

**DRAINAGE SERVICES DEPARTMENT (DSD)  
CONTRACT NO. DC/2005/02**

**CONSTRUCTION OF SEWERS, RISING MAINS  
& SEWAGE PUMPING STATION AT KAM TIN, NAM SANG  
WAI AND AU TAU IN YUEN LONG**



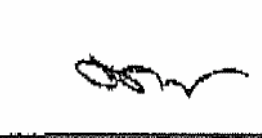


**11<sup>th</sup> Monthly Construction Phase EM&A Report for  
February 2007  
(Designated Elements)**

**PREPARED FOR**

**Leader Civil Engineering Corporation Ltd**

Index

Reference No.  
TCS/00310/06/600/R0235

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## TABLE OF CONTENTS

<b>1.0 BASIC PROJECT INFORMATION.....</b>	<b>1</b>
Project Organization.....	1
Construction Program of the Reporting Period.....	1
Management Structure .....	1
Works Undertaken in the Reporting Period.....	1
<b>2.0 ENVIRONMENTAL STATUS .....</b>	<b>2</b>
Work Undertaken in the Reporting Period with Illustrations .....	2
Project Drawings.....	2
<b>3.0 SUMMARY OF EM&amp;A REQUIREMENTS.....</b>	<b>4</b>
Monitoring Parameters.....	4
Environmental Quality Performance Limits .....	4
Event and Action Plans .....	4
Environmental Mitigation Measures .....	4
Environmental Requirements in Contract Documents.....	4
<b>4.0 IMPLEMENTATION STATUS .....</b>	<b>5</b>
<b>5.0 MONITORING RESULTS.....</b>	<b>6</b>
<b>6.0 REPORT ON NON-COMPLIANCE (NC), COMPLAINTS, NOTIFICATIONS OF SUMMONS     (NOS) AND SUCCESSFUL PROSECUTIONS .....</b>	<b>11</b>
<b>7.0 OTHERS.....</b>	<b>11</b>

### List of Tables

Table 2-1	Work Undertaken in the Reporting Period with Illustrations of Mitigation Measures
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 Permits and Licenses
Table 5-1	Monitoring Equipment Used in EM&A Program
Table 5-2	Locations of Air Quality and Noise Monitoring Stations
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 NM4
Table 5-6	Summary of Noise Monitoring Results at NM6
Table 5-7	Summary of Noise Monitoring Results at NM7
Table 7-1	Summary of Quantities for Waste Disposal
Table 7-1	Summary of Quantities for Waste Disposal
Table 7-2	Summary of Quantities for Recycling Materials

### List of Annexes

Annex A	Project Site Layout
Annex B	Project Organization and Management Structure
Annex C	Construction Program
Annex D	Photographical Records – Noise Barrier On-Site
Annex E	Locations of Monitoring Stations
Annex F	Event and Action Plan
Annex G	Mitigation Implementation Schedule
Annex H	Equipment Calibration Certificates
Annex I	Meteorological Data in the Reporting Month
Annex J	Graphical Plots of Air Quality and Noise Monitoring Results
Annex K	Proforma of Site Inspection and IEC Audit in the Reporting Period

### **Executive Summary**

- ES.01 Leader Civil Engineering Corporation Ltd (the Contractor) has been awarded the DSD Contract DC/2005/02 Construction of Sewers, Rising Mains and Sewage Pumping Station at Kam Tin, Nam Sang Wai and Au Tau in Yuen Long (the Project). The Project requires an Environmental Monitoring and Audit (EM&A) program to be implemented by an Environmental Team (ET) throughout the contract period in compliance with the requirements as stated in the project Environmental Permit (EP-220/2005) and the project's Updated EM&A (Designated Elements) Manual.
- ES.02 This is the 11<sup>th</sup> Monthly Construction Phase EM&A Report (February 2007, Report No. 11) reporting the environmental impact monitoring and audit (EM&A) conducted from 01 to 28 February 2007. The EM&A in February 2007 covered air quality, noise and waste management.

### **Breach of Action and Limit (AL) Levels**

- ES.03 No Action/Limit Level exceedance was recorded in this reporting month. All the monitoring results were complied with standard.

### **Complaint Log**

- ES.04 No environmental complaint was received in this reporting month.

### **Notification of Any Summons and Successful Prosecution**

- ES.05 There was no environmental summon or prosecution in this reporting month.

### **Reporting Changes**

- ES.06 There are no changes to be reported in this reporting month.

### **Future Key Issues**

- ES.07 Construction activities to be undertaken in March 2007 include pumping testing at Kam Tin pumping station, hoarding erection at Sha Po pumping station, pipe jacking at Nam Sang Wai pumping station, pipe jacking works at S5 and S6, sheeting piling, excavation and backfilling works for receiving pit at S4. Potential environmental impacts arising from the works include air quality, noise and water quality (particularly site runoff). Environmental mitigation measures will be properly implemented and maintained as per the Mitigation Implementation Schedule to ensure site environmental performance is acceptable.

## 1.0 BASIC PROJECT INFORMATION

1.01 Leader Civil Engineering Corporation Ltd (the Contractor) has been awarded the DSD Contract DC/2005/02 Construction of Sewers, Rising Mains and Sewage Pumping Station at Kam Tin, Nam Sang Wai and Au Tau in Yuen Long (the Project). The Project is part of the Yuen Long and Kam Tin Sewerage and Sewage Disposal (YLKTSSD) Scheme. A site layout map showing the site boundary and the work areas is shown in **Annex A**.

1.02 This 11<sup>th</sup> Monthly Construction Phase EM&A Report (February 2007, Report No. 11) summarizes the impact monitoring results and audit findings in the reporting month from 01 to 28 February 2007.

### Project Organization

1.03 The organization chart and lines of communication with respect to the on-site environmental management and monitoring program are shown in **Annex B**.

### Construction Program of the Reporting Period

1.04 A construction program showing the construction work undertaken in this reporting month was shown in **Annex C**. Environmental mitigation measures implemented are shown in **Table 2-1**.

### Management Structure

1.05 The management structure of the Project is shown in **Annex B**.

### Works Undertaken in the Reporting Period

1.06 The construction works undertaken during the reporting month under the Environmental Permit (EP-220/2005) were shown as follows:

#### Kam Tin Pumping Station (P1)

- Drilling bore hole

#### Sha Po Pumping Station (P2)

- Sheet piling
- Concreting

#### Nam Sang Wai Pumping Station (P3)

- Excavation

#### Nam Sang Wai Road (S4)

- Sheet piling
- Pipe laying
- Backfilling
- Grouting

#### Pok Wai South Road (S5 and S6)

- Pipe jacking
- Grouting

## 2.0 ENVIRONMENTAL STATUS

### Work Undertaken in the Reporting Period with Illustrations

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

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

Location	Description of Construction Activities	Environmental Mitigation Measures	EM&A Ref.
P1 (Kam Tin Pumping Station)	<ul style="list-style-type: none"> <li>Sheet piling</li> <li>Footing construction</li> </ul>	<ul style="list-style-type: none"> <li>Erect 2.4m high noise barrier hoarding around the works area at P1, P2 and P3</li> <li>Remove dust and spray water at the construction access</li> <li>Cover the stockpiles of dusty material properly</li> <li>Spray water to all dusty materials immediately before loading and unloading</li> <li>Wash the wheels of vehicles before leaving the site</li> </ul>	A1 & F6 A2 A3 A4 A5
P2 (Sha Po Pumping Station)	<ul style="list-style-type: none"> <li>Hoarding erection</li> </ul>	<ul style="list-style-type: none"> <li>Wash the wheels of vehicles before leaving the site</li> </ul>	A6 A7 A8
P3 (Nam Sang Wai Pumping Station)	<ul style="list-style-type: none"> <li>Pipe jacking</li> </ul>	<ul style="list-style-type: none"> <li>Install and use power-operated cover at the dump trucks</li> <li>Spray water at the pavement breaking locations</li> <li>Spray the working area of excavation frequently</li> <li>Maximize the use of quiet PME on site</li> </ul>	B1, B2 & F5 D1
S4 (Nam Sang Wai Road)	<ul style="list-style-type: none"> <li>Drilling and grouting</li> </ul>	<ul style="list-style-type: none"> <li>Apply and obtain appropriate waste disposal licenses</li> <li>Handle, store and dispose of chemical wastes as per relevant regulations</li> <li>Implement trip-ticket system for waste disposal</li> <li>Restrict open fires and provide fire fighting equipment in the works area</li> </ul>	D2, D3 & D4 D5 F9
S5 & S6 (Pok Wai South Road)	<ul style="list-style-type: none"> <li>Pipe jacking</li> </ul>	<ul style="list-style-type: none"> <li>Perform weekly inspection with ET and monthly audit with IEC</li> <li>Conduct noise and dust monitoring as per EM&amp;A manual during construction</li> <li>Provide sedimentation tanks for treating site discharge.</li> <li>Recycle wheel washing water and provide sedimentation tanks for treating site discharge.</li> </ul>	H1 I1 & I2 - -

2.02 Photographic records showing the implemented 2.4m high noise barrier at the pumping station (S3) are shown in **Annex D**.

### Project Drawings

2.03 Drawings showing the work areas under EP-220/2005 and the locations of the designated monitoring stations are presented in **Annex E**.

2.04 There are four designated air quality (AM1, AM5, AM6 & AM7) and four noise monitoring stations (AM1, AM5, AM6 & AM7) under the project EP.

Station ID	Nature of Premise	Site Work Description	Station Coordinates
AM1	Site Boundary in NSW	Sheet piling and trench excavation.	835829 N 822910 E
AM5	Site Boundary in FKH		835121 N 823515 E
AM6	Site Boundary in KT		833308 N 823987 E
AM7	Site Boundary in NSW		836171 N 822586 E
NM3	Village House in NSW		835808 N 822817 E
NM4	Village House in NSW		835282 N 822811 E
NM6	Village House in KT		833288 N 823999 E
NM7	Village House in FKH		835121 N 823495 E

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

### 3.0 SUMMARY OF EM&A REQUIREMENTS

#### Monitoring Parameters

- 3.01 Environmental monitoring and audit requirements are set out in the Updated EM&A manual. Air quality and construction noise have been identified to be the key monitoring parameters during the impact phase for the construction of the project.
- 3.02 A summary of the impact EM&A requirements for air quality and construction noise as per the project Updated EM&A Manual are shown in **Table 3-1**.

**Table 3-1 Summary of EM&A Requirements**

Environmental Aspect	Monitoring Parameters
Air Quality	24-Hr TSP
Construction Noise	Leq 30min during 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**

Monitoring Location	Action Level ( $\mu\text{g}/\text{m}^3$ )		Limit Level ( $\mu\text{g}/\text{m}^3$ )	
	1-Hr TSP	24-Hr TSP	1-Hr TSP	24-Hr TSP
AM1	391	184	500	260
AM5	353	237	500	260
AM6	329	183	500	260
AM7	383	204	500	260

**Table 3-3 Action and Limit Levels for Construction Noise**

Parameter	Action Level in dB(A)	Limit Level in dB(A)
0700-1900 hrs 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 F**.

#### Environmental Mitigation Measures

- 3.05 The project EIA report has recommended environmental mitigation measures to minimize potential environmental impacts arising from the construction of the project. A full list of the mitigation measures is detailed in **Annex G**.

#### Environmental Requirements in Contract Documents

- 3.06 The environmental requirements in the contract documents generally refer to the compliance of the requirements as stipulated in the project EP and the updated EM&A Manual.

#### **4.0 IMPLEMENTATION STATUS**

4.01 The implementation status of environmental protection and pollution control/mitigation measures as recommended in the project EIA report is summarized in **Table 2-1** and the implementation schedule as shown in **Annex G**.

4.02 A summary status of the permits, licences, and/or notifications on environmental protection for this Project in this reporting period is presented in **Table 4-1**.

**Table 4-1 Status of Environmental Licenses and Permits**

<b>Item</b>	<b>Item Description</b>	<b>Permit Status</b>
1	Environmental Permit No.: EP-220/2005	Issued in June 2005
2	Air Pollution Control (Construction Dust)	Notified EPD on 24 Dec 2005
3	Chemical Waste Producer Registration (No. 5213-528-L2544-08)	Registration on 27 Jan 2006
4	Water Pollution Control (Discharge License No. 1U434/1)	Issued on 08 May 2006
5	Account for Disposal of Construction Waste No. 5004959	Registration on 27 Dec 2005
6	Construction Noise Permit (CNP No. PP-RN0036-06)	Valid (8 Dec 2006 to 07 Apr 2007)
7	Construction Noise Permit (CNP No. GW-RN0591-06)	Valid (8 Dec 2006 to 07 Apr 2007)



## **5.0 MONITORING RESULTS**

### **MONITORING METHODOLOGY OF AIR QUALITY MONITORING**

- 5.01 The 24-Hr TSP monitoring was carried out by a High volume sampler (HVS) in compliance with the updated EM&A Manual. The HVS employed complied with the PS specifications including.
- Power supply of 220v/50 hz for 24-hour continuous operation;
  - 0.6-1.7 m<sup>3</sup>/min (20-60 SCFM) adjustable flow rate;
  - A 7-day mechanical timer for 24-hour operation;
  - An elapsed time indicator with  $\pm 2$  minutes accuracy for 24-Hr operation;
  - Minimum exposed area of 63 in<sup>2</sup>;
  - Flow control accuracy of  $\pm 2.5\%$  deviation over 24-Hr 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-hr 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-Hr 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. In house QA/QC procedures for all monitoring practices to ensure the validity of monitoring data. Blank filters samples were collected and delivered to the HOKLAS-accredited laboratory for QA/QC check.
- 5.03 The meteorological information during the reporting period was obtained from Lau Fau Shan Station of the Hong Kong Observatory (HKO).

### **MONITORING METHODOLOGY OF 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<sub>10</sub> and L<sub>90</sub>) were also obtained for reference.
- 5.05 Hand-held sound level meters (B&K Model 2238) and associated acoustical calibrators in compliance with the International Electrotechnical Commission (IEC) Publication 651:1979 (Type 1) and 804:1985 (Type 1) specification 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 5 m/s or wind with gusts exceeding 10 m/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-Hr TSP filter papers.
- 5.09 The 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**

Parameters	Monitoring Equipment	
Air Quality	24-Hr TSP	Tisch High Volume Sampler 515N
Noise	Leq30min	B&K Type 2238
	On-site Calibration	B&K Type 4231

**EQUIPMENT CALIBRATION**

- 5.10 Initial calibration of the HVS 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.
- 5.11 The sound level meters were calibrated using an acoustic 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 acoustic 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 The renew calibration certificates of the monitoring equipment used during the impact monitoring program in this month are attached in **Annex H**.

**PARAMETERS MONITORED**

- 5.13 The environmental parameters monitoring in this reporting period were compliance with the monitoring requirements as in **Table 3-1**.

**MONITORING LOCATIONS**

- 5.14 There are four designated air quality and four noise monitoring stations under the project EP. For this reporting month, monitoring was carried out at four designated air (AM1, AM5, AM6 & AM7) and four noise (NM3, NM4, NM6 & NM7) monitoring stations. The locations of the designated monitoring stations are shown in **Table 5-2** and geographically in **Annex E**.

**Table 5-2 Location of Air Quality and Construction Noise Monitoring Stations**

<b>Air Quality (4 Stations)</b>	
AM1	Worksite boundary facing scattered house in Nam Sang Wai
AM5	Worksite boundary facing Fung Kat Heung
AM6	Worksite boundary facing scattered near Route 3
AM7	Worksite boundary facing scattered house in Nam Sang Wai
<b>Construction Noise (4 Stations)</b>	
NM3	Village House in Nam Sang Wai
NM4	Village House in Nam Sang Wai
NM6	Scattered House near Route 3
NM7	Fung Kat Heung

**MONITORING FREQUENCY AND PERIOD**

- 5.15 The impact 24-Hr TSP monitoring was conducted at the designated stations once every 6 days in compliance with the updated EM&A manual. A total of 20 monitoring events were carried out in this reporting month.
- 5.16 The impact noise monitoring was conducted at the designated stations once every 6 days in compliance with the updated EM&A manual. A total of 16 monitoring events were carried out in this reporting month.

**MONITORING RESULTS WITH DATE AND TIME**

- 5.17 The air quality monitoring data for this reporting period were summarized in **Table 5-3**.

**Table 5-3 Summary of Air Quality Monitoring Results**

Date	24-Hr TSP ( $\mu\text{g}/\text{m}^3$ )			
	AM1	AM5	AM6	AM7
1-Feb-07	85	150	115	145
7-Feb-07	71	76	70	62
13-Feb-07	62	117	64	81
21-Feb-07	29	55	42	45
27-Feb-07	34	76	86	60
Average (Range)	56 (29-85)	95 (55-150)	76 (42-115)	78 (45-145)

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

\* Action/Limit Level exceedances were recorded.

- 5.18 No Action/Limit Level exceedance was recorded in this reporting month.

5.19 The impact noise monitoring results are summarized in **Tables 5-4 to 5-7**.

**Table 5-4 Summary of Noise Monitoring Results at NM3**

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Corrected * Leq30
02-Feb-07	10:43	52.0	53.9	52.3	52.2	54.4	51.9	52.9	55.9
08-Feb-07	11:28	46.3	45.3	47.0	53.2	46.2	42.9	48.2	51.2
14-Feb-07	13:01	50.1	50.0	51.2	53.8	49.8	49.7	51.0	54.0
23-Feb-07	13:03	52.9	49.5	51.0	49.1	49.1	54.2	51.4	54.4
<b>Limit Level</b>									<b>75</b>

\* 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 NM4**

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Corrected * Leq30
2-Feb-07	9:12	62.9	58.9	58.0	58.2	59.7	58.8	59.8	62.8
8-Feb-07	10:03	55.4	54.3	54.3	55.8	59.7	56.1	56.4	59.4
14-Feb-07	11:30	48.9	47.9	46.1	45.7	50.4	49.1	48.3	51.3
23-Feb-07	11:26	54.0	53.3	53.6	54.9	53.9	53.6	53.9	56.9
<b>Limit Level</b>									<b>75</b>

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

**Table 5-6 Summary of Noise Monitoring Results at NM6**

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Corrected * Leq30
2-Feb-07	13:54	57.3	62.0	62.8	63.8	58.7	61.3	61.5	No Correction Required
8-Feb-07	15:36	61.3	61.4	62.7	61.3	60.6	60.9	61.4	
14-Feb-07	13:49	60.8	58.4	57.5	56.2	58.5	60.9	59.0	
23-Feb-07	13:40	56.2	57.7	57.8	57.2	56.9	57.1	57.2	
<b>Limit Level</b>									<b>75</b>

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

**Table 5-7 Summary of Noise Monitoring Results at NM7**

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Corrected * Leq30
2-Feb-07	11:29	55.4	55.7	54.9	55.0	55.2	54.4	55.1	No Correction Required
8-Feb-07	13:02	50.6	53.6	55.0	51.5	52.7	52.8	52.9	
14-Feb-07	13:01	56.8	53.2	54.5	52.8	52.6	54.6	54.3	
23-Feb-07	13:49	51.6	49.5	51.3	48.7	49.9	49.7	50.2	
<b>Limit Level</b>									<b>75</b>

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

### WEATHER CONDITIONS DURING THE MONITORING PERIOD

5.20 The meteorological data on the monitoring dates are summarized in **Annex I**.

### GRAPHICAL PLOTS OF TRENDS OF MONITORED PARAMETERS

5.21 The graphical plots of air quality and construction noise monitoring data are presented in **Annex J**.

**MAJOR ACTIVITY CARRIED OUT DURING THE MONITORING PERIOD**

- 5.22 There were construction activities of sheet piling and trench excavation undertaken during the monitoring period.

**WEATHER CONDITIONS THAT AUGUST AFFECT THE MONITORING RESULTS**

- 5.23 The weather conditions at the time of monitoring were considered acceptable for monitoring activities and did not have significant impact on the monitoring results obtained.

**OTHER FACTORS INFLUENCING THE MONITORING RESULTS**

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

**QA/QC RESULTS AND DETECTION LIMITS**

- 5.25 Not applicable.

