



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.31) – MARCH 2013**

PREPARED FOR  
**LEADER CIVIL ENGINEERING CORPORATION LIMITED**

**Quality Index**

| <b>Date</b>   | <b>Reference No.</b>    | <b>Prepared By</b>   | <b>Approved By</b>  |
|---------------|-------------------------|--|---|
| 12 April 2013 | TCS00512/09/600/R0628v1 |  |  |
|               |                         | Nicola Hon<br>Environmental Consultant   | T.W. Tam<br>Environmental Team Leader   |

| <b>Version</b> | <b>Date</b>   | <b>Description</b> |
|----------------|---------------|--------------------|
| 1              | 12 April 2013 | First Submission   |
|                |               |                    |
|                |               |                    |

# Scott Wilson CDM Joint Venture

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Chief Engineer/Harbour Area Treatment  
Scheme  
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Hong Kong

Your reference:

Our reference: 05117/6/16/412052

Date: 18 April 2013

**BY FAX AND EMAIL**

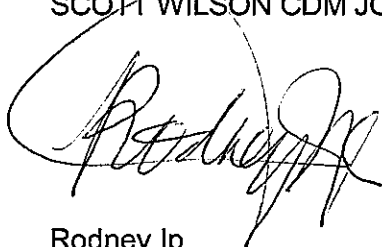
Attention: Ms. Jacky C M Wong

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. 31 (March 2013)**

We refer to the Monthly EM&A Monitoring Report No. 31 for March 2013 received under cover of the email from the Environmental Team, Action-United Environmental Services and Consulting (AUES), dated on 16 April 2013. We have no comment and have verified the captioned report.

Yours faithfully  
SCOTT WILSON CDM JOINT VENTURE



Rodney Ip  
Independent Environmental Checker

ICWR/SYSL/ecwc

cc    Leader Civil Engineering    (Attn: Mr Vincent Chan)  
      AUES                                (Attn: Mr T.W. Tam)  
      ER/LAMMA                        (Attn: Mr Ian Jones)  
      CDM                                (Attn: Mr Mark Sin)

## EXECUTIVE SUMMARY

ES.01. This is the **31<sup>st</sup>** monthly Environmental Monitoring and Audit (EM&A) for Yung Shue Wan (hereinafter ‘this Report’) for the designated works under Environmental Permit [EP-282/2007], covering a period from **26 February to 25 March 2013** (hereinafter ‘the Reporting Period’).

### ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

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

| Issues             | Environmental Monitoring Parameters / Inspection | Occasions |
|--------------------|--|-----------|
| Air Quality        | 1-hour TSP                                       | 30        |
|                    | 24-hour TSP                                      | 10        |
| Construction Noise | $L_{eq(30min)}$ Daytime                          | 5         |
| Water Quality      | Marine Water Sampling                            | 12        |
| Ecology            | Coral Monitoring                                 | 3         |
| Inspection / Audit | ET Regular Environmental Site Inspection         | 4         |

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

ES.03. No exceedance in air quality and construction noise monitoring was recorded in this Reporting Period. 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   | $L_{eq(30min)}$ Daytime | 0            | 0           | 0              | --            | --                 |
| Water Quality        | DO                      | 0            | 0           | 0              | --            | --                 |
|                      | Turbidity               | 0            | 0           | 0              | --            | --                 |
|                      | SS                      | 0            | 0           | 0              | --            | --                 |
| Ecology (Coral)      | Sediment Cover (%)      | 0            | 0           | 0              | --            | --                 |
|                      | Bleaching (%)           | 0            | 0           | 0              | --            | --                 |
|                      | Mortality (%)           | 0            | 0           | 0              | --            | --                 |

Note: NOE – Notification of Exceedance

### SITE INSPECTION

ES.04. In this Reporting Period, **4** events of weekly joint inspection by the RE, the Contractor and ET were carried out on **26 February, 6, 12 and 19 March 2013**.

### ENVIRONMENTAL COMPLAINT, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES.05. No written or verbal complaint, environmental summons or successful prosecutions were recorded in this Reporting Period.

### REPORTING CHANGE

ES.06. No reporting change is made in this Reporting Period.

### FUTURE KEY ISSUES

ES.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. Mitigation measures for water quality should be fully implemented.

ES.08. Nevertheless, the Contractor shall keep paying 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 sea body within Fish culture zone at Picnic Bay and the Secondary recreation contact subzone at Mo Tat Wan should be avoided. Therefore, mitigation measures for water quality should be fully implemented.

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## 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 Kwu 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 (EP) No. EP-281/2007 and EP-282/2007 for the Project have been obtained by the DSD on 29 June 2007 for the relevant works. After July 2009, EP-281/2007/A instead EP-281/2007 is EP for Sok Kwu Wan relevant Works.
- 1.02 The Project involves construction of sewage treatment works at Sok Kwu Wan and Yung Shue Wan with a capacity of 1,430m<sup>3</sup>/day and 2,850m<sup>3</sup>/day respectively to provide secondary treatment, construction of 2 pumping stations at Sok Kwu Wan and 1 pumping station at Yung Shue Wan, construction of submarine outfall from the coastline and laying of underground sewerage pipeline. The site layout plan for the captioned work under the Project is showing in **Appendix A**
- 1.03 According to the Particular Specification (PS) and **Appendix 25** of the Project, Leader should establish an Environmental Team (ET) 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 programme. Organization chart of the Environmental Team for the Project is shown in **Appendix B**. For ease of reporting, the proposed EM&A programme for baseline and impact monitoring is split to following two stand-alone parts:
- (a) Proposed EM&A Programme for Baseline and Impact Monitoring – Sok Kwu Wan (under EP No. 281/2007/A varied on 23 September 2009)
  - (b) Proposed EM&A Programme for Baseline and Impact Monitoring – Yung Shue Wan (under EP No. 282/2007)
- 1.05 This is the **31<sup>st</sup>** monthly EM&A Report for Yung Shue Wan Portion Area which presenting the monitoring results and inspection findings in the Reporting Period from **26 February to 25 March 2013**.

### REPORT STRUCTURE

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

|                   |   |
|-------------------|---|
| <b>SECTION 1</b>  | <b>INTRODUCTION</b>                                   |
| <b>SECTION 2</b>  | <b>PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS</b> |
| <b>SECTION 3</b>  | <b>SUMMARY OF MONITORING REQUIREMENTS</b>             |
| <b>SECTION 4</b>  | <b>AIR QUALITY MONITORING RESULTS</b>                 |
| <b>SECTION 5</b>  | <b>CONSTRUCTION NOISE MONITORING RESULTS</b>          |
| <b>SECTION 6</b>  | <b>WATER QUALITY MONITORING RESULTS</b>               |
| <b>SECTION 7</b>  | <b>ECOLOGY MONITORING RESULTS</b>                     |
| <b>SECTION 8</b>  | <b>WASTE MANAGEMENT</b>                               |
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| <b>SECTION 10</b> | <b>ENVIRONMENTAL COMPLAINTS AND NON-COMPLIANCE</b>    |
| <b>SECTION 11</b> | <b>IMPLEMENTATION STATUES OF MITIGATION MEASURES</b>  |
| <b>SECTION 12</b> | <b>IMPACT FORECAST</b>                                |
| <b>SECTION 13</b> | <b>CONCLUSIONS AND RECOMMENDATION</b>                 |

## 2 PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

### PROJECT ORGANIZATION AND MANAGEMENT STRUCTURE

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

### CONSTRUCTION PROGRESS

- 2.02 The master and three month rolling construction programme are enclosed in [Appendix C](#) and the major construction activities undertaken in this Reporting Period are listed below:-

- Construction of road and drainage works in yard area
- Excavation and lateral support for the FS tank,
- Rebar fixing, formwork erection/ removal
- Backfilling and soil compaction
- E&M installation
- Plastering and painting
- Placing foam concrete at outfall diffuser

### SUMMARY OF ENVIRONMENTAL SUBMISSIONS

- 2.03 Summary of the relevant permits, licences, and/or notifications on environmental protection for this Project in this Reporting Period 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) Regulation | 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-RS0074-13)         | Issued on 29 January 2013<br>Valid from 29 January 2013<br>until 25 July 2013 |

- 2.04 Summary of the report submission for EM&A Programme is presented in [Table 2-2](#).

**Table 2-2 Status of EM&A Programme Submission**

| Item | EM&A Programme Submission   | Status   |
|------|---|--|
| 1    | Proposed EM&A Programme for Baseline / Impact Monitoring – Yung Shue Wan (TCS00512/09/600/R0011Ver.5) | Verified by IEC and submitted to EPD on 8 July 2010      |
| 2    | Method Statement for Coral Monitoring – Yung Shue Wan (TCS00512/09/600/R0071Ver.3)                    | Verified by IEC and submitted to EPD on 25 November 2010 |
| 3    | Baseline Air and Noise Monitoring Report - Volume 1 (TCS00512/09/600/R0061Ver.3)                      | Verified by IEC and submitted to EPD on 31 August 2010   |
| 4    | Baseline Monitoring Report Volume 2 - Water Quality (TCS00512/09/600/R0158Ver.2)                      | Verified by IEC and submitted to EPD on 10 March 2011    |
| 5    | Baseline Survey for Coral Monitoring – Yung Shue Wan (TCS00512/09/600/R0132Ver.3)                     | Verified by IEC and submitted to EPD on 17 February 2011 |
| 6    | Methodology of Coral Tagging for Impact Monitoring – Yung Shue Wan                                    | Verified by IEC and submitted to EPD on 28 March 2011    |
| 7    | Coral Tagging Report (TCS00512/09/600/R0214Ver.4)   | Verified by IEC and submitted to EPD on 3 August 2011    |



### 3 SUMMARY OF BASELINE MONITORING REQUIREMENTS

#### ENVIRONMENTAL ASPECT

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

**Table 3-1 Summary of the EM&A Requirements**

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

#### 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, 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 were accepted by the Engineer Representative (ER) and Independent Environmental Checker (IEC) and EPD for endorsement. 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

- 3.07 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  |

### Coral Monitoring

- 3.08 The coral monitoring stations to be performed under the Project is show in *Appendix D*. The details of the monitoring location could be referred to *Impact Coral Monitoring Report* which enclosed in *Appendix M*.

### **MONITORING FREQUENCY AND PERIOD**

- 3.09 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, 4.8, 7.3 and 7.4*. 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:  $L_{eq(30min)}$  &  $L_{eq(5min)}$ ,  $L_{10}$  and  $L_{90}$ .

