



PROJECT NO.: TCS/00512/09

**DSD CONTRACT NO. DC/2009/13  
CONSTRUCTION OF SEWAGE TREATMENT WORKS AT  
YUNG SHUE WAN AND SOK KWU WAN**

**SOK KWU WAN PORTION AREA  
MONTHLY ENVIRONMENTAL MONITORING AND AUDIT  
(EM&A) REPORT (NO.6) – JANUARY 2011**

PREPARED FOR  
**LEADER CIVIL ENGINEERING CORPORATION LIMITED**

**Quality Index**

| <b>Date</b>      | <b>Reference No.</b>    | <b>Prepared By</b>   | <b>Approved By</b>  |
|------------------|-------------------------|--|---|
| 17 February 2011 | TCS00512/09/600/R0164v2 |  |  |
|                  |                         | Nicola Hon<br>Environmental Consultant   | T.W. Tam<br>Environmental Team Leader   |

| <b>Version</b> | <b>Date</b>      | <b>Description</b>                                 |
|----------------|------------------|--|
| 1              | 14 February 2011 | First Submission                                   |
| 2              | 17 February 2011 | Amended against IEC's comments on 17 February 2011 |
|                |                  |  |

# Scott Wilson CDM Joint Venture

---

Chief Engineer/Harbour Area Treatment Scheme  
Drainage Services Department  
5/F Western Magistracy  
2A Pok Fu Lam Road  
Hong Kong

Your reference:

Our reference: 05117/6/16/347290

Date: 17 February 2011

Attention: Mr. C K Au

**BY FAX ONLY**

Dear Sir

**Contract No. DC/2009/13**

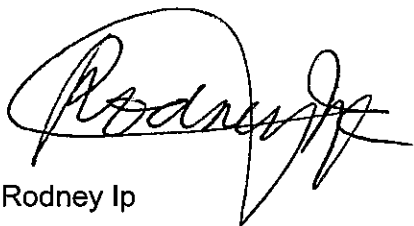
**Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan  
Sok Kwu Wan Portion Area**

**Monthly Environmental Monitoring and Audit (EM&A) Report No. 6 (Jan 2011)**

We refer to the Monthly EM&A Monitoring Report No. 6 for January 2011 received under cover of the email from the Environmental Team, Action-United Environmental Services and Consulting (AUES), dated on 17 February 2011. We do not have further comment and have verified the captioned report.

Yours faithfully

SCOTT WILSON CDM JOINT VENTURE



Rodney Ip

ICWR/KKK/ecwc

cc Leader Civil Engineering  
AUES  
ER/LAMMA  
CDM

(Attn: Mr Vincent Chan)  
(Attn: Mr T.W. Tam)  
(Attn: Mr Neil Wong)  
(Attn: Mr Mark Sin)

**EXECUTIVE SUMMARY**

ES.01. This is the 6<sup>th</sup> monthly EM&A Report for Sok Kwu Wan (hereinafter ‘this Report’) for the designated works under Environmental Permit No.EP-281/2007/A, covering a period from **1 to 31 January 2011** (hereinafter ‘the Reporting Period’) during the construction of relevant land works commencement on 27 July 2010.

**ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES**

ES.02. Environmental monitoring activities under the EM&A program in this Reporting Month are summarized in the following table.

| Issues             | Environmental Monitoring Parameters / Inspection | Occasions |
|--------------------|--|-----------|
| Air Quality        | 1-hour TSP                                       | 45        |
|                    | 24-hour TSP                                      | 18        |
| Construction Noise | Leq (30min) Daytime                              | 20        |
| Water Quality      | Marine Water Sampling                            | 0         |
| Inspection / Audit | ET Regular Environmental Site Inspection         | 4         |

ES.03. According to the EM&A Manual of Sok Kwu Wan, water quality monitoring should be carried out during the marine work commencement. Since the marine work of outfall construction has not yet commenced, no impact water quality monitoring was undertaken in this reporting month.

**BREACH OF ACTION AND LIMIT (A/L) LEVELS**

ES.04. No exceedance of air quality and construction noise monitoring were recorded in this Reporting Month. No Notification of Exceedance (NOE) was, therefore, issued. The statistics of environmental exceedance, NOE issued and investigation of exceedance are summarized in the following table.

| Environmental Issues | Monitoring Parameters        | Action Level | Limit Level | Event & Action |               |                    |
|----------------------|------------------------------|--------------|-------------|----------------|---------------|--------------------|
|                      |                              |              |             | NOE Issued     | Investigation | Corrective Actions |
| Air Quality          | 1-hour TSP                   | 0            | 0           | 0              | --            | --                 |
|                      | 24-hour TSP                  | 0            | 0           | 0              | --            | --                 |
| Construction Noise   | Leq <sub>30min</sub> Daytime | 0            | 0           | 0              | --            | --                 |
| Water Quality        | DO                           | NA           | NA          | NA             | NA            | NA                 |
|                      | Turbidity                    | NA           | NA          | NA             | NA            | NA                 |
|                      | SS                           | NA           | NA          | NA             | NA            | NA                 |

Note: NOE – Notification of Exceedance

**ENVIRONMENTAL COMPLAINT**

ES.05. No written or verbal complaint was recorded in this Reporting Month. The statistics of environmental complaint are summarized in the following table.

| Reporting Period          | Environmental Complaint Statistics |            |                  |
|---------------------------|------------------------------------|------------|------------------|
|                           | Frequency                          | Cumulative | Complaint Nature |
| 27 July –31 December 2010 | 0                                  | 0          | NA               |
| 1 – 31 January 2011       | 0                                  | 0          | NA               |

**NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS**

ES.06. No environmental summons or successful prosecutions were recorded in this Reporting Month. The statistics of environmental complaint are summarized in the following tables.

| Reporting Period          | Environmental Summons Statistics |            |                  |
|---------------------------|----------------------------------|------------|------------------|
|                           | Frequency                        | Cumulative | Complaint Nature |
| 27 July –31 December 2010 | 0                                | 0          | NA               |
| 1 – 31 January 2011       | 0                                | 0          | NA               |

| Reporting Period          | Environmental Prosecution Statistics |            |                  |
|---------------------------|--------------------------------------|------------|------------------|
|                           | Frequency                            | Cumulative | Complaint Nature |
| 27 July –31 December 2010 | 0                                    | 0          | NA               |
| 1 – 31 January 2011       | 0                                    | 0          | NA               |

#### REPORTING CHANGE

ES.07. There is no reporting change in this reporting month

#### SITE INSPECTION BY EXTERNAL PARTIES

ES.08. No site inspection was undertaken by external parties i.e. EPD or AFCD within the Reporting Period.

#### FUTURE KEY ISSUES

ES.09. During dry season, special attention should be paid to the dust mitigation measures to avoid fugitive dust emissions from loose soil surface or haul road. Nevertheless, mitigation measures implemented for control the surface runoff including wheel wash facilities, covering of the loose soil surface or stockpile with tarpaulin sheet, etc., should fully implement.

ES.10. Muddy water and other water quality pollutants via site surface water runoff into the sea body within Fish culture zone at Picnic Bay and the Secondary recreation contact subzone at Mo Tat Wan is the key issue of the Project. Mitigation measures for water quality should be properly maintained to prevent any muddy or sandy runoff from the loose soil surface overflow on the site boundary.

ES.11. Construction of outfall marine works cannot be carried out until the baseline water quality monitoring completion and the related Action and Limit (A/L) levels have established.

**TABLE OF CONTENTS**

|           |   |           |
|-----------|---|-----------|
| <b>1</b>  | <b>INTRODUCTION</b>                                   | <b>1</b>  |
| <b>2</b>  | <b>PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS</b> | <b>3</b>  |
| <b>3</b>  | <b>SUMMARY OF BASELINE MONITORING REQUIREMENTS</b>    | <b>4</b>  |
| <b>4</b>  | <b>IMPACT MONITORING RESULTS - AIR QUALITY</b>        | <b>9</b>  |
| <b>5</b>  | <b>IMPACT MONITORING RESULTS – CONSTRUCTION NOISE</b> | <b>10</b> |
| <b>6</b>  | <b>IMPACT MONITORING RESULTS – WATER QUALITY</b>      | <b>11</b> |
| <b>7</b>  | <b>ECOLOGY</b>  | <b>11</b> |
| <b>8</b>  | <b>WASTE MANAGEMENT</b>                               | <b>12</b> |
| <b>9</b>  | <b>SITE INSPECTION</b>                                | <b>13</b> |
| <b>10</b> | <b>ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE</b>     | <b>14</b> |
| <b>11</b> | <b>IMPLEMENTATION STATUS OF MITIGATION MEASURES</b>   | <b>15</b> |
| <b>12</b> | <b>IMPACT FORECAST</b>                                | <b>21</b> |
| <b>13</b> | <b>CONCLUSIONS AND RECOMMENDATIONS</b>                | <b>22</b> |

## **LIST OF TABLES**

|            |   |
|------------|---|
| Table 2-1  | Status of Environmental Licenses and Permits                            |
| Table 3-1  | Summary of the Air and Noise monitoring parameters of EM&A Requirements |
| Table 3-2  | Location of Air Quality Monitoring Station                              |
| Table 3-3  | Location of Construction Noise Monitoring Station                       |
| Table 3-4  | Location of Marine Water Quality Monitoring Station                     |
| Table 3-5  | Action and Limit Levels for Air Quality Monitoring                      |
| Table 3-6  | Action and Limit Levels for Construction Noise                          |
| Table 4-1  | Summary of 24-hour and 1-hour TSP Monitoring Results – AM1              |
| Table 4-2  | Summary of 24-hour and 1-hour TSP Monitoring Results – AM2              |
| Table 4-3  | Summary of 24-hour and 1-hour TSP Monitoring Results – AM3              |
| Table 5-1  | Summarized of Construction Noise Monitoring Results at NM1              |
| Table 5-2  | Summarized of Construction Noise Monitoring Results at NM2              |
| Table 5-3  | Summarized of Construction Noise Monitoring Results at RNM3             |
| Table 5-4  | Summarized of Construction Noise Monitoring Results at NM4              |
| Table 7-1  | Summary of Quantities of Inert C&D Materials                            |
| Table 7-2  | Summary of Quantities of C&D Wastes                                     |
| Table 8-1  | Site Observations   |
| Table 9-1  | Statistical Summary of Environmental Complaints                         |
| Table 9-2  | Statistical Summary of Environmental Summons                            |
| Table 9-3  | Statistical Summary of Environmental Prosecution                        |
| Table 10-1 | Environmental Mitigation Measures                                       |

## **LIST OF APPENDICES**

|            |  |
|------------|--|
| Appendix A | Site Layout Plan – Sok Kwu Wan Portion Area  |
| Appendix B | Organization Structure and Contact Details of Relevant Parties                     |
| Appendix C | A Master and Three Months Rolling Construction Programs                            |
| Appendix D | Location of Monitoring Stations (Air Quality / Construction Noise / Water Quality) |
| Appendix E | Monitoring Equipments Calibration Certificate                                      |
| Appendix F | Event and Action Plan  |
| Appendix G | Monitoring Data Sheet  |
| Appendix H | Graphical Plots of Monitoring Results  |
| Appendix I | Meteorological Information   |
| Appendix J | Monthly Summary Waste Flow Table   |
| Appendix K | Weekly Site Inspection Checklist   |
| Appendix L | Implementation Schedule of Mitigation Measures                                     |
| Appendix M | Tree Inspection Report   |

## 1 INTRODUCTION

### PROJECT BACKGROUND

- 1.01 The Leader Civil Engineering Corporation Limited (Leader) has been awarded the *Contract DC/2009/13 - Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwn Wan* (the Project) by the Drainage Services Department (DSD) on 4 May 2010. The Project is part of an overall plan approved under a statutory EIA for Outlying Islands Sewerage Stage 1 Phase 2 Package J – Sok Kwu Wan Sewage Collection and Treatment (Register No. AEIAR-075/2003) and Disposal Facilities and Outlying Islands Sewerage Stage 1 Phase 1 Package C – Yung Shue Wan Sewage Treatment Works and Outfall (Register No. EIA-124/BC). The Environmental Permit No. EP-281/2007 and EP-282/2007 for the Project have been obtained by the DSD on 29 June 2007 for the relevant works. After July 2009, EP-281/2007/A instead EP-281/2007 is EP for Sok Kwu Wan relevant Works.
- 1.02 The Project involves construction of sewage treatment works at Sok Kwn Wan and Yung She Wan with a capacity of 1,430m<sup>3</sup>/day and 2,850m<sup>3</sup>/day respectively to provide secondary treatment, construction of 2 pumping stations at Sok Kwu Wan and 1 pumping station at Yung Shue Wan, construction of submarine outfall from the coastline and laying of underground sewerage pipeline. The site layout plan for the captioned work under the Project is showing in **Appendix A**
- 1.03 According to the Particular Specification (PS) and **Appendix 25** of the Project, Leader should establish an Environmental Team to implement the environmental monitoring and auditing works to fulfill the requirements as stipulated in the Environmental Monitoring and Audit (EM&A) Manuals.
- 1.04 Action-United Environmental Services and Consulting (AUES) has been commissioned by Leader as the ET to implement the relevant EM&A program. Organization chart of the Environmental Team for the Project is shown in **Appendix B**. For ease of reporting, the proposed EM&A programme for baseline and impact monitoring is split to following two stand-alone parts:
- (a) Proposed EM&A Programme for Baseline and Impact Monitoring – Sok Kwu Wan (under EP No. 281/2007/A varied on 23 September 2009)
  - (b) Proposed EM&A Programme for Baseline and Impact Monitoring – Yung Shue Wan (under EP No. 282/2007)
- 1.05 According to the EM&A Manuals of Sok Kwu Wan and Yung Shue Wan, baseline water quality monitoring should be carried out for consecutive six months before the marine work commencement. Therefore, the baseline reports of Sok Kwu Wan and Yung Shue Wan are divided to two volumes i.e. the Volume 1 for air quality and noise monitoring; and the Volume II for water quality monitoring for separate submission.
- 1.06 There is a concurrent DSD contract “*DC/2007/18 Yung Shue Wan and Sok Kwu Wan Village Sewerage, Stage 1 Works*” undertaking at Sok Kwu Wan since April 2008 and the works are ongoing.
- 1.07 Consider that the construction works of DC/2007/18 and DC/2009/13 at Sok Kwu Wan is under the same Environmental Permit and EM&A Manual, so the performance criteria of air quality and construction noise at Sok Kwu Wan under the Project is recommended to adopt the Action/Limit Levels established by contract DC/2007/18. The Baseline Monitoring Report Volume 1 under the Project for air quality and noise at Sok Kwu Wan was submitted on 9 July 2010 and verified by IEC and for EPD endorsement before the relevant land works commencement on 27 July 2010.
- 1.08 This is the 6<sup>th</sup> monthly EM&A report – Sok Kwu Wan Portion Area presenting the monitoring results and inspection findings for the reporting period from **1 to 31 January 2011**.

---

**REPORT STRUCTURE**

1.09 The Monthly Environmental Monitoring and Audit (EM&A) Report – Sok Kwu Wan is structured into the following sections:-

|                   |   |
|-------------------|---|
| <b>SECTION 1</b>  | <b>INTRODUCTION</b>                                   |
| <b>SECTION 2</b>  | <b>PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS</b> |
| <b>SECTION 3</b>  | <b>SUMMARY OF MONITORING REQUIREMENTS</b>             |
| <b>SECTION 4</b>  | <b>AIR QUALITY MONITORING RESULTS</b>                 |
| <b>SECTION 5</b>  | <b>CONSTRUCTION NOISE MONITORING RESULTS</b>          |
| <b>SECTION 6</b>  | <b>WATER QUALITY MONITORING RESULTS</b>               |
| <b>SECTION 7</b>  | <b>WASTE MANAGEMENT</b>                               |
| <b>SECTION 8</b>  | <b>SITE INSPECTIONS</b>                               |
| <b>SECTION 9</b>  | <b>ENVIRONMENTAL COMPLAINTS AND NON-COMPLIANCE</b>    |
| <b>SECTION 10</b> | <b>IMPLEMENTATION STATUES OF MITIGATION MEASURES</b>  |
| <b>SECTION 11</b> | <b>IMPACT FORECAST</b>                                |
| <b>SECTION 12</b> | <b>CONCLUSIONS AND RECOMMENDATION</b>                 |



## 2 PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

### PROJECT ORGANIZATION AND MANAGEMENT STRUCTURE

- 2.01 Organization structure and contact details of relevant parties with respect to on-site environmental management are shown in [Appendix B](#).

### CONSTRUCTION PROGRESS

- 2.02 The master and three month rolling construction programs are enclosed in [Appendix C](#) and the major construction activities undertaken in this Reporting Month are listed below:-
- Footpath Diversion adjacent to SKW Sewage Treatment Works
  - Construction for pumping station no.1 & 2

### SUMMARY OF ENVIRONMENTAL SUBMISSIONS

- 2.03 Summary of the relevant permits, licences, and/or notifications on environmental protection for this Project in this Reporting Month is presented in [Table 2-1](#).

**Table 2-1 Status of Environmental Licenses and Permits**

| Item | Description  | License/Permit Status   |
|------|--|---|
| 1    | Air pollution Control (Construction Dust)          | Notified EPD on 19 May 2010<br>Ref.: 317486                                   |
| 2    | Chemical waste Producer Registration               | In progress   |
| 3    | Water Pollution Control Ordinance                  | Approved on 29/9/2010<br>Valid to: 30/09/2015<br>Licence no.: WT00007567-2010 |
| 4    | Billing Account for Disposal of Construction Waste | Issued on 26 May 2010<br>A/C No: 7010815                                      |

- 2.04 The “Baseline/Impact Monitoring Methodology (TCS00512/10/600/R0010Ver.4)” was set out in accordance with the Sok Kwu Wan Environmental Monitoring and Audit Manual. It was approved by the ER and agreed with the Independent Environmental Checker (IEC) and submitted to the EPD for endorsement.
- 2.05 Baseline Monitoring Report Volume 1 (TCS00512/10/600/R0020Ver.3) for Sok Kwu Wan for the Project was issued by the ETL and verified by the IEC on 12 July 2010. The report was also submitted to the EPD for endorsement.
- 2.06 Baseline Monitoring Report Volume 2 of water quality for Sok Kwu Wan for the Project will be submitted to IEC verification and EPD endorsement upon the six months baseline marine water monitoring completion.

### 3 SUMMARY OF BASELINE MONITORING REQUIREMENTS

#### ENVIRONMENTAL ASPECT

- 3.01 The EM&A baseline monitoring program cover the following environmental issues:
- Air quality;
  - Construction noise; and
  - Marine Water quality;
- 3.02 The ET implements the EM&A programme in accordance with the aforementioned requirements. Detailed air quality, construction noise and water quality of the EM&A program are presented in the following sub-sections.
- 3.03 A summary of the Air, Noise and Marine Water monitoring parameters is presented in **Table 3-1**:

**Table 3-1 Summary of the Air and Noise monitoring parameters of EM&A Requirements**

| Environmental Issue  | Parameters  |
|----------------------|---|
| Air Quality          | <ul style="list-style-type: none"> <li>• 1-hour TSP Monitoring by Real-Time Portable Dust Meter; and</li> <li>• 24-hour TSP Monitoring by High Volume Air Sampler.</li> </ul>   |
| Noise                | <ul style="list-style-type: none"> <li>• Leq (30min) during normal working hours; and</li> <li>• Leq (15min) during Restricted Hours.</li> </ul>  |
| Marine Water Quality | <p><b><i>In-situ Measurements</i></b></p> <ul style="list-style-type: none"> <li>• Dissolved Oxygen Concentration (mg/L);</li> <li>• Dissolved Oxygen Saturation ( % );</li> <li>• Turbidity (NTU);</li> <li>• pH unit;</li> <li>• Salinity (ppt);</li> <li>• Water depth (m); and</li> <li>• Temperature (°C).</li> </ul> <p><b><i>Laboratory Analysis</i></b></p> <ul style="list-style-type: none"> <li>• Suspended Solids (mg/L)</li> </ul> |

#### MONITORING LOCATIONS

##### Air Quality

- 3.04 Three air monitoring stations: AM1, AM2 and AM3 were designated in the *EM&A Manual Section 2.5*. The detailed air monitoring stations is described in **Table 3-2** and graphical is shown in **Appendix D**.

**Table 3-2 Location of Air Quality Monitoring Station**

| Sensitive Receiver | Location                            |
|--------------------|-------------------------------------|
| AM1                | Squatter house in Chung Mei Village |
| AM2                | Squatter house in Chung Mei Village |
| AM3                | Football court                      |

##### Construction Noise

- 3.05 According to *EM&A Manual Section 3.4* stipulations, there were four noise sensitive receivers (NM1-NM4) designated for the construction noise monitoring. NM1, NM2 and NM4 of the three designated monitoring stations were identified and are monitored by the current DSD contract DC/2007/18. However, the premises monitoring station NM3 was rejected by the owner of 1B Sok Kwu Wan and an alternative noise monitoring station RNM3 replacement was proposed by the contract DC/2007/18 ET and accepted by the IEC and EPD before the baseline monitoring commencement in April 2008. The location RNM3 is located at Sok Kwu Wan Sitting-out area which just 3m width footpath away from the original location house 1B. The detailed construction noise monitoring stations to also under the Project is described in **Table 3-3** and graphical is shown in **Appendix D**.

**Table 3-3 Location of Construction Noise Monitoring Station**

| Sensitive Receiver | Location                              |
|--------------------|---------------------------------------|
| NM1                | 1, Chung Mei Village                  |
| NM2                | 20, Sok Kwu Wan                       |
| RNM3               | Sok Kwu Wan Sitting-out Area          |
| NM4                | 2-storey village house at Ta Shui Wan |

**Water Quality**

- 3.06 Three control stations (C1-C3) and three impact stations (W1-W3) were recommended in the *EM&A Manual Section 4.5*. Impact stations W1-W3 identified at the sensitive receivers (FCZ and secondary contact recreation subzone) to monitor the impacts from the construction of the submarine outfall as well as the effluent discharge from the proposed STW on water quality. Three control stations: C1, C2 & C3 were specified at locations representative of the project site in its undisturbed condition and located at upstream and downstream of the works area. Detailed and co-ordination of marine water quality monitoring stations is described in **Table 3-4** and the graphical is shown in **Appendix D** and would be performed for EM&A programme.

**Table 3-4 Location of Marine Water Quality Monitoring Station**

| Station    | Description  | Co-ordnance |          |
|------------|--|-------------|----------|
|            |  | Easting     | Northing |
| W1         | Secondary recreation contact subzone at Mo Tat Wan | 832 968     | 807 732  |
| W2         | Fish culture zone at Picnic Bay                    | 832 607     | 807 985  |
| W3         | Fish culture zone at Picnic Bay                    | 832 045     | 807 893  |
| C1 (flood) | Control Station                                    | 833 703     | 808 172  |
| C2         | Control Station                                    | 831 467     | 807 747  |
| C3 (ebb)   | Control Station                                    | 832 220     | 808 862  |

**MONITORING FREQUENCY AND PERIOD**

- 3.07 The Impact monitoring carried out in the EM&A programme is basically in accordance with the requirements in *EM&A Manual Sections 2.7, 3.6, 4.7 and 4.8*. The monitoring requirements are listed as follows:

**Air Quality Monitoring**

Parameters: 1-hour TSP and 24-hour TSP.

Frequency: Once in every six days for 24-hour TSP and three times in every six days for 1-hour TSP.

Duration: Throughout the construction period.

**Noise Monitoring**

Parameters: Leq (30min) & Leq (5min), L10 and L90.  
Leq (15min) & Leq (5min), L10 and L90 during the construction undertaken during Restricted Hours (19:00 to 07:00 hours next of normal working day and full day of public holiday and Sunday)

Frequency: Once per week during 0700-1900 hours on normal weekdays. Restricted Hour monitoring should depend on conditions stipulated in Construction Noise Permit.

Duration: Throughout the construction period.

**Marine Water Quality Monitoring**

Parameters: Duplicate in-situ measurements: water depth, temperature, Dissolved Oxygen, pH, turbidity and salinity;  
HOKLAS-accredited laboratory analysis: Suspended Solids

- Frequency: Three days a week, at mid ebb and mid flood tides. The interval between 2 sets of monitoring will be more than 36 hours.
- Sampling Depth
- (i.) Three depths: 1m below water surface, 1m above sea bottom and at mid-depth when the water depth exceeds 6m.
  - (ii.) If the water depth is between 3m and 6m, two depths: 1m below water surface and 1m above sea bottom.
  - (iii.) If the water depth is less than 3m, 1 sample at mid-depth is taken
- Duration: During the course of marine works

### **Post-Construction Monitoring – Marine Water**

- 3.08 Upon the marine works (dredging and HDD pipe installation) completion, 4 weeks of post-construction monitoring would be undertaken in accordance with the *Section 4.8 of EM&A Manual*. The requirements of post-construction monitoring such as the parameter, frequency, location and sampling depth is same as the impact monitoring.

### **MONITORING EQUIPMENT**

#### Air Quality Monitoring

- 3.09 The 24-hour and 1-hour TSP levels shall be measured by following the standard high volume sampling method as set out in the *Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50), Appendix B*. If the ET proposes to use a direct reading dust meter to measure 1-hour TSP levels, it shall submit sufficient information to the IEC to approve. The filter paper of 24-hour TSP measurement shall be determined by HOKLAS accredited laboratory.

#### Noise Monitoring

- 3.10 Sound level meter in compliance with the *International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1)* specifications shall be used for carrying out the noise monitoring. The sound level meter shall be checked using an acoustic calibrator. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m s<sup>-1</sup>.

#### Water Quality Monitoring

- 3.11 ***Dissolved Oxygen and Temperature Measuring Equipment*** – The instrument should be a portable and weatherproof dissolved oxygen (DO) measuring instrument complete with cable and sensor, and use a DC power source. The equipment should be capable of measuring as included a DO level in the range of 0 – 20mg L<sup>-1</sup> and 0 – 200% saturation; and a temperature of 0 – 45 degree Celsius.
- 3.12 ***pH Meter*** – The instrument shall consist of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It shall be readable to 0.1 pH in arrange of 0 to 14.
- 3.13 ***Turbidity (NTU) Measuring Equipment*** – The instrument should be a portable and weatherproof turbidity measuring instrument using a DC power source. It should have a photoelectric sensor capable of measuring turbidity between 0 - 1000 NTU.
- 3.14 ***Water Sampling Equipment*** – A water sampler should comprise a transparent PVC cylinder, with a capacity of not less than 2 litres, which can be effectively sealed with latex cups at both ends. The sampler should have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth.
- 3.15 ***Water Depth Detector*** – A portable, battery-operated echo sounder should be used for the determination of water depth at each designated monitoring station. This unit can either be hand held or affixed to the bottom of the work boat.
- 3.16 ***Salinity Measuring Equipment*** – A portable salinometer capable of measuring salinity in the range of 0 - 40 parts per thousand (ppt) should be provided for measuring salinity of the water at each

monitoring location.

- 3.17 **Sample Containers and Storage** – Water samples for SS should be stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4°C without being frozen).
- 3.18 **Monitoring Position Equipment** - A hand-held or boat-fixed type digital Differential Global Positioning System (DGPS) with way point bearing indication and Radio Technical Commission for maritime (RTCM) Type 16 error message ‘screen pop-up’ facilities (for real-time auto-display of error messages and DGPS corrections from the Hong Kong Hydrographic Office), or other equipment instrument of similar accuracy, should be provided and used during marine water monitoring to ensure the monitoring vessel is at the correct location before taking measurements.
- 3.19 **Suspended Solids Analysis** – Analysis of suspended solids shall be carried out in a HOKLAS or other international accredited laboratory.

#### EQUIPMENT CALIBRATION

- 3.20 Calibration of the HVS is performed upon installation 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.
- 3.21 The 1-hour TSP meter was calibrated by the supplier prior to purchase. Zero response of the equipment was checked before and after each monitoring event. In-house calibration with the High Volume Sampler (HVS) in same condition was undertaken in yearly basis.
- 3.22 The sound level meter and calibrator are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at yearly basis.
- 3.23 The Water Quality Monitoring equipments such as Dissolved Oxygen meter, pH Meter, Turbidity Measuring Instrument and Salinometer, are calibrated by HOKLAS accredited laboratory of three month intervals.
- 3.24 All updated calibration certificates of the monitoring equipment used for the impact monitoring program in the Reporting Month would be attached in [Appendix E](#).

#### METEOROLOGICAL INFORMATION

- 3.25 The meteorological information during the construction phase is obtained from the Wong Chuk Hang Station of the Hong Kong Observatory (HKO) due to it nearly the Project site.

#### DATA MANAGEMENT AND DATA QA/QC CONTROL

- 3.26 The impact monitoring data are handled by the ET’s systematic data recording and management, which complies with in-house Quality Management System. Standard Field Data Sheets (FDS) are used in the impact monitoring program.
- 3.27 The monitoring data recorded in the equipment e.g. 1-hour TSP meter, noise meter and Multi-parameter Water Quality Monitoring System, are downloaded directly from the equipments at the end of each monitoring day. The downloaded monitoring data are input into a computerized database properly maintained by the ET. The laboratory results are input directly into the computerized database and QA/QC checked by personnel other than those who input the data. For monitoring activities require laboratory analysis, the local laboratory follows the QA/QC requirements as set out under the HOKLAS scheme for all laboratory testing.

#### DETERMINATION OF ACTION/LIMIT (A/L) LEVELS

- 3.28 According to the Sok Kwu Wan Environmental Monitoring and Audit Manual, the air quality, construction noise were set up, namely Action and Limit levels are listed in *Tables 3-5* and *3-6* as below.

**Table 3-5 Action and Limit Levels for Air Quality Monitoring**

| Monitoring Station | Action Level ( $\mu\text{g}/\text{m}^3$ ) |         | Limit Level ( $\mu\text{g}/\text{m}^3$ ) |         |
|--------------------|---|---------|--|---------|
|                    | 1-hour                                    | 24-hour | 1-hour                                   | 24-hour |
| AM1                | 343                                       | 173     | 500                                      | 260     |
| AM2                | 331                                       | 175     | 500                                      | 260     |
| AM3                | 353                                       | 191     | 500                                      | 260     |

**Table 3-6 Action and Limit Levels for Construction Noise**

| Monitoring Location       | Action Level  | Limit Level   |
|---------------------------|---|---|
|                           | 0700-1900 hours on normal weekdays                  |   |
| NM1<br>NM2<br>RNM3<br>NM4 | When one or more documented complaints are received | 75 dB(A) of Leq(30min) during normal hours from 0700 to 1900 hours on normal weekdays, reduced to 70 dB(A) of Leq(30min) for schools and 65 dB(A) during school examination periods |

- 3.29 Due to water quality baseline monitoring still not yet completed, the Action/Limit Levels will be provided in due course.
- 3.30 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan enclosed in [Appendix F](#).

#### 4 IMPACT MONITORING RESULTS - AIR QUALITY

4.01 As informed by Leader, the construction of relevant land works at Sok Kwu Wan was commenced on 27 July 2010, therefore, the impact EM&A program was started as compliance with the contract Particular Specification, Sok Kwu Wan the EM&A Manual, and the EP. The air quality monitoring results shared with Contract DC/2007/18 are presented in the following sub-sections.

##### Results of Air Quality Monitoring

4.02 In this reporting period, 5 air quality monitoring days were performed at the designated locations AM1, AM2 and AM3. The results for 24-hour and 1-hour TSP at AM1, AM2 and AM3 are summarized in *Tables 4-1, 4-2 and 4-3* respectively. The 24-hour TSP data are shown in *Appendix G*. Also, the graphical plots of 24-hour and 1-hour TSP are shown in *Appendix H*.

