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



#### 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

MONTHLY CONSTRUCTION PHASE EM&A REPORT FOR DECEMBER 2007 DESIGNATED ELEMENTS (No. 21)

PREPARED FOR

LEADER CIVIL ENGINEERING CORPORATION LIMITED

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Prepared by	Reviewed by	Certified by	Approved by	Verified by
Ben Tam (Project Supervisor)	Ken Wong (Deputy Project ETL)	David Yeung (Project ETL)	TW Tam (General Manager)	Dr. Anne F Kerr (Project IEC)
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#### **Executive Summary**

- ES.01 Leader Civil Engineering Corporation Limited (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 Monthly Environmental Monitoring & Audit (EM&A) Report for December 2007 (No. 21) present the environmental impact monitoring and audit (EM&A) program conducted from 01 to 31 December 2007 for the Designated Elements. The EM&A program in December 2007 were covered air quality, construction noise and waste management.

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

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

#### **Complaint Log**

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

#### Notification of Any Summons and Successful Prosecution

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

#### **Reporting Changes**

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

#### **Future Key Issues**

ES.07 Construction activities to be undertaken in **January 2008** include backfilling & concreting at Kam Tin Pumping Station (P1); excavation at Sha Po pumping station (P2); backfilling, concreting, pipe jacking, bore hole and grouting at Nam Sang Wai pumping station (P3); sheet piling, excavation, pipe laying, backfilling, concreting, pipe jacking, grouting and extract sheet pile at Nam Sang Wai Road (S4) and Pok Wai South Road (S5 & S6). 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 21<sup>st</sup> Monthly Construction Phase EM&A Report for December 2007 (Report No. 21) summarizes the impact monitoring results and audit findings in the reporting month from 01 to 31 December 2007.

#### **PROJECT ORGANIZATION**

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

#### CONSTRUCTION PROGRAM OF THE REPORTING MONTH

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

#### MANAGEMENT STRUCTURE

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

#### CONSTRUCTION ACTIVITIES UNDERTAKEN IN THE REPORTING MONTH

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

Kam Tin Pumping Station (P1)

• Concreting

Sha Po Pumping Station (P2)

• Excavation

Nam Sang Wai Pumping Station (P3)

- Backfilling
- Concreting

Nam Sang Wai Road (S4)

- Sheet piling
- Excavation
- Pipe laying
- Backfilling
- Concreting
- Pipe jacking
- Grouting
- Extract sheet pile



Pok Wai South Road (S5 and S6)

- Sheet piling
- Excavation
- Pipe laying
- Backfilling
- Concreting
- Pipe jacking
- Extract sheet pile

#### 2.0 ENVIRONMENTAL STATUS

#### WORK UNDERTAKEN IN THE REPORTING 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 the Reporting Month with Illustrations of Mitigation Measures

Location	Description of Construction Activities	Environmental Mitigation Measures	EM&A Ref.
P1 (Kam Tin Pumping	<ul><li>Sheet piling</li><li>Footing</li></ul>	• Erect 2.4m high noise barrier hoarding around the works area at P1, P2 and P3	A1 & F6
Station)	construction	<ul> <li>Remove dust and spray water at the construction access</li> </ul>	A2
		• Cover the stockpiles of dusty material properly	A3
		<ul> <li>Spray water to all dusty materials immediately before loading and unloading</li> </ul>	A4
P2 (Sha Po Pumping Station)	• Hoarding erection	• Wash the wheels of vehicles before leaving the site	A5
P3 (Nam	<ul> <li>Pipe jacking</li> </ul>	• Install and use power-operated cover at the dump trucks	A6
Sang Wai		<ul> <li>Spray water at the pavement breaking locations</li> </ul>	A7
Pumping		<ul> <li>Spray the working area of excavation frequently</li> </ul>	A8
Station)		<ul> <li>Maximize the use of quiet PME on site</li> </ul>	B1, B2 & F5
S4 (Nam	<ul> <li>Drilling and</li> </ul>	<ul> <li>Apply and obtain appropriate waste disposal licenses</li> </ul>	D1
Sang Wai	grouting	<ul> <li>Handle, store and dispose of chemical wastes as per relevant regulations</li> </ul>	D2, D3 & D4
Road)		<ul> <li>Implement trip-ticket system for waste disposal</li> </ul>	D5
		<ul> <li>Restrict open fires and provide fire fighting equipment in the works area</li> </ul>	F9
S5 & S6 (Pok	<ul> <li>Pipe jacking</li> </ul>	<ul> <li>Perform weekly inspection with ET and monthly audit with IEC</li> </ul>	H1
Wai South Road)		<ul> <li>Conduct noise and dust monitoring as per EM&amp;A manual during construction</li> </ul>	I1 & I2
		<ul> <li>Provide sedimentation tanks for treating site discharge.</li> </ul>	-
		• Recycle wheel washing water and provide sedimentation tanks for treating site discharge.	-

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

#### **PROJECT DRAWINGS**

- 2.03 Drawings showing the work areas under EP-220/2005 and the locations of the designated monitoring stations are presented in **Annex E**.
- 2.04 There are four designated air quality (AM1, AM5, AM6 & AM7) and four noise monitoring stations (AM1, AM5, AM6 & AM7) under the project EP. Locations of the monitoring stations and description are summary in the **Table 2-2**.



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

Table 2-2Description of the Monitoring Stations

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

### 3.0 SUMMARY OF EM&A REQUIREMENTS

#### MONITORING PARAMETERS

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

Table 3-1	Summary of EM&A Requirements
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<b>Environmental Aspect</b>	Monitoring Parameters
Air Quality	24-Hour TSP
Construction Noise	Leq 30min day time 07:00 to 19:00 (Supplementary L10 and L90 for reference.)

### **ENVIRONMENTAL QUALITY PERFORMANCE LIMITS**

3.03 A summary of the Action/Limit (A/L) Levels for air quality and construction noise is shown in Tables 3-2 and 3-3.

Monitoring Locations	Action Level (µg/m <sup>3</sup> )		Limit Level (µg/m <sup>3</sup> )	
Monitoring Elocations	1-Hour TSP	24-Hour TSP	1-Hour TSP	24-Hour TSP
AM1	> 391	> 184	> 500	> 260
AM5	> 353	> 237	>500	> 260
AM6	> 329	> 183	> 500	> 260
AM7	> 383	> 204	> 500	> 260

Table 3-2Action and Limit Levels for Air Quality

Table 3-3 Act	ion and Limit I	Levels for Const	ruction Noise
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Monitoring Period		Action Level	Limit Level
0700-1900 hours on weekdays	normal	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 (EP-220/2005) 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 are summarized in Table 2-1 and the implementation schedule as shown in Annex G.
- 4.02 The status of permits, licences, and/or notifications related to environmental protection under this Project during the reporting month are presented in Table 4-1.

Item	Item Description	License/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 (No. 5213-528-L2544-08)	Registration on 27 Jan 2006
4	Water Pollution Control (Discharge License No. 1U434/1)	Issued on 08 May 2006
5	Account for Disposal of Construction Waste No. 5004959	Registration on 27 Dec 2005
6	Piling Permit (CNP No. PP-RN0001-07)	Valid (7 Mar 2007 to 06 Dec 2007)
7	Piling Permit (CNP No. PP-RN0004-07)	Valid (7 May 2007 to 06 Feb 2008)
8	Construction Noise Permit (CNP No. GW-RN0355-07)	Valid (24 Aug 2007 to 23 Feb 2008)
9	Construction Noise Permit (CNP No. GW-RN0379-07)	Valid (09 Sep 2007 to 02 Mar 2008)
10	Construction Noise Permit (CNP No. GW-RN0479-07)	Valid (06 Nov 2007 to 05 May 2008)

Table 4-1Status of Environmental Licenses and Permits

### 5.0 MONITORING RESULTS

#### MONITORING METHODOLOGY OF AIR QUALITY MONITORING

- 5.01 The 24-Hour 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;
  - $0.6-1.7 \text{ m}^3/\text{min}$  (20-60 SCFM) adjustable flow rate;
  - A 7-day mechanical timer for 24-Hour operation;
  - An elapsed time indicator with  $\pm 2$  minutes accuracy for 24-Hour operation;
  - Minimum exposed area of  $63 \text{ in}^2$ ;
  - Flow control accuracy of  $\pm 2.5\%$  deviation over 24-Hour operation;
  - An anodized aluminum shelter to protect the filter and sampler;
  - A motor speed-voltage control to control mass flow rate with accuracy of  $\pm 2.5\%$  deviation over 24-Hour sampling period;
  - Provision of a flow recorder for continuous monitoring;
  - Provision of a peaked roof inlet;
  - Incorporation with a manometer; and
  - An 8"x10" stainless steel filter holder to hold, seal and easy to change the filter paper.



- 5.02 The filter papers used in 24-Hour TSP monitoring were of size 8"x10" and provided by a local HOKLAS-accredited laboratory, ALS Techichem Pty (HK) Limited (HOKLAS No. 66). The filters papers after measurements were returned to the laboratory for the required treatment and analysis. The validation of all monitoring practices and data were following the in-house QA/QC procedures. Blank filters samples were collected and delivered to the HOKLAS-accredited laboratory for QA/QC check.
- 5.03 The meteorological information during the reporting month was obtained from Lau Fau Shan Station of the Hong Kong Observatory (HKO).

#### METHODOLOGY FOR CONSTRUCTION NOISE MONITORING

- 5.04 Noise measurements were taken in terms of the A-weighted equivalent sound pressure level (Leq) measured in decibels (dB). Supplementary statistical results  $(L_{10} \text{ and } L_{90})$  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-Hour TSP filter papers.
- 5.09 Monitoring equipment used in the impact EM&A program is presented in Table 5-1.

Table 5-1Monitoring Equipment Used in Impact EM&A Program

Env. Aspect	Parameters	Monitoring Equipment
Air Quality	24-Hour TSP	Greasby Anderson GMWS2310 High Volume Sampler
Noise	Leq30min	B&K Sound Level Meter Type 2238
	On-site Calibration	B&K Noise Calibrator Type 4231

#### EQUIPMENT CALIBRATION

5.10 Initial calibration of the HVS was performed upon installation and thereafter at a six month intervals in accordance with the manufacturer's instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5025A). The calibration data are properly documented and the records are maintained by ET for future reference.



- 5.11 The sound level meters were calibrated using an acoustic calibrator prior to and after measurements. The meters are regularly calibrated in accordance with the manufacturer's instructions. Prior to and following each noise measurement, the accuracy of the sound level meter was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements were considered valid only if the calibration levels before and after the noise measurement agree to within 1.0 dB.
- 5.12 The renew calibration certificates of the monitoring equipment used during the impact monitoring program in this month are attached in Annex H.

#### PARAMETERS MONITORED

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

#### MONITORING LOCATIONS

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

Table 5-2Location of Air Quality and Construction Noise Monitoring<br/>Stations/Locations

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	Locations)	
NM3	Village House in Nam Sang Wai	
NM4	Village House in Nam Sang Wai	
NM6	Scattered House near Route 3	
NM7	Fung Kat Heung	

#### MONITORING FREQUENCY AND PERIOD

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

### MONITORING RESULTS WITH DATE AND TIME

5.17 Monitoring results in this reporting month for air quality and construction noise were summarized at **Table 5-3** to **5-7**. No Action/Limit Level exceedance of air quality and construction noise was recorded in this reporting month.



Date	24-Hour TSP (μg/m <sup>3</sup> )									
Date	AM1	AM5	AM6	AM7						
01-Dec-07	135	148	65	56						
07-Dec-07	115	223	146	135						
13-Dec-07	153	194	132	68						
18-Dec-07	127	71	68	54						
22-Dec-07	84	90	48	50						
28-Dec-07	91	133	86	61						
Average	117	143	91	71						
(Range)	(84–153)	(71–223)	(48–146)	(50–135)						

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

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

Action/Limit Level exceedance was recorded.

'	Table 5	-4 S	ummar	y of No	ise Mor	nitoring	Result	s at NM.	3

Date Start Time		1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Corrected * Leq30
03-Dec-07	11:21	50.0	50.0	65.5	58.5	52.1	51.0	59.0	62.0
08-Dec-07	11:00	54.3	53.2	53.3	53.3	52.5	53.0	53.3	56.3
14-Dec-07	10:56	47.8	47.0	47.8	47.6	53.2	52.5	50.1	53.1
19-Dec-07	10:56	54.9	49.7	50.2	48.6	49.3	51.4	51.3	54.3
24-Dec-07	10:43	51.8	45.8	44.5	47.9	46.4	50.4	48.6	51.6
31-Dec-07	10:49	57.5	53.9	57.4	54.7	53.4	53.8	55.5	58.5
Limit L	evel								75

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

Table 5-5 Summary of Noise Momenturing Results at NN	Table 5-5	Summary of Noise Monitoring Results at NM4
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Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Corrected * Leq30
03-Dec-07	9:55	53.7	51.1	51.9	51.6	51.4	52.5	52.1	55.1
08-Dec-07	10:23	50.4	50.1	51.8	51.6	52.6	52.7	51.6	54.6
14-Dec-07	10:11	54.5	46.4	44.9	47.9	50.0	43.1	49.5	52.5
19-Dec-07	9:50	52.8	53.7	55.7	52.2	52.3	52.3	53.4	56.4
24-Dec-07	10:16	50.6	51.7	50.9	50.2	49.9	50.6	50.7	53.7
31-Dec-07	10:08	54.5	54.2	51.5	53.8	52.3	53.1	53.4	56.4
Limit L	evel								75

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

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

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Corrected * Leq30
03-Dec-07	15:27	63.5	61.0	56.8	54.7	55.2	56.4	59.2	No
08-Dec-07	14:48	62.8	59.6	63.9	55.6	61.8	61.6	61.6	
14-Dec-07	14:29	62.9	64.6	62.4	63.0	64.4	61.7	63.3	Correction
19-Dec-07	14:46	55.7	54.8	57.3	55.7	57.5	56.4	56.3	
24-Dec-07	13:58	56.4	59.1	55.4	63.5	61.0	56.8	59.7	Required
31-Dec-07	14:13	55.4	56.7	55.0	56.6	58.6	56.7	56.7	
Limit L	evel								75

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

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

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Corrected * Leq30
03-Dec-07	10:30	53.5	53.3	54.5	59.4	54.1	58.0	56.2	No
08-Dec-07	10:57	53.5	53.2	52.9	53.7	52.6	52.9	53.1	
14-Dec-07	10:49	57.0	54.3	56.7	54.8	54.3	55.8	55.6	Correction
19-Dec-07	10:24	58.6	56.6	54.5	58.0	59.4	56.3	57.5	
24-Dec-07	10:54	53.7	52.5	53.9	51.2	50.5	51.3	52.4	Required
31-Dec-07	10:46	54.9	55.1	54.1	54.5	54.2	53.2	54.4	
Limit Lo	evel								75

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



#### 5.18 The monitoring schedule for the next reporting month is shown in **Table 5-8**.

Tabl	e 5-8	Monitoring Schedule for the	Next Reporting Month
Da	ite	Air Quality	Noise Leq 30min
1-Jan-08	Tue		
2-Jan-08	Wed		
3-Jan-08	Thu		
4-Jan-08	Fri		
5-Jan-08	Sat		
6-Jan-08	Sun		
7-Jan-08	Mon		
8-Jan-08	Tue		
9-Jan-08	Wed		
10-Jan-08	Thu		
11-Jan-08	Fri		
12-Jan-08	Sat		
13-Jan-08	Sun		
14-Jan-08	Mon		
15-Jan-08	Tue		
16-Jan-08	Wed		
17-Jan-08	Thu		
18-Jan-08	Fri		
19-Jan-08	Sat		
20-Jan-08	Sun		
21-Jan-08	Mon		
22-Jan-08	Tue		
23-Jan-08	Wed		
24-Jan-08	Thu		
25-Jan-08	Fri		
26-Jan-08	Sat		
27-Jan-08	Sun		
28-Jan-08	Mon		
29-Jan-08	Tue		
30-Jan-08	Wed		
31-Jan-08	Thu		

 Table 5-8
 Monitoring Schedule for the Next Reporting Month

Monitoring Day Sunday or Public Holiday

#### WEATHER CONDITIONS DURING THE MONITORING MONTH

5.19 The meteorological data during the monitoring month are summarized in Annex I.

#### **GRAPHICAL PLOTS OF TRENDS OF MONITORED PARAMETERS**

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

#### WEATHER CONDITIONS THAT AFFECT THE MONITORING RESULTS

5.21 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**

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

### **QA/QC RESULTS AND DETECTION LIMITS**

5.23 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 summons 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 **January 2008** include backfilling & concreting at Kam Tin Pumping Station (P1); excavation at Sha Po pumping station (P2); backfilling, concreting, pipe jacking, bore hole and grouting at Nam Sang Wai pumping station (P3); sheet piling, excavation, pipe laying, backfilling, concreting, pipe jacking, grouting and extract sheet pile at Nam Sang Wai Road (S4) and Pok Wai South Road (S5 & S6). 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.

Type of Waste	Quantity	<b>Disposal Location</b>
C&D Materials (Inert) (tons) – Disposed	3,029	Tuen Mun 38 Fill Bank
C&D Materials (Inert) (tons) - Reused	100	DSD Contract DC/2005/02
C&D Materials (Non-Inert) (tons)	0	NA
Chemical Waste (Litres)	0	NA
General Refuse (tons)	24	Refuse Collector

 Table 7-1
 Summary of Waste Quantities for Disposal

Table 7-2	Summary of Waste Quantities for Reuse/Recycling

Type of Waste	Quantity	<b>Disposal Location</b>
Metals for Recycling (kg)	0	NA
Paper for Recycling (kg)	0	NA
Plastics for Recycling (kg)	0	NA



7.03 There was no site effluent discharged but an estimated volume of less than 50m<sup>3</sup> of surface runoff was discharged in the reporting month.

