

JOB No.: TCS/00462/08

REVISION No. 2

**DRAINAGE SERVICES DEPARTMENT (DSD)
CONTRACT NO. DE/2005/05**



**SUPPLY AND INSTALLATION OF E&M
EQUIPMENTS FOR NAM SANG WAI, SHA PO AND
KAM TIN SEWAGE PUMPING STATIONS**

**MONTHLY ENVIRONMENTAL MONITORING &
AUDIT (EM&A) REPORT FOR FEBRUARY 2009
(No. 1)**

PREPARED FOR

RYODEN ENGINEERING COMPANY LIMITED

Quality Index

Date	Reference No.	Certified By	Verified By
12 March 2009	TCS00462/08/600/R0009r2	Ken Wong	Dr. Anne F Kerr
			
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Rev. No.	Date	Remarks
1	12 Mar 09	First Submission
2	13 Mar 09	Response to IEC's comment received on 13 March 2009 via e-mail.

This report has been prepared by Action-United Environmental Services & Consulting with all reasonable skill, care and diligence within the terms of the Agreement with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client.

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EXECUTIVE SUMMARY

- ES01. Ryoden Engineering Company Limited has been awarded the DSD Contract No.: DE/2005/05 Supply and Installation of E&M Equipments for Nam Sang Wai, Sha Po and Kam Tin Sewage Pumping Stations. The Project requires an Environmental Monitoring and Audit (EM&A) program to be implemented by an Environmental Team (ET) throughout the contract period in compliance with the requirements as stated in the Environmental Permit (EP-220/2005), EIA Report, EM&A Manual (under the DC/2005/02 Contract – Designated Element) and the PS.
- ES02. Action-United Environmental Services and Consulting (AUES) has been commissioned by the Contractor to be an Environmental Team (ET) to implement the EM&A program throughout the construction period.
- ES03. From the approval Baseline Monitoring Report (R0003 Revision 3), three nearest monitoring locations (AM5, AM6 and AM7) under the Contract DC/2005/02 would be adopted as the representative monitoring stations for this Project (Contract No.: DE/2005/05) which were agreed by the Engineer's Representative and the Independent Environmental Checker.
- ES04. This is the **First** Monthly Environmental Monitoring and Audit (EM&A) Report for **February 2009 (No. 1)** present the environmental impact monitoring and audit (EM&A) program conducted from **01 to 28 February 2009** for the Contract No.: DE/2005/05. The EM&A program in **February 2009** were covered air quality, construction noise and waste management.

BREACH OF ACTION AND LIMIT (AL) LEVELS

- ES05. No 24-Hour TSP monitoring result trigger the Action and Limit Level was recorded in this reporting month.
- ES06. No construction noise complaint (Action Level) or exceeded the Limit Level was recorded in this reporting month.

COMPLAINT LOG

- ES07. No environmental complaint was received in this reporting month.

NOTIFICATION OF ANY SUMMONS AND SUCCESSFUL PROSECUTION

- ES08. There was no environmental summons or prosecution in this reporting month.

REPORTING CHANGES

- ES09. There are no changes to be reported in this reporting month.

FUTURE KEY ISSUES

- ES10. Construction activities to be undertaken in **March 2009** include building services installation works at the transformer room of Kam Tin SPS and Sha Po SPS. Potential environmental impacts arising from the works include air quality, noise and construction wastes. Environmental mitigation measures will be properly implemented and maintained as per the Mitigation Implementation Schedule to ensure works area environmental performance is acceptable.

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1.0 INTRODUCTION

- 1.01 Ryoden Engineering Company Limited has been awarded the DSD Contract No.: DE/2005/05 Supply and Installation of E&M Equipments for Nam Sang Wai, Sha Po and Kam Tin Sewage Pumping Stations, which form part of the “Yuen Long and Kam Tin Sewerage and Sewage Disposal” – PWP Item No. 215DS. The Project is for the provision of the supply and installation of electrical and mechanical installation in **Three** Sewage Pumping Stations (SPS), namely Nam Sang Wai Sewage Pumping Station, Sha Po Sewage Pumping Station and Kam Tin Sewage Pumping Station. Layout plan showing the site boundary and work areas are shown in **Annex A**.
- 1.02 This is the **First** Monthly Environmental Monitoring and Audit (EM&A) Report for **February 2009 (No. 1)** present the environmental impact monitoring and audit (EM&A) program conducted from **01 to 28 February 2009** for the Contract No.: DE/2005/05. The EM&A program in **February 2009** were covered air quality, construction noise and waste management.

PROJECT ORGANIZATION AND MANAGEMENT STRUCTURE

- 1.03 The organization chart and lines of communication with respect to the on-site management structure of the Project is shown in **Annex B**. The construction program for this project is shown in **Annex C**

CONSTRUCTION ACTIVITIES UNDERTAKEN IN THE REPORTING MONTH

- 1.04 The major construction activities undertaken during the reporting month under the Environmental Permit (EP-220/2005) were shown in the **Table 1-1**.

Table 1-1 Construction Activities in the Reporting Month

Sewage Pumping Station	Construction Activities in this Reporting Month
Nam Sang Wai	<ul style="list-style-type: none">• No activity as the site had not been handed over to the Contractor
Sha Po	<ul style="list-style-type: none">• Building services installation works at the Transformer Room
Kam Tin	<ul style="list-style-type: none">• Building services installation works at the Transformer Room

REPORT STRUCTURE

- 1.05 The EM&A report is structured into the following sections:

SECTION 1	INTRODUCTION
SECTION 2	ENVIRONMENTAL STATUS
SECTION 3	SUMMARY OF EM&A REQUIREMENT
SECTION 4	STATUS OF ENVIRONMENTAL LICENSE AND PERMITS
SECTION 5	MONITORING METHODOLOGY AND RESULTS
SECTION 6	REPORT ON NON-COMPLIANCE (NC), COMPLAINT, NOTIFICATIONS OF SUMMONS (NOS) AND SUCCESSFUL PROSECUTIONS
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2.0 ENVIRONMENTAL STATUS

WORK UNDERTAKEN IN THE REPORTING MONTH WITH ILLUSTRATIONS

2.01 A summary of the work undertaken in this reporting month with illustrations and environmental mitigation measures implemented is shown in **Table 2-1**.

Table 2-1 Work Undertaken in the Reporting Month with Illustrations of Mitigation Measures

Sewage Pumping Stations	Description of Construction Activities	Environmental Mitigation Measures	EM&A Ref.
Nam Sang Wai	<ul style="list-style-type: none"> No activity as the site had not been handed over to the Contractor 	<ul style="list-style-type: none"> N/A 	-
Sha Po	<ul style="list-style-type: none"> Building services installation works at the Transformer Room 	<ul style="list-style-type: none"> Perform weekly inspection with ET and monthly audit with IEC Conduct noise and dust monitoring as per EM&A Manual during construction Implement trip-ticket system for waste disposal Restrict open fires and provide fire fighting equipment in the works area Apply and obtain appropriate waste disposal licenses 	H1 I1 & I2 D5 F9 D1
Kam Tin	<ul style="list-style-type: none"> Building services installation works at the Transformer Room 	<ul style="list-style-type: none"> Maximize the use of quiet PME on site Implement trip-ticket system for waste disposal Restrict open fires and provide fire fighting equipment in the works area Conduct noise and dust monitoring as per EM&A Manual during construction Perform weekly inspection with ET and monthly audit with IEC 	B1, B2 & D5 F9 I1 & I2 H1

PROJECT DRAWINGS

2.02 Drawings showing the work areas under EP-220/2005 and location of representative monitoring stations are presented in **Annex D**.

2.03 AM5, AM6 & AM7, are the nearest stations for 24-Hour TSP monitoring and NM3, NM6 & NM7 are the nearest locations for construction noise monitoring locations for this Project (Contract No.: DE/2005/05) which were agreed by the Engineer's Representative and the Independent Environmental Checker. Locations of the monitoring stations and description are summary in the **Table 2-2**.

Table 2-2 Description of the Monitoring Stations

Station ID	Nature of Premise	Nearest Sewage Pumping Station	Station Coordinates
AM5	Site Boundary in FKH	Sha Po	835121 N 823515 E
AM6	Site Boundary in KT	Kam Tin	833308 N 823987 E
AM7	Site Boundary in NSW	Nam Sang Wai	836171 N 822586 E
NM3	Village House in NSW	Nam Sang Wai	835808 N 822817 E
NM6	Village House in KT	Kam Tin	833288 N 823999 E
NM7	Village House in FKH	Sha Po	835121 N 823495 E

2.04 In this reporting month, the impact monitoring was carried out at three designated air stations and noise monitoring locations in according to the monitoring schedule.

3.0 SUMMARY OF EM&A REQUIREMENTS

MONITORING PARAMETERS

- 3.01 Environmental monitoring and audit requirements are set out in the EM&A Manual (under the DC/2005/02 Contract – Designated Element). Air quality and construction noise have been identified to be the key monitoring parameters during the impact phase for the construction of the project.
- 3.02 A summary of the impact EM&A requirements for air quality and construction noise as per the project EM&A Manual (under the DC/2005/02 Contract – Designated Element) are shown in **Table 3-1**.

Table 3-1 Summary of EM&A Requirements

Environmental Aspect	Monitoring Parameters
Air Quality	24-Hour TSP
Construction Noise	Leq 30min day time 07:00 to 19:00 (Supplementary L10 and L90 for reference.)

ENVIRONMENTAL QUALITY PERFORMANCE LIMITS

- 3.03 A summary of the Action/Limit (A/L) Levels for air quality and construction noise is shown in **Tables 3-2** and **3-3**.

Table 3-2 Action and Limit Levels for Air Quality

Monitoring Locations	Action Level ($\mu\text{g}/\text{m}^3$)		Limit Level ($\mu\text{g}/\text{m}^3$)	
	1-Hour TSP	24-Hour TSP	1-Hour TSP	24-Hour TSP
AM5	> 353	> 176	> 500	> 260
AM6	> 329	> 176	> 500	> 260
AM7	> 383	> 157	> 500	> 260

Table 3-3 Action and Limit Levels for Construction Noise

Monitoring Period	Action Level	Limit Level
0700-1900 hours on normal weekdays	When one or more documented complaints are received	> 75 dB(A)

EVENT AND ACTION PLANS

- 3.04 An Event Action Plan for air quality and construction noise has been implemented for this project. Details of the Event Action Plan are presented in **Annex E**.

ENVIRONMENTAL MITIGATION MEASURES

- 3.05 The project EIA report has recommended environmental mitigation measures to minimize potential environmental impacts arising from the construction of the project. The environmental implementation mitigation schedule as shown in **Annex F**.

ENVIRONMENTAL REQUIREMENTS IN CONTRACT DOCUMENTS

- 3.06 The environmental requirements in the contract documents generally refer to the compliance of the requirements as stipulated in the project EP (EP-220/2005) and the EM&A Manual (under the DC/2005/02 Contract – Designated Element).

4.0 STATUS OF ENVIRONMENTAL LICENSE AND PERMITS

4.01 The status of permits, licenses, and/or notifications related to environmental protection under this Project during the reporting month is presented in **Table 4-1**.

Table 4-1 Status of Environmental Licenses and Permits

Items	Item Description	License/Permit Status
1	Environmental Permit No.: EP-220/2005	Issued in June 2005
2	Account for Disposal of Construction Waste No. 7003733	Registration on 16 May 2008

5.0 MONITORING METHODOLOGY AND RESULTS

MONITORING METHODOLOGY OF AIR QUALITY MONITORING

5.01 The 24-Hour TSP monitoring was carried out by a High Volume Air Sampler (HVAS) in compliance with the EM&A Manual (under the DC/2005/02 Contract – Designated Element). The HVAS employed complied with the PS specifications including.

- Power supply of 220v/50 Hz for 24-Hour continuous operation;
- 0.6-1.7m³/min (20-60 SCFM) adjustable flow rate;
- A 7-day mechanical timer for 24-Hour operation;
- An elapsed time indicator with ± 2 minutes accuracy for 24-Hour operation;
- Minimum exposed area of 63in²;
- Flow control accuracy of $\pm 2.5\%$ deviation over 24-Hour operation;
- An anodized aluminum shelter to protect the filter and sampler;
- A motor speed-voltage control to control mass flow rate with accuracy of $\pm 2.5\%$ deviation over 24-Hour sampling period;
- Provision of a flow recorder for continuous monitoring;
- Provision of a peaked roof inlet;
- Incorporation with a manometer; and
- An 8"x10" stainless steel filter holder to hold, seal and easy to change the filter paper.

5.02 The filter papers used in 24-Hour TSP monitoring were of size 8"x10" and provided by a local HOKLAS-accredited laboratory, ALS Techichem Pty (HK) Limited (HOKLAS No. 66). The filters papers after measurements were returned to the laboratory for the required treatment and analysis. The validation of all monitoring practices and data were following the in-house QA/QC procedures. Blank filters samples were collected and delivered to the HOKLAS-accredited laboratory for QA/QC check.

5.03 The meteorological information in this reporting month was obtained from Lau Fau Shan Station of the Hong Kong Observatory (HKO).

METHODOLOGY FOR CONSTRUCTION NOISE MONITORING

5.04 Noise measurements were taken in terms of the A-weighted equivalent sound pressure level (Leq) measured in decibels (dB). Supplementary statistical results (L₁₀ and L₉₀) were also obtained for reference.

5.05 Hand-held sound level meters and associated acoustical calibrators in compliance with the International Electrotechnical Commission (IEC) Publication 651:1979 (Type 1) and 804:1985 (Type 1) specifications were used for taking the baseline noise measurements.

5.06 Windshield was fitted in all measurements. All noise measurements were made with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (Leq).

5.07 No noise measurement was made in the presence of fog, rain, wind with a steady speed exceeding 5m/s or wind with gusts exceeding 10m/s.

LABORATORY AND MONITORING EQUIPMENT USED

5.08 A local HOKLAS-accredited laboratory, ALS Technichem (HK) Pty Ltd (HOKLAS No. 66), is responsible for the analytical testing of the 24-Hour TSP filter papers.

5.09 Monitoring equipment used in the impact EM&A program is presented in **Table 5-1**.

Table 5-1 Monitoring Equipment Used in Impact EM&A Program

Env. Aspect	Parameters	Monitoring Equipment
Air Quality	24-Hour TSP	Greasby Anderson GMWS2310 High Volume Air Sampler
Noise	Leq(30mins)	B&K Sound Level Meter (Type 2238) & Acoustics Calibrator (Type 4231)

EQUIPMENT CALIBRATION

5.10 Initial calibration of the HVAS was performed upon installation and thereafter at a six month intervals in accordance with the manufacturer’s instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5025A). The calibration data are properly documented and the records are maintained by ET for future reference. HVAS of AM7 was required calibration in this reporting month, no monitoring equipment required to calibrate in next reporting month. Updated calibration certificate and schedule is shown in **Annex G**.

5.11 The sound level meters were calibrated using an acoustical calibrator prior to and after measurements. The meters are regularly calibrated in accordance with the manufacturer’s instructions. Prior to and following each noise measurement, the accuracy of the sound level meter was checked using an acoustical calibrator generating a known sound pressure level at a known frequency. Measurements were considered valid only if the calibration levels before and after the noise measurement agree to within 1.0 dB.

5.12 Calibration certificates of the sound level meters will provide depend on the annual calibration had undertaken.

PARAMETERS MONITORED

5.13 Monitoring parameters in this reporting month were compliance with the EM&A requirements as stipulated in **Table 3-1**.

