

JOB No.: TCS/00462/08

VERSION No. 2

**DRAINAGE SERVICES DEPARTMENT
CONTRACT NO. DE/2005/05**

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

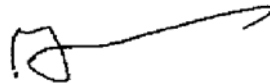
**MONTHLY ENVIRONMENTAL MONITORING &
AUDIT (EM&A) REPORT FOR JULY 2009 (No. 6)**

PREPARED FOR

REC ENGINEERING COMPANY LIMITED

Quality Index

Date	Reference No.	Certified By	Verified By
13 August 2009	TCS00462/08/600/R0023v2	Andrew Lau	Dr. Anne F Kerr



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Version No.	Date	Remarks
1	8 August 2009	First Submission
2	13 August 2009	Amended against IEC's comments received on 13 August 2009

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EXECUTIVE SUMMARY

- ES01. REC 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 accordance 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 Particular Specifications (PS).
- ES02. Action-United Environmental Services and Consulting (AUES) has been commissioned by REC Engineering Company Limited (the Contractor) to be the Environmental Team (ET) to implement the EM&A program throughout the construction period.
- ES03. From the approved 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 (ER) and the Independent Environmental Checker (IEC).
- ES04. This is the **sixth (6th)** Monthly Environmental Monitoring and Audit (EM&A) Report for **July 2009** presenting the EM&A program conducted from **1 to 31 July 2009** for the Contract No.: DE/2005/05. The EM&A program in **July 2009** covered air quality, construction noise and waste management only.

BREACH OF ACTION AND LIMIT (AL) LEVELS

- ES05. No 24-hour TSP monitoring results that triggered the Action and Limit Level were recorded in this month.
- ES06. No construction noise complaint (an Action Level exceedance) or exceedance of the Limit Level was recorded in this month.

COMPLAINT LOG

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

NOTIFICATION OF ANY SUMMONS AND SUCCESSFUL PROSECUTION

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

REPORTING CHANGES

- ES09. There are no changes in the reporting format or content to be reported in this month.

FUTURE KEY ISSUES

- ES10. Construction activities undertaken in this month will continue in **August 2009**. New construction activities included installation of screens at SPSPS and KTSPS and building services installation works at the transformer Room of Nam Sang Wai SPS. It is considered that those activities may potentially induce environmental impacts regarding air quality, construction noise and construction waste. Environmental mitigation measures will be implemented and maintained according to the Mitigation Implementation Schedule.

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1.0 INTRODUCTION

- 1.01 REC 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 forms 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 **six (6th)** Monthly Environmental Monitoring and Audit (EM&A) Report for **July 2009** presenting the EM&A program conducted from **1 to 31 July 2009** for the Contract No.: DE/2005/05. The EM&A program in **July 2009** covered air quality, construction noise and waste management only.

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 THIS MONTH

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

Table 1-1 Construction Activities in this Month

Sewage Pumping Station	Construction Activities in this Month
Nam Sang Wai	<ul style="list-style-type: none"> Installation of lifting appliances and switchboard
Sha Po	<ul style="list-style-type: none"> Installation of building services, fire services, penstocks, deodorization units, pipeworks and valves, actuators, screens
Kam Tin	<ul style="list-style-type: none"> Installation of building services, fire services, penstocks, deodorization units, pipeworks and valves, actuators, screens

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, COMPLAINT, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS
SECTION 7	OTHERS

2.0 ENVIRONMENTAL STATUS

WORK UNDERTAKEN IN THIS MONTH WITH ILLUSTRATIONS

- 2.01 A summary of the work undertaken in this month with illustrations and environmental mitigation measures implemented is shown in [Table 2-1](#).

Table 2-1 Works Undertaken and 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"> 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 	H1 I1 & I2 D5
Sha Po	<ul style="list-style-type: none"> Installation of lifting appliance Building services Fire services Pipework and valves Penstocks installation Ventilation system 	<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"> Installation of lifting appliance Building services Fire services Pipework and valves Penstocks installation Ventilation system 	<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 The monitoring points: 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) as agreed by the Engineer's Representative (ER) and the Independent Environmental Checker (IEC). Locations of the monitoring stations and description are summary in the [Table 2-2](#).

Table 2-2 Description of 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 During this month, impact monitoring was carried out at three designated air stations and three noise monitoring locations 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 as the key monitoring parameters during the construction phase 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 Issue	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 the potential impacts arising from the construction of the project. The environmental implementation mitigation schedule is shown in [Annex F](#).

ENVIRONMENTAL REQUIREMENTS IN CONTRACT DOCUMENTS

- 3.06 The environmental requirements in the contract documents conform to the requirements 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 during this month is presented in [Table 4-1](#).

Table 4-1 Status of Environmental Licenses and Permits

Item	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 complies with the PS 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 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

Issue	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. No HVAS was required calibration in this month, monitoring equipment of HVS and sound level meter were required to calibrate in next month. Updated calibration 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 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 24-hour TSP impact 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 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. A total of **18** monitoring events were carried out in this month.

MONITORING RESULTS AND SCHEDULE

5.18 Monitoring results in this month for air quality and construction noise were summarized in **Tables 5-3 to 5-6**.

5.19 No 24-hour TSP monitoring result trigger the Action and Limit Level was recorded in this month. Power failure occurred at AM5 on 18 July 2009, AM6 on 13 July 2009 and at AM7 on 18 and 31 July 2009. Subsequent monitoring for made up the lost sample were conducted on 14 and 20 July 2009. However for sample of AM7 on 30 July, power was not rectified until 4 August 2009. Thus we consider subsequent monitoring for 30 July 2009 was not necessary.

Table 5-3 Summary of Air Quality Monitoring Results

Date	24-hour TSP ($\mu\text{g}/\text{m}^3$)		
	AM5	AM6	AM7
7-Jul-09	122	52	24
13-Jul-09	78	31 (14-Jul-09)*	23
18-Jul-09	63 (20-Jul-09)*	147	25 (20-Jul-09)*
24-Jul-09	38	36	16
30-Jul-09	43	22	Power failure
Average (Range)	69 (38-122)	58 (22-147)	22 (16-25)
Action / Limit	> 237 / >260	> 183 / >260	> 204 / >260

Notes: All 24-hour TSP monitoring were preset to start at 00:00 on each monitoring date.

Bold and italic denotes exceedance of the Action Level.

Bold and underlined denotes exceedance of the Limit Level.

* Monitoring date for made up the lost sample.

5.20 No construction noise complaint (Action Level) was received and no construction noise monitoring above the Limit Level was recorded in this 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
02-Jul-09	11:30	45.1	46.4	45.7	44.3	47.6	46.5	46.1	49.1
08-Jul-09	09:45	53.9	47.6	50.9	50.1	48.9	46.7	50.4	53.4
14-Jul-09	10:00	53.4	52.6	43.9	49.3	52.9	51.4	51.5	54.5
20-Jul-09	10:40	55.6	59.5	57.5	56.5	53.3	53.3	56.5	59.5
25-Jul-09	09:45	55.0	56.7	57.2	56.9	54.8	55.3	56.1	59.1
31-Jul-09	11:14	55.5	55.5	55.2	47.4	52.6	53.3	54.0	57.0
Limit Level									75

Notes: * 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
02-Jul-09	11:25	61.3	64.1	66.3	61.4	67.7	64.8	64.9
08-Jul-09	11:27	52.2	52.5	52.6	51.5	52.0	55.5	52.9
14-Jul-09	11:29	57.1	55.9	64.1	54.9	55.2	56.6	58.8
20-Jul-09	11:30	55.6	56.1	57.2	55.2	55.9	56.4	56.1
25-Jul-09	11:26	56.4	55.5	54.7	53.9	54.9	55.1	55.2
31-Jul-09	11:28	55.1	54.7	55.8	57.7	56.1	55.0	55.9
Limit Level								75

Notes: * 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
2-Jul-09	09:00	51.3	50.9	48.8	47.9	47.4	46.5	49.2
8-Jul-09	09:05	57.3	56.1	63.3	64.3	64.3	56.7	61.7
14-Jul-09	09:00	52.9	53.2	53.9	55.2	54.7	53.8	54.0
20-Jul-09	09:45	52.9	52.4	55.1	56.4	52.8	53.5	54.1
25-Jul-09	09:05	57.4	56.8	57.0	56.1	56.1	57.6	56.9
31-Jul-09	10:17	52.9	53.1	53.6	54.6	58.0	56.1	55.1

Limit Level	75
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Note: * Noise monitoring was undertaken at the façade, correction was not necessary.