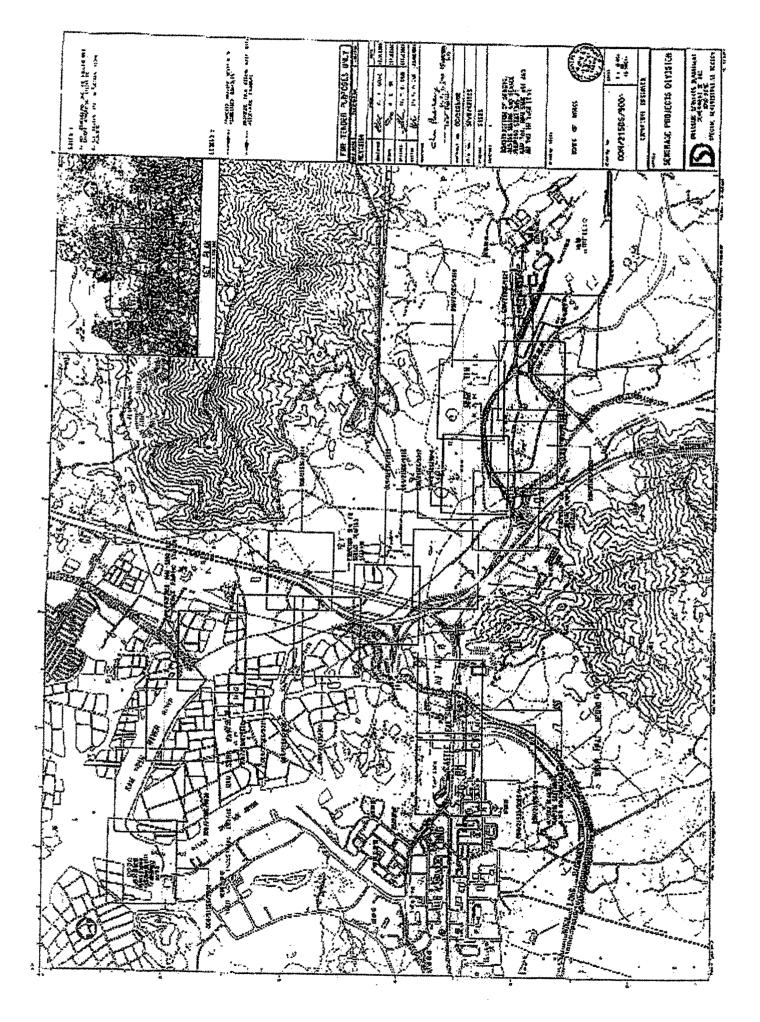
#### SUBMISSION OF PROFORMA

- 7.04 Representatives of the Engineer, the Contractor and ET carried out regular weekly joint site inspection on 04, 11, 20 and 27 December 2007 to evaluate the site environmental performance. The monthly IEC site inspection for December 2007 was held schedule on 03 January 2008. No non-compliance was noted and seven observations were recorded in weekly and monthly site inspection.
- 7.05 Proforma of the weekly ET site inspection activities are presented in Annex K.



Annex A

**Project Site Layout** 



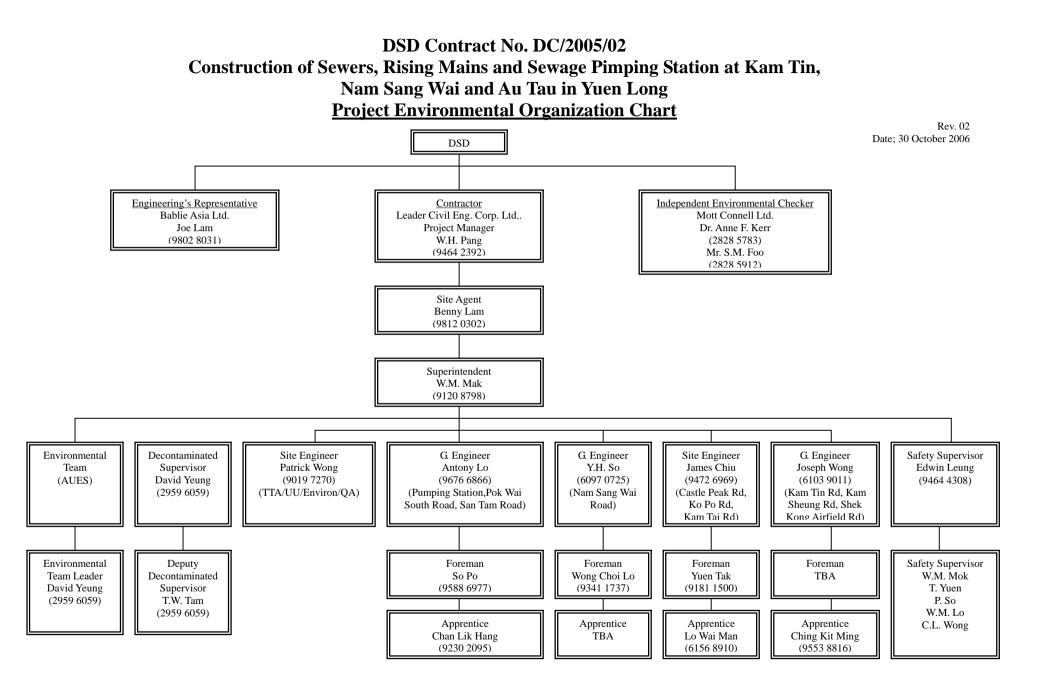
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Annex B

# **Project Organization and Management Structure**





Annex C

# **Construction Program**

Act ID	Description	Orig Dur	Total Per Float Com		Early Finish	Late Start	Late Finish	2007 101 DEC 26 03 10 17 24	JAN 31 07 14 21 28	2008 FEB 04 11 18	MAR 25 03 10 17	24
Preliminaries												
												Ì
PR2900	Deliver Ductile Iron Pipe	800d	119d	67 29APR06 A	22NOV08	29APR06 A	17APR09					
PR3100	Deliver Precast Concrete Pipe	800d	133d	68 24APR06 A		24APR06 A	17APR09					_
PR3300	Deliver Vitrified Clay Pipe	800d	104d	65 10APR06 A		10APR06 A	17APR09					
PR3400	Structural Monitoring by ISE	835d		65 06APR06 A		06APR06 A	17APR09					
PR3500	Environmental monitoring by ET	814d	135d	69 06APR06 A	03NOV08	06APR06 A	17APR09					_
Section 1 - Kam Tir	Sewage Pumping Station											
Portion A												
Drainage and D Trench Metho												
	u											
S1AEA1650	Install Geotextile Filter up to -3.30mPD	1d	-94d	0 11FEB08	12FEB08	17OCT07	17OCT07			Install Geotextile	Filter up to -3.30mPD	
S1AEA1700	Install Geotextile Filter up to +0.00mPD	1d	-94d	0 28MAR08	29MAR08	30NOV07	30NOV07					•
Earthworks												
S1AG2250	Remove 4th Layer Waling & Strut	2d		100 24NOV07 A	30NOV07 A	24NOV07 A	30NOV07 A	Remove 4th Layer Waling & Strut				
S1AG2300	Backfill inside Void	9d	-94d	0 18JAN08	29JAN08	25SEP07	06OCT07		B	ackfill inside Void		
S1AG2320	Backfill to -3.30mPD	12d	-94d	0 12FEB08	26FEB08	18OCT07	01NOV07				Backfill to -3.30mPD	
S1AG2350	Remove 3rd Layer Waling & Strut	2d		0 26FEB08	28FEB08	02NOV07	03NOV07				Remove 3rd Layer Waling & S	Strut
Formwork												
C14 14200	Freed Freewords to Well Otom of Visid	401	044	25 0205007 4	40 14 100	0205007 4	0005007		Erect Formwork to	Vall Stom of Void		
S1AJ1200	Erect Formwork to Wall Stem of Void	12d		25 03DEC07 A		03DEC07 A	22SEP07			Erect Formwork to Top Slab of	Void	
S1AJ1300	Erect Formwork to Top Slab of Void	4d		0 29JAN08	02FEB08	08OCT07	110CT07	_				E
S1AJ1400	Erect Formwork to +0.00mPD	12d	-94d	0 08MAR08	26MAR08	14NOV07	27NOV07					Erec
Steel Reinforce	nent											
S1AK1100	Fix Re-bar to Wall Stem of Void	8d	-94d	25 01DEC07 A	05JAN08	01DEC07 A	12SEP07		Fix Re-bar to Wall Stem of Void			
S1AK1200	Fix Re-bar to Top Slab of Void	2d	-94d	0 02FEB08	05FEB08	12OCT07	13OCT07			Fix Re-bar to Top Slab of V	/oid	
S1AK1300	Fix Re-bar to +0.00mPD	8d	-94d	0 28FEB08	08MAR08	05NOV07	13NOV07				Fix Re-bar to +0.	00mPD
In-Situ Concrete												
S1AL1200	Cast Wall Stem of Void	2d	-94d	25 18DEC07 A	18JAN08	18DEC07 A	24SEP07		Cast Wall Stem o	f Void		
S1AL1300	Cast Top Slab of Void	2d	-94d	0 05FEB08	11FEB08	15OCT07	16OCT07	1		Cast Top Slab of \	/oid	
S1AL1400	Cast Wall Stem to +0.00mPD	2d	-94d	0 26MAR08	28MAR08	28NOV07	29NOV07					<b>—</b> C
Geotechnical w	orks											
S1AP1000	Monitoring of Instruments	525d	-22d	58 16NOV06 A	25SEP08	16NOV06 A	29AUG08					
	Sewage Pumping Station	0200				1.1.3.00 X						
Portion B												
Drainage and D												
Trench Metho												
S2BEA1400	Install Geotextile Filter to F/L of Base Slab	1d	-295d	0 29DEC07	29DEC07	30DEC06	30DEC06		Install Geotextile Filter to F/L of Base Slab			
S2BEA1450		1d		0 06FEB08	06FEB08	07FEB07	07FEB07			Install Geotextile Filter up	to -2.87mPD	
S2BEA1500			-295d	0 14MAR08	14MAR08	16MAR07	16MAR07				Install G	eotextile Filte
Earthworks							l					
	DEC05							_	-		Early bar	
inish date 16A	PR10 DEC07				Lead	ler Civil E	naineerir	g Corp. Ltd.			Progress bar	0
Page number 1A						SD Contra					Critical bar	LEADER
				3-Mon				1 at 29 December 2007			<ul> <li>Summary bar</li> <li>Start milestone point</li> </ul>	
c Primavera Syste	ems, Inc.				-	-					<ul> <li>Finish milestone point</li> </ul>	

Act	Description		otal Percer		Early	Late	Late	101	2007 DEC				JAN			2008 FEB			N	/AR	
ID		Dur Fl	loat Comple	ete Start	Finish	Start	Finish	26 03	3 10 17	24	31	07	14 2	1 28	3	04 11 1	18	25 03	10	17	24
S2BG1500	Excavate to Level of 3rd layer of Waling	7d	1	00 03NOV07 A	30NOV07 A	03NOV07 A	30NOV07 A	Exca	avate to Level of 3rd la	yer of Waling											
S2BG1600	Install 3rd Layer of Waling & Strut	4d	1	00 01DEC07 A	11DEC07 A	01DEC07 A	11DEC07 A	-	Install 3rd	Layer of Walii	<b>1</b>			i.							
S2BG1700	Excavate to Formation Level	9d	1	00 15DEC07 A	21DEC07 A	15DEC07 A	21DEC07 A			Excavate	to Formatio										
S2BG1800	Fill Grade 200 Rockfill	8d -:	295d	0 31DEC07	09JAN08	02JAN07	10JAN07						Grade 200 R								
	Remove 3rd Layer of Waling & Strut	2d -	295d	0 11JAN08	12JAN08	12JAN07	13JAN07	L					Remove 3rd	Layer of V	Valing 8	L	   				
S2BG1860	Backfill to -2.87mPD	4d -:	295d	0 11FEB08	14FEB08	08FEB07	12FEB07										fill to -2.8				
	Remove 2nd Layer of Waling & Strut	2d -:	295d	0 15FEB08	16FEB08	13FEB07	14FEB07									Re	emove 2n	d Layer of Wa	ling & Strut		
	Backfill inside Void	5d -:	292d	0 14MAR08	19MAR08	20MAR07	24MAR07												-	Ba	ackfill insid
S2BG2000	Backfill to -1.40mPD	7d -:	295d	0 15MAR08	26MAR08	17MAR07	24MAR07														Ba
Formwork																					
S2BJ1000	Erect Formwork to Base Slab	6d -:	295d	0 14JAN08	19JAN08	15JAN07	20JAN07	1					Er	ect Formw	ork to E	ase Slab					
S2BJ1100	Erect Kicker to Base Slab	6d -:	295d	0 28JAN08	02FEB08	29JAN07	03FEB07	1						-		Erect Kicker to Base S	Slab				
S2BJ1200	Erect Formwork to Wall Stem of Void	12d -	295d	0 27FEB08	11MAR08	28FEB07	13MAR07												Erec	t Formwoi	rk to Wall
S2BJ1300	Erect Formwork to Void T/Slab & V/Chamber B/Slab	4d -2	295d	0 27MAR08	31MAR08	26MAR07	29MAR07	1													-
Steel Reinforcemer	nt													1			1	1			
S2BK1000	Fix Re-bar to Base Slab	6d -:	295d	0 21JAN08	26JAN08	22JAN07	27JAN07						1	Fix	Re-ba	to Base Slab					i.
S2BK1100	Fix Re-bar to Wall Stem of Void	8d -:	295d	0 18FEB08	26FEB08	15FEB07	27FEB07											Fix Re-bar	to Wall Stem	of Void	
n-Situ Concrete												-								-	
CODI 4000	Cost Dia dia a Cos soste		2054	0 10JAN08	10JAN08	11JAN07	11JAN07						ist Blinding C	operate							
	Cast Blinding Concrete Cast Base Slab		295d									•08	ist billioning C	oncrete		Cast Base Slab					
			295d	0 04FEB08	05FEB08	05FEB07	06FEB07									Cast Dase Sidu			-0	ast Wall S	
	Cast Wall Stem to Void	2d -:	295d	0 12MAR08	13MAR08	14MAR07	15MAR07												<b>_</b> C	ast wall 5	stem to vo
Geotechnical works																					
					1	1	1														
	Monitoring of Instruments	414d	24d	61 26FEB07 A	21JUL08	26FEB07 A	16AUG08	1			1	1		-						-	
tion 3 - Nam Sang <sup>•</sup> ortion C	Wai Sewage Pumping Station																				
Drainage and Ducts	3																				
Trench Method																					
S3CEA1750	Install Geotextile Filter up to -9.25mPD	1d	1	00 06DEC07 A	06DEC07 A	06DEC07 A	06DEC07 A		Install Geotextile	Filter up to -9.	25mPD										
	Install Geotextile Filter up to -7.25mPD		170d	0 29JAN08	30JAN08	07JUL07	07JUL07								Insta	I Geotextile Filter up t	o -7.25mF	PD			
	Install Geotextile Filter up to -4.80mPD		170d	0 22FEB08	23FEB08	28JUL07	28JUL07										In:	stall Geotextile	e Filter up to -	4.80mPD	<b>,</b> i
Pipework - Rising N		10		0 221 2800	20. 2800	2000201	2000201														
Trench Method																					
020544000			4574	0 0005007	05 141100	00 11 10 07	00 11 10 07					Twin Picir	ng Main DN9	00							
	Twin Rising Main DN900		157d	0 29DEC07	05JAN08	22JUN07	28JUN07					wit Risi	-			0 in Structure					
	Twin Rising Main DN900 in Structure		162d	0 12JAN08	17JAN08	29JUN07	04JUL07					-		-							
	CCTV Inspection of Pipeline	1d	143d	0 17JAN08	18JAN08	15JUL08	15JUL08					1		V Inspecti	on of Pi	peline					
Earthworks																					
														1							
	Backfill to -9.25mPD	5d		00 06DEC07 A		06DEC07 A				Back	ill to -9.25n										
	Remove 6th Layer of Waling & Strut			20 28DEC07 A	03JAN08	28DEC07 A					Re	move 6th	Layer of Wal	ing & Strut							
S3CG2500	Backfill inside Void	5d -	165d	0 29JAN08	04FEB08	13JUL07	18JUL07					1		-		Backfill inside Void	1			i I	
t date 19DEC sh date 16APR a date 29DEC e number 2A	10			3-Mont	DS	D Contra	ngineerin Ict No. DC me - 3M0	/200		2007									ss bar bar	d 🖍	LEAD

	Act		Orig Total Pe	rcent Early	Early	Late	Late	2007	2008
	ID	Description		nplete Start	Finish	Start	Finish	IOI DEC 26 03 10 17 24	JAN FEB MAR 31 07 14 21 28 04 11 18 25 03 10 17 24
	S3CG2600	Backfill to -7.25mPD	5d -170d	0 30JAN08	05FEB08	09JUL07	13JUL07		Backfill to -7.25mPD
	S3CG2620	Remove 5th Layer of Waling & Strut	4d -170d	0 05FEB08	13FEB08	14JUL07	18JUL07		Remove 5th Layer of Waling & Strut
	S3CG2650	Backfill to -4.80mPD	5d -170d	0 23FEB08	29FEB08	30JUL07	03AUG07		Backfill to -4.80mPD
	S3CG2670	Remove 4th Layer of Waling & Strut	4d -170d	0 29FEB08	05MAR08	04AUG07	08AUG07		Remove 4th Layer of Waling & Stru
For	mwork								
	S3CJ1100	Erect Kicker to Base Slab -9.25mPD	6d	100 26NOV07 A	29NOV07 A	26NOV07 A	29NOV07 A	Erect Kicker to Base Slab -9.25mPD	
	S3CJ1200	Erect Formwork to -7.25mPD	12d -170d	0 12JAN08	26JAN08	20JUN07	04JUL07		Erect Formwork to -7.25mPD
									Erect Formwork to -4.80mPD
	S3CJ1300	Erect Formwork to -4.80mPD	4d -170d	0 13FEB08	18FEB08	19JUL07	23JUL07		
	S3CJ1400	Erect Formwork to -2.50mPD	12d -170d	0 14MAR08	01APR08	18AUG07	31AUG07		
Ste	el Reinforceme	ent							
	S3CK1100	Fix Re-bar to -7.25mPD	8d -170d	0 03JAN08	12JAN08	09JUN07	18JUN07		Fix Re-bar to -7.25mPD
	S3CK1200	Fix Re-bar to -4.80mPD	2d -170d	0 18FEB08	20FEB08	24JUL07	25JUL07		Fix Re-bar to -4.80mPD
	S3CK1300	Fix Re-bar to -2.50mPD	8d -170d	0 05MAR08	14MAR08	09AUG07	17AUG07	-	Fix Re-bar to -2.50mF
	Situ Concrete								
					1	1	1		
	S3CL1100	Cast Base Slab -9.25mPD	2d	100 30NOV07 A	30NOV07 A	30NOV07 A	30NOV07 A	Cast Base Slab -9.25mPD	
	S3CL1200	Cast Wall Stem to -7.25mPD	2d -170d	0 26JAN08	29JAN08	05JUL07	06JUL07		Cast Wall Stem to -7.25mPD
	S3CL1300	Cast Wall Stem to -4.80mPD	2d -170d	0 20FEB08	22FEB08	26JUL07	27JUL07		Cast Wall Stem to -4.80mPD
Geo	otechnical worl	ks							
	\$2CB1000	Manitoring of Instruments	771d -87d	67 06APR06 A	11100/08		20 11 11 08		
		Monitoring of Instruments	7710 -870	67 06AFR06 A	TINOVUS	UDAFRUD A	29JUL08		
Tes	sting								
	S3CS1000	Pressure Testing to Twin Rising Main DN900	12d 143d	0 18JAN08	01FEB08	16JUL08	29JUL08		Pressure Testing to Twin Rising Main DN900
		RM in Portion D, F, G, H, I		, i i i i i i i i i i i i i i i i i i i					
Portic									
Gro	und Investigati	ion							
	S4DB1300	Install Settlement Markers	589d4h 258d	90 31OCT06 A	14MAR08	310CT06 A	29JAN09		Install Settlement Mar
Pipe	ework - Rising	Main							
T	rench Method								
	C4DE44400	Turin Dining Main DN000 (Chadana WOICd)	4044 4704	0 4055000	00 11 11 100	0505000	20 14 100		
		Twin Rising Main DN900 (ChA1850- WOIC1)	101d 179d	0 18FEB08	23JUN08	25SEP08	29JAN09		
		Twin Rising Main DN900 (ChA2095 - ChA2215)	148d 119d	12 20DEC07 A	21JUN08	20DEC07 A	12NOV08	_	
		Construct AVIC12 (VO 100)	60d 243d	0 29DEC07	12MAR08	25OCT08	06JAN09		Construct AVIC12 (VO 1
	renchless Meth	nod							
	S4DFB1030	Laying Twin DN900 (WOIC - ChA2095)	48d 119d	80 15OCT07 A	10JAN08	150CT07 A	07JUN08		Laying Twin DN900 (WOIC - ChA2095)
	S4DFB1100		30d 179d	0 10JAN08	18FEB08	20AUG08	24SEP08	4	Construct WOIC1
	S4DFB1200	CCTV Inspection of Pipeline	3d 265d	0 18FEB08	21FEB08	09JAN09	12JAN09	-	CCTV Inspection of Pipeline
	otechnical worl		30 2030	U TOFEBUO	ZIFEDUO	USJANUS	12JAIN09		
Geo	Jlechnical won	A5							
	S4DP1000	Monitoring of Instruments	556d 107d	62 02NOV06 A	17SEP08	02NOV06 A	29JAN09		
Portic		·			·	<u> </u>	<u> </u>		
Gro	und Investigati	ion							
Start da Finish d									Early bar
Data da	ate 29DE							g Corp. Ltd.	Progress bar Critical bar
Page n	umber 3A	————		e				2/2005/02	Critical bar ——Summary bar
				3-Mont	h Rolling	Program	me - 3M0	1 at 29 December 2007	Start milestone point
c Prin	navera System	ns, Inc.							<ul> <li>Finish milestone point</li> </ul>