MONITORING LOCATIONS

5.14 Review the scope of works for this Project, the construction activities only localize at three Sewage Pumping Station (SPS). AM5, AM6 & AM7, are the nearest stations for 24-Hour TSP monitoring and NM3, NM6 & NM7 are the nearest locations for construction noise monitoring locations for this Project (Contract No.: DE/2005/05) which were agreed by the Engineer’s Representative and the Independent Environmental Checker.

5.15 Descriptions of the monitoring stations are summarized in **Table 5-2** and location plan are presented in **Annex D**.

Table 5-2 Air Quality and Construction Noise Monitoring Stations/Locations

Sewage Pumping Station	Monitoring Station/Location	Description
Air Quality (3 Stations)		
Sha Po	AM5	Worksite boundary facing Fung Kat Heung
Kam Tin	AM6	Worksite boundary facing scattered near Route 3
Nam Sang Wai	AM7	Worksite boundary facing scattered house in Nam Sang Wai
Construction Noise (3 Locations)		
Sha Po	NM7	Fung Kat Heung
Kam Tin	NM6	Scattered House near Route 3
Nam Sang Wai	NM3	Village House in Nam Sang Wai

MONITORING FREQUENCY AND PERIOD

- 5.16 The impact 24-Hour TSP monitoring was conducted at the designated stations once every 6 days in compliance with the EM&A Manual (under the DC/2005/02 Contract – Designated Element). In this reporting month, **15** monitoring events of 24-Hour TSP monitoring were conducted.
- 5.17 The impact noise monitoring was conducted at the designated stations once every 6 normal working days in compliance with the EM&A Manual (under the DC/2005/02 Contract – Designated Element). Total of **15** monitoring events were carried out in this reporting month.

MONITORING RESULTS AND SCHEDULE

- 5.18 Monitoring results in this reporting month for air quality and construction noise were summarized at **Tables 5-3 to 5-6**.
- 5.19 One Limit Level exceedance for 24-Hour TSP monitoring was recorded at AM7 on 02 March 2009. Since the construction work still not commenced at Nam Sang Wai SPS, therefore the exceedance at AM7 on 02 March 2009 was not project related. No further air quality exceedance was recorded in this reporting month.
- 5.20 Power failure were recorded at AM6 on 02, 13, 25 February 2009 and AM7 on 19, 25 February 2009. Makeup monitoring had been arranged to undertaken upon the power supply reinstate.

Table 5-3 Summary of Air Quality Monitoring Results

Date	24-Hour TSP ($\mu\text{g}/\text{m}^3$)		
	AM5	AM6	AM7
2-Feb-09	160	69 (03-Feb-09)	52
7-Feb-09	167	50	36
13-Feb-09	100	45 (14-Feb-09)	51
19-Feb-09	120	40	153 (20-Feb-09)
25-Feb-09	102	56 (26-Feb-09)	284 (02-Mar-09)
Average (Range)	130 (100-167)	52 (40-69)	115 (36-284)
Action / Limit	> 176 / >260	> 176 / >260	> 157 / >260

Note: All 24-Hour TSP monitoring were preset to start at 00:00 on each monitoring date.
 Bold and italic is exceed the Action Level.
 Bold and underline is exceed the Limit Level.

- 5.21 No construction noise complaint (Action Level) was received and no construction noise monitoring above the Limit Level was recorded in this reporting month.

Table 5-4 Summary of Noise Monitoring Results at NM3

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Corrected* Leq30
03-Feb-09	11:20	50.9	49.5	52.3	54.8	53.9	55.4	53.3	56.3
09-Feb-09	11:10	50.6	49.7	53.2	54.9	50.4	51.5	52.1	55.1
14-Feb-09	10:40	54.2	50.5	50.9	48.2	51.2	49.7	51.2	54.2
20-Feb-09	11:00	50.4	55.7	52.8	50.3	49.6	53.1	52.5	55.5
26-Feb-09	09:40	55.3	49.5	46.0	57.2	60.9	54.2	56.2	59.2
Limit Level									75

Note: * A façade correction of +3 dB(A) has been added according to acoustical principles and EPD guidelines.

Table 5-5 Summary of Noise Monitoring Results at NM6

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Corrected* Leq30
03-Feb-09	11:28	56.3	66.4	61.0	60.8	58.1	59.4	61.6	No Correction Required
09-Feb-09	11:29	55.2	55.1	55.9	55.5	54.7	54.4	55.2	
14-Feb-09	11:26	57.2	57.6	59.4	57.9	56.3	56.7	57.6	
20-Feb-09	11:30	57.0	57.3	58.8	57.6	59.1	58.3	58.1	
26-Feb-09	11:26	54.0	55.5	60.2	55.7	53.8	56.3	56.5	
Limit Level									75

Note: * Noise monitoring was undertaken at the façade, correction was not necessary.

Table 5-6 Summary of Noise Monitoring Results at NM7

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Corrected* Leq30
3-Feb-09	09:00	61.9	59.4	58.7	60.5	58.2	59.6	59.9	No Correction Required
9-Feb-09	09:00	59.2	57.3	60.2	58.9	57.4	60.9	59.2	
14-Feb-09	11:30	60.9	61.2	58.2	60.4	59.7	60.2	60.2	
20-Feb-09	13:00	56.4	57.9	60.2	60.3	59.1	54.7	58.5	
26-Feb-09	09:00	62.5	60.4	61.7	59.5	63.1	62.7	61.8	
Limit Level									75

Note: * Noise monitoring was undertaken at the façade, correction was not necessary.

5.22 The tentative monitoring schedule for the coming month (**March 2009**) is shown in **Table 5-7**.

Table 5-7 Tentative Schedule of Monitoring for Next Reporting Month

Date		Air Quality	Construction Noise
1-Mar-09	Sun		
2-Mar-09	Mon		
3-Mar-09	Tue	✓	
4-Mar-09	Wed		✓
5-Mar-09	Thu		
6-Mar-09	Fri		
7-Mar-09	Sat		
8-Mar-09	Sun		
9-Mar-09	Mon	✓	
10-Mar-09	Tue		✓
11-Mar-09	Wed		
12-Mar-09	Thu		
13-Mar-09	Fri		
14-Mar-09	Sat	✓	
15-Mar-09	Sun		
16-Mar-09	Mon		✓
17-Mar-09	Tue		
18-Mar-09	Wed		
19-Mar-09	Thu		
20-Mar-09	Fri	✓	
21-Mar-09	Sat		✓
22-Mar-09	Sun		
23-Mar-09	Mon		
24-Mar-09	Tue		
25-Mar-09	Wed		
26-Mar-09	Thu	✓	
27-Mar-09	Fri		✓
28-Mar-09	Sat		
29-Mar-09	Sun		
30-Mar-09	Mon		
31-Mar-09	Tue		

✓	Monitoring Day
	Sunday or Public Holiday

WEATHER CONDITIONS DURING THE MONITORING MONTH

5.23 The meteorological data during the monitoring date are summarized in [Annex H](#).

GRAPHICAL PLOTS OF TRENDS OF MONITORED PARAMETERS

5.24 The graphical plots of air quality and construction noise monitoring data are presented in [Annex I](#).

WEATHER CONDITIONS THAT AFFECT THE MONITORING RESULTS

5.25 The weather conditions during monitoring were considered acceptable for monitoring activities and did not have significant impact on the monitoring results obtained.

OTHER FACTORS INFLUENCING THE MONITORING RESULTS

5.26 There were no other noticeable external factors generally affecting the monitoring results in this reporting month.

QA/QC RESULTS AND DETECTION LIMITS

5.27 Not applicable.

6.0 REPORT ON NON-COMPLIANCE (NC), COMPLAINTS, NOTIFICATIONS OF SUMMONS (NOS) AND SUCCESSFUL PROSECUTIONS

RECORD OF NON-COMPLIANCE OF ACTION AND LIMIT LEVELS

- 6.01 No 24-Hour TSP monitoring result trigger the Action and Limit Level was recorded in this reporting month.
- 6.02 No construction noise complaint (Action Level) or monitoring noise level exceed the Limit Level [75dB(A)] was recorded in this reporting month.

RECORD OF ENVIRONMENTAL COMPLAINTS RECEIVED

- 6.03 There was no environmental complaint received in this reporting month.

RECORD OF NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTION

- 6.04 There was no notification of summons or prosecution received in this reporting month.

REVIEW OF REASONS FOR AND IMPLICATIONS OF NC, COMPLAINTS AND NOS

- 6.05 No complaints or NoS was received in this reporting month.

DESCRIPTION OF FOLLOW-UP ACTIONS TAKEN

- 6.06 As mention in Section 6.05, no NC, complaints or NoS was received in this reporting month. Therefore, no follow-up action was needed to undertake. The Contractor was reminded to implement the environmental mitigation measures as present in Table 2-1 as necessary.

7.0 OTHERS

FUTURE KEY ISSUES

- 7.01 Construction activities to be undertaken in **March 2009** include building services installation works at the transformer room of Kam Tin SPS and Sha Po SPS. Potential environmental impacts arising from the works include air quality, noise and water quality (particularly site runoff). Environmental mitigation measures will be properly implemented and maintained as per the Mitigation Implementation Schedule to ensure site environmental performance is acceptable.

SOLID AND LIQUID WASTE MANAGEMENT STATUS

- 7.02 The quantities of waste for disposal or reuse in this reporting month are summarized in **Tables 7-1** and **7-2**.

Table 7-1 Summary of Waste Quantities for Disposal

Type of Waste	Quantity	Disposal Location
C&D Materials (Inert) (tons) – Disposed	0	Tuen Mun 38 Fill Bank
C&D Materials (Inert) (tons) – Reused	0	DSD Contract DC/2005/02
C&D Materials (Non-Inert) (tons)	0	NA
General Refuse (tons)	0	Refuse Collector

Table 7-2 Summary of Waste Quantities for Reuse/Recycling

Type of Waste	Quantity	Disposal Location
Metals for Recycling (kg)	0	NA
Paper for Recycling (kg)	0	NA
Plastics for Recycling (kg)	0	NA

- 7.03 There was no site effluent or surface runoff discharged from the Project was recorded in the reporting month.

ENVIRONMENTAL INSPECTION AND AUDIT

- 7.04 Representatives of the Engineer, the Contractor and ET carried out regular weekly site inspection on 03, 10, 17 and 27 February 2009 to evaluate the site environmental performance. The monthly IEC site audit for **February 2009** was undertaken on 17 February 2009. No non-compliance or observation was found in this reporting month.
- 7.05 Summary of observation during the site inspection in this reporting month are presented in **Table 7-3**.

Table 7-3 Summaries of the observation during the Site Inspection in this Reporting Month

Inspection Date	Inspection/Audit Findings	Recommendation	Rectified on
03 February 2009	NIL	NA	NA
10 February 2009	NIL	NA	NA
17 February 2009*	NIL	NA	NA
27 February 2009	NIL	NA	NA

Note: * Join IEC Monthly Site Audit. Details of site audit can refer to the DC/2005/02 Monthly EM&A Report (Designated Element)

