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 AUGUST 2009 (NO. 7)

PREPARED FOR

REC ENGINEERING COMPANY LIMITED

Quality Index

Date	Reference No.	Certified By	Verified By
10 September 2009	TCS00462/08/600/R0025v2	Andrew Lau	Dr. Anne F Kerr

Environmental Team Leader | Independent Environmental Checker

Version No.	Date	Remarks
1	8 September 2009	First Submission
2	10 September 2009	Amended against IEC's comments on 10 Sep 2009

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 **seventh (7th)** Monthly Environmental Monitoring and Audit (EM&A) Report for **August 2009** presenting the EM&A program conducted from **1 to 31 August 2009** for the Contract No.: DE/2005/05. The EM&A program in **August 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 **September 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 **seven (7th)** Monthly Environmental Monitoring and Audit (EM&A) Report for August **2009** presenting the EM&A program conducted from **1 to 31 August 2009** for the Contract No.: DE/2005/05. The EM&A program in **August 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	• Installation of lifting appliances and switchboard
Sha Po	• Installation of building services, fire services, penstocks, deodorization units, pipeworks and valves, actuators, screens
Kam Tin	• 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	• Building services installation works at the Transformer Room	• 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	• Installation of lifting appliance • Building services • Fire services • Pipework and valves • Penstocks installation • Ventilation system	• 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	• Installation of lifting appliance • Building services • Fire services • Pipework and valves • Penstocks installation • Ventilation system	• 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 ($\mu g/m^3$)		Limit Level ($\mu g/m^3$)	
	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;
- 0.6-1.7m^3/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 63in^2;
- Flow control accuracy of ±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 ±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 (L_{10} and L_{90}) 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 **15** 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 exceedances of air quality monitoring were recorded in this reporting month. Power failure occurred at AM6 on 22 August 2009 and the subsequent monitoring for made up the lost sample was conducted on 24 August 2009.

Table 5-3 Summary of Air Quality Monitoring Results

Date	24-hour TSP (μg/m³)		
	AM5	AM6	AM7
05-Aug-09	36	32	107
12-Aug-09	76	41	46
18-Aug-09	34	33	45
22-Aug-09	141	132 (*24 Aug 09)	54
28-Aug-09	145	22	50
Average (Range)	86 (34-145)	52 (22-132)	60 (45-107)
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
06-Aug-09	10:05	52.4	49.2	51.2	52.1	51.2	49.5	51.1	54.1
12-Aug-09	09:57	58.7	52.0	51.9	51.7	51.6	52.1	54.0	57.0
18-Aug-09	13:00	52.2	51.5	50.8	53.4	50.9	52.3	51.9	54.9
24-Aug-09	10:39	48.4	53.6	40.6	40.4	49.3	40.9	48.4	51.4
29-Aug-09	10:15	51.1	50.3	51.7	52.6	51.6	50.9	51.4	54.4
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
06-Aug-09	11:30	53.1	52.8	52.3	53.1	53.1	52.6	52.8
12-Aug-09	11:26	52.8	53.0	53.1	54.6	54.4	54.1	53.7
18-Aug-09	11:30	56.3	53.3	55.8	55.1	54.9	54.0	55.0
24-Aug-09	11:29	53.0	53.0	53.4	54.4	54.1	53.6	53.6
29-Aug-09	11:28	53.5	54.2	53.9	53.5	54.4	53.7	53.9
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
6-Aug-09	09:25	52.2	51.8	53.0	51.0	51.2	52.1	51.9
12-Aug-09	09:13	65.1	62.6	60.5	60.8	62.4	67.3	63.8
18-Aug-09	09:30	54.9	52.7	55.9	53.4	54.4	53.6	54.3
24-Aug-09	09:36	57.3	57.7	57.4	56.9	56.3	54.0	56.8
29-Aug-09	09:05	58.6	58.7	60.8	58.6	57.8	56.9	58.7
Limit Level								**75**

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

✓	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 **September 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)	4.24	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 **4, 11, 18 and 25 August 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
4 August 2009	NA	NA
11 August 2009	C&D waste was scattered at Sha Po pumping station, housekeeping should be improved.	18 August 2009
18 August 2009	NA	NA
25 August 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

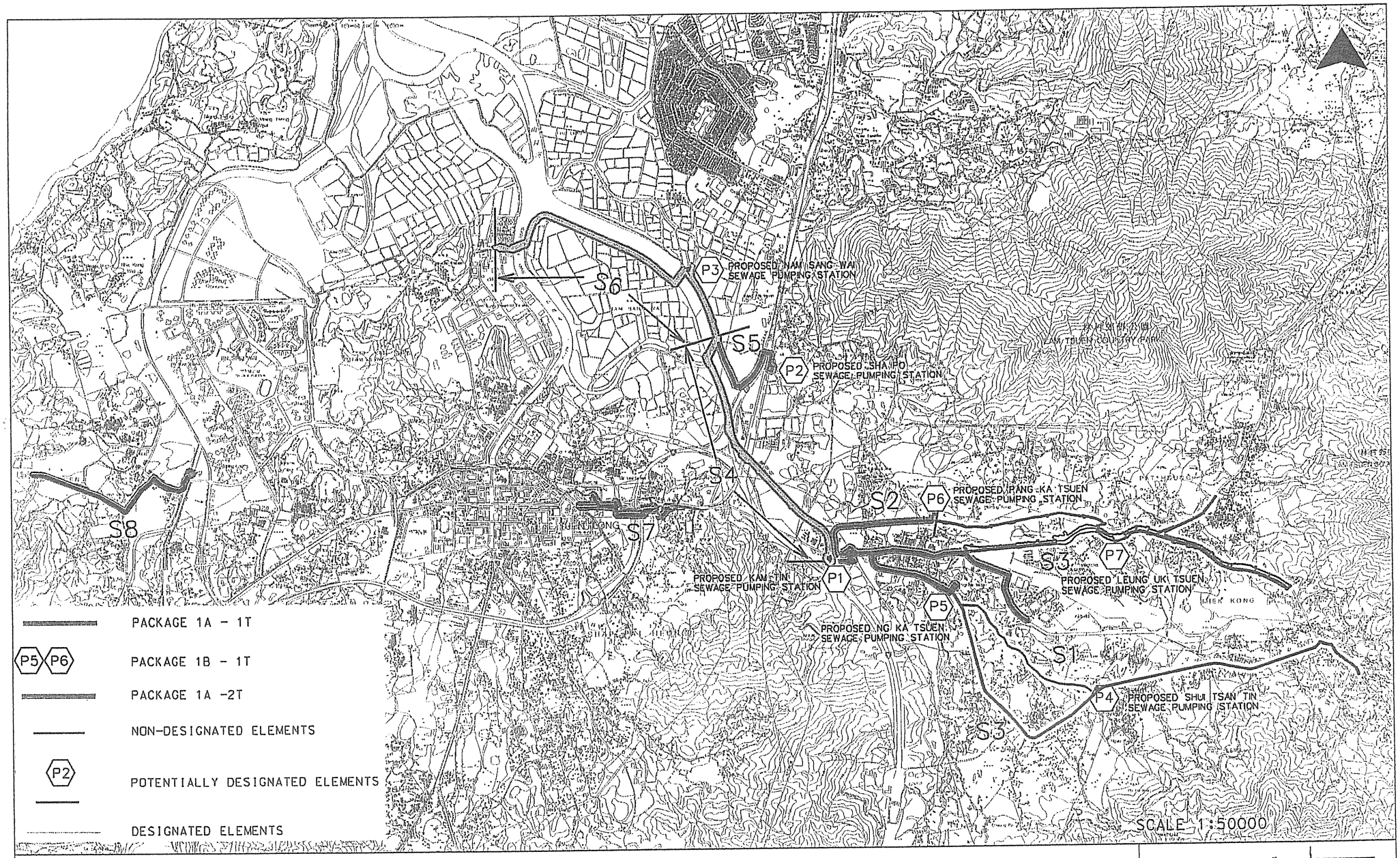


FIGURE 2.1a

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

Environmental Resources Management

ERM

USTN FILE: a2008/27aug2001/arch1.dgn

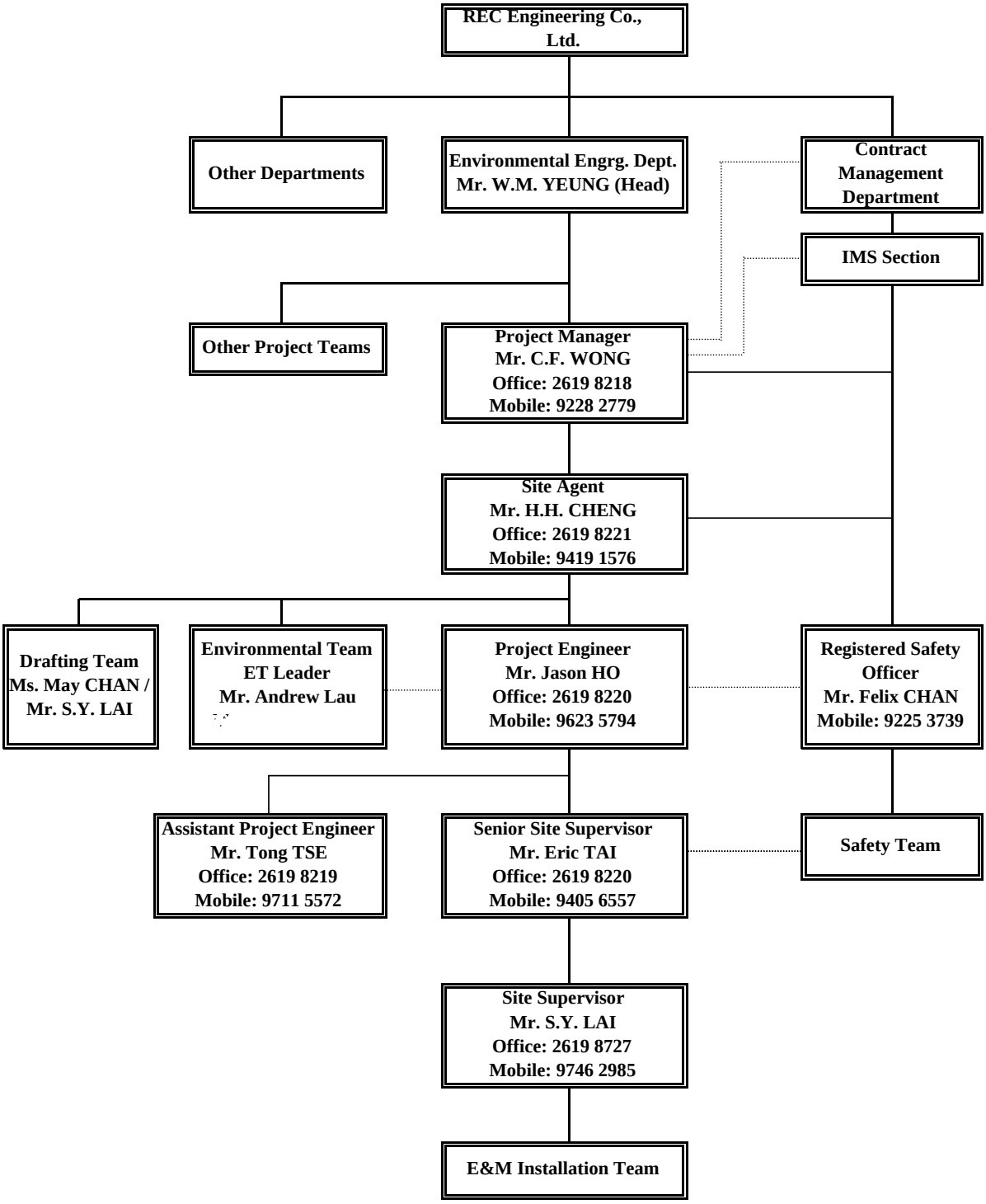
DATE: 19/12/2001

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



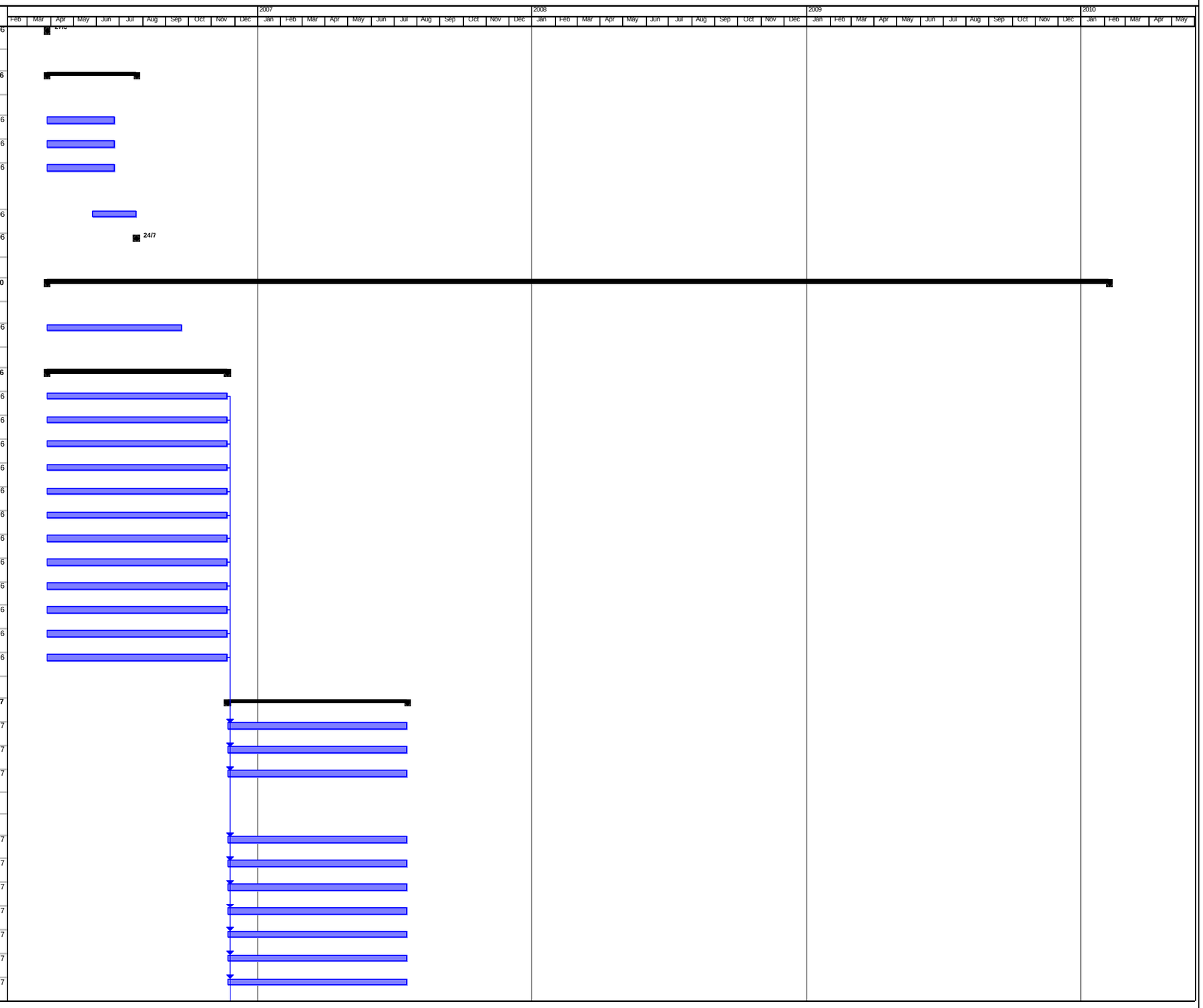
Effective Date : 09 February 2009

ANNEX C

CONSTRUCTION PROGRAM

Contract No. DE/2005/05
Supply and Installation of Electrical and Mechanical Equipment for Nam Sang Wai, Sha Po and Kam Tin Sewage Pumping Stations
-Works Programme Rev 5

