

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 **JANUARY 2010**
(No. 12)**

PREPARED FOR

REC ENGINEERING COMPANY LIMITED

Quality Index

| Date | Reference No. | Certified By | Verified By |
|------------------|-------------------------|--------------|-----------------|
| 12 February 2010 | TCS00462/08/600/R0035v2 | Andrew Lau | Dr. Anne F Kerr |



Environmental Team Leader

Independent Environmental Checker

| Version No. | Date | Remarks |
|-------------|------------------|--|
| 1 | 9 January 2010 | First Submission |
| 2 | 12 February 2010 | Amended against IEC's comments on 11 February 2010 |

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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 **twelfth (12th)** Monthly Environmental Monitoring and Audit (EM&A) Report for **January 2010** presenting the EM&A program conducted from **1 to 31 January 2010** for the Contract No.: DE/2005/05. The EM&A program in **January 2010** covered air quality, construction noise and waste management only.

BREACH OF ACTION AND LIMIT (AL) LEVELS

- ES05. For air quality, one (1) Limit Level exceedance for 24-hour TSP monitoring was recorded at AM5 on 28 January 2010. It was found that most construction activities under the project were conducted inside the pumping station. Those indoor activities would not generate fugitive dust to the air monitoring station. Therefore, it was concluded that the exceedance was not related to the project.
- 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 **February 2010** would be only defects rectification works at both Nam Sang Wai SPS as the construction activities at Sha Po and Kam Tin SPSs have substantially be completed. 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.

TABLE OF CONTENTS

| | |
|--|-----------|
| 1.0 INTRODUCTION..... | 1 |
| 2.0 ENVIRONMENTAL STATUS | 2 |
| 3.0 SUMMARY OF EM&A REQUIREMENTS | 3 |
| 4.0 STATUS OF ENVIRONMENTAL LICENSE AND PERMITS..... | 4 |
| 5.0 MONITORING METHODOLOGY AND RESULTS..... | 5 |
| 6.0 REPORT ON NON-COMPLIANCE, COMPLAINTS, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS..... | 10 |
| 7.0 OTHERS | 11 |

LIST OF TABLES

| | |
|------------------|---|
| TABLE 1-1 | CONSTRUCTION ACTIVITIES IN THIS MONTH |
| TABLE 2-1 | WORKS UNDERTAKEN AND ILLUSTRATIONS OF MITIGATION MEASURES |
| TABLE 2-2 | DESCRIPTION OF MONITORING STATIONS |
| TABLE 3-1 | SUMMARY OF EM&A REQUIREMENTS |
| TABLE 3-2 | ACTION AND LIMIT LEVELS FOR AIR QUALITY |
| TABLE 3-3 | ACTION AND LIMIT LEVELS FOR CONSTRUCTION NOISE |
| TABLE 4-1 | STATUS OF ENVIRONMENTAL LICENSES AND PERMITS |
| TABLE 5-1 | MONITORING EQUIPMENT USED IN IMPACT EM&A PROGRAM |
| TABLE 5-2 | AIR QUALITY AND CONSTRUCTION NOISE MONITORING STATIONS/LOCATIONS |
| TABLE 5-3 | SUMMARY OF AIR QUALITY MONITORING RESULTS |
| TABLE 5-4 | SUMMARY OF NOISE MONITORING RESULTS AT NM3 |
| TABLE 5-5 | SUMMARY OF NOISE MONITORING RESULTS AT NM6 |
| TABLE 5-6 | SUMMARY OF NOISE MONITORING RESULTS AT NM7 |
| TABLE 5-7 | TENTATIVE SCHEDULE OF MONITORING FOR THE NEXT MONTH |
| TABLE 7-1 | SUMMARY OF WASTE QUANTITIES FOR DISPOSAL |
| TABLE 7-2 | SUMMARY OF WASTE QUANTITIES FOR REUSE/RECYCLING |
| TABLE 7-3 | SUMMARY OF SITE OBSERVATIONS |

LIST OF ANNEXES

| | |
|----------------|---|
| ANNEX A | PROJECT SITE LAYOUT |
| ANNEX B | PROJECT ORGANIZATION AND MANAGEMENT STRUCTURE |
| ANNEX C | CONSTRUCTION PROGRAM |
| ANNEX D | LOCATION OF MONITORING STATIONS |
| ANNEX E | EVENT AND ACTION PLAN |
| ANNEX F | MITIGATION IMPLEMENTATION SCHEDULE |
| ANNEX G | EQUIPMENT CALIBRATION CERTIFICATES |
| ANNEX H | METEOROLOGICAL DATA |
| ANNEX I | GRAPHICAL PLOTS OF AIR QUALITY AND CONSTRUCTION NOISE MONITORING RESULTS |

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 **twelfth (12th)** Monthly Environmental Monitoring and Audit (EM&A) Report for **January 2010** presenting the EM&A program conducted from **1 to 31 January 2010** for the Contract No.: DE/2005/05. The EM&A program in **January 2010** 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 electrical service equipment, fire service equipment, pipework and ventilation system |
| Sha Po | <ul style="list-style-type: none">Defects rectification works |
| Kam Tin | <ul style="list-style-type: none">Defects rectification works |

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 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 Maximize the use of quiet PME on site | H1 I1 & I2 D5 B1, B2 |
| Sha Po | <ul style="list-style-type: none"> Defects rectification works | <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 |
| Kam Tin | <ul style="list-style-type: none"> Defects rectification works | <ul style="list-style-type: none"> Implement trip-ticket system for waste disposal Conduct noise and dust monitoring as per EM&A Manual during construction Perform weekly inspection with ET and monthly audit with IEC | D5 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 summarised in [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 The 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 impact 24-hour TSP monitoring was conducted at the designated stations once every 6 days in compliance with the updated EM&A Manual. In this month, **6** monitoring events of 24-hour TSP monitoring were successful conducted. However, there are **9** events of 24-hour monitoring were unsuccessful measured due to the power supply issue.
- 5.17 The impact noise monitoring was conducted at the designated stations once every 6 normal working days in compliance with the updated EM&A Manual. 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 For 24-hour TSP monitoring, one Limit Level exceedances was recorded at AM5 on 28 January 2010. It was found that most construction activities under the project were conducted inside the pumping station. Those indoor activities would not generate fugitive dust to the air monitoring station. Therefore, it was concluded that the exceedance was not related to works of the project.

5.20 **Nine (9)** events of 24-hour monitoring were unsuccessful due to failure of power supply. The power supply at AM6 had been ceased by the landlord since 28 December 2009 and reconnected on 28 January 2010. Power supply failure continued at AM7 in January 2010. The Contractor had tried to make contact with the landowner regarding the connection of power supply but not successful. Therefore, no air quality monitoring could be carried out at AM7 during this reporting month.

Table 5-3 Summary of Air Quality Monitoring Results

| Date | 24-hour TSP ($\mu\text{g}/\text{m}^3$) | | |
|-----------------|--|----------------|----------------|
| | AM5 | AM6 | AM7 |
| 5-Jan-10 | 152 | Power failure# | Power failure# |
| 11-Jan-10 | 88 | Power failure# | Power failure# |
| 16-Jan-10 | 87 | Power failure# | Power failure# |
| 22-Jan-10 | 107 | Power failure# | Power failure# |
| 28-Jan-10 | 299 | 72 | Power failure# |
| Average (Range) | 147 (88 – 299) | NA | NA |
| 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 was affected due to power failure.

5.21 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 |
|--------------------|------------|----------|----------|----------|----------|----------|----------|-------|------------------|
| 6-Jan-10 | 13:30 | 54.3 | 54.4 | 54.9 | 53.7 | 55.1 | 54.9 | 54.6 | 57.6 |
| 12-Jan-10 | 13:15 | 62.1 | 62.4 | 61.7 | 58.8 | 59.4 | 58.3 | 60.8 | 63.8 |
| 18-Jan-10 | 13:15 | 56.4 | 56.9 | 57.7 | 58.1 | 56.7 | 56.1 | 57.0 | 60.0 |
| 23-Jan-10 | 13:00 | 54.1 | 53.7 | 54.2 | 54.3 | 54.7 | 54.9 | 54.3 | 57.3 |
| 29-Jan-10 | 13:20 | 53.7 | 53.3 | 54.5 | 54.1 | 53.4 | 55.6 | 54.2 | 57.2 |
| 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 |
|--------------------|------------|----------|----------|----------|----------|----------|----------|-----------|
| 6-Jan-10 | 10:41 | 60.9 | 61.0 | 61.4 | 61.9 | 61.4 | 61.8 | 61.4 |
| 12-Jan-10 | 13:00 | 63.1 | 63.4 | 63.0 | 63.2 | 62.9 | 62.1 | 63.0 |
| 18-Jan-10 | 09:00 | 67.1 | 65.4 | 66.6 | 66.8 | 65.9 | 66.7 | 66.5 |
| 23-Jan-10 | 13:00 | 63.1 | 62.9 | 62.7 | 62.4 | 63.4 | 63.2 | 63.0 |
| 29-Jan-10 | 13:17 | 63.4 | 64.3 | 64.3 | 63.7 | 63.2 | 63.8 | 63.8 |
| 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-Jan-10 | 09:30 | 63.1 | 62.7 | 64.1 | 63.8 | 62.3 | 62.7 | 63.2 |
| 12-Jan-10 | 10:20 | 61.4 | 61.1 | 60.6 | 60.9 | 61.6 | 63.7 | 61.7 |
| 18-Jan-10 | 08:20 | 59.1 | 58.4 | 58.8 | 59.3 | 58.9 | 57.9 | 58.8 |
| 23-Jan-10 | 08:40 | 53.6 | 53.9 | 53.1 | 52.7 | 52.9 | 53.8 | 53.4 |
| 29-Jan-10 | 09:40 | 56.4 | 54.9 | 55.1 | 57.6 | 56.9 | 57.2 | 56.5 |
| Limit Level | | | | | | | | 75 |