**Table 4-1 Summary of 24-hour and 1-hour TSP Monitoring Results – AM1**

| Date            | 24-hour TSP ( $\mu\text{g}/\text{m}^3$ ) | 1-hour TSP ( $\mu\text{g}/\text{m}^3$ ) |            |                               |                               |                               |
|-----------------|--|---|------------|-------------------------------|-------------------------------|-------------------------------|
|                 |  | Date                                    | Start Time | 1 <sup>st</sup> hour measured | 2 <sup>nd</sup> hour measured | 3 <sup>rd</sup> hour measured |
| 4-Jan-11        | 79                                       | 5-Jan-11                                | 15:49      | 113                           | 115                           | 123                           |
| 10-Jan-11       | 140                                      | 8-Jan-11                                | 13:27      | 171                           | 147                           | 146                           |
| 15-Jan-11       | 57                                       | 14-Jan-11                               | 14:25      | 87                            | 84                            | 91                            |
| 21-Jan-11       | 109                                      | 20-Jan-11                               | 11:30      | 132                           | 120                           | 124                           |
| 27-Jan-11       | 79                                       | 26-Jan-11                               | 11:00      | 157                           | 171                           | 173                           |
| Average (Range) | <b>93</b><br>(57 – 140)                  | Average (Range)                         |            | <b>130</b><br>(84 – 130)      |                               |                               |

**Table 4-2 Summary of 24-hour and 1-hour TSP Monitoring Results – AM2**

| Date            | 24-hour TSP ( $\mu\text{g}/\text{m}^3$ ) | 1-hour TSP ( $\mu\text{g}/\text{m}^3$ ) |            |                               |                               |                               |
|-----------------|--|---|------------|-------------------------------|-------------------------------|-------------------------------|
|                 |  | Date                                    | Start Time | 1 <sup>st</sup> hour measured | 2 <sup>nd</sup> hour measured | 3 <sup>rd</sup> hour measured |
| 4-Jan-11        | 55                                       | 5-Jan-11                                | 15:49      | 103                           | 115                           | 130                           |
| 10-Jan-11       | 165                                      | 8-Jan-11                                | 13:24      | 161                           | 157                           | 144                           |
| 15-Jan-11       | 145                                      | 14-Jan-11                               | 14:20      | 93                            | 86                            | 89                            |
| 21-Jan-11       | 74                                       | 20-Jan-11                               | 11:30      | 144                           | 138                           | 133                           |
| 27-Jan-11       | 61                                       | 26-Jan-11                               | 11:05      | 167                           | 148                           | 151                           |
| Average (Range) | <b>100</b><br>(55 – 165)                 | Average (Range)                         |            | <b>131</b><br>(86 – 167)      |                               |                               |

**Table 4-3 Summary of 24-hour and 1-hour TSP Monitoring Results – AM3**

| Date            | 24-hour TSP ( $\mu\text{g}/\text{m}^3$ ) | 1-hour TSP ( $\mu\text{g}/\text{m}^3$ ) |            |                               |                               |                               |
|-----------------|--|---|------------|-------------------------------|-------------------------------|-------------------------------|
|                 |  | Date                                    | Start Time | 1 <sup>st</sup> hour measured | 2 <sup>nd</sup> hour measured | 3 <sup>rd</sup> hour measured |
| 4-Jan-11        | 59                                       | 5-Jan-11                                | 12:34      | 90                            | 102                           | 125                           |
| 10-Jan-11       | 127                                      | 8-Jan-11                                | 10:10      | 151                           | 127                           | 132                           |
| 15-Jan-11       | 107                                      | 14-Jan-11                               | 11:00      | 76                            | 64                            | 72                            |
| 21-Jan-11       | 80                                       | 20-Jan-11                               | 11:30      | 125                           | 119                           | 124                           |
| 27-Jan-11       | 100                                      | 26-Jan-11                               | 14:30      | 139                           | 136                           | 138                           |
| Average (Range) | <b>95</b><br>(59 – 127)                  | Average (Range)                         |            | <b>115</b><br>(64 – 151)      |                               |                               |

4.03 As shown in *Tables 4-1, 4-2 and 4-3*, 24-hour and 1-hour TSP results fluctuated well below the Action Level during the Reporting Period. No Notification of Exceedance (NOE) of 24-hour and 1-hour TSP air quality criteria or corrective action was therefore required.

4.04 The meteorological information during the impact monitoring days are summarized in *Appendix I*.

## 5 IMPACT MONITORING RESULTS – CONSTRUCTION NOISE

5.01 The noise monitoring results extracted from Contract DC/2007/18 are presented in the following sub-sections.

### Results of Construction Noise Monitoring

5.02 In this monthly report period, 5 construction noise monitoring events were undertaken at designated location NM1, NM2, RNM3 and NM4. The results for Leq<sub>30min</sub>, L<sub>10</sub> and L<sub>90</sub> at NM1, NM2, RNM3 and NM3 are summarized in *Tables 5-1, 5-2, 5-3 and 5-4* respectively. The construction noise monitoring data sheets are shown in *Appendix G*. Also, the graphical plots are shown in *Appendix H*.

**Table 5-1 Summarized of Construction Noise Monitoring Results at NM1**

| Date                        | Start Time | End time | 1 <sup>st</sup> Leq5 | 2 <sup>nd</sup> Leq5 | 3 <sup>rd</sup> Leq5 | 4 <sup>th</sup> Leq5 | 5 <sup>th</sup> Leq5 | 6 <sup>th</sup> Leq5 | Leq30     |
|-----------------------------|------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------|
| 4-Jan-11                    | 13:13      | 13:43    | 63.9                 | 56.6                 | 64.6                 | 64.2                 | 54.0                 | 54.8                 | 61.8      |
| 8-Jan-11                    | 14:42      | 15:12    | 71.4                 | 58.0                 | 60.1                 | 63.2                 | 60.8                 | 53.0                 | 65.0      |
| 14-Jan-11                   | 13:24      | 13:54    | 56.0                 | 65.6                 | 70.3                 | 53.6                 | 57.5                 | 66.2                 | 65.2      |
| 20-Jan-11                   | 13:00      | 13:30    | 61.0                 | 60.3                 | 62.2                 | 61.4                 | 63.1                 | 60.9                 | 61.6      |
| 26-Jan-11                   | 11:07      | 11:37    | 62.9                 | 55.5                 | 59.3                 | 55.8                 | 49.7                 | 54.5                 | 58.1      |
| <b>Limit Level in dB(A)</b> |            |          |                      |                      |                      |                      |                      |                      | <b>75</b> |

**Table 5-2 Summarized of Construction Noise Monitoring Results at NM2**

| Date                        | Start Time | End time | 1 <sup>st</sup> Leq5 | 2 <sup>nd</sup> Leq5 | 3 <sup>rd</sup> Leq5 | 4 <sup>th</sup> Leq5 | 5 <sup>th</sup> Leq5 | 6 <sup>th</sup> Leq5 | Leq30     |
|-----------------------------|------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------|
| 4-Jan-11                    | 13:51      | 14:21    | 63.6                 | 62.9                 | 64.2                 | 61.9                 | 62.0                 | 62.2                 | 62.9      |
| 8-Jan-11                    | 15:17      | 15:47    | 66.7                 | 72.5                 | 69.6                 | 69.0                 | 71.3                 | 67.0                 | 69.9      |
| 14-Jan-11                   | 14:27      | 14:57    | 66.2                 | 69.2                 | 70.5                 | 68.2                 | 70.4                 | 61.4                 | 68.5      |
| 20-Jan-11                   | 13:12      | 13:42    | 64.6                 | 67.1                 | 66.3                 | 65.6                 | 63.2                 | 68.0                 | 66.1      |
| 26-Jan-11                   | 13:00      | 13:30    | 68.4                 | 65.9                 | 65.6                 | 67.7                 | 69.0                 | 61.6                 | 66.9      |
| <b>Limit Level in dB(A)</b> |            |          |                      |                      |                      |                      |                      |                      | <b>75</b> |

**Table 5-3 Summarized of Construction Noise Monitoring Results at RNM3**

| Date                        | Start Time | End time | 1 <sup>st</sup> Leq5 | 2 <sup>nd</sup> Leq5 | 3 <sup>rd</sup> Leq5 | 4 <sup>th</sup> Leq5 | 5 <sup>th</sup> Leq5 | 6 <sup>th</sup> Leq5 | Leq30     | Corrected* Leq30 |
|-----------------------------|------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------|------------------|
| 4-Jan-11                    | 15:13      | 15:43    | 61.8                 | 61.7                 | 59.6                 | 60.0                 | 63.2                 | 60.7                 | 61.3      | 64.3             |
| 8-Jan-11                    | 15:50      | 16:20    | 60.0                 | 60.7                 | 61.3                 | 65.3                 | 59.9                 | 58.5                 | 61.6      | 64.6             |
| 14-Jan-11                   | 15:06      | 15:36    | 62.4                 | 58.8                 | 58.4                 | 57.6                 | 57.5                 | 56.0                 | 59.0      | 62.0             |
| 20-Jan-11                   | 13:59      | 14:29    | 57.1                 | 56.9                 | 57.5                 | 57.2                 | 58.0                 | 56.6                 | 57.2      | 60.2             |
| 26-Jan-11                   | 13:36      | 14:06    | 64.0                 | 58.0                 | 72.6                 | 60.0                 | 58.3                 | 59.7                 | 66.0      | 69.0             |
| <b>Limit Level in dB(A)</b> |            |          |                      |                      |                      |                      |                      |                      | <b>75</b> |                  |

**Table 5-4 Summarized of Construction Noise Monitoring Results at NM4**

| Date                        | Start Time | End time | 1 <sup>st</sup> Leq5 | 2 <sup>nd</sup> Leq5 | 3 <sup>rd</sup> Leq5 | 4 <sup>th</sup> Leq5 | 5 <sup>th</sup> Leq5 | 6 <sup>th</sup> Leq5 | Leq30     |
|-----------------------------|------------|----------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------|
| 4-Jan-11                    | 14:37      | 15:07    | 68.3                 | 77.6                 | 54.8                 | 65.3                 | 56.7                 | 57.8                 | 70.6      |
| 8-Jan-11                    | 16:25      | 16:55    | 53.9                 | 50.7                 | 52.6                 | 50.2                 | 52.8                 | 52.6                 | 52.3      |
| 14-Jan-11                   | 15:43      | 16:13    | 52.2                 | 56.6                 | 57.7                 | 56.6                 | 59.8                 | 52.6                 | 56.7      |
| 20-Jan-11                   | 14:33      | 15:03    | 53.1                 | 53.6                 | 52.1                 | 50.9                 | 51.4                 | 52.0                 | 52.3      |
| 26-Jan-11                   | 14:16      | 14:46    | 52.5                 | 53.8                 | 57.8                 | 52.8                 | 50.2                 | 52.6                 | 54.0      |
| <b>Limit Level in dB(A)</b> |            |          |                      |                      |                      |                      |                      |                      | <b>75</b> |

5.03 It was noted that no noise complaint (which is an Action Level exceedance) was received. In view of the results shown in *Tables 5-1, 5-2, 5-3 and 5-4* which were all below 75dB(A), no Action or Limit Level exceedance was triggered during this month.



## 6 IMPACT MONITORING RESULTS – WATER QUALITY

6.01 Due to marine water quality baseline monitoring still not yet completed, no marine works was commenced in the Project at Sok Kwu Wan. No impact water quality monitoring was undertaken in this reporting month and no results are presented accordingly in this section.

## 7 ECOLOGY

7.01 According to Clause 3.7 and Figure 4 in the Environmental Permit No. EP-281/2007/A, a total of 12 numbers *Celtis Timorensis* (uncommon species) in Chung Mei at Sok Kwu Wan, are identified to require labeling, fencing and protection. Out of these, four numbers located in the Pumping Station No.1 area are required to be transplanted in advance of pumping station construction and the transplantation proposal has been submitted to EPD previously.

7.02 Regular inspections were carried out on 18 January 2011 by the landscaping sub-Contractor (Melofield Nursery and Landscape Contractor Limited) after the transplantation. A copy of the inspection reports are attached in *Appendix M*.

## 8 WASTE MANAGEMENT

8.01 Waste management was carried out by an on-site Environmental Officer or an Environmental Supervisor from time to time.

### Records of Waste Quantities

8.02 All types of waste arising from the construction work are classified into the following:

- Construction & Demolition (C&D) Material;
- Chemical Waste;
- General Refuse; and
- Excavated Soil.

8.03 The quantities of waste for disposal in this Reporting Period are summarized in [Table 7-1](#) and [7-2](#) and the Monthly Summary Waste Flow Table is shown in [Appendix J](#). Whenever possible, materials were reused on-site as far as practicable.

**Table 7-1 Summary of Quantities of Inert C&D Materials**

| Type of Waste  | Quantity | Disposal Location             |
|--|----------|-------------------------------|
| C&D Materials (Inert) ('000m <sup>3</sup> )            | 0.013    | Sok Kwu Wan Transfer Facility |
| Reused in the Contract (Inert) ('000m <sup>3</sup> )   | 0        | -                             |
| Reused in other Projects (Inert) ('000m <sup>3</sup> ) | 0        | -                             |
| Disposal as Public Fill (Inert) ('000m <sup>3</sup> )  | 0        | Sok Kwu Wan Transfer Facility |

**Table 7-2 Summary of Quantities of C&D Wastes**

| Type of Waste                           | Quantity | Disposal Location             |
|---|----------|-------------------------------|
| Recycled Metal (kg)                     | 0        | -                             |
| Recycled Paper / Cardboard Packing (kg) | 0        | -                             |
| Recycled Plastic (kg)                   | 0        | -                             |
| Chemical Wastes (kg)                    | 0        | -                             |
| General Refuses (tonne)                 | 2.24     | Sok Kwu Wan Transfer Facility |

8.04 There was no site effluent discharged but the estimated volume of surface runoff was less than 50m<sup>3</sup> in this monthly period.

**9 SITE INSPECTION**

- 9.01 According to the Environmental Monitoring and Audit Manual, the environmental site inspection should be formulated by ET Leader. Regular environmental site inspections had been carried out by the ET to confirm the environmental performance. In this reporting period, site inspection was carried out on **4, 11, 18 and 25 January 2011** after the relevant land work commencement at Sok Kwu Wan Portion Area on 27 July 2010. Besides, routine joint-site visit by IEC, RE, Leader and ET was carried out on **11 January 2011**.
- 9.02 The findings/ deficiencies that observed during the weekly site inspection are listed in *Table 8-1* and the relevant checklists are attached in **Appendix K**.

**Table 8-1 Site Observations**

| <b>Date</b>     | <b>Findings / Deficiencies</b>  | <b>Follow-Up Status</b>              |
|-----------------|---|--------------------------------------|
| 4 January 2011  | <ul style="list-style-type: none"> <li>No environmental issue was observed during the site inspection.</li> </ul>   | N.A                                  |
| 11 January 2011 | <ul style="list-style-type: none"> <li>Free standing oil drums were observed, the Contractor should provide drip tray and covering for them.</li> <li>The building wall was too close to the transplanted tree, the contractor should modify the wall to improve the tree protection.</li> <li>Protective measures should be made for the tree branch to avoid damage from the door opening.</li> </ul> | The observations have been followed. |
| 18 January 2011 | <ul style="list-style-type: none"> <li>Water leaking from the pipe was observed, the Contractor should fix the leakage and prevent water discharge before sedimentation. (PS1).</li> <li>The C&amp;D material and plant accumulated near the transplanted tree was observed. The Contractor should clear the area to protect the trees from damage.</li> </ul>  | The observations have been followed. |
| 25 January 2011 | <ul style="list-style-type: none"> <li>Dirt tails on the haul road due to transportation of construction material were observed, the Contractor should clean the road regularly to maintain site cleanliness.</li> </ul>  | The observations have been followed. |

## 10 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

10.01 No environmental complaint, summons and prosecution was received in this reporting period. The statistical summary table of environmental complaint is presented in *Tables 9-1, 9-2* and *9-3*.

**Table 9-1 Statistical Summary of Environmental Complaints**

| Reporting Period          | Environmental Complaint Statistics |            |                  |
|---------------------------|------------------------------------|------------|------------------|
|                           | Frequency                          | Cumulative | Complaint Nature |
| 27 Jul 2010 – 31 Dec 2010 | 0                                  | 0          | NA               |
| 1 – 31 Jan 2011           | 0                                  | 0          | NA               |

**Table 9-2 Statistical Summary of Environmental Summons**

| Reporting Period          | Environmental Summons Statistics |            |                  |
|---------------------------|----------------------------------|------------|------------------|
|                           | Frequency                        | Cumulative | Complaint Nature |
| 27 Jul 2010 – 31 Dec 2010 | 0                                | 0          | NA               |
| 1 – 31 Jan 2011           | 0                                | 0          | NA               |

**Table 9-3 Statistical Summary of Environmental Prosecution**

| Reporting Period          | Environmental Prosecution Statistics |            |                  |
|---------------------------|--------------------------------------|------------|------------------|
|                           | Frequency                            | Cumulative | Complaint Nature |
| 27 Jul 2010 – 31 Dec 2010 | 0                                    | 0          | NA               |
| 1 – 31 Jan 2011           | 0                                    | 0          | NA               |

## 11 IMPLEMENTATION STATUS OF MITIGATION MEASURES

11.01 The environmental mitigation measures that recommended in the Sok Kwu Wan Environmental Monitoring and Audit Manual covered the issues of dust, noise, water and waste and they are summarized as following:

### Dust Mitigation Measure

11.02 Installation of 2m high solid fences around the construction site of Pumping Station P2 is recommended. Implementation of the requirements stipulated in the Air Pollution Control (Construction Dust) Regulation and the following good site practices are recommended to control dust emission from the site:

- (a) Stockpiles of imported material kept on site should be contained within hoardings, dampened and / or covered during dry and windy weather;
- (b) Material stockpiled alongside trenches should be covered with tarpaulins whenever works are close to village houses;
- (c) Water sprays should be used during the delivery and handling of cement, sands, aggregates and the like.
- (d) Any vehicle used for moving sands, aggregates and construction waste shall have properly fitting side and tail boards. Materials should not be loaded to a level higher than the side and tail boards, and should be covered by a clean tarpaulin.

### Noise Mitigation Measure

11.03 As detailed in the EIA report, concreting work of the Pumping Station P1a and sewer alignment construction activities would likely cause adverse noise impacts on some of the noise sensitive receivers. Appropriate mitigation measures have therefore been recommended. The mitigation measures recommended in the EIA report are summarised below:

- (a) Use of quiet equipment for the construction activities of the Pumping Stations and sewer alignment;
- (b) Use of temporary noise barrier around the site boundary of Pumping Station P1a;
- (c) Use of kick ripper (saw and lift) method to replace the breaker for pavement removal during sewer alignment construction;
- (d) Restriction on the number of plant during sewer alignment construction;
- (e) Use of noise screening structures in the form of acoustic shed or movable barrier wherever practicable and feasible in areas with sufficient clearance and headroom during the construction of sewer alignment;
- (f) Adoption of manual working method wherever practicable and feasible in areas where the worksites of the proposed sewer alignment are located less than 20m from the residential noise sensitive receivers and less than 30m from the temple and the public library; and
- (g) Implementation of the following good site practices:
  - Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.
  - Mobile plant, if any, should be sited as far away from NSRs as possible.
  - Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.
  - Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.
  - Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.

### Water Quality Mitigation Measure

11.04 No-dig method using Horizontal Directional Drilling (HDD) would be used for the installation of outfall pipe of about 480 m from shore to minimize the potential water quality impacts arising from the dredging works required for the submarine outfall construction. For the remaining outfall pipe of about 240m and the diffuser section, open trench dredging would still be required.

- 11.05 During the dredging works, the Contractor should be responsible for the design and implementation of the following mitigation measures.
- Dredging should be undertaken using closed grab dredgers with a total production rate of 55m<sup>3</sup>/hr;
  - Deployment of 2-layer silt curtains with first layer enclosing the grab and the second layer at around 50, from the dredging area while dredging works are in progress;
  - all vessels should be sized such that adequate clearance (i.e. minimum clearance of 0.6m) is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;
  - all pipe leakages should be repaired promptly and plant shall not be operated with leaking pipes;
  - excess material should be cleaned from the decks and exposed fittings of barges before the vessel is moved;
  - adequate freeboard (i.e. minimum of 200m) should be maintained on barges to ensure that decks are not washed by wave action;
  - all barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material; and
  - loading of barges and hoppers should be controlled to prevent splashing of dredged material to the surrounding water, and barges and hoppers should not be filled to a level which would cause the overflow of materials or sediment laden water during loading or transportation; and
  - the decks of all vessels should be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard.

Construction Run-off and Drainage

- 11.06 The Contractor should observe and comply with the Water Pollution Control Ordinance and the subsidiary regulations. The Contractor should follow the practices, and be responsible for the design, construction, operation and maintenance of all the mitigation measures as specified in ProPECC PN 1/94 “Construction Site Drainage”. The design of the mitigation measures should be submitted by the Contractor to the Engineer for approval. These mitigation measures should include the following practices to minimise site surface runoff and the chance of erosion, and also to retain and reduce any suspended solids prior to discharge:
- Provision of perimeter channels to intercept storm-runoff from outside the site. These should be constructed in advance of site formation works and earthworks.
  - Works programmes should be designed to minimize works areas at any one time, thus minimising exposed soil areas and reducing the potential for increased siltation and runoff.
  - Sand/silt removal facilities such as sand traps, silt traps and sediment basins should be provided to remove the sand/silt particles from run-off. These facilities should be properly and regularly maintained. These facilities shall be carefully planned to ensure that they would be installed at appropriate locations to capture all surface water generated on site.
  - Careful programming of the works to minimise soil excavation works during rainy seasons.
  - Exposed soil surface should be protected by paving or hydroseeding as soon as possible to reduce the potential of soil erosion.
  - Trench excavation should be avoided in the wet season, and if necessary, these should be excavated and backfilled in short sections.
  - Open stockpiles of construction materials on site should be covered with tarpaulin or similar fabric.

General Construction Activities

- 11.07 Debris and rubbish generated on-site should be collected, handled and disposed of properly to avoid entering the nearby coastal waters and stormwater drains. All fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. Open drainage channels and culverts near the works areas should be covered to block the entrance of large debris and refuse.

Wastewater Arising from Workforce

- 11.08 Portable toilets shall be provided by the Contractors, where necessary, to handle sewage from the workforce. The Contractor shall also be responsible for waste disposal and maintenance practices

**Sediment Contamination Mitigation Measure**

- 11.09 The basic requirements and procedures for dredged mud disposal are specified under the WBTC No. 34/2002. The management of the dredging, use and disposal of marine mud is monitored by the MFC, while the licensing of marine dumping is the responsibility of the Director of Environmental Protection (DEP).
- 11.10 The uncontaminated dredged sediment will be loaded onto barges and transported to the designated marine disposal site. Appropriate dredging methods have been incorporated into the recommended water quality mitigation measures including the use of closed-grab dredgers and silt curtains. Category L sediment would be suitable for disposal at a gazetted open sea disposal ground.
- 11.11 During transportation and disposal of the dredged marine sediments, the following measures should be taken to minimize potential impacts on water quality:
- Bottom opening of barges should be fitted with tight fitting seals to prevent leakage of material. Excess material should be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved.
  - Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels should be equipped with automatic self-monitoring devices as specified by the DEP.

**Construction Waste Mitigation Measure**

Good Site Practices and Waste Reduction Measures

- 11.12 It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are strictly followed. Recommendations for good site practices for the construction waste arising include:
- Nomination of an approved person, such as a site manager, to be responsible for the implementation of good site practices, arranging for collection and effective disposal to an appropriate facility, of all wastes generated at the site.
  - Training of site personnel in proper waste management and chemical handling procedures.
  - Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.
  - Provision of sufficient waste disposal points and regular collection for disposal.
  - Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Facility.
  - Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.
  - Maintain records of the quantities of wastes generated, recycled and disposed.
- 11.13 In order to monitor the disposal of C&D waste at landfills and to control fly tipping, a trip-ticket system should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.
- 11.14 Good management and control can prevent the generation of significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:
- segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;

- to encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to segregate this waste from other general refuse generated by the work force;
- any unused chemicals or those with remaining functional capacity should be recycled;
- use of reusable non-timber formwork to reduce the amount of C&D material;
- prior to disposal of C&D waste, it is recommended that wood, steel and other metals should be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill;
- proper storage and site practices to minimise the potential for damage or contamination of construction materials; and
- plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.

#### General Site Wastes

- 11.15 A collection area should be provided where waste can be stored prior to removal from site. An enclosed and covered area is preferred for the collection of the waste to reduce 'wind blow' of light material.

#### Chemical Wastes

- 11.16 After use, chemical waste (eg. cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Any unused chemicals or those with remaining functional capacity should be recycled. Spent chemicals should be properly stored on site within suitably designed containers, and should be collected by an approved operator for disposal at the Chemical Waste Treatment Facility or other licenced facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation under the Waste Disposal Ordinance.
- 11.17 Any service shop and minor maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakages and spillage should only be undertaken with the areas appropriately equipped to control these discharges.

#### Construction and Demolition Material

- 11.18 The C&D material should be separated on-site into three categories: (i) public fill, the inert portion of the C&D material (e.g. concrete and rubble), which should be re-used on-site or disposed of at a public filling area; (ii) C&D waste for re-use and/or recycling, the non-inert portion of the C&D material, (e.g. steel and other metals, wood, glass and plastic); (iii) C&D waste which cannot be re-used and/or recycled. The waste producers are responsible for its disposal at strategic landfills.
- 11.19 In order to minimise the impact resulting from collection and transportation of material for off-site disposal, it was recommended that inert material should be re-used on-site where possible. Prior to disposal of C&D material, it was also recommended that steel and other metals should be separated for re-use and/or recycling where practicable to minimise the quantity of waste to be disposed of to landfill.

#### Ecology Mitigation Measure

##### Terrestrial Ecology

- 11.20 The uncommon tree species should be labelled and probably fenced to avoid direct or indirect disturbance during construction. Works areas should avoid woodland habitats, in particular where these trees are located.
- 11.21 Construction and maintenance of site runoff control measures would be required at all work sites during construction. These should include barriers to direct runoff to sand/silt removal facilities (sand/silt/traps and/or sediment basins); minimisation of earthworks during rainy season (May to September); and coverage of sand/fill piles and exposed earth during storms.



- 11.22 Special attention should be paid during the breeding season of Romer’s Tree Frog (March to September) to ensure their habitat landward to Pumping Station P2 site is well protected from site runoff. Barriers should be deployed completely along the landward side of the pumping station site boundary to prevent any site runoff from entering the tree frog habitat. Intactness of the barriers should be frequently inspected.

Intertidal and Subtidal Ecology

- 11.23 Construction and maintenance of site runoff control measures would be required at all work sites during construction. These should include barriers to direct runoff to sand/silt removal facilities (sand/silt/traps and/or sediment basins); use of silt curtains along coastline; minimisation of earthworks during rainy season (May to September); and coverage of sand/fill piles and exposed earth during storms.
- 11.24 To reduce impacts of sediment resuspension upon nearby habitats and organisms during dredging, all dredging should be done using a closed-grab dredger, and silt curtains should be deployed around the dredger during all dredging activity

Fisheries Mitigation Measure

- 11.25 Closed grab dredger, deployment of silt curtains around the immediate dredging area and low dredging rate have been recommended in Water Quality of the EIA report in order to minimise sediment release into the water column.

Landscape & Visual Mitigation Measure

- 11.26 Mitigation measures recommended in the EIA Report for landscape and visual impacts during the construction stage are summarised below.
- Screening of site construction works by use of hoarding that is appropriate to its site context;
  - Retaining existing trees and minimising damage to vegetation where possible by close co-ordination and on site alignment adjusted of rising main and gravity sewer pipelines. Tree protective measures should be implemented to ensure trees identified as to be retained are satisfactorily protected during the construction phase;
  - Careful and efficient transplanting of affected trees (1 no.) to temporary or final transplant location (the proposed tree to be transported is a semi-mature *Macaranga tanarius* and is located at the proposed Pumping Station P2 location);
  - Short excavation and immediate backfilling of sections upon completion of works to reduce active site area;
  - Conservation of top-soil for reuse.
  - Night-time light source from marine fleets should be directed away from the residential units
- 11.27 The implementation schedule of mitigation measures is presented in [Appendix L](#).
- 11.28 Leader had been implementing the required environmental mitigation measures according to the Sok Kwu Wan Environmental Monitoring and Audit Manual subject to the site condition. Environmental mitigation measures generally implemented by Leader in this Reporting Month are summarized in [Table 10-1](#).

**Table 10-1 Environmental Mitigation Measures**

| Issues        | Environmental Mitigation Measures   |
|---------------|---|
| Water Quality | <ul style="list-style-type: none"> <li>• Drainage channels were provided to convey run-off into the treatment facilities; and</li> <li>• Drainage systems were regularly and adequately maintained.</li> </ul>  |
| Air Quality   | <ul style="list-style-type: none"> <li>• Cover all excavated or stockpile of dusty material by impervious sheeting or sprayed with water to maintain the entire surface wet;</li> <li>• Public roads around the site entrance/exit had been kept clean and free from dust; and</li> <li>• Tarpaulin covering of any dusty materials on a vehicle leaving the site.</li> </ul> |

| <b>Issues</b>                 | <b>Environmental Mitigation Measures</b>   |
|-------------------------------|--|
| Noise                         | <ul style="list-style-type: none"><li>• Good site practices to limit noise emissions at the sources;</li><li>• Use of quiet plant and working methods;</li><li>• Use of site hoarding or other mass materials as noise barrier to screen noise at ground level of NSRs; and</li><li>• To minimize plant number use at the worksite.</li></ul>  |
| Waste and Chemical Management | <ul style="list-style-type: none"><li>• Excavated material should be reused on site as far as possible to minimize off-site disposal. Scrap metals or abandoned equipment should be recycled if possible;</li><li>• Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner;</li><li>• The Contractor should adopt a trip ticket system for the disposal of C&amp;D materials to any designed public filling facility and/or landfill; and</li><li>• Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.</li></ul> |
| General                       | <ul style="list-style-type: none"><li>• The site was generally kept tidy and clean.</li></ul>  |

## 12 IMPACT FORECAST

12.01 Key issues to be considered in the coming month include:

### Water Quality

- Erect of sand bag in proper area to avoid any muddy surface runoff from the loose soil surface or haul road during the rainy days; and
- The accumulated stagnant water should be drained away.

### Air Quality

- Vehicles shall be cleaned of mud and debris before leaving the site;
- Stockpile and loose soil surface shall be covered with tarpaulin sheet or other means to eliminate the fugitive dust;
- Water spaying on the dry haul road and exit/entrance of the site in regular basis is reminded; and
- Public roads around the site entrance/exit had been kept clean and free from dust.

### Noise

- Works and equipment should be located to minimize noise nuisance from the nearest sensitive receiver; and
- Idle equipments should be either turned off or throttled down;

### Waste and Chemical Management

- Housekeeping on site shall be improved;
- The Contractor is advised to fence off the construction waste at a designated area in order to maintain the tidiness of the site;
- Drip tray and proper label should be provided for all chemical containers.
- C&D waste should be disposed in regular basis.

### 13 CONCLUSIONS AND RECOMMENDATIONS

#### CONCLUSIONS

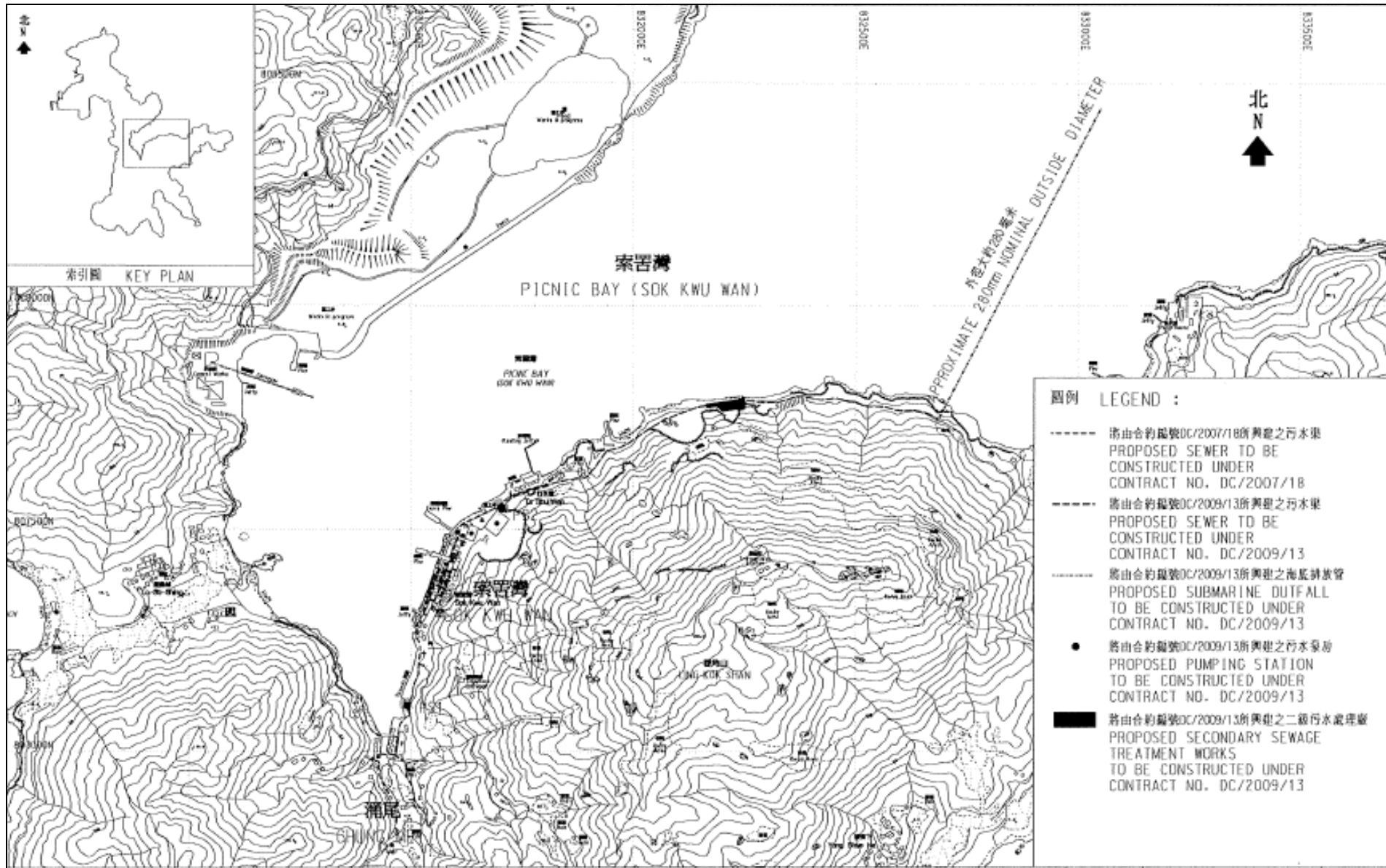
- 13.01 This is the 6<sup>th</sup> Monthly EM&A Report covering the construction period from **1 to 31 January 2011** (the Reporting Period).
- 13.02 No 1-hour TSP or 24-hr TSP monitoring results was found to be triggered the Action or Limit Level in this Reporting Period.
- 13.03 No noise complaint (an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in this reporting month.
- 13.04 No impact water quality monitoring was undertaken in this reporting month and baseline monitoring is in progress.
- 13.05 No documented complaint, notification of summons or successful prosecution was received.
- 13.06 In this reporting period, site inspection was carried out on **4, 11, 8 and 25 January 2011** after the relevant land work commencement at Sok Kwu Wan Portion Area on 27 July 2010. Besides, routine joint-site visit by IEC, RE, Leader and ET was carried out on **11 January 2011**. All the observation has been rectified during the next week site inspection. The environmental performance of the Project was therefore considered as satisfactory.