ID	Task Name	Duration	Start	Finish
1	**Contract Commencement Date**	0 days	Mon 27/3/06	Mon 27/3/06
2				
3	**Section 1 Surge Analysis and Drawings Submission**	**120 days**	**Mon 27/3/06**	**Mon 24/7/06**
4				
5	Surge Analysis for 3 SPSs	90 days	Mon 27/3/06	Sat 24/6/06
6	Civil Requirement Drawings Submission for 3 nos. Sewage Pumping Stations	90 days	Mon 27/3/06	Sat 24/6/06
7	Submission of GA Drawings, Equipment Layout Drawings, Electrical Schematic Drawings, Cable Route Drawings, Electrical Services Drawings and PID	90 days	Mon 27/3/06	Sat 24/6/06
8	Resubmission of above items	60 days	Fri 26/5/06	Mon 24/7/06
9	Approval of design works	0 days	Mon 24/7/06	Mon 24/7/06
10				
11	**Section 2 Works for Nam Sang Wai SPS**	**1414 days**	**Mon 27/3/06**	**Mon 8/2/10**
12				
13	Other Drawings Submission and Approval	180 days	Mon 27/3/06	Fri 22/9/06
14				
15	**Equipment Submission and Approval**	**240 days**	**Mon 27/3/06**	**Tue 21/11/06**
16	Penstock and Actuator	240 days	Mon 27/3/06	Tue 21/11/06
17	Main sewage pump and VFD	240 days	Mon 27/3/06	Tue 21/11/06
18	Inlet Coarse Screen	240 days	Mon 27/3/06	Tue 21/11/06
19	Deodourising System	240 days	Mon 27/3/06	Tue 21/11/06
20	Lifting Appliance	240 days	Mon 27/3/06	Tue 21/11/06
21	Pipework and Valve	240 days	Mon 27/3/06	Tue 21/11/06
22	Measuring Instrument	240 days	Mon 27/3/06	Tue 21/11/06
23	LV Switchboard	240 days	Mon 27/3/06	Tue 21/11/06
24	MACS, Telemetry and CCTV	240 days	Mon 27/3/06	Tue 21/11/06
25	Ventilation Fans	240 days	Mon 27/3/06	Tue 21/11/06
26	Building Services and Electrical Services Equipment	240 days	Mon 27/3/06	Tue 21/11/06
27	Fire Services Equipment	240 days	Mon 27/3/06	Tue 21/11/06
28				
29	**Equipment Procurement and Manufacture**	**240 days**	**Wed 22/11/06**	**Thu 19/7/07**
30	Penstock and Actuator	240 days	Wed 22/11/06	Thu 19/7/07
31	Main sewage pump and VFD	240 days	Wed 22/11/06	Thu 19/7/07
32	Inlet Coarse Screen	240 days	Wed 22/11/06	Thu 19/7/07
33				
34				
35	Deodourising System	240 days	Wed 22/11/06	Thu 19/7/07
36	Lifting Appliance	240 days	Wed 22/11/06	Thu 19/7/07
37	Pipework and Valve	240 days	Wed 22/11/06	Thu 19/7/07
38	Measuring Instrument	240 days	Wed 22/11/06	Thu 19/7/07
39	LV Switchboard	240 days	Wed 22/11/06	Thu 19/7/07
40	MACS, Telemetry and CCTV	240 days	Wed 22/11/06	Thu 19/7/07
41	Ventilation Fans	240 days	Wed 22/11/06	Thu 19/7/07

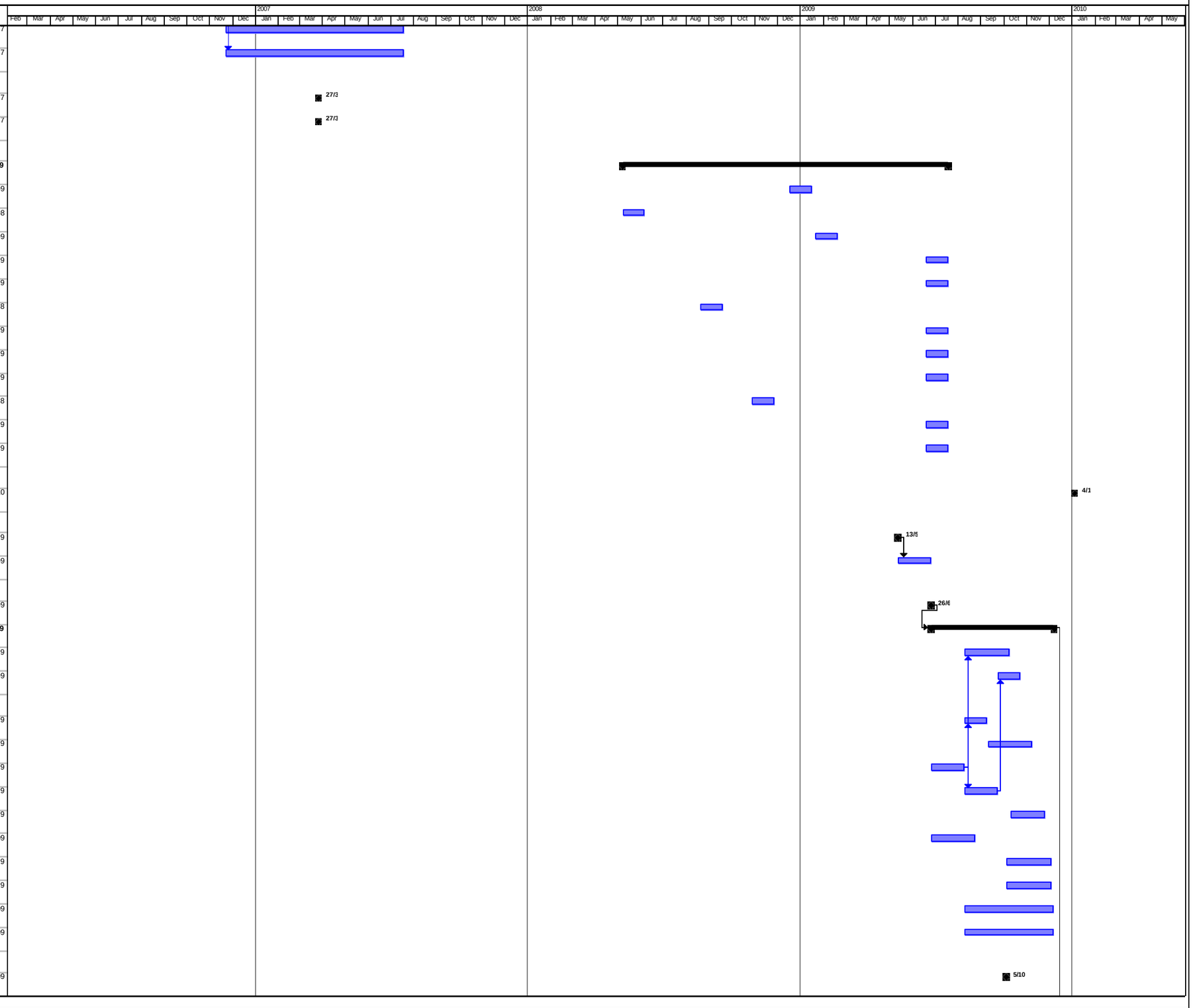


Date: 24/4/2009

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

Client: DSD HKSAR
Contractor: REC Engineering Co. Ltd.

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

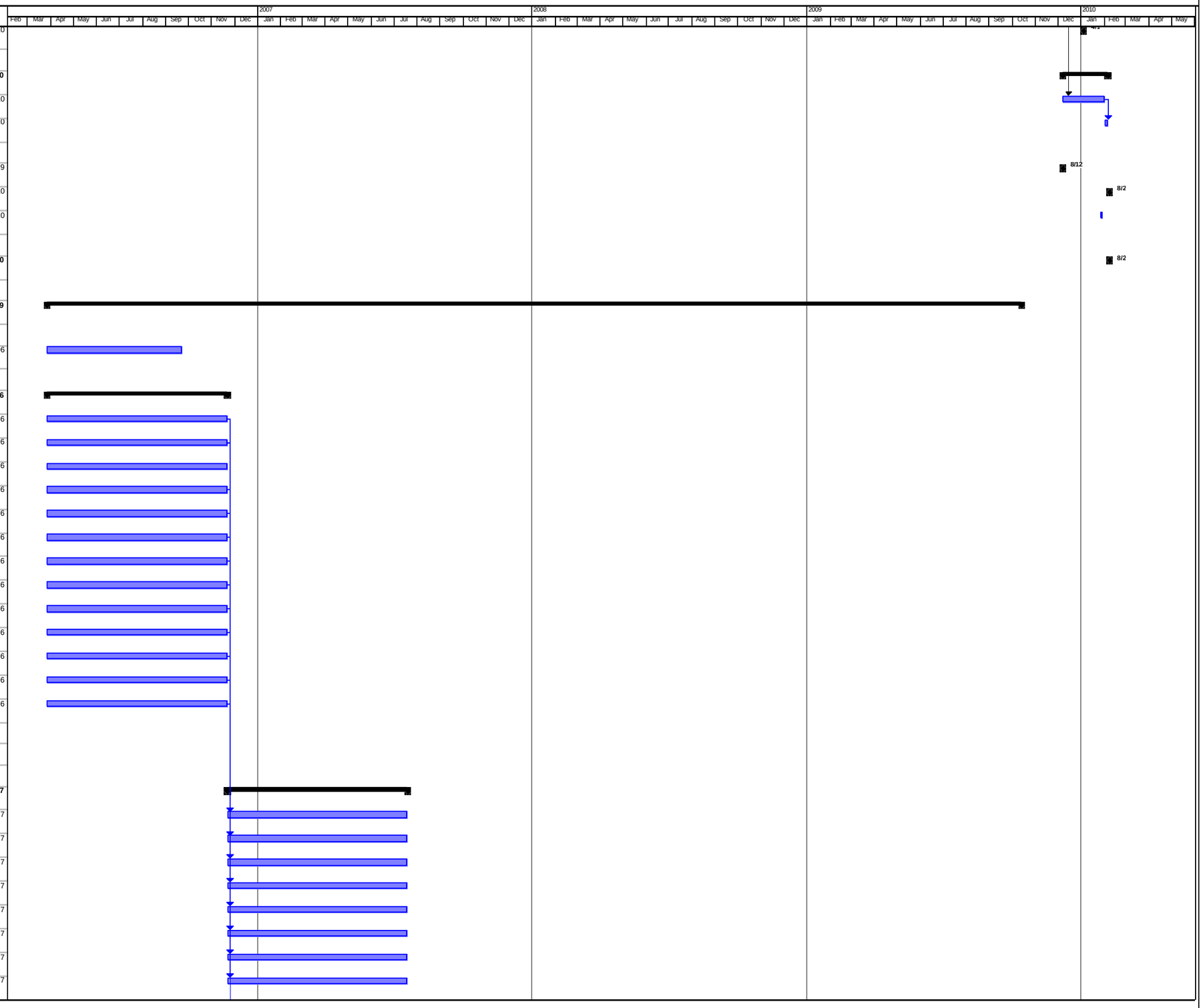


Date: 24/4/2009

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

Client: DSD HKSAR
Contractor: REC Engineering Co. Ltd.