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

**RECORD OF NON-COMPLIANCE OF ACTION AND LIMIT LEVELS**

6.01 There was no Action or Limit Level exceedance in this reporting month.

**RECORD OF ENVIRONMENTAL COMPLAINTS RECEIVED**

6.02 There was no environmental complaint received in this reporting month.

**RECORD OF NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTION**

6.03 There was no notification of summon or prosecution received in this reporting month.

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

6.04 No NC, complaints or NoS received in this reporting month.

**DESCRIPTION OF FOLLOW-UP ACTIONS TAKEN**

6.05 No NC, complaints or NoS received in this reporting month.

**7.0 OTHERS**

**FUTURE KEY ISSUES**

7.01 Construction activities to be undertaken in March 2007 include pumping testing at Kam Tin pumping station, hoarding erection at Sha Po pumping station, pipe jacking at Nam Sang Wai pumping station, pipe jacking works at S5 and S6, sheeting piling, excavation and backfilling works for receiving pit at S4. Potential environmental impacts arising from the works include air quality, noise and water quality (particularly site runoff). Environmental mitigation measures will be properly implemented and maintained as per the Mitigation Implementation Schedule to ensure site environmental performance is acceptable.

**SOLID AND LIQUID WASTE MANAGEMENT STATUS**

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

**Table 7-1 Summary of Quantities of Waste for Disposal**

Type of Waste	Quantity	Disposal Location
C&D Materials (Inert) (tons) – Disposed	946	Tuen Mun 38 Fill Bank
C&D Materials (Inert) (tons) – Reused	3,670	DSD Contract DC/2005/0
C&D Materials (Non-Inert) (tons)	-	NA
Chemical Waste (Litres)	-	NA
General Refuse (tons)	26	Refuse Collector

**Table 7-2 Summary of Quantities of Waste 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 discharged but an estimated volume of less than 50m<sup>3</sup> of surface runoff was discharged in the reporting month.

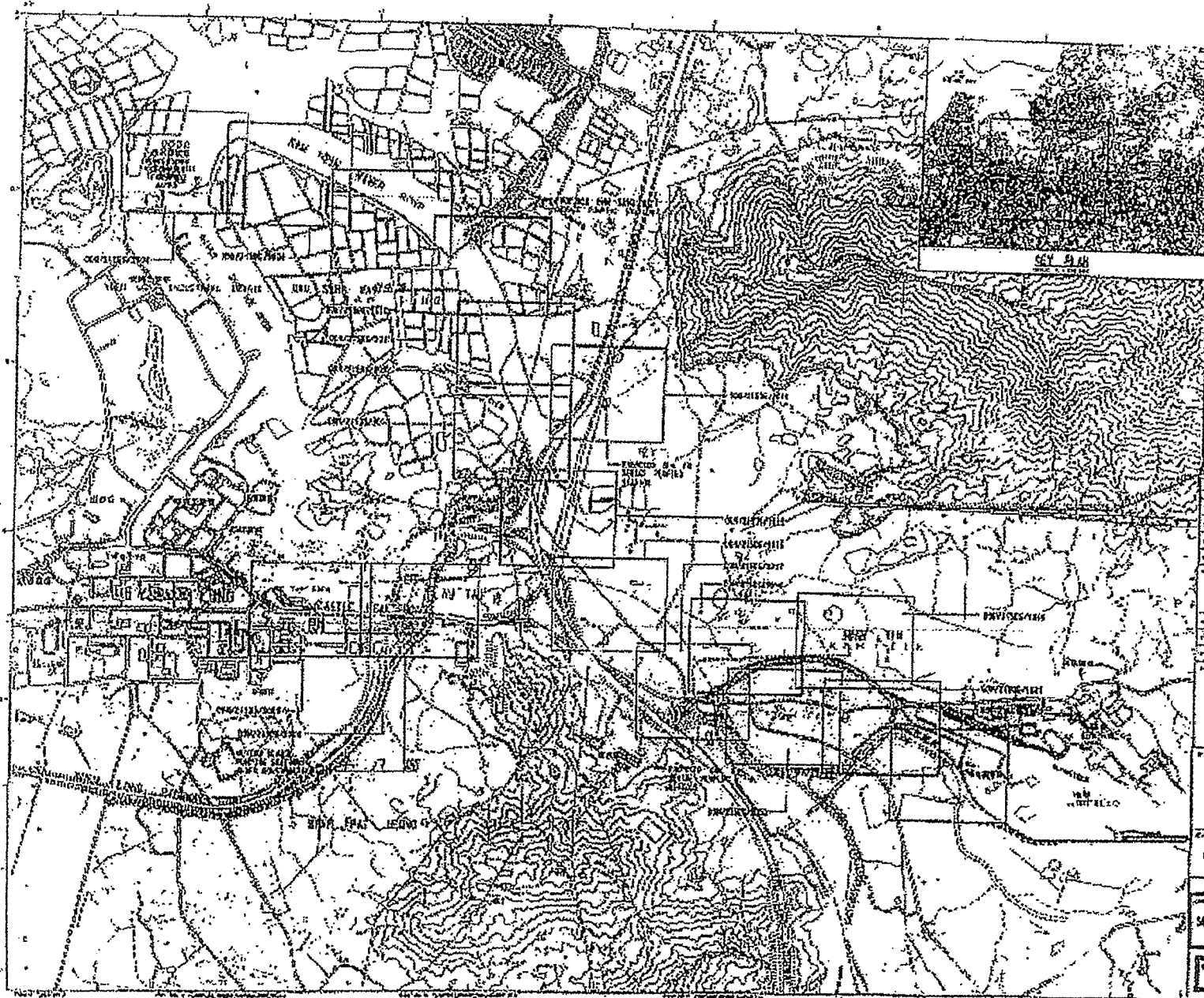
**SUBMISSION OF PROFORMA**

7.04 Representatives of the Engineer, the Contractor and ET carried out regular weekly joint site inspection on 07, 15, 22 and 27 February 2007 to evaluate the site environmental performance. No non-compliance was noted and six observations were recorded in weekly (ET) and monthly (IEC) site inspections. In this reporting month, the IEC joint site inspection with RE, Contractor and ET was carried out on 27 February 2007.

7.05 Proforma of the weekly ET site inspection activities are presented in **Annex K**.

**Annex A**  
**Project Site Layout**





SERIES 1  
 "PROYECTO DE LEY PARA REFORMAR LA LEY DE LOS RIOS Y LA LEY DE LOS CANALES"  
 LEY DE LOS RIOS Y LA LEY DE LOS CANALES

LÍNEAS:  
 --- CANALES DE AGUA  
 --- RIOS  
 --- LÍNEAS DE FERROCARRIL

**PROYECTO DE LEY PARA REFORMAR LA LEY DE LOS RIOS Y LA LEY DE LOS CANALES**

MEXICO	
ESTADO	VERACRUZ
MUNICIPIO	MINATITLAN
LOCALIDAD	MINATITLAN
PROYECTO	PROYECTO DE LEY PARA REFORMAR LA LEY DE LOS RIOS Y LA LEY DE LOS CANALES
FECHA	1954

Autor: *Gen. Francisco...*  
 Director: *Gen. Francisco...*  
 Oficina: *Gen. Francisco...*  
 Escala: *Gen. Francisco...*  
 Proyecto: *Gen. Francisco...*

ESTADO DE VERACRUZ  
 MUNICIPIO DE MINATITLAN  
 LOCALIDAD DE MINATITLAN  
 PROYECTO DE LEY PARA REFORMAR LA LEY DE LOS RIOS Y LA LEY DE LOS CANALES

MODELO DE USOS  
 ESCALA: 1:50,000  
 DATOS: 1954

SERVICIO GEOGRAFICO  
 SERVICIOS GEOGRAFICOS OLIVAS  
 DIRECCION GENERAL DE SERVICIOS GEOGRAFICOS  
 AV. DE LA REVOLUCION 100  
 MEXICO, D.F.

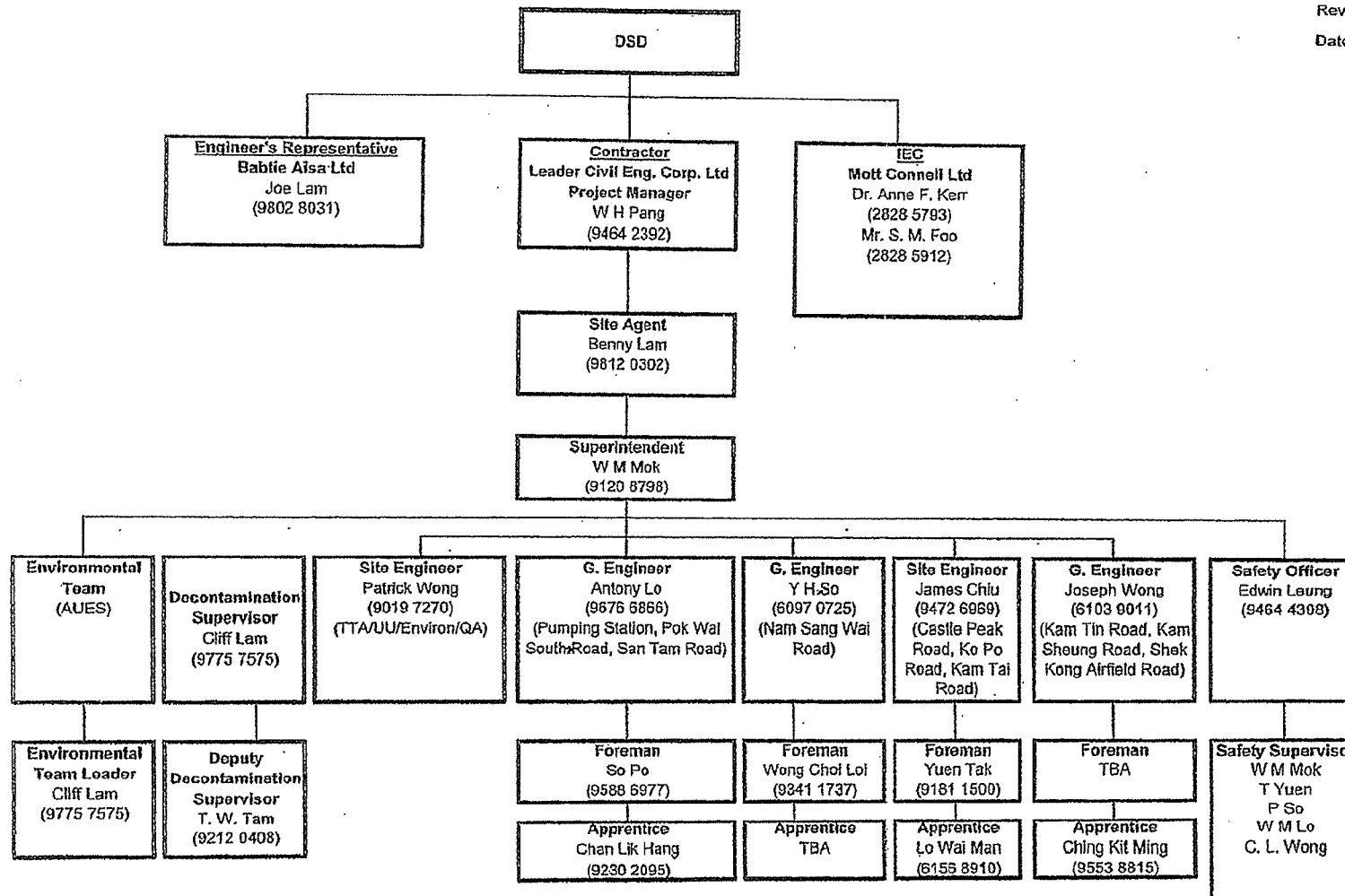
## **Annex B**

# **Project Organization and Management Structure**

**DSD Contract No. DC/2005/02**  
**Construction of Sewers, Rising Mains and Sewage Pumping Station at Kam Tin,**  
**Nam Sang Wai and Au Tau in Yuen Long**  
**Project Environmental Organization Chart**

Rev. : 01

Date : 12-May-06



**Annex C**  
**Construction Program**

Act ID	Description	Orig Dur	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	2007													
									JAN	FEB			MAR			APR			MAY			
									20	05	12	19	26	03	10	17	24	31	07	14	21	28
<b>Submission</b>																						
<b>Design Submission</b>																						
SUN1500	Approve Temp Work - Kam Tin P/Station	6	-20d	95	10NOV06 A	28FEB07	10NOV06 A	01FEB07							Approve Temp Work - Kam Tin P/Station							
SUN1700	Approve Temp Work - Sha Po P/Station	6	93d	90	11JAN07 A	01MAR07	11JAN07 A	21JUN07							Approve Temp Work - Sha Po P/Station							
<b>Method Statement Submission</b>																						
SUO1100	Approve Temp Work - Kam Tin P/Station	6	-20d	95	10NOV06 A	28FEB07	10NOV06 A	01FEB07							Approve Temp Work - Kam Tin P/Station							
SUO1200	Prepare/Submit Temp Work - Sha Po P/Station	30	82d	80	10NOV06 A	07MAR07	10NOV06 A	13JUN07							Prepare/Submit Temp Work - Sha Po P/Station							
SUO1300	Approve Temp Work - Sha Po P/Station	6	82d	0	08MAR07	14MAR07	14JUN07	21JUN07							Approve Temp Work - Sha Po P/Station							
<b>Preliminaries</b>																						
PR2900	Deliver Ductile Iron Pipe	800	57d	36	29APR06 A	12NOV08	29APR06 A	20JAN09														
PR3100	Deliver Precast Concrete Pipe	800	72d	38	24APR06 A	25OCT08	24APR06 A	20JAN09														
PR3300	Deliver Vitrified Clay Pipe	800	42d	34	10APR06 A	29NOV08	10APR06 A	20JAN09														
PR3400	Structural Monitoring by ISE	835	35d	36	06APR06 A	08DEC08	06APR06 A	20JAN09														
PR3500	Environmental monitoring by ET	814	74d	39	06APR06 A	23OCT08	06APR06 A	20JAN09														
<b>Section 1 - Kam Tin Sewage Pumping Station</b>																						
<b>Portion A</b>																						
<b>Earthworks</b>																						
S1AG1000	Drive Sheetpile	20		100	16NOV06 A	02FEB07 A	16NOV06 A	02FEB07 A	Drive Sheetpile													
S1AG1100	Excavate to Level of 1st Layer of Waling	4	-21d	0	02MAR07	06MAR07	02FEB07	06FEB07	Excavate to Level of 1st Layer of Waling													
S1AG1200	Install 1st Layer Waling & Strut	4	-21d	0	07MAR07	10MAR07	07FEB07	10FEB07	Install 1st Layer Waling & Strut													
S1AG1300	Excavate to Level of 2nd Layer of Waling	10	-21d	0	12MAR07	22MAR07	12FEB07	26FEB07	Excavate to Level of 2nd Layer of Waling													
S1AG1400	Install 2nd Layer Waling & Strut	4	-21d	0	23MAR07	27MAR07	27FEB07	02MAR07	Install 2nd Layer Waling & Strut													
S1AG1500	Excavate to Level of 3rd Layer of Waling	13	-21d	0	28MAR07	12APR07	03MAR07	17MAR07	Excavate to Level of 3rd Layer of Waling													
S1AG1600	Install 3rd Layer Waling & Strut	4	-21d	0	13APR07	17APR07	19MAR07	22MAR07	Install 3rd Layer Waling & Strut													
S1AG1700	Excavate to Level of 4th Layer of Waling	14	-21d	0	18APR07	04MAY07	23MAR07	09APR07	Excavate to Level of 4th Layer													
S1AG1800	Install 4th Layer Waling & Strut	4	-21d	0	05MAY07	09MAY07	10APR07	13APR07	Install 4th Layer Waling													
S1AG1900	Excavate to Level of 5th Layer of Waling	17	-21d	0	10MAY07	29MAY07	14APR07	04MAY07														
<b>Geotechnical works</b>																						
S1AP1000	Monitoring of Instruments	476	11d	18	16NOV06 A	14JUN08	16NOV06 A	27JUN08														
<b>Section 2 - Sha Po Sewage Pumping Station</b>																						
<b>Portion B</b>																						
<b>Preliminaries</b>																						
S2BA1000	Erect Hoarding	18		100	27NOV06 A	13FEB07 A	27NOV06 A	13FEB07 A	Erect Hoarding													
<b>Ground Investigation</b>																						
S2BB1000	Trial Pits	20		100	02SEP06 A	12FEB07 A	02SEP06 A	12FEB07 A	Trial Pits													
S2BB1100	Drill Boreholes	11		100	05SEP06 A	23FEB07 A	05SEP06 A	23FEB07 A	Drill Boreholes													

Start date 19DEC05  
 Finish date 31OCT09  
 Data date 01MAR07  
 Run date 06MAR07  
 Page number 1A  
 Primavera Systems, Inc.

Leader Civil Engineering Corp. Ltd.  
 DSD Contract No. DC/2005/02  
 3-Month Rolling Programme - 3M01 at 29 February 2007

Legend:  
 ■ Early bar  
 ■ Progress bar  
 ■ Critical bar  
 ■ Summary bar  
 ◆ Start milestone point  
 □ Finish milestone point

Act ID	Description	Orig Dur	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	2007																
									JAN 29	05	FEB 12	19	26	MAR 05	12	19	26	02	09	16	23	30	07	MAY 14	21
S2BB1200	Install Inclinometers	2		100	06SEP06 A	24FEB07 A	06SEP06 A	24FEB07 A	Install Inclinometers																
S2BB1300	Install Settlement Markers	1		100	23FEB07 A	24FEB07 A	23FEB07 A	24FEB07 A	Install Settlement Markers																
<b>Drainage and Ducts</b>																									
<b>Trench Method</b>																									
S2BEA1400	Install Geotextile Filter to F/L of Base Slab	1	82d	0	17MAY07	17MAY07	23AUG07	23AUG07	Install Geotextile Filter																
<b>Earthworks</b>																									
S2BG1000	Drive Sheepile	16	82d	5	26FEB07 A	31MAR07	26FEB07 A	10JUL07	Drive Sheepile																
S2BG1100	Excavate to Level of 1st Layer of Waling	3	82d	0	02APR07	04APR07	11JUL07	13JUL07	Excavate to Level of 1st Layer of Waling																
S2BG1200	Install 1st Layer of Waling & Strut	4	82d	0	06APR07	10APR07	14JUL07	18JUL07	Install 1st Layer of Waling & Strut																
S2BG1300	Excavate to Level of 2nd Layer of Waling	6	82d	0	11APR07	17APR07	19JUL07	25JUL07	Excavate to Level of 2nd Layer of Waling																
S2BG1400	Install 2nd Layer of Waling & Strut	4	82d	0	18APR07	21APR07	26JUL07	30JUL07	Install 2nd Layer of Waling & Strut																
S2BG1500	Excavate to Level of 3rd layer of Waling	7	82d	0	23APR07	30APR07	31JUL07	07AUG07	Excavate to Level of 3rd layer of Waling																
S2BG1600	Install 3rd Layer of Waling & Strut	4	82d	0	02MAY07	05MAY07	08AUG07	11AUG07	Install 3rd Layer of Waling & Strut																
S2BG1700	Excavate to Formation Level	9	82d	0	07MAY07	16MAY07	13AUG07	22AUG07	Excavate to Formation Level																
S2BG1800	Fill Grade 200 Rockfill	8	82d	0	18MAY07	26MAY07	24AUG07	01SEP07	Fill Grade 200 Rockfill																
<b>In-Situ Concrete</b>																									
S2BL1000	Cast Blinding Concrete	1	82d	0	28MAY07	28MAY07	03SEP07	03SEP07	Cast Blinding Concrete																
<b>Geotechnical works</b>																									
S2BP1000	Monitoring of Instruments	308	84d	1	26FEB07 A	18MAR08	26FEB07 A	27JUN08	Monitoring of Instruments																
<b>Section 3 - Nam Sang Wai Sewage Pumping Station</b>																									
<b>Portion C</b>																									
<b>Pipework - Rising Main</b>																									
<b>Trench Method</b>																									
S3CFA1000	Twin Rising Main DN900	6	180d	0	06APR07	12APR07	09NOV07	15NOV07	Twin Rising Main DN900																
<b>Earthworks</b>																									
S3CG1500	Excavate to Level of 3rd Layer of Waling	14		100	23JAN07 A	08FEB07 A	23JAN07 A	08FEB07 A	Excavate to Level of 3rd Layer of Waling																
S3CG1600	Install 3rd Layer of Waling & Strut	4		100	01FEB07 A	27FEB07 A	01FEB07 A	27FEB07 A	Install 3rd Layer of Waling & Strut																
S3CG1700	Excavate to Level of 4th Layer of Waling	18	-117d	5	28FEB07 A	20MAR07	28FEB07 A	27OCT06	Excavate to Level of 4th Layer of Waling																
S3CG1800	Install 4th Layer of Waling & Strut	4	-117d	0	21MAR07	24MAR07	28OCT06	02NOV06	Install 4th Layer of Waling & Strut																
S3CG1900	Excavate to Level of 5th Layer of Waling	22	-117d	0	26MAR07	20APR07	03NOV06	28NOV06	Excavate to Level of 5th Layer of Waling																
S3CG2000	Install 5th Layer of Waling & Strut	4	-117d	0	21APR07	25APR07	29NOV06	02DEC06	Install 5th Layer of Waling & Strut																
S3CG2100	Excavate to Level of 6th Layer of Waling	22	-117d	0	26APR07	22MAY07	04DEC06	29DEC06	Excavate to Level of 6th Layer of Waling																
S3CG2200	Install 6th Layer of Waling & Strut	4	-117d	0	23MAY07	26MAY07	30DEC06	04JAN07	Install 6th Layer of Waling & Strut																
S3CG2300	Excavate to Formation Level	22	-117d	0	28MAY07	22JUN07	05JAN07	30JAN07	Excavate to Formation Level																
<b>Geotechnical works</b>																									
S3CP1000	Monitoring of Instruments	632	38d	49	06APR06 A	26MAR08	06APR06 A	12MAY08	Monitoring of Instruments																
<b>Section 4 - Sewers &amp; R/W in Portion D, F, G, H, J</b>																									
<b>Portion D</b>																									
<b>Ground Investigation</b>																									
S4DB1300	Install Settlement Markers	579	269d	48	31OCT06 A	01MAR08	31OCT06 A	20JAN09	Install Settlement Markers																
<b>Pipework - Rising Main</b>																									