#### RECOMMENDATIONS

- 13.07 During dry season, special attention should be paid to the dust mitigation measures to avoid fugitive dust emissions from loose soil surface or haul road. Nevertheless, mitigation measures implemented for control the surface runoff including wheel wash facilities, covering of the loose soil surface or stockpile with tarpaulin sheet, etc., should fully implement.
- 13.08 Muddy water and other water quality pollutants via site surface water runoff into the sea body within Fish culture zone at Picnic Bay and the Secondary recreation contact subzone at Mo Tat Wan is the key issue of the Project. Mitigation measures for water quality should be properly maintained to prevent any muddy or sandy runoff from the loose soil surface overflow on the site boundary.
- 13.09 Construction of outfall marine works cannot be carried out. The work perform should be until to the baseline water quality monitoring completion and the related Action and Limit (A/L) levels establishment.

## **Appendix A**

### **Site Layout Plan – Sok Kwu Wan Portion Area**



## **Appendix B**

### **Organization Structure and Contact Details of Relevant Parties**

Contact Details of Key Personnel

| <b>Organization</b> | <b>Project Role</b>                 | <b>Name of Key Staff</b> | <b>Tel No.</b> | <b>Fax No.</b> |
|---------------------|-------------------------------------|--------------------------|----------------|----------------|
| DSD                 | Employer                            | Mr. AU Chi Kwong         | -              | -              |
| SCJV                | Engineer's Representative           | Mr. Neil Wong            | 2982 0240      | 2982 4129      |
| SCJV                | Resident Engineer                   | Mr. Alfred Cheung        | 2982 0240      | 2982 4129      |
| Scott Wilson        | Independent Environmental Checker   | Mr. Rodney Ip            | 2410 3750      | 2428 9922      |
| Leader              | Project Manager                     | Mr. Wilfred So           | 2982 1750      | 2982 1163      |
| Leader              | Site Agent/ Environmental Officer   | Mr. Vincent Chan         | 2982 1750      | 2982 1163      |
| Leader              | Section Engineer                    | Mr. Burgess Yip          | 2982 1750      | 2982 1163      |
| Leader              | Safety Officer                      | Mr. Edwin Leung          | 2982 1750      | 2982 1163      |
| AUES                | Environmental Team Leader           | Mr. T. W. Tam            | 2959 6059      | 2959 6079      |
| AUES                | Environmental Consultant            | Ms. Nicola Hon           | 2959 6059      | 2959 6079      |
| AUES                | Assistance Environmental Consultant | Mr. Ray Cheung           | 2959 6059      | 2959 6079      |
| AUES                | Team Supervisor                     | Mr. Ben Tam              | 2959 6059      | 2959 6079      |

Legend:

*DSD (Employer) – Drainage Services Department*

*CDM (Engineer) – Scott Wilson CDM Joint Venture*

*Leader (Main Contractor) – Leader Civil Engineering Corporation Limited*

*Scott Wilson (IEC) – Scott Wilson Limited*

*AUES (ET) – Action-United Environmental Services & Consulting*



## **Appendix C**

### **A Master and Three Months Rolling Construction Programs**



| Activity ID   | Original Duration | Early Start | Early Finish | Late Start | Late Finish | Total Float | 2010   | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|-------------------|-------------|--------------|------------|-------------|-------------|--|------|------|------|------|------|------|------|------|
| SKW0241   | 9                 | 07/06/10    | 15/06/10     | 07/06/10   | 15/06/10    | 0           | Initial Survey                                     |      |      |      |      |      |      |      |      |
| SKW0242   | 57                | 16/06/10    | 11/08/10     | 16/06/10   | 11/08/10    | 0           | Excavation to formation for Bay 1 to 5             |      |      |      |      |      |      |      |      |
| SKW0251   | 21                | 12/08/10    | 01/09/10     | 12/08/10   | 01/09/10    | 0           | Drill & install Dowel Bar for Bay 1 & 3            |      |      |      |      |      |      |      |      |
| SKW0301   | 14                | 02/09/10    | 15/09/10     | 02/09/10   | 15/09/10    | 0           | Erect Formwork, mesh & weephole for Bay 1 & 3      |      |      |      |      |      |      |      |      |
| SKW0311   | 14                | 16/09/10    | 29/09/10     | 16/09/10   | 29/09/10    | 0           | Concreting for Bay 1 & 3                           |      |      |      |      |      |      |      |      |
| SKW0321   | 7                 | 30/09/10    | 06/10/10     | 30/09/10   | 06/10/10    | 0           | Drilling & install Dowel Bar for Bay 2 & 5         |      |      |      |      |      |      |      |      |
| SKW0331   | 7                 | 07/10/10    | 13/10/10     | 07/10/10   | 13/10/10    | 0           | Erect Formwork, mesh & weephole for Bay 2 & 5      |      |      |      |      |      |      |      |      |
| SKW0341   | 7                 | 14/10/10    | 20/10/10     | 14/10/10   | 20/10/10    | 0           | Concreting for Bay 2 & 5                           |      |      |      |      |      |      |      |      |
| SKW0351   | 21                | 21/10/10    | 10/11/10     | 21/10/10   | 10/11/10    | 0           | Excavation to formation for Bay 6 to 9             |      |      |      |      |      |      |      |      |
| SKW0361   | 6                 | 11/11/10    | 16/11/10     | 11/11/10   | 16/11/10    | 0           | Drill & install dowel Bar for Bay 4 & 7            |      |      |      |      |      |      |      |      |
| SKW0371   | 7                 | 17/11/10    | 23/11/10     | 17/11/10   | 23/11/10    | 0           | Erect formwork, mesh & weephole for Bay 4 & 7      |      |      |      |      |      |      |      |      |
| SKW0381   | 7                 | 24/11/10    | 30/11/10     | 24/11/10   | 30/11/10    | 0           | Concreting for Bay 4 & 7                           |      |      |      |      |      |      |      |      |
| SKW0391   | 3                 | 01/12/10    | 03/12/10     | 01/12/10   | 03/12/10    | 0           | Drill & install dowel Bar for Bay 6 & 9            |      |      |      |      |      |      |      |      |
| SKW0401   | 7                 | 04/12/10    | 10/12/10     | 04/12/10   | 10/12/10    | 0           | Erect formwork, mesh & weephole for Bay 6 & 9      |      |      |      |      |      |      |      |      |
| SKW0411   | 7                 | 11/12/10    | 17/12/10     | 11/12/10   | 17/12/10    | 0           | Concreting for Bay 6 & 9                           |      |      |      |      |      |      |      |      |
| SKW0421   | 1                 | 18/12/10    | 18/12/10     | 18/12/10   | 18/12/10    | 0           | Drill & install dowel Bar for Bay 8                |      |      |      |      |      |      |      |      |
| SKW0431   | 4                 | 19/12/10    | 22/12/10     | 19/12/10   | 22/12/10    | 0           | Erect formwork, mesh & weephole for Bay 8          |      |      |      |      |      |      |      |      |
| SKW0441   | 4                 | 23/12/10    | 26/12/10     | 23/12/10   | 26/12/10    | 0           | Concreting for Bay 8                               |      |      |      |      |      |      |      |      |
| SKW0461   | 3                 | 27/12/10    | 29/12/10     | 27/12/10   | 29/12/10    | 0           | Excavation for no fine concrete Bay (1-9)          |      |      |      |      |      |      |      |      |
| SKW0471   | 7                 | 30/12/10    | 05/01/11     | 30/12/10   | 05/01/11    | 0           | Concreting for no-fine concrete                    |      |      |      |      |      |      |      |      |
| SKW0481   | 14                | 06/01/11    | 19/01/11     | 06/01/11   | 19/01/11    | 0           | Installation of Wall tie & stone facing            |      |      |      |      |      |      |      |      |
| SKW0491   | 7                 | 06/01/11    | 12/01/11     | 06/01/11   | 12/01/11    | 0           | Construction of Gabion Wall                        |      |      |      |      |      |      |      |      |
| SKW0501   | 3                 | 06/01/11    | 08/01/11     | 06/01/11   | 08/01/11    | 0           | Place Geotextile                                   |      |      |      |      |      |      |      |      |
| SKW0511   | 7                 | 09/01/11    | 15/01/11     | 09/01/11   | 15/01/11    | 0           | Backfill behind the retaining wall to approx. +4   |      |      |      |      |      |      |      |      |
| SKW0521   | 14                | 16/01/11    | 29/01/11     | 16/01/11   | 29/01/11    | 0           | Utilities Laying and diversion                     |      |      |      |      |      |      |      |      |
| SKW0531   | 7                 | 30/01/11    | 05/02/11     | 30/01/11   | 05/02/11    | 0           | Concreting for Pavement                            |      |      |      |      |      |      |      |      |
| SKW0541   | 7                 | 06/02/11    | 12/02/11     | 06/02/11   | 12/02/11    | 0           | Installation of Flower Pot                         |      |      |      |      |      |      |      |      |
| SKW0551   | 1                 | 13/02/11    | 13/02/11     | 13/02/11   | 13/02/11    | 0           | Permanent Footpath Diversion                       |      |      |      |      |      |      |      |      |
| <b>Section W4 - Slope Works in Portions H &amp; I</b> |                   |             |              |            |             |             |  |      |      |      |      |      |      |      |      |
| <b>Geotechnical Works</b>                             |                   |             |              |            |             |             |  |      |      |      |      |      |      |      |      |
| SKW0588   | 30                | 15/06/10    | 14/07/10     | 15/06/10   | 14/07/10    | 0           | Construct scaffolding access                       |      |      |      |      |      |      |      |      |
| SKW0590   | 100               | 15/07/10    | 22/10/10     | 15/07/10   | 22/10/10    | 0           | Site Clearance for Slope                           |      |      |      |      |      |      |      |      |
| SKW0591   | 28                | 21/09/10    | 18/10/10     | 21/09/10   | 18/10/10    | 0           | Initial Survey for Slope                           |      |      |      |      |      |      |      |      |
| SKW0592   | 80                | 19/10/10    | 06/01/11     | 19/10/10   | 06/01/11    | 0           | Temporary Rockfall fence at ex. Footpath           |      |      |      |      |      |      |      |      |
| SKW0593   | 200               | 28/11/10    | 15/06/11     | 28/11/10   | 15/06/11    | 0           | Cut Slope  |      |      |      |      |      |      |      |      |
| SKW0594   | 248               | 11/12/10    | 15/08/11     | 11/12/10   | 15/08/11    | 0           | Road & Drains Works                                |      |      |      |      |      |      |      |      |
| SKW0595   | 260               | 29/11/10    | 15/08/11     | 29/11/10   | 15/08/11    | 0           | Rock Meshing & Rockfall Fence                      |      |      |      |      |      |      |      |      |
| <b>Section W5 - P.S. No. 1 in Portion D</b>           |                   |             |              |            |             |             |  |      |      |      |      |      |      |      |      |
| <b>Civil &amp; Geotechnical Works</b>                 |                   |             |              |            |             |             |  |      |      |      |      |      |      |      |      |
| SKW0651   | 7                 | 17/05/10    | 23/05/10     | 17/05/10   | 23/05/10    | 0           | Site Clearance                                     |      |      |      |      |      |      |      |      |
| SKW0652   | 7                 | 24/05/10    | 30/05/10     | 24/05/10   | 30/05/10    | 0           | Initial Survey                                     |      |      |      |      |      |      |      |      |
| SKW0661   | 30                | 31/05/10    | 29/06/10     | 31/05/10   | 29/06/10    | 0           | Transplantation for uncommon vegetation            |      |      |      |      |      |      |      |      |
| SKW0681   | 49                | 30/06/10    | 17/08/10     | 30/06/10   | 17/08/10    | 0           | Excavate to lower the working platform to +3mPD    |      |      |      |      |      |      |      |      |
| SKW0691   | 40                | 18/08/10    | 26/09/10     | 18/08/10   | 26/09/10    | 0           | ELS to +2.2mPD                                     |      |      |      |      |      |      |      |      |
| SKW0721   | 92                | 17/09/10    | 17/12/10     | 17/09/10   | 17/12/10    | 0           | Excavate to formation                              |      |      |      |      |      |      |      |      |
| <b>Structural Works</b>                               |                   |             |              |            |             |             |  |      |      |      |      |      |      |      |      |
| SKW0741   | 15                | 18/12/10    | 01/01/11     | 18/12/10   | 01/01/11    | 0           | Base Slab (BSD2 & BSD3)                            |      |      |      |      |      |      |      |      |
| SKW0751   | 14                | 01/01/11    | 14/01/11     | 01/01/11   | 14/01/11    | 0           | Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) Approx. |      |      |      |      |      |      |      |      |
| SKW0761   | 14                | 14/01/11    | 27/01/11     | 14/01/11   | 27/01/11    | 0           | Base Slab (BSD1) to +3.98                          |      |      |      |      |      |      |      |      |
| SKW0771   | 14                | 27/01/11    | 09/02/11     | 27/01/11   | 09/02/11    | 0           | Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) to +6.3 |      |      |      |      |      |      |      |      |
| SKW0781   | 14                | 09/02/11    | 22/02/11     | 09/02/11   | 22/02/11    | 0           | Base Slab (GSE1-3, GSC1-5, GSD1-2)                 |      |      |      |      |      |      |      |      |
| SKW0791   | 14                | 22/02/11    | 07/03/11     | 22/02/11   | 07/03/11    | 0           | Base Slab (GSE1 & GSF1)                            |      |      |      |      |      |      |      |      |
| SKW0801   | 14                | 07/03/11    | 20/03/11     | 07/03/11   | 20/03/11    | 0           | Wall & Column (CE1-3, CF1-3)                       |      |      |      |      |      |      |      |      |
| SKW0811   | 14                | 21/03/11    | 03/04/11     | 21/03/11   | 03/04/11    | 0           | Ground Beam (GB1-1,2 GB2-1,2 GB3-1, GBA-1, GBB1-4) |      |      |      |      |      |      |      |      |
| SKW0821   | 14                | 04/04/11    | 17/04/11     | 04/04/11   | 17/04/11    | 0           | Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) to +10. |      |      |      |      |      |      |      |      |
| SKW0831   | 14                | 18/04/11    | 01/05/11     | 18/04/11   | 01/05/11    | 0           | Roof Beams & Parapet                               |      |      |      |      |      |      |      |      |
| SKW0841   | 45                | 18/04/11    | 01/06/11     | 18/04/11   | 01/06/11    | 0           | ABWF installation                                  |      |      |      |      |      |      |      |      |
| SKW0861   | 168               | 02/05/11    | 16/10/11     | 01/06/11   | 15/11/11    | 30d         | 300mm U-channel & 675mm Step Channel               |      |      |      |      |      |      |      |      |
| <b>E&amp;M Works (PS1)</b>                            |                   |             |              |            |             |             |  |      |      |      |      |      |      |      |      |
| <b>Submission &amp; Delivery</b>                      |                   |             |              |            |             |             |  |      |      |      |      |      |      |      |      |
| E&M1001   | 113               | 17/05/10    | 06/09/10     | 10/11/10   | 02/03/11    | 177d        | Submission of Pumps                                |      |      |      |      |      |      |      |      |
| E&M1002   | 143               | 17/05/10    | 06/10/10     | 11/10/10   | 02/03/11    | 147d        | Submission of Gen-Set                              |      |      |      |      |      |      |      |      |
| E&M1003   | 133               | 17/05/10    | 26/09/10     | 21/10/10   | 02/03/11    | 157d        | Submission of DeO System                           |      |      |      |      |      |      |      |      |
| E&M1004   | 180               | 17/05/10    | 12/11/10     | 04/09/10   | 02/03/11    | 110d        | Submission of LV SB & MCC                          |      |      |      |      |      |      |      |      |
| E&M1005   | 180               | 17/05/10    | 12/11/10     | 04/09/10   | 02/03/11    | 110d        | Submission of Instrumentation                      |      |      |      |      |      |      |      |      |
| E&M1006   | 213               | 17/05/10    | 15/12/10     | 02/08/10   | 02/03/11    | 77d         | Submission of FS System                            |      |      |      |      |      |      |      |      |
| E&M1007   | 213               | 17/05/10    | 15/12/10     | 02/08/10   | 02/03/11    | 77d         | Submission of BS System                            |      |      |      |      |      |      |      |      |
| E&M1011   | 60                | 07/09/10    | 05/11/10     | 03/03/11   | 01/05/11    | 177d        | Delivery of Pumps                                  |      |      |      |      |      |      |      |      |
| E&M1012   | 60                | 07/10/10    | 05/12/10     | 03/03/11   | 01/05/11    | 147d        | Delivery of Gen-Set                                |      |      |      |      |      |      |      |      |
| E&M1013   | 60                | 27/09/10    | 25/11/10     | 03/03/11   | 01/05/11    | 157d        | Delivery of DeO System                             |      |      |      |      |      |      |      |      |
| E&M1014   | 60                | 13/11/10    | 11/01/11     | 03/03/11   | 01/05/11    | 110d        | Delivery of LV SB & MCC                            |      |      |      |      |      |      |      |      |
| E&M1015   | 60                | 13/11/10    | 11/01/11     | 03/03/11   | 01/05/11    | 110d        | Delivery of Instrumentation                        |      |      |      |      |      |      |      |      |
| E&M1016   | 60                | 16/12/10    | 13/02/11     | 03/03/11   | 01/05/11    | 77d         | Delivery of FS Equipment                           |      |      |      |      |      |      |      |      |
| E&M1017   | 60                | 16/12/10    | 13/02/11     | 03/03/11   | 01/05/11    | 77d         | Delivery of BS Equipment                           |      |      |      |      |      |      |      |      |
| <b>Installation, T&amp;C</b>                          |                   |             |              |            |             |             |  |      |      |      |      |      |      |      |      |
| E&M1101   | 55                | 02/05/11    | 25/06/11     | 02/05/11   | 25/06/11    | 0           | Install Pumps                                      |      |      |      |      |      |      |      |      |
| E&M1102   | 55                | 02/05/11    | 25/06/11     | 02/05/11   | 25/06/11    | 0           | Install Gen Set                                    |      |      |      |      |      |      |      |      |
| E&M1103   | 55                | 02/05/11    | 25/06/11     | 02/05/11   | 25/06/11    | 0           | Install DeO System                                 |      |      |      |      |      |      |      |      |
| E&M1104   | 55                | 02/05/11    | 25/06/11     | 02/05/11   | 25/06/11    | 0           | Install LV SB & MCC                                |      |      |      |      |      |      |      |      |
| E&M1105   | 55                | 02/05/11    | 25/06/11     | 02/05/11   | 25/06/11    | 0           | Install Instrumentation                            |      |      |      |      |      |      |      |      |
| E&M1106   | 55                | 02/05/11    | 25/06/11     | 02/05/11   | 25/06/11    | 0           | Install FS Equipment                               |      |      |      |      |      |      |      |      |
| E&M1107   | 55                | 02/05/11    | 25/06/11     | 02/05/11   | 25/06/11    | 0           | Install BS Equipment                               |      |      |      |      |      |      |      |      |
| E&M1110   | 46                | 26/06/11    | 10/08/11     | 27/08/11   | 11/10/11    | 62d         | Install Valves, Pipes & Fittings                   |      |      |      |      |      |      |      |      |

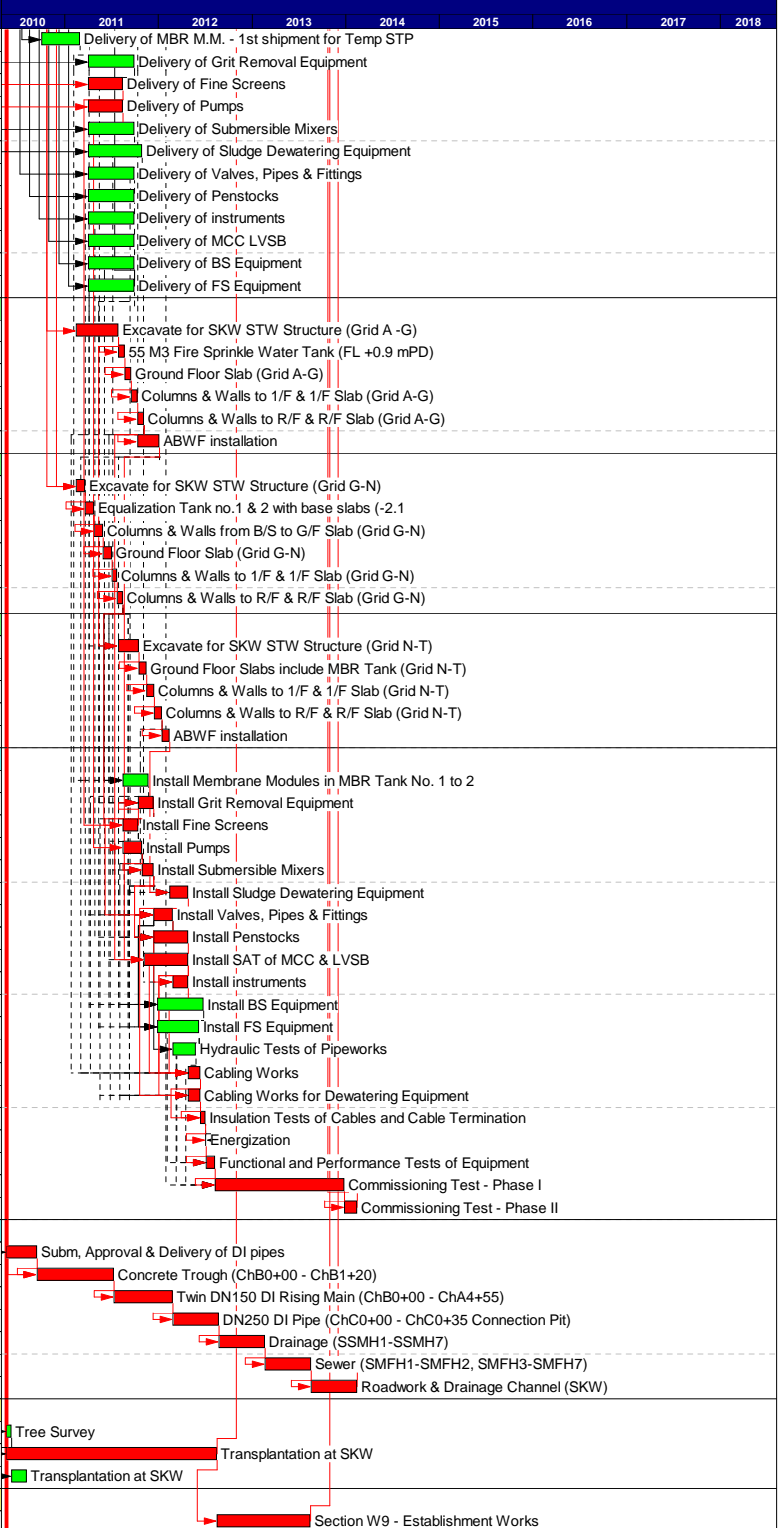
|             |          |  |                        |
|-------------|----------|--|------------------------|
| Start date  | 05/05/10 |  | Early bar              |
| Finish date | 14/02/14 |  | Progress bar           |
| Data date   | 17/05/10 |  | Critical bar           |
| Run date    | 11/08/10 |  | Summary bar            |
| Page number | 2A       |  | Progress point         |
|             |          |  | Critical point         |
|             |          |  | Summary point          |
|             |          |  | Start milestone point  |
|             |          |  | Finish milestone point |

**Leader Civil Engineering Corp. Ltd.**  
**Contract No. DC/2009/13**  
**Construction of Sewage Treatment Works at YSW & SKW**  
**Works Programme (Rev. 1)**

| Date     | Revision   | Checked | Approved |
|----------|------------|---------|----------|
| 17/05/10 | Revision 0 | StL     | VC       |
| 31/07/10 | Revision 1 | StL     | VC       |



| Activity ID   | Original Duration | Early Start | Early Finish | Late Start | Late Finish | Total Float | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
|---|-------------------|-------------|--------------|------------|-------------|-------------|------|------|------|------|------|------|------|------|------|
| E&M3010   | 150               | 02/10/10    | 28/02/11     | 21/08/11   | 17/01/12    | 323d        |      |      |      |      |      |      |      |      |      |
| E&M3030   | 180               | 02/04/11    | 28/09/11     | 18/04/11   | 14/10/11    | 16d         |      |      |      |      |      |      |      |      |      |
| E&M3060   | 136               | 02/04/11    | 15/08/11     | 02/04/11   | 15/08/11    | 0           |      |      |      |      |      |      |      |      |      |
| E&M3070   | 136               | 02/04/11    | 15/08/11     | 02/04/11   | 15/08/11    | 0           |      |      |      |      |      |      |      |      |      |
| E&M3080   | 180               | 02/04/11    | 28/09/11     | 03/05/11   | 29/10/11    | 31d         |      |      |      |      |      |      |      |      |      |
| E&M3090   | 210               | 02/04/11    | 28/10/11     | 18/07/11   | 12/02/12    | 107d        |      |      |      |      |      |      |      |      |      |
| E&M3100   | 180               | 02/04/11    | 28/09/11     | 17/06/11   | 13/12/11    | 76d         |      |      |      |      |      |      |      |      |      |
| E&M3110   | 180               | 02/04/11    | 28/09/11     | 17/06/11   | 13/12/11    | 76d         |      |      |      |      |      |      |      |      |      |
| E&M3130   | 180               | 02/04/11    | 28/09/11     | 31/08/11   | 26/02/12    | 151d        |      |      |      |      |      |      |      |      |      |
| E&M3140   | 180               | 02/04/11    | 28/09/11     | 09/05/11   | 04/11/11    | 37d         |      |      |      |      |      |      |      |      |      |
| E&M3150   | 180               | 02/04/11    | 28/09/11     | 11/07/11   | 06/01/12    | 100d        |      |      |      |      |      |      |      |      |      |
| E&M3160   | 180               | 02/04/11    | 28/09/11     | 30/07/11   | 25/01/12    | 119d        |      |      |      |      |      |      |      |      |      |
| <b>Construction of Grid A-G</b>                         |                   |             |              |            |             |             |      |      |      |      |      |      |      |      |      |
| SKW1261   | 164               | 14/02/11    | 27/07/11     | 14/02/11   | 27/07/11    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1271   | 25                | 28/07/11    | 21/08/11     | 28/07/11   | 21/08/11    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1281   | 25                | 22/08/11    | 15/09/11     | 22/08/11   | 15/09/11    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1291   | 25                | 16/09/11    | 10/10/11     | 16/09/11   | 10/10/11    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1301   | 25                | 11/10/11    | 04/11/11     | 11/10/11   | 04/11/11    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1411   | 85                | 11/10/11    | 03/01/12     | 11/10/11   | 03/01/12    | 0           |      |      |      |      |      |      |      |      |      |
| <b>Construction of Grid G-N</b>                         |                   |             |              |            |             |             |      |      |      |      |      |      |      |      |      |
| SKW1311   | 36                | 14/02/11    | 21/03/11     | 14/02/11   | 21/03/11    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1321   | 35                | 22/03/11    | 25/04/11     | 22/03/11   | 25/04/11    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1331   | 35                | 26/04/11    | 30/05/11     | 26/04/11   | 30/05/11    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1341   | 35                | 31/05/11    | 04/07/11     | 31/05/11   | 04/07/11    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1351   | 18                | 05/07/11    | 22/07/11     | 05/07/11   | 22/07/11    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1361   | 24                | 23/07/11    | 15/08/11     | 23/07/11   | 15/08/11    | 0           |      |      |      |      |      |      |      |      |      |
| <b>Construction of Grid N-T</b>                         |                   |             |              |            |             |             |      |      |      |      |      |      |      |      |      |
| SKW1371   | 80                | 28/07/11    | 15/10/11     | 28/07/11   | 15/10/11    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1381   | 30                | 16/10/11    | 14/11/11     | 16/10/11   | 14/11/11    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1391   | 30                | 15/11/11    | 14/12/11     | 15/11/11   | 14/12/11    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1401   | 30                | 15/12/11    | 13/01/12     | 15/12/11   | 13/01/12    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1421   | 30                | 14/01/12    | 12/02/12     | 14/01/12   | 12/02/12    | 0           |      |      |      |      |      |      |      |      |      |
| <b>SKW STP - E&amp;M Works</b>                          |                   |             |              |            |             |             |      |      |      |      |      |      |      |      |      |
| E&M3170   | 100               | 16/08/11    | 23/11/11     | 18/01/12   | 26/04/12    | 155d        |      |      |      |      |      |      |      |      |      |
| E&M3190   | 60                | 15/10/11    | 13/12/11     | 15/10/11   | 13/12/11    | 0           |      |      |      |      |      |      |      |      |      |
| E&M3210   | 60                | 16/08/11    | 14/10/11     | 16/08/11   | 14/10/11    | 0           |      |      |      |      |      |      |      |      |      |
| E&M3220   | 75                | 16/08/11    | 29/10/11     | 16/08/11   | 29/10/11    | 0           |      |      |      |      |      |      |      |      |      |
| E&M3230   | 45                | 30/10/11    | 13/12/11     | 30/10/11   | 13/12/11    | 0           |      |      |      |      |      |      |      |      |      |
| E&M3240   | 74                | 13/02/12    | 26/04/12     | 13/02/12   | 26/04/12    | 0           |      |      |      |      |      |      |      |      |      |
| E&M3250   | 75                | 14/12/11    | 26/02/12     | 14/12/11   | 26/02/12    | 0           |      |      |      |      |      |      |      |      |      |
| E&M3260   | 135               | 14/12/11    | 26/04/12     | 14/12/11   | 26/04/12    | 0           |      |      |      |      |      |      |      |      |      |
| E&M3261   | 174               | 05/11/11    | 26/04/12     | 05/11/11   | 26/04/12    | 0           |      |      |      |      |      |      |      |      |      |
| E&M3270   | 60                | 27/02/12    | 26/04/12     | 27/02/12   | 26/04/12    | 0           |      |      |      |      |      |      |      |      |      |
| E&M3291   | 180               | 29/12/11    | 25/06/12     | 07/01/12   | 04/07/12    | 9d          |      |      |      |      |      |      |      |      |      |
| E&M3300   | 161               | 29/12/11    | 06/06/12     | 26/01/12   | 04/07/12    | 28d         |      |      |      |      |      |      |      |      |      |
| E&M3310   | 90                | 27/02/12    | 26/05/12     | 11/05/12   | 08/08/12    | 74d         |      |      |      |      |      |      |      |      |      |
| E&M3311   | 47                | 27/04/12    | 12/06/12     | 27/04/12   | 12/06/12    | 0           |      |      |      |      |      |      |      |      |      |
| E&M3320   | 47                | 27/04/12    | 12/06/12     | 27/04/12   | 12/06/12    | 0           |      |      |      |      |      |      |      |      |      |
| E&M3321   | 21                | 13/06/12    | 03/07/12     | 13/06/12   | 03/07/12    | 0           |      |      |      |      |      |      |      |      |      |
| E&M3331   | 1                 | 04/07/12    | 04/07/12     | 04/07/12   | 04/07/12    | 0           |      |      |      |      |      |      |      |      |      |
| E&M3359   | 35                | 05/07/12    | 08/08/12     | 05/07/12   | 08/08/12    | 0           |      |      |      |      |      |      |      |      |      |
| E&M3360   | 505               | 09/08/12    | 26/12/13     | 09/08/12   | 26/12/13    | 0           |      |      |      |      |      |      |      |      |      |
| E&M3370   | 50                | 27/12/13    | 14/02/14     | 27/12/13   | 14/02/14    | 0           |      |      |      |      |      |      |      |      |      |
| <b>Rising Main</b>                                      |                   |             |              |            |             |             |      |      |      |      |      |      |      |      |      |
| SKW1481   | 120               | 17/05/10    | 13/09/10     | 17/05/10   | 13/09/10    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1501   | 300               | 14/09/10    | 10/07/11     | 14/09/10   | 10/07/11    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1521   | 230               | 11/07/11    | 25/02/12     | 11/07/11   | 25/02/12    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1541   | 180               | 26/02/12    | 23/08/12     | 26/02/12   | 23/08/12    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1551   | 180               | 24/08/12    | 19/02/13     | 24/08/12   | 19/02/13    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1561   | 180               | 20/02/13    | 18/08/13     | 20/02/13   | 18/08/13    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1571   | 180               | 19/08/13    | 14/02/14     | 19/08/13   | 14/02/14    | 0           |      |      |      |      |      |      |      |      |      |
| <b>Section W8 - Landscape Softworks in All Portions</b> |                   |             |              |            |             |             |      |      |      |      |      |      |      |      |      |
| SKW1591   | 21                | 17/05/10    | 06/06/10     | 26/11/13   | 16/12/13    | 1289d       |      |      |      |      |      |      |      |      |      |
| SKW1611   | 822               | 17/05/10    | 15/08/12     | 17/05/10   | 15/08/12    | 0           |      |      |      |      |      |      |      |      |      |
| SKW1621   | 60                | 07/06/10    | 05/08/10     | 17/12/13   | 14/02/14    | 1289d       |      |      |      |      |      |      |      |      |      |
| <b>Section W9 - Establishment Works in All Portions</b> |                   |             |              |            |             |             |      |      |      |      |      |      |      |      |      |
| SKW1631   | 365               | 16/08/12    | 15/08/13     | 16/08/12   | 15/08/13    | 0           |      |      |      |      |      |      |      |      |      |



|             |          |  |
|-------------|----------|--|
| Start date  | 05/05/10 | <span style="color: green;">■</span> Early bar               |
| Finish date | 14/02/14 | <span style="color: blue;">■</span> Progress bar             |
| Data date   | 17/05/10 | <span style="color: red;">■</span> Critical bar              |
| Run date    | 11/08/10 | <span style="color: red;">▬</span> Summary bar               |
| Page number | 4A       | <span style="color: blue;">▲</span> Progress point           |
|             |          | <span style="color: red;">▼</span> Critical point            |
|             |          | <span style="color: cyan;">◆</span> Summary point            |
|             |          | <span style="color: orange;">◆</span> Start milestone point  |
|             |          | <span style="color: purple;">◆</span> Finish milestone point |