ID	Task Name	Duration	Start	Finish
84	**Submission of Form 501 for Fire Services**	0 days	Mon 4/1/10	Mon 4/1/10
85				
86	**Testing and Commissioning**	**60 days**	**Tue 8/12/09**	**Fri 5/2/10**
87	Equipment testing	56 days	Tue 8/12/09	Mon 1/2/10
88	Tentative 3-days wet commissioning	4 days	Tue 2/2/10	Fri 5/2/10
89				
90	**Submission of Draft O & M manual**	0 days	Tue 8/12/09	Tue 8/12/09
91	**Submission of Final O & M manual**	0 days	Mon 8/2/10	Mon 8/2/10
92	**Training of Employer's Staff**	3 days	Wed 27/1/10	Fri 29/1/10
93				
94	**Completion of Section 2**	**0 days**	**Mon 8/2/10**	**Mon 8/2/10**
95				
96	**Section 3 Works for Sha Po SPS**	**1297 days**	**Mon 27/3/06**	**Wed 14/10/09**
97				
98	Other Drawings Submission and Approval	180 days	Mon 27/3/06	Fri 22/9/06
99				
100	**Equipment Submission and Approval**	**240 days**	**Mon 27/3/06**	**Tue 21/11/06**
101	Penstock and Actuator	240 days	Mon 27/3/06	Tue 21/11/06
102	Main sewage pump and VFD	240 days	Mon 27/3/06	Tue 21/11/06
103	Inlet Coarse Screen	240 days	Mon 27/3/06	Tue 21/11/06
104	Deodourising System	240 days	Mon 27/3/06	Tue 21/11/06
105	Lifting Appliance	240 days	Mon 27/3/06	Tue 21/11/06
106	Pipework and Valve	240 days	Mon 27/3/06	Tue 21/11/06
107	Measuring Instrument	240 days	Mon 27/3/06	Tue 21/11/06
108	LV Switchboard	240 days	Mon 27/3/06	Tue 21/11/06
109	MACS, Telemetry and CCTV	240 days	Mon 27/3/06	Tue 21/11/06
110	Calcium Nitrate Dosing System	240 days	Mon 27/3/06	Tue 21/11/06
111	Ventilation Fans	240 days	Mon 27/3/06	Tue 21/11/06
112	Building Services and Electrical Services Equipment	240 days	Mon 27/3/06	Tue 21/11/06
113	Fire Services Equipment	240 days	Mon 27/3/06	Tue 21/11/06
114				
115				
116				
117	**Equipment Procurement and Manufacture**	**240 days**	**Wed 22/11/06**	**Thu 19/7/07**
118	Penstock and Actuator	240 days	Wed 22/11/06	Thu 19/7/07
119	Main sewage pump and VFD	240 days	Wed 22/11/06	Thu 19/7/07
120	Inlet Coarse Screen	240 days	Wed 22/11/06	Thu 19/7/07
121	Deodourising System	240 days	Wed 22/11/06	Thu 19/7/07
122	Lifting Appliance	240 days	Wed 22/11/06	Thu 19/7/07
123	Pipework and Valve	240 days	Wed 22/11/06	Thu 19/7/07
124	Measuring Instrument	240 days	Wed 22/11/06	Thu 19/7/07
125	LV Switchboard	240 days	Wed 22/11/06	Thu 19/7/07

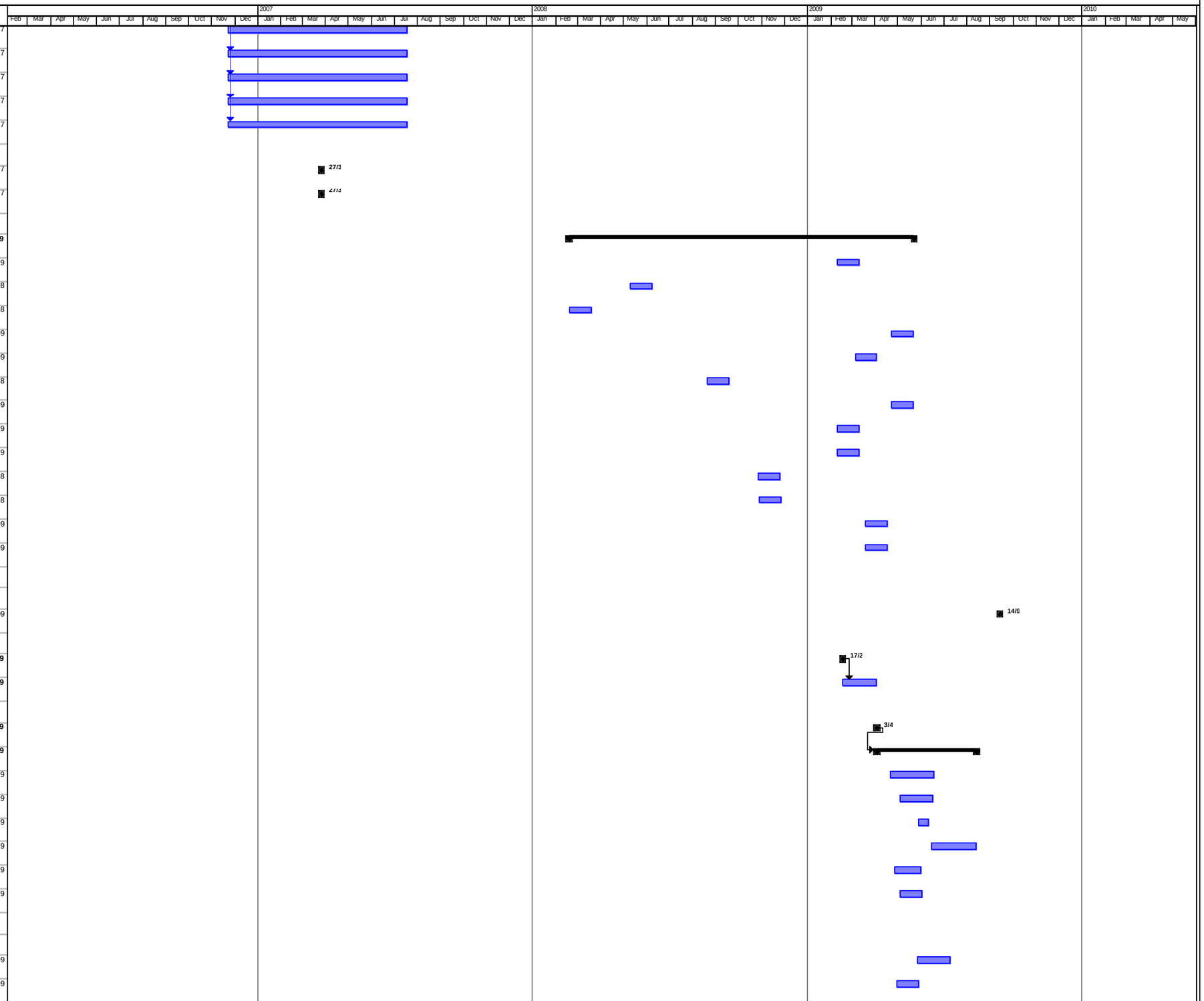


Date: 24/4/2009

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

Client: DSD HKSAR
Contractor: REC Engineering Co. Ltd.

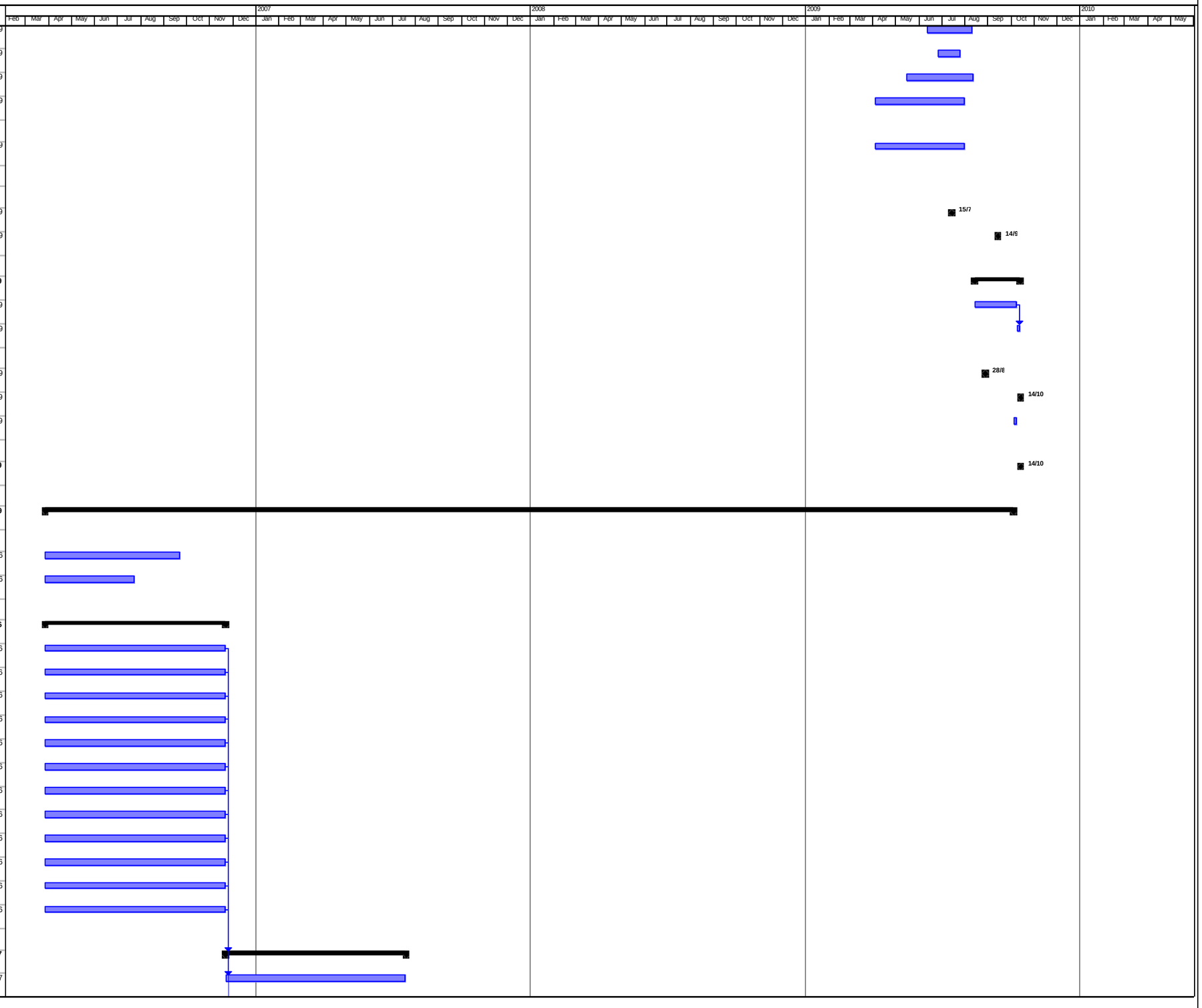
ID	Task Name	Duration	Start	Finish
126	MACS, Telemetry and CCTV	240 days	Wed 22/11/06	Thu 19/7/07
127	Calcium Nitrate Dosing System	240 days	Wed 22/11/06	Thu 19/7/07
128	Ventilation Fans	240 days	Wed 22/11/06	Thu 19/7/07
129	Building Services and Electrical Services Equipment	240 days	Wed 22/11/06	Thu 19/7/07
130	Fire Services Equipment	240 days	Wed 22/11/06	Thu 19/7/07
131				
132	**Application of CLP Power Supply**	0 days	Tue 27/3/07	Tue 27/3/07
133	**Application of Telephone Line**	0 days	Tue 27/3/07	Tue 27/3/07
134				
135	**Equipment Delivery**	**459 days**	**Tue 19/2/08**	**Fri 22/5/09**
136	Penstock and Actuator	30 days	Mon 9/2/09	Tue 10/3/09
137	Main sewage pump and VFD	30 days	Sat 10/5/08	Sun 8/6/08
138	Inlet Coarse Screen	30 days	Tue 19/2/08	Wed 19/3/08
139	Deodourising System	30 days	Thu 23/4/09	Fri 22/5/09
140	Lifting Appliance	30 days	Thu 5/3/09	Fri 3/4/09
141	Pipework and Valve	30 days	Wed 20/8/08	Thu 18/9/08
142	Measuring Instrument	30 days	Thu 23/4/09	Fri 22/5/09
143	LV Switchboard	30 days	Mon 9/2/09	Tue 10/3/09
144	MACS, Telemetry and CCTV	30 days	Mon 9/2/09	Tue 10/3/09
145	Calcium Nitrate Dosing System	30 days	Mon 27/10/08	Tue 25/11/08
146	Ventilation Fans	30 days	Wed 29/10/08	Thu 27/11/08
147	Building Services and Electrical Services Equipment	30 days	Thu 19/3/09	Fri 17/4/09
148	Fire Services Equipment	30 days	Thu 19/3/09	Fri 17/4/09
149				
150				
151	**Submission of Form 314 for Fire Services**	0 days	Mon 14/9/09	Mon 14/9/09
152				
153	**1st stage Site Take Over Date for Section 3**	**0 days**	**Tue 17/2/09**	**Tue 17/2/09**
154	**Site Installation at CLP Tx Rm**	**45 days**	**Tue 17/2/09**	**Thu 2/4/09**
155				
156	**2nd stage Site Take Over Date for Section 3**	**0 days**	**Fri 3/4/09**	**Fri 3/4/09**
157	**Site Installation at Other Locations**	**133 days**	**Fri 3/4/09**	**Thu 13/8/09**
158	Penstock and Actuator	60 days	Mon 20/4/09	Thu 18/6/09
159	Main sewage pump and VFD	45 days	Mon 4/5/09	Wed 17/6/09
160	Inlet Coarse Screen	14 days	Fri 29/5/09	Thu 11/6/09
161	Deodourising System	60 days	Mon 15/6/09	Thu 13/8/09
162	Lifting Appliance	35 days	Mon 27/4/09	Sun 31/5/09
163	Pipework and Valve	30 days	Mon 4/5/09	Tue 2/6/09
164				
165				
166	Measuring Instrument	45 days	Wed 27/5/09	Fri 10/7/09
167	LV Switchboard	30 days	Thu 30/4/09	Fri 29/5/09