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

5.22 The tentative monitoring schedule for the coming month (**February 2010**) is shown in **Table 5-7**.

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

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

| | |
|--|--------------------------|
| | Monitoring Day |
| | Sunday or Public Holiday |

WEATHER CONDITIONS DURING THE MONITORING MONTH

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

GRAPHICAL PLOTS OF TRENDS OF MONITORED PARAMETERS

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

WEATHER CONDITIONS THAT AFFECT THE MONITORING RESULTS

5.25 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

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

QA/QC RESULTS AND DETECTION LIMITS

- 5.27 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 For air quality, one (1) Limit Level exceedance of 24-hour TSP was recorded at AM5 on 28 January 2010. It was found that most construction activities under the project were conducted inside the pumping station. Those indoor activities would not generate fugitive dust to the air monitoring station. Therefore, it is concluded that the exceedance was not related to works of the project.
- 6.02 No construction noise complaint (an Action Level exceedance) 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 complaint 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 **February 2010** would be only defects rectification works at both Nam Sang Wai SPS as the construction activities at Sha Po and Kam Tin SPSs had been substantially completed. 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 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 **5, 13, 19 and 27 January 2010** to evaluate the site environmental performance. No non-compliance but one 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 |
|------------------|---|-----------------|
| 5 January 2010 | Nil | NA |
| 13 January 2010 | C&D waste cumulated at Nam San Wai Pumping station. | 19 January 2010 |
| *19 January 2010 | Nil | Nil |
| 27 January 2010 | Nil | 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

