

**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**

**4th Monthly Construction Phase EM&A Report
July 2006**

PREPARED FOR

Leader Civil Engineering Corporation Ltd

Quality Index

Date	Reference No.	Prepared by	Certified by	Verified by
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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 4th Monthly Construction Phase EM&A Report (July 2006, Report No. 4) reporting the environmental impact monitoring and audit (EM&A) conducted from 1 to 31 July 2006. The EM&A in July 2006 covered air quality, noise and waste management.

Breach of Action and Limit (AL) Levels

- ES.03 There was no breach of Action or Limit level for air and noise monitoring in this reporting month.

Complaint Log

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

Notification of Any Summons and Successful Prosecution

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

Reporting Changes

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

Future Key Issues

- ES.07 Construction activities to be undertaken in August 2006 include formation work for the pumping station, pipe jacking for drainage work at S4, sheet piling, trench excavation and sorting erection for drainage work at S5, S6 and S7. 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 4th Monthly Construction Phase EM&A Report (July 2006, Report No. 4) summarizes the impact monitoring results and audit findings in the reporting period from 1 to 31 July 2006.

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 for the Reporting Month

1.04 A construction program showing the construction work undertaken in this reporting month is 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 during the Month

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

Nam Sang Wai Pumping Station (P3)

- Sheet piling
- Excavation and shoring erection

Nam Sang Wai Road (S4)

- Sheet piling
- Excavation and shoring installation
- Construction Receive Pit chamber of Pipe Jacking

Pok Wai South Road (S5)

- Sheet piling
- Excavation and shoring installation

Nam Sang Wai Road (S6)

- Sheet piling
- Excavation and shoring installation

Au Tau Area (S7)

- Sheet piling
- Excavation and shoring installation

2.0 ENVIRONMENTAL STATUS

Work Undertaken during the Month with Illustrations

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

Table 2-1 Work Undertaken in July 2006 with Illustrations of Mitigation Measures

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

Location	Description of Construction Activities	Environmental Mitigation Measures	EM&A Ref.
Nam Sang Wai Road (S6)	<ul style="list-style-type: none"> Sheet Piling Excavation & shoring installation Pipe laying Manhole construction 	<ul style="list-style-type: none"> Remove dust and spray water at the construction access Cover the stockpiles of dusty material properly Spray water to all dusty materials immediately before loading and unloading Wash the wheels of vehicles before leaving the site Install and use power-operated cover at the dump trucks Spray the working area of excavation frequently Maximize the use of quiet PME on site Apply and obtain appropriate waste disposal licenses Handle, store and dispose of chemical wastes as per relevant regulations Implement trip-ticket system for waste disposal Restrict open fires and provide fire fighting equipment in the works area Perform weekly inspection with ET and monthly audit with IEC Conduct noise and dust monitoring as per EM&A manual during construction Provide sedimentation tanks for treating site discharge. 	A2
Au Tau Area (S7)			A3 A4 A5 A6 A8 B1, B2 & F5 D1 D2, D3 & D4 D5 F9 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-220/2003 and the locations of the designated monitoring stations are presented in **Annex E**.

2.04 There are four designated air quality and four noise monitoring stations under the project EP. In this reporting month, the monitoring was carried out at two designated air (AM1 & AM7) and two noise (NM3 & NM4) monitoring stations.

Station ID	Nature of Premise	Site Work Description	Station Coordinates
AM1	Site Boundary in NSW	Sheet piling and trench excavation.	835829 N 822910 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

2.05 Monitoring at the remaining two air (AM5 & AM6) and noise (NM6 & NM7) stations will commence once the work areas are handed over to the Contractor (later this year).

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
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 month is presented in **Table 4-1**.

Table 4-1 Status of Environmental Licenses and Permits

Item	Item Description	Permit Status
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	Registration on 27 Jan 2006
4	Water Pollution Control (Discharge license)	Applied to EPD on 7 Feb 2006
5	Account for Disposal of Construction Waste No. 5004959	Registration on 27 Dec 2005
6	Construction Noise Permit (Sheet Piling at NSW Station)	Valid (2 Jun to 12 Dec 2006)
7	Construction Noise Permit (General Works at NSW Station)	Valid (7 Apr to 7 Oct 2006)

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 m³/min (20-60 SCFM) adjustable flow rate;
- A 7-day mechanical timer for 24-hour operation;
- An elapsed time indicator with ± 2 minutes accuracy for 24-Hr operation;
- Minimum exposed area of 63 in²;
- 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.

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 (L₁₀ and L₉₀) 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 calibration certificates of the monitoring equipment used during the impact monitoring program are attached in **Annex H**.

PARAMETERS MONITORED

- 5.13 The environmental parameters monitoring in this reporting month is 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 two designated air (AM1 & AM7) and two noise (NM3 & NM4) monitoring stations. Monitoring at the remaining two air (AM5 & AM6) and noise (NM6 & NM7) stations will commence once the work areas are handed over to the Contractor (later this year). 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

Air Quality (4 Stations)	
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
Construction Noise (4 Stations)	
NM3	Village House in Nam Sang Wai
NM4	Village House in Nam Sang Wai
NM6*	Scattered House near Route 3
NM7*	Fung Kat Heung

Remarks: Monitoring at AM5 & AM6 and NM6 & NM7 will commence once the work areas are handed over to the Contractor (later this year).

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 10 monitoring events were carried out in this reporting month.
- 5.16 The impact noise monitoring was conducted at the designated stations once every 6 days in compliance with the updated EM&A manual. A total of 10 monitoring events were carried out in this reporting month.

MONITORING RESULTS WITH DATE AND TIME

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

Table 5-3 Summary of Air Quality Monitoring Results

Date	24-Hr TSP (ug/m ³)	
	AM1	AM7
3-Jul-06	38	45
8-Jul-06	52	46
14-Jul-06	121	105
20-Jul-06	55	43
26-Jul-06	76	73
Average (Range)	81.4 (49 - 122)	83.3 (41 - 126)

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

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

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
4-Jul-06	13:47	60.7	57.2	48.9	49.2	49.4	51.6	55.4	58.4
10-Jul-06	14:31	51.2	42.0	42.6	46.8	42.9	43.7	46.3	49.3
15-Jul-06	10:16	54.4	51.7	51.2	56.2	55.6	50.0	53.8	56.8
21-Jul-06	14:16	54.2	46.2	52.1	47.5	48.6	46.2	50.3	53.3
27-Jul-06	10:28	52.8	52.9	51.1	52.6	51.7	52.3	52.3	55.3
Limit Level									75

* 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-Jul-06	14:31	51.4	51.9	51.3	49.8	50.3	63.0	56.4	59.4
10-Jul-06	13:56	46.2	44.5	42.7	48.2	43.9	42.5	45.2	48.2
15-Jul-06	09:41	68.7	66.7	69.6	68.6	69.1	68.2	68.6	71.6
21-Jul-06	13:42	53.2	58.1	58.6	54.1	50.5	53.1	55.5	58.5
27-Jul-06	09:53	51.6	54.3	52.7	54.7	53.6	53.4	53.5	56.5
Limit Level									75

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

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 JULY AFFECT THE MONITORING RESULTS

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

OTHER FACTORS INFLUENCING THE MONITORING RESULTS

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

QA/QC RESULTS AND DETECTION LIMITS

- 5.25 Not applicable.

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

RECORD OF NON-COMPLIANCE OF ACTION AND LIMIT LEVELS

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

RECORD OF ENVIRONMENTAL COMPLAINTS RECEIVED

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

RECORD OF NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTION

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

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

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

DESCRIPTION OF FOLLOW-UP ACTIONS TAKEN

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

7.0 OTHERS

FUTURE KEY ISSUES

7.01 Construction activities to be undertaken in August 2006 include formation work for the pumping station, pipe jacking for drainage work at S4, sheet piling, trench excavation and sorting erection for drainage work at S5, S6 and S7. Potential environmental impacts arising from the works include air quality, noise and water quality (particularly site runoff). Environmental mitigation measures will be properly implemented and maintained as per the Mitigation Implementation Schedule to ensure site environmental performance is acceptable

SOLID AND LIQUID WASTE MANAGEMENT STATUS

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

Table 7-1 Summary of Quantities of Waste for Disposal

Type of Waste	Quantity	Disposal Location
C&D Materials (Inert) (tons) – Disposed	9,650	Tuen Mun 38 Fill Bank
C&D Materials (Inert) (tons) – Reused	1,090	DSD Contract DC/2005/0
C&D Materials (Non-Inert) (tons)	-	NA
Chemical Waste (Litres)	400	NA
General Refuse (tons)	38	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

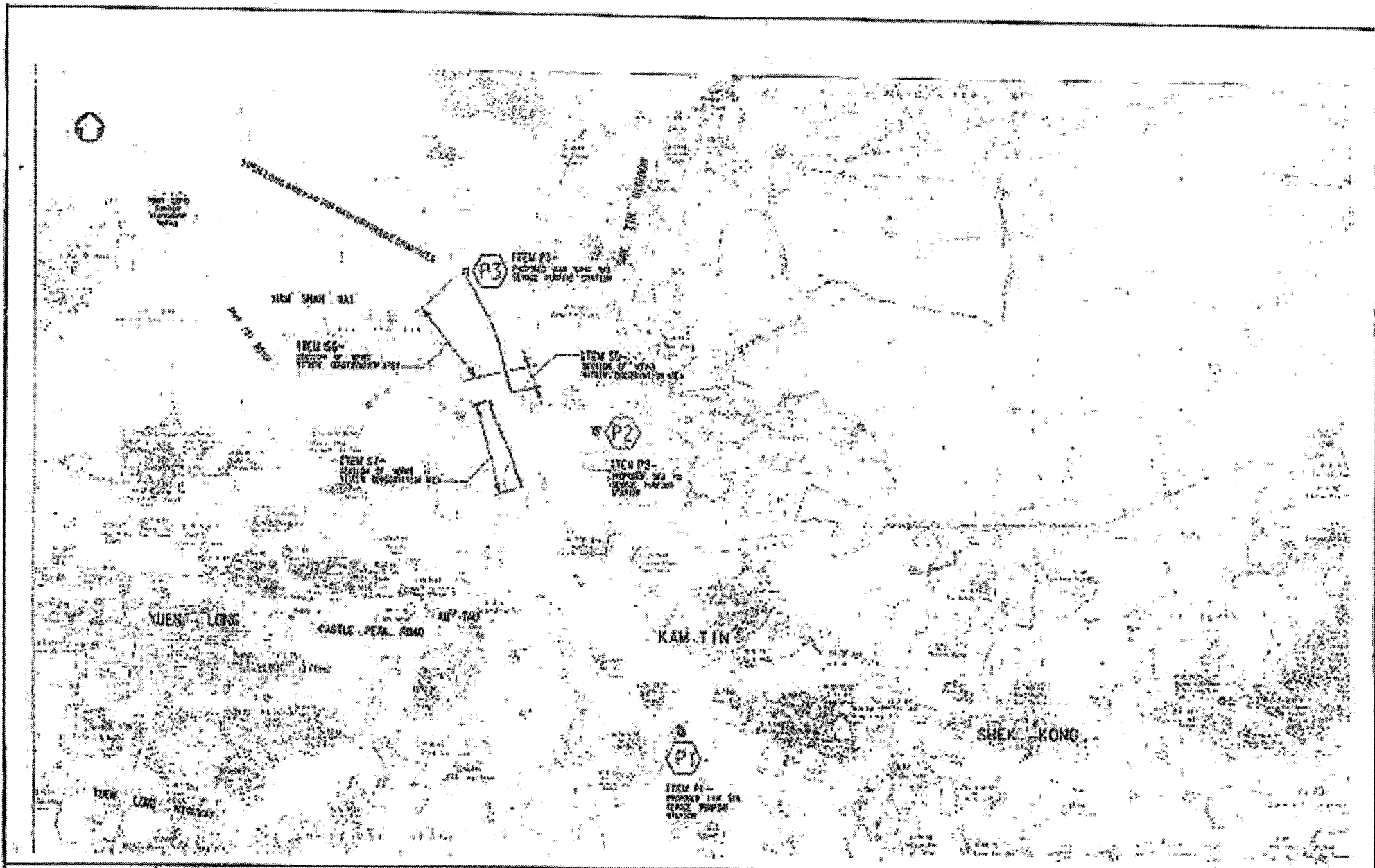
7.03 There was no site effluent discharged but an estimated volume of 50m³ of surface runoff was discharged in this reporting month.