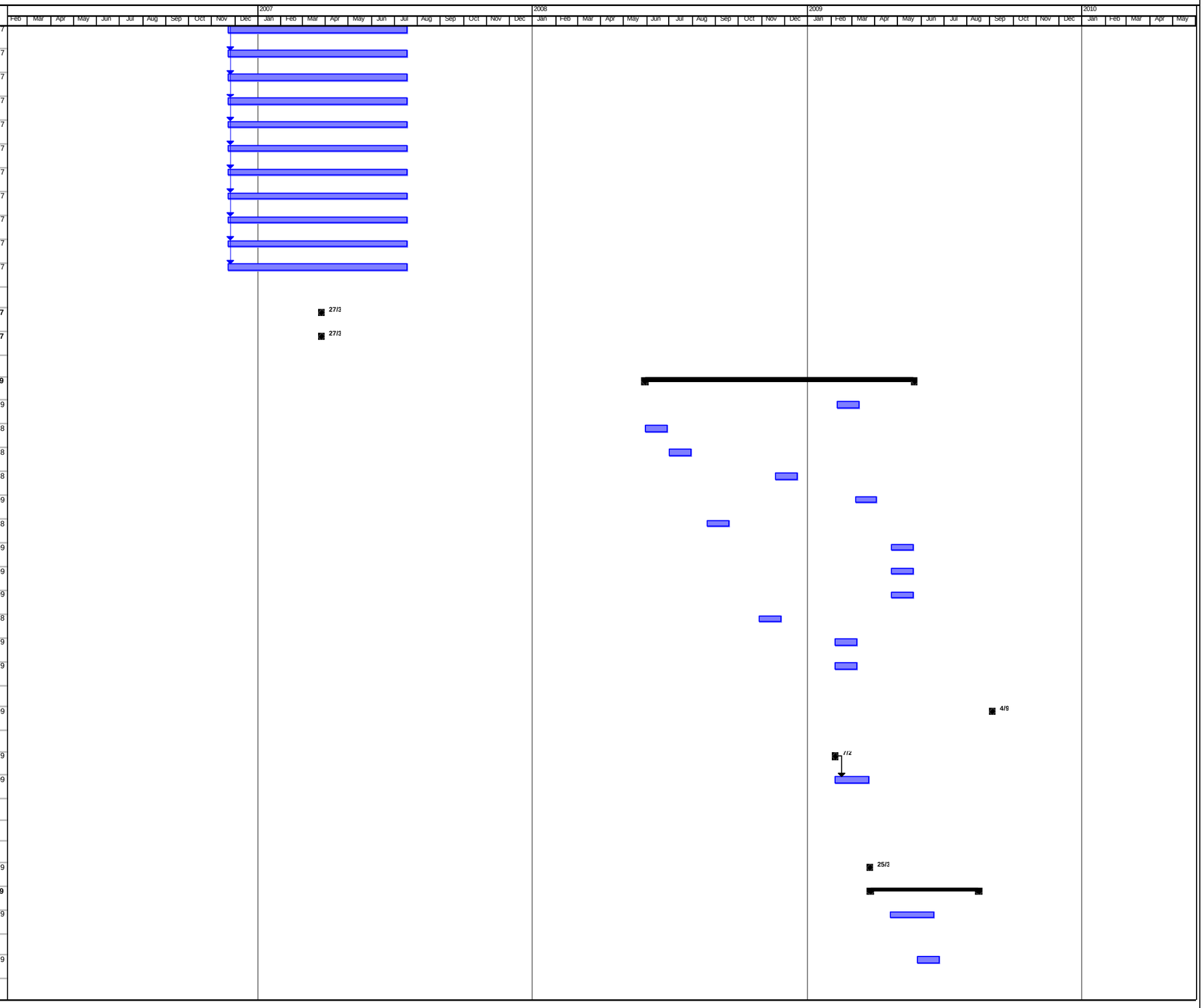
Date: 24/4/2009

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

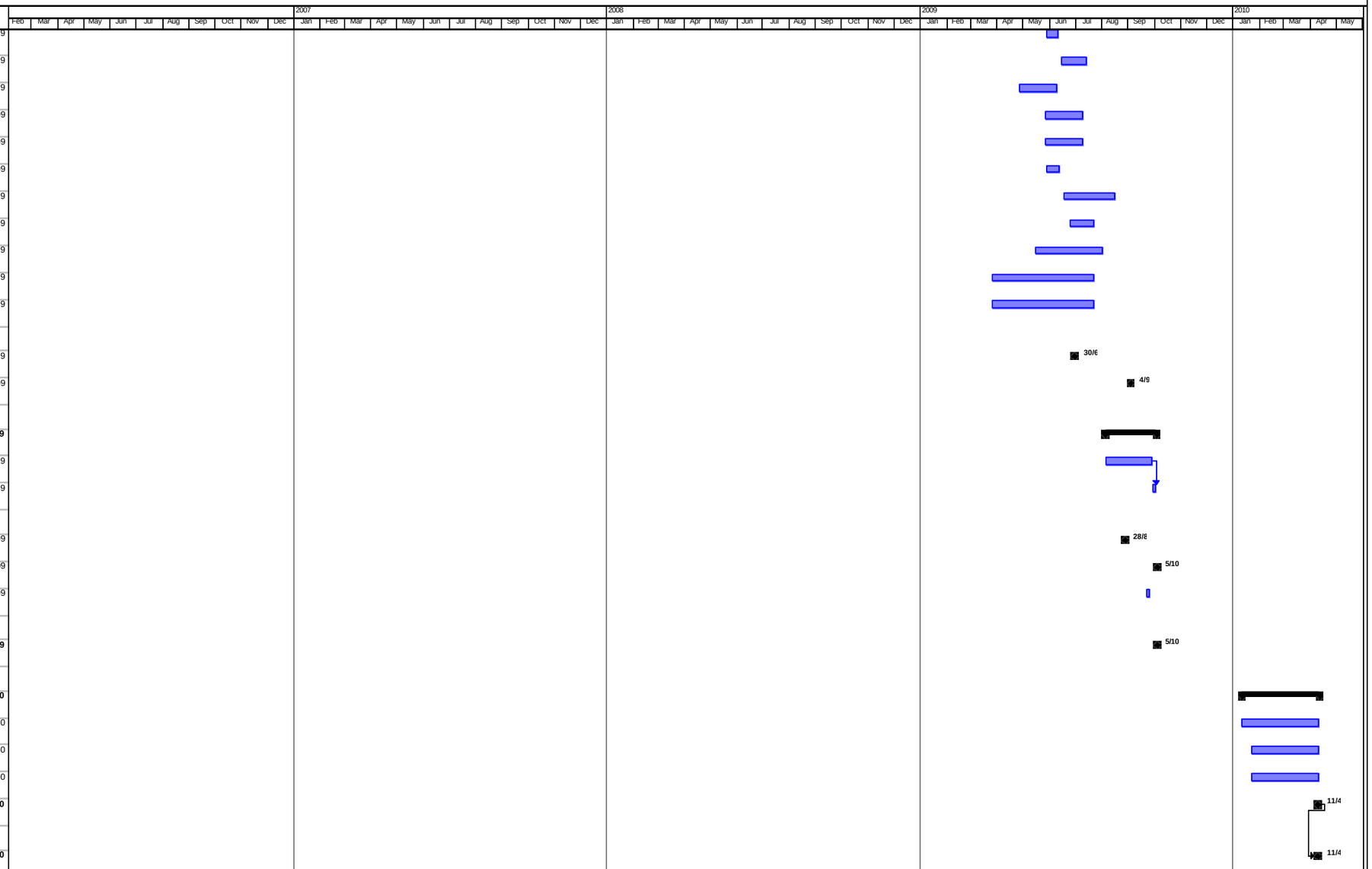
ID	Task Name	Duration	Start	Finish
168	MACS, Telemetry and CCTV	60 days	Fri 12/6/09	Mon 10/8/09
169	Calcium Nitrate Dosing System	30 days	Fri 26/6/09	Sat 25/7/09
170	Ventilation Fans and air ducts	90 days	Fri 15/5/09	Wed 12/8/09
171	Building Services and Electrical Services Equipment	120 days	Fri 3/4/09	Fri 31/7/09
172				
173	Fire Services Equipment	120 days	Fri 3/4/09	Fri 31/7/09
174				
175				
176	**Tentative CLP Electricity Energisation**	0 days	Wed 15/7/09	Wed 15/7/09
177	**Submission of Form 501 for Fire Services**	0 days	Mon 14/9/09	Mon 14/9/09
178				
179	**Testing and Commissioning**	**60 days**	**Fri 14/8/09**	**Mon 12/10/09**
180	Equipment testing	56 days	Fri 14/8/09	Thu 8/10/09
181	Tentative 3-days wet commissioning	4 days	Fri 9/10/09	Mon 12/10/09
182				
183	**Submission of Draft O & M manual**	0 days	Fri 28/8/09	Fri 28/8/09
184	**Submission of Final O & M manual**	0 days	Wed 14/10/09	Wed 14/10/09
185	**Training of Employer's Staff**	3 days	Tue 6/10/09	Thu 8/10/09
186				
187	**Completion of Section 3**	**0 days**	**Wed 14/10/09**	**Wed 14/10/09**
188				
189	**Section 4 Works for Kam Tin SPS**	**1288 days**	**Mon 27/3/06**	**Mon 5/10/09**
190				
191	Other Drawings Submission and Approval	180 days	Mon 27/3/06	Fri 22/9/06
192	Surge analysis report submission and approval	120 days	Mon 27/3/06	Mon 24/7/06
193				
194	**Equipment Submission and Approval**	**240 days**	**Mon 27/3/06**	**Tue 21/11/06**
195	Penstock and Actuator	240 days	Mon 27/3/06	Tue 21/11/06
196	Main sewage pump and VFD	240 days	Mon 27/3/06	Tue 21/11/06
197	Inlet Coarse Screen	240 days	Mon 27/3/06	Tue 21/11/06
198	Deodourising System	240 days	Mon 27/3/06	Tue 21/11/06
199	Lifting Appliance	240 days	Mon 27/3/06	Tue 21/11/06
200	Pipework and Valve	240 days	Mon 27/3/06	Tue 21/11/06
201	Measuring Instrument	240 days	Mon 27/3/06	Tue 21/11/06
202	LV Switchboard	240 days	Mon 27/3/06	Tue 21/11/06
203	MACS, Telemetry and CCTV	240 days	Mon 27/3/06	Tue 21/11/06
204	Ventilation Fans	240 days	Mon 27/3/06	Tue 21/11/06
205	Building Services and Electrical Services Equipment	240 days	Mon 27/3/06	Tue 21/11/06
206	Fire Services Equipment	240 days	Mon 27/3/06	Tue 21/11/06
207				
208	**Equipment Procurement and Manufacture**	**240 days**	**Wed 22/11/06**	**Thu 19/7/07**
209	Penstock and Actuator	240 days	Wed 22/11/06	Thu 19/7/07



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



ID	Task Name	Duration	Start	Finish
252	Inlet Coarse Screen	14 days	Fri 29/5/09	Thu 11/6/09
253	Deodourising System	30 days	Mon 15/6/09	Tue 14/7/09
254	Lifting Appliance	45 days	Mon 27/4/09	Wed 10/6/09
255	Pipework and Valve	45 days	Wed 27/5/09	Fri 10/7/09
256	Measuring Instrument	45 days	Wed 27/5/09	Fri 10/7/09
257	LV Switchboard	15 days	Fri 29/5/09	Fri 12/6/09
258	MACS, Telemetry and CCTV	60 days	Thu 18/6/09	Sun 16/8/09
259	Calcium Nitrate Dosing System	30 days	Wed 24/6/09	Thu 23/7/09
260	Ventilation Fans and air ducts	80 days	Fri 15/5/09	Sun 2/8/09
261	Building Services and Electrical Services Equipment	120 days	Thu 26/3/09	Thu 23/7/09
262	Fire Services Equipment	120 days	Thu 26/3/09	Thu 23/7/09
263				
264	**Tentative CLP Electricity Energisation**	0 days	Tue 30/6/09	Tue 30/6/09
265	**Submission of Form 501 for Fire Services**	0 days	Fri 4/9/09	Fri 4/9/09
266				
267	**Testing and Commissioning**	**60 days**	**Wed 5/8/09**	**Sat 3/10/09**
268	Equipment testing	56 days	Wed 5/8/09	Tue 29/9/09
269	Tentative 3-days wet commissioning	4 days	Wed 30/9/09	Sat 3/10/09
270				
271	**Submission of Draft O & M manual**	0 days	Fri 28/8/09	Fri 28/8/09
272	**Submission of Final O & M manual**	0 days	Mon 5/10/09	Mon 5/10/09
273	**Training of Employer's Staff**	3 days	Wed 23/9/09	Fri 25/9/09
274				
275	**Completion of Section 4**	**0 days**	**Mon 5/10/09**	**Mon 5/10/09**
276				
277	**Section 5 Remaining Works**	**90 days**	**Tue 12/1/10**	**Sun 11/4/10**
278	Provision of Workshop Equipment for Nam Sang Wai SPS	90 days	Tue 12/1/10	Sun 11/4/10
279	Provision of Portable and Miscellaneous Equipment for 3 SPSs	79 days	Sat 23/1/10	Sun 11/4/10
280	Provision of minimum spare parts for 3 SPSs	79 days	Sat 23/1/10	Sun 11/4/10
281	**Completion of Section 5**	**0 days**	**Sun 11/4/10**	**Sun 11/4/10**
282				
283	**Project Completion Date**	**0 days**	**Sun 11/4/10**	**Sun 11/4/10**



Date: 24/4/2009

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

Client: DSD HKSAR
Contractor: REC Engineering Co. Ltd.