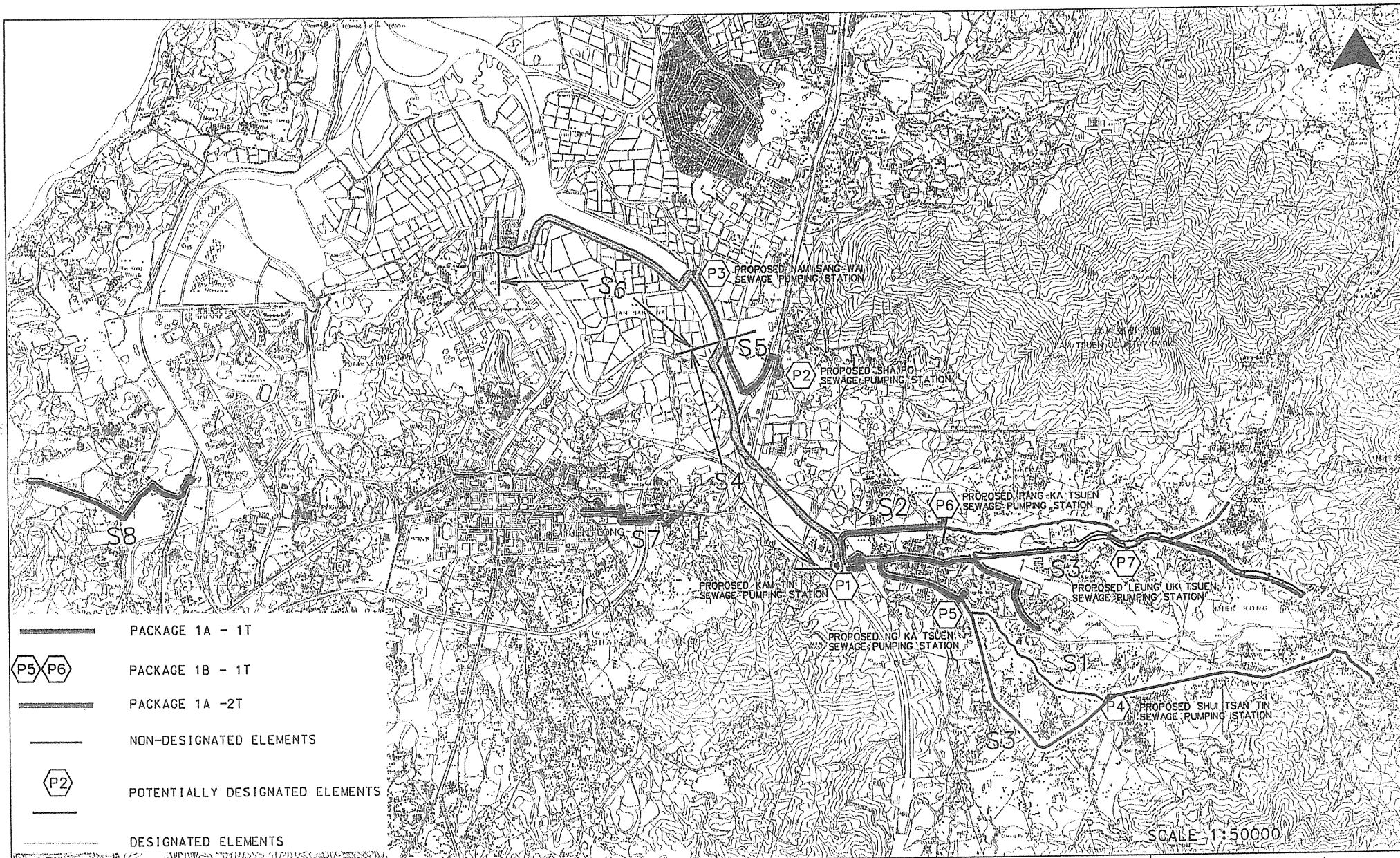


FIGURE 2.1a

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

Environmental
Resources
Management

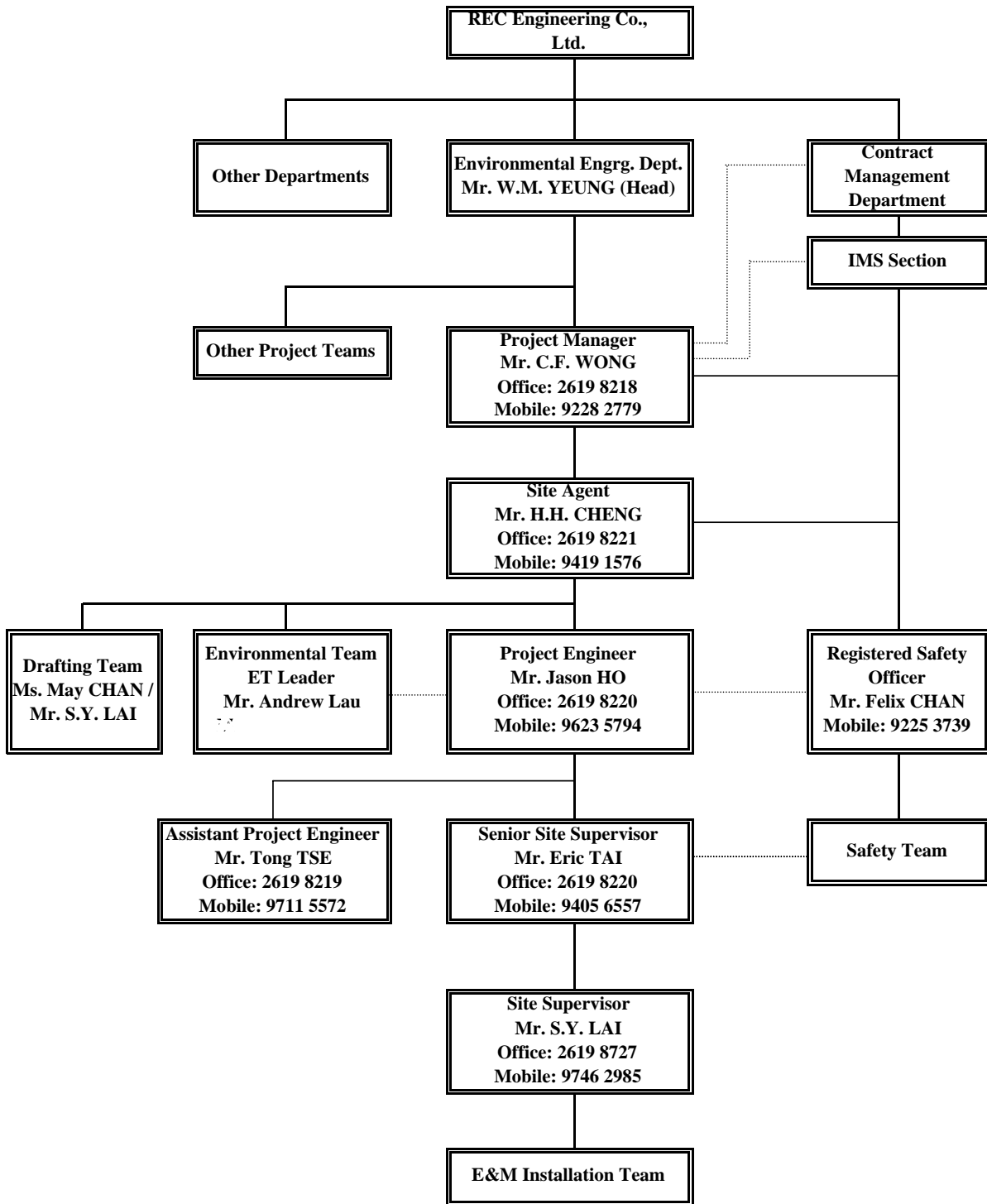


ANNEX B

**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

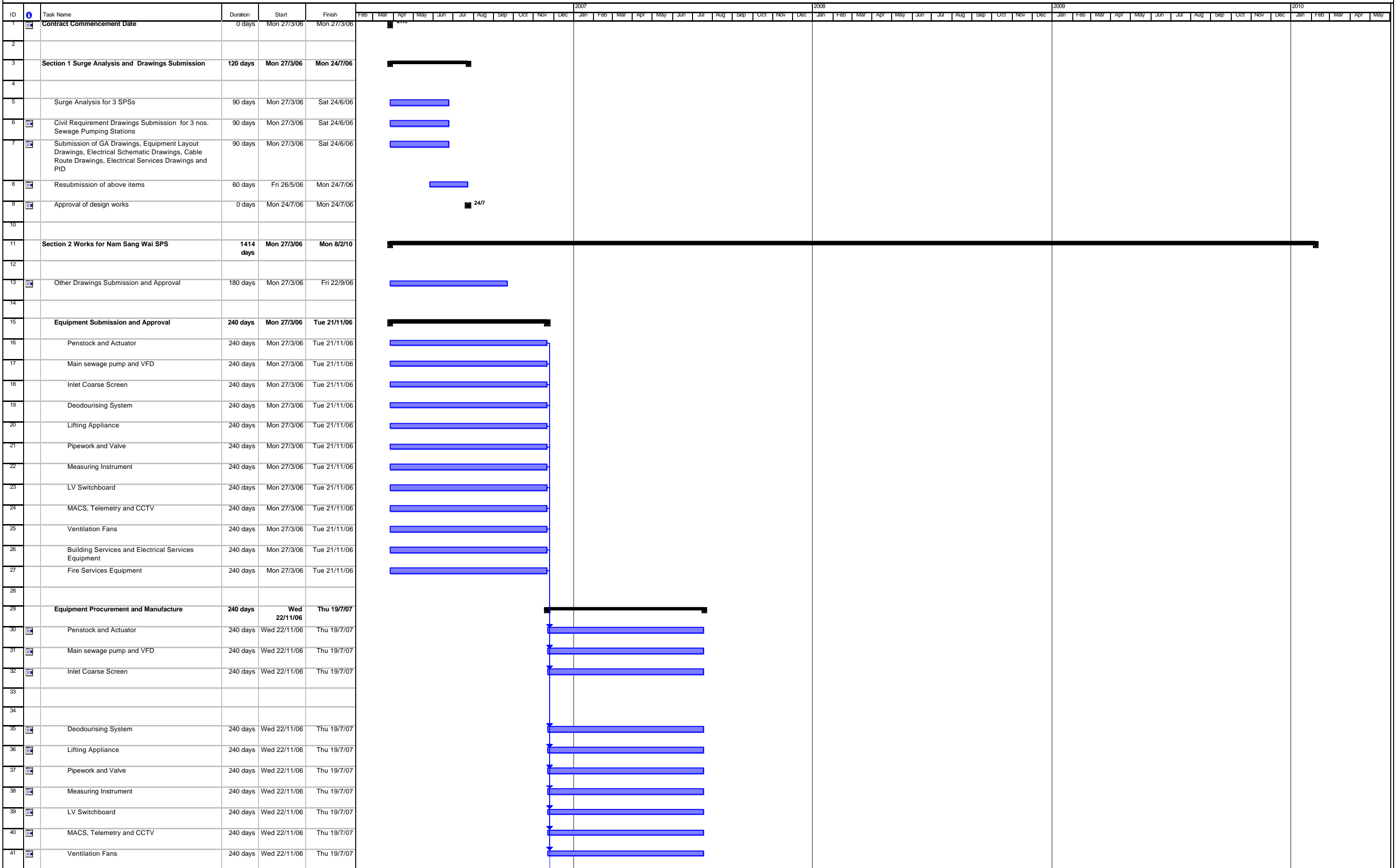
Project Organization Chart



Effective Date : 09 February 2009

ANNEX C

CONSTRUCTION PROGRAM



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 | 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 | [Milestone] | | | | | | | | | | | | [Milestone] | | | | | | | | | | | | [Milestone] | | | | | | | | | | | | [Milestone] | | | | |
| 46 | Application of Telephone Line | 0 days | Tue 27/3/07 | Tue 27/3/07 | [Milestone] | | | | | | | | | | | | [Milestone] | | | | | | | | | | | | [Milestone] | | | | | | | | | | | | [Milestone] | | | | |
| 47 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 48 | Equipment Delivery | 437 days | Thu 8/5/08 | Sat 18/7/09 | [Gantt bar] | | | | | | | | | | | | [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] | | | | | | | | | | | | [Gantt bar] | | | | |
| 50 | Main sewage pump and VFD | 30 days | Thu 8/5/08 | Fri 6/6/08 | [Gantt bar] | | | | | | | | | | | | [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] | | | | | | | | | | | | [Gantt bar] | | | | |
| 52 | Deodourising System | 30 days | Fri 19/6/09 | Sat 18/7/09 | [Gantt bar] | | | | | | | | | | | | [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] | | | | | | | | | | | | [Gantt bar] | | | | |
| 54 | Pipework and Valve | 30 days | Wed 20/8/08 | Thu 18/9/08 | [Gantt bar] | | | | | | | | | | | | [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] | | | | | | | | | | | | [Gantt bar] | | | | |
| 56 | LV Switchboard | 30 days | Fri 19/6/09 | Sat 18/7/09 | [Gantt bar] | | | | | | | | | | | | [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] | | | | | | | | | | | | [Gantt bar] | | | | |
| 58 | Ventilation Fans | 30 days | Wed 29/10/08 | Thu 27/11/08 | [Gantt bar] | | | | | | | | | | | | [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] | | | | | | | | | | | | [Gantt bar] | | | | |
| 60 | Fire Services Equipment | 30 days | Fri 19/6/09 | Sat 18/7/09 | [Gantt bar] | | | | | | | | | | | | [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 | [Milestone] | | | | | | | | | | | | [Milestone] | | | | | | | | | | | | [Milestone] | | | | | | | | | | | | [Milestone] | | | | |
| 63 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 64 | 1st stage Site Take Over Date for Section 2 | 0 days | Wed 13/5/09 | Wed 13/5/09 | [Milestone] | | | | | | | | | | | | [Milestone] | | | | | | | | | | | | [Milestone] | | | | | | | | | | | | [Milestone] | | | | |
| 65 | Site Installation at CLP Tx Room | 45 days | Wed 13/5/09 | Fri 26/6/09 | [Gantt bar] | | | | | | | | | | | | [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 | [Milestone] | | | | | | | | | | | | [Milestone] | | | | | | | | | | | | [Milestone] | | | | | | | | | | | | [Milestone] | | | | |
| 68 | Site Installation at Other Locations | 165 days | Fri 26/6/09 | Mon 7/12/09 | [Gantt bar] | | | | | | | | | | | | [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] | | | | | | | | | | | | [Gantt bar] | | | | |
| 70 | Main sewage pump and VFD | 30 days | Thu 24/9/09 | Fri 23/10/09 | [Gantt bar] | | | | | | | | | | | | [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] | | | | | | | | | | | | [Gantt bar] | | | | |
| 73 | Deodourising System | 60 days | Thu 10/9/09 | Sun 8/11/09 | [Gantt bar] | | | | | | | | | | | | [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] | | | | | | | | | | | | [Gantt bar] | | | | |
| 75 | Pipework and Valve | 45 days | Mon 10/8/09 | Wed 23/9/09 | [Gantt bar] | | | | | | | | | | | | [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] | | | | | | | | | | | | [Gantt bar] | | | | |
| 77 | LV Switchboard | 60 days | Fri 26/6/09 | Mon 24/8/09 | [Gantt bar] | | | | | | | | | | | | [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] | | | | | | | | | | | | [Gantt bar] | | | | |
| 79 | Ventilation Fans and air ducts | 60 days | Mon 5/10/09 | Thu 3/12/09 | [Gantt bar] | | | | | | | | | | | | [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] | | | | | | | | | | | | [Gantt bar] | | | | |
| 81 | Fire Services Equipment | 120 days | Mon 10/8/09 | Mon 7/12/09 | [Gantt bar] | | | | | | | | | | | | [Gantt bar] | | | | | | | | | | | | [Gantt bar] | | | | | | | | | | | | [Gantt bar] | | | | |
| 82 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 83 | Tentative CLP Electricity Energisation | 0 days | Mon 5/10/09 | Mon 5/10/09 | [Milestone] | | | | | | | | | | | | [Milestone] | | | | | | | | | | | | [Milestone] | | | | | | | | | | | | [Milestone] | | | | |

