PROJECT NO.: TCS/00512/09

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

**YUNG SHUE WAN PORTION AREA**
**MONTHLY ENVIRONMENTAL MONITORING AND AUDIT**
**(EM&A) REPORT (NO.7) – MARCH 2011**

PREPARED FOR
**LEADER CIVIL ENGINEERING CORPORATION LIMITED**

**Quality Index**

| Date | Reference No. | Prepared By | Approved By |
|---|---|---|---|
| 18 April 2011 | TCS00512/09/600/R0212v2 | Nicola Hon<br>Environmental Consultant | T.W. Tam<br>Environmental Team Leader |

| Version | Date | Description |
|---|---|---|
| 1 | 11 April 2011 | First Submission |
| 2 | 18 April 2011 | Amended again IEC's comments on 15 April 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

Attention: Mr. C K Au

Your reference:

Our reference: 05117/6/16/349542

Date: 20 April 2011

**BY FAX ONLY**

Dear Sirs,

**Contract No. DC/2009/13**
**Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan**
**Yung Shue Wan Portion Area**
**Monthly Environmental Monitoring and Audit (EM&A) Report No. 7 (Mar 2011)**

We refer to the Monthly EM&A Monitoring Report No. 7 for March 2011 received under cover of the email from the Environmental Team, Action-United Environmental Services and Consulting (AUES), dated on 20 April 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 | (Attn: Mr Vincent Chan) |
| | AUES | (Attn: Mr T.W. Tam) |
| | ER/LAMMA | (Attn: Mr Neil Wong) |
| | CDM | (Attn: Mr Mark Sin) |

## EXECUTIVE SUMMARY

ES.01. This is the **7th** monthly EM&A Report for Yung Shue Wan (hereinafter 'this Report') for the designated works under Environmental Permit No.EP-282/2007, covering a period from **1 to 31 March 2011** (hereinafter 'the Reporting Period').

### 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 | 30 |
| | 24-hour TSP | 12 |
| Construction Noise | Leq (30min) Daytime | 5 |
| Water Quality | Marine Water Sampling | 0 |
| Inspection / Audit | ET Regular Environmental Site Inspection | 5 |

ES.03. According to the EM&A Manual of Yung Shue 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 in construction noise monitoring and air quality monitoring were recorded in this Reporting Month. 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 | $Leq_{30min}$ 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 |
| 14 September 2010 – 28 February 2011 | 0 | 0 | NA |
| 1 – 31 March 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 |
| 14 September 2010 – 28 February 2011 | 0 | 0 | NA |
| 1 – 31 March 2011 | 0 | 0 | NA |

| Reporting Period | Environmental Prosecution Statistics | | |
|---|---|---|---|
| | Frequency | Cumulative | Complaint Nature |
| 14 September 2010 – 28 February 2011 | 0 | 0 | NA |
| 1 – 31 March 2011 | 0 | 0 | NA |

**REPORTING CHANGE**

ES.07. There are no reporting changes 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. As wet season is approaching, the Contractor shall pay attention on the potential water impact as the construction site is adjacent to the coastline. Muddy water and other water quality pollutants via site surface water runoff into the coral zones of Yung Shue Wan seawall, Shek Kok Tsui and O Tsai should be avoided. Therefore, mitigation measures for water quality should be fully implemented also.

ES.10. Moreover, the construction dust mitigation measures identified at the EM&A Manuel such as watering at haul road and covering of dusty material should also be implemented and properly maintained during wet season.

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

## LIST OF TABLES



## LIST OF APPENDICES

# 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 stead EP-281/2007 is EP for Sok Kwu Wan relevant Works.

1.02 The Project involves construction of sewage treatment works at Sok Kwu Wan and Yung Shue Wan with a capacity of 1,430$m^3$/day and 2,850$m^3$/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 lying 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 EM&A Manual. This EM&A Manual is referred to the Appendix D of the Review Report on EIA Study – Yung Shue Wan (Final) in January 2007 (Agreement No. CE 20/2005(DS)).

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 spilt 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 This is the **7th** monthly EM&A report for Yung Shue Portion Area which presenting the monitoring results and inspection findings in the reporting period from **1 to 31 March 2011**.

## REPORT STRUCTURE

1.07 The Monthly Environmental Monitoring and Audit (EM&A) Report – Yung Shue Wan is structured into the following sections:-

| | |
|---|---|
| **SECTION 1** | **INTRODUCTION** |
| **SECTION 2** | **PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS** |
| **SECTION 3** | **SUMMARY OF MONITORING REQUIREMENTS** |
| **SECTION 4** | **AIR QUALITY MONITORING RESULTS** |
| **SECTION 5** | **CONSTRUCTION NOISE MONITORING RESULTS** |
| **SECTION 6** | **WATER QUALITY MONITORING RESULTS** |
| **SECTION 7** | **WASTE MANAGEMENT** |
| **SECTION 8** | **SITE INSPECTIONS** |
| **SECTION 9** | **ENVIRONMENTAL COMPLAINTS AND NON-COMPLIANCE** |

# 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:-

- Excavation;
- Rebar bending & fixing;
- Sheetpiling;
- Erection of formwork; and
- Concreting;

## 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 19/5/2010<br>Case No: 317486 |
| 2 | Chemical waste Producer Registration | Issued on 8/6/2010<br>WPN 5213-912-L2720-01 |
| 3 | Water Pollution Control Ordinance | Issued on 22/9/2010<br>WT00007566-2010 |
| 4 | Billing Account for Disposal of Construction Waste | Issued on 26 May 2010<br>A/C No: 7010815 |
| 5 | Construction Noise Permit (no. GW-RS1141-10) | Issued on 29 December 2010<br>Valid to 28 May 2011 |
| 6 | Construction Noise Permit (no. GW-RS0084-11) | Issued on 1 Feb 2011<br>Valid from 21 Feb 2011 until 20 Aug 2011 |

2.04 The "Baseline/Impact Monitoring Methodology (TCS00512/10/600/R0011Ver.5)" was set out in accordance with the Yung Shue 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/R0061Ver.3) for Yung Shue Wan for the Project was issued by the ETL and verified by the IEC on 31 August 2010. The report was also submitted to the EPD for endorsement.

2.06 Baseline Water Quality Monitoring Report Volume 2 (TCS00512/10/600/R0158Ver.2) for Yung Shue Wan for the Project was issued by the ETL and verified by IEC on 7 March 2011. The report was also submitted to EPD for endorsement.

# 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 | • 1-hour TSP Monitoring by Real-Time Portable Dust Meter; and<br>• 24-hour TSP Monitoring by High Volume Air Sampler. |
| Noise | • Leq (30min) during normal working hours; and<br>• Leq (15min) during Restricted Hours. |
| Marine Water Quality | ***In-situ Measurements***<br>• Dissolved Oxygen Concentration (mg/L);<br>• Dissolved Oxygen Saturation (% );<br>• Turbidity (NTU);<br>• pH unit;<br>• Salinity (ppt);<br>• Water depth (m); and<br>• Temperature (ºC).<br>***Laboratory Analysis***<br>• Suspended Solids (mg/L) |

## MONITORING LOCATIONS

### Air Quality

3.04 Two designated monitoring stations, AC02a located at Yung Shue Wan Refuse Transfer Station and AC04 located at residential area nearby Yung Shue Wan football pitch, were recommended in the *EM&A Manual Section 2.5*. In order to identify and seek for the access of the air monitoring locations designated in the EM&A Manual, site visit was conducted by Leader and ET.

3.05 At the site visit, all designated monitoring locations were identified however the premises for high volume sampler installation were objected by the owner or the residents of nearby. So, an alternative air monitoring locations were proposed in accordance with the criteria set out in *EM&A manual Section 2.5.2 and 2.5.3*. The proposed alternative air monitoring stations was accepted by the ER and IEC, and EPD endorsed. Details of renewed air monitoring stations are described in ***Table 3-2***. The graphical of air monitoring stations is shown in ***Appendix D*****.**

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

| Sensitive Receiver | Location |
|---|---|
| AC02b | The entrance of RE's site office |
| AC04c | Next to a power transformer station TP208 Yung Shue Wan and adjacent to the road direct to the construction site |

**Construction Noise**

3.06 According to *EM&A Manual Section 3.4*, one noise sensitive receivers (NC05) designated for the construction noise monitoring was recommended at Yung Shue Wan Portion Area of the Project. The designated monitoring station is identified and successfully granted the premises. The detailed construction noise monitoring station 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 |
|---|---|
| NC05 | Roof of North Lamma Clinic |

**Marine Water Quality**

Two control stations (CY1 and CY2) and three impact stations (WY1-WY3) were recommended in the *EM&A Manual Section 4.5*. Impact stations WY1-WY3 were identified close to the sensitive receivers (the coral colonies in the vicinity of Yung Shue Wan, and secondary contact recreation subzone). It is proposed to monitor the impacts from the construction of the submarine outfall as well as the effluent discharge from the proposed STW on water quality. Two control stations: CY1 and CY2 were recommended at locations representative of the project site in its undisturbed condition and located at upstream and downstream of the works area. The marine water quality monitoring stations to be performed under the Project is described in ***Table 3-4*** and shown in ***Appendix D***.

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

| Station | Description | Coordinates | |
|---|---|---|---|
| | | Easting | Northing |
| WY1 | Coral colonies on seawall at STW site | 829 170 | 809 550 |
| WY2 | Coral colonies at Shek kok Tsui | 829 000 | 810 400 |
| WY3 | Coral colonies at O Tsai (headland N at SW ferry pier) | 829 200 | 809 850 |
| CY1 (flood) | Control Station | 828 400 | 810 800 |
| CY2 (ebb) | Control Station | 828 000 | 808 800 |

**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;<br>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.<br>(ii.) If the water depth is between 3m and 6m, two depths: 1m below water surface and 1m above sea bottom.<br>(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 $s^{-1}$.

*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-1 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 (μg /m$^3$) | | Limit Level (μg/m$^3$) | |
|---|---|---|---|---|
| | 1-hour TSP | 24-hour TSP | 1-hour TSP | 24-hour TSP |
| AC02b | 288 | 161 | 500 | 260 |
| AC04c | 290 | 176 | 500 | 260 |

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

| Recommended Action & Limit Levels of Construction Noise | | |
|---|---|---|
| Monitoring Location | Action Level | Limit Level |
| | 0700-1900 hours on normal weekdays | |
| NC05 | When one or more documented complaints are received | 75 dB(A) |

*Note: * Reduces to 70dB(A) for schools and 65dB(A) during the school examination periods.*

3.29 Since 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 Yung Shue Wan was commenced on 14 September 2010, therefore, the impact EM&A program was begun as compliance with the contract Particular Specification, Yung Shue Wan EM&A Manual and the EP.

**Result**

4.02 In this reporting period, the results for 24-hour and 1-hour TSP monitoring are tabulated in ***Tables 4-1 and 4-2***. The 24-hour TSP monitoring data are shown in ***Appendix G*** and the graphical plots are shown in ***Appendix H***.

**Table 4-1 Summary of 24-hour and 1-hour TSP Monitoring Results at AC02b**

| Date | 24-hour TSP (μg/m³) | 1-hour TSP (μg/m³) | | | | |
|---|---|---|---|---|---|---|
| | | Date | Start Time | 1st hour measured | 2nd hour measured | 3rd hour measured |
| 3-Mar-11 | 52 | 5-Mar-11 | 14:18 | 93 | 90 | 87 |
| 9-Mar-11 | 41 | 11-Mar-11 | 13:59 | 90 | 81 | 79 |
| 14-Mar-11 | 73 | 17-Mar-11 | 13:56 | 89 | 97 | 88 |
| 19-Mar-11 | 35 | 23-Mar-11 | 13:19 | 91 | 87 | 85 |
| 25-Mar-11 | 12 | 29-Mar-11 | 13:49 | 96 | 108 | 94 |
| 31-Mar-11 | 93 | | | | | |
| Average (Range) | **51 (12 – 93)** | Average (Range) | | **90 (79 – 108)** | | |

**Table 4-2 Summary of 24-hour and 1-hour TSP Monitoring Results at AC04c**

| Date | 24-hour TSP (μg/m³) | 1-hour TSP (μg/m³) | | | | |
|---|---|---|---|---|---|---|
| | | Date | Start Time | 1st hour measured | 2nd hour measured | 3rd hour measured |
| 3-Mar-11 | 123 | 5-Mar-11 | 14:08 | 88 | 92 | 84 |
| 9-Mar-11 | 109 | 11-Mar-11 | 13:41 | 86 | 73 | 82 |
| 14-Mar-11 | 158 | 17-Mar-11 | 14:06 | 82 | 102 | 91 |
| 19-Mar-11 | 46 | 23-Mar-11 | 13:09 | 76 | 94 | 81 |
| 25-Mar-11 | 114 | 29-Mar-11 | 13:32 | 102 | 91 | 92 |
| 31-Mar-11 | 61 | | | | | |
| Average (Range) | **102 (46 – 158)** | Average (Range) | | **88 (73 – 102)** | | |

4.03 As shown in ***Tables 4-1 and 4-2***, the 1-hour TSP monitoring and 24-hour TSP monitoring values fluctuated well below the Action Level during the Reporting Period. No Notification of Exceedance (NOE) of 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 are presented in the following sub-sections.

**Result**

5.02 In this report period, 5 construction noise monitoring events were undertaken at designated location NC05. The results for $Leq_{30min}$ are tabulated in ***Tables 5-1*** and the graphical plots are shown in ***Appendix H***.

**Table 5-1 Summarized of Construction Noise Monitoring Results at NC05**

| Date | Start Time | End Time | 1st set Leq5 | 2nd set Leq5 | 3rd set Leq5 | 4th set Leq5 | 5th set Leq5 | 6th set Leq5 | Leq30 | Corrected Leq30 |
|---|---|---|---|---|---|---|---|---|---|---|
| 5-Mar-11 | 15:01 | 15:31 | 51.1 | 54.2 | 56.6 | 58.2 | 57.4 | 56.3 | 56.2 | 59.2 |
| 11-Mar-11 | 15:03 | 15:33 | 62.4 | 62.6 | 61.5 | 61.6 | 63.3 | 59.2 | 61.9 | 64.9 |
| 17-Mar-11 | 13:59 | 14:29 | 53.9 | 59.2 | 58.4 | 56.3 | 57.1 | 54.2 | 56.9 | 59.9 |
| 23-Mar-11 | 15:01 | 15:31 | 56.7 | 53.2 | 53.7 | 56.6 | 54.2 | 52.1 | 54.8 | 57.8 |
| 29-Mar-11 | 14:03 | 14:33 | 52.4 | 53.6 | 57.3 | 58.2 | 51.6 | 53.3 | 55.1 | 58.1 |
| **Limit Level** | | | - | | | | | | | **75 dB(A)** |

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,*** all the values are well below 75dB(A), therefore, no Action or Limit Level exceedance was triggered during this reporting month.

# 6 IMPACT MONITORING RESULTS – WATER QULAITY

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

# 7 WASTE MANAGEMENT

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

**Records of Waste Quantities**

7.02 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.

7.03 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) ('000$m^3$) | 0.002 | Tuen Mun Area 38 |
| Reused in this Contract (Inert) ('000$m^3$) | 0.006 | - |
| Reused in other Projects (Inert) ('000$m^3$) | 0 | - |
| Disposal as Public Fill (Inert) ('000$m^3$) | 0.752 | Tuen Mun Area 38 |

**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) | 0 | Yung Shue Wan RTS |

7.04 There was no site effluent discharged but the estimated volume of surface runoff was less than 50$m^3$ in this monthly period

# 8 SITE INSPECTION

8.01 According to the Environmental Monitoring and Audit Manual, the environmental site inspection should been formulation 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 **1, 8, 15, 22 and 29 March 2011** and routine joint-site visit by IEC, RE, Leader and ET was carried out on **8 March 2011**.

8.02 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**

| Date | Findings / Deficiencies | Follow-Up Status |
|---|---|---|
| 1 March 2011 | • No environmental issue was observed during the site inspection. | N.A |
| 8 March 2011 | • Stagnant water was accumulated in the drip tray. The Contractor should clear the tray to prevent mosquito breeding. | The stagnant water was removed on 15 March 2011. |
| 15 March 2011 | • No environmental issue was observed during the site inspection. | N.A |
| 22 March 2011 | • The public access was full of mud, the Contractor should clear the road or pave the road to maintain good house-keeping and dust control.<br>• Sediment in the sedimentation tank has to be removed to restore its de-silting capacity. | The mud on the access was cleared on 29 March 2011<br><br>The tank was cleared on 29 March 2011. |
| 29 March 2011 | • No environmental issue was observed during the site inspection. | N.A |

# 9 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

9.01 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 |
| 14 Sep – 31 Dec 2010 | 0 | 0 | NA |
| 1 – 31 Jan 2011 | 0 | 0 | NA |
| 1 – 28 February 2011 | 0 | 0 | NA |
| 1 – 31 March 2011 | 0 | 0 | NA |

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

| Reporting Period | Environmental Summons Statistics | | |
|---|---|---|---|
| | Frequency | Cumulative | Complaint Nature |
| 14 Sep – 31 Dec 2010 | 0 | 0 | NA |
| 1 – 31 Jan 2011 | 0 | 0 | NA |
| 1 – 28 February 2011 | 0 | 0 | NA |
| 1 – 31 March 2011 | 0 | 0 | NA |

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

| Reporting Period | Environmental Prosecution Statistics | | |
|---|---|---|---|
| | Frequency | Cumulative | Complaint Nature |
| 14 Sep – 31 Dec 2010 | 0 | 0 | NA |
| 1 – 31 Jan 2011 | 0 | 0 | NA |
| 1 – 28 February 2011 | 0 | 0 | NA |
| 1 – 31 March 2011 | 0 | 0 | NA |

## 10 IMPLEMENTATION STATUS OF MITIGATION MEASURES

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

**Dust Mitigation Measure**

10.02 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**

10.03 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**

10.04 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.

10.05 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 55$m^3$/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*

10.06 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*

10.07 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*

10.08 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**

10.09 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).

10.10 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.

10.11 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*

10.12 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.

10.13 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.

10.14 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*

10.15 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*

10.16 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.

10.17 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*

10.18 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.

10.19 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**

10.20 The following general good practice measures should be adopted to mitigate ecological impacts during marine works (including dredging and HOD);

- Excess material from vessel loading should be cleaned from the decks and exposed fittings before vessels are moved to the backfilling location;
- Dredging should cause no foam, oil, grease, scum, litter or other objectionable matter to be present on the water;
- Adequate freeboard should be maintained to ensure that decks are not washed by wave action;
- All pie leakages should be repaired promptly and plant Should not be operated with leaking pipes; and

- All banges and other vessels should maintain adequate clearance between vessels and the seabed at all stats of the tide and reduce operational speeds to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.

10.21 In the event of exceedances of ecological action or limit level, the Contractor will be required to revise his operations as a further mitigation measure. Revisions to the operation method may include (but not be limited to):

- Reduction in dredging rate'
- Restriction of dredging in particular areas to specific periods in the tidal cycle

10.22 Should repeated non-compliances with limit level(s) occur the Contractor shall modify his working method until he is able to achieve the required compliances with the limit levels to the satisfaction of the IC(E)

**Fisheries Mitigation Measure**

10.23 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**

10.24 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

10.25 The implementation schedule of mitigation measures is presented in ***Appendix L***.

10.26 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 | • Drainage channels were provided to convey run-off into the treatment facilities; and<br>• Drainage systems were regularly and adequately maintained. |
| Air Quality | • Cover all excavated or stockpile of dusty material by impervious sheeting or sprayed with water to maintain the entire surface wet;<br>• Public roads around the site entrance/exit had been kept clean and free from dust; and<br>• Tarpaulin covering of any dusty materials on a vehicle leaving the site. |

| Issues | Environmental Mitigation Measures |
|---|---|
| Noise | • Good site practices to limit noise emissions at the sources;<br>• Use of quite plant and working methods;<br>• Use of site hoarding or other mass materials as noise barrier to screen noise at ground level of NSRs; and<br>• To minimize plant number use at the worksite. |
| Waste and Chemical Management | • 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;<br>• Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner;<br>• The Contractor should adopt a trip ticket system for the disposal of C&D materials to any designed public filling facility and/or landfill; and<br>• Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes. |
| General | • The site was generally kept tidy and clean. |

## 11 IMPACT FORECAST

11.01 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.

# 12 CONCLUSIONS AND RECOMMENDATIONS

## CONCLUSIONS

12.01 This is the **7th** Monthly EM&A Report covering the construction period from **1 to 31 March 2011** (the Reporting Period).

12.02 No 1-hour TSP and 24-TSP monitoring result was found to be triggered the Action or Limit Level in this Reporting Period.

12.03 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.

12.04 No impact water quality monitoring was undertaken in this reporting month and baseline monitoring is in progress.

12.05 No documented complaint, notification of summons or successful prosecution was received.

12.06 In this reporting period, site inspection was carried out on **1, 8, 15, 22 and 29 March 2011** after the relevant land work commencement at Yung Shue Wan Portion Area on 14 September 2010. Besides, routine joint-site visit by IEC, RE, Leader and ET was carried out on **8 March 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

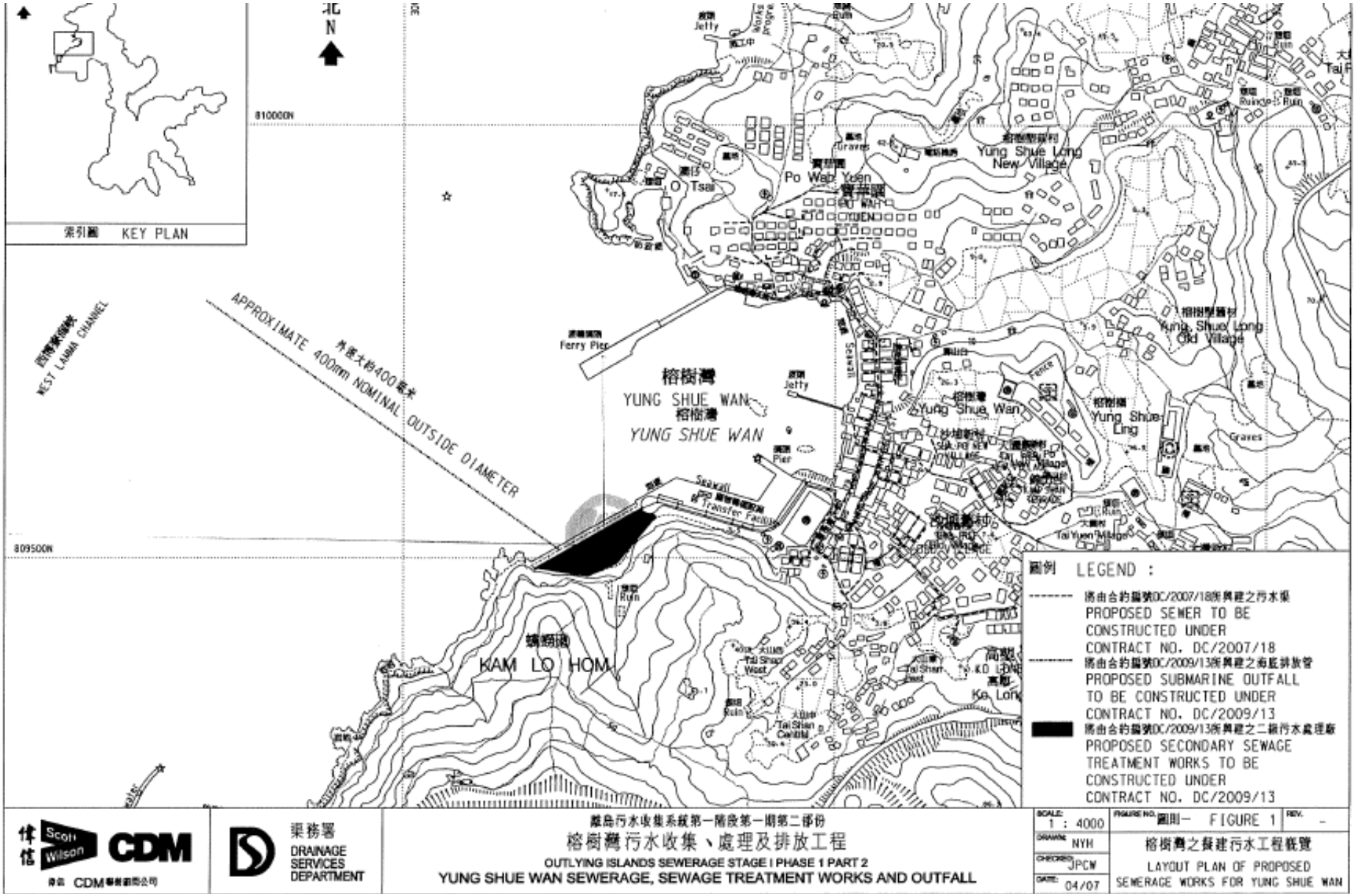
12.07 As wet season is approaching, the Contractor shall pay attention on the potential water impact as the construction site is adjacent to the coastline. Muddy water and other water quality pollutants via site surface water runoff into the coral zones of Yung Shue Wan seawall, Shek Kok Tsui and O Tsai should be avoided. Therefore, mitigation measures for water quality should be fully implemented.

12.08 Moreover, the construction dust mitigation measures identified at the EM&A Manuel such as watering at haul road and covering of dusty material should also be implemented and properly maintained in wet season.

12.09 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.