ANNEX D

LOCATION OF MONITORING STATIONS

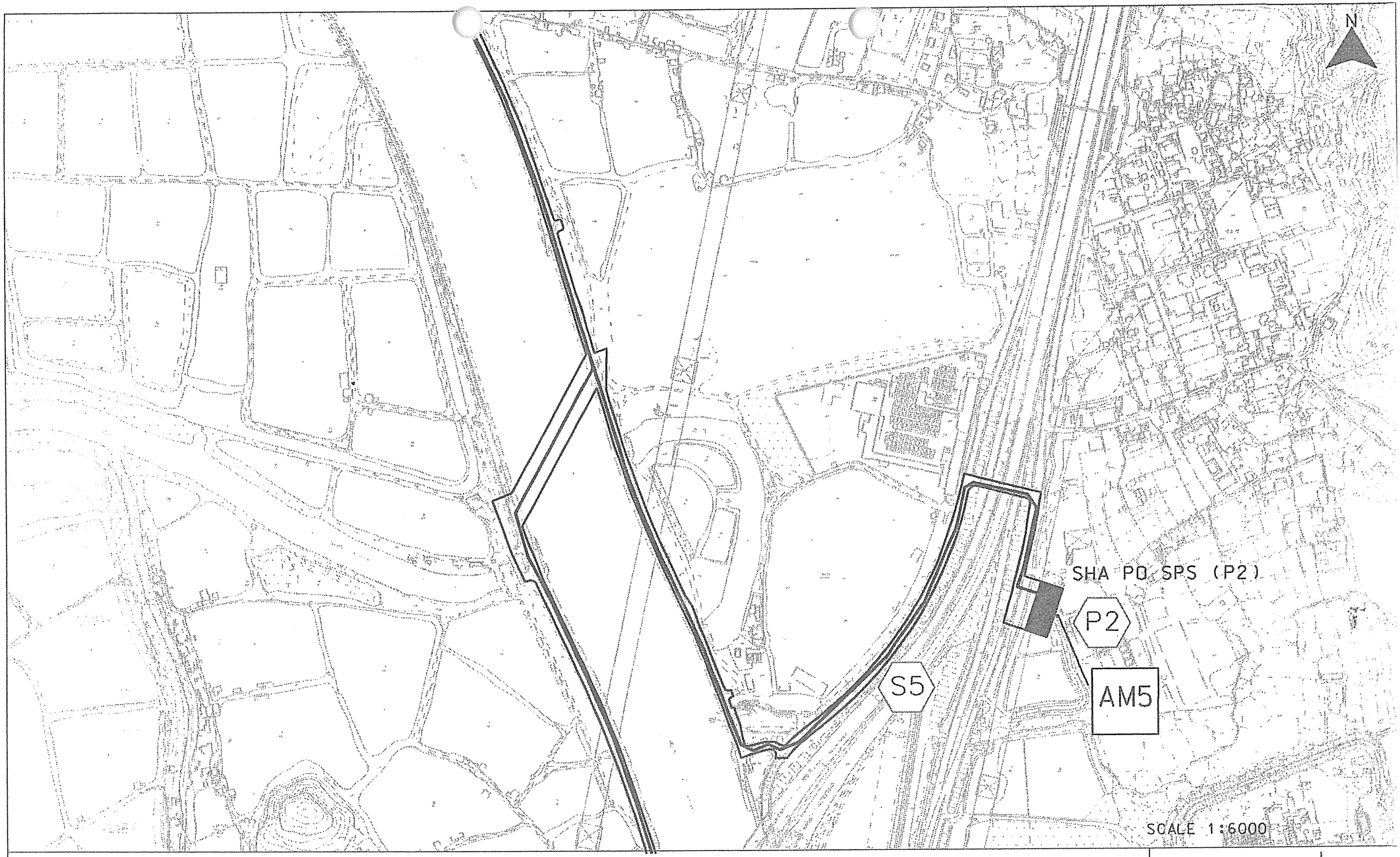


FIGURE 3.7b

LOCATION OF DUST MONITORING STATION (AM5)