$L_{eq(15min)}$  &  $L_{eq(5min)}$ ,  $L_{10}$  and  $L_{90}$  during the construction undertaken during Restricted hours (19:00 to 07:00 hours next of normal working day and full day of public holiday and Sunday)

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

Duration: Throughout the construction period

#### **Marine Water Quality Monitoring**

Parameters: Duplicate in-situ measurements: water depth, temperature, dissolved oxygen, pH, turbidity and salinity  
HOKLAS-accredited laboratory analysis: suspended solids

Frequency: Three days a week, at mid ebb and mid flood tides. The interval between 2 sets of monitoring will be more than 36 hours

Sampling Depth (i.) Three depths: 1m below water surface, 1m above sea bottom and at mid-depth when the water depth exceeds 6m.  
(ii.) If the water depth is between 3m and 6m, two depths: 1m below water surface and 1m above sea bottom  
(iii.) If the water depth is less than 3m, 1 sample at mid-depth is taken

Duration: During the course of marine works

#### **Coral Monitoring**

Parameters: Presence and coverage of hard and soft corals such as diversity, abundance and health status of the corals in the general area, plus other physical and biological condition at the underwater environment

Frequency: One per week for the first three months of the marine works. If no exceedances are reported during the first three months, the frequency may be reduced to twice every month

Duration: During the course of marine works

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

- 3.10 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.

#### **Post-Construction Monitoring – Ecology Monitoring**

- 3.11 Following completion of the marine works, post project monitoring should be carried out within two weeks of completion of the marine works (HDD and dredging), and should comprise the same two-tier Rapid Assessment Ecological Assessment (REA) method adopted for the baseline survey.

#### **MONITORING EQUIPMENT**

##### **Air Quality Monitoring**

- 3.12 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**

- 3.13 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.

Water Quality Monitoring

- 3.14 **Dissolved Oxygen and Temperature Measuring Equipment** – The instrument should be a portable and weatherproof dissolved oxygen (DO) measuring instrument complete with cable and sensor, and use a DC power source. The equipment should be capable of measuring as included a DO level in the range of 0 – 20mg L<sup>-1</sup> and 0 – 200% saturation; and a temperature of 0 – 45 degree Celsius.
- 3.15 **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.
- 3.16 **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.
- 3.17 **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.
- 3.18 **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.
- 3.19 **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.
- 3.20 **Sample Containers and Storage** – Water samples for suspended solids should be stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4°C without being frozen).
- 3.21 **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.
- 3.22 **Suspended Solids Analysis** – Analysis of suspended solids shall be carried out in a HOKLAS or other international accredited laboratory.

Coral Monitoring

- 3.23 The monitoring equipments used for the coral monitoring could be referred to **Impact Coral Monitoring report** which enclosed in [Appendix M](#).

**EQUIPMENT CALIBRATION**

- 3.24 Calibration of the High Volume Sampler (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.
- 3.25 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.

- 3.26 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.
- 3.27 The water quality monitoring equipments such as DO meter, pH Meter, turbidity measuring instrument and salinometer, are calibrated by HOKLAS accredited laboratory of three month intervals.
- 3.28 All updated calibration certificates of the monitoring equipment used for the impact monitoring programme in the Reporting Period would be attached in [Appendix E](#).

#### METEOROLOGICAL INFORMATION

- 3.29 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

- 3.30 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 programme.
- 3.31 The monitoring data recorded in the equipment e.g. 1-hour TSP meter, sound level 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.

#### REPORTING

- 3.32 It was agreed among the ER, IEC, Contractor and ET that, in order to streamline the EM&A report submission and to cater for the occasional delay in obtaining laboratory analysis results, the cutoff day for each month is the 25<sup>th</sup> i.e. the first day of each report is the 26<sup>th</sup> of the last month and the end day, the 25<sup>th</sup> of that month.

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

- 3.33 According to the Yung Shue Wan Environmental Monitoring and Audit Manual, the air quality, construction noise, marine water quality and coral monitoring were established, namely Action and Limit levels are listed in [Tables 3-5 to 3-8](#) as below.

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

| Monitoring Station | Action Level ( $\mu\text{g}/\text{m}^3$ ) |             | Limit Level ( $\mu\text{g}/\text{m}^3$ ) |             |
|--------------------|---|-------------|--|-------------|
|                    | 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.

**Table 3-7 Action and Limit Levels for Marine Water Quality**

| Parameter                                       | Performance Criteria | Impact Station |       |       |
|---|----------------------|----------------|-------|-------|
|   |                      | WY1            | WY2   | WY3   |
| DO Concentration (Surface and Middle)<br>(mg/L) | Action Level         | 3.63           | 3.53  | 3.61  |
|   | Limit Level          | 3.32           | 3.47  | 3.42  |
| DO Concentration (Bottom)<br>(mg/L)             | Action Level         | 3.33           | 2.92  | 3.36  |
|   | Limit Level          | 3.23           | 2.63  | 3.14  |
| Turbidity (Depth-Average)<br>(NTU)              | Action Level         | 10.94          | 14.16 | 14.99 |
|   | Limit Level          | 17.35          | 15.20 | 16.21 |
| Suspended Solids (Depth-Average)<br>(mg/L)      | Action Level         | 17.52          | 14.04 | 14.52 |
|   | Limit Level          | 25.62          | 16.51 | 16.88 |

**Table 3-8 Action and Limit Levels for Coral Monitoring**

| Step | Action   |
|------|--|
| 1    | Commence tagged coral monitoring at the impact site. If no increase in sedimentation cover/bleaching/partial mortality is observed on the hard corals or partial mortality on the soft/black corals, no action is required. If an increase in sedimentation cover/bleaching/partial mortality is observed on the hard corals or partial mortality on the soft/black corals at one or more impact monitoring stations Step 3 should be enacted, if not, Step 2.   |
| 2    | If non actions are triggered a formal report should be issued along with evidentiary photographs following completion of the survey. Meanwhile monitoring work and construction works should continue uninterrupted.   |
| 3    | If during the impact monitoring a 15% increase in the percentage of sedimentation on the hard corals occurs at more than 20% of the tagged coral colonies at the Impact Monitoring Station that is not reported at the Control Monitoring Station, then the Action Level is exceeded (Step 4).   |
| 4    | If the Action Level is exceeded the IC(E) should inform all parties. The data from the water quality monitoring should also be reviewed. If the water quality monitoring shows no attributable effects of the installation works, then the Action Level is not triggered. If the water quality data indicate exceedances (for SS and/or turbidity) the IC(E) should discuss with the Contractor the most appropriate method of reducing suspended solids during construction (e.g. reduce rate of dredging). The water quality data reviewed should then be enacted on the next working day. |
| 5    | Monitoring should proceed the following day as per Step 1.<br>If during the Impact Monitoring a 25% increase in the percentage of sedimentation on the hard corals at more than 20% of the tagged coral colonies at the Impact Monitoring Station that is not reported at the Control Monitoring Station, then the Limit Level is exceeded (Step 6).<br>If the Limit Level is not exceeded Step 2 is enacted and work continues according to the mitigated method.   |
| 6    | If the Limit Level is exceeded the Inspector Officer should inform all parties immediately. Should the Limit Level be exceeded, the Contractor should stop works immediately and work out a solution to the satisfaction of the IC(E), EPD and AFCD. The IC(E) should inform the Contractor to suspend marine construction works until an effective solution is identified. Once the solution has identified and agreed with all parties, backfilling works may re-commence.   |

3.34 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 the Contractor, the construction of relevant land works at Yung Shue Wan was commenced on 14 September 2010. The impact EM&A programme 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<br>( $\mu\text{g}/\text{m}^3$ ) | 1-hour TSP ( $\mu\text{g}/\text{m}^3$ ) |            |                                |                               |                               |
|--------------------|---|---|------------|--------------------------------|-------------------------------|-------------------------------|
|                    |   | Date                                    | Start Time | 1 <sup>st</sup> hour measured  | 2 <sup>nd</sup> hour measured | 3 <sup>rd</sup> hour measured |
| 26-Feb-13          | 93  | 26-Feb-13                               | 14:40      | 136                            | 144                           | 139                           |
| 4-Mar-13           | 114   | 4-Mar-13                                | 13:35      | 141                            | 156                           | 148                           |
| 9-Mar-13           | 56  | 8-Mar-13                                | 15:25      | 143                            | 157                           | 161                           |
| 15-Mar-13          | 75  | 14-Mar-13                               | 9:25       | 133                            | 141                           | 128                           |
| 21-Mar-13          | 55  | 20-Mar-13                               | 13:12      | 30                             | 26                            | 21                            |
| Average<br>(Range) | <b>79</b><br><b>(55 – 114)</b>              | Average<br>(Range)                      |            | <b>120</b><br><b>(21– 161)</b> |                               |                               |

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

| Date               | 24-hour TSP<br>( $\mu\text{g}/\text{m}^3$ ) | 1-hour TSP ( $\mu\text{g}/\text{m}^3$ ) |            |                                 |                               |                               |
|--------------------|---|---|------------|---------------------------------|-------------------------------|-------------------------------|
|                    |   | Date                                    | Start Time | 1 <sup>st</sup> hour measured   | 2 <sup>nd</sup> hour measured | 3 <sup>rd</sup> hour measured |
| 26-Feb-13          | 34  | 26-Feb-13                               | 9:23       | 148                             | 161                           | 155                           |
| 4-Mar-13           | 103   | 4-Mar-13                                | 10:18      | 132                             | 143                           | 147                           |
| 9-Mar-13           | 50  | 8-Mar-13                                | 13:00      | 155                             | 172                           | 164                           |
| 15-Mar-13          | 142   | 14-Mar-13                               | 11:45      | 153                             | 146                           | 155                           |
| 21-Mar-13          | 84  | 20-Mar-13                               | 11:07      | 19                              | 19                            | 20                            |
| Average<br>(Range) | <b>83</b><br><b>(34 – 142)</b>              | Average<br>(Range)                      |            | <b>126</b><br><b>(19 – 172)</b> |                               |                               |

4.03 As shown in *Tables 4-1 and 4-2*, the 1-hour and 24-hour TSP monitoring results fluctuated below the Action Level during this 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  $L_{eq(30min)}$  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 | 1 <sup>st</sup> set<br>$L_{eq5}$ | 2 <sup>nd</sup> set<br>$L_{eq5}$ | 3 <sup>rd</sup> set<br>$L_{eq5}$ | 4 <sup>th</sup> set<br>$L_{eq5}$ | 5 <sup>th</sup> set<br>$L_{eq5}$ | 6 <sup>th</sup> set<br>$L_{eq5}$ | $L_{eq30}$ | Corrected<br>$L_{eq30}^*$ |
|--------------------|------------|----------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|------------|---------------------------|
| 26-Feb-13          | 9:55       | 10:25    | 56.9                             | 51.3                             | 60.1                             | 57.5                             | 52.7                             | 53.2                             | 56.4       | 59.4                      |
| 4-Mar-13           | 11:05      | 11:35    | 60.8                             | 61.8                             | 59.2                             | 59.7                             | 59.8                             | 60.9                             | 60.5       | 63.5                      |
| 8-Mar-13           | 13:05      | 13:35    | 60.4                             | 60.1                             | 60.2                             | 60.4                             | 61.0                             | 61.0                             | 60.5       | 63.5                      |
| 14-Mar-13          | 9:45       | 10:15    | 63.2                             | 64.0                             | 67.7                             | 66.0                             | 69.2                             | 57.1                             | 65.9       | 68.9                      |
| 20-Mar-13          | 10:20      | 10:50    | 67.2                             | 62.9                             | 64.5                             | 62.6                             | 58.1                             | 58.3                             | 63.4       | 66.4                      |
| <b>Limit Level</b> |            |          |                                  |                                  |                                  |                                  |                                  |                                  | -          | <b>75 dB(A)</b>           |

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

5.03 It was noted that no noise complaint (which is an Action Level exceedance) was received. In view of the results shown in *Table 5-1*, all the values are well below 75dB(A), therefore, no Action or Limit Level exceedance was triggered during this Reporting Period.