Start date	19DEC05
Finish date	31OCT09
Data date	01MAR07
Run date	06MAR07
Page number	2A
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**Leader Civil Engineering Corp. Ltd.**  
**DSD Contract No. DC/2005/02**  
**3-Month Rolling Programme - 3M01 at 29 February 2007**

- Early bar
- Progress bar
- Critical bar
- Summary bar
- Start milestone point
- Finish milestone point



Act ID	Description	Orig Dur	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	2007															
									JAN 28	05	FEB 12	19	26	MAR 05	12	19	26	02	09	16	23	30	07	MAY 14
<b>Trench Method</b>																								
S4DFA1000	Twin Rising Main DN900 (ChA1750 - ChA1850)	124	84d	90	02NOV06 A	14MAR07	02NOV06 A	23JUN07	Twin Rising Main DN900 (ChA1750 - ChA1850)															
<b>Trenchless Method</b>																								
S4DFB1000	Construct Jack/Receive Pits (WOIC1 - ChA2095)	72	84d	90	02DEC06 A	08MAR07	02DEC06 A	16JUN07	Construct Jack/Receive Pits (WOIC1 - ChA2095)															
S4DFB1020	Jacking Twin DN900 (WOIC1 - ChA2095)	131	84d	0	09MAR07	13AUG07	18JUN07	22NOV07																
<b>Geotechnical works</b>																								
S4DP1000	Monitoring of Instruments	567	199d	36	02NOV06 A	13MAY08	02NOV06 A	08JAN09																
<b>Portion F</b>																								
<b>Ground Investigation</b>																								
S4FB1180	Boreholes & Instrumentation (AVIC6 - WOIC5)	6	47d	50	21DEC06 A	01NOV07	21DEC06 A	27DEC07																
S4FB1500	Install Settlement Markers	720	131d	39	27APR06 A	14AUG08	27APR06 A	20JAN09																
<b>Drainage and Ducts</b>																								
<b>Trenchless Method</b>																								
S4FEB1100	Construct Jack/Receive Pits (H3 - H2)	30	102d	50	22NOV06 A	21JAN08	22NOV06 A	24MAY08																
S4FEB1420	Jacking DN1200 (H6 - H5)	36		100	16JAN07 A	13FEB07 A	16JAN07 A	13FEB07 A	Jacking DN1200 (H6 - H5)															
S4FEB1440	Construct Manhole H6	27	209d	0	02APR07	04MAY07	10DEC07	11JAN08	Construct Manhole H6															
S4FEB1540	Construct Manhole H7	27	209d	0	01MAR07	31MAR07	08NOV07	08DEC07	Construct Manhole H7															
<b>Pipework - Rising Main</b>																								
<b>Trench Method</b>																								
S4FFA1000	Twin Rising Main DN500 (ChB750 - ChB800)	120	285d	24	05JAN07 A	29JUN07	05JAN07 A	10JUN08																
S4FFA2200	Twin Rising Main DN700 (ChC2400 - WOIC4)	93	5d	0	03APR07	24JUL07	10APR07	30JUL07																
S4FFA2300	Twin Rising Main DN700 (ChC2639 - H7)	52	200d	0	03APR07	04JUN07	30NOV07	31JAN08																
<b>Trenchless Method</b>																								
S4FFB1020	Jacking Twin DN700 (WOIC4 - ChC2639)	139	5d	80	25NOV06 A	02APR07	25NOV06 A	09APR07	Jacking Twin DN700 (WOIC4 - ChC2639)															
S4FFB1100	Construct Jack/Receive Pits (AVIC6 - WOIC5)	57	47d	25	08JAN07 A	21DEC07	08JAN07 A	20FEB08																
S4FFB1200	Construct WOIC4	30	68d	0	03APR07	09MAY07	25JUN07	30JUL07	Construct WOIC4															
<b>Geotechnical works</b>																								
S4FP1000	Monitoring of Instruments	803	20d	33	05JUN06 A	13DEC08	05JUN06 A	08JAN09																
<b>Portion G</b>																								
<b>Ground Investigation</b>																								
S4GB1500	Install Settlement Markers	738	111d	38	21APR06 A	06SEP08	21APR06 A	20JAN09																
<b>Pipework - Rising Main</b>																								
<b>Trench Method</b>																								
S4GFA1300	Twin Rising Main DN500 (ChB450 - ChB550)	84	427d	0	01MAR07	08JUN07	30JUL08	07NOV08																
S4GFA1500	Twin Rising Main DN500 (ChB650 - ChB750)	130	285d	92	14OCT06 A	12MAR07	14OCT06 A	21FEB08	Twin Rising Main DN500 (ChB650 - ChB750)															
S4GFA1600	Construct AVIC2	30	501d	0	13MAR07	17APR07	08NOV08	12DEC08	Construct AVIC2															
<b>Geotechnical works</b>																								
S4GP1000	Monitoring of Instruments	729	60d	31	22APR06 A	28OCT08	22APR06 A	08JAN09																
<b>Portion H</b>																								
<b>Ground Investigation</b>																								
S4HB1300	Install Settlement Markers	717	106d	35	26MAY06 A	12SEP08	26MAY06 A	20JAN09																
<b>Drainage and Ducts</b>																								

Start date 19DEC05  
 Finish date 31OCT09  
 Data date 01MAR07  
 Run date 06MAR07  
 Page number 3A  
 Primavera Systems, Inc.

Leader Civil Engineering Corp. Ltd.  
 DSD Contract No. DC/2005/02  
 3-Month Rolling Programme - 3M01 at 29 February 2007

- Early bar
- Progress bar
- Critical bar
- Summary bar
- Start milestone point
- Finish milestone point




Act ID	Description	Orig Dur	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	2007												
									JAN 29	05	FEB 12	19	26	05	MAR 12	19	26	02	09	16	23
<b>Trench Method</b>																					
S4HEA1200	DN500 Pipe & Manhole (A9 - A12)	90	9d	83	03JUL06 A	17MAR07	03JUL06 A	28MAR07	DN500 Pipe & Manhole (A9 - A12)												
S4HEA1300	DN500 Pipe & Manhole (A12 - A14)	54	9d	0	03APR07	06JUN07	14APR07	16JUN07													
S4HEA1500	DN400 Pipe & Manhole (A16 - A18)	73	214d	0	07MAR07	01JUN07	20NOV07	18FEB08													
<b>Pipework - Rising Main</b>																					
<b>Trench Method</b>																					
S4HFA1200	Twin Rising Main DN700 (ChC290 - ChC410)	45	9d	71	03JUL06 A	02APR07	03JUL06 A	13APR07	Twin Rising Main DN700 (ChC290 - ChC410)												
S4HFA1700	Twin Rising Main DN700 (ChC780 - ChC850)	50	214d	90	09JAN07 A	06MAR07	09JAN07 A	19NOV07	Twin Rising Main DN700 (ChC780 - ChC850)												
S4HFA2000	Twin Rising Main DN700 (ChC1050 - ChC1150)	94	187d	50	04JAN07 A	25APR07	04JAN07 A	06DEC07	Twin Rising Main DN700 (ChC1050 - ChC1150)												
S4HFA2100	Twin Rising Main DN700 (ChC1150 - ChC1250)	84	187d	0	26APR07	04AUG07	07DEC07	19MAR08													
S4HFA2500	Twin Rising Main DN700 (ChC1550 - ChC1650)	223	32d	8	16DEC06 A	20DEC07	16DEC06 A	29JAN08													
S4HFA2600	Twin Rising Main DN700 (ChC1650 - ChC1750)	124	32d	67	19JUN06 A	18APR07	19JUN06 A	26MAY07	Twin Rising Main DN700 (ChC1650 - ChC1750)												
S4HFA3300	Construct AVIC7	20	217d	0	19APR07	12MAY07	07JAN08	29JAN08	Construct AVIC7												
S4HFA3400	Construct WOIC6	20	217d	0	19APR07	12MAY07	07JAN08	29JAN08	Construct WOIC6												
<b>Geotechnical works</b>																					
S4HP1000	Monitoring of Instruments	764	59d	34	26MAY06 A	29OCT08	26MAY06 A	08JAN09													
<b>Portion I</b>																					
<b>Ground Investigation</b>																					
S4IB1040	Boreholes & Instrumentation (ChD0 to ChD55)	8	341d	0	17MAR07	26MAR07	05MAY08	13MAY08	Boreholes & Instrumentation (ChD0 to ChD55)												
S4IB1300	Install Settlement Markers	726	122d	38	26JUN06 A	25AUG08	26JUN06 A	20JAN09													
<b>Drainage and Ducts</b>																					
<b>Trench Method</b>																					
S4IEA1100	DN500 Pipe & Manhole (C5 - C8)	81	87d	0	21MAY07	24AUG07	01SEP07	07DEC07													
S4IEA1200	DN400 Pipe & Manhole (C7a - C7)	47	87d	0	24MAR07	19MAY07	09JUL07	31AUG07	DN400 Pipe												
S4IEA1300	DN500 Pipe & Manhole (C8 - C11)	63	87d	68	21JUL06 A	23MAR07	21JUL06 A	07JUL07	DN500 Pipe & Manhole (C8 - C11)												
S4IEA1400	DN500 Pipe & Manhole (C11 - C13)	71	312d	47	05DEC06 A	09MAY07	05DEC06 A	21MAY08	DN500 Pipe & Manhole												
S4IEA1500	DN500 Pipe & Manhole (C13 - C14)	70	312d	0	10MAY07	01AUG07	22MAY08	13AUG08													
S4IEA1900	DN500 Pipe & Manhole (C20 - C22)	71	347d	0	12MAY07	04AUG07	07JUL08	27SEP08													
S4IEA2000	DN500 Pipe & Manhole (C22 - C25)	70	347d	14	19DEC06 A	11MAY07	19DEC06 A	05JUL08	DN500 Pipe & Manhole												
S4IEA2200	DN500 Pipe & Manhole (C27 - C29)	62	223d	90	18OCT06 A	07MAR07	18OCT06 A	30NOV07	DN500 Pipe & Manhole (C27 - C29)												
S4IEA2300	DN500 Pipe & Manhole (C29 - C32)	79	223d	0	08MAR07	09JUN07	01DEC07	07MAR08													
<b>Geotechnical works</b>																					
S4IP1000	Monitoring of Instruments	795	36d	34	28JUN06 A	25NOV08	28JUN06 A	08JAN09													
<b>Section 5 - Sewers &amp; RM in Portion E</b>																					
<b>Portion E</b>																					
<b>Preliminaries</b>																					
S5EA1100	Non Work Period 01 Nov 06 - 31 Mar 07	125	0	79	28NOV06 A	31MAR07	28NOV06 A	31MAR07 *	Non Work Period 01 Nov 06 - 31 Mar 07												
<b>Ground Investigation</b>																					
S5EB1400	Install Settlement Markers (Stage 2)	138	13d	0	02APR07	13SEP07	18APR07	29SEP07 *													
<b>Drainage and Ducts</b>																					
<b>Trenchless Method</b>																					
S5EEB1000	Construct Jack/Receive Pits (H11 - H10)	30	21d	0	06APR07 *	11MAY07	02MAY07	05JUN07	Construct Jack/Receive												

Start date 19DEC05  
 Finish date 31OCT09  
 Data date 01MAR07  
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 Primavera Systems, Inc.

Leader Civil Engineering Corp. Ltd.  
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 3-Month Rolling Programme - 3M01 at 29 February 2007

Early bar  
 Progress bar  
 Critical bar  
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 Start milestone point  
 Finish milestone point





Act ID	Description	Orig Dur	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	2007											
									JAN 29	05	FEB 12	19	26	MAR 05	12	19	26	02	09	16
SSEEB1020	Jacking DN600 (H11 - H10)	95	21d	0	12MAY07	01SEP07	06JUN07	27SEP07												
<b>Pipework - Rising Main</b>																				
<b>Trench Method</b>																				
SSEFA1300	Twin Rising Main DN900 (ChA350 - ChA400)	24	224d	0	02MAY07	29MAY07	26JAN08	26FEB08												
SSEFA1400	Twin Rising Main DN900 (ChA400 - ChA450)	24	224d	0	02APR07	30APR07	28DEC07	25JAN08												
SSEFA2200	Twin Rising Main DN900 (ChA800 - ChA850)	24	178d	0	28MAY07	25JUN07	28DEC07	25JAN08	Twin Rising Main DN900 (ChA400 -											
SSEFA2300	Twin Rising Main DN900 (ChA850 - ChA900)	24	178d	0	28APR07	26MAY07	29NOV07	27DEC07	Tw											
SSEFA2400	Twin Rising Main DN900 (ChA900 - ChA950)	24	178d	0	30MAR07	27APR07	01NOV07	28NOV07	Twin Rising Main DN900 (ChA900 - Ch											
SSEFA3000	Twin Rising Main DN900 (ChA1200 - ChA1250)	24	248d	0	02MAY07	29MAY07	27FEB08	25MAR08												
SSEFA3100	Twin Rising Main DN900 (ChA1250 - ChA1300)	24	248d	0	02APR07	30APR07	26JAN08	26FEB08	Twin Rising Main DN900 (ChA1250											
SSEFA3700	Twin Rising Main DN900 (ChA1550 - ChA1600)	24	224d	0	02MAY07	29MAY07	26JAN08	26FEB08												
SSEFA4000	Twin Rising Main DN900 (ChA1700 - ChA1750)	24	224d	0	02APR07	30APR07	28DEC07	25JAN08	Twin Rising Main DN900 (ChA1700											
<b>Trenchless Method</b>																				
SSEFB1040	Install Twin DN900 (ChA18 - ChA208)	30	21d	0	01MAR07	04APR07	26MAR07	30APR07	Install Twin DN900 (ChA18 - ChA208)											
<b>Geotechnical works</b>																				
SSEP1000	Monitoring of Instruments	629	42d	43	01AUG06 A	10MAY08	01AUG06 A	30JUN08												
<b>Section 6 - Sewers in Portion J</b>																				
<b>Portion J</b>																				
<b>Ground Investigation</b>																				
S6JB1040	Boreholes & Instrumentation (D6 - D7)	13	47d	50	13JUN06 A	02APR07	13JUN06 A	29MAY07	Boreholes & Instrumentation (D6 - D7)											
S6JB1060	Boreholes & Instrumentation (D7 - D8)	13	47d	0	26MAY07	09JUN07	23JUL07	06AUG07												
S6JB1500	Install Settlement Marker 1st Stage	741	107d	37	20APR06 A	11SEP08	20APR06 A	20JAN09												
S6JB2100	Install Settlement Markers 2nd Stage	589	182d	34	07JUL06 A	14JUN08	07JUL06 A	20JAN09												
<b>Drainage and Ducts</b>																				
<b>Trench Method</b>																				
S6JEA1100	DN1050 Pipe & Manhole (D2 - D4)	62	3d	61	31AUG06 A	28MAR07	31AUG06 A	31MAR07	DN1050 Pipe & Manhole (D2 - D4)											
S6JEA1300	DN1050 Pipe & Manhole (D8 - D9)	62	3d	0	29MAR07	11JUN07	02APR07	14JUN07												
S6JEA1900	DN400 Pipe & Manhole (D19 - D21)	124	-148d	30	05FEB07 A	12JUN07	05FEB07 A	13DEC06												
S6JEA2600	DN400 Pipe (D32 - D33) Stage 1	47	261d	0	04APR07	30MAY07	16FEB08	11APR08												
S6JEA3000	DN400 Pipe & Manhole (D35 - D38)	78	261d	63	25NOV06 A	03APR07	25NOV06 A	15FEB08	DN400 Pipe & Manhole (D35 - D38)											
S6JEA3400	DN300 Pipe & Manhole (D44 - D47)	69	370d	0	25APR07	17JUL07	17JUL08	08OCT08												
S6JEA3500	DN300 Pipe & Manhole (D47 - D51)	45	370d	65	29NOV06 A	24APR07	29NOV06 A	16JUL08	DN300 Pipe & Manhole (D47 - D51)											
S6JEA3600	DN300 Pipe & Manhole (D51 - D55)	40	370d	67	02JAN07 A	04APR07	02JAN07 A	26JUN08	DN300 Pipe & Manhole (D51 - D55)											
S6JEA3700	DN300 Pipe & Manhole (D55 - D57)	31	370d	46	10OCT06 A	20MAR07	10OCT06 A	11JUN08	DN300 Pipe & Manhole (D55 - D57)											
S6JEA3900	DN750 Pipe & Manhole (D12 - E3)	88	-234d	0	01MAR07	13JUN07	20MAY06	01SEP06												
<b>Trenchless Method</b>																				
S6JEB1100	Construct Jack/Receive Pits (D6 - D7)	28	47d	0	03APR07	07MAY07	30MAY07	03JUL07	Construct Jack/Receive Pi											
S6JEB1120	Jacking DN1050 (D6 - D7)	29	47d	0	08MAY07	09JUN07	04JUL07	06AUG07												
<b>Geotechnical works</b>																				
S6JP1000	Monitoring of Instruments	791	51d	34	04MAY06 A	19NOV08	04MAY06 A	20JAN09												
<b>Section 7 - Sewers in Portion K</b>																				
<b>Portion K</b>																				
<b>Ground Investigation</b>																				

Start date	19DEC05
Finish date	31OCT09
Data date	01MAR07
Run date	06MAR07
Page number	5A
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**Leader Civil Engineering Corp. Ltd.**  
**DSD Contract No. DC/2005/02**  
**3-Month Rolling Programme - 3M01 at 29 February 2007**

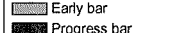
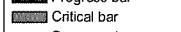
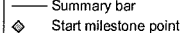
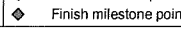
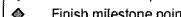
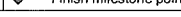
- Early bar
- Progress bar
- Critical bar
- Summary bar
- Start milestone point
- Finish milestone point