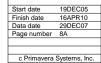
ID	Description	Orig Dur	Total F Float Co	ercent Early omplete Start	Early Finish	Late Start	Late Finish	2007 (O) DEC 26 03 10 17 24	2008 JAN FEB MAR 31 07 14 21 28 04 11 18 25 03 10 17 24
S4FB1020	Boreholes & Instrumentation (H2 - H1)	9d	-25d	0 29DEC07	09JAN08	28NOV07	07DEC07		Boreholes & Instrumentation (H2 - H1)
S4FB1500	Install Settlement Markers	730d4h	119d	73 27APR06 A	02SEP08	27APR06 A	29JAN09		
Drainage and Du	ucts				1				
Trench Method	1								
S4FEA1000	DN900 Pipe & Manhole (H8 - H7) 1st Stage	53d	161d	0 04MAR08	09MAY08	18SEP08	20NOV08		
Trenchless Met									
	Jacking DN1200 (H3 - H2)	46d	-23d	20 18JUL07 A	14FEB08	18JUL07 A	15JAN08		Jacking DN1200 (H3 - H2)
	Construct Manhole H3	27d	224d	0 14FEB08	17MAR08	15NOV08	16DEC08		Construct Mar
Pipework - Rising Trench Method									
					1	1	-1		
S4FFA1200		50d	209d	20 17DEC07 A	18FEB08	17DEC07 A	31OCT08		Twin Rising Main DN500 (ChB850 - ChB900)
S4FFA1210		50d	209d	0 19FEB08	21APR08	01NOV08	31DEC08		
S4FFA1500		45d	73d	0 27FEB08	24APR08	29MAY08	22JUL08		
S4FFA1600		45d	73d	0 02JAN08	27FEB08	03APR08	28MAY08		Twin Rising Main DN700 (ChC2100 - ChC
S4FFA1700		45d	73d	95 01DEC07 A	02JAN08	01DEC07 A	02APR08		Twin Rising Main DN700 (ChC2150 - ChC2200)
S4FFA1800		45d		100 20OCT07 A	30NOV07 A	200CT07 A		Twin Rising Main DN700 (ChC2200 - Ch	C2250)
S4FFA2200		93d	117d	0 29DEC07	24APR08	26MAY08	12SEP08		Tuis Dista Mais DI 200 (05000
	Twin Rising Main DN700 (ChC2639 - H7)	52d	161d	0 29DEC07	03MAR08	18JUL08	17SEP08		Twin Rising Main DN700 (ChC26
Trenchless Met									
S4FFB1120	Jacking Twin DN700 (AVIC6 - WOIC5)	90d	78d	60 17OCT07 A	13FEB08	170CT07 A	21MAY08		Jacking Twin DN700 (AVIC6 - WOIC5)
S4FFB1200	Construct WOIC4	30d	180d	0 29DEC07	02FEB08	09AUG08	12SEP08		Construct WOIC4
S4FFB1300	Construct WOIC5	30d	234d	0 14FEB08	19MAR08	26NOV08	02JAN09		Construct V
S4FFB1400	CCTV Inspection of Pipeline	5d	267d	0 14FEB08	19FEB08	07JAN09	12JAN09		CCTV Inspection of Pipeline
S4FP1000 rtion G	Monitoring of Instruments	774d	12d	60 05JUN06 A	12JAN09	05JUN06 A	29JAN09		
		774d	12d	60 05JUN06 A	12JAN09	05JUN06 A	29JAN09		
rtion G		774d	12d	60 05JUN06 A	12JAN09	05JUN06 A	29JAN09		
rtion G Ground Investiga		774d	12d 104d	60 05JUN06 A		05JUN06 A			
rtion G Ground Investiga S4GB1500 Drainage and Du	lion Install Settlement Markers ucts								
rtion G Ground Investiga S4GB1500	lion Install Settlement Markers ucts								
rtion G Ground Investiga S4GB1500 Drainage and Du Trench Method	lion								
rtion G Ground Investiga S4GB1500 Drainage and Du Trench Method S4GEA1300	Install Settlement Markers	748d4h	104d	71 21APR06 A	22SEP08	21APR06 A	29JAN09		DN300 Pipe & Manhole (F7 - F9
rtion G Ground Investiga S4GB1500 Drainage and Du Trench Method S4GEA1300	Install Settlement Markers rects J DN300 Pipe & Manhole (F5 - F7) DN300 Pipe & Manhole (F7 - F9)	748d4h 53d	104d 56d	71 21APR06 A 0 05MAR08	22SEP08	21APR06 A	29JAN09 18JUL08		DN300 Pipe & Manhole (F7 - F9
rtion G Sround Investiga S4GB1500 Drainage and Du Trench Method S4GEA1300 S4GEA1400	tion Install Settlement Markers ucts DN300 Plpe & Manhole (F5 - F7) DN300 Pipe & Manhole (F7 - F9) g Main	748d4h 53d	104d 56d	71 21APR06 A 0 05MAR08	22SEP08	21APR06 A	29JAN09 18JUL08		DN300 Pipe & Manhole (F7 - F9
rtion G Ground Investiga S4GB1500 Drainage and Du Trench Method S4GEA1300 S4GEA1400 Pipework - Rising	ation Install Settlement Markers Icts IDN300 Pipe & Manhole (F5 - F7) DN300 Pipe & Manhole (F7 - F9) g Main	748d4h 53d 53d	104d 56d 56d	71 21APR06 A 0 05MAR08 0 29DEC07	22SEP08 10MAY08 04MAR08	21APR06 A 16MAY08 08MAR08	29JAN09 18JUL08 15MAY08		DN300 Pipe & Manhole (F7 - F9
rtion G Ground Investiga S4GB1500 Transage and Du Trench Method S4GEA1300 S4GEA1400 S4GFA1000	ation Install Settlement Markers IDN300 Pipe & Manhole (F5 - F7) DN300 Pipe & Manhole (F7 - F9) G Main Twin Rising Main DN500 (AVIC4 - ChB250)	748d4h 53d	104d 56d 56d 135d	71         21APR06 A           0         05MAR08           0         29DEC07           0         19MAR08	22SEP08	21APR06 A 16MAY08 08MAR08 03SEP08	29JAN09 18JUL08		DN300 Pipe & Manhole (F7 - F9
rtion G Ground Investiga S4GB1500 Transage and Du Trench Method S4GEA1300 S4GEA1400 S4GFA1000	Ation Ation Install Settlement Markers DCts DN300 Pipe & Manhole (F5 - F7) DN300 Pipe & Manhole (F7 - F9) G Main Twin Rising Main DN500 (AVIC4 - ChB250) Twin Rising Main DN500 (ChB450 - ChB650)	748d4h 53d 53d 98d	104d 56d 56d	71 21APR06 A 0 05MAR08 0 29DEC07	22SEP08 10MAY08 04MAR08 21JUL08	21APR06 A 16MAY08 08MAR08	29JAN09 18JUL08 15MAY08 31DEC08		DN300 Pipe & Manhole (F7 - F9
rtion G Ground Investiga S4GB1500 Drainage and Du Trench Method S4GEA1300 S4GEA14000 S4GFA1000 S4GFA1300 Trenchless Met	tion Install Settlement Markers Ucts DN300 Pipe & Manhole (F5 - F7) DN300 Pipe & Manhole (F7 - F9) DN300 Pipe & Manhole (F7 - F9) Main Twin Rising Main DN500 (AVIC4 - ChB250) Twin Rising Main DN500 (ChB450 - ChB550) thod	748d4h 53d 53d 98d 84d	104d 56d 56d 135d 185d	71         21APR06 A           0         05MAR08           0         29DEC07           0         19MAR08           0         29DEC07	22SEP08 10MAY08 04MAR08 21JUL08 14APR08	21APR06 A 16MAY08 08MAR08 03SEP08 15AUG08	29JAN09 18JUL08 15MAY08 31DEC08 24NOV08		DN300 Pipe & Manhole (F7 - F9
rtion G Ground Investige S4GB1500 Drainage and Du Trench Method S4GEA1400 S4GEA1400 S4GFA1000 S4GFA1000 Trenchless Met S4GFB1020	ation Install Settlement Markers Ucts DN300 Pipe & Manhole (F5 - F7) DN300 Pipe & Manhole (F7 - F9) Main Twin Rising Main DN500 (AVIC4 - ChB250) Twin Rising Main DN500 (ChB450 - ChB550) thod Jacking Twin DN500 (AVIC4 - P/S)	748d4h 53d 53d 98d 84d	104d 56d 56d 135d 185d	0 05MAR08 0 29DEC07 0 19MAR08 0 29DEC07 10 15DEC07 A	22SEP08 10MAY08 04MAR08 21JUL08 14APR08 19MAR08	21APR06 A 16MAY08 08MAR08 03SEP08 15AUG08 15AUG08	29JAN09 18JUL08 15MAY08 31DEC08 24NOV08 02SEP08		DN300 Pipe & Manhole (F7 - F9
rtion G Ground Investige S4GB1500 Drainage and Du Trench Method S4GEA1300 S4GEA1400 S4GFA1000 S4GFA1000 S4GFA1300 Trenchless Met S4GFB1020 S4GFB1100	Ation Install Settlement Markers UCIS DN300 Pipe & Manhole (F5 - F7) DN300 Pipe & Manhole (F7 - F9) DN300 Pipe & Manhole (F7 - F9) Main Twin Rising Main DN500 (AVIC4 - ChB250) Twin Rising Main DN500 (ChB450 - ChB550) thod Jacking Twin DN500 (AVIC4 - P/S) Construct AVIC4	748d4h 53d 53d 98d 84d	104d 56d 56d 135d 185d	71         21APR06 A           0         05MAR08           0         29DEC07           0         19MAR08           0         29DEC07	22SEP08 10MAY08 04MAR08 21JUL08 14APR08	21APR06 A 16MAY08 08MAR08 03SEP08 15AUG08	29JAN09 18JUL08 15MAY08 31DEC08 24NOV08		
tion G Sround Investiga S4GB1500 Trainage and Du Trench Method S4GEA1300 S4GEA1400 S4GFA1000 S4GFA1000 S4GFA1300 Trenchless Met S4GFB1020 S4GFB1100	Ation Install Settlement Markers UCIS DN300 Pipe & Manhole (F5 - F7) DN300 Pipe & Manhole (F7 - F9) DN300 Pipe & Manhole (F7 - F9) Main Twin Rising Main DN500 (AVIC4 - ChB250) Twin Rising Main DN500 (ChB450 - ChB550) thod Jacking Twin DN500 (AVIC4 - P/S) Construct AVIC4	748d4h 53d 53d 98d 84d	104d 56d 56d 135d 185d	0 05MAR08 0 29DEC07 0 19MAR08 0 29DEC07 10 15DEC07 A	22SEP08 10MAY08 04MAR08 21JUL08 14APR08 19MAR08	21APR06 A 16MAY08 08MAR08 03SEP08 15AUG08 15AUG08	29JAN09 18JUL08 15MAY08 31DEC08 24NOV08 02SEP08		
rtion G Ground Investige S4GB1500 Drainage and Du Trench Method S4GEA1400 S4GEA1400 S4GFA1000 S4GFA1000 Trenchless Met S4GFB1020	Ation Install Settlement Markers UCIS DN300 Pipe & Manhole (F5 - F7) DN300 Pipe & Manhole (F7 - F9) DN300 Pipe & Manhole (F7 - F9) Main Twin Rising Main DN500 (AVIC4 - ChB250) Twin Rising Main DN500 (ChB450 - ChB550) thod Jacking Twin DN500 (AVIC4 - P/S) Construct AVIC4	748d4h 53d 53d 98d 84d	104d 56d 56d 135d 185d	0 05MAR08 0 29DEC07 0 19MAR08 0 29DEC07 10 15DEC07 A	22SEP08 10MAY08 04MAR08 21JUL08 14APR08 19MAR08	21APR06 A 16MAY08 08MAR08 03SEP08 15AUG08 15AUG08	29JAN09 18JUL08 15MAY08 31DEC08 24NOV08 02SEP08		
rtion G Ground Investige S4GB1500 Drainage and Du Trench Method S4GEA1300 S4GEA14000 S4GFA1000 S4GFA1000 S4GFA1300 Trenchless Met S4GFB1020 S4GFB1100 S4GFB1100	Ation Install Settlement Markers UCIS IDN300 Pipe & Manhole (F5 - F7) DN300 Pipe & Manhole (F7 - F9) Main Twin Rising Main DN500 (AVIC4 - ChB250) Twin Rising Main DN500 (ChB450 - ChB550) thod Jacking Twin DN500 (AVIC4 - P/S) Construct AVIC4 vts	748d4h 53d 53d 98d 84d	104d 56d 56d 135d 185d	0 05MAR08 0 29DEC07 0 19MAR08 0 29DEC07 10 15DEC07 A	22SEP08 10MAY08 04MAR08 21JUL08 14APR08 19MAR08	21APR06 A 16MAY08 08MAR08 03SEP08 15AUG08 15AUG08	29JAN09 18JUL08 15MAY08 31DEC08 24NOV08 02SEP08		
trion G Ground Investiga S4GB1500 Drainage and Du Trench Method S4GEA1300 S4GEA1400 S4GFA1000 S4GFA1000 S4GFA1000 Trenchless Met S4GFB1020 S4GFB1020 S4GFB1100 S4GFB1020 S4GFB1000 S4GFB1000 S4GFB1000 S4GFB1000 S4GFB1000 S4GFB1000 S4GFB10	tion Install Settlement Markers IDN300 Pipe & Manhole (F5 - F7) DN300 Pipe & Manhole (F7 - F9) DN300 Pipe & Manhole (F7 - F9) DN300 Pipe & Manhole (F7 - F9) Twin Rising Main DN500 (AVIC4 - ChB250) Twin Rising Main DN500 (AVIC4 - P/S) Construct AVIC4 Install Settlement Markers EC05 PR10	748d4h 53d 53d 98d 84d	104d 56d 56d 135d 185d	0 05MAR08 0 29DEC07 0 19MAR08 0 29DEC07 10 15DEC07 A	22SEP08 10MAY08 04MAR08 21JUL08 14APR08 19MAR08 28APR08	21APR06 A 16MAY08 08MAR08 03SEP08 15AUG08 15DEC07 A 25NOV08	29JAN09 18JUL08 15MAY08 31DEC08 24NOV08 02SEP08 31DEC08		Jacking Tw
Intion G Sround Investiga S4GB1500 Drainage and Du Trench Method S4GEA1300 S4GEA1400 S4GEA1400 S4GFA1000 S4GFA1000 S4GFA1000 S4GFA1000 S4GFA1000 S4GFA1000 S4GFB1020 S4GFB100 S	ation Install Settlement Markers Jots DN300 Plpe & Manhole (F5 - F7) DN300 Plpe & Manhole (F7 - F9) DN300 Plpe & Manhole (F7 - F9) Main Twin Rising Main DN500 (AVIC4 - ChB250) Twin Rising Main DN500 (ChB450 - ChB550) thod Jacking Twin DN500 (AVIC4 - P/S) Construct AVIC4 vts EC05	748d4h 53d 53d 98d 84d	104d 56d 56d 135d 185d	0 05MAR08 0 29DEC07 0 19MAR08 0 29DEC07 10 15DEC07 A	22SEP08 10MAY08 04MAR08 21JUL08 14APR08 19MAR08 28APR08 Lead	21APR06 A 16MAY08 08MAR08 03SEP08 15AUG08 15DEC07 A 25NOV08 er Civil E	29JAN09 18JUL08 15MAY08 31DEC08 24NOV08 02SEP08 31DEC08 31DEC08	g Corp. Ltd.	Jacking Tv Jacking Tv Early bar Progress bar Critical bar
trion G Ground Investiga S4GB1500 Drainage and Du Trench Method S4GEA1300 S4GEA1400 S4GFA1000 S4GFA1000 S4GFA1000 Trenchless Met S4GFB1020 S4GFB1020 S4GFB1100 S4GFB1020 S4GFB1000 S4GFB1000 S4GFB1000 S4GFB1000 S4GFB1000 S4GFB1000 S4GFB10	tion Install Settlement Markers IDN300 Pipe & Manhole (F5 - F7) DN300 Pipe & Manhole (F7 - F9) DN300 Pipe & Manhole (F7 - F9) DN300 Pipe & Manhole (F7 - F9) Twin Rising Main DN500 (AVIC4 - ChB250) Twin Rising Main DN500 (AVIC4 - P/S) Construct AVIC4 Install Settlement Markers EC05 PR10	748d4h 53d 53d 98d 84d	104d 56d 56d 135d 185d	71         21APR06 A           0         05MAR08           0         29DEC07           0         19MAR08           0         29DEC07           10         15DEC07 A           10         15DEC07 A           10         19MAR08	22SEP08 10MAY08 04MAR08 21JUL08 14APR08 19MAR08 28APR08 Lead DS	21APR06 A 16MAY08 08MAR08 03SEP08 15AUG08 15DEC07 A 25NOV08 er Civil E 5D Contra	29JAN09 18JUL08 15MAY08 31DEC08 24NOV08 02SEP08 31DEC08 31DEC08	g Corp. Ltd. ://2005/02 1 at 29 December 2007	Jacking Tw