## 6 IMPACT MONITORING RESULTS – WATER QUALITY

- 6.01 In this Reporting Period, **12** days of water quality monitoring were carried out at the designated locations. Nevertheless, monitoring at both tides of 26 November and flood tides of 22 December were only carried out at impact stations (WY1 – WY3) as the working boat unable to travel far from the coast of Yung Shun Wan due to high surge of the sea.
- 6.02 Field measurements of both control and impact stations showed that marine water of the depth average of the salinity concentration was within **33.74 to 35.39** ppt, and pH value was within **6.84 to 7.99**. The monitoring results including in-situ measurements and laboratory testing results are presented in [Appendix G](#). The graphical plots are shown in [Appendix H](#).
- 6.03 Monitoring results of 3 key parameters: dissolved oxygen (DO), turbidity and suspended solids in this Reporting Period, are summarized in [Tables 6-1, 6-2, 6-3 and 6-4](#). A summary of exceedances for the three parameters: dissolved oxygen (DO), turbidity and suspended solids are shown in [Table 6-5](#).

**Table 6-1 Summary of Water Quality Results – Mid-ebb Tides (Dissolved Oxygen)**

| Sampling date | Dissolved Oxygen conc. of Depth Ave. of Surf. and Mid Layer (mg/L) |      |      |      |      | Dissolved Oxygen conc. of Depth Ave. of Bottom Layer (mg/L) |      |      |      |      |
|---------------|--|------|------|------|------|---|------|------|------|------|
|               | WY1  | WY2  | WY3  | CY1  | CY2  | WY1   | WY2  | WY3  | CY1  | CY2  |
| 26-Feb-13     | 8.09   | 8.86 | 8.45 | 8.53 | 9.02 | 8.67  | 8.78 | 8.71 | 8.36 | 9.26 |
| 28-Feb-13     | 7.02   | 7.67 | 7.49 | 7.75 | 7.80 | 7.66  | 7.72 | 7.66 | 7.82 | 8.12 |
| 2-Mar-13      | 7.33   | 7.36 | 7.24 | 7.41 | 7.35 | 7.15  | 7.31 | 7.31 | 7.23 | 7.17 |
| 4-Mar-13      | 7.66   | 7.60 | 7.08 | 7.54 | 7.64 | 7.09  | 7.39 | 7.17 | 7.04 | 7.10 |
| 6-Mar-13      | 7.82   | 7.72 | 7.57 | 7.33 | 6.68 | 7.74  | 8.06 | 7.88 | 7.29 | 6.42 |
| 8-Mar-13      | 6.79   | 8.27 | 7.36 | 8.18 | 8.08 | 7.34  | 8.61 | 7.64 | 8.68 | 8.10 |
| 12-Mar-13     | 8.05   | 7.59 | 7.19 | 7.63 | 6.79 | 8.09  | 7.18 | 7.59 | 7.18 | 6.59 |
| 14-Mar-13     | 6.89   | 6.75 | 7.15 | 5.94 | 7.46 | 7.06  | 6.49 | 7.16 | 5.57 | 6.91 |
| 16-Mar-13     | 4.99   | 4.50 | 5.01 | 4.74 | 6.84 | 5.46  | 4.90 | 5.30 | 4.63 | 7.06 |
| 18-Mar-13     | 5.98   | 5.94 | 6.06 | 5.74 | 6.05 | 6.32  | 6.42 | 6.03 | 6.14 | 6.31 |
| 20-Mar-13     | 7.21   | 6.77 | 6.66 | 6.13 | 6.93 | 7.19  | 5.82 | 6.67 | 5.95 | 7.27 |
| 22-Mar-13     | 8.46   | 6.36 | 6.90 | 5.83 | 5.97 | 8.26  | 6.42 | 6.90 | 6.09 | 5.84 |

**Table 6-2 Summary of Water Quality Results – Mid-ebb Tides (Turbidity & Suspended Solids)**

| Sampling date | Turbidity Depth Ave. (NTU) |      |      |      |      | Suspended Solids Depth Ave. (mg/L) |      |      |      |      |
|---------------|----------------------------|------|------|------|------|------------------------------------|------|------|------|------|
|               | WY1                        | WY2  | WY3  | CY1  | CY2  | WY1                                | WY2  | WY3  | CY1  | CY2  |
| 26-Feb-13     | 1.94                       | 1.95 | 1.95 | 1.32 | 1.27 | 3.90                               | 3.80 | 5.75 | 3.33 | 3.63 |
| 28-Feb-13     | 1.75                       | 1.15 | 1.88 | 1.19 | 1.12 | 4.60                               | 2.27 | 2.90 | 3.90 | 5.47 |
| 2-Mar-13      | 2.39                       | 0.99 | 2.62 | 0.88 | 0.85 | 5.30                               | 5.13 | 5.40 | 6.13 | 4.93 |
| 4-Mar-13      | 3.57                       | 1.76 | 3.44 | 1.35 | 1.08 | 4.45                               | 5.27 | 4.15 | 2.70 | 3.07 |
| 6-Mar-13      | 2.32                       | 1.45 | 2.61 | 1.33 | 1.35 | 3.55                               | 0.77 | 4.85 | 0.50 | 1.10 |
| 8-Mar-13      | 1.15                       | 1.02 | 1.41 | 1.34 | 0.93 | 1.60                               | 1.33 | 1.65 | 2.63 | 1.17 |
| 12-Mar-13     | 1.41                       | 1.41 | 1.31 | 1.63 | 1.25 | 2.30                               | 1.67 | 1.90 | 2.13 | 2.60 |
| 14-Mar-13     | 1.23                       | 1.30 | 1.39 | 1.07 | 1.15 | 1.20                               | 3.70 | 1.60 | 1.00 | 0.77 |
| 16-Mar-13     | 1.56                       | 1.28 | 1.74 | 1.22 | 1.64 | 2.60                               | 2.33 | 2.45 | 1.90 | 4.03 |
| 18-Mar-13     | 1.73                       | 1.22 | 1.58 | 1.05 | 1.52 | 4.70                               | 2.50 | 3.60 | 2.60 | 1.50 |
| 20-Mar-13     | 2.34                       | 2.24 | 1.81 | 1.63 | 1.62 | 2.40                               | 2.47 | 2.90 | 2.97 | 2.60 |
| 22-Mar-13     | 2.12                       | 1.55 | 1.94 | 1.20 | 1.19 | 2.95                               | 2.47 | 3.30 | 3.53 | 2.87 |

**Table 6-3 Summary of Water Quality Results – Mid-flood Tides (Dissolved Oxygen)**

| Sampling date | Dissolved Oxygen conc. of Depth Ave. of Surf. and Mid Layer (mg/L) |      |      |      |      | Dissolved Oxygen conc. of Depth Ave. of Bottom Layer (mg/L) |      |      |      |      |
|---------------|--|------|------|------|------|---|------|------|------|------|
|               | WY1  | WY2  | WY3  | CY1  | CY2  | WY1   | WY2  | WY3  | CY1  | CY2  |
| 26-Feb-13     | 8.84   | 8.24 | 7.82 | 7.76 | 7.74 | 9.06  | 8.73 | 8.83 | 8.35 | 8.12 |
| 28-Feb-13     | 7.10   | 7.17 | 7.12 | 7.15 | 7.49 | 7.41  | 7.51 | 7.41 | 7.36 | 7.60 |
| 2-Mar-13      | 7.42   | 7.49 | 7.44 | 7.37 | 7.56 | 7.38  | 7.53 | 7.47 | 7.53 | 7.56 |
| 4-Mar-13      | 7.49   | 7.35 | 7.48 | 7.26 | 7.49 | 7.42  | 7.29 | 7.27 | 7.16 | 7.15 |
| 6-Mar-13      | 7.90   | 7.64 | 7.96 | 6.67 | 8.00 | 7.92  | 7.81 | 8.10 | 6.59 | 7.98 |
| 8-Mar-13      | 7.82   | 8.17 | 8.06 | 7.86 | 8.49 | 8.61  | 8.59 | 8.31 | 8.27 | 8.31 |
| 12-Mar-13     | 6.08   | 6.38 | 6.63 | 6.22 | 6.08 | 7.09  | 6.29 | 6.74 | 5.48 | 5.42 |
| 14-Mar-13     | 7.13   | 7.89 | 7.28 | 8.18 | 6.93 | 6.62  | 7.73 | 6.70 | 8.38 | 5.84 |
| 16-Mar-13     | 7.88   | 8.09 | 8.33 | 7.21 | 7.33 | 8.19  | 8.05 | 8.25 | 7.23 | 7.14 |
| 18-Mar-13     | 6.17   | 6.18 | 6.35 | 6.59 | 5.71 | 6.10  | 6.32 | 6.53 | 6.70 | 5.88 |
| 20-Mar-13     | 7.33   | 7.28 | 6.08 | 7.82 | 7.37 | 7.15  | 6.64 | 5.88 | 6.93 | 7.34 |
| 22-Mar-13     | 7.82   | 6.97 | 7.22 | 7.06 | 7.41 | 6.73  | 5.96 | 6.61 | 6.19 | 6.59 |

**Table 6-4 Summary of Water Quality Results – Mid-flood Tides (Turbidity & Suspended Solids)**

| Sampling date | Turbidity Depth Ave. (NTU) |      |      |      |      | Suspended Solids Depth Ave. (mg/L) |      |      |      |      |
|---------------|----------------------------|------|------|------|------|------------------------------------|------|------|------|------|
|               | WY1                        | WY2  | WY3  | CY1  | CY2  | WY1                                | WY2  | WY3  | CY1  | CY2  |
| 26-Feb-13     | 1.87                       | 1.92 | 2.07 | 1.10 | 0.69 | 3.45                               | 6.33 | 6.10 | 3.80 | 2.93 |
| 28-Feb-13     | 1.29                       | 1.32 | 1.37 | 1.26 | 1.19 | 3.75                               | 3.13 | 4.10 | 4.60 | 3.47 |
| 2-Mar-13      | 1.18                       | 0.92 | 1.03 | 0.77 | 0.85 | 6.65                               | 7.40 | 5.45 | 7.00 | 7.50 |
| 4-Mar-13      | 1.37                       | 1.43 | 1.51 | 1.49 | 1.77 | 2.60                               | 4.30 | 2.30 | 1.97 | 3.63 |
| 6-Mar-13      | 1.10                       | 0.77 | 1.15 | 1.03 | 1.15 | 1.55                               | 1.90 | 1.60 | 1.43 | 1.27 |
| 8-Mar-13      | 1.01                       | 0.92 | 1.24 | 1.00 | 0.94 | 3.30                               | 1.83 | 1.10 | 1.47 | 1.30 |
| 12-Mar-13     | 1.04                       | 0.73 | 1.02 | 0.70 | 0.76 | 1.95                               | 2.00 | 2.10 | 2.23 | 2.03 |
| 14-Mar-13     | 0.85                       | 1.04 | 1.03 | 0.87 | 0.75 | 0.80                               | 1.87 | 1.50 | 1.97 | 1.60 |
| 16-Mar-13     | 1.10                       | 1.07 | 1.33 | 0.84 | 1.30 | 1.80                               | 2.60 | 2.15 | 2.50 | 1.87 |
| 18-Mar-13     | 1.28                       | 0.86 | 1.16 | 1.06 | 1.20 | 2.30                               | 2.63 | 2.80 | 2.67 | 3.70 |
| 20-Mar-13     | 2.33                       | 1.79 | 2.78 | 1.58 | 1.38 | 4.10                               | 6.00 | 1.45 | 1.57 | 1.20 |
| 22-Mar-13     | 1.81                       | 1.29 | 1.62 | 0.90 | 0.96 | 5.05                               | 2.43 | 3.85 | 1.67 | 2.97 |