**Leader Civil Engineering Corp. Ltd.**  
**Contract No. DC/2009/13**  
**Construction of Sewage Treatment Works at YSW & SKW**  
**Works Programme (Rev. 1)**

| Date     | Revision   | Checked | Approved |
|----------|------------|---------|----------|
| 17/05/10 | Revision 0 | StL     | VC       |
| 31/07/10 | Revision 1 | StL     | VC       |
|          |            |         |          |
|          |            |         |          |

| ID | Task Name  | Duration           | Start              | Finish              | 2011 |     |     |     |     |     |
|----|--|--------------------|--------------------|---------------------|------|-----|-----|-----|-----|-----|
|    |  |                    |                    |                     | Sep  | Oct | Nov | Dec | Jan | Feb |
| 1  | <b>Portion G - Proposed Retaining Wall</b>                               | <b>28 days</b>     | <b>Fri 10/9/10</b> | <b>Wed 13/10/10</b> |      |     |     |     |     |     |
| 2  | <b>Bay 1</b>   | <b>7 days</b>      | <b>Fri 10/9/10</b> | <b>Fri 17/9/10</b>  |      |     |     |     |     |     |
| 3  | Drilling holes & install dowel bars                                      | 1 day              | Fri 10/9/10        | Fri 10/9/10         |      |     |     |     |     |     |
| 4  | Erect formwork & concreting  | 5 days             | Mon 13/9/10        | Fri 17/9/10         |      |     |     |     |     |     |
| 5  | <b>Bay 3</b>   | <b>11 days</b>     | <b>Sat 11/9/10</b> | <b>Fri 24/9/10</b>  |      |     |     |     |     |     |
| 6  | Drilling holes & install dowel bars                                      | 1 day              | Sat 11/9/10        | Sat 11/9/10         |      |     |     |     |     |     |
| 7  | Erect formwork & concreting  | 5 days             | Sat 18/9/10        | Fri 24/9/10         |      |     |     |     |     |     |
| 8  | <b>Bay 5</b>   | <b>15 days</b>     | <b>Mon 13/9/10</b> | <b>Thu 30/9/10</b>  |      |     |     |     |     |     |
| 9  | Drilling holes & install dowel bars                                      | 1 day              | Mon 13/9/10        | Mon 13/9/10         |      |     |     |     |     |     |
| 10 | Erect formwork & concreting  | 5 days             | Sat 25/9/10        | Thu 30/9/10         |      |     |     |     |     |     |
| 11 | <b>Bay 0</b>   | <b>13 days</b>     | <b>Tue 14/9/10</b> | <b>Wed 29/9/10</b>  |      |     |     |     |     |     |
| 12 | Drilling holes & install dowel bars                                      | 1 day              | Tue 14/9/10        | Tue 14/9/10         |      |     |     |     |     |     |
| 13 | Erect formwork & concreting  | 4 days             | Sat 25/9/10        | Wed 29/9/10         |      |     |     |     |     |     |
| 14 | <b>Bay 2</b>   | <b>16 days</b>     | <b>Wed 15/9/10</b> | <b>Mon 4/10/10</b>  |      |     |     |     |     |     |
| 15 | Drilling holes & install dowel bars                                      | 1 day              | Wed 15/9/10        | Wed 15/9/10         |      |     |     |     |     |     |
| 16 | Erect formwork & concreting  | 4 days             | Thu 30/9/10        | Mon 4/10/10         |      |     |     |     |     |     |
| 17 | <b>Bay 4</b>   | <b>19 days</b>     | <b>Thu 16/9/10</b> | <b>Fri 8/10/10</b>  |      |     |     |     |     |     |
| 18 | Drilling holes & install dowel bars                                      | 1 day              | Thu 16/9/10        | Thu 16/9/10         |      |     |     |     |     |     |
| 19 | Erect formwork & concreting  | 4 days             | Tue 5/10/10        | Fri 8/10/10         |      |     |     |     |     |     |
| 20 | <b>Bay 6</b>   | <b>22 days</b>     | <b>Fri 17/9/10</b> | <b>Wed 13/10/10</b> |      |     |     |     |     |     |
| 21 | Drilling holes & install dowel bars                                      | 1 day              | Fri 17/9/10        | Fri 17/9/10         |      |     |     |     |     |     |
| 22 | Erect formwork & concreting  | 4 days             | Sat 9/10/10        | Wed 13/10/10        |      |     |     |     |     |     |
| 23 |  |                    |                    |                     |      |     |     |     |     |     |
| 24 | <b>Portion I - Proposed Rock Cut Slope</b>                               | <b>169.78 days</b> | <b>Mon 13/9/10</b> | <b>Thu 7/4/11</b>   |      |     |     |     |     |     |
| 25 | Erection of temp. rock fall Fence  | 7 days             | Mon 13/9/10        | Mon 20/9/10         |      |     |     |     |     |     |
| 26 | Forming the haul road & platform at +13.0mPD                             | 5 days             | Tue 21/9/10        | Mon 27/9/10         |      |     |     |     |     |     |
| 27 | Forming the haul road & platform at +21.0mPD                             | 5 days             | Tue 28/9/10        | Sat 2/10/10         |      |     |     |     |     |     |
| 28 | Forming the haul road & platform at +29.0mPD                             | 5 days             | Mon 4/10/10        | Fri 8/10/10         |      |     |     |     |     |     |
| 29 | Forming the haul road & platform at +37.0mPD                             | 5 days             | Sat 9/10/10        | Thu 14/10/10        |      |     |     |     |     |     |
| 30 | Rock cutting & excavate the slope profile btw +49mPD to +42.5mPD(berm 1) | 30 days            | Fri 15/10/10       | Fri 19/11/10        |      |     |     |     |     |     |
| 31 | Construct the associated 225 & 600 U-channel at above berm               | 14 days            | Fri 12/11/10       | Mon 29/11/10        |      |     |     |     |     |     |

|   |          |  |                 |  |                    |  |
|---|----------|--|-----------------|--|--------------------|--|
| Project: Rolling Programme for Mau V<br>Date: Wed 22/9/10 | Task     |  | Milestone       |  | External Tasks     |  |
|   | Split    |  | Summary         |  | External Milestone |  |
|   | Progress |  | Project Summary |  | Deadline           |  |

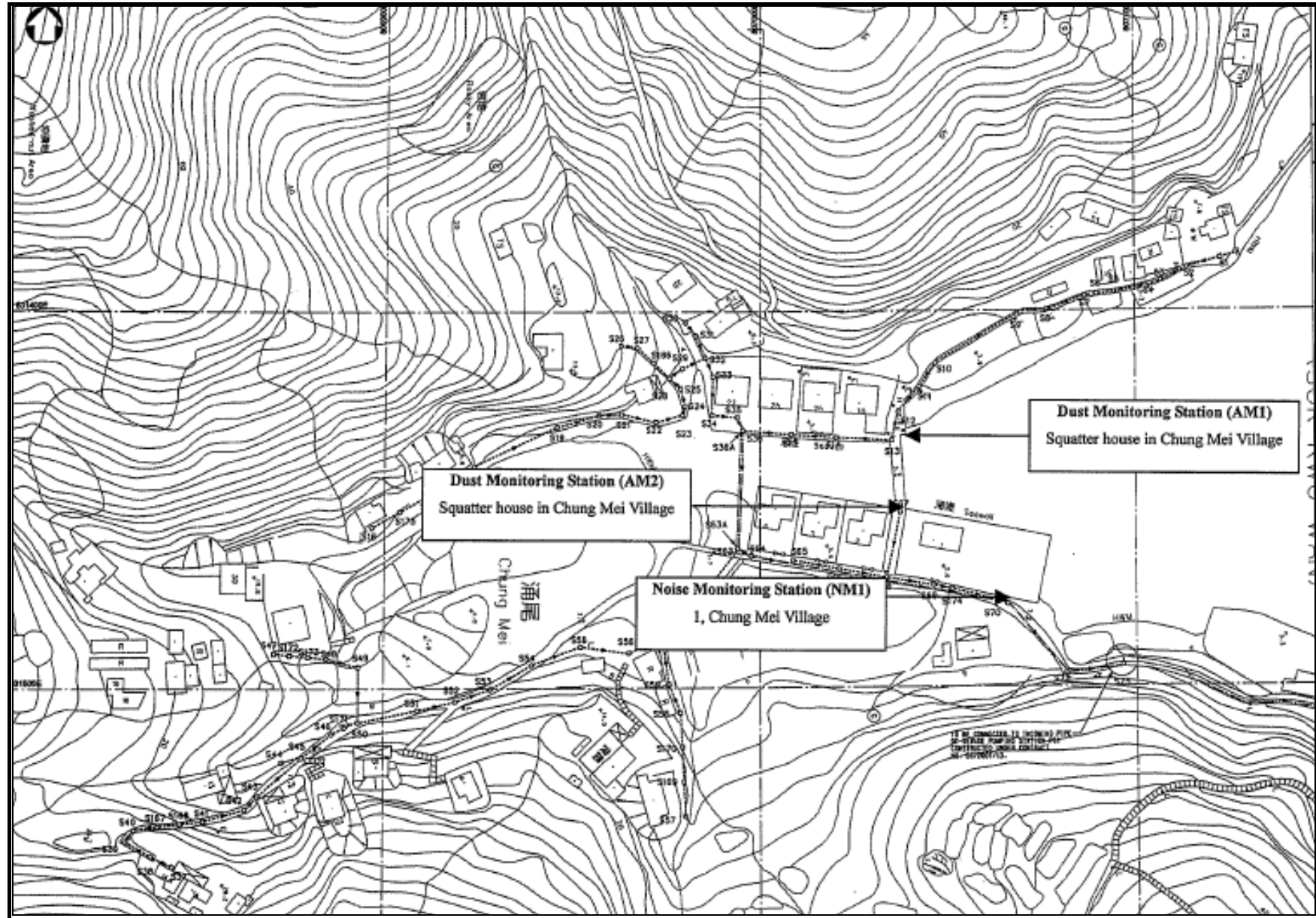
| ID | Task Name  | Duration        | Start              | Finish             | 2011 |     |     |     |     |     |
|----|--|-----------------|--------------------|--------------------|------|-----|-----|-----|-----|-----|
|    |  |                 |                    |                    | Sep  | Oct | Nov | Dec | Jan | Feb |
| 32 | Rock cutting & excavate the slope profile btw +42.5mPD to +35.0mPD(berm 2) | 21 days         | Sat 20/11/10       | Tue 14/12/10       |      |     |     |     |     |     |
| 33 | Construct the associated 225U-channel & 900 S-channel at above berm        | 14 days         | Tue 7/12/10        | Thu 23/12/10       |      |     |     |     |     |     |
| 34 | Rock cutting & excavate the slope profile btw +35.0mPD to +27.5mPD(berm 3) | 21 days         | Wed 15/12/10       | Tue 11/1/11        |      |     |     |     |     |     |
| 35 | Construct the associated 225U-channel & 900 S-channel at above berm        | 14 days         | Tue 4/1/11         | Thu 20/1/11        |      |     |     |     |     |     |
| 36 | Rock cutting & excavate the slope profile btw+27.5mPD to +20.0mPD(berm 4)  | 21 days         | Wed 12/1/11        | Tue 8/2/11         |      |     |     |     |     |     |
| 37 | Construct the associated 225U-channel & 900 S-channel at above berm        | 14 days         | Fri 28/1/11        | Thu 17/2/11        |      |     |     |     |     |     |
| 38 | Rock cutting & excavate the slope profile btw +20.0mPD to +12.5mPD(berm 5) | 21 days         | Wed 9/2/11         | Fri 4/3/11         |      |     |     |     |     |     |
| 39 | Construct the associated 225U-channel & 900 S-channel at above berm        | 14 days         | Fri 25/2/11        | Mon 14/3/11        |      |     |     |     |     |     |
| 40 | Rock cutting & excavate the slope profile btw +12.5mPD to +4.8mPD(ground)  | 21 days         | Sat 5/3/11         | Tue 29/3/11        |      |     |     |     |     |     |
| 41 | Construct the associated 225U-channel at above berm                        | 14 days         | Tue 22/3/11        | Thu 7/4/11         |      |     |     |     |     |     |
| 42 |  |                 |                    |                    |      |     |     |     |     |     |
| 43 | <b>Portion E - Pumping Station 2</b>                                       | <b>149 days</b> | <b>Mon 13/9/10</b> | <b>Mon 14/3/11</b> |      |     |     |     |     |     |
| 44 | Breaking & removal of rock blouder   | 5 days          | Mon 13/9/10        | Fri 17/9/10        |      |     |     |     |     |     |
| 45 | Forming the formation level  | 10 days         | Sat 18/9/10        | Thu 30/9/10        |      |     |     |     |     |     |
| 46 | Trimming the proposed cut slope  | 7 days          | Wed 22/9/10        | Thu 30/9/10        |      |     |     |     |     |     |
| 47 | Mobilization of Plant for ELS Works  | 2 days          | Fri 15/10/10       | Mon 18/10/10       |      |     |     |     |     |     |
| 48 | Erection of ELS Works & Excavation to formation level                      | 30 days         | Tue 19/10/10       | Mon 22/11/10       |      |     |     |     |     |     |
| 49 | Commence the structure works   | 90 days         | Tue 23/11/10       | Mon 14/3/11        |      |     |     |     |     |     |
| 50 |  |                 |                    |                    |      |     |     |     |     |     |
| 51 | <b>Portion D - Pumping Station 1</b>                                       | <b>136 days</b> | <b>Mon 13/9/10</b> | <b>Sat 26/2/11</b> |      |     |     |     |     |     |
| 52 | Trimming the formation at +2.5mPD  | 3 days          | Mon 13/9/10        | Wed 15/9/10        |      |     |     |     |     |     |
| 53 | Transport & delivery the ELS materials                                     | 2 days          | Mon 13/9/10        | Tue 14/9/10        |      |     |     |     |     |     |
| 54 | Erection of ELS works to +2.0mPD   | 14 days         | Wed 15/9/10        | Fri 1/10/10        |      |     |     |     |     |     |
| 55 | Erection of ELS Works & Excavation to formation level                      | 30 days         | Sat 2/10/10        | Sat 6/11/10        |      |     |     |     |     |     |
| 56 | Commence the structure works   | 90 days         | Mon 8/11/10        | Sat 26/2/11        |      |     |     |     |     |     |

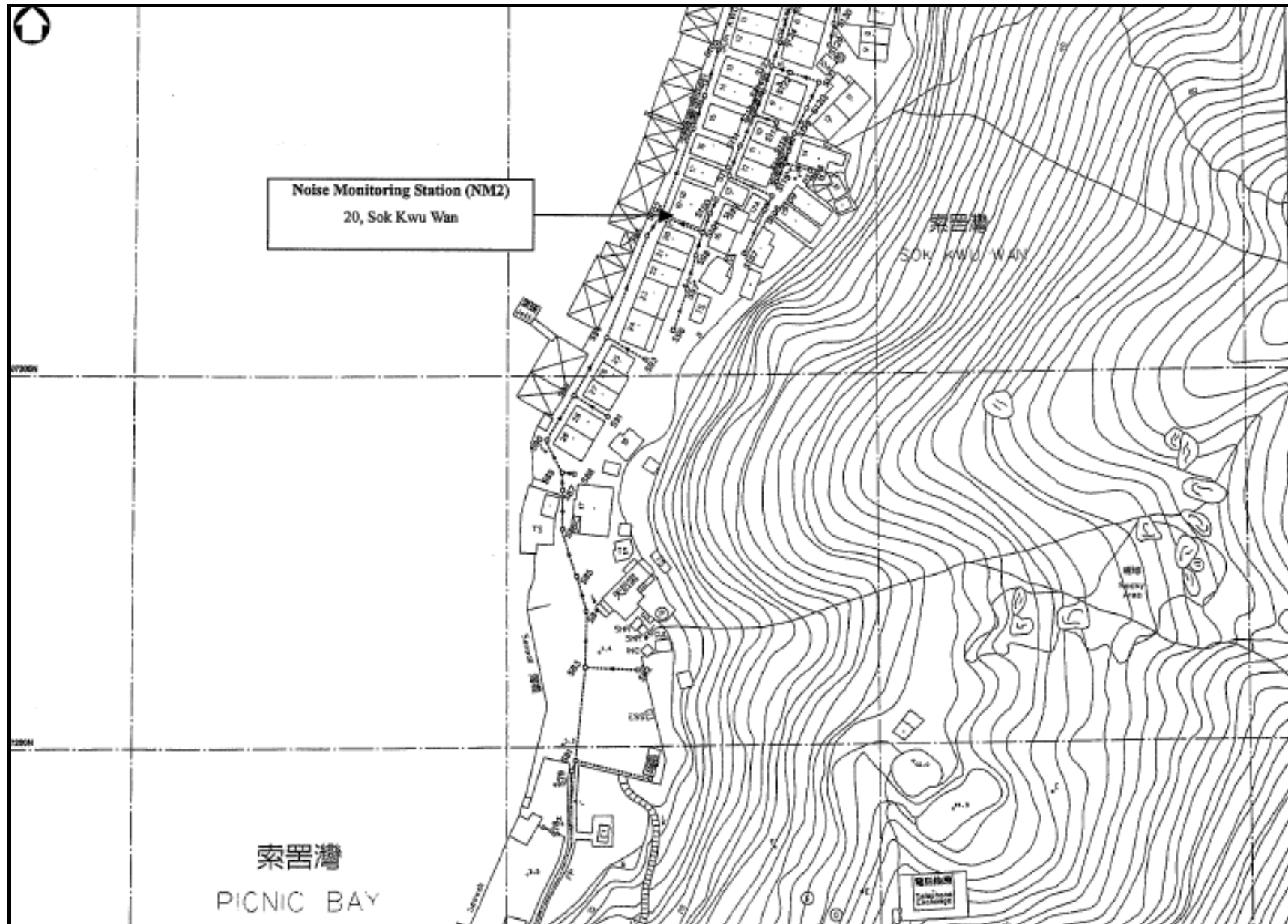
|   |          |  |                 |  |                    |  |
|---|----------|--|-----------------|--|--------------------|--|
| Project: Rolling Programme for Mau V<br>Date: Wed 22/9/10 | Task     |  | Milestone       |  | External Tasks     |  |
|   | Split    |  | Summary         |  | External Milestone |  |
|   | Progress |  | Project Summary |  | Deadline           |  |

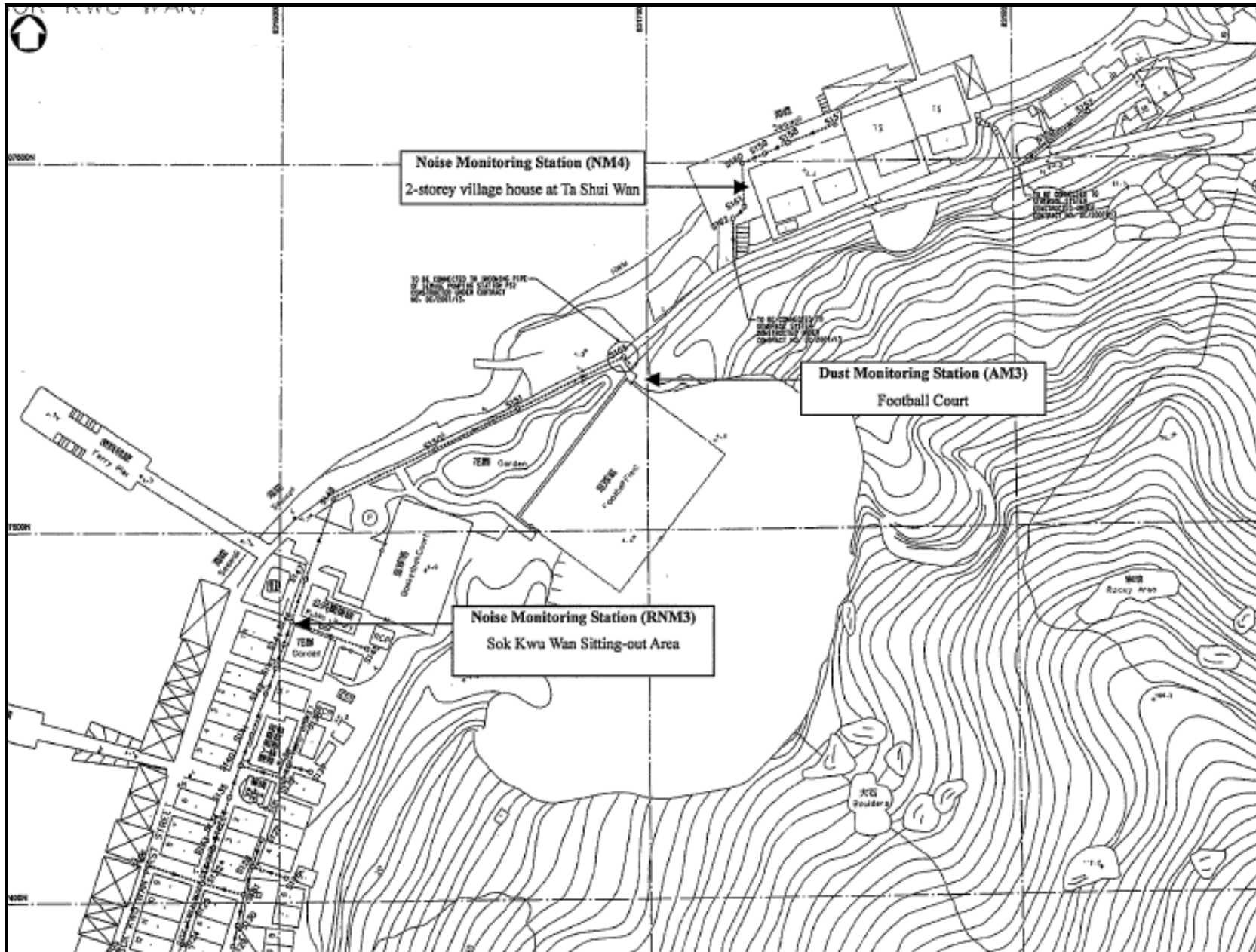
**Appendix D**

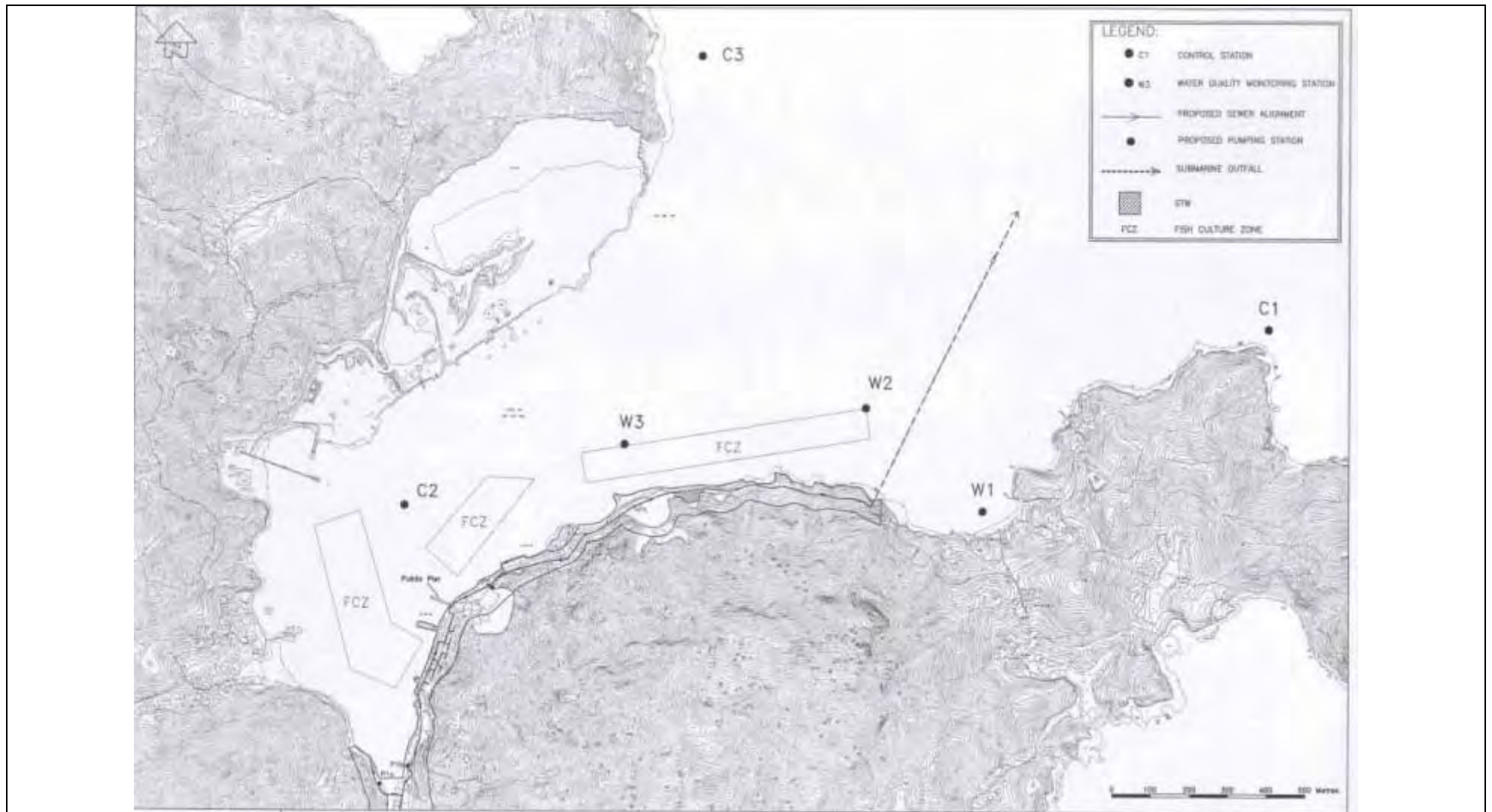
**Location of Monitoring Stations**  
**(Air Quality / Construction Noise / Water Quality)**











## **Appendix E**

### **Monitoring Equipments Calibration Certificate**

## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Squatter house in Chung Mei Village  
 Location ID : AM1

Date of Calibration: 29-Dec-10  
 Next Calibration Date: 28-Feb-11  
 Technician: Mr. Ben Tam

### CONDITIONS

|                          |        |                            |         |
|--------------------------|--------|----------------------------|---------|
| Sea Level Pressure (hPa) | 1017.3 | Corrected Pressure (mm Hg) | 762.975 |
| Temperature (°C)         | 17.1   | Temperature (K)            | 290     |

### CALIBRATION ORIFICE

|             |       |                   |          |
|-------------|-------|-------------------|----------|
| Make->      | TISCH | Qstd Slope ->     | 2.00279  |
| Model->     | 5025A | Qstd Intercept -> | -0.00494 |
| Serial # -> | 1483  |                   |          |

### CALIBRATION

| Plate No. | H2O (L) (in) | H2O (R) (in) | H2O (in) | Qstd (m3/min) | I (chart) | IC corrected | LINEAR REGRESSION  |
|-----------|--------------|--------------|----------|---------------|-----------|--------------|--|
| 18        | 5.2          | 5.2          | 10.4     | 1.638         | 60        | 61.75        | Slope = 32.5582<br>Intercept = 7.8973<br>Corr. coeff. = 0.9985 |
| 13        | 4            | 4            | 8        | 1.437         | 53        | 54.55        |  |
| 10        | 3            | 3            | 6        | 1.244         | 46        | 47.35        |  |
| 7         | 1.7          | 1.7          | 3.4      | 0.937         | 38        | 39.11        |  |
| 5         | 0.8          | 0.8          | 1.6      | 0.644         | 28        | 28.82        |  |

**Calculations :**

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

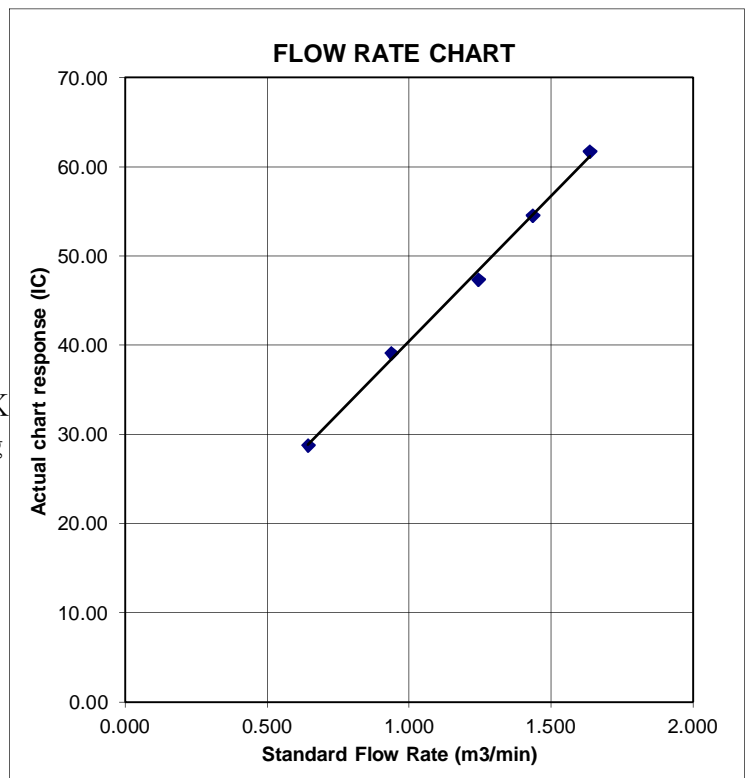
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate  
 IC = corrected chart responses  
 I = actual chart response  
 m = calibrator Qstd slope  
 b = calibrator Qstd intercept  
 Ta = actual temperature during calibration ( deg K)  
 Pstd = actual pressure during calibration ( mm Hg)

**For subsequent calculation of sampler flow:**

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

m = sampler slope  
 b = sampler intercept  
 I = chart response  
 Tav = daily average temperature  
 Pav = daily average pressure



## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

|  |                                  |
|--|----------------------------------|
| Location : Squatter house in Chung Mei Village | Date of Calibration: 29-Dec-10   |
| Location ID : AM2                              | Next Calibration Date: 28-Feb-11 |
|  | Technician: Mr. Ben Tam          |

### CONDITIONS

|                          |        |                            |         |
|--------------------------|--------|----------------------------|---------|
| Sea Level Pressure (hPa) | 1017.3 | Corrected Pressure (mm Hg) | 762.975 |
| Temperature (°C)         | 17.1   | Temperature (K)            | 290     |

### CALIBRATION ORIFICE

|                  |                            |
|------------------|----------------------------|
| Make-> TISCH     | Qstd Slope -> 2.00279      |
| Model-> 5025A    | Qstd Intercept -> -0.00494 |
| Serial # -> 1483 |                            |

### CALIBRATION

| Plate No. | H2O (L) (in) | H2O (R) (in) | H2O (in) | Qstd (m3/min) | I (chart) | IC corrected | LINEAR REGRESSION   |
|-----------|--------------|--------------|----------|---------------|-----------|--------------|---|
| 18        | 6.2          | 6.2          | 12.4     | 1.788         | 57        | 58.67        | Slope = 25.7368<br>Intercept = 13.9452<br>Corr. coeff. = 0.9958 |
| 13        | 4            | 4            | 8        | 1.437         | 51        | 52.49        |   |
| 10        | 3            | 3            | 6        | 1.244         | 45        | 46.32        |   |
| 7         | 1.7          | 1.7          | 3.4      | 0.937         | 37        | 38.08        |   |
| 5         | 0.7          | 0.7          | 1.4      | 0.602         | 28        | 28.82        |   |

**Calculations :**

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

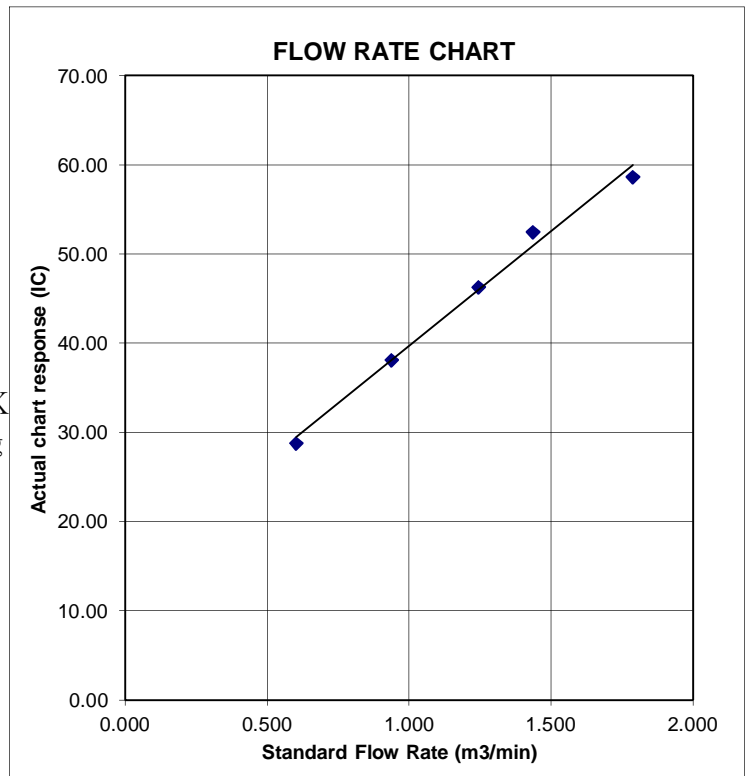
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate  
 IC = corrected chart responses  
 I = actual chart response  
 m = calibrator Qstd slope  
 b = calibrator Qstd intercept  
 Ta = actual temperature during calibration ( deg K)  
 Pstd = actual pressure during calibration ( mm Hg)