Environmental Resources Management

ERM

USTN FILE: C2008/e1aa6r2a
DATE: 23/03/01

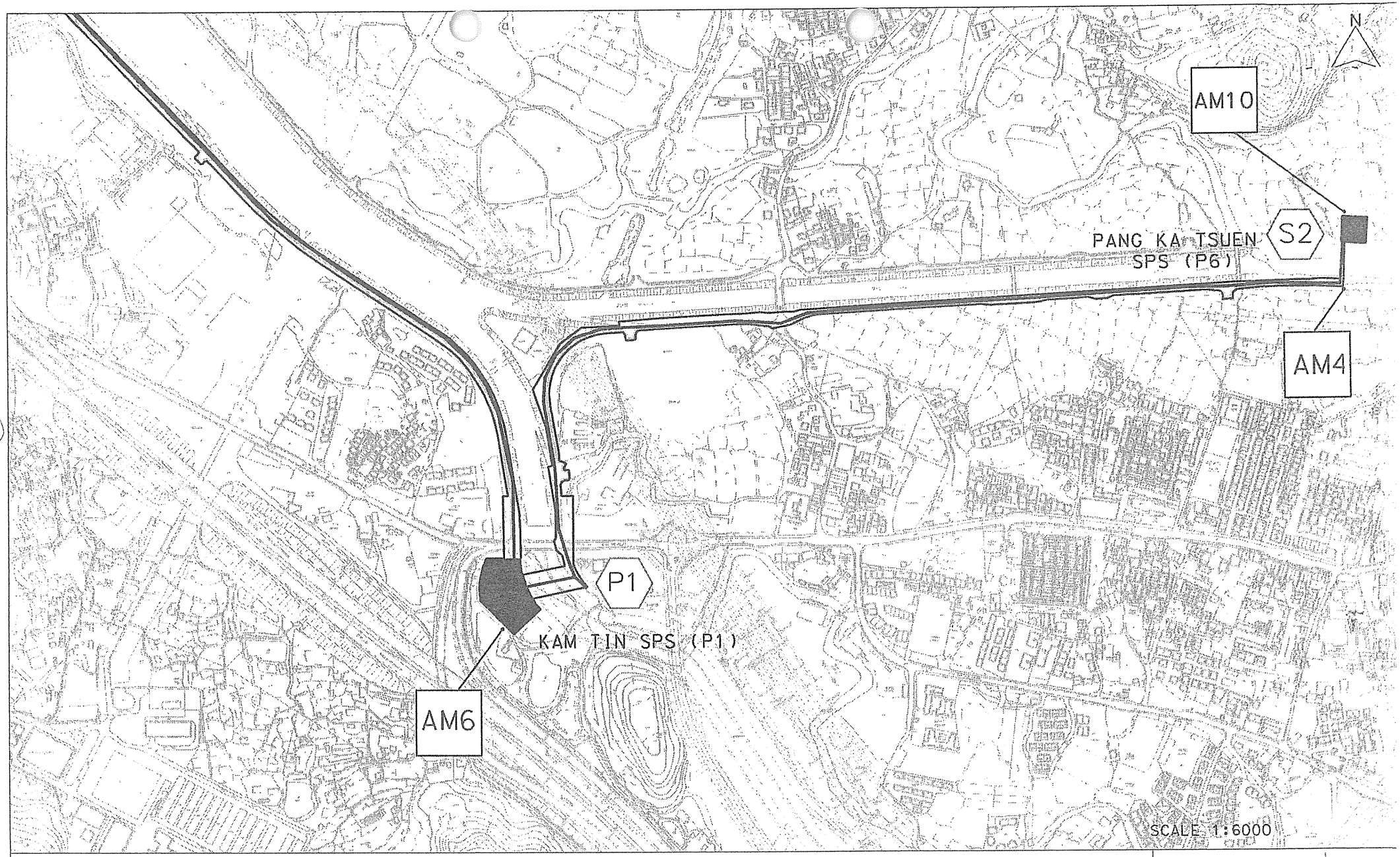


FIGURE 3.7a

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

Environmental Resources Management

ERM

USTN FILE: C2008/e1oosr4o

DATE: 26/03/01

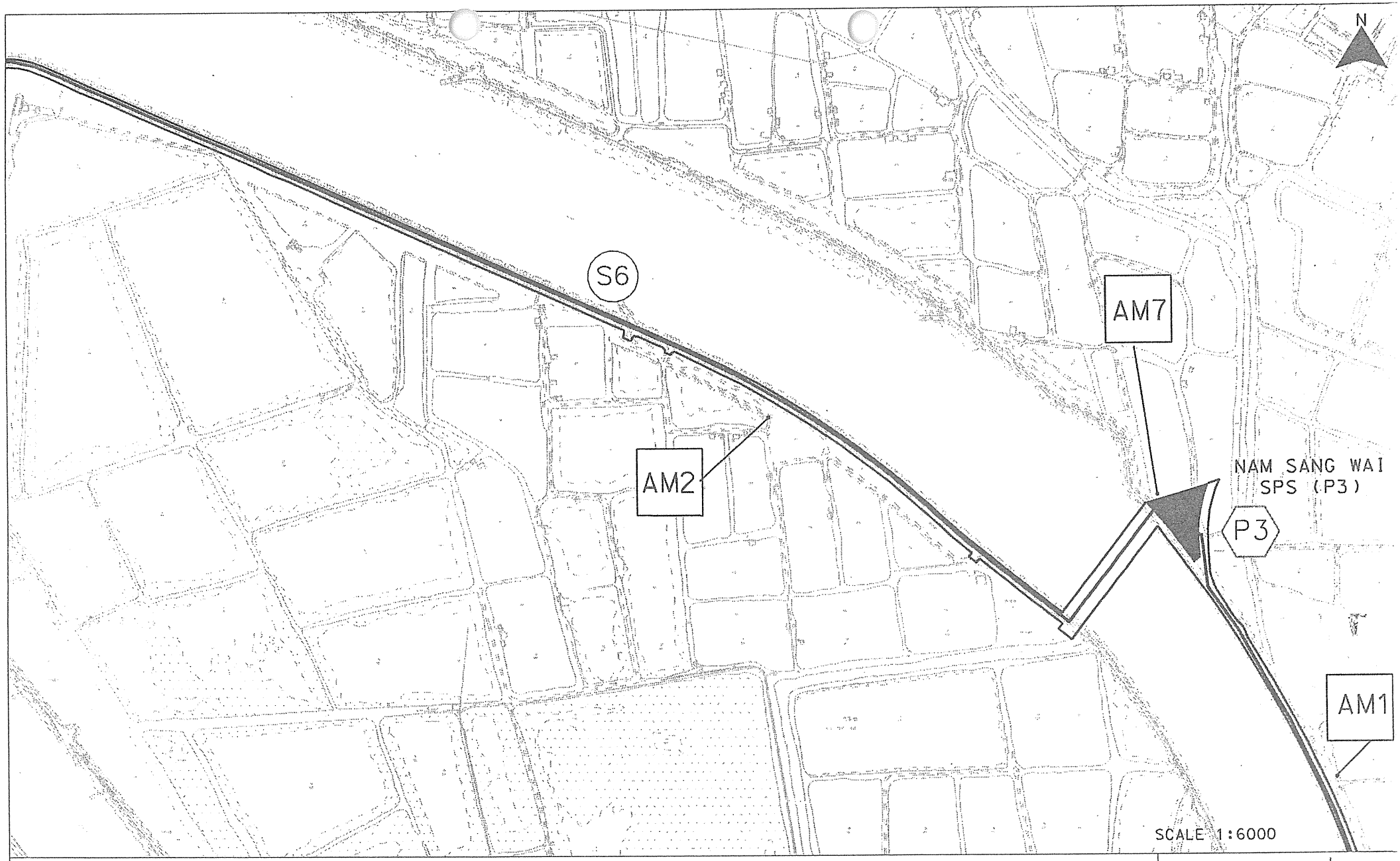


FIGURE 3.7c

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

USTN FILE: C2008/eiaasr1a
DATE: 23/03/01

Environmental Resources Management

ERM

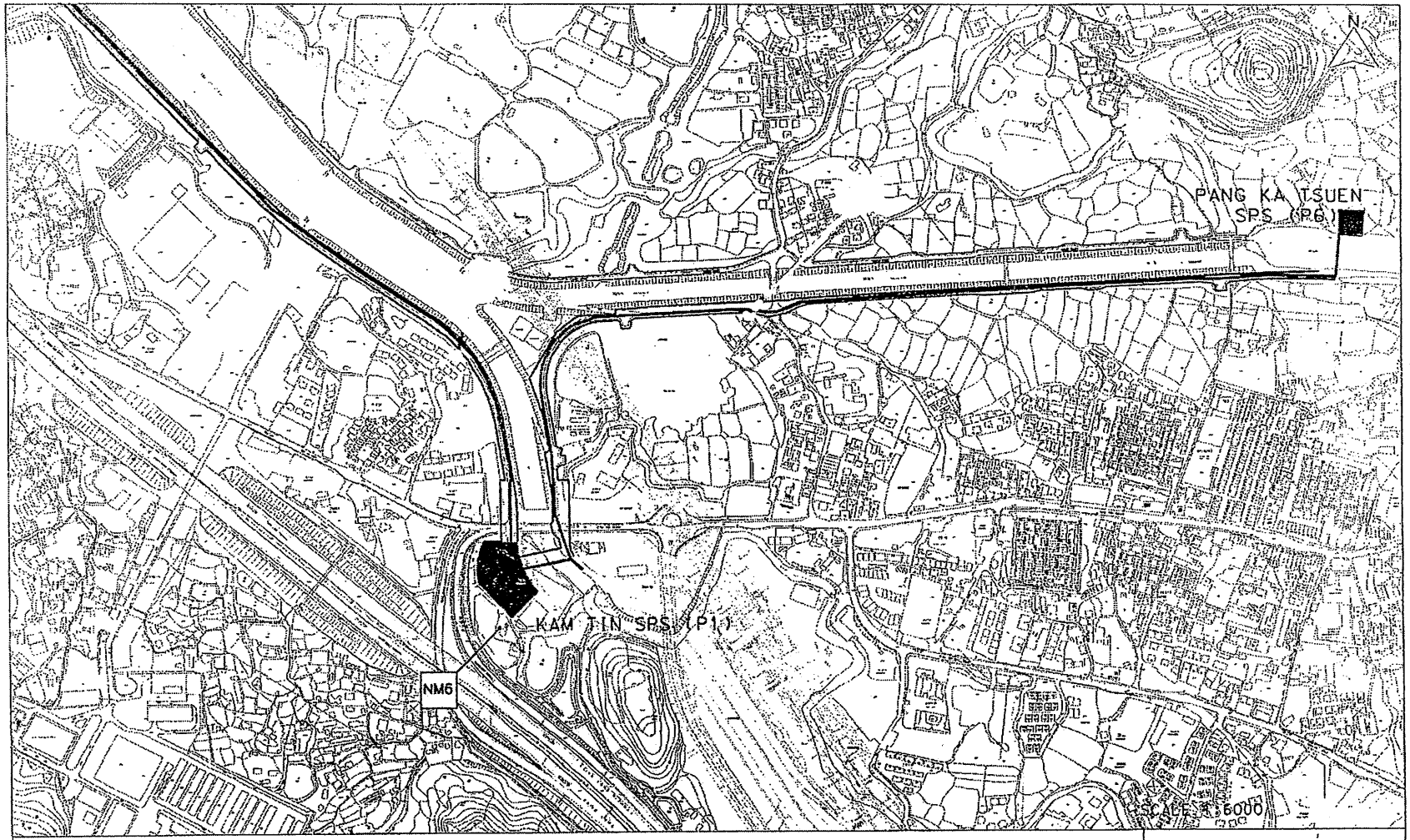


FIGURE C7

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

USTN FILE: C2000/EMBA/EMBA-C7
DATE: 23/08/01

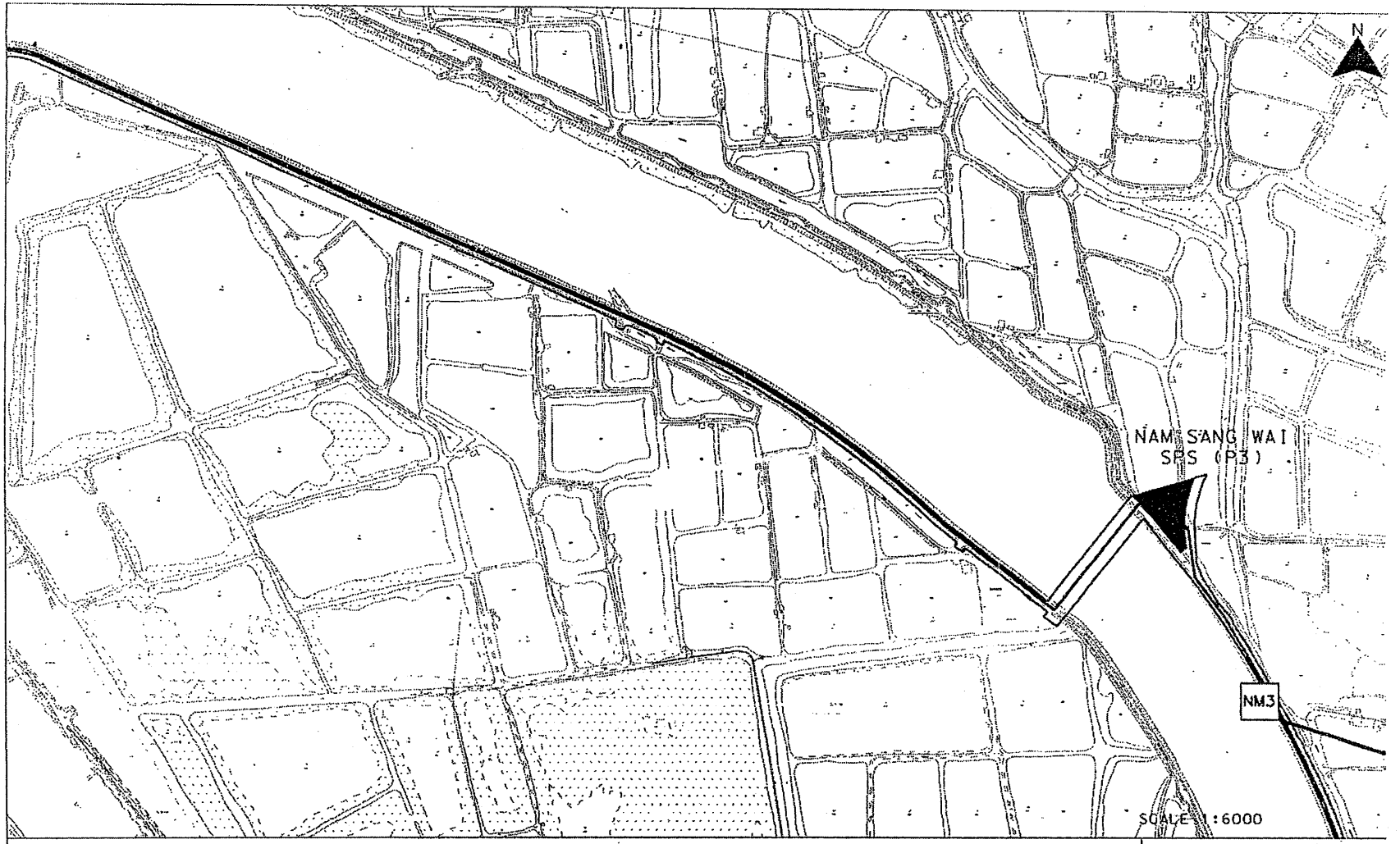


FIGURE C8

LOCATION OF NOISE MONITORING STATIONS (NM3, NM5)

USTN FILE: C2008/EM&A/EM3A-C8

DATE: 23/08/2001

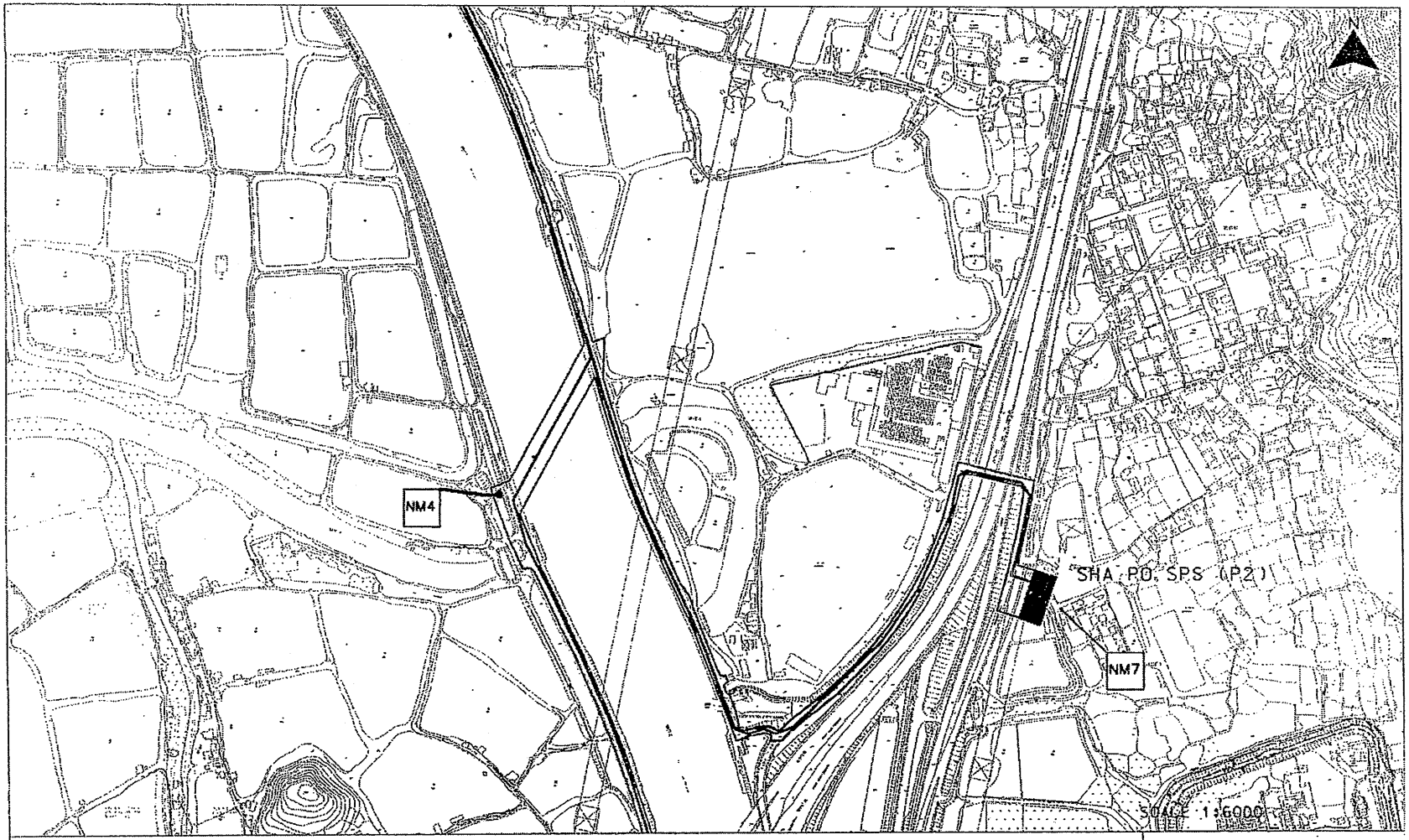


FIGURE C9

LOCATION OF NOISE MONITORING STATIONS (NM4, NM7)

USTN FILE: C2008/EMIA/EMIA-09
DATE: 23/08/2001

ANNEX E

EVENT AND ACTION PLAN

Event and Action Plan for Construction Phase Air Quality

EVENT	ACTION			
	ET Leader	**IEC**	**Engineer**	**Contractor**
Action Level				
Exceedance for one sample	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	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	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	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	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	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	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.	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**
Limit Level				
Exceedance for one sample	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	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	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.	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	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.	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	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.	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**
Limit Level				
Exceedance for one sample	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	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	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	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	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.	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	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.	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								
		AIR QUALITY - *Construction Phase* The following measures are enforceable under the *Air Pollution Control (Construction Dust) Regulations* **Use of vehicles**								
3.5	A3	• 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		✓			*Part IV, Clause 21, (1), Air Pollution Control (Construction Dust) Regulations*
		Power-driven drilling, and cutting								
3.5	A4	• 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		✓			*Part IV, Clause 22, Air Pollution Control (Construction Dust) Regulations*
		NOISE - *Construction Phase* ***General Site Clearance – Demolition Works***								
4.7.1	B1	• Use of quiet PME which meet the SWLs taken from British Standard, *Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997 (Examples of these PME are shown in Table F2)*,	To control potential noise impacts during site clearance and demolition works	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			*Annex 5 of EIAO-TM*
		Sewers and Rising Mains using Open Trench Method								
4.7.1	B3	• Use of quiet PME which meet the SWLs taken from British Standard, *Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997*,	To control potential noise impacts during excavation works.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			*Annex 5 of EIAO-TM*
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		✓			
		Sewers and Rising Mains using Pipe Jacking Method								
4.7.1	B6	• Use of quiet PME which meet the SWLs taken from British Standard, *Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997*,	To control potential noise impacts from PME during construction works	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			*Annex 5 of EIAO-TM*
		Road Pavement and Finishes								
4.7.1	B7	• Use of quiet PME which meet the SWLs taken from British Standard, *Noise and Vibration Control on*	To control potential noise impacts from PME during pavement and finish works	Site wide and throughout the full duration of the	The Contractor		✓			*Annex 5 of EIAO-TM*

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 Open Sites, BS 5228: Part 1: 1997,		construction contract.						
6.6.2	D1	**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, • Chemical Waste Producer and Chemical Waste Disposal Licence *(Waste Disposal (Chemical Waste) (General) Regulations); and* • Dumping Licence (*Land (Miscellaneous Provisions) Ordinance (Cap 28))*	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	✓	✓			*Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste)(General) Regulation (Cap 354), the Land (Miscellaneous Provisions) Ordinance (Cap 28))*
6.6.2	D5	*Management of Waste Disposal* 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 *Land (Miscellaneous Provisions) Ordinance (Cap28)* and the *Works Bureau Technical Circular No. 5/99.*	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		✓			*Land (Miscellaneous Provisions) Ordinance (Cap 295) and Works Bureau Technical Circular No. 5/99.*
6.6.1 and 6.6.2	D6	*Waste Management Plan* A Waste Management Plan (WMP) should be prepared and this WMP should be submitted to the Engineer for approval. • 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		✓			*Works Bureau Technical Circular No 29/2000-Waste Management Plan*
3.7	H1	**EM&A REQUIEMENTS - *Construction Phase*** *Air Quality* 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). *Sewer in Au Tau Area (S7)* • Worksite boundary near San Yuen Long Centre (AM7)	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		✓			*Air Pollution Control (Construction Dust) Regulations*
4.9.1	I2	Construction Noise 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	
		• (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

Item	Aspect	Description of Equipment	Serial No.	Date of Calibration	Date of Next Calibration
1*	TSP	Greasby Anderson GMWS2310 High Volume Sampler	(AM5)	1 Aug 09	1 Oct 09
2*		Greasby Anderson GMWS2310 High Volume Sampler	(AM6)	1 Aug 09	1 Oct 09
3*		Greasby Anderson GMWS2310 High Volume Sampler	1283 (AM7)	1 Aug 09	1 Oct 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.

