

DSD Contract DC/2005/02 Construction of Sewers, Rising Mains & Sewage Pumping Station at Kam Tin, Nam Sang Wai and Au Tau in Yuen Long Monthly EM&A Report (January 2007) for Designated Elements

**AUES**

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

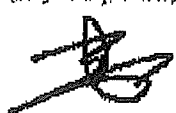




**CONSTRUCTION OF SEWERS, RISING MAINS  
& SEWAGE PUMPING STATION AT KAM TIN, NAM SANG  
WAI AND AU TAU IN YUEN LONG**

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

**PREPARED FOR  
Leader Civil Engineering Corporation Ltd**

**Quality Index**

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### **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 10<sup>th</sup> Monthly Construction Phase EM&A Report (January 2007, Report No. 10) reporting the environmental impact monitoring and audit (EM&A) conducted from 01 to 31 January 2007. The EM&A in January 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 period.

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

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

### **Reporting Changes**

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

### **Future Key Issues**

- ES.07 Construction activities to be undertaken in February 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 10<sup>th</sup> Monthly Construction Phase EM&A Report (January 2007, Report No. 10) summarizes the impact monitoring results and audit findings in the reporting period from 01 to 31 January 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 period 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 period under the Environmental Permit (EP-220/2005) were shown as follows:

#### Kam Tin Pumping Station (P1)

- Sheet piling
- Gate footing construction
- Pre-drilling

#### Sha Po Pumping Station (P2)

- Hoarding erection

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

- Pipe jacking

#### Nam Sang Wai Road (S4)

- Drilling and grouting

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

- Pipe jacking

## 2.0 ENVIRONMENTAL STATUS

### Work Undertaken in the Reporting Period with Illustrations

2.01 A summary of the work undertaken in this reporting period 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 period, 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 period.
- 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 20 monitoring events were carried out in this reporting period.

**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
3-Jan-07	47	75	64	64
9-Jan-07	103	81	182	156
15-Jan-07	53	67	96	72
20-Jan-07	55	89	80	69
26-Jan-07	96	124	132	126
Average (Range)	71 (47-103)	87 (67-124)	111 (64-182)	97 (64-156)

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
04-Jan-07	10:33	49.9	47.7	48.2	47.9	50.2	48.7	48.9	51.9
10-Jan-07	10:34	45.7	44.4	50.3	46.2	44.6	45.4	46.6	49.6
16-Jan-07	11:30	68.1	66.6	68.1	66.1	62.1	58.8	66.0	69.0
22-Jan-07	11:28	48.6	59.1	53.8	50.7	48.0	48.2	53.6	56.6
27-Jan-07	13:53	49.7	48.2	48.1	55.3	51.0	49.4	51.1	54.1
<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
4-Jan-07	9:12	49.6	49.9	49.7	50.4	50.2	48.7	49.8	52.8
10-Jan-07	9:03	60.2	49.8	47.7	51.7	57.2	53.6	55.4	58.4
16-Jan-07	13:00	45.4	48.9	46.5	47.1	57.3	48.6	51.3	54.3
22-Jan-07	9:20	52.2	54.2	56.5	55.5	54.2	54.4	54.7	57.7
27-Jan-07	11:24	54.2	56.6	52.8	59.6	52.9	57.6	56.4	59.4
<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 5-6 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
4-Jan-07	14:34	55.1	53.4	53.1	52.2	53.3	54.6	53.7	No
10-Jan-07	9:30	66.6	65.0	64.9	65.3	65.1	65.0	65.4	Correction
16-Jan-07	13:04	74.8	75.9	71.5	60.3	75.4	74.0	73.8	
22-Jan-07	13:06	71.6	72.3	71.4	70.0	79.8	75.0	74.8	Required
27-Jan-07	11:24	54.2	56.6	52.8	59.6	52.9	57.6	56.4	
<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
4-Jan-07	11:17	57.7	58.6	58.4	59.2	53.8	56.1	57.6	No
10-Jan-07	11:26	53.6	52.7	53.9	53.1	54.8	52.1	53.5	Correction
16-Jan-07	10:28	60.3	59.0	57.9	59.2	56.4	58.6	58.7	
22-Jan-07	13:02	53.6	54.6	54.7	55.2	55.3	55.3	54.8	Required
27-Jan-07	14:46	62.7	61.1	61.9	62.7	63.7	61.8	62.4	
<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 period.

**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 period.

**RECORD OF ENVIRONMENTAL COMPLAINTS RECEIVED**

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

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

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

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

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

**DESCRIPTION OF FOLLOW-UP ACTIONS TAKEN**

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

**7.0 OTHERS**

**FUTURE KEY ISSUES**

7.01 Construction activities to be undertaken in February 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 period 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	3,963	Tuen Mun 38 Fill Bank
C&D Materials (Inert) (tons) – Reused	5,530	DSD Contract DC/2005/0
C&D Materials (Non-Inert) (tons)	-	NA
Chemical Waste (Litres)	-	NA
General Refuse (tons)	31	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 period.

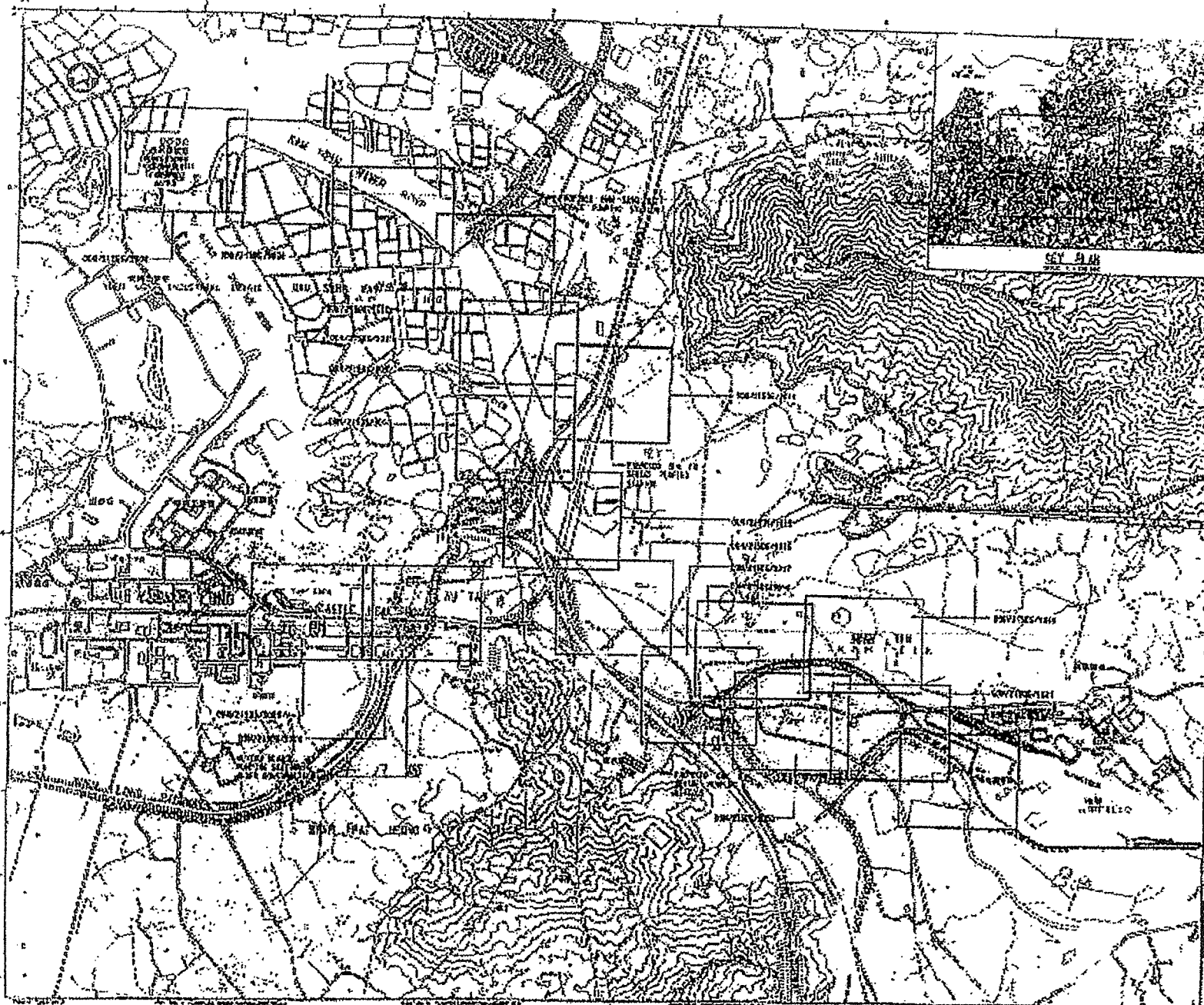
**SUBMISSION OF PROFORMA**

7.04 Representatives of the Engineer, the Contractor and ET carried out regular weekly joint site inspection on 05, 09, 16 and 31 January 2007 to evaluate the site environmental performance. No non-compliance was noted and four observations were recorded in weekly site inspection. In this reporting period, the IEC monthly joint site inspection with RE, Contractor and ET was carried out on 25 January 2007.

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

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





SHEET 1  
 OF 10 SHEETS  
 OF THE MAP OF THE CITY AND COUNTY OF NEW YORK  
 SHOWING THE SEWERAGE SYSTEM

LEGEND:  
 --- PROPOSED SEWERAGE SYSTEM  
 --- EXISTING SEWERAGE SYSTEM

**PROPOSED PROJECTS ONLY**

NO.	DESCRIPTION	EST. COST	DATE
1	NEW YORK	\$1,000,000	1900
2	NEW YORK	\$1,000,000	1900
3	NEW YORK	\$1,000,000	1900
4	NEW YORK	\$1,000,000	1900