SUBMISSION OF PROFORMA

- 7.01 Representatives of the Engineer, the Contractor and ET carried out joint site inspection every week to evaluate the site environmental performance. A monthly audit with RE, Contractor, IEC and ET was carried out on 27 July 2006. No non-compliance was noted and one observation was recorded.
- 7.02 Proforma of the weekly ET site inspection and monthly IEC audit activities are presented in ***Annex K***.

Annex A

Project Site Layout



AUES	Designated Project Area under the Updated EM&A Manual and the Environmental Permit (EP-220/2005)	Figure No.	Scale
		1.2	NTS

Annex B

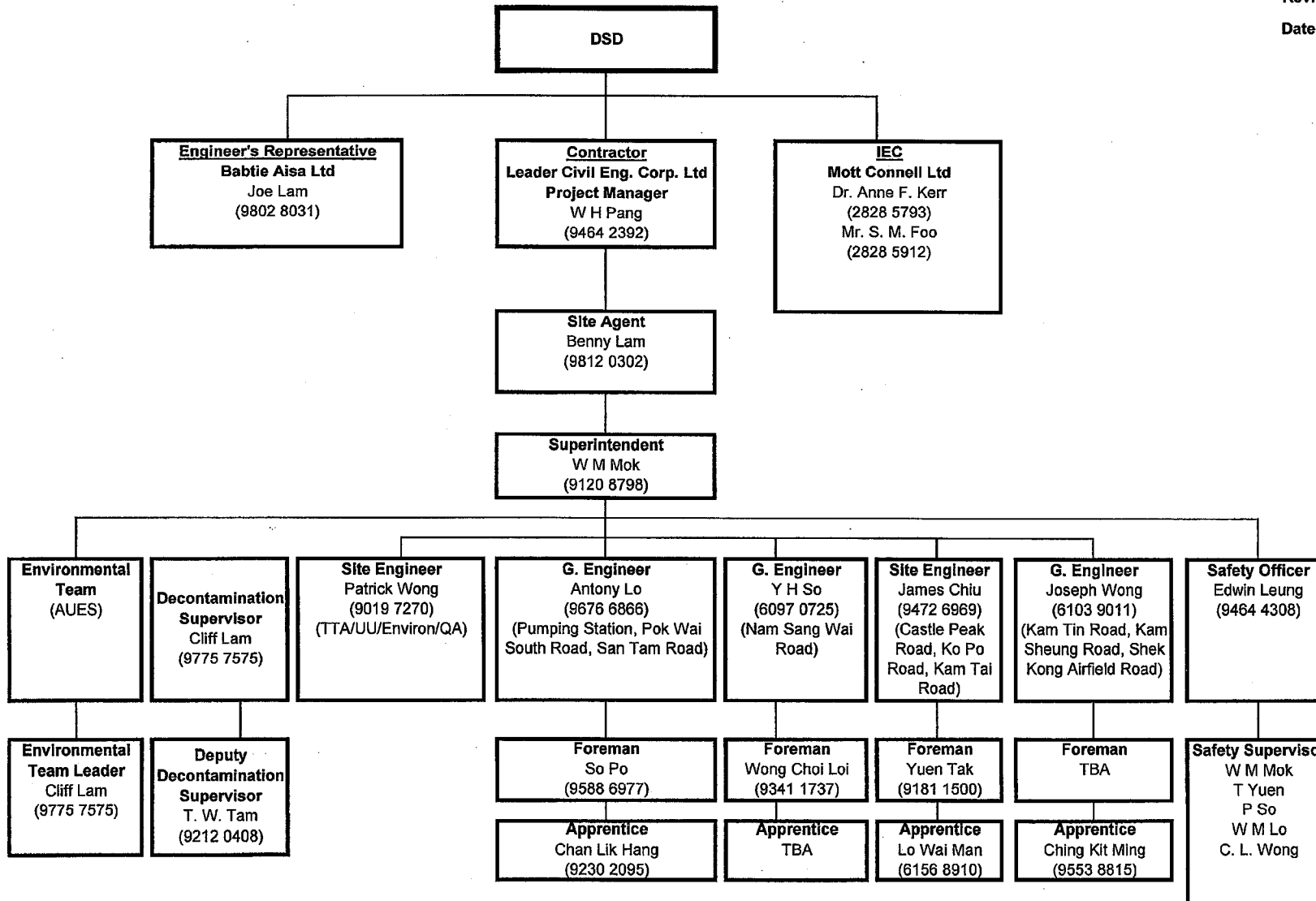
Project Organization and Management Structure

DSD Contract No. DC/2005/02

**Construction of Sewers, Rising Mains and Sewage Pumping Station at Kam Tin,
Nam Sang Wai and Au Tau in Yuen Long
Project Environmental Organization Chart**

Rev. : 01

Date : 12-May-06









Annex C

Construction Program

Act ID	Description	Orig Dur	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	2006																												
									MAY	29	30	31	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Submission																																					
Design Submission																																					
SUN1400	Design/Submit Temp Work - Kam Tin P/Station	30	124d	30	20MAY06 A	24JUL06	20MAY06 A	19DEC06																													
SUN1900	Approve Temp Work - Nam San Wai P/Station	6	1d	95	01MAR06 A	28JUN06	01MAR06 A	29JUN06																													
SUN2300	Approve Temp Work - Trenchless Pipelaying	6	-62d	80	08APR06 A	29JUN06	08APR06 A	15APR06 *																													
Method Statement Submission																																					
SUO1500	Approve Temp Work - Nam San Wai P/Station	6	1d	95	01MAR06 A	28JUN06	01MAR06 A	29JUN06																													
SUO1900	Approve Temp Work - Trenchless Pipelaying	6	-62d	80	08APR06 A	29JUN06	08APR06 A	15APR06 *																													
Preliminaries																																					
PR2900	Deliver Ductile Iron Pipe	800	38d	11	29APR06 A	12NOV08	29APR06 A	27DEC08																													
PR3100	Deliver Precast Concrete Pipe	800	53d	12	24APR06 A	25OCT08	24APR06 A	27DEC08																													
PR3300	Deliver Vitrified Clay Pipe	800	23d	9	10APR06 A	29NOV08	10APR06 A	27DEC08																													
PR3400	Structural Monitoring by ISE	835	16d	12	06APR06 A	08DEC08	06APR06 A	27DEC08																													
PR3500	Environmental monitoring by ET	814	1d	14	06APR06 A	23OCT08	06APR06 A	24OCT08																													
Section 3 - Nam Sang Wai Sewage Pumping Station																																					
Portion C																																					
Ground Investigation																																					
S3CB1200	Prepare & Submit Draft Final Report	6		100	27APR06 A	26JUN06 A	27APR06 A	26JUN06 A	Prep																												
S3CB1300	Comment on Draft Final Report from the Engineer	6	120d	10	27JUN06 A	05JUL06	27JUN06 A	25NOV06																													
Site Clearance																																					
S3CC1000	Remove Ext. Stormwater Drain	6		100	06MAY06 A	15JUN06 A	06MAY06 A	15JUN06 A	Remove Ext. Stormwater Drain																												
S3CC1100	Remove Ext. Septic Tank & Soakway Pit	6		100	18MAY06 A	20JUN06 A	18MAY06 A	20JUN06 A	Remove Ext. Septic Tank & So																												
Earthworks																																					
S3CG1000	Drive Sheetpile	36		100	06APR06 A	24JUN06 A	06APR06 A	24JUN06 A	Drive Sheetpi																												
S3CG1100	Excavate to Level of 1st Layer of Waling	5	1d	90	15JUN06 A	29JUN06	15JUN06 A	30JUN06																													
Geotechnical works																																					
S3CP1000	Monitoring of Instruments	632	17d	17	06APR06 A	26MAR08	06APR06 A	16APR08																													
Section 4 - Sewers & RM in Portion D, F, G, H, J																																					
Portion F																																					
Ground Investigation																																					
S4FB1020	Boreholes & Instrumentation (H2 - H1)	9		100	11MAY06 A	05JUN06 A	11MAY06 A	05JUN06 A	Boreholes & Instrumentation (H2 - H1)																												
S4FB1040	Boreholes & Instrumentation (H3 - H2)	6		100	22MAY06 A	07JUN06 A	22MAY06 A	07JUN06 A	Boreholes & Instrumentation (H3 - H2)																												
S4FB1140	Boreholes & Instrumentation (H7 - H6)	4		100	29MAY06 A	12JUN06 A	29MAY06 A	12JUN06 A	Boreholes & Instrumentation (H7 - H6)																												

Start date	19DEC05
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-  Early bar
-  Progress bar
-  Critical bar
-  Summary bar
-  Start milestone point
-  Finish milestone point