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

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

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

✓	Monitoring Day
	Sunday or Public

WEATHER CONDITIONS DURING THE MONITORING MONTH

5.22 The meteorological data during the monitoring date are summarized in **Annex H**.

GRAPHICAL PLOTS OF TRENDS OF MONITORED PARAMETERS

5.23 The graphical plots of air quality and construction noise data are presented in **Annex I**.

WEATHER CONDITIONS THAT AFFECT THE MONITORING RESULTS

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

OTHER FACTORS INFLUENCING THE MONITORING RESULTS

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

QA/QC RESULTS AND DETECTION LIMITS

5.26 Not applicable.

6.0 REPORT ON NON-COMPLIANCE, COMPLAINTS, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS

RECORD OF NON-COMPLIANCE OF ACTION AND LIMIT LEVELS

6.01 No 24-hour TSP monitoring results that triggered the Action or Limit Level was recorded in this month.

6.02 No construction noise complaint or monitoring noise level that exceeded the Limit Level was recorded in this month.

RECORD OF ENVIRONMENTAL COMPLAINTS RECEIVED

6.03 There was no environmental complaint received in this month.

RECORD OF NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTION

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

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

6.05 No complaints or notification of summons was received in this month.

DESCRIPTION OF FOLLOW-UP ACTIONS TAKEN

6.06 As mentioned in Section 6.05, no non-compliance, complaints or notification of summons was received in this month. Therefore, no follow-up action was needed. The Contractor was reminded to implement the environmental mitigation measures presented in **Table 2-1** as necessary.

7.0 OTHERS

FUTURE KEY ISSUES

7.01 Construction activities undertaken in **August 2009** include Installation of building services, fire services, penstocks, deodorization units, pipeworks and valves, actuators, screens at both Sha Po and Kam Tin SPSs and Installation of lifting appliances and switchboard, Installation of deodorization units, pipeworks and valves, penstocks and ventilation system at Nam Sang Wai 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 that site environmental performance is acceptable.

SOLID AND LIQUID WASTE MANAGEMENT STATUS

7.02 The quantities of waste for disposal or reuse 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 recorded in this month.

ENVIRONMENTAL INSPECTION AND AUDIT

7.04 Representatives of the Engineer, the Contractor and the ET carried out regular weekly site inspection on **2, 7, 14, 21 and 28 July 2009** to evaluate the site environmental performance. No non-compliance or observation was found in this month.

7.05 Summary of observations during the site inspection in this month are presented in **Table 7-3**.

Table 7-3 Summary of the Site Observations

Inspection Date	Inspection/Audit Findings and Recommendation	Rectified on
2 July 2009	NA	NA
7 July 2009	NA	NA
14 July 2009	General refuse shall be disposed regularly.	NA
21 July 2009	NA	NA
28 July 2009	NA	NA

Note: * Joint IEC Monthly Site Audit. Please refer to DC/2005/02 Monthly EM&A Report (Designated Element) for details of the site audit.