Act ID	Description	Orig Dur		Percent Complete	Early Start	Early Finish	Late Start		101	20 [	IO7 DEC				JAN				2008 FEB				M	AR	
	Monitoring of Instruments	768d			22APR06 A		22APR06 A	29JAN09	26 03	10	17	24	31	07	14	21	28	04	11	18	25	03	10	17 24	
Portion H											-	-		-		-				1	1	1	-		_
Ground Investig	ation																								
S4HB1040	Boreholes & Instrumentation (ChC1302 - ChC1376)	10d	-6d	0	29DEC07	10JAN08	20DEC07	03JAN08							Boreholes	& Instrum	nentation (	ChC1302 -	ChC1376)						
S4HB1300	Install Settlement Markers	727d4h	124d	73	26MAY06 A	27AUG08	26MAY06 A	29JAN09						_		_		_	_			_	-		
Drainage and D	ucts																								
Trench Metho	d																								
S4HEA110	DN500 Pipe & Manhole (A6 - A9)	100d	-29d	23	250CT07 A	05APR08	250CT07 A	28FEB08																	
S4HEA1400		109d			11MAR08	24JUL08	29DEC07	16MAY08									i.							i i	
S4HEA1500		37d			29DEC07	14FEB08	20OCT07	03DEC07											D	400 Pipe	& Manhol	e (A16 - A	17)		
	D DN300 Pipe & Manhole (B4 - B6)	67d			23FEB08	17MAY08	18APR08	09JUL08														1			
S4HEA2000		44d				22FEB08	22FEB08	17APR08										_	_		N300 Plp	e & Manh	ole (B6 - E	;8)	
Pipework - Risin													1							1	+			+	
Trench Metho																									
S4HFA1100	Twin Rising Main DN700 (ChC170 - ChC290)	50-1	-204		250CT07 A	23MAY08	250CT07 A	17APR08		1										1	1	1	1	<u> </u>	
S4HFA1100 S4HFA1500		50d 21d			15FEB08	23MAY08 10MAR08	03DEC07	17APR08 29DEC07						-					_	1	1	1	Twip 5	ising Main DN	700 (CH
S4HFA1500		125d			23FEB08	26JUL08	15NOV07	29DEC07 21APR08													1	1			
S4HFA1800		125d 44d			29DEC07	2050L08	21SEP07	15NOV07												Т	win Risin	n Main DN	700 (ChC	950 - ChC1000	2)
S4HFA1910		44d 43d			03MAY07 A	28DEC07 A	03MAY07 A	28DEC07 A	i				Twin Ris	ing Main I	DN700 (Ch	001000 - 0	ChC1050)	-							″
S4HFA1910		43u 44d			28MAR08	22MAY08	050CT07	26NOV07																· +	
S4HFA2500		44u 47d			28MAR08	26MAY08	020CT07	26NOV07																	
S4HFA2700		124d			14FEB08	16JUL08	22MAY08	180CT08																<u> </u>	
S4HFA2700		20d			23FEB08	17MAR08	27MAR08	21APR08													1	1	1	Construct A	AVIC9
S4HFA3000		200 20d			23FEB08	17MAR08	27MAR08	21APR08																Construct V	1
S4HFA3100		200 20d			23FEB08 28MAR08	22APR08	03NOV07	26NOV07																	10100
	Construct AVIC6	200 30d			14FEB08	19MAR08	11SEP08	180CT08															1	Construc	
Trenchless Me		300	1720	0	141 2000	TSINAROO	TISEF00	1800108	i	1	1		1	-		1	-	i.	-	1			1		
S4HFB1100	Construct Jack/Receive Pits (AVIC8 - WOIC7)	57d	-31d	0	13FEB08	23APR08	04JAN08	13MAR08																	
Geotechnical w	orks								l.							1				1			1		
S4HP1000	Monitoring of Instruments	846d	-49d	56	26MAY06 A	27MAR09	26MAY06 A	29JAN09				_			_	_	_	_	_	_		-		_	
Additonal Works													1	1						-	1	1	1		_
Twin R/M DN S4HV1090	V700 ChC1620 - ChC1661 (Claim No. 026) Set up for Pipe Jacking	12d		100	23NOV07 A	10DEC07 A	23NOV07 A	10DEC07 A		Set up	for Pipe	Jacking													
S4HV1090		36d			11DEC07 A	12FEB08	11DEC07 A	17AUG07		Oct up	.o ipe	J							Jack 1	Fwin DN12	200 Sleeve	e Pipes			
S4HV1100		36d			12FEB08	28MAR08	18AUG07	29SEP07																	Ins
Portion I		500	-1430	0	121 2000		100001	2302-01			1			1						1		1			
Ground Investig	ation																								
S4IB1040	Boreholes & Instrumentation (ChD0 to ChD55)	8d	113d		29DEC07	08JAN08	21MAY08	29MAY08						Bo	oreholes &	Instrumen	tation (Ch	D0 to ChD	55)						
S4IB1300	Install Settlement Markers	736d4h			26JUN06 A		26JUN06 A	29JAN09											1						
Drainage and D			. 100	12			X																		$\neg$
Trench Metho																									
					auto :== :	10555	auto: :== :	4510:105						i i					DU	0 01 0	Montal	(C10 - C1	2)		
S4IEA1320	DN500 Plpe & Manhole (C10 - C12)	54d	-70d	35	21NOV07 A	13FEB08	21NOV07 A	15NOV07	i i		1	i.	1	i.		i.	1	1	DN5	uu Pipe &	wannole	(UIU - UI	<b>2</b> )		
Finish date 16A	DEC05 IPR10 JEC07					Leade	er Civil Ei	ngineerin	a Cor	rp. Ltd.											P	arly bar Progress b	ar		
Page number 5A								ct No. DC														Critical bar	ar	2 LE	ADER
					3-Montl					9 Decemb	er 200	)7										Summary b Start milest		1	
c Primavera Syste	ems, Inc.																					inish miles		(	

Act	Description	Orig		Percent Early	Early Finish	Late	Late	101	2007 DEC				JAN			2008 FEB				MAR
ID S4IEA1600	DN500 Plpe & Manhole (C14 - C15)	Dur 45d	-70d	0 13FEB08	Finish 10APR08	Start 16NOV07	Finish 10JAN08	26 03	10 17	24	31	07	14 21	28	04	11 11	8 25	03	10	17 24
S4IEA1820	DN500 Plpe & Manhole (C19 - C21)	40d 82d	700	100 31AUG07 A		31AUG07 A		_			DN500 F	Pipe & Mani	nole (C19 - C21)				1			
S4IEA2320	DN500 Plpe & Manhole (C31 - C32)	53d	-47d	0 29DEC07	04MAR08	02NOV07	05JAN08	-										D	N500 Pipe 8	Manhole (C31 -
S4IEA2400	DN500 Plpe & Manhole (C32 - C34)	70d	-47d	0 05MAR08	31MAY08	07JAN08	03APR08													
Geotechnical worl											1									
_																				
S4IP1000	Monitoring of Instruments	766d	4d	59 28JUN06 A	21 JAN09	28 II IN06 A	29JAN09				1				1					
ection 5 - Sewers &		1000	10	2000110071	210/1100	2000110071	200/ 1100													
Portion E																				
Preliminaries																				
S5EA1200	Non Work Period 01 Nov 07 - 31 Mar 08	121d	0	40 01NOV07 A	31MAR08	01NOV07 A	31MAR08 *		-	-							_		_	
Drainage and Duc					1	1	<u></u>				1			1	I I			I I		
Trenchless Meth	nod																			
S5EEB1000	Construct Jack/Receive Pits (H11 - H10)	30d	55d	20 15OCT07 A	26JAN08	15OCT07 A	08APR08		_			_		Constru	ct Jack/Rece	eive Pits (H1	1 - H10)			
S5EEB1020	Jacking DN600 (H11 - H10)	95d	55d	0 28JAN08	27MAY08	09APR08	01AUG08	1							1			1		
Pipework - Rising	Main														1					
Trench Method																				
S5EFA1100	Twin Rising Main DN900 (ChA250 - ChA300)	26d	-56d	80 08SEP07 A	08JAN08	08SEP07 A	310CT07 *					Twir	n Rising Main DN9	00 (ChA25)	) - ĊhA300)					
S5EFA1200	Twin Rising Main DN900 (ChA300 - ChA350)	26d	-56d	90 06AUG07 A		06AUG07 A				1	T and the second	win Rising I	Main DN900 (ChA	300 - ChA3	50)					
	Construct AVIC11	20d	114d	0 02JAN08	25JAN08	26MAY08	18JUN08	-			i =			Construc	AVIC11					
Geotechnical worl	ks														1	1 1		1		
S5EP1000	Monitoring of Instruments	535d	97d	80 01AUG06 A	10MAY08	01411606.4	03SEP08							1	1	1 I 1 I				
tion 6 - Sewers in		0000	5/4	of Theorem	101004100	011100007	0002100		-		1	1		1		1 1				
Portion J																				
Ground Investigati	ion																			
S6JB1500	Install Settlement Marker 1st Stage	765d	-57d	66 20APR06 A	11NOV08	20APR06 A	03SEP08	1			1									 I I
S6JB2100	Install Settlement Markers 2nd Stage	600d4h	149d	72 07JUL06 A	30JUL08	07JUL06 A	29JAN09													
Drainage and Duc Trench Method	cts																			
														i.						
S6JEA1210	DN1050 Pipe & Manhole (D5 - D6)	78d	120d	0 02FEB08	13MAY08	04JUL08	04OCT08													
S6JEA1720	TTA JA7-1 DN400 Pipe & Manhole (D15 - D16)	61d	-338d	0 15FEB08	02MAY08	21DEC06	08MAR07									-				
S6JEA1800	TTA JA8-2 DN400 Pipe & Manhole (D16 - D18)	81d	-338d	54 30AUG07 A	15FEB08	30AUG07 A	20DEC06	-		1					1	TTA	JA8-2 DN	400 Pipe & M	anhole (D16	6 - D18)
S6JEA2500	TTA JB7-2 DN400 Pipe & Manhole (D30 - D31)	82d	-366d	0 17JAN08	29APR08	23OCT06	30JAN07													
S6JEA2520	TTA JB7-1 DN400 Pipe & Manhole (D31 - D32)	94d	-366d	84 11SEP07 A	16JAN08	11SEP07 A										e (D31 - D32)	) !			
S6JEA3110	DN400 Pipe & Manhole (D39 - D40)	29d	-57d	79 30OCT07 A	07JAN08	30OCT07 A		_				DN40	0 Pipe & Manhole	(D39 - D40				1		
S6JEA3200	DN300 Pipe & Manhole (D40 - D42)	65d	-57d	0 07JAN08	29MAR08	29OCT07	16JAN08			DUTE OF					1	1 1		1		
S6JEA3920	TTA JD1-2 DN750 Pipe & Manhole (E2 - E3)	49d		100 03JUL07 A	11DEC07 A	03JUL07 A		-	TTA JD1-2	UN750 Pip	e & Manho	bie (E2 - E3	)		1			Delet		
S6JEA3930	TTA JD1-2 Road Reinstatement	6d	-63d	0 04FEB08	13FEB08	19NOV07	24NOV07										JI-Z Road	Reinstateme	n	
S6JEA4220	TTA JD4-2 DN750 Pipe & Manhole (E7 - E9)	63d	-63d	0 14FEB08	02MAY08	26NOV07	13FEB08	+												
S6JEA4620	TTA JD8-1 DN750 Pipe & Manhole (E13 - E14)	39d	-105d	0 16FEB08	07APR08	10OCT07	24NOV07								1			750 Pipe * *	Ianholo (E1	1 - E15)
	TTA JD-9 DN750 Pipe & Manhole (E14 - E15)	69d	-105d	44 13NOV07 A	16FEB08	13NOV07 A	A 09OCT07			1	1	1		1	1		- 10-9 DN	750 Pipe & N	namole (E1	+-E13)
Trenchless Meth																				
S6JEB1000	Construct Jack/Receive Pits (D1 - D2)	28d	-31d	0 13FEB08	15MAR08	04JAN08	05FEB08											1		Construct Jack/
t date 19DE	CO5	1		1		1					*							Early ba	ar	
	R10				Lead	er Civil E	Engineerin	g Corp.	Ltd.									Progres	s bar	
e number 6A							act No. DO											Critical I — Summa		2 LEA
				3-Mont	h Rolling	Progran	nme - 3M0	1 at 29 D	ecember 2	007							•	Start mi	lestone poin	
Primavera System	ns, Inc.																•	<ul> <li>Finish m</li> </ul>	nilestone poi	nt

	Act		Orig	Total	Percent Early	Farly	Late	Late	2007	2008	
	ID	Description	Orig Dur		complete Start	Early Finish	Start	Finish	DEC 03 10 17 24 31 07 1	JAN FEB MAR 4 21 28 04 11 18 25 03 10 17	24
	S6JEB1020	Jacking DN1050 (D1 - D2)	29d	-31d	0 17MAR08	23APR08	06FEB08	13MAR08			
	S6JEB1120	Jacking DN1050 (D6 - D7)	29d	-31d	0 29DEC07	01FEB08	21NOV07	24DEC07		Jacking DN1050 (D6 - D7)	
	S6JEB1140	Construct Manhole D6	25d	264d	0 02FEB08	05MAR08	23DEC08	23JAN09		Construct Manhole D6	
	S6JEB1200	Construct Receive Pits (D8)	28d	-31d	0 31DEC07	01FEB08	22NOV07	24DEC07		Construct Receive Pits (D8)	
	S6JEB1220	Jacking DN1050 (D7 - D8)	34d	-31d	0 02FEB08	15MAR08	27DEC07	05FEB08		Jacking Di	1050 (D7
	S6JEB1240	Construct Manholes D7 & D8	25d	230d	0 17MAR08	18APR08	23DEC08	23JAN09			
	Geotechnical wor	ks									
	S6JP1000	Monitoring of Instruments	1178d	-350d	43 21APR06 A	29MAR10	21APR06 A	29JAN09			
	Additonal Works /	Disruption				1		1			
	Kam Tin Road	I A/C Watermain (Claim No. 019)									
	S6JV1530	TTA JB3-1 W/M Temporary Diversion	18d	-330d	0 29DEC07	19JAN08	17NOV06	07DEC06		TTA JB3-1 W/M Temporary Diversion	
	S6JV1550	TTA JB3-2 W/M Temporary Diversion	18d	-330d	0 21JAN08	13FEB08	08DEC06	30DEC06		TTA JB3-2 W/M Temporary Diversion	
	S6JV1570	TTA JB2-2 W/M Temporary Diversion	18d	-330d	0 14FEB08	05MAR08	02JAN07	22JAN07		TTA JB2-2 W/M Tempora	ary Diversio
	S6JV1590	TTA JB2-1 W/M Temporary Diversion	18d	-330d	0 06MAR08	29MAR08	23JAN07	12FEB07			T -
	Kam Sheung I	Rd Utilities Obs. (Claim No. 027)		I							
	S6JV2340	TTA JD1-2 Reinstate Ext. Storm Drain	1d		100 12DEC07 A	28DEC07 A	12DEC07 A	28DEC07 A	TTA JD1-2 Reinstate Ex	t. Storm Drain	
		300 W/M E2 - E3 (Claim No. 110)									
	S6JV2900	Additional DN300 Watermain between E2 - E3	30d	-63d	0 29DEC07	02FEB08	13OCT07	17NOV07		Additional DN300 Watermain between E2 - E3	
	tion 7 - Sewers in ortion K	Portion K									
	Drainage and Duo	ts									
	Trench Method										
	S7KE41110	DN600 Pipe & Manhole (M3 - M4)	35d	-49d	50 27NOV07 A	19JAN08	27NOV07 A	20NOV07		DN600 Pipe & Manhole (M3 - M4)	
		DN900 Pipe & Manhole (M8 - M10)	53d 51d	-46d	5 260CT07 A	26MAR08	260CT07 A				DN90
	S7KEA1610	DN900 Pipe & Manhole (M1 - M12) Stage 2	54d	-31d	0 29DEC07	05MAR08	21NOV07	25JAN08		DN900 Pipe & Manhole (	1
	S7KEA1800	DN900 Pipe & Manhole (M14 - M15)	54d 51d	010	100 27DEC06 A	29NOV07 A	27DEC06 A	29NOV07 A	1900 Pipe & Manhole (M14 - M15)		
	S7KEA1900	DN900 Pipe & Manhole (M15 - M16)	93d	-109d	0 30JAN08	28MAY08	18SEP07	10JAN08			
	S7KEA1910	DN900 Pipe & Manhole (M16 - M16a)	33d	-109d	20 20DEC07 A	30JAN08	20DEC07 A	17SEP07	- · · · · · · · · · · · · · ·	DN900 Pipe & Manhole (M16 - M16a)	
	S7KEA2000	DN400 Pipe & Manhole (M21 - M16a)	32d		100 29AUG07 A	18DEC07 A	29AUG07 A	18DEC07 A	DN400 Pipe & Manhole (M21 - M16a)		
		DN1650 Pipe & Manhole (S2 - Outfall)	24d		100 160CT07 A	19DEC07 A	160CT07 A	19DEC07 A	DN1650 Pipe & Manhole (S2 - Outfal	0	
		Demolish & Reconstruct Ext Manhole X1	24d	-1d	0 29DEC07	26JAN08	28DEC07	25JAN08		Demolish & Reconstruct Ext Manhole X1	
	Trenchless Meth	nod									
						1					
		Excavate & Lay DN600 (M4 - M19)	72d	-123d	10 27NOV07 A	18MAR08	27NOV07 A				ate & Lay D
	S7KEB1040	Construct Manholes M4 & M19	27d	-123d	0 18MAR08	23APR08	20OCT07	20NOV07			
	S7KEB1120	Excavate & Lay DN450 (M8 - M20)	97d4h	-30d	95 18NOV06 A	04JAN08	18NOV06 A	27NOV07	Excavate & La	ay DN450 (M8 - M20)	
	S7KEB1140	Construct Manholes M8 & M20	27d	-21d	0 23JAN08	26FEB08	28DEC07	29JAN08		Construct Manholes M8 & M20	
		<b>,</b>	48d4h	-13d	75 02DEC06 A	14JAN08	02DEC06 A	27DEC07		Jacking DN900 (M13 - M14) Construct Manholes M13 & M14	
	S7KEB1240 S7KEB1250	Construct Manholes M13 & M14	27d 30d	-13d	0 14JAN08	18FEB08	28DEC07	29JAN08 12DEC07 A	Set Up & Jack DN1500 Casing (M7 - M8)		
	S7KEB1250 S7KEB1260	Set Up & Jack DN1500 Casing (M7 - M8)		464	100 130CT07 A	12DEC07 A 22JAN08	130CT07 A 03NOV07	27NOV07		Lav DN750 Pine (M7 - M8)	
		Lay DN750 Pipe (M7 - M8) Set Up & Jack Casing (M4 - M5)	20d 98d	-46d -147d	0 29DEC07	30APR08	05JUL07	300CT07		Lay DN750 Pipe (M7 - M8)	
	Geotechnical wor		980	-14/0	0 29DEC07	JUAPRUS	05JUL07	3000107			
		Monitoring of Instruments	569d	-64d	84 24MAY06 A	23APR08	24MAY06 A	31JAN08			
	Additonal Works /	Disruption									
Finis	t date 19DE sh date 16AP	R10				1	or Ci	nainceria	an lad	Early bar Progress bar	
	a date 29DE e number 7A	<u>C07</u>						ngineerin act No. DC	•	Critical bar	LEADER
- ug					3-Mont				t 29 December 2007	← Summary bar ♦ Start milestone point	-
c	Primavera System	ns, Inc.				2				<ul> <li>Start milestone point</li> <li>Finish milestone point</li> </ul>	
										· · · · · ·	