*John H. ...*  
 ENGINEER  
 NEW YORK

APPROVED BY THE BOARD OF SUPERVISORS  
 OF THE CITY AND COUNTY OF NEW YORK  
 JANUARY 1, 1900

DATE OF WORK

NO. 21505/100

ENGINEER

SEWERAGE PROJECTS DIVISION

**D** OFFICE OF THE ENGINEER  
 100 N. 3RD ST.  
 NEW YORK, N. Y.

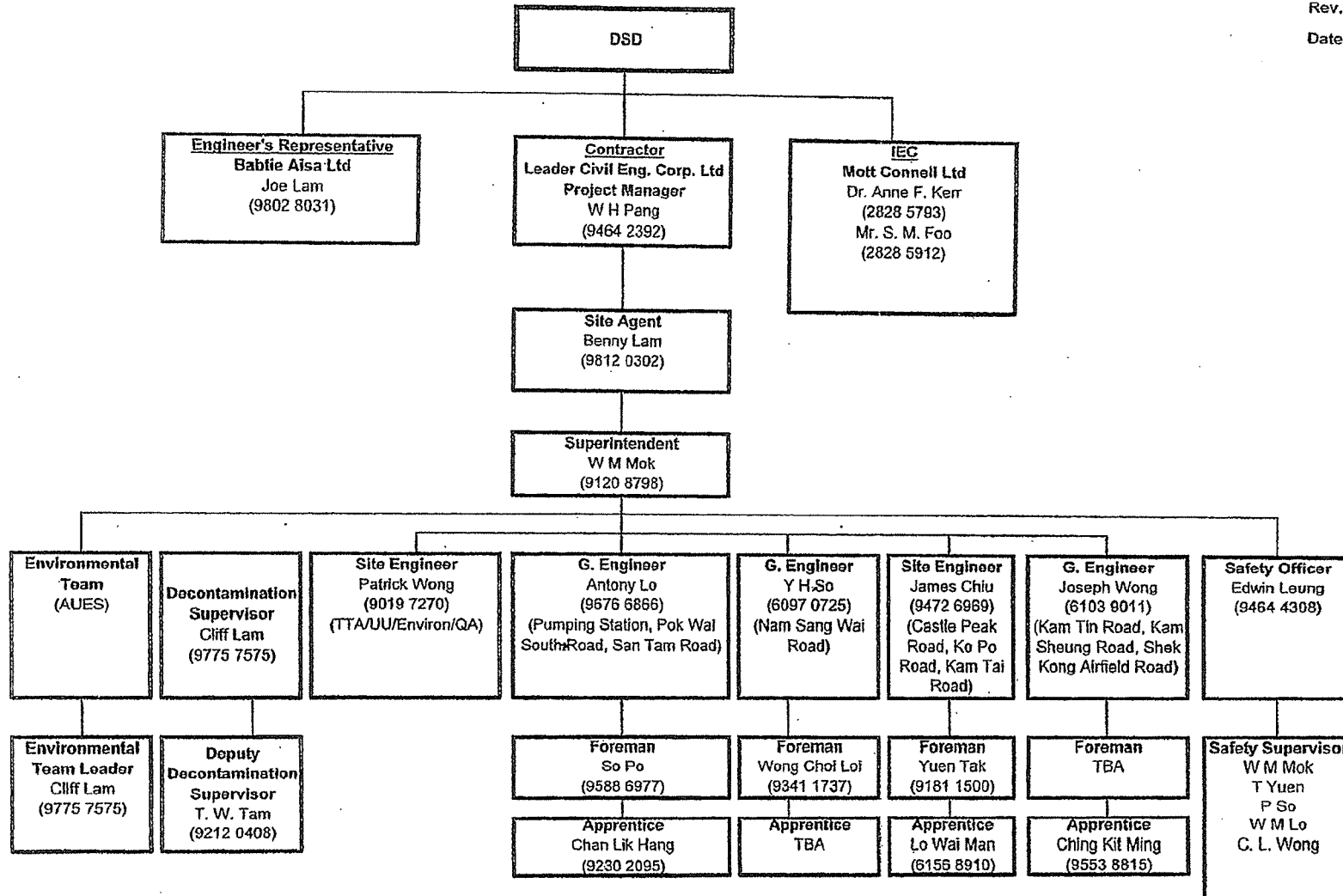
## **Annex B**

# **Project Organization and Management Structure**

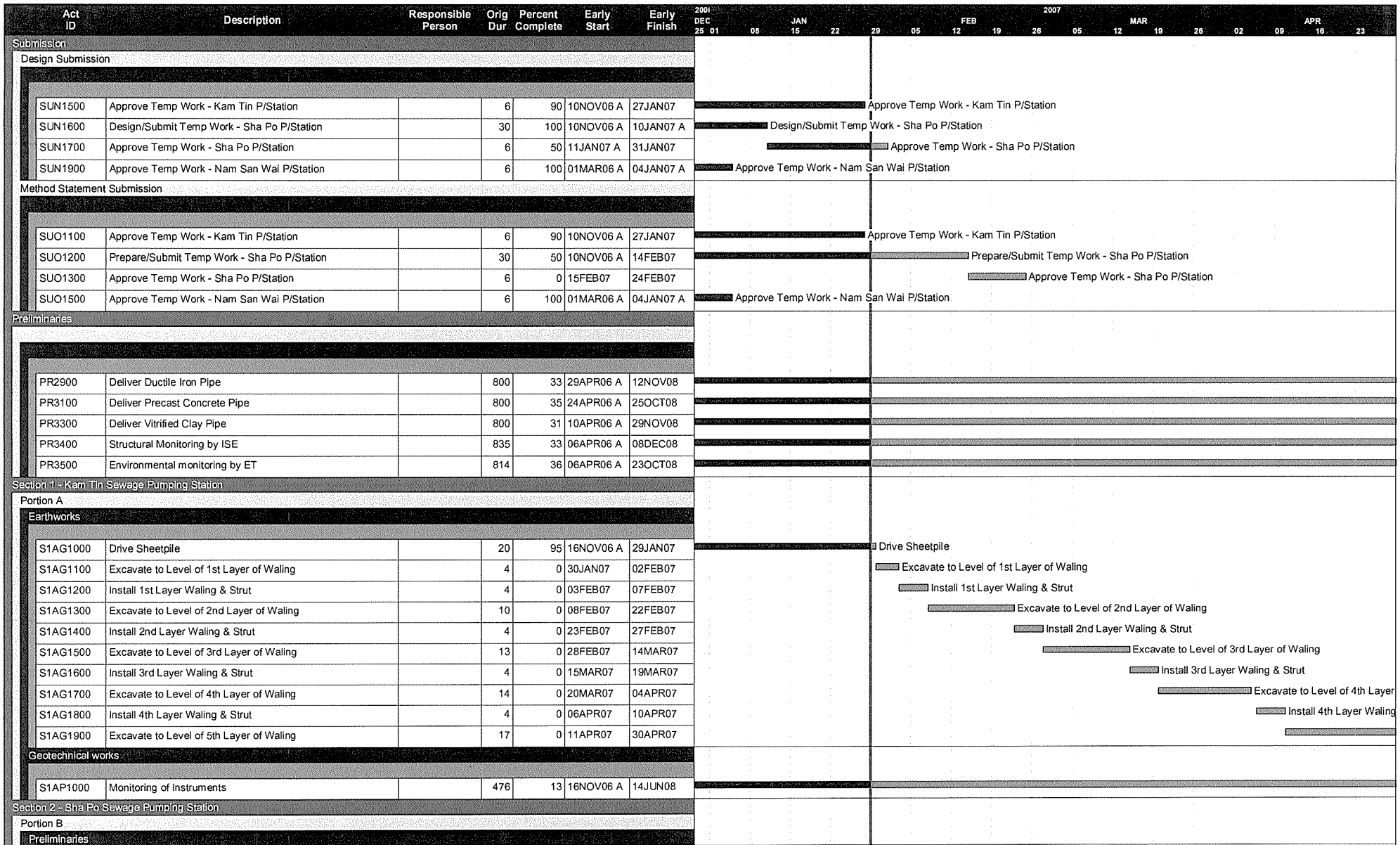
**DSD Contract No. DC/2005/02**  
**Construction of Sewers, Rising Mains and Sewage Pumping Station at Kam Tin,**  
**Nam Sang Wai and Au Tau in Yuen Long**  
**Project Environmental Organization Chart**

Rev. : 01

Date : 12-May-06









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



Start date 19DEC05  
 Finish date 30SEP09  
 Data date 29JAN07  
 Run date 02FEB07  
 Page number 1A

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

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



Act ID	Description	Responsible Person	Orig Dur	Percent Complete	Early Start	Early Finish	2007																	
							DEC 25 01	08	JAN 15	22	29	FEB 05	12	19	26	MAR 05	12	19	26	02	09	16	23	
S2BA1000	Erect Hoarding		18	40	27NOV06 A	09FEB07																		
<b>Ground Investigation</b>																								
S2BB1000	Trial Pits		20	75	02SEP06 A	15FEB07																		
S2BB1100	Drill Boreholes		11	75	05SEP06 A	22FEB07																		
S2BB1200	Install inclinometers		2	75	06SEP06 A	23FEB07																		
S2BB1300	Install Settlement Markers		1	0	10FEB07	10FEB07																		
<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	0	08MAR07	14MAR07																		
<b>Earthworks</b>																								
S3CG1500	Excavate to Level of 3rd Layer of Waling		14	50	23JAN07 A	05FEB07																		
S3CG1600	Install 3rd Layer of Waling & Strut		4	0	06FEB07	09FEB07																		
S3CG1700	Excavate to Level of 4th Layer of Waling		18	0	10FEB07	06MAR07																		
S3CG1800	Install 4th Layer of Waling & Strut		4	0	07MAR07	10MAR07																		
S3CG1900	Excavate to Level of 5th Layer of Waling		22	0	12MAR07	06APR07																		
S3CG2000	Install 5th Layer of Waling & Strut		4	0	07APR07	11APR07																		
S3CG2100	Excavate to Level of 6th Layer of Waling		22	0	12APR07	08MAY07																		
<b>Geotechnical works</b>																								
S3CP1000	Monitoring of Instruments		632	45	06APR06 A	26MAR08																		
<b>Section 4 - Sewers &amp; RM in Portion D, F, G, H, I</b>																								
<b>Portion D</b>																								
<b>Ground Investigation</b>																								
S4DB1300	Install Settlement Markers		579	44	31OCT06 A	01MAR08																		
<b>Pipework - Rising Main</b>																								
<b>Trench Method</b>																								
S4DFA1000	Twin Rising Main DN900 (ChA1750 - ChA1850)		124	65	02NOV06 A	22MAR07																		
<b>Trenchless Method</b>																								
S4DFB1000	Construct Jack/Receive Pits (WOIC1 - ChA2095)		72	60	02DEC06 A	06MAR07																		
S4DFB1020	Jacking Twin DN900 (WOIC1 - ChA2095)		131	0	07MAR07	10AUG07																		
<b>Geotechnical works</b>																								
S4DP1000	Monitoring of Instruments		567	32	02NOV06 A	13MAY08																		
<b>Portion F</b>																								
<b>Ground Investigation</b>																								
S4FB1500	Install Settlement Markers		720	35	27APR06 A	14AUG08																		
<b>Drainage and Ducts</b>																								
<b>Trenchless Method</b>																								

Start date 19DEC05  
 Finish date 30SEP09  
 Data date 29JAN07  
 Run date 02FEB07  
 Page number 2A  
 Primavera Systems, Inc.