ANNEX A

PROJECT SITE LAYOUT

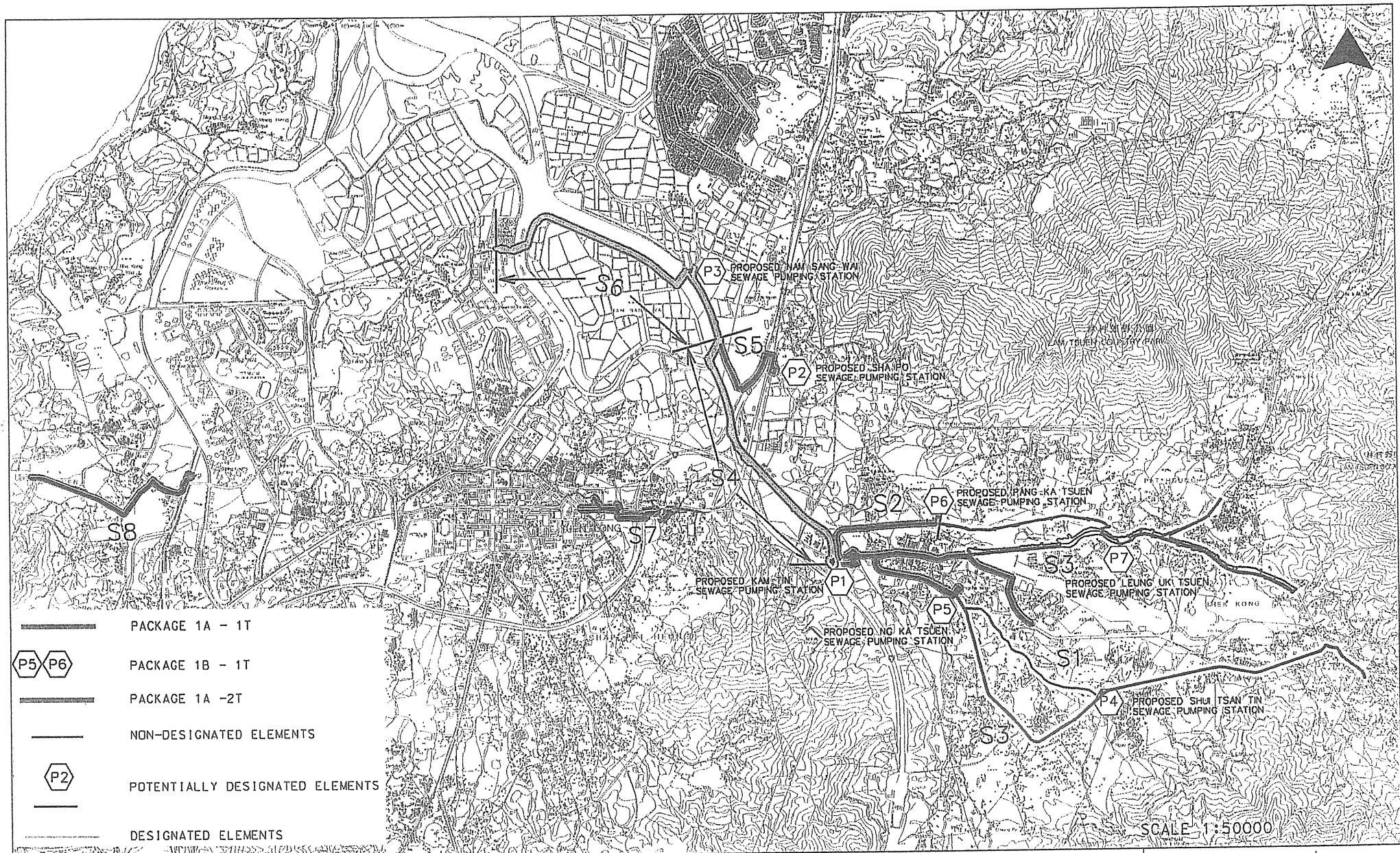


FIGURE 2.1a

ELEMENTS FOR THE YUEN LONG AND KAM TIN SEWERAGE AND SEWAGE DISPOSAL STAGE I

Environmental
Resources
Management

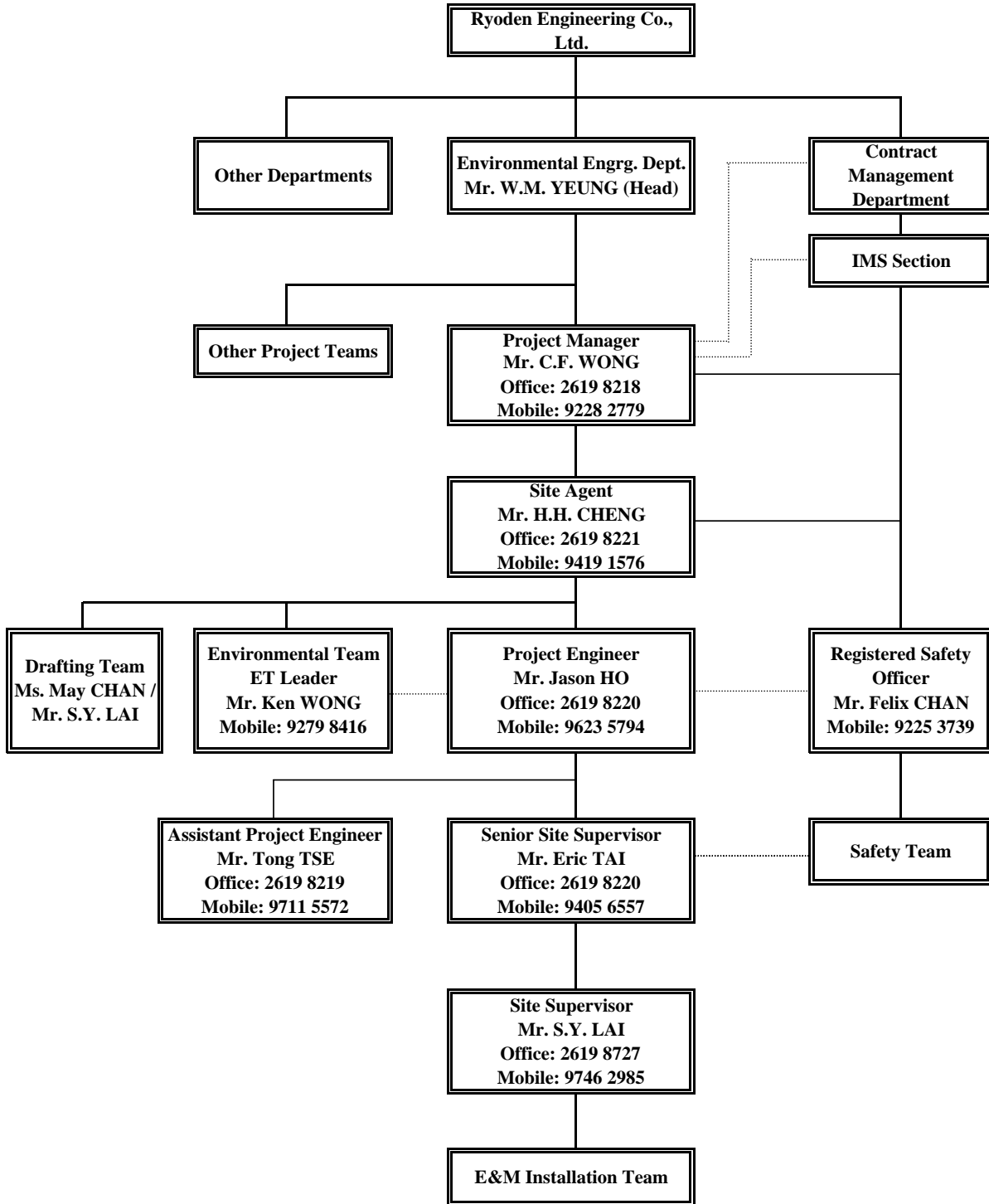


ANNEX B

**PROJECT ORGANIZATION AND MANAGEMENT
STRUCTURE**

**Contract No. DE/2005/05
S&I of E&M Equipment for Nam Sang Wai, Sha Po and
Kam Tin Sewage Pumping Stations**

Project Organization Chart



Effective Date : 09 February 2009

ANNEX C

CONSTRUCTIONPROGRAM

ID	Task Name	Duration	Start	Finish	2007												2008												2009												2010											
					Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar										
1	Contract Commencement Date	0 days	27/3/06	27/3/06	◆ 27/3																																															
2																																																				
3	Section 1 Surge Analysis and Drawings Submission	120 days	27/3/06	24/7/06	▬																																															
4																																																				
5	Surge Analysis for 3 SPSs	90 days	27/3/06	24/6/06	▬																																															
6	Civil Requirement Drawings Submission for 3 nos. Sewage Pumping Stations	90 days	27/3/06	24/6/06	▬																																															
7	Submission of GA Drawings, Equipment Layout Drawings, Electrical Schematic Drawings, Cable Route Drawings, Electrical Services Drawings and PID	90 days	27/3/06	24/6/06	▬																																															
8	Resubmission of above items	60 days	26/5/06	24/7/06	▬																																															
9	Approval of design works	0 days	24/7/06	24/7/06	◆ 24/7																																															
10																																																				
11	Section 2 Works for Nam Sang Wai SPS	1308 days	27/3/06	25/10/09	▬																																															
12																																																				
13	Other Drawings Submission and Approval	180 days	27/3/06	22/9/06	▬																																															
14																																																				
15	Equipment Submission and Approval	240 days	27/3/06	21/11/06	▬																																															
16	Penstock and Actuator	240 days	27/3/06	21/11/06	▬																																															
17	Main sewage pump and VFD	240 days	27/3/06	21/11/06	▬																																															
18	Inlet Coarse Screen	240 days	27/3/06	21/11/06	▬																																															
19	Deodourising System	240 days	27/3/06	21/11/06	▬																																															
20	Lifting Appliance	240 days	27/3/06	21/11/06	▬																																															
21	Pipework and Valve	240 days	27/3/06	21/11/06	▬																																															
22	Measuring Instrument	240 days	27/3/06	21/11/06	▬																																															
23	LV Switchboard	240 days	27/3/06	21/11/06	▬																																															
24	MACS, Telemetry and CCTV	240 days	27/3/06	21/11/06	▬																																															
25	Ventilation Fans	240 days	27/3/06	21/11/06	▬																																															
26	Building Services and Electrical Services Equipment	240 days	27/3/06	21/11/06	▬																																															
27	Fire Services Equipment	240 days	27/3/06	21/11/06	▬																																															
28																																																				
29	Equipment Procurement and Manufacture	240 days	22/11/06	19/7/07	▬																																															
30	Penstock and Actuator	240 days	22/11/06	19/7/07	▬																																															
31	Main sewage pump and VFD	240 days	22/11/06	19/7/07	▬																																															
32	Inlet Coarse Screen	240 days	22/11/06	19/7/07	▬																																															
33																																																				
34																																																				

Date: 30/4/2008

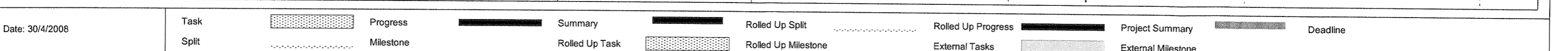
Task		Progress		Summary		Rolled Up Split		Rolled Up Progress		Project Summary		Deadline	
Split		Milestone		Rolled Up Task		Rolled Up Milestone		External Tasks		External Milestone			

ID	Task Name	Duration	Start	Finish	2007												2008												2009												2010		
					Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
35	Deodourising System	240 days	22/11/06	19/7/07	[Task Bar]																																						
36	Lifting Appliance	240 days	22/11/06	19/7/07	[Task Bar]																																						
37	Pipework and Valve	240 days	22/11/06	19/7/07	[Task Bar]																																						
38	Measuring Instrument	240 days	22/11/06	19/7/07	[Task Bar]																																						
39	LV Switchboard	240 days	22/11/06	19/7/07	[Task Bar]																																						
40	MACS, Telemetry and CCTV	240 days	22/11/06	19/7/07	[Task Bar]																																						
41	Ventilation Fans	240 days	22/11/06	19/7/07	[Task Bar]																																						
42	Building Services and Electrical Services Equipment	240 days	22/11/06	19/7/07	[Task Bar]																																						
43	Fire Services Equipment	240 days	22/11/06	19/7/07	[Task Bar]																																						
44																																											
45	Application of CLP Power Supply	0 days	27/3/07	27/3/07													◆ 27/3																										
46	Application of Telephone Line	0 days	27/3/07	27/3/07													◆ 27/3																										
47																																											
48	Equipment Delivery	218 days	15/5/08	18/12/08													[Task Bar]																										
49	Penstock and Actuator	30 days	15/8/08	13/9/08													[Task Bar]																										
50	Main sewage pump and VFD	30 days	30/5/08	28/6/08													[Task Bar]																										
51	Inlet Coarse Screen	30 days	15/5/08	13/6/08													[Task Bar]																										
52	Deodourising System	30 days	19/11/08	18/12/08													[Task Bar]																										
53	Lifting Appliance	30 days	19/11/08	18/12/08													[Task Bar]																										
54	Pipework and Valve	30 days	11/8/08	9/9/08													[Task Bar]																										
55	Measuring Instrument	30 days	19/11/08	18/12/08													[Task Bar]																										
56	LV Switchboard	30 days	19/11/08	18/12/08													[Task Bar]																										
57	MACS, Telemetry and CCTV	30 days	19/11/08	18/12/08													[Task Bar]																										
58	Ventilation Fans	30 days	19/11/08	18/12/08													[Task Bar]																										
59	Building Services and Electrical Services Equipment	30 days	19/11/08	18/12/08													[Task Bar]																										
60	Fire Services Equipment	30 days	19/11/08	18/12/08													[Task Bar]																										
61																																											
62	Submission of Form 314 for Fire Services	0 days	28/5/09	28/5/09																									◆ 28/5														
63																																											
64																																											
65	Site Take Over Date for Section 2	0 days	28/2/09	28/2/09																									◆ 28/2														
66																																											
67	Site Installation	180 days	28/2/09	26/8/09													[Task Bar]																										
68																																											
69	Tentative CLP Electricity Energisation	0 days	27/7/09	27/7/09																									◆ 27/7														

Date: 30/4/2008

Task		Progress		Summary		Rolled Up Split		Rolled Up Progress		Project Summary		Deadline	
Split		Milestone		Rolled Up Task		Rolled Up Milestone		External Tasks		External Milestone			

ID	Task Name	Duration	Start	Finish	2007												2008												2009												2010											
					Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar										
70	Submission of Form 501 for Fire Services	1 day	5/9/09	5/9/09																																																
71																																																				
72	Testing and Commissioning	65 days	18/8/09	21/10/09																																																
73	Equipment testing	60 days	18/8/09	16/10/09																																																
74	Tentative 3-days wet commissioning	3 days	19/10/09	21/10/09																																																
75																																																				
76	Submission of Draft O & M manual	0 days	18/6/09	18/6/09																																																
77	Submission of Final O & M manual	0 days	21/10/09	21/10/09																																																
78	Training of Employer's Staff	3 days	22/10/09	24/10/09																																																
79																																																				
80	Completion of Section 2	0 days	25/10/09	25/10/09																																																
81																																																				
82	Section 3 Works for Sha Po SPS	1250 days	27/3/06	28/8/09																																																
83																																																				
84	Other Drawings Submission and Approval	180 days	27/3/06	22/9/06																																																
85																																																				
86	Equipment Submission and Approval	240 days	27/3/06	21/11/06																																																
87	Penstock and Actuator	240 days	27/3/06	21/11/06																																																
88	Main sewage pump and VFD	240 days	27/3/06	21/11/06																																																
89	Inlet Coarse Screen	240 days	27/3/06	21/11/06																																																
90	Deodourising System	240 days	27/3/06	21/11/06																																																
91	Lifting Appliance	240 days	27/3/06	21/11/06																																																
92	Pipework and Valve	240 days	27/3/06	21/11/06																																																
93	Measuring Instrument	240 days	27/3/06	21/11/06																																																
94	LV Switchboard	240 days	27/3/06	21/11/06																																																
95	MACS, Telemetry and CCTV	240 days	27/3/06	21/11/06																																																
96	Calcium Nitrate Dosing System	240 days	27/3/06	21/11/06																																																
97	Ventilation Fans	240 days	27/3/06	21/11/06																																																
98	Building Services and Electrical Services Equipment	240 days	27/3/06	21/11/06																																																
99	Fire Services Equipment	240 days	27/3/06	21/11/06																																																
100																																																				
101																																																				
102																																																				
103	Equipment Procurement and Manufacture	240 days	22/11/06	19/7/07																																																
104	Penstock and Actuator	240 days	22/11/06	19/7/07																																																



ID	Task Name	Duration	Start	Finish	2007												2008												2009												2010		
					Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
105	Main sewage pump and VFD	240 days	22/11/06	19/7/07	[Task bar]																																						
106	Inlet Coarse Screen	240 days	22/11/06	19/7/07	[Task bar]																																						
107	Deodourising System	240 days	22/11/06	19/7/07	[Task bar]																																						
108	Lifting Appliance	240 days	22/11/06	19/7/07	[Task bar]																																						
109	Pipework and Valve	240 days	22/11/06	19/7/07	[Task bar]																																						
110	Measuring Instrument	240 days	22/11/06	19/7/07	[Task bar]																																						
111	LV Switchboard	240 days	22/11/06	19/7/07	[Task bar]																																						
112	MACS, Telemetry and CCTV	240 days	22/11/06	19/7/07	[Task bar]																																						
113	Calcium Nitrate Dosing System	240 days	22/11/06	19/7/07	[Task bar]																																						
114	Ventilation Fans	240 days	22/11/06	19/7/07	[Task bar]																																						
115	Building Services and Electrical Services Equipment	240 days	22/11/06	19/7/07	[Task bar]																																						
116	Fire Services Equipment	240 days	22/11/06	19/7/07	[Task bar]																																						
117																																											
118	Application of CLP Power Supply	0 days	27/3/07	27/3/07																																					◆ 27/3		
119	Application of Telephone Line	0 days	27/3/07	27/3/07																																					◆ 27/3		
120																																											
121	Equipment Delivery	304 days	19/2/08	18/12/08													[Task bar]												[Task bar]														
122	Penstock and Actuator	30 days	15/8/08	13/9/08																									[Task bar]														
123	Main sewage pump and VFD	30 days	30/5/08	28/6/08																									[Task bar]														
124	Inlet Coarse Screen	30 days	19/2/08	19/3/08													[Task bar]																										
125	Deodourising System	30 days	19/11/08	18/12/08																									[Task bar]														
126	Lifting Appliance	30 days	19/11/08	18/12/08																									[Task bar]														
127	Pipework and Valve	30 days	11/8/08	9/9/08																									[Task bar]														
128	Measuring Instrument	30 days	19/11/08	18/12/08																									[Task bar]														
129	LV Switchboard	30 days	2/6/08	1/7/08																									[Task bar]														
130	MACS, Telemetry and CCTV	30 days	19/11/08	18/12/08																									[Task bar]														
131	Calcium Nitrate Dosing System	30 days	19/11/08	18/12/08																									[Task bar]														
132	Ventilation Fans	30 days	19/11/08	18/12/08																									[Task bar]														
133	Building Services and Electrical Services Equipment	30 days	19/11/08	18/12/08																									[Task bar]														
134	Fire Services Equipment	30 days	19/11/08	18/12/08																									[Task bar]														
135																																											
136																																											
137																																											
138	Submission of Form 314 for Fire Services	0 days	28/5/09	28/5/09																																					◆ 28/5		

Date: 30/4/2008

Task		Progress		Summary		Rolled Up Split		Rolled Up Progress		Project Summary		Deadline	
Split		Milestone		Rolled Up Task		Rolled Up Milestone		External Tasks		External Milestone			