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 | 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 | |
| 125 | MACS, Telemetry and CCTV | 240 days | Wed 22/11/06 | Thu 19/7/07 | [Blue bar] | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | [Blue bar] | | | | |
| 127 | Calcium Nitrate Dosing System | 240 days | Wed 22/11/06 | Thu 19/7/07 | [Blue bar] | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | [Blue bar] | | | | |
| 128 | Ventilation Fans | 240 days | Wed 22/11/06 | Thu 19/7/07 | [Blue bar] | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | [Blue bar] | | | | |
| 129 | Building Services and Electrical Services Equipment | 240 days | Wed 22/11/06 | Thu 19/7/07 | [Blue bar] | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | [Blue bar] | | | | |
| 130 | Fire Services Equipment | 240 days | Wed 22/11/06 | Thu 19/7/07 | [Blue bar] | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | [Blue bar] | | | | |
| 131 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 132 | Application of CLP Power Supply | 0 days | Tue 27/3/07 | Tue 27/3/07 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ■ 27/3 | | | | |
| 133 | Application of Telephone Line | 0 days | Tue 27/3/07 | Tue 27/3/07 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ■ 4/12 | | | | |
| 134 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 135 | Equipment Delivery | 459 days | Tue 19/2/08 | Fri 22/5/09 | | | | | | | | | | | | | [Black bar] | | | | | | | | | | | | [Black bar] | | | | | | | | | | | | | | | | |
| 136 | Penstock and Actuator | 30 days | Mon 9/2/09 | Tue 10/3/09 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | |
| 137 | Main sewage pump and VFD | 30 days | Sat 10/5/08 | Sun 8/6/08 | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 138 | Inlet Coarse Screen | 30 days | Tue 19/2/08 | Wed 19/3/08 | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 139 | Deodourising System | 30 days | Thu 23/4/09 | Fri 22/5/09 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | |
| 140 | Lifting Appliance | 30 days | Thu 5/3/09 | Fri 3/4/09 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | |
| 141 | Pipework and Valve | 30 days | Wed 20/8/08 | Thu 18/9/08 | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 142 | Measuring Instrument | 30 days | Thu 23/4/09 | Fri 22/5/09 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | |
| 143 | LV Switchboard | 30 days | Mon 9/2/09 | Tue 10/3/09 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | |
| 144 | MACS, Telemetry and CCTV | 30 days | Mon 9/2/09 | Tue 10/3/09 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | |
| 145 | Calcium Nitrate Dosing System | 30 days | Mon 27/10/08 | Tue 25/11/08 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | |
| 146 | Ventilation Fans | 30 days | Wed 29/10/08 | Thu 27/11/08 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | |
| 147 | Building Services and Electrical Services Equipment | 30 days | Thu 19/3/09 | Fri 17/4/09 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | |
| 148 | Fire Services Equipment | 30 days | Thu 19/3/09 | Fri 17/4/09 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | |
| 149 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 150 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 151 | Submission of Form 314 for Fire Services | 0 days | Mon 14/9/09 | Mon 14/9/09 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ■ 14/9 | | | | |
| 152 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 153 | 1st stage Site Take Over Date for Section 3 | 0 days | Tue 17/2/09 | Tue 17/2/09 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | ■ 17/2 | | | | |
| 154 | Site Installation at CLP Tx Rm | 45 days | Tue 17/2/09 | Thu 2/4/09 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | |
| 155 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 156 | 2nd stage Site Take Over Date for Section 3 | 0 days | Fri 3/4/09 | Fri 3/4/09 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | ■ 3/4 | | | | |
| 157 | Site Installation at Other Locations | 133 days | Fri 3/4/09 | Thu 13/8/09 | | | | | | | | | | | | | [Black bar] | | | | | | | | | | | | [Black bar] | | | | | | | | | | | | | | | | |
| 158 | Penstock and Actuator | 60 days | Mon 20/4/09 | Thu 18/6/09 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | |
| 159 | Main sewage pump and VFD | 45 days | Mon 4/5/09 | Wed 17/6/09 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | |
| 160 | Inlet Coarse Screen | 14 days | Fri 29/5/09 | Thu 11/6/09 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | |
| 161 | Deodourising System | 60 days | Mon 15/6/09 | Thu 13/8/09 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | |
| 162 | Lifting Appliance | 35 days | Mon 27/4/09 | Sun 31/5/09 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | |
| 163 | Pipework and Valve | 30 days | Mon 4/5/09 | Tue 2/6/09 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | |
| 164 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 165 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 166 | Measuring Instrument | 45 days | Wed 27/5/09 | Fri 10/7/09 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | |
| 167 | LV Switchboard | 30 days | Thu 30/4/09 | Fri 29/5/09 | | | | | | | | | | | | | | | | | | | | | | | | | [Blue bar] | | | | | | | | | | | | | | | | |

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 |
| 165 | MACS, Telemetry and CCTV | 60 days | Fri 12/6/09 | Mon 10/8/09 | [Gantt bar from Jun 2009 to Aug 2009] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 169 | Calcium Nitrate Dosing System | 30 days | Fri 26/6/09 | Sat 25/7/09 | [Gantt bar from Jul 2009 to Aug 2009] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 170 | Ventilation Fans and air ducts | 90 days | Fri 15/5/09 | Wed 12/8/09 | [Gantt bar from May 2009 to Sep 2009] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 171 | Building Services and Electrical Services Equipment | 120 days | Fri 3/4/09 | Fri 31/7/09 | [Gantt bar from Apr 2009 to Aug 2009] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 172 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 173 | Fire Services Equipment | 120 days | Fri 3/4/09 | Fri 31/7/09 | [Gantt bar from Apr 2009 to Aug 2009] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 174 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 175 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 176 | Tentative CLP Electricity Energisation | 0 days | Wed 15/7/09 | Wed 15/7/09 | [Milestone at Jul 15, 2009] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 177 | Submission of Form 501 for Fire Services | 0 days | Mon 14/9/09 | Mon 14/9/09 | [Milestone at Sep 14, 2009] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 178 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 179 | Testing and Commissioning | 60 days | Fri 14/8/09 | Mon 12/10/09 | [Gantt bar from Aug 2009 to Oct 2009] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 180 | Equipment testing | 56 days | Fri 14/8/09 | Thu 8/10/09 | [Gantt bar from Aug 2009 to Oct 2009] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 181 | Tentative 3-days wet commissioning | 4 days | Fri 9/10/09 | Mon 12/10/09 | [Gantt bar from Oct 9 to Oct 12, 2009] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 182 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 183 | Submission of Draft O & M manual | 0 days | Fri 28/8/09 | Fri 28/8/09 | [Milestone at Aug 28, 2009] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 184 | Submission of Final O & M manual | 0 days | Wed 14/10/09 | Wed 14/10/09 | [Milestone at Oct 14, 2009] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 185 | Training of Employer's Staff | 3 days | Tue 6/10/09 | Thu 8/10/09 | [Gantt bar from Oct 6 to Oct 8, 2009] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 186 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 187 | Completion of Section 3 | 0 days | Wed 14/10/09 | Wed 14/10/09 | [Milestone at Oct 14, 2009] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 188 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 189 | Section 4 Works for Kam Tin SPS | 1288 days | Mon 27/3/06 | Mon 5/10/09 | [Thick black Gantt bar from Mar 2006 to Oct 2009] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 190 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 191 | Other Drawings Submission and Approval | 180 days | Mon 27/3/06 | Fri 22/9/06 | [Gantt bar from Mar 2006 to Sep 2006] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 192 | Surge analysis report submission and approval | 120 days | Mon 27/3/06 | Mon 24/7/06 | [Gantt bar from Mar 2006 to Jul 2006] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 193 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 194 | Equipment Submission and Approval | 240 days | Mon 27/3/06 | Tue 21/11/06 | [Gantt bar from Mar 2006 to Nov 2006] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 195 | Penstock and Actuator | 240 days | Mon 27/3/06 | Tue 21/11/06 | [Gantt bar from Mar 2006 to Nov 2006] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 196 | Main sewage pump and VFD | 240 days | Mon 27/3/06 | Tue 21/11/06 | [Gantt bar from Mar 2006 to Nov 2006] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 197 | Inlet Coarse Screen | 240 days | Mon 27/3/06 | Tue 21/11/06 | [Gantt bar from Mar 2006 to Nov 2006] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 198 | Deodourising System | 240 days | Mon 27/3/06 | Tue 21/11/06 | [Gantt bar from Mar 2006 to Nov 2006] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 199 | Lifting Appliance | 240 days | Mon 27/3/06 | Tue 21/11/06 | [Gantt bar from Mar 2006 to Nov 2006] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 200 | Pipework and Valve | 240 days | Mon 27/3/06 | Tue 21/11/06 | [Gantt bar from Mar 2006 to Nov 2006] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 201 | Measuring Instrument | 240 days | Mon 27/3/06 | Tue 21/11/06 | [Gantt bar from Mar 2006 to Nov 2006] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 202 | LV Switchboard | 240 days | Mon 27/3/06 | Tue 21/11/06 | [Gantt bar from Mar 2006 to Nov 2006] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 203 | MACS, Telemetry and CCTV | 240 days | Mon 27/3/06 | Tue 21/11/06 | [Gantt bar from Mar 2006 to Nov 2006] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 204 | Ventilation Fans | 240 days | Mon 27/3/06 | Tue 21/11/06 | [Gantt bar from Mar 2006 to Nov 2006] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 205 | Building Services and Electrical Services Equipment | 240 days | Mon 27/3/06 | Tue 21/11/06 | [Gantt bar from Mar 2006 to Nov 2006] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 206 | Fire Services Equipment | 240 days | Mon 27/3/06 | Tue 21/11/06 | [Gantt bar from Mar 2006 to Nov 2006] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 207 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 208 | Equipment Procurement and Manufacture | 240 days | Wed 22/11/06 | Thu 19/7/07 | [Gantt bar from Nov 2006 to Jul 2007] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 209 | Penstock and Actuator | 240 days | Wed 22/11/06 | Thu 19/7/07 | [Gantt bar from Nov 2006 to Jul 2007] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Date: 24/4/2009

Task Progress [Blue bar], Milestone [Black square]
 Summary [Thick black bar], Rolled Up Task [Thin black bar], Rolled Up Milestone [Thin black square]
 Rolled Up Progress [Thin blue bar], External Tasks [Thin grey bar], External Milestone [Thin grey square]
 Project Summary [Thick grey bar], Deadline [Thin grey bar]

| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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,

ANNEX D

LOCATION OF MONITORING STATIONS



FIGURE 3.7b

LOCATION OF DUST MONITORING STATION (AM5)