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

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



Act ID	Description	Responsible Person	Orig Dur	Percent Complete	Early Start	Early Finish	2001 DEC 25 01	08	JAN 15	22	29	05	FEB 12	19	26	05	MAR 12	19	26	02	09	16	23
S4FEB1100	Construct Jack/Receive Pits (H3 - H2)		30	50	22NOV06 A	21JAN08																	
S4FEB1420	Jacking DN1200 (H6 - H5)		36	31	16JAN07 A	01MAR07																	
S4FEB1440	Construct Manhole H6		27	0	05MAR07	04APR07																	
S4FEB1540	Construct Manhole H7		27	0	29JAN07	03MAR07																	
<b>Pipework - Rising Main</b>																							
<b>Trench Method</b>																							
S4FFA1000	Twin Rising Main DN500 (ChB750 - ChB800)		120	16	05JAN07 A	05AUG08																	
S4FFA2200	Twin Rising Main DN700 (ChC2400 - WOIC4)		93	0	22MAR07	12JUL07																	
S4FFA2300	Twin Rising Main DN700 (ChC2639 - H7)		52	0	22MAR07	23MAY07																	
<b>Trenchless Method</b>																							
S4FFB1020	Jacking Twin DN700 (WOIC4 - ChC2639)		139	70	25NOV06 A	21MAR07																	
S4FFB1100	Construct Jack/Receive Pits (AVIC6 - WOIC5)		57	20	08JAN07 A	13DEC07																	
S4FFB1200	Construct WOIC4		30	0	22MAR07	26APR07																	
<b>Geotechnical works</b>																							
S4FP1000	Monitoring of Instruments		803	30	05JUN06 A	13DEC08																	
<b>Portion G</b>																							
<b>Ground Investigation</b>																							
S4GB1500	Install Settlement Markers		738	34	21APR06 A	08SEP08																	
<b>Pipework - Rising Main</b>																							
<b>Trench Method</b>																							
S4GFA1200	Twin Rising Main DN500 (ChB350 - ChB450)		89	100	05SEP06 A	06JAN07 A																	
S4GFA1300	Twin Rising Main DN500 (ChB450 - ChB550)		84	0	29JAN07	11MAY07																	
S4GFA1500	Twin Rising Main DN500 (ChB650 - ChB750)		130	92	14OCT06 A	08FEB07																	
S4GFA1600	Construct AVIC2		30	0	09FEB07	19MAR07																	
<b>Geotechnical works</b>																							
S4GP1000	Monitoring of Instruments		729	28	22APR06 A	28OCT08																	
<b>Portion H</b>																							
<b>Ground Investigation</b>																							
S4HB1300	Install Settlement Markers		717	32	26MAY06 A	12SEP08																	
<b>Drainage and Ducts</b>																							
<b>Trench Method</b>																							
S4HEA1200	DN500 Pipe & Manhole (A9 - A12)		90	81	03JUL06 A	16FEB07																	
S4HEA1300	DN500 Pipe & Manhole (A12 - A14)		54	0	08MAR07	11MAY07																	
S4HEA1500	DN400 Pipe & Manhole (A16 - A18)		73	0	29JAN07	27APR07																	
<b>Pipework - Rising Main</b>																							
<b>Trench Method</b>																							
S4HFA1200	Twin Rising Main DN700 (ChC290 - ChC410)		45	71	03JUL06 A	07MAR07																	
S4HFA1500	Twin Rising Main DN700 (ChC570 - ChC660)		42	0	28APR07	16JUN07																	
S4HFA1700	Twin Rising Main DN700 (ChC780 - ChC850)		50	71	09JAN07 A	14APR08																	
S4HFA2000	Twin Rising Main DN700 (ChC1050 - ChC1150)		94	42	20DEC06 A	06APR07																	

Start date	19DEC05
Finish date	30SEP09
Data date	29JAN07
Run date	02FEB07
Page number	3A
c Primavera Systems, Inc.	

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

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











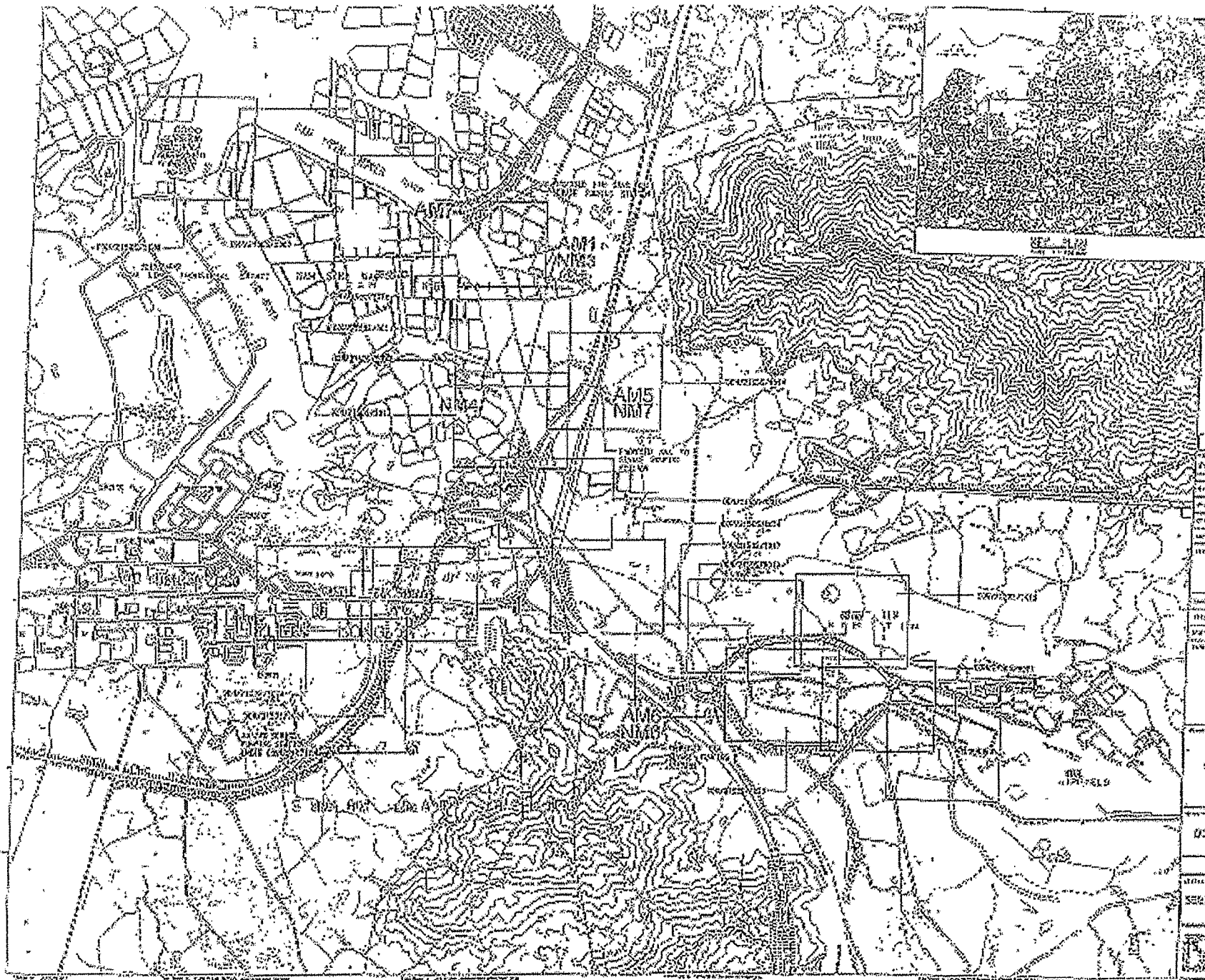
## **Annex D**

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



## **Annex E**

### **Locations of Monitoring Stations**



1. This drawing is an elevation  
 (contour interval 20 feet)  
 2. See notes on the map for  
 details.

LEGEND:  
 --- ADJACENT TERRAIN SHOWS  
 CONTOUR INTERVAL  
 --- TERRAIN FOR WHICH THIS  
 DRAWING WAS MADE

**FOR YOUR PURPOSES ONLY**

DATE	11 11 1970	SCALE	1:25,000
PROJECT	1007	DESIGNER	1007
REVISION	1	CHECKED	1007
APPROVED		DATE	11 11 1970

*John R. ...*  
 PROJECT NO. 1007  
 DRAWING NO. 1007  
 SHEET NO. 1007  
 TOTAL SHEETS 1007

CONSTRUCTION OF SPECIAL  
 INTEREST MAPS AND ELEVATION  
 MAPS FOR THE STATE OF TEXAS  
 BY THE STATE ENGINEER

STATE OF TEXAS  
 ENGINEER OF PUBLIC WORKS

DIVISION OF PUBLIC WORKS  
 ENGINEERING DIVISION  
 1007

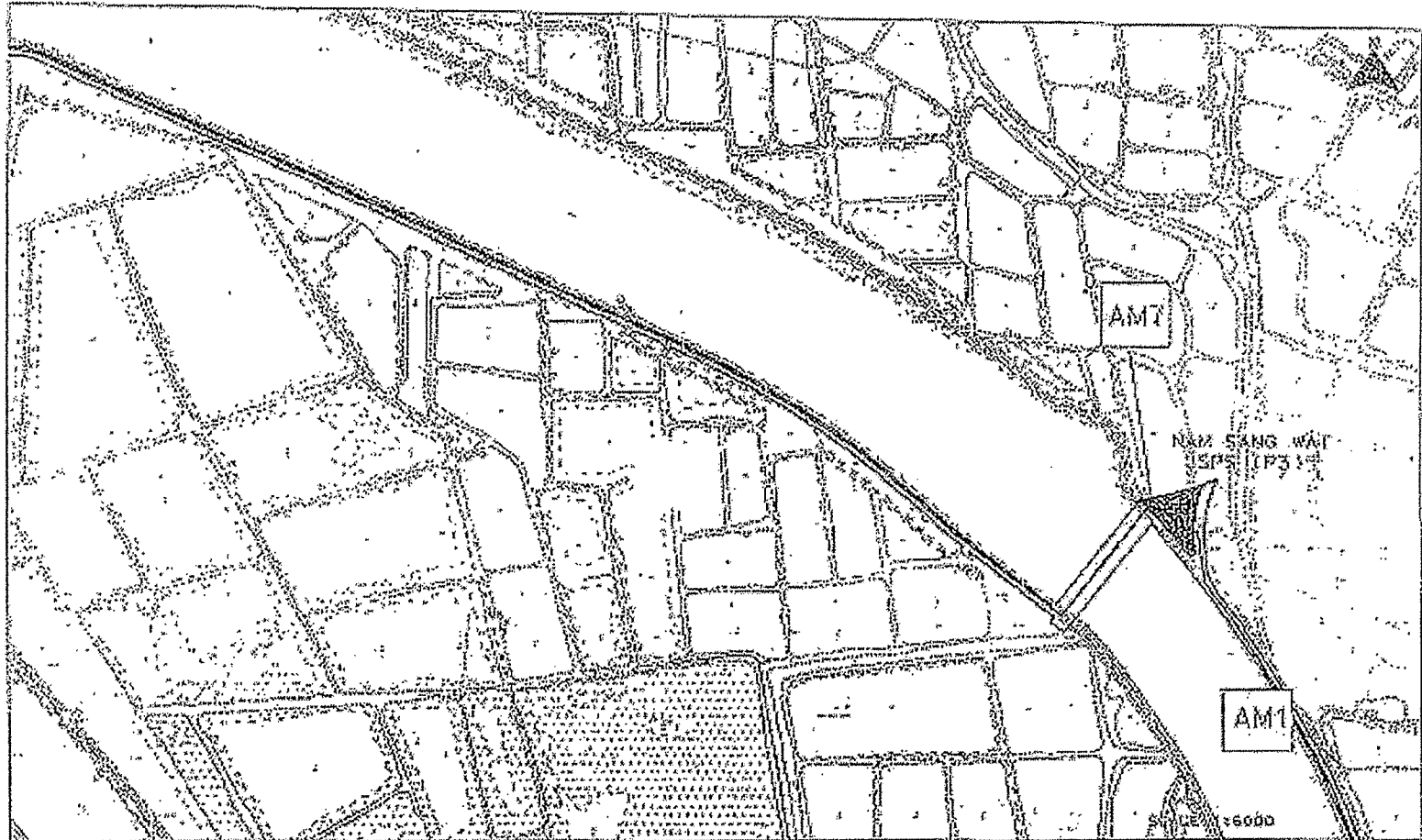


FIGURE 01

LOCATION OF BUSY MONITORING STATIONS (AMT & AMT)

2013 05 11 14:28:00  
0000 000000



FIGURE 02

LOCATION OF DUST MONITORING STATION (AM5)

