduct:

Monthly Environmental Monitoring & Audit Report
(29th March – 28th April 2003)

Certified by the Environmental Team Leader

Signed: _____ Date: 07 May 2003

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EXECUTIVE SUMMARY

This is the ninth monthly Environmental Monitoring and Audit (EM&A) report for the Project HY/2000/21 - Route 9 Ngong Shuen Chau Viaduct. This report presents the results of the EM&A works conducted during the period between 29th March 2003 and 28th April 2003 in accordance with the EM&A Manual which forms part of the EIA Report (Register No. AEIAR-018/1999).

During the monitoring period, the following construction activities have taken place:

- site investigation;
- traffic and utilities diversions;
- bored piling;
- sheet piling and;
- pile cap and pier construction.

Construction works were carried out at site area P1-SA6, P1-SA8, P1-SA9, P1-SA11, P1-SA13 and P1-SA14 during restricted hour in the reporting month.

Monitoring of Total Suspended Particulates (TSP) and noise were performed and the results were checked and reviewed. Site audits were conducted on a weekly basis. The implementation of environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also reviewed.

Air Quality

For 1-hr. TSP monitoring, a total of 36 sets of measurement were carried out during the reporting month and all were below the Action and Limit (AL) Levels.

For 24-hr. TSP monitoring, a total of 12 sets of measurement were carried out during the reporting month and all were below the AL Levels.

Noise

Daytime Monitoring

A total of 8 sets of L_{eq}(30min) measurement during daytime (i.e. 0700 to1900 hours on normal weekdays) were carried out during the reporting month and all measured levels were below the AL Levels.

Evening-time Monitoring

A total of 5 sets of 6 x L_{eq}(5min) measurement during evening-time (i.e. 1900 to 2300 hours on normal weekdays) were carried out at the closest noise monitoring location, NSR1. All measured levels were below the AL Levels.

Night-time Monitoring

No noise monitoring was carried out during night-time (i.e. 2300 to 0700 next day) in the reporting period.

Public-holiday Monitoring

A total of 5 sets of 6 x L_{eq}(5min) measurement during public holiday (i.e. 0700 to 1900 hours during public holiday) were carried out at NSR1. All measured levels were below the AL Levels.

Water Quality

According to the Waste Water Discharge License obtained by the Contractor, water sampling at designated discharge points shall be carried out on a quarterly basis. The next water quality sampling is scheduled for May 2003. No water quality monitoring is required under the EM&A requirements.

Waste Management

Since 1st March 2003, all the inert C&D material including Bentonite Slurry from the Contract shall be disposed of at Kai Tak Public Fill Barging Point. 466 no. of trucks, approximately 3262m^3 of excavated materials were delivered to the Kai Tak PFBP during the reporting month. Approximate 75.39 tonnes of C&D wastes were produced on-site and have been delivered to the SENT landfills during the reporting period.

Site Inspection

Weekly site inspections were undertaken by the ET and the major findings are summarized as follows:

Item	Findings	Proposed Mitigation Measures	Environmental Outcome
1	As informed by CHEC, perimeter drainage were being constructed throughout the month and were all completed by the end of the month, except for P1-SA8 (H7, H8 area). Some u-channels required cleaning and connections to the storm water drains need to be unblocked before using. However, it is uncertain whether the completed temporary drainage system provided has adequate capacity to cope with run-off during a heavy rain storm.	Debris and sand/mud should be cleared from the u-channels as soon as possible and the entire temporary drainage system should be tested before use. Perimeter drainage for P1-SA8 (H7, H8 area) should be installed as soon as possible.	CHEC has been clearing out the u-channels and is considering carrying out testing.
2	Inadequate watering of all sites was observed throughout the month.	Frequency of watering needs to be increased and/or more sprinklers should be used.	More sprinklers have been employed but still not enough.
3	Oil spillages can be seen adjacent to chemical storage areas and various PMEs throughout the site.	Extra care is required when handling oil to avoid spillage and contaminated soil must be cleaned up and disposed of in accordance with relevant regulations.	Only some contaminated areas have been cleaned up but spillages are continued to be seen.
4	Wheel washing facilities were not provided at SA8 (Lin Cheung Road and H9S).	Wheel washing facilities to be installed as soon as possible or close the exits.	CHEC proposed to block the site exit at H9S but not yet done. A water hose is provided at the Lin Cheung

Item	Findings	Proposed Mitigation Measures	Environmental Outcome
			Road site as a temporary measure (works at Lin Cheung Road is scheduled to finished by mid May)
5	General refuse was found scattered at various locations throughout the site areas occasionally.	General refuse and litter should be temporary stored in lidded bins on-site and removed from site regularly.	General refuse/rubbish was cleared by CHEC regularly and additional rubbish bins are being arranged.
6	Inadequate covering for stockpiles.	Stockpiles must be covered adequately by tarpaulin sheets to prevent dust emission.	Tarpaulin sheets were being arranged by the Contractor to cover all stockpiles.

IEC Audit was carried out on 25th April 2003. A total of 1 non-compliance and 7 observations were raised by IEC and they are as follows:

Item	Findings	Proposed Mitigation Measures	Environmental Outcome
1 (NC)	Outstanding from last month. Perimeter drainage system was not yet in operation.	Perimeter drainage system should be constructed as soon as possible with adequate sedimentation facilities before discharge.	Perimeter drainage has been constructed but not yet in operation. CHEC has been reminded on numerous occasions.
1 (Obs)	P1-SA10,15 and 6; dusty ground and fugitive dust emission were observed	Increase watering frequency and/or employ more sprinklers.	Although the number of sprinklers has been increase, it is still inadequate to cover the entire site area.
2 (Obs)	P1-SA15; oil stain on the ground were observed.	Contaminated soil must be removed and disposed of in accordance with the relevant regulations.	CHEC has allocated site staff to clean up the soil..
3 (Obs)	P1-SA6 (bus depot & roundabout); untreated surface run-off being discharged into the storm water drain outside the P1-SA6 main site exit and adjacent to the wheel washing area in the roundabout.	Surface run-off must be treated before discharge into the storm water drains.	CHEC has allocated site staff to rectify the situation.
4 (Obs)	P1-SA6; stockpiles are not covered entirely.	Stockpiles must be covered.	CHEC has allocated site staff to rectify the situation.
5 (Obs)	P1-SA6 and Lin Cheung Road; rubbish were not properly contained and were scattered all over the site.	General refuse and litter should be stored in lidded bins provided on site and removed from site regularly.	Rubbish was cleared by CHEC and additional rubbish bins are being arranged.
6 (Obs)	P1-SA6 (bus depot)	Covering of cement storage area was not adequate.	CHEC has allocated site staff to rectify the situation.

Item	Findings	Proposed Mitigation Measures	Environmental Outcome
7 (Obs)	P1-SA8 (H9S); dust being brought on to the adjacent public road (no wheel washing facility).	As informed by CHEC that since the site is no longer being used the exit should be closed.	CHEC is arranging to block and close the exit.

No site inspection was conducted by EPD during the reporting month.

Environmental Licensing and Permitting

Environmental permits/registration/licenses granted to the Project for the entire period of the Contract include Environmental Permit (EP-085/2000C) and Chemical Waste Producer Registration. Other valid permits and licenses during the reporting period include 1 no. Waste Water Discharge License and 8 no. Construction Noise Permits.

Complaint Log

No environmental complaint was received during the reporting period.

There were a total of 6 complaints received for the Route 9 Phase 1 Ngong Shuen Chau Viaduct contract since the commencement of the construction. All complaint cases were handled in accordance with the complaint investigation procedures.

Notification of Summons and Prosecutions

No notification of summons and prosecutions regarding non-compliance of environmental performance of the construction site was received during the reporting period.

Future Key Issues

The tentative program of major site activities as well as the impact prediction and control measures for the coming three months, i.e. May to July 2003 are summarized as follows:

Construction Works	Major Impact Prediction	Control Measures
Bore piling, pre-drilling, sheet piling, pile cap/ pier construction and excavation.	Air impact (dust and machine emission)	• Frequent watering of haul road and unpaved/exposed areas; • Frequent watering or covering stockpiles with tarpaulin or similar means; and • Regular maintenance of onsite machinery and vehicles.
	Water quality impact (muddy run-off)	• Collecting and recycling of wastewater produced on-site if possible; • Perimeter protection such as sealing of hoarding footings to avoid run-off from entering the existing storm water drainage system via public road; and • Diverting the collected effluent to de-silting facilities for treatment before discharge to public drains.
	Noise Impact	• Scheduling of noisy construction activities if necessary to avoid persistent noisy operation; • Controlling the number of plants use on site; • Regular maintenance of machines; and • Use of acoustic barriers if necessary.

1. INTRODUCTION

Under the requirements of Section 4 of Environmental Permit EP085/2000/C, EM&A programme is required to be implemented as set out in the Environmental Monitoring and Audit (EM&A) Manual which forms part of the EIA Report (Register No. AEIAR-018/1999) for Route 9 between Tsing Yi and Cheung Sha Wan Phase 1 – Ngong Shuen Chau Viaduct" (hereinafter called the "Project").

1.1 Purpose of the Report

This is the 9th monthly EM&A report which presents the results and findings of all EM&A works for the Project between 29th March 2003 and 28th April 2003.

1.2 Structure of the Report

The structure of the report is as follows:

Section 1: **INTRODUCTION** – details the scope and structure of the report.

Section 2: **PROJECT INFORMATION** – summarizes the background and scope of the project, project organization, construction programme and the construction works undertaken during the reporting period.

Section 3: **ENVIRONMENTAL MONITORING REQUIREMENTS** – summarizes the monitoring programmes, Action and Limit Levels, Event Action Plans, environmental mitigation measures as recommended in the EIA Report and relevant environmental requirements.

Section 4: **IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS** – summarizes the implementation of environmental protection measures during the reporting period.

Section 5: **ENVIRONMENTAL LICENCE AND PERMITTING REQUIREMENTS** – summarizes the environmental licences and permits obtained or being applied during the reporting period.

Section 6: **MONITORING RESULTS** – reports the monitoring results obtained in the reporting period.

Section 7: **AUDIT RESULTS –** summarizes the audit findings in the reporting period.

Section 8: **COMPLAINTS, NOTIFICATIONS OF SUMMONS AND PROSECUTIONS DURING THE REPORTING PERIOD** – summarizes the complaints, notifications of summons and prosecutions recorded during the reporting period.

Section 9: **FUTURE KEY ISSUES –** summarizes the future key issues as reviewed from the works programme and work method statements.

Section 10: **RECOMMENDATIONS AND CONCLUSIONS**

2. PROJECT INFORMATION

2.1 Background

The Design and Construction Consultancy Assignment "Agreement No. CE72/98 Route 9 between Tsing Yi and Cheung Sha Wan" was awarded to Ove Arup and Partners Hong Kong Ltd (Arup).

The construction of the Phase 1 of the Route 9 Project comprises of the Ngong Shuen Chau Viaduct and its link with CT8, R9T Cheung Sha Wan – Shatin, and West Kowloon Highway, has been awarded to China Harbour Engineering Company (Group) (CHEC) on 10 April 2002. The construction works was commenced on 29th July 2002 and is scheduled to be completed by December 2006.

2.2 Site Description

Phase 1 works area is located in urban area. The sensitive receivers are mainly residential buildings and schools at Mei Foo Sun Chuen and the dwellings at Stonecutters Military Base. The works area is shown in ***Appendix A***.

2.3 Project Organisation

The project organization chart and contact details are shown in ***Appendix B***.

2.4 Project Work Programme

The project works programme for the coming three months is presented in ***Appendix C***. The major site activities undertaken during the reporting month are summaries in ***Table 2.1***.

Table 2.1 Site Activities undertaken from 29th March 2003 to 28th April 2003

Area	Details of Site Activities
P1-SA6	Excavation, utility diversion, temporary drainage system, bore piling, pile cap and pier construction.
P1-SA8	Bore piling and pile cap construction, road drainage construction.
P1-SA9	Construction of Segment Storage Yard.
P1-SA10	Storage and mobilization of equipment/material, chemical waste storage.
P1-SA11	Bore piling, pile cap and column construction and utility diversion.
P1-SA13 and 14	Formwork erection, pile cap and column construction.
P1-SA15	Storage area and chemical waste storage.

3. ENVIRONMENTAL MONITORING REQUIREMENTS

3.1 Air Quality

Monitoring Requirements

Monitoring of 1-hour and 24-hour TSP was conducted to monitor the construction dust impact. ***Appendix D1*** shows the established Action/Limit Levels for the environmental monitoring works.

Monitoring Frequency and Schedule

The monitoring parameters and frequency are summarized in ***Table 3.1***. The monitoring schedule for the reporting period is shown in ***Appendix E***.

Table 3.1 TSP Monitoring Parameter and Frequency

Parameters	Duration / hour	Frequency
24-hour TSP	24	Once Every Six Days
1-hour TSP	1	Three Times Every Six Days

Monitoring Locations

In accordance with the EM&A Manual and project specifications, two air quality monitoring locations were selected. Both 1 hour and 24-hour TSP monitoring were performed in the reporting month. The locations of the two monitoring stations are listed in ***Table 3.2*** and are shown in ***Appendix F***.

Table 3.2 TSP Monitoring Locations

Location I.D.	Description
ASR1	Lai Chi Kok Park at Mei Foo Sun Chuen (at the roof of the toilet block)
ASR2	DSD Pumping Station (in the proximity of Stonecutters Military Base)

Wind data monitoring was carried out at the Area P1-SA9 for logging wind speed and wind direction.

Monitoring Equipment

Continuous 24-hour and 1-hour TSP air quality monitoring was performed using a TE-5170 Tisch Environmental Inc. High Volume Sampler (HVS), which was installed at the monitoring stations. The sampler composed of a motor, filter holder, flow controller and a sampling inlet. Its performance specification complies with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

Wind data, in terms of wind speed and direction, was measured using wind data monitor. Details of the monitoring equipment are given in ***Table 3.3***. A copy of the calibration certificate for the HVS and wind data monitor are attached in ***Appendix G1*** and ***Appendix G2*** respectively.

Table 3.3 Air Quality Monitoring Equipment

Equipment	Model	Qty.
HVS Sampler	TE-5170 Tisch Environmental Inc.	2
Calibrator	TE-5028A Tisch Environmental Inc.	1

Monitoring Procedures and Calibration Details

Calibration Procedures

Calibration procedures of HVS were as follows:

- A certified orifice transfer standard with a calibration curve was used for the calibration.
- The transfer standard was connected to the inlet of the sampler. The orifice manometer was then connected to the orifice pressure port. The manometer's connecting tubing was inspected to make sure that there are no leaks between the orifice unit and the sampler.
- The motor was then disconnected from the flow controller and plugged directly to an AC power source.
- A weather station has been setup at the Site Office to measure and record the ambient temperature, Ta (K) and the barometer pressure Pa (mmHg) during calculation.
- The sampler was allowed to run for at least 2 minutes to re-establish the run temperature conditions. The pressure drop across the orifice and the well-type manometer reading was recorded during calibration. The variable resistance was adjusted to repeat recording for four different flow rates.

- The best fit straight line was determined by linear regression and find the slope (m1), intercept (b1) and correlation coefficient (r).

Certificate for calibration is attached in ***Appendix G3***.

Operating/Analytical Procedures

- The flow rate of the high volume sampler was set to about 1.1 m^3/min - 1.7 m^3/min prior to commencement of the dust sampling in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.

- The samplers was located such that:

  - the filter was about 1.3 meters above ground.
  - it was greater than 20 meters away from trees.
  - it was separated from any obstacle by at least twice the height of the obstacle protruding above the sampler.
  - it has unrestricted airflow 270° around the sampler.

- Fibreglass filters were used for TSP sampling (G810) [Note: these filters have a collection efficiency of > 99% for particles of 0.3 mm diameter].

- All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was between 25°C and 30°C and not vary by more than ±3°C; the relative humidity was < 50% and not vary by more than ±5%.

- A new filter was placed with stamped number upward on a supporting screen.

- The filter was properly aligned on the screen so that the gasket formed an air-tight seal on the outer edges of the filter.

- Shelter lid closed and catch secured with the aluminum strip.

- The sampler was then allowed to run for at least 5 minutes to establish run-temperature conditions.

- The flow indicator reading was recorded and the sampler flow rate was determined.

- The programmable timer was set and the starting sampling time, weather condition and the filter number was recorded.

- At the end of sampling, the filter was transferred from the filter holder of the HVS to a sealable plastic bag and sent to the laboratory for weighing. The elapsed time was also recorded.

- Before weighing, all filters were equilibrated in a desiccator for 24 hours with

temperature of 25°C±3°C and the relative humidity (RH) 50%±5%, preferably 40%.

Maintenance

- The volume sampler and their accessories were maintained in good working condition, include replacing motor brushes routinely and checking electrical wiring to ensure continuous power supply.

- The high volume samplers were calibrated at bi-monthly intervals using TE-5028A Tisch Environmental Inc. Calibration Kit throughout all stages of the air quality monitoring.

Event/Action Plan

The Event/Action Plan for Air Quality is shown in ***Appendix H1***.

3.2 Noise Quality

Monitoring Requirements

Noise monitoring was conducted at two monitoring stations to monitor the construction noise impact. ***Appendix D2*** shows the established Action/Limit Levels for the environmental monitoring works.

Monitoring Frequency and Schedule

Daytime noise monitoring was conducted during the period of 07:00 to 19:00. Restricted hour noise monitoring was also conducted when there is construction works carried out. The monitoring schedule is shown in ***Appendix E***. The frequency and parameters of noise measurement are presented in ***Table 3.4***.

Table 3.4 Noise Monitoring Frequency and Parameters

Time Period	Duration / min.	Parameters	Frequency
Daytime (0700 to 1900)	30 (6 consecutive L_{eq}(5min) in average)	L_{eq}, L_{90} & L_{10}	Once per week
*Evening (1900 to 2300)	5	L_{eq}, L_{90} & L_{10}	Six times per week
*Night (2300 to 0700 next day)	5	L_{eq}, L_{90} & L_{10}	Four times per week
*Holiday (0700-1900 on holidays)	5	L_{eq}, L_{90} & L_{10}	Six times per week

* Restricted hour noise monitoring: conduct noise monitoring only when there is construction work.

Monitoring Locations

In accordance with the EM&A Manual and project specifications, two noise monitoring stations (as detailed in ***Table 3.5*** and shown in ***Appendix F***) were selected for noise measurement.

Table 3.5 Location of the Noise Monitoring Stations

Location I.D.	Description	Type of measurement
NSR1	Lai Chi Kok Park at Mei Foo Sun Chuen (at the roof of the toilet block)	Free Field
NSR2	DSD Pumping Station (in the proximity of Stonecutters Military Base)	Free Field

Monitoring Equipment

Integrating Sound Level Meters were used for noise monitoring which were Type 1 sound level meters capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (L_x). They comply with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1). Also, a portable electronic wind speed indicator capable of measuring wind speed in m/s was used to monitor the wind speed. ***Table 3.6*** summarizes the noise monitoring equipment used.

Table 3.6 Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	SC-30, CESVA
Calibrator	CB-5, CESVA
Portable Wind Speed Indicator	PWM1, Dwyer

Monitoring Procedures and Calibration Details

Field Monitoring

- The microphone of the Sound Level Meter (with weatherproof kit) was mounted on a tripod at a height of 2m above ground level.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces.
- AC power supply was checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:

  - frequency weighting : A
  - time weighting : Fast
  - time measurement : 30 minutes / 5 minutes

- Prior to and after each noise measurement, the meter was calibrated using the Calibrator for 94 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1 dB (A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- The wind speed was frequently checked with the portable wind meter.
- At the end of the monitoring period, the L_{eq}, L_{90} and L_{10} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise measurement was paused during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.

Maintenance and Calibration

- The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
- The meter was sent to the supplier to check and calibrate yearly.
- Calibration certificates are attached in ***Appendix G3***.

Event/Action Plan

The Event/Action Plan for Noise impact is presented in ***Appendix H2***.

4. IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and EM&A Manual. The implementation status during the reporting period is summarized in ***Appendix I***.

5. ENVIRONMENTAL LICENCE AND PERMITTING REQUIREMENTS

The status of the permits, licenses and EPD notifications for all relevant environmental issues for this project is summarized in ***Table 5.1*** of the reporting period.

Table 5.1 Summary of Environmental Licensing, Notification and Permit Status

Description	Permit No.	Valid Period		Section	Status / Remarks
		From	To		
Environmental Permit	EP-085/2000C	15/04/02	-	Whole work site	Valid
1Chemical Waste Producer Registration	WPN – 5213-269-C3215-01	15/04/02	-	Whole construction site	Valid (for disposal of empty fuel / lubricant drums, scrap batteries, spent lubricating oil, diesel, mineral oil and solvent)
Waste Water Discharge License	EP482/269/0038/I	15/04/02 (revised on 02/08/02)	30/06/07	Whole construction site	Valid (carry out analyses on a quarterly basis)
Construction Noise Permit	GW-UE0458-02	21/11/02	20/05/03	Lin Cheung Road near Lai Wan Interchange (NB42, SB42, G2 and H9N)	Valid (Any day including general holiday between 2300h-0700h on the next days)
Construction Noise Permit	PP-UE0112-02	21/12/02	30/04/03	Lai Po Road off KMB Depot	Valid (Any day not being a general holiday from 0700h-1900h)
Construction Noise Permit	PP-UE0113-02	09/01/03	08/07/03	Hing Wai St. West off Kln. Refuse	Valid (Any day not being a general holiday from 0800h-0930h; 1230h-1400h;

Description	Permit No.	Valid Period		Section	Status / Remarks
		From	To		
					1700h-1900h)
Construction Noise Permit	PP-UE0114-02	09/01/03	08/07/03	Construction Site below West Kln Highway near Hing Wah St. West	Valid (Any day not being a general holiday from 0700h-1900h)
Construction Noise Permit	GW-UE0056-03	17/03/03	10/09/03	Hing Wah St. West between Container Port Road South Roundabout	Valid (Any day from 0700h - 2300h)
Construction Noise Permit	GW-UE0057-03	17/03/03	10/09/03	Hing Wah St. West near Hop Hing Shipyard, Kln	Valid (Any day from 0700h - 2300h)
Construction Noise Permit	GW-UE0061-03	17/03/03	10/09/03	West Kln Highway near Hing Wah St. West	Valid (Any day from 0700h - 2300h)
Construction Noise Permit	GW-UE0082-03	21/03/03	20/09/03	Lai Wan Interchange near West Kln Highway & Lai Po Road	Valid (Any day from 0700h - 2300h)

6. MONITORING RESULTS

6.1 Air Quality

1-hour TSP

1-hour TSP monitoring was carried out at 2 monitoring stations between 29th March 2003 and 28th April 2003. All monitoring data are presented in ***Appendix J***. A summary of the measured 1-hour TSP levels is given in ***Table 6.1***. Graphical presentations of the 1-hour TSP monitoring results for the reporting month and the trend of 1-hour TSP results since the commencement of the Project are shown in ***Appendix K***.

Table 6.1 Summary of 1-hour TSP Impact Monitoring Results

Location I.D.	1-hour TSP (μg/m^3)		Action Level (μg/m^3)	Limit Level (μg/m^3)
	Mean	Range		
ASR1	200.5	(54.7-294.8)	318	500
ASR2	222.9	(129.1-314.3)	318	500

24-hour TSP

24-hour TSP monitoring was carried out at 2 monitoring stations between 29th March 2003 and 28th April 2003. All monitoring data are presented in ***Appendix J***. A summary of the measured results is given in ***Table 6.2***. Graphical presentation of the results and the trend since the commencement of the Project are shown in ***Appendix K***.

No exceedance of the Action/Limit Levels of 24-hour TSP was recorded during the reporting period.

Table 6.2 Summary of 24-hour TSP Impact Monitoring Results

Location I.D.	24-hour TSP (μg/m^3)		Action Level (μg/m^3)	Limit Level (μg/m^3)
	Mean	Range		
ASR1	95.6	(62.4-115.3)	163	260
ASR2	91.6	(49.2-98.2)	178	260

The wind data monitoring results recorded during the reporting period are summarized in ***Appendix L***.

Observations

There were several significant dust sources identified during the reporting period and they were mainly contributed by the following activities:

- site clearance;
- excavation;
- grouting;
- demolition site clearance;
- other construction activities nearby; and
- on site traffic.

6.2 Noise

Normal Hour Monitoring

Daytime noise monitoring was carried out at all the noise monitoring stations between 29th March 2003 and 28th April 2003. A 3 dB(A) façade correction was made to the free field measurements at the monitoring stations. All corrected noise levels are presented in ***Appendix M1***. A summary of the results is given in ***Table 6.3***. Graphical presentation of the monitoring results for the reporting month is shown in ***Appendix N1***.

No exceedance of the Action/Limit Levels of noise for normal hour monitoring was recorded during the reporting period.

Table 6.3 Summary of Corrected Impact Noise Levels for Normal Hour Monitoring

Daytime 0700-1900 hrs on normal weekdays	**Corrected Noise Level, dB(A) * Mean (Range)**		
	Leq	**L_{10}**	**L_{90}**
NSR1	63.0 (62.2-63.6)	64.6 (63.7-65.7)	60.8 (59.5-61.8)
NSR2	74.3 (71.9-74.9)	77.2 (74.2-78.5)	67.3 (65.0-68.7)

** A 3dB (A) façade correction was made to the Free-field measurements.*

Observations

The major noise sources during the normal hour in this reporting period were dominated by the following activities:

- bored piling;
- sheet piling;
- excavation;
- demolition/site clearance;
- on site traffic noise; and
- other construction works nearby.

Restricted Hour Monitoring

Construction works were carried out at site areas P1-SA6, 8, 9, 11, 13 and 14 during restricted hours. Since the monitoring location, NSR2, is quite some distance away from the con-current construction area, therefore, it was decided that the noise measurement for restricted hour monitoring will only be conducted at the closest noise monitoring location, NSR 1. A 3 dB(A) façade correction was made to the free field measurement at the monitoring locations. All corrected noise levels are presented in ***Appendix M2***. A summary of the results is given in ***Table 6.4***. Graphical presentation of the monitoring results for the reporting month is shown in ***Appendix N2***.

Noise monitoring was carried out at NSR1 during evening-time (i.e. 1900 to 2300 hours on normal weekdays) and public holiday (i.e. 0700 to 1900 hours on holidays) when construction works were carried out. All measured levels were below the Action and Limit (AL) Levels.

Table 6.4 Summary of Corrected Impact Noise Levels for Restricted Hour Monitoring

Time Period	Corrected Noise Level, dB(A), recorded at NSR1* Mean (Range)		
	Leq	**L_{10}**	**L_{90}**
Evening-time (1900h-2300h)	60.6 (58.5-64.7)	61.9 (60.1-63.9)	58.0 (56.1-59.6)
Night-time (2300h-0700h of next day)	N/A	N/A	N/A
Holiday (0700h-1900h on holiday)	62.7 (58.8-67.1)	64.8 (60.7-68.4)	59.1 (56.3-61.5)

** A 3dB (A) façade correction was made to the Free-field measurements.*

Observations

The type of construction works and number of power plants in operation had been inspected during the monitoring which was fully complied with the CNP requirement.

7. AUDIT RESULTS

7.1 Air Quality

The 1-hour and 24-hour TSP measurements at the air monitoring locations were all below the corresponding Action/Limit Levels.

7.2 Noise

For $L_{eq(30min)}$ measurement, a total of 4 sets of daytime noise monitoring (i.e. 0700 to 1900 from Monday to Saturday) were carried out each at NSR 1 and NSR 2 during the reporting period and all measurement results were below the Limit Level.

A total of 4 sets of 6 x L_{eq}(5min) measurement during evening-time (i.e. 1900 to 2300 hours on normal weekdays) were carried out at the closest noise monitoring location, NSR 1. All measured levels were below the Action and Limit (AL) Levels.

A total of 3 sets of 6 x L_{eq}(5min) measurement during public holiday (i.e. 0700 – 1900 hours during public holiday) were carried out at the closest noise monitoring location, NSR1. All measured levels were below the AL Levels.

7.3 Water Quality

Although no comprehensive water quality monitoring is required under the EM&A Manual, in according with the effluent discharge license obtained by CHEC, water sampling at designated discharge points shall be carried out on a quarterly basis. The next discharge sampling is scheduled for May 2003.

7.4 Waste Management

Wastes generated from this Project included construction and demolition (C&D) materials, excavated materials, chemical waste and general refuse. CHEC's handling and disposal of these waste should strictly follow the recommended procedures stipulated in the Waste Management Plan (WMP) which has been approved by EPD.

Since 1st March 2003, all the inert C&D material including Bentonite Slurry from the Contract shall be disposed of at Kai Tak Public Fill Baring Point. The Contractor was reminded that all the inert C&D materials delivered to the Kai Tak PFBP shall contain no free water and the water/liquid content shall not exceed 70% by weight.

Based on the information provided by CHEC with respect to relevant handling records and trip tickets of this project, the quantities of different wastes and their handling are summarized in ***Table 7.1***.

Table 7.1 Summary of Waste Disposal during the Reporting Period

Material Type		Quantity Produced in Apr 03	Handling Method	Handling Quantities in Apr 03	Temporary Storage Locations On-site (if applicable)
C&D materials	(Public Fill)	466. of Dump Trucks	Deliver to Public Fill Area (Tuen Mun Area 38)	0 no. of Dump Trucks	N/A
			Deliver to Public Fill Barging Point Kai Tak	466no. of Dump Trucks	N/A
			Reuse on site for filling	N/A	N/A
	(C&D Waste)	220 kg	To be recycled (paper)	220 kg	P1-SA9
		N/A	To be recycled (aluminum can)	N/A	P1-SA9
		N/A	To be reused	N/A	P1-SA15
		N/A	To be returned to supplier	N/A	N/A
		75.39 tonnes	Collected by licensed collector for disposal	tonnes	Works area
Chemical waste		1000 Litres	Collected by licensed chemical waste collector	1000 Litres	Chemical Waste Storage Area in P1-SA10 and P1-SA15

7.5 Site Inspection by Environmental Team (ET)

Weekly site inspections were conducted by the ET and the major findings are summarized as follows:

- AS informed by CHEC, perimeter drainage were being constructed throughout the month and were all completed by the end of the month, except for P1-SA8 (H7, H8 area). Some u-channels required cleaning and connections to the storm water drains need to be unblocked before using. However, it is uncertain whether the completed temporary drainage system provided has adequate capacity to cope with run-off during a heavy rain storm. It was suggested to CHEC that debris and mud should be removed from all u-channels and all connections to the storm water drain should be unblocked. Also, it was suggested that a test on the adequacy of the temporary drainage system should be carried out to demonstrate that they are capable to handle large volume of run-off during rain storm and perimeter drainage to be installed for the remaining site. CHEC has subsequently cleaned out the u-channels and is considering carrying out testing.
- Inadequate watering of all sites was observed throughout the month. It was suggested

to CHEC that frequency of watering needs to be increased and/or more sprinklers should be used. More sprinklers have subsequently been employed but still not enough to cover the entire site area.

- Oil spillages can be seen adjacent to chemical storage areas and various PMEs throughout the site. It was suggested to CHEC that extra care is required when handling oil to avoid spillage and contaminated soil must be cleaned up and disposed of in accordance with relevant regulations. Only some contaminated areas have subsequently been cleaned up but spillages are continued to be seen.

- Wheel washing facilities were not provided at P1-SA8 (Lin Cheung Road and H9S). It was suggested that wheel washing facilities should be installed as soon as possible or close the exits. CHEC proposed to block the site exit at H9S but not yet done. A water hose was provided at the Lin Cheung Road site as a temporary measure (works at Lin Cheung Road is scheduled to finished by mid May)

- General refuse was found scattered at various locations throughout the site areas occasionally. General refuse and litter should be temporary stored in lidded bins on-site and removed from site regularly. General refuse/rubbish was cleared by CHEC regularly and additional rubbish bins are being arranged.

- Inadequate covering for stockpiles was seen throughout the site and in particular in P1-SA6. It was suggested to CHEC that stockpiles must be covered adequately by tarpaulin sheets to prevent dust emission. Tarpaulin sheets were being arranged by CHEC to cover all stockpiles.

7.6 Site Inspection by Independent Environmental Checker (IEC)

IEC Audit was carried out on 25th April 2003. A total of 1 non-compliance and 7 observations were raised by IEC and they are as follows:

Non-Compliance

- Although the majority of the perimeter drainage system has been installed, they were not yet in operation and therefore last month's non-compliance is still outstanding. Perimeter drainage system should be completed as soon as possible with adequate sedimentation facilities prior to discharge. CHEC has been reminded on numerous occasions.