Act ID	Description	Orig Dur	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	2007											
									JAN 20	05	FEB 12	19	26	MAR 05	12	19	26	02	09	APR 16
S7KB1020	Boreholes & Instrumentation (M4 - M19)	16	-124d	0	25APR07	14MAY07	24NOV06	12DEC06												
S7KB1500	Install Settlement Markers	402	86d	69	08MAY06 A	30JUL07	08MAY06 A	10NOV07												
<b>Drainage and Ducts</b>																				
<b>Trench Method</b>																				
S7KEA1200	DN750 Pipe & Manhole (M4 - M6)	126	49d	0	09APR07	05SEP07	06JUN07	05NOV07												
S7KEA1300	DN750 Pipe & Manhole (M6 - M8)	79	49d	59	19MAY06 A	07APR07	19MAY06 A	05JUN07												
S7KEA1500	DN900 Pipe & Manhole (M10 - M11)	54	40d	0	30APR07	04JUL07	16JUN07	20AUG07												
S7KEA1600	DN900 Pipe & Manhole (M11 - M12)	90	40d	45	06JUN06 A	28APR07	06JUN06 A	15JUN07												
S7KEA1700	DN900 Pipe & Manhole (M12 - M13)	79	7d	72	06JUN06 A	26MAR07	06JUN06 A	03APR07												
S7KEA1800	DN900 Pipe & Manhole (M14 - M15)	51	7d	26	27DEC06 A	11MAY07	27DEC06 A	19MAY07												
S7KEA2000	DN400 Pipe & Manhole (M21 - M16a)	32	7d	0	12MAY07	18JUN07	21MAY07	27JUN07												
S7KEA2500	Demolish Ext Sewer Adj. M4 - M6	30	145d	0	09APR07	14MAY07	29SEP07	05NOV07												
<b>Trenchless Method</b>																				
S7KEB1000	Construct Jack/Receive Pits (M4 - M19)	30	-124d	0	15MAY07	18JUN07	13DEC06	18JAN07												
S7KEB1120	Jacking DN450 (M8 - M20)	76	-124d	40	08NOV06 A	24APR07	08NOV06 A	23NOV06												
S7KEB1140	Construct Manholes M8 & M20	27	71d	0	25APR07	26MAY07	20JUL07	20AUG07												
S7KEB1220	Jacking DN900 (M13 - M14)	43	15d	68	02DEC06 A	16MAR07	02DEC06 A	03APR07												
S7KEB1240	Construct Manholes M13 & M14	27	7d	0	27MAR07	27APR07	04APR07	07MAY07												
<b>Geotechnical works</b>																				
S7KP1000	Monitoring of Instruments	427	-108d	25	27MAY06 A	21MAR08	27MAY06 A	10NOV07												
<b>Section 8 - Preservation and Protection of Trees</b>																				
<b>All Portions</b>																				
<b>Landscape Softworks and Establishment Works</b>																				
S8QR1100	Preservation & Protection of Preserved Trees	861	0	34	29JUL06 A	20JAN09	29JUL06 A	20JAN09												
<b>Decontamination Works</b>																				
<b>General Submission</b>																				
S9L1100	Approve of CAR & RAP - Portion A/B	12	-21d	90	28NOV06 A	01MAR07	28NOV06 A	01FEB07												
S9L1300	Approve Excavation Plan - Portion A/B	12	-21d	90	28NOV06 A	01MAR07	28NOV06 A	01FEB07												
S9L1500	Approve of CAR & RAP - Portion F/G/H	12	100	08AUG06 A	09FEB07 A	08AUG06 A	09FEB07 A													
S9L1700	Approve Excavation Plan - Portion F/G/H	12	117d	90	08AUG06 A	01MAR07	08AUG06 A	20JUL07												
<b>Portion B</b>																				
<b>Decontamination</b>																				
S9BU1000	Decontamination Works	48	289d	0	17MAY07	13JUL07	02MAY08	27JUN08												

Start date 19DEC05  
 Finish date 31OCT09  
 Data date 01MAR07  
 Run date 06MAR07  
 Page number 6A  
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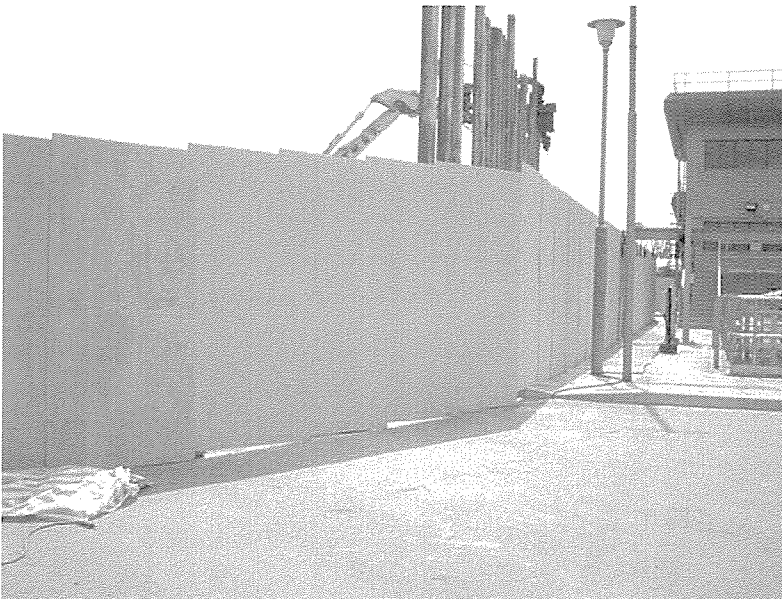
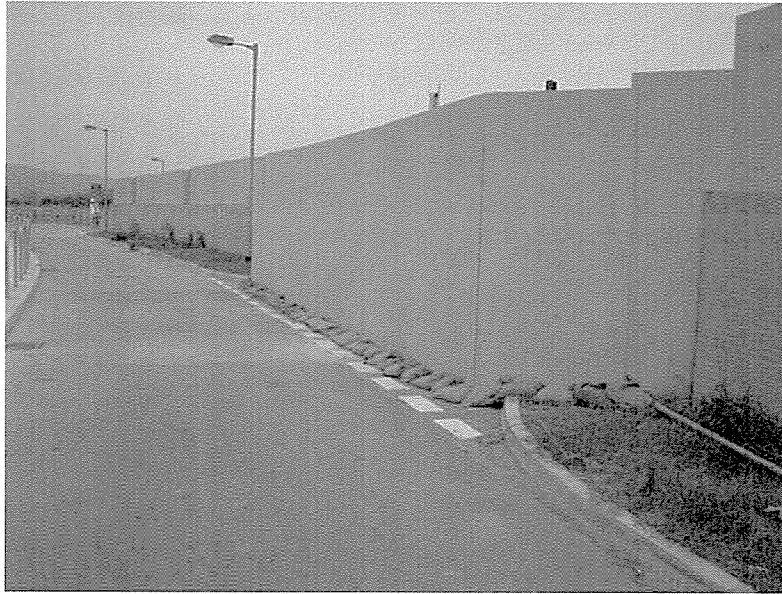
**Leader Civil Engineering Corp. Ltd.**  
**DSD Contract No. DC/2005/02**  
**3-Month Rolling Programme - 3M01 at 29 February 2007**

 Early bar  
 Progress bar  
 Critical bar  
 Summary bar  
 Start milestone point  
 Finish milestone point



**Annex D**

**Photographical Records – Noise Barrier On-Site**



## **Annex E**

### **Locations of Monitoring Stations**



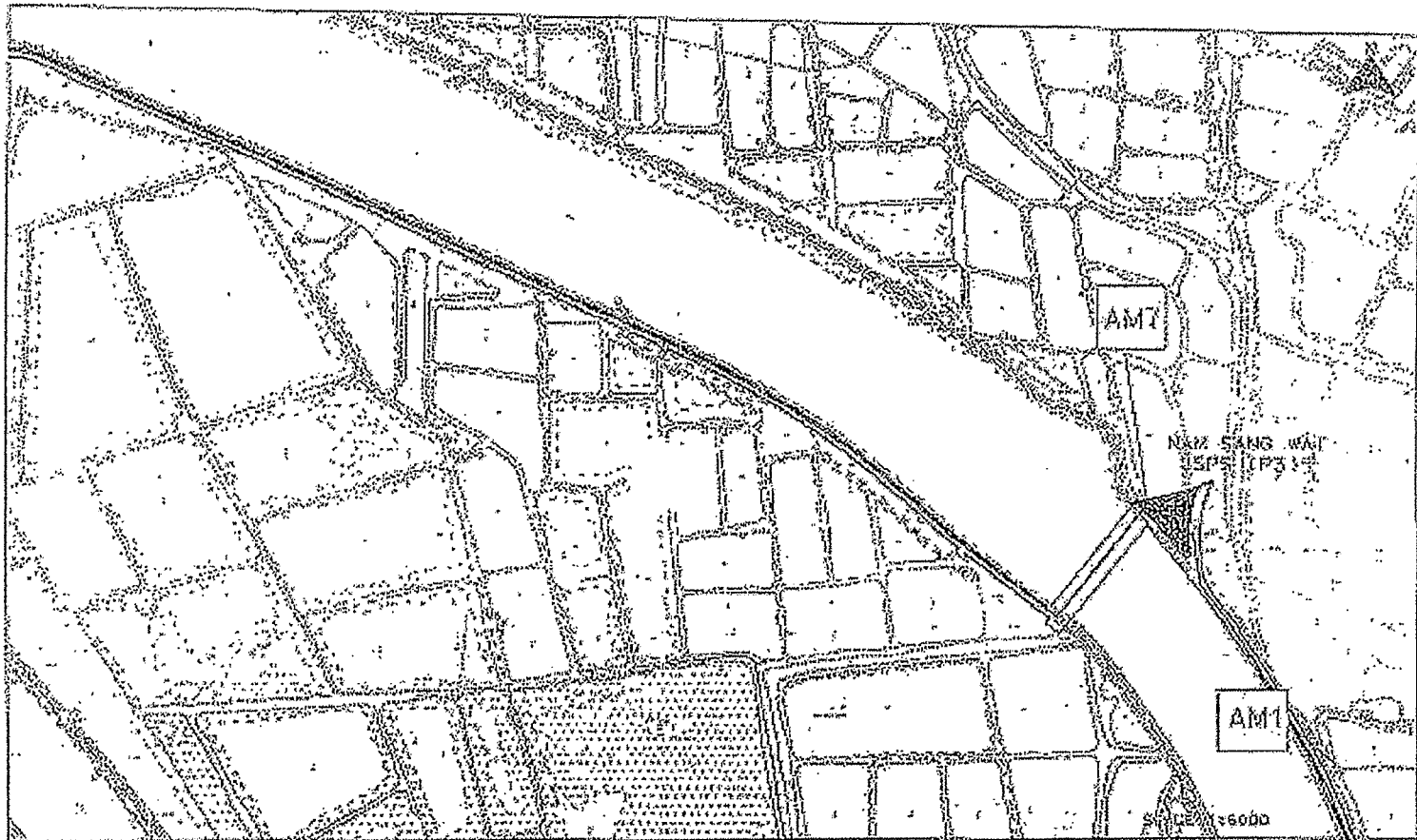


FIGURE 21

LOCATION OF DUST FILTERING STATIONS (AM1) AND A (AM1)

2013 01/11 10:20 AM/10/11/13  
 10/11/13 10:20 AM

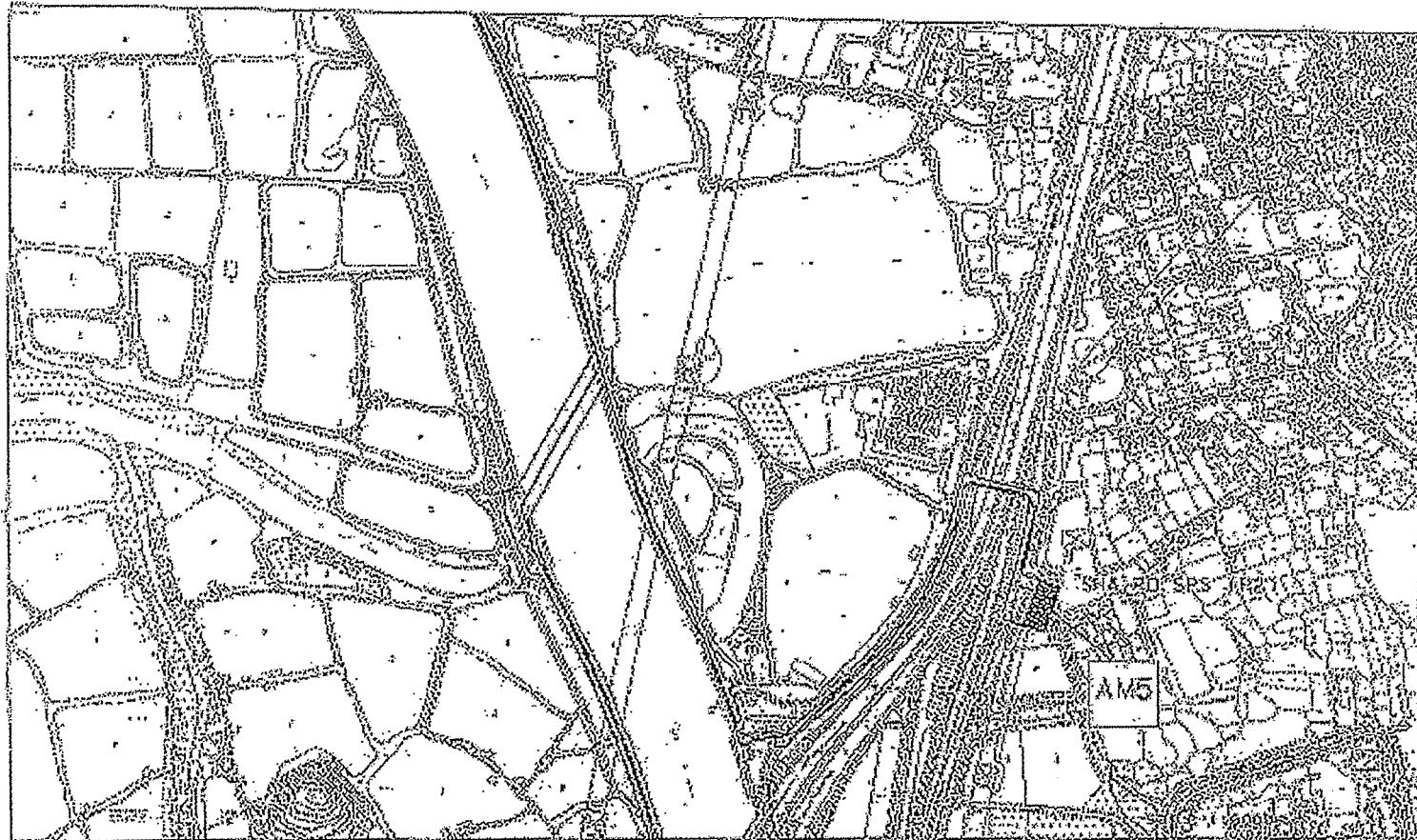


FIGURE 02

LOCATION OF DUST MONITORING STATION 4 (AM5)

APR 1988



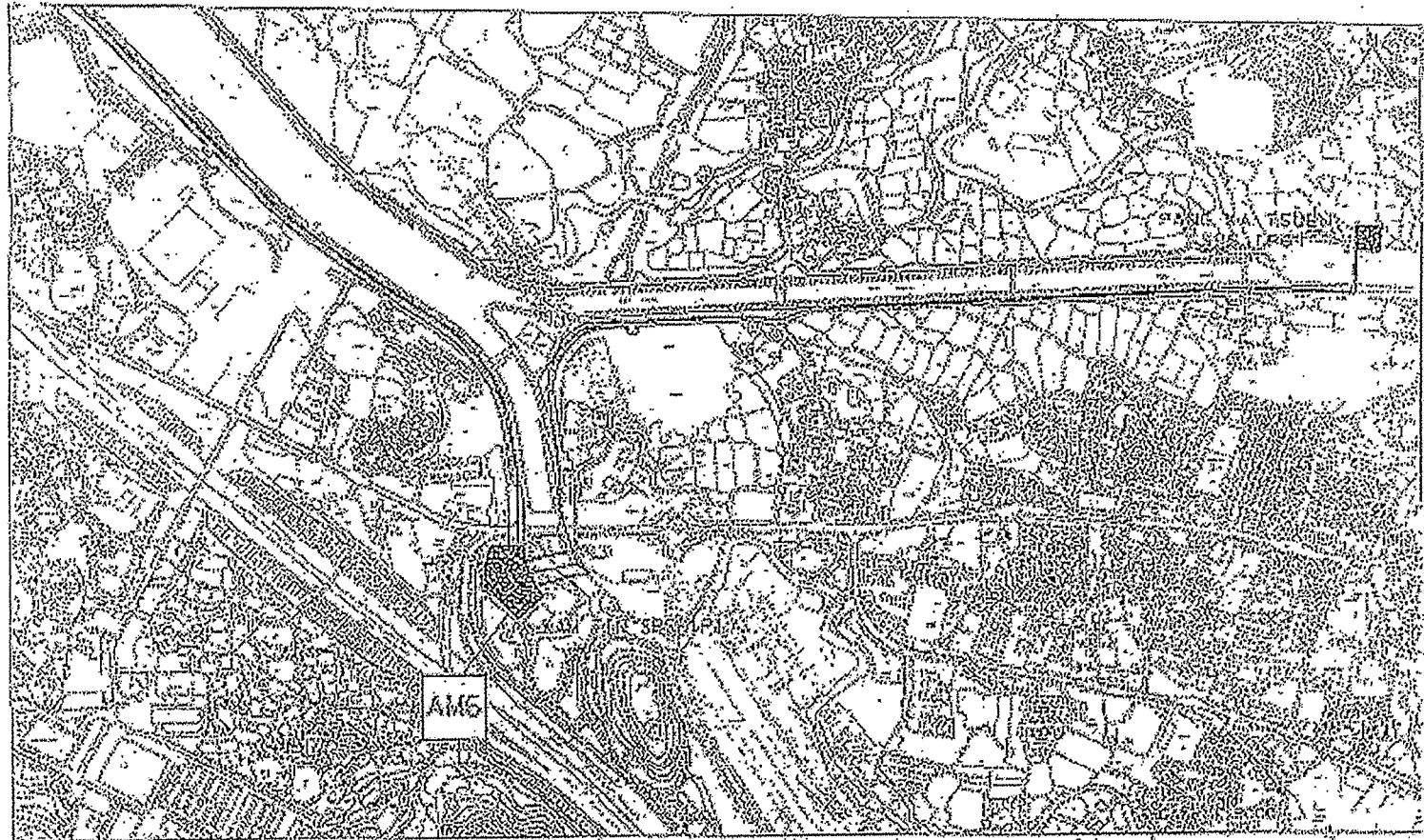


FIGURE 60

LOCATION OF DUST MONITORING STATIONS (AM6, AM5 & AM10)