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Sha Po Pumping Station
Location ID : AM5

Date of Calibration: 1-Aug-09
Next Calibration Date: 1-Oct-09
Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1002.4	Corrected Pressure (mm Hg)	751.8
Temperature (^{o}C)	30.3	Temperature (K)	303

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.01546
Model->	515N	Qstd Intercept ->	-0.02851
Serial # ->	355		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected
18	5.4	5.4	10.8	1.622	48	46.91
13	4.2	4.2	8.4	1.432	41	40.07
10	3.2	3.2	6.4	1.252	35	34.20
7	2.1	2.1	4.2	1.017	27	26.38
5	1.2	1.2	2.4	0.772	18	17.59

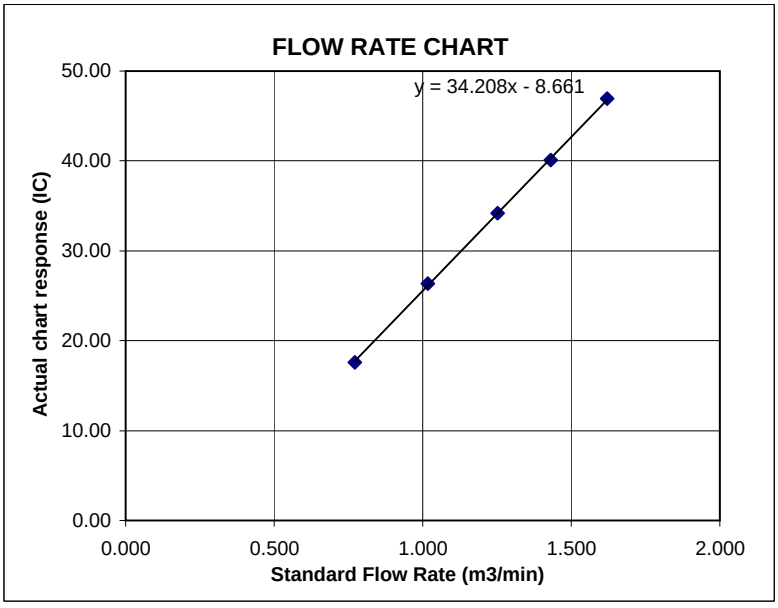
LINEAR REGRESSION
Slope = 34.2084
Intercept = -8.6610
Corr. coeff. = 0.9998

Calculations :
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
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)[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: 1-Aug-09
Location ID : AM 6 Next Calibration Date: 1-Oct-09
Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1002.4	Corrected Pressure (mm Hg)	751.8
Temperature (^{o}C)	30.3	Temperature (K)	303

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.01546
Model->	515N	Qstd Intercept ->	-0.02851
Serial # ->	10394		

CALIBRATION

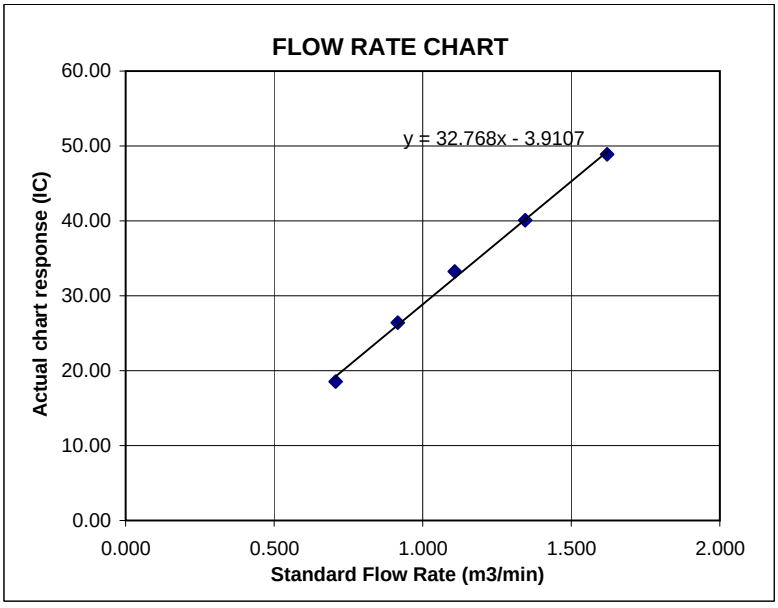
Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.4	5.4	10.8	1.622	50	48.86	Slope = 32.7677
13	3.7	3.7	7.4	1.345	41	40.07	Intercept = -3.9107
10	2.5	2.5	5.0	1.108	34	33.23	Corr. coeff. = 0.9988
7	1.7	1.7	3.4	0.916	27	26.38	
5	1.0	1.0	2.0	0.706	19	18.57	

Calculations :
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
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)[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:	1-Aug-09
Location ID :	AM 7 (Designated)	Next Calibration Date:	1-Oct-09
Serial No:	1283	Technician:	Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1002.4	Corrected Pressure (mm Hg)	751.8
Temperature (^{o}C)	30.3	Temperature (K)	303

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.01546
Model->	515N	Qstd Intercept ->	-0.02851
Serial # ->	0285		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected
18	5.1	5.1	10.2	1.576	47	45.93
13	4.1	4.1	8.2	1.415	41	40.07
10	3	3	6	1.212	34	33.23
7	2.1	2.1	4.2	1.017	27	26.38
5	0.9	0.9	1.8	0.670	18	17.59

LINEAR REGRESSION

Slope =	31.4640
Intercept =	-4.4293
Corr. coeff. =	0.9969

Calculations :

Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]

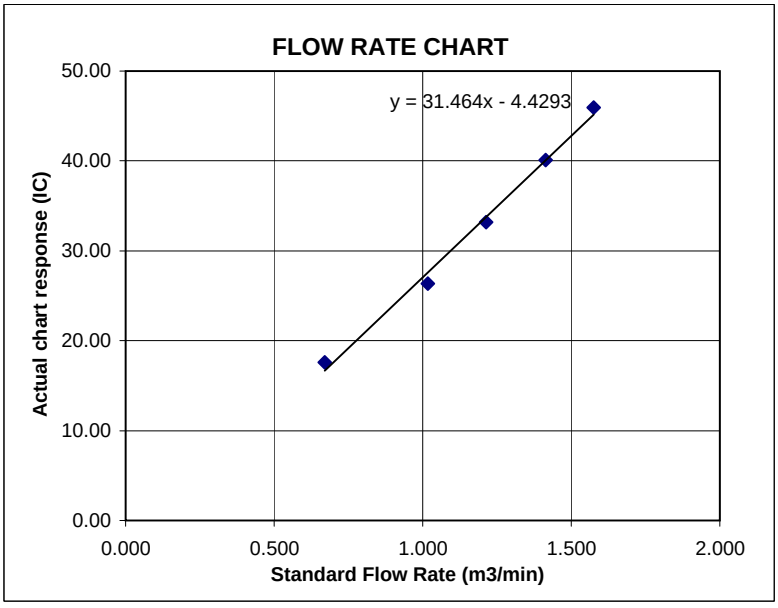
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
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)[Sqrt(298/Tav)(Pav/760)]-b)

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



ANNEX H

METEOROLOGICAL DATA

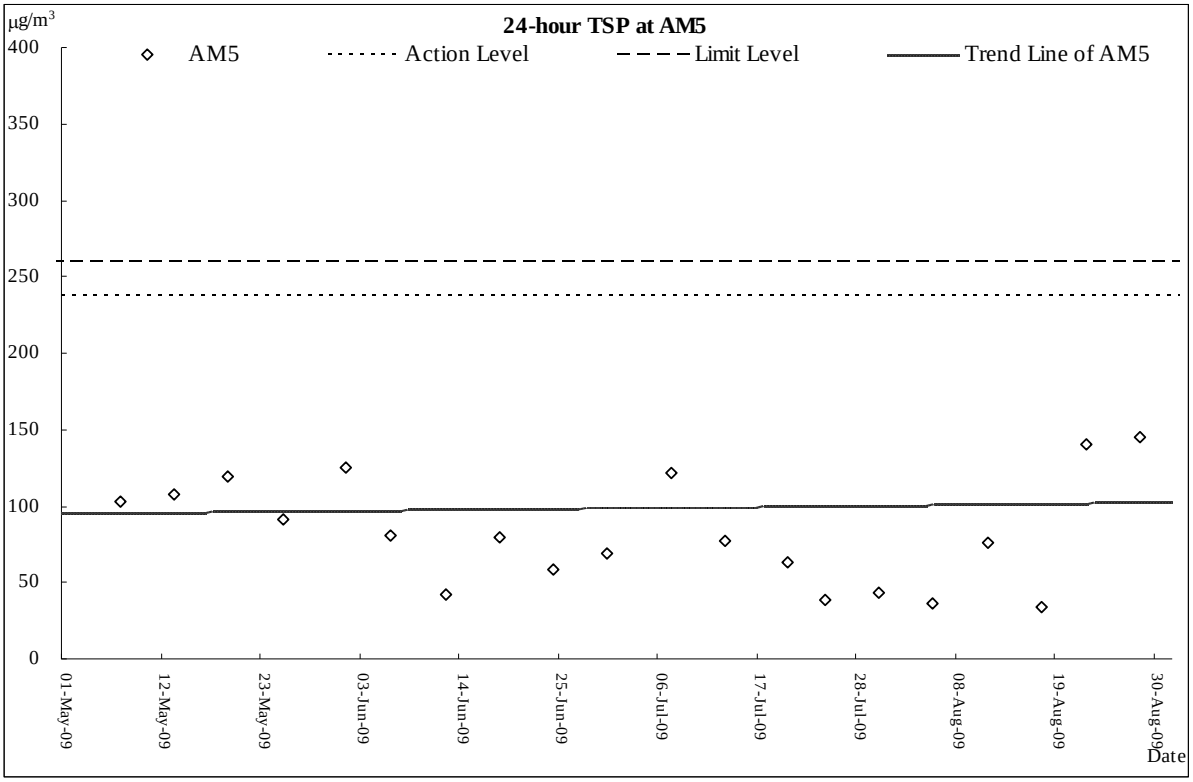
Meteorological Data Extracted From the HK Observatory at Lau Fau Shan Weather Station

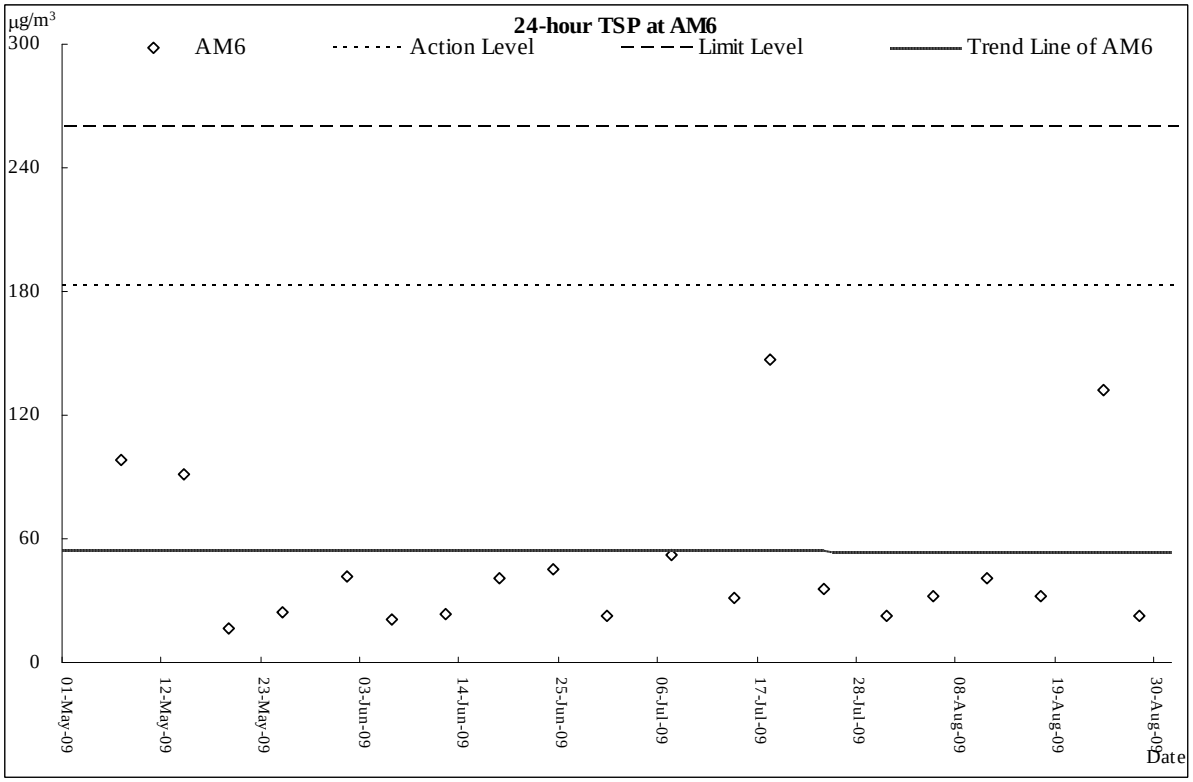
Date		Weather		Lau Fau Shan Weather Station			
			Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
1-Aug-09	Sat	fine/very hot/showers/light winds	0	29.8	14	76	E
2-Aug-09	Sun	sunny periods/showers/very	0	31.4	10.5	72.5	S/SE
3-Aug-09	Mon	sunny periods/very hot/a few	21.4	31.7	9.5	77	E/NE
4-Aug-09	Tue	strong/cloudy/rain/squalls	21.3	28.1	17.5	75.5	E/NE
5-Aug-09	Wed	cloudy/rain/squalls/moderate/fresh/strong	92.5	27	21	89.7	E/SE
6-Aug-09	Thu	cloudy/a few showers/squally	8.3	28.1	18.5	88.5	SE
7-Aug-09	Fri	fine/moderate	0	29.4	11	84.2	S/SE
8-Aug-09	Sat	very hot/fresh/moderate	0	30.2	14.5	82.3	S/SE
9-Aug-09	Sun	sunny periods/very hot/a few	0	30	12	79	W/SW
10-Aug-09	Mon	cloudy/showers/thunderstorms/light	21.8	29.5	9.5	82.5	W/SW
11-Aug-09	Tue	cloudy/rain/squally thunderstorm/light winds	32.2	27.7	17	84.5	S/SE
12-Aug-09	Wed	cloudy/rain/squally thunderstorm/light	3.1	26.7	16.2	88.5	E/SE
13-Aug-09	Thu	cloudy/rain/squally	70.7	26.2	8.2	93.5	S/SE
14-Aug-09	Fri	cloudy/a few showers/sunny intervals/moderate	44.9	28.2	10.5	86.5	S/SE
15-Aug-09	Sat	hot/sunny periods/a few	0	28.7	11	85.5	S/SE
16-Aug-09	Sun	sunny periods/a few showers/hot/moderate	0	30.2	15.7	78	W/NW
17-Aug-09	Mon	cloudy/showers/squally	2	29.4	8	76.5	S/SE
18-Aug-09	Tue	fine/hot/isolated	12.7	28.6	11.5	77	E/NE
19-Aug-09	Wed	fine/isolated showers/very hot/light	0.3	29	16	83	E/SE
20-Aug-09	Thu	fine/isolated showers/very hot/light	0	29.3	9.5	79	S/SE
21-Aug-09	Fri	fine/very hot/light winds	0	29.9	13.5	71.7	E/SE
22-Aug-09	Sat	fine/isolated showers/very	0	30.3	14	67	W
23-Aug-09	Sun	very hot/fine/isolated showes/moderate	Trace	30.1	15.7	Maintenance	W/SW
24-Aug-09	Mon	sunny intervals/haze/showers/moderate	0	29.4	8	Maintenance	N/NE
25-Aug-09	Tue	sunny periods/a few	Trace	30.9	12	72	E/NE
26-Aug-09	Wed	fine/very hot/isolated	Trace	28.3	10	76	E/NE
27-Aug-09	Thu	fine/very hot/isolated	Trace	29.3	13.5	81	E/SE
28-Aug-09	Fri	fine/very hot/isolated showers/light	0	30.4	13.5	77.7	S/SE
29-Aug-09	Sat	fine/very hot/isolated showers/light	Trace	28.8	8	69	W/SW
30-Aug-09	Sun	fine/hazy/hot/moderate	2.4	30.5	14	75	E/NE
31-Aug-09	Mon	fine/hazy/very hot/moderate	0.5	29.1	6.2	75.2	E/NE