Act ID	Description	Orig Dur	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	2006																														
									MAY							JUN							JUL							AUG									
									29	30	31	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
S4FB1160	Boreholes & Instrumentation (WOIC4 - Jack Pit)	6		100	27MAY06 A	02JUN06 A	27MAY06 A	02JUN06 A	Boreholes & Instrumentation (WOIC4 - Jack Pit)																														
S4FB1500	Install Settlement Markers	720	16d	10	27APR06 A	18AUG08	27APR06 A	05SEP08																															
Pipework - Rising Main																																							
S4FFB1000	Construct Jack/Receive Pits (WOIC4 - ChC2639)	57	16d	60	05JUN06 A	26JUL06	05JUN06 A	14AUG06																															
Geotechnical works																																							
S4FP1000	Monitoring of Instruments	803	11d	8	05JUN06 A	13DEC08	05JUN06 A	27DEC08																															
Portion G																																							
Ground Investigation																																							
S4GB1500	Install Settlement Markers	738	92d	10	21APR06 A	06SEP08	21APR06 A	27DEC08																															
Pipework - Rising Main																																							
S4GFA1100	Twin Rising Main DN500 (ChB250 - ChB350)	90	278d	50	22APR06 A	21AUG06	22APR06 A	25JUL07																															
Geotechnical works																																							
S4GP1000	Monitoring of Instruments	729	51d	4	22APR06 A	28OCT08	22APR06 A	27DEC08																															
Portion H																																							
Ground Investigation																																							
S4HB1300	Install Settlement Markers	717	-17d	11	26MAY06 A	14AUG08	26MAY06 A	25JUL08																															
Drainage and Ducts																																							
S4HEA1300	DN500 Pipe & Manhole (A12 - A14)	54	13d	5	16JUN06 A	28AUG06	16JUN06 A	12SEP06																															
Pipework - Rising Main																																							
S4HFA2600	Twin Rising Main DN700 (ChC1650 - ChC1750)	104	286d	5	19JUN06 A	25OCT06	19JUN06 A	08OCT07																															
Geotechnical works																																							
S4HP1000	Monitoring of Instruments	764	50d	8	26MAY06 A	29OCT08	26MAY06 A	27DEC08																															
Portion I																																							
Ground Investigation																																							
S4IB1300	Install Settlement Markers	726	-2d	10	26JUN06 A	25AUG08	26JUN06 A	22AUG08																															
Drainage and Ducts																																							
S4IEA2100	DN500 Pipe & Manhole (C25 - C27)	57	4d	5	20JUN06 A	26MAR08	20JUN06 A	31MAR08																															
Geotechnical works																																							
S4IP1000	Monitoring of Instruments	795	27d	9	28JUN06 A	25NOV08	28JUN06 A	27DEC08																															
Section 5 - Sewers & RM in Portion E																																							
Portion E																																							
Ground Investigation																																							
S5EB1300	Install Settlement Markers (Stage 1)	134	-60d	55	27APR06 A	08SEP06	27APR06 A	29JUN06																															

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


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



Act ID	Description	Orig Dur	Total Float	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	2006																											
									MAY	JUN	29	30	31	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Pipework - Rising Main																																				
Tranche 1 Main																																				
SSEFA2900	Twin Rising Main DN900 (ChA1150 - ChA1200)	32	-59d	5	17APR06 A	03AUG06	17APR06 A	24MAY06																												
SSEFA4000	Twin Rising Main DN900 (ChA1700 - ChA1750)	32	-60d	5	17APR06 A	03AUG06	17APR06 A	23MAY06																												
Tranche 2 Main																																				
SSEFB1000	Construct Jack/Receive Pits (ChA18 - ChA208)	42	-44d	40	17APR06 A	15AUG06	17APR06 A	23JUN06																												
Section 6 - Sewers in Portion J																																				
Portion J																																				
Ground Investigation																																				
S6JB1040	Boreholes & Instrumentation (D6 - D7)	13	16d	50	13JUN06 A	18JAN07	13JUN06 A	06FEB07																												
S6JB1500	Install Settlement Marker 1st Stage	741	-52d	10	20APR06 A	11SEP08	20APR06 A	12JUL08																												
Drainage and Ducts																																				
S6JEA1200	DN1050 Pipe & Manhole (D4 - D6)	100	123d	60	21APR06 A	19OCT06	21APR06 A	19MAR07																												
Geotechnical works																																				
S6JP1000	Monitoring of Instruments	791	33d	9	04MAY06 A	18NOV08	04MAY06 A	27DEC08																												
Section 7 - Sewers in Portion K																																				
Portion K																																				
Ground Investigation																																				
S7KB1060	Boreholes & Instrumentation (M13 - M14)	16	4d	50	08MAY06 A	08JUL06	08MAY06 A	13JUL06																												
S7KB1500	Install Settlement Markers	402	-17d	19	08MAY06 A	30JUL07	08MAY06 A	10JUL07																												
Drainage and Ducts																																				
S7KEA1300	DN750 Pipe & Manhole (M6 - M8)	79	-7d	10	19MAY06 A	22MAY07	19MAY06 A	14MAY07																												
S7KEA1600	DN900 Pipe & Manhole (M11 - M12)	90	33d	40	24MAY06 A	31AUG06	24MAY06 A	11OCT06																												
S7KEA1700	DN900 Pipe & Manhole (M12 - M13)	79	19d	10	06JUN06 A	30JAN07	06JUN06 A	24FEB07																												
Tranche 1 Main																																				
S7KEB1100	Construct Jack/Receive Pits (M8 - M20)	30	-17d	5	29APR06 A	21AUG06	29APR06 A	01AUG06																												
Geotechnical works																																				
S7KP1000	Monitoring of Instruments	427	35d	16	27MAY06 A	05SEP07	27MAY06 A	18OCT07																												
Section 8 - Preservation and Protection of Trees																																				
All Portions																																				
Landscape Softworks and Establishment Works																																				
S8QR1100	Preservation & Protection of Preserved Trees	861	0	12	10APR06 A	27DEC08	10APR06 A	27DEC08																												
Decontamination Works																																				
General Submission																																				
S9L1400	Prepare & Submit CAR & RAP - Portion F/G/H	18	40d	50	21JUN06 A	17JUL06	21JUN06 A	01SEP06																												
Portion C																																				
Ground Investigation																																				

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



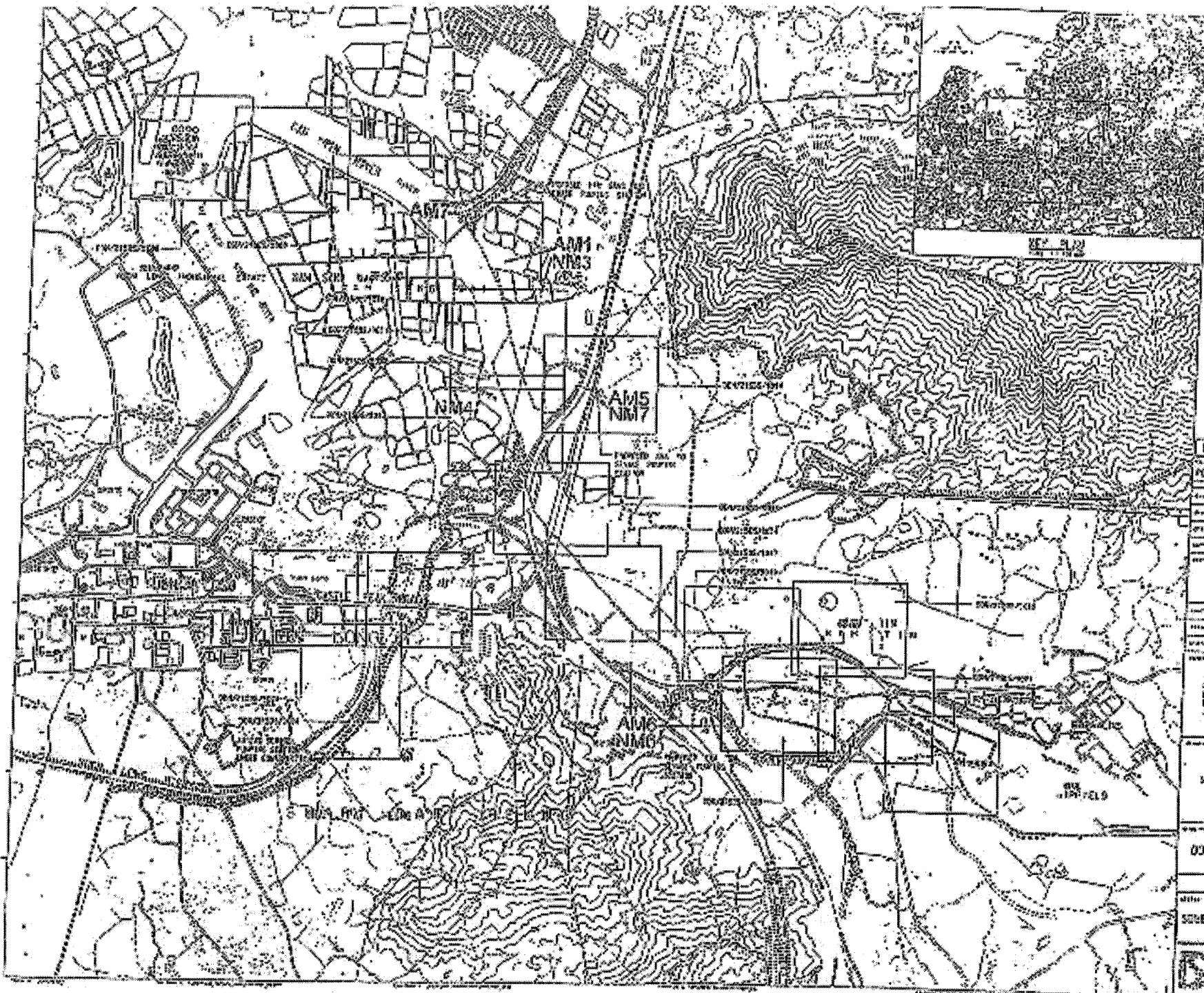
Annex D

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



Annex E

Locations of Monitoring Stations



NOTES:
 1. ALL DIMENSIONS ARE IN METERS
 2. ALL DIMENSIONS ARE TO CENTER LINE
 3. ALL DIMENSIONS ARE TO CENTER LINE

LEGEND:
 --- BOUNDARY BETWEEN ZONES AND
 --- BOUNDARY BETWEEN ZONES AND
 --- BOUNDARY BETWEEN ZONES AND

FOR LEADER PURPOSES ONLY

PROJECT	DATE	SCALE
DESCRIPTION	DATE	SCALE
DATE	DATE	SCALE
DATE	DATE	SCALE
DATE	DATE	SCALE

Chen...
 ...
 ...
 ...

CONSTRUCTION OF STAGES
 ...
 ...
 ...

SCALE OF PLAN
 ...
 ...

DATE
 008/21506/0001
 ...

SEVERAL PROJECTS DIVISION

BRITISH AIR FORCE
 ...
 ...