ANNEX A

PROJECT SITE LAYOUT

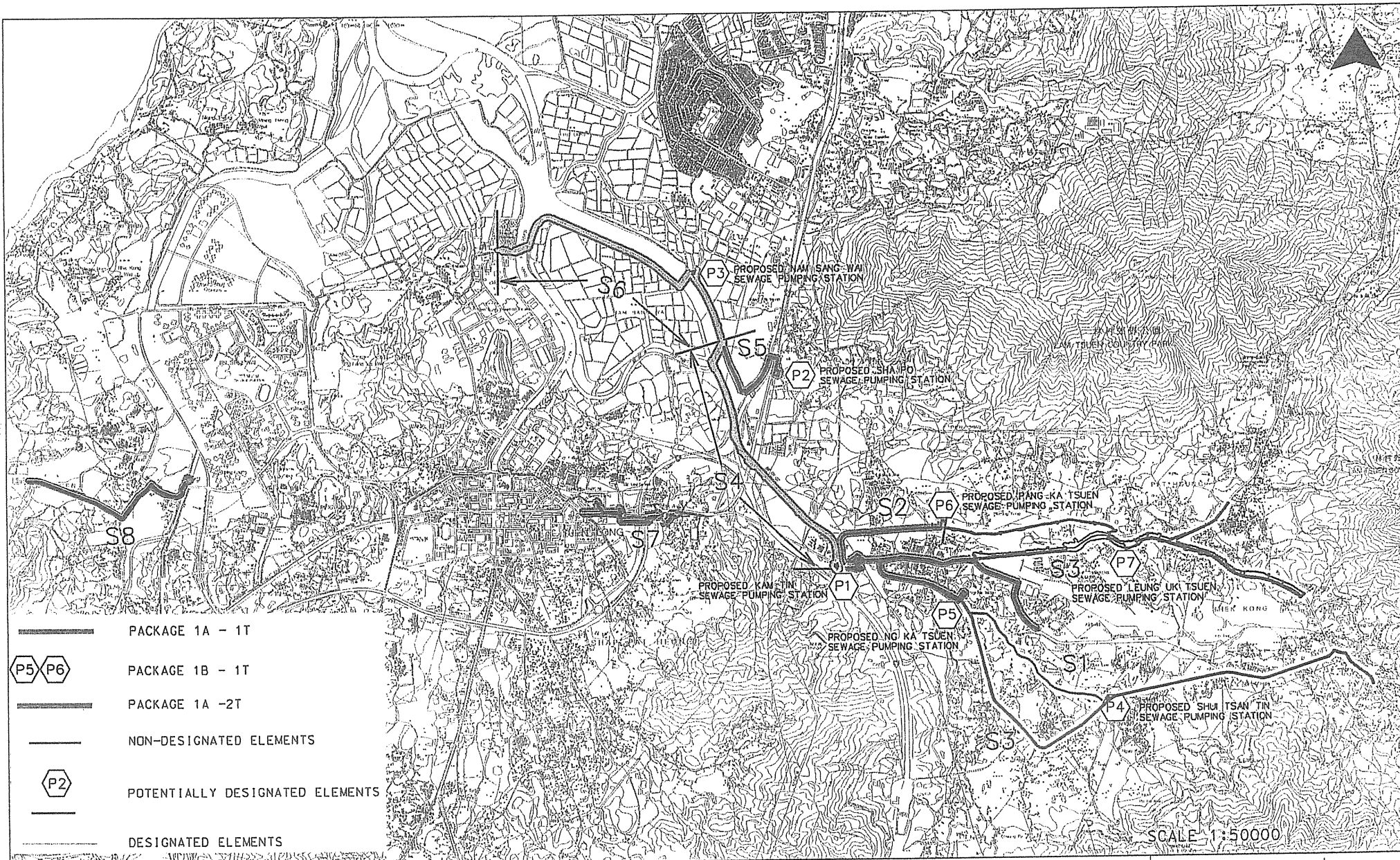


FIGURE 2.1a

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

Environmental
Resources
Management

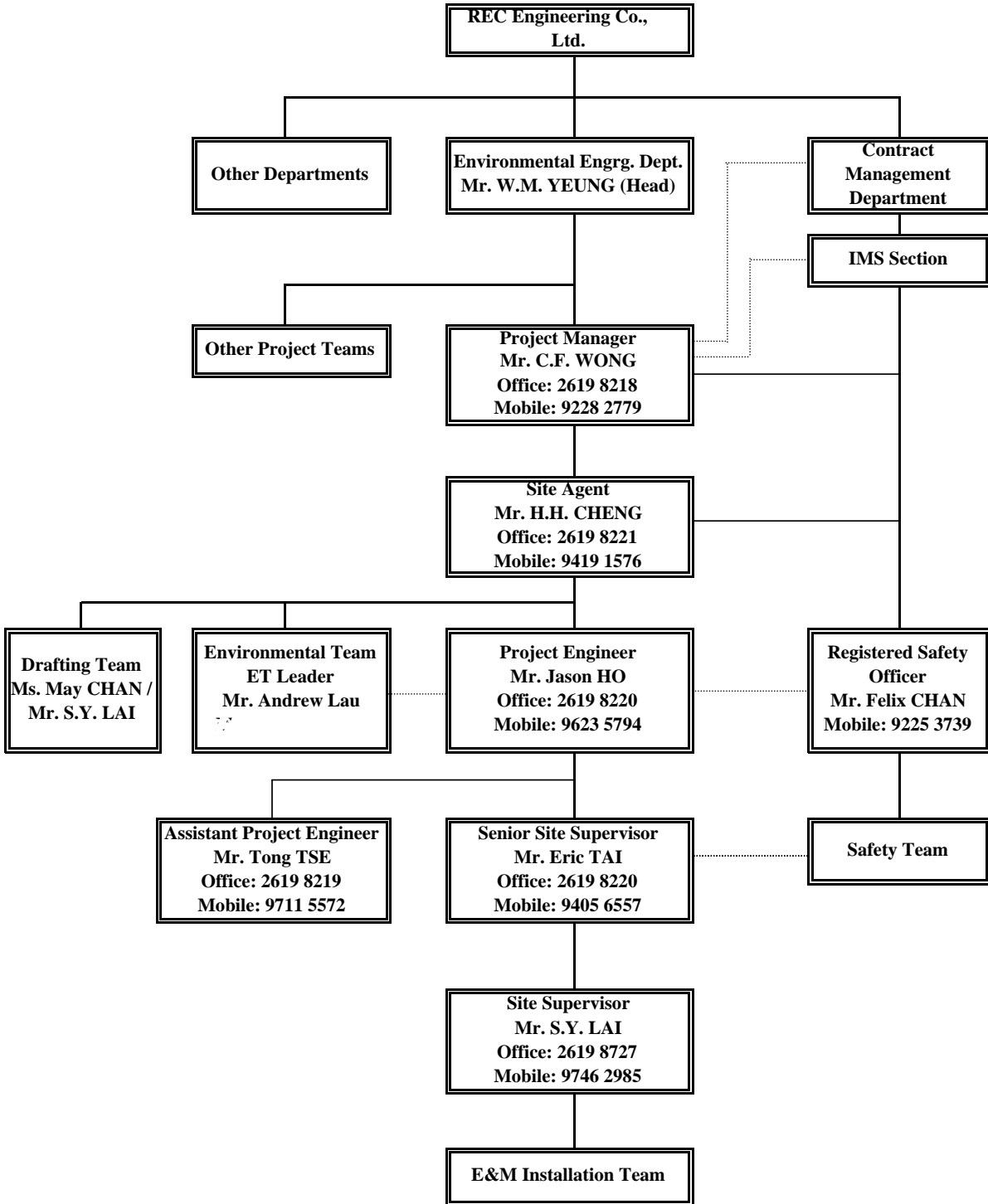


ANNEX B

**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

CONSTRUCTION PROGRAM

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	Apr	May	
42	Building Services and Electrical Services Equipment	240 days	Wed 22/11/06	Thu 19/7/07	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]				
43	Fire Services Equipment	240 days	Wed 22/11/06	Thu 19/7/07	[Gantt bar]												[Gantt bar]												[Gantt bar]												[Gantt bar]				
44																																													
45	Application of CLP Power Supply	0 days	Tue 27/3/07	Tue 27/3/07													■ 27/3																												
46	Application of Telephone Line	0 days	Tue 27/3/07	Tue 27/3/07													■ 27/3																												
47																																													
48	Equipment Delivery	437 days	Thu 8/5/08	Sat 18/7/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
49	Penstock and Actuator	30 days	Thu 18/12/08	Fri 16/1/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
50	Main sewage pump and VFD	30 days	Thu 8/5/08	Fri 6/6/08													[Gantt bar]												[Gantt bar]												[Gantt bar]				
51	Inlet Coarse Screen	30 days	Thu 22/1/09	Fri 20/2/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
52	Deodourising System	30 days	Fri 19/6/09	Sat 18/7/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
53	Lifting Appliance	30 days	Fri 19/6/09	Sat 18/7/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
54	Pipework and Valve	30 days	Wed 20/8/08	Thu 18/9/08													[Gantt bar]												[Gantt bar]												[Gantt bar]				
55	Measuring Instrument	30 days	Fri 19/6/09	Sat 18/7/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
56	LV Switchboard	30 days	Fri 19/6/09	Sat 18/7/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
57	MACS, Telemetry and CCTV	30 days	Fri 19/6/09	Sat 18/7/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
58	Ventilation Fans	30 days	Wed 29/10/08	Thu 27/11/08													[Gantt bar]												[Gantt bar]												[Gantt bar]				
59	Building Services and Electrical Services Equipment	30 days	Fri 19/6/09	Sat 18/7/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
60	Fire Services Equipment	30 days	Fri 19/6/09	Sat 18/7/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
61																																													
62	Submission of Form 314 for Fire Services	0 days	Mon 4/1/10	Mon 4/1/10																																					■ 4/1				
63																																													
64	1st stage Site Take Over Date for Section 2	0 days	Wed 13/5/09	Wed 13/5/09																									■ 13/5																
65	Site Installation at CLP Tx Room	45 days	Wed 13/5/09	Fri 26/6/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
66																																													
67	2nd stage Site Take Over Date for Section 2	0 days	Fri 26/6/09	Fri 26/6/09																									■ 26/6																
68	Site Installation at Other Locations	165 days	Fri 26/6/09	Mon 7/12/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
69	Penstock and Actuator	60 days	Mon 10/8/09	Thu 8/10/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
70	Main sewage pump and VFD	30 days	Thu 24/9/09	Fri 23/10/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
71																																													
72	Inlet Coarse Screen	30 days	Mon 10/8/09	Tue 8/9/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
73	Deodourising System	60 days	Thu 10/9/09	Sun 8/11/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
74	Lifting Appliance	45 days	Fri 26/6/09	Sun 9/8/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
75	Pipework and Valve	45 days	Mon 10/8/09	Wed 23/9/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
76	Measuring Instrument	45 days	Mon 12/10/09	Wed 25/11/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
77	LV Switchboard	60 days	Fri 26/6/09	Mon 24/8/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
78	MACS, Telemetry and CCTV	60 days	Mon 5/10/09	Thu 3/12/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
79	Ventilation Fans and air ducts	60 days	Mon 5/10/09	Thu 3/12/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
80	Building Services and Electrical Services Equipment	120 days	Mon 10/8/09	Mon 7/12/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
81	Fire Services Equipment	120 days	Mon 10/8/09	Mon 7/12/09													[Gantt bar]												[Gantt bar]												[Gantt bar]				
82																																													
83	Tentative CLP Electricity Energisation	0 days	Mon 5/10/09	Mon 5/10/09																									■ 5/10																