ID	Task Name	Duration	Start	Finish	2007												2008												2009												2010														
					Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar													
140	Site Take Over Date for Section 3	0 days	31/1/09	31/1/09																																																	◆ 31/1		
141																																																							
142	Site Installation	145 days	31/1/09	24/6/09																																																	◆ 28/5		
143																																																					◆ 8/7		
144	Tentative CLP Electricity Energisation	0 days	28/5/09	28/5/09																																																	◆ 27/3		
145	Submission of Form 501 for Fire Services	0 days	8/7/09	8/7/09																																																	◆ 26/8		
146																																																					◆ 28/8		
147	Testing and Commissioning	153 days	27/3/09	26/8/09																																																			
148	Equipment testing	57 days	25/6/09	20/8/09																																																			
149	Tentative 3-days wet commissioning	3 days	21/8/09	23/8/09																																																			
150																																																							
151	Submission of Draft O & M manual	0 days	27/3/09	27/3/09																																																			
152	Submission of Final O & M manual	0 days	26/8/09	26/8/09																																																			
153	Training of Employer's Staff	3 days	17/8/09	19/8/09																																																			
154																																																							
155	Completion of Section 3	0 days	28/8/09	28/8/09																																																			
156																																																							
157	Section 4 Works for Kam Tin SPS	1234 days	27/3/06	12/8/09																																																			
158																																																							
159	Other Drawings Submission and Approval	180 days	27/3/06	22/9/06																																																			
160	Surge analysis report submission and approval	120 days	27/3/06	24/7/06																																																			
161																																																							
162	Equipment Submission and Approval	240 days	27/3/06	21/11/06																																																			
163	Penstock and Actuator	240 days	27/3/06	21/11/06																																																			
164	Main sewage pump and VFD	240 days	27/3/06	21/11/06																																																			
165	Inlet Coarse Screen	240 days	27/3/06	21/11/06																																																			
166	Deodourising System	240 days	27/3/06	21/11/06																																																			
167	Lifting Appliance	240 days	27/3/06	21/11/06																																																			
168	Pipework and Valve	240 days	27/3/06	21/11/06																																																			
169	Measuring Instrument	240 days	27/3/06	21/11/06																																																			
170	LV Switchboard	240 days	27/3/06	21/11/06																																																			
171	MACS, Telemetry and CCTV	240 days	27/3/06	21/11/06																																																			
172																																																							
173																																																							
174																																																							

Date: 30/4/2008

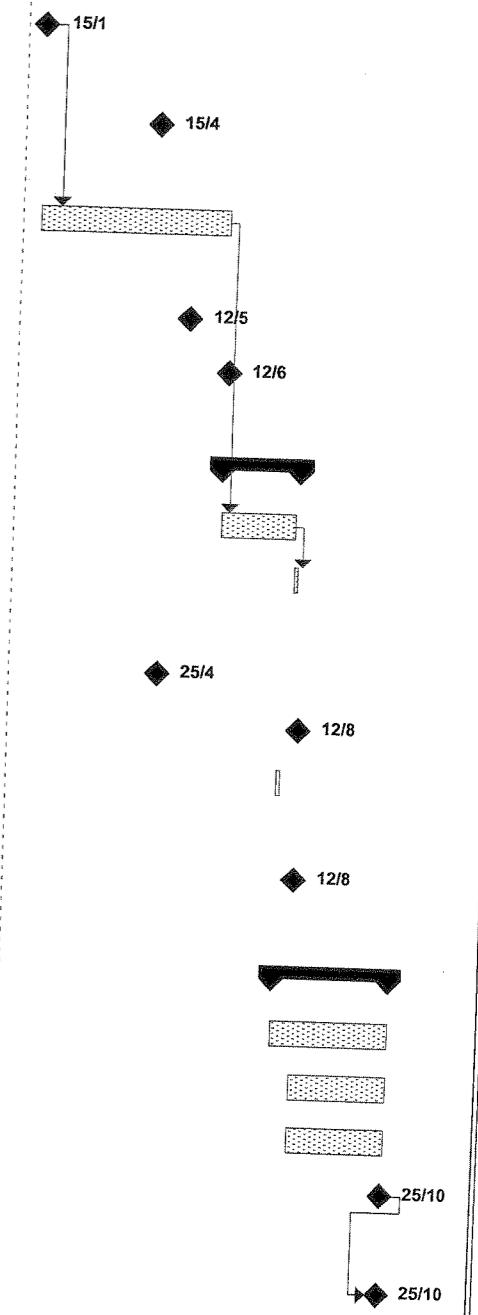
Task Progress Summary Rolled Up Split Rolled Up Progress Project Summary Deadline
 Split Milestone Rolled Up Task Rolled Up Milestone External Tasks External Milestone

ID	Task Name	Duration	Start	Finish	2007												2008												2009												2010		
					Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
175	Ventilation Fans	240 days	27/3/06	21/11/06	[Task Bar]																																						
176	Building Services and Electrical Services Equipment	240 days	27/3/06	21/11/06	[Task Bar]																																						
177	Fire Services Equipment	240 days	27/3/06	21/11/06	[Task Bar]																																						
178	Equipment Procurement and Manufacture	240 days	22/11/06	19/7/07	[Summary Bar]																																						
179																																											
180	Penstock and Actuator	240 days	22/11/06	19/7/07	[Task Bar]																																						
181	Main sewage pump and VFD	240 days	22/11/06	19/7/07	[Task Bar]																																						
182	Inlet Coarse Screen	240 days	22/11/06	19/7/07	[Task Bar]																																						
183	Deodourising System	240 days	22/11/06	19/7/07	[Task Bar]																																						
184	Lifting Appliance	240 days	22/11/06	19/7/07	[Task Bar]																																						
185	Pipework and Valve	240 days	22/11/06	19/7/07	[Task Bar]																																						
186	Measuring Instrument	240 days	22/11/06	19/7/07	[Task Bar]																																						
187	LV Switchboard	240 days	22/11/06	19/7/07	[Task Bar]																																						
188	MACS, Telemetry and CCTV	240 days	22/11/06	19/7/07	[Task Bar]																																						
189	Ventilation Fans	240 days	22/11/06	19/7/07	[Task Bar]																																						
190	Building Services and Electrical Services Equipment	240 days	22/11/06	19/7/07	[Task Bar]																																						
191	Fire Services Equipment	240 days	22/11/06	19/7/07	[Task Bar]																																						
192																																											
193	Application of CLP Power Supply	0 days	27/3/07	27/3/07																																							
194	Application of Telephone Line	0 days	27/3/07	27/3/07																																							
195																																											
196	Equipment Delivery	228 days	5/5/08	18/12/08	[Summary Bar]																																						
197	Penstock and Actuator	30 days	15/8/08	13/9/08													[Task Bar]																										
198	Main sewage pump and VFD	30 days	30/5/08	28/6/08													[Task Bar]																										
199	Inlet Coarse Screen	30 days	5/5/08	3/6/08													[Task Bar]																										
200	Deodourising System	30 days	19/11/08	18/12/08													[Task Bar]																										
201	Lifting Appliance	30 days	19/11/08	18/12/08													[Task Bar]																										
202	Pipework and Valve	30 days	11/8/08	9/9/08													[Task Bar]																										
203	Measuring Instrument	30 days	19/11/08	18/12/08													[Task Bar]																										
204	LV Switchboard	30 days	19/11/08	18/12/08													[Task Bar]																										
205	MACS, Telemetry and CCTV	30 days	19/11/08	18/12/08													[Task Bar]																										
206	Ventilation Fans	30 days	19/11/08	18/12/08													[Task Bar]																										
207	Building Services and Electrical Services Equipment	30 days	19/11/08	18/12/08													[Task Bar]																										
208	Fire Services Equipment	30 days	19/11/08	18/12/08													[Task Bar]																										

Date: 30/4/2008

Task [Pattern] Progress [Pattern] Summary [Pattern] Rolled Up Split [Pattern] Rolled Up Progress [Pattern] Project Summary [Pattern] Deadline [Pattern]
 Split [Pattern] Milestone [Pattern] Rolled Up Task [Pattern] Rolled Up Milestone [Pattern] External Tasks [Pattern] External Milestone [Pattern]

ID	Task Name	Duration	Start	Finish	2007												2008												2009											
					Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
209																																								
210	Site Take Over Date for Section 4	0 days	15/1/09	15/1/09																																				
211																																								
212	Submission of Form 314 for Fire Services	0 days	15/4/09	15/4/09																																				
213																																								
214	Site Installation	145 days	15/1/09	8/6/09																																				
215																																								
216	Tentative CLP Electricity Energisation	0 days	12/5/09	12/5/09																																				
217	Submission of Form 501 for Fire Services	0 days	12/6/09	12/6/09																																				
218																																								
219	Testing and Commissioning	60 days	9/6/09	7/8/09																																				
220	Equipment testing	57 days	9/6/09	4/8/09																																				
221	Tentative 3-days wet commissioning	3 days	5/8/09	7/8/09																																				
222																																								
223	Submission of Draft O & M manual	0 days	25/4/09	25/4/09																																				
224	Submission of Final O & M manual	0 days	12/8/09	12/8/09																																				
225	Training of Employer's Staff	3 days	27/7/09	29/7/09																																				
226																																								
227	Completion of Section 4	0 days	12/8/09	12/8/09																																				
228																																								
229	Section 5 Remaining Works	90 days	28/7/09	25/10/09																																				
230	Provision of Workshop Equipment for Nam Sang Wai SPS	90 days	28/7/09	25/10/09																																				
231	Provision of Portable and Miscellaneous Equipment for 3 SPSs	75 days	12/8/09	25/10/09																																				
232	Provision of minimum spare parts for 3 SPSs	75 days	12/8/09	25/10/09																																				
233	Completion of Section 5	0 days	25/10/09	25/10/09																																				
234																																								
235	Project Completion Date	0 days	25/10/09	25/10/09																																				



Date: 30/4/2008

Legend for chart symbols:

- Task: [Patterned Box]
- Split: [Dotted Line]
- Progress: [Solid Box]
- Milestone: [Diamond]
- Summary: [Thick Solid Line]
- Rolled Up Task: [Patterned Box]
- Rolled Up Milestone: [Thick Solid Line]
- Rolled Up Split: [Dotted Line]
- Rolled Up Progress: [Thick Solid Line]
- External Tasks: [Patterned Box]
- External Milestone: [Thick Solid Line]
- Project Summary: [Thick Solid Line]
- Deadline: [Thick Solid Line]

ANNEX D

LOCATION OF MONITORING STATIONS



FIGURE 3.7b

LOCATION OF DUST MONITORING STATION (AM5)

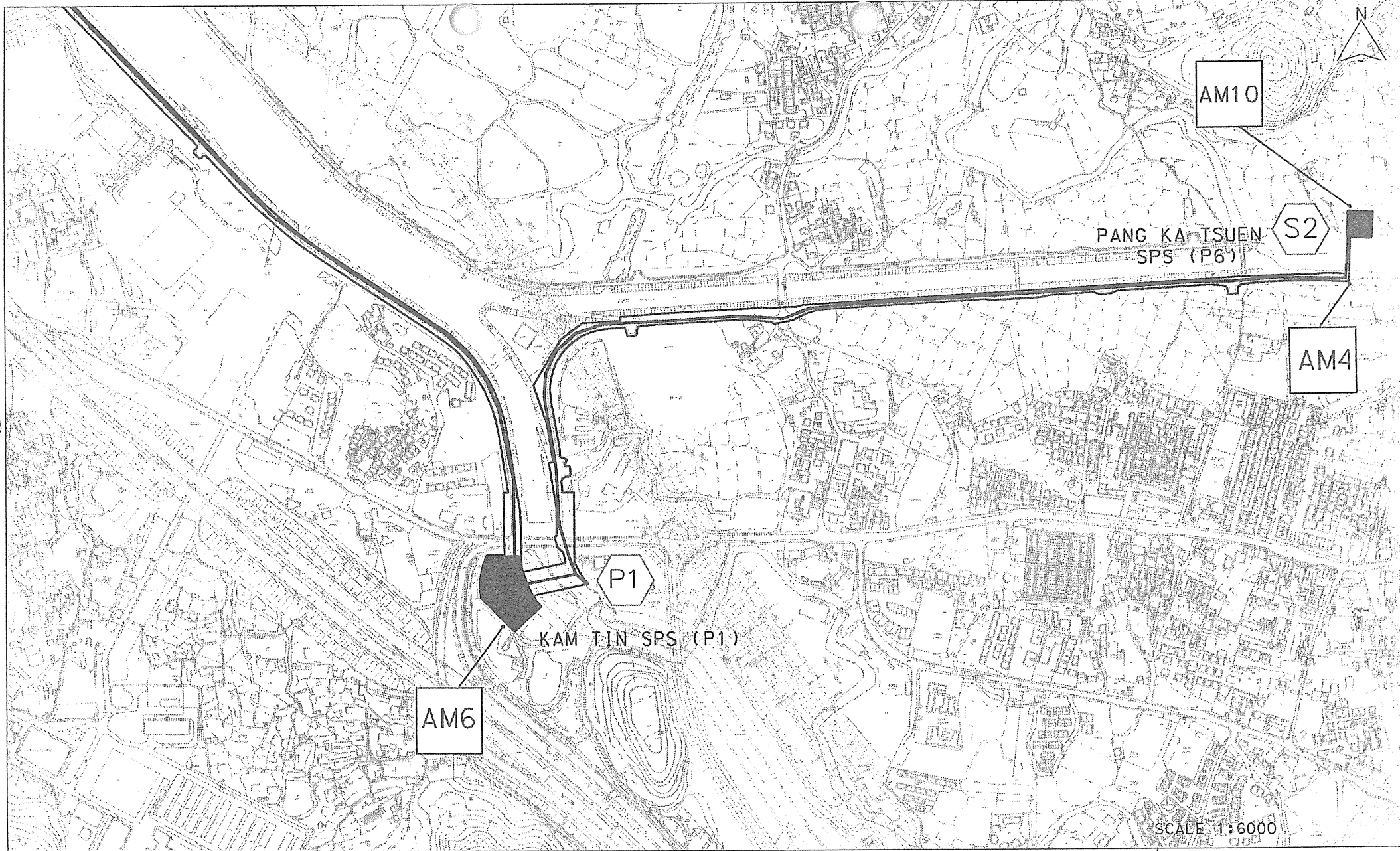


FIGURE 3.7a

LOCATION OF DUST MONITORING STATIONS (AM4, AM6 & AM10)