**For subsequent calculation of sampler flow:**

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

m = sampler slope  
 b = sampler intercept  
 I = chart response  
 Tav = daily average temperature  
 Pav = daily average pressure



## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Football court  
 Location ID : AM3

Date of Calibration: 29-Dec-10  
 Next Calibration Date: 28-Feb-11  
 Technician: Mr. Ben Tam

### CONDITIONS

|                          |        |                            |         |
|--------------------------|--------|----------------------------|---------|
| Sea Level Pressure (hPa) | 1017.3 | Corrected Pressure (mm Hg) | 762.975 |
| Temperature (°C)         | 17.1   | Temperature (K)            | 290     |

### CALIBRATION ORIFICE

|             |       |                   |          |
|-------------|-------|-------------------|----------|
| Make->      | TISCH | Qstd Slope ->     | 2.00279  |
| Model->     | 5025A | Qstd Intercept -> | -0.00494 |
| Serial # -> | 1483  |                   |          |

### CALIBRATION

| Plate No. | H2O (L) (in) | H2O (R) (in) | H2O (in) | Qstd (m3/min) | I (chart) | IC corrected | LINEAR REGRESSION   |
|-----------|--------------|--------------|----------|---------------|-----------|--------------|---|
| 18        | 5.3          | 5.3          | 10.6     | 1.653         | 52        | 53.52        | Slope = 25.7361<br>Intercept = 11.1007<br>Corr. coeff. = 0.9995 |
| 13        | 4            | 4            | 8        | 1.437         | 47        | 48.37        |   |
| 10        | 3            | 3            | 6        | 1.244         | 42        | 43.23        |   |
| 7         | 1.6          | 1.6          | 3.2      | 0.909         | 33        | 33.96        |   |
| 5         | 0.6          | 0.6          | 1.2      | 0.558         | 25        | 25.73        |   |

**Calculations :**

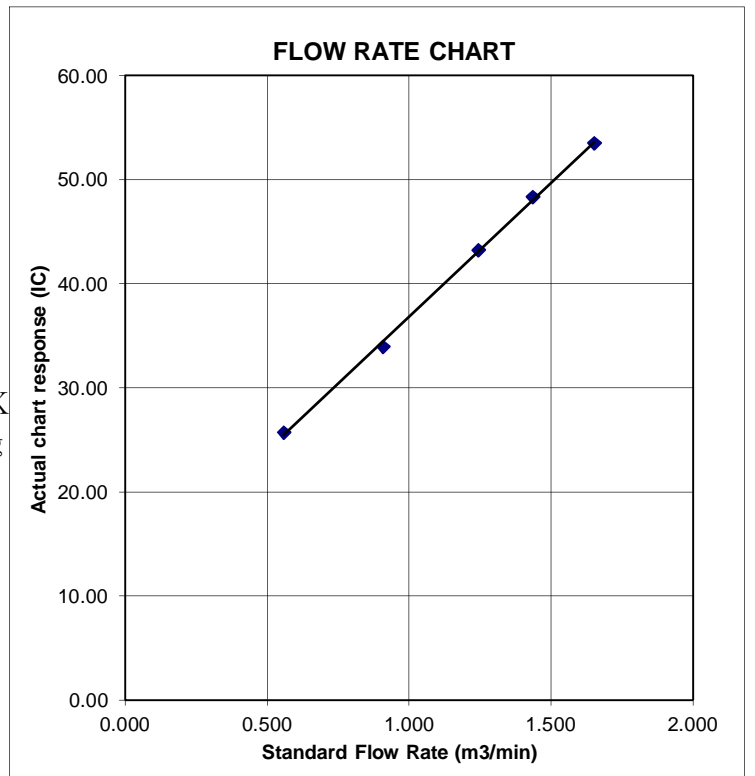
$Q_{std} = 1/m[\sqrt{H_2O(P_a/P_{std})(T_{std}/T_a)}] - b$   
 $IC = I[\sqrt{P_a/P_{std})(T_{std}/T_a)}]$

$Q_{std}$  = standard flow rate  
 $IC$  = corrected chart responses  
 $I$  = actual chart response  
 $m$  = calibrator  $Q_{std}$  slope  
 $b$  = calibrator  $Q_{std}$  intercept  
 $T_a$  = actual temperature during calibration ( deg K)  
 $P_{std}$  = actual pressure during calibration ( mm Hg)

**For subsequent calculation of sampler flow:**

$1/m(( I )[\sqrt{298/T_{av}}(P_{av}/760)] - b)$

$m$  = sampler slope  
 $b$  = sampler intercept  
 $I$  = chart response  
 $T_{av}$  = daily average temperature  
 $P_{av}$  = daily average pressure







TISCH ENVIROMENTAL, INC.  
 145 SOUTH MIAMI AVE.  
 VILLAGE OF CLEVES, OH 45002  
 513.467.9000  
 877.263.7610 TOLL FREE  
 513.467.9009 FAX  
 WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jun 02, 2010 Rootsmeter S/N 9833620 Ta (K) - 297  
 Operator Tisch Orifice I.D. - 1483 Pa (mm) - 746.76

| PLATE<br>OR<br>Run # | VOLUME<br>START<br>(m3) | VOLUME<br>STOP<br>(m3) | DIFF<br>VOLUME<br>(m3) | DIFF<br>TIME<br>(min) | METER              | ORFICE               |
|----------------------|-------------------------|------------------------|------------------------|-----------------------|--------------------|----------------------|
|                      |                         |                        |                        |                       | DIFF<br>Hg<br>(mm) | DIFF<br>H2O<br>(in.) |
| 1                    | NA                      | NA                     | 1.00                   | 1.3990                | 3.2                | 2.00                 |
| 2                    | NA                      | NA                     | 1.00                   | 0.9820                | 6.4                | 4.00                 |
| 3                    | NA                      | NA                     | 1.00                   | 0.8770                | 7.9                | 5.00                 |
| 4                    | NA                      | NA                     | 1.00                   | 0.8350                | 8.8                | 5.50                 |
| 5                    | NA                      | NA                     | 1.00                   | 0.6910                | 12.8               | 8.00                 |

DATA TABULATION

| Vstd                                | (x axis)<br>Qstd | (y axis) | Va                        | (x axis)<br>Qa | (y axis) |
|-------------------------------------|------------------|----------|---------------------------|----------------|----------|
| 0.9816                              | 0.7017           | 1.4042   | 0.9957                    | 0.7117         | 0.8919   |
| 0.9775                              | 0.9954           | 1.9858   | 0.9914                    | 1.0096         | 1.2613   |
| 0.9754                              | 1.1122           | 2.2202   | 0.9893                    | 1.1281         | 1.4102   |
| 0.9742                              | 1.1668           | 2.3286   | 0.9882                    | 1.1835         | 1.4790   |
| 0.9689                              | 1.4023           | 2.8084   | 0.9828                    | 1.4223         | 1.7837   |
| Qstd slope (m) = 2.00279            |                  |          | Qa slope (m) = 1.25411    |                |          |
| intercept (b) = -0.00494            |                  |          | intercept (b) = -0.00314  |                |          |
| coefficient (r) = 0.99994           |                  |          | coefficient (r) = 0.99994 |                |          |
| y axis = SQRT[H2O(Pa/760) (298/Ta)] |                  |          | y axis = SQRT[H2O(Ta/Pa)] |                |          |

CALCULATIONS

$$Vstd = \text{Diff. Vol} [(Pa - \text{Diff. Hg}) / 760] (298 / Ta)$$

$$Qstd = Vstd / \text{Time}$$

$$Va = \text{Diff Vol} [(Pa - \text{Diff Hg}) / Pa]$$

$$Qa = Va / \text{Time}$$

For subsequent flow rate calculations:

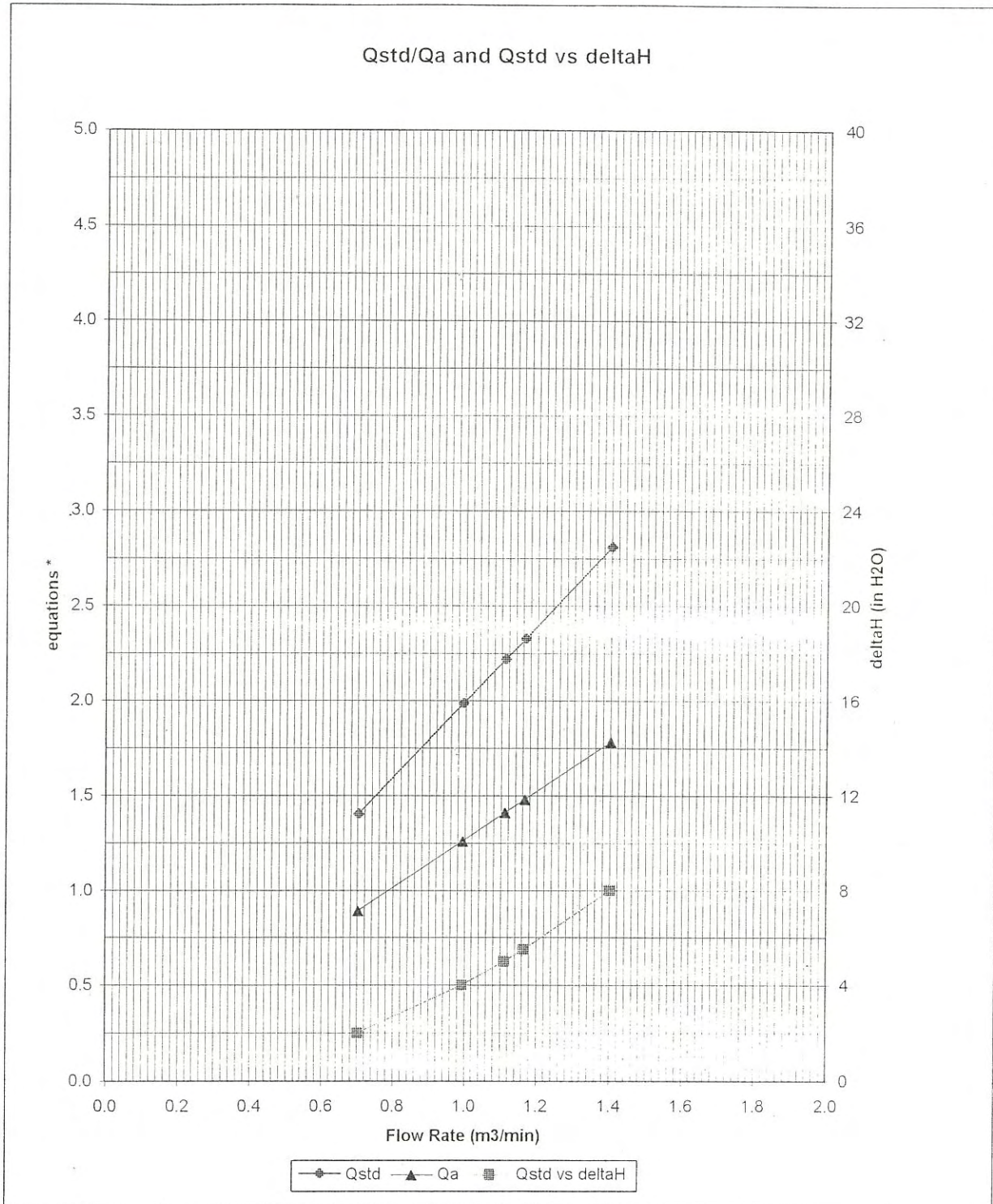
$$Qstd = 1/m \{ [\text{SQRT}(\text{H2O}(\text{Pa}/760) (298/\text{Ta}))] - b \}$$

$$Qa = 1/m \{ [\text{SQRT} \text{H2O}(\text{Ta}/\text{Pa})] - b \}$$



TISCH ENVIRONMENTAL, INC.  
 145 SOUTH MIAMI AVE.  
 VILLAGE OF CLEVES, OH 45002  
 513.467.9000  
 877.263.7610 TOLL FREE  
 513.467.9009 FAX  
 WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT

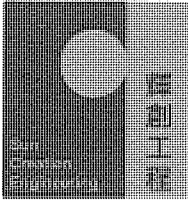


\* y-axis equations:

Qstd series: 
$$\sqrt{\Delta H \left( \frac{P_a}{P_{std}} \right) \left( \frac{T_{std}}{T_a} \right)}$$

Qa series: 
$$\sqrt{(\Delta H (T_a / P_a))}$$

#1483



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C102286

## *Certificate of Calibration*

*This is to certify that the equipment*

*Description : Integrating Sound Level Meter (EQ006)*

*Manufacturer : Bruel & Kjaer*

*Model No. : 2238*

*Serial No. : 2285762*

*has been calibrated for the specific items and ranges.  
The results are shown in the Calibration Report No. C102286.*

*The equipment is supplied by*

*Co. Name : Action-United Environmental Services and Consulting*

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

*Date of Issue : 27 April 2010*

*Certified by :*

*K C Lee*

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

Calibration and Testing Laboratory of Sun Creation Engineering Limited

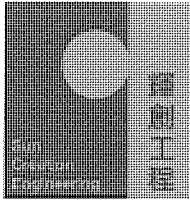
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C102286

## Calibration Report

### ITEM TESTED

DESCRIPTION : Integrating Sound Level Meter (EQ006)  
MANUFACTURER : Bruel & Kjaer  
MODEL NO. : 2238  
SERIAL NO. : 2285762

### TEST CONDITIONS

AMBIENT TEMPERATURE :  $(23 \pm 2)^{\circ}\text{C}$  RELATIVE HUMIDITY :  $(55 \pm 20)\%$   
LINE VOLTAGE : ---

### TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 26 April 2010

JOB NO. : IC10-0951

### TEST RESULTS

The results apply to the particular unit-under-test only.  
All results are within manufacturer's specification.  
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested by :

  
W L Lai

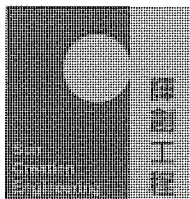
Date : 27 April 2010

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

Calibration and Testing Laboratory of Sun Creation Engineering Limited

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

Page 1 of 4



# Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
2. Self-calibration using the B & K Acoustic Calibrator 4231, S/N : 2326408 was performed before the test.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

| Equipment ID | Description                         | Certificate No. |
|--------------|-------------------------------------|-----------------|
| CL280        | 40 MHz Arbitrary Waveform Generator | C100067         |
| CL281        | Multifunction Acoustic Calibrator   | DC090052        |

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

| UUT Setting |                  |                     |                | Applied Value |             | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|-------------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |                             |
| 50 - 130    | L <sub>AFP</sub> | A                   | F              | 94.00         | 1           | 94.0             | ± 0.7                       |

6.1.2 Linearity

| UUT Setting |                  |                     |                | Applied Value |             | UUT Reading (dB) |
|-------------|------------------|---------------------|----------------|---------------|-------------|------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |
| 50 - 130    | L <sub>AFP</sub> | A                   | F              | 94.00         | 1           | 94.0 (Ref.)      |
|             |                  |                     |                | 104.00        |             | 104.0            |
|             |                  |                     |                | 114.00        |             | 114.0            |

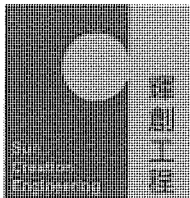
IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

6.2 Time Weighting

6.2.1 Continuous Signal

| UUT Setting |                  |                     |                | Applied Value |             | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|-------------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |                             |
| 50 - 130    | L <sub>AFP</sub> | A                   | F              | 94.00         | 1           | 94.0             | Ref.                        |
|             | L <sub>ASP</sub> |                     | S              |               |             | 94.1             | ± 0.1                       |
|             | L <sub>AIP</sub> |                     | I              |               |             | 94.1             | ± 0.1                       |

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



# Calibration Report

## 6.2.2 Tone Burst Signal (2 kHz)

| UUT Setting |                    |                     |                | Applied Value |                | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|--------------------|---------------------|----------------|---------------|----------------|------------------|-----------------------------|
| Range (dB)  | Parameter          | Frequency Weighting | Time Weighting | Level (dB)    | Burst Duration |                  |                             |
| 30 - 110    | L <sub>AFP</sub>   | A                   | F              | 106.0         | Continuous     | 106.0            | Ref.                        |
|             | L <sub>AFMax</sub> |                     |                |               | 200 ms         | 105.0            | -1.0 ± 1.0                  |
|             | L <sub>ASP</sub>   | S                   | Continuous     |               | 106.0          | Ref.             |                             |
|             | L <sub>ASMax</sub> |                     | 500 ms         |               | 102.0          | -4.1 ± 1.0       |                             |

## 6.3 Frequency Weighting

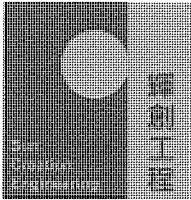
### 6.3.1 A-Weighting

| UUT Setting |                  |                     |                | Applied Value |          | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|----------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq.    |                  |                             |
| 50 - 130    | L <sub>AFP</sub> | A                   | F              | 94.00         | 31.5 Hz  | 55.4             | -39.4 ± 1.5                 |
|             |                  |                     |                |               | 63 Hz    | 68.1             | -26.2 ± 1.5                 |
|             |                  |                     |                |               | 125 Hz   | 78.0             | -16.1 ± 1.0                 |
|             |                  |                     |                |               | 250 Hz   | 85.3             | -8.6 ± 1.0                  |
|             |                  |                     |                |               | 500 Hz   | 90.7             | -3.2 ± 1.0                  |
|             |                  |                     |                |               | 1 kHz    | 94.0             | Ref.                        |
|             |                  |                     |                |               | 2 kHz    | 95.1             | +1.2 ± 1.0                  |
|             |                  |                     |                |               | 4 kHz    | 95.1             | +1.0 ± 1.0                  |
|             |                  |                     |                |               | 8 kHz    | 93.3             | -1.1 (+1.5 ; -3.0)          |
|             |                  |                     |                |               | 12.5 kHz | 90.0             | -4.3 (+3.0 ; -6.0)          |

### 6.3.2 C-Weighting

| UUT Setting |                  |                     |                | Applied Value |          | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|----------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq.    |                  |                             |
| 50 - 130    | L <sub>CFP</sub> | C                   | F              | 94.00         | 31.5 Hz  | 91.8             | -3.0 ± 1.5                  |
|             |                  |                     |                |               | 63 Hz    | 93.5             | -0.8 ± 1.5                  |
|             |                  |                     |                |               | 125 Hz   | 93.9             | -0.2 ± 1.0                  |
|             |                  |                     |                |               | 250 Hz   | 94.0             | 0.0 ± 1.0                   |
|             |                  |                     |                |               | 500 Hz   | 93.9             | 0.0 ± 1.0                   |
|             |                  |                     |                |               | 1 kHz    | 94.0             | Ref.                        |
|             |                  |                     |                |               | 2 kHz    | 93.8             | -0.2 ± 1.0                  |
|             |                  |                     |                |               | 4 kHz    | 93.3             | -0.8 ± 1.0                  |
|             |                  |                     |                |               | 8 kHz    | 91.3             | -3.0 (+1.5 ; -3.0)          |
|             |                  |                     |                |               | 12.5 kHz | 88.0             | -6.2 (+3.0 ; -6.0)          |

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



## Calibration Report

### 6.4 Time Averaging

| UUT Setting |                  |                     |                  | Applied Value   |                     |                   |                  |                       | UUT          | IEC 60804         |
|-------------|------------------|---------------------|------------------|-----------------|---------------------|-------------------|------------------|-----------------------|--------------|-------------------|
| Range (dB)  | Mode             | Frequency Weighting | Integrating Time | Frequency (kHz) | Burst Duration (ms) | Burst Duty Factor | Burst Level (dB) | Equivalent Level (dB) | Reading (dB) | Type 1 Spec. (dB) |
| 30 - 110    | L <sub>Acq</sub> | A                   | 10 sec.          | 4               | 1                   | 1/10              | 110.0            | 100                   | 99.8         | ± 0.5             |
|             |                  |                     | 60 sec.          |                 |                     | 1/10 <sup>2</sup> |                  | 90                    | 89.8         | ± 0.5             |
|             |                  |                     | 5 min.           |                 |                     | 1/10 <sup>3</sup> |                  | 80                    | 79.3         | ± 1.0             |
|             |                  |                     |                  |                 |                     | 1/10 <sup>4</sup> |                  | 70                    | 69.3         | ± 1.0             |

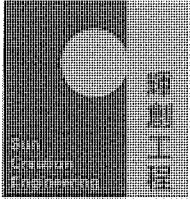
Remarks : - Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :
  - 94 dB : 31.5 Hz - 125 Hz : ± 0.40 dB
  - 250 Hz - 500 Hz : ± 0.30 dB
  - 1 kHz : ± 0.20 dB
  - 2 kHz : ± 0.40 dB
  - 4 kHz : ± 0.50 dB
  - 8 kHz : ± 0.70 dB
  - 12.5 kHz : ± 1.20 dB
  - 104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
  - 114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
  - Burst equivalent level : ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :

The values given in this Calibration Report only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C102350

## Certificate of Calibration

*This is to certify that the equipment*

*Description : Integrating Sound Level Meter (EQ008)*

*Manufacturer : Bruel & Kjaer*

*Model No. : 2238*

*Serial No. : 2285690*

*has been calibrated for the specific items and ranges.  
The results are shown in the Calibration Report No. C102350.*

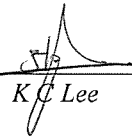
*The equipment is supplied by*

*Co. Name : Action-United Environmental Services and Consulting*

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

*Date of Issue : 30 April 2010*

Certified by :

  
K.C. Lee

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

Calibration and Testing Laboratory of Sun Creation Engineering Limited

c/o 4/F. Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

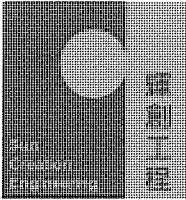
Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com





輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C102350

## Calibration Report

### ITEM TESTED

DESCRIPTION : Integrating Sound Level Meter (EQ008)  
MANUFACTURER : Bruel & Kjaer  
MODEL NO. : 2238  
SERIAL NO. : 2285690

### TEST CONDITIONS

AMBIENT TEMPERATURE :  $(23 \pm 2)^{\circ}\text{C}$  RELATIVE HUMIDITY :  $(55 \pm 20)\%$   
LINE VOLTAGE : ---

### TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 29 April 2010

JOB NO. : IC10-0951

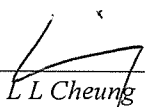
### TEST RESULTS

The results apply to the particular unit-under-test only.  
All results are within manufacturer's specification.  
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies, USA
- Fluke Everett Service Center, USA
- Rohde & Schwarz Laboratory, Germany

Tested by :

  
L L Cheung

Date : 30 April 2010

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

Calibration and Testing Laboratory of Sun Creation Engineering Limited

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

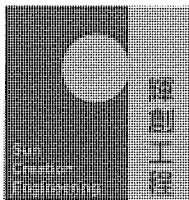
Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com

Page 1 of 4



# Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
2. Self-calibration using the laboratory acoustic calibrator was performed before the test 6.1.1.2 to 6.4.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

| <u>Equipment ID</u> | <u>Description</u>                  | <u>Certificate No.</u> |
|---------------------|-------------------------------------|------------------------|
| CL280               | 40 MHz Arbitrary Waveform Generator | C100067                |
| CL281               | Multifunction Acoustic Calibrator   | DC090052               |

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Self-calibration

| UUT Setting |                  |                     |                | Applied Value |             | UUT Reading (dB) |
|-------------|------------------|---------------------|----------------|---------------|-------------|------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |
| 50 - 130    | L <sub>AFP</sub> | A                   | F              | 94.00         | 1           | 94.1             |

6.1.1.2 After Self-calibration

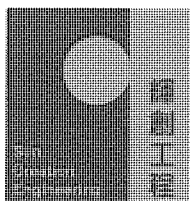
| UUT Setting |                  |                     |                | Applied Value |             | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|-------------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |                             |
| 50 - 130    | L <sub>AFP</sub> | A                   | F              | 94.00         | 1           | 94.0             | ± 0.7                       |

6.1.2 Linearity

| UUT Setting |                  |                     |                | Applied Value |             | UUT Reading (dB) |
|-------------|------------------|---------------------|----------------|---------------|-------------|------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |
| 50 - 130    | L <sub>AFP</sub> | A                   | F              | 94.00         | 1           | 94.0 (Ref.)      |
|             |                  |                     |                | 104.00        |             | 104.0            |
|             |                  |                     |                | 114.00        |             | 114.0            |

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

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



# Calibration Report

## 6.2 Time Weighting

### 6.2.1 Continuous Signal

| UUT Setting |                  |                     |                | Applied Value |             | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|-------------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |                             |
| 50 - 130    | L <sub>AFF</sub> | A                   | F              | 94.00         | 1           | 94.0             | Ref.                        |
|             | L <sub>ASP</sub> |                     | S              |               |             | 94.1             | ± 0.1                       |
|             | L <sub>AIP</sub> |                     | I              |               |             | 94.1             | ± 0.1                       |

### 6.2.2 Tone Burst Signal (2 kHz)

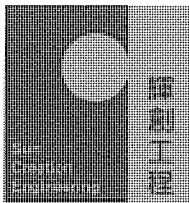
| UUT Setting |                    |                     |                | Applied Value |                | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|--------------------|---------------------|----------------|---------------|----------------|------------------|-----------------------------|
| Range (dB)  | Parameter          | Frequency Weighting | Time Weighting | Level (dB)    | Burst Duration |                  |                             |
| 30 - 110    | L <sub>AFF</sub>   | A                   | F              | 106.0         | Continuous     | 106.0            | Ref.                        |
|             |                    |                     |                |               | 200 ms         | 105.0            | -1.0 ± 1.0                  |
|             |                    |                     |                |               | 500 ms         | 102.0            | -4.1 ± 1.0                  |
|             | L <sub>ASMax</sub> |                     | S              |               | Continuous     | 106.0            | Ref.                        |
|             |                    |                     |                |               | 200 ms         | 105.0            | -1.0 ± 1.0                  |
|             |                    |                     |                |               | 500 ms         | 102.0            | -4.1 ± 1.0                  |

## 6.3 Frequency Weighting

### 6.3.1 A-Weighting

| UUT Setting |                  |                     |                | Applied Value |          | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|----------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq.    |                  |                             |
| 50 - 130    | L <sub>AFF</sub> | A                   | F              | 94.00         | 31.5 Hz  | 54.7             | -39.4 ± 1.5                 |
|             |                  |                     |                |               | 63 Hz    | 67.8             | -26.2 ± 1.5                 |
|             |                  |                     |                |               | 125 Hz   | 77.8             | -16.1 ± 1.0                 |
|             |                  |                     |                |               | 250 Hz   | 85.3             | -8.6 ± 1.0                  |
|             |                  |                     |                |               | 500 Hz   | 90.7             | -3.2 ± 1.0                  |
|             |                  |                     |                |               | 1 kHz    | 94.0             | Ref.                        |
|             |                  |                     |                |               | 2 kHz    | 95.2             | +1.2 ± 1.0                  |
|             |                  |                     |                |               | 4 kHz    | 95.0             | +1.0 ± 1.0                  |
|             |                  |                     |                |               | 8 kHz    | 92.9             | -1.1 (+1.5 ; -3.0)          |
|             |                  |                     |                |               | 12.5 kHz | 89.8             | -4.3 (+3.0 ; -6.0)          |

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



# Calibration Report

## 6.3.2 C-Weighting

| UUT Setting |                  |                     |                | Applied Value |          | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|------------------|---------------------|----------------|---------------|----------|------------------|-----------------------------|
| Range (dB)  | Parameter        | Frequency Weighting | Time Weighting | Level (dB)    | Freq.    |                  |                             |
| 50 - 130    | L <sub>CFP</sub> | C                   | F              | 94.00         | 31.5 Hz  | 91.1             | -3.0 ± 1.5                  |
|             |                  |                     |                |               | 63 Hz    | 93.2             | -0.8 ± 1.5                  |
|             |                  |                     |                |               | 125 Hz   | 93.8             | -0.2 ± 1.0                  |
|             |                  |                     |                |               | 250 Hz   | 93.9             | 0.0 ± 1.0                   |
|             |                  |                     |                |               | 500 Hz   | 94.0             | 0.0 ± 1.0                   |
|             |                  |                     |                |               | 1 kHz    | 94.0             | Ref.                        |
|             |                  |                     |                |               | 2 kHz    | 93.8             | -0.2 ± 1.0                  |
|             |                  |                     |                |               | 4 kHz    | 93.2             | -0.8 ± 1.0                  |
|             |                  |                     |                |               | 8 kHz    | 91.0             | -3.0 (+1.5 ; -3.0)          |
|             |                  |                     |                |               | 12.5 kHz | 87.8             | -6.2 (+3.0 ; -6.0)          |

## 6.4 Time Averaging

| UUT Setting |                  |                     |                  | Applied Value   |                     |                   |                  |                       | UUT Reading (dB) | IEC 60804 Type 1 Spec. (dB) |       |
|-------------|------------------|---------------------|------------------|-----------------|---------------------|-------------------|------------------|-----------------------|------------------|-----------------------------|-------|
| Range (dB)  | Mode             | Frequency Weighting | Integrating Time | Frequency (kHz) | Burst Duration (ms) | Burst Duty Factor | Burst Level (dB) | Equivalent Level (dB) |                  |                             |       |
| 30 - 110    | L <sub>Aeq</sub> | A                   | 10 sec.          | 4               | 1                   | 1/10              | 110.0            | 100                   | 99.9             | ± 0.5                       |       |
|             |                  |                     |                  |                 |                     |                   |                  | 90                    | 89.6             | ± 0.5                       |       |
|             |                  |                     | 60 sec.          |                 |                     |                   |                  | 1/10 <sup>3</sup>     | 80               | 79.7                        | ± 1.0 |
|             |                  |                     | 5 min.           |                 |                     |                   |                  | 1/10 <sup>4</sup>     | 70               | 69.7                        | ± 1.0 |

Remarks : - Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

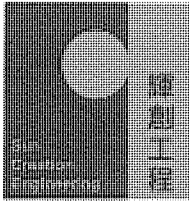
- Uncertainties of Applied Value :
  - 94 dB : 31.5 Hz - 125 Hz : ± 0.40 dB
  - 250 Hz - 500 Hz : ± 0.30 dB
  - 1 kHz : ± 0.20 dB
  - 2 kHz : ± 0.40 dB
  - 4 kHz : ± 0.50 dB
  - 8 kHz : ± 0.70 dB
  - 12.5 kHz : ± 1.20 dB
  - 104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
  - 114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
  - Burst equivalent level : ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

### Note :

The values given in this Calibration Report only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C102285

## Certificate of Calibration

*This is to certify that the equipment*

*Description : Acoustical Calibrator (EQ081)*

*Manufacturer : Bruel & Kjaer*

*Model No. : 4231*

*Serial No. : 2326408*

*has been calibrated for the specific items and ranges.  
The results are shown in the Calibration Report No. C102285.*

*The equipment is supplied by*

*Co. Name : Action-United Environmental Services and Consulting*

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

*Date of Issue : 27 April 2010*

*Certified by :*

*K.C. Lee*

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

Calibration and Testing Laboratory of Sun Creation Engineering Limited

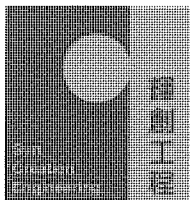
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C102285

## Calibration Report

### ITEM TESTED

DESCRIPTION : Acoustical Calibrator (EQ081)  
MANUFACTURER : Bruel & Kjaer  
MODEL NO. : 4231  
SERIAL NO. : 2326408

### TEST CONDITIONS

AMBIENT TEMPERATURE :  $(23 \pm 2)^{\circ}\text{C}$  RELATIVE HUMIDITY :  $(55 \pm 20)\%$   
LINE VOLTAGE : ---

### TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 26 April 2010

JOB NO. : IC10-0951

### TEST RESULTS

The results apply to the particular unit-under-test only.  
All results are within manufacturer's specification.  
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Precision Measurement Ltd., UK
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested by :

  
W L Lai

Date : 27 April 2010

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

Calibration and Testing Laboratory of Sun Creation Engineering Limited

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

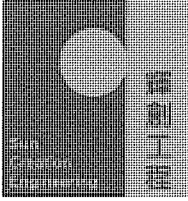
Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com

Page 1 of 2



# Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours before the commencement of the test.
2. The results presented are the mean of 3 measurements at each calibration point.
3. Test equipment :

| <u>Equipment ID</u> | <u>Description</u>                | <u>Certificate No.</u> |
|---------------------|-----------------------------------|------------------------|
| TST150A             | Measuring Amplifier               | C101008                |
| CL130               | Universal Counter                 | C093122                |
| CL281               | Multifunction Acoustic Calibrator | DC090052               |

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

| UUT<br>Nominal Value | Measured Value<br>(dB) | Mfr's Spec.<br>(dB) | Uncertainty of Measured Value<br>(dB) |
|----------------------|------------------------|---------------------|---------------------------------------|
| 94 dB, 1 kHz         | 94.0                   | ± 0.2               | ± 0.2                                 |
| 114 dB, 1 kHz        | 114.0                  |                     |                                       |

5.2 Frequency Accuracy

| UUT Nominal Value<br>(kHz) | Measured Value<br>(kHz) | Mfr's<br>Spec. | Uncertainty of Measured Value<br>(Hz) |
|----------------------------|-------------------------|----------------|---------------------------------------|
| 1                          | 1.000 0                 | 1 kHz ± 0.1 %  | ± 0.1                                 |

Remark : - The uncertainties are for a confidence probability of not less than 95 %.