Date: 24/4/2009

█ Task Progress
 Summary
 Rolled Up Split
 Rolled Up Progress
 Project Summary
 Deadline
 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	Apr	May	
210	Main sewage pump and VFD	240 days	Wed 22/11/06	Thu 19/7/07	[Blue bar]												[Blue bar]												[Blue bar]												[Blue bar]				
211	Inlet Coarse Screen	240 days	Wed 22/11/06	Thu 19/7/07	[Blue bar]												[Blue bar]												[Blue bar]												[Blue bar]				
212	Deodourising System	240 days	Wed 22/11/06	Thu 19/7/07	[Blue bar]												[Blue bar]												[Blue bar]												[Blue bar]				
213	Lifting Appliance	240 days	Wed 22/11/06	Thu 19/7/07	[Blue bar]												[Blue bar]												[Blue bar]												[Blue bar]				
214	Pipework and Valve	240 days	Wed 22/11/06	Thu 19/7/07	[Blue bar]												[Blue bar]												[Blue bar]												[Blue bar]				
215	Measuring Instrument	240 days	Wed 22/11/06	Thu 19/7/07	[Blue bar]												[Blue bar]												[Blue bar]												[Blue bar]				
216	LV Switchboard	240 days	Wed 22/11/06	Thu 19/7/07	[Blue bar]												[Blue bar]												[Blue bar]												[Blue bar]				
217	MACS, Telemetry and CCTV	240 days	Wed 22/11/06	Thu 19/7/07	[Blue bar]												[Blue bar]												[Blue bar]												[Blue bar]				
218	Ventilation Fans	240 days	Wed 22/11/06	Thu 19/7/07	[Blue bar]												[Blue bar]												[Blue bar]												[Blue bar]				
219	Building Services and Electrical Services Equipment	240 days	Wed 22/11/06	Thu 19/7/07	[Blue bar]												[Blue bar]												[Blue bar]												[Blue bar]				
220	Fire Services Equipment	240 days	Wed 22/11/06	Thu 19/7/07	[Blue bar]												[Blue bar]												[Blue bar]												[Blue bar]				
221																																													
222	Application of CLP Power Supply	0 days	Tue 27/3/07	Tue 27/3/07																																					■ 27/3				
223	Application of Telephone Line	0 days	Tue 27/3/07	Tue 27/3/07																																					■ 27/3				
224																																													
225	Equipment Delivery	358 days	Fri 30/5/08	Fri 22/5/09																									[Black bar]																
226	Penstock and Actuator	30 days	Mon 9/2/09	Tue 10/3/09																									[Blue bar]																
227	Main sewage pump and VFD	30 days	Fri 30/5/08	Sat 28/6/08													[Blue bar]																												
228	Inlet Coarse Screen	30 days	Tue 1/7/08	Wed 30/7/08													[Blue bar]																												
229	Deodourising System	30 days	Wed 19/11/08	Thu 18/12/08																									[Blue bar]																
230	Lifting Appliance	30 days	Thu 5/3/09	Fri 3/4/09																									[Blue bar]																
231	Pipework and Valve	30 days	Wed 20/8/08	Thu 18/9/08													[Blue bar]																												
232	Measuring Instrument	30 days	Thu 23/4/09	Fri 22/5/09																									[Blue bar]																
233	LV Switchboard	30 days	Thu 23/4/09	Fri 22/5/09																									[Blue bar]																
234	MACS, Telemetry and CCTV	30 days	Thu 23/4/09	Fri 22/5/09																									[Blue bar]																
235	Ventilation Fans	30 days	Wed 29/10/08	Thu 27/11/08													[Blue bar]																												
236	Building Services and Electrical Services Equipment	30 days	Sat 7/2/09	Sun 8/3/09																									[Blue bar]																
237	Fire Services Equipment	30 days	Sat 7/2/09	Sun 8/3/09																									[Blue bar]																
238																																													
239	Submission of Form 314 for Fire Services	0 days	Fri 4/9/09	Fri 4/9/09																																					■ 4/9				
240																																													
241	1st stage Site Take Over Date for Section 4	0 days	Sat 7/2/09	Sat 7/2/09																									[Blue bar]												■ 7/2				
242	Site Installation at CLP Tx Room	45 days	Sat 7/2/09	Mon 23/3/09																									[Blue bar]																
243																																													
244																																													
245																																													
246	2nd stage Site Take Over Date for Section 4	0 days	Wed 25/3/09	Wed 25/3/09																									[Blue bar]												■ 25/3				
247	Site Installation at Other Locations	144 days	Thu 26/3/09	Sun 16/8/09																									[Black bar]																
248	Penstock and Actuator	60 days	Mon 20/4/09	Thu 18/6/09																									[Blue bar]																
249																																													
250	Main sewage pump and VFD	30 days	Wed 27/5/09	Thu 25/6/09																									[Blue bar]																
251																																													