Observations

- Dusty ground conditions were observed at P1-SA10, P1-SA15 and P1-SA6. Watering frequency should be increased and/or employ more sprinklers. More sprinklers have subsequently been employed on site.

- Oil stain on the ground was observed at P1-SA15. Contaminated soil must be removed and disposed of in accordance with the relevant regulations.

- Untreated surface run-off was seen being discharged into storm water drains at P1-SA6

and the roundabout (NB33). All surface run-offs must be treated prior to discharge.

- Stockpiles were not entirely covered at P1-SA6 (bus depot). All stockpiles must be covered to prevent dust emission.

- Rubbish was not properly contained and was scattered all over the site at P1-SA6 and Lin Cheung Road site. CHEC has subsequently removed rubbish from this concerned area and agreed that additional lidded bins to be provided.

- Inadequate covering was seen at the cement storage area at P1-SA6 (bus depot). Adequate covering must be provided to prevent dust emission.

- Dust being brought on to the adjacent public road at P1-SA8 (adjacent to H9S) (no wheel wash). CHEC informed that this site is temporary closed and therefore exit would be blocked and closed.

7.7 Site Inspection by Environmental Protection Department (EPD)

No EPD site inspection was conducted during the reporting period.

8. ENVIRONMENTAL NON-COMPLIANCE, COMPLAINTS, NOTIFICATIONS OF SUMMONS AND PROSECUTIONS

8.1 Summary of Environmental Non-Compliance

The environmental non-compliance recorded in this reporting period is summarized in ***Table 8.1***.

Table 8.1 Summary of Non-Compliance between 29th March 2003 and 28th April 2003

Media/ Nature	No. of Exceedance		Action Taken	Results of Action Taken	Remarks
	Action Level	Limit Level			
Air Quality	0	0	-	-	-
Noise	0	0	-	-	-
Waste	0	0	-	-	-
Water Quality	0	0	-	-	-

8.2 Summary of Complaints

No environmental related complaint was received during the reporting period.

The summary for all the complaints received since the commencement of the Contract is presented in ***Table 8.2***. The details of previous complaints and statistics are attached in ***Appendices O1*** and ***O2*** respectively.

Table 8.2 Summary of Total Complaint Received

Total No. of Complaint Received	No. of complaint received within reporting period	No. of Active Complaint	No. of Inactive/Closed Complaint
6	0	0	6

8.3 Summary of Notification of Summon and Prosecution

No notification of summons or prosecutions was received regarding the non-compliance of the environmental performance of the construction site since the commencement of works.

9. FUTURE KEY ISSUES

9.1 Key Issues for the Coming Month

Works to be taken for the coming monitoring period will be similar to the previous month as follows:

- utilities diversion, detection and trial pit excavation;
- plant mobilization;
- pre-drilling and sheet piling;
- bored piling; and
- pile cap and pier construction.

Potential environmental impacts arising from the above construction activities are mainly associated with dust, noise, site runoff and waste. However, with the implementation of the following mitigation measures, potential impacts to the surrounding sensitive receivers could be minimized:

Construction Dust

- frequent watering of haul road and unpaved areas;
- prohibition of any open burning on site;
- investigation of other dust sources near air sensitive receivers;
- regularly watering or covering of open areas and stockpiles with tarpaulin;
- hydroseeding or covering the inactive sandfill area with impervious sheeting if necessary;
- switching off vehicles and equipments while not in use; and
- regular maintenance of onsite machinery and vehicles.

Construction Noise

- identification of noise sources arising within and outside worksite; and
- follow-up of any exceedance caused by the construction works.

Construction Runoff

- identification of sources of run-off from site;
- provision of sandbags/bunds/channels to direct run-off to silt/sand removal facilities;
- avoidance of direct discharge of wastewater into storm water drainage; and
- provision of treatment of wastewater and run-off prior to discharge.

Construction Waste Management

- avoidance of accumulation of construction waste materials and/or general refuse on site;
- segregation of waste;
- collection of chemical waste or oil and disposal of as chemical waste in accordance with the relevant regulations; and
- regularly removing of waste materials on site.

9.2 Monitoring Schedule for the Coming Three Months

The tentative schedules for dust and noise monitoring from 29th April 2003 to 28th May 2003 are attached in ***Appendix P***.

10. RECOMMENDATIONS AND CONCLUSIONS

10.1 Conclusions

This Environmental Monitoring and Audit (EM&A) report presents the EM&A works undertaken during the month from 29th March 2003 to 28th April 2003 in accordance with EM&A Manual which forms part of the EIA Report (Register No. AEIAR-018/1999).

All 1-hour and 24-hour TSP monitoring were carried out at the 2 monitoring stations and their results were well below the Action/Limit Levels.

Noise monitoring of $L_{eq(30min)}$ was carried out at the 2 monitoring stations during normal hour and at NSR 1 during restricted hour. All the results were well below the Limit Level.

No water quality monitoring was carried out during the reporting month and the next water quality sampling in accordance with the effluent discharge license is scheduled for May 2003.

No complaint was received during the reporting period. In total, 6 complaints were received since the commencement of construction works.

No prosecution or summons was received for this Contract since the commencement of construction works.

The environmental monitoring results indicated that the site activities undertaken by the Contractor during the reporting period were in general comply with the relevant environmental requirements, except for deficiencies found during site audits as stated in ***Section 7.5*** **,** ***7.6*** and *7.7* of this report.

10.2 Recommendations

According to the environmental audits undertaken during the reporting month, the following recommendations are made:

Construction Dust

- site access road and exposed areas should be watered regularly to ensure the soil surface is wet;
- dusty areas should be watered frequently during hot/dry weather; and
- stockpiles should be covered properly by tarpaulin.

Construction Noise

- the number of plant operating should not exceed the allowable plant number for each construction activity stated in the Construction Noise Permits;
- regular maintenance of machinery; and
- noisy equipment should be located away from nearby NSRs.

Water Quality

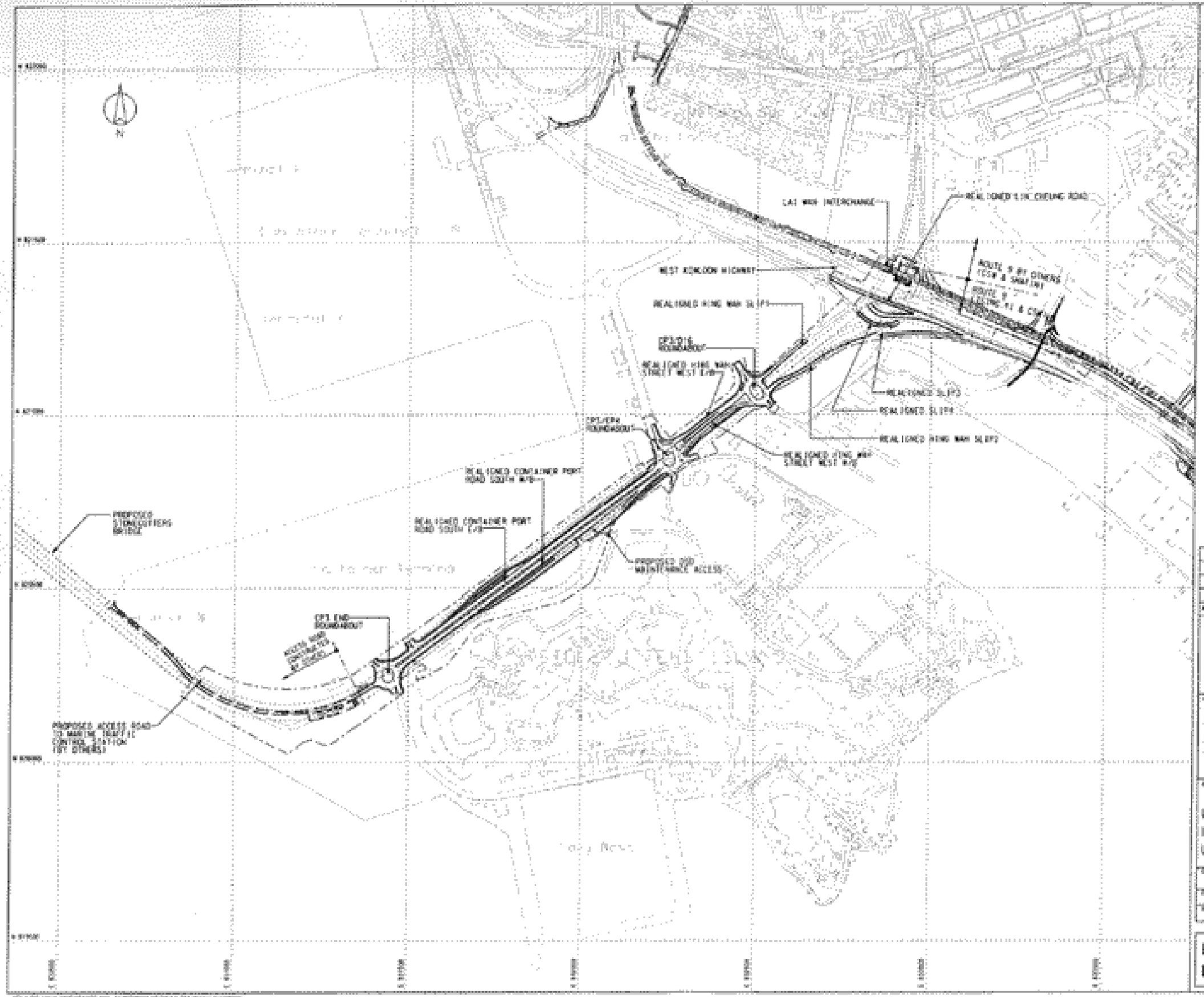
- all surface runoff/wastewater should be diverted to appropriate water treatment facility before discharged;
- sedimentation tanks/basins should have adequate capacity for settling surface runoff;
- wheel washing facilities should be installed at all worksite exit and used by all vehicles leaving the site;
- vehicle and plant servicing area, wheel washing bay should be connected to storm drains via a petrol interceptor;
- site hoarding should be tightly sealed at the bottom to prevent seepage of surface runoff from the site; and
- accumulation of water in drip tray at chemical/fuel storage area should be avoided.

Waste Management

- contaminated soil with oil or petrol should be collected and disposed of as chemical waste;
- all types of wastes should be collected by licensed waste collectors; and
- good housekeeping should be implemented.

Appendix A

Site Layout Plan



LOCATION PLAN

NOTES:

1. [illegible]

LEGEND:

- [illegible]
- [illegible]
- ROUTE 9 (ABOUT)
- [illegible]
- [illegible]

0	ISSUE FOR CONSTRUCTION	RL	03/10
Rev.	Description	By	Date

Consultant:

ARUP [illegible]

Supported By:

[illegible]

Project title:

HY/2000/21

Route 9 - Ngong Shuen Chau Viaduct

Drawing title:

OVERALL GROUND LEVEL ROADS LAYOUT PLAN

Drawing No.	Rev.
22194/P/1/01/120	0

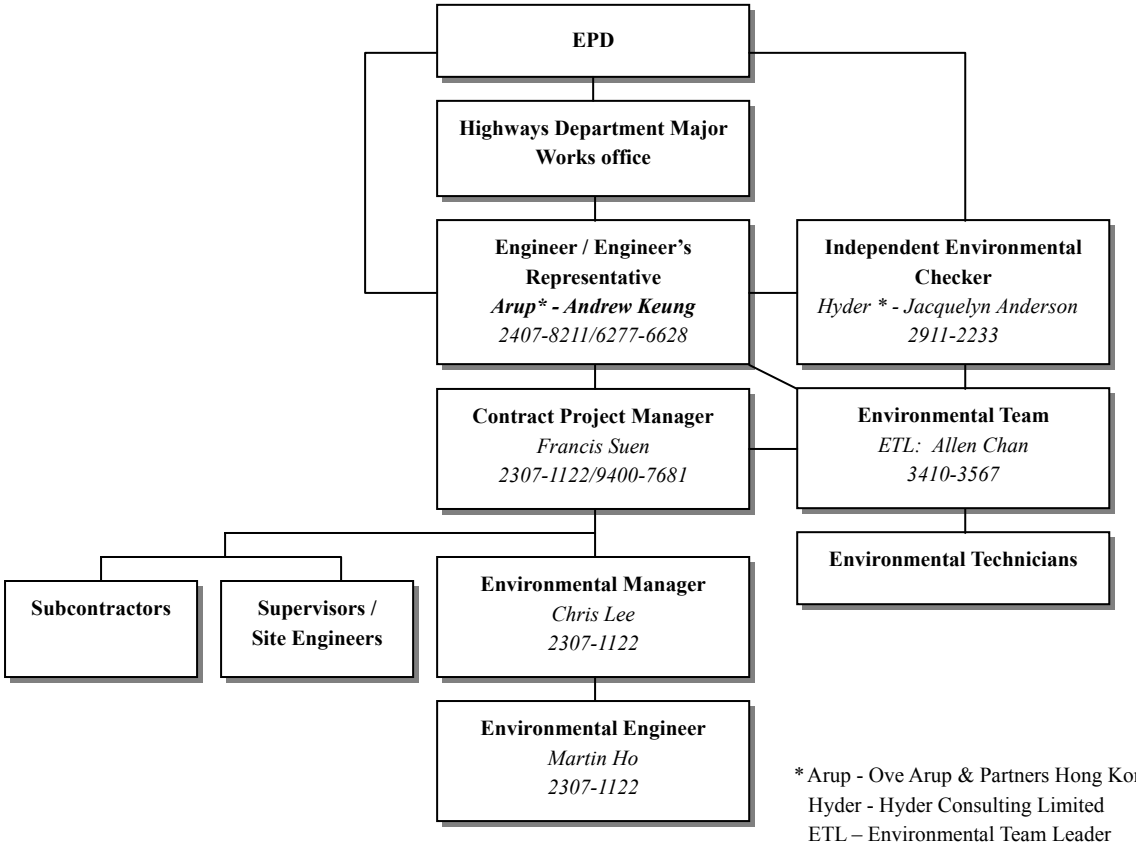
Drawn	Date	Designed	Checked
[illegible]	09/10	RL	MH
Scale	1:1000 @ A1	Status	WORK (All)

HIGHWAYS DEPARTMENT
Major Works Project Management Office

Appendix B

Project Organization Chart and Contact Details

Appendix B: Project Organization Chart and Contact Details

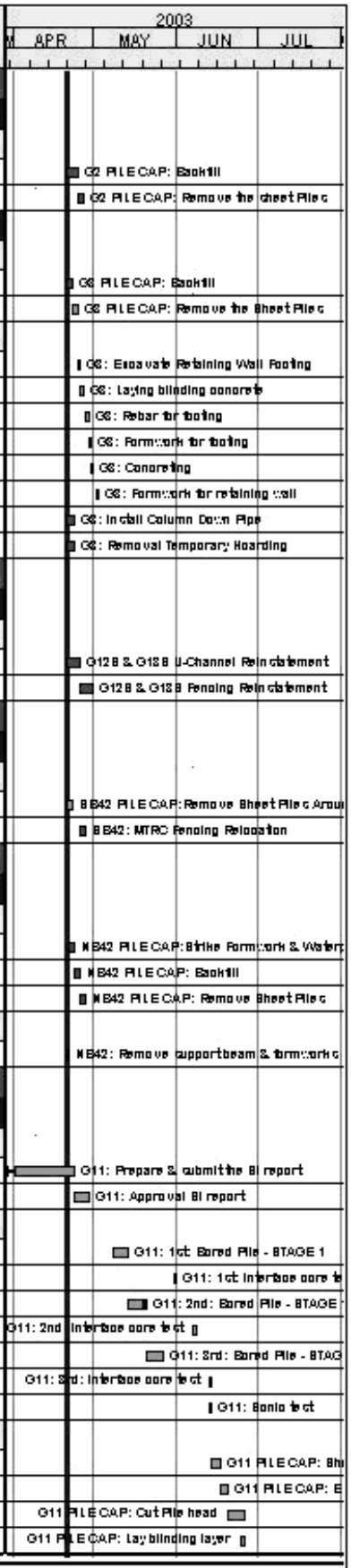


* Arup - Ove Arup & Partners Hong Kong Limited
Hyder - Hyder Consulting Limited
ETL – Environmental Team Leader

Appendix C

Project Work Programme

Activity ID	Activity Description	%	Orig Dur	Rem Dur	Early Start	Early Finish
CONSTRUCT BRIDGE G1 - STAGE 1A WORKS						
BRIDGE G1: PIER G2 - STAGE 1A						
G1: Pier G2 Pile Cap						
CH3020180	G2 PILE CAP: Backfill	0	4	4	21-04-03	24-04-03
CH3020190	G2 PILE CAP: Remove the sheet Piles	0	2	2	25-04-03	26-04-03
BRIDGE G1: PIER G3 - STAGE 1A						
G1: Pier G3 Pile Cap						
CH3055180	G3 PILE CAP: Backfill	0	2	2	21-04-03	22-04-03
CH3055190	G3 PILE CAP: Remove the Sheet Piles	0	2	2	23-04-03	24-04-03
Pier G3: Retaining Wall, Drainage & Finishes						
CH7000100	G3: Excavate Retaining Wall Footing	0	1	1	25-04-03	25-04-03
CH7000110	G3: Laying blinding concrete	0	1	1	26-04-03	26-04-03
CH7000120	G3: Rebar for footing	0	1	1	28-04-03	28-04-03
CH7000130	G3: Formwork for footing	0	1	1	29-04-03	29-04-03
CH7000140	G3: Concreting	0	1	1	30-04-03	30-04-03
CH7000150	G3: Formwork for retaining wall	0	1	1	02-05-03	02-05-03
CH7000240	G3: Install Column Down Pipe	0	3	3	21-04-03	23-04-03
CH7000250	G3: Removal Temporary Hoarding	0	3	3	21-04-03	23-04-03
CONSTRUCT BRIDGE G2 - STAGE 1A WORKS						
BRIDGE G2: PIER G12S						
Pier G12S & G13S Utilities, Services & Roadworks						
CH7000220	G12S & G13S U-Channel Reinstatement	0	5	5	21-04-03	25-04-03
CH7000230	G12S & G13S Fencing Reinstatement	0	4	4	26-04-03	30-04-03
CONSTRUCT BRIDGE ML15 - STAGE 1A WORKS						
BRIDGE ML15: PIER SB42						
ML15: Pier SB42 Pile Cap						
CH6894190	SB42 PILE CAP:Remove Sheet Piles Around Pile Cap	0	2	2	21-04-03	22-04-03
CH6894200	SB42: MTRC Fencing Relocation	0	2	2	26-04-03	27-04-03
CONSTRUCT BRIDGE ML16 - STAGE 1A WORKS						
BRIDGE ML16: PIER NB42						
ML16: Pier NB42 Pile Cap						
CH7008170	NB42 PILE CAP:Strike Formwork & Waterproof	0	2	2	22-04-03	23-04-03
CH7008180	NB42 PILE CAP: Backfill	0	2	2	24-04-03	25-04-03
CH7008190	NB42 PILE CAP: Remove Sheet Piles	0	2	2	26-04-03	27-04-03
ML16: Crosshead NB42						
CH7012160	NB42: Remove supportbeam & formworks	0	1	1	21-04-03	21-04-03
CONTRUCT BRIDGE G2 - STAGE 1 WORKS						
BRIDGE G2: PIER G11						
G2: Pier G11 SI Pre-Drilling						
CH3410110	G11: Prepare & submit the SI report	0	3	3	20-02-03A	23-04-03
CH3410120	G11: Approval SI report	0	4	4	24-04-03	28-04-03
G2: Pier G11 Bored Piling						
CH3415100	G11: 1st: Bored Pile - STAGE 1	0	5	5	08-05-03	13-05-03
CH3415110	G11: 1st: Interface core test	0	1	1	31-05-03	31-05-03
CH3415120	G11: 2nd: Bored Pile - STAGE 1	0	5	5	14-05-03	20-05-03
CH3415130	G11: 2nd: Interface core test	0	1	1	07-06-03	07-06-03
CH3415160	G11: 3rd: Bored Pile - STAGE 1	0	5	5	21-05-03	26-05-03
CH3415170	G11: 3rd: Interface core test	0	1	1	13-06-03	13-06-03
CH3415180	G11: Sonic test	0	1	1	13-06-03	13-06-03
G2: Pier G11 Pile Cap						
CH3420100	G11 PILE CAP: Sheet Pile driving	0	2	2	14-06-03	16-06-03
CH3420110	G11 PILE CAP: Excavate & shoring support	0	3	3	17-06-03	19-06-03
CH3420120	G11 PILE CAP: Cut Pile head	0	5	5	20-06-03	25-06-03
CH3420130	G11 PILE CAP: Lay blinding layer	0	1	1	25-06-03	25-06-03



Start Date 04-04-02
Finish Date 31/12/07
Data Date 21-04-03
Run Date 05-05-03 17:14

30-MAR-03 Update
Progress Bar
Critical Activity

4032 Sheet 1 of 19

, HARBOUR ENGINEERING COMPANY (GF
ROUTE 9-NSCV
CONTRACT NO. HY/2000/21
Progress Report for
31 Mar 03 to 31 Jul 03

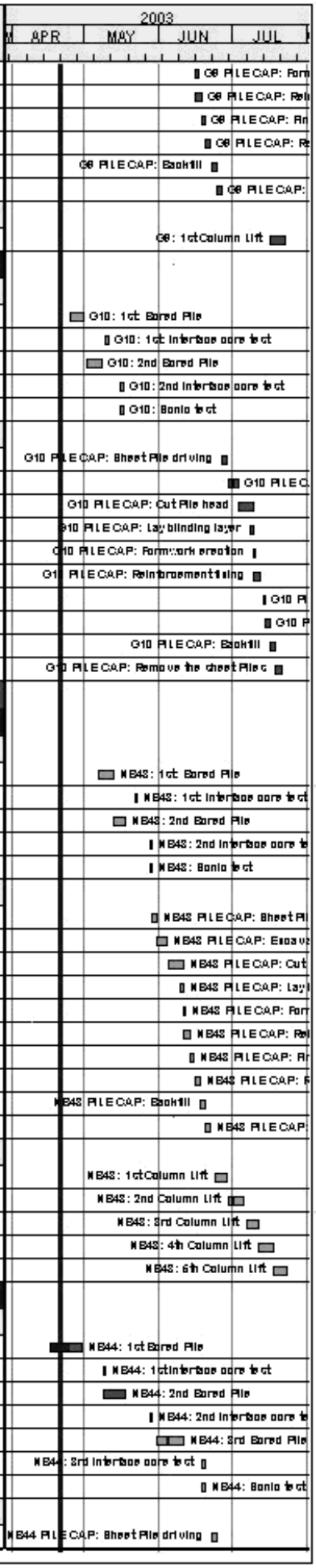
Date	Revision	Checked	Approved

Activity ID	Activity Description	%	Orig Dur	Rem Dur	Early Start	Early Finish
CH3420140	G11 PILECAP: Formwork erection	0	1	1	25/05/03	25/05/03
CH3420150	G11 PILECAP: Reinforcement fixing	0	3	3	26/05/03	28/05/03
CH3420160	G11 PILECAP: Final Fix F'work/Clean & Concrete	0	1	1	30/05/03	30/05/03
CH3420170	G11 PILECAP: Remove Formwork & Bituminous Paint	0	2	2	02/07/03	03/07/03
CH3420180	G11 PILECAP: Backfill	0	2	2	04/07/03	05/07/03
CH3420190	G11 PILECAP: Remove the sheet Piles	0	2	2	07/07/03	08/07/03
BRIDGE G2: PIER G12N						
G2: Pier G12N Pile Cap						
CH3455190	G12N PILECAP: Remove the sheet Piles	0	2	2	21/04/03	22/04/03
BRIDGE G2: PIER G12S						
G2: Portal Between Columns G12N & G12S						
CH3495170	G12NS: Erectworking platform & supportbrackets	0	4	4	23/04/03	25/04/03
CH3495180	G12NS: Erectsoffitformwork	0	5	5	28/04/03	03/05/03
CH3495190	G12S: ErectSide Panel	0	5	5	05/05/03	09/05/03
CH3495200	G12S: Reinforcement fixing	0	5	5	10/05/03	15/05/03
CH3495210	G12S: Concreting	0	1	1	16/05/03	16/05/03
CH3495220	G12S: Remove Side Panel & Core portal section	0	14	14	17/05/03	30/05/03
CH3495230	G12S: Remove supportbeam & formworks	0	3	3	31/05/03	03/06/03
BRIDGE G2: PIER G13N						
G2: Pier G13N Pile Cap						
CH3520190	G13N PILECAP: Remove the sheet Piles	0	2	2	21/04/03	22/04/03
BRIDGE G2: PIER G13S						
G2: Portal Between Columns G13N & G13S						
CH3560170	G13: Erectworking platform & supportbrackets	0	4	4	05/06/03	09/06/03
CH3560180	G13: Erectsoffitformwork	0	5	5	10/06/03	14/06/03
CH3560190	G13: ErectSide Panel	0	5	5	16/06/03	20/06/03
CH3560200	G13: Reinforcement fixing	0	5	5	21/06/03	26/06/03
CH3560210	G13: Concreting	0	1	1	27/06/03	27/06/03
CH3560220	G13: Remove Side Panel & Core portal Section	0	14	14	28/06/03	11/07/03
CH3560230	G13: Remove supportbeam & formworks	0	3	3	12/07/03	15/07/03
CONSTRUCT BRIDGE G1 - STAGE 2 WORKS						
BRIDGE G1: PIER G4N (04/176)						
G1: Pier G4N Bored Piling						
CH3085180	G4N: Sonic test	0	1	1	21/04/03	21/04/03
G1: Pier G4N Pile Cap						
CH3090100	G4N PILECAP: Sheet Pile driving	0	14	14	15/05/03	31/05/03
CH3090110	G4N PILECAP: Excavate & shoring support	0	3	3	02/06/03	05/06/03
CH3090120	G4N PILECAP: Cut Pile head	0	5	5	06/06/03	11/06/03
CH3090130	G4N PILECAP: Layblinding layer	0	1	1	11/06/03	11/06/03
CH3090140	G4N PILECAP: Formwork erection	0	1	1	12/06/03	12/06/03
CH3090150	G4N PILECAP: Reinforcement fixing	0	3	3	12/06/03	14/06/03
CH3090160	G4N PILECAP: Final Fix F'work/Clean & Concrete	0	1	1	16/06/03	16/06/03
CH3090170	G4N PILECAP: Remove Formwork & Waterproof	0	2	2	17/06/03	18/06/03
CH3090180	G4N PILECAP: Backfill	0	2	2	19/06/03	20/06/03
CH3090190	G4N PILECAP: Remove the sheet Piles	0	2	2	21/06/03	23/06/03
G1: Pier G4N Column (Type C4)						
CH3095100	G4N: 1stColumn Lift	0	5	5	24/06/03	28/06/03
CH3095110	G4N: 2nd Column Lift	0	5	5	30/06/03	05/07/03
CH3095120	G4N: 3rd Column Lift	0	5	5	07/07/03	11/07/03
CH3095122	G4N: 3rd Column Lift	0	5	5	12/07/03	17/07/03
CH3095125	G4N: 4th Column Lift	0	5	5	18/07/03	23/07/03
BRIDGE G1: PIER G4S & PORTAL G4 (04/176)						
G1: Pier G4S Utilities & Services Diversions						
CHHIGH170	Install KHM-312R (near G4N/S)	0	30	30	11/06/03	16/07/03
CHHIGH180	Remove KHM-312 at Bridge G (near G4N/S)	0	21	21	17/07/03	09/08/03
G1: Pier G4S Pile Cap						
CH3120100	G4S PILECAP: Sheet Pile driving	0	2	2	21/04/03	22/04/03
CH3120110	G4S PILECAP: Excavate & shoring support	0	3	3	23/04/03	25/04/03
CH3120120	G4S PILECAP: Cut Pile head	0	5	5	26/04/03	02/05/03
CH3120130	G4S PILECAP: Layblinding layer	0	1	1	02/05/03	02/05/03
CH3120140	G4S PILECAP: Formwork erection	0	1	1	03/05/03	03/05/03
CH3120150	G4S PILECAP: Reinforcement fixing	0	3	3	03/05/03	06/05/03

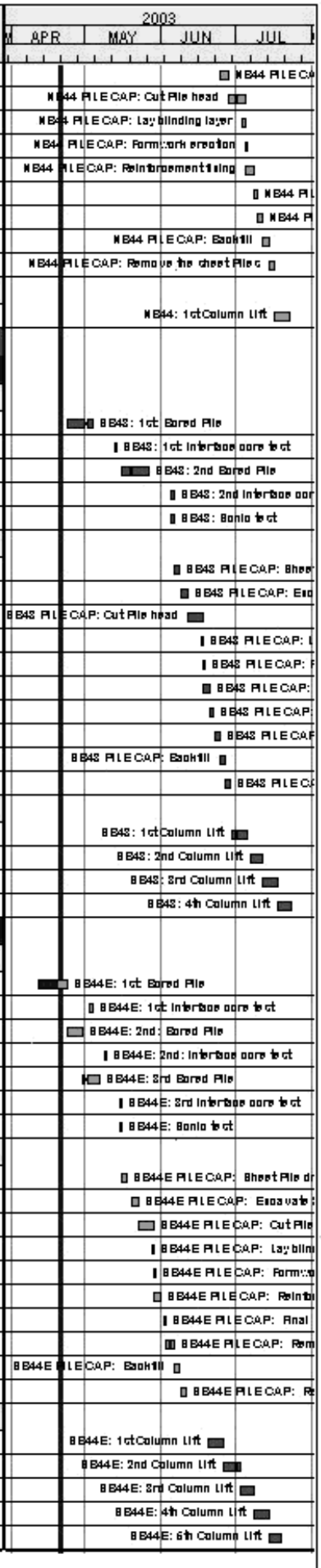
Activity ID	Activity Description	%	Orig Dur	Rem Dur	Early Start	Early Finish
CH3120160	G4S PILE CAP: Final Fix F'work/Clean & Concrete	0	1	1	07.05/03	07.05/03
CH3120170	G4S PILE CAP: Remove Formwork & Waterproof	0	2	2	08.05/03	09.05/03
CH3120180	G4S PILE CAP: Backfill	0	2	2	10.05/03	12.05/03
CH3120190	G4S PILE CAP: Remove tie sheet Piles	0	2	2	13.05/03	14.05/03
G1: Pier G4S Column (Type C4)						
CH3125100	G4S: 1st Column Lift	0	5	5	15.05/03	21.05/03
CH3125110	G4S: 2nd Column Lift	0	5	5	22.05/03	27.05/03
CH3125120	G4S: 3rd Column Lift	0	5	5	28.05/03	02.06/03
CH3125121	G4S: 4th Column Lift	0	5	5	03.06/03	09.06/03
CH3125122	G4S: 5th Column Lift	0	5	5	10.06/03	14.06/03
CH3125125	G4S: 6th Column Lift	0	5	5	16.06/03	20.06/03
BRIDGE G1: PIER G5						
G1: Pier G5 Bored Piling						
CH3150130	G5: 2nd: Interface core test	100	1	0	15.04.03A	15.04.03A
CH3150170	G5: 3rd Interface core test	100	1	0	16.04.03A	16.04.03A
CH3150180	G5: Sonic test	0	1	1	21.04.03	21.04.03
G1: Pier G5 Pile Cap						
CH3155100	G5 PILE CAP: Sheet Pile Driving	0	2	2	22.04.03	23.04.03
CH3155110	G5 PILE CAP: Excavate & Shoring Support	0	3	3	24.04.03	26.04.03
CH3155120	G5 PILE CAP: Cut Pile Head	0	5	5	28.04.03	03.05.03
CH3155130	G5 PILE CAP: Lay Blinding Layer	0	1	1	03.05.03	03.05.03
CH3155140	G5 PILE CAP: Formwork Erection	0	1	1	05.05.03	05.05.03
CH3155150	G5 PILE CAP: Reinforcement Fixing	0	3	3	05.05.03	07.05.03
CH3155160	G5 PILE CAP: Final fix Formwork/Clean & Concrete	0	1	1	08.05.03	08.05.03
CH3155170	G5 PILE CAP: Remove Formwork & Bitumhous Paint	0	2	2	09.05.03	10.05.03
CH3155180	G5 PILE CAP: Backfill	0	2	2	12.05.03	13.05.03
CH3155190	G5 PILE CAP: Remove Sheet Piles	0	2	2	14.05.03	15.05.03
G1: Pier G5 Column (Type C6 solid)						
CH3160100	G5: 1st Column Lift	0	5	5	16.05.03	22.05.03
CH3160110	G5: 2nd Column Lift	0	5	5	23.05.03	28.05.03
CH3160120	G5: 3rd Column Lift	0	5	5	29.05.03	03.06.03
CH3160122	G5: 4th Column Lift	0	5	5	05.06.03	10.06.03
CH3160125	G5: 5th Column Lift	0	5	5	11.06.03	16.06.03
G1: Pier G5 Crosshead (Type H5)						
CH3165100	G5: Erect working platform & support brackets	0	4	4	17.06.03	20.06.03
CH3165110	G5: Erect soffit formwork	0	5	5	21.06.03	26.06.03
CH3165120	G5: Erect Side Panel	0	5	5	27.06.03	03.07.03
CH3165130	G5: Reinforcement fixing	0	5	5	04.07.03	09.07.03
CH3165140	G5: Concreting	0	1	1	10.07.03	10.07.03
CH3165150	G5: Remove Side Panel & Cure Crosshead	0	7	7	11.07.03	17.07.03
CH3165160	G5: Remove support beam & formworks	0	3	3	18.07.03	21.07.03
BRIDGE G1: PIER G6						
G1: Pier G6 Pile Cap						
CH3190100	G6 PILE CAP: Sheet Pile driving	0	2	2	16.05.03	17.05.03
CH3190110	G6 PILE CAP: Excavate & shoring support	0	3	3	20.05.03	22.05.03
CH3190120	G6 PILE CAP: Cut Pile head	0	5	5	23.05.03	28.05.03
CH3190130	G6 PILE CAP: Lay blinding layer	0	1	1	28.05.03	28.05.03
CH3190140	G6 PILE CAP: Formwork erection	0	1	1	29.05.03	29.05.03
CH3190150	G6 PILE CAP: Reinforcement fixing	0	3	3	29.05.03	31.05.03
CH3190160	G6 PILE CAP: Final fix Formwork/Clean & Concrete	0	1	1	02.06.03	02.06.03
CH3190170	G6 PILE CAP: Remove formwork & Waterproof	0	2	2	03.06.03	05.06.03
CH3190180	G6 PILE CAP: Backfill	0	2	2	06.06.03	07.06.03
CH3190190	G6 PILE CAP: Remove tie sheet Piles	0	2	2	09.06.03	10.06.03
G1: Pier G6 Column (Type C6 solid)						
CH3195100	G6: 1st Column Lift	0	5	5	17.06.03	21.06.03
CH3195110	G6: 2nd Column Lift	0	5	5	23.06.03	27.06.03
CH3195120	G6: 3rd Column Lift	0	5	5	28.06.03	04.07.03
CH3195122	G6: 4th Column Lift	0	5	5	05.07.03	10.07.03
CH3195125	G6: 5th Column Lift	0	5	5	11.07.03	16.07.03
G1: Pier G6 Crosshead (Type H5M)						
CH3200100	G6: Erect working platform & support brackets	0	4	4	17.07.03	21.07.03