Environmental
Resources
Management



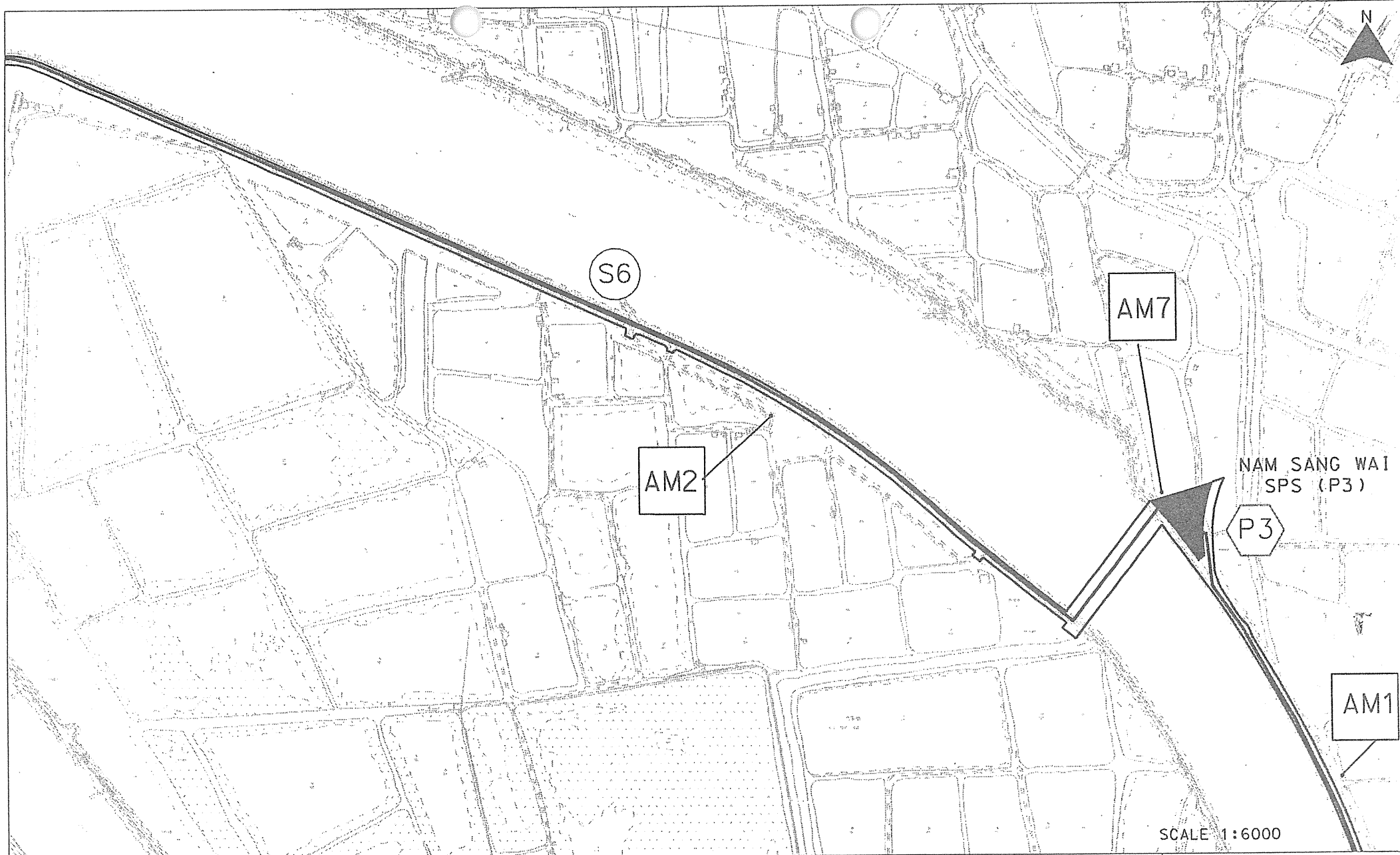


FIGURE 3.7c

LOCATION OF DUST MONITORING STATIONS (AM1, AM2 & AM7)

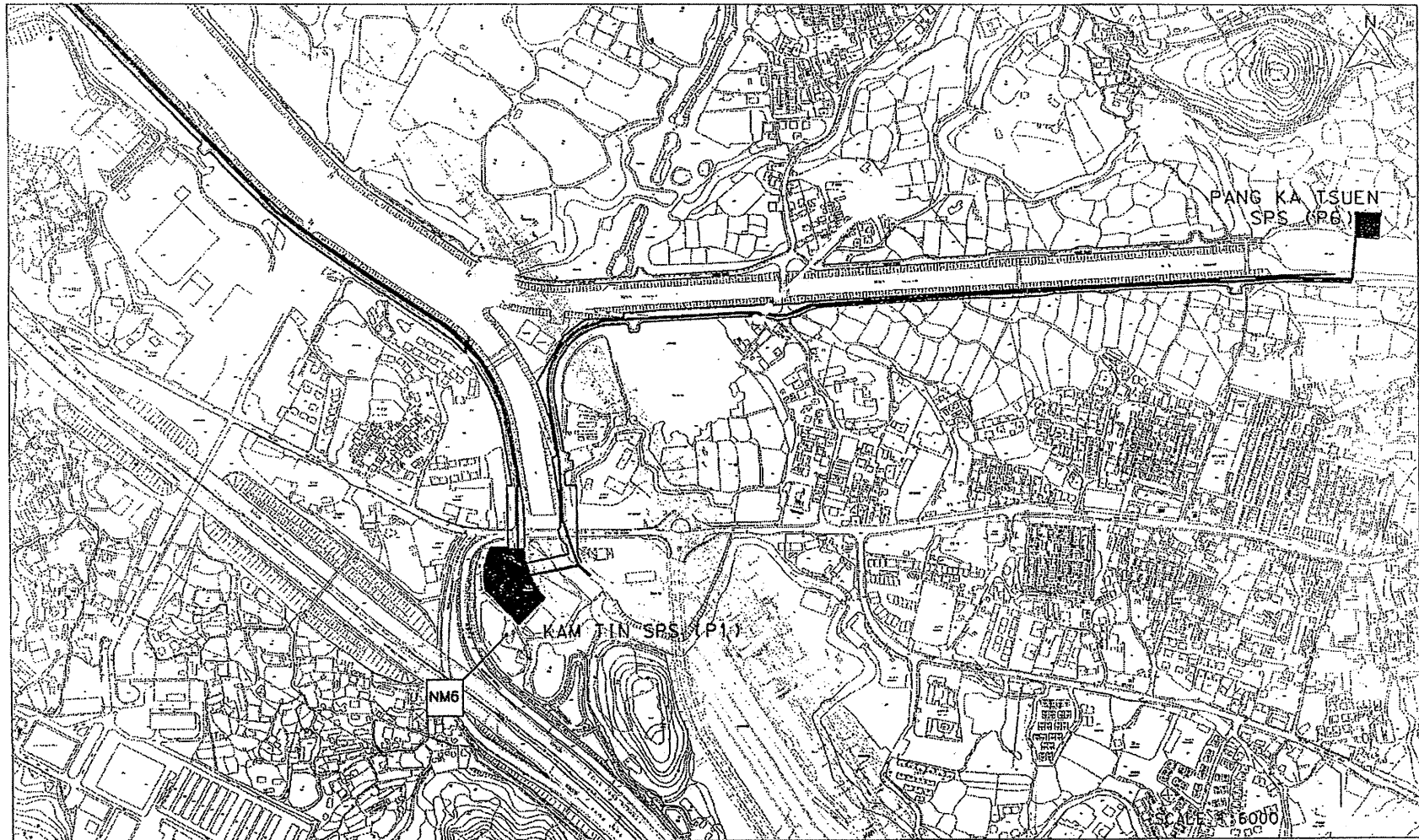


FIGURE C7

LOCATION OF NOISE MONITORING STATIONS (NM1, NM6, NM8, NM9)

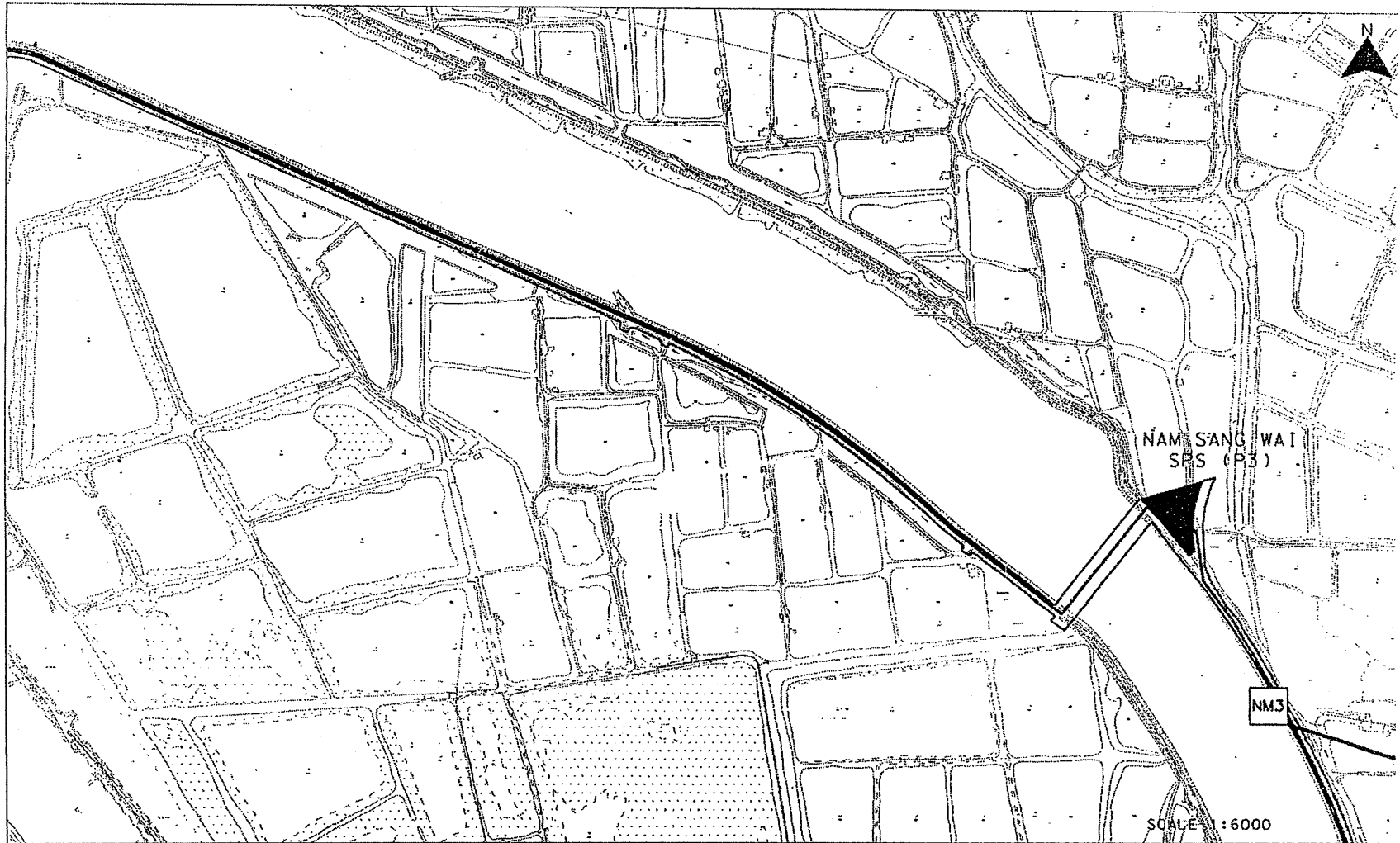


FIGURE C8

LOCATION OF NOISE MONITORING STATIONS (NM3, NM5)

USTN FILE: C2008/EMSA/EMSA-C8
DATE: 23/08/2001

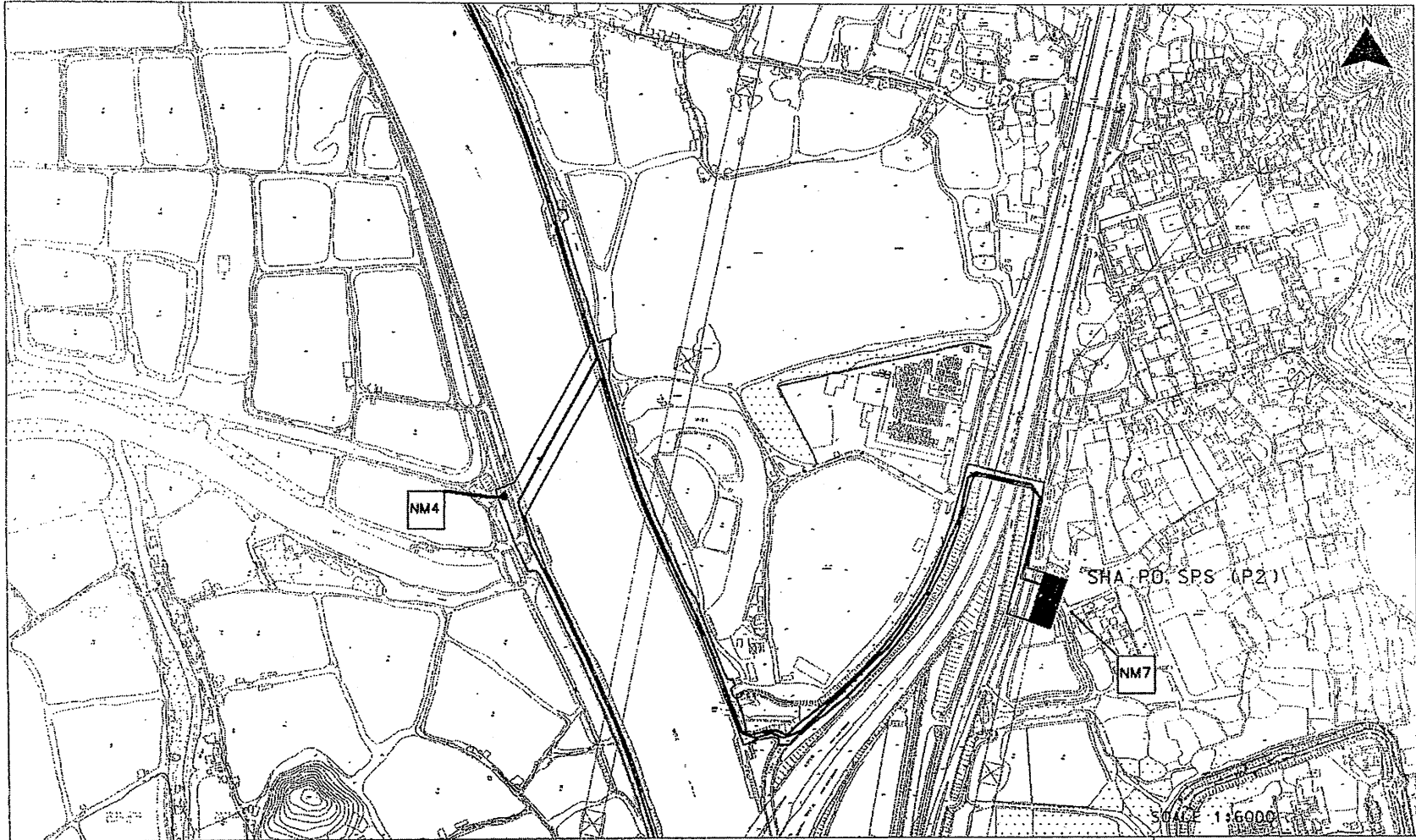


FIGURE C9

LOCATION OF NOISE MONITORING STATIONS (NM4, NM7)