	Act		Orig	Total	Percent	Early	Early	Late	Late			2007								200	08					
	ID	Description	Dur		Complete		Finish	Start	Finish	101		DEC				JAN				FI	EB				AR	
			Dur	Fillat	Complete	Start	Fillisti	Start	FIIIISII	26 03	10	17	24	31	07	14	21	28	04	11	18	25	03	10	17	24
	Conflict of Ex	t. Util. at M/H M4 (Claim No. 052)																								- 1
	S7KV2210	Comment & Approve Method Statement	300	ł	100	28JUL07 A	29NOV07 A	28JUL07 A	29NOV07 A	Comment	& Approv	e Method	Statement													
Secti	on 8 - Preserva	tion and Protection of Trees																				1				
All	Portions																	i i								
		vorks and Establishment Works																								1
																										1
					1 1																					
	S8QR1100	Preservation & Protection of Preserved Trees	7440	9 (	57	29JUL06 A	29JAN09	29JUL06 A	29JAN09																	
Deco	ntamination W	orks								1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Po	tion B																	1								- 1
	econtamination																									1
	ccontainination																					i.				1
																		i i								- 1 - 1
																										1
	S9BU1000	Decontamination Works	480	1390	0 E	29DEC07	27FEB08	21JUN08	16AUG08													D	econtamina	tion Works		1



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





Annex D

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

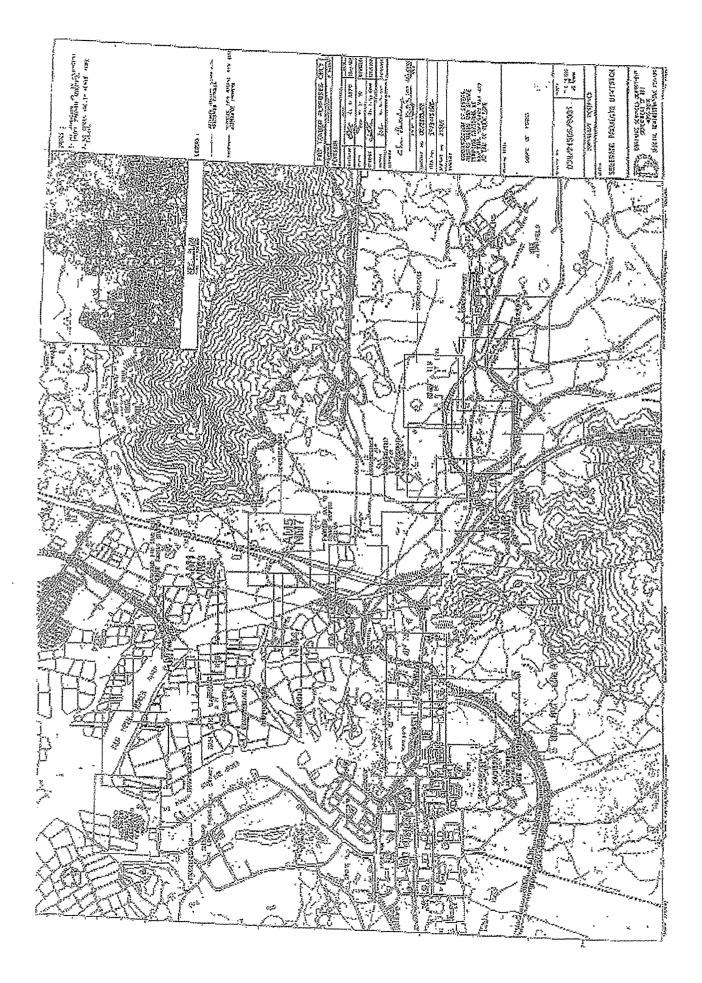


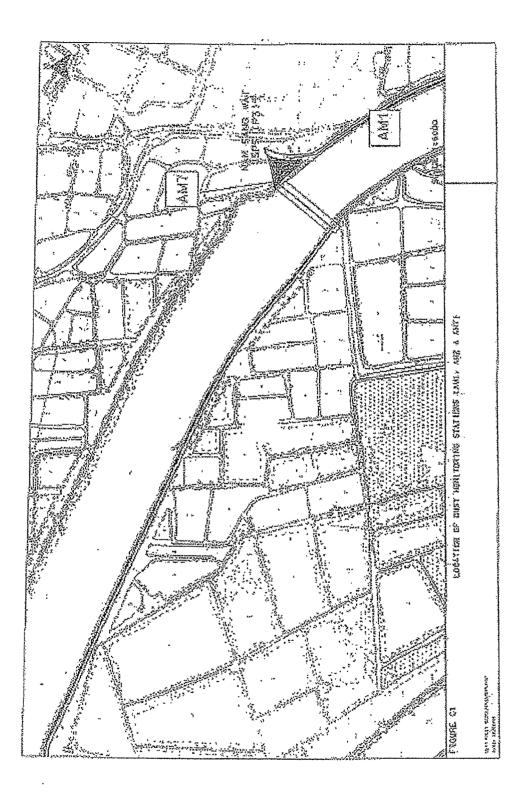


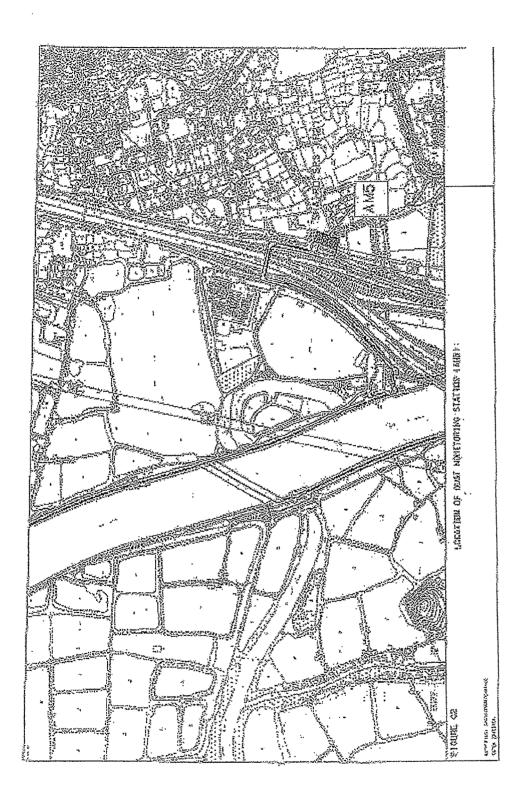


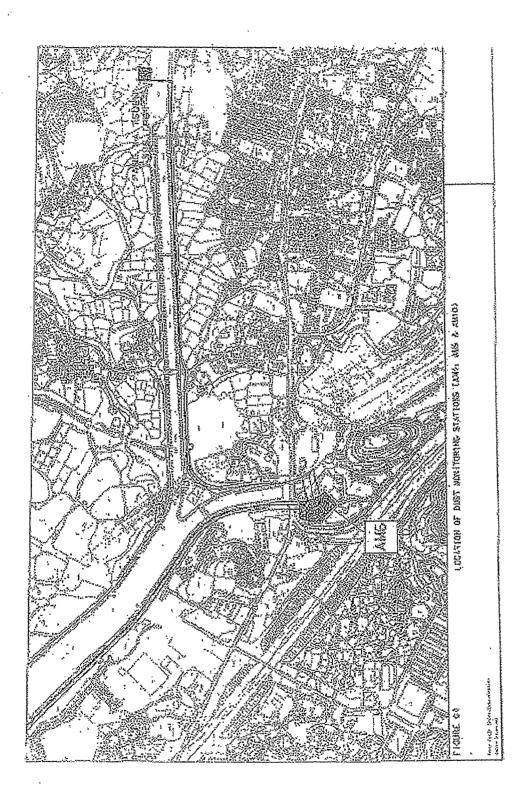
Annex E

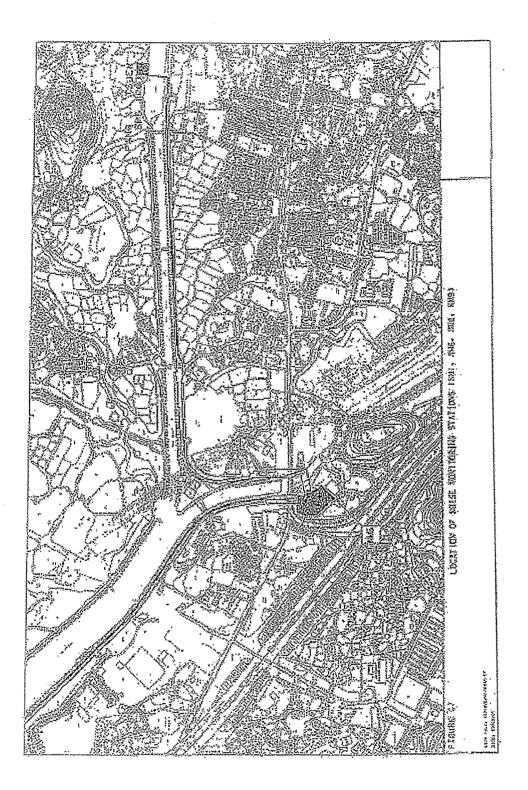
# **Locations of Monitoring Stations**

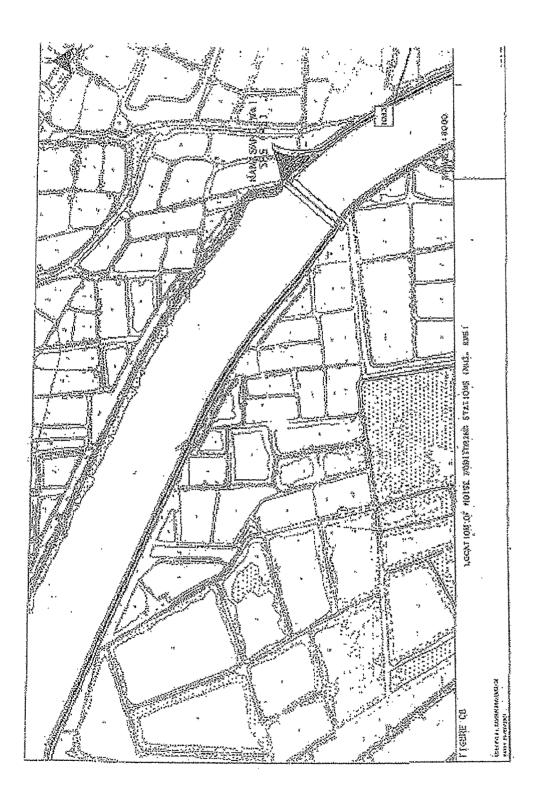


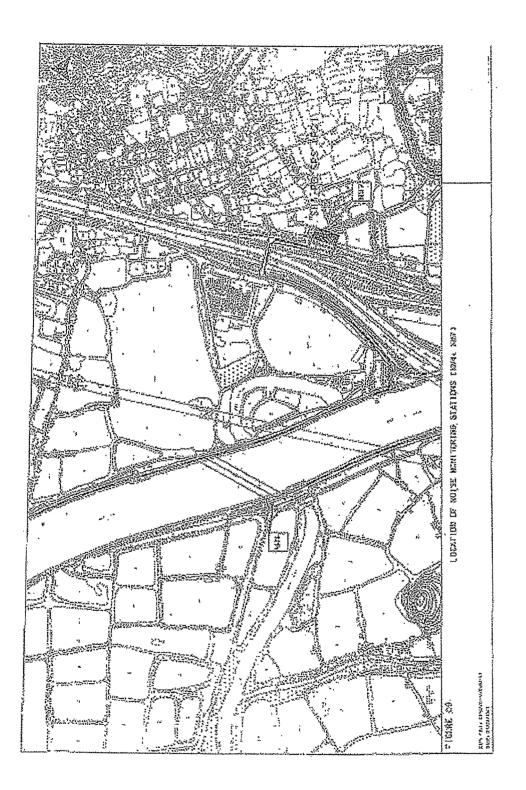














Annex F

# **Event and Action Plan**

#### Event and Action Plan for Construction Phase Air Quality

EVENT		AC <sup>.</sup>	TION	
	ET Leader	IEC	Engineer	Contractor
Action Level				
one sample	<ol> <li>Identify source (s) of exceedance and inform IEC, Contractor and Engineer</li> <li>Repeat dust measurements to confirm findings</li> <li>Increase monitoring frequency to daily</li> <li>Assess efficacy of remedial measures and keep the Contractor, IEC, and Engineer informed</li> </ol>	<ol> <li>Check monitoring data submitted by ET</li> <li>Check monitoring data trends and Contractors working methods</li> <li>Check and confirm Contractors proposed remedial actions and working methods are appropriate</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing</li> <li>Remind the Contractor of his contractual obligations and review the Contractor's working methods</li> <li>Discuss remedial actions with the Contractor and IEC</li> <li>Inform complainant of actions taken, if necessary</li> </ol>	<ol> <li>Rectify any unacceptable practice</li> <li>Liaise with Engineer and IEC to develop appropriate remedial measures to reduce dust impact</li> <li>Amend working methods and remedial proposals if required by the Engineer or IEC</li> <li>Implement the agreed remedial actions upon instruction from the Engineer and IEC</li> </ol>
Exceedance for two or more consecutive samples	<ol> <li>Identify source (s) of exceedance and inform IEC, Contractor and Engineer</li> <li>Repeat measurements to confirm findings</li> <li>Increase the monitoring frequency to daily to assess the efficacy of remedial measures and keep the Contractor informed</li> <li>Discuss remedial actions with IEC and Contractor</li> <li>If exceedance continues, arrange meeting with Engineer, IEC and Contractor to review working practices and identify further remedial actions</li> <li>If exceedance stops, inform the Contractor and cease additional monitoring</li> </ol>	<ol> <li>Check monitoring data submitted by ET</li> <li>Check monitoring data trends and Contractors working methods</li> <li>Discuss with Contractor and Engineer on possible remedial measures</li> <li>Check and confirm Contractors proposed remedial measures are appropriate</li> <li>Determine the efficacy of remedial actions and keep the Engineer informed</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing</li> <li>Remind the Contractor of his contractual obligations and review the Contractor's working methods</li> <li>Discuss remedial actions with the Contractor and IEC</li> <li>Ensure remedial measures are properly implemented</li> <li>Inform complainant of actions taken, if necessary.</li> </ol>	<ol> <li>Rectify any unacceptable practice, if possible</li> <li>Submit proposals for remedial actions to Engineer and IEC within three working days of notification</li> <li>Discuss and amend remedial actions, if required, by the Engineer and IEC</li> <li>Implement the remedial action (s) immediately upon instruction from the Engineer Discuss with Engineer and IEC, to optimise the effectiveness of the agreed remedial actions</li> </ol>
Limit Level				

EVENT	ACTION											
	ET Leader	IEC	Engineer	Contractor								
Exceedance for one sample Exceedance for	<ol> <li>Identify source (s) of exceedance and inform IEC, Contractor and Engineer</li> <li>Repeat dust measurements to confirm findings</li> <li>Increase monitoring frequency to daily</li> <li>Assess efficacy of remedial measures and keep the Contractor, IEC, Engineer and EPD informed</li> </ol>	<ol> <li>Check monitoring data submitted by ET</li> <li>Check monitoring data trends and Contractors working methods</li> <li>Check and confirm Contractors proposed remedial actions and working methods are appropriate</li> <li>Check and confirm Contractors proposed remedial measures are appropriate</li> <li>Determine the efficacy of remedial actions and keep the Engineer informed</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing</li> <li>Remind the Contractor of his contractual obligations and review the Contractor's working methods</li> <li>Discuss remedial actions with the Contractor and IEC,</li> <li>Ensure remedial measures are properly implemented</li> <li>Inform complainant of actions taken, if necessary.</li> </ol>	<ol> <li>Take immediate action to avoid further exceedance</li> <li>Submit proposals for remedial actions to Engineer and IEC within three working days of notification</li> <li>Discuss and amend remedial actions, if required, by the Engineer and IEC</li> <li>Implement the remedial action (s) immediately upon instruction from the Engineer</li> <li>Discuss with Engineer and IEC, to optimise the effectiveness of the agreed remedial actions</li> </ol>								
Exceedance for two or more consecutive samples	<ol> <li>Identify source (s) of exceedance and inform IEC, Contractor and Engineer</li> <li>Repeat measurements to confirm findings</li> <li>Increase the monitoring frequency to daily to assess the efficacy of remedial measures and keep the Contractor informed</li> <li>Discuss remedial actions with IEC and Contractor</li> <li>If exceedance continues, arrange meeting with Engineer, IEC and Contractor to review working practices and identify further remedial actions</li> <li>If exceedance stops, inform the Contractor and cease additional monitoring.</li> </ol>	<ol> <li>Discuss with Contractor and Engineer on possible remedial measures</li> <li>Check and confirm Contractors proposed remedial measures are appropriate</li> <li>Determine the efficacy of remedial actions and keep the Engineer informed</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing</li> <li>Remind the Contractor of his contractual obligations and review the Contractor's working methods</li> <li>Discuss remedial actions with the Contractor and IEC</li> <li>Ensure remedial measures are properly implemented</li> <li>If exceedance continues, instruct the Contractor to stop the relevant portion of work until the exceedance is abated</li> <li>Inform complainant of actions taken, if necessary.</li> </ol>	<ol> <li>Rectify any unacceptable practice, if possible</li> <li>Submit proposals for remedial actions to Engineer and IEC within three working days of notification</li> <li>Discuss and amend remedial actions, if required, by the Engineer and IEC</li> <li>Implement the remedial action (s) immediately upon instruction from the Engineer</li> <li>Discuss with Engineer and IEC, to optimise the effectiveness of the agreed remedial actions</li> </ol>								