**Table 6-5 Summarized Exceedances of Marine Water Quality**

| Station                 | DO (Ave of Surf. & mid-depth) |       | DO (Ave. of Bottom Layer) |       | Turbidity (Depth Ave.) |       | SS (Depth Ave) |       | Total Exceedance |       |
|-------------------------|-------------------------------|-------|---------------------------|-------|------------------------|-------|----------------|-------|------------------|-------|
|                         | Action                        | Limit | Action                    | Limit | Action                 | Limit | Action         | Limit | Action           | Limit |
| <b>Mid-Ebb</b>          |                               |       |                           |       |                        |       |                |       |                  |       |
| WY1                     | 0                             | 0     | 0                         | 0     | 0                      | 0     | 0              | 0     | 0                | 0     |
| WY2                     | 0                             | 0     | 0                         | 0     | 0                      | 0     | 0              | 0     | 0                | 0     |
| WY3                     | 0                             | 0     | 0                         | 0     | 0                      | 0     | 0              | 0     | 0                | 0     |
| <b>Mid-Flood</b>        |                               |       |                           |       |                        |       |                |       |                  |       |
| WY1                     | 0                             | 0     | 0                         | 0     | 0                      | 0     | 0              | 0     | 0                | 0     |
| WY2                     | 0                             | 0     | 0                         | 0     | 0                      | 0     | 0              | 0     | 0                | 0     |
| WY3                     | 0                             | 0     | 0                         | 0     | 0                      | 0     | 0              | 0     | 0                | 0     |
| <b>No of Exceedance</b> | 0                             | 0     | 0                         | 0     | 0                      | 0     | 0              | 0     | 0                | 0     |

6.04 For marine water monitoring, no exceedance of Action/Limit level was recorded in this Reporting Period. Therefore, no associated corrective actions were then required.

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## 7 IMPACT MONITORING RESULTS – ECOLOGY MONITORING

- 7.01 Impact monitoring for coral shall be conducted initially at a frequency of once per week for the first three months of the marine works (HDD and dredging). If no exceedances are reported during this period, then the frequency may be reduced to twice every month for the remainder of the marine works.
- 7.02 In this Reporting Period, impact coral monitoring was conducted on **4, 15 and 25 March 2013**. The coral monitoring report presents the result coral monitoring at Yung Shue Wan and Sham Wan is presented in *Appendix M*.

## 8 WASTE MANAGEMENT

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

### Records of Waste Quantities

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

- Construction & Demolition (C&D) material;
- Chemical waste;
- General refuse; and
- Excavated soil.

8.03 The quantities of waste for disposal in this Reporting Period are summarized in [Tables 8-1](#) and [8-2](#) and the Monthly Summary Waste Flow Table is shown in [Appendix J](#). Whenever possible, materials were reused on-site as far as practicable.

**Table 8-1 Summary of Quantities of Inert C&D Materials**

| Type of Waste  | Quantity | Disposal Location |
|--|----------|-------------------|
| C&D Materials (Inert) ('000m <sup>3</sup> )            | 0        | -                 |
| Reused in this Contract (Inert) ('000m <sup>3</sup> )  | 0        | -                 |
| Reused in other Projects (Inert) ('000m <sup>3</sup> ) | 0        | -                 |
| Disposal as Public Fill (Inert) ('000m <sup>3</sup> )  | 0.056    | Tuen Mun Area 38  |

**Table 8-2 Summary of Quantities of C&D Wastes**

| Type of Waste                  | Quantity | Disposal Location |
|--------------------------------|----------|-------------------|
| Metals (kg)                    | 0        | -                 |
| Paper / Cardboard Packing (kg) | 0        | -                 |
| Plastics (kg)                  | 0        | -                 |
| Chemical Wastes (kg)           | 0        | -                 |
| General Refuses (tonne)        | 10.430   | Yung Shue Wan RTS |

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

**9 SITE INSPECTION**

- 9.01 According to the Environmental Monitoring and Audit Manual, the environmental site inspection should be formulated by ET Leader. Regular environmental site inspections had been carried out by the ET to confirm the environmental performance. In this Reporting Period, weekly joint-site visit by RE, the Contractor and ET was carried out on **26 February, 6, 12 and 19 March 2013**.
- 9.02 The findings/ deficiencies that observed during the weekly site inspection are listed in *Table 9-1* and the relevant checklists are attached in *Appendix K*.

**Table 9-1 Site Observations**

| <b>Date</b>      | <b>Findings / Deficiencies</b>  | <b>Follow-Up Status</b> |
|------------------|---|-------------------------|
| 26 February 2013 | <ul style="list-style-type: none"> <li>No environmental issue was observed during the site inspection. However, full implementation of the required environmental mitigation measures, particularly construction dust suppression measures during dry and windy conditions, is reminded.</li> </ul> | N.A.                    |
| 6 March 2013     | <ul style="list-style-type: none"> <li>No environmental issue was observed during the site inspection. However, full implementation of the required environmental mitigation measures, particularly construction dust suppression measures during dry and windy conditions, is reminded.</li> </ul> | N.A.                    |
| 12 March 2013    | <ul style="list-style-type: none"> <li>No environmental issue was observed during the site inspection. However, full implementation of the required environmental mitigation measures, particularly construction dust suppression measures during dry and windy conditions, is reminded.</li> </ul> | N.A.                    |
| 19 March 2013    | <ul style="list-style-type: none"> <li>No environmental issue was observed during the site inspection. However, full implementation of the required environmental mitigation measures, particularly construction dust suppression measures during dry and windy conditions, is reminded.</li> </ul> | N.A.                    |

**10 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE**

10.01 No environmental complaint, summons and prosecution was received in this reporting period. The statistical summary table of environmental complaint is presented in *Tables 10-1, 10-2* and *10-3*.

**Table 10-1 Statistical Summary of Environmental Complaints**

| Reporting Period           | Environmental Complaint Statistics |            |                  |
|----------------------------|------------------------------------|------------|------------------|
|                            | Frequency                          | Cumulative | Complaint Nature |
| 14 Sep – 30 September 2011 | 0                                  | 0          | NA               |
| October – December 2011    | 0                                  | 0          | NA               |
| January –December 2012     | 0                                  | 0          | NA               |
| January - February 2013    | 0                                  | 0          | NA               |
| March 2013                 | 0                                  | 0          | NA               |

**Table 10-2 Statistical Summary of Environmental Summons**

| Reporting Period           | Environmental Summons Statistics |            |                  |
|----------------------------|----------------------------------|------------|------------------|
|                            | Frequency                        | Cumulative | Complaint Nature |
| 14 Sep – 30 September 2011 | 0                                | 0          | NA               |
| October – December 2011    | 0                                | 0          | NA               |
| January –December 2012     | 0                                | 0          | NA               |
| January - February 2013    | 0                                | 0          | NA               |
| March 2013                 | 0                                | 0          | NA               |

**Table 10-3 Statistical Summary of Environmental Prosecution**

| Reporting Period           | Environmental Prosecution Statistics |            |                  |
|----------------------------|--------------------------------------|------------|------------------|
|                            | Frequency                            | Cumulative | Complaint Nature |
| 14 Sep – 30 September 2011 | 0                                    | 0          | NA               |
| October – December 2011    | 0                                    | 0          | NA               |
| January –December 2012     | 0                                    | 0          | NA               |
| January - February 2013    | 0                                    | 0          | NA               |
| March 2013                 | 0                                    | 0          | NA               |

## 11 IMPLEMENTATION STATUS OF MITIGATION MEASURES

11.01 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

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

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

### Noise Mitigation Measure

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

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

### Water Quality Mitigation Measure

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



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

#### Construction Run-off and Drainage

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

#### General Construction Activities

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



Wastewater Arising from Workforce

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

**Sediment Contamination Mitigation Measure**

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

**Construction Waste Mitigation Measure**

Good Site Practices and Waste Reduction Measures

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

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

#### General Site Wastes

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

#### Chemical Wastes

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

#### Construction and Demolition Material

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

#### Ecology Mitigation Measure

- 11.20 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.
- 11.21 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
- 11.22 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**

- 11.23 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**

- 11.24 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
- 11.25 The implementation schedule of mitigation measures is presented in [Appendix L](#).
- 11.26 Leader had been implementing the required environmental mitigation measures according to the Yung Shue Wan Environmental Monitoring and Audit Manual subject to the site condition. Environmental mitigation measures generally implemented by Leader in this Reporting Period are summarized in [Table 11-1](#).

**Table 11-1 Environmental Mitigation Measures**

| Issues        | Environmental Mitigation Measures  |
|---------------|--|
| Water Quality | <ul style="list-style-type: none"> <li>• Drainage channels were provided to convey run-off into the treatment facilities; and</li> <li>• Drainage systems were regularly and adequately maintained.</li> </ul> |

| Issues                        | Environmental Mitigation Measures   |
|-------------------------------|---|
| Air Quality                   | <ul style="list-style-type: none"> <li>• Cover all excavated or stockpile of dusty material by impervious sheeting or sprayed with water to maintain the entire surface wet;</li> <li>• Public roads around the site entrance/exit had been kept clean and free from dust; and</li> <li>• Tarpaulin covering of any dusty materials on a vehicle leaving the site.</li> </ul>   |
| Noise                         | <ul style="list-style-type: none"> <li>• Good site practices to limit noise emissions at the sources;</li> <li>• Use of quiet plant and working methods;</li> <li>• Use of site hoarding or other mass materials as noise barrier to screen noise at ground level of NSRs; and</li> <li>• To minimize plant number use at the worksite.</li> </ul>  |
| Waste and Chemical Management | <ul style="list-style-type: none"> <li>• Excavated material should be reused on site as far as possible to minimize off-site disposal. Scrap metals or abandoned equipment should be recycled if possible;</li> <li>• Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner;</li> <li>• The Contractor should adopt a trip ticket system for the disposal of C&amp;D materials to any designed public filling facility and/or landfill; and</li> <li>• Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.</li> </ul> |
| General                       | <ul style="list-style-type: none"> <li>• The site was generally kept tidy and clean.</li> </ul>   |

## 12 IMPACT FORECAST

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

### Water Quality

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

### Air Quality

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

### Noise

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

### Waste and Chemical Management

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

## 13 CONCLUSIONS AND RECOMMENDATIONS

### CONCLUSIONS

- 13.01 This is the **31<sup>st</sup>** Monthly EM&A Report covering the construction period from **26 February to 25 March 2013**.
- 13.02 No 1-hour and 24-hour TSP result was found to be triggered the Action or Limit Level in this Reporting Period.
- 13.03 No noise complaint (an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in this Reporting Period.
- 13.04 No marine water monitoring exceedance was recorded in this Reporting Period.
- 13.05 Impact coral monitoring was conducted on **4, 15 and 25 March 2013** and no exceedance was recorded.
- 13.06 No documented complaint, notification of summons or successful prosecution was received.
- 13.07 In this Reporting Period, joint-site visit by RE, the Contractor and ET was carried out on **26 February, 6, 12 and 19 March 2013**. The environmental performance of the Project was considered as satisfactory.
- 13.08 No site inspection was undertaken by external parties i.e. Environmental Protection Department (EPD) or Agriculture, Fisheries and Conservation Department (AFCD) within the Reporting Period.