# Appendix A

# Site Layout Plan – Yung Shue Wan Portion Area


KEY PLAN
APPROXIMATE 400mm NOMINAL OUTSIDE DIAMETER
WEST LAMMA CHANNEL
榕樹灣
YUNG SHUE WAN
KAM LO HOM
Ferry Pier
Jetty
Seawall
Transfer Facility
Yung Shue Long New Village
Yung Shue Long Old Village
Yung Shue Wan
Yung Shue Ling
Graves
LEGEND :
PROPOSED SEWER TO BE CONSTRUCTED UNDER CONTRACT NO. DC/2007/18
PROPOSED SUBMARINE OUTFALL TO BE CONSTRUCTED UNDER CONTRACT NO. DC/2009/13
PROPOSED SECONDARY SEWAGE TREATMENT WORKS TO BE CONSTRUCTED UNDER CONTRACT NO. DC/2009/13
DRAINAGE SERVICES DEPARTMENT
OUTLYING ISLANDS SEWERAGE STAGE I PHASE 1 PART 2
YUNG SHUE WAN SEWERAGE, SEWAGE TREATMENT WORKS AND OUTFALL
榕樹灣污水收集、處理及排放工程
LAYOUT PLAN OF PROPOSED SEWERAGE WORKS FOR YUNG SHUE WAN
SCALE: 1 : 4000
DRAWN: NYH
CHECKED: JPCW
DATE: 04/07
FIGURE NO. 圖則一 FIGURE 1

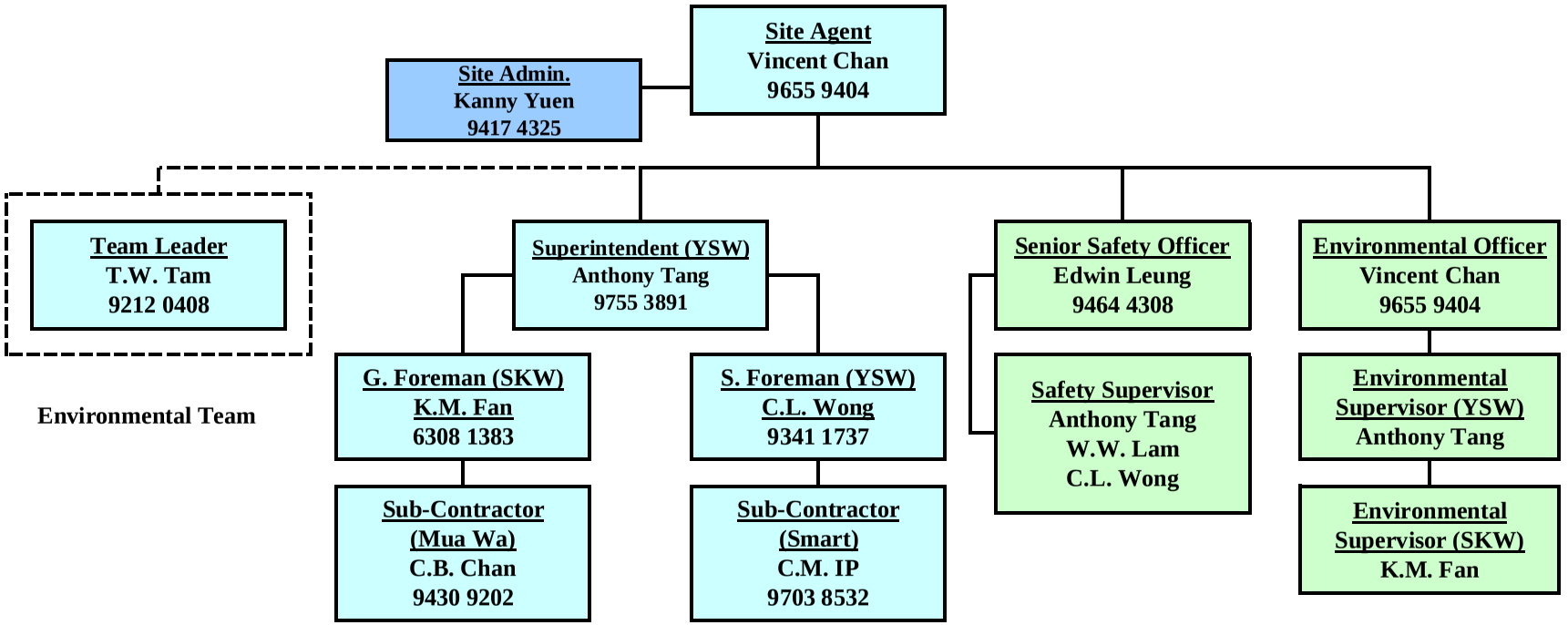
# Appendix B

# Organization Structure and Contact Details of Relevant Parties

# Leader Civil Engineering Corporation LTD

## Contract No. DC/2009/13
## Construction of sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan

### Organization Structure for Environmental Management (EMP Rev. 1.00)




Updated on 01/07/2010
Printed on 13/10/2010

## Contact Details of Key Personnel

| Organization | Project Role | Name of Key Staff | Tel No. | Fax No. |
|---|---|---|---|---|
| DSD | Employer | Mr. AU Chi Kwong | - | - |
| SCJV | Engineer's Representative | Mr. Neil Wong | 2982 0240 | 2982 4129 |
| SCJV | Resident Engineer (Yung Shue Wan Portion Area) | 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 (Yung Shue Wan) | Mr. Burgess Yip | 2982 1750 | 2982 1163 |
| Leader | Site Engineer (Yung Shue Wan) | Mr. Justin Cheng | 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 |

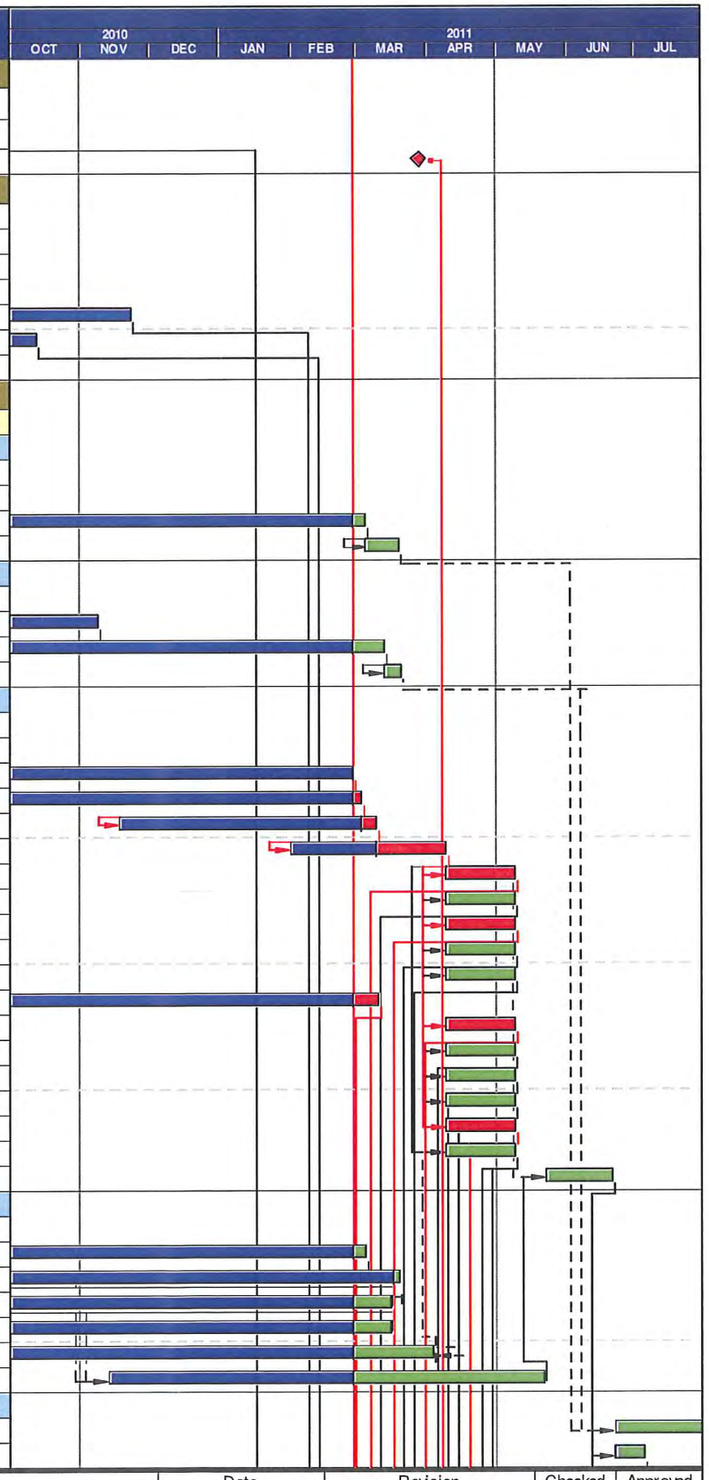
Legend:

*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 | Description | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors | Successors |
|---|---|---|---|---|---|---|---|---|---|---|
| **Project Key Date** | | | | | | | | | | |
| KD0010 | Receive Letter of Acceptance | 0 | 100 | | 05/05/10 A | | 05/05/10 A | | | KD0125 |
| KD0020 | Project Commencement Date | 0 | 100 | | 17/05/10 A | | 17/05/10 A | | | E&M0010, E&M0070, E&M1001, |
| KD0050 | Section W3 - Footpath Diversion in Ptn G (273d) | 0 | 0 | | 28/03/11 | | 13/02/11 * | -43d * | SKW0551 | KD0125 |
| **Preliminary (Civil)** | | | | | | | | | | |
| PRE0020 | Pre-condition Survey | 60 | 100 | 17/05/10 A | 15/07/10 A | 17/05/10 A | 15/07/10 A | | KD0020 | |
| PRE0040 | Erection of Engineer's Site Accommodation at YSW | 60 | 100 | 17/05/10 A | 15/07/10 A | 17/05/10 A | 15/07/10 A | | KD0020 | |
| PRE0050 | Taking over the Secondary Engineer's Site Accomm | 75 | 100 | 17/05/10 A | 30/07/10 A | 17/05/10 A | 30/07/10 A | | KD0020 | |
| PRE0060 | Application of Consent from Marine Department | 60 | 100 | 17/05/10 A | 15/07/10 A | 17/05/10 A | 15/07/10 A | | KD0020 | |
| PRE0090 | Working Group Meeting for Outfall Construction | 120 | 100 | 17/05/10 A | 23/11/10 A | 17/05/10 A | 23/11/10 A | | KD0020 | SKW1151 |
| PRE0100 | Application & Consent of XP from HyD (Mo Tat Rd) | 120 | 100 | 17/05/10 A | 13/10/10 A | 17/05/10 A | 13/10/10 A | | KD0020 | SKW1491, SKW1501 |
| PRE0130 | Setup Web-site for EM&A Reporting | 90 | 100 | 17/05/10 A | 31/08/10 A | 17/05/10 A | 31/08/10 A | | KD0020 | |
| **Preliminary (E&M)** | | | | | | | | | | |
| **Technical Submission** | | | | | | | | | | |
| Process Design of SKWSTW & YSWSTW | | | | | | | | | | |
| E&M0010 | Submission | 38 | 100 | 17/05/10 A | 23/06/10 A | 17/05/10 A | 23/06/10 A | | KD0020 | E&M0020, E&M0040, E&M0235 |
| E&M0020 | Vetting and Comment by ER | 21 | 100 | 24/06/10 A | 14/07/10 A | 24/06/10 A | 14/07/10 A | | E&M0010 | E&M0030, E&M0040 |
| E&M0030 | Revision and Resubmission | 125 | 95 | 15/07/10 A | 06/03/11 | 15/07/10 A | 16/06/11 | 103d | E&M0020 | E&M0080 |
| E&M0080 | Approval from the Engineer | 14 | 0 | 06/03/11 | 20/03/11 | 17/06/11 | 30/06/11 | 103d | E&M0030 | E&M0295 |
| Hydraulic Design | | | | | | | | | | |
| E&M0040 | Submission | 21 | 100 | 15/07/10 A | 16/09/10 A | 15/07/10 A | 16/09/10 A | | E&M0010, E&M0020 | E&M0050, E&M0101, E&M0240, |
| E&M0050 | Vetting and Comment by ER | 14 | 100 | 17/09/10 A | 09/11/10 A | 17/09/10 A | 09/11/10 A | | E&M0040 | E&M0060 |
| E&M0060 | Revision and Resubmission | 97 | 85 | 19/08/10 A | 14/03/11 | 19/08/10 A | 23/06/11 | 102d | E&M0050 | E&M0430 |
| E&M0430 | Approval from the Engineer | 7 | 0 | 14/03/11 | 21/03/11 | 24/06/11 | 30/06/11 | 102d | E&M0060 | E&M0295 |
| Equipment Submission & Approval | | | | | | | | | | |
| E&M0070 | Submission of Membrane Module | 50 | 100 | 17/05/10 A | 05/07/10 A | 17/05/10 A | 05/07/10 A | | KD0020 | E&M0090 |
| E&M0090 | Vetting and Comment by ER | 14 | 100 | 06/07/10 A | 19/07/10 A | 06/07/10 A | 19/07/10 A | | E&M0070 | E&M0100 |
| E&M0100 | Revision and Resubmission | 14 | 95 | 20/07/10 A | 28/02/11 | 20/07/10 A | 13/10/10 | -138d | E&M0090 | E&M0160 |
| E&M0101 | Submission of Equipment | 90 | 95 | 04/08/10 A | 04/03/11 | 04/08/10 A | 25/01/11 | -38d | E&M0040 | E&M0102 |
| E&M0102 | Vetting and Comment by ER | 60 | 90 | 18/11/10 A | 10/03/11 | 18/11/10 A | 31/01/11 | -38d | E&M0101 | E&M0103 |
| E&M0103 | Revision and Resubmission | 60 | 50 | 01/02/11 A | 09/04/11 | 01/02/11 A | 02/03/11 | -38d | E&M0102 | E&M0110, E&M0120, E&M0130, |
| E&M0110 | Approval on Coarse Screens | 30 | 0 | 09/04/11 | 09/05/11 | 03/03/11 | 01/04/11 | -38d | E&M0103 | E&M0390 |
| E&M0120 | Approval on Fine Screens | 30 | 0 | 09/04/11 | 09/05/11 | 29/04/11 | 28/05/11 | 20d | E&M0103 | E&M0400, E&M3060 |
| E&M0130 | Approval on Pumps | 30 | 0 | 09/04/11 | 09/05/11 | 03/03/11 | 01/04/11 | -38d | E&M0103 | E&M0410, E&M3070 |
| E&M0140 | Approval on Submersible Mixers | 30 | 0 | 09/04/11 | 09/05/11 | 01/06/11 | 30/06/11 | 53d | E&M0103 | E&M0420, E&M3080 |
| E&M0150 | Approval on Grit Removal Equipment | 30 | 0 | 09/04/11 | 09/05/11 | 29/04/11 | 28/05/11 | 20d | E&M0103 | E&M0380, E&M3030 |
| E&M0160 | Approval on MBR Membrane Modules (M.M.) | 105 | 90 | 02/08/10 A | 11/03/11 | 02/08/10 A | 23/10/10 | -138d | E&M0100 | E&M0360, E&M0370, E&M3010 |
| E&M0170 | Approval on Sludge Dewatering Equipment | 30 | 0 | 09/04/11 | 09/05/11 | 03/03/11 | 01/04/11 | -38d | E&M0103 | E&M0440, E&M3090 |
| E&M0180 | Approval on Valves, Pipes & Fittings | 30 | 0 | 09/04/11 | 09/05/11 | 28/06/11 | 27/07/11 | 80d | E&M0103 | E&M0450, E&M3100 |
| E&M0190 | Approval on Penstocks | 30 | 0 | 09/04/11 | 09/05/11 | 11/06/11 | 10/07/11 | 63d | E&M0103 | E&M0460, E&M3110 |
| E&M0200 | Approval on Instrumentation | 30 | 0 | 09/04/11 | 09/05/11 | 09/10/11 | 07/11/11 | 183d | E&M0103 | E&M0470, E&M3130 |
| E&M0210 | Approval on MCC & LVSB | 30 | 0 | 09/04/11 | 09/05/11 | 03/03/11 | 01/04/11 | -38d | E&M0103 | E&M0480, E&M3140 |
| E&M0220 | Approval on BS Equipment | 30 | 0 | 09/04/11 | 09/05/11 | 31/07/11 | 29/08/11 | 113d | E&M0103, E&M0280 | E&M0490, E&M3150 |
| E&M0230 | Approval on FS Equipment | 30 | 0 | 23/05/11 | 21/06/11 | 01/06/11 | 30/06/11 | 9d | E&M0103, E&M0290 | E&M0295, E&M0320, E&M0500, |
| Drawings Submission & Approval | | | | | | | | | | |
| E&M0235 | Sub. P&ID Drawings | 100 | 100 | 24/06/10 A | 22/08/10 A | 24/06/10 A | 22/08/10 A | | E&M0010 | |
| E&M0240 | Sub. Plant GA Drawings | 45 | 85 | 04/08/10 A | 06/03/11 | 04/08/10 A | 06/05/11 | 61d | E&M0040 | E&M0250, E&M0280, E&M0290 |
| E&M0250 | Sub. Builder's Works Requirements Drawings | 15 | 82 | 04/08/10 A | 20/03/11 | 04/08/10 A | 08/05/11 | 49d | E&M0240, E&M0260, E&M0270 | E&M0280, E&M0290 |
| E&M0260 | Sub. Mechanical Installation Drawings | 60 | 70 | 27/09/10 A | 17/03/11 | 27/09/10 A | 06/05/11 | 49d | E&M0040 | E&M0250 |
| E&M0270 | Sub. Electrical Installation Drawings | 60 | 70 | 27/09/10 A | 17/03/11 | 27/09/10 A | 06/05/11 | 49d | E&M0040 | E&M0250, E&M0280 |
| E&M0280 | Sub. BS Installation Drawings | 120 | 70 | 27/09/10 A | 04/04/11 | 27/09/10 A | 30/07/11 | 117d | E&M0240, E&M0250, E&M0270 | E&M0220 |
| E&M0290 | Sub. FS Installation Drawings | 120 | 30 | 13/11/10 A | 22/05/11 | 13/11/10 A | 31/05/11 | 9d | E&M0240, E&M0250 | E&M0230 |
| Statutory Submission | | | | | | | | | | |
| E&M0295 | Preparation of Submission to HEC | 39 | 0 | 22/06/11 | 30/07/11 | 01/07/11 | 08/08/11 | 9d | E&M0080, E&M0230, E&M0430 | E&M0300 |
| E&M0320 | Form 314 Submission to FSD | 14 | 0 | 22/06/11 | 05/07/11 | 15/04/12 | 28/04/12 | 298d | E&M0230 | E&M0325, E&M0670 |

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| Start date | 05/05/10 |
| Finish date | 12/08/14 |
| Data date | 28/02/11 |
| Run date | 18/03/11 |
| Page number | 1A |
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| c Primavera Systems, Inc. | |

Early bar
Progress bar
Critical bar
Summary bar
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**
**3-month Rolling Programme (Mar 2011 - May 2011)**

(Marked on 28 Feb 2011)

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 28/02/11 | Revision 0 | StL | VC |
| | | | |
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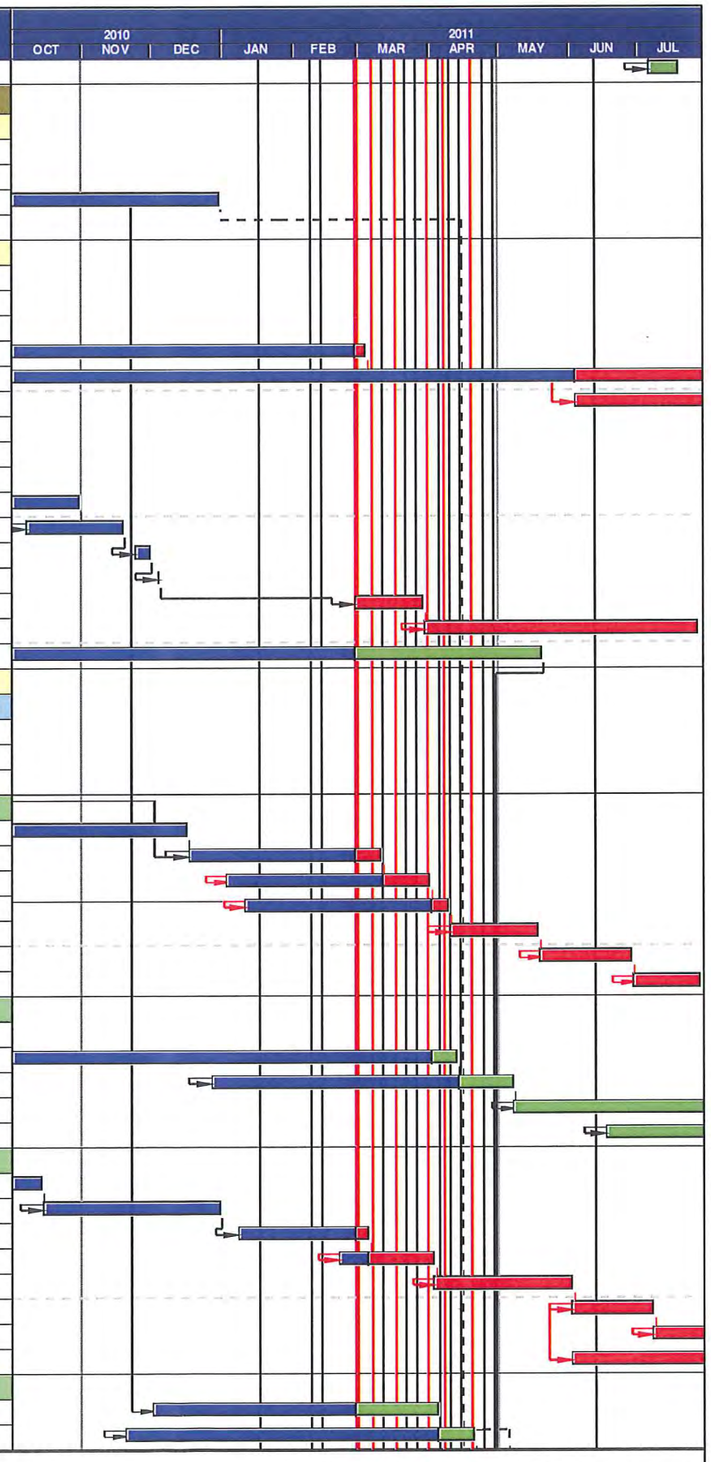
| Activity ID | Description | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors | Successors |
|---|---|---|---|---|---|---|---|---|---|---|
| E&M0325 | Submission to WSD | 14 | 0 | 06/07/11 | 19/07/11 | 29/04/12 | 12/05/12 | 298d | E&M0320 | E&M0670, E&M0680 |
| **Yung Shue Wan** | | | | | | | | | | |
| **Preliminary** | | | | | | | | | | |
| YSW0020 | Approval of Environmental Team | 16 | 100 | 17/05/10 A | 01/06/10 A | 17/05/10 A | 01/06/10 A | | KD0020 | YSW0030, YSW0040 |
| YSW0030 | Baseline monitoring (Air & Noise) | 14 | 100 | 31/07/10 A | 07/09/10 A | 31/07/10 A | 07/09/10 A | | YSW0020 | YSW0120, YSW0152, YSW0500, |
| YSW0040 | Baseline monitoring (Water) | 213 | 100 | 30/07/10 A | 31/12/10 A | 30/07/10 A | 31/12/10 A | | YSW0020 | YSW0350 |
| YSW0050 | Erect Hoarding and Fencing | 60 | 100 | 17/05/10 A | 15/07/10 A | 17/05/10 A | 15/07/10 A | | | |
| **Section W 1 - Slope W orks in Portion A & C** | | | | | | | | | | |
| YSW0075 | Mobilization | 30 | 100 | 17/05/10 A | 15/06/10 A | 17/05/10 A | 15/06/10 A | | KD0020 | YSW0100 |
| YSW0080 | Site Clearance | 30 | 100 | 17/05/10 A | 15/06/10 A | 17/05/10 A | 15/06/10 A | | | YSW0085, YSW0120 |
| YSW0085 | Initial Survey | 14 | 100 | 02/06/10 A | 15/06/10 A | 02/06/10 A | 15/06/10 A | | YSW0080 | YSW0120 |
| YSW0090 | Verify the Rock Boulder required Stablization Wk | 30 | 80 | 19/07/10 A | 05/03/11 | 19/07/10 A | 10/08/10 | -207d | | YSW0100, YSW0110 |
| YSW0100 | Removal of Rock Boulder | 280 | 9 | 20/09/10 A | 13/02/12 | 20/09/10 A | 15/08/11 | -182d | YSW0075, YSW0090 | YSW0150 |
| YSW0110 | Stablizing work for rock boulder | 280 | 0 | 04/06/11 | 09/03/12 | 09/11/10 | 15/08/11 | -207d | YSW0090 | YSW0150 |
| YSW0120 | Cut the slope to design profile | 100 | 100 | 13/09/10 A | 14/09/10 A | 13/09/10 A | 14/09/10 A | | YSW0030, YSW0080, YSW0085 | YSW0131, YSW0165 |
| YSW0131 | Mobilization of Plant and Material of Soil Nails | 20 | 100 | 01/09/10 A | 14/09/10 A | 01/09/10 A | 14/09/10 A | | YSW0120 | YSW0132 |
| YSW0132 | Erect Scaffold and Working Platform | 20 | 100 | 15/09/10 A | 16/09/10 A | 15/09/10 A | 16/09/10 A | | YSW0131 | YSW0133 |
| YSW0133 | Setting out and Verify Locations of Soil Nails | 10 | 100 | 14/09/10 A | 31/10/10 A | 14/09/10 A | 31/10/10 A | | YSW0132 | YSW0134 |
| YSW0134 | Drilling and Soil Nails Installation | 20 | 100 | 08/10/10 A | 19/11/10 A | 08/10/10 A | 19/11/10 A | | YSW0133 | YSW0135 |
| YSW0135 | Construction of Nail Heads | 10 | 100 | 24/11/10 A | 01/12/10 A | 24/11/10 A | 01/12/10 A | | YSW0134 | YSW0136 |
| YSW0136 | Mesh Installation on Cut Slope | 10 | 100 | 04/12/10 A | 04/12/10 A | 04/12/10 A | 04/12/10 A | | YSW0135 | YSW0137 |
| YSW0137 | Hydroseeding | 30 | 0 | 28/02/11 | 29/03/11 | 23/12/10 | 21/01/11 | -67d | YSW0136 | YSW0140 |
| YSW0140 | Construction of U-channels, Catch Pit on slope | 120 | 0 | 30/03/11 | 27/07/11 | 22/01/11 | 21/05/11 | -67d | YSW0137 | YSW0150 |
| YSW0165 | Construction of Barrier Wall (below Ground Lev) | 240 | 66 | 10/09/10 A | 20/05/11 | 10/09/10 A | 21/05/11 | 1d | YSW0120 | YSW0150, YSW0154, YSW0155 |
| **Section W 2 - YSW STW & Submarine Outfall** | | | | | | | | | | |
| Civil & Structural Work | | | | | | | | | | |
| YSW0412 | Mobilization | 30 | 100 | 17/05/10 A | 15/06/10 A | 17/05/10 A | 15/06/10 A | | KD0020 | YSW0422 |
| YSW0422 | Site Clearance | 30 | 100 | 17/05/10 A | 15/06/10 A | 17/05/10 A | 15/06/10 A | | KD0020, YSW0412 | YSW0432, YSW0500, YSW0610, |
| YSW0432 | Initial Survey | 14 | 100 | 02/06/10 A | 15/06/10 A | 02/06/10 A | 15/06/10 A | | YSW0422 | YSW0510 |
| YSW STP - GL H - T | | | | | | | | | | |
| YSW0500 | ELS & Excavation for Inlet Pumping Station | 62 | 100 | 17/09/10 A | 16/12/10 A | 17/09/10 A | 16/12/10 A | | YSW0030, YSW0422 | YSW0510 |
| YSW0510 | Sub-structure construction (Inlet Pumping Stn) | 30 | 60 | 17/12/10 A | 11/03/11 | 17/12/10 A | 26/10/10 | -136d | YSW0432, YSW0500 | YSW0520 |
| YSW0520 | Backfill & Remove ELS (Inlet Pumping Stn) | 30 | 30 | 03/01/11 A | 01/04/11 | 03/01/11 A | 16/11/10 | -136d | YSW0510 | YSW0530, YSW0610 |
| YSW0530 | ELS & Excavation for Equalization Tank | 40 | 80 | 11/01/11 A | 09/04/11 | 11/01/11 A | 24/11/10 | -136d | YSW0520 | YSW0540 |
| YSW0540 | Sub-structure construction (Equalization Tank) | 40 | 0 | 10/04/11 | 19/05/11 | 25/11/10 | 03/01/11 | -136d | YSW0530 | YSW0550 |
| YSW0550 | Backfilling & Remove ELS (Equalization Tank) | 40 | 0 | 20/05/11 | 28/06/11 | 04/01/11 | 12/02/11 | -136d | YSW0540 | YSW0570 |
| YSW0570 | Excavate to formation by open cut | 30 | 0 | 29/06/11 | 28/07/11 | 13/02/11 | 14/03/11 | -136d | YSW0550 | YSW0580 |
| YSW STP - GL T - X | | | | | | | | | | |
| YSW0610 | Excavate to formation | 50 | 100 | 08/09/10 A | 17/09/10 A | 08/09/10 A | 17/09/10 A | | YSW0030, YSW0422, YSW0520 | YSW0620 |
| YSW0620 | Base slab construction | 60 | 80 | 18/09/10 A | 13/04/11 | 18/09/10 A | 14/04/11 | 0 | YSW0610 | YSW0630 |
| YSW0630 | G/F to 1/F construction | 95 | 74 | 27/12/10 A | 08/05/11 | 27/12/10 A | 08/05/11 | 0 | YSW0620 | YSW0640 |
| YSW0640 | 1/F to Roof Construction | 91 | 0 | 08/05/11 | 07/08/11 | 09/05/11 | 07/08/11 | 0 | YSW0630 | YSW0810, YSW0840 |
| YSW0810 | ABWF installation | 100 | 0 | 17/06/11 | 25/09/11 | 18/06/11 | 25/09/11 | 0 | YSW0640 | E&M0610, E&M0620, E&M0630, |
| YSW STP - GL F - H & DN Tanks | | | | | | | | | | |
| YSW0650 | ELS & Excavation for DN Tanks | 72 | 100 | 21/08/10 A | 14/10/10 A | 21/08/10 A | 14/10/10 A | | YSW0030, YSW0422 | YSW0660 |
| YSW0660 | Sub-struction construction (DN Tanks) | 44 | 100 | 15/10/10 A | 31/12/10 A | 15/10/10 A | 31/12/10 A | | YSW0650 | YSW0670 |
| YSW0670 | Backfill & Remove ELS (DN Tanks) | 32 | 80 | 08/01/11 A | 06/03/11 | 08/01/11 A | 20/10/10 | -137d | YSW0660 | YSW0680 |
| YSW0680 | Base slab construction | 30 | 5 | 21/02/11 A | 03/04/11 | 21/02/11 A | 17/11/10 | -137d | YSW0670 | YSW0690 |
| YSW0690 | Superstructure construction upto +10.5mPD | 60 | 0 | 03/04/11 | 02/06/11 | 18/11/10 | 16/01/11 | -137d | YSW0680 | YSW0700, YSW0820 |
| YSW0700 | Apply protective paint | 35 | 0 | 02/06/11 | 07/07/11 | 17/01/11 | 20/02/11 | -137d | YSW0690 | YSW0710 |
| YSW0710 | Water test | 30 | 0 | 07/07/11 | 06/08/11 | 21/02/11 | 22/03/11 | -137d | YSW0700 | E&M0510, E&M0630, E&M0640 |
| YSW0820 | ABWF installation | 65 | 0 | 02/06/11 | 06/08/11 | 17/01/11 | 22/03/11 | -137d | YSW0690 | E&M0510, E&M0630, E&M0640 |
| Road, Drain, Cable Draw Pits & Ducting | | | | | | | | | | |
| YSW0152 | Temporary Diversion of Drainage | 92 | 60 | 02/12/10 A | 05/04/11 | 02/12/10 A | 22/09/11 | 170d | YSW0030 | YSW0153, YSW0154 |
| YSW0153 | Removal of Ex U-Channel where clash with B. Wall | 50 | 70 | 20/11/10 A | 20/04/11 | 20/11/10 A | 07/10/11 | 170d | YSW0152 | YSW0154 |