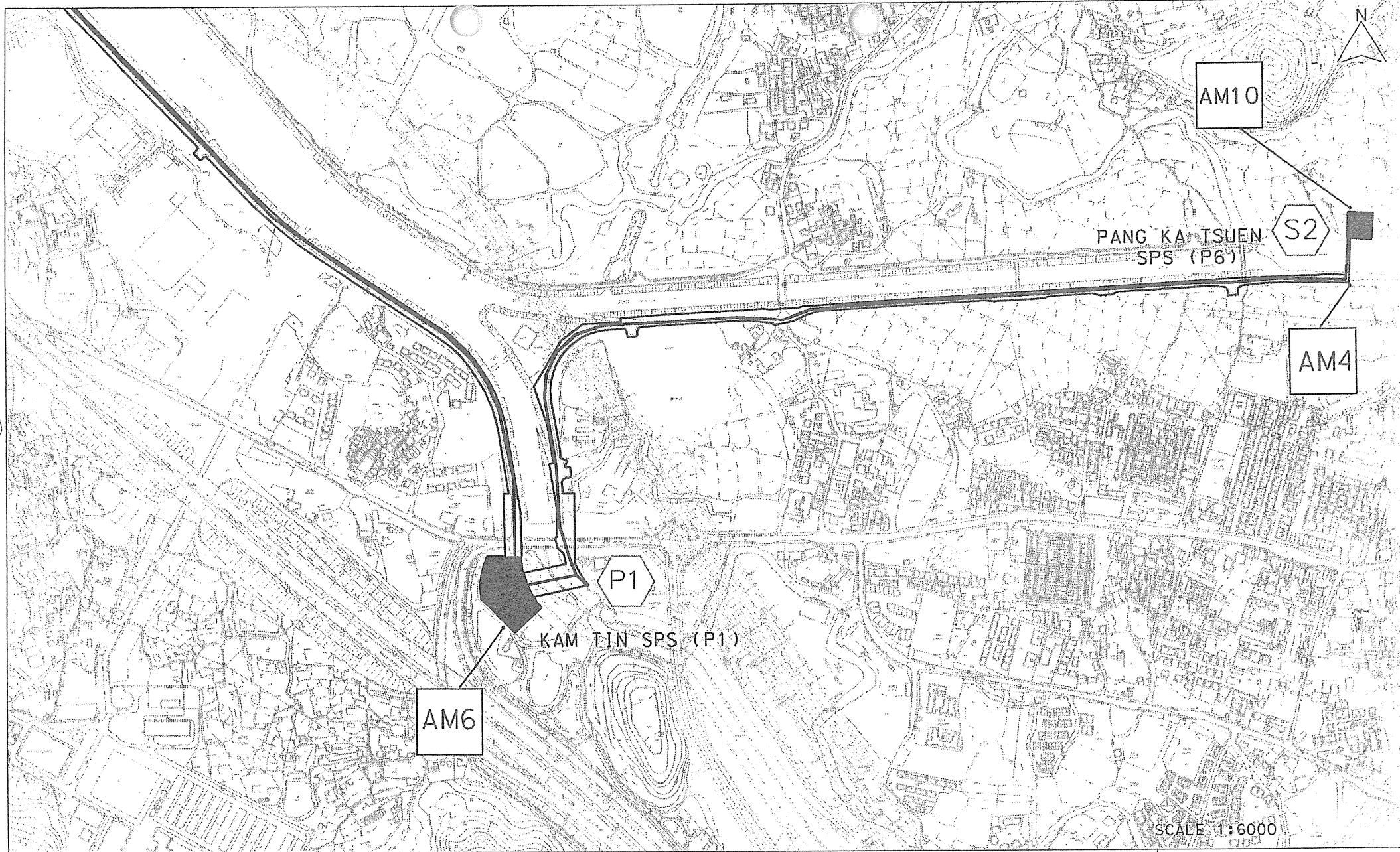


FIGURE 3.7a

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

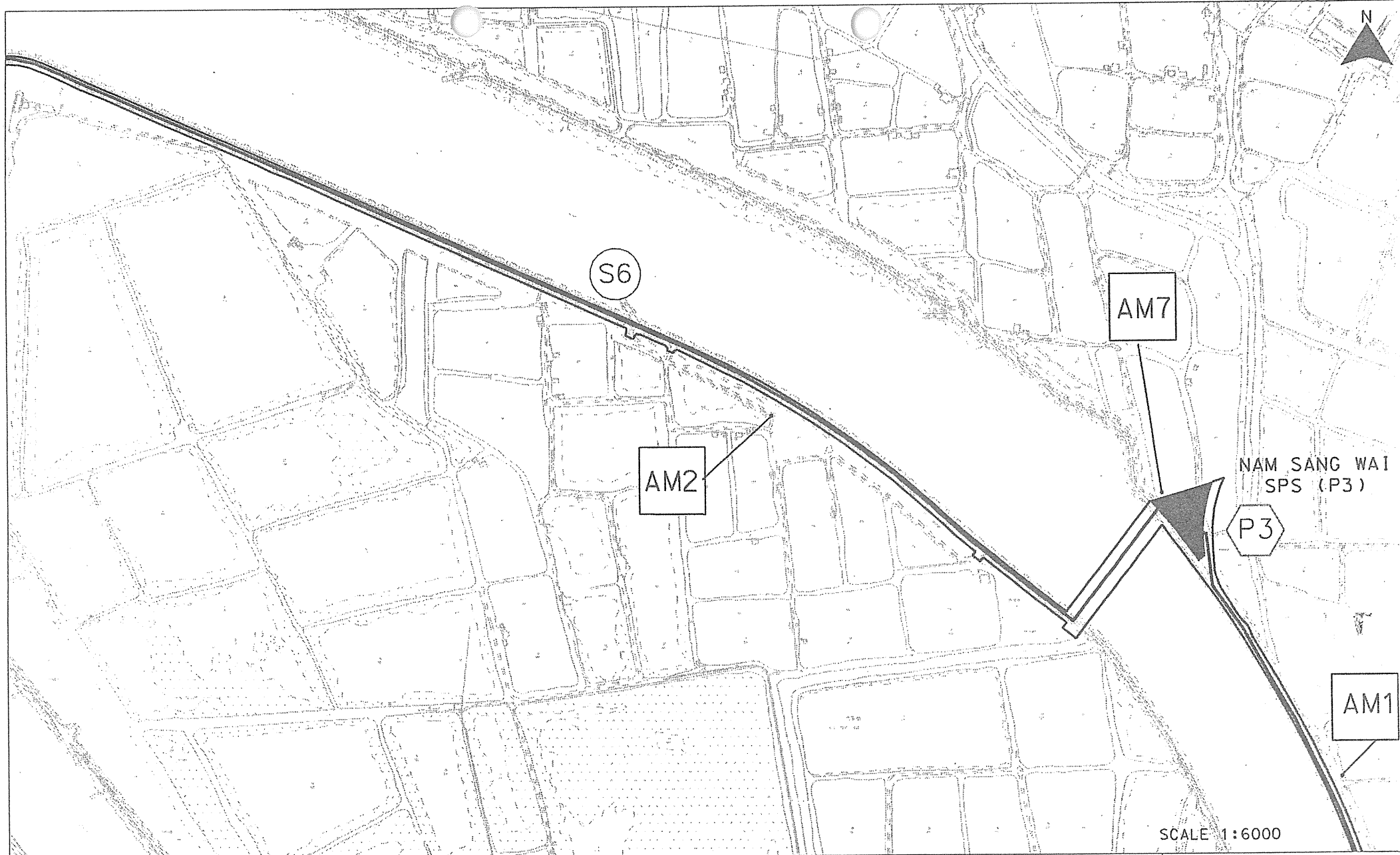


FIGURE 3.7c

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

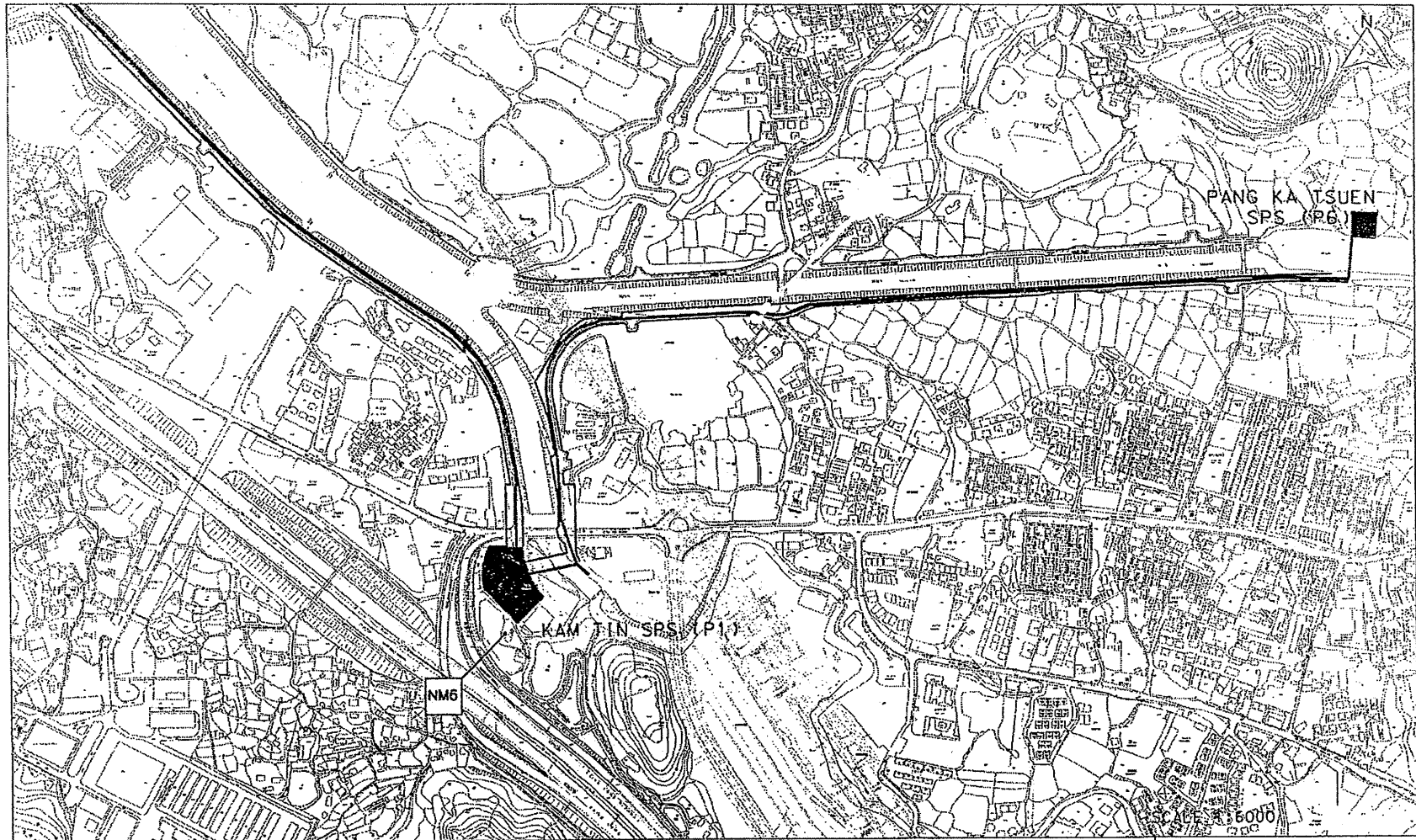