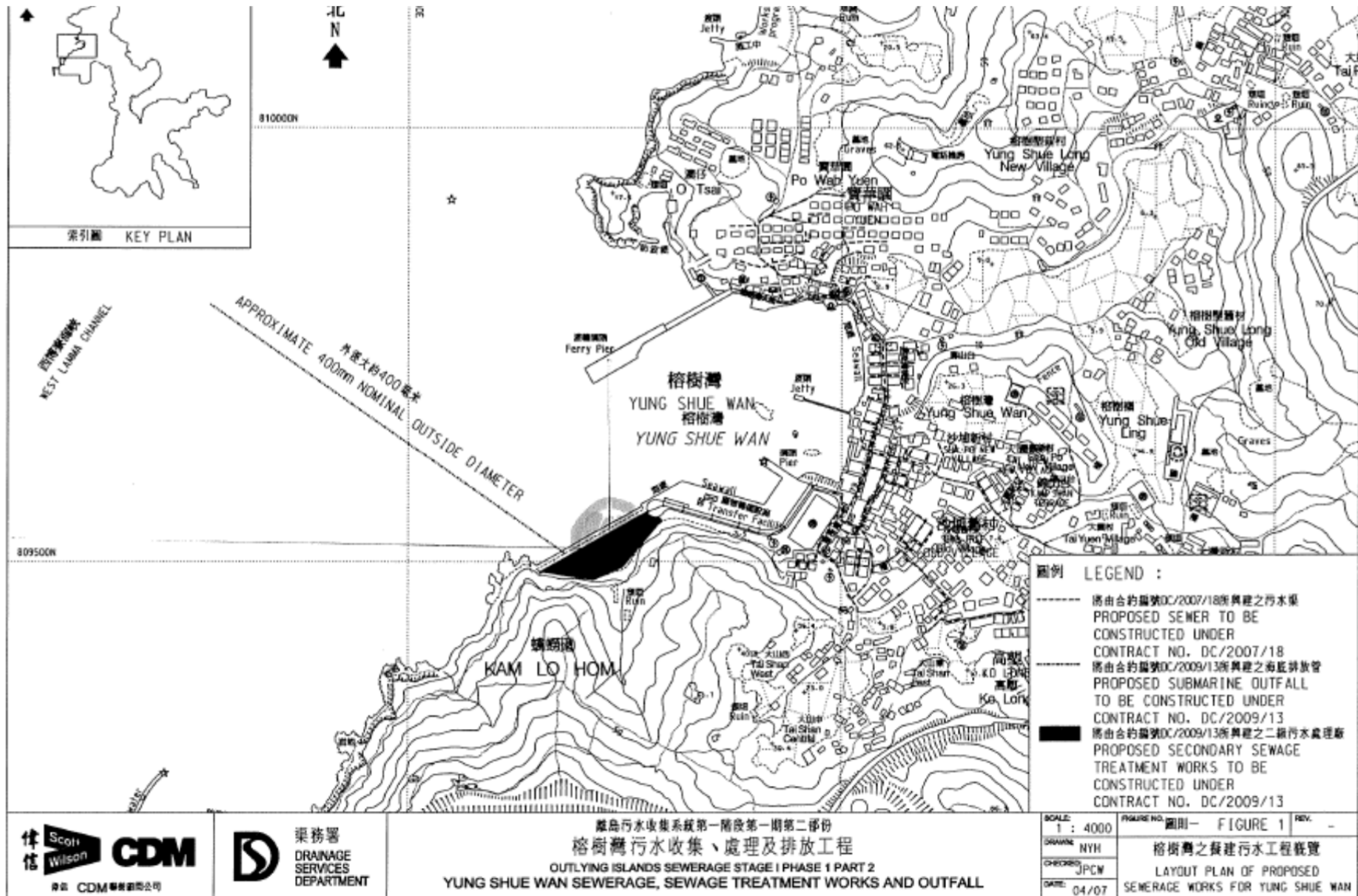
### RECOMMENDATIONS

- 13.09 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. Mitigation measures for water quality should be fully implemented.
- 13.10 Nevertheless, the Contractor shall keep paying 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 sea body within Fish culture zone at Picnic Bay and the Secondary recreation contact subzone at Mo Tat Wan should be avoided. Therefore, mitigation measures for water quality should be fully implemented.

## **Appendix A**

### **Site Layout Plan – Yung Shue Wan Portion Area**







## **Appendix B**

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

Contact Details of Key Personnel

| Organization | Project Role                      | Name of Key Staff   | Tel No.   | Fax No.   |
|--------------|-----------------------------------|---------------------|-----------|-----------|
| DSD          | Employer                          | Ms. Jacky C.M. Wong | 2159-3413 | 2833-9162 |
| SCJV         | Engineer's Representative         | Mr. Ian Jones       | 2982 0240 | 2982 4129 |
| SCJV         | Resident Engineer                 | Mr. Alfred Cheung   | 2982 0240 | 2982 4129 |
| Scott Wilson | Independent Environmental Checker | Mr. Rodney Ip       | 2410 3750 | 2428 9922 |
| Leader       | Director                          | Mr. Wilfred So      | 2982 1750 | 2982 1163 |
| Leader       | Project Manager                   | Mr. Vincent Chan    | 2982 1750 | 2982 1163 |
| Leader       | Construction Manager              | Mr. K. Y. So        | 2982 1750 | 2982 1163 |
| Leader       | Site Agent                        | Mr. Ron Hung        | 2982 1750 | 2982 1163 |
| Leader       | Environmental Officer             | Mr. K. Y. So        | 2982 8652 | 2982 8650 |
| Leader       | Environmental Supervisor          | Mr. Chan Shut Man   | 2982 8652 | 2982 8650 |
| Leader       | Sub-Agent                         | Mr. Burgess Yip     | 2982 1750 | 2982 1163 |
| Leader       | Senior 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         | Team Supervisor                   | Mr. Ben Tam         | 2959 6059 | 2959 6079 |
| AUES         | Coral Specialist                  | Mr. Keith Kei       | 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**