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| c Primavera Systems, Inc. | |

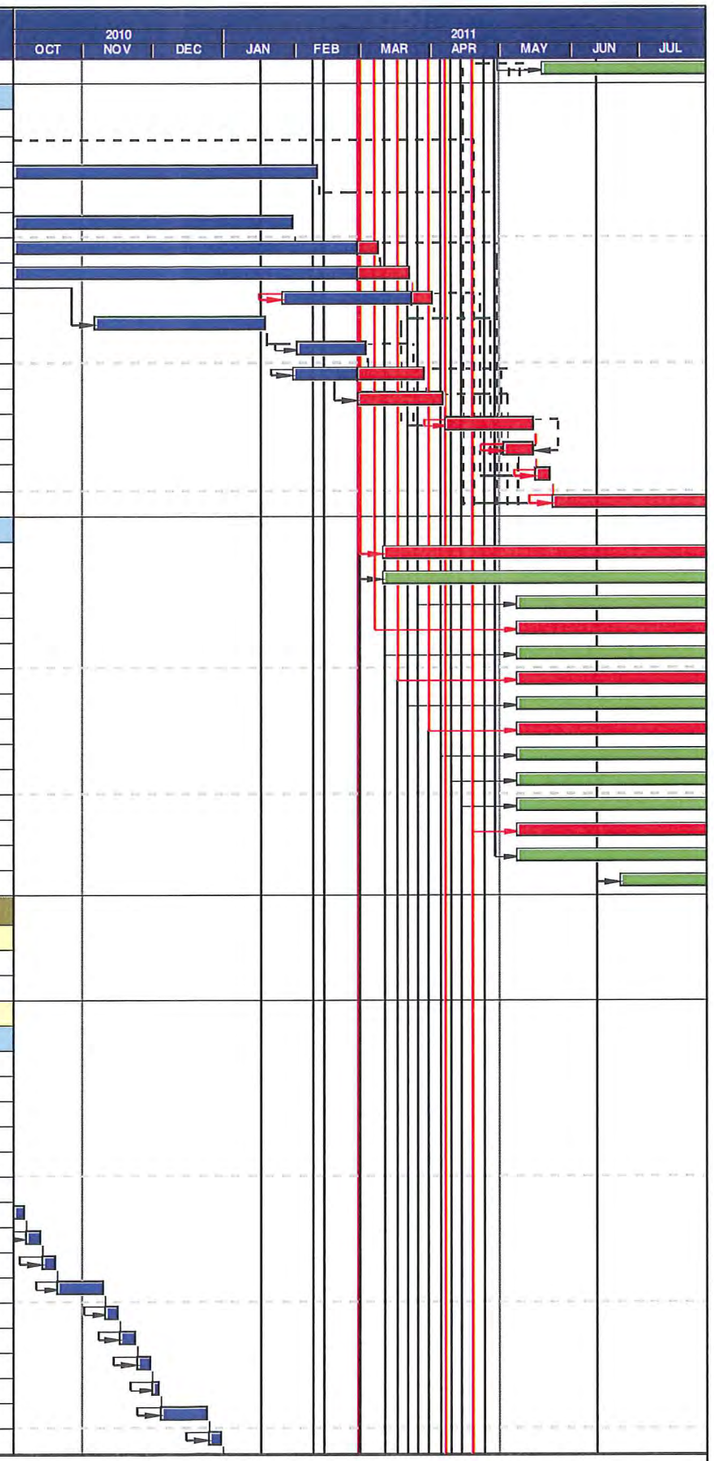
Early bar
Progress bar
Critical bar
Summary bar
Progress point
Critical point
Summary point
Start milestone point
Finish milestone point

**Leader Civil Engineering Corp. Ltd.**
**Contract No. DC/2009/13**
**Construction of Sewage Treatment Works at YSW & SKW**
**3-month Rolling Programme (Mar 2011 - May 2011)**

(Marked on 28 Feb 2011)

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 28/02/11 | Revision 0 | StL | VC |

| Activity ID | Description | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors | Successors |
|---|---|---|---|---|---|---|---|---|---|---|
| YSW0154 | Construction of Subsoil Drain | 90 | 0 | 20/05/11 | 18/08/11 | 08/10/11 | 05/01/12 | 140d | YSW0152, YSW0153, YSW0165 | YSW0155 |
| Submarine Outfall | | | | | | | | | | |
| YSW0180 | Coordination of HEC | 53 | 100 | 17/05/10 A | 08/07/10 A | 17/05/10 A | 08/07/10 A | | | YSW0350 |
| YSW0200 | Submission and Approval of Ecologist | 60 | 100 | 17/05/10 A | 15/07/10 A | 17/05/10 A | 15/07/10 A | | | YSW0210 |
| YSW0210 | Ecology Survey | 90 | 100 | 16/07/10 A | 11/02/11 A | 16/07/10 A | 11/02/11 A | | YSW0200 | YSW0350 |
| YSW0220 | Submission and Approval of In. Hydro Survey | 90 | 100 | 17/05/10 A | 27/08/10 A | 17/05/10 A | 27/08/10 A | | | YSW0230 |
| YSW0230 | Hydrogrophical Survey (YSW) | 45 | 100 | 31/08/10 A | 31/01/11 A | 31/08/10 A | 31/01/11 A | | YSW0220 | YSW0350 |
| YSW0240 | Material Submission, Approval of HDPE pipe | 93 | 90 | 17/05/10 A | 09/03/11 | 17/05/10 A | 20/12/10 | -78d | | YSW0250 |
| YSW0250 | Submit and Approval of Method Statement for HDD | 120 | 80 | 24/09/10 A | 23/03/11 | 24/09/10 A | 14/12/10 | -99d | YSW0240 | YSW0260, YSW0270, YSW0340 |
| YSW0260 | Submission of HDD Method Statement to HEC | 14 | 30 | 26/01/11 A | 02/04/11 | 26/01/11 A | 29/12/10 | -94d | YSW0250 | YSW0320, YSW0340 |
| YSW0270 | Additional G.I. Boreholes (YSW) | 62 | 100 | 06/11/10 A | 19/01/11 A | 06/11/10 A | 19/01/11 A | | YSW0250 | YSW0280, YSW0320 |
| YSW0280 | Submission of propose alignment to the Eng | 14 | 100 | 02/02/11 A | 04/03/11 A | 02/02/11 A | 04/03/11 A | | YSW0270 | YSW0290, YSW0310, YSW0340 |
| YSW0290 | Submission of Marine Notice | 60 | 50 | 31/01/11 A | 29/03/11 | 31/01/11 A | 13/02/11 | -44d | YSW0280 | YSW0350 |
| YSW0310 | Construction of Entry Pit and Preparation Work | 39 | 0 | 28/02/11 | 07/04/11 | 21/11/10 | 29/12/10 | -99d | YSW0280 | YSW0320, YSW0330 |
| YSW0320 | Prepare of HDD Drill Rig Set-up (YSW) | 39 | 0 | 08/04/11 | 16/05/11 | 30/12/10 | 06/02/11 | -99d | YSW0260, YSW0270, YSW0310 | YSW0330, YSW0350 |
| YSW0330 | Establishment of HDD plant & equipment | 14 | 0 | 03/05/11 | 16/05/11 | 24/01/11 | 06/02/11 | -99d | YSW0310, YSW0320 | YSW0340 |
| YSW0340 | Setting up at drillhole location | 7 | 0 | 17/05/11 | 23/05/11 | 07/02/11 | 13/02/11 | -99d | YSW0250, YSW0260, YSW0280, | YSW0350 |
| YSW0350 | Drill pilot hole and reaming hole - NS400 - 530m | 123 | 0 | 24/05/11 | 23/09/11 | 14/02/11 | 16/06/11 | -99d | YSW0040, YSW0180, YSW0210, | YSW0360 |
| E&M Works - YSW STP | | | | | | | | | | |
| E&M0360 | Delivery of MBR Memb. Mod. (MBR Tk4) | 150 | 0 | 11/03/11 | 08/08/11 | 24/10/10 | 22/03/11 | -138d | E&M0160 | E&M0510 |
| E&M0370 | Delivery of MBR Membrane Modules - 2nd Shipment | 150 | 0 | 11/03/11 | 08/08/11 | 29/09/11 | 25/02/12 | 202d | E&M0160 | E&M0520 |
| E&M0380 | Delivery of Grit Removal Equipment | 180 | 0 | 09/05/11 | 05/11/11 | 29/05/11 | 24/11/11 | 20d | E&M0150 | E&M0530 |
| E&M0390 | Delivery of Coarse Screens | 162 | 0 | 09/05/11 | 18/10/11 | 02/04/11 | 10/09/11 | -38d | E&M0110 | E&M0540 |
| E&M0400 | Delivery of Fine Screens | 180 | 0 | 09/05/11 | 05/11/11 | 29/05/11 | 24/11/11 | 20d | E&M0120 | E&M0550 |
| E&M0410 | Delivery of Pumps | 162 | 0 | 09/05/11 | 18/10/11 | 02/04/11 | 10/09/11 | -38d | E&M0130 | E&M0560 |
| E&M0420 | Delivery of Submersible Mixers | 162 | 0 | 09/05/11 | 18/10/11 | 01/07/11 | 09/12/11 | 53d | E&M0140 | E&M0570 |
| E&M0440 | Delivery of Sludge Dewatering Equipment | 180 | 0 | 09/05/11 | 05/11/11 | 02/04/11 | 28/09/11 | -38d | E&M0170 | E&M0580 |
| E&M0450 | Delivery of Valves, Pipes & Fittings | 180 | 0 | 09/05/11 | 05/11/11 | 28/07/11 | 23/01/12 | 80d | E&M0180 | E&M0590, E&M0605 |
| E&M0460 | Delivery of Penstocks | 180 | 0 | 09/05/11 | 05/11/11 | 11/07/11 | 06/01/12 | 63d | E&M0190 | E&M0600 |
| E&M0470 | Delivery of Instruments | 180 | 0 | 09/05/11 | 05/11/11 | 08/11/11 | 05/05/12 | 183d | E&M0200 | E&M0610 |
| E&M0480 | Delivery of MCC LVSB | 177 | 0 | 09/05/11 | 02/11/11 | 02/04/11 | 25/09/11 | -38d | E&M0210 | E&M0620 |
| E&M0490 | Delivery of BS Equipment | 180 | 0 | 09/05/11 | 05/11/11 | 30/08/11 | 25/02/12 | 113d | E&M0220 | E&M0630 |
| E&M0500 | Delivery FS Equipment | 180 | 0 | 22/06/11 | 18/12/11 | 27/09/11 | 24/03/12 | 97d | E&M0230 | E&M0330, E&M0640 |
| **Sok Kwu Wan** | | | | | | | | | | |
| **Preliminary** | | | | | | | | | | |
| SKW0250 | Approval of Environmental Team | 16 | 100 | 17/05/10 A | 01/06/10 A | 17/05/10 A | 01/06/10 A | | KD0020 | SKW0260 |
| SKW0260 | Baseline monitoring (Air & Noise) | 14 | 100 | 02/06/10 A | 15/06/10 A | 02/06/10 A | 15/06/10 A | | SKW0250 | SKW0242, SKW0592, SKW0681, |
| **Section W3 - Footpath Diversion in Portion G** | | | | | | | | | | |
| Civil & Geotechnical Works | | | | | | | | | | |
| SKW0240 | Site Clearance | 21 | 100 | 17/05/10 A | 06/06/10 A | 17/05/10 A | 06/06/10 A | | | SKW0241 |
| SKW0241 | Initial Survey | 9 | 100 | 07/06/10 A | 15/06/10 A | 07/06/10 A | 15/06/10 A | | SKW0240 | SKW0242 |
| SKW0242 | Excavation to formation for Bay 1 to 5 | 57 | 100 | 16/06/10 A | 11/08/10 A | 16/06/10 A | 11/08/10 A | | SKW0241, SKW0260 | SKW0251 |
| SKW0251 | Drill & Install Dowel Bar for Bay 0 & 4 | 21 | 100 | 02/08/10 A | 01/09/10 A | 02/08/10 A | 01/09/10 A | | SKW0242 | SKW0301 |
| SKW0301 | Erect Formwork, mesh & weephole for Bay 0 & 2 | 14 | 100 | 02/09/10 A | 15/09/10 A | 02/09/10 A | 15/09/10 A | | SKW0251 | SKW0311 |
| SKW0311 | Concreting for Bay 0 & 2 | 14 | 100 | 16/09/10 A | 29/09/10 A | 16/09/10 A | 29/09/10 A | | SKW0301 | SKW0321 |
| SKW0321 | Drilling & install Dowel Bar for Bay 4 & 6 | 7 | 100 | 30/09/10 A | 06/10/10 A | 30/09/10 A | 06/10/10 A | | SKW0311 | SKW0331 |
| SKW0331 | Erect Formwork, mesh & weephole for Bay 4 & 6 | 7 | 100 | 07/10/10 A | 13/10/10 A | 07/10/10 A | 13/10/10 A | | SKW0321 | SKW0341 |
| SKW0341 | Concreting for Bay 4 & 6 | 7 | 100 | 14/10/10 A | 20/10/10 A | 14/10/10 A | 20/10/10 A | | SKW0331 | SKW0351 |
| SKW0351 | Excavation to formation for Bay 7 to 9 | 21 | 100 | 21/10/10 A | 10/11/10 A | 21/10/10 A | 10/11/10 A | | SKW0341 | SKW0361 |
| SKW0361 | Erect Formwork, mesh weephole for Bay 1, 3 & 5 | 6 | 100 | 11/11/10 A | 16/11/10 A | 11/11/10 A | 16/11/10 A | | SKW0351 | SKW0371 |
| SKW0371 | Concreting for Bay 1, 3 & 5 | 7 | 100 | 17/11/10 A | 23/11/10 A | 17/11/10 A | 23/11/10 A | | SKW0361 | SKW0381 |
| SKW0381 | Replace of soft spot by rock fill for Bay 7 to 9 | 7 | 100 | 24/11/10 A | 30/11/10 A | 24/11/10 A | 30/11/10 A | | SKW0371 | SKW0391 |
| SKW0391 | Erect formwork, mesh & weephole for Bay 7 to 9 | 3 | 100 | 01/12/10 A | 03/12/10 A | 01/12/10 A | 03/12/10 A | | SKW0381 | SKW0401 |
| SKW0401 | Concreting for Bay 7 to 9 | 7 | 100 | 04/12/10 A | 24/12/10 A | 04/12/10 A | 24/12/10 A | | SKW0391 | SKW0461 |
| SKW0461 | Excavation for no fine concrete Bay (1-9) | 7 | 100 | 25/12/10 A | 31/12/10 A | 25/12/10 A | 31/12/10 A | | SKW0401 | SKW0471 |

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| Start date | 05/05/10 |
| Finish date | 12/08/14 |
| Data date | 28/02/11 |
| Run date | 18/03/11 |
| Page number | 3A |
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| c Primavera Systems, Inc. | |

Early bar
Progress bar
Critical bar
Summary bar
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**
**3-month Rolling Programme (Mar 2011 - May 2011)**

(Marked on 28 Feb 2011)

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 28/02/11 | Revision 0 | StL | VC |
| | | | |
| | | | |
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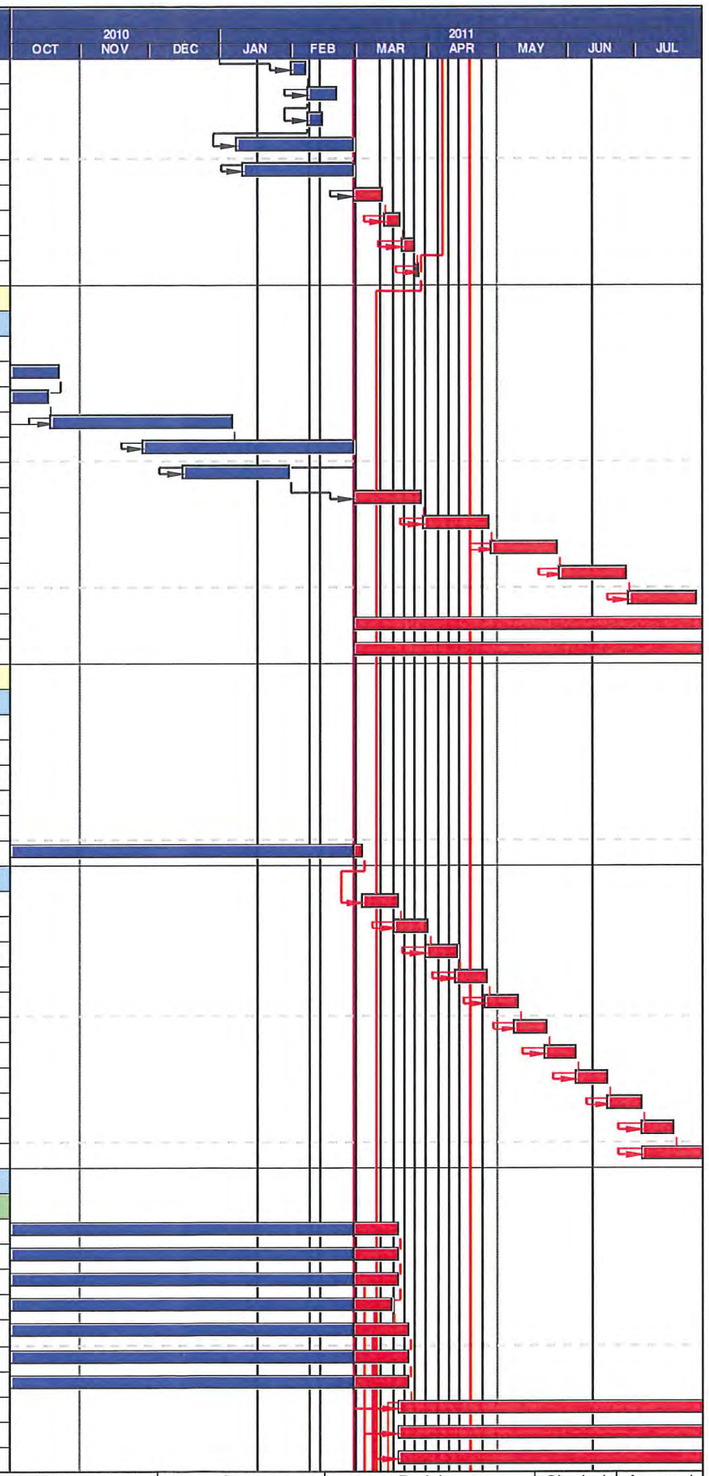
| Activity ID | Description | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors | Successors |
|---|---|---|---|---|---|---|---|---|---|---|
| SKW0471 | Concreting for no-fine concrete | 7 | 100 | 01/02/11 A | 07/02/11 A | 01/02/11 A | 07/02/11 A | | SKW0461 | SKW0481 |
| SKW0481 | Installation of Wall tie & stone facing | 14 | 100 | 08/02/11 A | 21/02/11 A | 08/02/11 A | 21/02/11 A | | SKW0471 | SKW0491 |
| SKW0491 | Construction of Gabion Wall | 7 | 100 | 08/02/11 A | 14/02/11 A | 08/02/11 A | 14/02/11 A | | SKW0481 | SKW0501 |
| SKW0501 | Place Geotextile | 3 | 100 | 08/01/11 A | 28/02/11 A | 08/01/11 A | 28/02/11 A | | SKW0491 | SKW0511 |
| SKW0511 | Backfill behide the retaining wall to approx. +4 | 7 | 100 | 11/01/11 A | 28/02/11 A | 11/01/11 A | 28/02/11 A | | SKW0501 | SKW0521 |
| SKW0521 | Watermain Laying and Diversion | 14 | 0 | 28/02/11 | 13/03/11 | 16/01/11 | 29/01/11 | -43d | SKW0511 | SKW0531 |
| SKW0531 | Concreting for Pavement | 7 | 0 | 14/03/11 | 20/03/11 | 30/01/11 | 05/02/11 | -43d | SKW0521 | SKW0541 |
| SKW0541 | Installation of Flower Pot | 7 | 0 | 21/03/11 | 27/03/11 | 06/02/11 | 12/02/11 | -43d | SKW0531 | SKW0551 |
| SKW0551 | Permanent Footpath Diversion | 1 | 0 | 28/03/11 | 28/03/11 | 13/02/11 | 13/02/11 | -43d | SKW0541 | KD0050, SKW1261, SKW1311 |
| **Section W 4 - Slope Works in Portions H & I** | | | | | | | | | | |
| Geotechnical Works | | | | | | | | | | |
| SKW0588 | Construct scaffolding access | 30 | 100 | 15/06/10 A | 14/07/10 A | 15/06/10 A | 14/07/10 A | | KD0020 | SKW0590 |
| SKW0590 | Site Clearance for Slope | 100 | 100 | 15/07/10 A | 22/10/10 A | 15/07/10 A | 22/10/10 A | | SKW0588 | SKW0591 |
| SKW0591 | Initial Survey for Slope | 28 | 100 | 21/09/10 A | 18/10/10 A | 21/09/10 A | 18/10/10 A | | SKW0590 | SKW0592 |
| SKW0592 | Temporary Rockfall fence at ex. Footpath | 43 | 100 | 19/10/10 A | 06/01/11 A | 19/10/10 A | 06/01/11 A | | SKW0260, SKW0591 | SKW05931 |
| SKW05931 | Construction of Haul Road (To +21mPD) | 50 | 100 | 28/11/10 A | 28/02/11 | 28/11/10 A | 28/02/11 | | SKW0592 | SKW05932 |
| SKW05932 | Construction of Haul Road (To +42mPD) | 60 | 100 | 15/12/10 A | 31/01/11 A | 15/12/10 A | 31/01/11 A | | SKW05931 | SKW05933 |
| SKW05933 | Excavation of Rock Berm (+50mPD to +42.5mPD) | 30 | 0 | 28/02/11 | 29/03/11 | 22/12/10 | 20/01/11 | -68d | SKW05932 | SKW05934 |
| SKW05934 | Excavation of Rock Berm (+42.5mPD to +35mPD) | 30 | 0 | 30/03/11 | 28/04/11 | 21/01/11 | 19/02/11 | -68d | SKW05933 | SKW05935 |
| SKW05935 | Excavation of Rock Berm (+35mPD to +27.5mPD) | 30 | 0 | 29/04/11 | 28/05/11 | 20/02/11 | 21/03/11 | -68d | SKW05934 | SKW05936 |
| SKW05936 | Excavation of Rock Berm (+27.5mPD to +20mPD) | 30 | 0 | 29/05/11 | 27/06/11 | 22/03/11 | 20/04/11 | -68d | SKW05935 | SKW05937 |
| SKW05937 | Excavation of Rock Berm (+20mPD to +12.5mPD) | 30 | 0 | 28/06/11 | 27/07/11 | 21/04/11 | 20/05/11 | -68d | SKW05936 | SKW05938 |
| SKW0594 | Road & Drains Works | 248 | 0 | 28/02/11 | 02/11/11 | 11/12/10 | 15/08/11 | -79d | SKW05938 | KD0060 |
| SKW0595 | Rock Meshing & Rockfall Fence | 260 | 0 | 28/02/11 | 14/11/11 | 29/11/10 | 15/08/11 | -91d | SKW05938 | KD0060 |
| **Section W 5 - P.S. No. 1 in Portion D** | | | | | | | | | | |
| Civil & Geotechnical Works | | | | | | | | | | |
| SKW0651 | Site Clearance | 7 | 100 | 17/05/10 A | 23/05/10 A | 17/05/10 A | 23/05/10 A | | KD0020 | SKW0652 |
| SKW0652 | Initial Survey | 7 | 100 | 24/05/10 A | 30/05/10 A | 24/05/10 A | 30/05/10 A | | SKW0651 | SKW0661, SKW0681 |
| SKW0661 | Transplantation for uncommon vegatation | 30 | 100 | 31/05/10 A | 29/06/10 A | 31/05/10 A | 29/06/10 A | | SKW0652 | SKW0681 |
| SKW0681 | Excavate to lower the working platform to +3mPD | 49 | 100 | 30/06/10 A | 17/08/10 A | 30/06/10 A | 17/08/10 A | | SKW0260, SKW0652, SKW0661 | SKW0691 |
| SKW0691 | ELS to +2.2mPD | 40 | 100 | 18/08/10 A | 26/09/10 A | 18/08/10 A | 26/09/10 A | | SKW0681 | SKW0721 |
| SKW0721 | Excavate to formation | 92 | 95 | 17/09/10 A | 04/03/11 | 17/09/10 A | 17/12/10 | -77d | SKW0691 | SKW0741 |
| Structural Works | | | | | | | | | | |
| SKW0741 | Base Slab (BSD2 & BSD3) | 15 | 0 | 04/03/11 | 19/03/11 | 18/12/10 | 01/01/11 | -77d | SKW0721 | SKW0751 |
| SKW0751 | Wall & Column (CA1-3,CB1-3,CC1-3, CD1-2) Approx. | 14 | 0 | 18/03/11 | 01/04/11 | 01/01/11 | 14/01/11 | -77d | SKW0741 | SKW0761 |
| SKW0761 | Base Slab (BSD1) to +3.98 | 14 | 0 | 31/03/11 | 14/04/11 | 14/01/11 | 27/01/11 | -77d | SKW0751 | SKW0771 |
| SKW0771 | Wall & Column (CA1-3,CB1-3,CC1-3, CD1-2) to +6.3 | 14 | 0 | 13/04/11 | 27/04/11 | 27/01/11 | 09/02/11 | -77d | SKW0761 | SKW0781 |
| SKW0781 | Base Slab (GSB1-3,GSC1-5,GSD1-2) | 14 | 0 | 26/04/11 | 10/05/11 | 09/02/11 | 22/02/11 | -77d | SKW0771 | SKW0791 |
| SKW0791 | Base Slab (GSE1 & GSF1) | 14 | 0 | 09/05/11 | 23/05/11 | 22/02/11 | 07/03/11 | -77d | SKW0781 | SKW0801 |
| SKW0801 | Wall & Column (CE1-3, CF1-3) | 14 | 0 | 22/05/11 | 05/06/11 | 07/03/11 | 20/03/11 | -77d | SKW0791 | SKW0811 |
| SKW0811 | Ground Beam (GB1-1,2 GB2-1,2 GB3-1, GBA-1,GBB1-4 | 14 | 0 | 05/06/11 | 19/06/11 | 21/03/11 | 03/04/11 | -77d | SKW0801 | SKW0821 |
| SKW0821 | Wall & Column (CA1-3,CB1-3,CC1-3, CD1-2) to +10. | 14 | 0 | 19/06/11 | 03/07/11 | 04/04/11 | 17/04/11 | -77d | SKW0811 | SKW0831 |
| SKW0831 | Roof Beams & Parapet | 14 | 0 | 03/07/11 | 17/07/11 | 18/04/11 | 01/05/11 | -77d | SKW0821 | E&M1101, E&M1102, E&M1103, |
| SKW0841 | ABWF installation | 45 | 0 | 03/07/11 | 17/08/11 | 18/04/11 | 01/06/11 | -77d | SKW0831 | E&M1101, E&M1102, E&M1103, |
| E&M Works (PS1) | | | | | | | | | | |
| Submission & Delivery | | | | | | | | | | |
| E&M1001 | Submission of Pumps | 198 | 90 | 17/05/10 A | 19/03/11 | 17/05/10 A | 02/12/10 | -107d | KD0020 | E&M1011 |
| E&M1002 | Submission of Gen-Set | 198 | 90 | 17/05/10 A | 19/03/11 | 17/05/10 A | 02/12/10 | -107d | | E&M1012 |
| E&M1003 | Submission of DeO System | 198 | 90 | 17/05/10 A | 19/03/11 | 17/05/10 A | 02/12/10 | -107d | | E&M1013 |
| E&M1004 | Submission of LV SB & MCC | 180 | 90 | 17/05/10 A | 17/03/11 | 17/05/10 A | 02/12/10 | -105d | | E&M1014 |
| E&M1005 | Submission of Instrumentation | 243 | 90 | 17/05/10 A | 24/03/11 | 17/05/10 A | 31/01/11 | -51d | | E&M1015 |
| E&M1006 | Submission of FS System | 243 | 90 | 17/05/10 A | 24/03/11 | 17/05/10 A | 14/01/11 | -68d | | E&M1016 |
| E&M1007 | Submission of BS System | 243 | 90 | 17/05/10 A | 24/03/11 | 17/05/10 A | 14/01/11 | -68d | | E&M1017 |
| E&M1011 | Delivery of Pumps | 150 | 0 | 19/03/11 | 16/08/11 | 03/12/10 | 01/05/11 | -107d | E&M1001 | E&M1101 |
| E&M1012 | Delivery of Gen-Set | 150 | 0 | 19/03/11 | 16/08/11 | 03/12/10 | 01/05/11 | -107d | E&M1002 | E&M1102 |
| E&M1013 | Delivery of DeO System | 150 | 0 | 19/03/11 | 16/08/11 | 03/12/10 | 01/05/11 | -107d | E&M1003 | E&M1103 |