Source: EPA, Bureau of Census  
Data: Bureau of Census



FIGURE 2

LOCATION OF SEISE MONITORING STATIONS 15M1, 2M2, 2M3, 2M4

1:50,000  
1:50,000

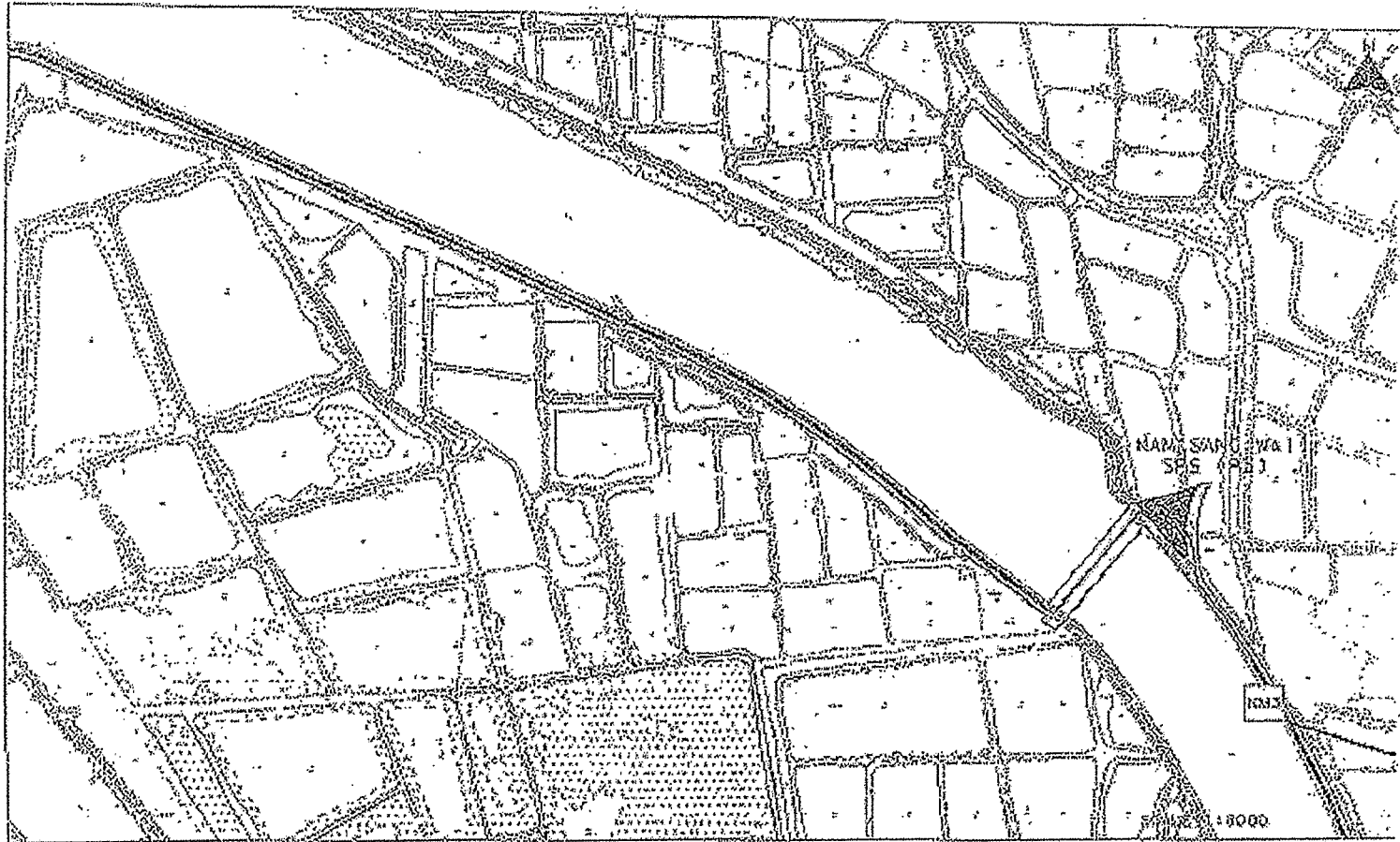


FIGURE C8

LOCATION OF NOISE MONITORING STATIONS INHS. AREA 1

DATE: 11/11/2011  
 SCALE: 1:8000

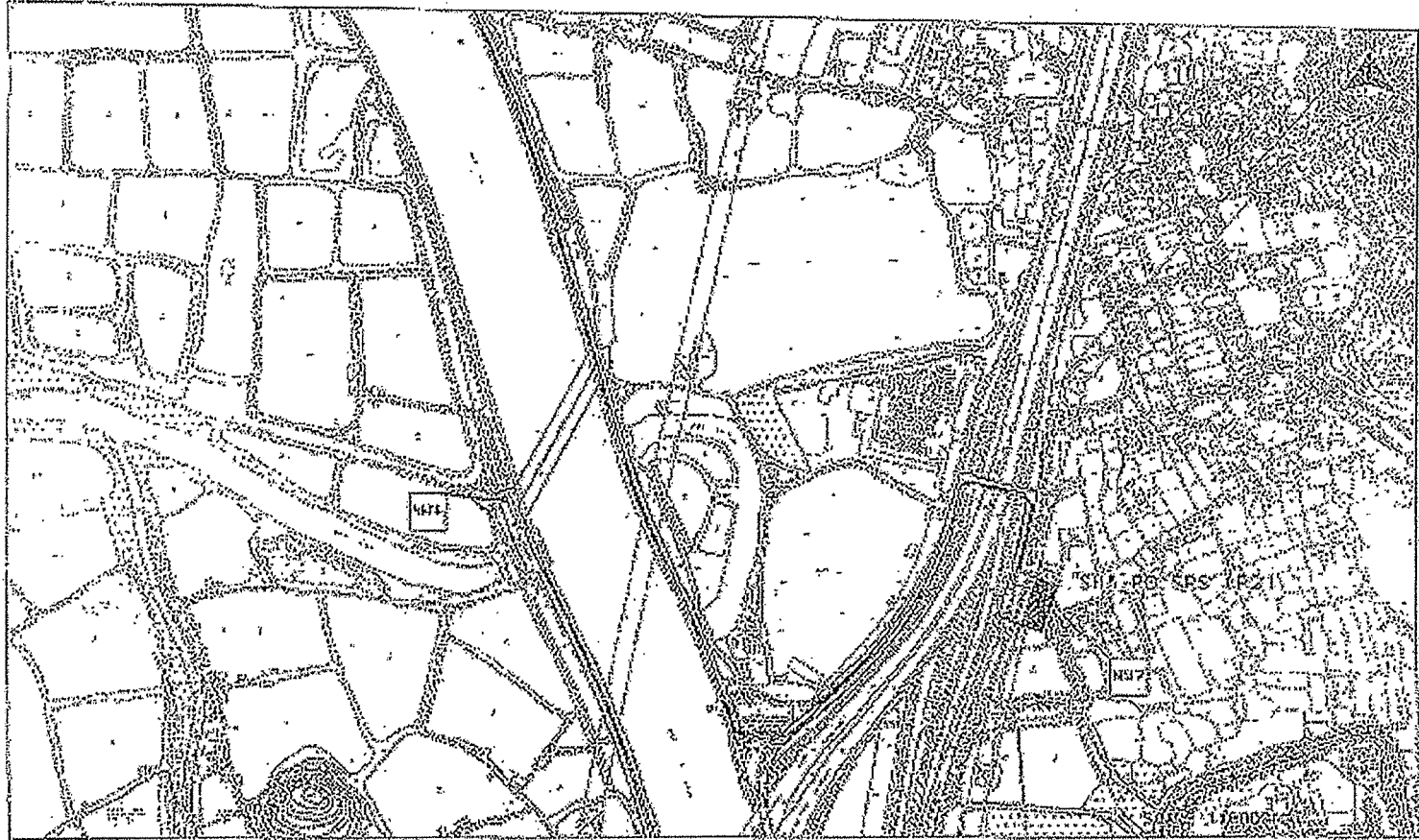


FIGURE 39.

LOCATION OF NOISE MONITORING STATIONS (I-74 NMS)

KUN FALL ENGINEERING  
2000 S. 1000 E.

## **Annex F**

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

Event and Action Plan for Construction Phase Air Quality

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

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



## **Annex G**

### **Mitigation Implementation Schedule**

EIA Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concern	Location of the measure	Implementation Agent	Implementation Stage				Relevant Legislation & Guidelines
						Des	Cl	O	Dec	
<b>CONSTRUCTION PHASE</b>										
<b>AIR QUALITY - Construction Phase</b>										
		The following measures are enforceable under the <i>Air Pollution Control (Construction Dust) Regulations</i>								
		<b>Site boundary and entrance</b>								
3.5	A1	<ul style="list-style-type: none"> <li>where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the boundaries of the seven pumping stations sites and the works area where the Engineer's site office and the Contractor's site office erected;</li> </ul>	To prevent access to the site, and control potential dust impacts from construction works.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			Part III, Clause 13 (c), <i>Air Pollution Control (Construction Dust) Regulations</i>
		<b>Access Road</b>								
3.5	A2	<ul style="list-style-type: none"> <li>the portion of any road leading only to a construction site that is within 30 m of a discernible or designated vehicle entrance or exit should be kept clear of dusty materials;</li> </ul>	To control potential dust impacts from vehicle movements.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			Part III, Clause 14, (b), <i>Air Pollution Control (Construction Dust) Regulations</i>
		<b>Stockpiling of Dusty Materials</b>								
3.5	A3	<ul style="list-style-type: none"> <li>any stockpile of dusty materials should be either covered entirely by impervious sheeting and placed in an area sheltered on the top and the 3 sides or sprayed with water so as to maintain the entire surface wet;</li> </ul>	To control potential dust impacts during excavation and stockpiling activities.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			Part IV, Clause 18, (a, b & c), <i>Air Pollution Control (Construction Dust) Regulations</i>
		<b>Loading, unloading or transfer of dusty materials</b>								
3.5	A4	<ul style="list-style-type: none"> <li>all dusty materials should be sprayed with water or a dust suppression chemical immediately prior to any loading and unloading so as to maintain the dusty materials wet;</li> </ul>	To control potential dust impacts during material handling and truck movements.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			Part IV, Clause 19, <i>Air Pollution Control (Construction Dust) Regulations</i>
		<b>Use of vehicles</b>								
3.5	A5	<ul style="list-style-type: none"> <li>every vehicle should be washed to remove any dusty materials from its body and wheels immediately before leaving a construction site;</li> </ul>	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), <i>Air Pollution Control (Construction</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	
3.5	A6	<ul style="list-style-type: none"> <li>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;</li> </ul>	To control potential dust impacts during material transportation.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			Dust) Regulations Part IV, Clause 21, (2), Air Pollution Control (Construction Dust) Regulations
3.5	A7	<p><b>Power-driven drilling, and cutting</b></p> <ul style="list-style-type: none"> <li>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;</li> </ul>	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
3.5	A8	<p><b>Excavation and earth moving</b></p> <ul style="list-style-type: none"> <li>the working area of excavation should be sprayed with water immediately before, during and immediately after the operation so as to maintain the entire surface wet;</li> </ul>	To control potential dust impacts arising from excavation works.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			Part IV, Clause 24, Air Pollution Control (Construction Dust) Regulations
3.5	A9	<p><b>Construction of the superstructure of a building</b></p> <ul style="list-style-type: none"> <li>where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the round floor level of the SPS, or if a canopy is provided at the first floor level, from the first floor level, up to the highest level of the scaffolding; and</li> </ul>	To control potential dust impacts from SPS building construction works.	Full duration of SPS construction contract.	The Contractor		✓			Part I, Clause 6, (a), Air Pollution Control (Construction Dust) Regulations
3.5	A10	<ul style="list-style-type: none"> <li>any skip hoist for material transport should be totally enclosed by the impervious sheeting.</li> </ul>	To control potential dust impacts during material transportation.	Full duration of SPS construction contract.	The Contractor		✓			Part I, Clause 6, (b), Air Pollution Control (Construction Dust) Regulations

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	CG	O	Dec	
		<b>NOISE - Construction Phase</b>								
4.7.1	B1	<b>General Site Clearance – Demolition Works</b> <ul style="list-style-type: none"> <li>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> (Examples of these PME are shown in Table F2),</li> </ul>	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
4.7.1	B2	<b>Construction of Sewage Pumping Stations P1, P2 &amp; P3</b> <ul style="list-style-type: none"> <li>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>,</li> <li>Adoption of temporary noise barrier, in the form of a site hoarding (with a superficial density of at least 20kg/m<sup>2</sup>, with no substantial gaps), along the site boundary of the pumping station sites.</li> </ul>	To minimise potential noise impacts arising during the construction of P1, P2 & P3	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			Annex 5 of EIAO-TM
4.7.1	B3	<b>Sewers and Rising Mains using Open Trench Method</b> <ul style="list-style-type: none"> <li>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>,</li> </ul>	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	<ul style="list-style-type: none"> <li>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.</li> </ul>	To control potential noise impacts during road opening activities.	Where there are NSRs located within 50m of the line of sight. Throughout the full duration of the road opening activities.	The Contractor		✓			
4.7.1	B5	<ul style="list-style-type: none"> <li>Use of movable noise barriers or 3 sided enclosures for all initial road opening activities</li> </ul>	To control potential noise impacts during road opening	Where there are NSRs located within 50m of the	The Contractor		✓			

EIA Ref.	EM&A Ref.	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measures	Implementation Agent	Implementation Stage				Relevant Legislation & Guidelines
						Des	Co	Op	Dec	
4.7.1	B6	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.  <i>Sewers and Rising Mains using Pipe Jacking Method</i>	activities.	line of sight. Throughout the full duration of the road opening activities.	The Contractor		✓			Annex 5 of EIAO-TM
4.7.1	B7	<i>Road Pavement and Finishes</i>	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
		<b>WATER QUALITY - Construction Phase</b>  No water quality monitoring is required under this study.								
6.6.2	D1	<b>WASTE - Construction Phase</b>  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"> <li>Chemical Waste Producer and Chemical Waste Disposal Licence (<i>Waste Disposal (Chemical Waste) (General) Regulations</i>); and</li> <li>Dumping Licence (<i>Land (Miscellaneous Provisions) Ordinance (Cap 28)</i>)</li> </ul>	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>

EIA Ref.	EMSA Ref.	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage				Relevant Legislation & Guidelines
						Des.	OC	NO	Dec.	
6.6.2	D2	<p><b>Chemical Waste</b> Chemical waste that is produced, as defined by Schedule 1 of the <i>Waste Disposal (Chemical Waste) (General) Regulation</i>, should be handled in accordance with the regulations and Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows. All chemical waste producers should be registered with the EPD.</p>	To control the handling, storage and disposal of chemical waste, in order to minimise potential spillages/leakages and human health and environmental impacts.	To be implemented at all worksites throughout the full duration of the construction phase.	The Contractor		✓			<i>Part II, (6) Waste Disposal (Chemical Waste) (General) Regulation</i>
6.6.2	D3	<p><b>Storage, Packaging and Labelling of Chemical Waste</b> Containers used for storage of chemical wastes should:</p> <ul style="list-style-type: none"> <li>be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed;</li> <li>have a capacity of less than 450 L unless the specifications have been approved by the EPD; and</li> <li>display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations.</li> </ul>	To ensure the proper storage, packaging and labelling of chemical waste in accordance with the Regulations.	To be implemented at all worksites throughout the full duration of the construction phase.	The Contractor		✓			<i>Part IV, (9, 10, 11 &amp; 12) Waste Disposal (Chemical Waste) (General) Regulation</i>
6.6.2	D4	<p><b>Storage of chemical waste</b> The storage area for chemical wastes should:</p> <ul style="list-style-type: none"> <li>be clearly labelled and used solely for the storage of chemical waste;</li> <li>be enclosed on at least 3 sides;</li> <li>have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest;</li> <li>have adequate ventilation;</li> <li>be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste, if necessary); and</li> <li>be arranged so that incompatible materials are</li> </ul>	To ensure the proper storage of chemical waste in accordance with the Regulations.	To be implemented at all worksites throughout the full duration of the construction phase.	The Contractor		✓			<i>Part IV, (13, 14, 15, 16, 17, &amp; 18) Waste Disposal (Chemical Waste) (General) Regulation</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	
		adequately separate								
		<p><b>Disposal of chemical waste</b></p> <ul style="list-style-type: none"> <li>The Contractor should ensure that the disposal of chemical waste is via a licensed Waste Collector and in accordance with the <i>Waste Disposal (Chemical Waste) (General) Regulations</i>.</li> </ul>	To control the disposal of chemical waste in accordance with the Regulations.	To be implemented at all worksites throughout the full duration of the construction phase.	The Contractor		✓			<i>Part IV, (20 -25) Waste Disposal (Chemical Waste) (General) Regulation</i>
6.6.2	D5	<p><i>Management of Waste Disposal</i></p> <p>A trip-ticket system should be established which monitors the disposal of C&amp;DM and solid wastes at public filling facilities and landfills and to control fly-tipping, in accordance with <i>Land (Miscellaneous Provisions) Ordinance (Cap28)</i> and the <i>Works Bureau Technical Circular No. 5/99</i>.</p>	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>
7.5.6	E1	<p><b>LAND CONTAMINATION- Construction Phase</b></p> <p>A revised CAP should be submitted to the EPD for approval before the commencement of the construction works. Following receipt of the EPD's approval, the CAP shall be implemented and the findings of the investigations will be reported in the Contaminated Assessment Report (CAR), before ground disturbance is allowed at the concerned sites.</p> <p>If land contamination is confirmed, a Remediation Action Plan (RAP) shall be prepared, and both the CAR and the RAP shall be submitted as a combined report to the EPD for approval before disturbing the ground of the concerned sites. If applicable and required in consultation with the</p>	To determine the presence of soil and groundwater contamination and remedy any potential concerns to acceptable levels.	To be implemented before the commencement of the construction works.	To be implemented by DSD or their sub-consultants at the Detailed Design Stage, depending upon when site access can be gained.		✓			<i>EIAO TM Annex 19/3.1.1 &amp; 3.1.2</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	
		EPD, the contaminated site(s) shall be remediated in accordance with the approved CAR/RAP.								
8.7.1	F1	<b>ECOLOGY - Construction Phase</b> <i>Mitigation Measures Adopted - Avoidance</i> Construction activities shall be prohibited during the winter season (November to March) along the section of the proposed sewerage alignment, which fall within the Deep Bay Wetland Conservation Area and the Deep Bay Wetland Buffer Area (WCA and WBA) and close to the locations of ecologically sensitive species (including Intermediate Egret, Black-faced Spoonbill, Buzzard, Imperial Eagle and Avocet). (See Figure 8.7a attached). Regular site inspections (at least twice a month) should be conducted by the Environmental Team during the winter season (November to March) to ensure proper implementation of this restriction	To schedule construction works in order to minimise potential impacts to winter visiting birds. To be confirmed by regular site inspections.	At identified location (Figure 8.7a) for the full duration of the construction contract.	The Contractor		✓			
8.7.2	F2	<i>Mitigation Measures Adopted - Minimisation</i> Pipe jacking method should be used instead of dredging where sewers and rising mains cross over existing MDC within the WCA and WBA.	To minimise potential construction noise impacts to ecological sensitive receivers within the WCA/WBA.	For the full duration of the construction contract.	The Contractor		✓			
8.7.2	F4	Regular inspections (at least twice a month) should be conducted by the ET during the winter season (November to March) for the remaining sections of the proposed sewerage alignment (including parts of S4, S5 and S6) within the WCA and WBA, where construction activities cannot be rescheduled.  The site inspections shall check and report the number of workfronts and implementation of	To schedule noisy construction activities to minimise potential impacts to winter visiting birds.	Work fronts other than identified sections within WBA & WCA (see Figure 8.7a attached) throughout the full duration of the construction contract.	The Contractor		✓			



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.	
8.7.3	F5	Mitigation measures (i.e. erection of movable noise barriers with a suitable footing along the sites) in the monthly EM&A reports.  <i>Mitigation Measures Adopted</i> Quietened construction plant and equipment (as shown in Table F2) should be used for the construction of pumping stations (P3 and P2) and sewerage alignment (S4, S5 and S6) located within the WCA and WBA.	Quiet construction plant shall minimise potential noise impacts to the wildlife, particularly rare birds including Black-faced Spoonbill, Buzzard, Hobby, Imperial Eagle, Intermediate Egret, Avocet and Black-eared Kite	At described locations and throughout the full duration of the construction contract.	The Contractor		✓			
8.7.4	F6	Erection of fences along the boundary of pumping station construction sites (P1 to P3) before the commencement of construction works to prevent tipping, vehicle movements, and encroachment of personnel into adjacent areas, and P2 to avoid disturbance to the remaining pond areas (0.7 ha);	To erect fences to prevent encroachment of construction activities onto adjacent areas.	At P1 to P3 for full duration of the construction contract.	The Contractor		✓			
8.7.4	F7	No filling and dumping to the remaining abandoned fishpond at P2.	To avoid disturbance to abandoned fishponds from construction activities and illegal dumping.	At P2 for full duration of the construction contract	The Contractor		✓			
8.7.4	F8	Installation and operation of silt removal facilities at construction sites of P1 to P3. The silt removal facilities should be designed in accordance with Appendix A1 of ProPECC Note PN1/94 Construction Site Drainage. The minimal total combined volume of the silt removal facilities at Nam Sang Wai SPS (P3) should be 15m <sup>3</sup> .	To install silt removal facilities in potentially impact streams and ponds to prevent sedimentation.	At P1 to P3 for full duration of the construction contract.	The Contractor		✓			
8.7.4	F9	No open fires within the site boundary during	To prohibit open fires, thereby	Site wide and throughout	The Contractor		✓			Air Pollution Control

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	Dev	
8.7.4	F7	construction and provide temporary fire fighting equipment in the work areas. No filling and dumping to the remaining abandoned fishpond at P2.	minimising potential damage to trees and shrubs. To avoid disturbance to abandoned fishponds from construction activities and illegal dumping.	the full duration of the construction contract, At P2 for full duration of the construction contract	The Contractor		✓			(Open Burning) Regulation
8.7.4	F8	Installation and operation of silt removal facilities at construction sites of P1 to P3. The silt removal facilities should be designed in accordance with Appendix A1 of ProPECC Note PN1/94 Construction Site Drainage.	To install silt removal facilities in potentially impact streams and ponds to prevent sedimentation.	At P1 to P3 for full duration of the construction contract.	The Contractor		✓			
8.7.4	F9	No open fires within the site boundary during construction and provide temporary fire fighting equipment in the work areas.	To prohibit open fires, thereby minimising potential damage to trees and shrubs.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			Air Pollution Control (Open Burning) Regulation
		<b>FISHERIES - Construction Phase</b>  No specific mitigation measures are required for inclusion in the EP.								
		<b>CULTURAL HERITAGE - Not Applicable for Package 1A-1T (DC/2005/02)</b>								
		<b>LANDSCAPE AND VISUAL - Construction Phase</b>								
	H1	The site inspections shall check and report the implementation of mitigation measures (i.e. top-soil are reused and new compensatory planting works are carried out immediately after the construction of the civil structure) in the monthly EM&A reports.  The first monthly EM&A Report should also report the appearance of the temporary hoarding barriers.	To minimise potential landscape and visual impacts.	To be implemented during the construction phases of the project.	The Contractor		✓			
	H2	Prior to application for an Environmental Permit, a set of landscape plans and building elevations of the proposed pumping stations should be	To minimise potential landscape and visual impacts.	To be implemented during the design and construction phases of the	DSD and The Contractor	✓	✓			