FIGURE C7

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

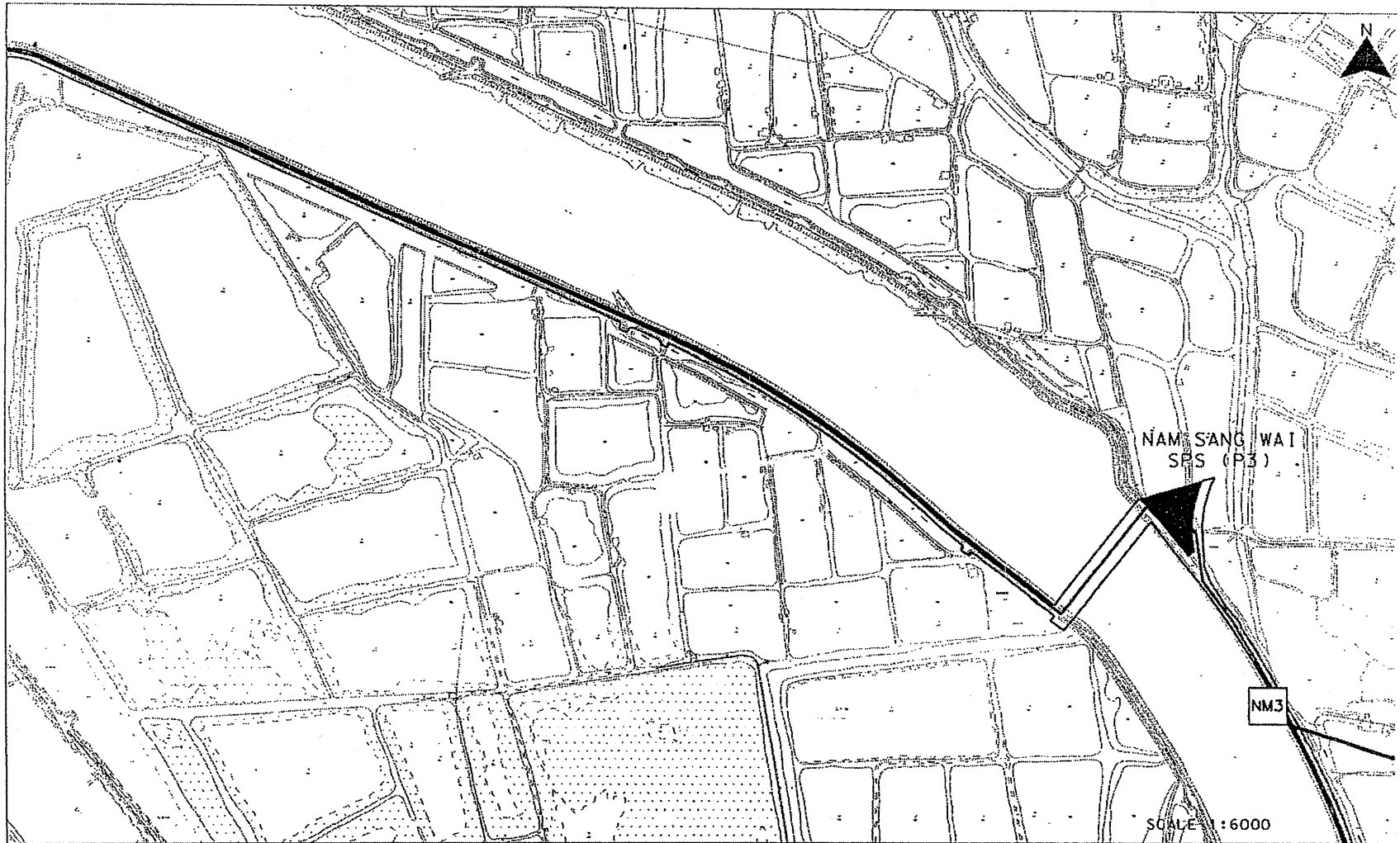


FIGURE C8

LOCATION OF NOISE MONITORING STATIONS (NM3, NM5)

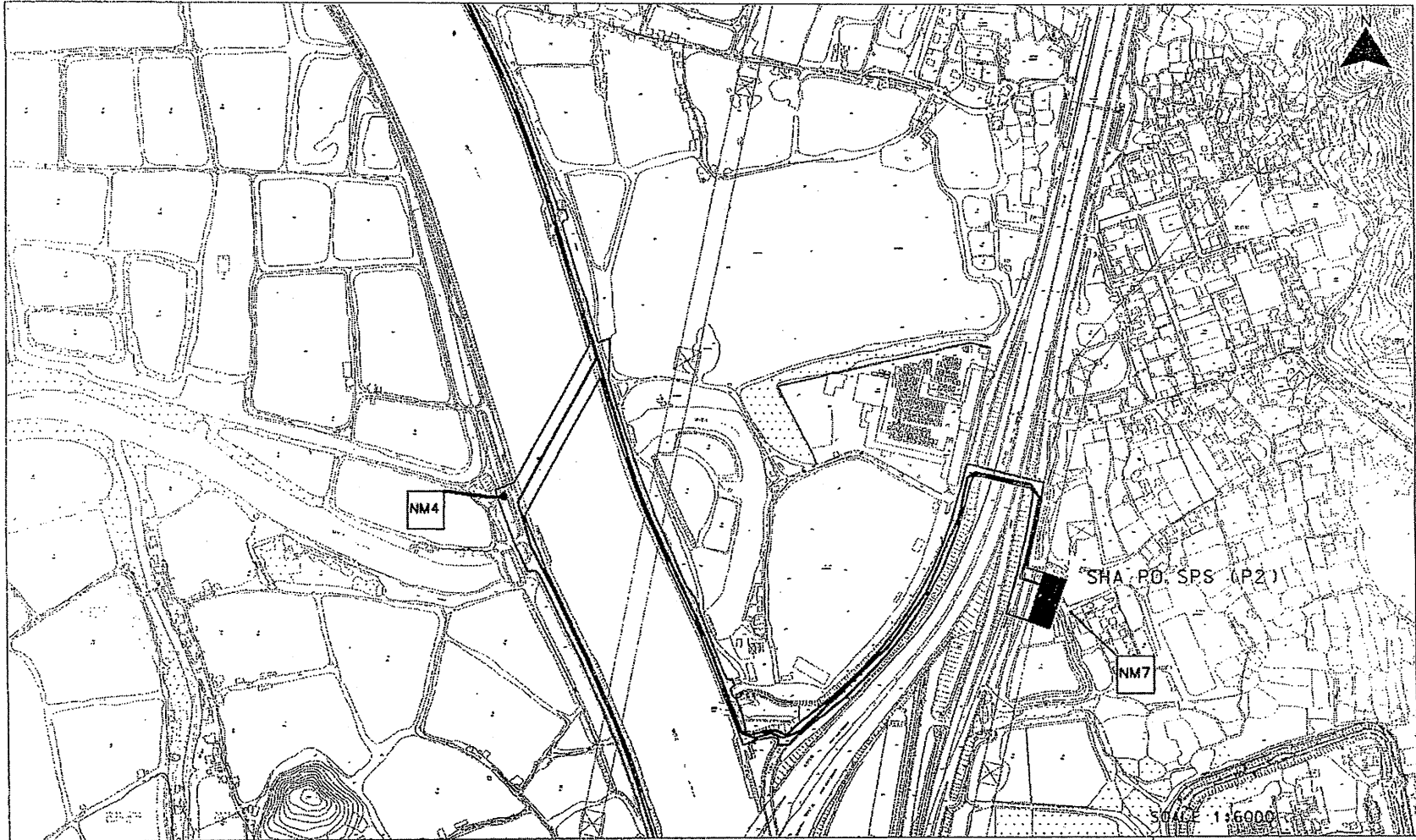


FIGURE C9

LOCATION OF NOISE MONITORING STATIONS (NM4, NM7)