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| Finish date | 12/08/14 |
| Data date | 28/02/11 |
| Run date | 18/03/11 |
| Page number | 4A |
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| c Primavera Systems, Inc. | |

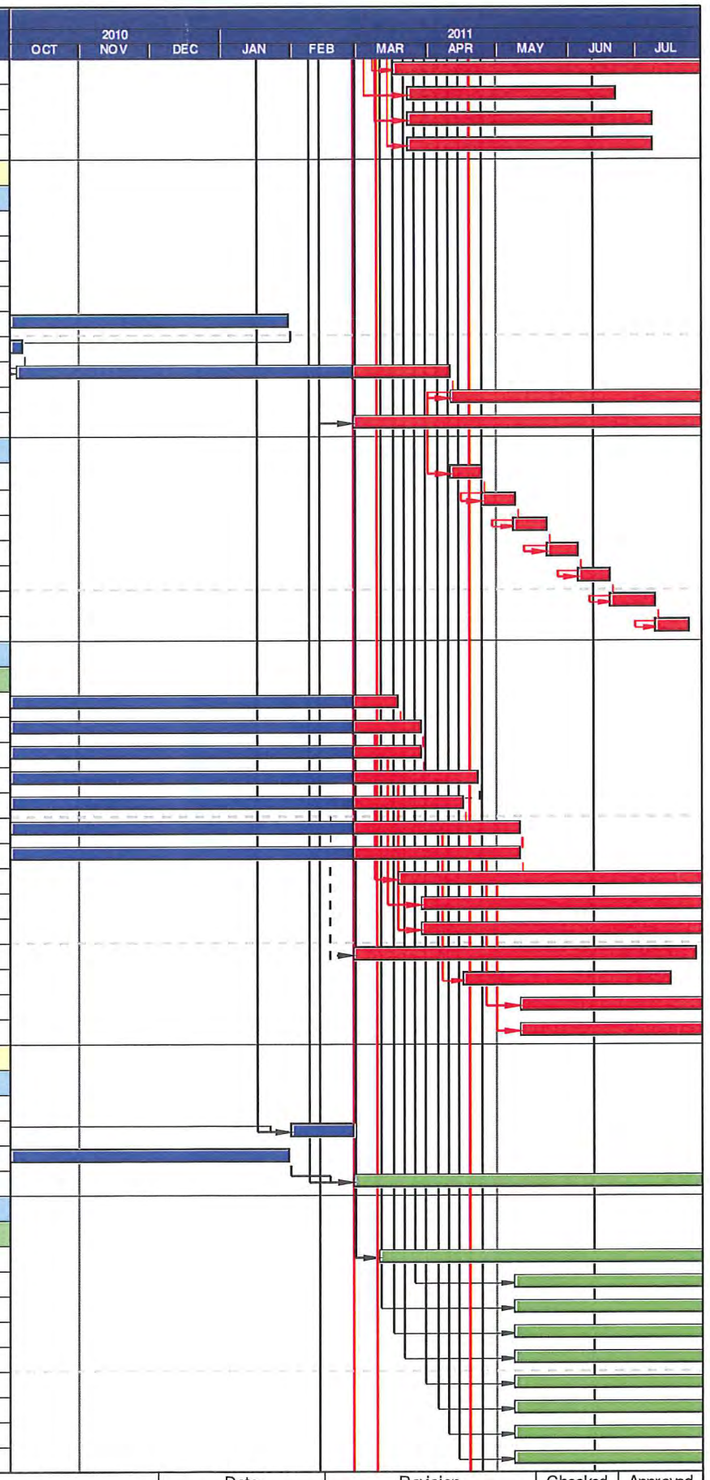
Early bar
Progress bar
Critical bar
Summary bar
Progress point
Critical point
Summary point
Start milestone point
Finish milestone point

**Leader Civil Engineering Corp. Ltd.**
**Contract No. DC/2009/13**
**Construction of Sewage Treatment Works at YSW & SKW**
**3-month Rolling Programme (Mar 2011 - May 2011)**

(Marked on 28 Feb 2011)

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 28/02/11 | Revision 0 | StL | VC |

| Activity ID | Description | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors | Successors |
|---|---|---|---|---|---|---|---|---|---|---|
| E&M1014 | Delivery of LV SB & MCC | 150 | 0 | 18/03/11 | 14/08/11 | 03/12/10 | 01/05/11 | -105d | E&M1004 | E&M1104 |
| E&M1015 | Delivery of Instrumentation | 90 | 0 | 24/03/11 | 22/06/11 | 01/02/11 | 01/05/11 | -51d | E&M1005 | E&M1105 |
| E&M1016 | Delivery of FS Equipment | 107 | 0 | 24/03/11 | 09/07/11 | 15/01/11 | 01/05/11 | -68d | E&M1006 | E&M1106 |
| E&M1017 | Delivery of BS Equipment | 107 | 0 | 24/03/11 | 09/07/11 | 15/01/11 | 01/05/11 | -68d | E&M1007 | E&M1107 |
| **Section W 6 - Sewer and PS No.2 in Portions E&H** | | | | | | | | | | |
| Civil & Geotechnical Works | | | | | | | | | | |
| SKW0881 | Site Clearance | 7 | 100 | 17/05/10 A | 23/05/10 A | 17/05/10 A | 23/05/10 A | | KD0020 | SKW0891 |
| SKW0891 | Plant mobilization | 7 | 100 | 17/05/10 A | 23/05/10 A | 17/05/10 A | 23/05/10 A | | SKW0881 | SKW0892 |
| SKW0892 | Initial Survey | 30 | 100 | 24/05/10 A | 22/06/10 A | 24/05/10 A | 22/06/10 A | | SKW0891 | SKW0901 |
| SKW0901 | Tree Transplantation | 30 | 100 | 23/06/10 A | 22/07/10 A | 23/06/10 A | 22/07/10 A | | SKW0892 | SKW0921 |
| SKW0921 | Cut Slope & U-Channel | 14 | 100 | 23/07/10 A | 31/01/11 A | 23/07/10 A | 31/01/11 A | | SKW0260, SKW0901 | SKW0931, SKW0951 |
| SKW0931 | Hoarding & Fencing | 14 | 100 | 15/09/10 A | 07/10/10 A | 15/09/10 A | 07/10/10 A | | SKW0921 | SKW0951 |
| SKW0951 | Excavate to formation | 106 | 60 | 04/10/10 A | 11/04/11 | 04/10/10 A | 03/12/10 | -128d | SKW0921, SKW0931 | SKW0961, SKW0971 |
| SKW0961 | Mass Conc. Retaining Wall | 257 | 0 | 11/04/11 | 24/12/11 | 04/03/11 | 15/11/11 | -38d | SKW0951 | KD0080 |
| SKW1491 | Concrete Trough (ChA0+45 - ChA1+75) | 180 | 0 | 28/02/11 | 26/08/11 | 14/09/10 | 12/03/11 | -167d | PRE0100 | SKW1511 |
| Structural Works | | | | | | | | | | |
| SKW0971 | Base Slab to -3.2mPD | 14 | 0 | 11/04/11 | 25/04/11 | 04/12/10 | 17/12/10 | -128d | SKW0951 | SKW0981 |
| SKW0981 | Basement Beam (BBB-1,BBC-1,BBD-1) | 14 | 0 | 25/04/11 | 09/05/11 | 18/12/10 | 31/12/10 | -128d | SKW0971 | SKW0991 |
| SKW0991 | Wall & Column to +1.5mPD | 14 | 0 | 09/05/11 | 23/05/11 | 01/01/11 | 14/01/11 | -128d | SKW0981 | SKW1001 |
| SKW1001 | Base Slab (BSC-4) to +3mPD | 14 | 0 | 23/05/11 | 06/06/11 | 15/01/11 | 28/01/11 | -128d | SKW0991 | SKW1011 |
| SKW1011 | Wall & Column to +5.35mPD | 14 | 0 | 06/06/11 | 20/06/11 | 29/01/11 | 11/02/11 | -128d | SKW1001 | SKW1021 |
| SKW1021 | Ground Slab | 20 | 0 | 20/06/11 | 10/07/11 | 12/02/11 | 03/03/11 | -128d | SKW1011 | SKW1031 |
| SKW1031 | Ground Beam | 14 | 0 | 10/07/11 | 24/07/11 | 04/03/11 | 17/03/11 | -128d | SKW1021 | SKW1041 |
| E&M Works (PS2) | | | | | | | | | | |
| Submission & Delivery | | | | | | | | | | |
| E&M2001 | Submission of Pumps | 198 | 90 | 17/05/10 A | 19/03/11 | 17/05/10 A | 02/02/11 | -45d | KD0020 | E&M2011 |
| E&M2002 | Submission of Gen-Set | 198 | 85 | 17/05/10 A | 29/03/11 | 17/05/10 A | 02/02/11 | -55d | | E&M2012 |
| E&M2003 | Submission of DeO System | 198 | 85 | 17/05/10 A | 29/03/11 | 17/05/10 A | 02/02/11 | -55d | | E&M2013 |
| E&M2004 | Submission of LV SB & MCC | 271 | 80 | 17/05/10 A | 23/04/11 | 17/05/10 A | 13/02/11 | -68d | | E&M2014 |
| E&M2005 | Submission of Instrumentation | 243 | 80 | 17/05/10 A | 17/04/11 | 17/05/10 A | 31/01/11 | -76d | | E&M2015 |
| E&M2006 | Submission of FS System | 243 | 70 | 17/05/10 A | 11/05/11 | 17/05/10 A | 14/01/11 | -117d | | E&M2016 |
| E&M2007 | Submission of BS System | 243 | 70 | 17/05/10 A | 11/05/11 | 17/05/10 A | 14/01/11 | -117d | | E&M2017 |
| E&M2011 | Delivery of Pumps | 150 | 0 | 19/03/11 | 16/08/11 | 03/02/11 | 02/07/11 | -45d | E&M2001 | E&M2101 |
| E&M2012 | Delivery of Gen-Set | 150 | 0 | 29/03/11 | 26/08/11 | 03/02/11 | 02/07/11 | -55d | E&M2002 | E&M2102 |
| E&M2013 | Delivery of DeO System | 150 | 0 | 29/03/11 | 26/08/11 | 03/02/11 | 02/07/11 | -55d | E&M2003 | E&M2103 |
| E&M2014 | Delivery of LV SB & MCC | 150 | 0 | 28/02/11 | 27/07/11 | 03/12/10 | 01/05/11 | -87d | E&M2004 | E&M2104 |
| E&M2015 | Delivery of Instrumentation | 90 | 0 | 17/04/11 | 16/07/11 | 01/02/11 | 01/05/11 | -76d | E&M2005 | E&M2105 |
| E&M2016 | Delivery of FS Equipment | 107 | 0 | 11/05/11 | 26/08/11 | 15/01/11 | 01/05/11 | -117d | E&M2006 | E&M0350, E&M2106 |
| E&M2017 | Delivery of BS Equipment | 107 | 0 | 11/05/11 | 26/08/11 | 15/01/11 | 01/05/11 | -117d | E&M2007 | E&M2107 |
| **Section W 7 - SKW STW ,Sewer and Submarine Outfall** | | | | | | | | | | |
| Submarine Outfall | | | | | | | | | | |
| SKW1130 | Approval of IHS Consultant | 180 | 100 | 17/05/10 A | 27/08/10 A | 17/05/10 A | 27/08/10 A | | | SKW1131 |
| SKW1131 | Hydrographical Survey (SKW) | 300 | 100 | 01/02/11 A | 28/02/11 A | 01/02/11 A | 28/02/11 A | | KD0020, SKW1130 | SKW1231 |
| SKW1141 | Water Quality Baseline Monitoring under EP (SKW) | 213 | 100 | 27/07/10 A | 31/01/11 A | 27/07/10 A | 31/01/11 A | | SKW0260 | SKW1151 |
| SKW1151 | Set up Temporary Working Platform | 185 | 0 | 28/02/11 | 31/08/11 | 01/03/11 | 01/09/11 | 1d | PRE0090, SKW1141 | SKW1171 |
| SKW STW | | | | | | | | | | |
| Submission & Delivery (E&M) | | | | | | | | | | |
| E&M3010 | Delivery of MBR M.M. - 1st shipment for Temp STP | 150 | 0 | 11/03/11 | 08/08/11 | 24/04/13 | 20/09/13 | 775d | E&M0160 | E&M3170 |
| E&M3030 | Delivery of Grit Removal Equipment | 180 | 0 | 09/05/11 | 05/11/11 | 31/08/11 | 26/02/12 | 114d | E&M0150 | E&M3190 |
| E&M3060 | Delivery of Fine Screens | 136 | 0 | 09/05/11 | 22/09/11 | 15/08/11 | 28/12/11 | 98d | E&M0120 | E&M3210 |
| E&M3070 | Delivery of Pumps | 136 | 0 | 09/05/11 | 22/09/11 | 15/08/11 | 28/12/11 | 98d | E&M0130 | E&M3220 |
| E&M3080 | Delivery of Submersible Mixers | 180 | 0 | 09/05/11 | 05/11/11 | 15/09/11 | 12/03/12 | 129d | E&M0140 | E&M3230 |
| E&M3090 | Delivery of Sludge Dewatering Equipment | 210 | 0 | 09/05/11 | 05/12/11 | 18/07/11 | 12/02/12 | 70d | E&M0170 | E&M3240 |
| E&M3100 | Delivery of Valves, Pipes & Fittings | 180 | 0 | 09/05/11 | 05/11/11 | 05/02/13 | 03/08/13 | 638d | E&M0180 | E&M3250 |
| E&M3110 | Delivery of Penstocks | 180 | 0 | 09/05/11 | 05/11/11 | 18/02/13 | 16/08/13 | 651d | E&M0190 | E&M3260 |
| E&M3130 | Delivery of instruments | 180 | 0 | 09/05/11 | 05/11/11 | 04/05/13 | 30/10/13 | 726d | E&M0200 | E&M3270 |




| | |
|---|---|
| Start date | 05/05/10 |
| Finish date | 12/08/14 |
| Data date | 28/02/11 |
| Run date | 18/03/11 |
| Page number | 5A |
| | |
| c Primavera Systems, Inc. | |

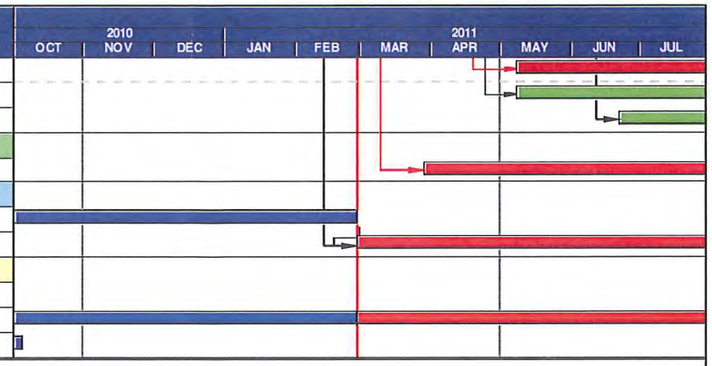
Early bar
Progress bar
Critical bar
Summary bar
Progress point
Critical point
Summary point
Start milestone point
Finish milestone point

**Leader Civil Engineering Corp. Ltd.**
**Contract No. DC/2009/13**
**Construction of Sewage Treatment Works at YSW & SKW**
**3-month Rolling Programme (Mar 2011 - May 2011)**

(Marked on 28 Feb 2011)

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 28/02/11 | Revision 0 | StL | VC |
| | | | |
| | | | |
| | | | |
| | | | |

| Activity ID | Description | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors | Successors |
|---|---|---|---|---|---|---|---|---|---|---|
| E&M3140 | Delivery of MCC LVSB | 180 | 0 | 09/05/11 | 05/11/11 | 09/05/11 | 04/11/11 | -1d | E&M0210 | E&M3261 |
| E&M3150 | Delivery of BS Equipment | 180 | 0 | 09/05/11 | 05/11/11 | 20/02/13 | 18/08/13 | 653d | E&M0220 | E&M3291 |
| E&M3160 | Delivery of FS Equipment | 180 | 0 | 22/06/11 | 18/12/11 | 14/01/12 | 11/07/12 | 206d | E&M0230 | E&M0340, E&M3300 |
| Construction of Grid A-G | | | | | | | | | | |
| SKW1261 | Excavate for SKW STW Structure (Grid A -G) | 164 | 0 | 29/03/11 | 08/09/11 | 14/02/11 | 27/07/11 | -43d | SKW0551 | SKW1271, SKW1371 |
| Rising Main | | | | | | | | | | |
| SKW1481 | Subm, Approval & Delivery of DI pipes | 120 | 100 | 17/05/10 A | 28/02/11 A | 17/05/10 A | 28/02/11 A | | KD0020 | SKW1501 |
| SKW1501 | Concrete Trough (ChB0+00 - ChB1+20) | 300 | 0 | 28/02/11 | 24/12/11 | 14/09/10 | 10/07/11 | -167d | PRE0100, SKW1481 | SKW1521 |
| **Section W 8 - Landscape Softworks in All Portions** | | | | | | | | | | |
| SKW1591 | Tree Survey | 21 | 100 | 17/05/10 A | 06/06/10 A | 17/05/10 A | 06/06/10 A | | KD0020 | SKW1621 |
| SKW1611 | Preservation & Protection of Trees | 822 | 35 | 17/05/10 A | 15/08/12 | 17/05/10 A | 15/08/12 | 0 | KD0020 | KD0100, SKW1631 |
| SKW1621 | Transplantation at SKW | 60 | 100 | 07/06/10 A | 05/10/10 A | 07/06/10 A | 05/10/10 A | | SKW1591 | |

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|---|---|
| Start date | 05/05/10 |
| Finish date | 12/08/14 |
| Data date | 28/02/11 |
| Run date | 18/03/11 |
| Page number | 6A |
| | |
| c Primavera Systems, Inc. | |

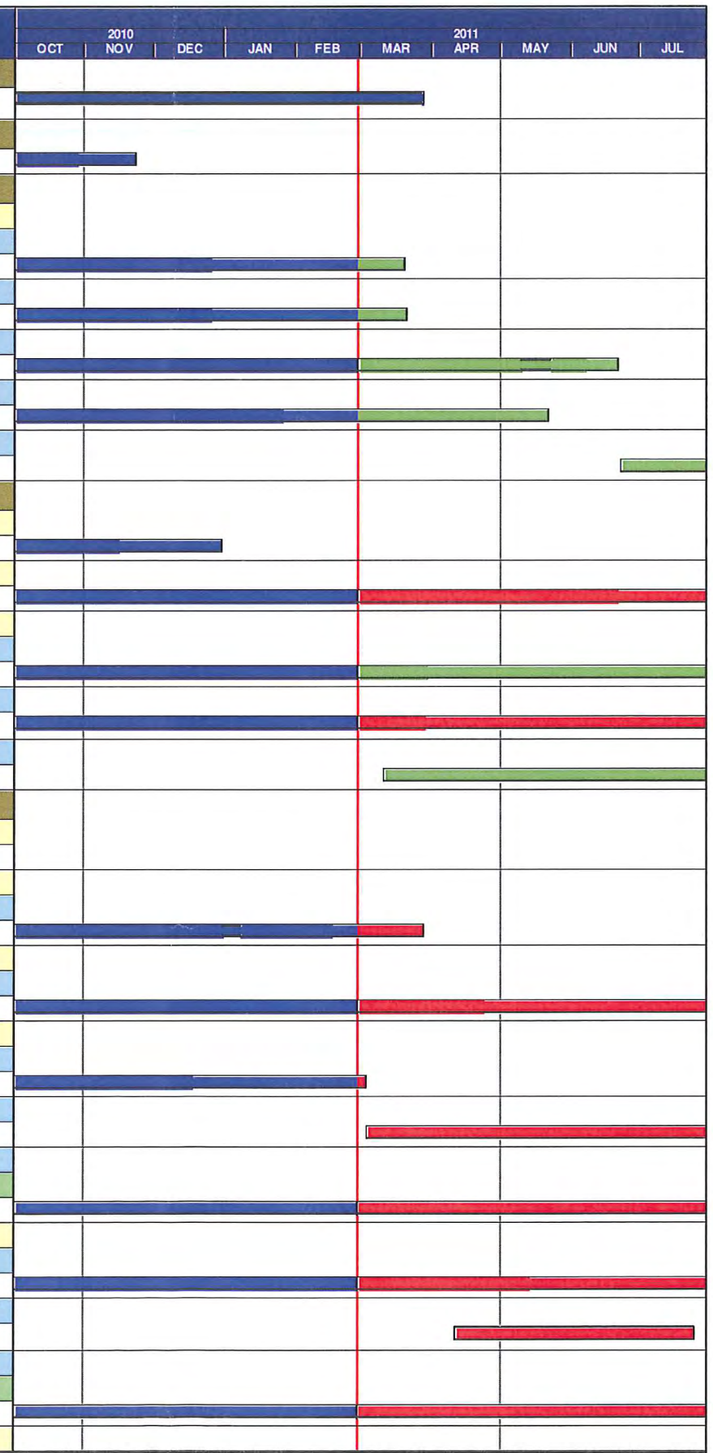
Early bar
Progress bar
Critical bar
Summary bar
Progress point
Critical point
Summary point
Start milestone point
Finish milestone point