Date: 24/4/2009

Task [Blue bar] Progress [Black bar] Summary [Grey bar] Rolled Up Split [Blue bar] Rolled Up Progress [Black bar] Project Summary [Grey bar] Deadline [Green bar]

Split [Blue bar] Milestone [Black bar] Rolled Up Task [Grey bar] Rolled Up Milestone [Blue bar] External Tasks [Black bar] External Milestone [Grey bar]

ANNEX D

LOCATION OF MONITORING STATIONS



FIGURE 3.7b

LOCATION OF DUST MONITORING STATION (AM5)

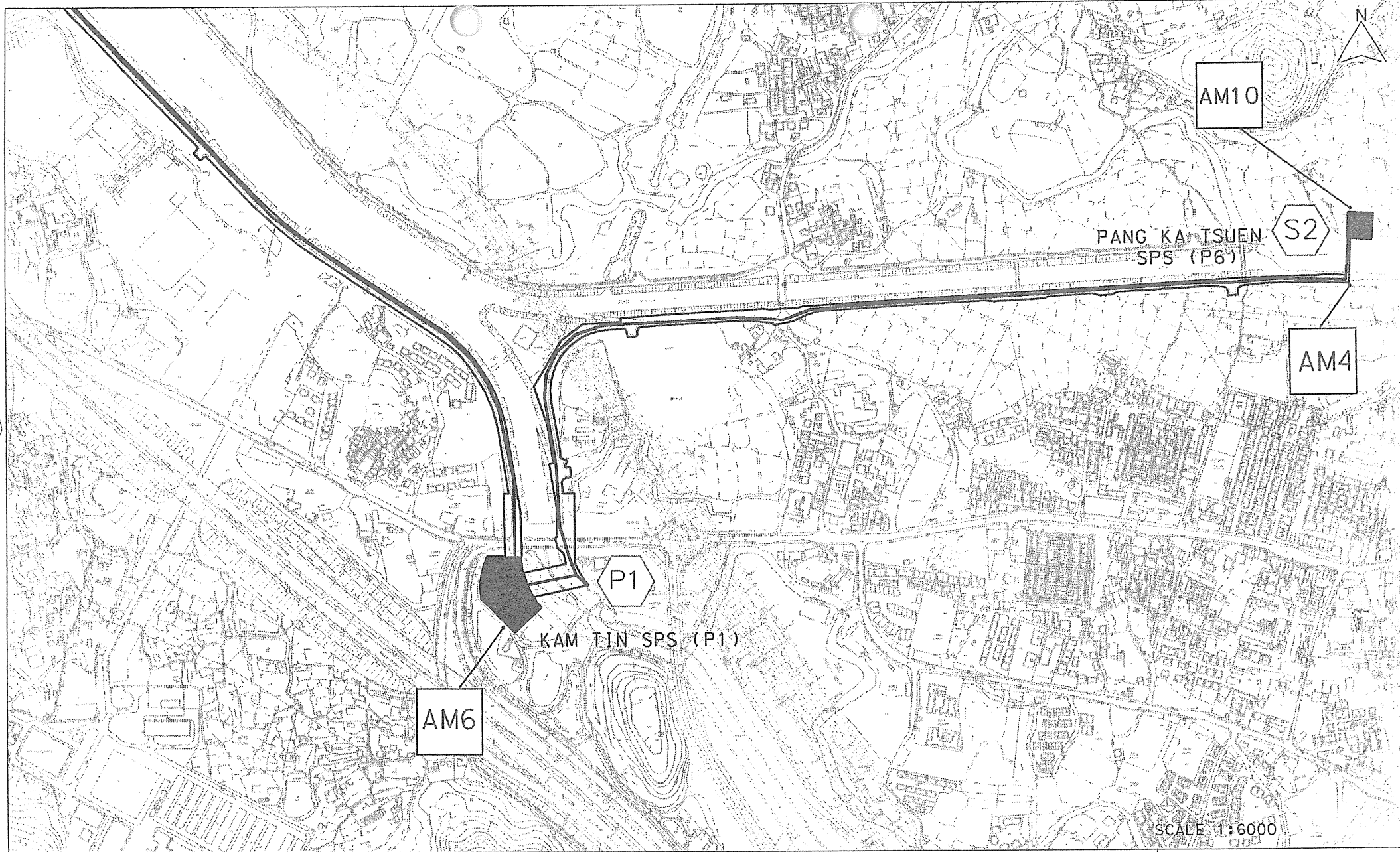


FIGURE 3.7a

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

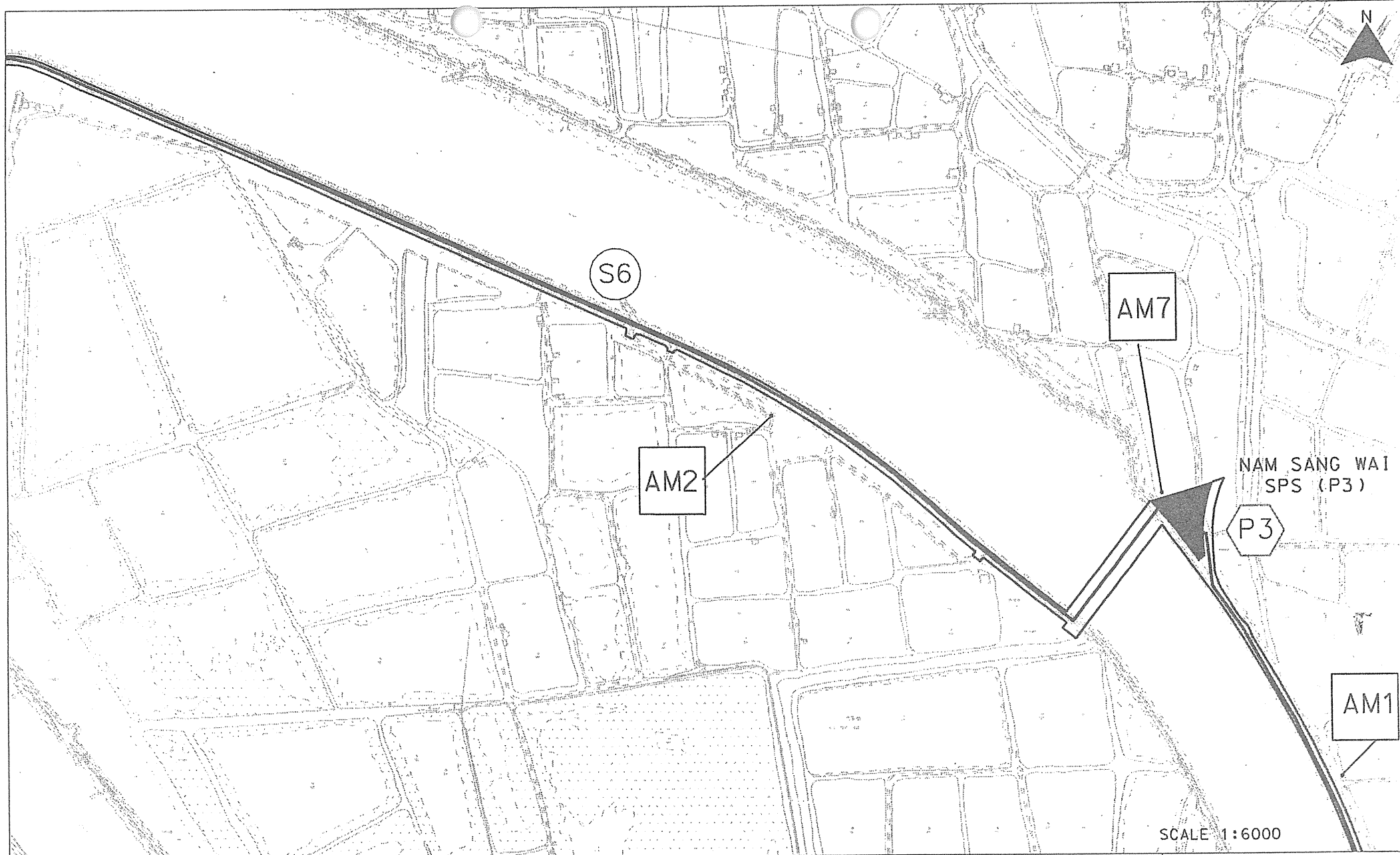


FIGURE 3.7c

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

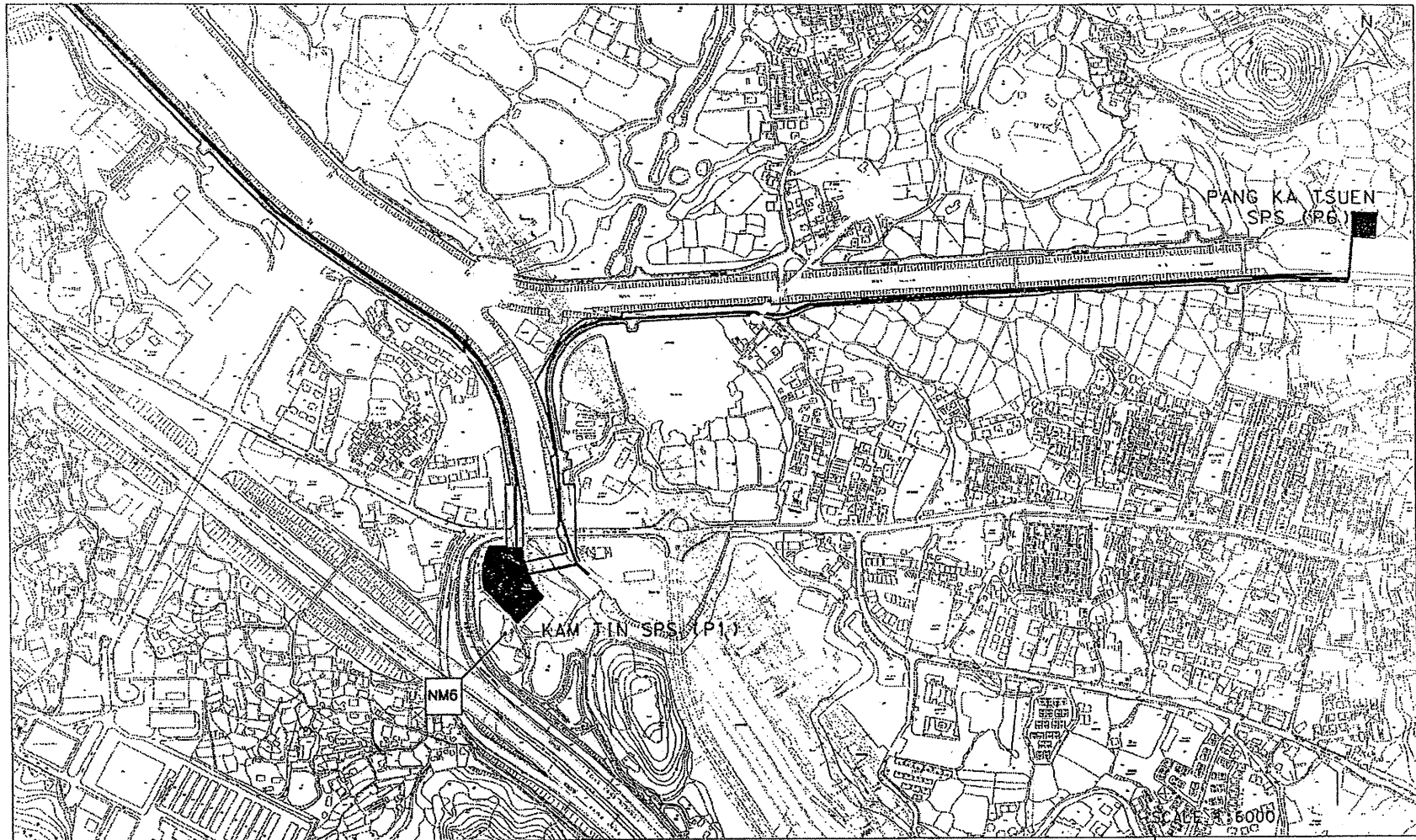


FIGURE C7

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

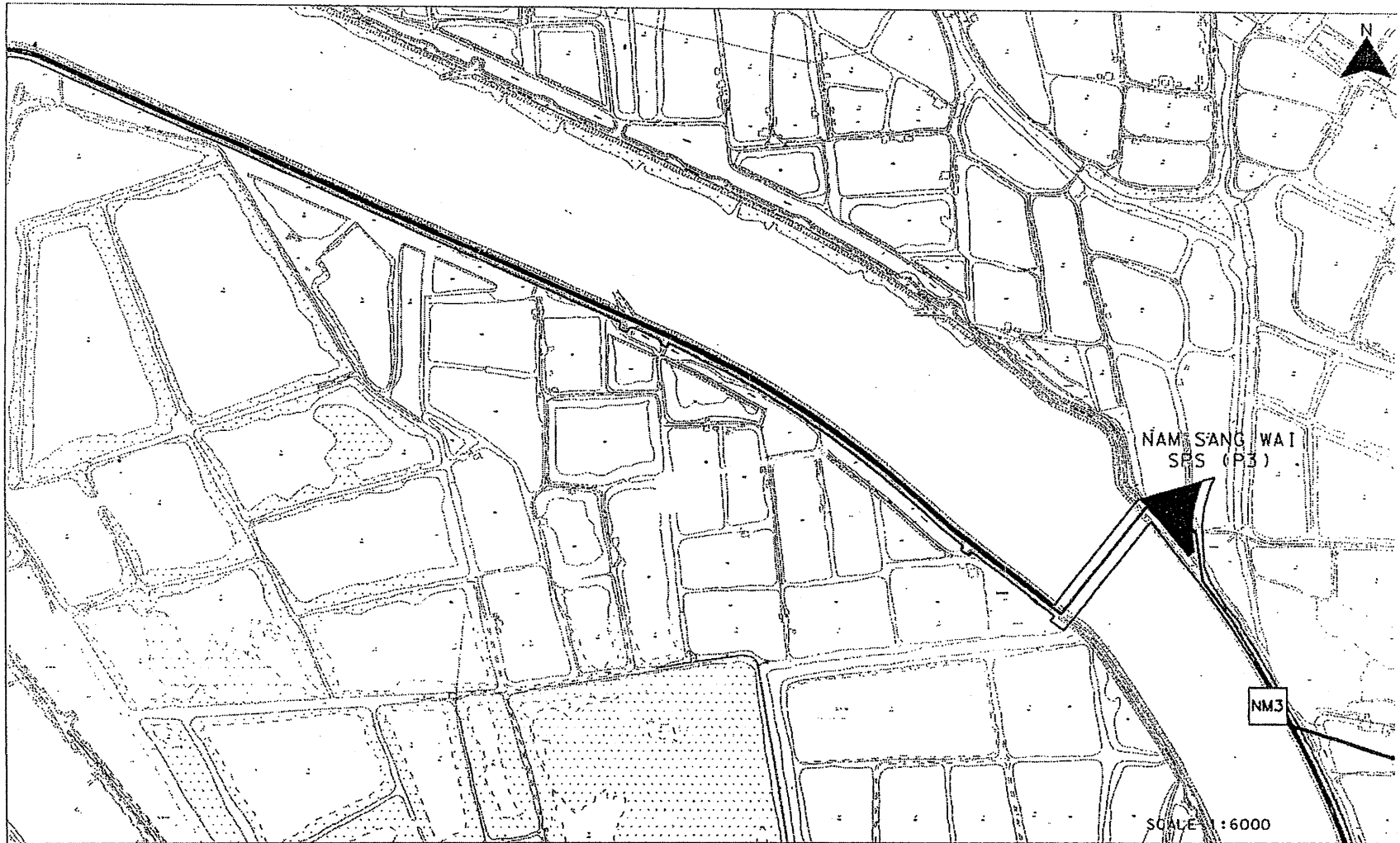


FIGURE C8

LOCATION OF NOISE MONITORING STATIONS (NM3, NM5)