Activity ID	Activity Description	%	Orig Dur	Rem Dur	Early Start	Early Finish
CONSTRUCT BRIDGE G2 - STAGE 2 WORKS						
BRIDGE G2: PIER G7						
G2: Pier G7 Bored Piling						
CH3275110	G7: 1st Interface core test	0	1	1	21.04.03	21.04.03
CH3275160	G7: 2nd Bored Pile	0	5	5	25.04.03	30.04.03
CH3275170	G7: 2nd Interface core test	0	1	1	10.05.03	10.05.03
CH3275180	G7: Sonic test	0	1	1	10.05.03	10.05.03
G2: Pier G7 Pile Cap						
CH3280100	G7 PILE CAP: Sheet Pile driving	0	14	14	12.05.03	28.05.03
CH3280110	G7 PILE CAP: Excavate & shoring support	0	3	3	29.05.03	31.05.03
CH3280120	G7 PILE CAP: Cut Pile head	0	5	5	02.06.03	07.06.03
CH3280130	G7 PILE CAP: Lay blinding layer	0	1	1	07.06.03	07.06.03
CH3280140	G7 PILE CAP: Formwork erection	0	1	1	09.06.03	09.06.03
CH3280150	G7 PILE CAP: Reinforcement fixing	0	3	3	09.06.03	11.06.03
CH3280160	G7 PILE CAP: Final fix Formwork/Clean & Concrete	0	1	1	12.06.03	12.06.03
CH3280170	G7 PILE CAP: Remove Formwork & Bituminous Paint	0	2	2	13.06.03	14.06.03
CH3280180	G7 PILE CAP: Backfill	0	2	2	16.06.03	17.06.03
CH3280190	G7 PILE CAP: Remove Sheet Piles	0	2	2	18.06.03	19.06.03
G2: Pier G7 Column (Type C7)						
CH3285100	G7: 1st Column Lift	0	5	5	20.06.03	25.06.03
CH3285110	G7: 2nd Column Lift	0	5	5	26.06.03	02.07.03
CH3285120	G7: 3rd Column Lift	0	5	5	03.07.03	08.07.03
CH3285122	G7: 4th Column Lift	0	5	5	09.07.03	14.07.03
CH3285125	G7: 5th Column Lift	0	5	5	15.07.03	19.07.03
BRIDGE G2: PIER G8 (Type C6/H5 solid)						
G2: Pier G8 Bored Piling						
CH3310100	G8: 1st Bored Pile	90	5	3	08.04.03A	23.04.03
CH3310110	G8: 1st Interface core test	0	1	1	03.05.03	03.05.03
CH3310160	G8: 2nd Bored Pile	0	5	5	29.04.03	05.05.03
CH3310170	G8: 2nd Interface core test	0	1	1	10.05.03	10.05.03
CH3310180	G8: Sonic test	0	1	1	10.05.03	10.05.03
G2: Pier G8 Pile Cap						
CH3315100	G8 PILE CAP: Sheet Pile driving	0	14	14	12.05.03	28.05.03
CH3315110	G8 PILE CAP: Excavate & shoring support	0	3	3	29.05.03	31.05.03
CH3315120	G8 PILE CAP: Cut Pile head	0	5	5	02.06.03	07.06.03
CH3315130	G8 PILE CAP: Lay blinding layer	0	1	1	07.06.03	07.06.03
CH3315140	G8 PILE CAP: Formwork erection	0	1	1	09.06.03	09.06.03
CH3315150	G8 PILE CAP: Reinforcement fixing	0	3	3	09.06.03	11.06.03
CH3315160	G8 PILE CAP: Final fix Formwork/Clean & Concrete	0	1	1	12.06.03	12.06.03
CH3315170	G8 PILE CAP: Remove Formwork & Waterproof	0	2	2	13.06.03	14.06.03
CH3315180	G8 PILE CAP: Backfill	0	2	2	16.06.03	17.06.03
CH3315190	G8 PILE CAP: Remove the sheet Piles	0	2	2	18.06.03	19.06.03
G2: Pier G8 Column (Type C7)						
CH3320100	G8: 1st Column Lift	0	5	5	20.06.03	24.06.03
CH3320110	G8: 2nd Column Lift	0	5	5	25.06.03	29.06.03
CH3320120	G8: 3rd Column Lift	0	5	5	30.06.03	04.07.03
CH3320122	G8: 4th Column Lift	0	5	5	05.07.03	09.07.03
CH3320125	G8: 5th Column Lift	0	5	5	10.07.03	15.07.03
G2: Pier G8 Crosshead (Type H5)						
CH3325100	G8: Erect working platform & support brackets	0	4	4	16.07.03	19.07.03
BRIDGE G2: PIER G9 (Type C6/H5 solid)						
G2: Pier G9 Bored Piling						
CH3345100	G9: 1st Bored Pile	0	5	5	21.04.03	25.04.03
CH3345110	G9: 1st Interface core test	0	1	1	06.05.03	06.05.03
CH3345160	G9: 2nd Bored Pile	0	5	5	03.05.03	08.05.03
CH3345170	G9: 2nd Interface core test	0	1	1	17.05.03	17.05.03
CH3345180	G9: Sonic test	0	1	1	17.05.03	17.05.03
G2: Pier G9 Pile Cap						
CH3350100	G9 PILE CAP: Sheet Pile driving	0	14	14	20.05.03	05.06.03
CH3350110	G9 PILE CAP: Excavate & shoring support	0	3	3	06.06.03	09.06.03
CH3350120	G9 PILE CAP: Cut Pile head	0	5	5	10.06.03	14.06.03
CH3350130	G9 PILE CAP: Lay blinding layer	0	1	1	14.06.03	14.06.03

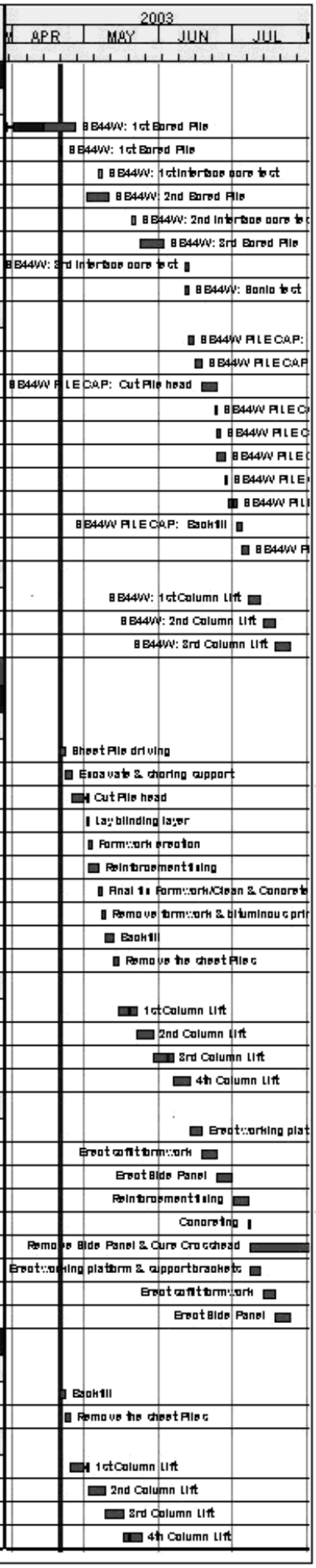
Activity ID	Activity Description	%	Orig Dur	Rem Dur	Early Start	Early Finish
CH3350140	G9 PILE CAP: Formwork erection	0	1	1	16/05/03	16/05/03
CH3350150	G9 PILE CAP: Reinforcement fixing	0	3	3	16/05/03	18/05/03
CH3350160	G9 PILE CAP: Final fix Formwork/Clean & Concrete	0	1	1	19/05/03	19/05/03
CH3350170	G9 PILE CAP: Remove Formwork & Bitumhous Paint	0	2	2	20/05/03	21/05/03
CH3350180	G9 PILE CAP: Backfill	0	2	2	23/05/03	24/05/03
CH3350190	G9 PILE CAP: Remove the sheet Piles	0	2	2	25/05/03	26/05/03
G2: Pier G9 Column (Type C3S)						
CH3355100	G9: 1st Column Lift	0	5	5	17/07/03	22/07/03
BRIDGE G2: PIER G10 (Type C6/H5 solid)						
G2: Pier G10 Bored Piling						
CH3380100	G10: 1st Bored Pile	0	5	5	25/04/03	30/04/03
CH3380110	G10: 1st Interface core test	0	1	1	10/05/03	10/05/03
CH3380160	G10: 2nd Bored Pile	0	5	5	02/05/03	07/05/03
CH3380170	G10: 2nd Interface core test	0	1	1	16/05/03	16/05/03
CH3380180	G10: Sonic test	0	1	1	16/05/03	16/05/03
G2: Pier G10 Pile Cap						
CH3385100	G10 PILE CAP: Sheet Pile driving	0	2	2	27/05/03	28/05/03
CH3385110	G10 PILE CAP: Excavate & shoring support	0	3	3	30/05/03	03/07/03
CH3385120	G10 PILE CAP: Cut Pile head	0	5	5	04/07/03	09/07/03
CH3385130	G10 PILE CAP: Lay/blinding layer	0	1	1	09/07/03	09/07/03
CH3385140	G10 PILE CAP: Formwork erection	0	1	1	10/07/03	10/07/03
CH3385150	G10 PILE CAP: Reinforcement fixing	0	3	3	10/07/03	12/07/03
CH3385160	G10 PILE CAP: Final Fix F'work/Clean & Concrete	0	1	1	14/07/03	14/07/03
CH3385170	G10 PILE CAP: Remove Formwork & Bitumhous Paint	0	2	2	15/07/03	16/07/03
CH3385180	G10 PILE CAP: Backfill	0	2	2	17/07/03	18/07/03
CH3385190	G10 PILE CAP: Remove the sheet Piles	0	2	2	19/07/03	21/07/03
CONSTRUCT BRIDGE ML16 - STAGE 2 WORKS						
BRIDGE ML16: PIER NB43						
ML16: Pier NB43 Bored Piling						
CH7026100	NB43: 1st Bored Pile	0	5	5	07/05/03	12/05/03
CH7026110	NB43: 1st Interface core test	0	1	1	22/05/03	22/05/03
CH7026160	NB43: 2nd Bored Pile	0	5	5	13/05/03	17/05/03
CH7026170	NB43: 2nd Interface core test	0	1	1	28/05/03	28/05/03
CH7026180	NB43: Sonic test	0	1	1	28/05/03	28/05/03
ML16: Pier NB43 Pile Cap						
CH7029100	NB43 PILE CAP: Sheet Pile driving	0	2	2	29/05/03	30/05/03
CH7029110	NB43 PILE CAP: Excavate & shoring support	0	3	3	31/05/03	03/06/03
CH7029120	NB43 PILE CAP: Cut Pile head	0	5	5	05/06/03	10/06/03
CH7029130	NB43 PILE CAP: Lay/blinding layer	0	1	1	10/06/03	10/06/03
CH7029140	NB43 PILE CAP: Formwork erection	0	1	1	11/06/03	11/06/03
CH7029150	NB43 PILE CAP: Reinforcement fixing	0	3	3	11/06/03	13/06/03
CH7029160	NB43 PILE CAP: Final Fix Fm/Wk/Clean & Concrete	0	1	1	14/06/03	14/06/03
CH7029170	NB43 PILE CAP: Remove Formwork & Waterproof	0	2	2	16/06/03	17/06/03
CH7029180	NB43 PILE CAP: Backfill	0	2	2	18/06/03	19/06/03
CH7029190	NB43 PILE CAP: Remove the sheet Piles	0	2	2	20/06/03	21/06/03
ML16: Pier NB43 Column (Type C3 hollow)						
CH7032100	NB43: 1st Column Lift	0	5	5	24/06/03	28/06/03
CH7032110	NB43: 2nd Column Lift	0	5	5	30/06/03	05/07/03
CH7032120	NB43: 3rd Column Lift	0	5	5	07/07/03	11/07/03
CH7032122	NB43: 4th Column Lift	0	5	5	12/07/03	17/07/03
CH7032123	NB43: 5th Column Lift	0	5	5	18/07/03	23/07/03
BRIDGE ML16: PIER NB44						
ML16: Pier NB44 Bored Piling						
CH7047100	NB44: 1st Bored Pile	60	8	8	17/04/03A	29/04/03
CH7047110	NB44: 1st Interface core test	0	1	1	09/05/03	09/05/03
CH7047140	NB44: 2nd Bored Pile	0	8	8	09/05/03	17/05/03
CH7047150	NB44: 2nd Interface core test	0	1	1	28/05/03	28/05/03
CH7047160	NB44: 3rd Bored Pile	0	8	8	31/05/03	10/06/03
CH7047170	NB44: 3rd Interface core test	0	1	1	19/06/03	19/06/03
CH7047180	NB44: Sonic test	0	1	1	19/06/03	19/06/03
ML16: Pier NB44 Pile Cap						
CH7050100	NB44 PILE CAP: Sheet Pile driving	0	2	2	23/06/03	24/06/03



Activity ID	Activity Description	%	Orig Dur	Rem Dur	Early Start	Early Finish
CH7050110	NB44 PILE CAP: Excavate & shoring support	0	3	3	25/05/03	27/05/03
CH7050120	NB44 PILE CAP: Cut Pile head	0	5	5	28/05/03	04/07/03
CH7050130	NB44 PILE CAP: Lay/blinding layer	0	1	1	04/07/03	04/07/03
CH7050140	NB44 PILE CAP: Formwork erection	0	1	1	05/07/03	05/07/03
CH7050150	NB44 PILE CAP: Reinforcement fixing	0	3	3	05/07/03	08/07/03
CH7050160	NB44 PILE CAP: Final Fix Fm/Wk/Clean & Concrete	0	1	1	09/07/03	09/07/03
CH7050170	NB44 PILE CAP: Remove Formwork & Waterproof	0	2	2	10/07/03	11/07/03
CH7050180	NB44 PILE CAP: Backfill	0	2	2	12/07/03	14/07/03
CH7050190	NB44 PILE CAP: Remove the sheet Piles	0	2	2	15/07/03	16/07/03
ML16: Pier NB44 Column (Type C2 hollow)						
CH7053100	NB44: 1st Column Lift	0	5	5	17/07/03	22/07/03
CONSTRUCT BRIDGE ML15 - STAGE 2 WORKS						
BRIDGE ML15: PIER SB43						
ML15: Pier SB43 Bored Piling						
CH6912100	SB43: 1st Bored Pile	0	8	8	24/04/03	03/05/03
CH6912110	SB43: 1st Interface core test	0	1	1	13/05/03	13/05/03
CH6912160	SB43: 2nd Bored Pile	0	8	8	16/05/03	26/05/03
CH6912170	SB43: 2nd Interface core test	0	1	1	05/06/03	05/06/03
CH6912180	SB43: Sonic test	0	1	1	05/06/03	05/06/03
ML15: Pier SB43 Pile Cap						
CH6915100	SB43 PILE CAP: Sheet Pile driving	0	2	2	06/06/03	07/06/03
CH6915110	SB43 PILE CAP: Excavate & shoring support	0	3	3	09/06/03	11/06/03
CH6915120	SB43 PILE CAP: Cut Pile head	0	5	5	12/06/03	17/06/03
CH6915130	SB43 PILE CAP: Lay/blinding layer	0	1	1	17/06/03	17/06/03
CH6915140	SB43 PILE CAP: Formwork erection	0	1	1	18/06/03	18/06/03
CH6915150	SB43 PILE CAP: Reinforcement fixing	0	3	3	18/06/03	20/06/03
CH6915160	SB43 PILE CAP: Final Fix F'work/Clean & Concrete	0	1	1	21/06/03	21/06/03
CH6915170	SB43 PILE CAP: Remove Formwork & Waterproof	0	2	2	23/06/03	24/06/03
CH6915180	SB43 PILE CAP: Backfill	0	2	2	25/06/03	26/06/03
CH6915190	SB43 PILE CAP: Remove the sheet Piles	0	2	2	27/06/03	28/06/03
ML15: Pier SB43 Column (Type C2A)						
CH6918100	SB43: 1st Column Lift	0	5	5	30/06/03	05/07/03
CH6918110	SB43: 2nd Column Lift	0	5	5	07/07/03	11/07/03
CH6918120	SB43: 3rd Column Lift	0	5	5	12/07/03	17/07/03
CH6918122	SB43: 4th Column Lift	0	5	5	18/07/03	23/07/03
BRIDGE ML15: PIER SB44E						
ML15: Pier SB44E Bored Piling						
CH6933100	SB44E: 1st Bored Pile	70	5	3	12/04/03A	23/04/03
CH6933110	SB44E: 1st Interface core test	0	1	1	03/05/03	03/05/03
CH6933120	SB44E: 2nd: Bored Pile	0	5	5	24/04/03	29/04/03
CH6933130	SB44E: 2nd: Interface core test	0	1	1	09/05/03	09/05/03
CH6933160	SB44E: 3rd Bored Pile	0	5	5	30/04/03	06/05/03
CH6933170	SB44E: 3rd Interface core test	0	1	1	15/05/03	15/05/03
CH6933180	SB44E: Sonic test	0	1	1	15/05/03	15/05/03
ML15: Pier SB44E Pile Cap						
CH6936100	SB44E PILE CAP: Sheet Pile driving	0	2	2	16/05/03	17/05/03
CH6936110	SB44E PILE CAP: Excavate & shoring support	0	3	3	20/05/03	22/05/03
CH6936120	SB44E PILE CAP: Cut Pile head	0	5	5	23/05/03	28/05/03
CH6936130	SB44E PILE CAP: Lay/blinding layer	0	1	1	28/05/03	28/05/03
CH6936140	SB44E PILE CAP: Formwork erection	0	1	1	29/05/03	29/05/03
CH6936150	SB44E PILE CAP: Reinforcement fixing	0	3	3	29/05/03	31/05/03
CH6936160	SB44E PILE CAP: Final Fix Fm/Wk/Clean & Concrete	0	1	1	02/06/03	02/06/03
CH6936170	SB44E PILE CAP: Remove Formwork & Waterproof	0	2	2	03/06/03	05/06/03
CH6936180	SB44E PILE CAP: Backfill	0	2	2	06/06/03	07/06/03
CH6936190	SB44E PILE CAP: Remove the sheet Piles	0	2	2	09/06/03	10/06/03
ML15: Pier SB44E Column (Type C3 hollow)						
CH6969100	SB44E: 1st Column Lift	0	5	5	20/06/03	25/06/03
CH6969110	SB44E: 2nd Column Lift	0	5	5	26/06/03	02/07/03
CH6969120	SB44E: 3rd Column Lift	0	5	5	03/07/03	08/07/03
CH6969122	SB44E: 4th Column Lift	0	5	5	09/07/03	14/07/03
CH6969123	SB44E: 5th Column Lift	0	5	5	15/07/03	19/07/03

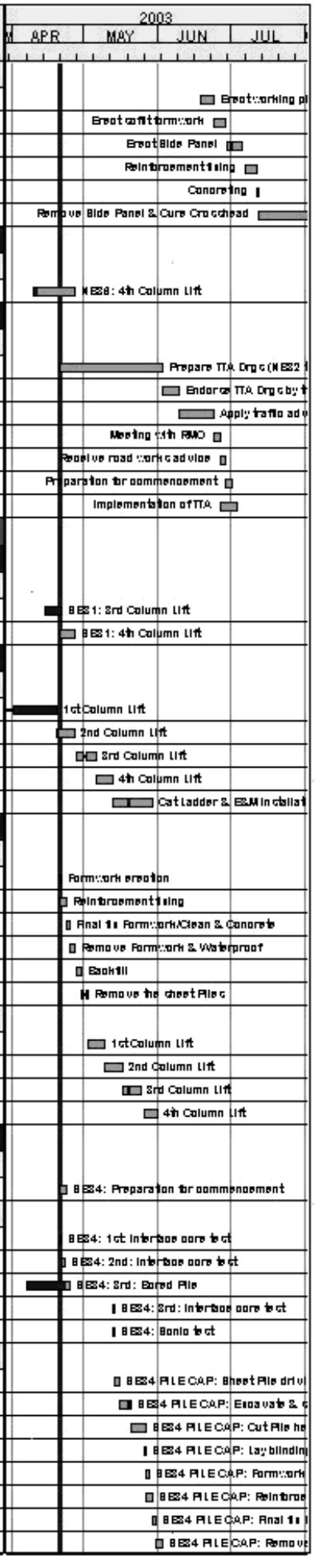


Activity ID	Activity Description	%	Orig Dur	Rem Dur	Early Start	Early Finish
BRIDGE ML15: PIER SB44W & PORTAL SB44						
ML15: Pier SB44W Bored Piling						
CH6951100	SB44W: 1st Bored Pile	70	8	6	15/03/03A	25/04/03
CH6951101	SB44W: 1st Bored Pile	0	1	1	21/04/03	21/04/03
CH6951110	SB44W: 1st Interface core test	0	1	1	07/05/03	07/05/03
CH6951140	SB44W: 2nd Bored Pile	0	8	8	02/05/03	10/05/03
CH6951150	SB44W: 2nd Interface core test	0	1	1	21/05/03	21/05/03
CH6951160	SB44W: 3rd Bored Pile	0	8	8	24/05/03	02/06/03
CH6951170	SB44W: 3rd Interface core test	0	1	1	12/06/03	12/06/03
CH6951180	SB44W: Sonic test	0	1	1	12/06/03	12/06/03
ML15: Pier SB44W Pile Cap						
CH6954100	SB44W PILECAP: Sheet Pile driving	0	2	2	13/06/03	14/06/03
CH6954110	SB44W PILECAP: Excavate & shoring support	0	3	3	16/06/03	18/06/03
CH6954120	SB44W PILECAP: Cut Pile head	0	5	5	19/06/03	24/06/03
CH6954130	SB44W PILECAP: Lay/blinding layer	0	1	1	24/06/03	24/06/03
CH6954140	SB44W PILECAP: Formwork erection	0	1	1	25/06/03	25/06/03
CH6954150	SB44W PILECAP: Reinforcement fixing	0	3	3	25/06/03	27/06/03
CH6954160	SB44W PILECAP: Final Fix Fmwk/Clean & Concrete	0	1	1	28/06/03	28/06/03
CH6954170	SB44W PILECAP: Remove Fmwk & Waterproof	0	2	2	30/06/03	02/07/03
CH6954180	SB44W PILECAP: Backfill	0	2	2	03/07/03	04/07/03
CH6954190	SB44W PILECAP: Remove tie sheet Piles	0	2	2	05/07/03	07/07/03
ML15: Pier SB44W Column (Type C3/T3(M) hollow)						
CH6957100	SB44W: 1st Column Lift	0	5	5	08/07/03	12/07/03
CH6957110	SB44W: 2nd Column Lift	0	5	5	14/07/03	18/07/03
CH6957120	SB44W: 3rd Column Lift	0	5	5	19/07/03	24/07/03
CONSTRUCT BRIDGE ML12						
BRIDGE ML12: PIER NB31						
ML12: Pier NB31 Pile Cap						
CH6417100	Sheet Pile driving	0	2	2	21/04/03	22/04/03
CH6417110	Excavate & shoring support	0	3	3	23/04/03	25/04/03
CH6417120	Cut Pile head	0	5	5	26/04/03	02/05/03
CH6417130	Lay/blinding layer	0	1	1	02/05/03	02/05/03
CH6417140	Formwork erection	0	1	1	03/05/03	03/05/03
CH6417150	Reinforcement fixing	0	3	3	03/05/03	05/05/03
CH6417160	Final fix Formwork/Clean & Concrete	0	1	1	07/05/03	07/05/03
CH6417170	Remove formwork & bituminous print	0	2	2	08/05/03	09/05/03
CH6417180	Backfill	0	2	2	10/05/03	12/05/03
CH6417190	Remove tie sheet Piles	0	2	2	13/05/03	14/05/03
ML12: Pier NB31 Column (Type C7/H1B)						
CH6420100	1st Column Lift	0	6	6	15/05/03	22/05/03
CH6420110	2nd Column Lift	0	6	6	23/05/03	29/05/03
CH6420120	3rd Column Lift	0	6	6	30/05/03	06/06/03
CH6420125	4th Column Lift	0	6	6	07/06/03	13/06/03
ML12: Crosshead Between NB31/SB31(Type H1B)						
CH6423100	Erect working platform & support brackets	0	4	4	14/06/03	18/06/03
CH6423110	Erect soffit formwork	0	5	5	19/06/03	24/06/03
CH6423120	Erect Side Panel	0	5	5	25/06/03	30/06/03
CH6423130	Reinforcement fixing	0	5	5	02/07/03	07/07/03
CH6423140	Concreting	0	1	1	08/07/03	08/07/03
CH6423150	Remove Side Panel & Cure Crosshead	0	28	28	09/07/03	05/08/03
CH6423170	Erect working platform & support brackets	0	4	4	09/07/03	12/07/03
CH6423180	Erect soffit formwork	0	5	5	14/07/03	18/07/03
CH6423190	Erect Side Panel	0	5	5	19/07/03	24/07/03
BRIDGE ML12: PIER NB32						
ML12: Pier NB32 Pile Cap						
CH6436180	Backfill	0	2	2	21/04/03	22/04/03
CH6436190	Remove tie sheet Piles	0	2	2	23/04/03	24/04/03
ML12: Pier NB32 Column (Type C3/Portal NNB32)						
CH6441100	1st Column Lift	0	6	6	25/04/03	02/05/03
CH6441110	2nd Column Lift	0	6	6	03/05/03	09/05/03
CH6441120	3rd Column Lift	0	6	6	10/05/03	16/05/03
CH6441125	4th Column Lift	0	6	6	17/05/03	24/05/03



Activity ID	Activity Description	%	Orig Dur	Rem Dur	Early Start	Early Finish
CH6441130	Cat Ladder & E&M Installation	0	14	14	26/05/03	11/06/03
ML12: Portal NSB32 Between NB32/SB32(04/173)						
CH6444100	Erect working platform & support brackets	0	4	4	12/06/03	15/06/03
CH6444110	Erect soffit formwork	0	5	5	16/06/03	20/06/03
CH6444120	Erect Side Panel	0	5	5	21/06/03	25/06/03
CH6444130	Reinforcement fixing	0	5	5	26/06/03	30/06/03
CH6444140	Concreting	0	1	1	01/07/03	01/07/03
CH6444150	Remove Side Panel & Cure Crosshead	0	28	28	02/07/03	29/07/03
CH6444170	Erect working platform & support brackets	0	4	4	02/07/03	05/07/03
CH6444180	Erect soffit formwork	0	5	5	06/07/03	10/07/03
CH6444190	Erect Side Panel	0	5	5	11/07/03	15/07/03
CH6444200	Reinforcement fixing	0	5	5	16/07/03	20/07/03
BRIDGE ML12: PIER NB33						
ML12: Pier NB33 Pile Cap						
CH6459180	Backfill	0	2	2	21/04/03	22/04/03
CH6459190	Remove the sheet Piles	0	2	2	23/04/03	24/04/03
ML12: Pier NB33 Column (Type C3/H1B)						
CH6462100	1st Column Lift	0	6	6	26/05/03	31/05/03
CH6462110	2nd Column Lift	0	6	6	02/06/03	09/06/03
CH6462120	3rd Column Lift	0	6	6	10/06/03	16/06/03
CH6462125	4th Column Lift	0	6	6	17/06/03	23/06/03
BRIDGE ML12: PIER NB34						
ML12: Pier NB34 Bored Piling						
CH6477110	1st: Interface core test	0	1	1	21/04/03	21/04/03
CH6477130	2nd: Interface core test	0	1	1	22/04/03	22/04/03
CH6477150	3rd: Interface core test	0	1	1	25/04/03	25/04/03
CH6477180	Sonic test	0	1	1	25/04/03	25/04/03
ML12: Pier NB34 Pile Cap						
CH6480100	Sheet Pile driving	0	2	2	26/04/03	28/04/03
CH6480110	Excavate & shoring support	0	3	3	29/04/03	02/05/03
CH6480120	Cut Pile head	0	5	5	03/05/03	08/05/03
CH6480130	Lay blinding layer	0	1	1	08/05/03	08/05/03
CH6480140	Formwork erection	0	1	1	09/05/03	09/05/03
CH6480150	Reinforcement fixing	0	3	3	09/05/03	12/05/03
CH6480160	Final fix Formwork/Clean & Concrete	0	1	1	13/05/03	13/05/03
CH6480170	Remove formwork & Waterproof	0	2	2	14/05/03	15/05/03
CH6480180	Backfill	0	2	2	16/05/03	17/05/03
CH6480190	Remove the sheet Piles	0	2	2	20/05/03	21/05/03
ML12: Pier NB34 Column (Type C3/Portal NSB34 04/						
CH6483100	1st Column Lift	0	6	6	22/05/03	28/05/03
CH6483110	2nd Column Lift	0	6	6	29/05/03	05/06/03
CH6483120	3rd Column Lift	0	6	6	06/06/03	12/06/03
CH6483125	4th Column Lift	0	6	6	13/06/03	19/06/03
CH6483130	Cat Ladder & E&M Installation	0	14	14	20/06/03	07/07/03
BRIDGE ML12: PIER NB35(M)						
ML12: Pier NB35 Pile Cap						
CH6501100	Pile Cap Sheet Pile driving	0	2	2	25/04/03*	26/04/03
CH6501110	Pile Cap Excavate & shoring support	0	3	3	28/04/03	30/04/03
CH6501120	Pile Cap Cut Pile head	0	5	5	02/05/03	07/05/03
CH6501130	Pile Cap Lay blinding layer	0	1	1	07/05/03	07/05/03
CH6501140	Pile Cap Formwork erection	0	1	1	08/05/03	08/05/03
CH6501150	Pile Cap Reinforcement fixing	0	3	3	08/05/03	10/05/03
CH6501160	Final fix Formwork/Clean & Concrete	0	1	1	12/05/03	12/05/03
CH6501170	Remove formwork & Waterproof	0	2	2	13/05/03	14/05/03
CH6501180	Backfill	0	2	2	15/05/03	16/05/03
CH6501190	Remove the sheet Piles	0	2	2	17/05/03	20/05/03
ML12: Pier NB35 Column (Type C7/H3B)						
CH6504100	1st Column Lift	0	6	6	21/05/03	27/05/03
CH6504110	2nd Column Lift	0	6	6	28/05/03	03/06/03
CH6504120	3rd Column Lift	0	6	6	05/06/03	11/06/03
CH6504125	4th Column Lift	0	6	6	12/06/03	18/06/03