**Leader Civil Engineering Corp. Ltd.**
**Contract No. DC/2009/13**
**Construction of Sewage Treatment Works at YSW & SKW**
**3-month Rolling Programme (Mar 2011 - May 2011)**

(Marked on 28 Feb 2011)

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 28/02/11 | Revision 0 | StL | VC |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| Activity ID | Description | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors | Successors |
|---|---|---|---|---|---|---|---|---|---|---|
| **+Project Key Date** | | | | | | | | | | |
| | | 298 | 0 | 05/05/10 A | 28/03/11 | 05/05/10 A | 13/02/11 | -43d | | |
| **+Preliminary (Civil)** | | | | | | | | | | |
| | | 191 | 100 | 17/05/10 A | 23/11/10 A | 17/05/10 A | 23/11/10 A | | KD0020 | |
| **Preliminary (E&M)** | | | | | | | | | | |
| **Technical Submission** | | | | | | | | | | |
| +Process Design of SKWSTW & YSWSTW | | | | | | | | | | |
| | | 307 | 90 | 17/05/10 A | 20/03/11 | 17/05/10 A | 30/06/11 | 103d | | |
| +Hydraulic Design | | | | | | | | | | |
| | | 250 | 85 | 15/07/10 A | 21/03/11 | 15/07/10 A | 30/06/11 | 102d | | |
| +Equipment Submission & Approval | | | | | | | | | | |
| | | 401 | 45 | 17/05/10 A | 21/06/11 | 17/05/10 A | 07/11/11 | 139d | | |
| +Drawings Submission & Approval | | | | | | | | | | |
| | | 333 | 68 | 24/06/10 A | 22/05/11 | 24/06/10 A | 30/07/11 | 69d | | |
| +Statutory Submission | | | | | | | | | | |
| | | 39 | 0 | 22/06/11 | 30/07/11 | 01/07/11 | 12/05/12 | 287d | | |
| **Yung Shue Wan** | | | | | | | | | | |
| **+Preliminary** | | | | | | | | | | |
| | | 229 | 100 | 17/05/10 A | 31/12/10 A | 17/05/10 A | 31/12/10 A | | | |
| **+Section W 1 - Slope W orks in Portion A & C** | | | | | | | | | | |
| | | 663 | 38 | 17/05/10 A | 09/03/12 | 17/05/10 A | 15/08/11 | -207d | | |
| **Section W 2 - YSW STW & Submarine Outfall** | | | | | | | | | | |
| +Civil & Structural Work | | | | | | | | | | |
| | | 497 | 45 | 17/05/10 A | 25/09/11 | 17/05/10 A | 05/01/12 | 102d | | |
| +Submarine Outfall | | | | | | | | | | |
| | | 495 | 68 | 17/05/10 A | 23/09/11 | 17/05/10 A | 16/06/11 | -99d | | |
| +E&M Works - YSW STP | | | | | | | | | | |
| | | 283 | 0 | 11/03/11 | 18/12/11 | 24/10/10 | 05/05/12 | 139d | | |
| **Sok Kwu Wan** | | | | | | | | | | |
| **+Preliminary** | | | | | | | | | | |
| | | 30 | 100 | 17/05/10 A | 15/06/10 A | 17/05/10 A | 15/06/10 A | | | |
| **Section W 3 - Footpath Diversion in Portion G** | | | | | | | | | | |
| +Civil & Geotechnical Works | | | | | | | | | | |
| | | 316 | 90 | 17/05/10 A | 28/03/11 | 17/05/10 A | 28/02/11 | -43d | | |
| **Section W 4 - Slope W orks in Portions H & I** | | | | | | | | | | |
| +Geotechnical Works | | | | | | | | | | |
| | | 518 | 32 | 15/06/10 A | 14/11/11 | 15/06/10 A | 15/08/11 | -91d | | |
| **Section W 5 - P.S. No. 1 in Portion D** | | | | | | | | | | |
| +Civil & Geotechnical Works | | | | | | | | | | |
| | | 292 | 98 | 17/05/10 A | 04/03/11 | 17/05/10 A | 17/12/10 | -77d | | |
| +Structural Works | | | | | | | | | | |
| | | 166 | 0 | 04/03/11 | 17/08/11 | 18/12/10 | 01/06/11 | -77d | | |
| E&M Works (PS1) | | | | | | | | | | |
| +Submission & Delivery | | | | | | | | | | |
| | | 457 | 56 | 17/05/10 A | 16/08/11 | 17/05/10 A | 01/05/11 | -107d | | |
| **Section W 6 - Sewer and PS No.2 in Portions E&H** | | | | | | | | | | |
| +Civil & Geotechnical Works | | | | | | | | | | |
| | | 586 | 26 | 17/05/10 A | 24/12/11 | 17/05/10 A | 15/11/11 | -38d | | |
| +Structural Works | | | | | | | | | | |
| | | 104 | 0 | 11/04/11 | 24/07/11 | 04/12/10 | 17/03/11 | -128d | | |
| E&M Works (PS2) | | | | | | | | | | |
| +Submission & Delivery | | | | | | | | | | |
| | | 467 | 51 | 17/05/10 A | 26/08/11 | 17/05/10 A | 02/07/11 | -55d | | |
| **Section W 7 - SKW STW ,Sewer and Submarine Outfall** | | | | | | | | | | |




| | |
|---|---|
| Start date | 05/05/10 |
| Finish date | 12/08/14 |
| Data date | 28/02/11 |
| Run date | 18/03/11 |
| Page number | 1A |
| | |
| c Primavera Systems, Inc. | |

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

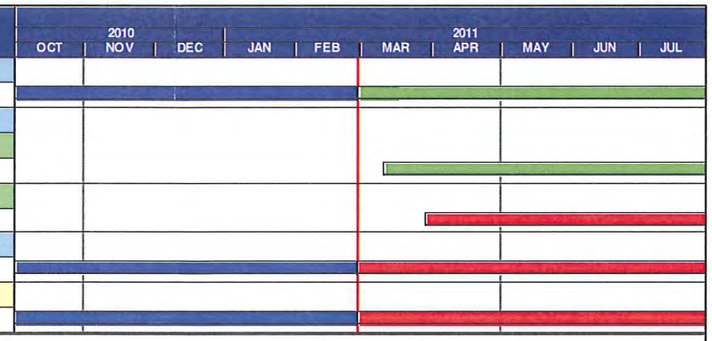
**Leader Civil Engineering Corp. Ltd.**
**Contract No. DC/2009/13**
**Construction of Sewage Treatment Works at YSW & SKW**
**3-month Rolling Programme (Mar 2011 - May 2011)**

<< Outline . >>

(Marked on 28 Feb 2011)

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 28/02/11 | Revision 0 | StL | VC |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| Activity ID | Description | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors | Successors |
|---|---|---|---|---|---|---|---|---|---|---|
| +Submarine Outfall | | | | | | | | | | |
| | | 472 | 79 | 17/05/10 A | 31/08/11 | 17/05/10 A | 01/09/11 | 1d | | |
| SKW STW | | | | | | | | | | |
| +Submission & Delivery (E&M) | | | | | | | | | | |
| | | 283 | 0 | 11/03/11 | 18/12/11 | 09/05/11 | 30/10/13 | 682d | | |
| +Construction of Grid A-G | | | | | | | | | | |
| | | 164 | 0 | 29/03/11 | 08/09/11 | 14/02/11 | 27/07/11 | -43d | | |
| +Rising Main | | | | | | | | | | |
| | | 587 | 29 | 17/05/10 A | 24/12/11 | 17/05/10 A | 10/07/11 | -167d | | |
| **+Section W 8 - Landscape Softworks in All Portions** | | | | | | | | | | |
| | | 821 | 41 | 17/05/10 A | 15/08/12 | 17/05/10 A | 15/08/12 | 0 | | |




| | |
|---|---|
| Start date | 05/05/10 |
| Finish date | 12/08/14 |
| Data date | 28/02/11 |
| Run date | 18/03/11 |
| Page number | 2A |
| | |
| c Primavera Systems, Inc. | |

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Progress bar
Critical bar
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Progress point
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**Leader Civil Engineering Corp. Ltd.**
**Contract No. DC/2009/13**
**Construction of Sewage Treatment Works at YSW & SKW**
**3-month Rolling Programme (Mar 2011 - May 2011)**

<< Outline >>.

(Marked on 28 Feb 2011)

| Date | Revision | Checked | Approved |
|---|---|---|---|
| 28/02/11 | Revision 0 | StL | VC |
| | | | |
| | | | |
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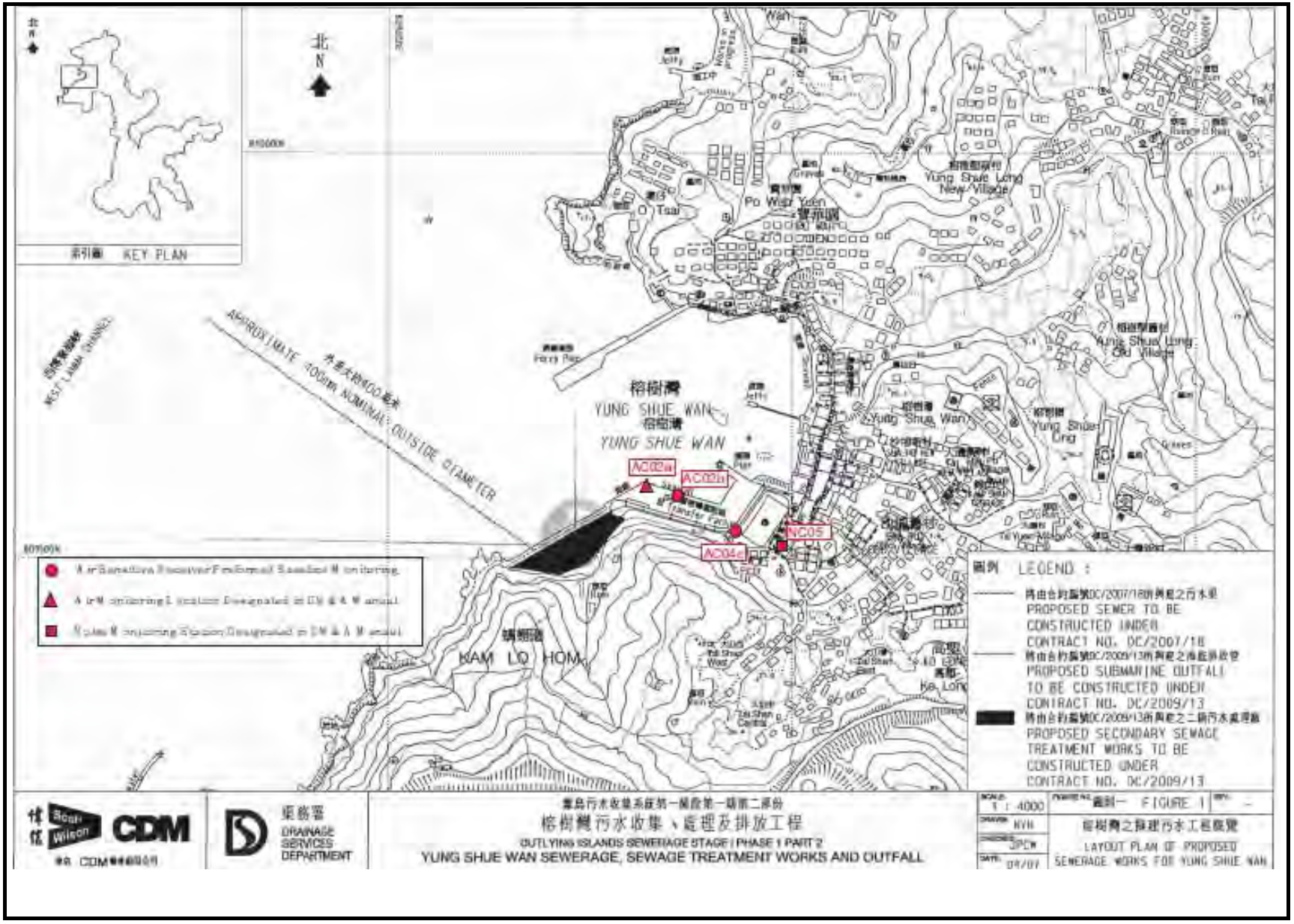
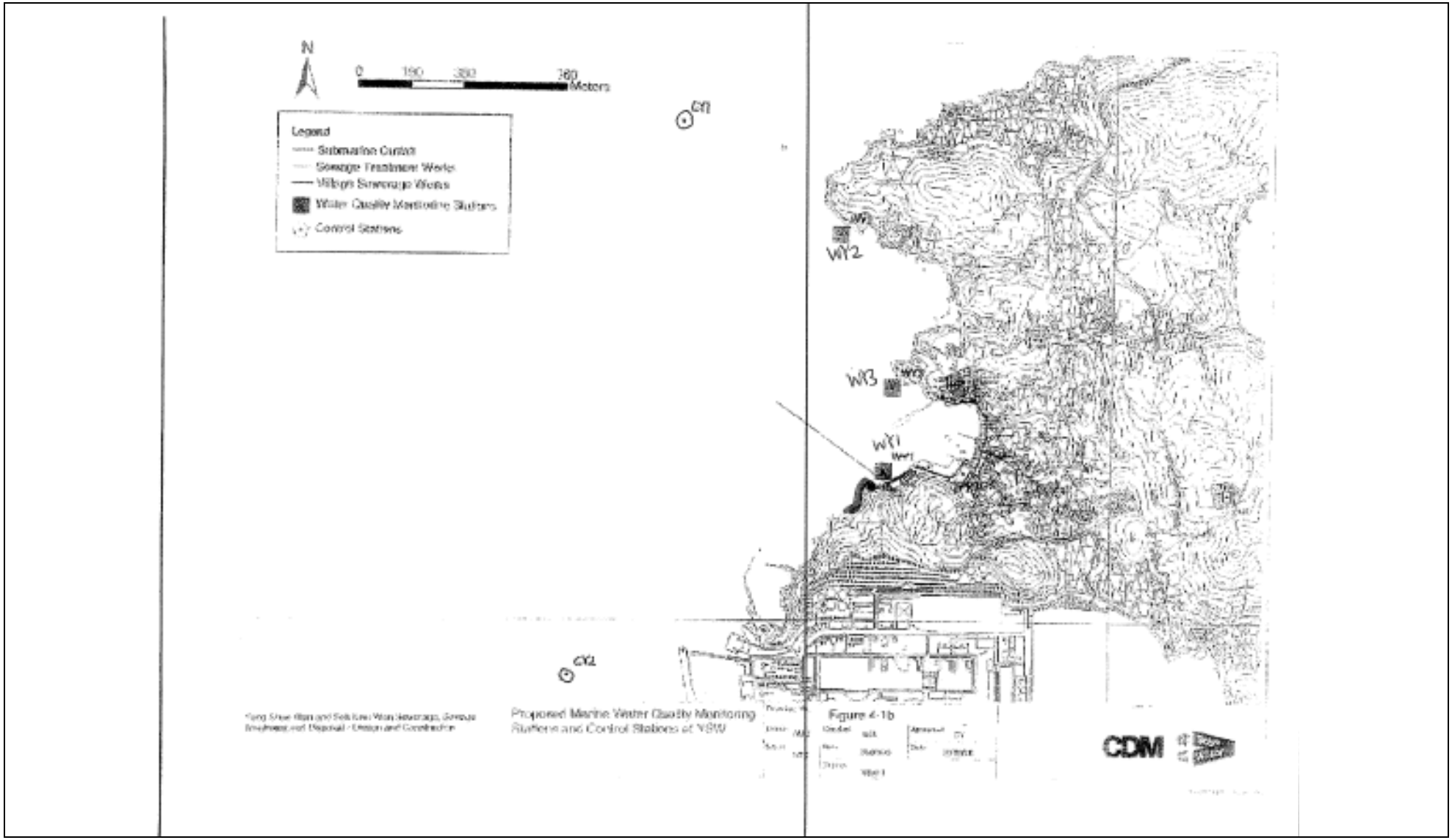
# Appendix D

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


KEY PLAN
北
N
YUNG SHUE WAN
榕樹灣
YUNG SHUE WAN
KAM LO HOM
AC02w
AC02n
AC05
AC04c
LEGEND :
PROPOSED SEWER TO BE CONSTRUCTED UNDER CONTRACT NO. DC/2007/18
PROPOSED SUBMARINE OUTFALL TO BE CONSTRUCTED UNDER CONTRACT NO. DC/2009/13
PROPOSED SECONDARY SEWAGE TREATMENT WORKS TO BE CONSTRUCTED UNDER CONTRACT NO. DC/2009/13
DRAINAGE SERVICES DEPARTMENT
榕樹灣污水收集、處理及排放工程
OUTLYING ISLANDS SEWERAGE STAGE I PHASE 1 PART 2
YUNG SHUE WAN SEWERAGE, SEWAGE TREATMENT WORKS AND OUTFALL
1 : 4000
FIGURE 1
LAYOUT PLAN OF PROPOSED SEWERAGE WORKS FOR YUNG SHUE WAN


N
0
190
380
760
Meters
Legend
Submarine Outfall
Sewage Treatment Works
Village Sewerage Works
Water Quality Monitoring Stations
Control Stations
CR1
CR2
WY2
WY3
WY1
Proposed Marine Water Quality Monitoring Stations and Control Stations at YSW
Figure 4-1b
CDM

# Appendix E

# Monitoring Equipments Calibration Certificate

# TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : YSW Playground
Location ID : AC04c

Date of Calibration: 1-Feb-11
Next Calibration Date: 1-Apr-11
Technician: Mr. Ben Tam

## CONDITIONS

| | | | |
|---|---|---|---|
| Sea Level Pressure (hPa) | 1022.7 | Corrected Pressure (mm Hg) | 767.025 |
| Temperature (ºC) | 14.0 | Temperature (K) | 287 |

## CALIBRATION ORIFICE

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

## CALIBRATION

| Plate No. | H20 (L) (in) | H2O (R) (in) | H20 (in) | Qstd (m3/min) | I (chart) | IC corrected | LINEAR REGRESSION |
|---|---|---|---|---|---|---|---|
| 18 | 5.1 | 5.1 | 10.2 | 1.635 | 61 | 63.63 | Slope = 34.3108 |
| 13 | 4.1 | 4.1 | 8.2 | 1.466 | 54 | 56.33 | Intercept = 6.6424 |
| 10 | 3.3 | 3.3 | 6.6 | 1.316 | 49 | 51.11 | Corr. coeff. = 0.9978 |
| 7 | 2.5 | 2.5 | 5 | 1.145 | 44 | 45.90 | |
| 5 | 1.4 | 1.4 | 2.8 | 0.858 | 35 | 36.51 | |

***Calculations :***

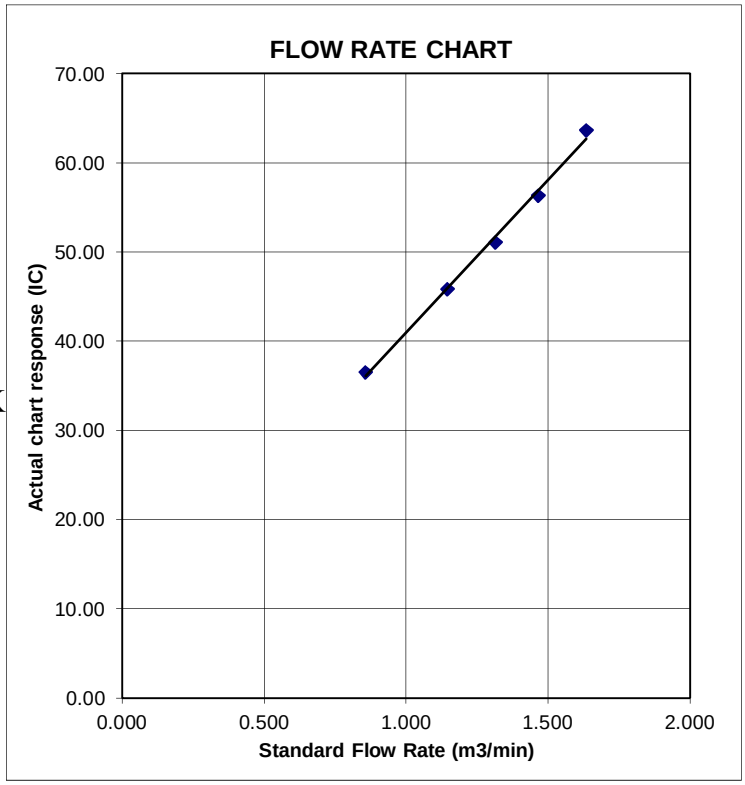
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
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 )[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 : YSW RE Offices
Location ID : AC02b

Date of Calibration: 1-Feb-11
Next Calibration Date: 1-Apr-11
Technician: Mr. Ben Tam

## CONDITIONS

| | | | |
|---|---|---|---|
| Sea Level Pressure (hPa) | 1022.7 | Corrected Pressure (mm Hg) | 767.025 |
| Temperature (ºC) | 14.0 | Temperature (K) | 287 |

## CALIBRATION ORIFICE

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

## CALIBRATION

| Plate No. | H20 (L) (in) | H2O (R) (in) | H20 (in) | Qstd (m3/min) | I (chart) | IC corrected | LINEAR REGRESSION |
|---|---|---|---|---|---|---|---|
| 18 | 5.2 | 5.2 | 10.4 | 1.651 | 60 | 62.59 | Slope = 32.4848 |
| 13 | 4.2 | 4.2 | 8.4 | 1.484 | 53 | 55.29 | Intercept = 7.6913 |
| 10 | 3.4 | 3.4 | 6.8 | 1.335 | 48 | 50.07 | Corr. coeff. = 0.9949 |
| 7 | 2.3 | 2.3 | 4.6 | 1.099 | 41 | 42.77 | |
| 5 | 1.4 | 1.4 | 2.8 | 0.858 | 35 | 36.51 | |

***Calculations :***

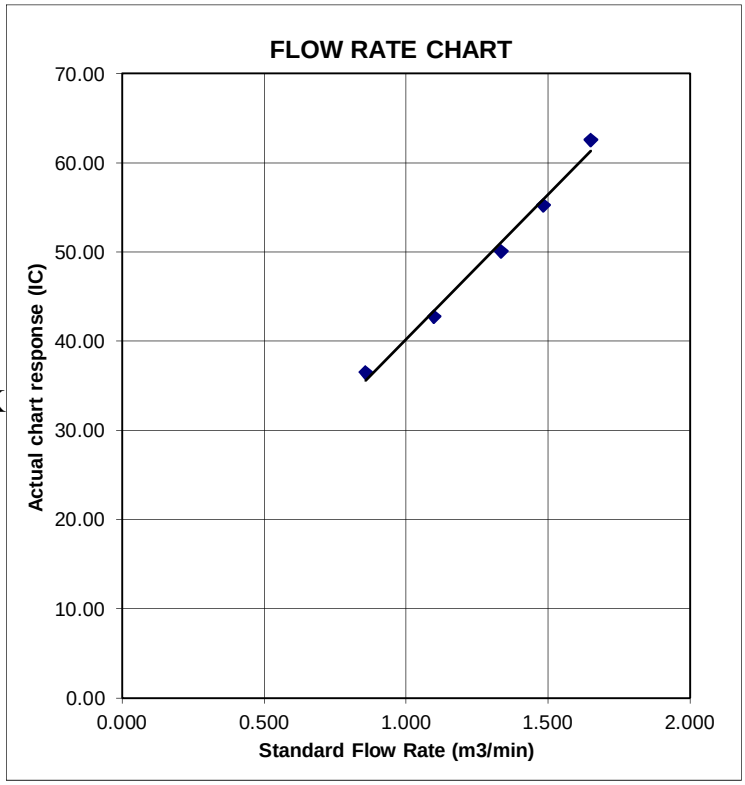
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
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 )[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = 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 OR Run # | VOLUME START (m3) | VOLUME STOP (m3) | DIFF VOLUME (m3) | DIFF TIME (min) | METER DIFF Hg (mm) | ORFICE DIFF H2O (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) Qstd | (y axis) | | Va | (x axis) 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 = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta)
Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]
Qa = Va/Time

For subsequent flow rate calculations:

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

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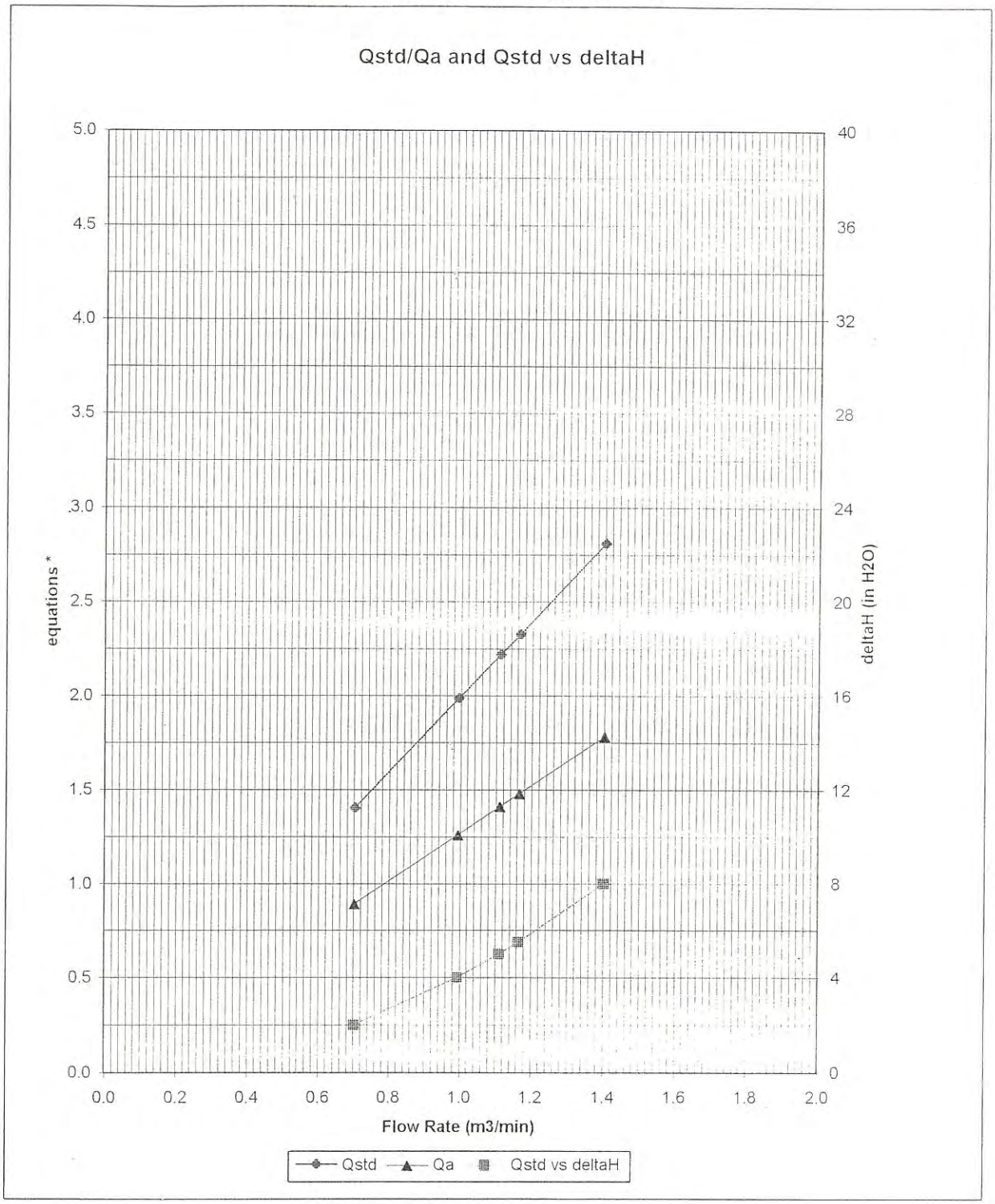
WWW.TISCH-ENV.COM