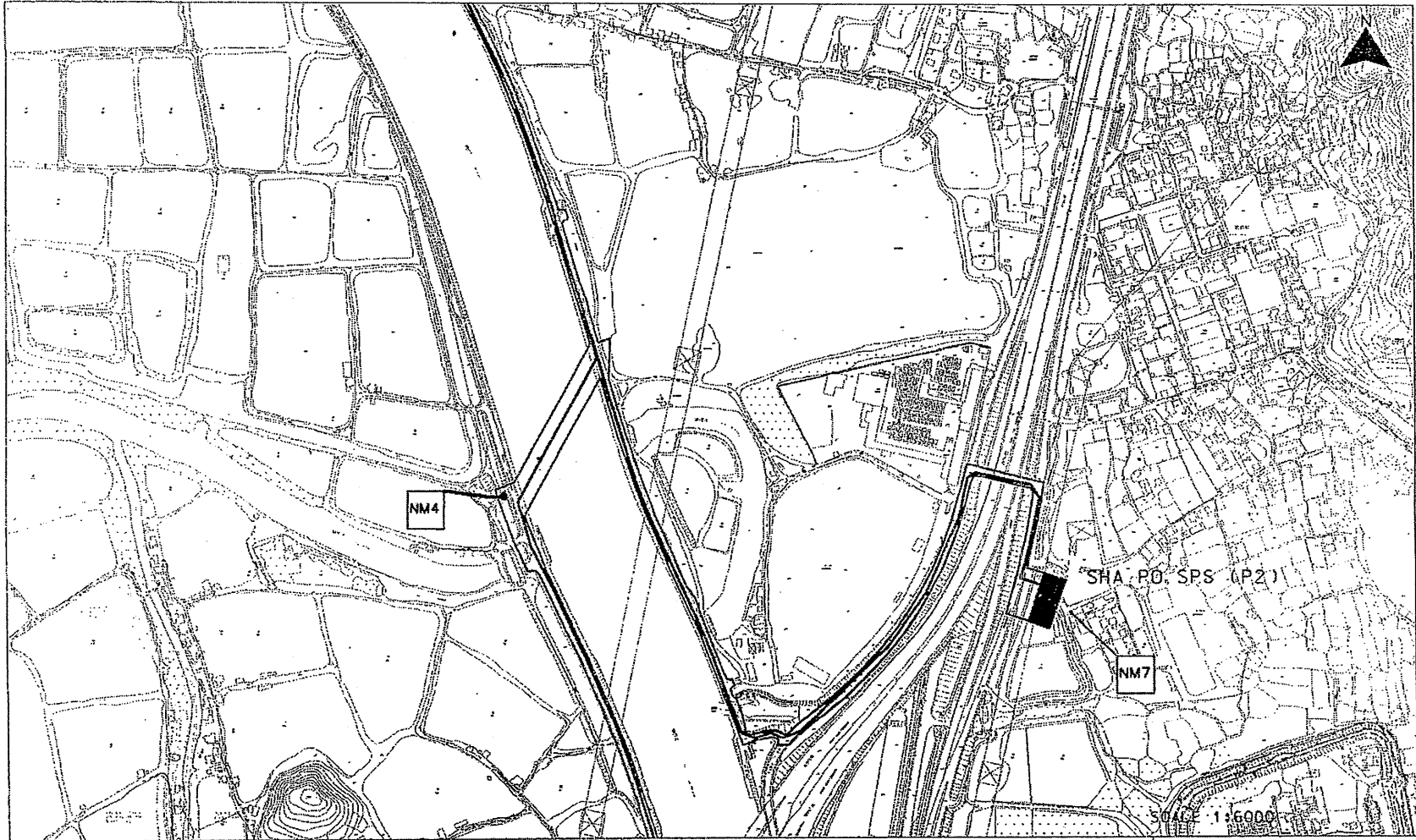


FIGURE C9

LOCATION OF NOISE MONITORING STATIONS (NM4, NM7)

US1N 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"> 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, and Engineer 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 	<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 Inform complainant of actions taken, if necessary 	<ol style="list-style-type: none"> Rectify any unacceptable practice Liaise with Engineer and IEC to develop appropriate remedial measures to reduce dust impact Amend working methods and remedial proposals if required by the Engineer or IEC 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"> 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"> Check monitoring data submitted by ET Check monitoring data trends and Contractors working methods 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 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 Phase Air Quality

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. Increase monitoring frequency to daily 4. Assess efficacy of remedial measures and keep the Contractor, IEC, Engineer and EPD 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 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. Take immediate action to avoid further exceedance 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
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. Discuss with Contractor and Engineer on possible remedial measures 2. Check and confirm Contractors proposed remedial measures are appropriate 3. 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

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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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> 	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	Sewers and Rising Mains using Open Trench Method <ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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	TSP	Greasby Anderson GMWS2310 High Volume Sampler	(AM5)	1 Jun 09	1 Aug 09
2		Greasby Anderson GMWS2310 High Volume Sampler	(AM6)	1 Jun 09	1 Aug 09
3		Greasby Anderson GMWS2310 High Volume Sampler	1283 (AM7)	1 Jun 09	1 Aug 09
4	Noise	Bruel & Kjaer 4231 Acoustical Calibrator	2326408	28 Apr 09	28 Apr 10
5		Bruel & Kjaer 2238 Integrating Sound Level Meter	T212509	28 Apr 09	28 Apr 10

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

ANNEX H

METEOROLOGICAL DATA

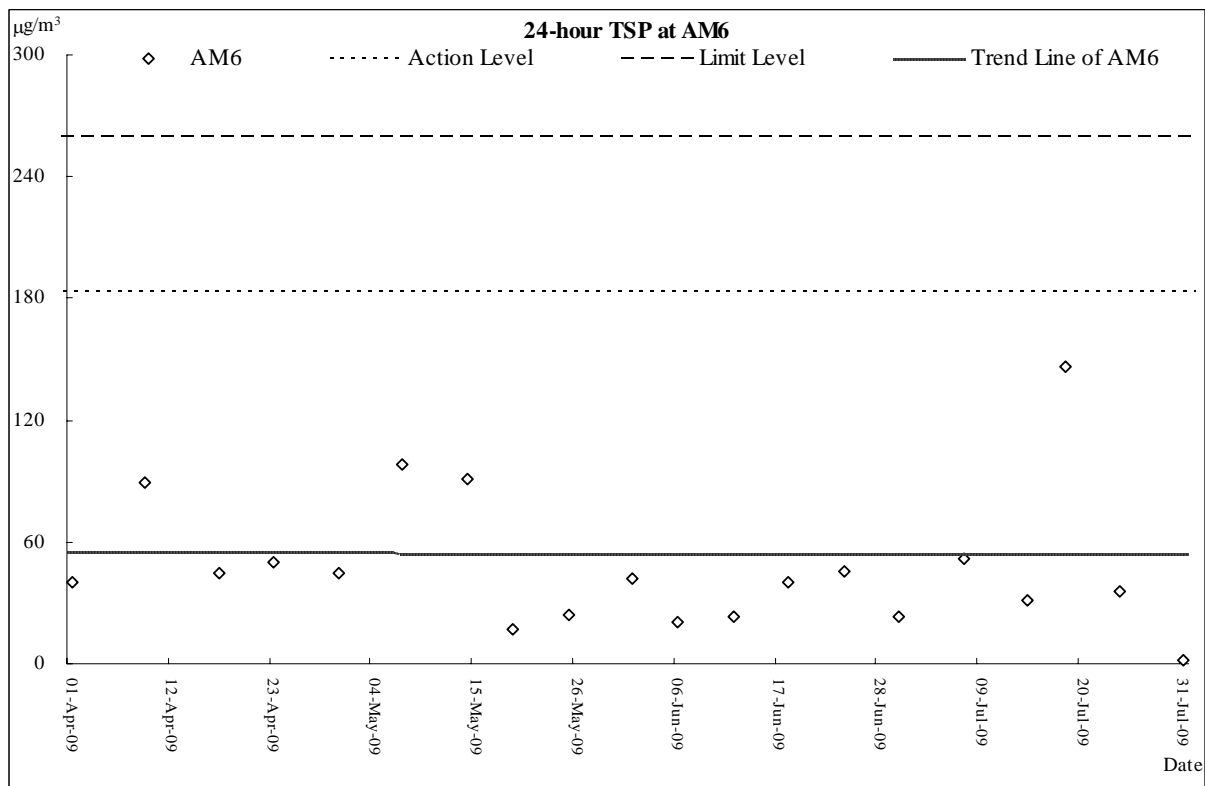
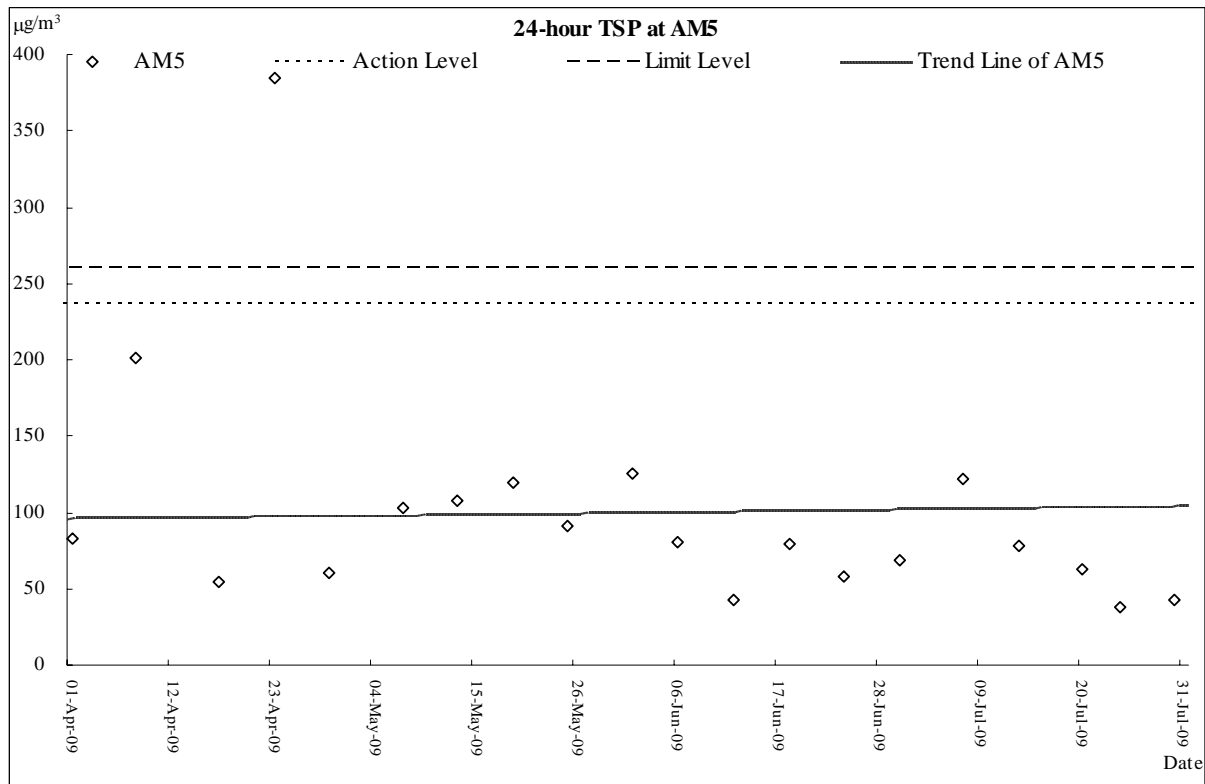
Meteorological Data Extracted From the HK Observatory at Lau Fau Shan Weather Station