Activity ID	Activity Description	%	Orig Dur	Rem Dur	Early Start	Early Finish
ML12: Crosshead NB35 (Type C3/H3B)						
CH6507100	Erect working platform & support brackets	0	4	4	19/05/03	23/05/03
CH6507110	Erect soffit formwork	0	5	5	24/05/03	28/05/03
CH6507120	Erect Side Panel	0	5	5	30/05/03	05/07/03
CH6507130	Reinforcement fixing	0	5	5	07/07/03	11/07/03
CH6507140	Concreting	0	1	1	12/07/03	12/07/03
CH6507150	Remove Side Panel & Cure Crosshead	0	28	28	13/07/03	09/08/03
BRIDGE ML12: PIER NB36(M)						
ML12: Pier NB36 Column (Type C3/T3M hollow)						
CH6525125	NB36: 4th Column Lift	10	6	6	10/04/03A	25/04/03
BRIDGE ML12: DECK STRUCTURE						
ML12: TTA Implementation						
CH6530100	Prepare TTA Drgs (NB32 to NB36)	0	43	43	21/04/03*	02/06/03
CH6530110	Endorse TTA Drgs by the Eng.	0	7	7	03/06/03	09/06/03
CH6530120	Apply traffic advice/gazette notice from TD	0	14	14	10/06/03	23/06/03
CH6530130	Meeting with RMO	0	3	3	24/06/03	26/06/03
CH6530140	Receive road works advice	0	2	2	27/06/03	28/06/03
CH6530150	Preparation for commencement	0	3	3	29/06/03	01/07/03
CH6530160	Implementation of TTA	0	7	7	27/06/03	03/07/03
CONSTRUCT BRIDGE ML11						
BRIDGE ML11: PIER SB31						
ML11: Pier SB31 Column (Type C7/H1B)						
CH6273120	SB31: 3rd Column Lift	100	6	0	15/04/03A	21/04/03A
CH6273125	SB31: 4th Column Lift	0	6	6	21/04/03	26/04/03
BRIDGE ML11: PIER SB32						
ML11: Pier SB32 Column (Type C3/Portal NSB32 hol						
CH6291100	1st Column Lift	100	6	0	30/03/03A	19/04/03A
CH6291110	2nd Column Lift	10	6	6	20/04/03A	26/04/03
CH6291120	3rd Column Lift	0	6	6	28/04/03	05/05/03
CH6291125	4th Column Lift	0	6	6	06/05/03	12/05/03
CH6291130	Cat Ladder & E&M Installation	0	14	14	13/05/03	29/05/03
BRIDGE ML11: PIER SB33						
ML11: Pier SB33 Pile Cap						
CH6306140	Formwork erection	0	1	1	21/04/03	21/04/03
CH6306150	Reinforcement fixing	0	3	3	21/04/03	23/04/03
CH6306160	Final fix Formwork/Clean & Concrete	0	1	1	24/04/03	24/04/03
CH6306170	Remove Formwork & Waterproof	0	2	2	25/04/03	26/04/03
CH6306180	Backfill	0	2	2	28/04/03	29/04/03
CH6306190	Remove the sheet Piles	0	2	2	30/04/03	02/05/03
ML11: Pier SB33 Column (Type C3/H1B)						
CH6309100	1st Column Lift	0	6	6	03/05/03	09/05/03
CH6309110	2nd Column Lift	0	6	6	10/05/03	16/05/03
CH6309120	3rd Column Lift	0	6	6	17/05/03	24/05/03
CH6309125	4th Column Lift	0	6	6	25/05/03	31/05/03
BRIDGE ML11: PIER SB34						
ML11: Pier SB34 TTA Implementation						
CH6312150	SB34: Preparation for commencement	0	3	3	21/04/03	23/04/03
ML11: Pier SB34 Bored Piling						
CH6321110	SB34: 1st: Interface core test	0	1	1	21/04/03	21/04/03
CH6321130	SB34: 2nd: Interface core test	0	1	1	22/04/03	22/04/03
CH6321140	SB34: 3rd: Bored Pile	90	7	4	07/04/03A	24/04/03
CH6321150	SB34: 3rd: Interface core test	0	1	1	13/05/03	13/05/03
CH6321180	SB34: Sonic test	0	1	1	13/05/03	13/05/03
ML11: Pier SB34 Pile Cap						
CH6324100	SB34 PILE CAP: Sheet Pile driving	0	2	2	14/05/03	15/05/03
CH6324110	SB34 PILE CAP: Excavate & shoring support	0	3	3	16/05/03	20/05/03
CH6324120	SB34 PILE CAP: Cut Pile head	0	5	5	21/05/03	26/05/03
CH6324130	SB34 PILE CAP: Lay blinding layer	0	1	1	26/05/03	26/05/03
CH6324140	SB34 PILE CAP: Formwork erection	0	1	1	27/05/03	27/05/03
CH6324150	SB34 PILE CAP: Reinforcement fixing	0	3	3	27/05/03	29/05/03
CH6324160	SB34 PILE CAP: Final fix Fmwork/Clean & Concrete	0	1	1	30/05/03	30/05/03
CH6324170	SB34 PILE CAP: Remove Formwork & Waterproof	0	2	2	31/05/03	02/06/03



Activity ID	Activity Description	%	Orig Dur	Rem Dur	Early Start	Early Finish
CH6324180	SB34 PILE CAP: Backfill	0	2	2	03/05/03	05/05/03
CH6324190	SB34 PILE CAP: Remove the sheet Piles	0	2	2	05/05/03	07/05/03
ML11: Pier SB34 Column (Type C3/Portal NSB34)						
CH6327100	SB34: 1st Column Lift	0	6	6	15/07/03	21/07/03
BRIDGE ML11: PIER SB35(M)						
ML11: Pier SB35 Pile Cap						
CH6342100	Sheet Pile driving	0	2	2	21/04/03	22/04/03
CH6342110	Excavate & shoring support	0	3	3	23/04/03	25/04/03
CH6342120	Cut Pile head	0	5	5	26/04/03	30/04/03
CH6342130	Lay blinding layer	0	1	1	30/04/03	30/04/03
CH6342140	Formwork erection	0	1	1	01/05/03	01/05/03
CH6342150	Reinforcement fixing	0	3	3	01/05/03	03/05/03
CH6342160	Final fix Fmwork/Clean & Concrete	0	1	1	04/05/03	04/05/03
CH6342170	Remove Formwork & Waterproof	0	2	2	05/05/03	06/05/03
CH6342180	Backfill	0	2	2	07/05/03	08/05/03
CH6342190	Remove the sheet Piles	0	2	2	09/05/03	10/05/03
ML11: Pier SB35 Column (Type C7/H3B)						
CH6345100	1st Column Lift	0	6	6	11/05/03	16/05/03
CH6345110	2nd Column Lift	0	6	6	17/05/03	22/05/03
CH6345120	3rd Column Lift	0	6	6	23/05/03	28/05/03
CH6345125	4th Column Lift	0	6	6	29/05/03	03/06/03
ML11: Crosshead on SB35 (Type H3B)						
CH6347100	Erect working platform & support brackets	0	4	4	05/06/03	09/06/03
CH6347110	Erect soffit formwork	0	5	5	10/06/03	14/06/03
CH6347120	Erect Side Panel	0	5	5	16/06/03	20/06/03
CH6347130	Reinforcement fixing	0	5	5	21/06/03	26/06/03
CH6347140	Concreting	0	1	1	27/06/03	27/06/03
CH6347150	Remove Side Panel & Core Crosshead	0	28	28	28/06/03	25/07/03
BRIDGE ML11: PIER SB36(M)						
ML11: Pier SB36 Pile Cap						
CH6360170	SB36: Pile Cap Remove formwork & Waterproof	100	2	0	15/04/03A	15/04/03A
CH6360180	SB36: Pile Cap Backfill	0	2	2	21/04/03	22/04/03
CH6360190	SB36: Remove the sheet Piles	0	2	2	23/04/03	24/04/03
ML11: Pier SB36 Column (Type C3/T3M hollow)						
CH6363100	SB36: 1st Column Lift	0	6	6	09/05/03	14/05/03
CH6363110	SB36: 2nd Column Lift	0	6	6	16/05/03	21/05/03
CH6363120	SB36: 3rd Column Lift	0	6	6	23/05/03	28/05/03
CH6363122	SB36: 4th Column Lift	0	6	6	30/05/03	07/07/03
CH6363124	SB36: 5th Column Lift	0	6	6	08/07/03	14/07/03
BRIDGE ML11: DECK STRUCTURE						
ML11: TTA Implementation						
CH6365100	Prepare TTA Drgs (SB32 to SB34)	0	43	43	21/04/03*	02/06/03
CH6365110	Endorse TTA Drgs by the Eng.	0	7	7	03/06/03	09/06/03
CH6365120	Apply traffic advice/gazette notice from TD	0	14	14	10/06/03	23/06/03
CH6365130	Meeting with RMO	0	3	3	24/06/03	26/06/03
CH6365140	Receive road works advice	0	2	2	27/06/03	28/06/03
CH6365150	Preparation for commencement	0	3	3	29/06/03	01/07/03
CH6365160	Implementation of TTA	0	7	7	27/06/03	03/07/03
CONSTRUCT BRIDGE ML14						
BRIDGE ML14: PIER NB37						
ML14: Pier NB37 Pile Cap						
CH6693140	Formwork erection	0	1	1	21/04/03	21/04/03
CH6693150	Reinforcement fixing	0	3	3	21/04/03	23/04/03
CH6693160	Final fix Formwork/Clean & Concrete	0	1	1	24/04/03	24/04/03
CH6693170	Remove formwork & Waterproof	0	2	2	25/04/03	26/04/03
CH6693180	Backfill	0	2	2	27/04/03	28/04/03
CH6693190	Remove the sheet Piles	0	2	2	29/04/03	30/04/03
ML14: Pier NB37 Column (Type C7)						
CH6696100	1st Column Lift	0	6	6	01/05/03	06/05/03
CH6696110	2nd Column Lift	0	6	6	07/05/03	12/05/03
CH6696120	3rd Column Lift	0	6	6	13/05/03	18/05/03
CH6696125	4th Column Lift	0	6	6	19/05/03	24/05/03

Activity ID	Activity Description	%	Orig Dur	Rem Dur	Early Start	Early Finish
CH6696130	Cat Ladder & E&M Installation	0	14	14	25/05/03	07/06/03
BRIDGE ML14: PIER NB38						
ML14: Pier NB38 Pile Cap						
CH6714100	Sheet Pile driving	0	2	2	02/05/03	03/05/03
CH6714110	Excavate & shoring support	0	3	3	05/05/03	07/05/03
CH6714120	Cut Pile head	0	4	4	08/05/03	12/05/03
CH6714130	Lay/blinding layer	0	1	1	12/05/03	12/05/03
CH6714140	Formwork erection	0	1	1	13/05/03	13/05/03
CH6714150	Reinforcement fixing	0	3	3	13/05/03	15/05/03
CH6714160	Final fix Formwork/Clean & Concrete	0	1	1	16/05/03	16/05/03
CH6714170	Remove formwork & Waterproof	0	2	2	17/05/03	20/05/03
CH6714180	Backfill	0	2	2	21/05/03	22/05/03
CH6714190	Remove the sheet Piles	0	2	2	23/05/03	24/05/03
BRIDGE ML14: PIER NB39						
ML14: Pier NB39 Bored Piling						
CH6732110	1st: Interface core test	0	1	1	21/04/03	21/04/03
CH6732150	2nd: Interface core test	0	1	1	22/04/03	22/04/03
CH6732180	Sonic test	0	1	1	21/04/03	21/04/03
ML14: Pier NB39 Pile Cap						
CH6735100	Sheet Pile driving	0	2	2	26/05/03	27/05/03
CH6735110	Excavate & shoring support	0	3	3	28/05/03	30/05/03
CH6735120	Cut Pile head	0	3	3	31/05/03	03/06/03
CH6735130	Lay/blinding layer	0	1	1	03/06/03	03/06/03
CH6735140	Formwork erection	0	1	1	05/06/03	05/06/03
CH6735150	Reinforcement fixing	0	3	3	05/06/03	07/06/03
CH6735160	Final fix Formwork/Clean & Concrete	0	1	1	09/06/03	09/06/03
CH6735170	Remove formwork & Waterproof	0	2	2	10/06/03	11/06/03
CH6735180	Backfill	0	2	2	12/06/03	13/06/03
CH6735190	Remove the sheet Piles	0	2	2	14/06/03	16/06/03
BRIDGE ML14: PIER NB40						
ML14: Pier NB40 Pile Cap						
CH6756100	Sheet Pile driving	0	2	2	12/05/03	13/05/03
CH6756110	Excavate & shoring support	0	3	3	14/05/03	16/05/03
CH6756120	Cut Pile head	0	5	5	17/05/03	23/05/03
CH6756130	Lay/blinding layer	0	1	1	23/05/03	23/05/03
CH6756140	Formwork erection	0	1	1	24/05/03	24/05/03
CH6756150	Reinforcement fixing	0	3	3	24/05/03	27/05/03
CH6756160	Final fix Formwork/Clean & Concrete	0	1	1	28/05/03	28/05/03
CH6756170	Remove formwork & Waterproof	0	2	2	29/05/03	30/05/03
CH6756180	Backfill	0	2	2	31/05/03	02/06/03
CH6756190	Remove the sheet Piles	0	2	2	03/06/03	05/06/03
BRIDGE ML14: PIER NB41						
ML14: Pier NB41 Pile Cap						
CH6777100	Sheet Pile driving	0	2	2	17/06/03	18/06/03
CH6777110	Excavate & shoring support	0	3	3	19/06/03	21/06/03
CH6777120	Cut Pile head	0	5	5	23/06/03	27/06/03
CH6777130	Lay/blinding layer	0	1	1	27/06/03	27/06/03
CH6777140	Formwork erection	0	1	1	28/06/03	28/06/03
CH6777150	Reinforcement fixing	0	3	3	28/06/03	02/07/03
CH6777160	Final fix Formwork/Clean & Concrete	0	1	1	03/07/03	03/07/03
CH6777170	Remove formwork & Waterproof	0	2	2	04/07/03	05/07/03
CH6777180	Backfill	0	2	2	07/07/03	08/07/03
CH6777190	Remove the sheet Piles	0	2	2	09/07/03	10/07/03
BRIDGE ML14: PIER G0						
ML14: Pier G0 Pile Cap						
CH6794100	Sheet Pile driving	0	2	2	06/05/03	07/05/03
CH6794110	Excavate & shoring support	0	3	3	09/05/03	11/05/03
CH6794120	Cut Pile head	0	5	5	12/05/03	17/05/03
CH6794130	Lay/blinding layer	0	1	1	17/05/03	17/05/03
CH6794140	Formwork erection	0	1	1	18/05/03	18/05/03
CH6794150	Reinforcement fixing	0	3	3	18/05/03	20/05/03
CH6794160	Final fix Formwork/Clean & Concrete	0	1	1	21/05/03	21/05/03

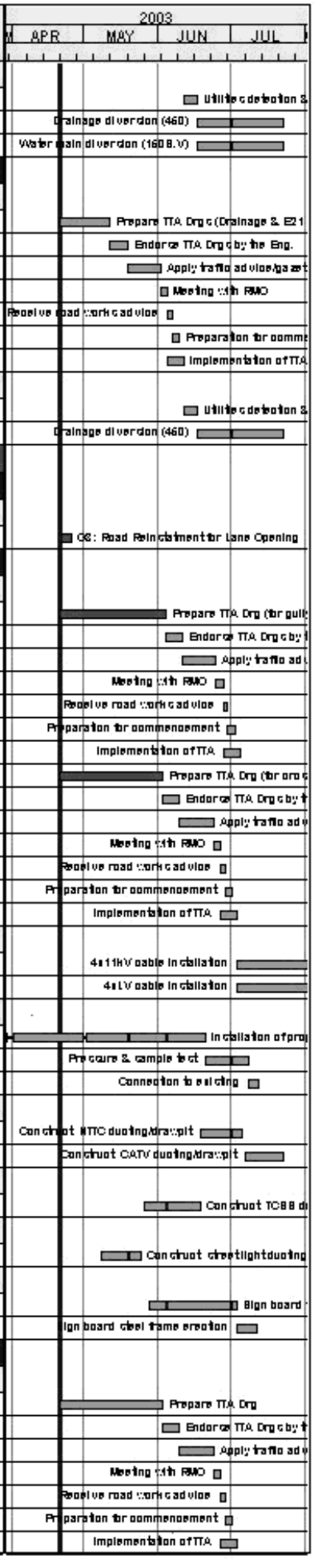
Activity ID	Activity Description	%	Orig Dur	Rem Dur	Early Start	Early Finish
CH6794170	Remove formwork & Waterproof	0	2	2	23/05/03	24/05/03
CH6794180	Backfill	0	2	2	25/05/03	26/05/03
CH6794190	Remove the sheet Piles	0	2	2	27/05/03	28/05/03
BRIDGE ML14: PIER G1(M)						
ML14: Pier G1(M) Pile Cap						
CH6819100	Sheet Pile driving	0	2	2	30/06/03	02/07/03
CH6819110	Excavate & shoring support	0	3	3	03/07/03	05/07/03
CH6819120	Cut Pile head	0	5	5	07/07/03	11/07/03
CH6819130	Lay blinding layer	0	1	1	11/07/03	11/07/03
CH6819140	Formwork erection	0	1	1	12/07/03	12/07/03
CH6819150	Reinforcement fixing	0	3	3	12/07/03	15/07/03
CH6819160	Final fix Formwork/Clean & Concrete	0	1	1	16/07/03	16/07/03
CH6819170	Remove formwork & Waterproof	0	2	2	17/07/03	18/07/03
CH6819180	Backfill	0	2	2	19/07/03	21/07/03
CONSTRUCT BRIDGE H1						
BRIDGE H1: PIER H0						
H1: Pier H0 Pile Cap						
CH4020180	H0: Backfill	0	2	2	21/04/03	22/04/03
CH4020190	H0: Remove the sheet Piles	0	2	2	23/04/03	24/04/03
BRIDGE H1: PIER H1						
H1: Pier H1 Pile Cap						
CH4050100	H1: Sheet Pile driving	0	2	2	11/07/03	12/07/03
CH4050110	H1: Excavate & shoring support	0	3	3	14/07/03	16/07/03
CH4050120	H1: Cut Pile head	0	5	5	17/07/03	22/07/03
BRIDGE H1: PIER H2						
H1: Pier H2 Bored Piling						
CH4075180	Sonic test	0	1	1	21/04/03	21/04/03
CONSTRUCT BRIDGE H2						
BRIDGE H2: PIER H5						
H2: Pier H5 Bored Piling						
CH4220110	1st Interface core test	0	1	1	21/04/03	21/04/03
CH4220150	2nd: Interface core test	0	1	1	22/04/03	22/04/03
CH4220180	Sonic test	0	1	1	21/04/03	21/04/03
BRIDGE H2: PIER H6						
Bridge H2: Pier H6 Bored Piling						
CH4250110	1st Interface core test	0	1	1	21/04/03	21/04/03
CH4250140	2nd: Bored Pile	0	5	5	24/04/03	29/04/03
CH4250150	2nd: Interface core test	0	1	1	17/05/03	17/05/03
CH4250180	Sonic test	0	1	1	17/05/03	17/05/03
BRIDGE H7: PIER H7						
H2: Pier H7 Bored Piling						
CH4280100	H7: 1st Bored Pile	0	5	5	30/04/03	05/05/03
CH4280110	H7: 1st Interface core test	0	1	1	24/05/03	24/05/03
CH4280140	H7: 2nd: Bored Pile	0	5	5	12/05/03	16/05/03
CH4280150	H7: 2nd: Interface core test	0	1	1	05/06/03	05/06/03
CH4280180	H7: Sonic test	0	1	1	05/06/03	05/06/03
BRIDGE H2: PIER H8						
H2: Pier H8 SI Pre-Drilling						
CH4305110	H8: Prepare & submit the SI report	50	4	4	22/11/02A	24/04/03
CH4305120	H8: Approval SI report	0	6	6	25/04/03	02/05/03
H2: Pier H8 Bored Piling						
CH4310100	H8: 1st Bored Pile	0	5	5	05/05/03	09/05/03
CH4310110	H8: 1st Interface core test	0	1	1	28/05/03	28/05/03
CH4310140	H8: 2nd: Bored Pile	0	5	5	15/05/03	21/05/03
CH4310150	H8: 2nd Interface core test	0	1	1	09/06/03	09/06/03
CH4310180	H8: Sonic test	0	1	1	09/06/03	09/06/03
BRIDGE H2: PIER H9S (STAGE 3)						
H2: Pier H9S Utilities & Services Diversions						
CH4365104	H9S: Construct Firemain Thrust Blocks & Backfill	0	2	2	05/05/03	06/05/03
H2: Pier H9S SI Pre-Drilling						
CH4370110	H9S: Prepare & submit the SI report	0	4	4	07/03/03A	24/04/03

Activity ID	Activity Description	%	Orig Dur	Rem Dur	Early Start	Early Finish
CH4370120	H9S: Approval SI report	0	6	6	25.04.03	02.05.03
H2: Pier H9S Bored Piling						
CH4375100	H9S: 1st Bored Pile	0	4	4	08.05.03	12.05.03
CH4375110	H9S: 1st Interface core test	0	1	1	30.05.03	30.05.03
CH4375140	H9S: 2nd Bored Pile	0	4	4	20.05.03	23.05.03
CH4375150	H9S: 2nd Interface core test	0	1	1	11.06.03	11.06.03
CH4375180	H9S: Sonic test	0	1	1	11.06.03	11.06.03
BRIDGE H2: DECK STRUCTURE						
H2: TTA Implementation						
CH4394100	Prepare TTA Drgs (H4 to H5)	0	43	43	18.07.03*	29.08.03
CONSTRUCT BRIDGE ML13						
BRIDGE ML13: PIER SB37						
ML13: Pier SB37 TTA Implementation						
CH6564100	SB37: Prepare TTA Drgs (SB37 Cap)	0	13	13	21.04.03*	03.05.03
CH6564105	Preparation for commencement	0	3	3	21.04.03	23.04.03
ML13: Pier SB37 Bored Piling						
CH6573180	Sonic test	0	1	1	21.04.03	21.04.03
ML13: Pier SB37 Pile Cap						
CH6576110	Excavate & shoring support	0	3	3	22.04.03	24.04.03
CH6576120	Cut Pile head	0	5	5	25.04.03	30.04.03
CH6576130	Lay blinding layer	0	1	1	30.04.03	30.04.03
CH6576140	Formwork erection	0	1	1	02.05.03	02.05.03
CH6576150	Reinforcement fixing	0	3	3	02.05.03	05.05.03
CH6576160	Final fix Formwork/Clean & Concrete	0	1	1	06.05.03	06.05.03
CH6576170	Remove formwork & Waterproof	0	2	2	07.05.03	08.05.03
CH6576180	Backfill	0	2	2	09.05.03	10.05.03
CH6576190	Remove the sheet Piles	0	2	2	12.05.03	13.05.03
BRIDGE ML13: PIER SB38						
ML13: Pier SB38 SI Pre-Drilling						
CH6591110	SB38: Prepare & submit the SI report	0	4	4	29.01.03A	24.04.03
CH6591120	SB38: Approval SI report	0	6	6	25.04.03	02.05.03
ML13: Pier SB38 Bored Piling						
CH6594100	SB38: 1st Bored Pile	100	5	0	14.04.03A	17.04.03A
CH6594110	SB38: 1st Interface core test	0	1	1	17.05.03	17.05.03
CH6594170	SB38: 2nd Interface core test	0	1	1	20.05.03	20.05.03
CH6594180	SB38: Sonic test	0	1	1	30.04.03	30.04.03
ML13: Pier SB38 Pile Cap						
CH6597100	SB38: Sheet Pile driving	0	2	2	09.06.03	10.06.03
CH6597110	SB38: Excavate & shoring support	0	3	3	11.06.03	13.06.03
CH6597120	SB38: Cut Pile head	0	5	5	14.06.03	19.06.03
CH6597130	SB38: Lay blinding layer	0	1	1	19.06.03	19.06.03
CH6597140	SB38: Formwork erection	0	1	1	20.06.03	20.06.03
CH6597150	SB38: Reinforcement fixing	0	3	3	20.06.03	23.06.03
CH6597160	SB38: Final fix Formwork/Clean & Concrete	0	1	1	24.06.03	24.06.03
CH6597170	SB38: Remove formwork & Waterproof	0	2	2	25.06.03	26.06.03
CH6597180	SB38: Backfill	0	2	2	27.06.03	28.06.03
CH6597190	SB38: Remove the sheet Piles	0	2	2	30.06.03	02.07.03
BRIDGE ML13: PIER SB39						
ML13: Pier SB39 TTA Implementation						
CH6606105	Preparation for commencement	0	3	3	21.04.03	23.04.03
ML13: Pier SB39 Utilities & Services Diversions						
CH6609120	Remove existing LV cable	0	5	5	21.04.03	25.04.03
ML13: Pier SB39 Bored Piling						
CH6615100	SB39: 1st Bored Pile	0	5	5	27.05.03	31.05.03
CH6615110	SB39: 1st Interface core test	0	1	1	19.06.03	19.06.03
CH6615160	SB39: 2nd Bored Pile	0	5	5	02.06.03	07.06.03
CH6615170	SB39: 2nd Interface core test	0	1	1	25.06.03	25.06.03
CH6615180	Sonic test	0	1	1	25.06.03	25.06.03
ML13: Pier SB39 Pile Cap						
CH6618100	Sheet Pile driving	0	2	2	03.07.03	04.07.03
CH6618110	Excavate & shoring support	0	3	3	05.07.03	09.07.03
CH6618120	Cut Pile head	0	5	5	09.07.03	14.07.03

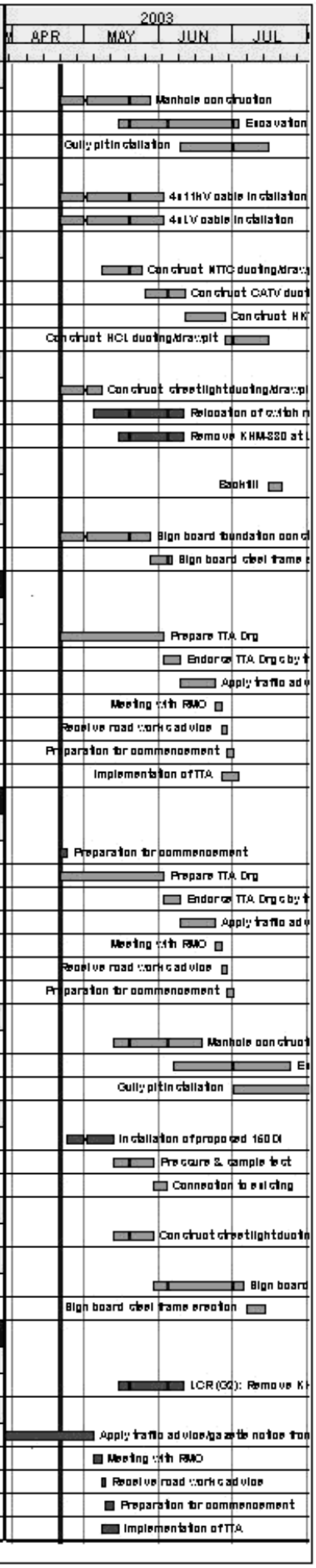
Activity ID	Activity Description	%	Orig Dur	Rem Dur	Early Start	Early Finish
CH6618130	Lay/blinding layer	0	1	1	14.07.03	14.07.03
CH6618140	Formwork erection	0	1	1	15.07.03	15.07.03
CH6618150	Reinforcement fixing	0	3	3	15.07.03	17.07.03
CH6618160	Final fix Formwork/Clean & Concrete	0	1	1	18.07.03	18.07.03
CH6618170	Remove formwork & Waterproof	0	2	2	19.07.03	21.07.03
BRIDGE ML13: PIER SB40						
ML13: Pier SB40 Bored Piling						
CH6636110	SB40: 1st Interface core test	0	1	1	21.04.03	21.04.03
CH6636130	SB40: 2nd Interface core test	0	1	1	22.04.03	22.04.03
CH6636150	SB40: 3rd Interface core test	0	1	1	28.04.03	28.04.03
CH6636180	Sonic test	0	1	1	28.04.03	28.04.03
CONSTRUCT BRIDGE ML15 - STAGE 3 WORKS						
BRIDGE ML15: PIER SB41						
ML15: Pier SB41 TTA Implementation						
CH6861100	SB41: Prepare TTA Drgs (SB41CAP)	0	21	21	21.04.03*	11.05.03
CH6861110	Endorse TTA Drgs by the Eng.	0	7	7	12.05.03	18.05.03
CH6861120	Apply traffic advice/gazette notice from TD	0	14	14	19.05.03	01.06.03
CH6861130	Meeting with RMO	0	3	3	02.06.03	04.06.03
CH6861140	Receive road works advice	0	2	2	05.06.03	06.06.03
CH6861150	Preparation for commencement	0	3	3	07.06.03	09.06.03
CH6861160	Implementation of TTA	0	7	7	05.06.03	11.06.03
ML15: Pier SB41 Bored Piling						
CH6870110	1st: Interface core test	0	1	1	21.04.03	21.04.03
CH6870160	2nd: Bored Pile	80	5	3	09.04.03A	23.04.03
CH6870170	2nd: Interface core test	0	1	1	12.05.03	12.05.03
CH6870180	Sonic test	0	1	1	12.05.03	12.05.03
CONSTRUCT BRIDGE ML10						
BRIDGE ML10: PIER NB29(M)						
ML10: Pier NB29 SI Pre-Drilling						
CH6153100	Site Investigation	0	20	20	21.04.03*	14.05.03
CH6153110	Prepare & submit the SI report	0	4	4	15.05.03	20.05.03
CH6153120	Approval SI report	0	6	6	21.05.03	27.05.03
ML10: Pier NB29 Bored Piling						
CH6156100	1st: Bored Pile	0	5	5	28.05.03	02.06.03
CH6156110	1st: Interface core test	0	1	1	20.06.03	20.06.03
CH6156120	2nd: Bored Pile	0	5	5	17.06.03	21.06.03
CH6156130	2nd: Interface core test	0	1	1	10.07.03	10.07.03
CH6156140	3rd: Bored Pile	0	5	5	07.07.03	11.07.03
BRIDGE ML10: PIER NB30(M)						
ML10: Pier NB30 Pile Cap						
CH6180100	Sheet Pile driving	100	2	0	09.04.03A	15.04.03A
CH6180110	Excavate & shoring support	100	3	0	16.04.03A	20.04.03A
CH6180120	Cut Pile head	0	5	5	21.04.03	25.04.03
CH6180130	Lay/blinding layer	0	1	1	25.04.03	25.04.03
CH6180140	Formwork erection	0	1	1	26.04.03	26.04.03
CH6180150	Reinforcement fixing	0	3	3	26.04.03	29.04.03
CH6180160	Final fix Formwork/Clean & Concrete	0	1	1	30.04.03	30.04.03
CH6180170	Remove formwork & bitminous print	0	2	2	02.05.03	03.05.03
CH6180180	Backfill	0	2	2	05.05.03	06.05.03
CH6180190	Remove the sheet Piles	0	2	2	07.05.03	08.05.03
ML10: Pier NB30 Column (Type C3 hollow)						
CH6183100	1st Column Lift	0	6	6	09.05.03	15.05.03
CH6183110	2nd Column Lift	0	6	6	16.05.03	23.05.03
CH6183120	3rd Column Lift	0	6	6	24.05.03	30.05.03
CH6183125	4th Column Lift	0	6	6	31.05.03	07.06.03
ML10: Crosshead on NB30/SB30 (Type H1B(M))						
CH6186100	Erect working platform & support brackets	0	5	5	09.06.03	13.06.03
CH6186110	Erect soffit formwork	0	6	6	14.06.03	20.06.03
CH6186120	Erect Side Panel	0	6	6	21.06.03	27.06.03
CH6186130	Reinforcement fixing	0	6	6	28.06.03	05.07.03
CH6186140	Concreting	0	1	1	07.07.03	07.07.03
CH6186150	Remove Side Panel & Cure Crosshead	0	28	28	08.07.03	04.08.03