Note :

The values given in this Calibration Report only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.



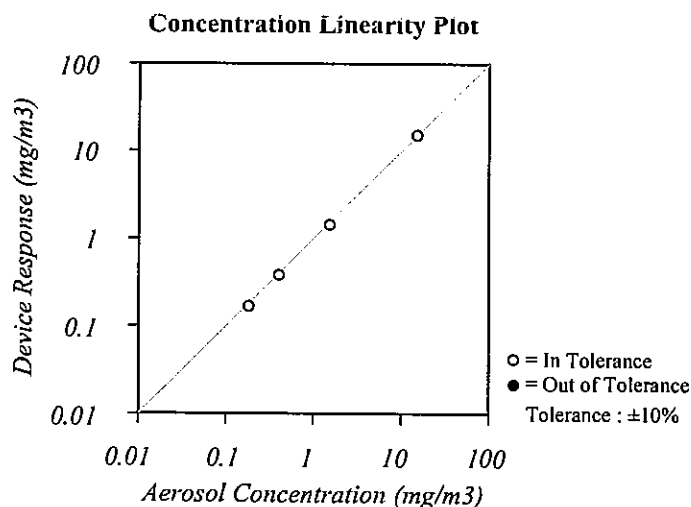
# CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA  
 Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

|                       |               |            |               |          |
|-----------------------|---------------|------------|---------------|----------|
| Environment Condition |               |            | Model         | AM510    |
| Temperature           | 74.8 (23.8)   | °F (°C)    | Serial Number | 11008017 |
| Relative Humidity     | 38            | %RH        |               |          |
| Barometric Pressure   | 28.96 (980.7) | inHg (hPa) |               |          |

As Left  
 As Found

In Tolerance  
 Out of Tolerance



System ID: DT1101-01

*TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1*

| Measurement Variable | System ID | Last Cal. | Cal. Due | Measurement Variable | System ID | Last Cal. | Cal. Due |
|----------------------|-----------|-----------|----------|----------------------|-----------|-----------|----------|
| Photometer           | E003433   | 05-17-10  | 11-17-10 | Flow and temperature | E003434   | 04-21-10  | 04-21-11 |
| DC Voltage(Keithley) | E002859   | 01-05-10  | 01-05-11 | Microbalance         | E003403   | 01-07-10  | 01-07-11 |
| Barometric Pressure  | E003733   | 12-26-09  | 12-26-10 | Temperature          | E002873   | 02-23-10  | 02-23-11 |
| Humidity             | E002873   | 02-23-10  | 02-23-11 | Pressure             | E003440   | 08-26-09  | 08-26-10 |

*Soua H.*  
 Calibrated

Final Function  
 Check

August 6, 2010  
 Date



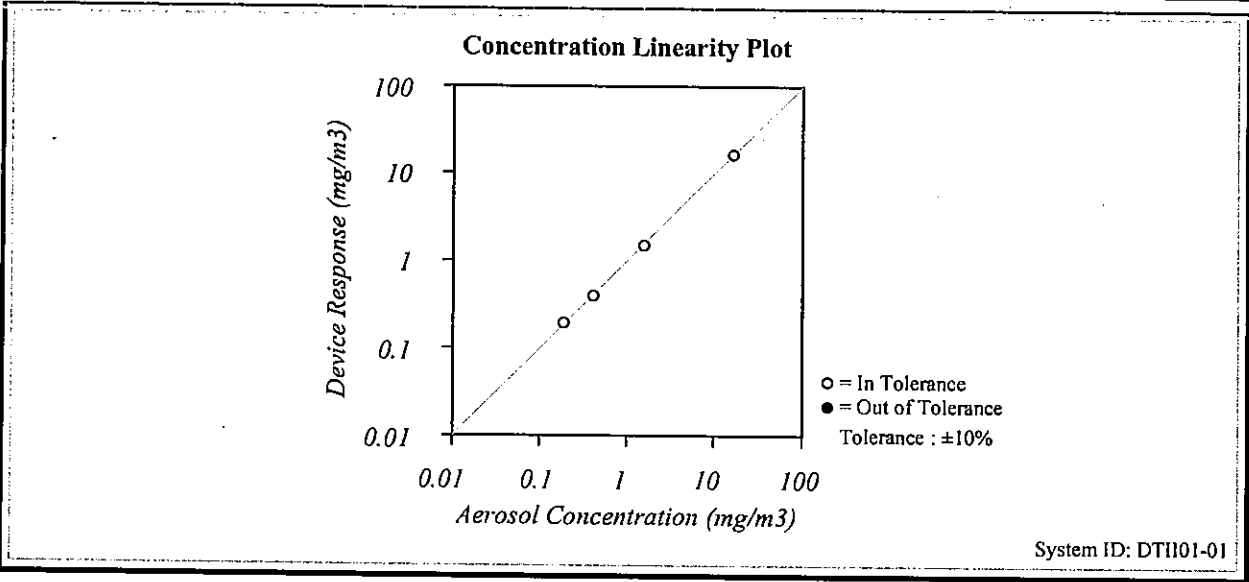


# CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA  
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 <http://www.tsi.com>

|                       |               |            |               |          |
|-----------------------|---------------|------------|---------------|----------|
| Environment Condition |               |            | Model         | AM510    |
| Temperature           | 73.2 (22.9)   | °F (°C)    | Serial Number | 11008060 |
| Relative Humidity     | 38            | %RH        |               |          |
| Barometric Pressure   | 29.08 (984.8) | inHg (hPa) |               |          |

|   |  |
|---|--|
| <input checked="" type="checkbox"/> As Left | <input checked="" type="checkbox"/> In Tolerance |
| <input type="checkbox"/> As Found           | <input type="checkbox"/> Out of Tolerance        |



*TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1*

| Measurement Variable | System ID | Last Cal. | Cal. Due | Measurement Variable | System ID | Last Cal. | Cal. Due |
|----------------------|-----------|-----------|----------|----------------------|-----------|-----------|----------|
| Photometer           | E003433   | 05-17-10  | 11-17-10 | Flow and temperature | E003434   | 04-21-10  | 04-21-11 |
| DC Voltage(Keithley) | E002859   | 01-05-10  | 01-05-11 | Microbalance         | E003403   | 01-07-10  | 01-07-11 |
| Barometric Pressure  | E003733   | 12-26-09  | 12-26-10 | Temperature          | E002873   | 02-23-10  | 02-23-11 |
| Humidity             | E002873   | 02-23-10  | 02-23-11 | Pressure             | E003440   | 08-26-09  | 08-26-10 |

Rao Vang       Final Function Check      August 17, 2010  
Calibrated      Check      Date

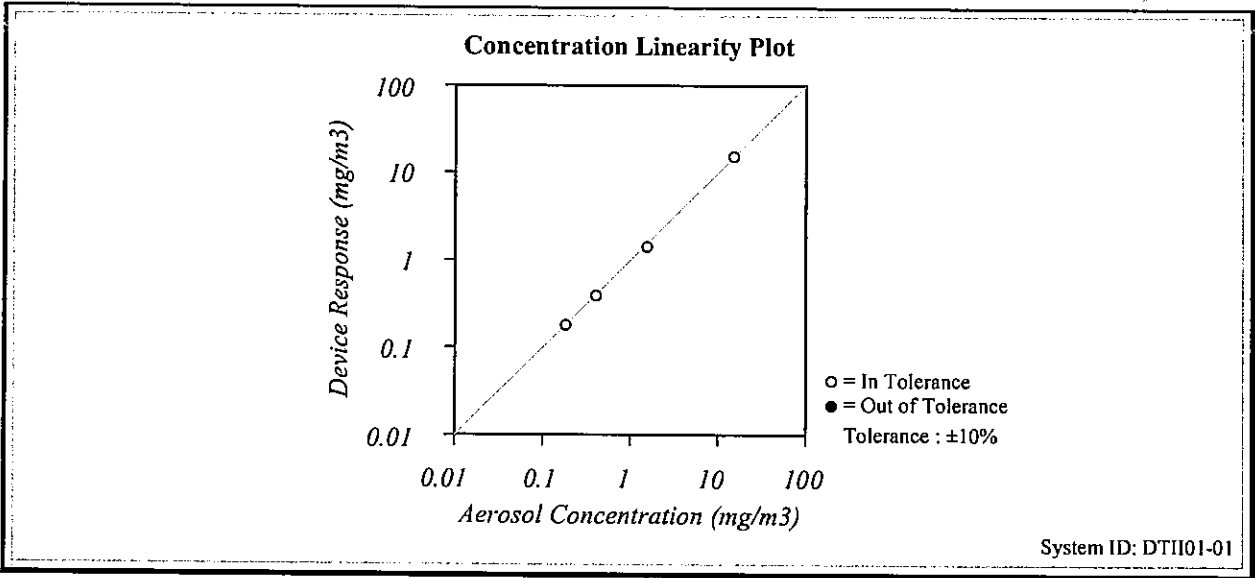


# CERTIFICATE OF CALIBRATION AND TESTING

TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA  
 Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

|                       |               |            |               |          |
|-----------------------|---------------|------------|---------------|----------|
| Environment Condition |               |            | Model         | AM510    |
| Temperature           | 74.8 (23.8)   | °F (°C)    |               |          |
| Relative Humidity     | 38            | %RH        |               |          |
| Barometric Pressure   | 28.96 (980.7) | inHg (hPa) |               |          |
|                       |               |            | Serial Number | 11008018 |

|   |  |
|---|--|
| <input checked="" type="checkbox"/> As Left | <input checked="" type="checkbox"/> In Tolerance |
| <input type="checkbox"/> As Found           | <input type="checkbox"/> Out of Tolerance        |



*TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass of standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1*

| Measurement Variable | System ID | Last Cal. | Cal. Due | Measurement Variable | System ID | Last Cal. | Cal. Due |
|----------------------|-----------|-----------|----------|----------------------|-----------|-----------|----------|
| Photometer           | E003433   | 05-17-10  | 11-17-10 | Flow and temperature | E003434   | 04-21-10  | 04-21-11 |
| DC Voltage(Keithley) | E002859   | 01-05-10  | 01-05-11 | Microbalance         | E003403   | 01-07-10  | 01-07-11 |
| Barometric Pressure  | E003733   | 12-26-09  | 12-26-10 | Temperature          | E002873   | 02-23-10  | 02-23-11 |
| Humidity             | E002873   | 02-23-10  | 02-23-11 | Pressure             | E003440   | 08-26-09  | 08-26-10 |

*Soua H.*  
 \_\_\_\_\_  
 Calibrated

Final Function  
 Check

August 6, 2010  
 \_\_\_\_\_  
 Date

## **Appendix F**

### **Event/Action Plan**

## **Air Quality**

| EVENT   | ACTION   | IC(E)   | ER  | CONTRACTOR  |
|---|--|---|---|---|
|   | ET   |   |   |   |
| <b>ACTION LEVEL</b>                               |  |   |   |   |
| 1. Exceedance for one sample                      | <ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>2. Inform IC(E) and ER;</li> <li>3. Repeat measurement to confirm finding;</li> <li>4. Increase monitoring frequency to daily.</li> </ol>  | <ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method.</li> </ol>  | <ol style="list-style-type: none"> <li>1. Notify Contractor.</li> </ol>   | <ol style="list-style-type: none"> <li>1. Rectify any unacceptable practice;</li> <li>2. Amend working methods if appropriate.</li> </ol>   |
| 2. Exceedance for two or more consecutive samples | <ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IC(E) and ER;</li> <li>3. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>4. Repeat measurements to confirm findings;</li> <li>5. Increase monitoring frequency to daily;</li> <li>6. Discuss with IC(E) and Contractor on remedial actions required;</li> <li>7. If exceedance continues, arrange meeting with IC(E) and ER;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>  | <ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET and Contractor on possible remedial measures;</li> <li>4. Advise the ET on the effectiveness of the proposed remedial measures;</li> <li>5. Supervise Implementation of remedial measures.</li> </ol> | <ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Ensure remedial measures properly implemented.</li> </ol>   | <ol style="list-style-type: none"> <li>1. Submit proposals for remedial to ER within 3 working days of notification;</li> <li>2. Implement the agreed proposals;</li> <li>3. Amend proposal if appropriate.</li> </ol>  |
| <b>LIMIT LEVEL</b>                                |  |   |   |   |
| 1. Exceedance for one sample                      | <ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>2. Inform ER, Contractor and EPD;</li> <li>3. Repeat measurement to confirm finding;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results.</li> </ol>  | <ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET and Contractor on possible remedial measures;</li> <li>4. Advise the ER on the effectiveness of the proposed remedial measures;</li> <li>5. Supervise implementation of remedial measures.</li> </ol> | <ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Ensure remedial measures properly implemented.</li> </ol>   | <ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IC(E) within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Amend proposal if appropriate.</li> </ol>  |
| 2. Exceedance for two or more consecutive samples | <ol style="list-style-type: none"> <li>1. Notify IC(E), ER, Contractor and EPD;</li> <li>2. Identify source;</li> <li>3. Repeat measurement to confirm findings;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>6. Arrange meeting with IC(E) and ER to discuss the remedial actions to be taken;</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol> | <ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>                                    | <ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. In consolidation with the IC(E), agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Ensure remedial measures properly implemented;</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ol> | <ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IC(E) within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Resubmit proposals if problem still not under control;</li> <li>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol> |

## **Construction Noise**

| EVENT        | ACTION   |   |  |   |
|--------------|--|---|--|---|
|              | ET   | IC(E)   | ER   | CONTRACTOR  |
| Action Level | <ol style="list-style-type: none"> <li>1. Notify IC(E) and Contractor;</li> <li>2. Carry out investigation;</li> <li>3. Report the results of investigation to the IC(E), ER and Contractor;</li> <li>4. Discuss with the Contractor and formulate remedial measures;</li> <li>5. Increase monitoring frequency to check mitigation effectiveness</li> </ol>   | <ol style="list-style-type: none"> <li>1. Review the analysed results submitted by the ET;</li> <li>2. Review the proposed remedial measures by the Contractor and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>   | <ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>4. Ensure remedial measures are properly implemented.</li> </ol>  | <ol style="list-style-type: none"> <li>1. Submit noise mitigation proposals to IC(E);</li> <li>2. Implement noise mitigation proposals.</li> </ol>  |
| Limit Level  | <ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IC(E), ER, EPD and Contractor;</li> <li>3. Repeat measurements to confirm findings;</li> <li>4. Increase monitoring frequency;</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>6. Inform IC(E), ER and EPD the causes and actions taken for the exceedances;</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol> | <ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol> | <ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>4. Ensure remedial measures properly implemented;</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ol> | <ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IC(E) within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Resubmit proposals if problem still not under control;</li> <li>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol> |

## **Appendix G**

### **Monitoring Data Sheet**



24-hour TSP Monitoring Results - AM3

Date of Calibration: 29-Dec-10      Slope = 25.7361  
 Next Calibration Date: 28-Feb-11      Intercept = 11.1007

| DATE      | SAMPLE NUMBER | ELAPSED TIME |         |              | CHART READING |     |      | AVG TEMP (oC) | STANDARD        |                    |                     | INITIAL FILTER WEIGHT (g) | FINAL FILTER WEIGHT (g) | WEIGHT DUST COLLECTED (g) | DUST 24-hour TSP IN AIR (ug/m <sup>3</sup> ) |
|-----------|---------------|--------------|---------|--------------|---------------|-----|------|---------------|-----------------|--------------------|---------------------|---------------------------|-------------------------|---------------------------|--|
|           |               | INITIAL      | FINAL   | ACTUAL (min) | MIN           | MAX | AVG  |               | AVG PRESS (hPa) | FLOW RATE (m3/min) | AIR VOLUME (std m3) |                           |                         |                           |  |
| 4-Jan-11  | 23187         | 4063.38      | 4087.27 | 1433.40      | 30            | 32  | 31.0 | 12.8          | 1021.3          | 0.80               | 1152                | 2.7529                    | 2.8203                  | 0.0674                    | 59   |
| 10-Jan-11 | 23191         | 4087.27      | 4111.13 | 1431.60      | 30            | 33  | 31.5 | 16.3          | 1017.1          | 0.81               | 1164                | 2.7729                    | 2.9204                  | 0.1475                    | 127  |
| 15-Jan-11 | 23141         | 4111.13      | 4134.89 | 1425.60      | 30            | 32  | 31.0 | 14.3          | 1020.9          | 0.80               | 1140                | 2.7367                    | 2.8585                  | 0.1218                    | 107  |
| 21-Jan-11 | 23022         | 4134.89      | 4158.69 | 1428.00      | 29            | 32  | 30.5 | 15            | 1024.6          | 0.78               | 1115                | 2.8009                    | 2.89                    | 0.0891                    | 80   |
| 27-Jan-11 | 23237         | 4158.69      | 4182.56 | 1432.20      | 30            | 32  | 31.0 | 14            | 1022.7          | 0.80               | 1148                | 2.8245                    | 2.9394                  | 0.1149                    | 100  |

**24-hour TSP Monitoring Results - AM2**

Date of Calibration: 29-Dec-10      Slope = 25.7368  
 Next Calibration Date: 28-Feb-11      Intercept = 13.9452

| DATE      | SAMPLE NUMBER | ELAPSED TIME |         |              | CHART READING |     |      | AVG TEMP (oC) | STANDARD        |                    |                     | INITIAL FILTER WEIGHT (g) | FINAL FILTER WEIGHT (g) | WEIGHT DUST COLLECTED (g) | DUST 24-hour TSP IN AIR (ug/m <sup>3</sup> ) |
|-----------|---------------|--------------|---------|--------------|---------------|-----|------|---------------|-----------------|--------------------|---------------------|---------------------------|-------------------------|---------------------------|--|
|           |               | INITIAL      | FINAL   | ACTUAL (min) | MIN           | MAX | AVG  |               | AVG PRESS (hPa) | FLOW RATE (m3/min) | AIR VOLUME (std m3) |                           |                         |                           |  |
| 4-Jan-11  | 23189         | 8560.89      | 8584.5  | 1416.60      | 29            | 34  | 31.5 | 12.8          | 1021.3          | 0.71               | 1010                | 2.7532                    | 2.8089                  | 0.0557                    | 55   |
| 10-Jan-11 | 23192         | 8584.50      | 8606.77 | 1336.20      | 30            | 32  | 31.0 | 16.3          | 1017.1          | 0.68               | 913                 | 2.7584                    | 2.9092                  | 0.1508                    | 165  |
| 15-Jan-11 | 23142         | 8606.77      | 8629.9  | 1387.80      | 29            | 31  | 30.0 | 14.3          | 1020.9          | 0.65               | 902                 | 2.7427                    | 2.873                   | 0.1303                    | 145  |
| 21-Jan-11 | 23019         | 8629.90      | 8652.68 | 1366.80      | 30            | 32  | 31.0 | 15            | 1024.6          | 0.69               | 943                 | 2.8011                    | 2.8706                  | 0.0695                    | 74   |
| 27-Jan-11 | 23239         | 8652.68      | 8676.16 | 1408.80      | 30            | 32  | 31.0 | 14            | 1022.7          | 0.69               | 974                 | 2.8207                    | 2.8797                  | 0.0590                    | 61   |

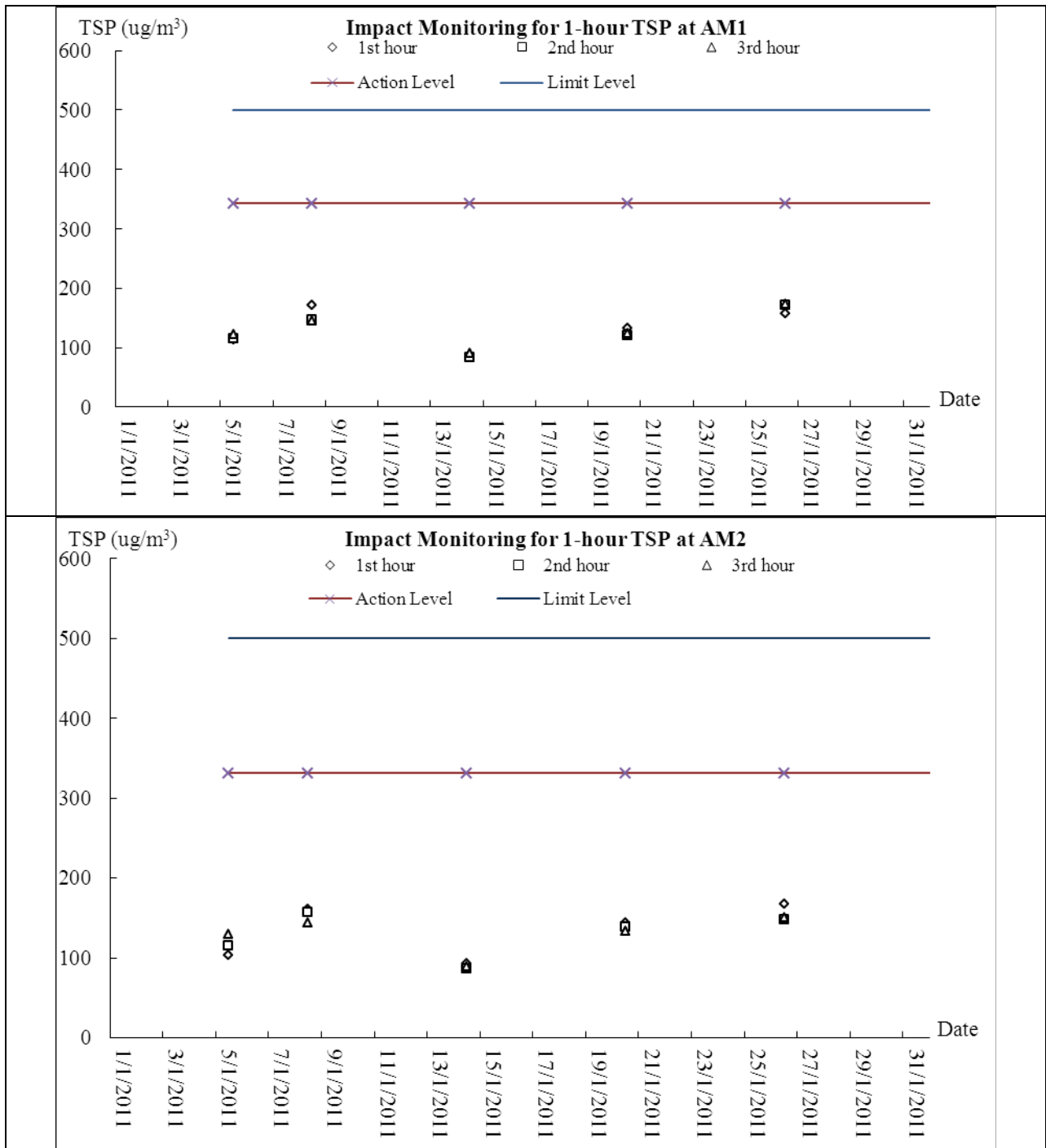
**24-hour TSP Monitoring Results - AM1**

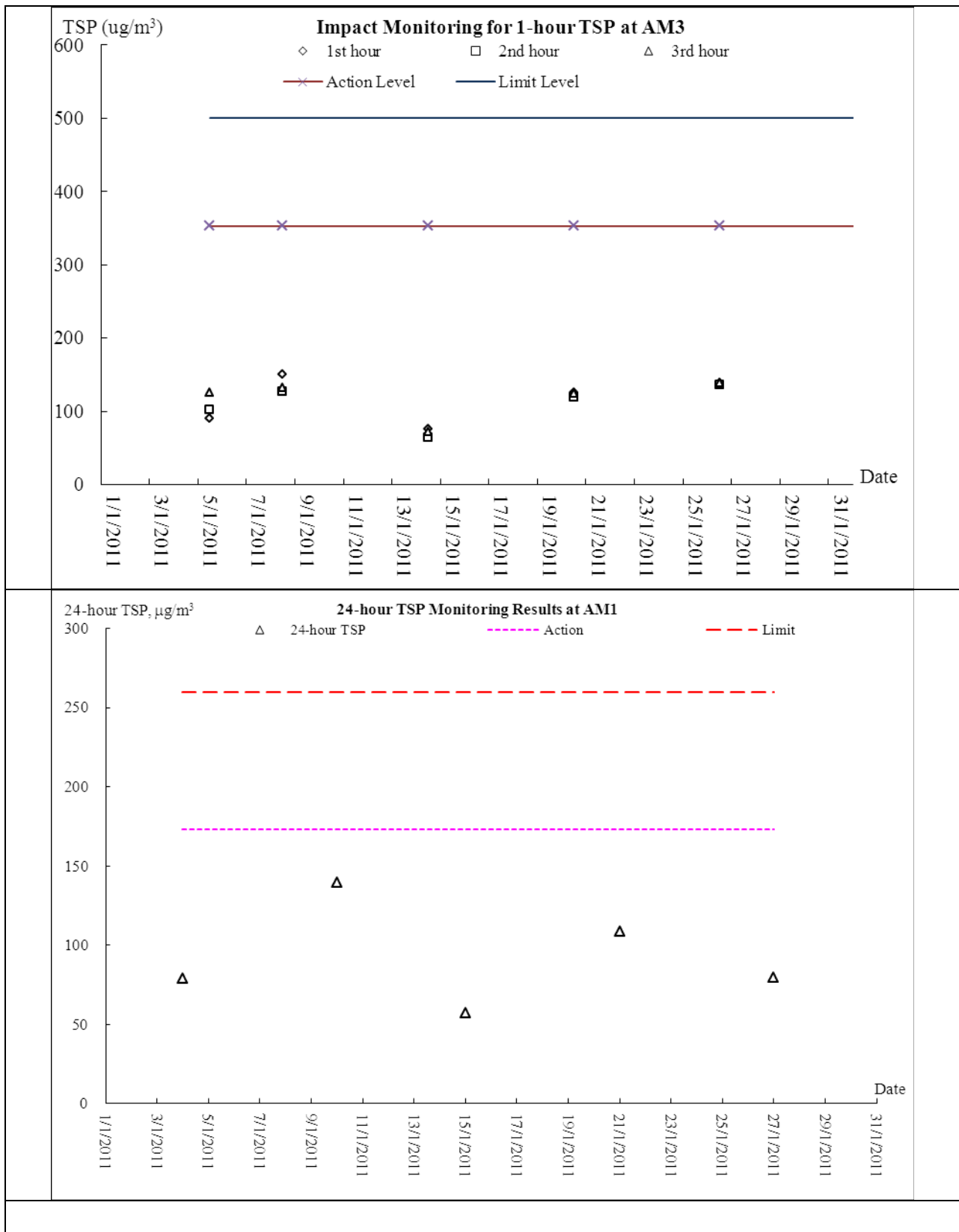
Date of Calibration: 29-Dec-10      Slope = 32.5582  
 Next Calibration Date: 28-Feb-11      Intercept = 7.8973

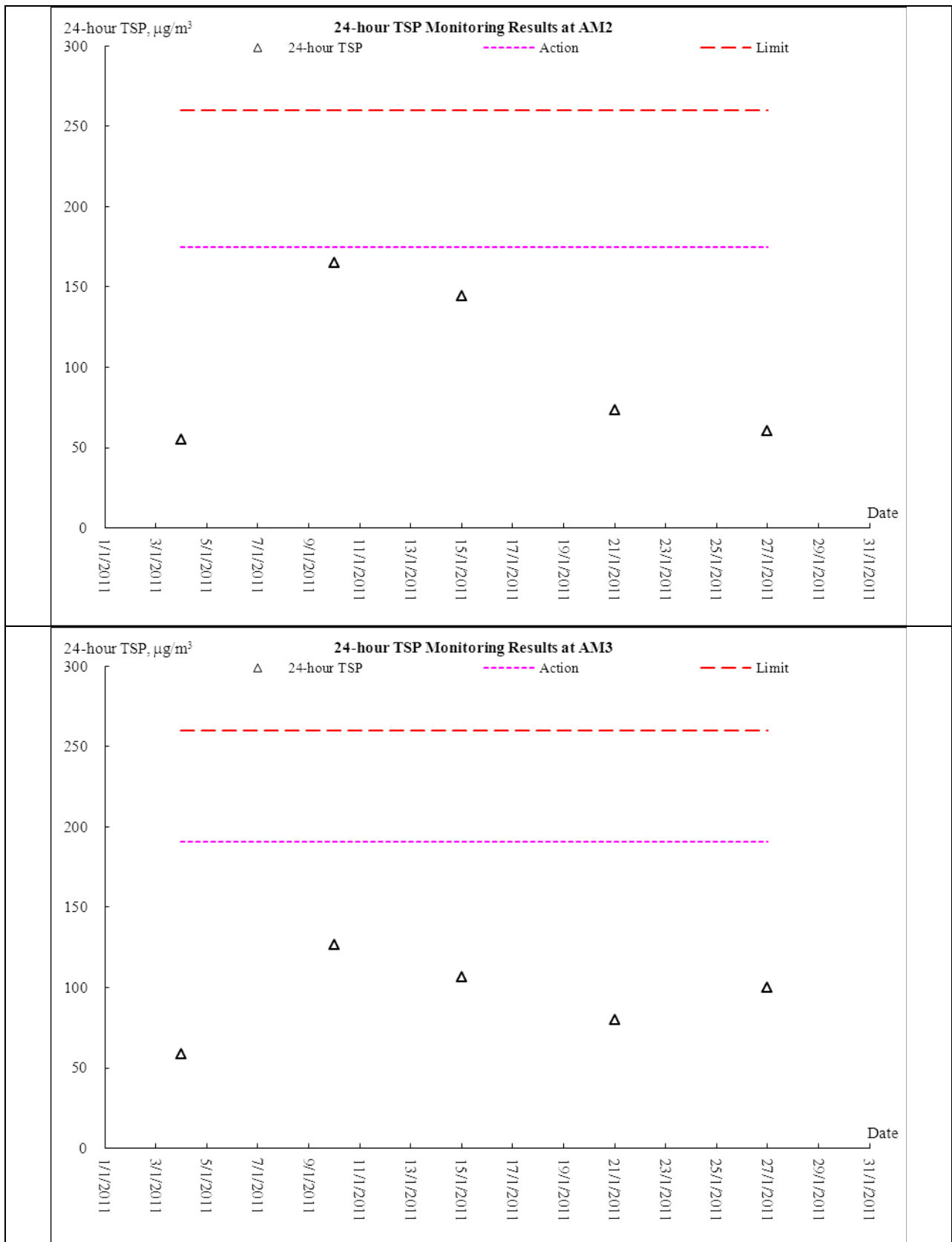
| DATE      | SAMPLE NUMBER | ELAPSED TIME |          |              | CHART READING |     |      | AVG TEMP (oC) | STANDARD        |                    |                     | INITIAL FILTER WEIGHT (g) | FINAL FILTER WEIGHT (g) | WEIGHT DUST COLLECTED (g) | DUST 24-hour TSP IN AIR (ug/m <sup>3</sup> ) |
|-----------|---------------|--------------|----------|--------------|---------------|-----|------|---------------|-----------------|--------------------|---------------------|---------------------------|-------------------------|---------------------------|--|
|           |               | INITIAL      | FINAL    | ACTUAL (min) | MIN           | MAX | AVG  |               | AVG PRESS (hPa) | FLOW RATE (m3/min) | AIR VOLUME (std m3) |                           |                         |                           |  |
| 4-Jan-11  | 23188         | 10020.63     | 10044.12 | 1409.40      | 30            | 32  | 31.0 | 12.8          | 1021.3          | 0.73               | 1034                | 2.7573                    | 2.8388                  | 0.0815                    | 79   |
| 10-Jan-11 | 23193         | 10044.12     | 10067.59 | 1408.20      | 30            | 32  | 31.0 | 16.3          | 1017.1          | 0.73               | 1022                | 2.7561                    | 2.8988                  | 0.1427                    | 140  |
| 15-Jan-11 | 23140         | 10067.59     | 10091.06 | 1408.20      | 30            | 32  | 31.0 | 14.3          | 1020.9          | 0.73               | 1029                | 2.744                     | 2.803                   | 0.0590                    | 57   |
| 21-Jan-11 | 23190         | 10091.06     | 10114.56 | 1410.00      | 29            | 32  | 30.5 | 15            | 1024.6          | 0.72               | 1009                | 2.7605                    | 2.8702                  | 0.1097                    | 109  |
| 27-Jan-11 | 23240         | 10114.56     | 10138.06 | 1410.00      | 30            | 32  | 31.0 | 14            | 1022.7          | 0.73               | 1032                | 2.8235                    | 2.9055                  | 0.0820                    | 79   |