### **Master and Three Months Rolling Construction Programme**

| Activity ID                                  | Description                                      | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors  | Successors   | 2013 |     |     |     |     |
|--|--|-------------------|------------------|-------------|--------------|------------|-------------|-------------|---|--|------|-----|-----|-----|-----|
|  |  |                   |                  |             |              |            |             |             |   |  | JAN  | FEB | MAR | APR | MAY |
| <b>Project Key Date</b>                      |  |                   |                  |             |              |            |             |             |   |  |      |     |     |     |     |
| 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, E&M2001, KD0125, PRE0020, PRE0040, PRE0050, PRE0060, PRE0090, PRE0100, PRE0130, SKW0250, SKW0588, SKW0651, SKW0681, SKW1131, SKW1481, SKW1591, SKW1611, YSW0020, YSW0050, YSW0075, YSW0180, YSW0200, YSW0220, YSW0240, YSW02401, YSW0412, YSW0422 |      |     |     |     |     |
| KD0030                                       | Section W1 - Slope Works in Portion A & C        | 0                 | 100              |             | 14/10/11 A   |            | 14/10/11 A  |             | YSW0100, YSW0110, YSW0140,  | KD0125, KD0130, YSW01755   |      |     |     |     |     |
| KD0040                                       | Section W2 - YSW STW & Submarine Outfall (1370d) | 0                 | 0                |             | 16/06/14 *   |            | 16/06/14 *  | 0 *         | E&M0700, YSW0400, YSW0800, YSW0870, YSW0925, YSW16704, YSW1700                          | KD0125, KD0132   |      |     |     |     |     |
| KD0050                                       | Section W3 - Footpath Diversion in Ptn G         | 0                 | 0                |             | 30/01/13 *   |            | 24/03/11 *  | -678d *     | SKW0481   | KD0125   |      |     |     |     |     |
| KD0060                                       | Section W4 - Slope Works in Portios H & I        | 0                 | 0                |             | 30/01/13 *   |            | 27/03/12 *  | -309d *     | SKW05938, SKW059416   | KD0125, KD0135, SKW05941   |      |     |     |     |     |
| KD0070                                       | Section W5 - P.S. No. 1 in Portion D             | 0                 | 0                |             | 30/01/13 *   |            | 10/02/12 *  | -355d *     | SKW0741   | KD0125   |      |     |     |     |     |
| KD0080                                       | Section W6 - Sewer & PS No2 in Ptn. E & F        | 0                 | 0                |             | 30/01/13 *   |            | 10/02/12 *  | -355d *     | SKW0971   | KD0125   |      |     |     |     |     |
| KD0090                                       | Section W7 - SKW STW, RM & Sm. Outfall           | 0                 | 0                |             | 07/10/14 *   |            | 07/10/14 *  | 0 *         | E&M3360, SKW1221, SKW1291, SKW1431, SKW1441, SKW1521,                                   | KD0125, KD0165, SKW0491  |      |     |     |     |     |
| KD0100                                       | Section W8 - Landscape Softworks                 | 0                 | 0                |             | 05/04/13 *   |            | 05/04/13 *  | 0 *         | SKW1611, SKW1621  |  |      |     |     |     |     |
| KD0110                                       | Section W9 - Establishment Works                 | 0                 | 0                |             | 03/04/14 *   |            | 03/04/14 *  | 0 *         | SKW1631   | KD0125   |      |     |     |     |     |
| KD0125                                       | Project Completion                               | 0                 | 0                |             | 12/09/15 *   |            | 12/09/15 *  | 0 *         | KD0010, KD0020, KD0030, KD0040, KD0050, KD0060, KD0070, KD0080, KD0090, KD0110, SKW0541 |  |      |     |     |     |     |
| KD0130                                       | Completion of Maintenance Period of W1           | 1                 | 0                | 31/01/13    | 31/01/13 *   | 13/10/12   | 13/10/12 *  | -110d       | KD0030, YSW01755, YSW01805, YSW01810  |  |      |     |     |     |     |
| KD0132                                       | Completion of Maintenance Period of W2           | 1                 | 0                | 15/06/15    | 15/06/15 *   | 15/06/15   | 15/06/15 *  | 0           | E&M0730, KD0040   |  |      |     |     |     |     |
| KD0135                                       | Completion of Maintenance Period of W4           | 1                 | 0                | 27/03/13    | 27/03/13 *   | 27/03/13   | 27/03/13 *  | 0           | KD0060, SKW05947, SKW1581   |  |      |     |     |     |     |
| KD0145                                       | Completion of Maintenance Period of W5           | 1                 | 0                | 10/02/13    | 10/02/13 *   | 10/02/13   | 10/02/13 *  | 0           |   |  |      |     |     |     |     |
| KD0155                                       | Completion of Maintenance Period of W6           | 1                 | 0                | 10/02/13    | 10/02/13 *   | 10/02/13   | 10/02/13 *  | 0           | E&M2130, E&M2180, SKW0961,  |  |      |     |     |     |     |
| KD0165                                       | Completion of Maintenance period of W7           | 1                 | 0                | 06/10/15    | 06/10/15 *   | 06/10/15   | 06/10/15 *  | 0 *         | KD0090, SKW0595, SKW05972, SKW0861  |  |      |     |     |     |     |
| <b>Preliminary (Civil)</b>                   |  |                   |                  |             |              |            |             |             |   |  |      |     |     |     |     |
| 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 Accom  | 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  | 13/09/10 A   | 17/05/10 A | 13/09/10 A  |             | KD0020  | SKW1151  |      |     |     |     |     |
| PRE0100                                      | Application & Consent of XP from HyD (Mo Tat Rd) | 120               | 100              | 17/05/10 A  | 13/09/10 A   | 17/05/10 A | 13/09/10 A  |             | KD0020  | SKW1491, SKW1501   |      |     |     |     |     |
| PRE0130                                      | Setup Web-site for EM&A Reporting                | 90                | 100              | 17/05/10 A  | 14/08/10 A   | 17/05/10 A | 14/08/10 A  |             | KD0020  |  |      |     |     |     |     |
| <b>Preliminary (E&amp;M)</b>                 |  |                   |                  |             |              |            |             |             |   |  |      |     |     |     |     |
| <b>Technical Submission</b>                  |  |                   |                  |             |              |            |             |             |   |  |      |     |     |     |     |
| <b>Process Design of SKWSTW &amp; YSWSTW</b> |  |                   |                  |             |              |            |             |             |   |  |      |     |     |     |     |
| 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               | 100              | 15/07/10 A  | 16/11/10 A   | 15/07/10 A | 16/11/10 A  |             | E&M0020   | E&M0080  |      |     |     |     |     |
| E&M0080                                      | Approval from the Engineer                       | 14                | 100              | 17/11/10 A  | 30/11/10 A   | 17/11/10 A | 30/11/10 A  |             | E&M0030   | E&M0295  |      |     |     |     |     |
| <b>Hydraulic Design</b>                      |  |                   |                  |             |              |            |             |             |   |  |      |     |     |     |     |
| E&M0040                                      | Submission                                       | 21                | 100              | 15/07/10 A  | 04/08/10 A   | 15/07/10 A | 04/08/10 A  |             | E&M0010, E&M0020  | E&M0050, E&M0101, E&M0240, E&M0260,  |      |     |     |     |     |
| E&M0050                                      | Vetting and Comment by ER                        | 14                | 100              | 05/08/10 A  | 18/08/10 A   | 05/08/10 A | 18/08/10 A  |             | E&M0040   | E&M0060  |      |     |     |     |     |
| E&M0060                                      | Revision and Resubmission                        | 97                | 100              | 19/08/10 A  | 10/10/10 A   | 19/08/10 A | 10/10/10 A  |             | E&M0050   | E&M0430  |      |     |     |     |     |
| E&M0430                                      | Approval from the Engineer                       | 7                 | 100              | 24/11/10 A  | 30/11/10 A   | 24/11/10 A | 30/11/10 A  |             | E&M0060   | E&M0295  |      |     |     |     |     |
| <b>Equipment Submission &amp; Approval</b>   |  |                   |                  |             |              |            |             |             |   |  |      |     |     |     |     |
| 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                | 100              | 20/07/10 A  | 24/02/11 A   | 20/07/10 A | 24/02/11 A  |             | E&M0090   | E&M0160  |      |     |     |     |     |
| E&M0101                                      | Submission of Equipment                          | 90                | 100              | 05/08/10 A  | 30/11/11 A   | 05/08/10 A | 30/11/11 A  |             | E&M0040   | E&M0102  |      |     |     |     |     |
| E&M0102                                      | Vetting and Comment by ER                        | 60                | 100              | 03/11/10 A  | 30/11/11 A   | 03/11/10 A | 30/11/11 A  |             | E&M0101   | E&M0103  |      |     |     |     |     |

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| Start date  | 05/05/10 |  | Early bar              |
| Finish date | 28/10/16 |  | Progress bar           |
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| Run date    | 05/02/13 |  | Summary bar            |
| Page number | 1A       |  | Progress point         |
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|             |          |  | 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 (Feb 2013 - Apr 2013)**

|          |            |         |          |
|----------|------------|---------|----------|
| Date     | Revision   | Checked | Approved |
| 31/01/13 | Revision 0 | RH      | VC       |
|          |            |         |          |
|          |            |         |          |