Activity ID	Activity Description	%	Orig Dur	Rem Dur	Early Start	Early Finish
CH6186170	Erect working platform & support brackets	0	5	5	08.07.03	12.07.03
CH6186180	Erect soffit formwork	0	6	6	14.07.03	19.07.03
BRIDGE ML10: PIER NB28N						
ML10: Pier NB28N Utilities & Services Diversions						
CH6111110	NB28N: Drainage diversion (450)	0	32	32	21.04.03	29.05.03
ML10: Pier NB28N SI Pre-Drilling						
CH6114100	Site Investigation	0	10	10	30.05.03	11.06.03
CH6114110	Prepare & submit the SI report	0	4	4	12.06.03	16.06.03
CH6114120	Approval SI report	0	6	6	17.06.03	23.06.03
BRIDGE ML10: PIER NB28S(M)						
ML10: Pier NB28S Utilities & Services Diversions						
CH6129100	NB28S: Utilities Detection & Trial Pit	0	4	4	21.04.03	24.04.03
ML10: Pier NB28S SI Pre-Drilling						
CH6132100	Site Investigation	0	10	10	25.04.03	07.05.03
CH6132110	Prepare & submit the SI report	0	2	2	08.05.03	09.05.03
CH6132120	Approval SI report	0	2	2	10.05.03	12.05.03
ML10: Pier NB28S Bored Piling						
CH6135100	1st Bored Pile	0	5	5	02.06.03	07.06.03
CH6135110	1st Interface core test	0	1	1	25.06.03	25.06.03
CH6135120	2nd: Bored Pile	0	5	5	21.06.03	26.06.03
CH6135130	2nd: Interface core test	0	1	1	15.07.03	15.07.03
CH6135140	3rd: Bored Pile	0	5	5	11.07.03	16.07.03
CONSTRUCT BRIDGE ML9						
BRIDGE ML9: PIER SB28						
ML9: Pier SB28 SI Pre-Drilling						
CH5919100	SB28: Site Investigation Pre-drilling	0	10	10	25.04.03	07.05.03
CH5919110	SB28: Prepare & submit the SI report	0	2	2	08.05.03	09.05.03
CH5919120	SB28: Approval SI report	0	2	2	10.05.03	12.05.03
ML9: Pier SB28 Bored Piling						
CH5922100	SB28: 1st Bored Pile	0	5	5	07.06.03	12.06.03
CH5922110	SB28: 1st Interface core test	0	1	1	30.06.03	30.06.03
CH5922120	SB28: 2nd: Bored Pile	0	5	5	26.06.03	02.07.03
CH5922130	SB28: 2nd: Interface core test	0	1	1	19.07.03	19.07.03
CH5922140	SB28: 3rd: Bored Pile	0	5	5	16.07.03	21.07.03
BRIDGE ML9: PIER SB29						
ML9: Pier SB29 Utilities & Services Diversions						
CH5934100	SB29: Utilities Detection & Trial Pit	0	4	4	25.04.03	29.04.03
ML9: Pier SB29 SI Pre-Drilling						
CH5937100	Site Investigation	0	10	10	30.04.03	12.05.03
CH5937110	Prepare & submit the SI report	0	2	2	13.05.03	14.05.03
CH5937120	Approval SI report	0	2	2	15.05.03	16.05.03
ML9: Pier SB29 Bored Piling						
CH5940100	1st Bored Pile	0	5	5	12.06.03	17.06.03
CH5940110	1st Interface core test	0	1	1	05.07.03	05.07.03
CH5940120	2nd: Bored Pile	0	5	5	02.07.03	07.07.03
BRIDGE ML9: PIER SB30 (M)						
ML9: Pier SB30 Column (Type C3 hollow)						
CH5964110	2nd Column Lift	100	6	0	03.04.03A	17.04.03A
CH5964120	3rd Column Lift	50	6	3	18.04.03A	23.04.03
CH5964125	4th Column Lift	0	6	6	24.04.03	30.04.03
CONSTRUCT BRIDGE EC						
BRIDGE EC: PIER E20						
EC: Pier E20 TTA Implementation						
CH1345100	Prepare TTA Drgs (Drainage & E20 Cap)	0	21	21	21.04.03*	11.05.03
CH1345110	Endorse TTA Drgs by the Eng.	0	7	7	12.05.03	18.05.03
CH1345120	Apply traffic advice/gazette notice from TD	0	14	14	19.05.03	01.06.03
CH1345130	Meeting with RMO	0	3	3	02.06.03	04.06.03
CH1345140	Receive road works advice	0	2	2	05.06.03	06.06.03
CH1345150	Preparation for commencement	0	3	3	07.06.03	09.06.03
CH1345160	Implementation of TTA	0	7	7	05.06.03	11.06.03

Activity ID	Activity Description	%	Orig Dur	Rem Dur	Early Start	Early Finish
EC: Pier E20 Utilities & Services Diversions						
CH1348100	Utilities detection & trial pit excavation	0	4	4	12/05/03	16/05/03
CH1348110	Drainage diversion (450)	0	30	30	17/05/03	22/07/03
CH1348120	Water main diversion (150DI.V)	0	30	30	17/05/03	22/07/03
BRIDGE EC: ABUTMENT E (E21(M)A)						
EC: Abutment E TTA Implementation						
CH1366100	Prepare TTA Drgs (Drainage & E21 Cap)	0	21	21	21/04/03	11/05/03
CH1366110	Endorse TTA Drgs by the Eng.	0	7	7	12/05/03	18/05/03
CH1366120	Apply traffic advice/gazette notice from TD	0	14	14	19/05/03	01/06/03
CH1366130	Meeting with RMO	0	3	3	02/06/03	04/06/03
CH1366140	Receive road works advice	0	2	2	05/06/03	06/06/03
CH1366150	Preparation for commencement	0	3	3	07/06/03	09/06/03
CH1366160	Implementation of TTA	0	7	7	05/06/03	11/06/03
EC: Abutment E Utilities & Services Diversions						
CH1369100	Utilities detection & trial pit excavation	0	4	4	12/05/03	16/05/03
CH1369110	Drainage diversion (450)	0	30	30	17/05/03	22/07/03
GROUND LEVEL ROAD WORKS						
BRIDGE G1: PIER G3 - STAGE 1A						
Pier G3 Utilities, Services & Roadworks						
CH6040150	G3: Road Reinstatement for Lane Opening	0	4	4	22/04/03	25/04/03
REALIGNMENT OF HING WAH STREET W. E/B (HWW E/B)						
HWW E/B: TTA's						
CH8400170	Prepare TTA Drg (for gully/pipe)	0	44	44	21/04/03	03/06/03
CH8400180	Endorse TTA Drgs by the Eng.	0	7	7	04/06/03	10/06/03
CH8400190	Apply traffic advice/gazette notice from TD	0	14	14	11/06/03	24/06/03
CH8400200	Meeting with RMO	0	3	3	25/06/03	27/06/03
CH8400210	Receive road works advice	0	2	2	28/06/03	29/06/03
CH8400220	Preparation for commencement	0	3	3	30/06/03	02/07/03
CH8400230	Implementation of TTA	0	7	7	28/06/03	04/07/03
CH8400240	Prepare TTA Drg (for cross road cable)	0	43	43	21/04/03	02/06/03
CH8400250	Endorse TTA Drgs by the Eng.	0	7	7	03/06/03	09/06/03
CH8400260	Apply traffic advice/gazette notice from TD	0	14	14	10/06/03	23/06/03
CH8400270	Meeting with RMO	0	3	3	24/06/03	26/06/03
CH8400280	Receive road works advice	0	2	2	27/06/03	28/06/03
CH8400290	Preparation for commencement	0	3	3	29/06/03	01/07/03
CH8400300	Implementation of TTA	0	7	7	27/06/03	03/07/03
HWW E/B: HV Power Supply Civil Provision						
CH8420100	4x11kV cable installation	0	35	35	04/07/03	13/08/03
CH8420110	4xLV cable installation	0	35	35	04/07/03	13/08/03
HWW E/B: Water Mains						
CH8430100	Installation of proposed 250DI WM	15	50	50	19/02/03A	20/06/03
CH8430110	Pressure & sample test	0	14	14	21/06/03	05/07/03
CH8430120	Connection to existing	0	4	4	09/07/03	12/07/03
HWW E/B: Telecommunications Civil Provision						
CH8440100	Construct NTTC ducting/drawpit	0	14	14	19/05/03	05/07/03
CH8440110	Construct CATV ducting/drawpit	0	14	14	07/07/03	22/07/03
HWW E/B: TCSS Civil Provision						
CH8455100	Construct TCSS ducting/drawpit	0	20	20	26/05/03	18/06/03
HWW E/B: Street Lighting						
CH8450100	Construct street light ducting/drawpit	0	14	14	03/05/03	24/05/03
HWW E/B: Road Signs, Markings & Bollards						
CH8465100	Sign board foundation construction	0	30	30	28/05/03	03/07/03
CH8465110	Sign board steel frame erection	0	7	7	04/07/03	11/07/03
REALIGNMENT OF HING WAH STREET W. W/B (HWW W/B)						
HWW W/B: TTA's						
CH8500170	Prepare TTA Drg	0	43	43	21/04/03*	02/06/03
CH8500180	Endorse TTA Drgs by the Eng.	0	7	7	03/06/03	09/06/03
CH8500190	Apply traffic advice/gazette notice from TD	0	14	14	10/06/03	23/06/03
CH8500200	Meeting with RMO	0	3	3	24/06/03	26/06/03
CH8500210	Receive road works advice	0	2	2	27/06/03	28/06/03
CH8500220	Preparation for commencement	0	3	3	29/06/03	01/07/03
CH8500230	Implementation of TTA	0	7	7	27/06/03	03/07/03

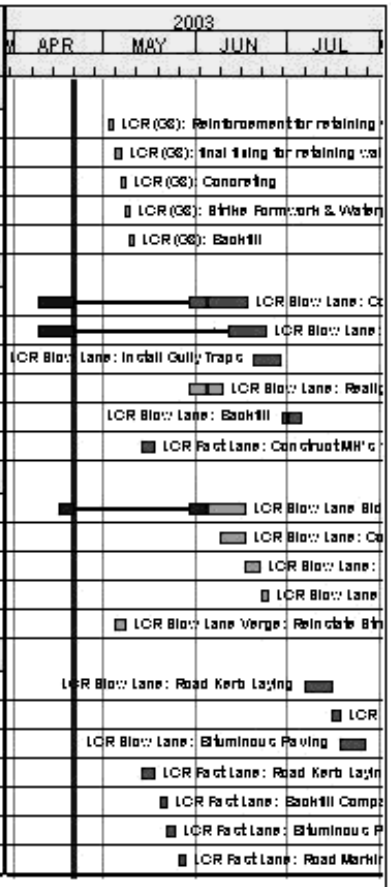


Activity ID	Activity Description	%	Orig Dur	Rem Dur	Early Start	Early Finish
HWW W/B: Drainage						
CH8515115	Manhole construction	0	30	30	21.04.03	27.05.03
CH8515120	Excavation & gullypipe installation	0	40	40	15.05.03	03.07.03
CH8515130	Gullypit installation	0	30	30	10.06.03	15.07.03
HWW W/B: HV Power Supply Civil Provision						
CH8520140	4x11KV cable installation	0	35	35	21.04.03	02.06.03
CH8520150	4xLV cable installation	0	35	35	21.04.03	02.06.03
HWW W/B: Telecommunications Civil Provision						
CH8540220	Construct NTTC ducting/drawpit	0	14	14	08.05.03	24.05.03
CH8540230	Construct CATV ducting/drawpit	0	14	14	26.05.03	11.06.03
CH8540240	Construct HKTC ducting & drawpit	0	14	14	12.06.03	27.06.03
CH8540250	Construct HCL ducting/drawpit	0	14	14	28.06.03	15.07.03
HWW W/B: Street Lighting						
CH8550260	Construct street light ducting/drawpit	0	14	14	21.04.03	07.05.03
CHHIGH110	Relocation of switch room LW2	0	30	30	05.05.03	10.06.03
CHHIGH120	Remove KHM-330 at Lai Po Rd Slip 2	0	21	21	15.05.03	10.06.03
HWW W/B: Road Carriageway Works						
CH8555270	Backfill	0	5	5	16.07.03	21.07.03
HWW W/B: Road Signs, Markings & Bollards						
CH8565360	Sign board foundation construction	0	30	30	21.04.03	27.05.03
CH8565360	Sign board steel frame erection	0	7	7	28.05.03	05.06.03
REALIGNMENT OF HING WAH SLIP1 (HWS1)						
HWS1: TTA's						
CH8700100	Prepare TTA Drg	0	43	43	21.04.03*	02.06.03
CH8700110	Endorse TTA Drgs by the Eng.	0	7	7	03.06.03	09.06.03
CH8700120	Apply traffic advice/gazette notice from TD	0	14	14	10.06.03	23.06.03
CH8700130	Meeting with RMO	0	3	3	24.06.03	26.06.03
CH8700140	Receive road works advice	0	2	2	27.06.03	28.06.03
CH8700150	Preparation for commencement	0	3	3	29.06.03	01.07.03
CH8700160	Implementation of TTA	0	7	7	27.06.03	03.07.03
REALIGNMENT OF HING WAH SLIP2 (HWS2)						
HWS2: TTA's						
CH8800105	Preparation for commencement	0	3	3	21.04.03	23.04.03
CH8800110	Prepare TTA Drg	0	43	43	21.04.03*	02.06.03
CH8800120	Endorse TTA Drgs by the Eng.	0	7	7	03.06.03	09.06.03
CH8800130	Apply traffic advice/gazette notice from TD	0	14	14	10.06.03	23.06.03
CH8800140	Meeting with RMO	0	3	3	24.06.03	26.06.03
CH8800150	Receive road works advice	0	2	2	27.06.03	28.06.03
CH8800160	Preparation for commencement	0	3	3	29.06.03	01.07.03
HWS2: Drainage						
CH8815100	Manhole construction	0	30	30	13.05.03	18.06.03
CH8815110	Excavation & gullypipe installation	0	40	40	07.06.03	24.07.03
CH8815120	Gullypit installation	0	30	30	02.07.03	05.08.03
HWS2: Water Mains						
CH8830100	Installation of proposed 150DI	0	15	15	24.04.03	12.05.03
CH8830110	Pressure & sample test	0	14	14	13.05.03	29.05.03
CH8830120	Connection to existing	0	4	4	30.05.03	03.06.03
HWS2: Street Lighting						
CH8840140	Construct street light ducting/drawpit	0	14	14	13.05.03	29.05.03
HWS2: Road Signs, Markings & Bollards						
CH3865100	Sign board foundation construction	0	30	30	30.05.03	05.07.03
CH3865110	Sign board steel frame erection	0	7	7	07.07.03	14.07.03
REALIGNED SLIP 3 (S3)						
3005						
CHHIGH130	LCR (G2): Remove KHM-331 at Hing Wah Slip 3	0	21	21	15.05.03	10.06.03
S3: TTA's						
CH8900120	Apply traffic advice/gazette notice from TD	0	14	14	27.03.02A	04.05.03
CH8900130	Meeting with RMO	0	3	3	05.05.03	07.05.03
CH8900140	Receive road works advice	0	2	2	08.05.03	09.05.03
CH8900150	Preparation for commencement	0	3	3	10.05.03	12.05.03
CH8900160	Implementation of TTA	0	7	7	08.05.03	14.05.03



Activity ID	Activity Description	%	Orig Dur	Rem Dur	Early Start	Early Finish
S3: HV Power Supply Civil Provision						
CH8920100	4xLV cable installation	0	60	60	15/05/03	25/07/03
S3: Street Lighting						
CHHIGH160	Relocation of switch room (UWT)	0	30	30	05/05/03	10/06/03
STAGE 1A: REALIGNMENT OF LIN CHEUNG ROAD (LCR)						
LCR TTA Phase 3: 2nd Fast Lane Closure						
CH3007117	LCR TTA Ph3: Stage 1A Works Complete	0	0	0		27/05/03
CH3007118	LCR TTA Ph3: Duration of Phase 3 TTA	8	202*	30*	17/09/02A	27/05/03
LCR TTA Phase 4: Slow Lane Closure at H9S						
CH3008104	LCR TTA Ph4: Meeting with RMO	0	3	3	27/09/02A	23/04/03
CH3008105	LCR TTA Ph4: Receive road works advice	0	3	3	24/04/03	26/04/03
CH3008108	LCR TTA Ph4: Preparation for TTA Phase 4	0	5	5	27/04/03	01/05/03
CH3008110	LCR TTA Ph4: Implementation of TTA	0	2	2	02/05/03	03/05/03
CH3008111	LCR TTA Ph4 Works Complete	0	0	0		07/05/03
CH3008112	LCR TTA Ph4: Duration of Phase 4 TTA	0	5*	5*	02/05/03	07/05/03
LCR TTA Phase 5: 3rd Slow Lane Closure						
CH3009104	LCR TTA Ph5: Meeting with RMO	0	3	3	27/09/02A	23/04/03
CH3009105	LCR TTA Ph5: Receive road works advice	0	7	7	24/04/03	30/04/03
CH3009108	LCR TTA Ph5: Preparation for TTA Phase 5	0	3	3	01/05/03	03/05/03
CH3009110	LCR TTA Ph5: Implementation of TTA	0	2	2	28/05/03	29/05/03
CH3009112	LCR TTA Ph5: Duration of Phase 5 TTA	0	53*	53*	28/05/03	30/07/03
Pier G2: Utilities, Services & Roadworks						
CH3005130	LCR (G2): Excavation for Retaining Wall Footing	0	1	1	28/04/03	28/04/03
CH3005140	LCR (G2): Lay Retaining Wall Blinding Concrete	0	1	1	29/04/03	29/04/03
CH3005150	LCR (G2): Rebar Reatining Wall Foot for Footing	0	1	1	30/04/03	30/04/03
CH3005160	LCR (G2): Formwork for footing	0	1	1	02/05/03	02/05/03
CH3005170	LCR (G2): Concreting	0	1	1	03/05/03	03/05/03
CH3005180	LCR (G2): Formwork for retaining wall	0	1	1	05/05/03	05/05/03
CH3005190	LCR (G2): Reinforcement for retaining wall	0	1	1	06/05/03	06/05/03
CH3005200	LCR (G2): Final Fixing for Retaining Wall	0	2	2	07/05/03	08/05/03
CH3005210	LCR (G2): Concrete Retaining Wall	0	1	1	09/05/03	09/05/03
CH3005220	LCR (G2): Remove formwork & Waterproof	0	2	2	10/05/03	12/05/03
CH3005230	LCR (G2): Backfill	0	1	1	13/05/03	13/05/03
CH3005240	LCR (G2): Install deflector barrier	100	8	0	10/04/03A	16/04/03A
Pier H9N Utilities, Services & Roadworks						
CH4332180	LCR (H9N): Formwork for retaining wall	100	3	0	15/04/03A	17/04/03A
CH4332190	LCR (H9N): Reinforcement for retaining wall	100	2	0	18/04/03A	19/04/03A
CH4332200	LCR (H9N): final fixing for retaining wall	100	2	0	19/04/03A	19/04/03A
CH4332210	LCR (H9N): Concreting	100	1	0	20/04/03A	20/04/03A
CH4332220	LCR (H9N): Strike Formwork & Waterproof	0	2	2	21/04/03	22/04/03
CH4332230	LCR (H9N): Backfill	0	1	1	23/04/03	23/04/03
CH4332250	LCR (H9N): Road Reinstatement for Lane Opening	0	6	6	24/04/03	29/04/03
CH4332260	Removal of Temporary Hoarding	0	4	4	21/04/03	24/04/03
Pier SB42 Utilities, Services & Roadworks						
CH6886180	LCR (SB42): Reinforcement for retaining wall	100	1	0	15/04/03A	16/04/03A
CH6886190	LCR (SB42): final fixing for retaining wall	100	2	0	17/04/03A	18/04/03A
CH6886200	LCR (SB42): Concreting	100	1	0	19/04/03A	19/04/03A
CH6886210	LCR (SB42): Strike Formwork & Waterproof	0	2	2	23/04/03	24/04/03
CH6886220	LCR (SB42): Backfill	0	1	1	25/04/03	25/04/03
Pier NB42 Utilities, Services & Roadworks						
CH6999130	LCR (NB42): Excavation for retaining footing	0	1	1	28/04/03	28/04/03
CH6999140	LCR (NB42): Laying blinding concrete	0	1	1	29/04/03	29/04/03
CH6999150	LCR (NB42): Rebar for footing	0	1	1	30/04/03	30/04/03
CH6999160	LCR (NB42): Formwork for footing	0	1	1	02/05/03	02/05/03
CH6999170	LCR (NB42): Concreting	0	1	1	03/05/03	03/05/03
CH6999180	LCR (NB42): Formwork for retaining wall	0	1	1	05/05/03	05/05/03
CH6999190	LCR (NB42): Reinforcement for retaining wall	0	1	1	06/05/03	06/05/03
CH6999200	LCR (NB42): final fixing for retaining wall	0	2	2	07/05/03	08/05/03
CH6999210	LCR (NB42): Concreting	0	1	1	09/05/03	09/05/03
CH6999220	LCR (NB42): Strike Formwork & Waterproof	0	2	2	10/05/03	12/05/03
CH6999230	LCR (NB42): Backfill	0	1	1	13/05/03	13/05/03
CH6999240	LCR (NB42): Installation deflector barrier	100	8	0	17/04/03A	28/04/03A

Activity ID	Activity Description	%	Orig Dur	Rem Dur	Early Start	Early Finish
Pier G3, Utilities, Services & Roadworks						
CH7000160	LCR (G3): Reinforcement for retaining wall	0	1	1	03/05/03	03/05/03
CH7000170	LCR (G3): final fixing for retaining wall	0	2	2	05/05/03	06/05/03
CH7000180	LCR (G3): Concreting	0	1	1	07/05/03	07/05/03
CH7000190	LCR (G3): Strike Formwork & Waterproof	0	2	2	08/05/03	09/05/03
CH7000200	LCR (G3): Backfill	0	1	1	10/05/03	10/05/03
LCR: Stage 1A Sub-surface Drainage						
CH9115100	LCR Slow Lane: Construct MH's 10.17-19	30	15	15	09/04/03A	17/05/03
CH9115110	LCR Slow Lane: Excavate & Lay Gully Pipe	30	10	10	09/04/03A	23/05/03
CH9115120	LCR Slow Lane: Install Gully Traps	0	8	8	20/05/03	28/05/03
CH9115121	LCR Slow Lane: Realign U-channel in Verge	0	8	8	30/05/03	09/06/03
CH9155100	LCR Slow Lane: Backfill	0	5	5	30/06/03	05/07/03
CH9155101	LCR Fast Lane: Construct MH's 10.16/18/20	0	4	4	14/05/03	17/05/03
LCR: Street Lighting						
CHHIGH140	LCR Slow Lane Side: Install KHM-325R	80	14	14	16/04/03A	16/06/03
CHHIGH141	LCR Slow Lane: Construct PL Draw Pits & Ducts	0	7	7	09/06/03	16/06/03
CHHIGH142	LCR Slow Lane: Slew PL/HM Cables to Re-alignment	0	5	5	17/06/03	21/06/03
CHHIGH150	LCR Slow Lane Side: Remove KHM-325	0	2	2	23/06/03*	24/06/03
CHHIGH193	LCR Slow Lane Verge: Reinstate Street Lighting	0	3	3	05/05/03	07/05/03
LCR: Road Carriageway Works						
CH9155110	LCR Slow Lane: Road Kerb Laying	0	8	8	07/07/03	15/07/03
CH9155130	LCR Slow Lane: Backfill Compaction & Sub-base	0	3	3	16/07/03	18/07/03
CH9155140	LCR Slow Lane: Bituminous Paving	0	7	7	19/07/03	25/07/03
CH9155155	LCR Fast Lane: Road Kerb Laying	0	4	4	14/05/03	17/05/03
CH9155156	LCR Fast Lane: Backfill Compaction & Sub-base	0	2	2	20/05/03	21/05/03
CH9155157	LCR Fast Lane: Bituminous Paving	0	3	3	22/05/03	24/05/03
CH9155158	LCR Fast Lane: Road Markings	0	2	2	26/05/03	27/05/03



Appendix D1

Action/Limit Levels for Air Quality

Appendix D1: Action /Limit Levels for Air Quality

ACTION AND LIMIT LEVELS FOR 24-HOUR TSP

Location	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
ASR1	163	260
ASR2	178	260

ACTION AND LIMIT LEVELS FOR 1-HOUR TSP

Location	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
ASR1	318	500
ASR2	324	500

Appendix D2

Action/Limit Levels for Noise

Appendix D2: Action/Limit Levels for Noise

Action and Limit Levels for Construction Noise

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

* Reduce to 70 dB(A) for schools and 65 dB(A) during school examination periods.

Appendix E

Environmental Monitoring Schedule from 29th March to 28th April 2003

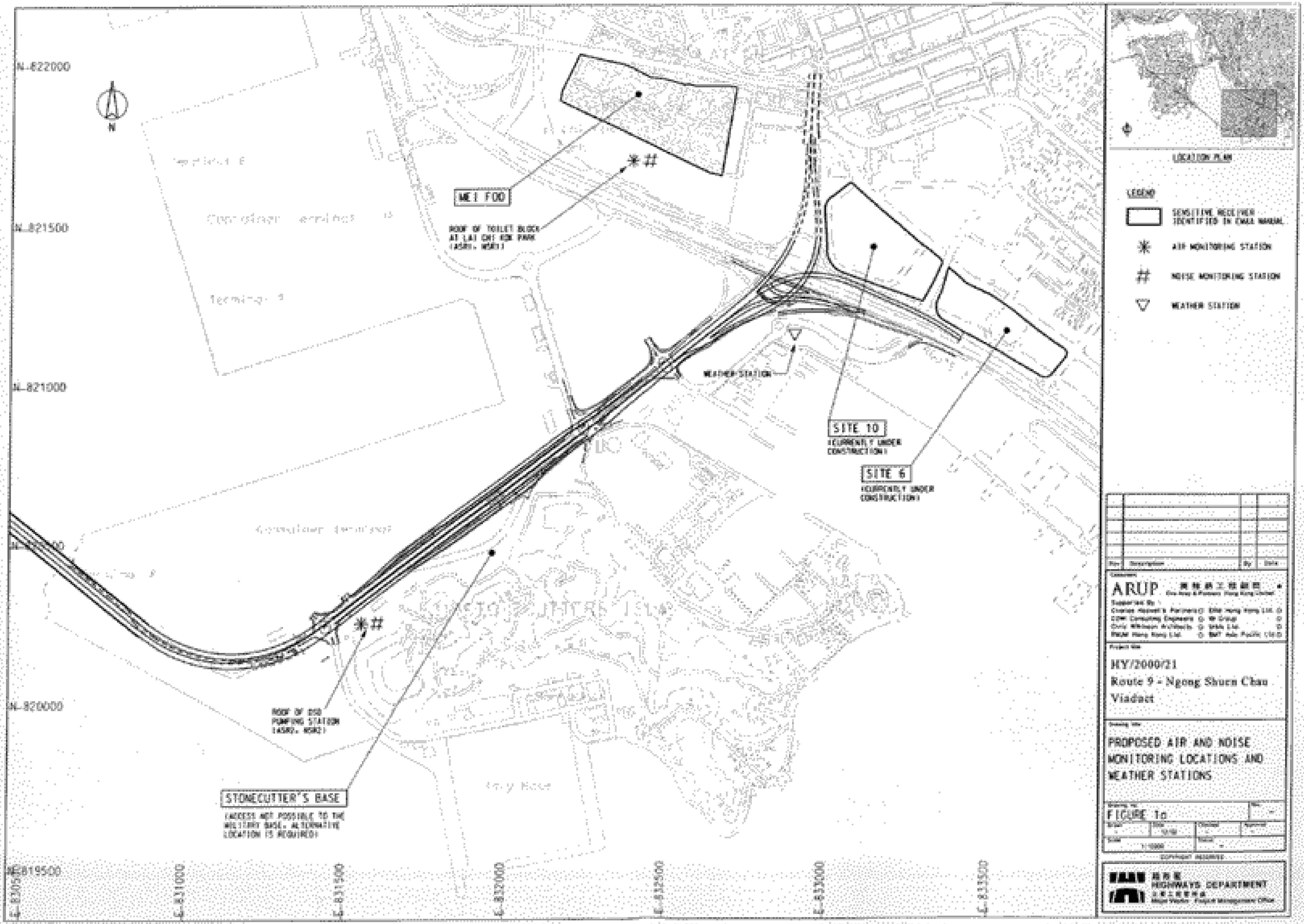
Environmental Monitoring Schedule between 29-March and 28-April 2003

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						29-Mar 1hr-TSP
30-Mar $Noise_{PH}$	31-Mar	1-Apr	2-Apr $Noise_{Evening}$	3-Apr 24hrs-TSP	4-Apr 1hr-TSP Noise	5-Apr
6-Apr	7-Apr 24hrs-TSP	8-Apr 1hr-TSP Noise	9-Apr $Noise_{Evening}$	10-Apr 24hrs-TSP	11-Apr 1hr-TSP	12-Apr
13-Apr $Noise_{PH}$	14-Apr	15-Apr $Noise_{Evening}$	16-Apr 24hrs-TSP	17-Apr 1hr-TSP Noise	18-Apr $Noise_{PH}$	19-Apr
20-Apr	21-Apr	22-Apr 24hrs-TSP	23-Apr 1hr-TSP Noise $Noise_{Evening}$	24-Apr	25-Apr	26-Apr
27-Apr	28-Apr 24hrs-TSP $Noise_{Evening}$					

1hr-TSP	3 x 1 hour TSP monitoring at ASR1 and ASR2 during 09:00~18:00.
24hrs-TSP	24 hours TSP monitoring at ASR1 and ASR2
Noise	Leq_{30} measurement at NSR1 and NSR2 during 07:00~19:00.
$Noise_{Evening}$	6 x Leq_5 measurement at NSR1 during 19:00~23:00.
$Noise_{Night}$	4 x Leq_5 measurement at NSR1 during 23:00~07:00 of next day.
$Noise_{PH}$	6 x Leq_5 measurement at NSR1 during 07:00~19:00.