**AIR POLLUTION MONITORING EQUIPMENT**




* y-axis equations:

Qstd series: $\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$

Qa series: $\sqrt{(\Delta H\ (Ta\ /\ Pa))}$

#1483

# 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

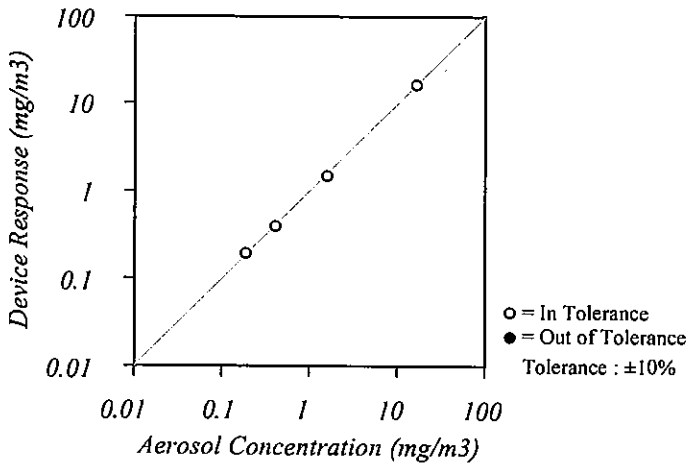
| Environment Condition | | |
|---|---|---|
| Temperature | 73.2 (22.9) | °F (°C) |
| Relative Humidity | 38 | %RH |
| Barometric Pressure | 29.08 (984.8) | inHg (hPa) |

| | |
|---|---|
| **Model** | **AM510** |
| **Serial Number** | **11008060** |

☒ As Left ☐ As Found

☒ In Tolerance ☐ Out of Tolerance

**Concentration Linearity Plot**




System ID: DTII01-01

*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 adusted 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 |
|---|---|---|---|
| Photometer | E003433 | 05-17-10 | 11-17-10 |
| DC Voltage(Keithley) | E002859 | 01-05-10 | 01-05-11 |
| Barometric Pressure | E003733 | 12-26-09 | 12-26-10 |
| Humidity | E002873 | 02-23-10 | 02-23-11 |

| Measurement Variable | System ID | Last Cal. | Cal. Due |
|---|---|---|---|
| Flow and temperature | E003434 | 04-21-10 | 04-21-11 |
| Microbalance | E003403 | 01-07-10 | 01-07-11 |
| Temperature | E002873 | 02-23-10 | 02-23-11 |
| Pressure | E003440 | 08-26-09 | 08-26-10 |

Kao Vang
Calibrated

☑ Final Function Check

August 17, 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

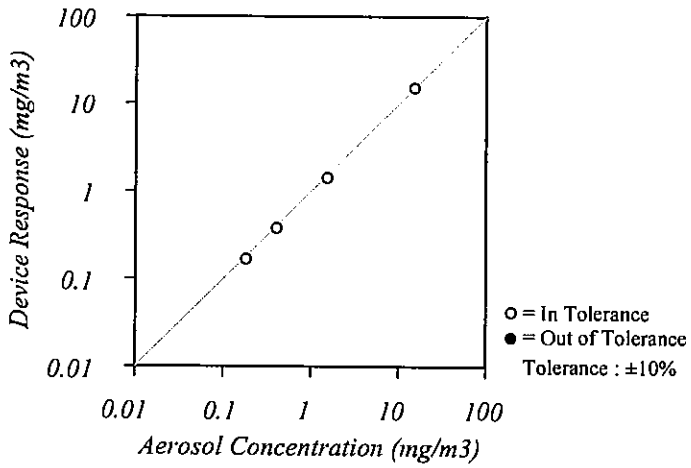
| Environment Condition | | |
|---|---|---|
| Temperature | 74.8 (23.8) | °F (°C) |
| Relative Humidity | 38 | %RH |
| Barometric Pressure | 28.96 (980.7) | inHg (hPa) |

| | |
|---|---|
| **Model** | **AM510** |
| **Serial Number** | **11008017** |

☒ As Left ☐ As Found

☒ In Tolerance ☐ Out of Tolerance

**Concentration Linearity Plot**




System ID: DTII01-01

*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 adusted 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 |
|---|---|---|---|
| Photometer | E003433 | 05-17-10 | 11-17-10 |
| DC Voltage(Keithley) | E002859 | 01-05-10 | 01-05-11 |
| Barometric Pressure | E003733 | 12-26-09 | 12-26-10 |
| Humidity | E002873 | 02-23-10 | 02-23-11 |

| Measurement Variable | System ID | Last Cal. | Cal. Due |
|---|---|---|---|
| Flow and temperature | E003434 | 04-21-10 | 04-21-11 |
| Microbalance | E003403 | 01-07-10 | 01-07-11 |
| Temperature | E002873 | 02-23-10 | 02-23-11 |
| Pressure | E003440 | 08-26-09 | 08-26-10 |

Sona H.
Calibrated

☒ Final Function Check

August 6, 2010
Date

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



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 ± 2)°C RELATIVE HUMIDITY : (55 ± 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*



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

Report No. : C102350

# *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 :

| 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

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 | $L_{AFP}$ | 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 | $L_{AFP}$ | 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 | $L_{AFP}$ | 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.

Report No. : C102350

# 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 | $L_{AFP}$ | A | F | 94.00 | 1 | 94.0 | Ref. |
| | $L_{ASP}$ | | S | | | 94.1 | ± 0.1 |
| | $L_{AIP}$ | | 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 | $L_{AFP}$ | A | F | 106.0 | Continuous | 106.0 | Ref. |
| | $L_{AFMax}$ | | | | 200 ms | 105.0 | -1.0 ± 1.0 |
| | $L_{ASP}$ | | S | | Continuous | 106.0 | Ref. |
| | $L_{ASMax}$ | | | | 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 | $L_{AFP}$ | 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) |

Report No. : C102350

# 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 | $L_{CFP}$ | 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 | $L_{Aeq}$ | A | 10 sec. | 4 | 1 | 1/10 | 110.0 | 100 | 99.9 | ± 0.5 |
| | | | | | | $1/10^2$ | | 90 | 89.6 | ± 0.5 |
| | | | 60 sec. | | | $1/10^3$ | | 80 | 79.7 | ± 1.0 |
| | | | 5 min. | | | $1/10^4$ | | 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.

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



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 ± 2)°C RELATIVE HUMIDITY : (55 ± 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*

Report No. : C102285

# *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 :

| Equipment ID | Description | Certificate No. |
|---|---|---|
| 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 Nominal Value | Measured Value (dB) | Mfr's Spec. (dB) | Uncertainty of Measured Value (dB) |
|---|---|---|---|
| 94 dB, 1 kHz | 94.0 | ± 0.2 | ± 0.2 |
| 114 dB, 1 kHz | 114.0 | | |

5.2 Frequency Accuracy

| UUT Nominal Value (kHz) | Measured Value (kHz) | Mfr's Spec. | Uncertainty of Measured Value (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.

# Appendix F

# Event and Action Plan

# Air Quality

| EVENT | ACTION | | | |
|---|---|---|---|---|
| | ET | IC(E) | ER | CONTRACTOR |
| **ACTION LEVEL** | | | | |
| 1. Exceedance for one sample | 1. Identify source, investigate the causes of exceedance and propose remedial measures;<br>2. Inform IC(E) and ER;<br>3. Repeat measurement to confirm finding;<br>4. Increase monitoring frequency to daily. | 1. Check monitoring data submitted by ET;<br>2. Check Contractor's working method. | 1. Notify Contractor. | 1. Rectify any unacceptable practice;<br>2. Amend working methods if appropriate. |
| 2. Exceedance for two or more consecutive samples | 1. Identify source;<br>2. Inform IC(E) and ER;<br>3. Advise the ER on the effectiveness of the proposed remedial measures;<br>4. Repeat measurements to confirm findings;<br>5. Increase monitoring frequency to daily;<br>6. Discuss with IC(E) and Contractor on remedial actions required;<br>7. If exceedance continues, arrange meeting with IC(E) and ER;<br>8. If exceedance stops, cease additional monitoring. | 1. Check monitoring data submitted by ET;<br>2. Check Contractor's working method;<br>3. Discuss with ET and Contractor on possible remedial measures;<br>4. Advise the ET on the effectiveness of the proposed remedial measures;<br>5. Supervise Implementation of remedial measures. | 1. Confirm receipt of notification of failure in writing;<br>2. Notify Contractor;<br>3. Ensure remedial measures properly implemented. | 1. Submit proposals for remedial to ER within 3 working days of notification;<br>2. Implement the agreed proposals;<br>3. Amend proposal if appropriate. |
| **LIMIT LEVEL** | | | | |
| 1. Exceedance for one sample | 1. Identify source, investigate the causes of exceedance and propose remedial measures;<br>2. Inform ER, Contractor and EPD;<br>3. Repeat measurement to confirm finding;<br>4. Increase monitoring frequency to daily;<br>5. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results. | 1. Check monitoring data submitted by ET;<br>2. Check Contractor's working method;<br>3. Discuss with ET and Contractor on possible remedial measures;<br>4. Advise the ER on the effectiveness of the proposed remedial measures;<br>5. Supervise implementation of remedial measures. | 1. Confirm receipt of notification of failure in writing;<br>2. Notify Contractor;<br>3. Ensure remedial measures properly implemented. | 1. Take immediate action to avoid further exceedance;<br>2. Submit proposals for remedial actions to IC(E) within 3 working days of notification;<br>3. Implement the agreed proposals;<br>4. Amend proposal if appropriate. |
| 2. Exceedance for two or more consecutive samples | 1. Notify IC(E), ER, Contractor and EPD;<br>2. Identify source;<br>3. Repeat measurement to confirm findings;<br>4. Increase monitoring frequency to daily;<br>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;<br>6. Arrange meeting with IC(E) and ER to discuss the remedial actions to be taken;<br>7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results;<br>8. If exceedance stops, cease additional monitoring. | 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;<br>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;<br>3. Supervise the implementation of remedial measures. | 1. Confirm receipt of notification of failure in writing;<br>2. Notify Contractor;<br>3. In consolidation with the IC(E), agree with the Contractor on the remedial measures to be implemented;<br>4. Ensure remedial measures properly implemented;<br>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. | 1. Take immediate action to avoid further exceedance;<br>2. Submit proposals for remedial actions to IC(E) within 3 working days of notification;<br>3. Implement the agreed proposals;<br>4. Resubmit proposals if problem still not under control;<br>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated. |

# Construction Noise

| EVENT | ACTION | | | |
|---|---|---|---|---|
| | **ET** | **IC(E)** | **ER** | **CONTRACTOR** |
| Action Level | 1. Notify IC(E) and Contractor;<br>2. Carry out investigation;<br>3. Report the results of investigation to the IC(E), ER and Contractor;<br>4. Discuss with the Contractor and formulate remedial measures;<br>5. Increase monitoring frequency to check mitigation effectiveness | 1. Review the analysed results submitted by the ET;<br>2. Review the proposed remedial measures by the Contractor and advise the ER accordingly;<br>3. Supervise the implementation of remedial measures. | 1. Confirm receipt of notification of failure in writing;<br>2. Notify Contractor;<br>3. Require Contractor to propose remedial measures for the analysed noise problem;<br>4. Ensure remedial measures are properly implemented. | 1. Submit noise mitigation proposals to IC(E);<br>2. Implement noise mitigation proposals. |
| Limit Level | 1. Identify source;<br>2. Inform IC(E), ER, EPD and Contractor;<br>3. Repeat measurements to confirm findings;<br>4. Increase monitoring frequency;<br>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;<br>6. Inform IC(E), ER and EPD the causes and actions taken for the exceedances;<br>7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results;<br>8. If exceedance stops, cease additional monitoring. | 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;<br>2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;<br>3. Supervise the implementation of remedial measures. | 1. Confirm receipt of notification of failure in writing;<br>2. Notify Contractor;<br>3. Require Contractor to propose remedial measures for the analysed noise problem;<br>4. Ensure remedial measures properly implemented;<br>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. | 1. Take immediate action to avoid further exceedance;<br>2. Submit proposals for remedial actions to IC(E) within 3 working days of notification;<br>3. Implement the agreed proposals;<br>4. Resubmit proposals if problem still not under control;<br>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated. |

# Appendix G

# Monitoring Data Sheet

**24-hour TSP Monitoring Results - AC02b**

Date of Calibration: 1-Feb-11 Slope = 32.4848

Next Calibration Date: 1-Apr-11 Intercept = 7.6913

| 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$^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | INITIAL | FINAL | ACTUAL (min) | MIN | MAX | AVG | | AVG PRESS (hPa) | FLOW RATE (m3/min) | AIR VOLUME (std m3) | | | | |
| 3-Mar-11 | 23396 | 3511.33 | 3536.24 | 1494.60 | 36 | 38 | 37.0 | 18.1 | 1018.5 | 0.92 | 1373 | 2.8223 | 2.8939 | 0.0716 | 52 |
| 9-Mar-11 | 23398 | 3536.24 | 3560.53 | 1457.40 | 35 | 37 | 36.0 | 15.7 | 1021.8 | 0.89 | 1303 | 2.8067 | 2.8598 | 0.0531 | 41 |
| 14-Mar-11 | 23409 | 3560.53 | 3584.76 | 1453.80 | 36 | 38 | 37.0 | 22.4 | 1014.6 | 0.91 | 1320 | 2.791 | 2.8871 | 0.0961 | 73 |
| 19-Mar-11 | 23443 | 3584.76 | 3608.95 | 1451.40 | 37 | 39 | 38.0 | 16.7 | 1013.4 | 0.95 | 1378 | 2.8095 | 2.8577 | 0.0482 | 35 |
| 25-Mar-11 | 23449 | 3608.95 | 3633.23 | 1456.80 | 34 | 36 | 35.0 | 17.4 | 1023.2 | 0.86 | 1253 | 2.7952 | 2.8098 | 0.0146 | 12 |
| 31-Mar-11 | 23541 | 3633.23 | 3657.54 | 1458.60 | 35 | 37 | 36.0 | 18.9 | 1018.5 | 0.89 | 1292 | 2.8099 | 2.9299 | 0.1200 | 93 |

**24-hour TSP Monitoring Results - AC04c**

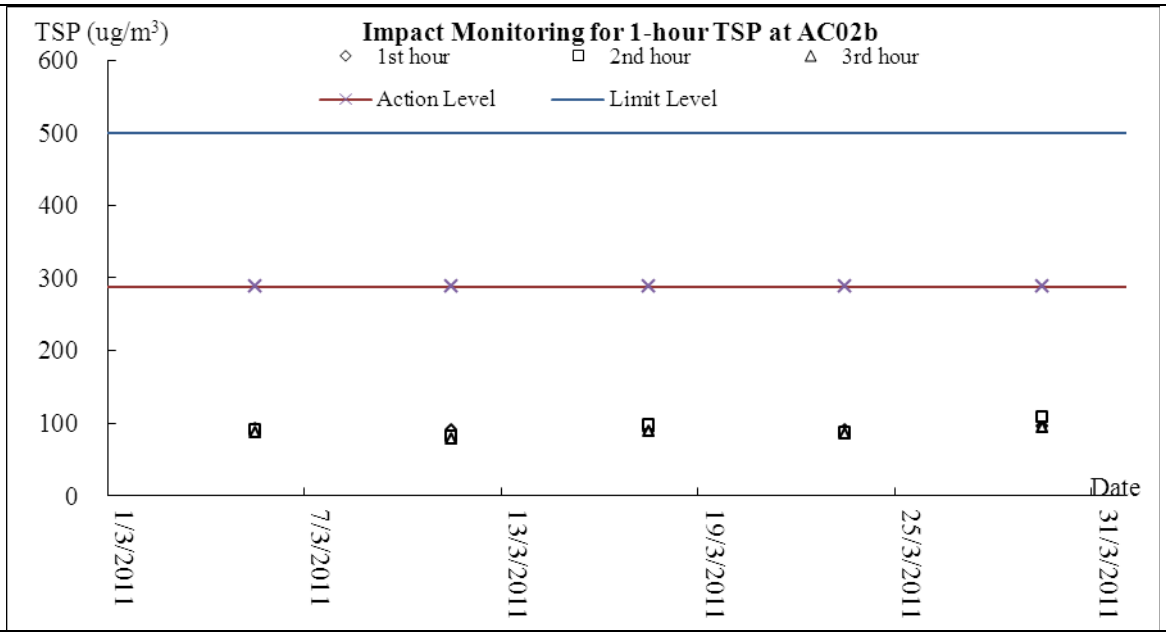
Date of Calibration: 1-Feb-11 Slope = 34.3108

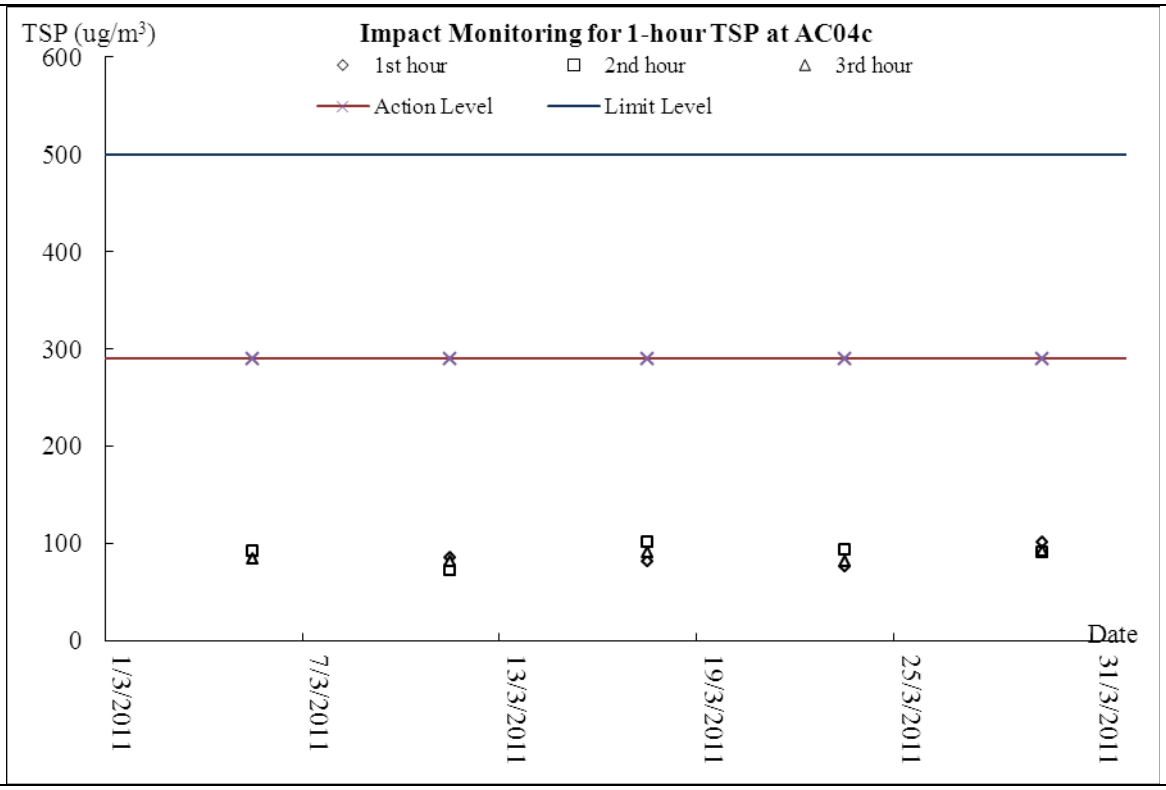
Next Calibration Date: 1-Apr-11 Intercept = 6.6424

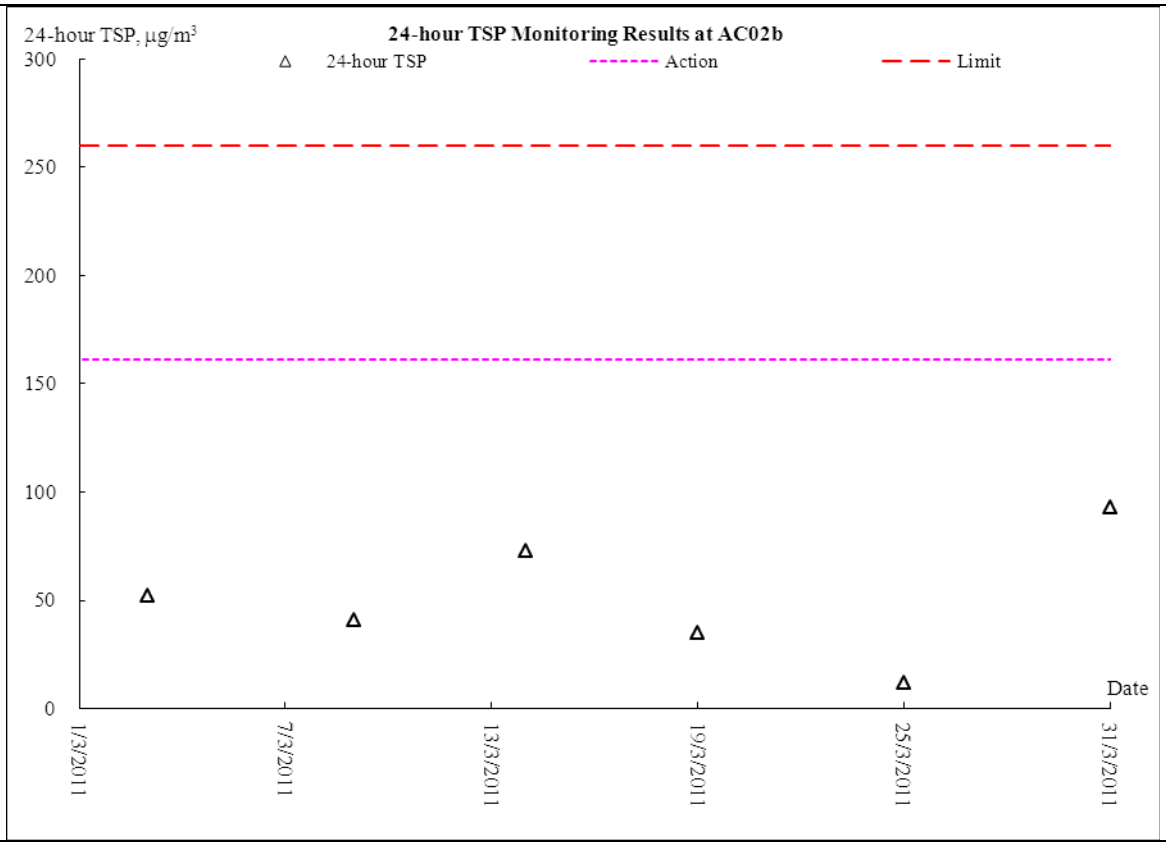
| DATE | SAMPLE NUMBER | ELAPSED TIME | | | CHART READING | | | AVG TEMP (oC) | STANDARD | | | INITIAL FILTER WEIGHT (g) | FINAL FILTER WEIGHT (g) | WEIGHT DUST COLLECTED (g) | DUST 24-hour TSP IN AIR (ug/m$^3$) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | INITIAL | FINAL | ACTUAL (min) | MIN | MAX | AVG | | AVG PRESS (hPa) | FLOW RATE (m3/min) | AIR VOLUME (std m3) | | | | |
| 3-Mar-11 | 23395 | 6081.26 | 6105.14 | 1432.80 | 35 | 37 | 36.0 | 18.1 | 1018.5 | 0.87 | 1248 | 2.811 | 2.9647 | 0.1537 | 123 |
| 9-Mar-11 | 23397 | 6105.14 | 6129.07 | 1435.80 | 36 | 38 | 37.0 | 15.7 | 1021.8 | 0.91 | 1302 | 2.783 | 2.9246 | 0.1416 | 109 |
| 14-Mar-11 | 23415 | 6129.07 | 6153.04 | 1438.20 | 35 | 37 | 36.0 | 22.4 | 1014.6 | 0.86 | 1238 | 2.78 | 2.9759 | 0.1959 | 158 |
| 19-Mar-11 | 23442 | 6153.04 | 6176.97 | 1435.80 | 36 | 38 | 37.0 | 16.7 | 1013.4 | 0.90 | 1292 | 2.8141 | 2.873 | 0.0589 | 46 |
| 25-Mar-11 | 23476 | 6176.97 | 6200.87 | 1434.00 | 37 | 39 | 38.0 | 17.4 | 1023.2 | 0.93 | 1339 | 2.8147 | 2.9674 | 0.1527 | 114 |
| 31-Mar-11 | 23512 | 6200.87 | 6224.77 | 1434.00 | 36 | 38 | 37.0 | 18.9 | 1018.5 | 0.90 | 1289 | 2.7939 | 2.8721 | 0.0782 | 61 |