| Activity ID   | Description                                       | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors               | Successors                          | 2013 |     |     |     |     |  |
|---|---|-------------------|------------------|-------------|--------------|------------|-------------|-------------|----------------------------|-------------------------------------|------|-----|-----|-----|-----|--|
|   |   |                   |                  |             |              |            |             |             |                            |                                     | JAN  | FEB | MAR | APR | MAY |  |
| E&M0103   | Revision and Resubmission                         | 60                | 100              | 01/02/11 A  | 30/11/11 A   | 01/02/11 A | 30/11/11 A  |             | E&M0102                    | E&M0110, E&M0120, E&M0130, E&M0140, |      |     |     |     |     |  |
| E&M0110   | Approval on Coarse Screens                        | 30                | 100              | 25/05/11 A  | 25/05/11 A   | 25/05/11 A | 25/05/11 A  |             | E&M0103                    | E&M0390                             |      |     |     |     |     |  |
| E&M0120   | Approval on Fine Screens                          | 30                | 100              | 12/09/11 A  | 12/09/11 A   | 12/09/11 A | 12/09/11 A  |             | E&M0103                    | E&M0400, E&M3060                    |      |     |     |     |     |  |
| E&M0130   | Approval on Pumps                                 | 30                | 100              | 23/06/11 A  | 23/06/11 A   | 23/06/11 A | 23/06/11 A  |             | E&M0103                    | E&M0410, E&M3070                    |      |     |     |     |     |  |
| E&M0140   | Approval on Submersible Mixers                    | 30                | 100              | 23/03/11 A  | 23/03/11 A   | 23/03/11 A | 23/03/11 A  |             | E&M0103                    | E&M0420, E&M3080                    |      |     |     |     |     |  |
| E&M0150   | Approval on Grit Removal Equipment                | 30                | 100              | 10/10/11 A  | 10/10/11 A   | 10/10/11 A | 10/10/11 A  |             | E&M0103                    | E&M0380, E&M3030                    |      |     |     |     |     |  |
| E&M0160   | Approval on MBR Membrane Modules (MM)             | 105               | 100              | 03/08/10 A  | 24/02/11 A   | 03/08/10 A | 24/02/11 A  |             | E&M0100                    | E&M0360, E&M0370, E&M3010           |      |     |     |     |     |  |
| E&M0170   | Approval on Sludge Dewatering Equipment           | 30                | 100              | 01/09/11 A  | 01/09/11 A   | 01/09/11 A | 01/09/11 A  |             | E&M0103                    | E&M0440, E&M3090                    |      |     |     |     |     |  |
| E&M0180   | Approval on Valves, Pipes & Fittings              | 30                | 85               | 19/11/11 A  | 04/02/13     | 19/11/11 A | 20/02/13    | 17d         | E&M0103                    | E&M0450, E&M3100                    |      |     |     |     |     |  |
| E&M0190   | Approval on Penstocks                             | 30                | 100              | 15/11/11 A  | 15/11/11 A   | 15/11/11 A | 15/11/11 A  |             | E&M0103                    | E&M0460, E&M3110                    |      |     |     |     |     |  |
| E&M0200   | Approval on Instrumentation                       | 30                | 100              | 21/06/11 A  | 08/03/12 A   | 21/06/11 A | 08/03/12 A  |             | E&M0103                    | E&M0470, E&M3130                    |      |     |     |     |     |  |
| E&M0210   | Approval on MCC & LVSB                            | 30                | 95               | 19/11/11 A  | 01/02/13     | 19/11/11 A | 03/06/11    | -609d       | E&M0103                    | E&M0480, E&M3140                    |      |     |     |     |     |  |
| E&M0220   | Approval on BS Equipment                          | 30                | 85               | 30/11/11 A  | 07/03/13     | 30/11/11 A | 02/11/11    | -491d       | E&M0103, E&M0280           | E&M0490, E&M3150                    |      |     |     |     |     |  |
| E&M0230   | Approval on FS Equipment                          | 30                | 85               | 30/11/11 A  | 19/03/13     | 30/11/11 A | 15/08/11    | -582d       | E&M0103, E&M0290           | E&M0295, E&M0320, E&M0500, E&M3160  |      |     |     |     |     |  |
| <b>Drawings Submission &amp; Approval</b>             |   |                   |                  |             |              |            |             |             |                            |                                     |      |     |     |     |     |  |
| E&M0235   | Sub. P&ID Drawings                                | 100               | 75               | 24/06/10 A  | 24/02/13     | 24/06/10 A | 24/07/11    | -582d       | E&M0010                    | E&M0250                             |      |     |     |     |     |  |
| E&M0240   | Sub. Plant GA Drawings                            | 45                | 68               | 04/08/10 A  | 14/02/13     | 04/08/10 A | 24/07/11    | -571d       | E&M0040                    | E&M0250, E&M0280, E&M0290           |      |     |     |     |     |  |
| E&M0250   | Sub. Builder's Works Requirements Drawings        | 15                | 100              | 04/08/10 A  | 31/01/13 A   | 04/08/10 A | 31/01/13 A  |             | E&M0235, E&M0240, E&M0260, | E&M0280, E&M0290                    |      |     |     |     |     |  |
| E&M0260   | Sub. Mechanical Installation Drawings             | 60                | 70               | 27/09/10 A  | 17/02/13     | 27/09/10 A | 24/07/11    | -575d       | E&M0040                    | E&M0250                             |      |     |     |     |     |  |
| E&M0270   | Sub. Electrical Installation Drawings             | 60                | 75               | 27/09/10 A  | 14/02/13     | 27/09/10 A | 24/07/11    | -572d       | E&M0040                    | E&M0250, E&M0280                    |      |     |     |     |     |  |
| E&M0280   | Sub. BS Installation Drawings                     | 120               | 95               | 27/09/10 A  | 02/03/13     | 27/09/10 A | 28/10/11    | -491d       | E&M0240, E&M0250, E&M0270  | E&M0220                             |      |     |     |     |     |  |
| E&M0290   | Sub. FS Installation Drawings                     | 120               | 85               | 13/11/11 A  | 14/03/13     | 13/11/11 A | 11/08/11    | -582d       | E&M0240, E&M0250           | E&M0230                             |      |     |     |     |     |  |
| <b>Statutory Submission</b>                           |   |                   |                  |             |              |            |             |             |                            |                                     |      |     |     |     |     |  |
| E&M0295   | Preparation of Submission to HEC                  | 39                | 100              | 01/11/11 A  | 30/11/11 A   | 01/11/11 A | 30/11/11 A  |             | E&M0080, E&M0230, E&M0430  | E&M0300                             |      |     |     |     |     |  |
| E&M0300   | Application & Approval from HEC                   | 150               | 90               | 01/11/11 A  | 03/04/13     | 01/11/11 A | 28/10/12    | -157d       | E&M0295                    | E&M0305                             |      |     |     |     |     |  |
| E&M0305   | Provision of Cables to the STWs                   | 180               | 0                | 03/04/13    | 30/09/13     | 29/10/12   | 26/04/13    | -157d       | E&M0300                    | E&M0680                             |      |     |     |     |     |  |
| E&M0320   | Form 314 Submission to FSD                        | 14                | 0                | 19/03/13    | 02/04/13     | 13/04/13   | 26/04/13    | 25d         | E&M0230                    | E&M0325, E&M0670                    |      |     |     |     |     |  |
| E&M0325   | Submission to WSD                                 | 14                | 100              | 01/11/11 A  | 29/02/12 A   | 01/11/11 A | 29/02/12 A  |             | E&M0320                    | E&M0670, E&M0680                    |      |     |     |     |     |  |
| E&M0330   | Form 501 Submission to FSD (YSW)                  | 28                | 0                | 12/12/14    | 09/01/15     | 14/11/13   | 11/12/13    | -394d       | E&M0500                    | E&M0700                             |      |     |     |     |     |  |
| E&M0340   | Form 501 Submission to FSD (SKW)                  | 28                | 0                | 06/09/13    | 04/10/13     | 11/06/14   | 08/07/14    | 278d        | E&M3160                    | E&M3360                             |      |     |     |     |     |  |
| E&M0350   | Form 501 Submission to FSD (PS1 & PS2)            | 28                | 0                | 28/02/13    | 28/03/13     | 14/11/12   | 11/12/12    | -107d       | E&M2016                    | E&M11800, E&M2180                   |      |     |     |     |     |  |
| <b>Yung Shue Wan</b>                                  |   |                   |                  |             |              |            |             |             |                            |                                     |      |     |     |     |     |  |
| <b>Preliminary</b>                                    |   |                   |                  |             |              |            |             |             |                            |                                     |      |     |     |     |     |  |
| YSW0020   | Approval of Environmental Team                    | 16                | 100              | 17/05/10 A  | 01/06/10 A   | 17/05/10 A | 01/06/10 A  |             | KD0020                     | YSW00201, YSW0030, YSW00351,        |      |     |     |     |     |  |
| YSW00201  | Change Baseline Monitoring Location (Air&Noise)   | 59                | 100              | 02/06/10 A  | 30/07/10 A   | 02/06/10 A | 30/07/10 A  |             | YSW0020                    | YSW0030                             |      |     |     |     |     |  |
| YSW0030   | Baseline monitoring (Air & Noise)                 | 23                | 100              | 31/07/10 A  | 22/08/10 A   | 31/07/10 A | 22/08/10 A  |             | YSW0020, YSW00201          | YSW0035                             |      |     |     |     |     |  |
| YSW0035   | Baseline Monitoring Report Submission (A & N)     | 16                | 100              | 23/08/10 A  | 07/09/10 A   | 23/08/10 A | 07/09/10 A  |             | YSW0030                    | YSW0120, YSW01545, YSW0500,         |      |     |     |     |     |  |
| YSW00351  | Submission & Approval for Monitoring Method (W)   | 58                | 100              | 02/06/10 A  | 29/07/10 A   | 02/06/10 A | 29/07/10 A  |             | YSW0020                    | YSW0040                             |      |     |     |     |     |  |
| YSW0040   | Baseline monitoring (Water)                       | 155               | 100              | 30/07/10 A  | 31/12/10 A   | 30/07/10 A | 31/12/10 A  |             | YSW0020, YSW00351          | YSW0350                             |      |     |     |     |     |  |
| YSW0050   | Erect Hoarding and Fencing                        | 60                | 100              | 19/05/10 A  | 17/07/10 A   | 19/05/10 A | 17/07/10 A  |             | KD0020                     | YSW0155                             |      |     |     |     |     |  |
| <b>Section W 1 - Slope Works in Portion A &amp; C</b> |   |                   |                  |             |              |            |             |             |                            |                                     |      |     |     |     |     |  |
| YSW0075   | Mobilization                                      | 30                | 100              | 17/05/10 A  | 15/06/10 A   | 17/05/10 A | 15/06/10 A  |             | KD0020                     | YSW0080, YSW0100                    |      |     |     |     |     |  |
| YSW0080   | Site Clearance                                    | 30                | 100              | 16/06/10 A  | 15/07/10 A   | 16/06/10 A | 15/07/10 A  |             | YSW0075                    | YSW0085, YSW0090, YSW0120           |      |     |     |     |     |  |
| YSW0085   | Initial Survey                                    | 14                | 100              | 02/07/10 A  | 15/07/10 A   | 02/07/10 A | 15/07/10 A  |             | YSW0080                    | YSW0120                             |      |     |     |     |     |  |
| YSW0090   | Verify the Rock Boulder required Stabilization Wk | 249               | 100              | 16/07/10 A  | 21/03/11 A   | 16/07/10 A | 21/03/11 A  |             | YSW0080                    | YSW0100, YSW0110                    |      |     |     |     |     |  |
| YSW0100   | Removal of Rock Boulder                           | 257               | 100              | 20/09/10 A  | 03/06/11 A   | 20/09/10 A | 03/06/11 A  |             | YSW0075, YSW0090           | KD0030                              |      |     |     |     |     |  |
| YSW0110   | Stablizing work for rock boulder                  | 35                | 100              | 16/07/11 A  | 19/08/11 A   | 16/07/11 A | 19/08/11 A  |             | YSW0090                    | KD0030                              |      |     |     |     |     |  |
| YSW0120   | Cut the slope to design profile                   | 2                 | 100              | 24/09/10 A  | 25/09/10 A   | 24/09/10 A | 25/09/10 A  |             | YSW0035, YSW0080, YSW0085  | YSW0131, YSW0155, YSW0170           |      |     |     |     |     |  |
| YSW0131   | Mobilization of Plant and Material of Soil Nails  | 14                | 100              | 12/09/10 A  | 25/09/10 A   | 12/09/10 A | 25/09/10 A  |             | YSW0120                    | YSW0132                             |      |     |     |     |     |  |
| YSW0132   | Erect Scaffold and Working Platform               | 2                 | 100              | 26/09/10 A  | 27/09/10 A   | 26/09/10 A | 27/09/10 A  |             | YSW0131                    | YSW0133                             |      |     |     |     |     |  |
| YSW0133   | Setting out and Verify Locations of Soil Nails    | 45                | 100              | 28/09/10 A  | 11/11/10 A   | 28/09/10 A | 11/11/10 A  |             | YSW0132                    | YSW0134                             |      |     |     |     |     |  |
| YSW0134   | Drilling and Soil Nails Installation              | 43                | 100              | 19/10/10 A  | 30/11/10 A   | 19/10/10 A | 30/11/10 A  |             | YSW0133                    | YSW0135                             |      |     |     |     |     |  |
| YSW0135   | Construction of Nail Heads                        | 12                | 100              | 01/12/10 A  | 12/12/10 A   | 01/12/10 A | 12/12/10 A  |             | YSW0134                    | YSW0136                             |      |     |     |     |     |  |
| YSW0136   | Mesh Installation on Cut Slope                    | 3                 | 100              | 13/12/10 A  | 15/12/10 A   | 13/12/10 A | 15/12/10 A  |             | YSW0135                    | YSW01361                            |      |     |     |     |     |  |
| YSW01361  | Verify alignment of access & channels on slope    | 118               | 100              | 16/12/10 A  | 12/04/11 A   | 16/12/10 A | 12/04/11 A  |             | YSW0136                    | YSW0140                             |      |     |     |     |     |  |
| YSW0140   | Construct U-channels & Step Channel on Cut Slope  | 182               | 100              | 13/04/11 A  | 11/10/11 A   | 13/04/11 A | 11/10/11 A  |             | YSW01361                   | KD0030                              |      |     |     |     |     |  |

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| Start date  | 05/05/10 |  | Early bar              |
| Finish date | 28/10/16 |  | Progress bar           |
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| Run date    | 05/02/13 |  | Summary bar            |
| Page number | 2A       |  | Progress point         |
|             |          |  | Critical point         |
|             |          |  | Summary point          |
|             |          |  | Start milestone point  |
|             |          |  | Finish milestone point |

**Leader Civil Engineering Corp. Ltd.**  
**Contract No. DC/2009/13**  
**Construction of Sewage Treatment Works at YSW & SKW**  
**3-month Rolling Programme (Feb 2013 - Apr 2013)**

|          |            |         |          |
|----------|------------|---------|----------|
| Date     | Revision   | Checked | Approved |
| 31/01/13 | Revision 0 | RH      | VC       |
|          |            |         |          |
|          |            |         |          |