LOW FINE PARTICULATE  
CONCENTRATION





FIGURE 60

LOCATION OF DUST MONITORING STATIONS (AM1, AMS & AM10)

Source: U.S. Environmental Protection Agency  
1990

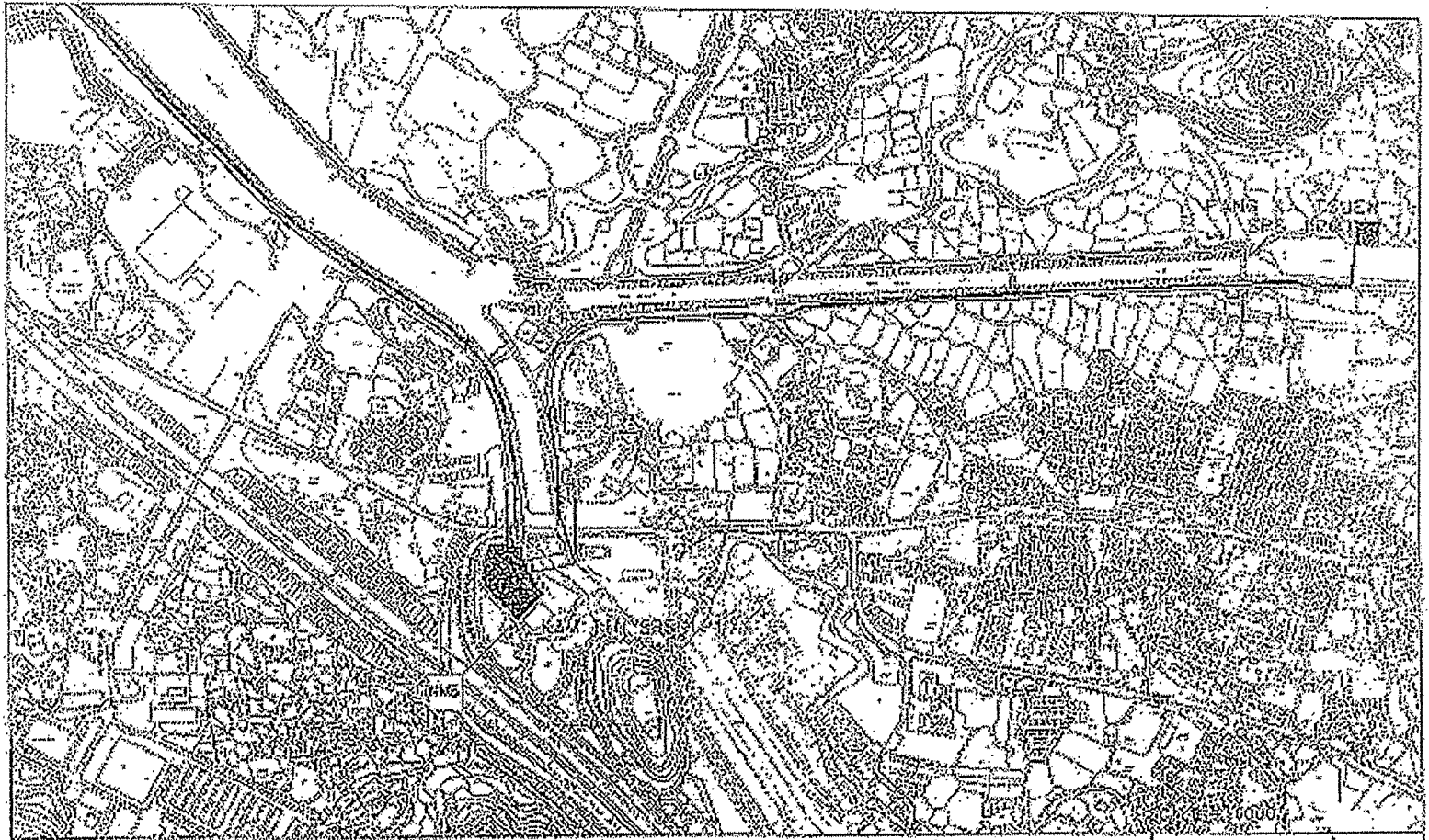


FIGURE 23

LOCATION OF SEGE MONITORING STATIONS (SRI, SNE, SNU, SNO)

ASIN 1962 410000000000-00  
 3116 400000

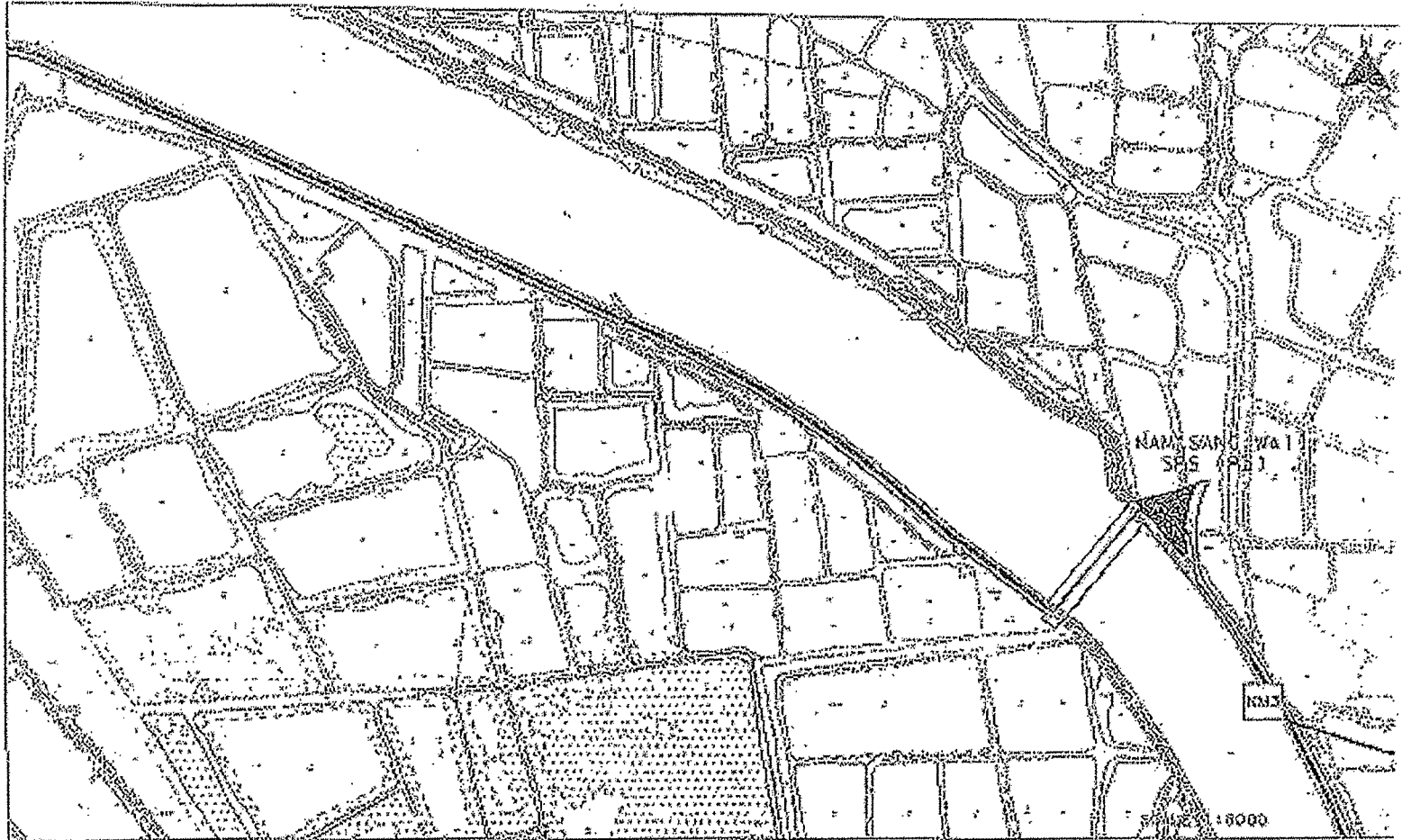


FIGURE 60

LOCATION OF NOISE MONITORING STATIONS IN NE. AREA

NOISE CONTROL DIVISION  
MAY 1970

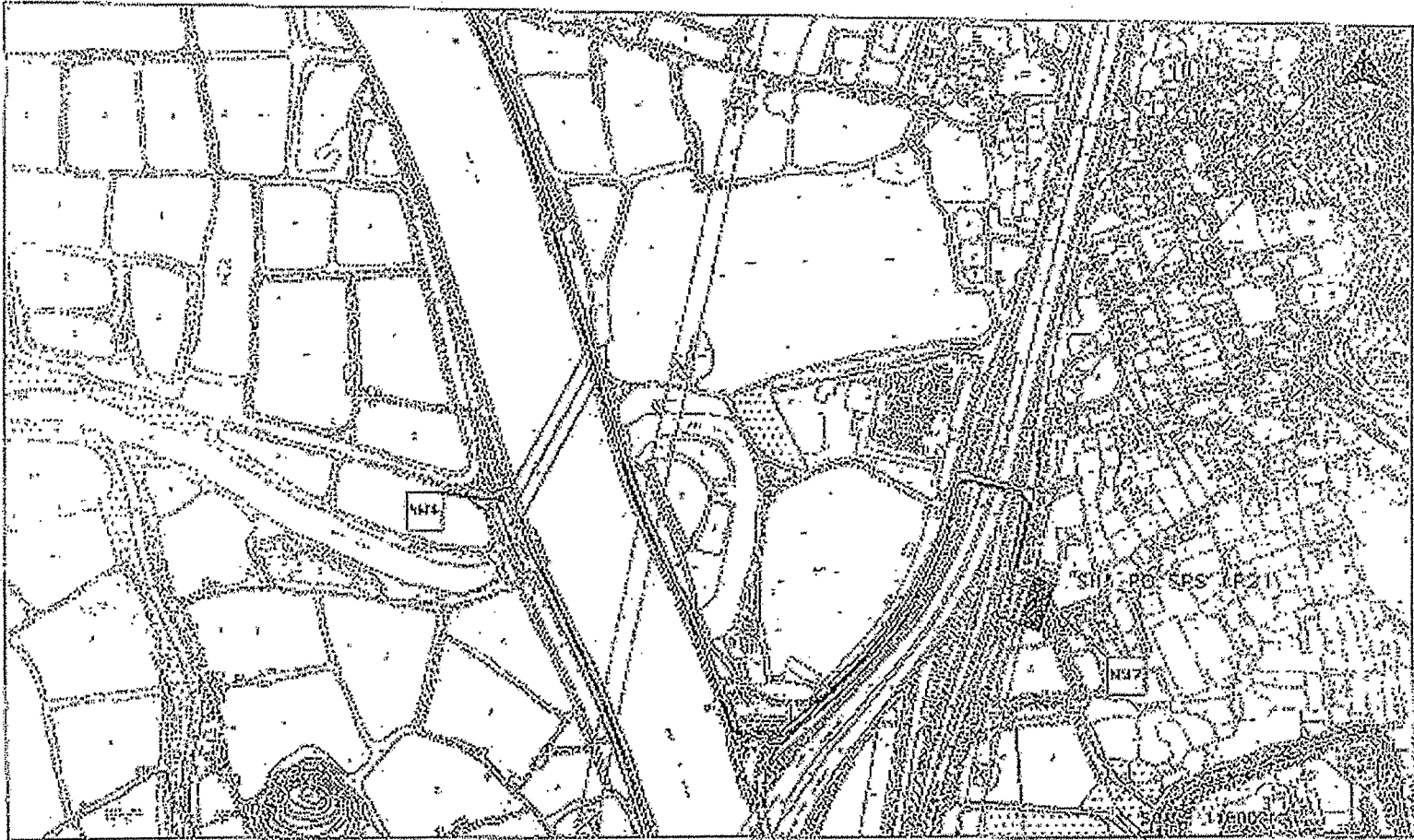


FIGURE 29.