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.	IG	OC	Dec.	
		submitted for approval by the EPD.  The landscape plans and pumping station elevations should demonstrate that the following elements are considered: <ul style="list-style-type: none"> <li>existing landscape elements (such as mature trees), transplantation of valuable trees, new compensatory planting</li> </ul>		project.						
		<ul style="list-style-type: none"> <li>incorporate information on materials, details and textures so as to be as visually recessive as possible and in a style that fits with the surrounding village buildings.</li> <li>colour should be of low chromatic intensity to reduce the potential contrast between the structures and their background. The external finishing of the Pumping Stations shall be designed in conjunction with the landscape scheme.</li> <li>a minimum screen planting of 3m width and use of trees with a dense canopy of up to 5 m in height subject to constraints such as engineering and land availability.</li> <li>felling of mature trees are kept to a minimum.</li> </ul>								
3.7	11	<b>EM&amp;A REQUIREMENTS - Construction Phase</b>  <b>Air Quality</b> 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. <ul style="list-style-type: none"> <li>Worksite boundary facing Scattered house in Nam Sang Wai (AM1);</li> <li>Worksite boundary facing Fung Kat Heung (AM5);</li> <li>Worksite boundary facing Scattered House near Route 3 (AM6);</li> </ul>	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

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	
4.9.1	12	<ul style="list-style-type: none"> <li>at any additional locations, where considered necessary, in agreement with EPD.</li> </ul> <p><i>Construction Noise</i>                      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.</p> <ul style="list-style-type: none"> <li>(NM3) Scattered House in Nam San Wai (D12);</li> <li>(NM4) Scattered House in Nam San Wai (D11);</li> <li>(NM6) Scattered House near Route 3 (D17);</li> <li>(NM7) Fung Kat Heung (D19);</li> <li>and at any additional locations, where considered necessary, in agreement with EPD</li> </ul>	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

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

## **Annex H**

### **Equipment Calibration Certificates**

**Equipment Calibration List for Construction of Sewers, Rising Mains & Sewage Pumping Station at Kam Tin, Nam Sang Wai and Au Tau in Yuen Long Project**

Item	Aspect	Description of Equipment	Serial No.	Date of Calibration	Date of Next Calibration
1*	Air	Greasby Anderson GMWS2310 High Volume Sampler	0329 (AM1)	21 Feb 07	21 May 07
2		Greasby Anderson GMWS2310 High Volume Sampler	0355 (AM5)	15 Jan 07	15 Apr 07
3		Greasby Anderson GMWS2310 High Volume Sampler	10394 (AM6)	03 Jan 07	03 Apr 07
4*		Greasby Anderson GMWS2310 High Volume Sampler	1283 (AM7)	21 Feb 07	21 May 07
5	Noise	Brueel & Kjaer 4231 Acoustical Calibrator	2292167	13 Apr 06	13 Apr 07
6		Brueel & Kjaer 2238 Integrating Sound Level Meter	2285721	24 Apr 06	24 Apr 07

Note: Calibration certificates will only be provided if monitoring equipment is re-calibrated or new.

\* Calibration done in this reporting month, see calibration certificate attached.

## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Nam Sang Wai	Date of Calibration: 21-Feb-07
Location ID : AM 1	Next Calibration Date: 21-May-07
Serial No: 329	Technician: Mr. Ben Tam

### CONDITIONS

Sea Level Pressure (hPa)	1016.2	Corrected Pressure (mm Hg)	762.15
Temperature (°C)	19.8	Temperature (K)	293

### CALIBRATION ORIFICE

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

### CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION Slope = 48.5396 Intercept = -40.5180 Corr. coeff. = 0.9980
18	4.7	4.7	9.4	2.019	56	57.08	
13	4.1	4.1	8.2	1.886	50	50.96	
10	3.1	3.1	6.2	1.642	38	38.73	
7	2.4	2.4	4.8	1.446	31	31.60	
5	1.4	1.4	2.8	1.108	12	12.23	

#### Calculations :

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

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

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration ( deg K )

Pstd = actual pressure during calibration ( mm Hg )

#### For subsequent calculation of sampler flow:

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

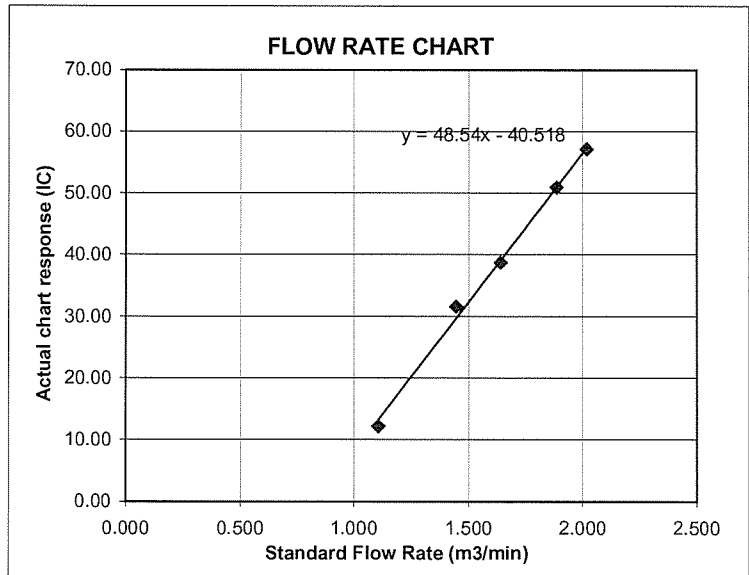
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Nam Sang Wai	Date of Calibration: 21-Feb-07
Location ID : AM 7	Next Calibration Date: 21-May-07
Serial No: 1283	Technician: Mr. Ben Tam

### CONDITIONS

Sea Level Pressure (hPa)	1016.2	Corrected Pressure (mm Hg)	762.15
Temperature (°C)	19.8	Temperature (K)	293

### CALIBRATION ORIFICE

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

### CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION		
							Slope =	Intercept =	Corr. coeff. =
18	4.7	4.7	9.4	2.019	45	45.86	33.6160	-22.7944	0.9988
13	3.7	3.7	7.4	1.792	36	36.69			
10	2.4	2.4	4.8	1.446	25	25.48			
7	2	2	4	1.321	21	21.40			
5	1.2	1.2	2.4	1.026	12	12.23			

**Calculations :**

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

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

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration ( deg K )

Pstd = actual pressure during calibration ( mm Hg )

**For subsequent calculation of sampler flow:**

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

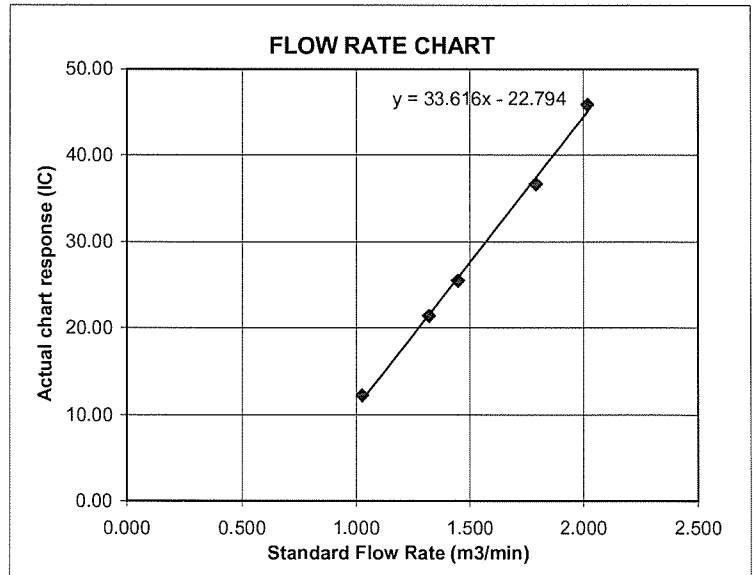
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure





## **Annex I**

### **Meteorological Data in the Reporting Month**

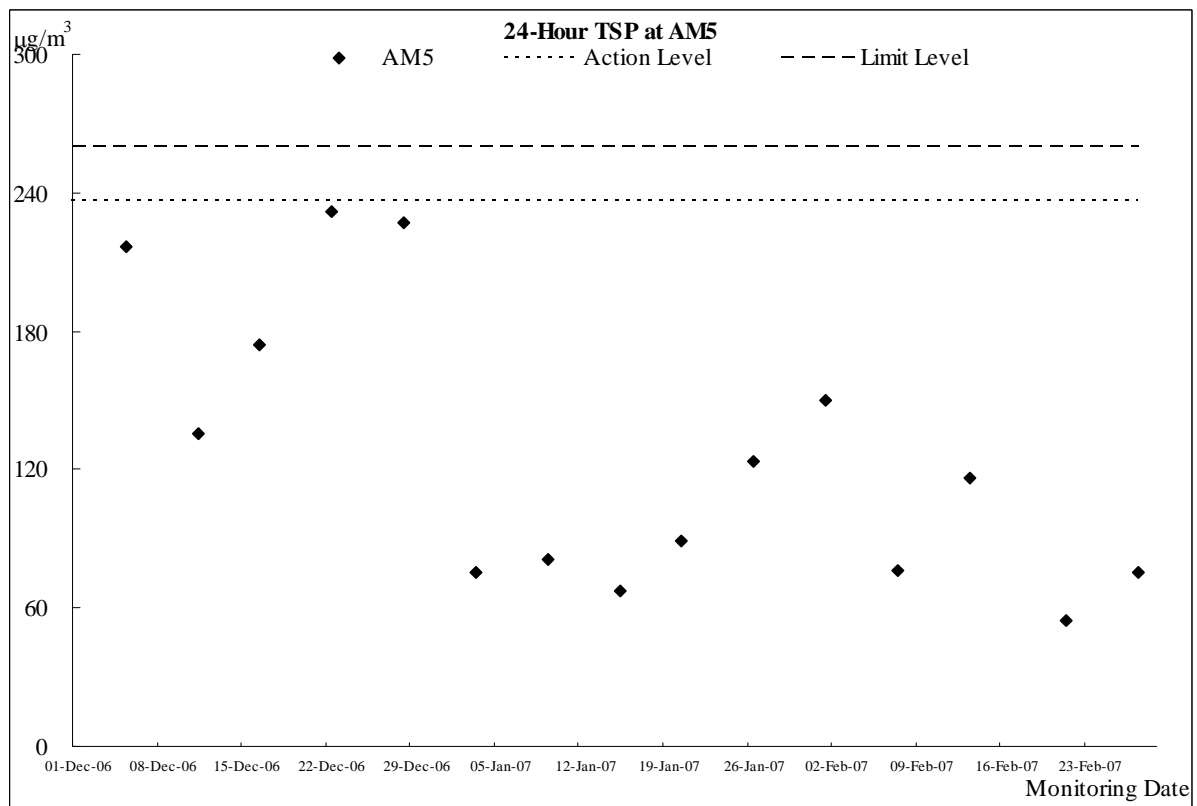
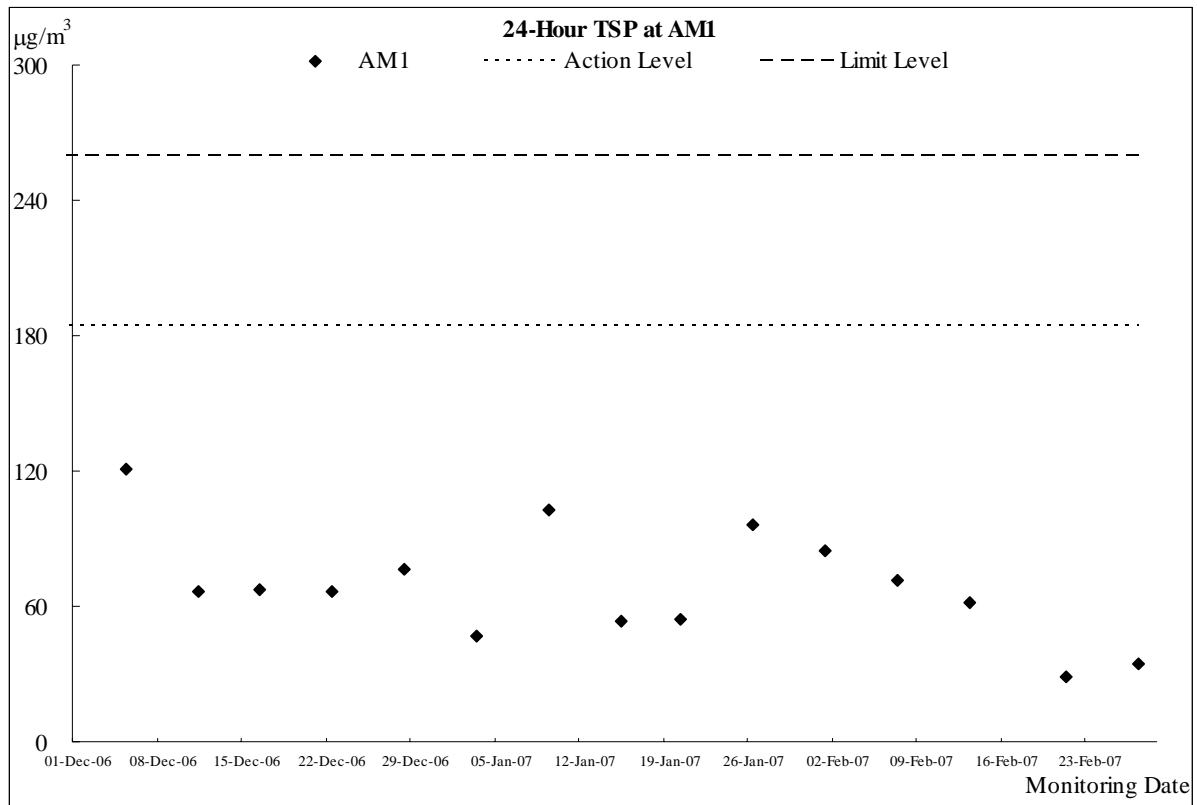
## Meteorological Data Extracted From the HK Observatory at Lau Fau Shan Weather Station

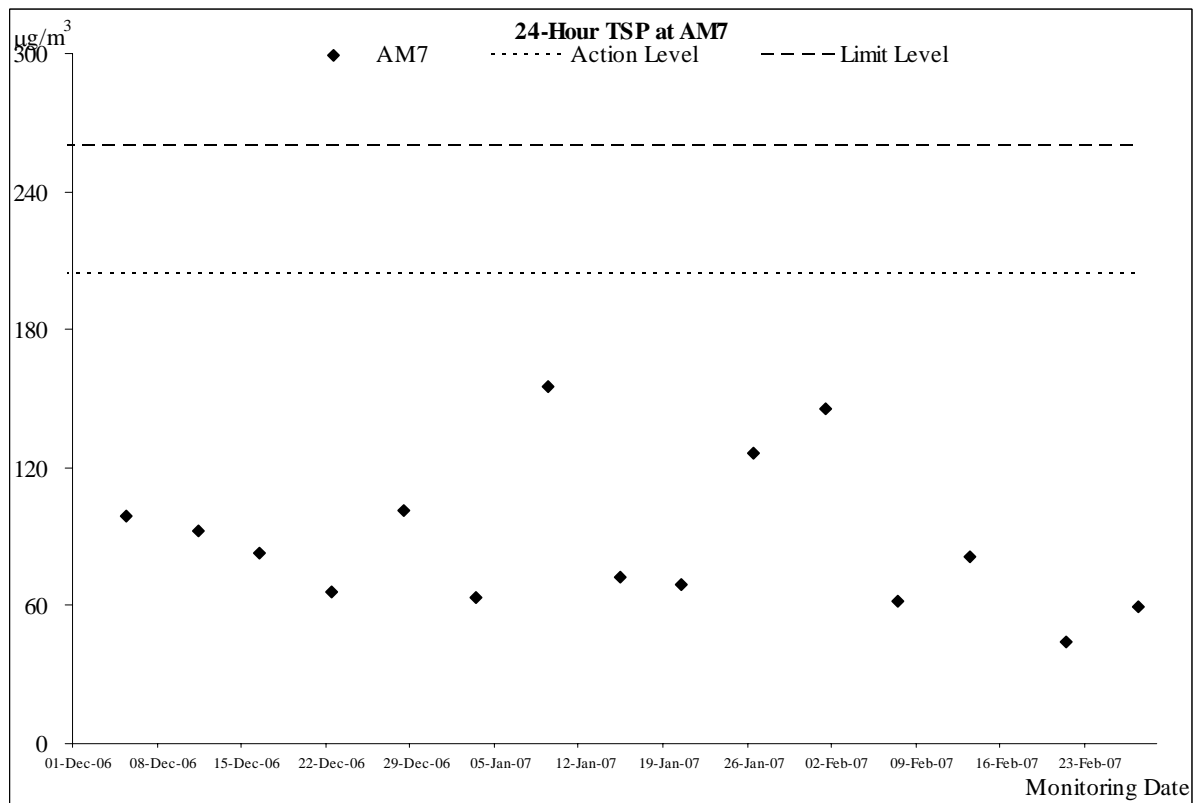
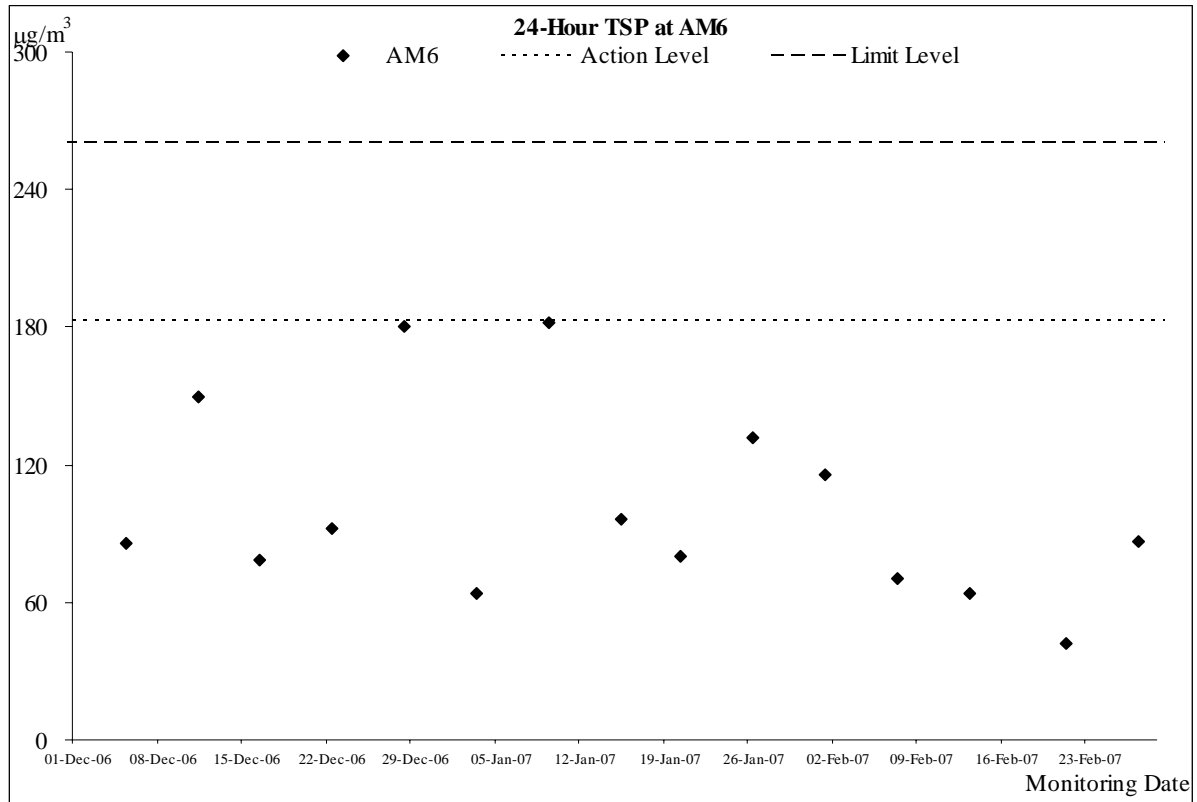
Date		Weather	Lau Fau Shan Station				
			Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
1-Feb-07	Thu	fine/ very dry/ cool	-	16.5	23	35	Maintenance
2-Feb-07	Fri	fine/ cool/ very dry/ moderate	-	15.5	16	30	Maintenance
3-Feb-07	Sat	fine/ haze/ dry/ moderate	-	13.8	10	85	Maintenance
4-Feb-07	Sun	sunny	-	16.6	15	60	Maintenance
5-Feb-07	Mon	fine/ dry/ moderate	-	17.3	12	60	Maintenance
6-Feb-07	Tue	fine/ haze/ moderate	-	18.7	9	65	Maintenance
7-Feb-07	Wed	fine/ moderate	Trace	21.6	9	70	Maintenance
8-Feb-07	Thu	sunny/ cloudy/ haze/ moderate	Trace	21.1	12	75	W/NW
9-Feb-07	Fri	cloudy/ sunny	-	21.9	6	95	W
10-Feb-07	Sat	cloudy/ sunny/ moderate	-	20.2	6	95	W
11-Feb-07	Sun	cloudy/ rain	Trace	19.7	15	75	E/SE
12-Feb-07	Mon	cloudy/ sunny/ moderate	-	21	21	80	SE
13-Feb-07	Tue	cloudy/ misty/ rain/ moderate	Trace	22.1	12	90	E/SE
14-Feb-07	Wed	-	-	21.4	10	85	SW/W
15-Feb-07	Thu	cloudy/ mist/ rain	0.6	19.5	25	85	E/SE
16-Feb-07	Fri	cloudy/ misty/ rain/ moderate	Trace	21	15	90	E/SE
17-Feb-07	Sat	misty/ sunny/ rain	Trace	22.5	Holiday		
18-Feb-07	Sun	misty/ rain	Trace	21.8			
19-Feb-07	Mon	misty/ rain	Trace	20.9			
20-Feb-07	Tue	misty/ sunny	1	21.2			
21-Feb-07	Wed	misty/ rain	0.2	20.3			
22-Feb-07	Thu	rain	4	18.4	12	90	E
23-Feb-07	Fri	sunny/ cloudy	-	20.4	27	90	E/SE
24-Feb-07	Sat	cloudy/ rain	0.1	20.1	21	75	E/SE
25-Feb-07	Sun	cloudy/ rain	1	20.3	12	65	E/SE
26-Feb-07	Mon	sunny/ cloudy	Trace	20.7	12	70	E/SE
27-Feb-07	Tue	fine/ cloudy/ moderate	Trace	20.1	16	80	E/SE
28-Feb-07	Wed	cloudy	Trace	21.7	22	70	E/SE