USIN FILE: C2006/EMAA/EMAA-09
DATE: 23/05/2001

ANNEX E

EVENT AND ACTION PLAN

Event and Action Plan for Construction Phase Air Quality

EVENT	ACTION			
	ET Leader	IEC	Engineer	Contractor
<i>Action Level</i>				
Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source (s) of exceedance and inform IEC, Contractor and Engineer 2. Repeat dust measurements to confirm findings 3. Increase monitoring frequency to daily 4. Assess efficacy of remedial measures and keep the Contractor, IEC, and Engineer informed 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET 2. Check monitoring data trends and Contractors working methods 3. Check and confirm Contractors proposed remedial actions and working methods are appropriate 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 2. Remind the Contractor of his contractual obligations and review the Contractor's working methods 3. Discuss remedial actions with the Contractor and IEC 4. Inform complainant of actions taken, if necessary 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice 2. Liaise with Engineer and IEC to develop appropriate remedial measures to reduce dust impact 3. Amend working methods and remedial proposals if required by the Engineer or IEC 4. Implement the agreed remedial actions upon instruction from the Engineer and IEC
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source (s) of exceedance and inform IEC, Contractor and Engineer 2. Repeat measurements to confirm findings 3. Increase the monitoring frequency to daily to assess the efficacy of remedial measures and keep the Contractor informed 4. Discuss remedial actions with IEC and Contractor 5. If exceedance continues, arrange meeting with Engineer, IEC and Contractor to review working practices and identify further remedial actions 6. If exceedance stops, inform the Contractor and cease additional monitoring 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET 2. Check monitoring data trends and Contractors working methods 3. Discuss with Contractor and Engineer on possible remedial measures 4. Check and confirm Contractors proposed remedial measures are appropriate 5. Determine the efficacy of remedial actions and keep the Engineer informed 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 2. Remind the Contractor of his contractual obligations and review the Contractor's working methods 3. Discuss remedial actions with the Contractor and IEC 4. Ensure remedial measures are properly implemented 5. Inform complainant of actions taken, if necessary. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice, if possible 2. Submit proposals for remedial actions to Engineer and IEC within three working days of notification 3. Discuss and amend remedial actions, if required, by the Engineer and IEC 4. Implement the remedial action (s) immediately upon instruction from the Engineer Discuss with Engineer and IEC, to optimise the effectiveness of the agreed remedial actions

Event and Action Plan for Construction Phase Air Quality

EVENT	ACTION			
	ET Leader	IEC	Engineer	Contractor
<i>Limit Level</i>				
Exceedance for one sample	<ol style="list-style-type: none"> Identify source (s) of exceedance and inform IEC, Contractor and Engineer Repeat dust measurements to confirm findings Increase monitoring frequency to daily Assess efficacy of remedial measures and keep the Contractor, IEC, Engineer and EPD informed 	<ol style="list-style-type: none"> Check monitoring data submitted by ET Check monitoring data trends and Contractors working methods Check and confirm Contractors proposed remedial actions and working methods are appropriate Check and confirm Contractors proposed remedial measures are appropriate Determine the efficacy of remedial actions and keep the Engineer informed 	<ol style="list-style-type: none"> Confirm receipt of notification of exceedance in writing Remind the Contractor of his contractual obligations and review the Contractor's working methods Discuss remedial actions with the Contractor and IEC, Ensure remedial measures are properly implemented Inform complainant of actions taken, if necessary. 	<ol style="list-style-type: none"> Take immediate action to avoid further exceedance Submit proposals for remedial actions to Engineer and IEC within three working days of notification Discuss and amend remedial actions, if required, by the Engineer and IEC Implement the remedial action (s) immediately upon instruction from the Engineer Discuss with Engineer and IEC, to optimise the effectiveness of the agreed remedial actions
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> Identify source (s) of exceedance and inform IEC, Contractor and Engineer Repeat measurements to confirm findings Increase the monitoring frequency to daily to assess the efficacy of remedial measures and keep the Contractor informed Discuss remedial actions with IEC and Contractor If exceedance continues, arrange meeting with Engineer, IEC and Contractor to review working practices and identify further remedial actions If exceedance stops, inform the Contractor and cease additional monitoring. 	<ol style="list-style-type: none"> Discuss with Contractor and Engineer on possible remedial measures Check and confirm Contractors proposed remedial measures are appropriate Determine the efficacy of remedial actions and keep the Engineer informed 	<ol style="list-style-type: none"> Confirm receipt of notification of exceedance in writing Remind the Contractor of his contractual obligations and review the Contractor's working methods Discuss remedial actions with the Contractor and IEC Ensure remedial measures are properly implemented If exceedance continues, instruct the Contractor to stop the relevant portion of work until the exceedance is abated Inform complainant of actions taken, if necessary. 	<ol style="list-style-type: none"> Rectify any unacceptable practice, if possible Submit proposals for remedial actions to Engineer and IEC within three working days of notification Discuss and amend remedial actions, if required, by the Engineer and IEC Implement the remedial action (s) immediately upon instruction from the Engineer Discuss with Engineer and IEC, to optimise the effectiveness of the agreed remedial actions

Event and Action Plan for Construction Noise				
EVENT	ACTION			
	ET Leader	IEC	Engineer	Contractor
<i>Limit Level</i>				
Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source (s) of exceedance and inform IEC, Contractor and Engineer 2. Repeat dust measurements to confirm findings 3. If repeat measurements confirm exceedance ,increase monitoring frequency to daily 4. Assess efficacy of remedial measures and keep the Contractor, IEC, and Engineer informed 5. If exceedance stops, inform Contractor and cease additional noise monitoring 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET 2. Check monitoring data trends and Contractors working methods 3. Check and confirm Contractors proposed remedial actions and working methods are appropriate 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 2. Remind the Contractor of his contractual obligations and review the Contractor's working methods 3. Discuss remedial actions with the Contractor and IEC 4. Inform complainant of actions taken, if necessary 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice 2. Liaise with Engineer and IEC to develop appropriate remedial measures to reduce noise impact 3. Amend working methods and remedial proposals if required by the Engineer or IEC 4. Implement the agreed remedial actions upon instruction from the Engineer and IEC
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source (s) of exceedance and inform IEC, Contractor and Engineer 2. Repeat measurements to confirm findings 3. Increase the monitoring frequency to daily 4. Discuss remedial actions with IEC, Engineer and the EPD 5. Assess the efficacy of remedial measures and keep the Contractor informed 6. If exceedance continues, arrange meeting with Engineer, IEC and Contractor to review working practices and identify further remedial actions 7. If exceedance stops, inform the Contractor and cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET 2. Check monitoring data trends and Contractors working methods 3. Discuss with Contractor and Engineer on possible remedial measures 4. Check and confirm Contractors proposed remedial measures are appropriate 5. Determine the efficacy of remedial actions and keep the Engineer informed 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing 2. Remind the Contractor of his contractual obligations and review the Contractor's working methods 3. Discuss remedial actions with the Contractor and IEC 4. Ensure remedial measures are properly implemented 5. If exceedance continues, instruct the Contractor to stop the relevant portion of work until the exceedance is abated 6. Inform complainant of actions taken, if necessary. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice, if possible 2. Submit proposals for remedial actions to Engineer and IEC within three working days of notification 3. Discuss and amend remedial actions, if required, by the Engineer and IEC 4. Implement the remedial action (s) immediately upon instruction from the Engineer 5. Discuss with Engineer and IEC, to optimise the effectiveness of the agreed remedial actions 6. Stop the relevant portion of work as determined by the Engineer until the exceedance is abated

ANNEX F

MITIGATION IMPLEMENTATION SCHEDULE

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage**				Relevant Legislation & Guidelines
						Des	C	O	Dec	
CONSTRUCTION PHASE										
3.5	A3	AIR QUALITY - Construction Phase The following measures are enforceable under the <i>Air Pollution Control (Construction Dust) Regulations</i> Use of vehicles • where a vehicle leaving a construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle;	To control potential dust impacts from vehicle movements.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			<i>Part IV, Clause 21, (1), Air Pollution Control (Construction Dust) Regulations</i>
3.5	A4	Power-driven drilling, and cutting • water should be continuously sprayed on the surface where any mechanical breaking operation that causes dust emission is carried out, unless the process is accompanied by the operation of an effective dusty extraction and filtering device;	To control potential dust impacts during mechanical breaking.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			<i>Part IV, Clause 22, Air Pollution Control (Construction Dust) Regulations</i>
4.7.1	B1	NOISE - Construction Phase General Site Clearance – Demolition Works • Use of quiet PME which meet the SWLs taken from British Standard, <i>Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997 (Examples of these PME are shown in Table F2),</i> Sewers and Rising Mains using Open Trench Method	To control potential noise impacts during site clearance and demolition works	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			<i>Annex 5 of EIAO-TM</i>
4.7.1	B3	• Use of quiet PME which meet the SWLs taken from British Standard, <i>Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997,</i>	To control potential noise impacts during excavation works.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			<i>Annex 5 of EIAO-TM</i>
4.7.1	B4	• Use of handheld breakers for all initial road opening activities, when breaking tarmac/concrete road surface to a depth of 300mm or when granular material is reached.	To control potential noise impacts during road opening activities.	Where there are NSRs located within 50m of the line of sight. Throughout the full duration of the road opening activities.	The Contractor		✓			
4.7.1	B5	• Use of movable noise barriers or 3 sided enclosures for all initial road opening activities (breaking tarmac/concrete road surface to a depth of 300mm or when granular material is reached), where there are NSRs located within 50m of the line of sight from the works area.	To control potential noise impacts during road opening activities.	Where there are NSRs located within 50m of the line of sight. Throughout the full duration of the road opening activities.	The Contractor		✓			
4.7.1	B6	Sewers and Rising Mains using Pipe Jacking Method • Use of quiet PME which meet the SWLs taken from British Standard, <i>Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997,</i>	To control potential noise impacts from PME during construction works	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			<i>Annex 5 of EIAO-TM</i>
4.7.1	B7	Road Pavement and Finishes • Use of quiet PME which meet the SWLs taken from British Standard, <i>Noise and Vibration Control on</i>	To control potential noise impacts from PME during pavement and finish works	Site wide and throughout the full duration of the	The Contractor		✓			<i>Annex 5 of EIAO-TM</i>

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage**				Relevant Legislation & Guidelines
						Des	C	O	Dec	
		<i>Construction Open Sites, BS 5228: Part 1: 1997,</i>		construction contract.						
6.6.2	D1	<p>WASTE - Construction Phase The Contractor shall obtain the necessary waste disposal permits from the appropriate authorities for the disposal of chemical and C&D waste,</p> <ul style="list-style-type: none"> Chemical Waste Producer and Chemical Waste Disposal Licence (<i>Waste Disposal (Chemical Waste) (General) Regulations</i>); and Dumping Licence (<i>Land (Miscellaneous Provisions) Ordinance (Cap 28)</i>) 	To monitor the collection, handling and disposal of chemical waste and C&D waste, and in compliance with relevant Hong Kong Standards and Regulations.	Site wide and throughout the full duration of the construction contract.	The Contractor	✓	✓			<i>Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste)(General) Regulation (Cap 354), the Land (Miscellaneous Provisions) Ordinance (Cap 28)</i>
6.6.2	D5	<p><i>Management of Waste Disposal</i> A trip-ticket system should be established which monitors the disposal of C&DM and solid wastes at public filling facilities and landfills and to control fly-tipping, in accordance with <i>Land (Miscellaneous Provisions) Ordinance (Cap28)</i> and the <i>Works Bureau Technical Circular No. 5/99.</i></p> <p><i>Waste Management Plan</i></p>	To monitor the disposal of C&DM and solid wastes at public filling facilities and landfills and to control fly-tipping.	To be implemented at all worksites throughout the full duration of the construction phase.	The Engineer/ Contractor		✓			<i>Land (Miscellaneous Provisions) Ordinance (Cap 295) and Works Bureau Technical Circular No. 5/99.</i>
6.6.1 and 6.6.2	D6	<p>A Waste Management Plan (WMP) should be prepared and this WMP should be submitted to the Engineer for approval.</p> <ul style="list-style-type: none"> Different types of waste should be segregated and stored in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal. An on-site temporary storage area should be provided. A recording system for the amount of wastes generated, recycled and disposal (including the disposal sites) should be proposed. Training should be provided to workers about the concepts of site cleanliness and appropriate waste management procedure, including waste reduction, reuse and recycling. 	To control the disposal of and management of waste.	To be implemented at all worksites throughout the full duration of the construction phase.	The Contractor		✓			<i>Works Bureau Technical Circular No 29/2000-Waste Management Plan</i>
3.7	H1	<p>EM&A REQUIEMENTS - Construction Phase <i>Air Quality</i> Subject to the Environmental Protection Departments (EPDs) agreement, construction phase dust monitoring shall be undertaken at the following locations in accordance with the recommendations of the EIA (NDE).</p> <p><i>Sewer in Au Tau Area (S7)</i></p> <ul style="list-style-type: none"> Worksite boundary near San Yuen Long Centre (AM7) <p>Construction Noise</p>	Installations of the dust monitoring stations to ensure the action and limit levels are not exceeded.	At specified dust monitoring locations for the duration of the construction works.	To be undertaken by the Environmental Team (ET) and reviewed and audited by the Engineer /DSD		✓			<i>Air Pollution Control (Construction Dust) Regulations</i>
4.9.1	I2	Subject to the Environmental Protection Departments (EPDs) agreement, construction phase noise monitoring shall be undertaken at the following locations in accordance with the recommendations of the EIA (NDE).	Installations of the noise monitoring stations to ensure the action and limit levels are not exceeded.	At specified noise monitoring locations throughout the duration of the construction works.	To be undertaken by the Environmental Team (ET) and reviewed and audited by the Engineer					Noise Control Ordinance

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage**				Relevant Legislation & Guidelines
						Des	C	O	Dec	
		<ul style="list-style-type: none"> • (NM3) Sun Yuen Long Centre; • (NM6) Kam Tin San Tsuen; • (NM7) Scattered House at Kam Sheung Road near Kam Tin Shi • and at any additional locations, where considered necessary, in agreement with EPD 								

Des = Design, C = Construction, O = Operation, Dec = Decommissioning

ANNEX G

EQUIPMENT CALIBRATION CERTIFICATES

Equipment Calibration List for DSD Contract No. DE/2005/05 Supply and Installation of E&M Equipments for Nam Sang Wai, Sha Po and Kam Tin Sewage Pumping Stations

Items	Aspect	Description of Equipment	Serial No.	Date of Calibration	Date of Next Calibration
1		Greasby Anderson GMWS2310 High Volume Sampler	0355 (AM5)	02 Jan 09	02 Apr 09
2		Greasby Anderson GMWS2310 High Volume Sampler	10394 (AM6)	02 Jan 09	02 Apr 09
3		Greasby Anderson GMWS2310 High Volume Sampler	1283 (AM7)	14 Feb 09	14 Apr 09
4	Noise	Bruel & Kjaer 4231 Acoustical Calibrator	2326408	22 Apr 08	22 Apr 09
5		Bruel & Kjaer 2238 Integrating Sound Level Meter	2285721	22 Apr 08	22 Apr 09

Note: Calibration certificates will only be provided if monitoring equipment is re-calibrated or new.
*Calibration done in this reporting month, see calibration certificate attached.
**Calibration will be done in next reporting month.