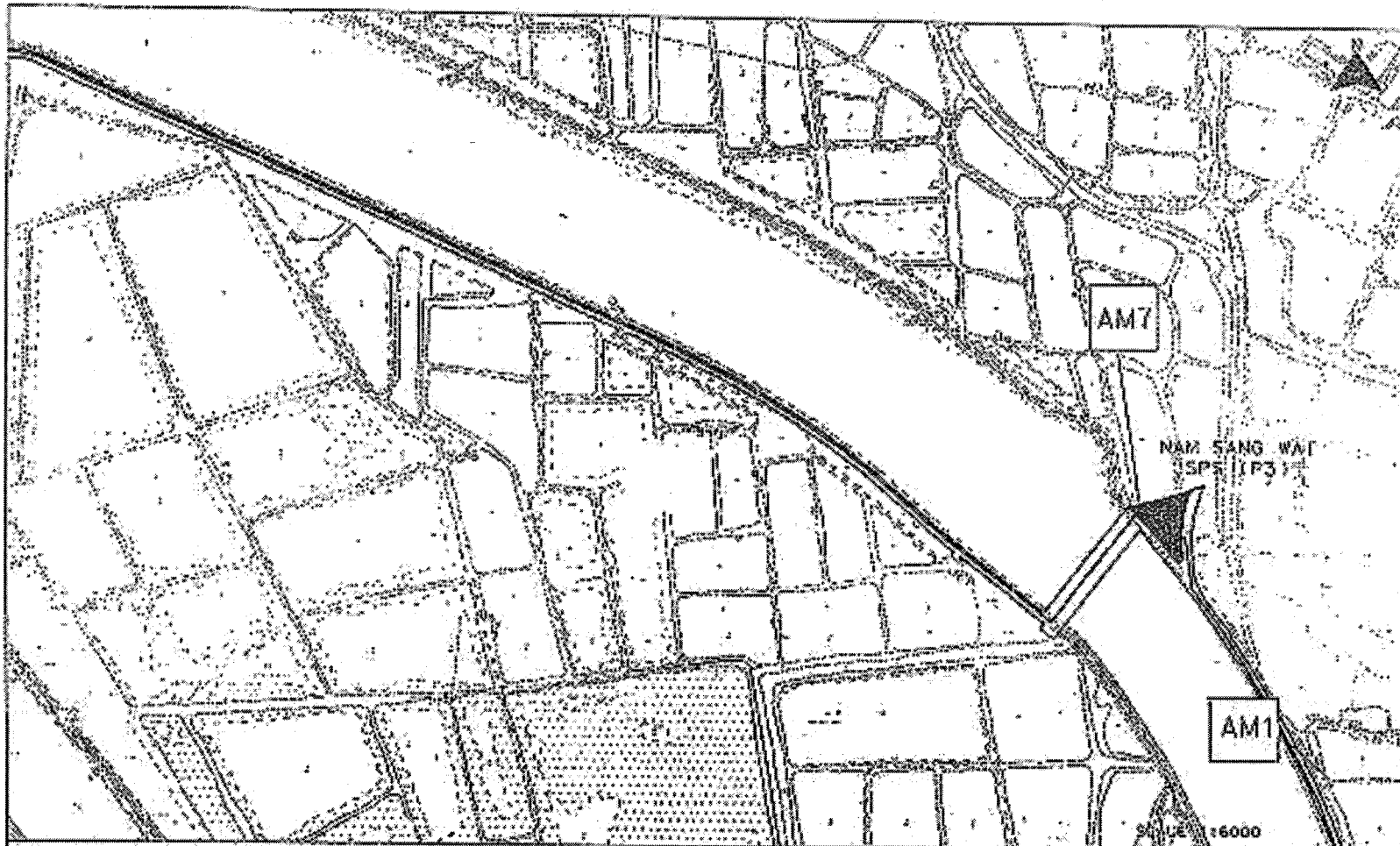


FIGURE C1

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

2011 HOLEY GREENHAMPWAY
OVER DESIGN



FIGURE C2

LOCATION OF DUST MONITORING STATION (AM5)

APPENDIX COMMUNICATIONS
C2-20-SPS

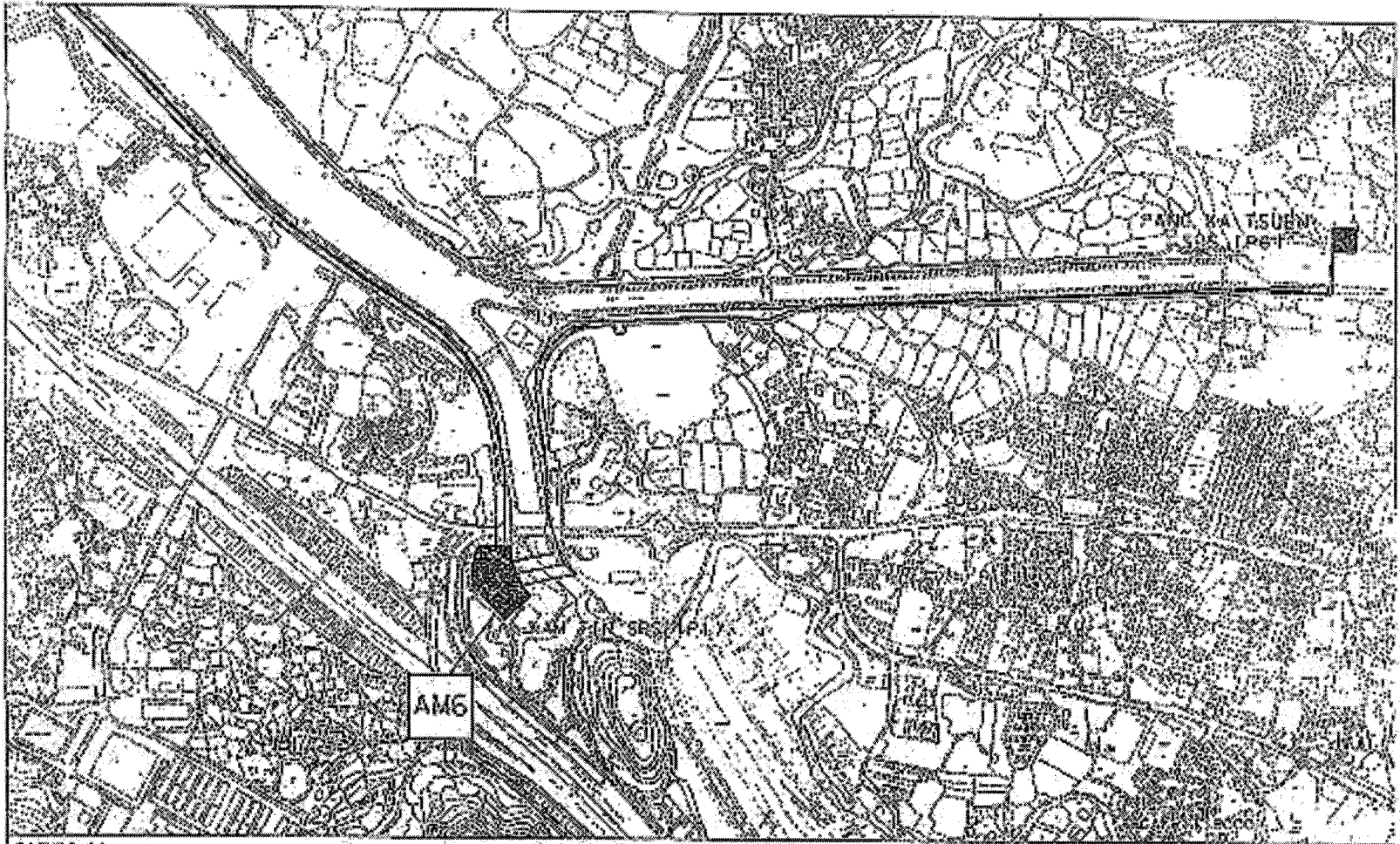


FIGURE C-1

LOCATION OF DIST MONITORING STATIONS (AM1, AM6 & AM10)

Scale 1:50,000
Date 11/19/88

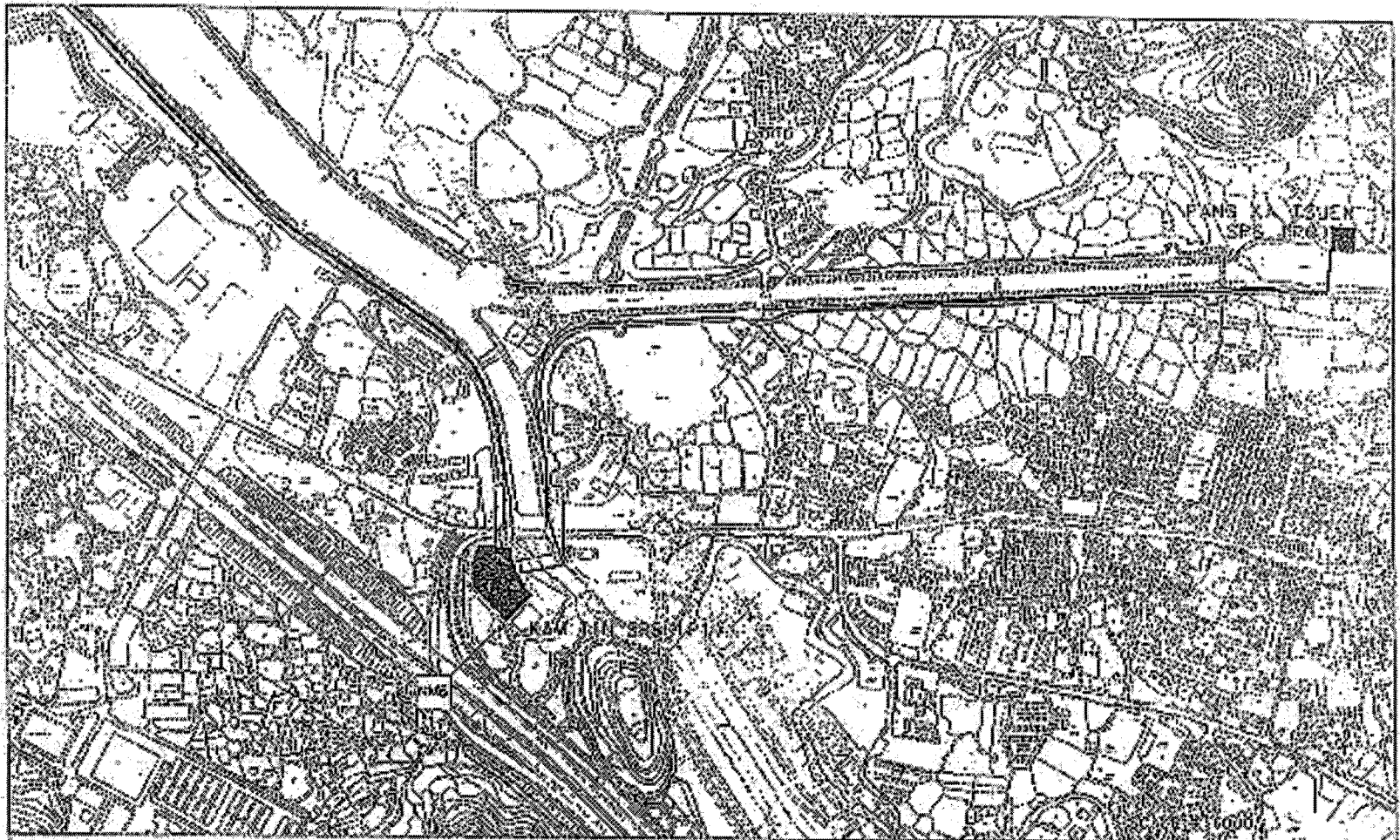


FIGURE C3

LOCATION OF ARISE MONITORING STATIONS (KMI, MMS, JMI, KMS)