Appendix F

Locations of Monitoring Locations


N-822000
N-821500
N-821000
N-820000
N-819500
E-831000
E-831500
E-832000
E-832500
E-833000
E-833500
N
MEI FOO
ROOF OF TOILET BLOCK AT LAI CHI KOK PARK (ASR1, NSR1)
WEATHER STATION
SITE 10
(CURRENTLY UNDER CONSTRUCTION)
SITE 6
(CURRENTLY UNDER CONSTRUCTION)
ROOF OF DSD PUMPING STATION (ASR2, NSR2)
STONECUTTER'S BASE
(ACCESS NOT POSSIBLE TO THE MILITARY BASE. ALTERNATIVE LOCATION IS REQUIRED)
LOCATION PLAN
LEGEND
SENSITIVE RECEIVER IDENTIFIED IN EM&A MANUAL
AIR MONITORING STATION
NOISE MONITORING STATION
WEATHER STATION
ARUP
HY/2000/21
Route 9 - Ngong Shuen Chau Viaduct
PROPOSED AIR AND NOISE MONITORING LOCATIONS AND WEATHER STATIONS
FIGURE 1a
HIGHWAYS DEPARTMENT

Appendix G1

Calibration Certificates for HVS

ARUP

TSP - Total Suspended Particulates High Volume Sampler
In-situ Calibration Report

Calibration Date	21-Mar-03	**Next Calibration Date**	**21-May-03**
Station	ASR1	Equipment no.	E.HVS.01

Ambient Condition			
Temperature, Ta (K)	291.7	Pressure, Pa (mmHg)	763.5

Orifice Transfer Standard Information			
Equipment no.	E.CAL.01		
Slope, mo	1.5507	Intercept, co	-0.00514
Last Calibration Date	7-May-02	Next Calibration Date	7-May-03
	$mo \times Q_{std} + co = [\Delta O \times (Pa/760) \times (298/Ta)]^{1/2}$		
	$Q_{std} = \{[\Delta O \times (Pa/760) \times (298/Ta)]^{1/2} - co\} / mo$		

Calibration Point	Orifice Manometer Reading, ΔO (inch)	Orifice Q_{std} (CMM) x-axis	HVS Manometer Reading, ΔH (inch)	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ y-axis
1	6.3	1.64	7.0	2.68
2	5.2	1.49	5.9	2.46
3	4.5	1.39	5.1	2.29
4	3.5	1.23	4.0	2.03
5	2.7	1.08	3.0	1.75

By Liner Regression of y on x

Slope, mh = 1.6337 Intercept, ch = 0.0110

*Correction Coefficient, R = 0.9992

Calibration Result: **ACCEPT**

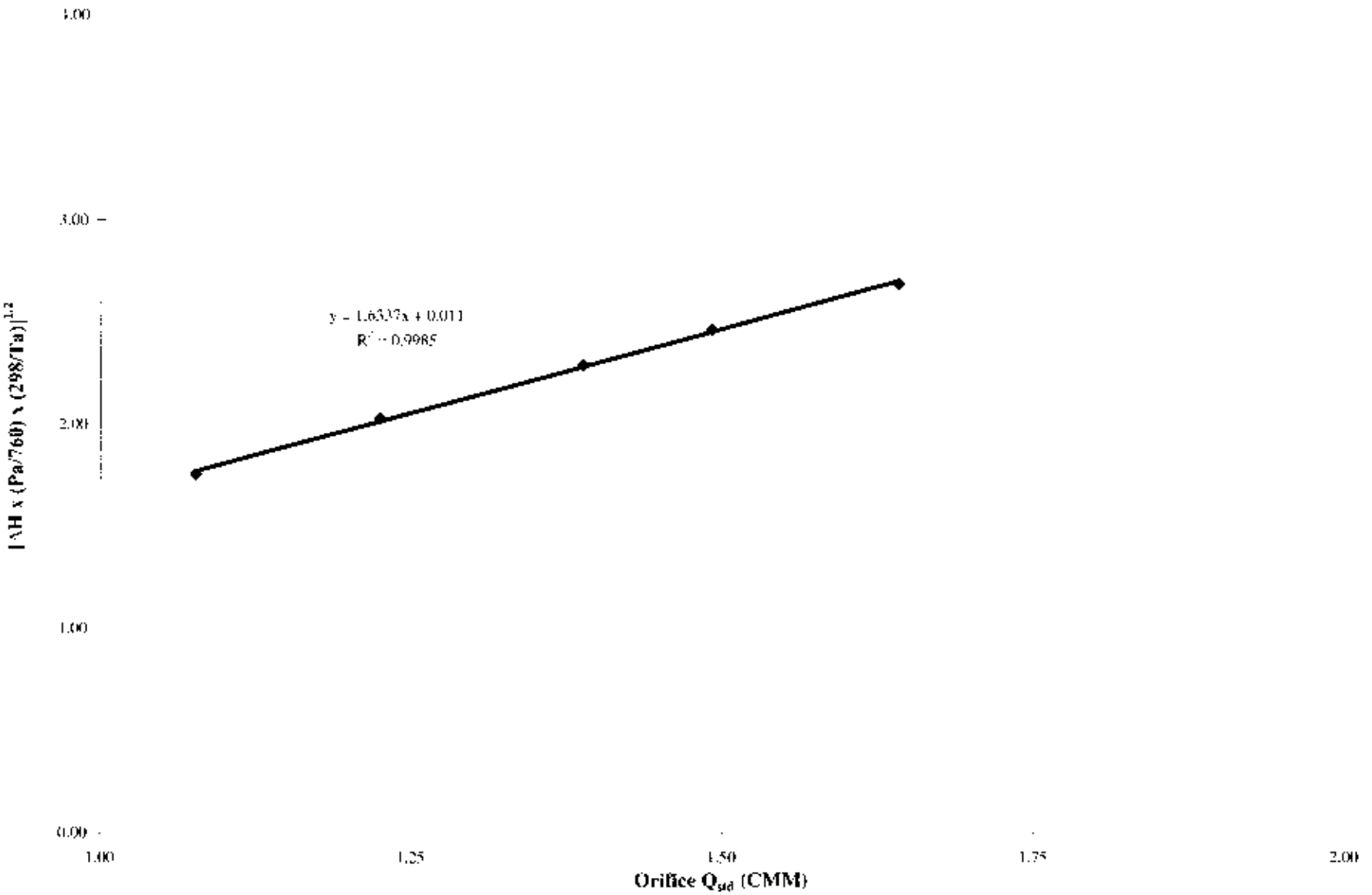
* If the Correlation Coefficient, R is < 0.9900 Checking and Recalibration are require

Remark: _____

Calibrated By: _____ Date: 28-3-2003

Checked By: _____ Date: 28-3-03

Calibration Curve



ARUP

TSP - Total Suspended Particulates High Volume Sampler
In-situ Calibration Report

Calibration Date	21-Mar-03	**Next Calibration Date**	**21-May-03**
Station	ASR2	Equipment no.	E.HVS.02

Ambient Condition			
Temperature, Ta (K)	292.3	Pressure, Pa (mmHg)	763.4

Orifice Transfer Standard Information			
Equipment no.	E.CAL.01		
Slope, mo	1.5507	Intercept, co	-0.00514
Last Calibration Date	7-May-02	Next Calibration Date	7-May-03

$$mo \times Q_{std} + co = [\Delta O \times (Pa/760) \times (298/Ta)]^{1/2}$$

$$Q_{std} = \{[\Delta O \times (Pa/760) \times (298/Ta)]^{1/2} - co\} / mo$$

Calibration Point	Orifice Manometer Reading, ΔO (inch)	Orifice Q_{std} (CMM) x-axis	HVS Manometer Reading, ΔH (inch)	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ y-axis
1	7.3	1.77	7.1	2.70
2	6.3	1.64	6.0	2.48
3	5.1	1.48	4.9	2.24
4	4.0	1.31	4.0	2.02
5	3.0	1.13	3.0	1.75

By Liner Regression of y on x

Slope, mh = 1.4624 Intercept, ch = 0.0955

*Correction Coefficient, R = 0.9990

Calibration Result: ACCEPT

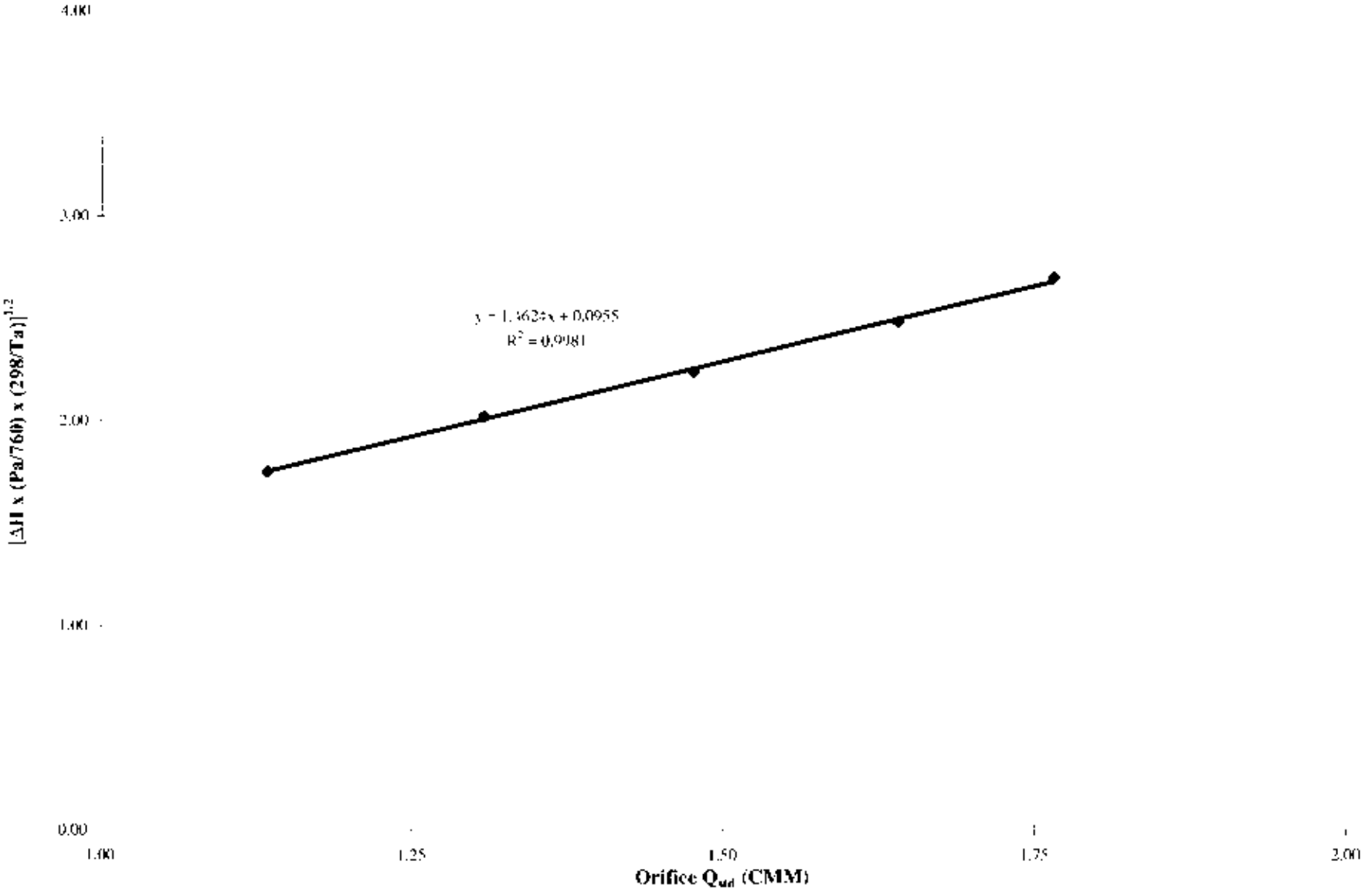
* If the Correlation Coefficient, R is < 0.9900 Checking and Recalibration are require.

Remark: _____

Calibrated By: _____ Date: 25 3 03

Checked By: _____ Date: 25-3-03

Calibration Curve



Appendix G2

Calibration Certificates for Weather Station

FUGRO TECHNICAL SERVICES LIMITED
MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

Report No.: **030079CA30287**

PERFORMANCE CHECK OF WEATHER STATION

Client Supplied Information

Client : **China Harbour Engineering Co. (Group)**

Project : **Calibration Services**

Details of Unit Under Test, UUT

Description	: **Weather Station**		
	(1 Anemometer,	**2 Barometer,**	**3 Thermometer)**
Serial No.	: **1 4.3400.40.000,**	**2 022.1001.0002.p12.2.1.00,**	**3 200640.11.101.114162.131**
Manufacturer	: **Thies CLIMA**		

Laboratory Information

Details of Equipment Used

Description	: **1. Anemometer,**	**2. Barometer,**	**3. Thermometer**
Equipment ID	: **1. T-105-1,**	**2. S/N: 30974,**	**3. R-007-10**

Test Date : **10-Feb-2003** Ambient Temperature : **21°C**

Test Location : **Hing Wah Street West**

Method Used : **By Direct Comparison**

Calibration Results

Function	Reference Value	UUT Reading	Error (%)
Anemometer	**4.42 km/h**	**4.47 km/h**	**+1.1**
Barometer	**1016.5 mbar**	**1015 mbar**	**-0.1**
Thermometer	**21.2°C**	**21.1°C**	**-0.5**

Remarks

1. The equipment being used in this calibration is traceable to recognized National Standards.
2. The weather vane has been adjusted with regards to a reference line as provided by the client.

Checked by : Eddie Chung Date : 12-2-2003 Certified by : Stanley K. T. Leung Date : 12-2-03

FUGRO TECHNICAL SERVICES LIMITED
MateriaLab Division,
Fugro Development Centre,
5 Lok Yi Street 17 M.S. Castle Peak Road.
Tai Lam, Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6139
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MateriaLab

Report No. : **030079CA30279(1)**

REPORT ON CALIBRATION OF THERMOMETER

Client Supplied Information

Client : **China Harbour Engineering Co. (Group)**

Project : **Calibration Services**

Calibration Item - Description : **Temperature indicator**

Equipment ID. : **CH-TD-01**

Next calibration date : **10-Feb-2004**

Laboratory Information

Calibrating Equipment - Description : **Platinum thermometer**

Equipment ID : **R-053-3**

Date of Calibration : **10-Feb-2003** Ambient Temperature : **21°C**

Calibration location : **Calibration Laboratory of MateriaLab**

Method used : **In-house Method R-C-076**

Calibration Results :

(All values are in the unit of °C.)

Test temperature		5.0	20.0	35.0
Equipment under test	Indicated temperature	5.0	20.0	34.9
	Correction	0.0	0.0	+0.1

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The discrimination of the equipment under test is **0.1°C**.

Checked by : Eddie Cheng Date : 13-2-2003 Certified by : K.T. Leung Date : 14-2-2003

CA-R-9 (14/04/99)

Stanley K. T. Leung

FUGRO TECHNICAL SERVICES LIMITED
MaterialLab Division,
Fugro Development Centre,
5 Lok Yi Street, 17 M.S. Castle Peak Road.
Tai Lam Tuen Mun, N.T., Hong Kong.

Tel : +852-2450 8233
Fax : +852-2450 6138
E-mail : matlab@fugro.com.hk
Website : www.fugro.com

MaterialLab

Report No.: **030079CA30279**

REPORT ON CALIBRATION OF ANEMOMETER

Client Supplied Information

Client : **China Harbour Engineering Co. (Group)**

Project : **Calibration Services**

Details of Unit Under Test, UUT

Description : **Anemometer**

Manufacturer : **Thies CLIMA**

Model No. : **0502095**

Serial No. : **4.3400.40.000**

Equipment ID : **CH-AM-01**

Next Calibration Date : **8-Feb-2004**

Laboratory Information

Details of Reference Equipment

Description : **Reference Anemometer**

Equipment ID : **T-105-1**

Date of Calibration : **8-Feb-2003**

Ambient Temperature : **25 ± 1°C**

Calibration Location : **Calibration Lab of MaterialLab**

Method Used : **By Direct Comparison**

Calibration Results

Test Point	Average Value (km/h)		Error (km/h)	Error in percentage (%)
	Reference	UUT		
1	**20.29**	**18.62**	**-1.67**	**-8.2**
2	**49.86**	**51.26**	**+1.40**	**+2.8**
3	**90.14**	**93.62**	**+3.48**	**+3.9**

Remark

The equipment being used in this calibration is traceable to recognized National Standards.

Checked by: Ellie Wong Date: 14-2-2003 Certified by: KT Leung Date: 15-2-03

Stanley K. T. Leung

Appendix G3

Calibration Certificates for High Volume Orifice Calibrator

TISCH ENVIRONMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, OH 45002
513.467 9000
877.263.7610 TOLL FREE
513.467.9009 FAX
WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5028A

Date - May 07, 2002 Rootsmeter S/N 9833620 Ta (K) - 293
Operator Tisch Orifice I.D. - 0491 Pa (mm) - 751.84

PLATE OR VDC #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.2640	4.2	1.50
2	NA	NA	1.00	0.9660	7.0	2.50
3	NA	NA	1.00	0.8830	8.4	3.00
4	NA	NA	1.00	0.8210	9.7	3.50
5	NA	NA	1.00	0.6200	16.7	6.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
1.0005	0.7915	1.2285		0.9944	0.7867	0.7646
0.9967	1.0318	1.5860		0.9906	1.0255	0.9871
0.9948	1.1267	1.7374		0.9888	1.1198	1.0813
0.9931	1.2096	1.8766		0.9870	1.2022	1.1679
0.9837	1.5867	2.4570		0.9777	1.5770	1.5291
Qstd slope (m) =		1.55070		Qa slope (m) =		0.97102
intercept (b) =		-0.00514		intercept (b) =		-0.00320
coefficient (r) =		0.99978		coefficient (r) =		0.99978
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

Vstd = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta)
Qstd = Vstd/Time

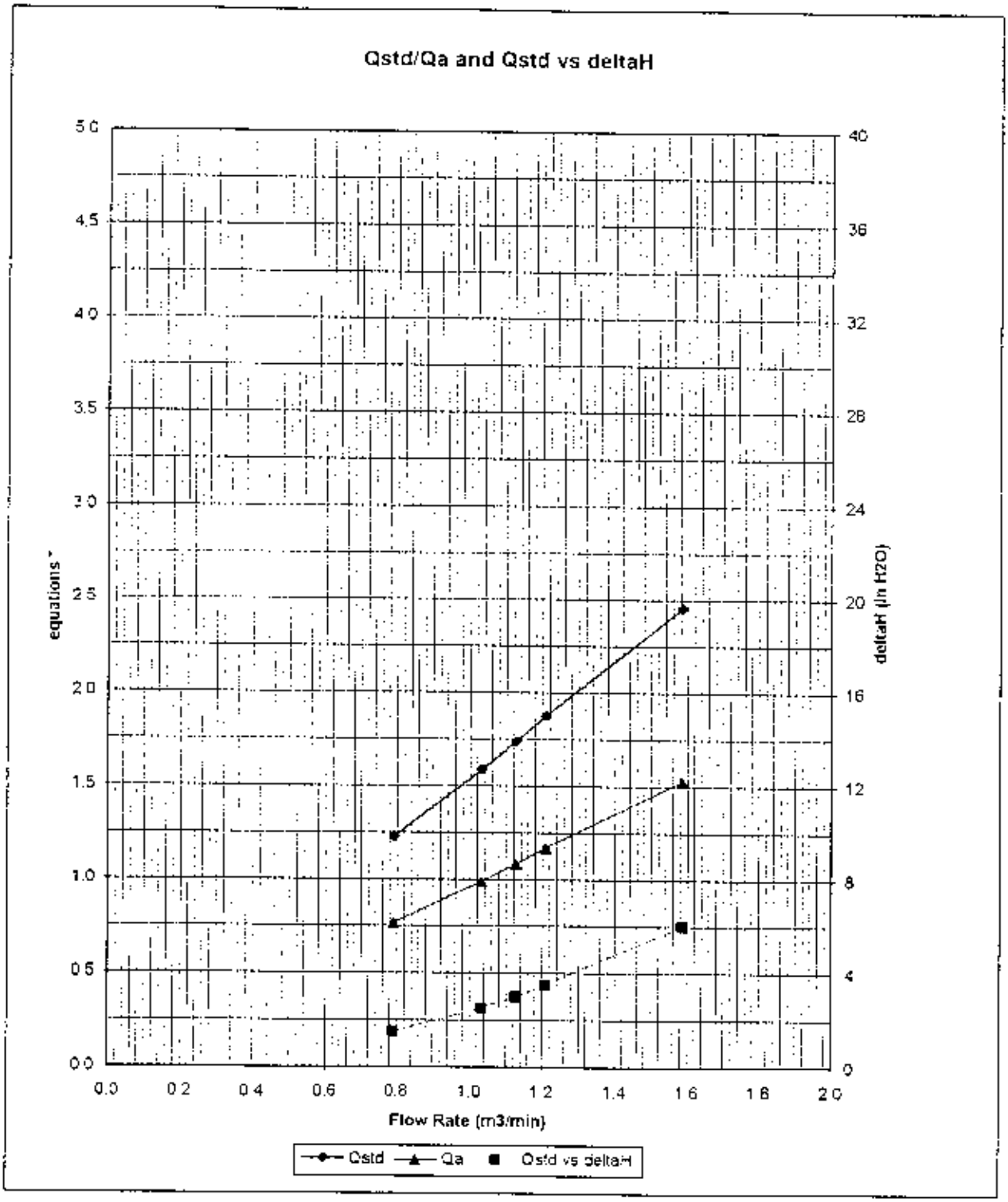
Va = Diff Vol [(Pa-Diff Hg)/Pa]
Qa = Va/Time

For subsequent flow rate calculations:

Qstd = 1/m{[SQRT(H2O(Pa/760)(298/Ta))]- b}
Qa = 1/m{[SQRT H2O(Ta/Pa)]- b}

TISCH ENVIRONMENTAL, INC.
145 SOUTH MIAMI AVE.
VILLAGE OF CLEVES, OH 45002
513.467.9000
877.263.7610 TOLL FREE
513.467.9009 FAX
WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT



*** y-axis equations:**

Qstd series: $\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$

Qa series: $\sqrt{(\Delta H\ (Ta\ /\ Pa))}$

#0491

Appendix G4

Calibration Certificates for Sound Level Meter and Calibrator

輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C030478

Certificate of Calibration

This is to certify that the equipment

Description : Sound Level Meter

Manufacturer : Cesva

Model No. : SC-30

Serial No. : T215622

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C030478.

The equipment is supplied by

Co. Name : HONKEI TECHNOLOGY

Address : Rm. 2012, 20/F., Ho King Comm. Centre, 2-16 Fa Yuen St., Mongkok, Kowloon

Date of Issue 10 February 2003

Certified by : H C Chan

DICESVA S.L.
Calibration laboratory

CERTIFICATE OF VERIFICATION

NUMBER: **02/00379**

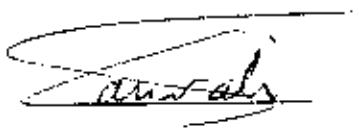
DICESVA S.L.
Calibration laboratory

Villar, 20
08041 BARCELONA
SPAIN
Phone number 934 335 240 / Fax 933 479 310

The calibration has been performed following calibration procedure P015 (Revision 01) for acoustic tests and P016 (Revision 01) for electrical tests, based on standards IEC60651:1979/A1:1993 and IEC60804:1985/A1:1989/A2:1993.

INSTRUMENT:	**Integrating-averaging sound level meter**
MANUFACTURER:	**CESVA**
MODEL:	**SC-30**
SERIAL NUMBER:	**T215638**
MICROPHONE:	**C-130, serial number 6154**
TYPE:	**1**
DATE OF CALIBRATION:	**2002-05-24**
DATE OF ISSUE:	**2002-05-27**
CALIBRATION RESULT:	**Within the specifications in the values measured**

LABORATORY MANAGER



Xavier Solá Gimeno

DICESVA S.L.
Calibration laboratory

CERTIFICATE OF VERIFICATION

NUMBER: **02/00382**

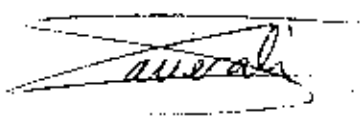
DICESVA S.L.
Calibration laboratory

Villar, 20
08041 BARCELONA
SPAIN
Phone number 934 335 240 / Fax 933 479 310

The calibration has been performed following calibration procedure P017 (Revision 02) , based on standard IEC942:1988.

INSTRUMENT:	**Sound calibrator**
MANUFACTURER:	**CESVA**
MODEL:	**CB-5**
SERIAL NUMBER:	**0032450**
TYPE:	**1L**
DATE OF CALIBRATION:	**2002-05-09**
DATE OF ISSUE:	**2002-05-27**
CALIBRATION RESULT:	**Within the specifications in the values measured**

LABORATORY MANAGER



Xavier Solà Gimeno

DICESVA S.L.
Calibration laboratory

CERTIFICATE OF VERIFICATION

NUMBER: **02/00380**

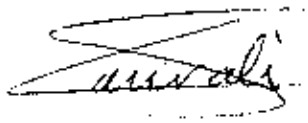
DICESVA S.L.
Calibration laboratory

Villar, 20
08041 BARCELONA
SPAIN
Phone number 934 335 240 / Fax 933 479 310

The calibration has been performed following calibration procedure P017 (Revision 02) , based on standard IEC942:1988.

INSTRUMENT:	**Sound calibrator**
MANUFACTURER:	**CESVA**
MODEL:	**CB-5**
SERIAL NUMBER:	**0032456**
TYPE:	**1L**
DATE OF CALIBRATION:	**2002-05-09**
DATE OF ISSUE:	**2002-05-27**
CALIBRATION RESULT:	**Within the specifications in the values measured**

LABORATORY MANAGER



Xavier Solà Gimeno

Appendix H1

Event/Action Plan for Air Quality

Appendix H1: Event/Action Plan for Air Quality

Event Level	Action		
	ET	ER	CONTRACTOR
Action Level			
Exceedance for one sample	• Identify source • Inform ER • Repeat Measurement to confirm finding • Increase monitoring frequency to daily	• Notify Contractor • Check mortaring data and Contractor's working methods	• Rectify any unacceptable practice • Amend working methods if appropriate
Exceedance for two or more consecutive samples	1. Identify source 2. Inform ER 3. Repeat measurements to confirm findings 4. Increase monitoring frequency to daily 5. Discuss with ER for remedial actions required 6. If exceedance continues arrange meeting with ER 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 Environmental Team and Contractor on potential remedial actions 5. Ensure remedial actions properly implemented	1. Submit proposals for remedial actions to ER within 3 working days of notification 2. Implement the agreed proposals 3. Amend proposal if appropriate
Limit Level			
Exceedance for one sample	1. Identify source 2. Inform ER and EPD 3. Repeat measurement to confirm finding 4. Increase monitoring frequency to daily 5. Assess effectiveness of Contractor's remedial actions and keep EPD and ER informed of the 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 Environmental Team Leader and Contractor potential remedial actions 5. Ensure remedial actions properly implemented	1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to ER within 3 working days of notification 3. Implements the agreed proposals 4. Amend proposal if appropriate

Event Level	Action		
	ET	ER	CONTRACTOR
Action Level			
Exceedance for two or more consecutive samples	1. Identify source 2. Inform ER and EPD the causes & actions taken for the exceedances 3. Repeat measurement to confirm findings 4. Increase monitoring frequency to daily 5. Investigate the causes of exceedance 6. Arrange meeting with EPD and ER to discuss the remedial actions to be taken 7. Assess effectiveness of Contractor's remedial actions and keep EPD and ER informed of the results & 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 amongst Environmental Team Leader and the Contractor potential remedial actions 5. Review Contractor's remedial actions whenever necessary to assure their effectiveness 6. If exceedance continues consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated	1. Take immediate action avoid further exceedance 2. Submit proposals for remedial actions to ER within 3 working days of notification 3. Implements the agreed proposals 4. Resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Appendix H2

Event/Action Plan for Noise

Appendix H2: Event/Action Plan for Construction Noise

Event	Action		
	ET Leader	**ER**	**Contractor**
Action Level	1. Notify ER 2. Analyse investigation 3. Increase monitoring frequency to check mitigation effectiveness	1. Notify Contractor 2. Require Contractor to propose measures* for the analysed noise problem	1. Submit noise mitigation proposals to Environmental Team 2. Implement noise mitigation proposals*
Limit Level	1. Notify ER 2. Notify EPD	1. Notify Contractor 2. Require contractor to implement mitigation measures* Increase monitoring frequency to check mitigation effectiveness	1. Implement mitigation measures 2. Prove to Environmental Team Leader ER effectiveness of measures applied
*	*Mitigation Measures may include:* • *Relocation of noise emitting plant* • *Use of silenced or super-silenced equipment* • *Use of acoustic sheds or screens* • *Limit quantity of plant operating* • *Change working technique*		

Appendix I

Implementation Status of Environmental Protection Requirements

Appendix I: Implementation Status of Environmental Protection Requirement

Environmental Protection Measures		Timing	Implementation Stages*			
Activities			29/12/02 to 28/1/03	29/1/02 to 28/2/03	1/3/03 to 28/3/03	29/3/02 to 28/4/03
Landscape and visual	Erection, painting and maintenance of site hoardings around works and storage areas.	Throughout the construction period	√	√	√	√
	Restrictions on the height of material/spoil stockpiles.		√	√	√	√
	Prompt hydro-seeding of disturbed areas and cut/fill slopes prior to the permanent landscaping works.		N/A	N/A	N/A	N/A
	Avoidance of chunam or shotcreting slope treatments.		√	√	√	√
	Conservation of topsoil where practical.		√	√	√	√
	Site litter patrols and regular site waste collection.		▲	▲	▲	▲
	Maintenance of planting.		√	▲	▲	▲
Ecological Impact	Minimise damage outside works areas		√	√	√	√
Construction:						
Material Storage	Covers for dusty stockpiles	Throughout the construction period	▲	▲	▲	▲
Vehicle movement	Haul road watering, vehicle wheel wash prior to exit. Where practical, access roads should be protected with crushed gravel.		▲	▲	▲	▲
Plant maintenance	All plant shall be maintained to prevent any undue air emissions.		√	▲	√	√
All plant activity	Reference should be made the EM&A Manual Action Plan for measures for consideration when Noise Limit Levels are not met.		√	√	√	√
Plant maintenance	All plant shall be maintained to prevent any undue noise nuisance.		√	√	√	▲

* N/A = Not Applicable
✓ = Implemented
▲ = Rectified

Environmental Protection Measures		Timing	Implementation Stages*			
Activities			29/12/02 to 28/1/03	29/1/02 to 28/2/03	1/3/03 to 28/3/03	29/3/02 to 28/4/03
Wheel wash	All wheel wash water shall be diverted to a sediment pit.	Throughout the construction period	√ (Not all, in progress)	▲ (Not all, in progress)	√ (Not all, in progress)	▲ (Not all, in progress
Concrete Truck Washout	All concrete trucks shall wash out into a lined pit.		√ (Not all)	▲ (Not all, in progress)	√ (Not all)	▲ (Not all, in progress)
Surface water diversion	All clean surface water shall be diverted around the site.		√ (Not all)	▲ (Not all, in progress)	√ (Not all)	▲ (Not all, in progress)
Sediment control	Sediment removal facilities shall be provided and be maintained and excavated as necessary to prevent sedimentation of the channel. Perimeter channels shall be provided. Works shall be programmed for the dry season where feasible.		√ (In progress)	▲ (Not all, in progress)	√ (In progress)	▲ (Not all, in progress)
Fuel can storage	All fuel cans shall be placed within a bundled area. Any fuel spills shall be mopped up as necessary.		√ (Not all)	▲	▲	▲
Slope covers	Finished slopes and other slopes near drainage areas shall be covered prior to rains to reduce sedimentation of runoff. Slopes should be hydroseeded or shotcreted as early as possible to prevent erosion.		√	√	√	√
Excavation works	Excavation works shall avoid sensitive areas.	Throughout the excavation work period	√	√	√	√
Material, plant movement & fuel can refilling.	Any fuel or oil spills shall be excavated and disposed of.	Throughout the construction period	▲	√	√	√
Generators	All generators shall be placed within a bundled area. Any fuel spills shall be mopped up as necessary.		▲	√	√	√

* N/A = Not Applicable
✓ = Implemented
▲ = Rectified

Environmental Protection Measures		Timing	Implementation Stages*			
Activities			29/12/02 to 28/1/03	29/1/02 to 28/2/03	1/3/03 to 28/3/03	29/3/02 to 28/4/03
Material containers	All empty bags and containers shall be collected for disposal.	Throughout the construction period	▲	√	√	√
Worker generated litter and Waste	Litter receptacles shall be placed around the site. Litter shall be taken regularly to the refuse collection points. Chemical toilets (or suitable equivalent) should be provided for workers. Any canteens should have grease-traps.		√	▲	▲	▲
Neighborhood nuisance	All complaints regarding construction works shall be relayed to the Environmental Team.		√	√	√	√
Legal requirements	Different types of waste should be segregated, stored, transported and disposed of in accordance with the relevant legislative requirements and guidelines		√ (in progress)	√ (in progress)	√ (in progress)	√ (in progress)
On-site separation	On-site separation of municipal solid waste and construction/demolition wastes should be conducted as far as possible in order to minimize the amount of solid waste to be disposed to landfill.		√ (in progress)	√ (in progress)	√ (in progress)	√ (in progress)
Temporary storage area	Separated wastes should be stored in different containers, skips, or stockpiles to enhance reuse or recycling of materials and encourage their proper disposal.		√ (in progress)	√	√	√
Record of wastes	Records of quantities of wastes generated, recycled and disposed (with locations) should be properly kept.		√ (in progress)	√ (in progress)	√ (in progress)	√ (in progress)
Trip-ticket system	To monitor the disposal of waste at landfills and control fly-tipping, a "trip-ticket" system for all solid waste transfer/disposal operations should be implemented. The system should be included as a contractual requirement, and monitored by the Environmental Team and audited by the Independent Environmental Checker.		√ (in progress)	√ (in progress)	√ (in progress)	√ (in progress)