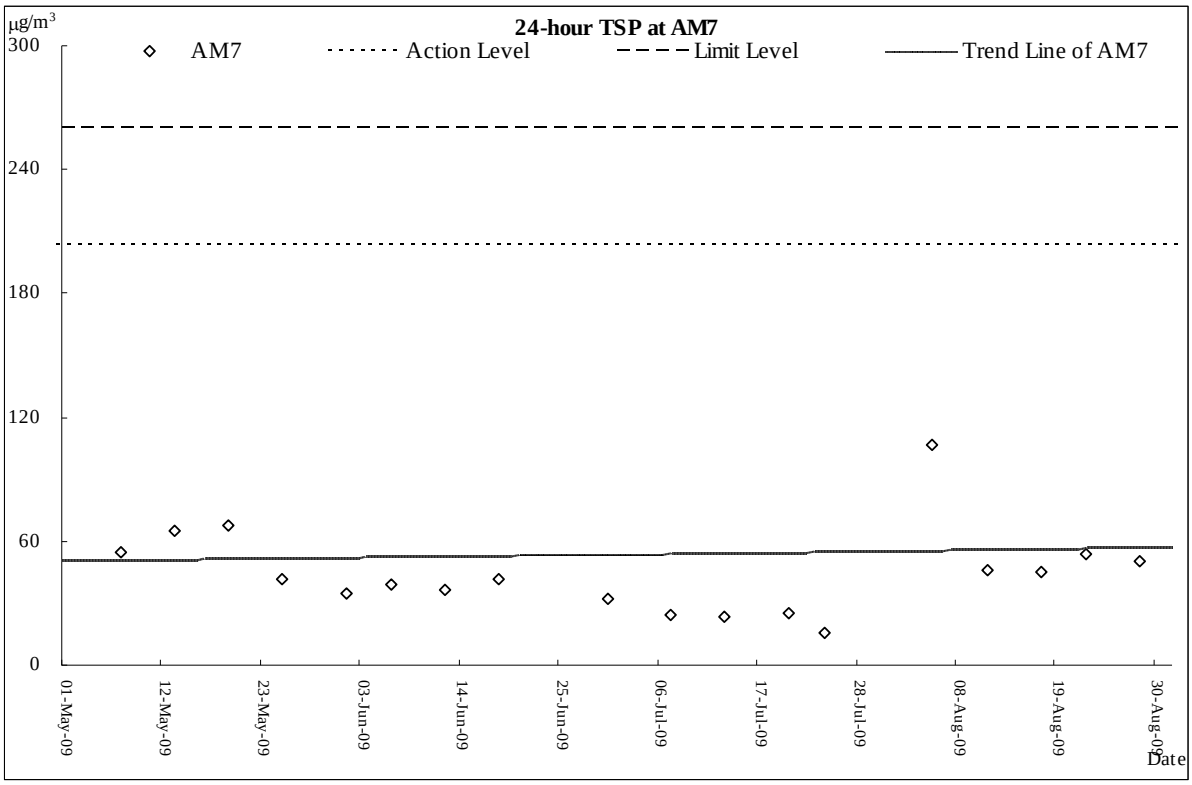
ANNEX I

GRAPHICAL PLOTS OF AIR QUALITY AND CONSTRUCTION NOISE MONITORING RESULTS

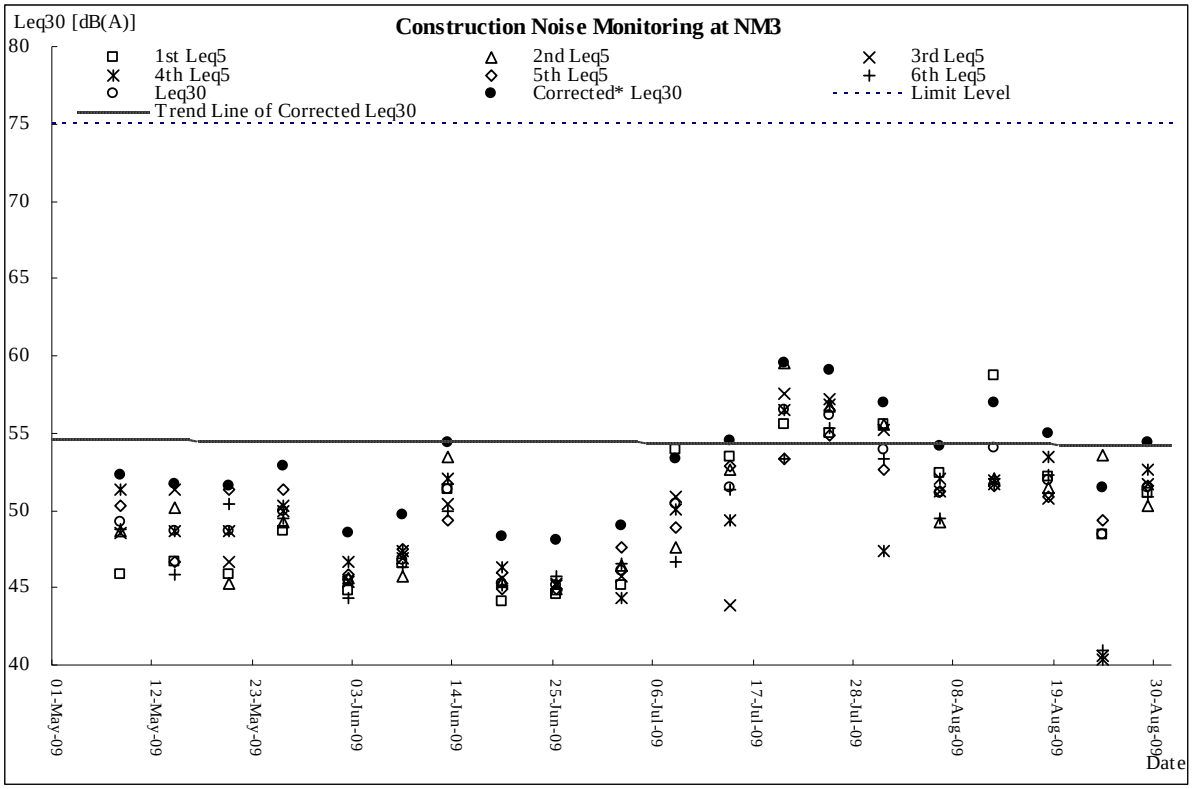
Air Quality Monitoring Results

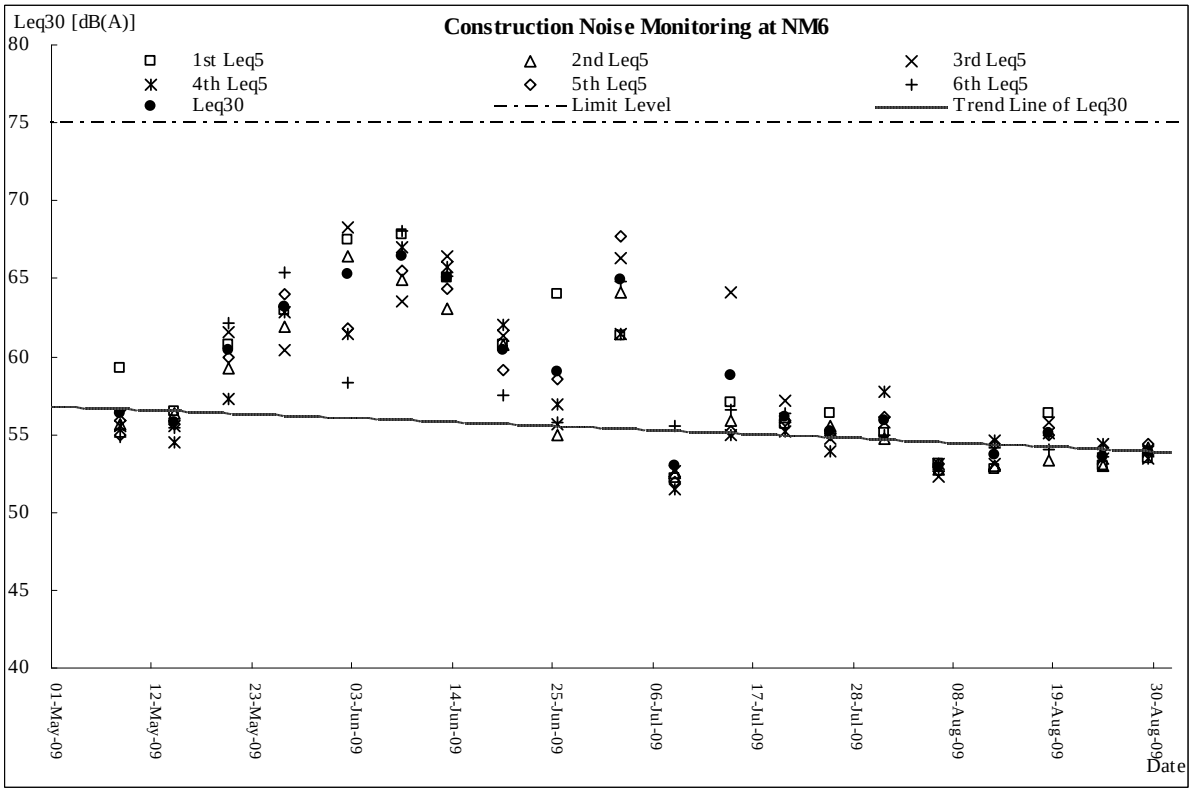


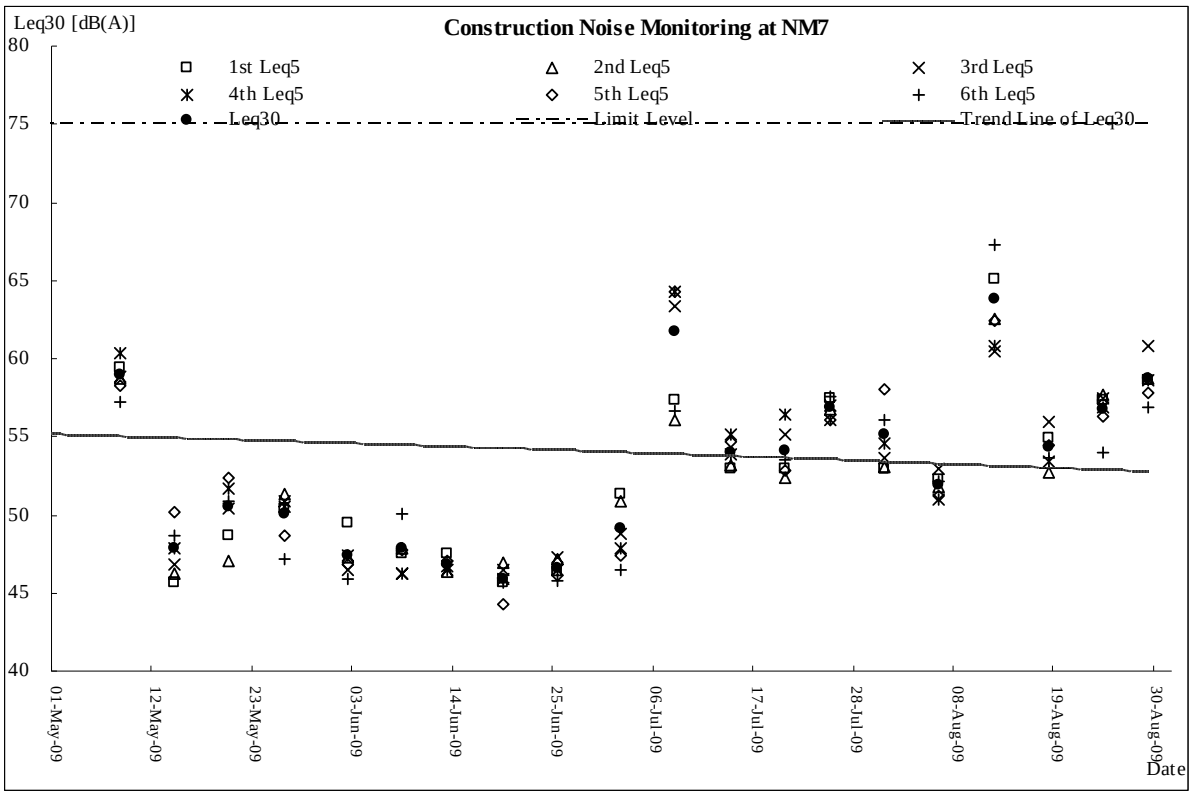



24-hour TSP at AM7
µg/m3
AM7
Action Level
Limit Level
Trend Line of AM7
300
240
180
120
60
0
01-May-09
12-May-09
23-May-09
03-Jun-09
14-Jun-09
25-Jun-09
06-Jul-09
17-Jul-09
28-Jul-09
08-Aug-09
19-Aug-09
30-Aug-09
Date

Construction Noise Monitoring Results






Construction Noise Monitoring at NM7
Leq30 [dB(A)]
80
75
70
65
60
55
50
45
40
1st Leq5
2nd Leq5
3rd Leq5
4th Leq5
5th Leq5
6th Leq5
Leq30
Limit Level
Trend Line of Leq30
01-May-09
12-May-09
23-May-09
03-Jun-09
14-Jun-09
25-Jun-09
06-Jul-09
17-Jul-09
28-Jul-09
08-Aug-09
19-Aug-09
30-Aug-09
Date