US19 FILE: C2006/EMAA/EMAA-09
DATE: 23/05/2001

ANNEX E

EVENT AND ACTION PLAN

Event and Action Plan for Construction Phase Air Quality

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

Event and Action Plan for Construction Phase Air Quality

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

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

ANNEX F

MITIGATION IMPLEMENTATION SCHEDULE

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

| EIA* Ref. | EM&A Ref | Environmental Protection Measures | Objectives of the Recommended Measures & Main Concerns | Location of the measure | Implementation Agent | Implementation Stage** | | | | Relevant Legislation & Guidelines |
|-----------------|----------|--|--|--|---|------------------------|---|---|-----|--|
| | | | | | | Des | C | O | Dec | |
| | | <i>Construction Open Sites, BS 5228: Part 1: 1997,</i> | | construction contract. | | | | | | |
| 6.6.2 | D1 | 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, <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 | <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> | 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 | <i>Waste Management Plan</i> A Waste Management Plan (WMP) should be prepared and this WMP should be submitted to the Engineer for approval. <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 | EM&A REQUIREMENTS - 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). <i>Sewer in Au Tau Area (S7)</i> <ul style="list-style-type: none"> Worksite boundary near San Yuen Long Centre (AM7) <i>Construction Noise</i> | 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 | 12 | 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

| Item | Aspect | Description of Equipment | Serial No. | Date of Calibration | Date of Next Calibration |
|------|--------|---|---------------|---------------------|--------------------------|
| 1 | TSP | Greasby Anderson GMWS2310 High Volume Sampler | (AM5) | 30 Nov 09 | 30 Jan 10 |
| 2 | | Greasby Anderson GMWS2310 High Volume Sampler | (AM6) | 30 Nov 09 | 30 Jan 10 |
| 3# | | Greasby Anderson GMWS2310 High Volume Sampler | 1283 (AM7) | 2 Oct 09 | Upon power supply resume |
| 4 | Noise | Brueel & Kjaer 4231 Acoustical Calibrator | 2326408 | 28 Apr 09 | 28 Apr 10 |
| 5 | | Brueel & 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.

No power was received starting from 16 November 2009 till present, thus equipment could not be re-calibrated.

ANNEX H

METEOROLOGICAL DATA

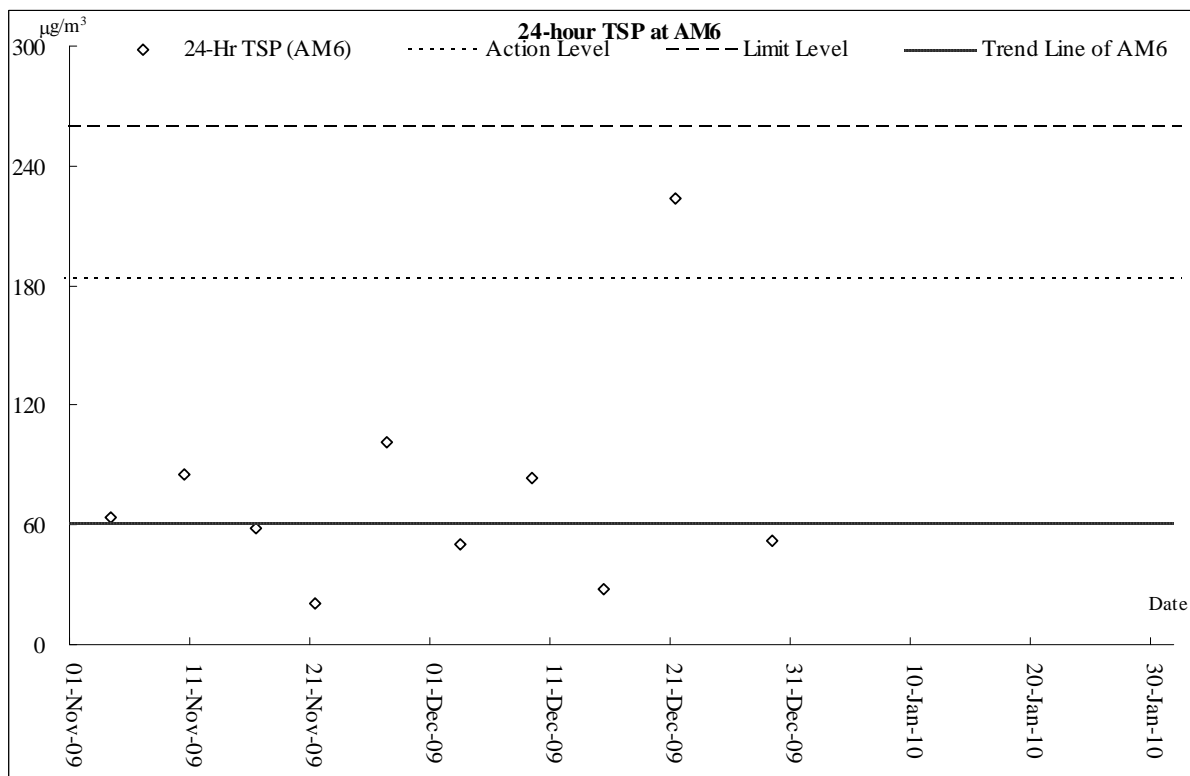
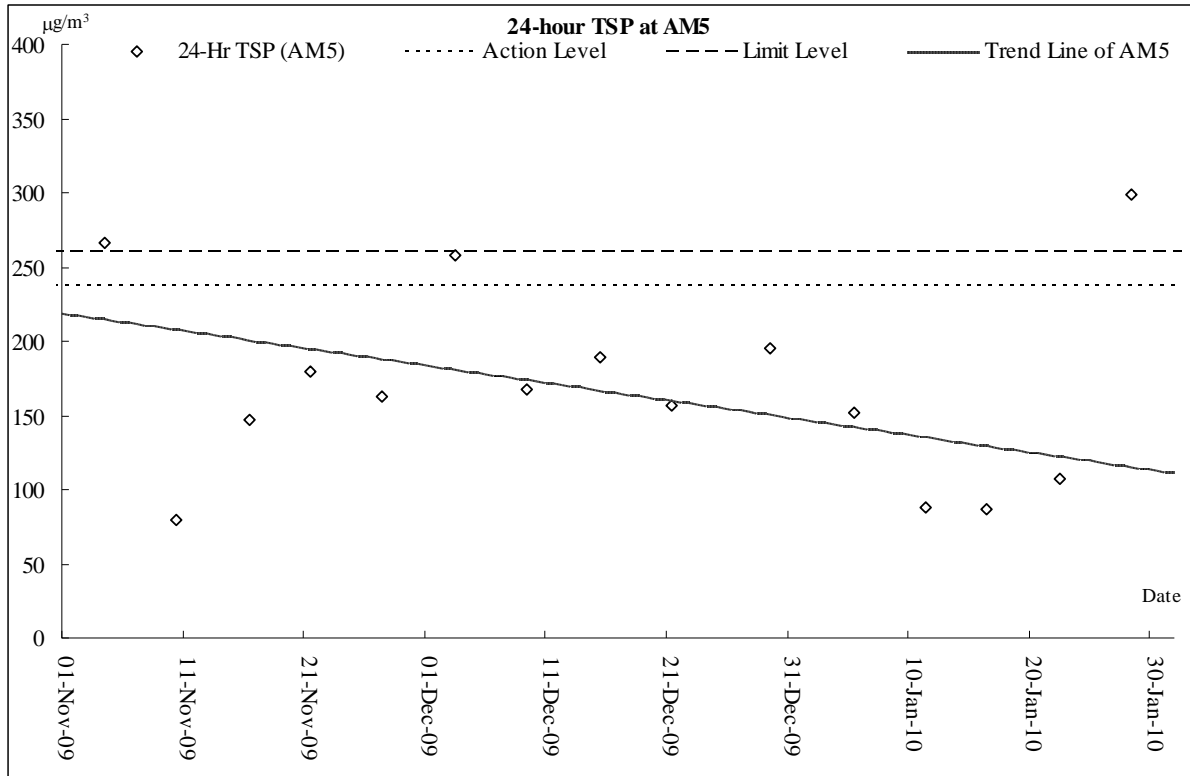
Meteorological Data Extracted From the HK Observatory at Lau Fau Shan Weather Station

| Date | Weather | Total Rain fall (mm) | Lau Fau Shan Weather Station | | | |
|------|-----------|----------------------|------------------------------|-------------------|----------------------------|----------------|
| | | | Mean Air Temp. (°C) | Wind Speed (km/h) | Mean Relative Humidity (%) | Wind Direction |
| Fri | 1-Jan-10 | | | | | |
| Sat | 2-Jan-10 | | | | | |
| Sat | 2-Jan-10 | | | | | |
| Sun | 3-Jan-10 | | | | | |
| Mon | 4-Jan-10 | | | | | |
| Tue | 5-Jan-10 | | | | | |
| Wed | 6-Jan-10 | | | | | |
| Thu | 7-Jan-10 | | | | | |
| Fri | 8-Jan-10 | | | | | |
| Sat | 9-Jan-10 | | | | | |
| Sun | 10-Jan-10 | | | | | |
| Mon | 11-Jan-10 | | | | | |
| Tue | 12-Jan-10 | | | | | |
| Wed | 13-Jan-10 | | | | | |
| Thu | 14-Jan-10 | | | | | |
| Fri | 15-Jan-10 | | | | | |
| Sat | 16-Jan-10 | | | | | |
| Sun | 17-Jan-10 | | | | | |
| Mon | 18-Jan-10 | | | | | |
| Tue | 19-Jan-10 | | | | | |
| Wed | 20-Jan-10 | | | | | |
| Thu | 21-Jan-10 | | | | | |
| Fri | 22-Jan-10 | | | | | |
| Sat | 23-Jan-10 | | | | | |
| Sun | 24-Jan-10 | | | | | |
| Mon | 25-Jan-10 | | | | | |
| Tue | 26-Jan-10 | | | | | |
| Wed | 27-Jan-10 | | | | | |
| Thu | 28-Jan-10 | | | | | |
| Fri | 29-Jan-10 | | | | | |
| Sat | 30-Jan-10 | | | | | |
| Sun | 31-Jan-10 | | | | | |