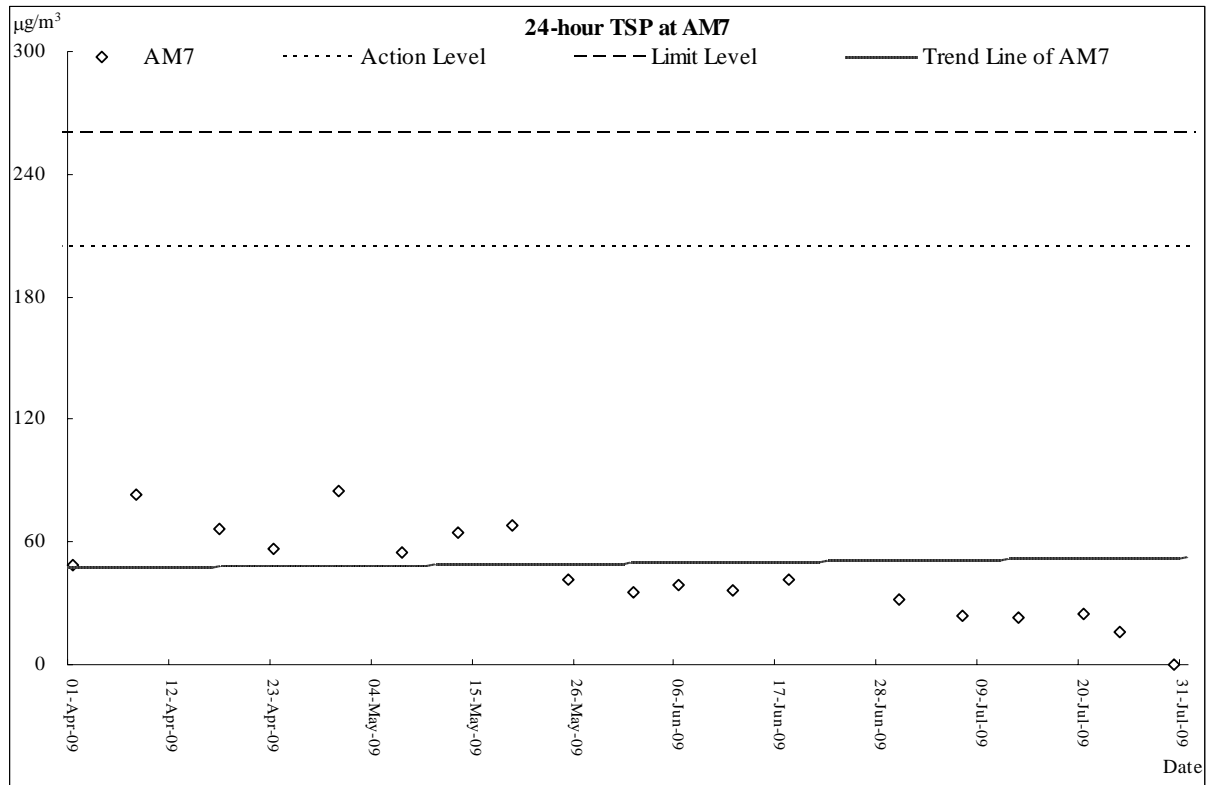
Date		Weather	Lau Fau Shan Weather Station				
			Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
1-Jul-09	Wed	Holiday					
2-Jul-09	Thu	hot/sunny periods/moderate/fresh	Trace	30.2	18.2	72	S/SW
3-Jul-09	Fri	cloudy/a few showers/sunny	0.5	29.6	20.5	73.5	S/SW
4-Jul-09	Sat	cloudy/showers/squally	17.4	26.2	17.2	80	S/SE
5-Jul-09	Sun	cloudy/scattered showers/squally thunderstorm/moderate	49.6	27.3	21	84	S/SE
6-Jul-09	Mon	fine/isolated showers/moderate	31.2	28.3	16.5	81.5	E/SE
7-Jul-09	Tue	fine/hot/isolated showers/light winds	20.1	29.4	13	76.5	S/SE
8-Jul-09	Wed	fine/hot/light winds	0	29.5	13	75.5	S/SE
9-Jul-09	Thu	fine/very hot/ light winds	0	29.9	14.5	71.5	W/SW
10-Jul-09	Fri	fine/very hot/moderate	Trace	30.2	16	75	W/SW
11-Jul-09	Sat	cloudy/squally showers/fresh/strong	8.1	29.7	16.5	70.7	E/NE
12-Jul-09	Sun	fine/moderate	Trace	30.4	12	75.5	E/SE
13-Jul-09	Mon	fine/hot/light winds	0	29.8	11	55	E/NE
14-Jul-09	Tue	fine/ery hot/isolated showers/moderate	0	28.8	12.2	72.5	W/SW
15-Jul-09	Wed	cloudy/a few showers/sunny	4.8	29.4	12.5	80.2	E/NE
16-Jul-09	Thu	fine/very hot/isolated showers/moderate/fresh	0.8	30.3	14	74.5	E/SE
17-Jul-09	Fri	fine/very hot/light winds	0.4	29.8	11	73	E/SE
18-Jul-09	Sat	very hot/hazy/squally	11.7	30.7	12	73.5	W/SW
19-Jul-09	Sun	sunny periods/isolated	124.6	26.6	20	82.5	S/SE
20-Jul-09	Mon	sunny periods/isolated	8.1	29.1	13.7	81	SE
21-Jul-09	Tue	fine/hot/moderate	0.6	29.4	15	76	S/SE
22-Jul-09	Wed	a few showers/sunny periods/moderate	0	29.3	10	74.5	S/SE
23-Jul-09	Thu	a few showers/sunny	0.6	28.7	13.5	78	S/SE
24-Jul-09	Fri	hot/a few showers/moderate/fresh/sunny periods	2.6	29.5	16.5	79.5	S/SE
25-Jul-09	Sat	hot/sunny periods/a few	8.3	30.1	15	79.5	S/SW
26-Jul-09	Sun	cloudy/a few showers/moderate	24.1	30.6	15.7	75.2	S/SE
27-Jul-09	Mon	cloudy/a few showers/sunny	33.6	28.3	12.5	90	S/SE
28-Jul-09	Tue	cloudy/showers/squally	10.2	29.2	13.5	85.5	S/SE
29-Jul-09	Wed	cloudy/a few showers/sunny	2.4	29	13.2	84	S/SE
30-Jul-09	Thu	cloudy/showers/squally	14	29.3	13.5	81	S/SE
31-Jul-09	Fri	fine/showers/moderate/fresh	8.7	29.8	18.5	77.5	E/SE