* N/A = Not Applicable
✓ = Implemented
▲ = Rectified

Appendix J

1-hour and 24-hour TSP Monitoring Result

The Summary of 1-hr TSP Concentration (μg/m^3) at Mei Foo Sun Chuen (ASR 1)

Date	Sampling Time	Elapsed Time (min)	Initial Standard Flow Rate (m^3/min)	Final Standard Flow Rate (m^3/min)	Averaged Standard Flow Rate (m^3/min)	Total Standard Volume (m^3)	Initial Filter Weight (g)	Final Filter Weight (g)	TSP Concentration μg/m^3
29-Mar-03	9:41	78.60	1.30	1.30	1.30	102.31	2.6225	2.6444	214.1
29-Mar-03	11:00	41.40	1.30	1.30	1.30	53.83	2.6257	2.6378	224.8
29-Mar-03	11:44	70.80	1.30	1.30	1.30	92.04	2.6217	2.6383	180.4
4-Apr-03	9:41	54.00	1.29	1.28	1.28	69.36	2.6284	2.6404	173.0
4-Apr-03	10:32	54.00	1.29	1.28	1.29	69.40	2.6465	2.6587	175.8
4-Apr-03	11:30	83.40	1.29	1.29	1.29	107.64	2.6289	2.6591	280.6
8-Apr-03	9:43	56.40	1.30	1.29	1.30	73.07	2.7817	2.7857	54.7
8-Apr-03	10:41	54.60	1.29	1.29	1.29	70.56	2.7862	2.8070	294.8
8-Apr-03	11:43	102.60	1.29	1.29	1.29	132.46	2.7827	2.8001	131.4
11-Apr-03	9:38	54.00	1.30	1.30	1.30	70.15	2.7955	2.8098	203.8
11-Apr-03	10:36	54.60	1.30	1.30	1.30	70.87	2.7908	2.8053	204.6
11-Apr-03	11:33	87.00	1.30	1.29	1.29	112.55	2.7999	2.8215	191.9
17-Apr-03	9:41	54.60	1.30	1.29	1.30	70.72	2.7999	2.8172	244.6
17-Apr-03	10:37	55.80	1.29	1.28	1.29	71.76	2.7964	2.8128	228.5
17-Apr-03	11:35	71.40	1.29	1.27	1.28	91.59	2.8169	2.8332	178.0
23-Apr-03	9:38	54.60	1.29	1.29	1.29	70.35	2.8025	2.8170	206.1
23-Apr-03	10:35	57.60	1.29	1.28	1.29	74.04	2.8038	2.8203	222.9
23-Apr-03	11:35	79.80	1.28	1.28	1.28	102.36	2.7825	2.8028	198.3

The Summary of 24-hrs TSP Concentration (μg/m^3) at Mei Foo Sun Chuen (ASR1)

Date	Sampling Time	Elapsed Time (min)	Initial Standard Flow Rate (m^3/min)	Final Standard Flow Rate (m^3/min)	Averaged Standard Flow Rate (m^3/min)	Total Standard Volume (m^3)	Initial Filter Weight (g)	Final Filter Weight (g)	TSP Concentration μg/m^3
3-Apr-03	0:00	1425.60	1.30	1.29	1.30	1848.18	2.6180	2.7513	72.1
7-Apr-03	0:00	1426.20	1.29	1.30	1.29	1843.77	2.6368	2.8369	108.5
10-Apr-03	0:00	1429.80	1.29	1.30	1.30	1852.37	2.7859	2.9014	62.4
16-Apr-03	0:00	1417.20	1.29	1.30	1.29	1833.01	2.7932	3.0045	115.3
22-Apr-03	0:00	1427.40	1.29	1.29	1.29	1838.90	2.8006	3.0038	110.5
28-Apr-03	0:00	1437.60	1.27	1.29	1.28	1836.89	2.7656	2.9580	104.7

The Summary of 1-hr TSP Concentration (μg/m^3) at Stonecutters Base (ASR2)

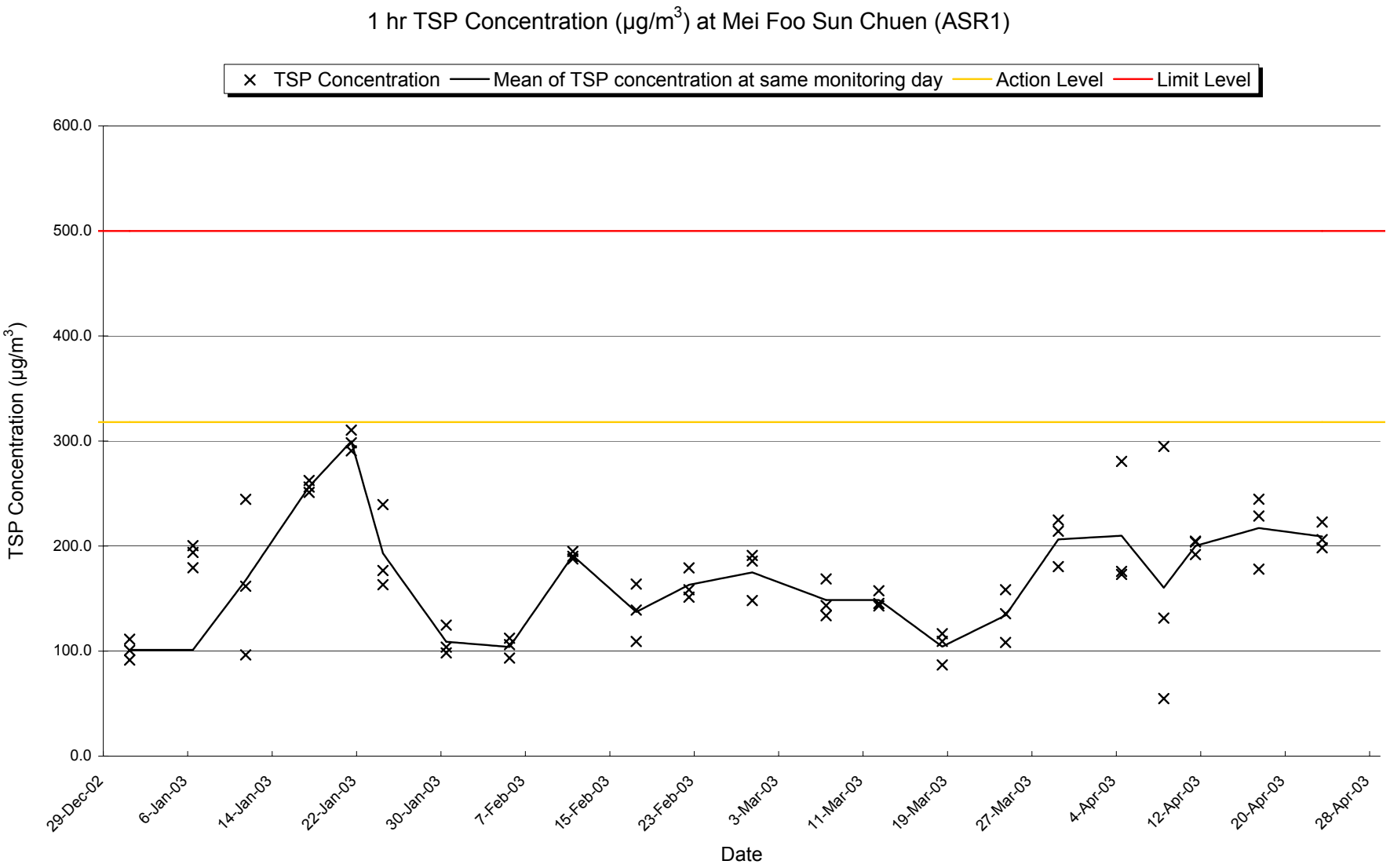
Date	Sampling Time	Elapsed Time (min)	Initial Standard Flow Rate (m^3/min)	Final Standard Flow Rate (m^3/min)	Averaged Standard Flow Rate (m^3/min)	Total Standard Volume (m^3)	Initial Filter Weight (g)	Final Filter Weight (g)	TSP Concentration μg/m^3
31-Mar-03	8:55	49.20	1.40	1.40	1.40	68.98	2.6185	2.6360	253.7
31-Mar-03	9:46	63.60	1.40	1.40	1.40	89.11	2.6324	2.6543	245.8
31-Mar-03	10:51	49.80	1.40	1.41	1.41	70.08	2.6386	2.6540	219.7
4-Apr-03	9:17	54.60	1.43	1.43	1.43	78.23	2.6254	2.6355	129.1
4-Apr-03	10:13	52.20	1.39	1.39	1.39	72.33	2.6349	2.6465	160.4
4-Apr-03	11:13	69.60	1.43	1.43	1.43	99.66	2.6289	2.6591	303.0
8-Apr-03	9:23	54.00	1.31	1.31	1.31	70.59	2.6498	2.6695	279.1
8-Apr-03	10:19	73.20	1.44	1.43	1.43	104.98	2.7820	2.8150	314.3
8-Apr-03	11:36	70.20	1.42	1.42	1.42	99.44	2.7741	2.8052	312.7
11-Apr-03	9:19	54.60	1.44	1.44	1.44	78.71	2.7918	2.8032	144.8
11-Apr-03	10:15	54.60	1.43	1.42	1.42	77.80	2.8024	2.8170	187.7
11-Apr-03	11:11	60.60	1.42	1.42	1.42	86.03	2.7865	2.8024	184.8
17-Apr-03	9:19	64.20	1.44	1.44	1.44	92.24	2.7968	2.8135	181.0
17-Apr-03	10:25	53.40	1.44	1.45	1.44	77.03	2.7991	2.8126	175.3
17-Apr-03	11:20	50.40	1.45	1.43	1.44	72.49	2.8133	2.8265	182.1
23-Apr-03	9:11	60.00	1.45	1.44	1.44	86.68	2.9242	2.9451	241.1
23-Apr-03	10:13	67.80	1.44	1.42	1.43	97.14	2.7899	2.8113	220.3
23-Apr-03	11:18	51.60	1.42	1.44	1.43	73.79	2.8031	2.8235	276.5

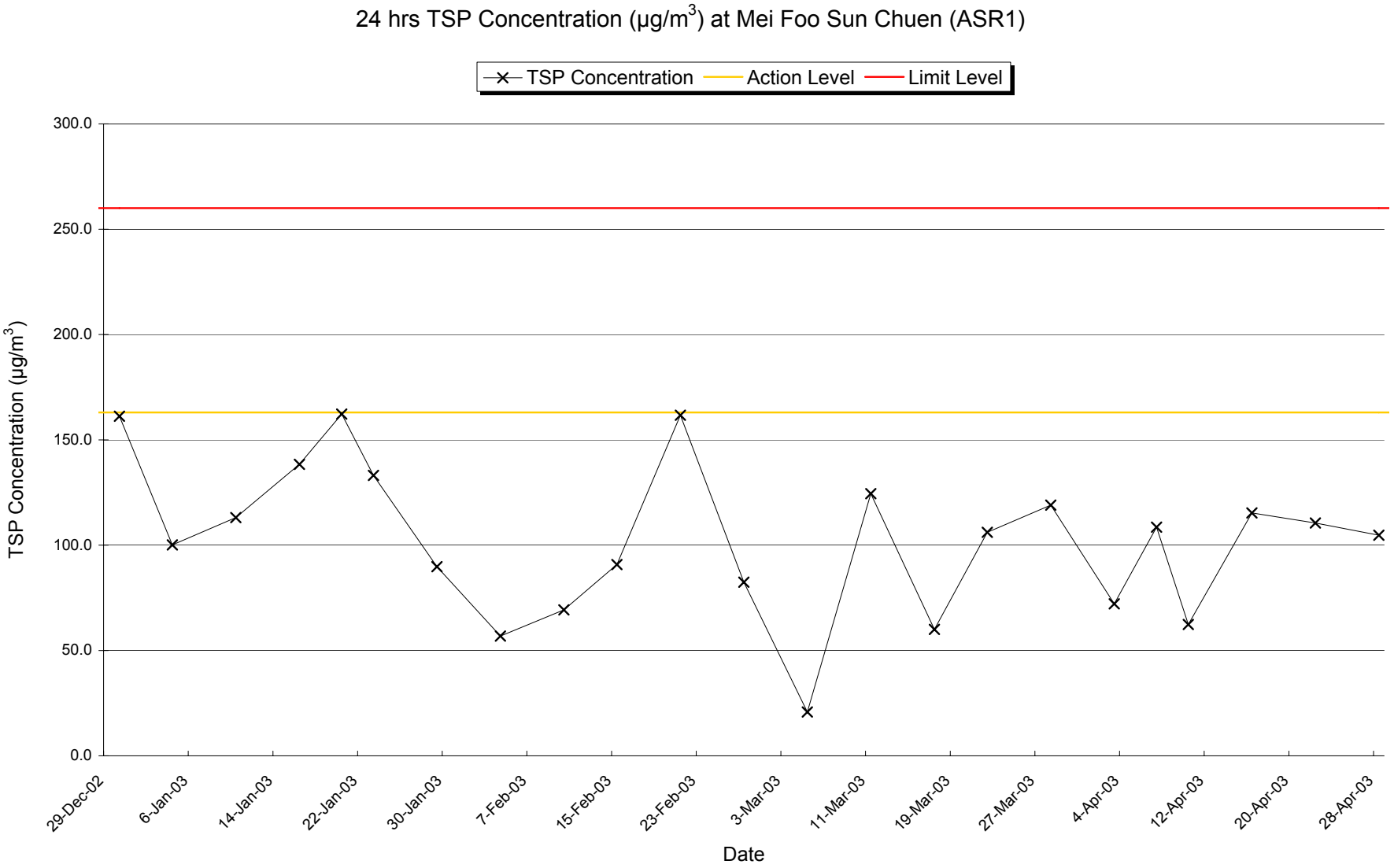
The Summary of 24-hrs TSP Concentration (μg/m^3) at Stonecutters Base (ASR2)

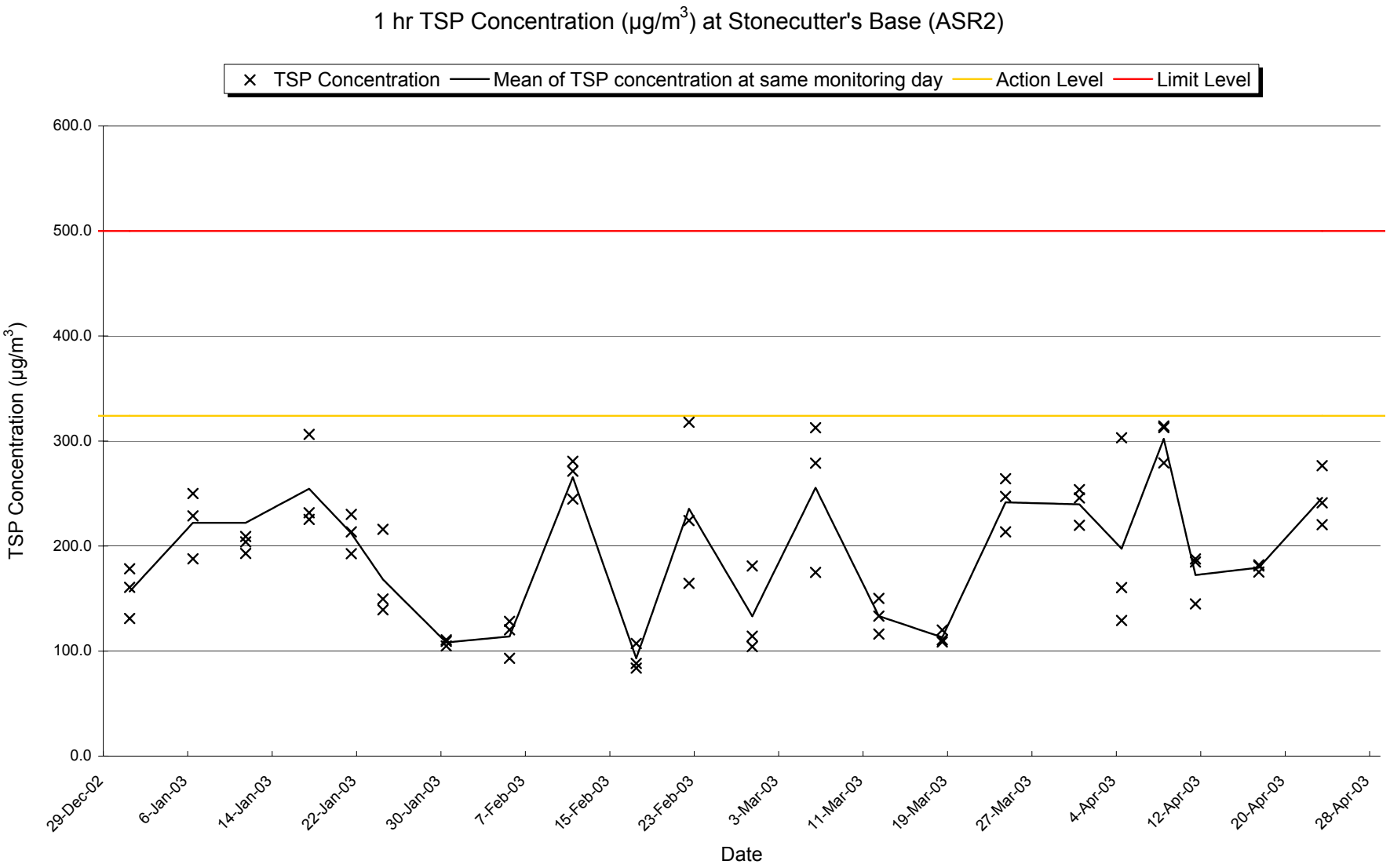
Date	Sampling Time	Elapsed Time (min)	Initial Standard Flow Rate (m^3/min)	Final Standard Flow Rate (m^3/min)	Averaged Standard Flow Rate (m^3/min)	Total Standard Volume (m^3)	Initial Filter Weight (g)	Final Filter Weight (g)	TSP Concentration μg/m^3
3-Apr-03	0:00	1444.20	1.41	1.42	1.42	2043.86	2.6227	2.8916	131.6
7-Apr-03	0:00	1432.20	1.41	1.42	1.42	2032.29	2.6131	2.8143	99.0
10-Apr-03	0:00	1445.40	1.42	1.41	1.41	2043.90	2.7874	2.8879	49.2
16-Apr-03	0:00	1444.80	1.43	1.44	1.43	2073.04	2.7782	2.9884	101.4
22-Apr-03	0:00	1447.20	1.43	1.43	1.43	2068.45	2.7934	2.9575	79.3
28-Apr-03	0:00	1438.20	1.42	1.41	1.42	2040.54	2.7685	2.9508	89.3

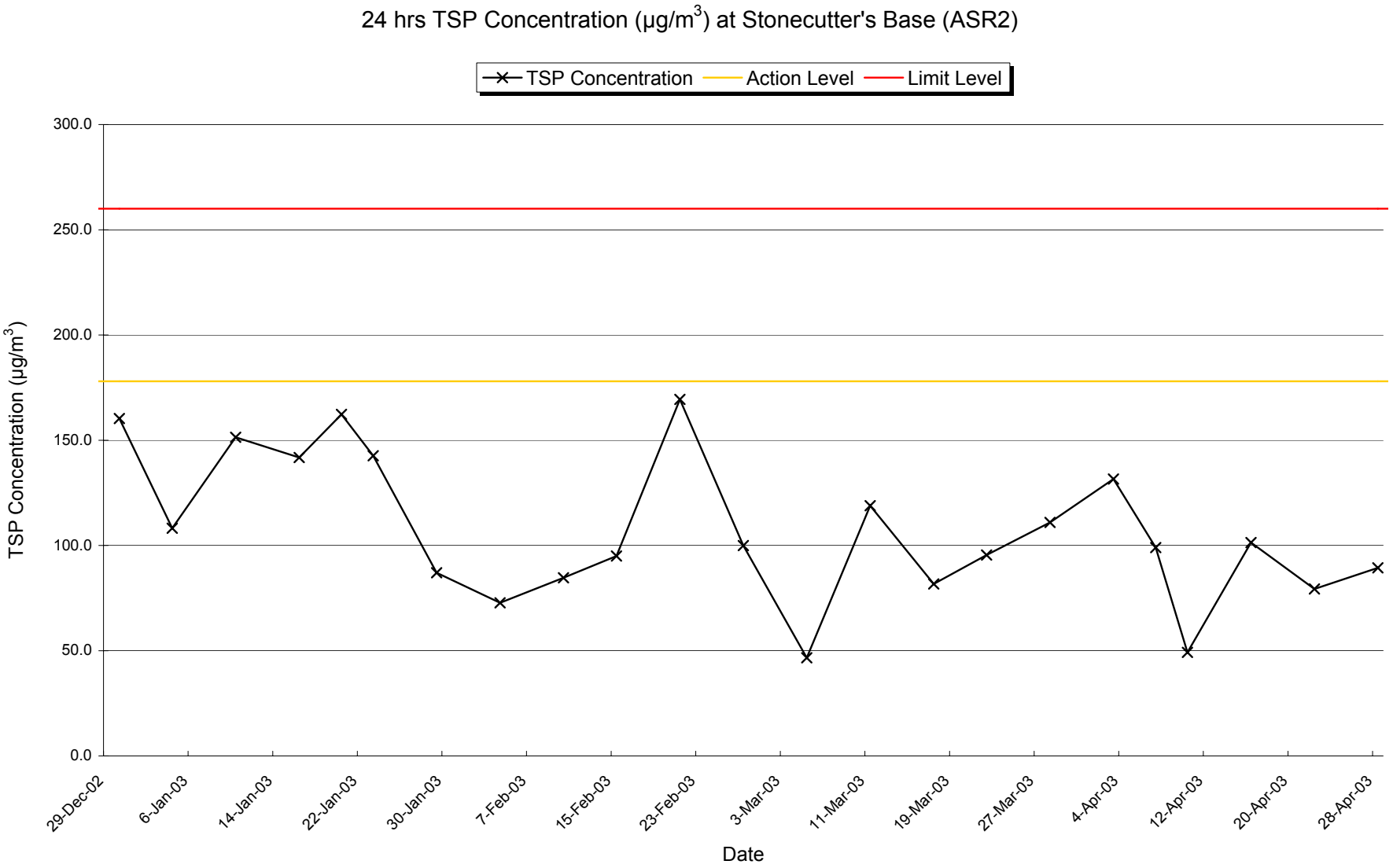
Appendix K

Graphical Presentation of 1-hour and 24-hour TSP Monitoring Result


1 hr TSP Concentration (µg/m3) at Mei Foo Sun Chuen (ASR1)
TSP Concentration
Mean of TSP concentration at same monitoring day
Action Level
Limit Level
600.0
500.0
400.0
300.0
200.0
100.0
0.0
TSP Concentration (µg/m3)
29-Dec-02
6-Jan-03
14-Jan-03
22-Jan-03
30-Jan-03
7-Feb-03
15-Feb-03
23-Feb-03
3-Mar-03
11-Mar-03
19-Mar-03
27-Mar-03
4-Apr-03
12-Apr-03
20-Apr-03
28-Apr-03
Date


24 hrs TSP Concentration (µg/m3) at Mei Foo Sun Chuen (ASR1)
TSP Concentration
Action Level
Limit Level
300.0
250.0
200.0
150.0
100.0
50.0
0.0
TSP Concentration (µg/m3)
29-Dec-02
6-Jan-03
14-Jan-03
22-Jan-03
30-Jan-03
7-Feb-03
15-Feb-03
23-Feb-03
3-Mar-03
11-Mar-03
19-Mar-03
27-Mar-03
4-Apr-03
12-Apr-03
20-Apr-03
28-Apr-03
Date


1 hr TSP Concentration (µg/m3) at Stonecutter's Base (ASR2)
TSP Concentration
Mean of TSP concentration at same monitoring day
Action Level
Limit Level
600.0
500.0
400.0
300.0
200.0
100.0
0.0
TSP Concentration (µg/m3)
29-Dec-02
6-Jan-03
14-Jan-03
22-Jan-03
30-Jan-03
7-Feb-03
15-Feb-03
23-Feb-03
3-Mar-03
11-Mar-03
19-Mar-03
27-Mar-03
4-Apr-03
12-Apr-03
20-Apr-03
28-Apr-03
Date


24 hrs TSP Concentration (µg/m3) at Stonecutter's Base (ASR2)
TSP Concentration
Action Level
Limit Level
300.0
250.0
200.0
150.0
100.0
50.0
0.0
TSP Concentration (µg/m3)
29-Dec-02
6-Jan-03
14-Jan-03
22-Jan-03
30-Jan-03
7-Feb-03
15-Feb-03
23-Feb-03
3-Mar-03
11-Mar-03
19-Mar-03
27-Mar-03
4-Apr-03
12-Apr-03
20-Apr-03
28-Apr-03
Date

Appendix L

Wind Data Monitoring Results

Appendix L: Wind Data Monitoring Result

Wind Speed during Impact Noise Monitoring

		Wind Speed m/s	
Date	Time	Mean	Max
30-Mar-03	16:21~16:51	2.6	2.9
2-Apr-03	20:03~20:33	0.0	0.0
4-Apr-03	13:50~14:20	0.1	0.7
4-Apr-03	14:30~15:00	0.4	1.0
8-Apr-03	09:58~10:28	0.0	0.0
8-Apr-03	13:01~13:31	2.0	2.6
9-Apr-03	20:03~20:33	4.6	5.4
13-Apr-03	15:00~15:30	0.8	1.1
15-Apr-03	21:00~21:30	3.0	3.5
17-Apr-03	14:15~14:45	2.9	3.7
17-Apr-03	15:02~15:32	3.4	3.5
18-Apr-03	14:32~15:02	2.6	3.4
23-Apr-03	09:02~09:32	0.9	1.1
23-Apr-03	14:09~14:39	2.2	3.5
23-Apr-03	19:55~20:25	0.0	0.0

Appendix L: Wind Data Monitoring Result

Wind Direction during Impact Air Monitoring
- Frequency of Wind Direction at 5 minute Interval

Date	Wind Direction (Degree)															
	0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0	202.5	225.0	247.5	270.0	292.5	315.0	337.5
29-Mar-03	0	0	0	2	83	203	0	0	0	0	0	0	0	0	0	0
31-Mar-03	0	0	11	26	35	30	13	5	7	15	18	0	0	0	0	0
3-Apr-03	0	0	0	0	0	0	18	34	10	5	6	0	7	0	0	0
4-Apr-03	3	0	8	28	47	13	9	2	0	2	1	0	3	5	14	1
7-Apr-03	0	0	0	38	82	44	0	0	0	0	0	0	0	0	0	0
8-Apr-03	0	0	0	0	9	126	20	0	0	0	0	2	21	0	0	0
10-Apr-03	0	0	0	6	30	232	19	0	0	0	0	0	0	0	0	0
11-Apr-03	0	0	18	64	107	72	0	0	0	0	0	0	0	0	0	0
16-Apr-03	0	0	0	0	2	273	13	0	0	0	0	0	0	0	0	0
17-Apr-03	0	0	0	4	62	211	2	0	0	0	0	0	0	0	0	0
22-Apr-03	0	0	0	0	29	114	26	2	0	3	32	5	37	0	0	0
23-Apr-03	0	0	0	0	4	13	17	1	1	13	86	9	3	0	0	0
28-Apr-03	0	0	0	0	34	238	16	0	0	0	0	0	0	0	0	0

Appendix M1

Noise Monitoring Results for Normal Hour

The Summary of Day-time Leq_{30} Level at Mei Foo Sun Chuen (NSR 1)

Date	Monitoring Time	Duration min	Leq dB(A)	L10 dB(A)	L90 dB(A)	Limit Level dB(A)
4-Apr-03	14:30	30	62.2	63.7	59.5	75.0
8-Apr-03	13:01	30	62.4	63.8	60.9	75.0
17-Apr-03	15:02	30	63.6	65.7	60.6	75.0
23-Apr-03	9:02	30	63.5	64.8	61.8	75.0

The Summary of Day-time Leq_{30} Level at Stonecutters Base (NSR 2)

Date	Monitoring Time	Duration min	Leq dB(A)	L10 dB(A)	L90 dB(A)	Limit Level dB(A)
4-Apr-03	13:50	30	74.9	77.5	68.7	75.0
8-Apr-03	9:58	30	71.9	74.2	66.6	75.0
17-Apr-03	14:15	30	74.8	78.5	68.1	75.0
23-Apr-03	14:09	30	74.9	77.5	65.0	75.0

Appendix M2

Noise Monitoring Results for Restricted Hour

The Summary of Evening-time Leq_5 Level at Mei Foo Sun Chuen (NSR 1)

Date	Monitoring Time	Duration	Leq	L10	L90	Limit Level	Area	PME Opreated	
		min	dB(A)	dB(A)	dB(A)	dB(A)		Description	No.
2-Apr-03	20:03	5	60.8	61.9	57.8	70.0			
2-Apr-03	20:08	5	59.8	61.5	57.5	70.0			
2-Apr-03	20:13	5	59.6	60.9	57.0	70.0	SA6b	Backhoe	1
2-Apr-03	20:18	5	59.3	60.7	57.4	70.0		BG piling rig	1
2-Apr-03	20:23	5	59.4	61.4	57.1	70.0			
2-Apr-03	20:28	5	64.7	61.6	57.2	70.0			
9-Apr-03	20:03	5	60.8	62.8	58.5	70.0			
9-Apr-03	20:08	5	60.5	62.4	58.3	70.0			
9-Apr-03	20:13	5	61.5	63.2	58.2	70.0	SA6b	Backhoe	1
9-Apr-03	20:18	5	61.9	63.9	58.3	70.0			
9-Apr-03	20:23	5	59.9	61.3	58.0	70.0			
9-Apr-03	20:28	5	60.4	62.0	58.7	70.0			
15-Apr-03	21:00	5	61.3	63.6	57.8	70.0			
15-Apr-03	21:05	5	58.5	60.1	56.8	70.0	SA6b	BG piling rig	1
15-Apr-03	21:10	5	59.5	61.6	57.1	70.0			
15-Apr-03	21:15	5	58.8	60.6	56.7	70.0	SA14	Generator	1
15-Apr-03	21:20	5	58.7	60.2	56.1	70.0			
15-Apr-03	21:25	5	58.7	60.2	57.0	70.0			
23-Apr-03	19:55	5	60.8	62.2	59.1	70.0			
23-Apr-03	20:00	5	61.1	62.4	59.6	70.0	SA6b	Generator	1
23-Apr-03	20:05	5	61.0	62.3	59.5	70.0			
23-Apr-03	20:10	5	60.5	61.7	59.2	70.0	SA11	Mobile crane	1
23-Apr-03	20:15	5	60.3	61.9	58.0	70.0			
23-Apr-03	20:20	5	60.7	62.1	59.1	70.0			

SA6a: (From roundabout CP3/CP4 to Pier NB/SB35)

SA6b: (Pier NB36 to NB40, SB36 to SB36, H0 to H4)

The Summary of Public Holiday Leq_5 Level at Mei Foo Sun Chuen (NSR 1)