ANNEX I

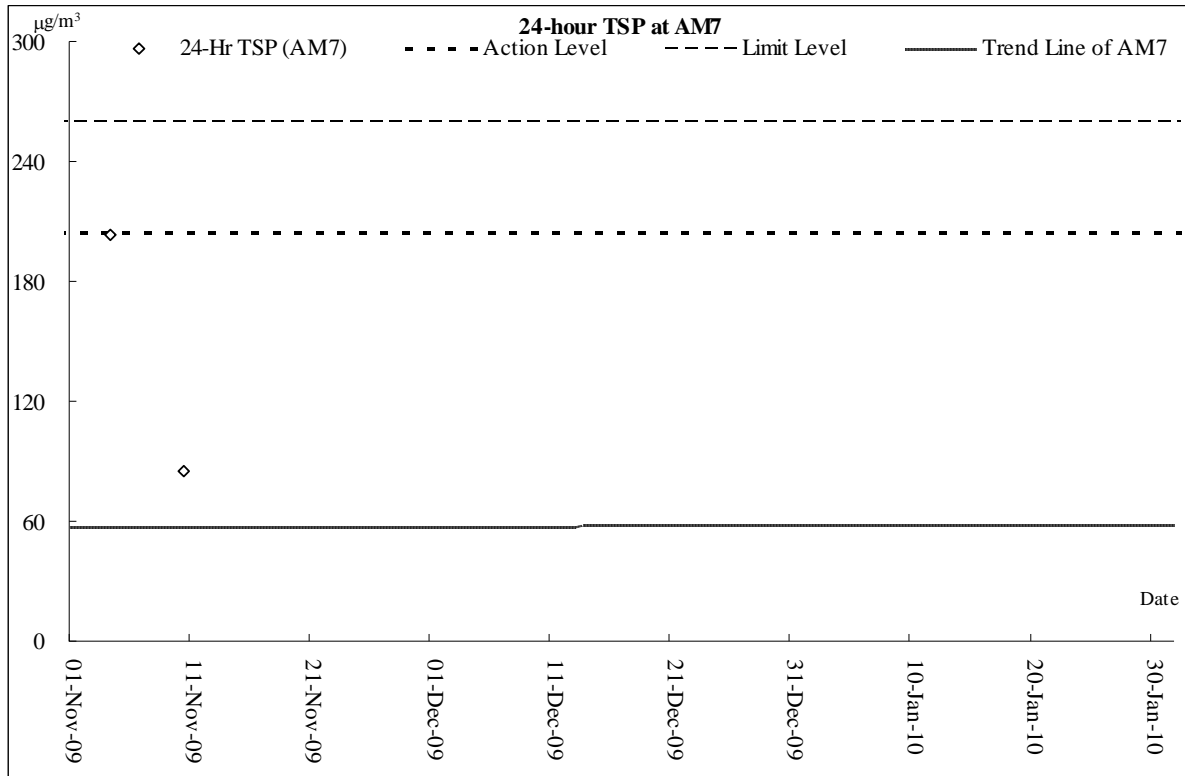
GRAPHICAL PLOTS OF AIR QUALITY AND CONSTRUCTION NOISE MONITORING RESULTS

Air Quality Monitoring Results



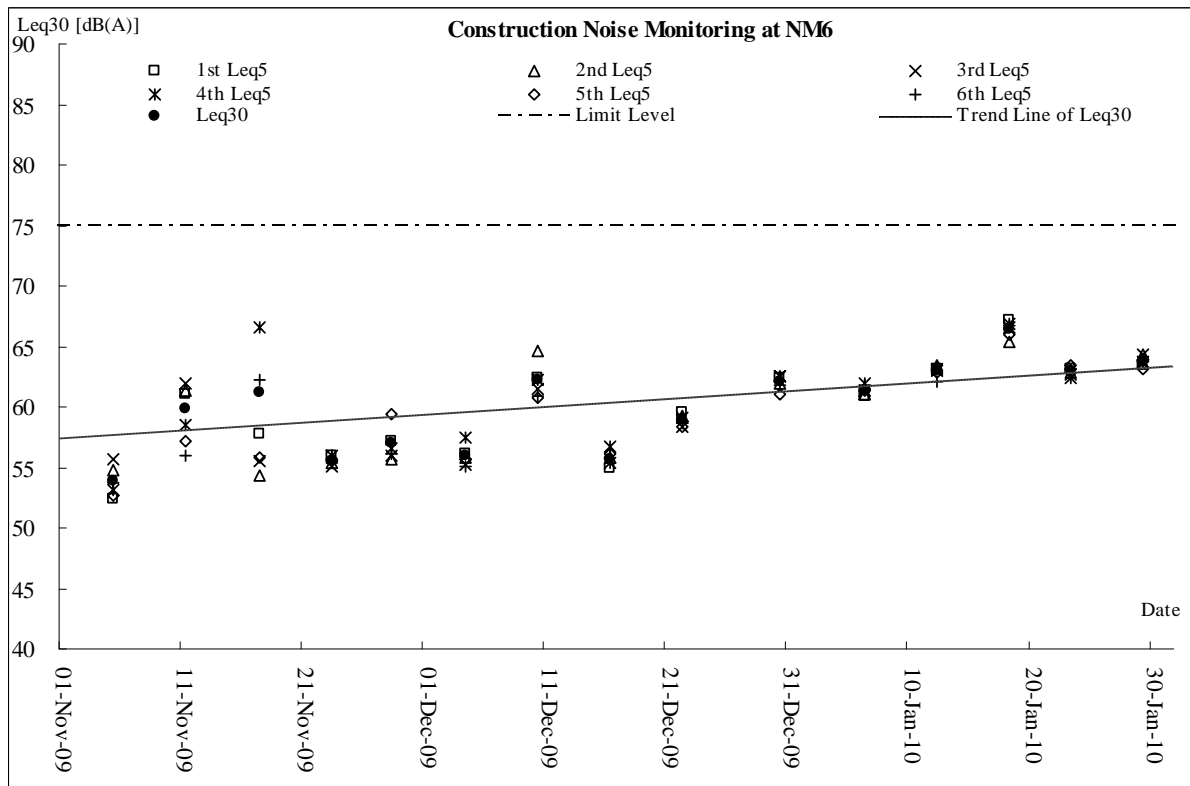
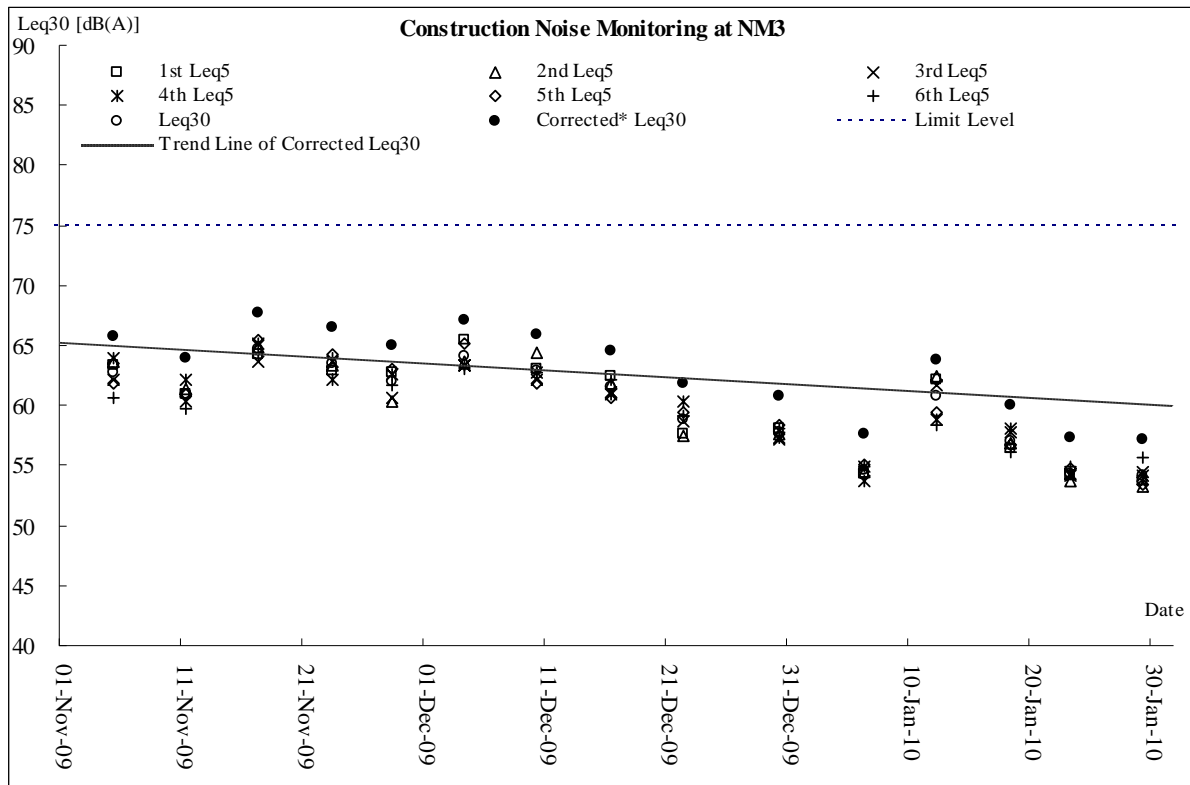
Note: power failure occurred on 29 December 2009 and 5, 11, 16 and 22 January 2010.

Monthly EM&A Report for January 2010 (No. 12)



Note: power failure occurred between 16 November 2009 and 31 January 2010, therefore no result on plotting is shown.

Construction Noise Monitoring Results



Monthly EM&A Report for January 2010 (No. 12)