**Annex J**

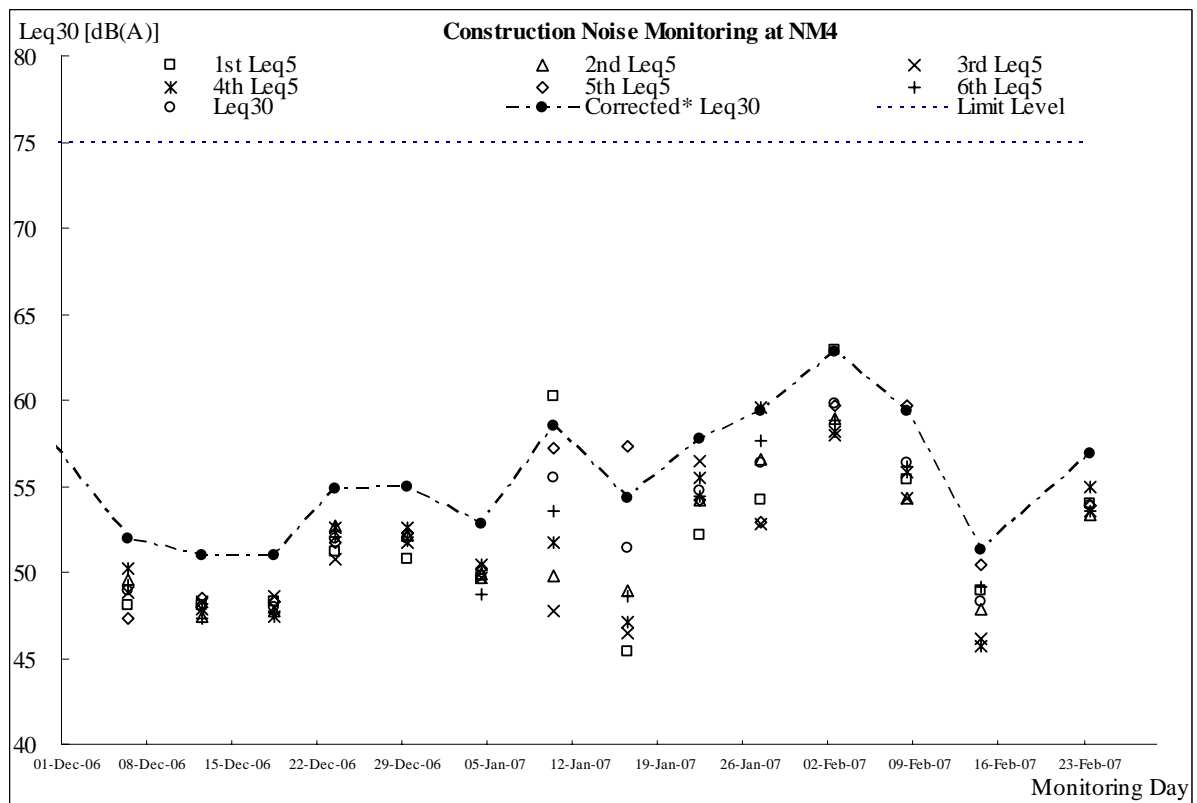
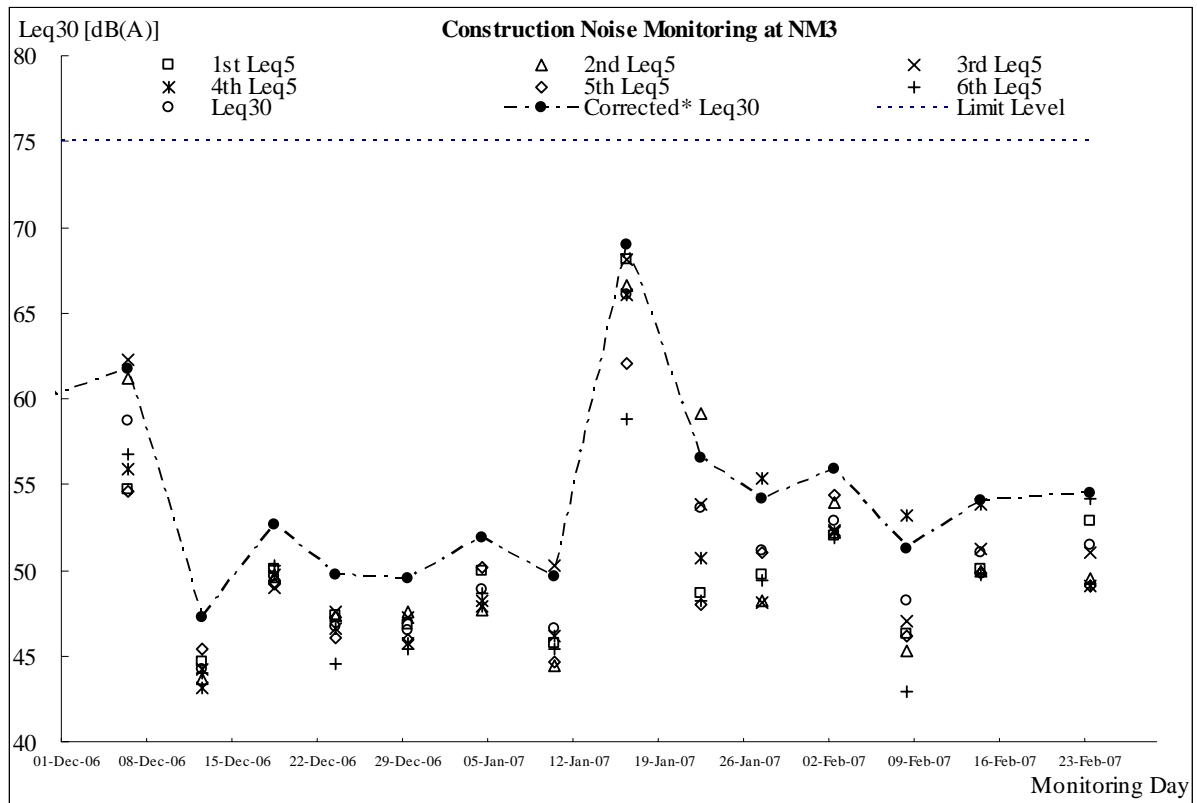
**Graphical Plots of Air Quality  
&  
Noise Monitoring Results**

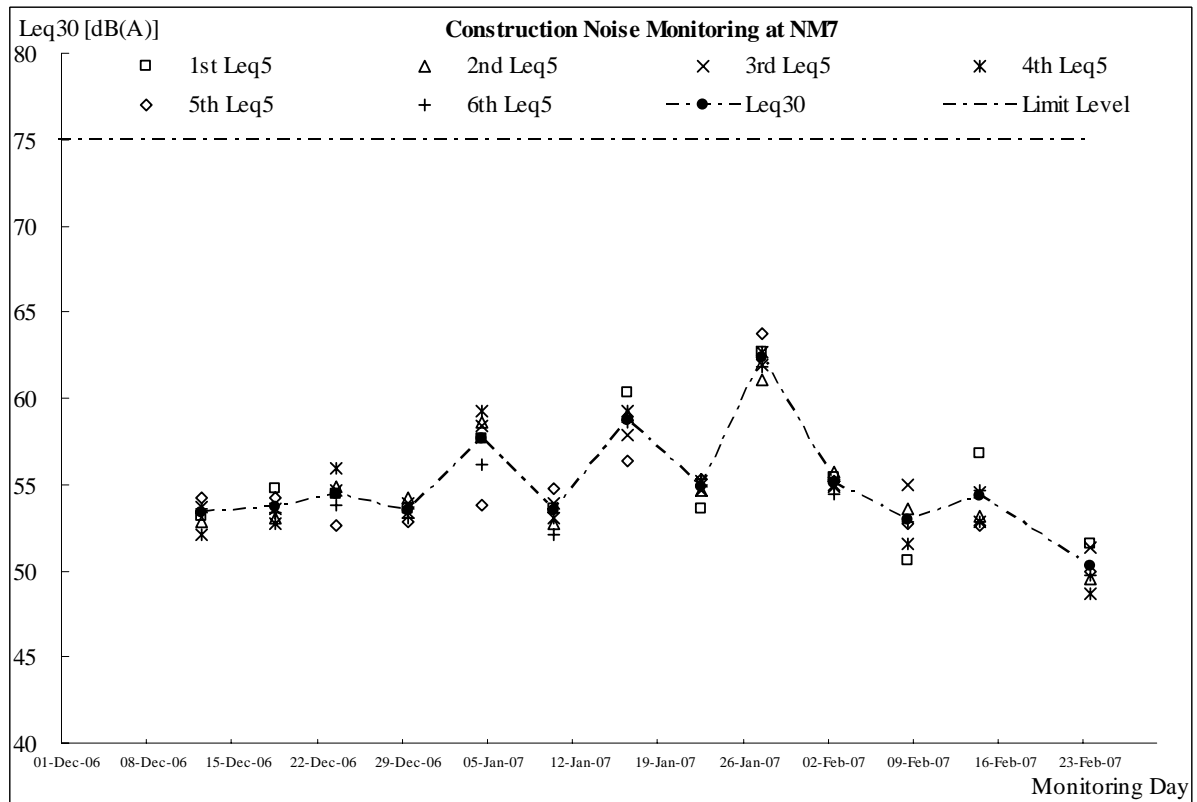
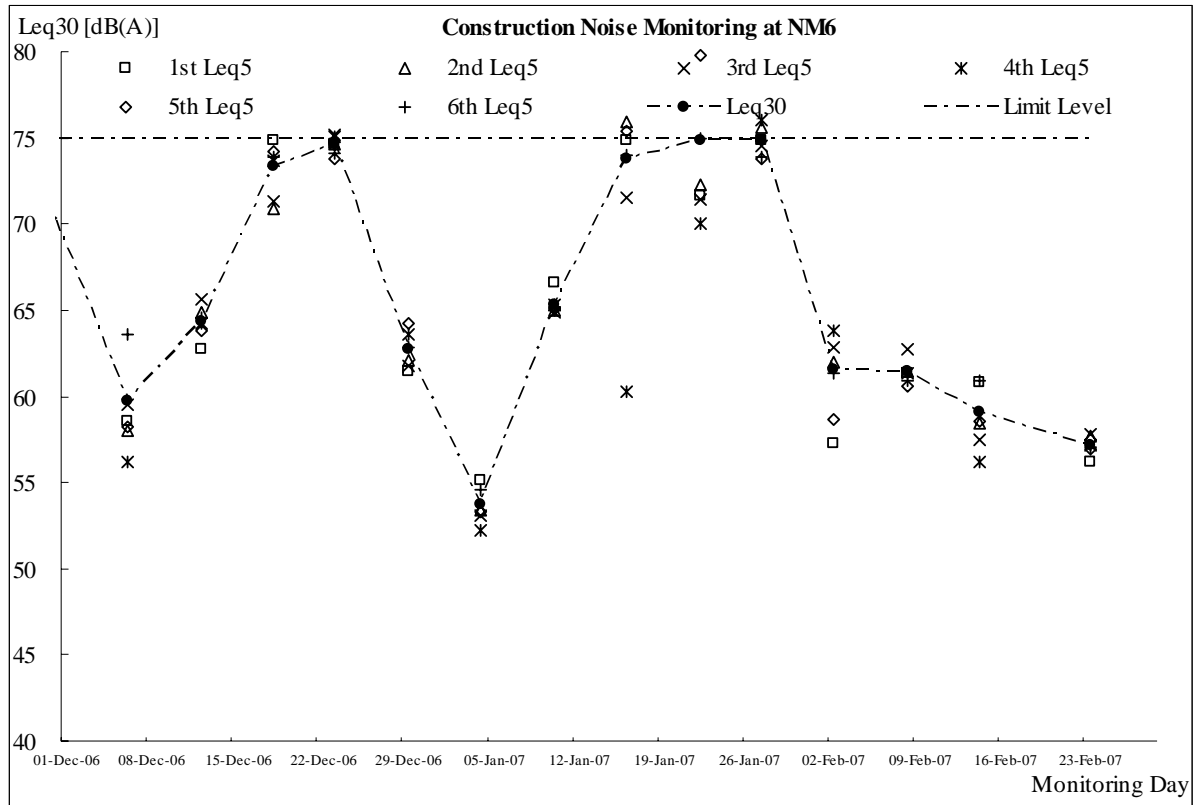
**Air Quality Monitoring Results**





**Construction Noise Monitoring Results**





**Annex K**

**Proforma of Site Inspection and IEC Audit  
in the Reporting Period**



<b>Project</b>	DC/2005/02 Construction of Sewers, Rising Mains & Sewage Pumping Station at Kam Tin, Nam Sang Wai and Au Tau in Yuen Long		<b>Contractor:</b>	Leader Civil Engineering Corp. Ltd
<b>Inspected by:</b>	<b>ET Auditor:</b>	Ken Wong	<b>Engineer:</b>	Babtie Asia Ltd
	<b>Contractor Rep:</b>	Edwin	<b>IEC:</b>	Mott Connell Ltd
	<b>IEC's Rep:</b>	Nil	<b>Environmental Team:</b>	Action-United Environmental Services & Consulting
	<b>RE's Rep:</b>	Mr. S L Hui	<b>Inspection Date &amp; Time:</b>	07 February 2007
			<b>Checklist Reference No.:</b>	DSD-AT070207

### General Meteorological Information

**Weather**     Sunny     Fine     Cloudy     Overcast     Drizzle     Rain     Hazy  
**Temp:**         °C  
**Humidity:**     High (RH > 90%)     Moderate (90% > RH > 50%)     Low (RH < 50%)  
**Wind:**         Calm     Light     Breeze     Strong

Air Quality	Yes	No	NA	NC	Follow-up	Remarks
Is hoarding of not less than 2.4m provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are site vehicles traveling within controlled speed limit?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are site vehicles movement confined to designated haul roads?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are public roads outside site exits kept clean and free from dust?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are haul roads and unpaved surfaces watered regularly to avoid dust generation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are there wheel washing facilities provided at site exits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is water spraying used during the main dust-generating activities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are the excavated or stockpile of dusty materials kept wet?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is exposed area of ground covered or watered frequently?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are load on vehicles covered by clean impervious sheeting?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are vehicles and equipment switched off while not in use?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is smoky emissions from plants/equipment avoided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is open burning avoided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Observable dust sources <input type="checkbox"/> Wind erosion						<input type="checkbox"/> Vehicle/equipment movements
<input type="checkbox"/> Loading/unloading of materials						<input checked="" type="checkbox"/> Others    Nil _____

### Construction Noise

Are the construction works scheduled to minimize noise nuisance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are the works or equipment sited to minimize noise nuisance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are all plant and equipment well maintained and in good operating condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is idle equipment turned off or throttled down?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is powered mechanical equipment covered or shielded by appropriate acoustic materials?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is silenced equipment used where appropriate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are noise enclosures or noise barriers used where necessary?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Does specified equipment has valid noise label?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are Construction Noise Permits (CNPs) available for inspection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Major Noise Source <input type="checkbox"/> Traffic						<input checked="" type="checkbox"/> Construction activities inside of site
<input type="checkbox"/> Construction activities outside of site						<input type="checkbox"/> Others    _____

Water Quality & Drainage		Yes	No	NA	NC	Follow-up	Remarks
Is a wastewater discharge license obtained for the Project?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is site effluent discharged in accordance with the discharge license?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the discharge of silty water avoided?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is drainage adequate?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is drainage system well maintained?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are there temporary ditches for runoff discharge into appropriate watercourse?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are there sedimentation tanks for settling runoff prior to discharge?		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Remarks 1
Are the sedimentation tanks: Constructed of pre-formed individual cells?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
With adequate capacity?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Free from silt and sediment?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are there neutralization tanks for concrete batching/mixing discharge?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are there oil interceptors in drainage system?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is wheel wash facility provided at every site exit?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are vehicles and plant cleaned of earth, mud & debris before leaving the site?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are wheel washing facilities regularly inspected and maintained?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are toilets provided on site? If so, are they properly maintained?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are manholes covered and sealed?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is oil leakage or spillage avoided?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Waste Management and Potential Land Contamination</b>							
General Refuse:	Are receptacles (rubbish bins) available?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Is there regular and proper disposal?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Is proper sorting and recycling implemented?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Construction Waste:	Is generation of construction waste minimized?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Is waste sorting implemented on site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Is construction waste reused where practicable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Is construction waste properly disposed of?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Are disposal records available for inspection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chemical waste/waste oil	Is there designated storage area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Is chemical waste stored properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Is there proper disposal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Is chemical waste license available for inspection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Excavated Materials	Do excavated materials appear uncontaminated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Are appropriate procedures followed if contaminated materials exist?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Are disposal records available for inspection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chemical/Fuel	Is chemical/fuel stored in bunded area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Is bund capacity adequate (>110% of the largest tank)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Are storage areas lockable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is foam, oil, grease or other objectionable matters in water or nearby drains of sewer avoided?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Remarks:**

**Previous Audit Follow-up:**

No free standing oil drum was found at the Kam Tin Pumping Station work site.

**Observations Recorded in this Site Inspection:**

1. Wastewater directly discharge into the drainage channel without divert to the sedimentation tank was found at the Kam Tin River works site. The Contractor was reminded to collect all wastewater and divert to sedimentation prior to discharge into the drainage system.