LOCATION OF NOISE MONITORING STATIONS (N174, N177)

KUN TRAVEL ENGINEERING  
2000 S. 10TH ST.

## **Annex F**

### **Event and Action Plan**

Event and Action Plan for Construction Phase Air Quality

EVENT	ACTION			
	ET Leader	IEC	Engineer	Contractor
<b>Action Level</b>				
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>
<b>Limit Level</b>				

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 Contractors working methods</li> <li>3. Check and confirm Contractors proposed remedial actions and working methods are appropriate</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. 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 Contractors 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			
Limit Level	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. 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>
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</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 concerns	Location of the measure	Implementation Agency	Implementation Stage				Relevant Legislation & Guidelines
						Des	O	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>								
3.5	A1	<b>Site boundary and entrance</b> <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>
3.5	A2	<b>Access Road</b> <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>
3.5	A3	<b>Stockpiling of Dusty Materials</b> <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>
3.5	A4	<b>Loading, unloading or transfer of dusty materials</b> <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>
3.5	A5	<b>Use of vehicles</b> <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, (f), <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>Power-driven drilling, and cutting</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>Excavation and earth moving</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>Construction of the superstructure of a building</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
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		<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 measure	Implementation Agent	Implementation Stage				Relevant Legislation & Guidelines
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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.	C	O	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
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		adequately separate								
6.6.2	D5	<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> <p><i>Management of Waste Disposal</i> 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> <p><b>LAND CONTAMINATION- Construction Phase</b></p>	<p>To control the disposal of chemical waste in accordance with the Regulations.</p> <p>To monitor the disposal of C&amp;DM and solid wastes at public filling facilities and landfills and to control fly-tipping.</p>	<p>To be implemented at all worksites throughout the full duration of the construction phase.</p> <p>To be implemented at all worksites throughout the full duration of the construction phase.</p>	<p>The Contractor</p> <p>The Engineer/ Contractor</p>	<p>✓</p> <p>✓</p>			<p><i>Part IV, (20 -25) Waste Disposal (Chemical Waste) (General) Regulation</i></p> <p><i>Land (Miscellaneous Provisions) Ordinance (Cap 295) and Works Bureau Technical Circular No. 5/99.</i></p>	
7.5.6	E1	<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>	<p>To determine the presence of soil and groundwater contamination and remedy any potential concerns to acceptable levels.</p>	<p>To be implemented before the commencement of the construction works.</p>	<p>To be implemented by DSD or their sub-consultants at the Detailed Design Stage, depending upon when site access can be gained.</p>	<p>✓</p>			<p><i>EIAO TM Annex 19/3.1.1 &amp; 3.1.2</i></p>	

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	<p><b>ECOLOGY - Construction Phase</b></p> <p><i>Mitigation Measures Adopted - Avoidance</i></p> <p>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</p>	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	<p><i>Mitigation Measures Adopted - Minimisation</i></p> <p>Pipe jacking method should be used instead of dredging where sewers and rising mains cross over existing MDC within the WCA and WBA.</p>	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	<p>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.</p> <p>The site inspections shall check and report the number of workfronts and implementation of</p>	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
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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> Quieted 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	Doc	
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	C	O	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	<p><b>EM&amp;A REQUIEMENTS - Construction Phase</b></p> <p><i>Air Quality</i>                      Subject to the Environmental Protection Departments (EPDs) agreement, construction phase dust monitoring shall be undertaken at the following locations in accordance with the recommendations of the EIA.</p> <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)	20 Nov 06	20 Feb 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)	20 Nov 06	20 Feb 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 : Sha Po Pumping Station	Date of Calibration: 15-Jan-07
Location ID : AM5	Next Calibration Date: 15-Apr-07
	Technician: Mr. Ben Tam

### CONDITIONS

Sea Level Pressure (hPa)	1021	Corrected Pressure (mm Hg)	765.75
Temperature (°C)	18.3	Temperature (K)	291

### CALIBRATION ORIFICE

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

### CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.5	5.5	11	2.193	59	60.58	Slope = 36.2718 Intercept = -19.9489 Corr. coeff. = 0.9962
13	4.4	4.4	8.8	1.963	49	50.32	
10	3.8	3.8	7.6	1.825	46	47.24	
7	2.7	2.7	5.4	1.541	33	33.89	
5	1.2	1.2	2.4	1.031	18	18.48	

**Calculations :**

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

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

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration ( deg K )

Pstd = actual pressure during calibration ( mm Hg )

**For subsequent calculation of sampler flow:**

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

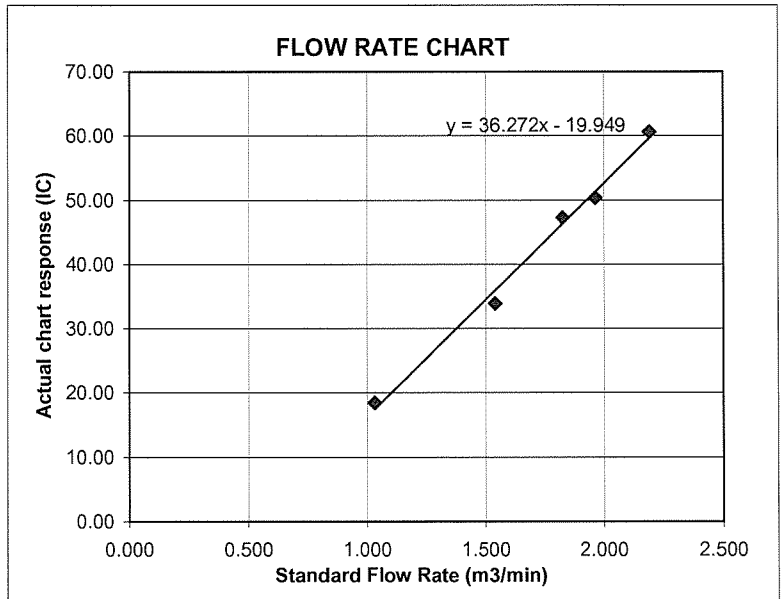
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Tai Hing Car Shop (Scattered House near Route 3)      Date of Calibration: 3-Jan-07  
 Location ID : AM 6      Next Calibration Date: 3-Apr-07  
 Technician: Mr. Ben Tam

### CONDITIONS

Sea Level Pressure (hPa)	1016.9	Corrected Pressure (mm Hg)	762.675
Temperature (°C)	18.6	Temperature (K)	292

### CALIBRATION ORIFICE

Make-> TISCH	Qstd Slope ->
Model-> 515N	1.54431
Serial # -> 10394	-0.01988

### CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION		
							Slope =	Intercept =	Corr. coeff. =
18	4.2	4.2	8.4	1.913	42	43.00	36.4277	-27.7485	0.9965
13	3.3	3.3	6.6	1.698	32	32.76			
10	2.8	2.8	5.6	1.565	28	28.66			
7	2.1	2.1	4.2	1.357	22	22.52			
5	1.3	1.3	2.6	1.070	11	11.26			

**Calculations :**

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

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

Qstd = standard flow rate

IC = corrected chart response

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:**

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

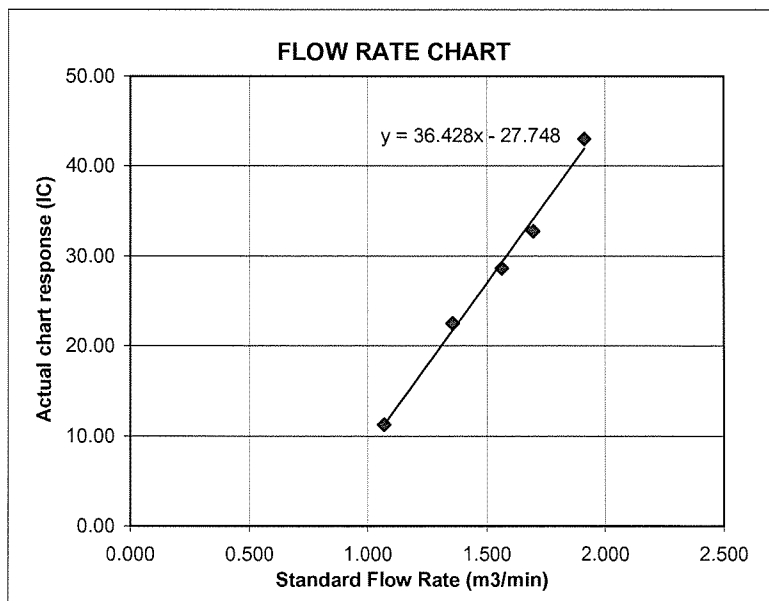
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure





**Annex I**

**Meteorological Data in the Reporting Month**

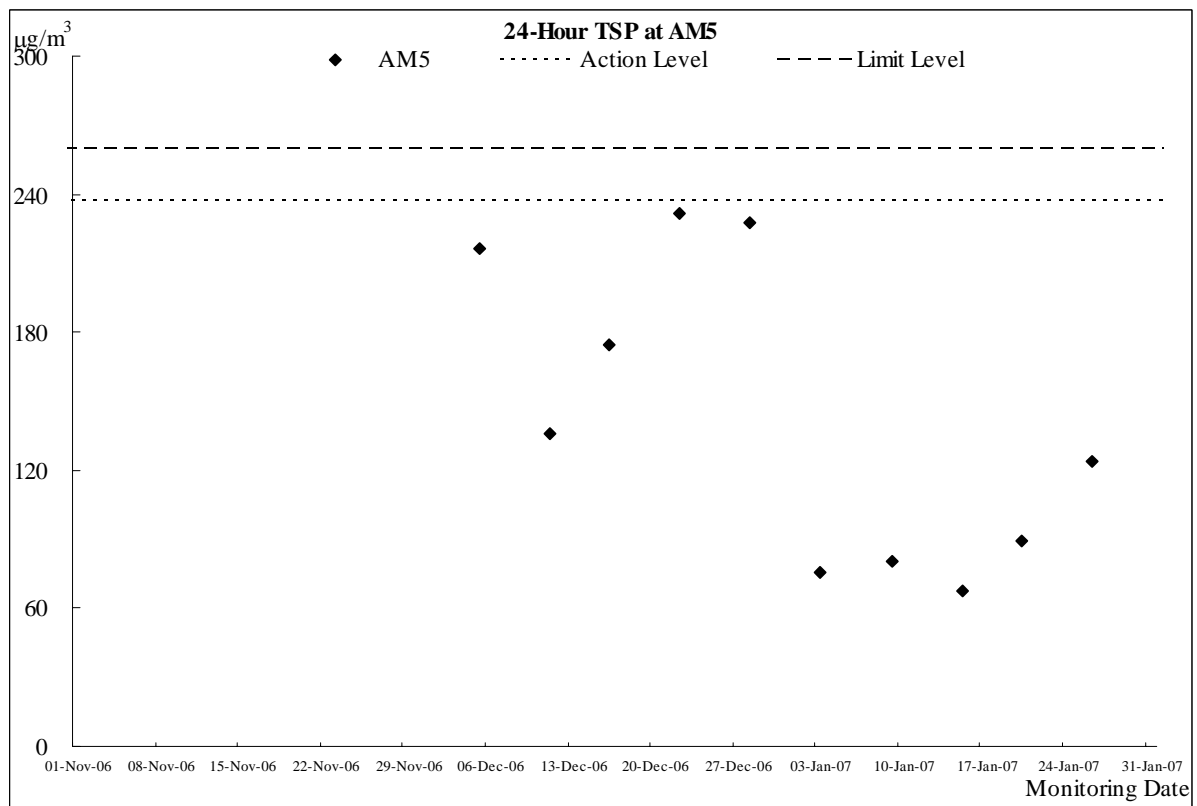
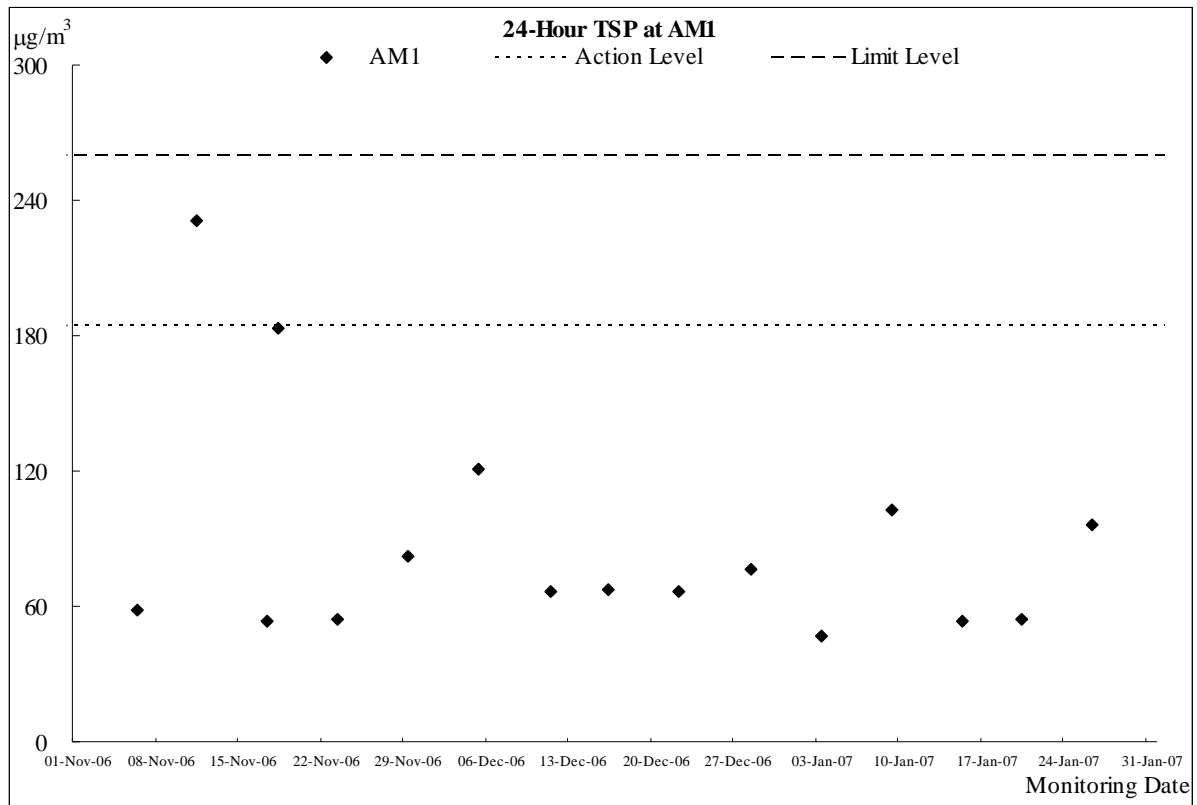
## Meteorological Data Extracted From the HK Observatory at Lau Fau Shan Weather Station

Date		Weather	Lau Fau Shan Station				
			Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
1-Jan-07	Mon	haze/ cloudy	-	18.2	9	85	E/SE
2-Jan-07	Tue	haze/ cloudy/ sunny/ moderate	Trace	19	12	90	SE/S
3-Jan-07	Wed	cloudy/ rain/ moderate	8.5	20.1	9	75	E/SE
4-Jan-07	Thu	cloudy/ cool/ haze/ moderate	-	17.3	15	80	NE/E
5-Jan-07	Fri	fine/ dry/ haze/ cool/ moderate	-	15.2	15	55	N/NE
6-Jan-07	Sat	fine/ dry	-	13.7	24	70	N/NE
7-Jan-07	Sun	cold/ fine/ dry	-	13.4	14	40	E/SE
8-Jan-07	Mon	fine/ very dry/ cold/ moderate	-	12.8	15	45	E/SE
9-Jan-07	Tue	fine/ cool/ very dry/ moderate	-	13.4	16	40	SE
10-Jan-07	Wed	sunny/ dry/ cloudy/ moderate	Trace	15.1	12	45	SE/S
11-Jan-07	Thu	cloudy/ moderate	-	17	10	70	E/SE
12-Jan-07	Fri	cloudy/ moderate/ haze	-	17.4	15	75	SE
13-Jan-07	Sat	fine/ hazy/ moderate	-	17.5	15	70	NE
14-Jan-07	Sun	sunny/ haze	-	17.4	15	80	NW/N
15-Jan-07	Mon	cloudy/ moderate	Trace	19.8	9	75	SE
16-Jan-07	Tue	fine/ haze/ cloudy/ moderate	0.4	20.4	12	70	SE
17-Jan-07	Wed	cloudy/ cool/ rain/ moderate	20	16.1	14	95	SE
18-Jan-07	Thu	cloudy/ moderate	0.2	14.6	11	70	E/SE
19-Jan-07	Fri	cloudy/ rain/ moderate	Trace	15.8	12	80	SE
20-Jan-07	Sat	cloudy/ rain/ moderate	0.5	15.9	12	85	SE
21-Jan-07	Sun	cloudy/ rain	-	14.4	15	95	SE
22-Jan-07	Mon	cloudy/ rain/ moderate	Trace	15.2	12	90	SE
23-Jan-07	Tue	cloudy/ haze/ moderate	-	15	9	70	N
24-Jan-07	Wed	fine/ dry/ cool/ moderate	-	13.3	14	75	NE/E
25-Jan-07	Thu	fine/ dry/ haze/ moderate	-	13.9	12	70	NW/N
26-Jan-07	Fri	fine/ dry/ hazy/ cold/ moderate	-	13.9	18	50	SE
27-Jan-07	Sat	fine/ very dry/ haze/ moderate	-	13.5	15	70	E/SE
28-Jan-07	Sun	fine/ very dry	-	15.6	22	35	SE
29-Jan-07	Mon	fine/ very dry/ moderate	-	14.2	8	35	SE/S
30-Jan-07	Tue	fine/ dry/ haze/ moderate	-	14.2	9	45	SE/S
31-Jan-07	Wed	fine/ very dry/ haze/ moderate	-	16.3	9	65	Maintenance

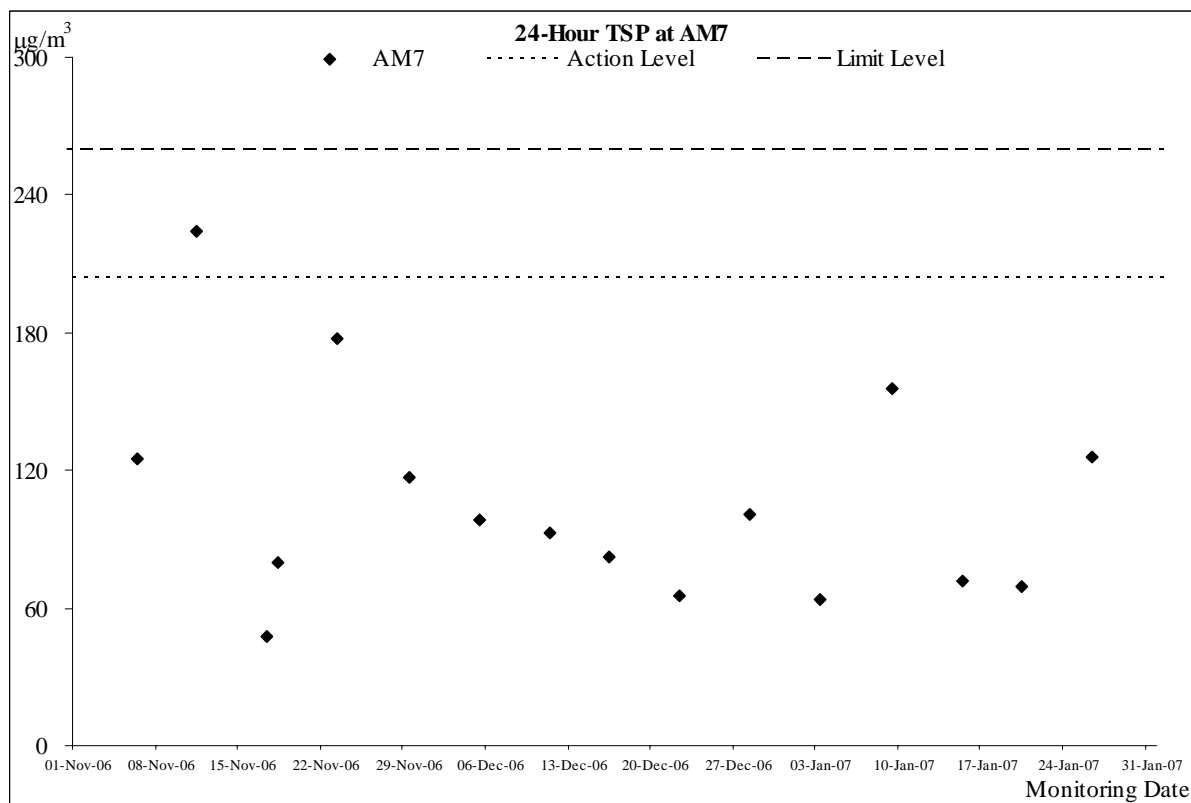
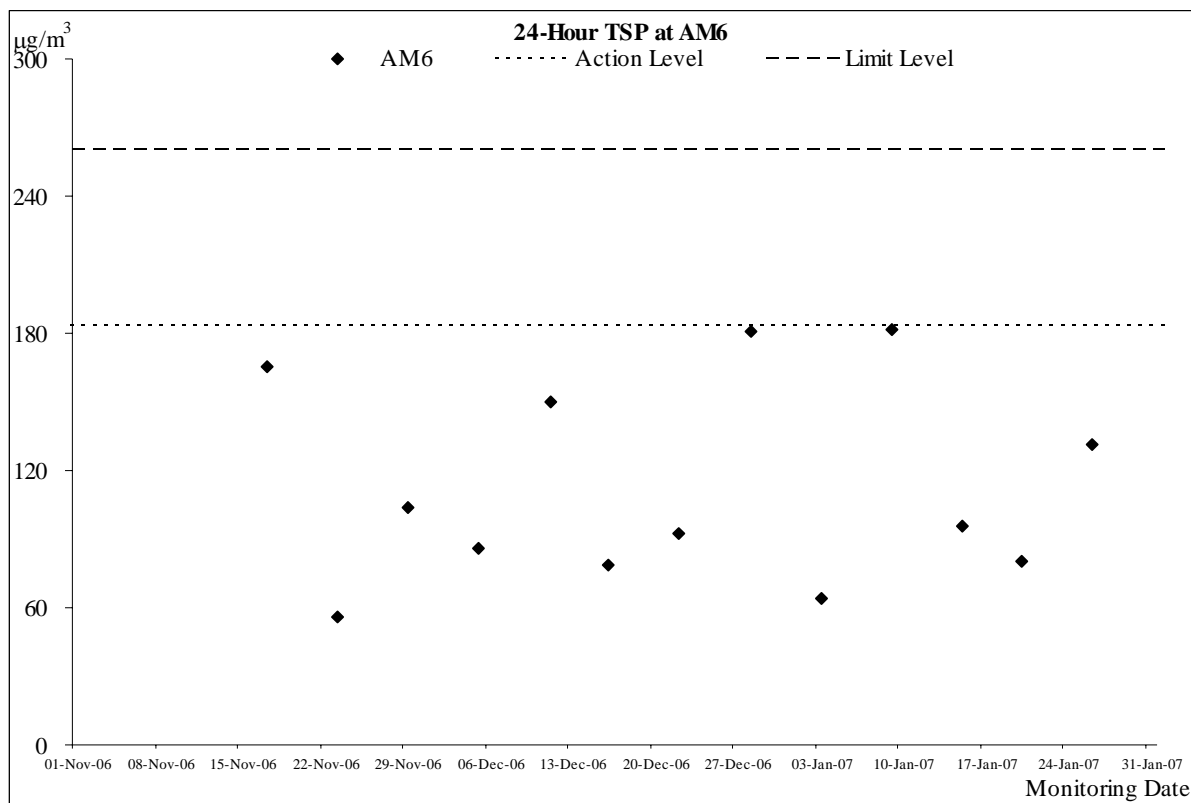
**Annex J**