MAP SCALE: 1:50,000
DATE: 1983-08

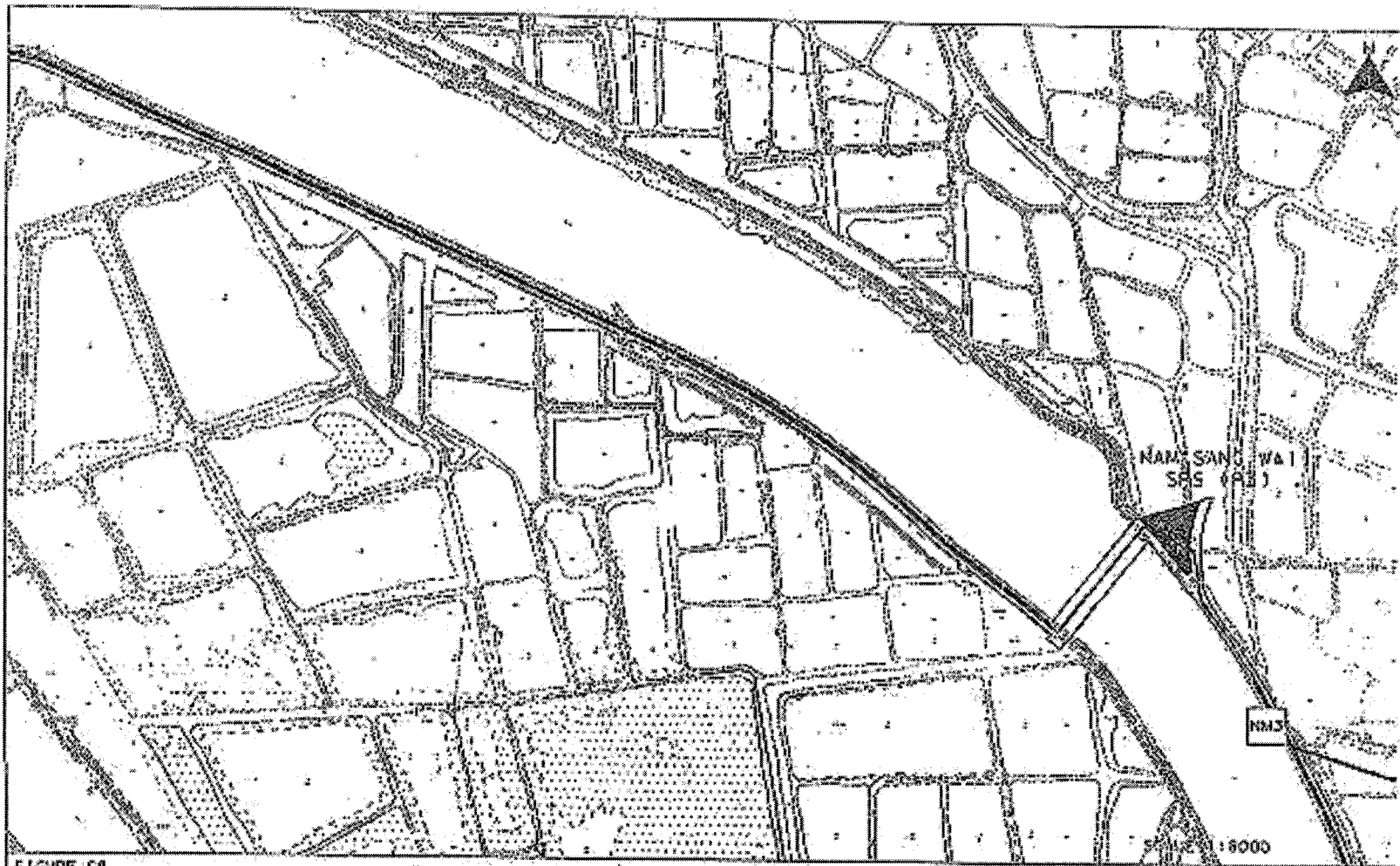


FIGURE C8

LOCATION OF NOISE MONITORING STATIONS (NMS, NWS 1)

NON-FULL ENGINEERING DRAWING
DATE: 1/1/2010

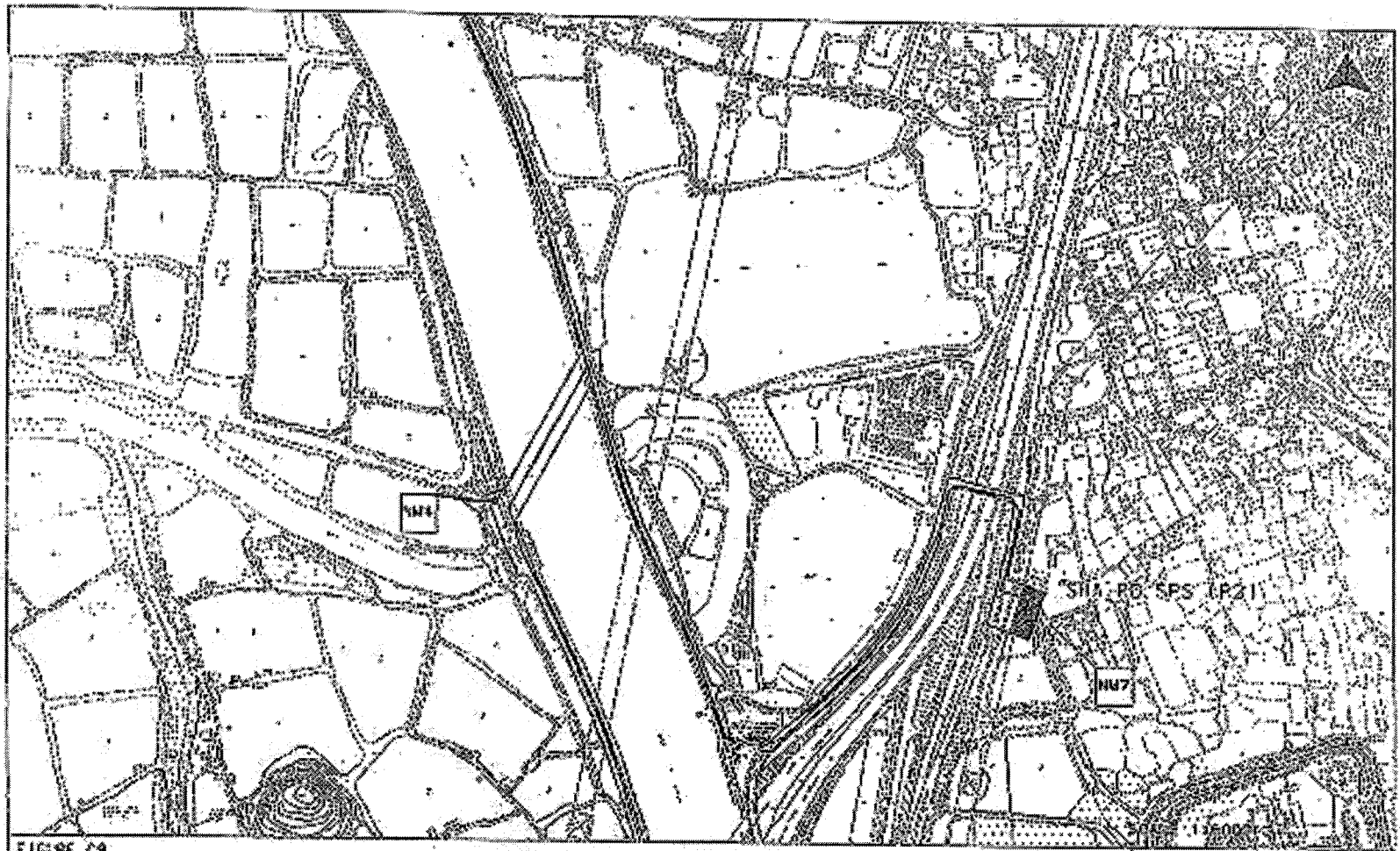


FIGURE C-9

LOCATION OF NOISE MONITORING STATIONS (NM4, NM7)

DATE: 11/11/04
BY: [unreadable]

Annex F

Event and Action Plan

Event and Action Plan for Construction Phase Air Quality

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

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

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

Annex G

Mitigation Implementation Schedule

EIA Ref	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage				Relevant Legislation & Guidelines
						Des	C	O	Dec	
CONSTRUCTION PHASE										
AIR QUALITY - Construction Phase										
		The following measures are enforceable under the <i>Air Pollution Control (Construction Dust) Regulations</i>								
		Site boundary and entrance								
3.5	A1	<ul style="list-style-type: none"> 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; 	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>
		Access Road								
3.5	A2	<ul style="list-style-type: none"> 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; 	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>
		Stockpiling of Dusty Materials								
3.5	A3	<ul style="list-style-type: none"> 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; 	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>
		Loading, unloading or transfer of dusty materials								
3.5	A4	<ul style="list-style-type: none"> 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; 	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>
		Use of vehicles								
3.5	A5	<ul style="list-style-type: none"> every vehicle should be washed to remove any dusty materials from its body and wheels immediately before leaving a construction site; 	To control potential dust impacts from vehicle movements.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			Part IV, Clause 21, (1), <i>Air Pollution Control (Construction</i>

EIA Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage**				Relevant Legislation & Guidelines
						Des	C	O	Dec	
3.5	A6	<ul style="list-style-type: none"> where a vehicle leaving a construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle; 	To control potential dust impacts 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"> water should be continuously sprayed on the surface where any mechanical breaking operation that causes dust emission is carried out, unless the process is accompanied by the operation of an effective dusty extraction and filtering device; 	To control potential dust impacts during mechanical breaking.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			Part IV, Clause 22, Air Pollution Control (Construction Dust) Regulations
3.5	A8	<p>Excavation and earth moving</p> <ul style="list-style-type: none"> 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; 	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"> 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 	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"> any skip hoist for material transport should be totally enclosed by the impervious sheeting. 	To control potential dust impacts during material transportation.	Full duration of SPS construction contract.	The Contractor		✓			Part I, Clause 6, (b), Air Pollution Control (Construction Dust) Regulations

EIA Ref.	EM&A Ref.	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage**				Relevant Legislation & Guidelines
						Des	G	O	Dec	
		NOISE - Construction Phase								
4.7.1	B1	General Site Clearance – Demolition Works <ul style="list-style-type: none"> Use of quiet PME which meet the SWLs taken from British Standard, <i>Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997</i> (Examples of these PME are shown in Table F2), 	To control potential noise impacts during site clearance and demolition works	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			Annex 5 of EIAO-TM
4.7.1	B2	Construction of Sewage Pumping Stations P1, P2 & P3 <ul style="list-style-type: none"> Use of quiet PME which meet the SWLs taken from British Standard, <i>Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997</i>, Adoption of temporary noise barrier, in the form of a site hoarding (with a superficial density of at least 20kg/m², with no substantial gaps), along the site boundary of the pumping station sites. 	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	Sewers and Rising Mains using Open Trench Method <ul style="list-style-type: none"> Use of quiet PME which meet the SWLs taken from British Standard, <i>Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997</i>, 	To 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	B4	<ul style="list-style-type: none"> Use of quiet PME which meet the SWLs taken from British Standard, <i>Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997</i>, 	To control potential noise impacts during excavation works.	Site wide and throughout the full duration of the construction contract.	The Contractor		✓			Annex 5 of EIAO-TM
4.7.1	B5	<ul style="list-style-type: none"> Use of handheld breakers for all initial road opening activities, when breaking tarmac/concrete road surface to a depth of 300mm or when granular material is reached. 	To control potential noise impacts during road opening activities.	Where there are NSRs located within 50m of the line of sight. Throughout the full duration of the road opening activities.	The Contractor		✓			
4.7.1	B5	<ul style="list-style-type: none"> Use of movable noise barriers or 3 sided enclosures for all initial road opening activities 	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
						Des	C	O	Dec	
4.7.1	B6	enclosures for all initial road opening activities (breaking tarmac/concrete road surface to a depth of 300mm or when granular material is reached), where there are NSRs located within 50m of the line of sight from the works area. Sewers and Rising Mains using Pipe Jacking Method	activities.	line of sight. Throughout the full duration of the road opening activities.	The Contractor					Annex 5 of EIAO-TM
4.7.1	B7	• 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> , Road Pavement and Finishes • Use of quiet PME which meet the SWLs taken from British Standard, <i>Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997</i> ,	To control potential noise impacts from PME during construction works	Site wide and throughout the full duration of the construction contract.			✓			
		WATER QUALITY - Construction Phase No water quality monitoring is required under this study.								
6.6.2	D1	WASTE - Construction Phase The Contractor shall obtain the necessary waste disposal permits from the appropriate authorities for the disposal of chemical and C&D waste, • Chemical Waste Producer and Chemical Waste Disposal Licence (<i>Waste Disposal (Chemical Waste) (General) Regulations</i>); and • Dumping Licence (<i>Land (Miscellaneous Provisions) Ordinance (Cap 28)</i>)	To monitor the collection, handling and disposal of chemical waste and C&D waste, and in compliance with relevant Hong Kong Standards and Regulations.	Site wide and throughout the full duration of the construction contract.	The Contractor	✓	✓			<i>Waste Disposal Ordinance (Cap 354)</i> , <i>Waste Disposal (Chemical Waste) (General) Regulation (Cap 354)</i> , <i>the Land (Miscellaneous Provisions) Ordinance (Cap 28)</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	
6.6.2	D2	<p>Chemical Waste 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>Storage, Packaging and Labelling of Chemical Waste Containers used for storage of chemical wastes should:</p> <ul style="list-style-type: none"> be 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 L unless the specifications have been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations. 	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 & 12) Waste Disposal (Chemical Waste) (General) Regulation</i>
6.6.2	D4	<p>Storage of chemical waste The storage area for chemical wastes should:</p> <ul style="list-style-type: none"> be clearly labelled and used solely for the storage of chemical waste; be enclosed on at least 3 sides; 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; have adequate ventilation; be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste, if necessary); and be arranged so that incompatible materials are 	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, & 18) Waste Disposal (Chemical Waste) (General) Regulation</i>