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**Signatures:**

Env. Auditor

Contractor's Representative

IC(E) Auditor

Resident Site Staff

\_\_\_\_\_  
Name :Ken Wong

\_\_\_\_\_  
Name:

\_\_\_\_\_  
Name:

\_\_\_\_\_  
Name:

<b>Project</b>	DC/2005/02 Construction of Sewers, Rising Mains & Sewage Pumping Station at Kam Tin, Nam Sang Wai and Au Tau in Yuen Long	<b>Contractor:</b>	Leader Civil Engineering Corp. Ltd
<b>Inspected by:</b>	<b>ET Auditor:</b> Ben Tam	<b>Engineer:</b>	Babtie Asia Ltd
	<b>Contractor Rep:</b> Edwin	<b>IEC:</b>	Mott Connell Ltd
	<b>IEC's Rep:</b> Nil	<b>Environmental Team:</b>	Action-United Environmental Services & Consulting
	<b>RE's Rep:</b> Mr. S L Hui	<b>Inspection Date &amp; Time:</b>	15 February 2007
		<b>Checklist Reference No.:</b>	DSD-AT150207

### General Meteorological Information

**Weather**     Sunny     Fine     Cloudy     Overcast     Drizzle     Rain     Hazy  
**Temp:**         °C  
**Humidity:**     High (RH > 90%)     Moderate (90% > RH > 50%)     Low (RH < 50%)  
**Wind:**         Calm     Light     Breeze     Strong

Air Quality	Yes	No	NA	NC	Follow-up	Remarks
Is hoarding of not less than 2.4m provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are site vehicles traveling within controlled speed limit?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are site vehicles movement confined to designated haul roads?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are public roads outside site exits kept clean and free from dust?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are haul roads and unpaved surfaces watered regularly to avoid dust generation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are there wheel washing facilities provided at site exits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is water spraying used during the main dust-generating activities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are the excavated or stockpile of dusty materials kept wet?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is exposed area of ground covered or watered frequently?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are load on vehicles covered by clean impervious sheeting?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are vehicles and equipment switched off while not in use?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is smoky emissions from plants/equipment avoided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is open burning avoided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Observable dust sources <input type="checkbox"/> Wind erosion						<input type="checkbox"/> Vehicle/equipment movements
<input type="checkbox"/> Loading/unloading of materials						<input checked="" type="checkbox"/> Others    Nil _____

### Construction Noise

Are the construction works scheduled to minimize noise nuisance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are the works or equipment sited to minimize noise nuisance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are all plant and equipment well maintained and in good operating condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is idle equipment turned off or throttled down?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is powered mechanical equipment covered or shielded by appropriate acoustic materials?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is silenced equipment used where appropriate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are noise enclosures or noise barriers used where necessary?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Does specified equipment has valid noise label?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are Construction Noise Permits (CNPs) available for inspection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Major Noise Source <input type="checkbox"/> Traffic						<input checked="" type="checkbox"/> Construction activities inside of site
<input type="checkbox"/> Construction activities outside of site						<input type="checkbox"/> Others _____

Water Quality & Drainage		Yes	No	NA	NC	Follow-up	Remarks
Is a wastewater discharge license obtained for the Project?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is site effluent discharged in accordance with the discharge license?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is the discharge of silty water avoided?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is drainage adequate?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is drainage system well maintained?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are there temporary ditches for runoff discharge into appropriate watercourse?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are there sedimentation tanks for settling runoff prior to discharge?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Remarks 1
Are the sedimentation tanks: Constructed of pre-formed individual cells?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
With adequate capacity?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Free from silt and sediment?		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Remarks 2
Are there neutralization tanks for concrete batching/mixing discharge?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are there oil interceptors in drainage system?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is wheel wash facility provided at every site exit?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are vehicles and plant cleaned of earth, mud & debris before leaving the site?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are wheel washing facilities regularly inspected and maintained?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are toilets provided on site? If so, are they properly maintained?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are manholes covered and sealed?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is oil leakage or spillage avoided?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>Waste Management and Potential Land Contamination</b>							
General Refuse:	Are receptacles (rubbish bins) available?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Is there regular and proper disposal?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Is proper sorting and recycling implemented?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Construction Waste:	Is generation of construction waste minimized?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Is waste sorting implemented on site?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Is construction waste reused where practicable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Is construction waste properly disposed of?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Are disposal records available for inspection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Chemical waste/waste oil	Is there designated storage area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Is chemical waste stored properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Is there proper disposal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Is chemical waste license available for inspection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Excavated Materials	Do excavated materials appear uncontaminated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Are appropriate procedures followed if contaminated materials exist?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Are disposal records available for inspection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Chemical/Fuel	Is chemical/fuel stored in bunded area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Is bund capacity adequate (>110% of the largest tank)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Are storage areas lockable?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is foam, oil, grease or other objectionable matters in water or nearby drains of sewer avoided?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

**Remarks:**

**Previous Audit Follow-up:**

1. No Wastewater was observed directly discharge into the drainage channel without divert to the sedimentation tank.

**Observations Recorded in this Site Inspection:**

2. Bloodworm was observed inside the unused sedimentation tank at Ko Po Road works site. Contractor was reminded that stagnant water inside the sedimentation tank should be clean immediately when it is unused

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**Signatures:**

Env. Auditor

Contractor's Representative

IC(E) Auditor

Resident Site Staff

\_\_\_\_\_  
Name :Ben Tam

\_\_\_\_\_  
Name:

\_\_\_\_\_  
Name:

\_\_\_\_\_  
Name:

<b>Project</b> DC/2005/02 Construction of Sewers, Rising Mains & Sewage Pumping Station at Kam Tin, Nam Sang Wai and Au Tau in Yuen Long	<b>Contractor:</b> Leader Civil Engineering Corp. Ltd
<b>Inspected by:</b> <b>ET Auditor:</b> Ken Wong <b>Contractor Rep:</b> Edwin <b>IEC's Rep:</b> Nil <b>RE's Rep:</b> Eddie	<b>Engineer:</b> Babtie Asia Ltd <b>IEC:</b> Mott Connell Ltd <b>Environmental Team:</b> Action-United Environmental Services & Consulting <b>Inspection Date &amp; Time:</b> 22 February 2007 <b>Checklist Reference No.:</b> DSD-AT220207

### General Meteorological Information

**Weather:**  Sunny  Fine  Cloudy  Overcast  Drizzle  Rain  Hazy  
**Temp:**  °C  
**Humidity:**  High (RH > 90%)  Moderate (90% > RH > 50%)  Low (RH < 50%)  
**Wind:**  Calm  Light  Breeze  Strong

### Air Quality

	Yes	No	NA	NC	Follow-up	Remarks
Is hoarding of not less than 2.4m provided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are site vehicles traveling within controlled speed limit?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are site vehicles movement confined to designated haul roads?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are public roads outside site exits kept clean and free from dust?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are haul roads and unpaved surfaces watered regularly to avoid dust generation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are there wheel washing facilities provided at site exits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is water spraying used during the main dust-generating activities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are the excavated or stockpile of dusty materials kept wet?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is exposed area of ground covered or watered frequently?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are load on vehicles covered by clean impervious sheeting?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are vehicles and equipment switched off while not in use?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is smoky emissions from plants/equipment avoided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is open burning avoided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Observable dust sources	<input type="checkbox"/> Wind erosion		<input type="checkbox"/> Vehicle/equipment movements			
	<input type="checkbox"/> Loading/unloading of materials		<input checked="" type="checkbox"/> Others <u>Nil</u>			

### Construction Noise

Are the construction works scheduled to minimize noise nuisance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are the works or equipment sited to minimize noise nuisance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are all plant and equipment well maintained and in good operating condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is idle equipment turned off or throttled down?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is powered mechanical equipment covered or shielded by appropriate acoustic materials?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is silenced equipment used where appropriate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are noise enclosures or noise barriers used where necessary?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Does specified equipment has valid noise label?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are Construction Noise Permits (CNP's) available for inspection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Major Noise Source	<input type="checkbox"/> Traffic		<input checked="" type="checkbox"/> Construction activities inside of site			
	<input type="checkbox"/> Construction activities outside of site		<input type="checkbox"/> Others _____			

Water Quality & Drainage		Yes	No	NA	NC	Follow-up	Remarks
Is a wastewater discharge license obtained for the Project?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is site effluent discharged in accordance with the discharge license?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is the discharge of silty water avoided?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is drainage adequate?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is drainage system well maintained?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are there temporary ditches for runoff discharge into appropriate watercourse?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are there sedimentation tanks for settling runoff prior to discharge?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are the sedimentation tanks:    Constructed of pre-formed individual cells?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
With adequate capacity?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Free from silt and sediment?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are there neutralization tanks for concrete batching/mixing discharge?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are there oil interceptors in drainage system?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is wheel wash facility provided at every site exit?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are vehicles and plant cleaned of earth, mud & debris before leaving the site?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are wheel washing facilities regularly inspected and maintained?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are toilets provided on site? If so, are they properly maintained?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are manholes covered and sealed?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is oil leakage or spillage avoided?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
<b>Waste Management and Potential Land Contamination</b>							
General Refuse:    Are receptacles (rubbish bins) available?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is there regular and proper disposal?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is proper sorting and recycling implemented?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Construction Waste:    Is generation of construction waste minimized?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is waste sorting implemented on site?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is construction waste reused where practicable?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is construction waste properly disposed of?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are disposal records available for inspection?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Chemical waste/waste oil    Is there designated storage area?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is chemical waste stored properly?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is there proper disposal?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is chemical waste license available for inspection?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Excavated Materials    Do excavated materials appear uncontaminated?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are appropriate procedures followed if contaminated materials exist?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are disposal records available for inspection?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Chemical/Fuel    Is chemical/fuel stored in bunded area?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is bund capacity adequate (>110% of the largest tank)?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are storage areas lockable?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Is foam, oil, grease or other objectionable matters in water or nearby drains of sewer avoided?		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____



**Remarks:**

**Previous Audit Follow-up:**

1. Sedimentation tank with stagnant water at Ko Po Road had been clean up.

**Observations Recorded in this Site Inspection:**

2. No environmental issue was found during the site inspection. In general, the work areas was kept clean and tidy.

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**Signatures:**

Env. Auditor

Contractor's Representative

IC(E) Auditor

Resident Site Staff

\_\_\_\_\_  
Name :Ken Wong

\_\_\_\_\_  
Name:

\_\_\_\_\_  
Name:

\_\_\_\_\_  
Name:

**Agreement No. CE37/2005 (EP)  
Environmental Monitoring and Audit for  
Kam Tin Trunk Sewerage Phase 1 and Au Tau trunk sewers**

**MONTHLY SITE INSPECTION CHECKLIST**

Inspection Date	27/2/2007	Time	10.00am	Inspected By	Leader: Benny Lam ET: Ken Wong DSD: SL Hui IEC: SM Foo
Site Location	Nam Shing Wai, Kam Tin, Au Tau, Tuen Long				

Weather

Condition  Sunny  Fine  Overcast  Drizzle  Rain  Storm  Hazy

Temperature  Humidity  High  Moderate  Low

Wind  Calm  Light  Breeze  Strong  Direction

EIA ref:		Close-out on last comments Y/N	N/A or not obs	Yes	No	Photo/Remarks
<b>Construction Phase</b>						
<b>Air Quality - Construction Phase</b>						
3.5	• Are hoardings of not less than 2.4m high provided along the site boundary?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.5	• Is the portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit kept clear of dusty materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.5	• Are stockpiled dusty materials covered by impervious sheeting and placed in an area sheltered on top and 3 sides or sprayed with water?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
3.5	• Are dusty material loads on vehicles sprayed with water prior to loading and unloading?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.5	• Are all vehicles washed to remove dusty materials from its body and wheels before leaving site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.5	• Are vehicles which are carrying dusty materials covered entirely by impervious sheeting when leaving site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.5	• Are surfaces where any mechanical breaking operation takes place sprayed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.5	• Are working area of any excavation sprayed with water, immediately before, during and immediately after the operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.5	• Where a scaffolding is erected around the perimeter of a building under construction, are effective dust screens, sheeting or netting provided to enclose the scaffolding from the ground floor level of the SPS, or a canopy from the first floor level up to the highest level of the scaffolding?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.5	• Are skip hoists for material transport totally enclosed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

3.7	<ul style="list-style-type: none"> <li>Have dust monitors been provided at the following locations: <ul style="list-style-type: none"> <li>Boundary facing scattered house in NSW (AM1)</li> <li>Boundary facing Fung Kat Heung (AM5)</li> <li>Boundary facing scattered house near route 3 (AM6)</li> </ul> </li> </ul>			✓			
<b>Construction Noise</b>							
<b>Demolition works</b>							
4.7.1	Are quiet PME which meet the SWLs from BS 5228:Part 1: 1997 used?			✓			
<b>Sewage Pumping Stations P1, P2 &amp; P3</b>							
4.7.1	Are quiet PME which meet the SWLs from BS 5228:Part 1: 1997 used?			✓			
4.7.1	Are temporary noise barrier, in the form of a site hoarding (with superficial density of at least 20kg/m <sup>2</sup> , with no substantial gaps), along the site boundaries of the pumping station sites adopted?			✓			
<b>Sewers and Rising Mains using Open Trench</b>							
4.7.1	Are quiet PME which meet the SWLs from BS 5228:Part 1: 1997 used?			✓			
4.7.1	Are handheld breakers used for all initial road opening activities, when breaking tarmac/concrete road surface to a depth of 300mm or when granular material is reached?			✓			
4.7.1	Are movable noise barriers or 3 sided enclosures installed for all initial road opening activities (breaking tarmac/concrete road surface to a depth of 300mm or when granular material is reached) where there NSRs within 50m of the line of sight?		✓				
<b>Sewers and Rising Mains using Pipe Jacking</b>							
4.7.1	Are quiet PME which meet the SWLs from BS 5228:Part 1: 1997 used?			✓			
<b>Road Pavement and Finishes</b>							
4.7.1	Are quiet PME which meet the SWLs from BS 5228:Part 1: 1997 used?			✓			
4.9.1	<ul style="list-style-type: none"> <li>Have noise monitors been provided at the following locations: <ul style="list-style-type: none"> <li>(NM3) Scattered house in NSW</li> <li>(NM4) Scattered house in NSW</li> <li>(NM6) Scattered house near Route 3</li> <li>(NM7) Fung Kat Heung</li> </ul> </li> </ul>			✓			
<b>Construction Runoff and Site Drainage</b>							
	Are perimeter cut-off drains to direct off-site water around the site constructed with internal drainage works and erosion and sedimentation control facilities implemented. Are channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers provided on site to direct stormwater to silt removal facilities?			✓			
	Are dikes or embankments for flood protection implemented around the boundaries of earthwork areas. Are sediment/silt traps incorporated in the permanent drainage channels to enhance deposition rates?			✓			
	Are silt removal facilities provided with retention time for silt/sand traps of 5 minutes under maximum flow conditions?					✓	
	Are construction works programmed to minimize surface excavation works during the rainy seasons (April to September)?		✓				
	Are slopes minimised and erosion potential reduced?			✓			
	Is deposited silt and grit removed regularly and disposed of by spreading evenly over stable, vegetated areas?		✓				

see photo  
2866 + 2869

- Are measures taken to minimise the ingress of site drainage into excavations? Is water pumped out from trenches or foundation excavations discharged into storm drains via silt removal facilities? 

	✓		
--	---	--	--
- Are open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m<sup>3</sup> covered with tarpaulin or similar fabric during rainstorms? 

	✓		
--	---	--	--
- Are manholes (including newly constructed ones) adequately covered and temporarily sealed? 

		✓	
--	--	---	--
- Are precautions taken before rainstorms? 

		✓	
--	--	---	--
- Are all vehicles and plant cleaned before leaving site? 

	✓		
--	---	--	--
- Is solid waste, debris and rubbish on site appropriately collected, handled and disposed of properly to avoid water quality impacts? 

			✓
--	--	--	---

*See photo 2859*
- Are all fuel tanks and storage areas provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby? 

		✓	
--	--	---	--

**Sewage Effluent - Construction Phase**

- 1) Are portable chemical toilets and sewage holding tanks provided? Is handling the construction sewage generated for collection and disposal of this waste? Is a licensed contractor employed? 

		✓	
--	--	---	--

**Waste Management - Construction Phase**

- 6.6.2 • Are the necessary waste disposal permits from the appropriate authorities in place for chemical and C&D wastes, in accordance with the Waste Disposal (Chemical Waste) (General) Regulations and the Land (Miscellaneous Provisions) Ordinance (Cap 28)? 

		✓	
--	--	---	--
- 6.6.2 • Is chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, being handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes? 

		✓	
--	--	---	--
- 6.6.2 • Are containers used for the storage of chemical wastes suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation? 

		✓	
--	--	---	--
- 6.6.2 • Is the storage area for chemical wastes clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area, whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated? 

		✓	
--	--	---	--
- 6.6.2 • Is disposal of chemical waste via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD? 

	✓		
--	---	--	--
- 6.6.2 • Are trip tickets for disposal available to monitor disposal of C&DM and solid wastes at public filling and landfills, and to control fly tipping? 

		✓	
--	--	---	--

<b>Land Contamination - Construction Phase</b>					
7.5.6	• Is a revised CAP submitted to the EPD before commencement of construction works? Is the CAP implemented and findings of the investigations reported in the CAR, before ground disturbance is allowed?		✓		
7.5.6	• If land contamination is confirmed, has a RAP been prepared and submitted to EPD?		✓		
7.5.6	• Are contaminated sites remediated in accordance with the approved CAR/RAP?		✓		
<b>Ecology - Construction Phase</b>					
8.7.1	• Are construction activities prohibited during November to March for the sections of works within the WCA and WBA, and close to locations of ecologically sensitive species.		✓		
8.7.1	• During November to March periods, are regular site inspections (at least twice a month) undertaken by ET to ensure proper implementation of this restriction?		✓		
8.7.2	• Is pipe jacking method used for sewers and rising mains crossing over MDC within the WCA and WBA?			✓	
8.7.2	• During November to March, are regular site inspections (at least twice a month) undertaken by ET for the remaining sewerage sections (including parts of S4, S5 and S6) within the WCA and WBA where construction activities cannot be rescheduled?		✓		
8.7.2	• The site inspections shall check and report the number of workfronts and implementation of mitigation measures in the monthly EM&A Report.			✓	
8.7.3	• Are quietened construction plant and equipment used for PS (P2 and P3) and sewers (S4, S5, S6) within the WCA and WBA?			✓	
8.7.4	• For P1-P3, have fences along the boundary of the pumping stations construction sites been erected?			✓	
8.7.4	• There shall be no filling and dumping to the remaining abandoned fishpond at P2.		✓		
8.7.4	• Are silt removal facilities, designed to the ProPECC Note PN1/94, installed and operated at the P1 to P3 sites? The minimal total combined volume of the silt removal facilities at P3 (NSW SPS) should be 15m3.		✓		
8.7.4	• There shall be no open fires within the site boundary.			✓	
8.7.4	• Have temporary fire fighting equipment provided in the works areas.			✓	
<b>Landscape and Visual - Construction Phase</b>					
	• Have the implementation of mitigation measures (i.e., top soil reused, new compensatory planting) been reported in the monthly EM&A?		✓		
	• The first monthly EM&A Report should report on the appearance of the temporary hoarding barriers.			✓	
	• Are screen planting (3m wide) and trees with dense canopy (up to 5m) provided?		✓		
	• Is felling of mature trees kept to a minimum?			✓	

OTHER OBSERVATIONS

Nam Sang Wai Road

2859: Contractor to remove debris from drain.

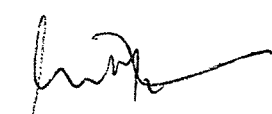
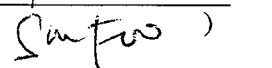
Portion F, Section A1

2866: Contractor to monitor quality and flow through sedimentation tank.

2869: Contractor to ensure that all water discharged goes through the proper channels and treatment.

Kam Tin Pump Station




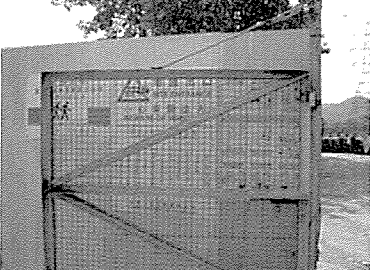
2879: Contractor to post Environmental Permit at site entrance.

_____	_____	_____	_____
DSD Representative	Contractor Representative	ETL	IEC
( _____ )	( _____ )	( _____ )	(  )
			(  )

**Agreement No. CE37/2005 (EP)**  
**Environmental Monitoring and Audit for**  
**Kam Tin Trunk Sewerage Phase 1 and Au Tau trunk sewers**

**MONTHLY SITE INSPECTION PHOTO**  
**27 February 2007**  
**PART 1 – Environmental Observations**

**This month's observations**

This week's observations	This week's observations
<b>NAM SANG WAI ROAD</b>	
	
2859: Contractor to remove debris from drain.	
<b>PORTION F, SECTION A1</b>	
	
2866: Contractor to monitor quality and flow through sedimentation tank.	2869: Contractor to ensure that all water discharged goes through the proper channels and treatment.
<b>KAM TIN PUMP STATION</b>	
	
2879: Contractor to post Environmental Permit at site entrance.	