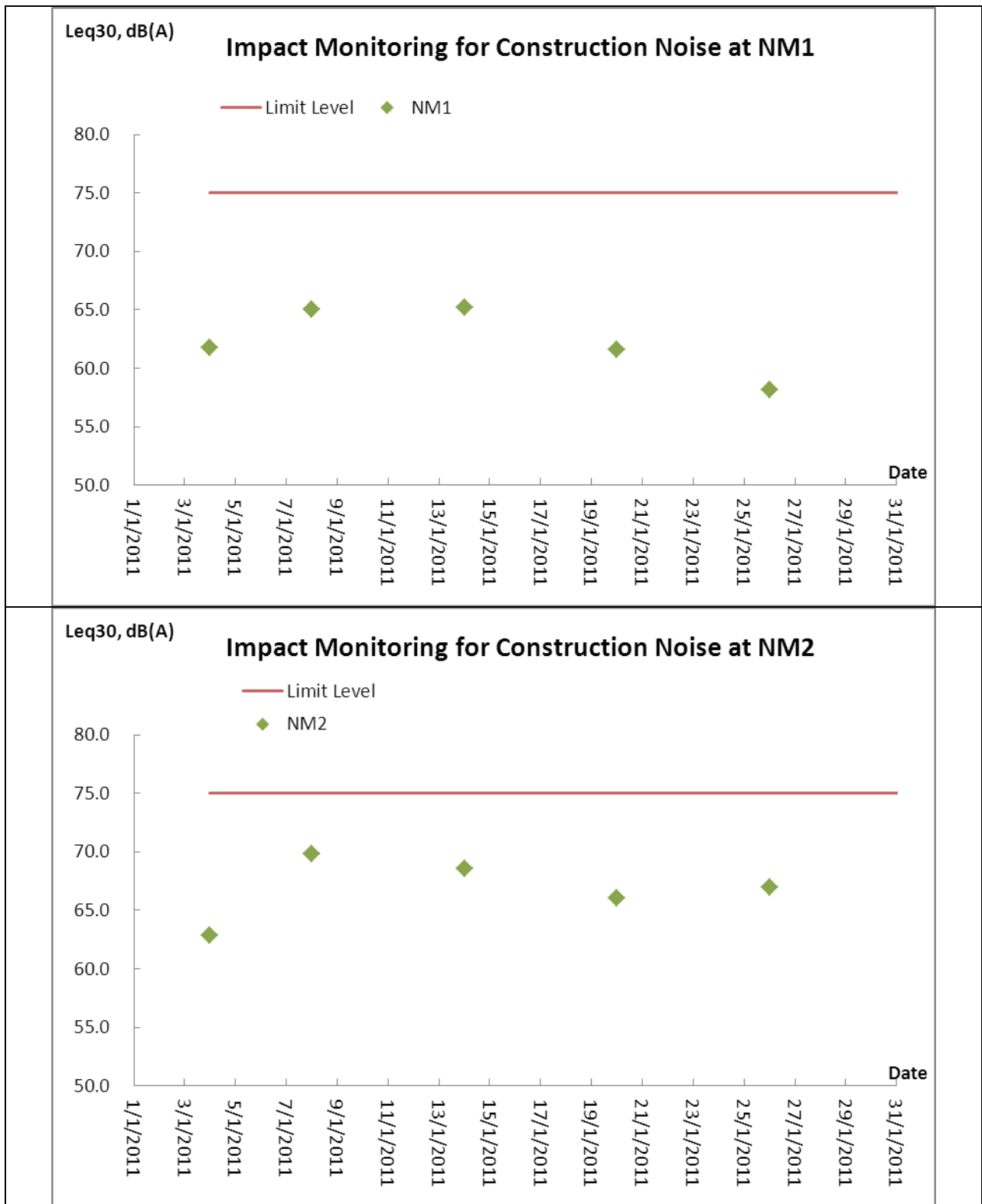
## **Appendix H**

### **Graphical Plots of Monitoring Results**

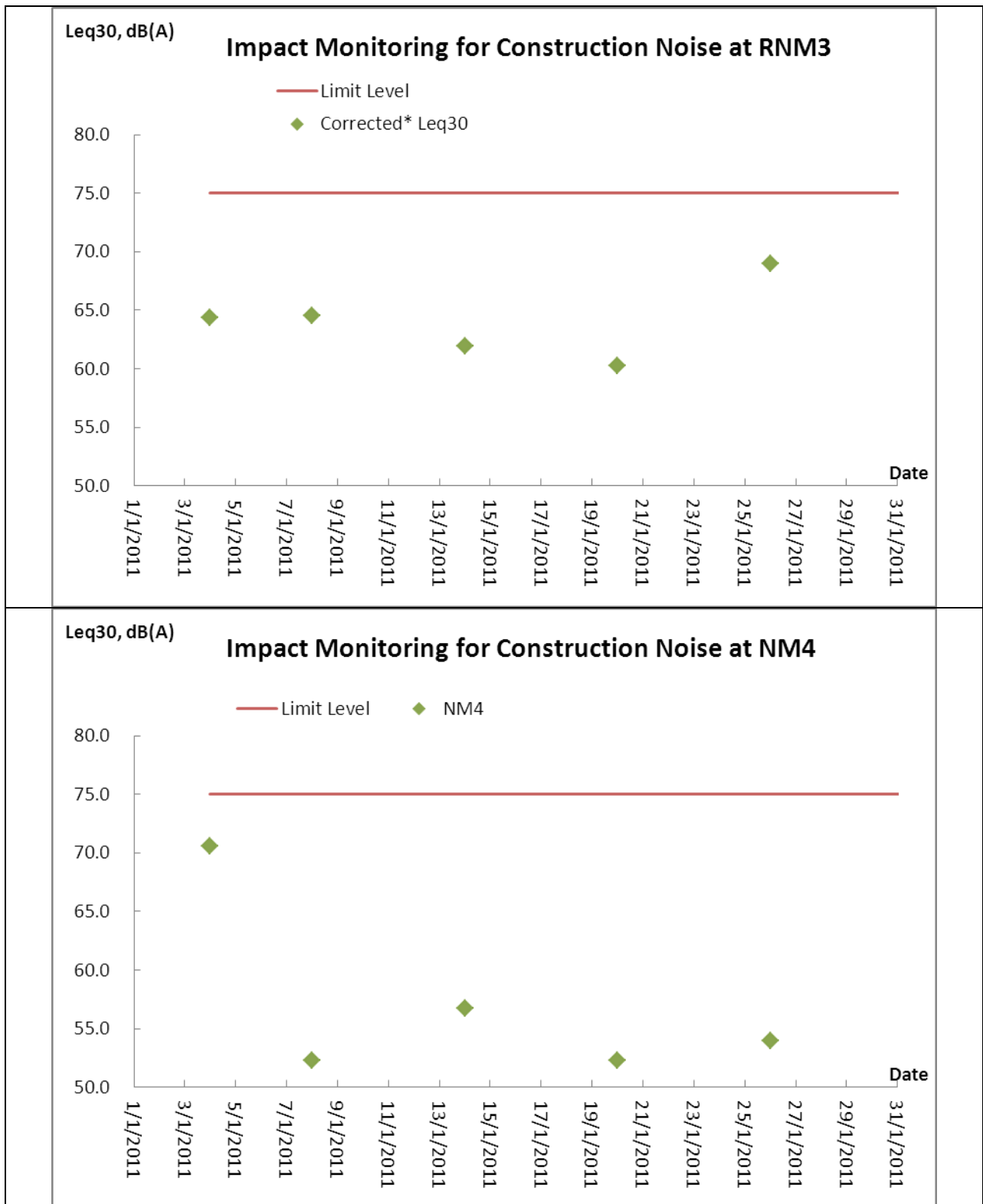












# **Appendix I**

## **Meteorological Information**

**Meteorological Data Extracted from HKO during the Reporting Period**

| Date      |     | Weather   |
|-----------|-----|---|
| 1-Jan-11  | Sat | Holiday   |
| 2-Jan-11  | Sun | Holiday   |
| 3-Jan-11  | Mon | Moderate northeasterly winds                            |
| 4-Jan-11  | Tue | Mainly cloudy.  |
| 5-Jan-11  | Wed | Cloudy at first   |
| 6-Jan-11  | Thu | Moderate to fresh northerly winds.                      |
| 7-Jan-11  | Fri | sunny periods   |
| 8-Jan-11  | Sat | Mainly fine apart from some haze.                       |
| 9-Jan-11  | Sun | Very cold and cloudy.                                   |
| 10-Jan-11 | Mon | Fresh north to northeasterly winds.                     |
| 11-Jan-11 | Tue | Cold and cloudy.  |
| 12-Jan-11 | Wed | Moderate north to northeasterly winds.                  |
| 13-Jan-11 | Thu | Mainly fine and dry.                                    |
| 14-Jan-11 | Fri | Cold in the morning.                                    |
| 15-Jan-11 | Sat | Moderate east to northeasterly winds.                   |
| 16-Jan-11 | Sun | It will be dry.   |
| 17-Jan-11 | Mon | Moderate east to northeasterly winds, freshening later. |
| 18-Jan-11 | Tue | Mainly fine apart from some haze                        |
| 19-Jan-11 | Wed | Moderate east to northeasterly winds.                   |
| 20-Jan-11 | Thu | Fine and dry apart from some haze.                      |
| 21-Jan-11 | Fri | Moderate northeasterly winds                            |
| 22-Jan-11 | Sat | Rather cool in the morning.                             |
| 23-Jan-11 | Sun | Cold and cloudy.  |
| 24-Jan-11 | Mon | Fresh north to northeasterly winds.                     |
| 25-Jan-11 | Tue | sunny periods   |
| 26-Jan-11 | Wed | There will also be haze.                                |
| 27-Jan-11 | Thu | Moderate northerly winds, fresh offshore.               |
| 28-Jan-11 | Fri | Mainly cloudy.  |
| 29-Jan-11 | Sat | Mainly fine   |
| 30-Jan-11 | Sun | Moderate northeasterly winds.                           |
| 31-Jan-11 | Mon | Dry with some haze.                                     |

## **Appendix J**

### **Monthly Summary Waste Flow Table**

### Monthly Summary Waste Flow Table for January 2011

| Month            | Actual Quantities of Inert C&D Materials Generated Monthly |        |  |        |                               |        |                                 |        |                                |        |                          |        | Actual Quantities of C&D Wastes Generated Monthly |        |                                  |        |             |        |                |        |                         |       |
|------------------|--|--------|--|--------|-------------------------------|--------|---------------------------------|--------|--------------------------------|--------|--------------------------|--------|---|--------|----------------------------------|--------|-------------|--------|----------------|--------|-------------------------|-------|
|                  | Total Quantity Generated<br>(a) = (c)+(d)+(e)              |        | Hard Rock and Large Broken Concrete<br>(b) |        | Reused in the Contract<br>(c) |        | Reused in other Projects<br>(d) |        | Disposed as Public Fill<br>(e) |        | Imported Fill<br>(f)     |        | Metals  |        | Paper/<br>cardboard<br>packaging |        | Plastics    |        | Chemical Waste |        | Others,<br>e.g. rubbish |       |
|                  | (in '000m <sup>3</sup> )                                   |        | (in '000m <sup>3</sup> )                   |        | (in '000m <sup>3</sup> )      |        | (in '000m <sup>3</sup> )        |        | (in '000m <sup>3</sup> )       |        | (in '000m <sup>3</sup> ) |        | (in '000kg)                                       |        | (in '000kg)                      |        | (in '000kg) |        | (in '000kg)    |        | (in tonne)              |       |
|                  | YSW  | SKW    | YSW  | SKW    | YSW                           | SKW    | YSW                             | SKW    | YSW                            | SKW    | YSW                      | SKW    | YSW   | SKW    | YSW                              | SKW    | YSW         | SKW    | YSW            | SKW    | YSW                     | SKW   |
| Jan              | 1.223  | 0.000  | 0.003                                      | 0.013  | 0.357                         | 0.000  | 0.000                           | 0.000  | 0.865                          | 0.000  | 0.000                    | 0.000  | 0.000   | 0.000  | 0.000                            | 0.000  | 0.000       | 0.000  | 0.000          | 0.000  | 0.000                   | 2.240 |
| Feb              |  |        |  |        |                               |        |                                 |        |                                |        |                          |        |   |        |                                  |        |             |        |                |        |                         |       |
| Mar              |  |        |  |        |                               |        |                                 |        |                                |        |                          |        |   |        |                                  |        |             |        |                |        |                         |       |
| Apr              |  |        |  |        |                               |        |                                 |        |                                |        |                          |        |   |        |                                  |        |             |        |                |        |                         |       |
| May              |  |        |  |        |                               |        |                                 |        |                                |        |                          |        |   |        |                                  |        |             |        |                |        |                         |       |
| Jun              |  |        |  |        |                               |        |                                 |        |                                |        |                          |        |   |        |                                  |        |             |        |                |        |                         |       |
| <b>Sub-total</b> | 1.2226   | 0.0000 | 0.0027                                     | 0.0130 | 0.3573                        | 0.0000 | 0.0000                          | 0.0000 | 0.8653                         | 0.0000 | 0.0000                   | 0.0000 | 0.0000  | 0.0000 | 0.0000                           | 0.0000 | 0.0000      | 0.0000 | 0.0000         | 0.0000 | 0.00                    | 2.24  |
| Jul              |  |        |  |        |                               |        |                                 |        |                                |        |                          |        |   |        |                                  |        |             |        |                |        |                         |       |
| Aug              |  |        |  |        |                               |        |                                 |        |                                |        |                          |        |   |        |                                  |        |             |        |                |        |                         |       |
| Sep              |  |        |  |        |                               |        |                                 |        |                                |        |                          |        |   |        |                                  |        |             |        |                |        |                         |       |
| Oct              |  |        |  |        |                               |        |                                 |        |                                |        |                          |        |   |        |                                  |        |             |        |                |        |                         |       |
| Nov              |  |        |  |        |                               |        |                                 |        |                                |        |                          |        |   |        |                                  |        |             |        |                |        |                         |       |
| Dec              |  |        |  |        |                               |        |                                 |        |                                |        |                          |        |   |        |                                  |        |             |        |                |        |                         |       |
| <b>Total</b>     | 1.2226   | 0.0000 | 0.0027                                     | 0.0130 | 0.357                         | 0.000  | 0.000                           | 0.000  | 0.8653                         | 0.0000 | 0.00                     | 0.00   | 0.00  | 0.00   | 0.00                             | 0.00   | 0.00        | 0.00   | 0.00           | 0.00   | 0.00                    | 2.24  |
|                  | 1.223  |        | 0.016                                      |        | 0.357                         |        | 0.000                           |        | 0.865                          |        | 0.000                    |        | 0.000   |        | 0.000                            |        | 0.000       |        | 0.000          |        | 2.24                    |       |

Remark: Assume 1.0 m<sup>3</sup> village vehicle dump load = 1.6 tonnes C&D materials

YSW: Yung Shue Wan  
SKW: Sok Kwu Wan

## **Appendix K**

### **Weekly Site Inspection Checklist**

Project: TCS/00512/09  
**Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan**  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Inspected by \_\_\_\_\_  
 ETL/ ET's Representative: Ray Cheung  
 RE's Representative: Joseph Ng  
 Contractor's Representative: Edwin Leung  
 IEC's Representative: \_\_\_\_\_  
 Date: 4 January 2011 Time: 14:00

**PART A:**

**GENERAL INFORMATION**

Environmental Permit No.

Weather:  Sunny  Fine  Cloudy  Rainy  
 Temperature: 14.6 °C  
 Humidity:  High  Moderate  Low  
 Wind:  Strong  Breeze  Light  Calm

EP- 281/2007A

**Area Inspected**

1 Sok Kwu Wan

**PART B:**

**SITE AUDIT**

| <b>Note:</b> Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable |  | Not Obs.                            | Yes                                 | No                       | Follow Up                | N/A                                 | Photo/Remarks |
|---|--|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|---------------|
| <b>Section 1: Water Quality</b>   |  |                                     |                                     |                          |                          |                                     |               |
| 1.01  | Is an effluent discharge license obtained for the Project?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.02  | Is the effluent discharged in accordance with the discharge licence?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.03  | Is the discharge of turbid water avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.04  | Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?                                   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.05  | Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.06  | Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?                   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.07  | Is drainage system well maintained?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.08  | As excavation proceeds, are temporary access roads protected by crushed stone or gravel?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.09  | Are temporary exposed slopes properly covered?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.10  | Are earthworks final surfaces well compacted or protected?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.11  | Are manholes adequately covered or temporarily sealed?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.12  | Are there any procedures and equipment for rainstorm protection?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.13  | Are wheel washing facilities well maintained?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.14  | Is runoff from wheel washing facilities avoided?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.15  | Are there toilets provided on site?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.16  | Are toilets properly maintained?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.17  | Are the vehicle and plant servicing areas paved and located within roofed areas?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.18  | Is the oil leakage or spillage avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.19  | Are there any measures to prevent leaked oil from entering the drainage system?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.20  | Are there any measures to collect spilt cement and concrete washings during concreting works?                                    | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.21  | Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc? | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.22  | Are the oil interceptors/grease traps maintained properly?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |

| Note:                         | Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable  | Not Obs.                            | Yes                                 | No                       | Follow Up                | N/A                      | Photo/Remarks |
|-------------------------------|---|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|---------------|
| 1.23                          | Is used bentonite recycled where appropriate?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.24                          | Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m <sup>3</sup> capacities for sedimentation. | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.25                          | No excavation is undertaken in the settlement area.   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.26                          | Concreting wastes water should be neutralized below the pH Action Levels before discharge.  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.27                          | Mobile toilets should provide on site and located away the stream course.   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.28                          | License collector should be employed for handling the sewage of mobile toilet.  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.29                          | Is ponding /stand water avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.30                          | Is open stockpiles well covered by impermeable sheet?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| <b>Section 2: Air Quality</b> |   |                                     |                                     |                          |                          |                          |               |
| 2.01                          | Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.02                          | Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.03                          | Are the excavated materials sprayed with water during handling?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.04                          | Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.05                          | Is the exposed earth properly treated within six months after the last construction activities?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.06                          | Are the access roads sprayed with water to maintain the entire road surface wet or paved?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.07                          | Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.08                          | Is the load on vehicles covered entirely by clean impervious sheeting?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.09                          | Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.10                          | Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.11                          | Is dark smoke emission from plant/equipment avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.12                          | Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.13                          | Are site vehicles travelling within the speed limit not more than 15km/hour?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.14                          | Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.15                          | Is open burning avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.16                          | Excavated materials from the stream must remove form site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.                 | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| <b>Section 3: Noise</b>       |   |                                     |                                     |                          |                          |                          |               |
| 3.01                          | Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.02                          | Is silenced equipment adopted?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.03                          | Is idle equipment turned off or throttled down?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.04                          | Are all plant and equipment well maintained and in good condition?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.05                          | Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.06                          | Are hand held breakers fitted with valid noise emission labels during operation?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.07                          | Are air compressors fitted with valid noise emission labels during operation?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |



| Note:                                       | Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable  | Not Obs.                            | Yes                                 | No                       | Follow Up                | N/A                      | Photo/Remarks |
|---|---|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|---------------|
| 3.08  | Are flaps and panels of mechanical equipment closed during operation?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.09  | Are Construction Noise Permit(s) applied for percussive piling works?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.10  | Are Construction Noise Permit(s) applied for general construction works during restricted hours?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.11  | Are valid Construction Noise Permit(s) posted at site entrances?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.12  | Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.13  | Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure) | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.14  | Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| <b>Section 4: Waste/Chemical Management</b> |   |                                     |                                     |                          |                          |                          |               |
| 4.01  | Waste Management Plan had been submit to Engineer for approval.   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.02  | Are receptacles available for general refuse collection?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.03  | Is general refuse sorting or recycling implemented?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.04  | Is general refuse disposed of properly and regularly?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.05  | Is the Contractor registered as a chemical waste producer?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.06  | Are the chemical waste containers and storage area properly labelled?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.07  | Are the chemical wastes stored in proper storage areas?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.08  | Is the chemical container or equipment provided with drip tray?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.09  | Is the chemical waste storage area used for storage of chemical waste only?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.10  | Are incompatible chemical wastes stored in different areas?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.11  | Are the chemical wastes disposed of by licensed collectors?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.12  | Are trip tickets for chemical wastes disposal available for inspection?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.13  | Are chemical/fuel storage areas bounded?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.14  | Are designated areas identified for storage and sorting of construction wastes?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.15  | Are construction wastes sorted (inert and non-inert) on site?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.16  | Are construction wastes reused?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.17  | Are construction wastes disposed of properly?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.18  | Are site hoardings and signboards made of durable materials instead of timber?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.19  | Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.20  | Are appropriate procedures followed if contaminated material exists?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.21  | Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.22  | Site cleanliness and appropriate waste management training had provided for the site workers.   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.23  | Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |

| <b>Note:</b> Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable |  | Not Obs.                            | Yes                                 | No                       | Follow Up                           | N/A                      | Photo/Remarks  |
|---|--|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|--|
| <b>Section 5: Landscape &amp; Visual</b>  |  |                                     |                                     |                          |                                     |                          |  |
| 5.01  | Are retained and transplanted trees in health condition?                         | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Refer to Monthly EM&A report - January 2011 - Appendix M |
| 5.02  | Are retained and transplanted trees properly protected?                          | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | Remark 1 & 2   |
| 5.03  | Are surgery works carried out for the damaged trees?                             | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |  |
| 5.04  | Is damage to trees outside site boundary due to construction activities avoided? | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |  |
| 5.05  | Is the night-time lighting controlled to minimize glare to sensitive receivers?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |  |
| <b>Section 6: Others</b>  |  |                                     |                                     |                          |                                     |                          |  |
| 6.01  | Are relevant Environmental Permits posted at all vehicle site entrances/exits?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |  |

**Remarks:  
Findings of Site Inspection (Sok Kwu Wan):  
(4 January 2011)**

**Follow up:  
Rectified on**

No environmental issue was observed during the site inspection.



Remark 1: The transplanted trees were well protected.

Remark 2: The retained uncommon tree species, Celtis Timorensis, were found to be labeled, fenced and protected.

Prepared by ET representative:

( Ray Cheung )

Project: TCS/00512/09  
**Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan**  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Inspected by \_\_\_\_\_  
 ETL/ ET's Representative: TW Tam  
 RE's Representative: Joseph Ng  
 Contractor's Representative: Edwin Leung  
 IEC's Representative: K.K. Kwok  
 Date: 11 January 2011 Time: 10:00

Environmental Permit No. \_\_\_\_\_

**PART A:**

**GENERAL INFORMATION**

Weather:  Sunny  Fine  Cloudy  Rainy  
 Temperature: 13.2 °C  
 Humidity:  High  Moderate  Low  
 Wind:  Strong  Breeze  Light  Calm

EP- 281/2007A

**Area Inspected**

1 Sok Kwu Wan

**PART B:**

**SITE AUDIT**

| <b>Note:</b> Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable |  | Not Obs.                            | Yes                                 | No                       | Follow Up                | N/A                                 | Photo/Remarks |
|---|--|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|---------------|
| <b>Section 1: Water Quality</b>   |  |                                     |                                     |                          |                          |                                     |               |
| 1.01  | Is an effluent discharge license obtained for the Project?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |
| 1.02  | Is the effluent discharged in accordance with the discharge licence?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |
| 1.03  | Is the discharge of turbid water avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |
| 1.04  | Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?                                   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |
| 1.05  | Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |
| 1.06  | Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?                   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |
| 1.07  | Is drainage system well maintained?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |
| 1.08  | As excavation proceeds, are temporary access roads protected by crushed stone or gravel?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |
| 1.09  | Are temporary exposed slopes properly covered?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |
| 1.10  | Are earthworks final surfaces well compacted or protected?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |
| 1.11  | Are manholes adequately covered or temporarily sealed?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |
| 1.12  | Are there any procedures and equipment for rainstorm protection?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |
| 1.13  | Are wheel washing facilities well maintained?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |
| 1.14  | Is runoff from wheel washing facilities avoided?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |
| 1.15  | Are there toilets provided on site?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |
| 1.16  | Are toilets properly maintained?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |
| 1.17  | Are the vehicle and plant servicing areas paved and located within roofed areas?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |
| 1.18  | Is the oil leakage or spillage avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |
| 1.19  | Are there any measures to prevent leaked oil from entering the drainage system?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |
| 1.20  | Are there any measures to collect spilt cement and concrete washings during concreting works?                                    | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | _____         |
| 1.21  | Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc? | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |
| 1.22  | Are the oil interceptors/grease traps maintained properly?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | _____         |

| Note:                         | Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable  | Not Obs.                            | Yes                                 | No                       | Follow Up                | N/A                      | Photo/Remarks |
|-------------------------------|---|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|---------------|
| 1.23                          | Is used bentonite recycled where appropriate?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.24                          | Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m <sup>3</sup> capacities for sedimentation. | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.25                          | No excavation is undertaken in the settlement area.   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.26                          | Concreting wastes water should be neutralized below the pH Action Levels before discharge.  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.27                          | Mobile toilets should provide on site and located away the stream course.   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.28                          | License collector should be employed for handling the sewage of mobile toilet.  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.29                          | Is ponding /stand water avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.30                          | Is open stockpiles well covered by impermeable sheet?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| <b>Section 2: Air Quality</b> |   |                                     |                                     |                          |                          |                          |               |
| 2.01                          | Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.02                          | Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.03                          | Are the excavated materials sprayed with water during handling?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.04                          | Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.05                          | Is the exposed earth properly treated within six months after the last construction activities?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.06                          | Are the access roads sprayed with water to maintain the entire road surface wet or paved?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.07                          | Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.08                          | Is the load on vehicles covered entirely by clean impervious sheeting?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.09                          | Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.10                          | Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.11                          | Is dark smoke emission from plant/equipment avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.12                          | Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.13                          | Are site vehicles travelling within the speed limit not more than 15km/hour?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.14                          | Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.15                          | Is open burning avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.16                          | Excavated materials from the stream must remove form site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.                 | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| <b>Section 3: Noise</b>       |   |                                     |                                     |                          |                          |                          |               |
| 3.01                          | Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.02                          | Is silenced equipment adopted?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.03                          | Is idle equipment turned off or throttled down?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.04                          | Are all plant and equipment well maintained and in good condition?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.05                          | Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.06                          | Are hand held breakers fitted with valid noise emission labels during operation?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.07                          | Are air compressors fitted with valid noise emission labels during operation?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |

| Note:                                       | Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable  | Not Obs.                            | Yes                                 | No                       | Follow Up                | N/A                      | Photo/Remarks |
|---|---|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|---------------|
| 3.08  | Are flaps and panels of mechanical equipment closed during operation?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.09  | Are Construction Noise Permit(s) applied for percussive piling works?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.10  | Are Construction Noise Permit(s) applied for general construction works during restricted hours?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.11  | Are valid Construction Noise Permit(s) posted at site entrances?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.12  | Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.13  | Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure) | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.14  | Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| <b>Section 4: Waste/Chemical Management</b> |   |                                     |                                     |                          |                          |                          |               |
| 4.01  | Waste Management Plan had been submit to Engineer for approval.   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.02  | Are receptacles available for general refuse collection?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.03  | Is general refuse sorting or recycling implemented?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.04  | Is general refuse disposed of properly and regularly?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.05  | Is the Contractor registered as a chemical waste producer?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.06  | Are the chemical waste containers and storage area properly labelled?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.07  | Are the chemical wastes stored in proper storage areas?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.08  | Is the chemical container or equipment provided with drip tray?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.09  | Is the chemical waste storage area used for storage of chemical waste only?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.10  | Are incompatible chemical wastes stored in different areas?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.11  | Are the chemical wastes disposed of by licensed collectors?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.12  | Are trip tickets for chemical wastes disposal available for inspection?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.13  | Are chemical/fuel storage areas bounded?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.14  | Are designated areas identified for storage and sorting of construction wastes?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.15  | Are construction wastes sorted (inert and non-inert) on site?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.16  | Are construction wastes reused?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.17  | Are construction wastes disposed of properly?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.18  | Are site hoardings and signboards made of durable materials instead of timber?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.19  | Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.20  | Are appropriate procedures followed if contaminated material exists?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.21  | Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.22  | Site cleanliness and appropriate waste management training had provided for the site workers.   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.23  | Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |

| <b>Note:</b> Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable |  | Not Obs.                            | Yes                                 | No                       | Follow Up                           | N/A                      | Photo/Remarks  |
|---|--|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|--|
| <b>Section 5: Landscape &amp; Visual</b>  |  |                                     |                                     |                          |                                     |                          |  |
| 5.01  | Are retained and transplanted trees in health condition?                         | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Refer to Monthly EM&A report - January 2011 - Appendix M |
| 5.02  | Are retained and transplanted trees properly protected?                          | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | Remark 4 & 5   |
| 5.03  | Are surgery works carried out for the damaged trees?                             | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |  |
| 5.04  | Is damage to trees outside site boundary due to construction activities avoided? | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |  |
| 5.05  | Is the night-time lighting controlled to minimize glare to sensitive receivers?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |  |
| <b>Section 6: Others</b>  |  |                                     |                                     |                          |                                     |                          |  |
| 6.01  | Are relevant Environmental Permits posted at all vehicle site entrances/exits?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |  |

**Remarks:  
Findings of Site Inspection (Sok Kwu Wan):  
(11 January 2011)**



Remark 1: Free standing oil drums were observed, the Contractor should provide drip tray and covering for them.

**Follow up:  
Rectified on 18 January 2011**



The drums were provided drip tray and covering.



Remark 2: The building wall was too close to the transplanted tree, the contractor should modify the wall to improve the tree protection.



The wall was modified to avoid touching the tree branch.



Remark 3: Protective measures should be made for the tree branch to avoid damage from the door opening.



The door opening angle was limited to prevent tree damage.



Remark 4: The transplanted trees were well protected.

Remark 5: The retained uncommon tree species, *Celtis Timorensis*, were found to be labeled, fenced and protected.

Prepared by ET representative:

( T.W. Tam )

Project: TCS/00512/09  
**Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan**  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Inspected by \_\_\_\_\_  
 ETL/ ET's Representative: Ray Cheung  
 RE's Representative: Joseph Ng  
 Contractor's Representative: Edwin Leung  
 IEC's Representative: \_\_\_\_\_  
 Date: 18 January 2011 Time: 14:00

Environmental Permit No. \_\_\_\_\_

**PART A:**

**GENERAL INFORMATION**

Weather:  Sunny  Fine  Cloudy  Rainy  
 Temperature: 17.1 °C  
 Humidity:  High  Moderate  Low  
 Wind:  Strong  Breeze  Light  Calm

EP- 281/2007A

**Area Inspected**

1 Sok Kwu Wan

**PART B:**

**SITE AUDIT**

| <b>Note:</b> Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable |  | Not Obs.                            | Yes                                 | No                       | Follow Up                           | N/A                                 | Photo/Remarks |
|---|--|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|-------------------------------------|---------------|
| <b>Section 1: Water Quality</b>   |  |                                     |                                     |                          |                                     |                                     |               |
| 1.01  | Is an effluent discharge license obtained for the Project?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |               |
| 1.02  | Is the effluent discharged in accordance with the discharge licence?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |               |
| 1.03  | Is the discharge of turbid water avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |               |
| 1.04  | Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?                                   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |               |
| 1.05  | Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |               |
| 1.06  | Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?                   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |               |
| 1.07  | Is drainage system well maintained?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Remark 1      |
| 1.08  | As excavation proceeds, are temporary access roads protected by crushed stone or gravel?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |               |
| 1.09  | Are temporary exposed slopes properly covered?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |               |
| 1.10  | Are earthworks final surfaces well compacted or protected?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |               |
| 1.11  | Are manholes adequately covered or temporarily sealed?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |               |
| 1.12  | Are there any procedures and equipment for rainstorm protection?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |               |
| 1.13  | Are wheel washing facilities well maintained?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |               |
| 1.14  | Is runoff from wheel washing facilities avoided?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |               |
| 1.15  | Are there toilets provided on site?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |               |
| 1.16  | Are toilets properly maintained?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |               |
| 1.17  | Are the vehicle and plant servicing areas paved and located within roofed areas?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |               |
| 1.18  | Is the oil leakage or spillage avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |               |
| 1.19  | Are there any measures to prevent leaked oil from entering the drainage system?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |               |
| 1.20  | Are there any measures to collect spilt cement and concrete washings during concreting works?                                    | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |               |
| 1.21  | Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc? | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |               |
| 1.22  | Are the oil interceptors/grease traps maintained properly?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            |               |



| Note:                         | Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable  | Not Obs.                            | Yes                                 | No                       | Follow Up                | N/A                      | Photo/Remarks |
|-------------------------------|---|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|---------------|
| 1.23                          | Is used bentonite recycled where appropriate?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.24                          | Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m <sup>3</sup> capacities for sedimentation. | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.25                          | No excavation is undertaken in the settlement area.   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.26                          | Concreting wastes water should be neutralized below the pH Action Levels before discharge.  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.27                          | Mobile toilets should provide on site and located away the stream course.   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.28                          | License collector should be employed for handling the sewage of mobile toilet.  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.29                          | Is ponding /stand water avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.30                          | Is open stockpiles well covered by impermeable sheet?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| <b>Section 2: Air Quality</b> |   |                                     |                                     |                          |                          |                          |               |
| 2.01                          | Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.02                          | Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.03                          | Are the excavated materials sprayed with water during handling?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.04                          | Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.05                          | Is the exposed earth properly treated within six months after the last construction activities?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.06                          | Are the access roads sprayed with water to maintain the entire road surface wet or paved?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.07                          | Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.08                          | Is the load on vehicles covered entirely by clean impervious sheeting?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.09                          | Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.10                          | Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.11                          | Is dark smoke emission from plant/equipment avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.12                          | Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.13                          | Are site vehicles travelling within the speed limit not more than 15km/hour?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.14                          | Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.15                          | Is open burning avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.16                          | Excavated materials from the stream must remove form site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.                 | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| <b>Section 3: Noise</b>       |   |                                     |                                     |                          |                          |                          |               |
| 3.01                          | Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.02                          | Is silenced equipment adopted?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.03                          | Is idle equipment turned off or throttled down?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.04                          | Are all plant and equipment well maintained and in good condition?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.05                          | Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.06                          | Are hand held breakers fitted with valid noise emission labels during operation?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.07                          | Are air compressors fitted with valid noise emission labels during operation?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |

| Note:                                       | Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable  | Not Obs.                            | Yes                                 | No                       | Follow Up                | N/A                      | Photo/Remarks |
|---|---|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|---------------|
| 3.08  | Are flaps and panels of mechanical equipment closed during operation?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.09  | Are Construction Noise Permit(s) applied for percussive piling works?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.10  | Are Construction Noise Permit(s) applied for general construction works during restricted hours?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.11  | Are valid Construction Noise Permit(s) posted at site entrances?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.12  | Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.13  | Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure) | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.14  | Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| <b>Section 4: Waste/Chemical Management</b> |   |                                     |                                     |                          |                          |                          |               |
| 4.01  | Waste Management Plan had been submit to Engineer for approval.   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.02  | Are receptacles available for general refuse collection?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.03  | Is general refuse sorting or recycling implemented?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.04  | Is general refuse disposed of properly and regularly?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.05  | Is the Contractor registered as a chemical waste producer?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.06  | Are the chemical waste containers and storage area properly labelled?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.07  | Are the chemical wastes stored in proper storage areas?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.08  | Is the chemical container or equipment provided with drip tray?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.09  | Is the chemical waste storage area used for storage of chemical waste only?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.10  | Are incompatible chemical wastes stored in different areas?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.11  | Are the chemical wastes disposed of by licensed collectors?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.12  | Are trip tickets for chemical wastes disposal available for inspection?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.13  | Are chemical/fuel storage areas bounded?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.14  | Are designated areas identified for storage and sorting of construction wastes?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.15  | Are construction wastes sorted (inert and non-inert) on site?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.16  | Are construction wastes reused?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.17  | Are construction wastes disposed of properly?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.18  | Are site hoardings and signboards made of durable materials instead of timber?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.19  | Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.20  | Are appropriate procedures followed if contaminated material exists?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.21  | Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.22  | Site cleanliness and appropriate waste management training had provided for the site workers.   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.23  | Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |

| <b>Note:</b> Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable |  | Not Obs.                            | Yes                                 | No                       | Follow Up                           | N/A                      | Photo/Remarks  |
|---|--|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|--|
| <b>Section 5: Landscape &amp; Visual</b>  |  |                                     |                                     |                          |                                     |                          |  |
| 5.01  | Are retained and transplanted trees in health condition?                         | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Refer to Monthly EM&A report - January 2011 - Appendix M<br>Remark 3 & 4 |
| 5.02  | Are retained and transplanted trees properly protected?                          | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |  |
| 5.03  | Are surgery works carried out for the damaged trees?                             | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |  |
| 5.04  | Is damage to trees outside site boundary due to construction activities avoided? | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |  |
| 5.05  | Is the night-time lighting controlled to minimize glare to sensitive receivers?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |  |
| <b>Section 6: Others</b>  |  |                                     |                                     |                          |                                     |                          |  |
| 6.01  | Are relevant Environmental Permits posted at all vehicle site entrances/exits?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |  |

**Remarks:  
Findings of Site Inspection (Sok Kwu Wan):  
(18 January 2011)**



1. Water leaking from the pipe was observed, the Contractor should fix the leakage and prevent water discharge before sedimentation. (PS1)

**Follow up:  
Rectified on 25 January 2011**



The pipe was fixed and no further leakage.