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

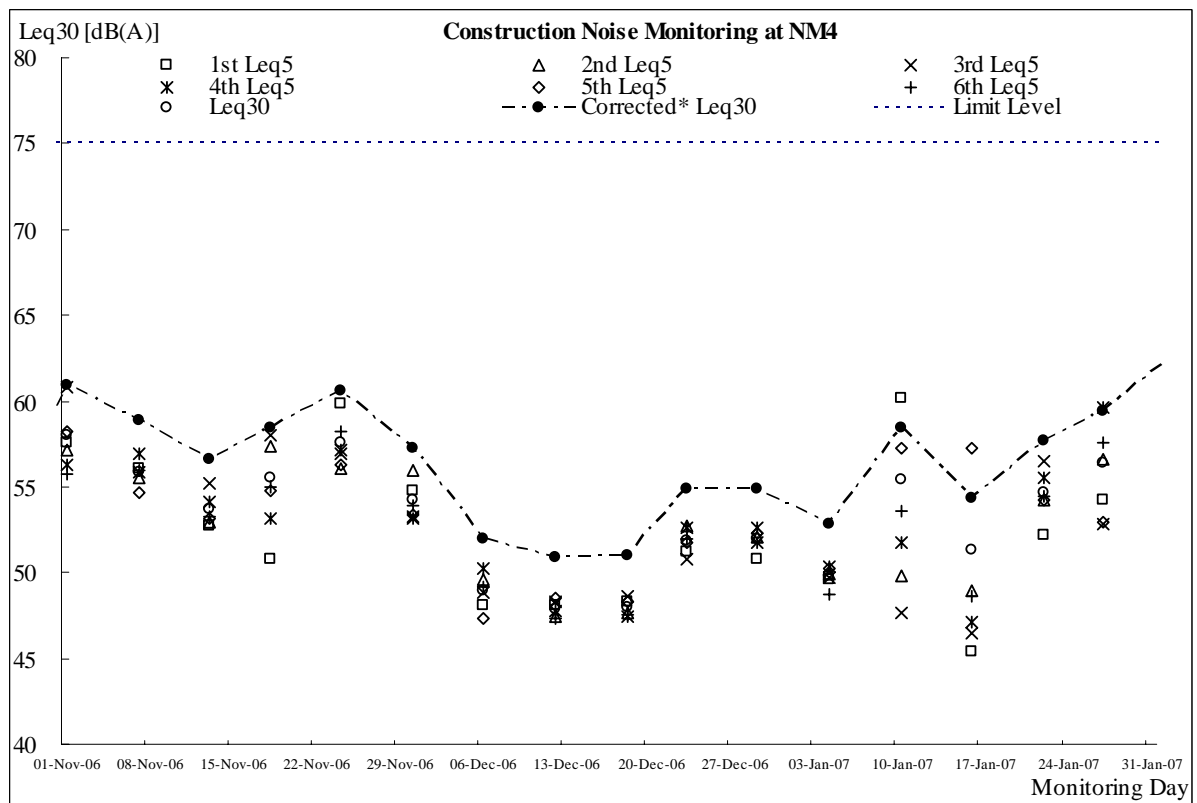
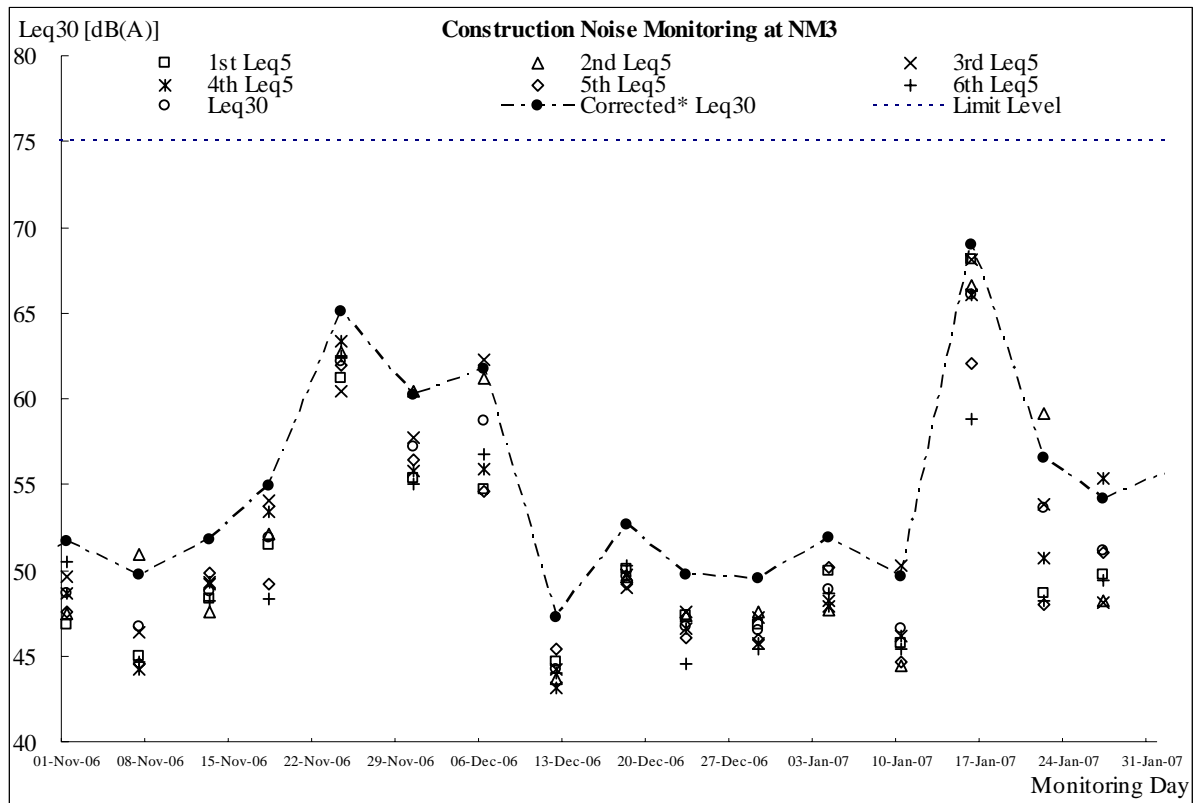
**Air Quality Monitoring Results**

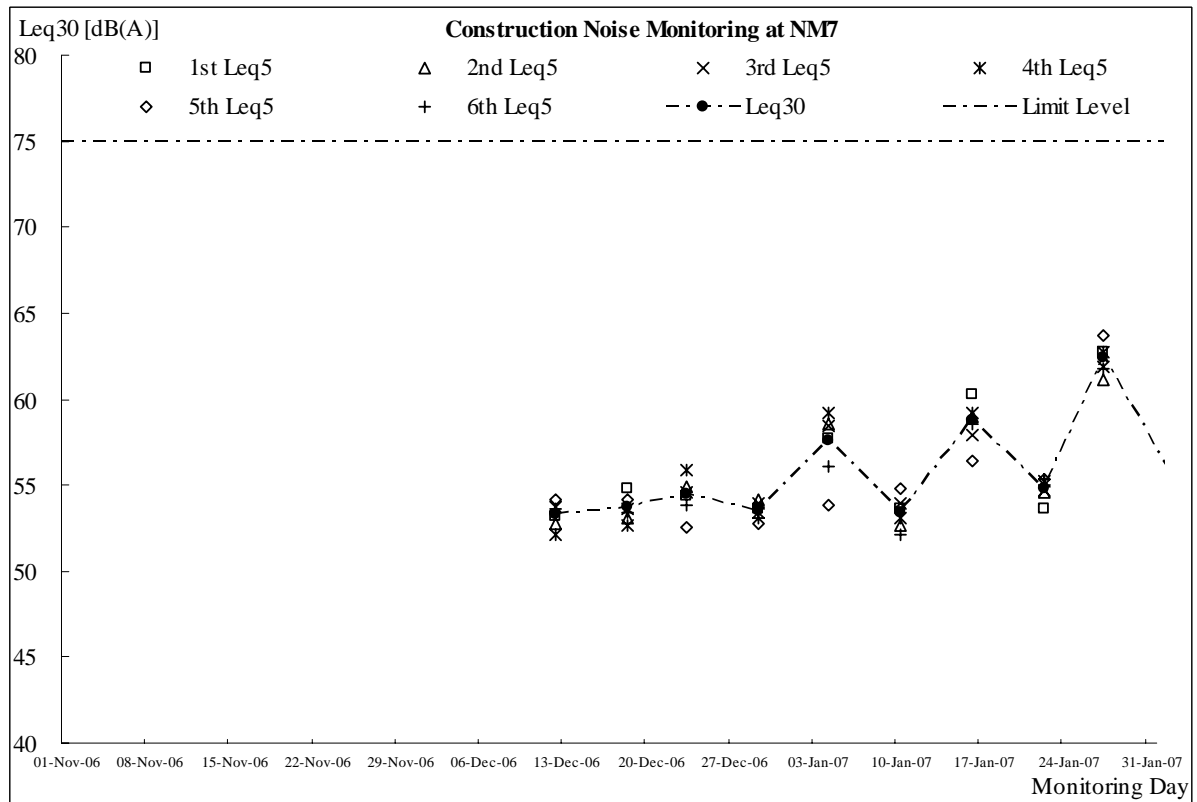
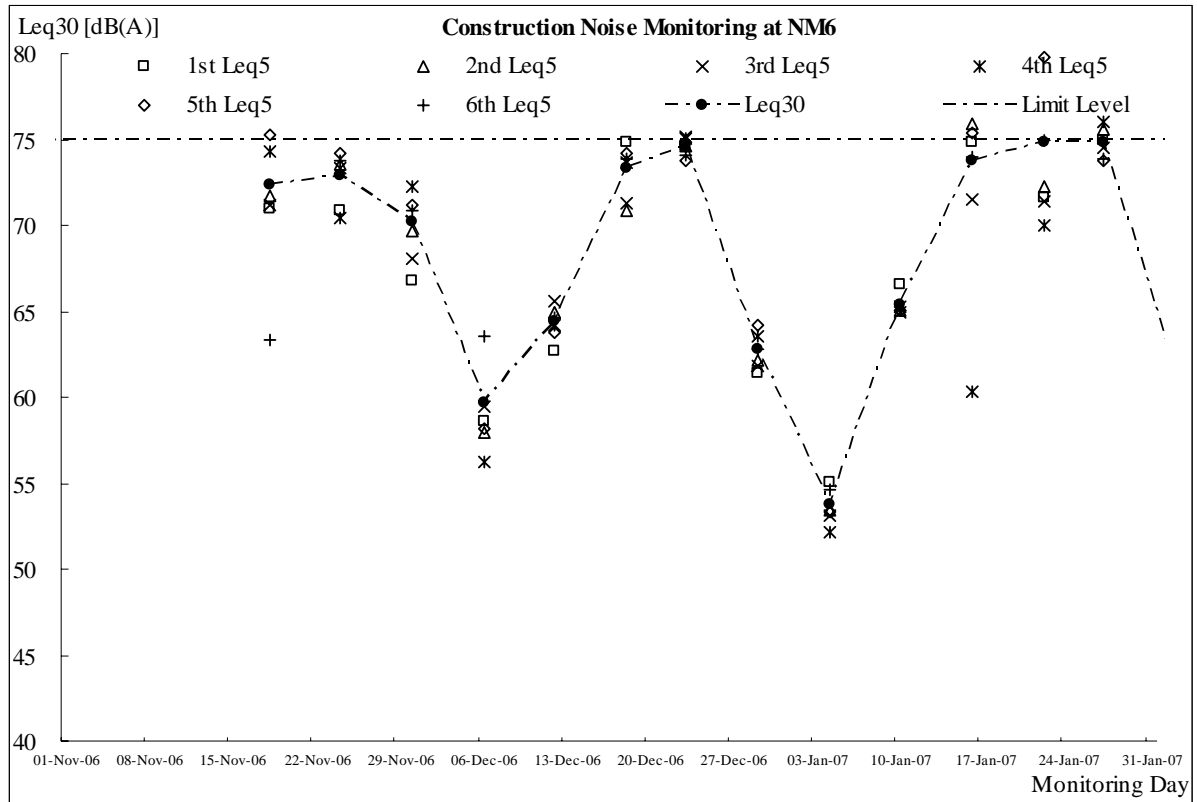