Event and Actio	n Plan for Construction Noise			
EVENT		ACTION		
	ET Leader	IEC	Engineer	Contractor
Limit Level				
Exceedance for one sample	<ol> <li>Identify source (s) of exceedance and inform IEC, Contractor and Engineer</li> <li>Repeat dust measurements to confirm findings</li> <li>If repeat measurements confirm exceedance ,increase monitoring frequency to daily</li> <li>Assess efficacy of remedial measures and keep the Contractor, IEC, and Engineer informed</li> <li>If exceedance stops, inform Contractor and cease additional noise monitoring</li> </ol>	<ol> <li>Check monitoring data submitted by ET</li> <li>Check monitoring data trends and Contractors working methods</li> <li>Check and confirm Contractors proposed remedial actions and working methods are appropriate</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing</li> <li>Remind the Contractor of his contractual obligations and review the Contractor's working methods</li> <li>Discuss remedial actions with the Contractor and IEC</li> <li>Inform complainant of actions taken, if necessary</li> </ol>	<ol> <li>Rectify any unacceptable practice</li> <li>Liaise with Engineer and IEC to develop appropriate remedial measures to reduce noise impact</li> <li>Amend working methods and remedial proposals if required by the Engineer or IEC</li> <li>Implement the agreed remedial actions upon instruction from the Engineer and IEC</li> </ol>
Exceedance for two or more consecutive samples	<ol> <li>Identify source (s) of exceedance and inform IEC, Contractor and Engineer</li> <li>Repeat measurements to confirm findings</li> <li>Increase the monitoring frequency to daily</li> <li>Discuss remedial actions with IEC, Engineer and the EPD</li> <li>Assess the efficacy of remedial measures and keep the Contractor informed</li> <li>If exceedance continues, arrange meeting with Engineer, IEC and Contractor to review working practices and identify further remedial actions</li> <li>If exceedance stops, inform the Contractor and cease additional monitoring.</li> </ol>	<ol> <li>Check monitoring data submitted by ET</li> <li>Check monitoring data trends and Contractors working methods</li> <li>Discuss with Contractor and Engineer on possible remedial measures</li> <li>Check and confirm Contractors proposed remedial measures are appropriate</li> <li>Determine the efficacy of remedial actions and keep the Engineer informed</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing</li> <li>Remind the Contractor of his contractual obligations and review the Contractor's working methods</li> <li>Discuss remedial actions with the Contractor and IEC</li> <li>Ensure remedial measures are properly implemented</li> <li>If exceedance continues, instruct the Contractor to stop the relevant portion of work until the exceedance is abated</li> <li>Inform complainant of actions taken, if necessary.</li> </ol>	<ol> <li>Rectify any unacceptable practice, if possible</li> <li>Submit proposals for remedial actions to Engineer and IEC within three working days of notification</li> <li>Discuss and amend remedial actions, if required, by the Engineer and IEC</li> <li>Implement the remedial action (s) immediately upon instruction from the Engineer</li> <li>Discuss with Engineer and IEC, to optimise the effectiveness of the agreed remedial actions</li> <li>Stop the relevant portion of work as determined by the Engineer until the exceedance is abated</li> </ol>



Annex G

# **Mitigation Implementation Schedule**

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Imple Stage		tatio	n	Relevant Legislation & Guidelines
						Des	С	0	Dec	
		CONSTRUCTION PHASE								
3.5	A1	<ul> <li>AIR QUALITY - Construction Phase</li> <li>The following measures are enforceable under the Air Pollution Control (Construction Dust) Regulations</li> <li>Site boundary and entrance <ul> <li>where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the boundaries of the seven pumping stations sites and the works area where the Engineer's site office and the Contractor's site office erected;</li> </ul> </li> </ul>	To prevent access to the site and control potential dust impacts from construction works.	Site wide and throughout the full duration of the construction contract.	The Contractor		~			Part III, Clause 13 (c), Air Pollution Control (Construction Dust) Regulations
3.5	A2	<ul> <li>Access Road</li> <li>the portion of any road leading only to a construction site that is within 30 m of a discernible or designated vehicle entrance or exit should be kept clear of dusty materials;</li> </ul>	To control potential dust impacts from vehicle movements.	Site wide and throughout the full duration of the construction contract.	The Contractor		~			Part III, Clause 14, (b), Air Pollution Control (Construction Dust) Regulations
3.5	A3	<ul> <li>Stockpiling of Dusty Materials</li> <li>any stockpile of dusty materials should be either covered entirely by impervious sheeting and placed in an area sheltered on the top and the 3 sides or sprayed with water so as to maintain the entire surface wet;</li> </ul>	To control potential dust impacts during excavation and stockpiling activities.	Site wide and throughout the full duration of the construction contract.	The Contractor		~			Part IV, Clause 18, (a, b & c), Air Pollution Control (Construction Dust) Regulations
3.5	A4	<ul> <li>Loading, unloading or transfer of dusty materials</li> <li>all dusty materials should be sprayed with water or a dust suppression chemical immediately prior to any loading and unloading so as to maintain the dusty materials wet;</li> </ul>	To control potential dust impacts during material handling and truck movements.	Site wide and throughout the full duration of the construction contract.	The Contractor		~			Part IV, Clause 19, Air Pollution Control (Construction Dust) Regulations
3.5	A5	<ul> <li>Use of vehicles</li> <li>every vehicle should be washed to remove any dusty materials from its body and wheels immediately before leaving a construction site;</li> </ul>	To control potential dust impacts from vehicle movements.	Site wide and throughout the full duration of the construction contract.	The Contractor		√			Part IV, Clause 21, (1), Air Pollution Control (Construction

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Imple Stage		tatio	n	Relevant Legislation & Guidelines
						Des	С	0	Dec	
3.5	A6	<ul> <li>where a vehicle leaving a construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle;</li> </ul>	To control potential dust impacts during material transportation.	Site wide and throughout the full duration of the construction contract.	The Contractor		~			Dust) Regulations Part IV, Clause 21, (2), Air Pollution Control (Construction Dust) Regulations
3.5	A7	<ul> <li>Power-driven drilling, and cutting</li> <li>water should be continuously sprayed on the surface where any mechanical breaking operation that causes dust emission is carried out, unless the process is accompanied by the operation of an effective dusty extraction and filtering device;</li> </ul>	To control potential dust impacts during mechanical breaking.	Site wide and throughout the full duration of the construction contract.	The Contractor		~			Part IV, Clause 22, Air Pollution Control (Construction Dust) Regulations
3.5	A8	<ul> <li>Excavation and earth moving</li> <li>the working area of excavation should be sprayed with water immediately before, during and immediately after the operation so as to maintain the entire surface wet;</li> </ul>	To control potential dust impacts arising from excavation works.	Site wide and throughout the full duration of the construction contract.	The Contractor		~			Part IV, Clause 24, Air Pollution Control (Construction Dust) Regulations
3.5	A9	<ul> <li>Construction of the superstructure of a building</li> <li>where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the round floor level of the SPS, or if a canopy is provided a the first floor level, from the first floor level, up to the highest level of the scaffolding; and</li> </ul>	To control potential dust impacts from SPS building construction works.	Full duration of SPS construction contract.	The Contractor		~			Part I, Clause 6, (a), Air Pollution Control (Construction Dust) Regulations
3.5	A10	<ul> <li>any skip hoist for material transport should be totally enclosed by the impervious sheeting.</li> </ul>	To control potential dust impacts during material transportation.	Full duration of SPS construction contract.	The Contractor		~			Part I, Clause 6, (b), Air Pollution Control (Construction Dust) Regulations

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Imple Stage		tatio	n	Relevant Legislation & Guidelines
						Des	С	0	Dec	
4.7.1	B1	<ul> <li>NOISE - Construction Phase</li> <li>General Site Clearance –</li> <li>Demolition Works</li> <li>Use of quiet PME which meet the SWLs taken from British Standard, Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997 (Examples of these PME are shown in Table F2),</li> </ul>	To control potential noise impacts during site clearance and demolition works	Site wide and throughout the full duration of the construction contract.	The Contractor		~			Annex 5 of EIAO-TM
4.7.1	B2	<ul> <li>Construction of Sewage Pumping Stations P1, P2 &amp; P3</li> <li>Use of quiet PME which meet the SWLs taken from British Standard, Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997,</li> </ul>	To minimise potential noise impacts arising during the construction of <i>P1, P2</i> & <i>P3</i>	Site wide and throughout the full duration of the construction contract.	The Contractor		~			Annex 5 of EIAO-TM
		<ul> <li>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.</li> </ul>	To minimise potential noise impacts arising during the construction of <i>P1, P2 &amp; P3</i>	Site wide and throughout the full duration of the construction contract.	The Contractor		~			Annex 5 of EIAO-TM
		Sewers and Rising Mains using Open Trench								
4.7.1	В3	<ul> <li>Method</li> <li>Use of quiet PME which meet the SWLs taken from British Standard, Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997,</li> </ul>	To control potential noise impacts during excavation works.	Site wide and throughout the full duration of the construction contract.	The Contractor		~			Annex 5 of EIAO-TM
4.7.1	B4	• 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> <li>Use of movable noise barriers or 3 sided enclosures for all initial road opening activities</li> </ul>	To control potential noise impacts during road opening	Where there are NSRs located within 50m of the	The Contractor		✓			

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Imple Stage		tatio	n	Relevant Legislation & Guidelines
						Des	с	ο	Dec	
		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.	activities.	line of sight. Throughout the full duration of the road opening activities.						
		Sewers and Rising Mains using Pipe Jacking Method								
4.7.1		<ul> <li>Use of quiet PME which meet the SWLs taken from British Standard, Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997,</li> <li>Road Pavement and Finishes</li> </ul>	To control potential noise impacts from PME during construction works	Site wide and throughout the full duration of the construction contract.	The Contractor		~			Annex 5 of EIAO-TM
4.7.1		<ul> <li>Use of quiet PME which meet the SWLs taken from British Standard, Noise and Vibration Control on Construction Open Sites, BS 5228: Part 1: 1997,</li> </ul>	To control potential noise impacts from PME during pavement and finish works	Site wide and throughout the full duration of the construction contract.	The Contractor		~			Annex 5 of EIAO-TM
		WATER QUALITY - Construction Phase No water quality monitoring is required under this study.								
		WASTE - Construction Phase								
6.6.2		<ul> <li>The Contractor shall obtain the necessary waste disposal permits from the appropriate authorities for the disposal of chemical and C&amp;D waste,</li> <li>Chemical Waste Producer and Chemical Waste Disposal Licence (Waste Disposal (Chemical Waste) (General) Regulations); and</li> <li>Dumping Licence (Land (Miscellaneous Provisions) Ordinance (Cap 28))</li> </ul>	To monitor the collection, handling and disposal of chemical waste and C&D waste, and in compliance with relevant Hong Kong Standards and Regulations.	Site wide and throughout the full duration of the construction contract.	The Contractor	~	~			Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste)(General) Regulation (Cap 354), the Land (Miscellaneous Provisions) Ordinance (Cap 28))

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Imple Stage		tatio	n	Relevant Legislation & Guidelines
						Des	С	0	Dec	
6.6.2	D2	<b>Chemical Waste</b> Chemical waste that is produced, as defined by Schedule 1 of the <i>Waste Disposal (Chemical</i> <i>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.	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		~			Part II, (6) Waste Disposal (Chemical Waste) (General) Regulation
6.6.2	D3	<ul> <li>Storage, Packaging and Labelling of Chemical Waste</li> <li>Containers used for storage of chemical wastes should:</li> <li>be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed;</li> <li>have a capacity of less than 450 L unless the specifications have been approved by the EPD; and</li> <li>display a label in English and Chinese in accordance with instructions prescribed in</li> </ul>	To ensure the proper storage, packaging and labelling of chemical waste in accordance with the Regulations.	To be implemented at all worksites throughout the full duration of the construction phase.	The Contractor		~			Part IV, (9, 10, 11 & 12) Waste Disposal (Chemical Waste) (General) Regulation
6.6.2	D4	<ul> <li>Schedule 2 of the Regulations.</li> <li>Storage of chemical waste</li> <li>The storage area for chemical wastes should:</li> <li>be clearly labelled and used solely for the storage of chemical waste;</li> <li>be enclosed on at least 3 sides;</li> <li>have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest;</li> <li>have adequate ventilation;</li> <li>be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste, if necessary); and</li> <li>be arranged so that incompatible materials are</li> </ul>	To ensure the proper storage of chemical waste in accordance with the Regulations.	To be implemented at all worksites throughout the full duration of the construction phase.	The Contractor		V			Part IV, (13,14, 15, 16, 17, & 18) Waste Disposal (Chemical Waste) (General) Regulation

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Imple Stage		tatio	n	Relevant Legislation & Guidelines
						Des	С	0	Dec	
		adequately separate								
		<ul> <li>Disposal of chemical waste</li> <li>The Contractor should ensure that the disposal of chemical waste is via a licensed Waste Collector and in accordance with the Waste Disposal (Chemical Waste) (General) Regulations.</li> </ul>	To control the disposal of chemical waste in accordance with the Regulations.	To be implemented at all worksites throughout the full duration of the construction phase.	The Contractor		✓			Part IV, (20 -25) Waste Disposal (Chemical Waste) (General) Regulation
6.6.2	D5	Management of Waste Disposal A trip-ticket system should be established which monitors the disposal of C&DM and solid wastes at public filling facilities and landfills and to control fly-tipping, in accordance with Land (Miscellaneous Provisions) Ordinance (Cap28) and the Works Bureau Technical Circular No. 5/99.	To monitor the disposal of C&DM and solid wastes at public filling facilities and landfills and to control fly-tipping.	To be implemented at all worksites throughout the full duration of the construction phase.	The Engineer/ Contractor		~			Land (Miscellaneous Provisions) Ordinance (Cap 295) and Works Bureau Technical Circular No. 5/99.
7.5.6	E1	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. 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	To determine the presence of soil and groundwater contamination and remedy any potential concerns to acceptable levels.		To be Implemented by DSD or their sub-consultants at the Detailed Design Stage, depending upon when site access can be gained.	*				EIAO TM Annex 19/3.1.1 & 3.1.2

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Imple Stage		tatio	n	Relevant Legislation & Guidelines
						Des	С	0	Dec	
		EPD, the contaminated site(s) shall be remediated in accordance with the approved CAR/RAP.								
8.7.1	F1	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	To schedule construction works in order to minimise potential impacts to winter visiting birds. To be confirmed by regular site inspections.	At identified location ( <i>Figure 8.7a</i> ) for the full duration of the construction contract.	The Contractor		~			
8.7.2	F2	<i>Mitigation Measures Adopted - Minimisation</i> Pipe jacking method should be used instead of dredging where sewers and rising mains cross over existing MDC within the WCA and WBA.	To minimise potential construction noise impacts to ecological sensitive receivers within the WCA/WBA.	For the full duration of the construction contract.	The Contractor		✓			
8.7.2	F4	Regular inspections (at least twice a month) should be conducted by the ET during the winter season (November to March) for the remaining sections of the proposed sewerage alignment (including parts of S4, S5 and S6) within the WCA and WBA, where construction activities cannot be rescheduled. The site inspections shall check and report the number of workfronts and implementation of	To schedule noisy construction activities to minimise potential impacts to winter visiting birds.	Work fronts other than identified sections within WBA & WCA (see <i>Figure</i> <i>8.7a</i> 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	Imple Stage		mentation		Relevant Legislation & Guidelines
						Des	С	ο	Dec	
		mitigation measures (i.e. erection of movable noise barriers with a suitable footing along the sites) in the monthly EM&A reports. <i>Mitigation Measures Adopted</i>					,			
8.7.3	F5	Quietened construction plant and equipment (as shown in <i>Table F2</i> ) should be used for the construction of pumping stations (P3 and P2) and sewerage alignment (S4, S5 and S6) located within the WCA and WBA.	Quiet construction plant shall minimise potential noise impacts to the wildlife, particularly rare birds including Black-faced Spoonbill, Buzzard, Hobby, Imperial Eagle, Intermediate Egret, Avocet and Black-eared Kite	At described locations and throughout the full duration of the construction contract.	The Contractor		~			
8.7.4	F6	Erection of fences along the boundary of pumping station construction sites (P1 to P3) before the commencement of construction works to prevent tipping, vehicle movements, and encroachment of personnel into adjacent areas, and P2 to avoid disturbance to the remaining pond areas (0.7 ha);	To erect fences to prevent encroachment of construction activities onto adjacent areas.	At P1 to P3 for full duration of the construction contract.	The Contractor		~			
8.7.4	F7	No filling and dumping to the remaining abandoned fishpond at P2.	To avoid disturbance to abandoned fishponds from construction activities and illegal dumping.	At P2 for full duration of the construction contract	The Contractor		~			
8.7.4	F8	Installation and operation of silt removal facilities at construction sites of P1 to P3. The silt removal facilities should be designed in accordance with Appendix A1 of ProPECC Note PN1/94 Construction Site Drainage. The minimal total combined volume of the silt removal facilities at Nam Sang Wai SPS (P3) should be 15m <sup>3</sup> .	To install silt removal facilities in potentially impact streams and ponds to prevent sedimentation.	At P1 to P3 for full duration of the construction contract.	The Contractor		✓ ✓			
8.7.4	F9	No open fires within the site boundary during	To prohibit open fires, thereby	Site wide and throughout	The Contractor		✓			Air Pollution Control

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure	Implementation Agent	Implementation Stage**			n	Relevant Legislation & Guidelines
						Des	С	ο	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			~			(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.	To minimise potential landscape and visual impacts.	To be implemented during the construction phases of the project.	The Contractor		~			
		The first monthly EM&A Report should also report the appearance of the temporary hoarding barriers.								
	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	Imple Stage		tatio	n	Relevant Legislation & Guidelines
						Des	С	0	Dec	
		submitted for approval by the EPD.		project.						
		<ul> <li>The landscape plans and pumping station elevations should demonstrate that the following elements are considered:</li> <li>existing landscape elements (such as mature trees), transplantation of valuable trees, new compensatory planting</li> </ul>								
		<ul> <li>incorporate information on materials, details and textures so as to be as visually recessive as possible and in a style that fits with the surrounding village buildings.</li> <li>colour should be of low chromatic intensity to reduce the potential contrast between the structures and their background. The external finishing of the Pumping Stations shall be designed in conjunction with the landscape scheme.</li> <li>a minimum screen planting of 3m width and use of trees with a dense canopy of up to 5 m in height subject to constraints such as engineering and land availability.</li> <li>felling of mature trees are kept to a minimum.</li> </ul>								
		EM&A REQUIEMENTS - Construction Phase								
3.7	11	<ul> <li>Air Quality</li> <li>Subject to the Environmental Protection</li> <li>Departments (EPDs) agreement, construction</li> <li>phase dust monitoring shall be undertaken at the</li> <li>following locations in accordance with the</li> <li>recommendations of the EIA.</li> <li>Worksite boundary facing Scattered house in</li> <li>Nam Sang Wai (AM1);</li> </ul>	Installations of the dust monitoring stations to ensure the action and limit levels are not exceeded.	At specified dust monitoring locations for the duration of the construction works.	To be undertaken by the Environmental Team (ET) and reviewed and audited by the Engineer /DSD		~			Air Pollution Control (Construction Dust) Regulations
		<ul> <li>Worksite boundary facing Fung Kat Heung (AM5);</li> <li>Worksite boundary facing Scattered House near Route 3 (AM6);</li> </ul>								