2. The C&D material and plant accumulated near the transplanted tree was observed. The Contractor should clear the area to protect the trees from damage.



The area was cleared.



Remark 3: The transplanted trees were found to be well protected

Remark 4: The retained uncommon tree species, Celtis Timorensis, were found to be labeled, fenced and protected.

Prepared by ET representative:



( Ray Cheung )

Project: TCS/00512/09  
**Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan**  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 Date: 25 January 2011

Inspected by \_\_\_\_\_  
 ETL/ ET's Representative: Nicola Hon  
 RE's Representative: Joseph Ng  
 Contractor's Representative: Edwin Leung  
 IEC's Representative: \_\_\_\_\_  
 Time: 14:00

**PART A:**

**GENERAL INFORMATION**

Environmental Permit No.

Weather:  Sunny  Fine  Cloudy  Rainy  
 Temperature: 14.3 °C  
 Humidity:  High  Moderate  Low  
 Wind:  Strong  Breeze  Light  Calm

EP- 281/2007A

**Area Inspected**

1 Sok Kwu Wan

**PART B:**

**SITE AUDIT**

| <b>Note:</b> Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable |  | Not Obs.                            | Yes                                 | No                       | Follow Up                | N/A                                 | Photo/Remarks |
|---|--|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|---------------|
| <b>Section 1: Water Quality</b>   |  |                                     |                                     |                          |                          |                                     |               |
| 1.01  | Is an effluent discharge license obtained for the Project?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.02  | Is the effluent discharged in accordance with the discharge licence?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.03  | Is the discharge of turbid water avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.04  | Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?                                   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.05  | Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.06  | Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?                   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.07  | Is drainage system well maintained?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.08  | As excavation proceeds, are temporary access roads protected by crushed stone or gravel?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.09  | Are temporary exposed slopes properly covered?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.10  | Are earthworks final surfaces well compacted or protected?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.11  | Are manholes adequately covered or temporarily sealed?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.12  | Are there any procedures and equipment for rainstorm protection?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.13  | Are wheel washing facilities well maintained?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.14  | Is runoff from wheel washing facilities avoided?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.15  | Are there toilets provided on site?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.16  | Are toilets properly maintained?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.17  | Are the vehicle and plant servicing areas paved and located within roofed areas?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.18  | Is the oil leakage or spillage avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.19  | Are there any measures to prevent leaked oil from entering the drainage system?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.20  | Are there any measures to collect spilt cement and concrete washings during concreting works?                                    | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.21  | Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc? | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.22  | Are the oil interceptors/grease traps maintained properly?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |

| Note:                         | Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable  | Not Obs.                            | Yes                                 | No                       | Follow Up                | N/A                      | Photo/Remarks |
|-------------------------------|---|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|---------------|
| 1.23                          | Is used bentonite recycled where appropriate?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.24                          | Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m <sup>3</sup> capacities for sedimentation. | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.25                          | No excavation is undertaken in the settlement area.   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.26                          | Concreting wastes water should be neutralized below the pH Action Levels before discharge.  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.27                          | Mobile toilets should provide on site and located away the stream course.   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.28                          | License collector should be employed for handling the sewage of mobile toilet.  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.29                          | Is ponding /stand water avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 1.30                          | Is open stockpiles well covered by impermeable sheet?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| <b>Section 2: Air Quality</b> |   |                                     |                                     |                          |                          |                          |               |
| 2.01                          | Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.02                          | Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.03                          | Are the excavated materials sprayed with water during handling?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.04                          | Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.05                          | Is the exposed earth properly treated within six months after the last construction activities?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.06                          | Are the access roads sprayed with water to maintain the entire road surface wet or paved?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.07                          | Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.08                          | Is the load on vehicles covered entirely by clean impervious sheeting?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.09                          | Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.10                          | Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.11                          | Is dark smoke emission from plant/equipment avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.12                          | Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.13                          | Are site vehicles travelling within the speed limit not more than 15km/hour?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.14                          | Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.15                          | Is open burning avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 2.16                          | Excavated materials from the stream must remove form site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.                 | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| <b>Section 3: Noise</b>       |   |                                     |                                     |                          |                          |                          |               |
| 3.01                          | Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.02                          | Is silenced equipment adopted?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.03                          | Is idle equipment turned off or throttled down?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.04                          | Are all plant and equipment well maintained and in good condition?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.05                          | Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.06                          | Are hand held breakers fitted with valid noise emission labels during operation?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.07                          | Are air compressors fitted with valid noise emission labels during operation?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |

| Note:                                       | Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable  | Not Obs.                            | Yes                                 | No                       | Follow Up                | N/A                      | Photo/Remarks |
|---|---|-------------------------------------|-------------------------------------|--------------------------|--------------------------|--------------------------|---------------|
| 3.08  | Are flaps and panels of mechanical equipment closed during operation?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.09  | Are Construction Noise Permit(s) applied for percussive piling works?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.10  | Are Construction Noise Permit(s) applied for general construction works during restricted hours?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.11  | Are valid Construction Noise Permit(s) posted at site entrances?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.12  | Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.13  | Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure) | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 3.14  | Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| <b>Section 4: Waste/Chemical Management</b> |   |                                     |                                     |                          |                          |                          |               |
| 4.01  | Waste Management Plan had been submit to Engineer for approval.   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.02  | Are receptacles available for general refuse collection?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.03  | Is general refuse sorting or recycling implemented?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.04  | Is general refuse disposed of properly and regularly?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.05  | Is the Contractor registered as a chemical waste producer?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.06  | Are the chemical waste containers and storage area properly labelled?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.07  | Are the chemical wastes stored in proper storage areas?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.08  | Is the chemical container or equipment provided with drip tray?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.09  | Is the chemical waste storage area used for storage of chemical waste only?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.10  | Are incompatible chemical wastes stored in different areas?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.11  | Are the chemical wastes disposed of by licensed collectors?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.12  | Are trip tickets for chemical wastes disposal available for inspection?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.13  | Are chemical/fuel storage areas bounded?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.14  | Are designated areas identified for storage and sorting of construction wastes?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.15  | Are construction wastes sorted (inert and non-inert) on site?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.16  | Are construction wastes reused?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.17  | Are construction wastes disposed of properly?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.18  | Are site hoardings and signboards made of durable materials instead of timber?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.19  | Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.20  | Are appropriate procedures followed if contaminated material exists?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.21  | Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.22  | Site cleanliness and appropriate waste management training had provided for the site workers.   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |
| 4.23  | Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |               |

| <b>Note:</b> Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance;<br>Follow Up: Observations requiring follow-Up actions N/A: Not Applicable |  | Not Obs.                            | Yes                                 | No                       | Follow Up                           | N/A                      | Photo/Remarks  |
|--|--|-------------------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------|--|
| <b>Section 5: Landscape &amp; Visual</b>   |  |                                     |                                     |                          |                                     |                          |  |
| 5.01   | Are retained and transplanted trees in health condition?                         | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | Refer to Monthly EM&A report - January 2011 - Appendix M |
| 5.02   | Are retained and transplanted trees properly protected?                          | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | Remark 2 & 3   |
| 5.03   | Are surgery works carried out for the damaged trees?                             | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |  |
| 5.04   | Is damage to trees outside site boundary due to construction activities avoided? | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |  |
| 5.05   | Is the night-time lighting controlled to minimize glare to sensitive receivers?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |  |
| <b>Section 6: Others</b>   |  |                                     |                                     |                          |                                     |                          |  |
| 6.01   | Are relevant Environmental Permits posted at all vehicle site entrances/exits?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> |  |



**Remarks:**  
**Findings of Site Inspection (Sok Kwu Wan):**  
**(25 January 2011)**



Remark 1: Dirt tails on the haul road due to transportation of construction material were observed, the Contractor should clean the road regularly to maintain site cleanliness.

**Follow up:**  
**Rectified on 28 January 2011**



The dirt on haul road was found to be cleaned on 28 January 2011.



Remark 2: The transplanted trees were found to be well protected.

Remark 3: The retained uncommon tree species, Celtis Timorensis, were found to be labeled, fenced and protected.

**Prepared by ET representative:**

( Nicola Hon )

## **Appendix L**

### **Implementation Schedule of Mitigation Measures**

### Implementation Schedule of Air Quality Measures

| EIA Ref                   | EM&A Ref  | Environmental Protection Measures*  | Location / Timing  | Implementation Agent              | Implementation Stages** |   |   | Relevant Legislation & Guidelines                                   |
|---------------------------|-----------|---|--|-----------------------------------|-------------------------|---|---|---|
|                           |           |   |  |                                   | D                       | C | O |   |
| <b>Construction Phase</b> |           |   |  |                                   |                         |   |   |   |
| 3.32                      | 2.34      | Installation of 2m high solid fences around the construction site of Pumping Station P2.  | Work site / during construction                                      | Contractor                        |                         | √ |   |   |
| 3.34                      | 2.34      | Adopting the following good site practices and follow the dust control requirements of the Air Pollution Control (Construction Dust) Regulation: <ul style="list-style-type: none"> <li>• Stockpiles of imported material kept on site should be contained within hoardings, dampened and / or covered during dry and windy weather;</li> <li>• Material stockpiled alongside trenches should be covered with tarpaulins whenever works are close to village houses;</li> <li>• Water sprays should be used during the delivery and handling of cement, sands, aggregates and the like.</li> <li>• Any vehicle used for moving sands, aggregates and construction waste should have properly fitting side and tail boards. Materials should not be loaded to a level higher than the side and tail boards, and should be covered by a clean tarpaulin.</li> </ul> | Work site / during construction                                      | All contractors                   |                         | √ |   | EIAO-TM, APCO, Air Pollution Control (Construction Dust) Regulation |
| 3.36                      | Section 2 | 1 hour and 24 hour dust monitoring and site audit   | Designated air monitoring locations / throughout construction period | Contractor/<br>Environmental Team |                         | √ |   | EM&A Manual   |

\* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

\*\* D=Design, C=Construction, O=Operation

N/A Not applicable

### Implementation Schedule of Noise Measures

| EIA Ref                   | EM&A Ref | Environmental Protection Measures*  | Location/Timing  | Implementation Agent | Implementation Stages ** |   |   | Relevant Legislation & Guidelines |
|---------------------------|----------|---|--|----------------------|--------------------------|---|---|-----------------------------------|
|                           |          |   |  |                      | D                        | C | O |                                   |
| <b>Construction Phase</b> |          |   |  |                      |                          |   |   |                                   |
| 4.41-4.43                 | 3.19     | <ul style="list-style-type: none"> <li>• Use of quiet PME for the construction of the pumping stations</li> <li>• Use of temporary noise barrier during the construction of Pumping Station P1a</li> </ul>  | Work site /during the construction of Pumping Stations | Contractor           |                          | √ |   | EIAO-TM, NCO                      |
| 4.44 – 4.49               | 3.19     | Implementation of following measures during the sewer construction: <ul style="list-style-type: none"> <li>• Use of quiet PME or method;</li> <li>• Restriction on the number plant (1 item for each type of plant); and</li> <li>• Good Site Practices                             <ul style="list-style-type: none"> <li>➤ Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.</li> <li>➤ Mobile plant, if any, should be sited as far away from NSRs as possible.</li> <li>➤ Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.</li> <li>➤ Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.</li> <li>➤ Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.</li> </ul> </li> </ul> | Work site /during the construction of Sewer.           | Contractor           |                          | √ |   |                                   |

| EIA Ref     | EM&A Ref   | Environmental Protection Measures*   | Location/Timing  | Implementation Agent           | Implementation Stages ** |   |   | Relevant Legislation & Guidelines |
|-------------|------------|--|--|--------------------------------|--------------------------|---|---|-----------------------------------|
|             |            |  |  |                                | D                        | C | O |                                   |
| 4.50 – 4.53 | 3.19       | <ul style="list-style-type: none"> <li>Use of noise screening structures such as acoustic shed and barrier wherever practicable and feasible in areas with sufficient clearance and headroom.</li> <li>Adoption of manual working method wherever practicable and feasible in areas where the worksites of the proposed sewer alignment are located less than 20 m from the residential NSRs and less than 30 m from the temple (THT) and the public library.</li> <li>Use of PME for the construction of the section of sewer between the NSR and the Pumping Station P1a should not be allowed during the excavation work of Pumping Station P1a.</li> </ul> | Work site /during the construction of Sewer.                           | Contractor                     |                          | √ |   |                                   |
| 4.60        | Section 35 | Noise monitoring   | Designated noise monitoring locations / throughout construction period | Contractor/ Environmental Team |                          | √ |   | EM&A Manual                       |

\* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.  
 \*\* D=Design, C=Construction, O=Operation  
 N/A Not applicable

### Implementation Schedule of Water Quality Control Measures

| EIA Ref                   | EM&A Ref | Environmental Protection Measures*  | Location (duration /completion of measures)   | Implementation Agent | Implementation Stages** |   |   | Relevant Legislation and Guidelines |
|---------------------------|----------|---|---|----------------------|-------------------------|---|---|-------------------------------------|
|                           |          |   |   |                      | D                       | C | O |                                     |
| <b>Construction Phase</b> |          |   |   |                      |                         |   |   |                                     |
| 5.77                      | 4.35     | No-dig method using Horizontal Directional Drilling (HDD) would be used for the installation of outfall pipe of about 480 m from shore to minimize the potential water quality impacts arising from the dredging works required for the submarine outfall construction.<br><br>Silt curtains will be installed around the exit area of the pilot drill.   | Marine works site /<br>During construction of submarine outfall                           | Contractor           |                         | √ |   |                                     |
| 5.73 –<br>5.78            | 4.36     | Dredging Works<br>Implementation of following measures during the dredging works: <ul style="list-style-type: none"> <li>dredging should be undertaken using closed grab dredgers with a maximum total production rate of 55m<sup>3</sup>/hr;</li> <li>deployment of 2-layer silt curtains with the first layer enclosing the grab and the second layer at around 50m from the dredging area while dredging works are in progress;</li> <li>dredging operation should be undertaken during ebb tide only;</li> <li>all vessels should be sized such that adequate clearance (i.e. minimum clearance of 0.6m) is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;</li> <li>all pipe leakages should be repaired promptly and plant should not be operated with leaking pipes;</li> <li>excess material should be cleaned from the decks and exposed fittings of barges before the vessel is moved;</li> <li>adequate freeboard (i.e. minimum of 200mm) should be maintained on barges to ensure that decks are not washed by wave action;</li> <li>all barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material;</li> <li>loading of barges should be controlled to prevent splashing of dredged material to the surrounding water, and barges should not</li> </ul> | Marine works site and at the identified water sensitive receivers/<br>During construction | Contractor           |                         | √ |   |                                     |

| EIA Ref | EM&A Ref | Environmental Protection Measures*  | Location (duration /completion of measures) | Implementation Agent | Implementation Stages** |   |   | Relevant Legislation and Guidelines |
|---------|----------|---|---|----------------------|-------------------------|---|---|-------------------------------------|
|         |          |   |   |                      | D                       | C | O |                                     |
|         |          | <p>be filled to a level which will cause the overflow of materials or polluted water during loading or transportation; and</p> <ul style="list-style-type: none"> <li>the decks of all vessels should be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard.</li> </ul>   |   |                      |                         |   |   |                                     |
| 5.79    | 4.37     | <p><u>Construction Run-off and Drainage</u><br/>Implementation of the following site practices outlined in ProPECC PN 1/94 for “Construction Site Drainage”</p> <ul style="list-style-type: none"> <li>Provision of perimeter channels to intercept storm-runoff from outside the site. These should be constructed in advance of site formation works and earthworks.</li> <li>Works programmes should be designed to minimize works areas at any one time, thus minimizing exposed soil areas and reducing the potential for increased siltation and runoff.</li> <li>Sand / silt removal facilities such as sand traps, silt traps and sediment basins should be provided to remove the sand / silt particles from run-off. These facilities should be properly and regularly maintained. These facilities should be carefully planned to ensure that they would be installed at appropriate locations to capture all surface water generated on site.</li> <li>Careful programming of the works to minimise soil excavation works during rainy seasons.</li> <li>Exposed soil surface should be protected by paving or hydroseeding as soon as possible to reduce the potential of soil erosion.</li> <li>Trench excavation should be avoided in the wet season, and if necessary, these should be excavated and backfilled in short sections.</li> <li>Open stockpiles of construction materials on site should be covered with tarpaulin or similar fabric</li> </ul> | Construction works sites                    | Contractor           |                         | √ |   | ProPECC PN 1/94                     |
| 5.80    | 4.38     | <p><u>General Construction Activities</u><br/>Debris and rubbish generated on-site should be collected, handled and</p>   | Construction works sites                    | Contractor           |                         | √ |   |                                     |

| EIA Ref | EM&A Ref  | Environmental Protection Measures*  | Location (duration /completion of measures)                           | Implementation Agent | Implementation Stages** |   |   | Relevant Legislation and Guidelines |
|---------|-----------|---|---|----------------------|-------------------------|---|---|-------------------------------------|
|         |           |   |   |                      | D                       | C | O |                                     |
|         |           | disposed of properly to avoid entering the nearby coastal waters and stormwater drains. All fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. Open drainage channels and culverts near the works areas should be covered to block the entrance of large debris and refuse. |   |                      |                         |   |   |                                     |
| 5.81    | 4.39      | <u>Wastewater Arising from Workforce</u><br>Portable toilets should be provided by the Contractors, where necessary, to handle sewage from the workforce. The Contractor should also be responsible for waste disposal and maintenance practices.   | Construction works sites  | Contractor           |                         | √ |   |                                     |
| 5.96    | Section 4 | Water quality monitoring  | Designated water monitoring locations/ throughout construction period | Contractor           |                         | √ |   | EM&A Manual                         |

\* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

\*\* D=Design, C=Construction, O=Operation

N/A Not applicable



### Implementation Schedule of Sediment Contamination Mitigation Measures

| EIA Ref | EM&A Ref | Environmental Protection Measures*  | Location / Timing   | Implementation Agent | Implementation Stages** |   |   | Relevant Legislation & Guidelines |
|---------|----------|---|---|----------------------|-------------------------|---|---|-----------------------------------|
|         |          |   |   |                      | D                       | C | O |                                   |
| 6.17    | 5.3      | Follow the requirement and procedures for dredged mud disposal specified under the WBTC No. 34/2002.  | Marine works site / during dredging works                   | Contractor           |                         | √ |   | WBTC No. 34/2002                  |
| 6.18    | 5.4      | Implement appropriate dredging methods which have been incorporated into the recommended water quality mitigation measures.   | Marine works site, during dredging works                    | Contractor           |                         | √ |   |                                   |
| 6.19    | 5.5      | During the transportation and disposal of the dredged sediment, the following measures should be taken: <ul style="list-style-type: none"> <li>• Bottom opening of barges should be fitted with tight fitting seals to prevent leakage of material. Excess material should be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved.</li> <li>• Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels should be equipped with automatic self monitoring devices as specified by the DEP.</li> </ul> | Marine works site and at the identified sensitive receivers | Contractor           |                         | √ |   |                                   |

\* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

\*\* D=Design, C=Construction, O=Operation

N/A Not applicable

### Implementation Schedule of Solid Waste Management Measures

| EIA Ref                   | EM&A Ref | Environmental Protection Measures*  | Location / Timing              | Implementation Agent | Implementation Stages ** |   |   | Relevant Legislation & Guidelines |
|---------------------------|----------|---|--------------------------------|----------------------|--------------------------|---|---|-----------------------------------|
|                           |          |   |                                |                      | D                        | C | O |                                   |
| <b>Construction Phase</b> |          |   |                                |                      |                          |   |   |                                   |
| 7.14                      | 6.4      | <u>Good site practices</u> <ul style="list-style-type: none"> <li>Nomination of an approved person, such as a site manager, to be responsible for implementation of good site practices, arranging for collection and effective disposal to an appropriate facility, of all wastes generated at the site</li> <li>Training (proper waste management and chemical handling procedure) should be provided for site staffs</li> <li>Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.</li> <li>Provision of sufficient waste disposal points and regular collection for disposal.</li> <li>Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Facility.</li> <li>Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.</li> <li>Maintain records of the quantities of wastes generated, recycled and disposed.</li> </ul> | Work sites/During construction | Contractor           |                          | √ |   | Waste Disposal Ordinance (Cap.54) |
| 7.15                      | 6.5      | To monitor the disposal of C&D waste at landfills and to control fly tipping, a trip-ticket system should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.   | Work sites/During construction | Contractor           |                          | √ |   | WBTC No. 21/2002                  |
| 7.16                      | 6.6      | Recommendations to achieve waste reduction include: <ul style="list-style-type: none"> <li>segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;</li> <li>to encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to segregate this waste from other general refuse generated</li> </ul>   | Work sites/During construction | Contractor           |                          | √ |   | WBTC No. 4/98, 5/98               |

| EIA Ref   | EM&A Ref  | Environmental Protection Measures*   | Location / Timing              | Implementation Agent | Implementation Stages ** |   |   | Relevant Legislation & Guidelines  |
|-----------|-----------|--|--------------------------------|----------------------|--------------------------|---|---|--|
|           |           |  |                                |                      | D                        | C | O |  |
|           |           | by the work force; <ul style="list-style-type: none"> <li>any unused chemicals or those with remaining functional capacity should be recycled;</li> <li>use of reusable non-timber formwork to reduce the amount of C&amp;D material;</li> <li>prior to disposal of C&amp;D waste, it is recommended that wood, steel and other metals should be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill;</li> <li>proper storage and site practices to minimise the potential for damage or contamination of construction materials; and</li> <li>plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.</li> </ul> |                                |                      |                          |   |   |  |
| 7.18      | 6.7       | <u>General Site Wastes</u> <ul style="list-style-type: none"> <li>A collection area for construction site waste should be provided where waste can be stored prior to removal from site</li> <li>An enclosed and covered area for the collection of the waste is recommended to reduce 'wind blow' of light material</li> </ul>  | Work sites/During construction | Contractor           |                          | √ |   | Public Health and Municipal Services Ordinance (Cap. 132)  |
| 7.19-7.20 | 6.8 – 6.9 | <u>Chemical Wastes</u> <ul style="list-style-type: none"> <li>After use, chemical waste should be handled according to the Code of Practice on the Package, Labelling and Storage of Chemical Wastes</li> <li>Any unused chemicals or those with remaining functional capacity should be recycled</li> <li>Waste should be properly stored on site within suitably designed containers and should be collected by an approved licensed waste collectors for disposal at the Chemical Waste Treatment Facility or other licenced facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation under the Waste Disposal Ordance.</li> </ul>  | Work sites/During construction | Contractor           |                          | √ |   | Waste Disposal (Chemical Waste) (General) Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Wastes |

| EIA Ref   | EM&A Ref    | Environmental Protection Measures*  | Location / Timing              | Implementation Agent | Implementation Stages ** |   |   | Relevant Legislation & Guidelines            |
|-----------|-------------|---|--------------------------------|----------------------|--------------------------|---|---|--|
|           |             |   |                                |                      | D                        | C | O |  |
|           |             | <ul style="list-style-type: none"> <li>Any service shop and minor maintenance facilities should be located on hard standing within a bunded area, and sumps and oil interceptors should be provided.</li> <li>Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should be undertaken within the designated areas equipped control these discharges</li> </ul>  |                                |                      |                          |   |   |  |
| 7.21-7.22 | 6.10 – 6.11 | <p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> <li>The C&amp;D waste should be separated on-site into three categories: <ul style="list-style-type: none"> <li>➤ public fill, the inert portion of the C&amp;D material (e.g. concrete and rubble), which should be re-used on-site or disposed of at a public filling area;</li> <li>➤ C&amp;D waste for re-use and / or recycling, the non-inert portion of the C&amp;D material, (e.g. steel and other metals, woods, glass and plastic);</li> <li>➤ C&amp;D waste which cannot be re-used and / or recycled (e.g. wood, glass and plastic)</li> </ul> </li> <li>Where possible, inert material should be re-used on-site</li> <li>Where practicable, steel and other metals should be separated for re-use and/or recycling prior to disposal of C&amp;D material</li> </ul> | During all construction phases | Contractors          |                          | √ |   | WBTC No. 4/98, 5/98, 21/2002, 25/99, 12/2000 |

\* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

\*\* D=Design, C=Construction, O=Operation

N/A Not applicable

### Implementation Schedule of Ecological Impact Measures

| EIA Ref                   | EM&A Ref | Environmental Protection Measures*   | Location / Timing                          | Implementation Agent | Implementation Stages |   |   | Relevant Legislation & Guidelines |
|---------------------------|----------|--|--|----------------------|-----------------------|---|---|-----------------------------------|
|                           |          |  |  |                      | D                     | C | O |                                   |
| <b>Construction Phase</b> |          |  |  |                      |                       |   |   |                                   |
| 8.157                     | 7.2      | <u>Terrestrial Ecology</u> <ul style="list-style-type: none"> <li>Labeling and fencing of the uncommon tree species</li> <li>Avoidance of use of woodland habitats as Works Area, in particular where trees are located</li> </ul>   | Work sites / during construction phase     | Contractor           |                       | √ |   |                                   |
| 8.159 – 8.160             | 7.3      | <u>Subtidal Ecology</u><br>Use of HDD technique<br><br>Dredging <ul style="list-style-type: none"> <li>Use of closed-grab dredger</li> <li>Deploy silt curtains during dredging.</li> </ul>  | Marine works site / during dredging works  | Contractor           |                       | √ |   |                                   |
| 8.161                     | 7.4      | Site runoff <ul style="list-style-type: none"> <li>Construction and maintenance of sand / silt removal facilities</li> <li>Silt curtains</li> <li>Timing of earthworks</li> <li>Coverage of sand / fill piles during storms.</li> <li>Barriers along the landward side of Pumping Station P2 site boundary (to prevent site runoff from entering area with Romer's Tree Frog)</li> </ul> | All work sites / during construction phase | Contractor           |                       | √ |   |                                   |

\* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

\*\* D=Design, C=Construction, O=Operation

N/A Not applicable

### Implementation Schedule of Fisheries Impact Measures

| EIA Ref | EM&A Ref  | Environmental Protection Measures*  | Location / Timing  | Implementation Agent              | Implementation Stages** |   |   | Relevant Legislation & Guidelines |
|---------|-----------|---|--|-----------------------------------|-------------------------|---|---|-----------------------------------|
|         |           |   |  |                                   | D                       | C | O |                                   |
| 9.29    | 8.3       | Use of closed grab dredging and silt curtains around the immediate dredging area and low dredging rates as recommended in Water Quality of the EIA report | Marine works site, during dredging works   | Contractor                        |                         | √ |   | TM on EIA Process                 |
| 9.32    | Section 8 | Water quality monitoring (see Implementation Schedule for Water Quality Control Measures)   | Designated monitoring locations / throughout construction period and 1 year following operation of the STW | Contractor and Environmental Team |                         | √ | √ | EM&A Manual                       |

\* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

\*\* D=Design, C=Construction, O=Operation

N/A Not applicable

### Implementation Schedule of Landscape and Visual Impact Measures

| EIA Ref                   | EM&A Ref | Environmental Protection Measures*  | Location / Timing | Implementation Agent | Implementation Stages ** |   |   | Relevant Legislation & Guidelines |
|---------------------------|----------|---|-------------------|----------------------|--------------------------|---|---|-----------------------------------|
|                           |          |   |                   |                      | D                        | C | O |                                   |
| <b>Construction Phase</b> |          |   |                   |                      |                          |   |   |                                   |
| 10.74                     | 9.10     | Retaining existing trees and minimizing damage to vegetation by close coordination and on site alignment adjusted of rising main and gravity sewer pipelines.   | All sites         | Contractor           |                          | √ |   | WBTC No. 14/2002                  |
|                           |          | Careful and efficient transplanting of affected trees to temporary or final transplant location (the proposed tree to be transplanted is a semi-mature <i>Macaranga tanarius</i> and is located at the proposed Pumping Station P2 location). | All sites         | Contractor           |                          | √ |   | WBTC No. 14/2002                  |
|                           |          | Short excavation and immediate backfilling sections upon completion of works to reduce active site area.  | All sites         | Contractor           |                          | √ |   |                                   |
|                           |          | Screening of site construction works by use of hoarding that is appropriate to its site.  | All sites         | Contractor           |                          | √ |   | WBTC No. 19/2001                  |
|                           |          | Conservation of topsoil for reuse.  | All sites         | Contractor           |                          | √ |   |                                   |
|                           |          | Night-time light source from marine fleets should be directed away from the residential units.  | Outfall area.     | Contractor           |                          | √ |   |                                   |

\* All recommendations and requirements resulted during the course of EIA Process, including ACE and/or accepted public comment to the proposed project.

\*\* D=Design, C=Construction, O=Operation

N/A Not applicable

## **Appendix M**

### **Tree Inspection Report**



經緯園藝有限公司

Melofield Nursery & Landscape Contractor Ltd

元朗宏業東街宏業工貿中心 7 樓 A 室 FLAT A, 7/F, WANG YIP CENTRE, 18 WANG YIP ST. EAST, YUEN LONG, N.T.

TEL: (852) 2572-0048 FAX: (822)2573-9099 E-mail: melofield@netvigator.com

Project Name: Construction of Sewage Treatment  
works at Yung Shu Wan and Sok Kwu Wan

Contract No. DC/2009/13

**Sok Kwu Wan**

**Tree Inspection Report for CT7, CT8, CT9,**

**CT10**

**2011-01-18**

Project Name: Construction of Sewage Treatment  
works at Yung Shu Wan and Sok Kwu Wan

Contract No. DC/2009/13

Sok Kwu Wan

A tree inspection was carried out on 18-01-2011. Observations and comment are described below and photo records are attached in **Annex A** for reference.

Remarks:

Tree T8 in previous report is the Tree CT10 in this report

Tree T10 in previous report is the Tree CT8 in this report

**CT7**

No leaf was found. The bark and the twig in the upper part were weak. The health condition has no significant change comparing with last inspection. Mulching, soil conditioner and fertilizer were added to improve the soil chemical and organic environment in last inspection. Increasing frequency of monitoring to every two weeks will be conducted.

**CT8**

No leaf was found. The bark and the twig in the upper part were weak. The health condition has no significant change comparing with last inspection. Mulching, soil conditioner and fertilizer were added to improve the soil chemical and organic environment in last inspection. Increasing frequency of monitoring to every two weeks will be conducted.

**CT9**

No leaf was found. The bark and the twig in the upper part were weak. The health condition has no significant change comparing with last inspection. Mulching, soil conditioner and fertilizer were added to improve the soil chemical and organic

environment in last inspection. Increasing frequency of monitoring to every two weeks will be conduct.

#### **CT10**

No leaf was found. The bark and the twig in the upper part were weak. The health condition has no significant change comparing with last inspection. Mulching, soil conditioner and fertilizer were added to improve the soil chemical and organic environment in last inspection. Increasing frequency of monitoring to every two weeks will be conduct.

#### **Overall**

Enlargement of the protection zone and increasing the mulching were conducted in this inspection. Inspection will be taken every two weeks. The overall health conditions were not satisfactory. Watering for these plants should depend on the weather condition and the frequency should reduce as the temperature decrease (around 2 times a week).

**Annex A - Photo Records of Tree CT7, CT8, CT9, CT10**



Photo 1 Overall view of CT7



Photo 2 Overall view of CT8



Photo 3 Overall view of CT9



Photo 4 Overall view of CT10



Photo 5 Overall views of the enlarged protection zone and worker placing the mulching