EIA Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage				Relevant Legislation & Guidelines
						Des	C	O	Dec	
		adequately separate								
		<p>Disposal of chemical waste</p> <ul style="list-style-type: none"> 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>. 	To control the disposal of chemical waste in accordance with the Regulations.	To be implemented at all worksites throughout the full duration of the construction phase.	The Contractor		✓			<i>Part IV, (20 -25) Waste Disposal (Chemical Waste) (General) Regulation</i>
6.6.2	D5	<p>Management of Waste Disposal</p> <p>A trip-ticket system should be established which monitors the disposal of C&DM and solid wastes at public filling facilities and landfills and to control fly-tipping, in accordance with <i>Land (Miscellaneous Provisions) Ordinance (Cap28)</i> and the <i>Works Bureau Technical Circular No. 5/99</i>.</p>	To monitor the disposal of C&DM and solid wastes at public filling facilities and landfills and to control fly-tipping.	To be implemented at all worksites throughout the full duration of the construction phase.	The Engineer/ Contractor		✓			<i>Land (Miscellaneous Provisions) Ordinance (Cap 295) and Works Bureau Technical Circular No. 5/99.</i>
7.5.6	E1	<p>LAND CONTAMINATION- Construction Phase</p> <p>A revised CAP should be submitted to the EPD for approval before the commencement of the construction works. Following receipt of the EPD's approval, the CAP shall be implemented and the findings of the investigations will be reported in the Contaminated Assessment Report (CAR), before ground disturbance is allowed at the concerned sites.</p> <p>If land contamination is confirmed, a Remediation Action Plan (RAP) shall be prepared, and both the CAR and the RAP shall be submitted as a combined report to the EPD for approval before disturbing the ground of the concerned sites. If applicable and required in consultation with the</p>	To determine the presence of soil and groundwater contamination and remedy any potential concerns to acceptable levels.	To be implemented before the commencement of the construction works.	To be implemented by DSD or their sub-consultants at the Detailed Design Stage, depending upon when site access can be gained.	✓				<i>EIAO TM Annex 19/3.1.1 & 3.1.2</i>

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage**				Relevant Legislation & Guidelines
						Des	C	O	Dec	
		EPD, the contaminated site(s) shall be remediated in accordance with the approved CAR/RAP.								
8.7.1	F1	<p>ECOLOGY - Construction Phase Mitigation Measures Adopted - Avoidance 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>Mitigation Measures Adopted - Minimisation 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
						Des	C	O	Dec	
8.7.3	F5	mitigation measures (i.e. erection of movable noise barriers with a suitable footing along the sites) in the monthly EM&A reports. Mitigation Measures Adopted Quietened construction plant and equipment (as shown in Table F2) should be used for the construction of pumping stations (P3 and P2) and sewerage alignment (S4, S5 and S6) located within the WCA and WBA.	Quiet construction plant shall minimise potential noise impacts to the wildlife, particularly rare birds including Black-faced Spoonbill, Buzzard, Hobby, Imperial Eagle, Intermediate Egret, Avocet and Black-eared Kite	At described locations and throughout the full duration of the construction contract.	The Contractor		✓			
8.7.4	F6	Erection of fences along the boundary of pumping station construction sites (P1 to P3) before the commencement of construction works to prevent tipping, vehicle movements, and encroachment of personnel into adjacent areas, and P2 to avoid disturbance to the remaining pond areas (0.7 ha);	To erect fences to prevent encroachment of construction activities onto adjacent areas.	At P1 to P3 for full duration of the construction contract.	The Contractor		✓			
8.7.4	F7	No filling and dumping to the remaining abandoned fishpond at P2.	To avoid disturbance to abandoned fishponds from construction activities and illegal dumping.	At P2 for full duration of the construction contract	The Contractor		✓			
8.7.4	F8	Installation and operation of silt removal facilities at construction sites of P1 to P3. The silt removal facilities should be designed in accordance with Appendix A1 of ProPECC Note PN1/94 Construction Site Drainage. The minimal total combined volume of the silt removal facilities at Nam Sang Wai SPS (P3) should be 15m ³ .	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	Dec	
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
		FISHERIES - Construction Phase No specific mitigation measures are required for inclusion in the EP.								
		CULTURAL HERITAGE – Not Applicable for Package 1A-1T (DC/2005/02)								
		LANDSCAPE AND VISUAL - Construction Phase								
	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"> existing landscape elements (such as mature trees), transplantation of valuable trees, new compensatory planting 		project.						
		<ul style="list-style-type: none"> 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. 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. 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. felling of mature trees are kept to a minimum. 								
3.7	11	EM&A REQUIEMENTS - Construction Phase <i>Air Quality</i> Subject to the Environmental Protection Departments (EPDs) agreement, construction phase dust monitoring shall be undertaken at the following locations in accordance with the recommendations of the EIA. <ul style="list-style-type: none"> Worksite boundary facing Scattered house in Nam Sang Wai (AM1); Worksite boundary facing Fung Kat Heung (AM5); Worksite boundary facing Scattered House near Route 3 (AM6); 	Installations of the dust monitoring stations to ensure the action and limit levels are not exceeded.	At specified dust monitoring locations for the duration of the construction works.	To be undertaken by the Environmental Team (ET) and reviewed and audited by the Engineer /DSD		✓			<i>Air Pollution Control (Construction Dust) Regulations</i>

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"> at any additional locations, where considered necessary, in agreement with EPD. <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"> (NM3) Scattered House in Nam San Wai (D12); (NM4) Scattered House in Nam San Wai (D11); (NM6) Scattered House near Route 3 (D17); (NM7) Fung Kat Heung (D19); and at any additional locations, where considered necessary, in agreement with EPD 	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

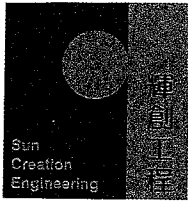
Equipment Calibration Certificates

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

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

Item	Aspect	Description of Equipment	Serial No.	Date of Calibration	Date of Next Calibration
1	Air	Greasby Anderson GMWS2310 High Volume Sampler	AM1	22 May 06	21 Aug 06
2		Greasby Anderson GMWS2310 High Volume Sampler	AM7	22 May 06	21 Aug 06
3	Noise	Bruel & Kjaer 4231 Acoustical Calibrator	2292167	13 Apr 06	13 Apr 07
4		Bruel & Kjaer 2238 Integrating Sound Level Meter	2285762	8 Jul 05	8 Jul 06
5*		Bruel & Kjaer 2238 Integrating Sound Level Meter	2285721	24 Apr 06	24 Apr 07

* *New calibration certificate attached.*



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C061818

Certificate of Calibration

This is to certify that the equipment

Description : Integrating Sound Level Meter (EQ010)

Manufacturer : Bruel & Kjaer

Model No. : 2238

Serial No. : 2285721

*has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C061818.*

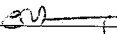
The equipment is supplied by

Co. Name : Action-United Environmental Services and Consulting

*Address : Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.*

Date of Issue : 24 April 2006

Certified by :


C F Leung

The test equipment used for testing are traceable to the National Standards as specified in this report.
This report shall not be reproduced except in full and with prior written approval from this laboratory.

Calibration and Testing Laboratory of Sun Creation Engineering Limited

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
Tel: 2927 2606 Fax: 2744 8986 E-mail: callab@suncreation.com Website: www.suncreation.com