EIA* Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measures & Main Concerns	Location of the measure					Relevant Legislation & Guidelines	
						Des	С	ο	Dec	
4.9.1		<ul> <li>at any additional locations, where considered necessary, in agreement with EPD.</li> <li><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.</li> <li>(NM3) Scattered House in Nam San Wai (D12);</li> <li>(NM4) Scattered House in Nam San Wai (D11);</li> <li>(NM6) Scattered House near Route 3 (D17);</li> <li>(NM7) Fung Kat Heung (D19);</li> <li>and at any additional locations, where considered necessary, in agreement with EPD</li> </ul>	Installations of the noise monitoring stations to ensure the action and limit levels are not exceeded.	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 = I	Design, C = C	Construction, O = Operation, Dec = Decommissioning	1							



Annex H

# **Equipment Calibration Certificates**



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

Item	Aspect	Description of Equipment	Serial No.	Date of Calibration	Date of Next Calibration
1	Air	Greasby Anderson GMWS2310 High Volume Sampler	0329 (AM1)	19 Nov 07	19 Feb 08
2		Greasby Anderson GMWS2310 High Volume Sampler	0355 (AM5)	13 Oct 07	13 Jan 08
3		Greasby Anderson GMWS2310 High Volume Sampler	10394 (AM6)	02 Oct 07	02 Jan 08
4		Greasby Anderson GMWS2310 High Volume Sampler	1283 (AM7)	19 Nov 07	19 Feb 08
5	Noise	Bruel & Kjaer 4231 Acoustical Calibrator	2292168	17 Apr 07	17 Apr 08
6		Bruel & Kjaer 2238 Integrating Sound Level Meter	2285721	17 Apr 07	17 Apr 08

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

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



Annex I

# Meteorological Data in the Reporting Month



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

				Lau Fau Shan Station					
Date		Weather	Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction		
1-Dec-07	Sat	fine/dry/cloudy/moderate/fresh	0	17.9	9.2	57.7	Е		
2-Dec-07	Sun	fine/dry/moderate/fresh	0	21.1	9	66.7	W/SW		
3-Dec-07	Mon	fine/dry/fresh/moderate/fresh	0	19.7	15.5	61.2	E/NE		
4-Dec-07	Tue	fine/dry/haze/moderate	0	18	12.5	48.5	Е		
5-Dec-07	Wed	cloudy/haze/rain/moderate	0	18.8	11.5	60	E/NE		
6-Dec-07	Thu	cloudy/haze/sunny periods/moderate	0	18.6	8.7	58.5	E/NE		
7-Dec-07	Fri	fine/dry/hazy/moderate	0	18.9	9.7	60.7	E/NE		
8-Dec-07	Sat	fine/dry/hazy/cloudy/moderate/fresh	0	18.2	10.2	58.5	E/NE		
9-Dec-07	Sun	sunny periods/moderate	0	20.1	9	66.5	N/NE		
10-Dec-07	Mon	fine/cloudy/moderate/fresh	0	21.7	10	70.7	E/NE		
11-Dec-07	Tue	fine/warm/cloudy/haze/light winds	0	22	9	68.2	E/SE		
12-Dec-07	Wed	fine/hazy/cloudy/moderate	0	21.6	8.5	65	E/NE		
13-Dec-07	Thu	fine/haze/moderate	Trace	21.1	10	74.5	W/SW		
14-Dec-07	Fri	fine/haze/moderate	Trace	19.2	13	64	E/NE		
15-Dec-07	Sat	fine/haze/moderate/fresh	0	20.3	10	73	E/SE		
16-Dec-07	Sun	fine/haze/moderate/fresh	0	21.7	11.5	63	E/NE		
17-Dec-07	Mon	cloudy/haze/sunny intervals/moderate	Trace	21.7	8.5	70	E/NE		
18-Dec-07	Tue	cloudy/haze/moderate/fresh	0	23.2	8	67.2	R/SE		
19-Dec-07	Wed	cloudy/rain/moderate	Trace	19	12.5	70	S/SE		
20-Dec-07	Thu	cloudy/moderate/fresh	0	21.2	8.2	73.2	Е		
21-Dec-07	Fri	fine/hazy/cloudy/moderate	0	22.4	9.5	69	E/NE		
22-Dec-07	Sat	cloudy/light winds/moderate/rain	Trace	21.8	9.5	77.2	E/SE		
23-Dec-07	Sun	fine/cool/moderate/fresh	1.1	18.4	13.5	86	N/NE		
24-Dec-07	Mon	fine/cool/moderate/fresh	14.6	16.5	14	87	N/NE		
25-Dec-07	Tue			Holiday					
26-Dec-07	Wed			Holiday					
27-Dec-07	Thu	fine/haze/moderate	0	18.7	10	72	Е		
28-Dec-07	Fri	fine/moderate/cloudy/cool	0	18.3	12.5	74.5	E/SE		
29-Dec-07	Sat	cloudy/dry/sunny intervals/moderate/fresh	0	16.3	10	72.5	N/NE		
30-Dec-07	Sun	fine/very dry/cold/fresh	0	15.3	16.2	36	E/NE		
31-Dec-07	Mon	fine/very dry/cold/fresh	0	13.6	19.7	34	NE		



# Annex J

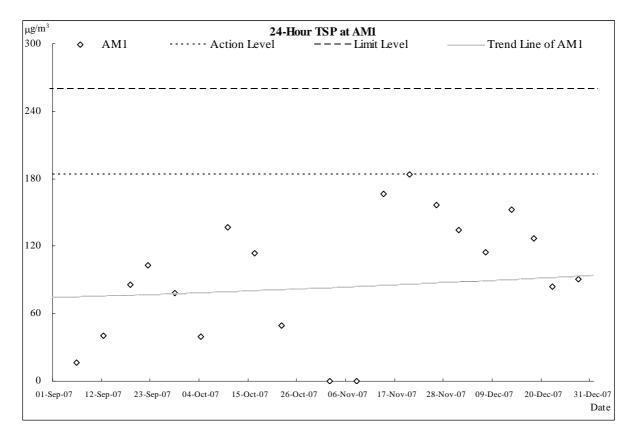
# Graphical Plots of Air Quality and Construction Noise Monitoring Results

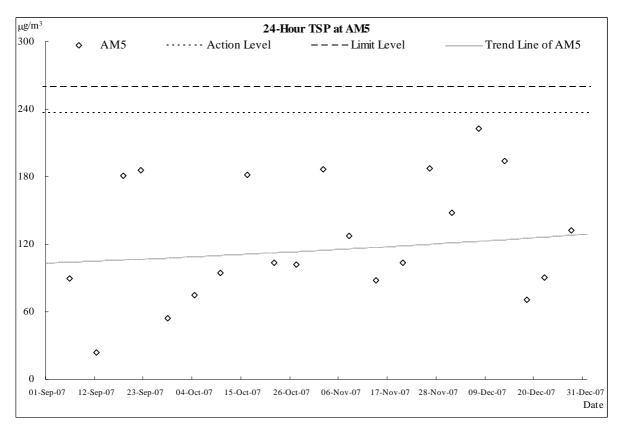


Air Quality



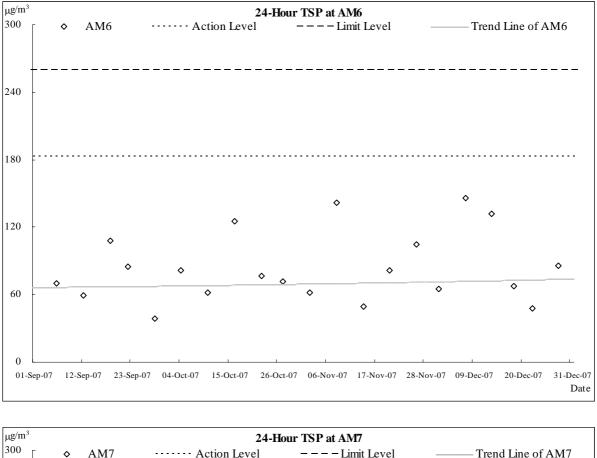
## **<u>Air Quality Monitoring Results</u>**

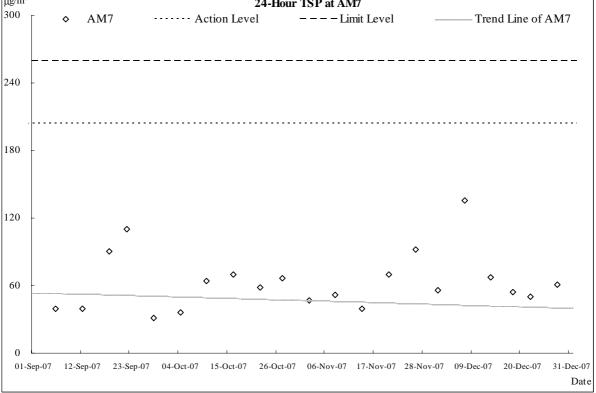






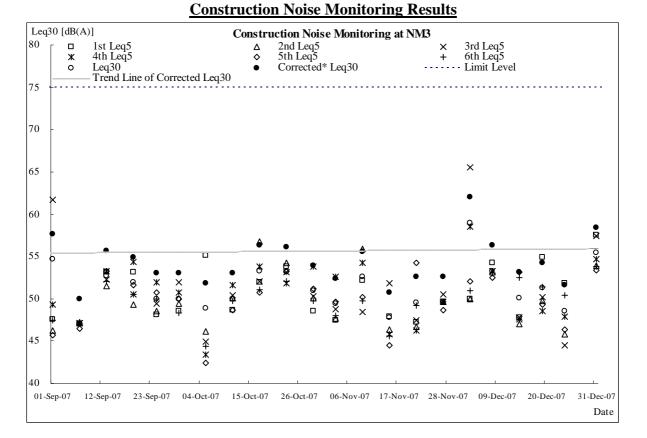
## **<u>Air Quality Monitoring Results</u>**

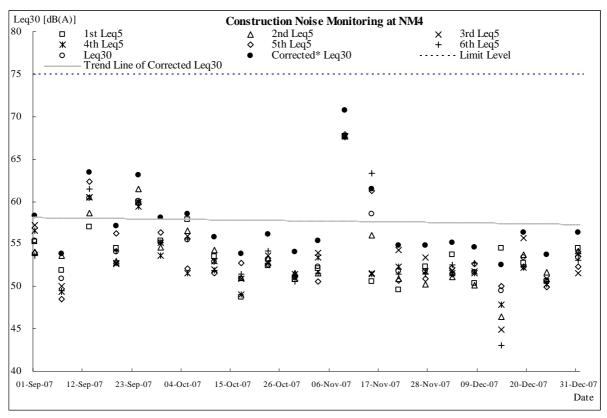




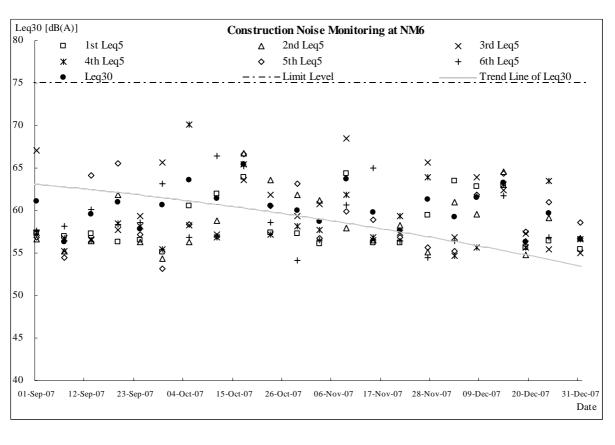


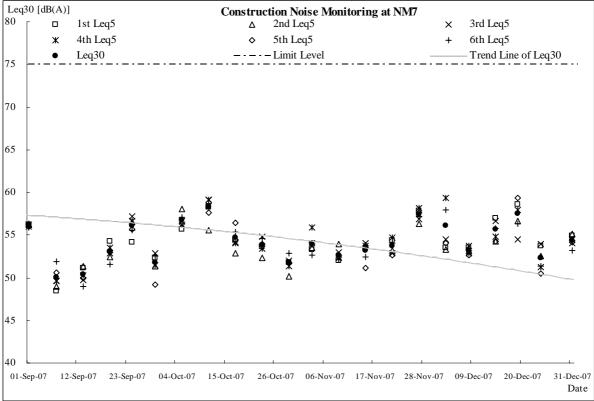
**Construction Noise** 











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





# Annex K

# Proforma of Site Inspection and IEC Audit in the Reporting Month

AUI	AUES					Site Inspection Checklist (SF-17)							
Project	& Sewage I	Construction of Sew Pumping Station at K Tau in Yuan Long								orp, Lid			
					ängineer:			Robtie Asta Ltd					
inspected by:	ET Audeor:	Ben Tam		(EC:		-	Mott Conn						
	Contractor Rep: Edwin/Benny				r latnemia		Consulting	1		Services &			
	IEC's Rep:				Inspection Date & Time: 4 December 2007 (09:30)								
	RE's Kep:	Mr, Hul		Checi	tiist Refere	ince No.;	DSD-AT04	1207					
General Meteo	rological Inform	vation											
Weather	8un <i>n</i> y	Fine	Cloudy		Overcent		Orizzia		]Roin	Hazy			
Temp:	21 •0												
Humidity:	High (F	RM = 90%)	Moderate (	90% > RH	- 50%)		ᆘᇞᄹᆊ	- <b>60%</b> )					
Wind:	Colm	Light	IVBrouze		Sirong								
Air Quality					Yes	No	NA	NC	Pollow- up	Remarks			
in hearding of n	ot less than 2.4m	n provided?			7								
Are alle vehisle	e traveling within	controlled epeed limit?											
Are site vehicle	s movement cont	fined to designated haul r	oads?		Ţ								
Are public rand	n outside site axi	its kept clean and free fro	m dust?							·			
Are haul roods	and unpaved our	fianes watered regularly to	e avold dunt generation	7		Ż							
Are those when	i washing facilitie	ss provided at site exite?								·			
ia water spreyir	ng used during th	e main dust-generating a	ativities?		<b>Z</b>								
Are the exce Impermosble/k	vetod or stack arganila sheet?	kpika of duely motoria	is kopt wet or de	vered by									
is exposed and	a of ground cover	red or welcool frequently	7										
Are load on val	holos coverad by	r ciosa Impervious sheatir	707		<b>7</b>								
Are vehicles ar	nd aquipmani aw(	itched off while not in use	<b>,</b>		<b>I</b>								
Are emoky emi	asions from plan	ito/oquipment evoldad?											
is open bumbu	) evolded?												
Observeble du	si sources	Wind erodion			ve ا	hiata/aqui	pmont mave	mante					
		Loading/unicadin	g of materials			(hem <u>t</u>	111						
Construction									_				
		eduled to minimize noise											
Are the works	or equipment elle	ed lo minimize noise nuis	0007										
Are all plent er	id equipment wei	il maintained and in good	operating condition?										
le idle oquipmi	ont turned off or O	hraitiet down?					<b></b> )						
is powered me materials?	nhanical equipm	ent oovered or shiokind b	y spropriete socustio							<u></u>			
is silenced equ	ipment used whe	ere appropriate?											
Are noise and	asuros ar noiso t	barriens casel where nace	148/ <b>/</b> ?										
Does speaklad	equipment has	velid noise label?											
Are Constructi	on Noine Permite	a (CINPE) evelable for ins	pection?										
Major Noise S	ource	⊆ <b>≣</b> )Tm <b>i</b> llα			⊡c	onetructio	n activitice in	eldo ĉi sito					
		Construction est	Miles cuiside of alle		o	thens _							
										Reas 1 of			

Z:\Jobs\3006\TC500310 (DC-2005-01)\600\Inspection\Dec 2007\D8D-AT04)207.dos

AU	ES
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Site	Inspection	Checklist	(SF-17)
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Water Quality & Drainage		Yes	NO	NA	NG	Follow- up	Remarks
is a wastewater clacitarge li	cense obtained for the Project?						
is site effluent discharged in	accordance with the discharge Scenze?						
is the discharge of slity wet	r evolded?	Ţ					
is drainage adequate?				$\Box$ .			
is dminaga system well mai	nta)ned?	$\square$					
Are there temporary dischar	for russoff discharge into appropriate vate/604789?						
Are them sedimentation ton	ks for settling runoff prior to discharge?						
Are the wedimentation tents	: Constructed of pre-formed individual colls?						
	With adequate capacity?						
	Free from all stat sediment?						
Are there neutralization tan	e for concrete batching/mixing discharge?						
Are there of interceptors in	dnahage system?						
ts wheel wash facility provid	ad 21 overy site oxil?	7					
Are vehicles and plant class	and of earth, much & clebra before leaving the site?						
Are wheel weshing facilities	regularly inspected and maintained?	<u> </u>					
Are toilots provided on site?	' If so, are they properly matininad?						<b>_</b>
Are manholes covered and	socied?						
is oil lealage or spillage av	oldad?	L					
Waste Management and J	Intensial Land Contamination					_	
General Rofusa:	Are receptedes (rubbish bins) svalisble?						
	is there regular and proper disposal?						
	is proper sorting and recycling implemented?	$\Box$					
Construction Waste:	is ganeration of construction waste minimizod?	$\checkmark$					
	is weste sorting implemented on site?						
	la construction waste reused where practicable?	7					
	is construction waste property disposed of?						
	Are disposal records available for inspection?						
Chemical waste/waste oil	is there designated storage area?						
	in chamical waste stared properly?						
	te lhoro propor disposel?	<b>E</b>					
	is chemical waste license available for inspection?						<u> </u>
Escavated Materials	Do excepted meterials appear uncontominated?						
	Are appropriate procedures followed if contaminated materials.edut?					۱ا	
	Are disposal records available for inspection?						
Chemica/Fus)	is chomicatified stored in bunded area?						
	is bund supporty adoquate (+110% of the largest tents)?						
	Ara storage areas tookable?						_ <u></u>
ia foam, oil, greano or othe	r objectionable matters in value or nearby drains of server	Ţ					

la feam, eil, greate or other objectionable matters in water or nearby draine of sewer avaided?

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**Remarks:** 

Provious Audit Follow-up:

Observations Recorded in this Site inspection:

 Wastewater directly discharge without treated by desiling facility was observed at Nam San Wai Road work front. The Contractor was reminded to provide sedimentation tank and divert all the wastewater to desilting system prior discharge into drainage.

24439857

- Sedimentation tank at Nam San Wai work front was observed full of sediment. The Contractor was reminded to clean the tank more frequency.
- 3. General waste was observed at the Nam San Wal work front. The Contractor was reminded to depose the waste properly.