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Sha Po Pumping Station	Date of Calibration: 2-Jan-09
Location ID : AM5	Next Calibration Date: 2-Mar-09
	Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1025.6	Corrected Pressure (mm Hg)	769.2
Temperature (°C)	13.7	Temperature (K)	287

CALIBRATION ORIFICE

Make-> TISCH	Qstd Slope ->
Model-> 515N	1.54431
Serial # -> 355	Qstd Intercept ->
	-0.01988

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.2	5.2	10.4	2.155	50	52.28	Slope = 31.1451 Intercept = -15.0451 Corr. coeff. = 0.9991
13	4.1	4.1	8.2	1.915	43	44.96	
10	3.2	3.2	6.4	1.693	35	36.60	
7	2	2	4	1.341	26	27.19	
5	1.0	1.0	2	0.952	14	14.64	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H20(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

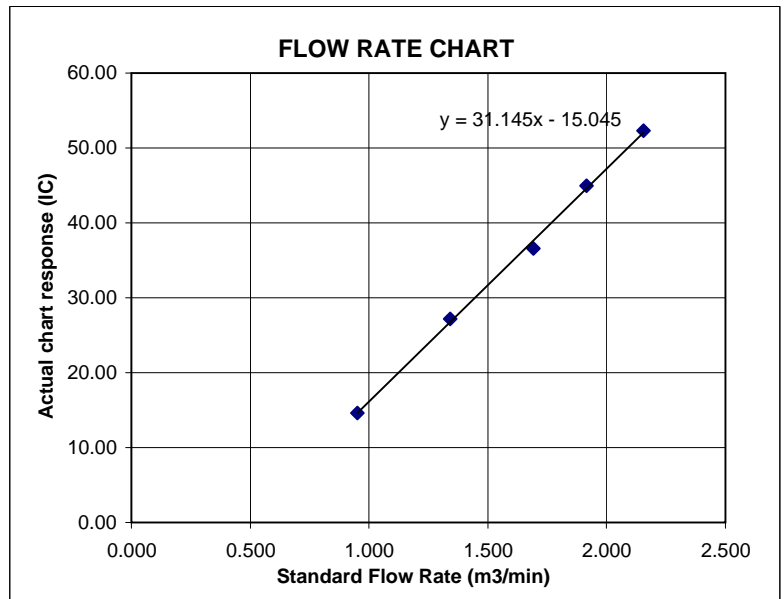
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Tai Hing Car Shop (Scattered House near Route 3) Date of Calibration: 2-Jan-09
 Location ID : AM 6 Next Calibration Date: 2-Mar-09
 Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa) <input style="width: 80px;" type="text" value="1025.6"/>	Corrected Pressure (mm Hg) <input style="width: 80px;" type="text" value="769.2"/>
Temperature (°C) <input style="width: 80px;" type="text" value="13.7"/>	Temperature (K) <input style="width: 80px;" type="text" value="287"/>

CALIBRATION ORIFICE

Make-> <input style="width: 80px;" type="text" value="TISCH"/>	Qstd Slope -> <input style="width: 80px;" type="text" value="1.54431"/>
Model-> <input style="width: 80px;" type="text" value="515N"/>	Qstd Intercept -> <input style="width: 80px;" type="text" value="-0.01988"/>
Serial # -> <input style="width: 80px;" type="text" value="10394"/>	

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	4.6	4.6	9.2	2.027	51	53.33	Slope = 30.9744 Intercept = -9.6477 Corr. coeff. = 0.9988
13	3.3	3.3	6.6	1.719	42	43.92	
10	2.6	2.6	5.2	1.527	35	36.60	
7	1.8	1.8	3.6	1.273	29	30.32	
5	1.0	1.0	2.0	0.952	19	19.87	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H20(Pa/Pstd)(Tstd/Ta))-b]$$

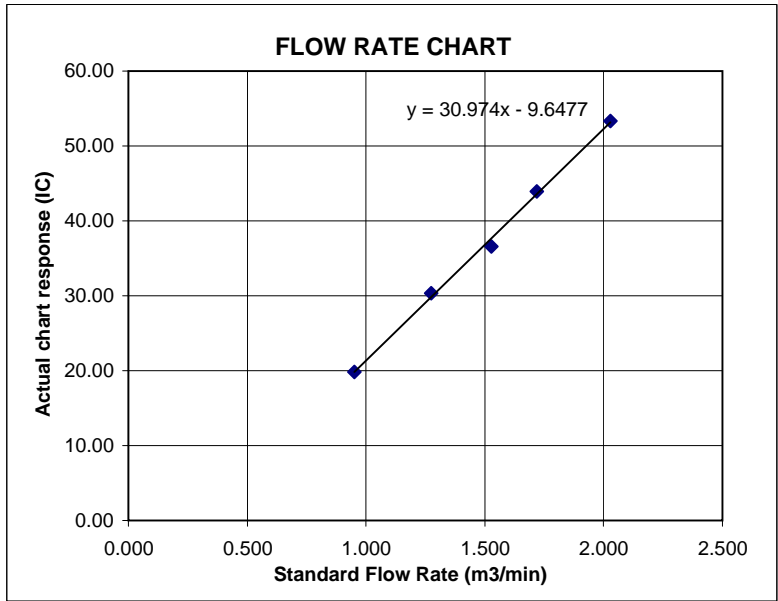
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate
 IC = corrected chart responses
 I = actual chart response
 m = calibrator Qstd slope
 b = calibrator Qstd intercept
 Ta = actual temperature during calibration (deg K)
 Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

m = sampler slope
 b = sampler intercept
 I = chart response
 Tav = daily average temperature
 Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Nam Sang Wai	Date of Calibration: 14-Feb-09
Location ID : AM 7 (Designated)	Next Calibration Date: 14-Apr-09
Serial No: 1283	Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1009.9	Corrected Pressure (mm Hg)	757.425
Temperature (°C)	24.0	Temperature (K)	297

CALIBRATION ORIFICE

Make-> TISCH	Qstd Slope ->
Model-> 515N	1.54431
Serial # -> 0285	Qstd Intercept ->
	-0.01988

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION		
							Slope =	Intercept =	Corr. coeff. =
18	4.7	4.7	9.4	1.998	43	43.07	Slope = 29.4453 Intercept = -16.5301 Corr. coeff. = 0.9976		
13	3.9	3.9	7.8	1.821	37	37.06			
10	3.1	3.1	6.2	1.625	30	30.05			
7	2.1	2.1	4.2	1.340	23	23.04			
5	1.3	1.3	2.6	1.057	15	15.02			

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H20(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

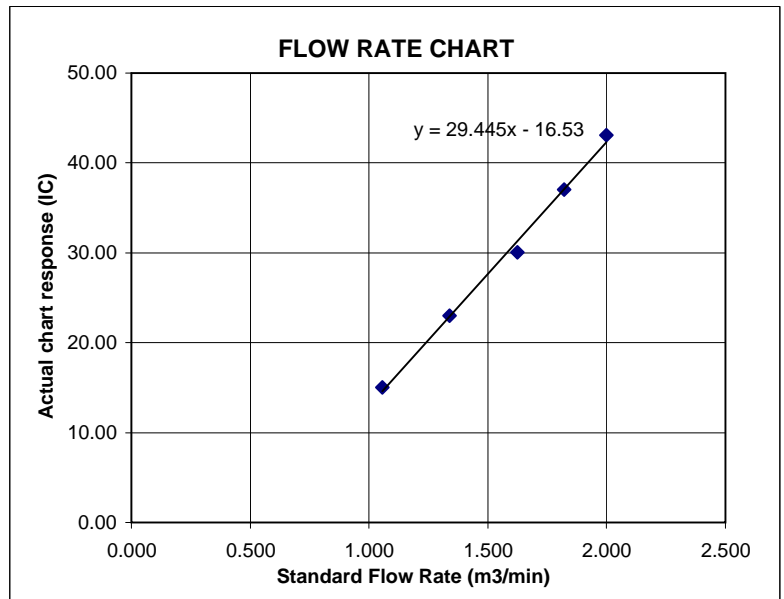
m = sampler slope

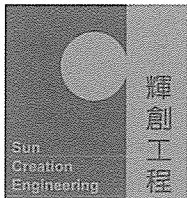
b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure





輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C082037

Certificate of Calibration

This is to certify that the equipment

Description : Integrating Sound Level Meter (EQ010)

Manufacturer : Bruel & Kjaer

Model No. : 2238

Serial No. : 2285721

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C082037.*

The equipment is supplied by

Co. Name : Action-United Environmental Services and Consulting

*Address : Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.*

Date of Issue : 22 April 2008

Certified by :

K/C Lee

The test equipment used for testing are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration and Testing Laboratory of Sun Creation Engineering Limited

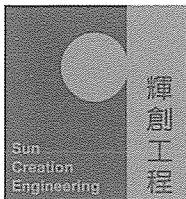
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C082015

Certificate of Calibration

This is to certify that the equipment

Description : Acoustical Calibrator (EQ081)

Manufacturer : Bruel & Kjaer

Model No. : 4231

Serial No. : 2326408

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C082015.*

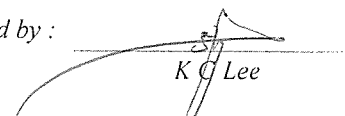
The equipment is supplied by

Co. Name : Action-United Environmental Services and Consulting

*Address : Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.*

Date of Issue : 22 April 2008

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K C Lee

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ANNEX H

**METEOROLOGICAL DATA IN THE REPORTING
MONTH**

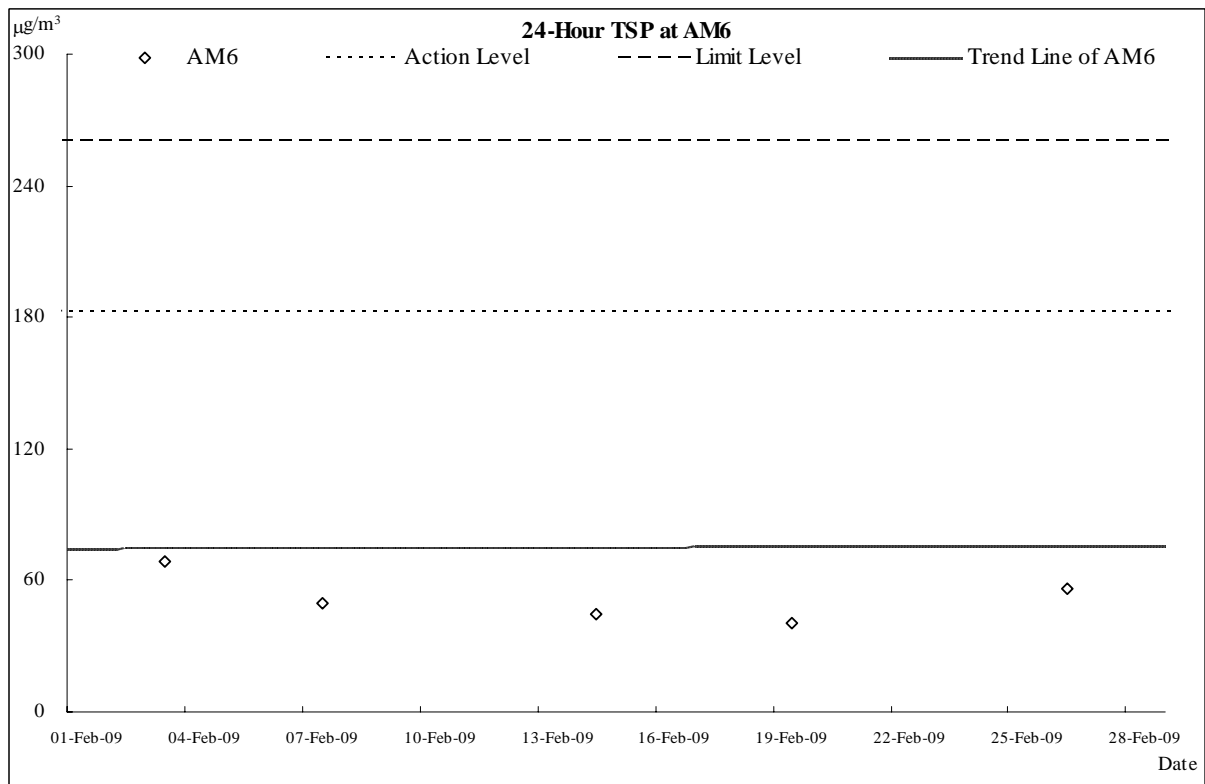
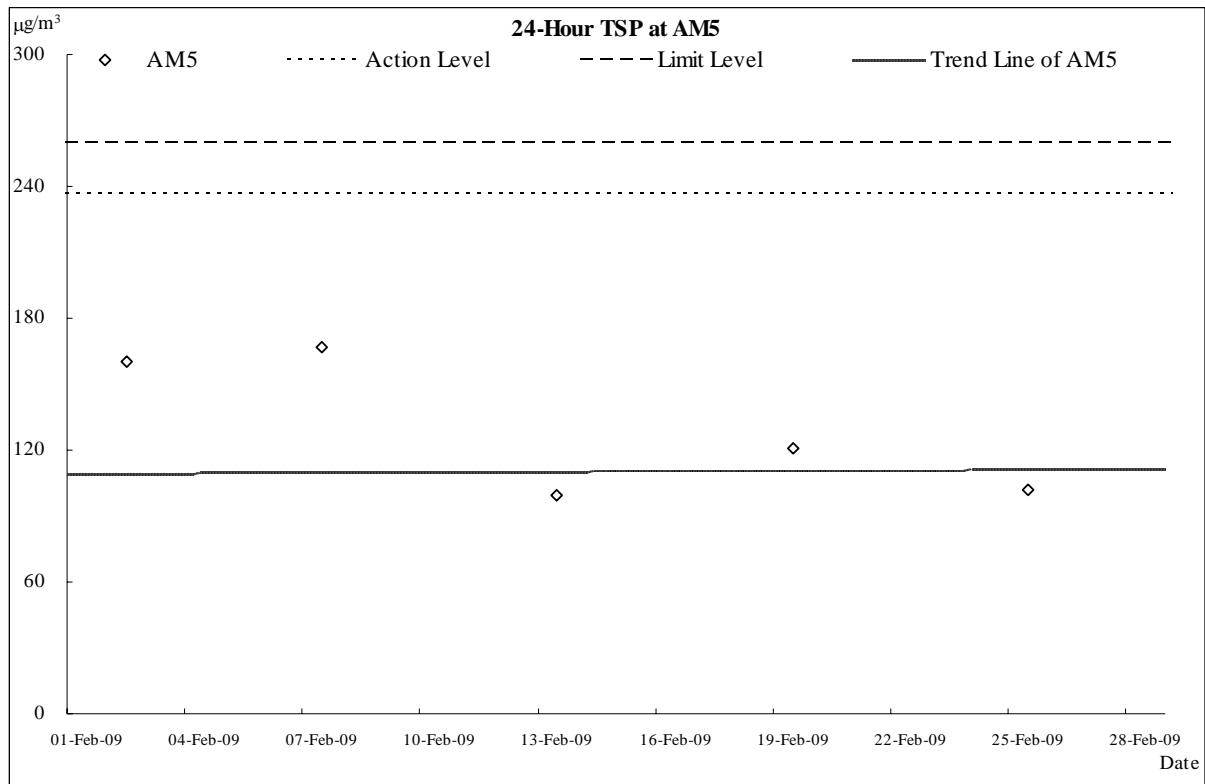
Meteorological Data Extracted From the HK Observatory at Lau Fau Shan Weather Station