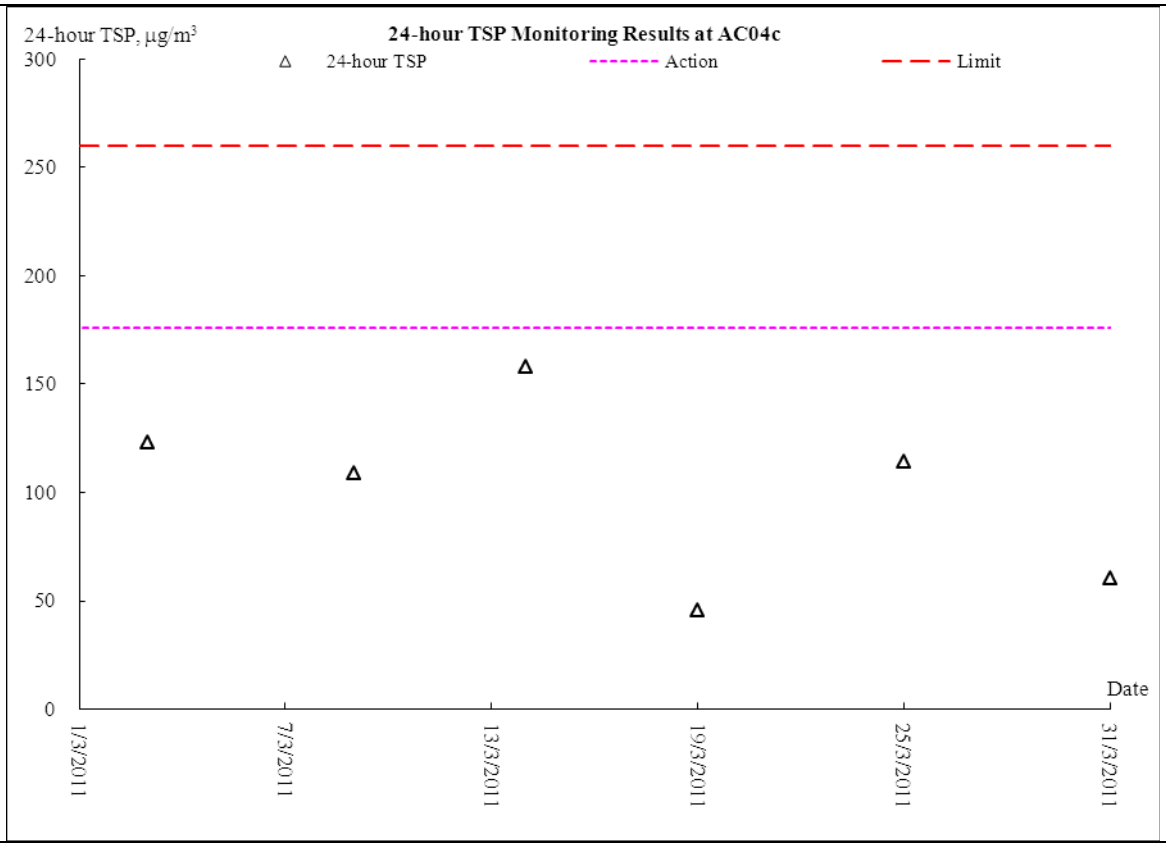
# Appendix H

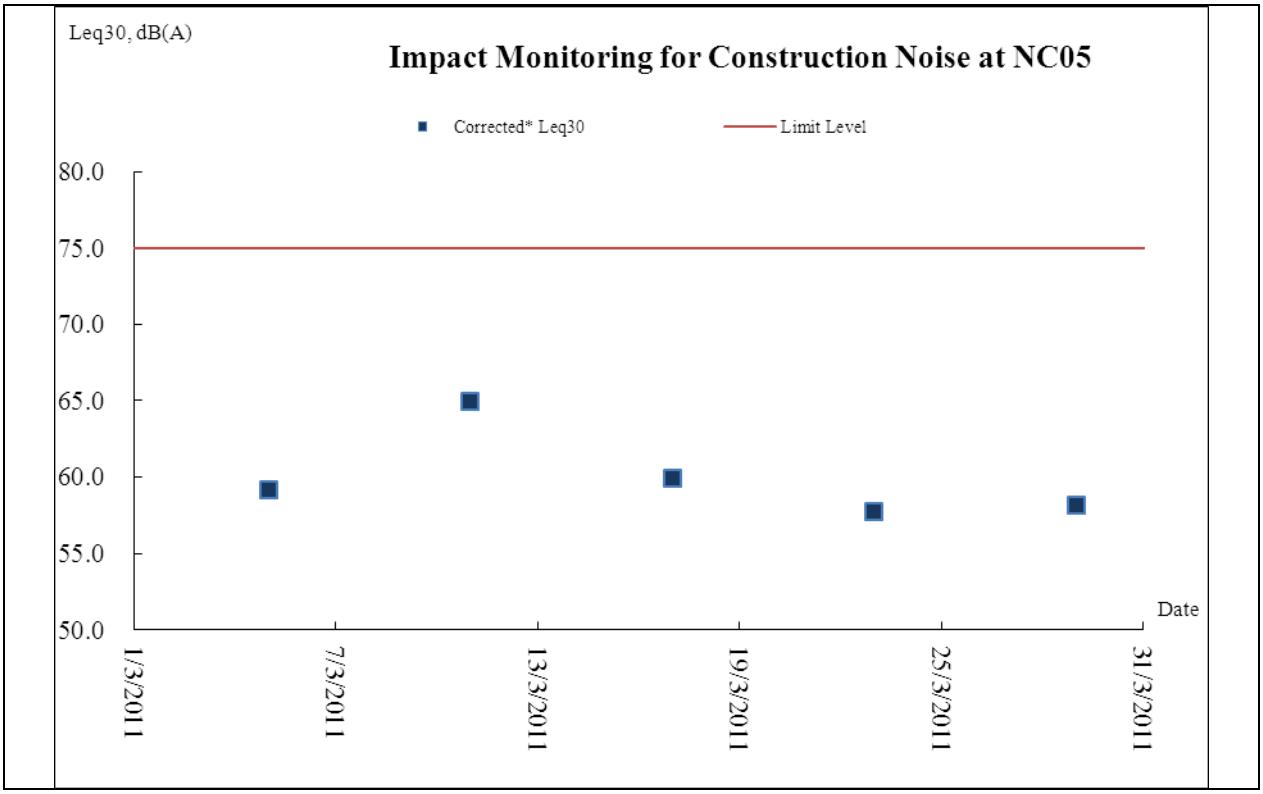
# Graphical Plots of Monitoring Results


TSP (ug/m³)
Impact Monitoring for 1-hour TSP at AC02b
1st hour
2nd hour
3rd hour
Action Level
Limit Level
600
500
400
300
200
100
0
Date
1/3/2011
7/3/2011
13/3/2011
19/3/2011
25/3/2011
31/3/2011


TSP (ug/m³)
Impact Monitoring for 1-hour TSP at AC04c
1st hour
2nd hour
3rd hour
Action Level
Limit Level
600
500
400
300
200
100
0
Date
1/3/2011
7/3/2011
13/3/2011
19/3/2011
25/3/2011
31/3/2011


24-hour TSP, µg/m³
24-hour TSP Monitoring Results at AC02b
24-hour TSP
Action
Limit
300
250
200
150
100
50
0
Date
1/3/2011
7/3/2011
13/3/2011
19/3/2011
25/3/2011
31/3/2011


24-hour TSP, µg/m³
24-hour TSP Monitoring Results at AC04c
24-hour TSP
Action
Limit
300
250
200
150
100
50
0
Date
1/3/2011
7/3/2011
13/3/2011
19/3/2011
25/3/2011
31/3/2011


Leq30, dB(A)
Impact Monitoring for Construction Noise at NC05
Corrected* Leq30
Limit Level
80.0
75.0
70.0
65.0
60.0
55.0
50.0
Date
1/3/2011
7/3/2011
13/3/2011
19/3/2011
25/3/2011
31/3/2011

# Appendix I

# Meteorological Information

## Meteorological Data Extracted from HKO during the Reporting Period

| Date | | Weather |
|---|---|---|
| 1-Mar-11 | Tue | Mainly cloudy with haze. |
| 2-Mar-11 | Wed | Cloudy. |
| 3-Mar-11 | Thu | A few rain patches. |
| 4-Mar-11 | Fri | Moderate east to northeasterly winds |
| 5-Mar-11 | Sat | Light winds. |
| 6-Mar-11 | Sun | Mainly fine apart from some haze in the afternoon. |
| 7-Mar-11 | Mon | Mainly cloudy with haze. |
| 8-Mar-11 | Tue | Moderate east to northeasterly winds |
| 9-Mar-11 | Wed | Mainly cloudy and dry. |
| 10-Mar-11 | Thu | Light winds. |
| 11-Mar-11 | Fri | Mainly fine and dry. |
| 12-Mar-11 | Sat | Moderate north to northeasterly winds |
| 13-Mar-11 | Sun | Cloudy. |
| 14-Mar-11 | Mon | Fresh to strong northerly winds. |
| 15-Mar-11 | Tue | Mainly cloudy. |
| 16-Mar-11 | Wed | Mainly cloudy and dry. |
| 17-Mar-11 | Thu | Moderate east to northeasterly winds |
| 18-Mar-11 | Fri | Fresh easterly winds |
| 19-Mar-11 | Sat | Moderate northeasterly winds. |
| 20-Mar-11 | Sun | Cloudy |
| 21-Mar-11 | Mon | Sunny periods |
| 22-Mar-11 | Tue | Cloudy with haze. |
| 23-Mar-11 | Wed | Moderate north to northeasterly winds |
| 24-Mar-11 | Thu | Mainly fine and dry. |
| 25-Mar-11 | Fri | Moderate northeasterly winds. |
| 26-Mar-11 | Sat | Mainly fine and very dry. |
| 27-Mar-11 | Sun | Dry with sunny periods. |
| 28-Mar-11 | Mon | Moderate east to northeasterly winds. |
| 29-Mar-11 | Tue | Moderate east to northeasterly winds. |
| 30-Mar-11 | Wed | Cloudy with a few rain patches. |
| 31-Mar-11 | Thu | Moderate easterly winds. |

# Appendix J

# Monthly Summary Waste Flow Table

**Name of Department:** ~~ArchSD/CEDD/DSD/EMSD/HyD/WSD~~ **Contract No.:** **DC/2009/13**

# Monthly Summary Waste Flow Table for March 2011

| Month | Actual Quantities of Inert C&D Materials Generated Monthly | | | | | | | | | | | | Actual Quantities of C&D Wastes Generated Monthly | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Total Quantity Generated (a) = (c)+(d)+(e) | | Hard Rock and Large Broken Concrete (b) | | Reused in the Contract (c) | | Reused in other Projects (d) | | Disposed as Public Fill (e) | | Imported Fill (f) | | Metals | | Paper/ cardboard packaging | | Plastics | | Chemical Waste | | Others, e.g. rubbish | |
| | (in '000m$^3$) | | (in '000m$^3$) | | (in '000m$^3$) | | (in '000m$^3$) | | (in '000m$^3$) | | (in '000m$^3$) | | (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 |
| **2010** | 4.522 | 0.030 | 0.068 | 0.104 | 0.488 | 0.000 | 0.000 | 0.000 | 4.033 | 0.030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 18.460 |
| Jan | 0.985 | 3.110 | 0.003 | 0.013 | 0.120 | 0.484 | 0.000 | 2.626 | 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 | 0.377 | 0.000 | 0.000 | 0.043 | 0.000 | 0.000 | 0.000 | 0.000 | 0.377 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.350 |
| Mar | 0.758 | 1.430 | 0.002 | 0.106 | 0.006 | 0.255 | 0.000 | 1.175 | 0.752 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.360 |
| Apr | | | | | | | | | | | | | | | | | | | | | | |
| May | | | | | | | | | | | | | | | | | | | | | | |
| Jun | | | | | | | | | | | | | | | | | | | | | | |
| **Sub-total** | 6.6419 | 4.5703 | 0.0719 | 0.2663 | 0.6145 | 0.7390 | 0.0000 | 3.8010 | 6.0275 | 0.0303 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 21.4100 |
| Jul | | | | | | | | | | | | | | | | | | | | | | |
| Aug | | | | | | | | | | | | | | | | | | | | | | |
| Sep | | | | | | | | | | | | | | | | | | | | | | |
| Oct | | | | | | | | | | | | | | | | | | | | | | |
| Nov | | | | | | | | | | | | | | | | | | | | | | |
| Dec | | | | | | | | | | | | | | | | | | | | | | |
| **Total** | 6.6419 | 4.5703 | 0.0719 | 0.2663 | 0.614 | 0.739 | 0.000 | 3.801 | 6.0275 | 0.0303 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 21.41 |
| | 11.212 | | 0.338 | | 1.353 | | 3.801 | | 6.058 | | 0.000 | | 0.000 | | 0.000 | | 0.000 | | 0.000 | | 21.41 | |

*Remark: Assume 1.0 m$^3$ vehicle dump load = 1.6 tonnes C&D materials*

YSW: Yung Shue Wan

SKW: Sok Kwu Wan

# Appendix K

# Weekly Site Inspection Checklist

# Environmental Team – Weekly Site Inspection and Audit Checklist – Yung Shue Wan

| | | | |
|---|---|---|---|
| **Project:** | **TCS/00512/09** | **Inspected by** | **Checklist No.** **TCS512A010311** |
| | ***Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan*** | **ETL/ ET's Representative:** | Ray Cheung |
| | | **RE's Representative:** | C.C. Cheung |
| | | **Contractor's Representative:** | Edwin Leung |
| | | **IEC's Representative:** | |
| **Date:** | 1 March 2011 | **Time:** | 11:00 |

**PART A:** **GENERAL INFORMATION**

Weather: ☐ Sunny ☐ Fine ☑ Cloudy ☐ Rainy

Temperature: 21.2 $^0$C

Humidity: ☐ High ☑ Moderate ☐ Low

Wind: ☐ Strong ☑ Breeze ☐ Light ☐ Calm

**Environmental Permit No.**

☑ EP- 282/2007

**Area Inspected**

1 Yung Shue Wan

**PART B:** **SITE AUDIT**

| **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** |
|---|---|---|---|---|---|---|---|
| ***Section 1: Water Quality*** | | | | | | | |
| 1.01 | Is an effluent discharge license obtained for the Project? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.02 | Is the effluent discharged in accordance with the discharge licence? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.03 | Is the discharge of turbid water avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.04 | Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.05 | Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.06 | Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.07 | Is drainage system well maintained? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.08 | As excavation proceeds, are temporary access roads protected by crushed stone or gravel? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.09 | Are temporary exposed slopes properly covered? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.10 | Are earthworks final surfaces well compacted or protected? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.11 | Are manholes adequately covered or temporarily sealed? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.12 | Are there any procedures and equipment for rainstorm protection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.13 | Are wheel washing facilities well maintained? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.14 | Is runoff from wheel washing facilities avoided? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.15 | Are there toilets provided on site? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.16 | Are toilets properly maintained? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.17 | Are the vehicle and plant servicing areas paved and located within roofed areas? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.18 | Is the oil leakage or spillage avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.19 | Are there any measures to prevent leaked oil from entering the drainage system? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.20 | Are there any measures to collect spilt cement and concrete washings during concreting works? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 1.21 | Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.22 | Are the oil interceptors/grease traps maintained properly? | ☑ | ☐ | ☐ | ☐ | ☐ | |

| 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? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 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 50m3 capacities for sedimentation. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.25 | No excavation is undertaken in the settlement area. | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.26 | Concreting wastes water should be neutralized below the pH Action Levels before discharge. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.27 | Mobile toilets should provide on site and located away the stream course. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.28 | License collector should be employed for handling the sewage of mobile toilet. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.29 | Is ponding /stand water avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 2: Air Quality*** | | | | | | | |
| 2.01 | Are there wheel washing facilities with high pressure jets provided at every vehicle exit point? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.02 | Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.03 | Are the excavated materials sprayed with water during handling? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.04 | Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.05 | Is the exposed earth properly treated within six months after the last construction activities? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 2.06 | Are the access roads sprayed with water to maintain the entire road surface wet or paved? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.07 | Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.08 | Is the load on vehicles covered entirely by clean impervious sheeting? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.09 | Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.10 | Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.11 | Is dark smoke emission from plant/equipment avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.12 | Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.13 | Are site vehicles travelling within the speed limit not more than 15km/hour? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.14 | Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.15 | Is open burning avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 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. | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 3: Noise*** | | | | | | | |
| 3.01 | Are noisy equipment and activities positioned as far as practicable from the sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.02 | Is silenced equipment adopted? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.03 | Is idle equipment turned off or throttled down? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.04 | Are all plant and equipment well maintained and in good condition? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.05 | Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.06 | Are hand held breakers fitted with valid noise emission labels during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.07 | Are air compressors fitted with valid noise emission labels during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.08 | Are flaps and panels of mechanical equipment closed during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |

| 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 |
|---|---|---|---|---|---|---|---|
| 3.09 | Are Construction Noise Permit(s) applied for percussive piling works? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 3.10 | Are Construction Noise Permit(s) applied for general construction works during restricted hours? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 3.11 | Are valid Construction Noise Permit(s) posted at site entrances? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 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). | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 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) | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 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). | ☑ | ☐ | ☐ | ☐ | ☐ | |
| ***Section 4: Waste/Chemical Management*** | | | | | | | |
| 4.01 | Waste Management Plan had been submit to Engineer for approval. | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.02 | Are receptacles available for general refuse collection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.03 | Is general refuse sorting or recycling implemented? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.04 | Is general refuse disposed of properly and regularly? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.05 | Is the Contractor registered as a chemical waste producer? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.06 | Are the chemical waste containers properly labelled? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.07 | Are the chemical wastes stored in proper storage areas? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.08 | Is the chemical waste storage area properly labelled? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.09 | Is the chemical waste storage area used for storage of chemical waste only? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.10 | Are incompatible chemical wastes stored in different areas? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.11 | Are the chemical wastes disposed of by licensed collectors? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.12 | Are trip tickets for chemical wastes disposal available for inspection? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.13 | Are chemical/fuel storage areas bounded? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.14 | Are designated areas identified for storage and sorting of construction wastes? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.15 | Are construction wastes sorted (inert and non-inert) on site? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.16 | Are construction wastes reused? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.17 | Are construction wastes disposed of properly? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.18 | Are site hoardings and signboards made of durable materials instead of timber? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.19 | Is trip ticket system implemented for the disposal of construction wastes and records available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.20 | Are appropriate procedures followed if contaminated material exists? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.21 | Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.22 | Site cleanliness and appropriate waste management training had provided for the site workers. | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.23 | Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| ***Section 5: Landscape & Visual*** | | | | | | | |
| 5.01 | Are retained and transplanted trees in health condition? | ☑ | ☐ | ☐ | ☐ | ☐ | |

| 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 |
|---|---|---|---|---|---|---|---|
| 5.02 | Are retained and transplanted trees properly protected? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 5.03 | Are surgery works carried out for the damaged trees? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 5.04 | Is damage to trees outside site boundary due to construction activities avoided? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 5.05 | Is the night-time lighting controlled to minimize glare to sensitive receivers? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| ***Section 7: Others*** | | | | | | | |
| 7.01 | Are relevant Environmental Permits posted at all vehicle site entrances/exits? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 7.02 | Are the warning sign or larvicidal oil record shown clearly at the construction site? | ☐ | ☑ | ☐ | ☐ | ☐ | |

**Remarks**

**Findings of Site Inspection (1 March 2011):**

No environmental issue was observed during the site inspection.

**Follow up: rectified on the same day**

**Prepared by:**
***ET's representative***

( Ray Cheung )

# Environmental Team – Weekly Site Inspection and Audit Checklist – Yung Shue Wan

| | | | |
|---|---|---|---|
| **Project:** | **TCS/00512/09** | **Inspected by** | **Checklist No.** **TCS512A080311** |
| | ***Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan*** | **ETL/ ET's Representative:** | TW Tam |
| | | **RE's Representative:** | C.C. Cheung |
| | | **Contractor's Representative:** | Edwin Leung |
| | | **IEC's Representative:** | KK Kwok |
| **Date:** | 8 March 2011 | **Time:** | 12:00 |

**PART A:** **GENERAL INFORMATION**

Weather: ☐ Sunny ☐ Fine ☑ Cloudy ☐ Rainy

Temperature: 15.5 $^0$C

Humidity: ☐ High ☑ Moderate ☐ Low

Wind: ☐ Strong ☐ Breeze ☑ Light ☐ Calm

**Environmental Permit No.**

☑ EP- 282/2007

**Area Inspected**

1 Yung Shue Wan

**PART B:** **SITE AUDIT**

| **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** |
|---|---|---|---|---|---|---|---|
| ***Section 1: Water Quality*** | | | | | | | |
| 1.01 | Is an effluent discharge license obtained for the Project? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.02 | Is the effluent discharged in accordance with the discharge licence? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.03 | Is the discharge of turbid water avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.04 | Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.05 | Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.06 | Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.07 | Is drainage system well maintained? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.08 | As excavation proceeds, are temporary access roads protected by crushed stone or gravel? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.09 | Are temporary exposed slopes properly covered? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.10 | Are earthworks final surfaces well compacted or protected? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.11 | Are manholes adequately covered or temporarily sealed? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.12 | Are there any procedures and equipment for rainstorm protection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.13 | Are wheel washing facilities well maintained? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.14 | Is runoff from wheel washing facilities avoided? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.15 | Are there toilets provided on site? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.16 | Are toilets properly maintained? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.17 | Are the vehicle and plant servicing areas paved and located within roofed areas? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.18 | Is the oil leakage or spillage avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.19 | Are there any measures to prevent leaked oil from entering the drainage system? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.20 | Are there any measures to collect spilt cement and concrete washings during concreting works? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 1.21 | Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.22 | Are the oil interceptors/grease traps maintained properly? | ☑ | ☐ | ☐ | ☐ | ☐ | |

| 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? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 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 50m3 capacities for sedimentation. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.25 | No excavation is undertaken in the settlement area. | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.26 | Concreting wastes water should be neutralized below the pH Action Levels before discharge. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.27 | Mobile toilets should provide on site and located away the stream course. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.28 | License collector should be employed for handling the sewage of mobile toilet. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.29 | Is ponding /stand water avoided? | ☐ | ☐ | ☐ | ☑ | ☐ | Remark 1 |
| ***Section 2: Air Quality*** | | | | | | | |
| 2.01 | Are there wheel washing facilities with high pressure jets provided at every vehicle exit point? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.02 | Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.03 | Are the excavated materials sprayed with water during handling? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.04 | Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.05 | Is the exposed earth properly treated within six months after the last construction activities? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 2.06 | Are the access roads sprayed with water to maintain the entire road surface wet or paved? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.07 | Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.08 | Is the load on vehicles covered entirely by clean impervious sheeting? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.09 | Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.10 | Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.11 | Is dark smoke emission from plant/equipment avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.12 | Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.13 | Are site vehicles travelling within the speed limit not more than 15km/hour? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.14 | Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.15 | Is open burning avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 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. | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 3: Noise*** | | | | | | | |
| 3.01 | Are noisy equipment and activities positioned as far as practicable from the sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.02 | Is silenced equipment adopted? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.03 | Is idle equipment turned off or throttled down? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.04 | Are all plant and equipment well maintained and in good condition? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.05 | Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.06 | Are hand held breakers fitted with valid noise emission labels during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.07 | Are air compressors fitted with valid noise emission labels during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.08 | Are flaps and panels of mechanical equipment closed during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |

| 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 |
|---|---|---|---|---|---|---|---|
| 3.09 | Are Construction Noise Permit(s) applied for percussive piling works? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 3.10 | Are Construction Noise Permit(s) applied for general construction works during restricted hours? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 3.11 | Are valid Construction Noise Permit(s) posted at site entrances? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 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). | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 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) | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 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). | ☑ | ☐ | ☐ | ☐ | ☐ | |
| ***Section 4: Waste/Chemical Management*** | | | | | | | |
| 4.01 | Waste Management Plan had been submit to Engineer for approval. | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.02 | Are receptacles available for general refuse collection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.03 | Is general refuse sorting or recycling implemented? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.04 | Is general refuse disposed of properly and regularly? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.05 | Is the Contractor registered as a chemical waste producer? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.06 | Are the chemical waste containers properly labelled? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.07 | Are the chemical wastes stored in proper storage areas? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.08 | Is the chemical waste storage area properly labelled? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.09 | Is the chemical waste storage area used for storage of chemical waste only? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.10 | Are incompatible chemical wastes stored in different areas? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.11 | Are the chemical wastes disposed of by licensed collectors? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.12 | Are trip tickets for chemical wastes disposal available for inspection? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.13 | Are chemical/fuel storage areas bounded? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.14 | Are designated areas identified for storage and sorting of construction wastes? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.15 | Are construction wastes sorted (inert and non-inert) on site? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.16 | Are construction wastes reused? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.17 | Are construction wastes disposed of properly? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.18 | Are site hoardings and signboards made of durable materials instead of timber? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.19 | Is trip ticket system implemented for the disposal of construction wastes and records available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.20 | Are appropriate procedures followed if contaminated material exists? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.21 | Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.22 | Site cleanliness and appropriate waste management training had provided for the site workers. | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.23 | Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| ***Section 5: Landscape & Visual*** | | | | | | | |
| 5.01 | Are retained and transplanted trees in health condition? | ☑ | ☐ | ☐ | ☐ | ☐ | |

| 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 |
|---|---|---|---|---|---|---|---|
| 5.02 | Are retained and transplanted trees properly protected? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 5.03 | Are surgery works carried out for the damaged trees? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 5.04 | Is damage to trees outside site boundary due to construction activities avoided? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 5.05 | Is the night-time lighting controlled to minimize glare to sensitive receivers? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| ***Section 7: Others*** | | | | | | | |
| 7.01 | Are relevant Environmental Permits posted at all vehicle site entrances/exits? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 7.02 | Are the warning sign or larvicidal oil record shown clearly at the construction site? | ☐ | ☑ | ☐ | ☐ | ☐ | |

**Remarks**

**Findings of Site Inspection (8 March 2011):**

Stagnant water was accumulated in the drip tray. The Contractor should clear the tray to prevent mosquito breeding.

**Follow up: rectified on the 15 March 2011**


The stagnant water was removed.