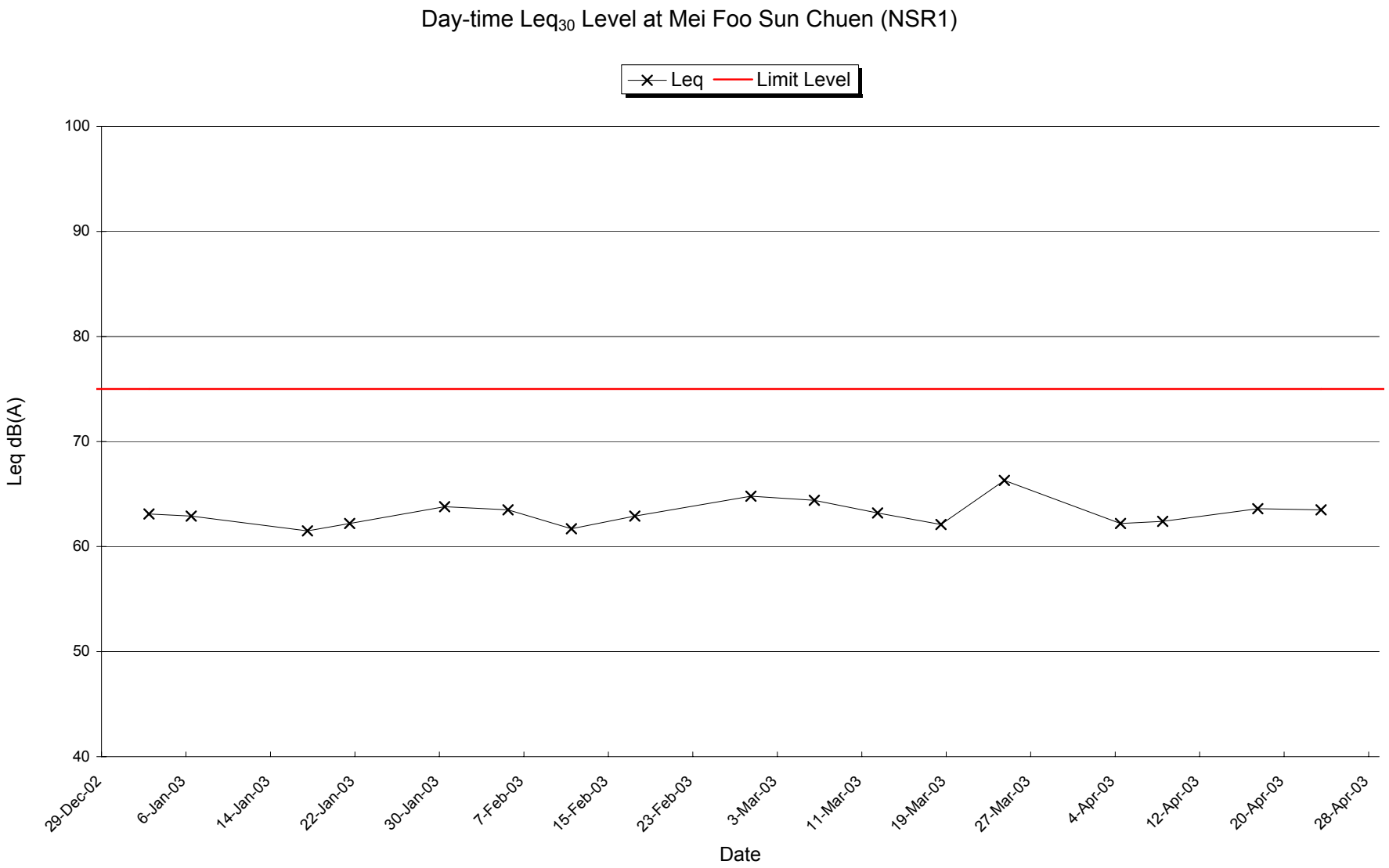
Date	Monitoring Time	Duration	Leq	L10	L90	Limit Level	Area	PME Opreated	
		min	dB(A)	dB(A)	dB(A)	dB(A)		Description	No.
30-Mar-03	16:21	5	58.8	60.7	56.3	70.0			
30-Mar-03	16:26	5	63.0	66.0	57.9	70.0	SA6a	Mobile crane	1
30-Mar-03	16:31	5	67.1	68.4	58.3	70.0			
30-Mar-03	16:36	5	63.4	66.8	57.9	70.0	SA14	Mobile crane	1
30-Mar-03	16:41	5	64.9	68.1	59.1	70.0			
30-Mar-03	16:46	5	63.5	66.7	56.8	70.0			
13-Apr-03	15:00	5	63.2	64.8	60.7	70.0			
13-Apr-03	15:05	5	62.4	64.0	60.6	70.0	SA6b	Backhoe	1
13-Apr-03	15:10	5	61.9	62.9	59.9	70.0			
13-Apr-03	15:15	5	62.0	63.6	60.1	70.0	SA14	Generator	1
13-Apr-03	15:20	5	63.0	65.5	60.1	70.0			
13-Apr-03	15:25	5	64.1	66.0	61.5	70.0			
18-Apr-03	14:32	5	60.1	61.2	58.4	70.0	SA6a	Mobile crane	1
18-Apr-03	14:37	5	59.9	61.6	57.5	70.0		Backhoe	1
18-Apr-03	14:42	5	60.1	61.4	58.5	70.0			
18-Apr-03	14:47	5	61.3	62.4	59.0	70.0	SA6b	BG piling rig	1
18-Apr-03	14:52	5	60.4	61.7	58.6	70.0		Backhoe	1
18-Apr-03	14:57	5	59.9	61.1	58.6	70.0			

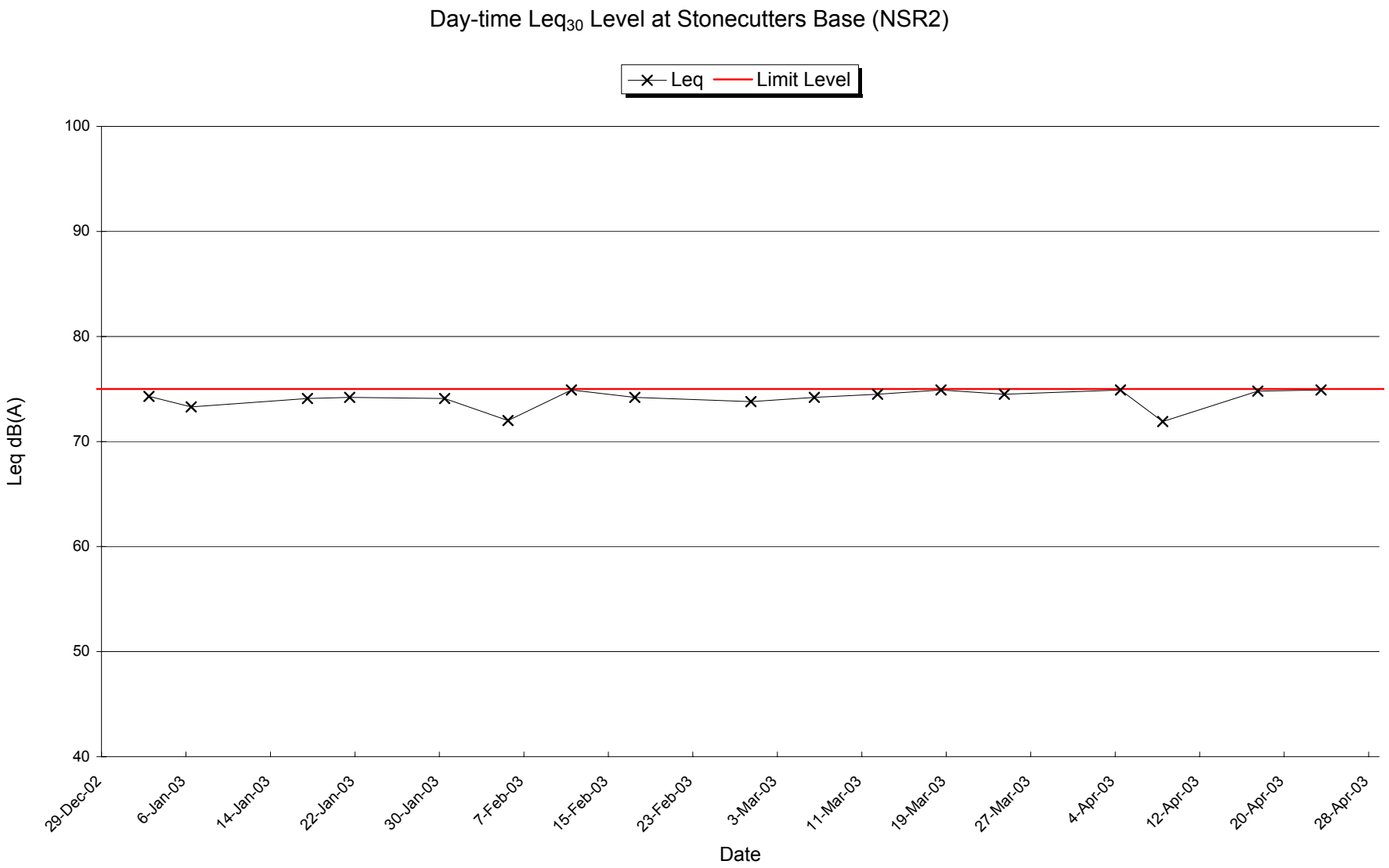
SA6a: (From roundabout CP3/CP4 to Pier NB/SB35)

SA6b: (Pier NB36 to NB40, SB36 to SB36, H0 to H4)

Appendix N1

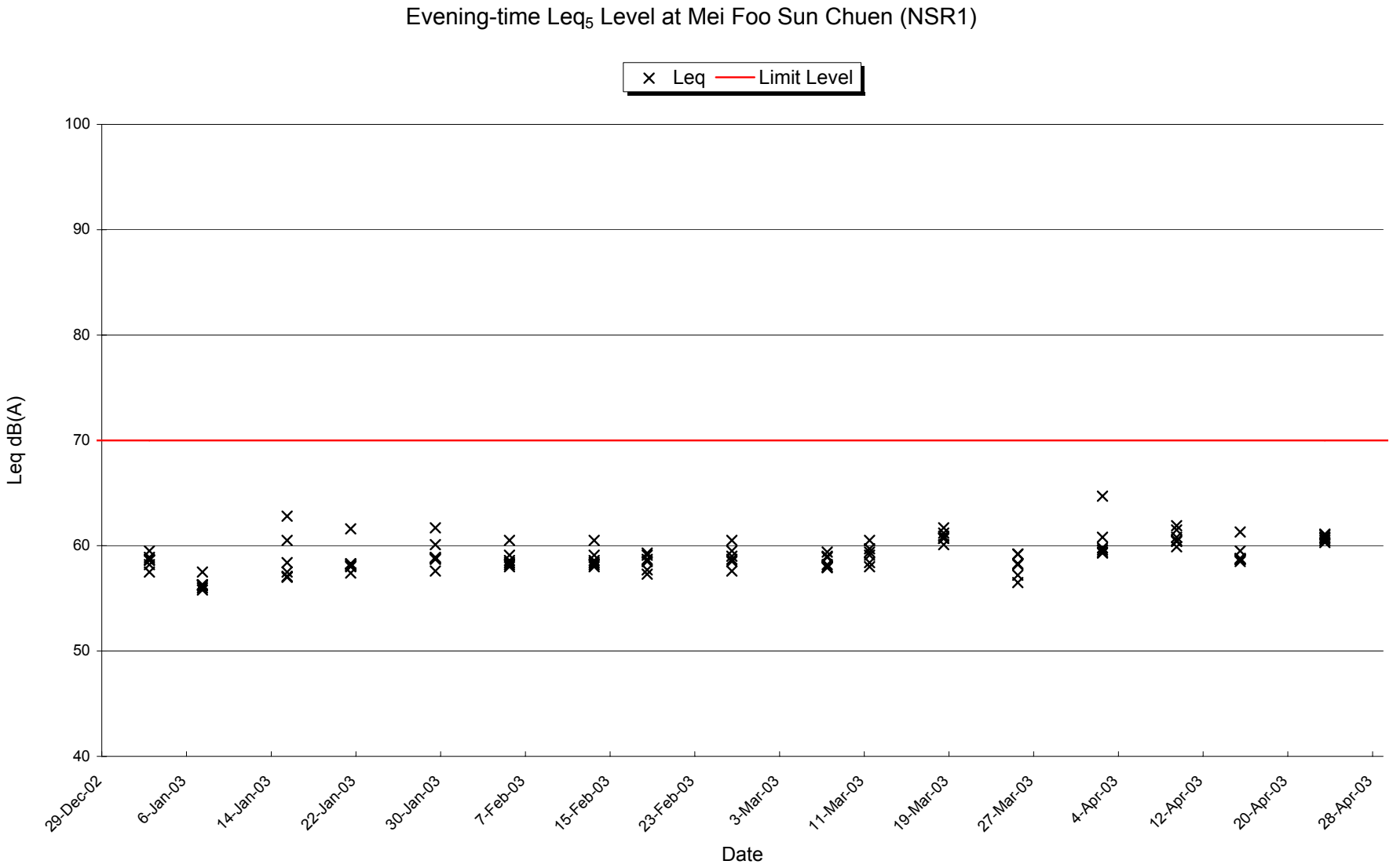
Graphical Presentation of Noise Monitoring Results for Normal Hour

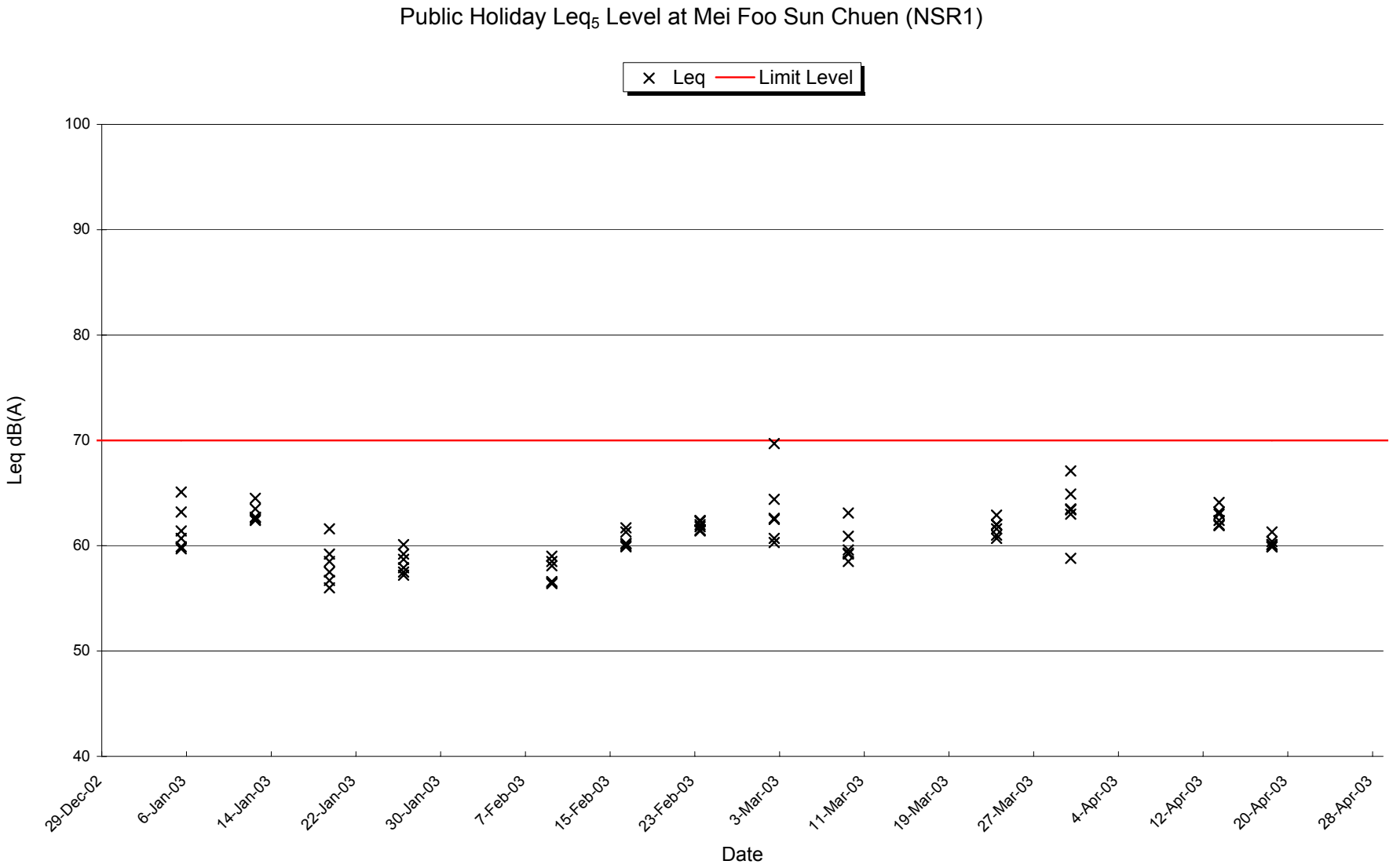

Day-time Leq30 Level at Mei Foo Sun Chuen (NSR1)
Leq
Limit Level
Leq dB(A)
100
90
80
70
60
50
40
29-Dec-02
6-Jan-03
14-Jan-03
22-Jan-03
30-Jan-03
7-Feb-03
15-Feb-03
23-Feb-03
3-Mar-03
11-Mar-03
19-Mar-03
27-Mar-03
4-Apr-03
12-Apr-03
20-Apr-03
28-Apr-03
Date


Day-time Leq30 Level at Stonecutters Base (NSR2)
Leq
Limit Level
100
90
80
70
60
50
40
Leq dB(A)
29-Dec-02
6-Jan-03
14-Jan-03
22-Jan-03
30-Jan-03
7-Feb-03
15-Feb-03
23-Feb-03
3-Mar-03
11-Mar-03
19-Mar-03
27-Mar-03
4-Apr-03
12-Apr-03
20-Apr-03
28-Apr-03
Date

Appendix N2

Graphical Presentation of Noise Monitoring Results for Restricted Hour


Evening-time Leq5 Level at Mei Foo Sun Chuen (NSR1)
Leq
Limit Level
Leq dB(A)
100
90
80
70
60
50
40
29-Dec-02
6-Jan-03
14-Jan-03
22-Jan-03
30-Jan-03
7-Feb-03
15-Feb-03
23-Feb-03
3-Mar-03
11-Mar-03
19-Mar-03
27-Mar-03
4-Apr-03
12-Apr-03
20-Apr-03
28-Apr-03
Date


Public Holiday Leq5 Level at Mei Foo Sun Chuen (NSR1)
Leq
Limit Level
Leq dB(A)
100
90
80
70
60
50
40
29-Dec-02
6-Jan-03
14-Jan-03
22-Jan-03
30-Jan-03
7-Feb-03
15-Feb-03
23-Feb-03
3-Mar-03
11-Mar-03
19-Mar-03
27-Mar-03
4-Apr-03
12-Apr-03
20-Apr-03
28-Apr-03
Date

Appendix O1

Environmental Complaint Log Book

Appendix O1-Summary of Previous Complaints Details

Case No	Date of Received	Date of Complaint	Complainant's information	Detail's of complaint	Recommended Mitigation Measures	Follow-up Action	Status/Remarks
E2002-01	19-Aug-02	19-Aug-02	Complaint from ICC and subsequently referred by HyD on 19-Aug-02	Illegal Dumping (Soil and mud/C&D waste) on Lai Po Road; near the site entrance of KMB Depot on 19-Aug-02. Suspect not due to the Project's work.	Clear up the illegal dumping on site.	CHEC and RSS report that the illegal dumping were found within the site boundary in a.m. on 19-Aug-02. CHEC cleared up the soil and waste in p.m. on 19-Aug-02.	Closed. Follow-up phone call to complainant on 20-Aug-02. The complainant was satisfied to our prompt action.
						Investigations were undertaken by ET on 20 and 21 Aug 02. The waste was cleared up and no further illegal dumping was found at the same location.	
EC2002-02	20-Sep-02	9-Sep-02	The Complaint was referred by EPD on 23-Sept-02.	Noise and vibration at the complainant's office generated from the piling works at the site between Hing Wah Street West and Lai Po Road.	Several vibration measures were implemented since 27 August 2002. The Contractor used a smaller power vibro hammer for casing installation, limit the casing installation operation to 7:00am-9:00am, 12:00-13:00pm and 17:00 - 19:00pm, and carry out vibration monitoring to ensure the magnitude of vibration during casing installation is within the specified limit.	Site investigation by ET Leader on 24 and 25 September 2002.	Closed. Site meeting with EPD on 25 September 2002 and they had no further comment for the carried out mitigation measures. ET Leader send a comprehensive report to EPD on 30 September 2002.
						No noise exceedance was recorded at the two designated location since the commencement of construction work.	
EC2002-03	15-Oct-02	15-Oct-02	Complaint from ICC and subsequently referred by HyD on 15-Oct-02.	Stacking of grass stockpiled within the fenced area between the Lai Po Road northbound and MTRC boundary fence. The fenced area was a vacant Government Land maintained by District Land Officer (DLO), Kwai Tsing. The stack of grass was generated from grass cutting which was conducted by the sub-contractor of DLO on 12-Oct-02.	Investigations were carried out by RSS on 15, 16 and 18 October 2002. After confirming with HyD, LCSD and DLO. DLO comfirmed that the grass was cut by his contractor and replied that the stack of grass would be removed from the area within a week.	Follow-up phone call to complainant on 21-Oct-02. The complainant was satisfied with our prompt action.	Closed. A comprehensive letter has been send to the complainant on 22 October 2002.
					A follow-up site meeting was held between DLO and RSS on 21-Oct-02. The stacks of grass had been removed from site.		

Case No	Date of Received	Date of Complaint	Complainant's information	Detail's of complaint	Recommended Mitigation Measures	Follow-up Action	Status/Remarks
EC2002-04	13-Dec-02	10-Dec-02	Complaint from DLO and referred by HyD on 13-Dec 02.	Refuse and overgrown weeds were found within the site GLA-TNK 1215 (P1-SA15).	All refuse and overgrown grass should be cleared as soon as possible.	Investigation was carried out by RSS on 16-Dec-02. GLA-TNK 1215 was only part of complaint area. The area was found free of refuse and the overgrown weeds were being cleared. It was observed that most of the overgrown grass has been cleared on 18-Dec-02. Overgrown grass within the complaint area allocated to HyD has been completely cleared on 20-Dec-02.	Reply letter to HyD was sent on 19-Dec-02.
EC2003-01	9-Feb-03	9-Feb-03	Complaint was forwarded by CHEC on 9-Feb-03	Soil / debris was deposited on the public road between the site entrance area P1-SA15 and the roundabout.	Clear up the soil/debris deposited on the concerned area and wheel washing facilities should be provided and used by all vehicles before leaving the site.	The road was cleared by CHEC on 9-Feb-03. Since there is no water supply at P1-SA15, no wheel washing activities could be conducted by vehicles before leaving the site. CHEC verbally agreed that cleaning of public road by water sprinkler/bowser at the mentioned location would be carried out every 2 hours from 0700-1900. Moreover, wheel washing facilities including water jet will be provided in mid March 2003.	A follow-up phone call was made to the complainant on 12 February 2003. The complainant was satisfied to our prompt action and emphasized that he did not expect any written reply relating to this issue.
EC2003-02	20-Feb-03	19-Feb-03	Complaint from ICC and subsequently referred by HyD on 20-Feb-03	A significant amount of debris / soil was deposited by vehicles leaving the site exits at P1-SA6 (next to Pier SB36) and P1-SA8 (next to Pier NB41) and causing a nuisance along Lai Po Road.	Clear up the soil/debris deposited on the concerned area and wheel washing facilities should be provided and used by all vehicles before leaving the site.	The 2 complaint site exits together with Lai Po Road were completely cleared up by CHEC in the afternoon on 20-Feb-03. Furthermore, CHEC has allocated adequate site staff to monitor and to ensure all vehicles shall be washed before leaving the site.	A follow-up phone call was made to the complainant on 21 February 2003. The complainant was satisfied to our prompt action and emphasized that he did not expect any written reply relating to this issue.

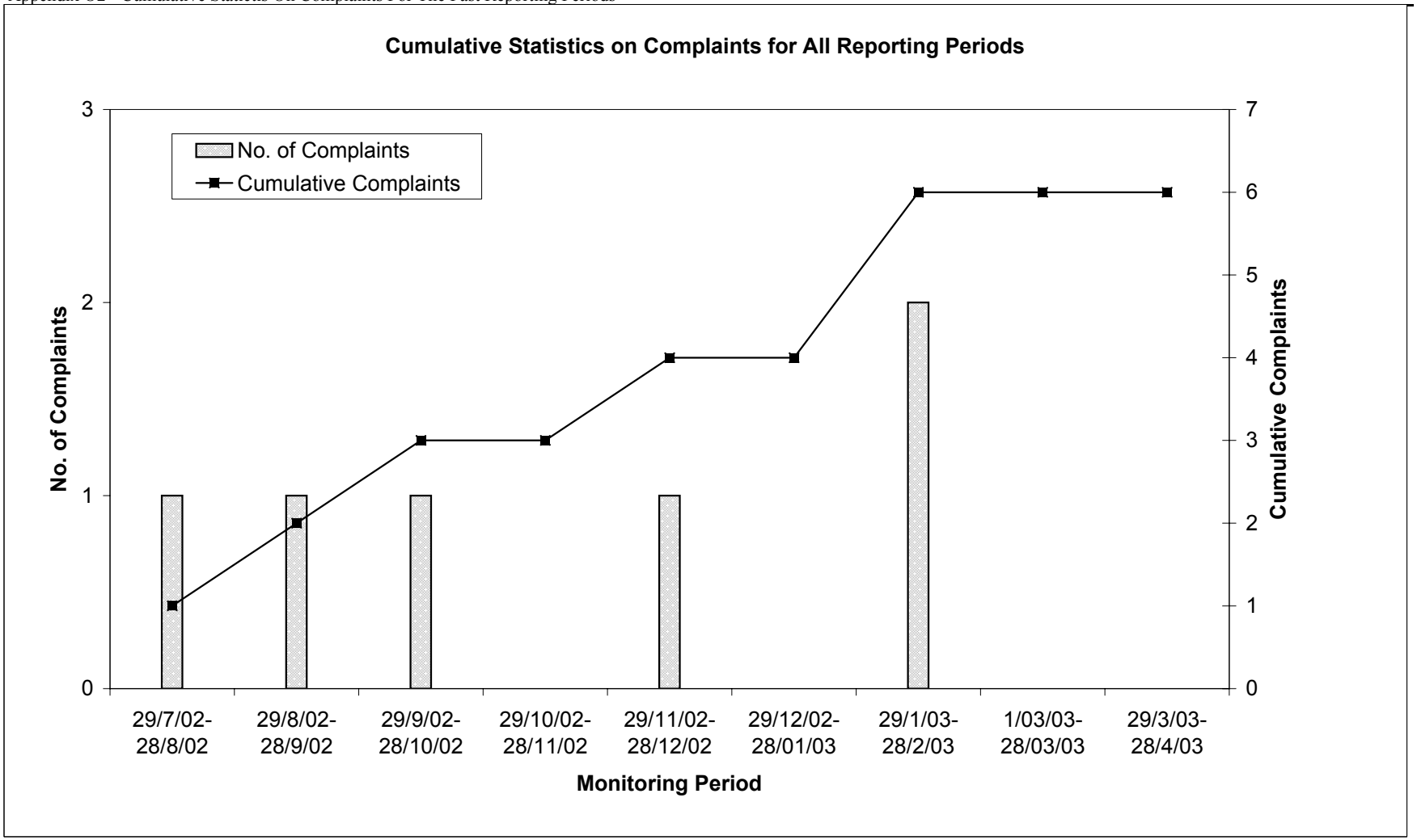
Appendix O2

Cumulative Statistics for Environmental Complaint

Appendix O2 - Cumulative Statistics of Complaints

Route 9 Ngong Shuen Chau Viaduct

Appendix O2 - Cumulative Statictis On Complaints For The Past Reporting Periods



Appendix P

Tentative Environmental Monitoring Schedule from 29th April 2003 to 28th May 2003

Environmental Monitoring Schedule between 29-April and 28-May 2003

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		29-Apr 1hr-TSP Noise $Noise_{Evening}$ $Noise_{Night}$	30-Apr	1-May	2-May	3-May 24hrs-TSP
4-May $Noise_{PH}$	5-May 1hr-TSP Noise $Noise_{Evening}$ $Noise_{Night}$	6-May	7-May	8-May	9-May 24hrs-TSP	10-May 1hr-TSP
11-May $Noise_{PH}$	12-May	13-May	14-May	15-May 24hrs-TSP	16-May 1hr-TSP Noise $Noise_{Evening}$ $Noise_{Night}$	17-May
18-May $Noise_{PH}$	19-May	20-May	21-May 24hrs-TSP	22-May 1hr-TSP Noise $Noise_{Evening}$ $Noise_{Night}$	23-May	24-May
25-May $Noise_{PH}$	26-May	27-May 24hrs-TSP	28-May 1hr-TSP Noise $Noise_{Evening}$ $Noise_{Night}$			

1hr-TSP	3 x 1 hour TSP monitoring at ASR1 and ASR2 during 09:00~18:00.
24hrs-TSP	24 hours TSP monitoring at ASR1 and ASR2
Noise	Leq_{30} measurement at NSR1 and NSR2 during 07:00~19:00.
$Noise_{Evening}$	6 x Leq_5 will be measurement at NSR1 during 19:00~23:00 (if construction activities are undertaken).
$Noise_{Night}$	4 x Leq_5 will be measurement at NSR1 during 23:00~07:00 of next day (if construction activities are undertaken).
$Noise_{PH}$	6 x Leq_5 will be measured during 07:00~19:00 (if construction activities are undertaken).

Tentative Environmental Monitoring Schedule between 29-May and 28-June 2003

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				29-May	30-May	31-May
1-Jun $Noise_{PH}$	2-Jun 24hrs-TSP	3-Jun 1hr-TSP Noise $Noise_{Evening}$ $Noise_{Night}$	4-Jun	5-Jun	6-Jun	7-Jun 24hrs-TSP
8-Jun $Noise_{PH}$	9-Jun 1hr-TSP Noise NoiseEvening NoiseNight	10-Jun	11-Jun	12-Jun	13-Jun 24hrs-TSP	14-Jun 1hr-TSP
15-Jun $Noise_{PH}$	16-Jun	17-Jun	18-Jun	19-Jun 24hrs-TSP	20-Jun 1hr-TSP Noise $Noise_{Evening}$ $Noise_{Night}$	21-Jun
22-Jun $Noise_{PH}$	23-Jun	24-Jun	25-Jun 24hrs-TSP	26-Jun 1hr-TSP Noise $Noise_{Evening}$ $Noise_{Night}$	27-Jun	28-Jun

1hr-TSP	3 x 1 hour TSP monitoring at ASR1 and ASR2 during 09:00~18:00.
24hrs-TSP	24 hours TSP monitoring at ASR1 and ASR2
Noise	Leq_{30} measurement at NSR1 and NSR2 during 07:00~19:00.
$Noise_{Evening}$	6 x Leq_5 will be measurement at NSR1 during 19:00~23:00 (if construction activities are undertaken).
$Noise_{Night}$	4 x Leq_5 will be measurement at NSR1 during 23:00~07:00 of next day (if construction activities are undertaken).
$Noise_{PH}$	6 x Leq_5 will be measured during 07:00~19:00 (if construction activities are undertaken).

Tentative Environmental Monitoring Schedule between 29-June and 28-July 2003

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
29-Jun	30-Jun 24hrs-TSP	1-Jul	2-Jul 1hr-TSP Noise $Noise_{Evening}$ $Noise_{Night}$	3-Jul	4-Jul	5-Jul 24hrs-TSP
6-Jul $Noise_{PH}$	7-Jul 1hr-TSP Noise $Noise_{Evening}$ $Noise_{Night}$	8-Jul	9-Jul	10-Jul	11-Jul 24hrs-TSP	12-Jul 1hr-TSP
13-Jul $Noise_{PH}$	14-Jul	15-Jul	16-Jul	17-Jul 24hrs-TSP	18-Jul 1hr-TSP Noise $Noise_{Evening}$ $Noise_{Night}$	19-Jul
20-Jul $Noise_{PH}$	21-Jul	22-Jul	23-Jul 24hrs-TSP	24-Jul 1hr-TSP Noise $Noise_{Evening}$ $Noise_{Night}$	25-Jul	26-Jul
27-Jul $Noise_{PH}$	28-Jul					

1hr-TSP	3 x 1 hour TSP monitoring at ASR1 and ASR2 during 09:00~18:00.
24hrs-TSP	24 hours TSP monitoring at ASR1 and ASR2
Noise	Leq_{30} measurement at NSR1 and NSR2 during 07:00~19:00.
$Noise_{Evening}$	6 x Leq_5 will be measurement at NSR1 during 19:00~23:00 (if construction activities are undertaken).
$Noise_{Night}$	4 x Leq_5 will be measurement at NSR1 during 23:00~07:00 of next day (if construction activities are undertaken).
$Noise_{PH}$	6 x Leq_5 will be measured during 07:00~19:00 (if construction activities are undertaken).