Signatures: Resident She Staff IC(E) Auditor Env. Auditor Contractor's Representative Hers. Name: S L. HUI Nama: Name :Ken Wong Name: Venny

AUI	E <b>S</b>		•	Site Inspection Checklist (SF-17)								
Project	& Sewage	Construction of Sewe Pumping Station at Ka Tau in Yuen Long	ns, Rising Mains m Tin, Nam Sang	Contre	ector;			-	eering Corp.	. L1d		
					001.;		Babtio Asia Ltd					
inspected by:	ET Auditor;	Ben Tam			onmental T		Moli Conr			Services &		
	Contractor Rep: Edwin/Benny						Consultin		/Ironmontel	30141005 0		
	18C's Rep:				Inspection Date & Time;				(09:30)			
	RØ's Rep:	Mr. Hul		Check	kiist Plotere	MC8 NO.3	DSD-AT11	1207				
General Meteor	ological Inform	ation										
Weather	]@unny	Fina	Cloudy		Overdasi		Orizzie		Rain	htezy		
Temp:	23 °C											
Humidity:	——————————————————————————————————————	RH = 00%)	Moderate (90	96 > RH •	- 60%)		Low (RH	= 60%)				
Wind:	Celm	Light	<b>B</b> rooza		8)rong							
Air Quality					Yes	No	NA	NC	Follow-	Romarks		
is hearding of no	a lass than 2.4m	n provided?										
		complied speed timil?										
Are alle vehicles	noo tramovi con	Anad to designated heut roa	nda?									
Ara public mada	autaida site exil	ts kept clean and free from	dus(?									
Are haut roads a	and unpavod sur	faces watered regularly to :	vold dust ganeration?		<u>_</u>							
	-	e provided at ske exits?	-									
le water apraying	g used during the	a main duct-generating oot	Wilas?									
	mind or stock	opile of dusty materials		red by								
la exposed area	of ground cover	vid or watered frequently?			<b>I</b>							
Are lead on vahi	ales aovered by	sieen impervious shoeting	7		~							
Ano vehjales and	a equipment ewi	reau ni ton oli white not in use?			<b>1</b>							
Ara smaky omis	sions from plant	s/equipment evolded?										
la open burning	avoided?				[ <b>]</b>							
Observable dus	i sources	Wind erosion				hiolo/equ	pment move	monte				
		Leading/unicading (	of materials		<b>∠</b> o;	héra <u>I</u>						
Construction N	lotse											
Are the construc	alian warks oche	duted to minimize noise nu	isanco7									
Are the works of	requipment eiter	d to minimize noise auteon	0 <b>0</b> ?									
Are all plant and	liow tremqiupe i	mainialnod and in good op	anating condition?		7							
ia idie equipmon	nt turned off or th	mitted down?			$\square$							
is powered mec materials?	hanlaal oquipma	nst covered or shielded by a	appropriate accustin									
is silenced equi	pmont used whe	re appropriato?										
Ate noise enclo	sures or noise bi	arrians used where necess	pry?			<b>—</b>						
Does specified a	equipmont has v	glid noiso label?					]]					
Are Construction	n Nol <b>se Po</b> rmita	(CNPs) evailable for inspe	cilon?									
Major Noise Sou	aote	Tratilo			[ <b>∕</b> ]¢o	nstruction	n activities inc	side of site	•			
		Construction activit	ion cutaido of also		[[]]Ot	hore _						

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Water Quality & Drainage		Yes	No	NA		Foljow- up	ftemarks
is a wastawater dischargo i	leense obtained for the Project?						<u>-</u>
is site effluent discharged i	accordance with the discharge license?	$\checkmark$					
is the discharge of silty wat	er ovoldod?						
is drainage adequate?		<ul> <li>Image: A set of the set of the</li></ul>					
is dreinage system væll ma	Intalnod?						
Are there temporary ditcho	s for runoff discharge into appropriete watercourse?						
Are there sedimentation to	ska for setting runoff prior to discharge?						<u></u>
Are the sedimentation tank	at Constructed of pre-formed individual cells?	$\checkmark$					
	With adequate capacity?						
	Free from allt and addmont?	$\overline{}$					
Are there neutralization tan	ks for concrete batching/mixing discharge7						
Are there all interceptors in	drainage system?				$\square$		
is wheel wash facility provid	led at every site exit?	$\overline{}$			<b>—</b> ———————————————————————————————————		
Are vehicles and plant class	ned of earth, mud & debria bafore leaving the site?	~					<b>_</b> _
Are wheel washing facilitie	s regularly inspected and maintained?	$\checkmark$					
Are tollets provided on site	? If so, are they property maintained?						
Are manholes covered and	seniod?	7					
is oli toakage or spillage av	۵klod?				<b></b>		
Waste Management and	Potential Land Contamination						
General Refuse:	Are receptories (rubbish bins) available?			· · · · ·			
	is there regular and proper disposal?		7				
	is proper conting and recycling implemented?						
Construction Wasto:	is generation of construction waste minimized?						
	is waste sorting implemented on site?						
	is construction waste reused where practicable?						<u> </u>
	is construction waste property disposed of?						
	Are disposal records available for inspection?						
Chemical waste/waste oil	is there designated storage area?					<b></b> )	
	is chamical waste stored properly?						
	is there proper disposal?						
	is charnical waste ligense available for inspection?						
Excavated Materials	De excevered materials appear uncontaminated?		<u> </u>				
	Are appropriate procedures followed if contaminated materials exist?						
	Are disposal resords available for inspection?						
Chemical/Fuel	le chomicci/fuel stored in bunded area?						
	to bund expectity adequate (>110% of the largest tank)?						
	Are storage areas ladkable?						. <u> </u>
is foom, cli, greeso or othe	r objectionable matters in water or nearby drains of sewer						

is feam, cli, greese or other objectionable matters in water or nearby drains of sewer avolded?



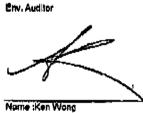
Remarks;

Provious Audit Follow-up:

Observations Recorded in this Site Inspection;

No environmental lasue was observed





Name: Fec.

Contractor's Representative

(C(R) Auditor

Namo:

**Rosident Site Staff** 

S. C. HU, Namo:

AU	S				Site Inspection Checklist (SF-17							
Project	& Sowago	Construction of Sov Pumping Station d Au Tau in Yuen L	Contractor:		Loador Civil Engineering Corp. Ltd							
1	erthet a second		Engineer:		Babtie Asia Ltd Mott Connell Ltd Action-United Environmental Services & Consulting							
Inspected by:	ET Auditor: Contractor Rep	WONG Fu Na Edwin	IEC: Environmenti	al Taamu								
	IEC's Rep: RE's Rep:	- Mr. Hul		Inspection Da Checklist Ref				7 (09/30)				
				No.:	DSD-AT201207							
General Meteor	ological informati	lon										
Weather	Sunny	Fine .	Cloudy	Överca <b>s</b>	۱			_]Rain	⊟на≵у			
Tamp:	21 °C											
Humidity:	High (RH	> 90%)	Moderate (90	% > RH > 50%)	<b>.</b>	Low (R+	i < 50%)					
Wind:	Calm	Light	Braeze	Strong								
Air Quality				Yes	NQ	NA	NC	Fallow- up	Romarks			
Is hearding of no	l leas than 2 4m pr	ovided?										
Are site vehicles	traveling within cor	ntrolled speed limit?		<b>-</b>								
Are site vehicles	movement confine	id to designated haul m	uade?	<b>v</b>								
Are public roads	outside álte exits k	opt clean and free from	u dust?		[] ]							
Are haul roads ar	nd unpaved surface	es watered regularly to	avoid dust generation?									
Are there wheel v	washing facilities p	rovided at site exits?										
is water spraying	used during the m	ain dust-generating ac	tivitiəs?									
Are the excave impermetible/torp	ated or slockpile Soulin sheet?	of dusty materials	kept wat or covere	d by 🗸				$\square$				
is exposed area d	of ground covered a	or watered frequently?		<b>*</b>								
Are load on vehic	les covered by clea	an impervious sheeting	17				[]					
Are vehicles and	equipment switche	d off while not in use?		<b>*</b>								
Are amoky emiesi	ions from plants/eq	uipment avoided?				( <u> </u>						
s open burning a	voided?					[]						
Doservable dust s	sourcea	Wind erosion			əhiclə/əquip	ment moven	nerita					
		I_eading/unloading d	of materials	<b>I</b> ⊂]o	thers <u>N</u>	1						
Construction Noi	180											
ve the construction	on works schedule	d to minimize noise nu	isance?									
re the works or e	quipment sited to r	minimize noise nuiseno	ce?					[]				
re all plant and e	iquipment well maii	ntained and in good op	erating condition?									
idle equipment t	turned off or throttle	ed dawn?										
s powered mecha naterials?	anical equipment co	overed or shielded by a	ppropriete acoustic									
silenced equipm	ient used where ap	opropriate?										
ra noise enclosu	res or noise barrier	s used where necessa	ry?									
oes specified equ	uipment has valid n	noise label?										
re Construction N	Nolse Permita (CN/	°s) available for inspec	tion?									
ajor Noise Sourc	:e (	Traffic		[ <u>_</u> ]c•	nstruction e	etivilies insid	lo the site					
		Construction Activitie	s outside of site									

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Water Qu	Yes	NO	NA	NC	Follow- up	Romarke	
is a wastewater discharge	license optained for the Project?			(	[]	( <u> </u>	
is site offluent discharged	in accordance with the discharge license?	$\checkmark$					
is the discharge of slity wa			[ <u></u> ]				
le drainage adequate?							
ls drainage system well m	aintained?					<b>[]</b>	
Are there temporary ditch	es for runoff discharge into appropriate watercourse?	*					
Are there sedimentation is	anks for settling runoff prior to discharge?	~				<u> </u>	
Are the sodimentation tan	ks Constructed of pre-formed individual cells?					<u> </u>	
	With edequate capacity?						
	Free from all and sediment?		<u>[</u> ]				
Are there neutralization ta	nke for concrete batching/mixing dischargo?			<b>v</b>			
Are there oil interceptors (	n drainage system?			×			
is wheel wash facility prov	ided at every site exit?						
Are vehicles and plant cle	aned of earth, mud & debris before leaving the site?	<b>v</b>		<b>.,</b>	[]		
Are wheel washing facilitie	a regularly inspected and maintained?			, ,	<b>.</b>	<u> </u>	
Are tollets provided on site	<ul> <li>Image: A start of the start of</li></ul>		[]	[]	<u> </u>		
Are menholes covered and	t sealed?						
la oil leakage or spillage a							
Waste Management and	Potential Land Contamination						
General Refuse	Are receptedes (rubbish bins) available?						
	te there regular and proper disposal?						
	le proper serting and recycling implemented?	<b>_</b>					
Construction Waste	Is generation of construction waste minimized?	<b>*</b>					
	Is waste sorting implemented on site?	$\checkmark$				<u> </u>	
	is construction waste roused where practicable?						
	is construction waste properly disposed of?					<b>_</b>	
	Are disposal records available for inspection?	*			<u> </u>		
Chemical waste/waste oil	is there designated storage area?		<b>.</b>				
	is chomical waste stored properly?					$\Box$ _	
	ta thère proper disposel?						
	Is chemical waste license available for inspection?	<u></u>	[]				
Excavaled Materials	Do excevated materials appear uncontaminated?	*				$\Box$ _	
	Are appropriate procedures followed if contaminated materials exist?		[]	[]			
	Are disposal records available for inspection?	•'				$\square$ _	
Chemical/Fuel	is chemical/tue) stored in bunded area?	<b>*</b>		[]		<u> </u>	
	is bund capacity adequate (>1.10% of the largest tank)?					)	
	Are storage areas lockable?	· ·			<u> </u>		·····
Is foam, oil, grease or other avoided?	<b>*</b>		<b></b> ]		$\Box$ _		



Remarks:

Previous Audit Follow-up: Nil.

Observations Recorded in this Site Inspection:

### 1. Pok Wal South

- Fugitive dust emission from the stock-pile was observed, the Contractor was reminded to implement the mitigation measures such as watering, covering with tarpaulin sheet or compact the loose soil surface during the dry/windy season.
- ii Fugitive dust emission from the dry haul road and loose soil surface within the excavated areas. The Contractor was reminded to dust suppression (watering) more frequently during the dry season

### 2. Sha Po Pumping Station

i. Turbid effluent discharge from the desilting system was observed, the Contractor was reminded to improve and increase maintenance frequency to maintain the desilting system in proper efficiency

6ignatures:

Env Auditor Name Ken Wong

Contractor's Representative Namo

Berry Lan

IC(E) Auditor

Resident Site Staff

Name

Name

AU	S						Si	te Insp	ection	Checkli	st (SF-17)		
Project	& Sew	ngo P	enstruction of Se umping Station Au Tau in Yuen I	Ċo	intractor		Loador Civil Engineering Corp. Ltd						
						Engineer: IEC:			Babtio Asia Ltd Mott Connoll Ltd				
inspected by:	ET Auditor; Bon Tam												
	Contracto	r Rop:	Edwin		Environmontal Team:			Action-U Consulti	Sorvicos &				
	IEC's Rep:					Inspection Date & Time. Checklist Roference No.:			27 December 2007 (09:30) DSD-AY271207				
	RE's Rep; Mr. Hui												
General Moteor	rological (afe	rmatio	л	- · · · · · · · · · · · · · · · · · · ·									
Weather	Sun	чy	Fine	Cloudy		Overcasi		Drizzle		Rain	Hazy		
Tomp:	19 °C												
Humidity:	High	(RH >	90%)	Moderate (90	)% > R	H > 50%)		l-ow (Rh	( = 50%)				
Wind;	Calm	ı	Light	Breeze		Strong							
Air Quality						Yos	NÖ	NA	NČ	Follow-	Remarka		
is hoarding of no	tiess than 2 (	4m prov	vided?				Ē			ир			
Are site vehicles	traveling with	in cordr	rolled speed limit?			,,				() ()			
			to designated haut r	oada?									
			of clean and free (ro)			[ ]				······			
				o avoid dust generation?					ادا رـــــــــا				
			vided at site oxits?	μ		ا <u>ما</u>		,i					
			n duat-generating as	tivitiaa0			اا ۲۰۰۰ ۲		اـــــا د יי ז				
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		ared or	watered frequently?			ا-جت) ا-جت)		السنية. ومنتقع		السلام المسلم المراجع			
			impervious sheeting				اما است		ارمیسید. ریاب ا				
			off while not in use?			•			اا ر				
Are smoky emissi													
la open burning a							ا		[]				
Observable dust a								nI		J			
		rcesWind erosionLosding/unleading of materials					niciā/ęduipi kors <u>Nil</u>	nont movements					
Construction No.													
		dulari t	to minimize noise nu	iranaa?		(	, —_,	1. 1.1					
			nimize noise nuisan							I/			
			hined and in good of				[] ["			<u> </u>	· · · · · · · · · · · · · · · · · · ·		
a idle equipment (				relations conditions			۲ <u>ــــ</u> ا						
s powered mecha				appropriate acoustic			⊥! ┌───)		 اا				
1010/10187									<u> </u>	L			
s silonced equipm									[]	$\square$			
			used where nocessa	ary7			[])		[]	[	<u> </u>		
0066 Specified equ						<b>*</b>	<u> </u>		[ <u>.</u> ]				
			available for inspec	Hion?					[ ]	<u> </u>			
fajor Noise Source	0	]Traffic Construction activities outerde of site					Construction activities inside the site						
							Others <u>Nil</u>						

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Water Quality & Drainage				Yes	NO	NA	NG	Follow-	Remarks
la a wastewater dischar	ga (ica	nse obtained for the Proje	ic1?		[]			аи []	
is site effluent discharged in accordance with the discharge license?				 [		,			
Is the discharge of silty water avoided?				[ <u>~</u> ]		[]			
ls drainage adequate?			,. <u>.</u> ,	יייין		,			
is drainage system well	mainta	ined?				·····	()		
Are there temporary dite	hes fo	r runoff discharge into app	propriate wetercourse?			،		II	
Are there sedimentation	tanks	for settling runoff prior to (	discharge?						
Are the sedimentation ta	inka	Constructed of pre-form	ed individual cells?				·		
		With adequate capacity?	,					، ، ا	
		Free from silt and sadim	ent?			·······			
Are there neutralization t	anka f	or concrete batching/mixir	)ę diacharge?				,,	( <u> </u>	
Are there oil interceptors	in dra	nage system?							
Is wheel wash facility pro	vided	at every alle exit?		×.		<b>(</b> , , , <b>)</b>		, <u> </u>	
Are vehicles and plant cla	əanəd	of earth, mud & debris be	fore leaving the atte?	<b>_</b>				·	
Are wheel washing faciliti	іөа гер	ularly inspected and main	toined?	<u> </u>					
Are toilets provided on site? If so, are they properly maintained?						[]		r – i –	
Are manholes covered and sealed?						[]		()	
ls oil leakage or spillage avoided?						[]			
Wasto Management and	l Poter	tial Land Contamination	n						
General Refuse	Are	receptacies (rubbish bins)	) avaliable?	<b>~</b>			[]		
	is th	ere regular and proper dis	sposal?			Ĺ			
	<b>16</b> pi	oper sorting and recycling	implemented?						
Construction Waste	is ge	neration of construction v	vaste minimized?						
	la wa	asie sorting implemented	on site?	$\overline{}$			(^)		
	la co	natruction waste rouaed v	Where practicable?	~					
	ls co	netruction waste properly	disposed of?					<u>ات ا</u>	
	Are o	lisposal records available	for inspection?						
Chemical waste/waste oil	is the	tre designated storage an	aa?						
	la ch	emical waste stored prope	orly?						
	is the	re proper disposal?		<b>_</b>				<u> </u>	
	is ch	omical woste license avail	able for inspection?					<u> </u>	
Excavated Materials	Do <b>e</b> :	cavated materials appear	"uncontaminated?	$\checkmark$				<u> </u>	
	Are a mate	ppropriate procedures toj) iale exist?	owed if contaminated	<b>*</b>					
	Are d	isposal records available i	for inspection?						
Chemical/Fuel	la che	mical/fuel stored in bunde	od area?	~					
	la þur	id capacity adequate (≥11	0% of the largest (ank)?	$\overline{}$			[]		
		orage areas lockable?		<b>v</b>					
ts feam, oil, grease or other objectionable matters in water or nearby drains of sewer avoided?						[]		···	

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#### **Remarks:**

### Previous Audit Follow-up:

- 1. No dust emission was observed at Pok Wai South Road works area and haul road.
- 2. No turbid effluent discharge was observed at Sha Po Pumping Station.

### Observations Recorded in this Site Inspection:

 Certain amount of sediment accumulated in the sedimentation tank was observed at Kam Tin works front, the Contractor was reminded to clean the desilting system and maintain in proper efficiency

#### Signatures:

Env Auditor

Name Ken Wong

Name Bown

Contractor's Representative

Name

IC(E) Auditor

Resident Site Staff

H25-5. C. HUI Name