Annex I

Meteorological Data

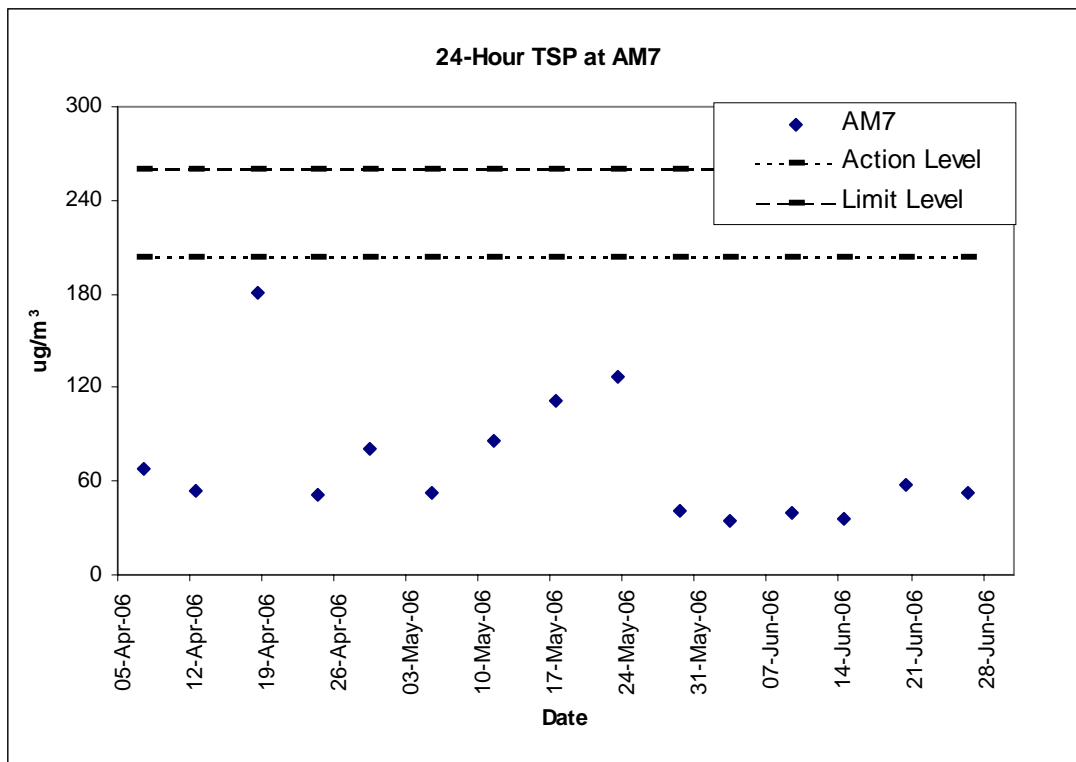
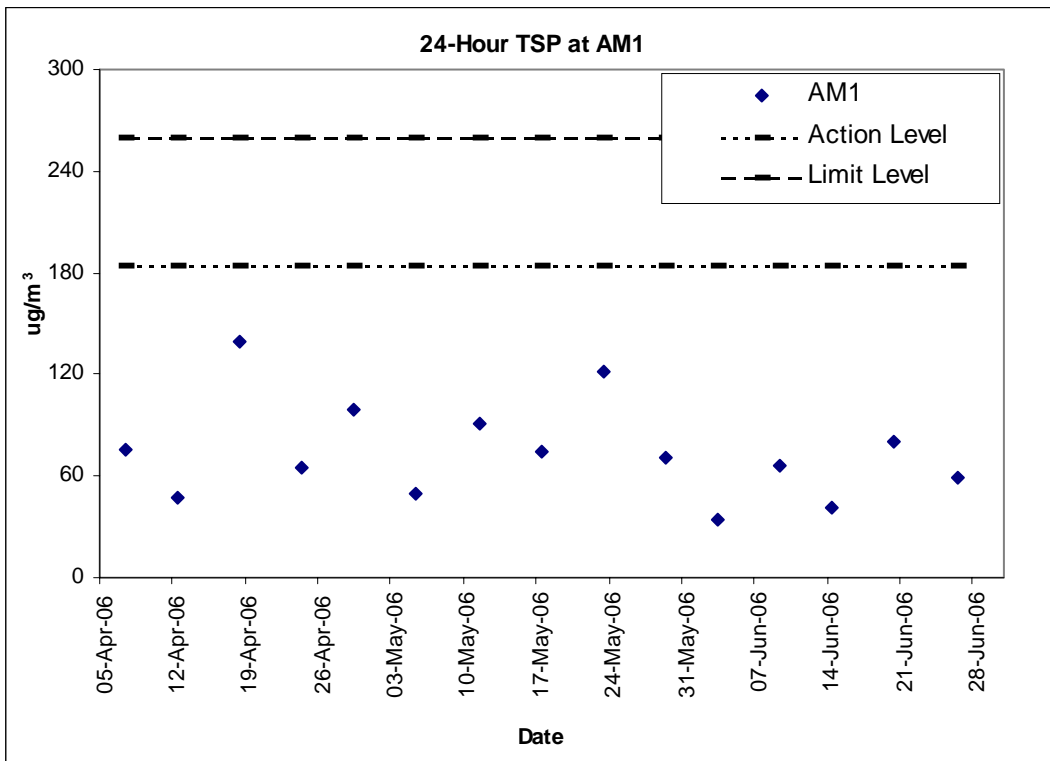
Meteorological Data Extracted From The HK Observatory at Lau Fau Shan Weather Station

Date		Weather	Total Rainfall	Mean Air Temp.	Wind Speed	Mean Relative	Wind Direction
			(mm)	(°C)	(km/h)	(%)	
1-Jul-06	Sat	sunny/ showers	2.9	29.8	Holiday		
2-Jul-06	Sun	sunny/ showers	5.3	29.4	12	85	E/SE
3-Jul-06	Mon	sunny/ showers/ moderate	6.3	29.7	15	85	SE
4-Jul-06	Tue	cloudy/ showers/ sunny/ moderate	14.8	28.4	15	85	SE
5-Jul-06	Wed	hot/ showers/ sunny/ moderate	1.5	29.6	15	90	SE/S
6-Jul-06	Thu	hot/ showers/ sunny/ moderate	2	29.6	14	85	SW
7-Jul-06	Fri	hot/thunderstorms/ sunny/showers	3.2	30.4	25	85	S/SW
8-Jul-06	Sat	cloudy/ showers/ moderate	19.5	28.7	12	85	SW
9-Jul-06	Sun	cloudy/ showers	7	27.7	15	90	SE/S
10-Jul-06	Mon	cloudy/ showers/ thunderstorms	6.8	29.1	15	90	SE/S
11-Jul-06	Tue	cloudy/ showers/ thunderstorms	32.3	28.3	12	90	SE/S
12-Jul-06	Wed	fine/ hot/ thunderstorms	-	29.4	21	90	SW/W
13-Jul-06	Thu	fine/hazy/hot/ showers/moderate	Trace	31.2	25	90	SW/W
14-Jul-06	Fri	sunny/ haze/ cloudy/ showers	0.2	31	25	80	SW
15-Jul-06	Sat	cloudy/ rain/ thunderstorms	7	27.9	40	95	SW
16-Jul-06	Sun	cloudy/ rain/ thunderstorms	195.6	26.7	24	95	S
17-Jul-06	Mon	cloudy/ showers	5.3	28.5	28	90	SE/S
18-Jul-06	Tue	showers/ hot/ sunny/ moderate	Trace	29.1	18	90	SE/S
19-Jul-06	Wed	fine/ hot/ showers/ moderate	Trace	28.9	9	90	SE
20-Jul-06	Thu	fine/ hot/ showers/ moderate	-	29.2	21	90	W
21-Jul-06	Fri	fine/ hot	-	29.2	18	70	SE
22-Jul-06	Sat	fine/ hot/ showers	-	29.5	6	90	E/SE
23-Jul-06	Sun	fine/ hot/ showers	Trace	30.2	21	70	W
24-Jul-06	Mon	fine/ hot/ showers	10.1	31	6	80	SW/W
25-Jul-06	Tue	hot/hazy/showers/ thundestorms	-	31.9	18	80	SW/W
26-Jul-06	Wed	cloudy/ rain/ thunderstorms	Trace	26.9	20	80	S/SW
27-Jul-06	Thu	cloudy/ rain/ thunderstorms	72.8	25.7	10	98	SE/S
28-Jul-06	Fri	cloudy/ showers/ thunderstorms	85.6	26.8	18	95	E/SE
29-Jul-06	Sat	cloudy/ showers/ thunerstorms	87.2	24.8	15	95	E
30-Jul-06	Sun	showery/ sunny	3.8	27.8	13	70	E/SE
31-Jul-06	Mon	fine/ hot/ moderate	Trace	29.2	19	85	E

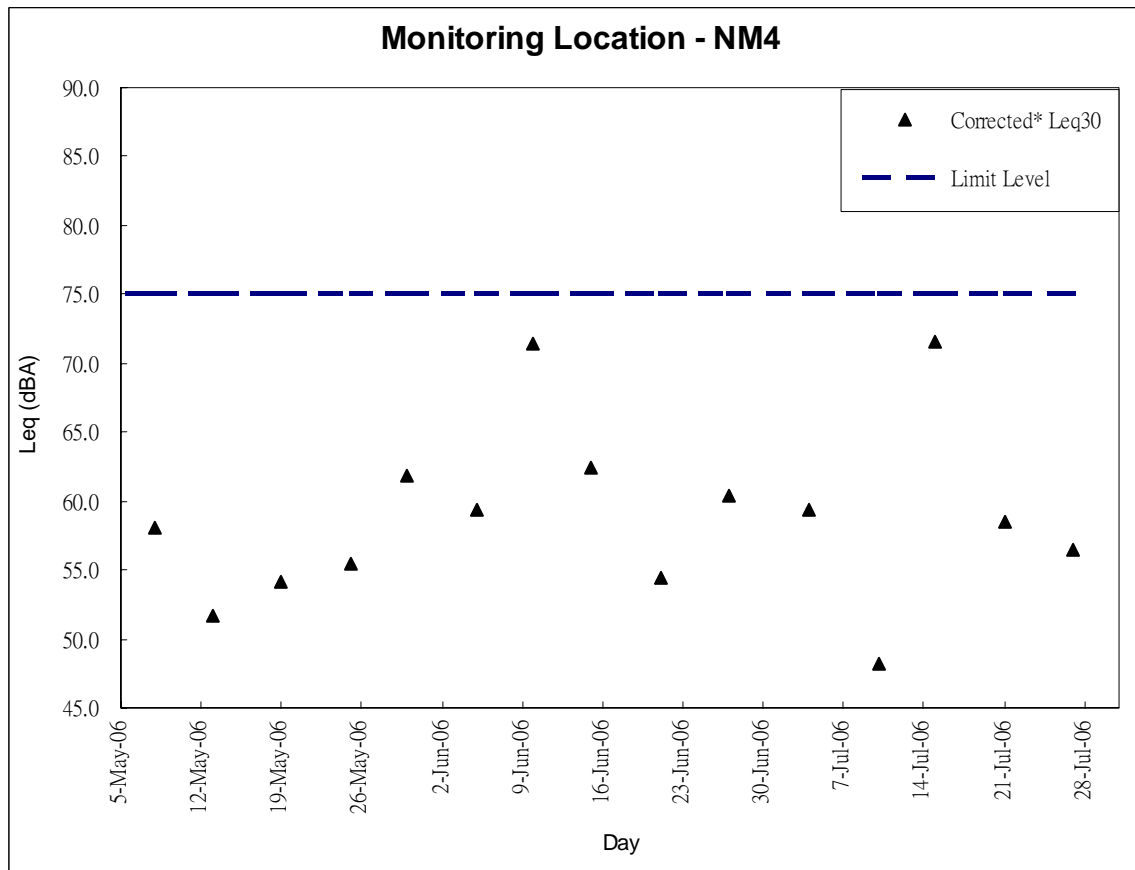
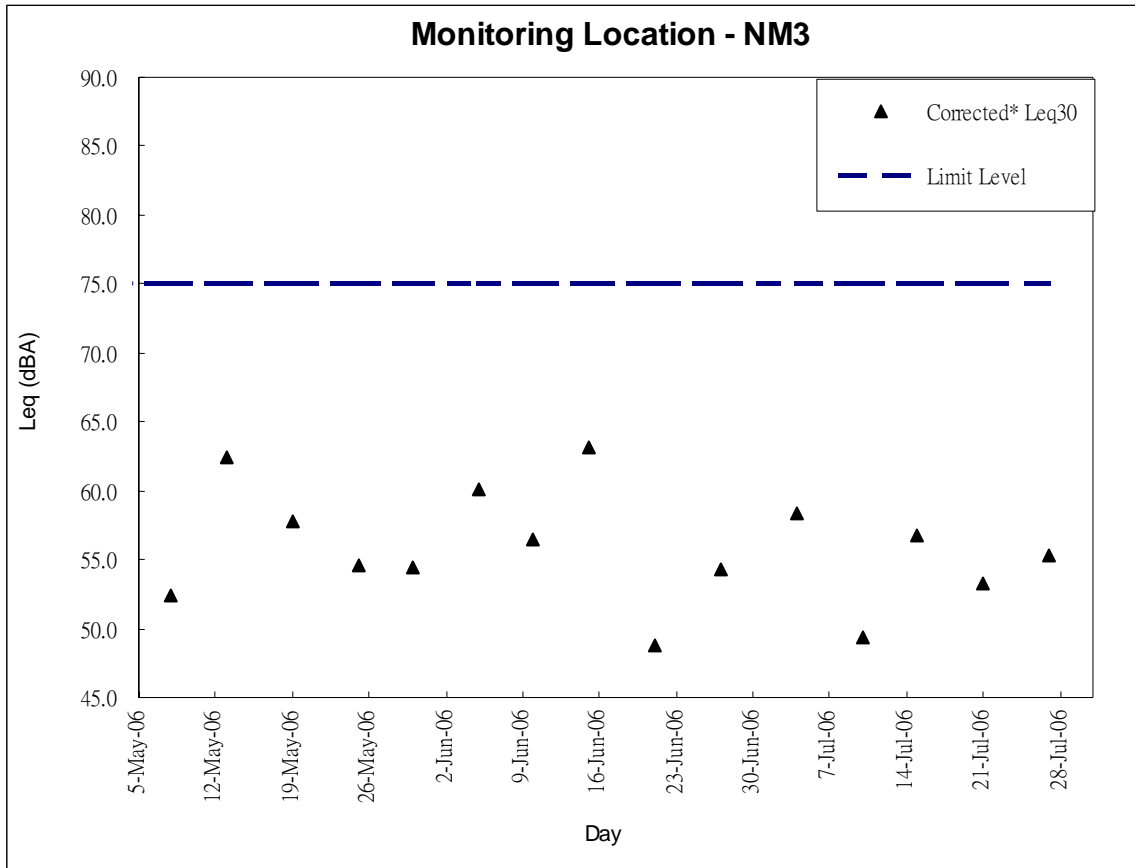
Annex J