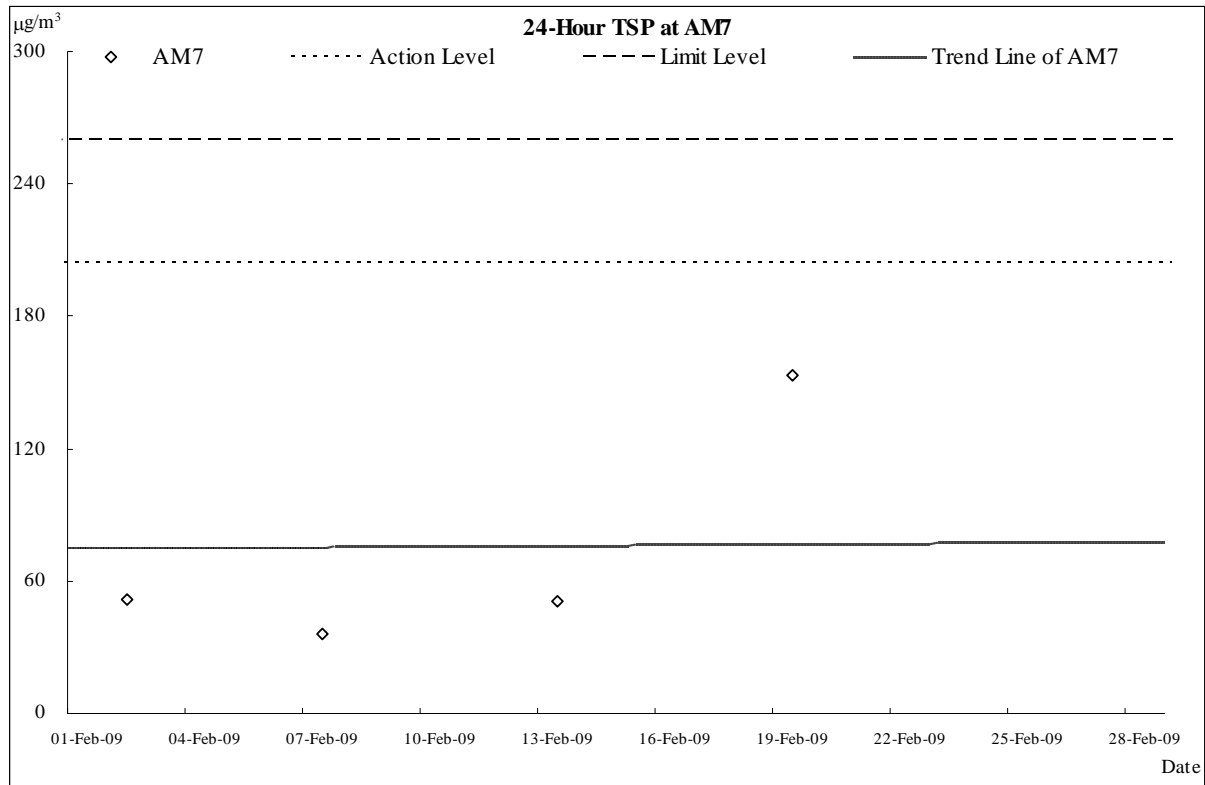
Date		Weather	Lau Fau Shan Weather Station				
			Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
1-Feb-09	Sun	sunny periods/moderate/fresh	Trace	20.4	13.5	57.5	E
2-Feb-09	Mon	fine/moderate	0	20.5	10.5	58.7	E/NE
3-Feb-09	Tue	fine/haze/light winds	0	17.8	13	67.5	E/SE
4-Feb-09	Wed	sunny periods/cloudy/moderate/fresh	0	19.9	11.7	67.2	E/SE
5-Feb-09	Thu	fine/haze/moderate	0	18.3	13.2	68.7	E/NE
6-Feb-09	Fri	fine/moderate/fresh	0	19.5	11.2	73	E/SE
7-Feb-09	Sat	fine/haze/moderate	0	19.7	14.5	68	E/SE
8-Feb-09	Sun	fine/haze/moderate	0	22	10	61	E/SE
9-Feb-09	Mon	fine/moderate/haze	0	20.2	13.5	67.5	E/NE
10-Feb-09	Tue	fine/hazy/moderate/fresh	0	27.3	13.5	67	E/SE
11-Feb-09	Wed	fine/hazy/light winds	0	19.2	10.5	66	E/SE
12-Feb-09	Thu	fine/misty/moderate	0	22.2	15.5	70.5	S/SE
13-Feb-09	Fri	cloudy/warm/sunny intervals/moderate	0	23.9	15.5	68	S/SE
14-Feb-09	Sat	cloudy/rain/fog/moderate	Trace	24.5	16	79.5	S/SE
15-Feb-09	Sun	cloudy/rain/mist/strong	0.1	24.3	18	79	E/NE
16-Feb-09	Mon	Cloudy/rain/mist/fresh/strong	0.06	23.5	14.5	73.5	E
17-Feb-09	Tue	sunny periods/fresh/strong	Trace	20.2	15	68.5	E/NE
18-Feb-09	Wed	sunny periods/cloudy/moderate	Trace	21.5	10.5	63.5	E/NE
19-Feb-09	Thu	cloudy/rain/moderate	0.3	23	13	74.5	E/NE
20-Feb-09	Fri	cloudy/bright/moderate/fresh	Trace	20.9	19	73.5	E/NE
21-Feb-09	Sat	sunny intervals/rain/fresh/strong	Trace	22.6	12	64.5	E/SE
22-Feb-09	Sun	fog/sunny periods/moderate	Trace	24.6	26.5	67	S/SE
23-Feb-09	Mon	cloudy/fog/sunny periods/moderate	0	26	15	72.5	S/SE
24-Feb-09	Tue	cloudy/sunny periods/mist/moderate	Trace	26.7	17	71	S/SE
25-Feb-09	Wed	sunny periods/cloudy/fog/moderate	Trace	25.5	13.5	69.2	S/SE
26-Feb-09	Thu	cloudy/foggy/drizzle/moderate/fresh	0.3	24.8	11.7	73.5	E/SE
27-Feb-09	Fri	cloudy/mist/moderate	Trace	24.1	15.5	72	E
28-Feb-09	Sat	cloudy/rain/moderate/fresh	Trace	22.6	12.7	73.7	E/NE

ANNEX I

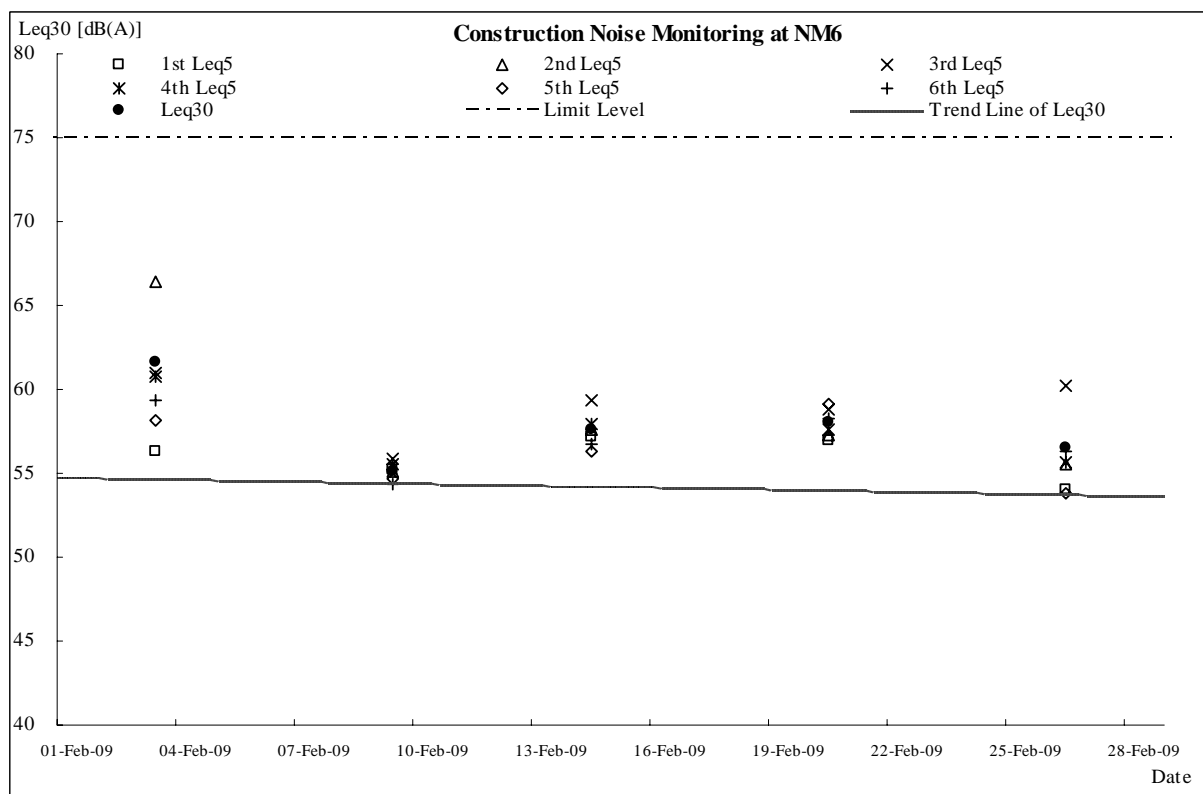
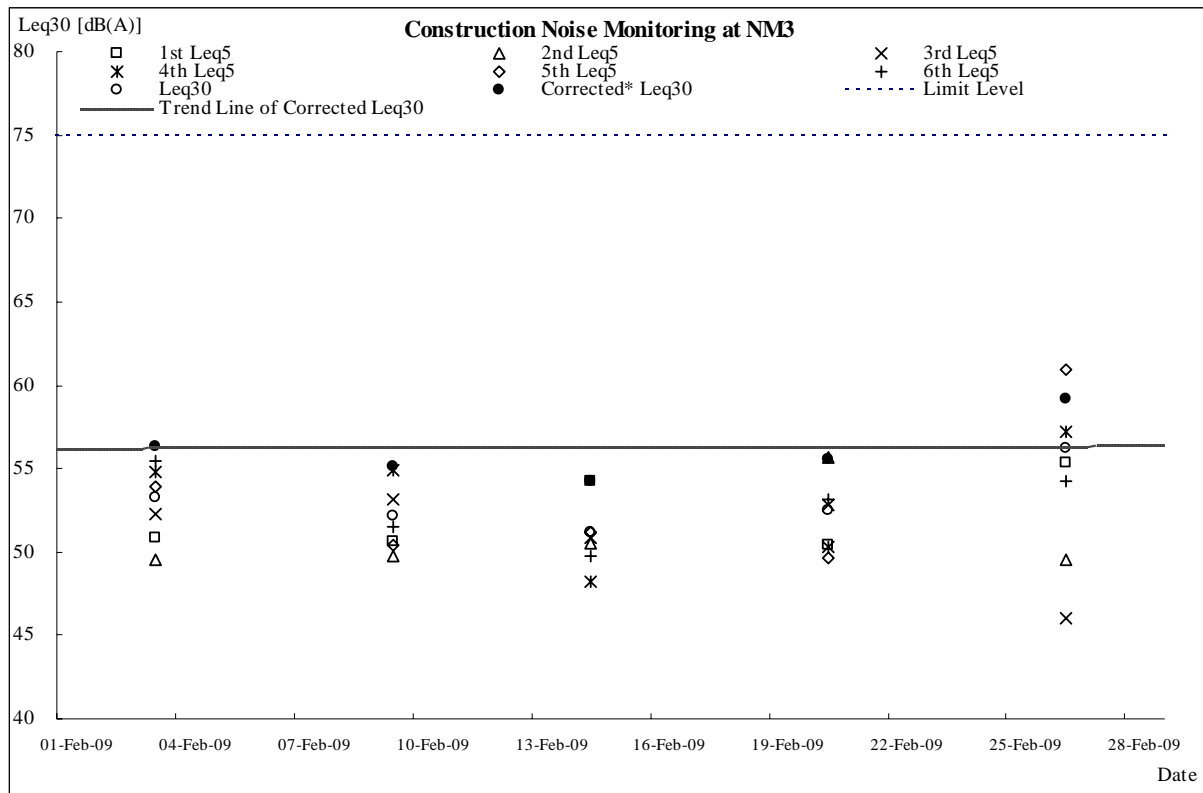
GRAPHICAL PLOTS OF AIR QUALITY AND CONSTRUCTION NOISE MONITORING RESULTS

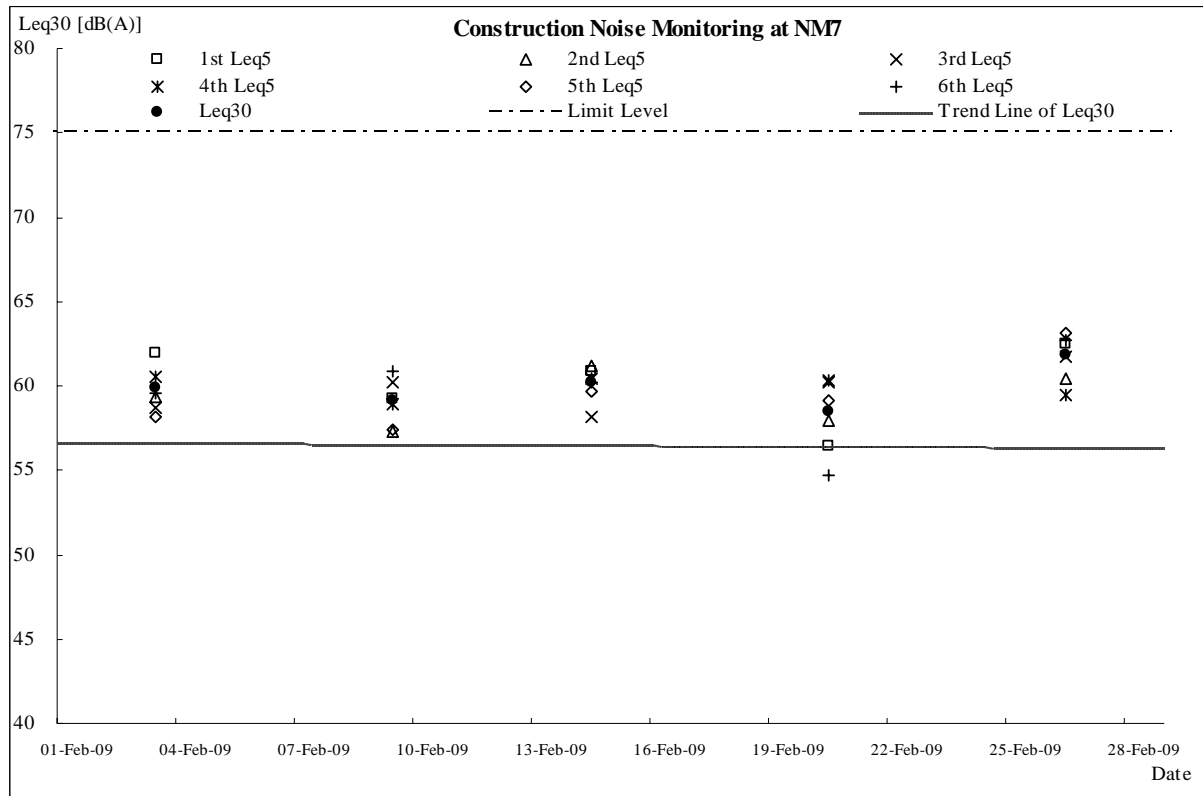
Air Quality Monitoring Results





Construction Noise Monitoring Results





ANNEX J

RESPONSE TO COMMENT

Project: DSD Contract No. DE/2005/05 Supply and Installation of E&M Equipments for Nam Sang Wai, Sha Po and Kam Tin Sewage Pumping Stations

Comment From: IEC [Received from E-mail on 13 March 2009]
Report/Document Monthly Environmental Monitoring and Audit (EM&A) Report for February 2009 (R0009 Revision 1)

Items	Section / Paragraph	Comments	ET's Response
1.	General	It is recommended to state clearly that the EM&A program for this contract follows the EM&A manual for DE/2005/02, rather than giving people an wrong impression that there is a separate EM&A Manual for DE/2005/05.	Relevant section had been amended.
2.	Table 7-3	It is suggested to include a note stating the details of site audits are provided in the EM&A reports under DE/2005/02	Note at Table 7-3 had been amended.