Note: 24-hour TSP impact monitoring was commenced on 17 November 2006.



**Construction Noise Monitoring Results**





**Annex K**

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



**Project:** DC/2005/02 Construction of Sewers, Rising Mains & Sewage Pumping Station at Kam Tin, Nam Sang Wai and Au Tau in Yuen Long

**Contractor:** Leader Civil Engineering Corp. Ltd

**Inspected by:**

**ET Auditor:** Ken Wong

**Contractor Rep:** Edwin

**IEC's Rep:** Nil

**RE's Rep:** Mr. S L Hui

**Engineer:** Babbie Asia Ltd

**IEC:** Mott Connell Ltd

**Environmental Team:** Action-United Env. Services & Consulting

**Inspection Date & Time:** 05 January 2007

**Checklist Reference No.:** DSD-AT050107

### General Meteorological Information

**Weather:**  Sunny  Fine  Cloudy  Overcast  Drizzle  Rain  Hazy

**Temp:** 16 °C

**Humidity:**  High (RH > 90%)  Moderate (90% > RH > 50%)  Low (RH < 50%)

**Wind:**  Calm  Light  Breeze  Strong

### Air Quality

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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Remarks 1
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"/> Loading/unloading of materials		<input type="checkbox"/> Vehicle/equipment movements <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 type="checkbox"/> Construction activities outside of site		<input checked="" type="checkbox"/> Construction activities inside 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. Water spraying was observed at Ko Po Road to minimize the dust generation.

**Observations Recorded in this Site Inspection:**

1. Fugitive dust from the loose soil surface was observed at the Kam Tin River works area, the Contractor was reminded to provide water spraying more frequently in the dry/windy season.

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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> 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 Env. Services & Consulting
	<b>RE's Rep:</b> Mr. S L Hui	<b>Inspection Date &amp; Time:</b>	09 January 2007
		<b>Checklist Reference No.:</b>	DSD-AT090107

### 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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Remarks 1
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"/>	_____
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. Water spraying was observed at the Kam Tin River works area to minimize the dust generation.

**Observations Recorded in this Site Inspection:**

1. Fugitive dust from the loose soil surface was observed at the Kam Tin River haul road, the Contractor was reminded to provide water spraying more frequently in the dry/windy season.

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**Signatures:**

Env. Auditor

Contractor's Representative

IC(E) Auditor

Resident Site Staff

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

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

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

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



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. Water spraying was observed at Ko Po Road to minimize the dust generation.

**Observations Recorded in this Site Inspection:**

1. Fugitive dust emission from the dry haul road was observed at the Kam Tin River works area, the Contractor was reminded to provide water spraying more frequently in the dry/windy season.

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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> ET Auditor: Ben Tam Contractor Rep: Edwin IEC's Rep: Nil RE's Rep: Mr. S L Hui	<b>Engineer:</b> Babbie Asia Ltd <b>IEC:</b> Mott Connell Ltd <b>Environmental Team:</b> Action-United Env. Services & Consulting <b>Inspection Date &amp; Time:</b> 31 January 2007 <b>Checklist Reference No.:</b> DSD-AT310107

### 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"/>	
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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Remarks 1
	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:

Observations Recorded in this Site Inspection:

1. Free standing oil drum was observed in the Kam Tin Pumping Station, Contractor was reminded that drip tray should be provided for all oil drums.

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Signatures:

Env. Auditor

Contractor's Representative

IC(E) Auditor

Resident Site Staff

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

\_\_\_\_\_  
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	25/01/2007	Time	10.00am	Inspected By	Leader: Benny Lam ET: Ken Wong DSD: SL Hui IEC: SM Foo
Site Location	<div style="border: 1px solid black; padding: 2px; display: inline-block;"> <i>Nam Shing Wai, Kam Tin, Au Tau, Tsuen Long</i> </div>				

**Weather**

Condition	<input checked="" type="checkbox"/> Sunny	<input type="checkbox"/> Fine	<input type="checkbox"/> Overcast	<input type="checkbox"/> Drizzle	<input type="checkbox"/> Rain	<input type="checkbox"/> Storm	<input type="checkbox"/> Hazy
Temperature	15°C		Humidity	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low	
Wind	<input type="checkbox"/> Calm	<input checked="" type="checkbox"/> Light	<input type="checkbox"/> Breeze	<input type="checkbox"/> Strong	Direction <input style="width: 100px;" type="text"/>		

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
- Have dust monitors been provided at the following locations:
    - Boundary facing scattered house in NSW (AM1)
    - Boundary facing Fung Kat Heung (AM5)
    - Boundary facing scattered house near route 3 (AM6)
- |  |  |   |  |
|--|--|---|--|
|  |  | ✓ |  |
|--|--|---|--|
- 

**Construction Noise**  
**Demolition works**

- 4.7.1
- Are quiet PME which meet the SWLs from BS 5228:Part 1: 1997 used?
- |  |  |   |  |
|--|--|---|--|
|  |  | ✓ |  |
|--|--|---|--|
- 

**Sewage Pumping Stations P1, P2 & P3**

- 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/m2, with no substantial gaps), along the site boundaries of the pumping station sites adopted?
- |  |  |   |  |
|--|--|---|--|
|  |  | ✓ |  |
|--|--|---|--|
- 

**Sewers and Rising Mains using Open Trench**

- 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?
- |  |   |  |  |
|--|---|--|--|
|  | ✓ |  |  |
|--|---|--|--|
- 

**Sewers and Rising Mains using Pipe Jacking**

- 4.7.1
- Are quiet PME which meet the SWLs from BS 5228:Part 1: 1997 used?
- |  |  |   |  |
|--|--|---|--|
|  |  | ✓ |  |
|--|--|---|--|
- 

**Road Pavement and Finishes**

- 4.7.1
- Are quiet PME which meet the SWLs from BS 5228:Part 1: 1997 used?
- |  |  |   |  |
|--|--|---|--|
|  |  | ✓ |  |
|--|--|---|--|
- 

- 4.9.1
- Have noise monitors been provided at the following locations:
    - (NM3) Scattered house in NSW
    - (NM4) Scattered house in NSW
    - (NM6) Scattered house near Route 3
    - (NM7) Fung Kat Heung
- |  |  |   |  |
|--|--|---|--|
|  |  | ✓ |  |
|--|--|---|--|
- 

**Construction Runoff and Site Drainage**

- 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?
- |  |  |  |   |
|--|--|--|---|
|  |  |  | ✓ |
|--|--|--|---|
- 

See 0030, 0033

- 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?
- |  |   |  |  |
|--|---|--|--|
|  | ✓ |  |  |
|--|---|--|--|
-

- 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? 

			✓
--	--	--	---

see 0042
- 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? 

		✓	
--	--	---	--
- 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

An Tan

0030 & 0033 : Contractor is advised to monitor water quality in the sedimentation tank.

Pan Han K, Section 13-14A

0042 : Contractor should provide a desitting tank prior to discharge of site run-off.

DSD Representative	Contractor Representative	ETL	IEC
( )	( )	( )	(  )
( )	( )	( )	( Sm Foo )

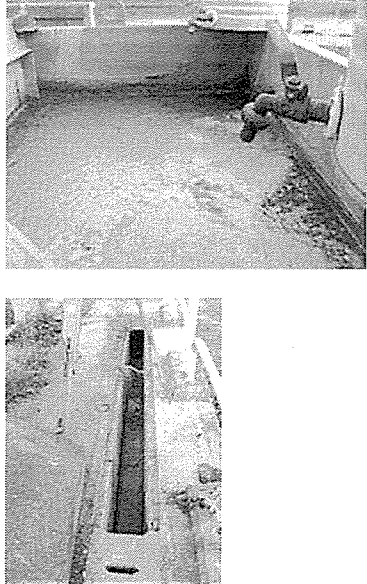

Agreement No. CE37/2005 (EP)  
 Environmental Monitoring and Audit for  
 Kam Tin Trunk Sewerage Phase 1 and Au Tau trunk sewers

MONTHLY SITE INSPECTION PHOTO  
 25 January 2007  
 PART 1 – Environmental Observations

**Close out of previous month's observations (December 2006)**

Last month's observations	This month's observations
No observations.	-

**This month's observations**

This week's observations	This week's observations
AU TAU	PORTION K, SECTION 13-14A
	
0030 & 0033: Contractor is advised to monitor water quality in the sedimentation tank.	0042: Contractor should provide a desilting tank prior to discharge of site runoff.