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

Air Quality Monitoring Results



Construction Noise Monitoring Results



Annex K

Proforma of Site Inspection and IEC Audit in July 2006

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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are there sedimentation tanks for settling runoff prior to discharge?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are the sedimentation tanks:	Constructed of pre-formed individual cells?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	With adequate capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Free from silt and sediment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	_____
Waste Management and Potential Land Contamination							
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:

Nil

Observations:

Nil

Signatures:

Env. Auditor

Contractor's Representative

IC(E) Auditor

Resident Site Staff



Name: K F Tam

Name:

Name:

Name:

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

Inspected by: **ET Auditor:** Ben Tam

Contractor Rep: Patrick Wong

IEC's Rep: Nil

RE's Rep: Mr. S L Hui

Contractor: Leader Civil Engineering Corp. Ltd

Engineer: Babbie Asia Ltd

IEC: Mott Connell Ltd

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

Inspection Date & Time: 12 July 2006 at 09:30am

Inspection Ref: EM&A (12July06)

General Meteorological Information

Weather Sunny Fine Cloudy Overcast Drizzle Rain Hazy

Temp: °C

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

Wind: Calm Light Breeze Strong

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

Construction Noise

Are the construction works scheduled to minimize noise nuisance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are the works or equipment sited to minimize noise nuisance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are all plant and equipment well maintained and in good operating condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is idle equipment turned off or throttled down?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is powered mechanical equipment covered or shielded by appropriate acoustic materials?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is silenced equipment used where appropriate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are noise enclosures or noise barriers used where necessary?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does specified equipment has valid noise label?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are Construction Noise Permits (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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are there sedimentation tanks for settling runoff prior to discharge?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are the sedimentation tanks:	Constructed of pre-formed individual cells?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	With adequate capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Free from silt and sediment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	_____
Waste Management and Potential Land Contamination							
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:

Nil

Observations:

1. Waste skip was observed full at the pumping station, the contractor is reminded to dispose of the waste regularly

Signatures:

Env. Auditor



Name: K F Tam

Contractor's Representative

Name: _____

IC(E) Auditor

Name: _____

Resident Site Staff

Name: _____

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

Inspected by: **ET Auditor:** Ben Tam

Contractor Rep: Patrick Wong

IEC's Rep: Nil

RE's Rep: Mr. S L Hui

Contractor: Leader Civil Engineering Corp. Ltd

Engineer: Babtie Asia Ltd

IEC: Mott Connell Ltd

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

Inspection Date & Time: 18 July 2006 at 09:30am

Inspection Ref: EM&A (18July06)

General Meteorological Information

Weather Sunny Fine Cloudy Overcast Drizzle Rain Hazy

Temp: °C

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

Wind: Calm Light Breeze Strong

Air Quality

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

Construction Noise

Are the construction works scheduled to minimize noise nuisance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are the works or equipment sited to minimize noise nuisance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are all plant and equipment well maintained and in good operating condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is idle equipment turned off or throttled down?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is powered mechanical equipment covered or shielded by appropriate acoustic materials?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is silenced equipment used where appropriate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are noise enclosures or noise barriers used where necessary?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does specified equipment has valid noise label?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are Construction Noise Permits (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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are there sedimentation tanks for settling runoff prior to discharge?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Are the sedimentation tanks:	Constructed of pre-formed individual cells?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	With adequate capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
	Free from silt and sediment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	_____
Waste Management and Potential Land Contamination							
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. Waste skip was observed cleared at the pumping station.

Observations:

Nil

Signatures:

Env. Auditor

Contractor's Representative

IC(E) Auditor

Resident Site Staff



Name: K F Tam

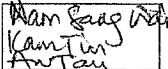
Name:

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	27/7/2006	Time	9.30am	Inspected By	Leader: Benny Lam ET: Cliff Tam DSD: IEC: SM Foo
Site Location					

Weather

Condition	<input type="checkbox"/> Sunny	<input type="checkbox"/> Fine	<input type="checkbox"/> Overcast	<input checked="" type="checkbox"/> Drizzle	<input type="checkbox"/> Rain	<input type="checkbox"/> Storm	<input type="checkbox"/> Hazy
Temperature	26°C		Humidity	<input checked="" type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low	
Wind	<input checked="" type="checkbox"/> Calm	<input type="checkbox"/> Light	<input type="checkbox"/> Breeze	<input type="checkbox"/> Strong	Direction		

EIA ref:		Close-out on last comments Y/N	N/A or not obs	Yes	No	Photo/Remarks
Construction Phase						
Air Quality - Construction Phase						
3.5	• Are hoardings of not less than 2.4m high provided along the site boundary?			<input checked="" 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 checked="" 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 checked="" type="checkbox"/>			
3.5	• Are dusty material loads on vehicles sprayed with water prior to loading and unloading?		<input checked="" type="checkbox"/>			
3.5	• Are all vehicles washed to remove dusty materials from its body and wheels before leaving site?			<input checked="" type="checkbox"/>		
3.5	• Are vehicles which are carrying dusty materials covered entirely by impervious sheeting when leaving site?		<input checked="" type="checkbox"/>			
3.5	• Are surfaces where any mechanical breaking operation takes place sprayed?		<input checked="" type="checkbox"/>			
3.5	• Are working area of any excavation sprayed with water, immediately before, during and immediately after the operation?		<input checked="" 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 checked="" type="checkbox"/>			
3.5	• Are skip hoists for material transport totally enclosed?		<input checked="" 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)
- | | | | |
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Construction Noise
Demolition works

- 4.7.1
- Are quiet PME which meet the SWLs from BS 5228:Part 1: 1997 used?
- | | | | |
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Sewage Pumping Stations P1, P2 & P3

- 4.7.1
- Are quiet PME which meet the SWLs from BS 5228:Part 1: 1997 used?
- | | | | |
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- 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?
- | | | | |
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Sewers and Rising Mains using Open Trench

- 4.7.1
- Are quiet PME which meet the SWLs from BS 5228:Part 1: 1997 used?
- | | | | |
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- 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?
- | | | | |
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- 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?
- | | | | |
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Sewers and Rising Mains using Pipe Jacking

- 4.7.1
- Are quiet PME which meet the SWLs from BS 5228:Part 1: 1997 used?
- | | | | |
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Road Pavement and Finishes

- 4.7.1
- Are quiet PME which meet the SWLs from BS 5228:Part 1: 1997 used?
- | | | | |
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- 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
- | | | | |
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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?
- | | | | |
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- see photo
2444

- 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?
- | | | | |
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- Are silt removal facilities provided with retention time for silt/sand traps of 5 minutes under maximum flow conditions?
- | | | | |
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| | | | / |
|--|--|--|---|
- see photo
2461

- Are construction works programmed to minimize surface excavation works during the rainy seasons (April to September)?
- | | | | |
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- Are slopes minimised and erosion potential reduced?
- | | | | |
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- Is deposited silt and grit removed regularly and disposed of by spreading evenly over stable, vegetated areas?
- | | | | |
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- 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?

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- Are open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ covered with tarpaulin or similar fabric during rainstorms?

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

		/	
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- Are precautions taken before rainstorms?

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

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

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- 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?

		/	
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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?

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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)?

		/	
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- 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?

		/	
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- 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?

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- 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?

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- 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?

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- 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?

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Land Contamination - Construction Phase					
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?		/		
Ecology - Construction Phase					
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.			/	
Landscape and Visual - Construction Phase					
	• 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

Portica GAI

2448 : Contractor to improve design/operation of sedimentation tanks to improve effluent quality

Nam Sang Wai

NSW Road (Photo 2444) : Close gaps to reduce off site discharges.

NSW PS (Photo 2461) : Improve sed. tank designs

DSD Representative

Contractor Representative

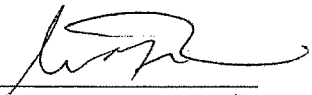
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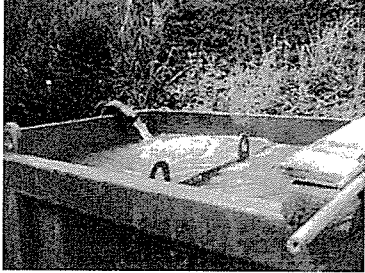
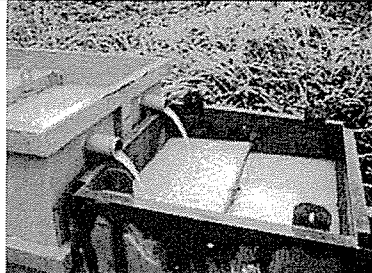
(Sun Fa)

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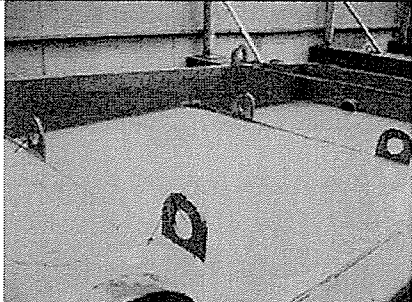
MONTHLY SITE INSPECTION PHOTO
 27 July 2006
 PART 1 – Environmental Observations

P

Close out of previous month's observations (June 2006)

Last month's observations	This month's observations
PORTION GA1	
	
1869: Contractor advised to review tank design to improve silt removal efficiency	2448: No improvement. Contractor is advised urgently to review design

This month's observations

This week's observations	This week's observations
NAM SANG WAI ROAD	NAM SANG WAI PUMP STATION
	
2444: Gaps to be blocked to minimise runoff to drains.	2461: Contractor is advised urgently to review design