**Prepared by:**
***ET's representative***

( TW Tam )

# Environmental Team – Weekly Site Inspection and Audit Checklist – Yung Shue Wan

| | | | |
|---|---|---|---|
| **Project:** | **TCS/00512/09** | **Inspected by** | **Checklist No.** **TCS512A150311** |
| | ***Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan*** | **ETL/ ET's Representative:** | Ray Cheung |
| | | **RE's Representative:** | C.C. Cheung |
| | | **Contractor's Representative:** | Edwin Leung |
| | | **IEC's Representative:** | |
| **Date:** | 15 March 2011 | **Time:** | 12:00 |

**PART A:** **GENERAL INFORMATION**

Weather: ☐ Sunny ☐ Fine ☑ Cloudy ☐ Rainy

Temperature: 15.5 $^0$C

Humidity: ☐ High ☑ Moderate ☐ Low

Wind: ☐ Strong ☐ Breeze ☑ Light ☐ Calm

**Environmental Permit No.**

☑ EP- 282/2007

**Area Inspected**

1 Yung Shue Wan

**PART B:** **SITE AUDIT**

| **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** |
|---|---|---|---|---|---|---|---|
| ***Section 1: Water Quality*** | | | | | | | |
| 1.01 | Is an effluent discharge license obtained for the Project? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.02 | Is the effluent discharged in accordance with the discharge licence? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.03 | Is the discharge of turbid water avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.04 | Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.05 | Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.06 | Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.07 | Is drainage system well maintained? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.08 | As excavation proceeds, are temporary access roads protected by crushed stone or gravel? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.09 | Are temporary exposed slopes properly covered? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.10 | Are earthworks final surfaces well compacted or protected? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.11 | Are manholes adequately covered or temporarily sealed? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.12 | Are there any procedures and equipment for rainstorm protection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.13 | Are wheel washing facilities well maintained? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.14 | Is runoff from wheel washing facilities avoided? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.15 | Are there toilets provided on site? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.16 | Are toilets properly maintained? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.17 | Are the vehicle and plant servicing areas paved and located within roofed areas? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.18 | Is the oil leakage or spillage avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.19 | Are there any measures to prevent leaked oil from entering the drainage system? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.20 | Are there any measures to collect spilt cement and concrete washings during concreting works? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 1.21 | Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.22 | Are the oil interceptors/grease traps maintained properly? | ☑ | ☐ | ☐ | ☐ | ☐ | |

| 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? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 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 50m3 capacities for sedimentation. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.25 | No excavation is undertaken in the settlement area. | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.26 | Concreting wastes water should be neutralized below the pH Action Levels before discharge. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.27 | Mobile toilets should provide on site and located away the stream course. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.28 | License collector should be employed for handling the sewage of mobile toilet. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.29 | Is ponding /stand water avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 2: Air Quality*** | | | | | | | |
| 2.01 | Are there wheel washing facilities with high pressure jets provided at every vehicle exit point? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.02 | Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.03 | Are the excavated materials sprayed with water during handling? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.04 | Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.05 | Is the exposed earth properly treated within six months after the last construction activities? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 2.06 | Are the access roads sprayed with water to maintain the entire road surface wet or paved? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.07 | Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.08 | Is the load on vehicles covered entirely by clean impervious sheeting? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.09 | Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.10 | Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.11 | Is dark smoke emission from plant/equipment avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.12 | Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.13 | Are site vehicles travelling within the speed limit not more than 15km/hour? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.14 | Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.15 | Is open burning avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 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. | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 3: Noise*** | | | | | | | |
| 3.01 | Are noisy equipment and activities positioned as far as practicable from the sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.02 | Is silenced equipment adopted? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.03 | Is idle equipment turned off or throttled down? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.04 | Are all plant and equipment well maintained and in good condition? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.05 | Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.06 | Are hand held breakers fitted with valid noise emission labels during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.07 | Are air compressors fitted with valid noise emission labels during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.08 | Are flaps and panels of mechanical equipment closed during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |

| 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 |
|---|---|---|---|---|---|---|---|
| 3.09 | Are Construction Noise Permit(s) applied for percussive piling works? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 3.10 | Are Construction Noise Permit(s) applied for general construction works during restricted hours? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 3.11 | Are valid Construction Noise Permit(s) posted at site entrances? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 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). | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 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) | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 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). | ☑ | ☐ | ☐ | ☐ | ☐ | |
| ***Section 4: Waste/Chemical Management*** | | | | | | | |
| 4.01 | Waste Management Plan had been submit to Engineer for approval. | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.02 | Are receptacles available for general refuse collection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.03 | Is general refuse sorting or recycling implemented? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.04 | Is general refuse disposed of properly and regularly? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.05 | Is the Contractor registered as a chemical waste producer? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.06 | Are the chemical waste containers properly labelled? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.07 | Are the chemical wastes stored in proper storage areas? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.08 | Is the chemical waste storage area properly labelled? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.09 | Is the chemical waste storage area used for storage of chemical waste only? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.10 | Are incompatible chemical wastes stored in different areas? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.11 | Are the chemical wastes disposed of by licensed collectors? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.12 | Are trip tickets for chemical wastes disposal available for inspection? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.13 | Are chemical/fuel storage areas bounded? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.14 | Are designated areas identified for storage and sorting of construction wastes? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.15 | Are construction wastes sorted (inert and non-inert) on site? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.16 | Are construction wastes reused? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.17 | Are construction wastes disposed of properly? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.18 | Are site hoardings and signboards made of durable materials instead of timber? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.19 | Is trip ticket system implemented for the disposal of construction wastes and records available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.20 | Are appropriate procedures followed if contaminated material exists? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.21 | Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.22 | Site cleanliness and appropriate waste management training had provided for the site workers. | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.23 | Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| ***Section 5: Landscape & Visual*** | | | | | | | |
| 5.01 | Are retained and transplanted trees in health condition? | ☑ | ☐ | ☐ | ☐ | ☐ | |

| 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 |
|---|---|---|---|---|---|---|---|
| 5.02 | Are retained and transplanted trees properly protected? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 5.03 | Are surgery works carried out for the damaged trees? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 5.04 | Is damage to trees outside site boundary due to construction activities avoided? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 5.05 | Is the night-time lighting controlled to minimize glare to sensitive receivers? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| ***Section 7: Others*** | | | | | | | |
| 7.01 | Are relevant Environmental Permits posted at all vehicle site entrances/exits? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 7.02 | Are the warning sign or larvicidal oil record shown clearly at the construction site? | ☐ | ☑ | ☐ | ☐ | ☐ | |

**Remarks**

**Findings of Site Inspection (15 March 2011):**

No environmental issue was observed during the site inspection.

**Follow up: rectified on the 15 March 2011**

Prepared by:

***ET's representative***

( Ray Cheung )

# Environmental Team – Weekly Site Inspection and Audit Checklist – Yung Shue Wan

| | | | |
|---|---|---|---|
| **Project:** | **TCS/00512/09** | **Inspected by** | **Checklist No.** **TCS512A220311** |
| | ***Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan*** | **ETL/ ET's Representative:** | Ray Cheung |
| | | **RE's Representative:** | C.C. Cheung |
| | | **Contractor's Representative:** | Edwin Leung |
| | | **IEC's Representative:** | |
| **Date:** | 22 March 2011 | **Time:** | 12:00 |

**PART A:** **GENERAL INFORMATION**

Weather: ☐ Sunny ☐ Fine ☑ Cloudy ☐ Rainy

Temperature: 19.7 $^0$C

Humidity: ☐ High ☑ Moderate ☐ Low

Wind: ☐ Strong ☐ Breeze ☑ Light ☐ Calm

**Environmental Permit No.**

☑ EP- 282/2007

**Area Inspected**

1 Yung Shue Wan

**PART B:** **SITE AUDIT**

| **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** |
|---|---|---|---|---|---|---|---|
| ***Section 1: Water Quality*** | | | | | | | |
| 1.01 | Is an effluent discharge license obtained for the Project? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.02 | Is the effluent discharged in accordance with the discharge licence? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.03 | Is the discharge of turbid water avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.04 | Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent? | ☐ | ☐ | ☐ | ☑ | ☐ | Remark 2 |
| 1.05 | Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.06 | Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.07 | Is drainage system well maintained? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.08 | As excavation proceeds, are temporary access roads protected by crushed stone or gravel? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.09 | Are temporary exposed slopes properly covered? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.10 | Are earthworks final surfaces well compacted or protected? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.11 | Are manholes adequately covered or temporarily sealed? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.12 | Are there any procedures and equipment for rainstorm protection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.13 | Are wheel washing facilities well maintained? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.14 | Is runoff from wheel washing facilities avoided? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.15 | Are there toilets provided on site? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.16 | Are toilets properly maintained? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.17 | Are the vehicle and plant servicing areas paved and located within roofed areas? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.18 | Is the oil leakage or spillage avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.19 | Are there any measures to prevent leaked oil from entering the drainage system? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.20 | Are there any measures to collect spilt cement and concrete washings during concreting works? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 1.21 | Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.22 | Are the oil interceptors/grease traps maintained properly? | ☑ | ☐ | ☐ | ☐ | ☐ | |

| 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? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 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 50m3 capacities for sedimentation. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.25 | No excavation is undertaken in the settlement area. | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.26 | Concreting wastes water should be neutralized below the pH Action Levels before discharge. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.27 | Mobile toilets should provide on site and located away the stream course. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.28 | License collector should be employed for handling the sewage of mobile toilet. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.29 | Is ponding /stand water avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 2: Air Quality*** | | | | | | | |
| 2.01 | Are there wheel washing facilities with high pressure jets provided at every vehicle exit point? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.02 | Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.03 | Are the excavated materials sprayed with water during handling? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.04 | Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.05 | Is the exposed earth properly treated within six months after the last construction activities? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 2.06 | Are the access roads sprayed with water to maintain the entire road surface wet or paved? | ☐ | ☐ | ☐ | ☑ | ☐ | Remark 1 |
| 2.07 | Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.08 | Is the load on vehicles covered entirely by clean impervious sheeting? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.09 | Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.10 | Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.11 | Is dark smoke emission from plant/equipment avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.12 | Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.13 | Are site vehicles travelling within the speed limit not more than 15km/hour? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.14 | Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.15 | Is open burning avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 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. | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 3: Noise*** | | | | | | | |
| 3.01 | Are noisy equipment and activities positioned as far as practicable from the sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.02 | Is silenced equipment adopted? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.03 | Is idle equipment turned off or throttled down? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.04 | Are all plant and equipment well maintained and in good condition? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.05 | Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.06 | Are hand held breakers fitted with valid noise emission labels during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.07 | Are air compressors fitted with valid noise emission labels during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.08 | Are flaps and panels of mechanical equipment closed during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |

| 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 |
|---|---|---|---|---|---|---|---|
| 3.09 | Are Construction Noise Permit(s) applied for percussive piling works? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 3.10 | Are Construction Noise Permit(s) applied for general construction works during restricted hours? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 3.11 | Are valid Construction Noise Permit(s) posted at site entrances? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 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). | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 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) | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 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). | ☑ | ☐ | ☐ | ☐ | ☐ | |
| ***Section 4: Waste/Chemical Management*** | | | | | | | |
| 4.01 | Waste Management Plan had been submit to Engineer for approval. | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.02 | Are receptacles available for general refuse collection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.03 | Is general refuse sorting or recycling implemented? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.04 | Is general refuse disposed of properly and regularly? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.05 | Is the Contractor registered as a chemical waste producer? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.06 | Are the chemical waste containers properly labelled? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.07 | Are the chemical wastes stored in proper storage areas? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.08 | Is the chemical waste storage area properly labelled? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.09 | Is the chemical waste storage area used for storage of chemical waste only? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.10 | Are incompatible chemical wastes stored in different areas? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.11 | Are the chemical wastes disposed of by licensed collectors? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.12 | Are trip tickets for chemical wastes disposal available for inspection? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.13 | Are chemical/fuel storage areas bounded? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.14 | Are designated areas identified for storage and sorting of construction wastes? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.15 | Are construction wastes sorted (inert and non-inert) on site? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.16 | Are construction wastes reused? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.17 | Are construction wastes disposed of properly? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.18 | Are site hoardings and signboards made of durable materials instead of timber? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.19 | Is trip ticket system implemented for the disposal of construction wastes and records available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.20 | Are appropriate procedures followed if contaminated material exists? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.21 | Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.22 | Site cleanliness and appropriate waste management training had provided for the site workers. | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.23 | Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| ***Section 5: Landscape & Visual*** | | | | | | | |
| 5.01 | Are retained and transplanted trees in health condition? | ☑ | ☐ | ☐ | ☐ | ☐ | |

| 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 |
|---|---|---|---|---|---|---|---|
| 5.02 | Are retained and transplanted trees properly protected? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 5.03 | Are surgery works carried out for the damaged trees? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 5.04 | Is damage to trees outside site boundary due to construction activities avoided? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 5.05 | Is the night-time lighting controlled to minimize glare to sensitive receivers? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| ***Section 7: Others*** | | | | | | | |
| 7.01 | Are relevant Environmental Permits posted at all vehicle site entrances/exits? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 7.02 | Are the warning sign or larvicidal oil record shown clearly at the construction site? | ☐ | ☑ | ☐ | ☐ | ☐ | |

**Remarks**

**Findings of Site Inspection (22 March 2011):**


The public access was full of mud, the Contractor should clear the road or pave the road to maintain good house-keeping and dust control.


Sediment in the sedimentation tank has to be removed to restore its de-silting capacity.

**Follow up: rectified on the 29 March 2011**


The mud on the access was cleared.


The tank was cleaned.

**Prepared by:**
***ET's representative***

( Ray Cheung )

# Environmental Team – Weekly Site Inspection and Audit Checklist – Yung Shue Wan

| | | | |
|---|---|---|---|
| **Project:** | **TCS/00512/09** | **Inspected by** | **Checklist No.** **TCS512A290311** |
| | ***Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan*** | **ETL/ ET's Representative:** | Ray Cheung |
| | | **RE's Representative:** | C.C. Cheung |
| | | **Contractor's Representative:** | Edwin Leung |
| | | **IEC's Representative:** | |
| **Date:** | 29 March 2011 | **Time:** | 12:00 |

**PART A:** **GENERAL INFORMATION**

Weather: ☐ Sunny ☐ Fine ☑ Cloudy ☐ Rainy

Temperature: 18.0 $^0$C

Humidity: ☐ High ☑ Moderate ☐ Low

Wind: ☐ Strong ☐ Breeze ☑ Light ☐ Calm

**Environmental Permit No.**

☑ EP- 282/2007

**Area Inspected**

1 Yung Shue Wan

**PART B:** **SITE AUDIT**

| **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** |
|---|---|---|---|---|---|---|---|
| ***Section 1: Water Quality*** | | | | | | | |
| 1.01 | Is an effluent discharge license obtained for the Project? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.02 | Is the effluent discharged in accordance with the discharge licence? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.03 | Is the discharge of turbid water avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.04 | Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.05 | Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.06 | Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.07 | Is drainage system well maintained? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.08 | As excavation proceeds, are temporary access roads protected by crushed stone or gravel? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.09 | Are temporary exposed slopes properly covered? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.10 | Are earthworks final surfaces well compacted or protected? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.11 | Are manholes adequately covered or temporarily sealed? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.12 | Are there any procedures and equipment for rainstorm protection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.13 | Are wheel washing facilities well maintained? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.14 | Is runoff from wheel washing facilities avoided? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.15 | Are there toilets provided on site? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.16 | Are toilets properly maintained? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.17 | Are the vehicle and plant servicing areas paved and located within roofed areas? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.18 | Is the oil leakage or spillage avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.19 | Are there any measures to prevent leaked oil from entering the drainage system? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.20 | Are there any measures to collect spilt cement and concrete washings during concreting works? | ☐ | ☐ | ☐ | ☐ | ☑ | |
| 1.21 | Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.22 | Are the oil interceptors/grease traps maintained properly? | ☑ | ☐ | ☐ | ☐ | ☐ | |

| 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? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 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 50m3 capacities for sedimentation. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.25 | No excavation is undertaken in the settlement area. | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 1.26 | Concreting wastes water should be neutralized below the pH Action Levels before discharge. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.27 | Mobile toilets should provide on site and located away the stream course. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.28 | License collector should be employed for handling the sewage of mobile toilet. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 1.29 | Is ponding /stand water avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 2: Air Quality*** | | | | | | | |
| 2.01 | Are there wheel washing facilities with high pressure jets provided at every vehicle exit point? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.02 | Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.03 | Are the excavated materials sprayed with water during handling? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.04 | Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.05 | Is the exposed earth properly treated within six months after the last construction activities? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 2.06 | Are the access roads sprayed with water to maintain the entire road surface wet or paved? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.07 | Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.08 | Is the load on vehicles covered entirely by clean impervious sheeting? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.09 | Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.10 | Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.11 | Is dark smoke emission from plant/equipment avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.12 | Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.13 | Are site vehicles travelling within the speed limit not more than 15km/hour? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.14 | Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 2.15 | Is open burning avoided? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 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. | ☐ | ☑ | ☐ | ☐ | ☐ | |
| ***Section 3: Noise*** | | | | | | | |
| 3.01 | Are noisy equipment and activities positioned as far as practicable from the sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.02 | Is silenced equipment adopted? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.03 | Is idle equipment turned off or throttled down? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.04 | Are all plant and equipment well maintained and in good condition? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.05 | Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.06 | Are hand held breakers fitted with valid noise emission labels during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.07 | Are air compressors fitted with valid noise emission labels during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 3.08 | Are flaps and panels of mechanical equipment closed during operation? | ☐ | ☑ | ☐ | ☐ | ☐ | |

| 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 |
|---|---|---|---|---|---|---|---|
| 3.09 | Are Construction Noise Permit(s) applied for percussive piling works? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 3.10 | Are Construction Noise Permit(s) applied for general construction works during restricted hours? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 3.11 | Are valid Construction Noise Permit(s) posted at site entrances? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 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). | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 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) | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 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). | ☑ | ☐ | ☐ | ☐ | ☐ | |
| ***Section 4: Waste/Chemical Management*** | | | | | | | |
| 4.01 | Waste Management Plan had been submit to Engineer for approval. | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.02 | Are receptacles available for general refuse collection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.03 | Is general refuse sorting or recycling implemented? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.04 | Is general refuse disposed of properly and regularly? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.05 | Is the Contractor registered as a chemical waste producer? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.06 | Are the chemical waste containers properly labelled? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.07 | Are the chemical wastes stored in proper storage areas? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.08 | Is the chemical waste storage area properly labelled? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.09 | Is the chemical waste storage area used for storage of chemical waste only? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.10 | Are incompatible chemical wastes stored in different areas? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.11 | Are the chemical wastes disposed of by licensed collectors? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.12 | Are trip tickets for chemical wastes disposal available for inspection? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 4.13 | Are chemical/fuel storage areas bounded? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.14 | Are designated areas identified for storage and sorting of construction wastes? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.15 | Are construction wastes sorted (inert and non-inert) on site? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.16 | Are construction wastes reused? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.17 | Are construction wastes disposed of properly? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.18 | Are site hoardings and signboards made of durable materials instead of timber? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.19 | Is trip ticket system implemented for the disposal of construction wastes and records available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.20 | Are appropriate procedures followed if contaminated material exists? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.21 | Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.22 | Site cleanliness and appropriate waste management training had provided for the site workers. | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 4.23 | Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002. | ☑ | ☐ | ☐ | ☐ | ☐ | |
| ***Section 5: Landscape & Visual*** | | | | | | | |
| 5.01 | Are retained and transplanted trees in health condition? | ☑ | ☐ | ☐ | ☐ | ☐ | |

| 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 |
|---|---|---|---|---|---|---|---|
| 5.02 | Are retained and transplanted trees properly protected? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 5.03 | Are surgery works carried out for the damaged trees? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 5.04 | Is damage to trees outside site boundary due to construction activities avoided? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| 5.05 | Is the night-time lighting controlled to minimize glare to sensitive receivers? | ☑ | ☐ | ☐ | ☐ | ☐ | |
| ***Section 7: Others*** | | | | | | | |
| 7.01 | Are relevant Environmental Permits posted at all vehicle site entrances/exits? | ☐ | ☑ | ☐ | ☐ | ☐ | |
| 7.02 | Are the warning sign or larvicidal oil record shown clearly at the construction site? | ☐ | ☑ | ☐ | ☐ | ☐ | |

**Remarks**

**Findings of Site Inspection (29 March 2011):**

No environmental issue was observed during the site inspection.

**Follow up:**

**Prepared by:**
***ET's representative***

( Ray Cheung )

# 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 | |
| **Construction Phase** | | | | | | | | |
| 2.3.18 | 2.10.2 | Adopting the following good site practices and follow the dust control requirements of the Air Pollution Control (Construction Dust) Regulation:<br>• Stockpiles of imported material kept on site should be contained within hoardings, dampened and / or covered during dry and windy weather;<br>• Material stockpiled alongside trenches should be covered with tarpaulins whenever works are close to village houses;<br>• Water sprays should be used during the delivery and handling of cement, sands, aggregates and the like.<br>• 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. | Work site / during construction | All contractors | | √ | | TM- EIAO, APCO, Air Pollution Control (Construction Dust) Regulation |
| 2.10.3 | Section 2 | 1 hour and 24 hour dust monitoring and site audit | Designated air 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 Noise Measures

| EIA Ref | EM&A Ref | Environmental Protection Measures* | Location/Timing | Implementation Agent | Implementation Stages ** | | | Relevant Legislation & Guidelines |
|---|---|---|---|---|---|---|---|---|
| | | | | | D | C | O | |
| **Construction Phase** | | | | | | | | |
| \2.4.16 | 3.8.2 | Implementation of following measures during the sewer construction:<br>• Use of quiet PME or method;<br>• Restriction on the number plant (1 item for each type of plant); and<br>• Good Site Practices<br>➢ Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.<br>➢ Mobile plant, if any, should be sited as far away from NSRs as possible.<br>➢ 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.<br>➢ 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.<br>➢ Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities. | Work site /during the construction of Sewer. | Contractor | | √ | | EIAO-TM, NCO |
| 2.10.5 to 2.10.9 | 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 | |
| **Construction Phase** | | | | | | | | |
| 2.5.23 | 4.12.1 | No-dig method using Horizontal Directional Drilling (HDD) would be used for the installation of main portion of outfall pipes | Marine works site / During construction of submarine outfall | Contractor | | √ | | |
| 4.5.38 | 4.12.3 | Dredging Works<br>Implementation of following measures during the dredging works:<br>• dredging should be undertaken using closed grab dredgers with a maximum total production rate of 55$m^3$/hr;<br>• 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;<br>• dredging operation should be undertaken during ebb tide only;<br>• 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;<br>• all pipe leakages should be repaired promptly and plant should not be operated with leaking pipes;<br>• excess material should be cleaned from the decks and exposed fittings of barges before the vessel is moved;<br>• adequate freeboard (i.e. minimum of 200mm) should be maintained on barges to ensure that decks are not washed by wave action;<br>• all barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material;<br>• loading of barges should be controlled to prevent splashing of dredged material to the surrounding water, and barges should not be filled to a level which will cause the overflow of materials or polluted water during loading or transportation; and | Marine works site and at the identified water sensitive receivers/ 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 | |
| | | • the decks of all vessels should be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard. | | | | | | |
| 2.5.39 | 4.12.4 | <u>Construction Run-off and Drainage</u><br>Implementation of the following site practices outlined in ProPECC PN 1/94 for "Construction Site Drainage"<br>• Provision of perimeter channels to intercept storm-runoff from outside the site. These should be constructed in advance of site formation works and earthworks.<br>• 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.<br>• 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.<br>• Careful programming of the works to minimise soil excavation works during rainy seasons.<br>• Exposed soil surface should be protected by paving or hydroseeding as soon as possible to reduce the potential of soil erosion.<br>• Trench excavation should be avoided in the wet season, and if necessary, these should be excavated and backfilled in short sections.<br>• Open stockpiles of construction materials on site should be covered with tarpaulin or similar fabric | Construction works sites | Contractor | | √ | | ProPECC PN 1/94 |
| 2.5.39 | 4.12.5 | <u>General Construction Activities</u><br>• Debris and rubbish generated on-site should be collected, handled and disposed of properly to avoid entering the nearby | 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 | |
| | | coastal waters and stormwater drains.<br>• 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.<br>• Open drainage channels and culverts near the works areas should be covered to block the entrance of large debris and refuse. | | | | | | |
| 2.5.39 | 4.12.6 | Wastewater Arising from Workforce<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 | | √ | | |
| 2.10.10 | 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 | |
| 2.9.24 | 5.2.1 | Carrying out Sediment Quality Investigation | Marine works site / prior to construction | DSD | √ | | | WBTC No. 34/2002 |
| 2.9.23 | 5.2.1 | 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 |
| 2.9.23 | 5.2.2 | Implement appropriate dredging methods which have been incorporated into the recommended water quality mitigation measures. | Marine works site, during dredging works | Contractor | | √ | | |
| 2.9.23 | 5.2.3 | During the transportation and disposal of the dredged sediment, the following measures should be taken:<br>• 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.<br>• 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. | Marine works site and at the identified sensitive receivers | Contractor | | √ | | |

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** 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 | |
| **Construction Phase** | | | | | | | | |
| 2.9.14 | 6.6.2 | Good site practices<br>• 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<br>• Training (proper waste management and chemical handling procedure) should be provided for site staffs<br>• Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.<br>• Provision of sufficient waste disposal points and regular collection for disposal.<br>• Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Facility.<br>• Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.<br>• Maintain records of the quantities of wastes generated, recycled and disposed. | Work sites/During construction | Contractor | | √ | | Waste Disposal Ordinance (Cap.54) |
| 2.9.15 | 6.2.3 | The Contractor will be required to open a billing account under the Construction Waste Disposal Charging Scheme, and to pay for disposal of all construction waste. The construction waste will be sent to a designated reception facility, which in this case will be YSW RTS, where drivers must present a valid chit for disposal of each load. | Work sites/During construction | Contractor | | √ | | Waste disposal (Amendment) Ordinance 2004 |
| 2.9.16 | 6.2.4 | Recommendations to achieve waste reduction include:<br>• 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;<br>• to encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to | 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 | |
| | | segregate this waste from other general refuse generated by the work force;<br>• any unused chemicals or those with remaining functional capacity should be recycled;<br>• use of reusable non-timber formwork to reduce the amount of C&D material;<br>• 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;<br>• proper storage and site practices to minimise the potential for damage or contamination of construction materials; and<br>• plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. | | | | | | |
| 2.9.18 | 6.2.5 | <u>General Site Wastes</u><br>• A collection area for construction site waste should be provided where waste can be stored prior to removal from site<br>• An enclosed and covered area for the collection of the waste is recommended to reduce 'wind blow' of light material | Work sites/During construction | Contractor | | √ | | Public Health and Municipal Services Ordinance (Cap. 132) |
| 2.9.19 | 6.2.6 and 6.2.7 | <u>Chemical Wastes</u><br>• After use, chemical waste should be handled according to the Code of Practice on the Package, Labelling and Storage of Chemical Wastes<br>• Any unused chemicals or those with remaining functional capacity should be recycled<br>• 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. | 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 | |
| | | • 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.<br>• Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should be undertaken within the designated areas equipped control these discharges | | | | | | |
| 2.9.21 and 2.9.22 | 6.2.8 and 6.2.9 | <u>Construction and Demolition Material</u><br>• The C&D waste should be separated on-site into three categories:<br>➢ 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;<br>➢ C&D waste for re-use and / or recycling, the non-inert portion of the C&D material, (e.g. steel and other metals, woods, glass and plastic);<br>➢ C&D waste which cannot be re-used and / or recycled (e.g. wood, glass and plastic)<br>• Where possible, inert material should be re-used on-site<br>• Where practicable, steel and other metals should be separated for re-use and/or recycling prior to disposal of C&D material | 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 | |
| **Construction Phase** | | | | | | | | |
| 2.10.11 and 2.10.12 | 7.2 and 7.3 | Carry out monitoring of corals before, during and after marine works. | Work sites / during construction phase | Contractor | | √ | | |
| 2.6.45 to 2.6.48 | 7.6.1 | Use horizontal directional drilling to avoid direct disturbance to corals | Marine works site / during dredging works | Contractor | | √ | | |
| 2.6.57 to 2.6.58 | 4.12.3 | Deploying of 2-layer silt curtains with the first layer enclosing the grab an the second layer at around 50m from the dredging area while dredging works are in progress | All work sites / during construction phase | Contractor | | √ | | |
| 2.6.51 | 7.6.1 | Fence off the slope stabilisation works area from surrounding shrubland and/ woodland, to prevent access to or disturbance of adjacent habitats. The works area should be as small as is possible, consistent with the requirements of the works. | STW/ During construction | 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 | |
| 2.5.37 | 4.12.4 | 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 |

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** 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 | |
| **Construction Phase** | | | | | | | | |
| 2.8.37 | 9.2.2 | Careful and efficient transplanting of affected trees to temporary or final transplant location (the proposed tree to be transplanted is a semi-mature *Macaranga tanarius* and is located at the proposed Pumping Station P2 location). | All sites | Contractor | | √ | | WBTC No. 14/2002 |
| 2.8.37 | 9.2.2 | Short excavation and immediate backfilling sections upon completion of works to reduce active site area. | All sites | Contractor | | √ | | |
| 2.8.37 | 9.2.2 | Screening of site construction works by use of hoarding that is appropriate to its site. | All sites | Contractor | | √ | | WBTC No. 19/2001 |
| 2.8.37 | 9.2.2 | Conservation of topsoil for reuse. | All sites | Contractor | | √ | | |
| 2.8.30 | 9.2.2 | 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