ANNEX I

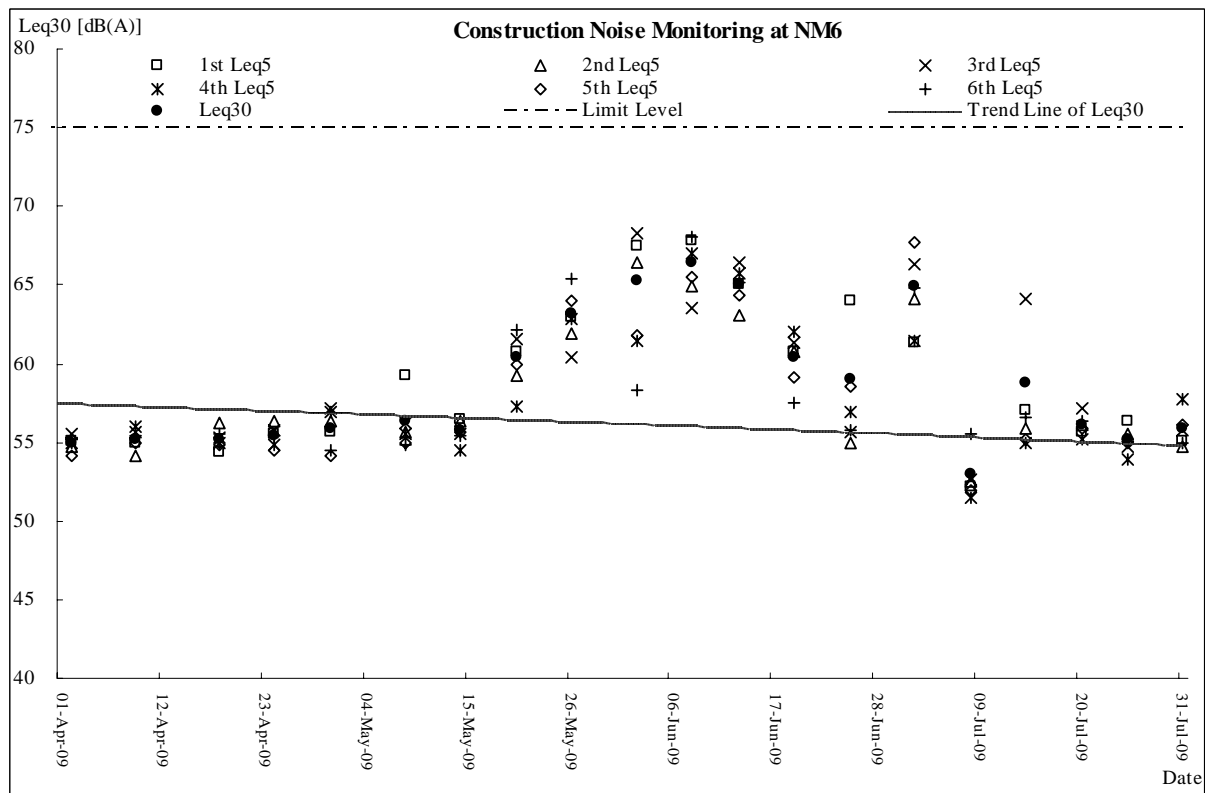
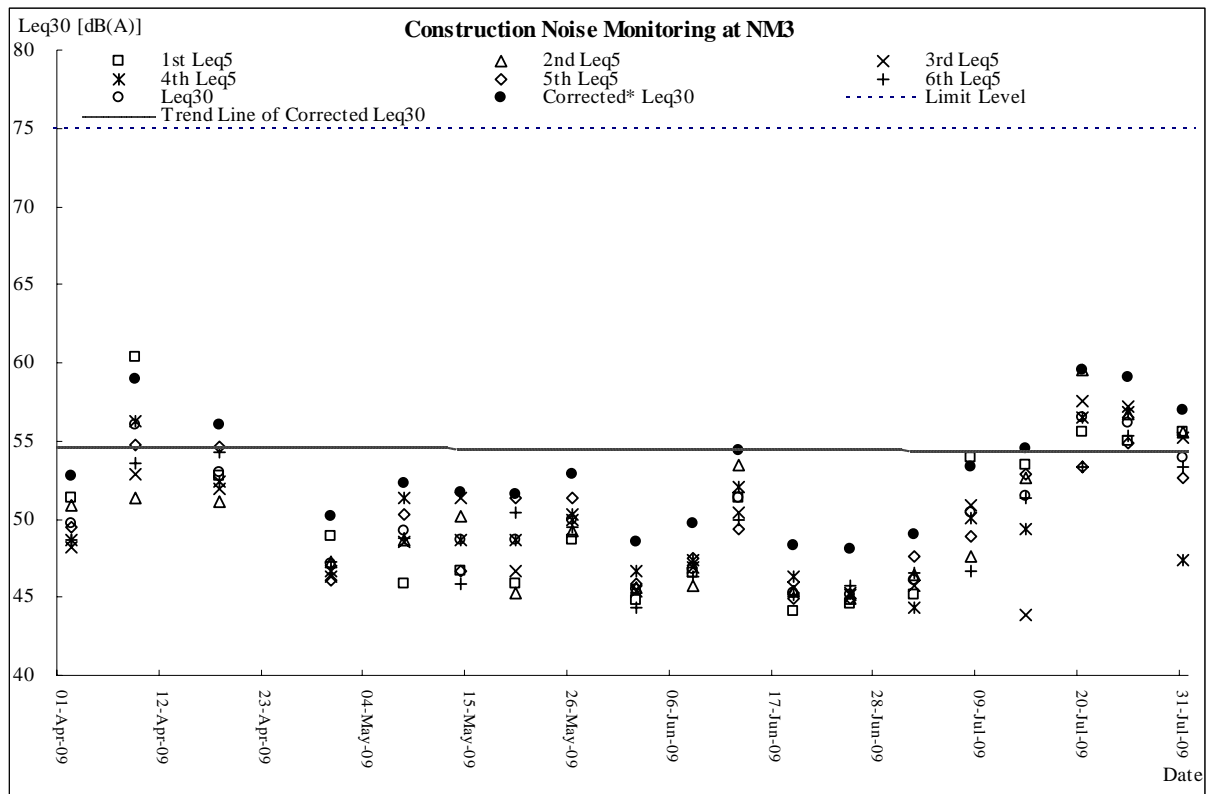
GRAPHICAL PLOTS OF AIR QUALITY AND CONSTRUCTION NOISE MONITORING RESULTS

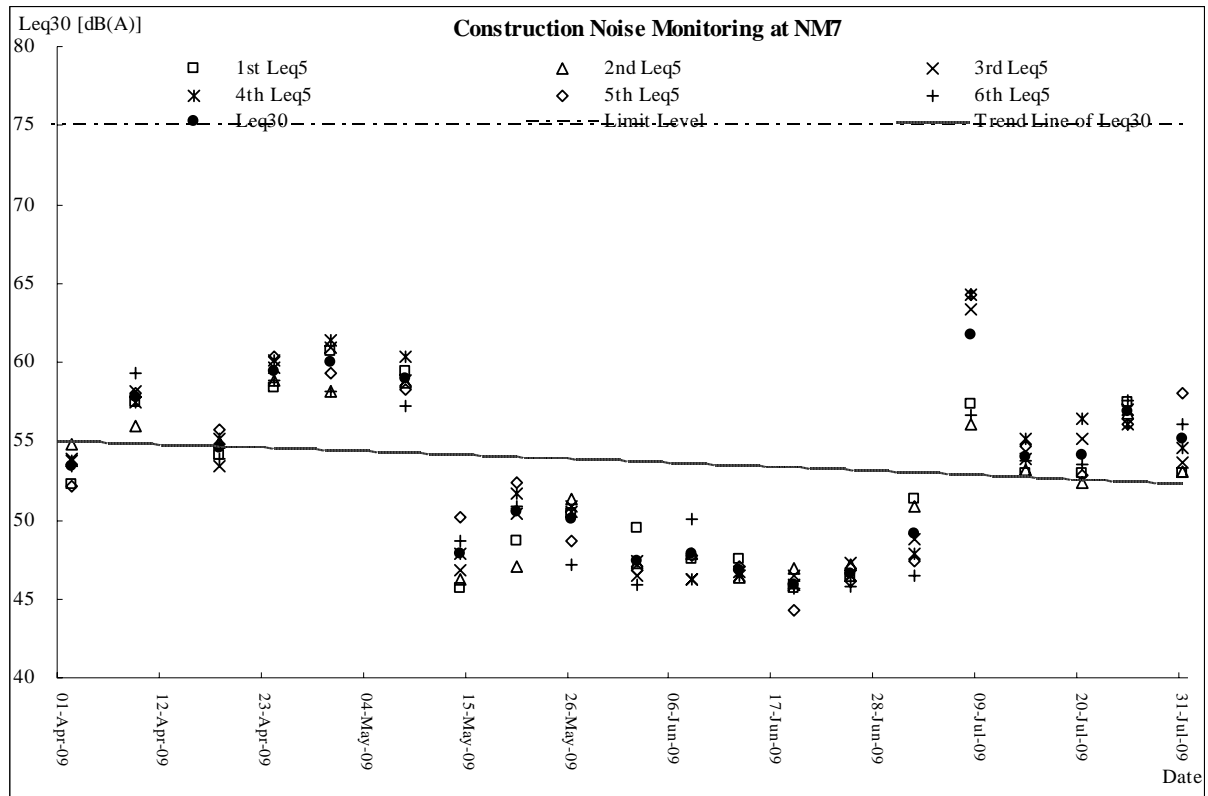
Air Quality Monitoring Results





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 August 2009]

Report/Document Monthly Environmental Monitoring and Audit (EM&A) Report for July 2009 (R0023 Version 1)

Items	Section / Paragraph	Comments	ET's Response
1	ES10	Should the month highlighted be "August 2009"?	Amended.
2	Table 5.3	Please provide the data for AM7 on 30 Jul 2009. For AM6, is the data for 30 Jul 2009 correct? (In the Designated EM&A report, the status is TBA). Please check the table 5.3 to ensure the data are accurate	Noted. Power was not rectified from 30 July until 4 August 2009, thus we consider that no subsequent monitoring is necessary. Please see amendment sheet 2 for details.