| Activity ID   | Description                                      | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors                  | Successors                          | 2013 |     |     |     |     |  |
|---|--|-------------------|------------------|-------------|--------------|------------|-------------|-------------|-------------------------------|-------------------------------------|------|-----|-----|-----|-----|--|
|   |  |                   |                  |             |              |            |             |             |                               |                                     | JAN  | FEB | MAR | APR | MAY |  |
| YSW0153   | Removal of Ex U-Channel where clash with B. Wall | 151               | 100              | 10/05/11 A  | 07/10/11 A   | 10/05/11 A | 07/10/11 A  |             | YSW01545                      | YSW01750                            |      |     |     |     |     |  |
| YSW01545  | Temporary Diversion of Drainage                  | 244               | 100              | 08/09/10 A  | 09/05/11 A   | 08/09/10 A | 09/05/11 A  |             | YSW0035                       | YSW0153                             |      |     |     |     |     |  |
| YSW0155   | RC Barrier Wall Bay 1-13 (below Ground Level)    | 256               | 100              | 26/09/10 A  | 08/06/11 A   | 26/09/10 A | 08/06/11 A  |             | YSW0050, YSW0120              | KD0030, YSW0170, YSW0175, YSW01750  |      |     |     |     |     |  |
| YSW0170   | RC Barrier Wall Bay 1-13 (above Ground Level)    | 125               | 100              | 09/06/11 A  | 11/10/11 A   | 09/06/11 A | 11/10/11 A  |             | YSW0120, YSW0155              | KD0030                              |      |     |     |     |     |  |
| YSW0175   | Construct U-channels and Catchpits (Phase 1)     | 76                | 100              | 09/06/11 A  | 23/08/11 A   | 09/06/11 A | 23/08/11 A  |             | YSW0155                       | KD0030                              |      |     |     |     |     |  |
| YSW01750  | Construction of subsoil drain (phase 1)          | 7                 | 100              | 12/10/11 A  | 08/02/12 A   | 12/10/11 A | 08/02/12 A  |             | YSW0153, YSW0155              | KD0030                              |      |     |     |     |     |  |
| YSW01755  | Construct subsoil drain (phase 2)                | 14                | 100              | 06/12/12 A  | 31/12/12 A   | 06/12/12 A | 31/12/12 A  |             | KD0030, YSW01800              | KD0130                              |      |     |     |     |     |  |
| YSW01800  | RC Barrier Wall Bay 14 (below & above Ground)    | 87                | 100              | 03/09/12 A  | 28/11/12 A   | 03/09/12 A | 28/11/12 A  |             | YSW0760                       | YSW01755, YSW01810                  |      |     |     |     |     |  |
| YSW01805  | Hydroseeding                                     | 14                | 0                | 31/01/13    | 13/02/13     | 29/09/12   | 12/10/12    | -124d       | YSW01810                      | KD0130                              |      |     |     |     |     |  |
| YSW01810  | Construct U-channels and Catchpits (Phase 2)     | 30                | 100              | 29/11/12 A  | 22/12/12 A   | 29/11/12 A | 22/12/12 A  |             | YSW01800                      | KD0130, YSW01805                    |      |     |     |     |     |  |
| <b>Section W2 - YSW STW &amp; Submarine Outfall</b> |  |                   |                  |             |              |            |             |             |                               |                                     |      |     |     |     |     |  |
| <b>Civil &amp; Structural Work</b>                  |  |                   |                  |             |              |            |             |             |                               |                                     |      |     |     |     |     |  |
| 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, YSW0650  |      |     |     |     |     |  |
| YSW0432   | Initial Survey                                   | 14                | 100              | 02/06/10 A  | 15/06/10 A   | 02/06/10 A | 15/06/10 A  |             | YSW0422                       | YSW0510                             |      |     |     |     |     |  |
| <b>YSW STW - GL H - T</b>                           |  |                   |                  |             |              |            |             |             |                               |                                     |      |     |     |     |     |  |
| YSW0500   | ELS & Excavation for Inlet Pumping Station       | 105               | 100              | 08/09/10 A  | 21/12/10 A   | 08/09/10 A | 21/12/10 A  |             | YSW0035, YSW0422              | YSW0510                             |      |     |     |     |     |  |
| YSW0510   | Sub-structure construction (Inlet Pumping Stn)   | 129               | 100              | 22/12/10 A  | 29/04/11 A   | 22/12/10 A | 29/04/11 A  |             | YSW0432, YSW0500              | YSW0520                             |      |     |     |     |     |  |
| YSW0520   | Backfill & Remove ELS (Inlet Pumping Stn)        | 40                | 100              | 30/04/11 A  | 08/06/11 A   | 30/04/11 A | 08/06/11 A  |             | YSW0510                       | YSW05701                            |      |     |     |     |     |  |
| YSW0530   | ELS & Excavation for Equalization Tank           | 159               | 100              | 01/01/11 A  | 08/06/11 A   | 01/01/11 A | 08/06/11 A  |             | YSW0660                       | YSW0540, YSW05701                   |      |     |     |     |     |  |
| YSW0540   | Sub-structure construction (Equalization Tank)   | 112               | 100              | 09/06/11 A  | 28/09/11 A   | 09/06/11 A | 28/09/11 A  |             | YSW0530                       | YSW0550, YSW05901                   |      |     |     |     |     |  |
| YSW0550   | Backfilling & Remove ELS (Equalization Tank)     | 20                | 100              | 29/09/11 A  | 18/10/11 A   | 29/09/11 A | 18/10/11 A  |             | YSW0540                       | YSW05901                            |      |     |     |     |     |  |
| YSW05701  | ELS & Excavation for Grit Chambers               | 28                | 100              | 09/06/11 A  | 06/07/11 A   | 09/06/11 A | 06/07/11 A  |             | YSW0520, YSW0530              | YSW05711, YSW05731                  |      |     |     |     |     |  |
| YSW05711  | Construct sub-structure for Grit Chambers        | 106               | 100              | 07/07/11 A  | 20/10/11 A   | 07/07/11 A | 20/10/11 A  |             | YSW05701                      | YSW05721, YSW05911                  |      |     |     |     |     |  |
| YSW05721  | Backfill & Remove ELS for Grit Chambers          | 12                | 100              | 21/10/11 A  | 01/11/11 A   | 21/10/11 A | 01/11/11 A  |             | YSW05711                      | YSW05911                            |      |     |     |     |     |  |
| YSW05731  | ELS & Excavation for Grease Separators (GS)      | 34                | 100              | 07/07/11 A  | 09/08/11 A   | 07/07/11 A | 09/08/11 A  |             | YSW05701                      | YSW05741                            |      |     |     |     |     |  |
| YSW05741  | Construct sub-structure for Grease Separators    | 52                | 100              | 10/08/11 A  | 30/09/11 A   | 10/08/11 A | 30/09/11 A  |             | YSW05731                      | YSW05751                            |      |     |     |     |     |  |
| YSW05751  | Install Dia.400 Puddles in Grease Separators     | 27                | 100              | 01/10/11 A  | 27/10/11 A   | 01/10/11 A | 27/10/11 A  |             | YSW05741                      | YSW05752                            |      |     |     |     |     |  |
| YSW05752  | Construct sub-structure for GS (above puddles)   | 48                | 100              | 28/10/11 A  | 14/12/11 A   | 28/10/11 A | 14/12/11 A  |             | YSW05751                      | YSW05761                            |      |     |     |     |     |  |
| YSW05761  | Backfill & remove ELS for Grease Separators      | 10                | 100              | 15/12/11 A  | 24/12/11 A   | 15/12/11 A | 24/12/11 A  |             | YSW05752                      | YSW0580, YSW05921                   |      |     |     |     |     |  |
| YSW0580   | Excavate to Formation for Deodorizer Room        | 10                | 100              | 25/12/11 A  | 03/01/12 A   | 25/12/11 A | 03/01/12 A  |             | YSW05761                      | YSW05801, YSW05922                  |      |     |     |     |     |  |
| YSW05801  | Excavate to formation - Grid J-N/5-7             | 40                | 100              | 04/01/12 A  | 12/02/12 A   | 04/01/12 A | 12/02/12 A  |             | YSW0580                       | YSW05802, YSW05923                  |      |     |     |     |     |  |
| YSW05802  | Excavate to formation - Grid GA-H/5-7            | 10                | 100              | 13/02/12 A  | 22/02/12 A   | 13/02/12 A | 22/02/12 A  |             | YSW05801                      | YSW05924                            |      |     |     |     |     |  |
| YSW05901  | G/F to 1/F Construction Grid GA-K/1-5            | 90                | 100              | 29/09/11 A  | 27/12/11 A   | 29/09/11 A | 27/12/11 A  |             | YSW0540, YSW0550              | YSW06001                            |      |     |     |     |     |  |
| YSW05911  | G/F to 1/F Construction Grid N-S/1-5             | 80                | 100              | 21/10/11 A  | 08/01/12 A   | 21/10/11 A | 08/01/12 A  |             | YSW05711, YSW05721            | YSW06011, YSW06035                  |      |     |     |     |     |  |
| YSW05921  | G/F to 1/F Construction Grid K-N/1-5             | 45                | 100              | 25/12/11 A  | 07/02/12 A   | 25/12/11 A | 07/02/12 A  |             | YSW05761                      | YSW06021                            |      |     |     |     |     |  |
| YSW05922  | G/F to 1/F Construction for Deodorizer Room      | 80                | 100              | 04/01/12 A  | 23/03/12 A   | 04/01/12 A | 23/03/12 A  |             | YSW0580                       | YSW06022                            |      |     |     |     |     |  |
| YSW05923  | G/F to 1/F Construction for Grid J-N/5-7         | 60                | 100              | 13/02/12 A  | 12/04/12 A   | 13/02/12 A | 12/04/12 A  |             | YSW05801                      | E&M0530, E&M0540, E&M0550, E&M0560, |      |     |     |     |     |  |
| YSW05924  | G/F to 1/F Construction for Grid GA-H/5-7        | 50                | 100              | 28/05/12 A  | 16/07/12 A   | 28/05/12 A | 16/07/12 A  |             | YSW05802, YSW06023            | YSW06034                            |      |     |     |     |     |  |
| YSW06001  | 1/F to Roof Constuction for Grid GA-K/1-5        | 87                | 100              | 28/12/11 A  | 23/03/12 A   | 28/12/11 A | 23/03/12 A  |             | YSW05901                      | YSW0800                             |      |     |     |     |     |  |
| YSW06011  | 1/F to Roof Constuction for Grid N-S/1-5         | 75                | 100              | 09/01/12 A  | 23/03/12 A   | 09/01/12 A | 23/03/12 A  |             | YSW05911                      | YSW0800                             |      |     |     |     |     |  |
| YSW06021  | 1/F to Roof Constuction for Grid K-N/1-5         | 44                | 100              | 08/02/12 A  | 22/03/12 A   | 08/02/12 A | 22/03/12 A  |             | YSW05921                      | YSW07201                            |      |     |     |     |     |  |
| YSW06022  | 1/F to Roof Constuction for Deodorizer Room      | 60                | 100              | 24/03/12 A  | 22/05/12 A   | 24/03/12 A | 22/05/12 A  |             | YSW05922                      | YSW0800                             |      |     |     |     |     |  |
| YSW06023  | 1/F to Roof Constuction for Grid J-N/5-7         | 45                | 100              | 13/04/12 A  | 27/05/12 A   | 13/04/12 A | 27/05/12 A  |             | YSW05923                      | E&M0580, YSW05924                   |      |     |     |     |     |  |
| YSW06034  | 1/F to Roof Constuction for Grid GA-H/5-7        | 28                | 100              | 27/07/12 A  | 13/08/12 A   | 27/07/12 A | 13/08/12 A  |             | YSW05924                      | YSW0800                             |      |     |     |     |     |  |
| YSW06035  | Construct baffle walls in Grease Separators      | 90                | 100              | 18/04/12 A  | 16/07/12 A   | 18/04/12 A | 16/07/12 A  |             | YSW05911                      | YSW07204                            |      |     |     |     |     |  |
| YSW07201  | Water tightness test for Inlet Pumping Station   | 60                | 100              | 23/03/12 A  | 21/05/12 A   | 23/03/12 A | 21/05/12 A  |             | YSW06021                      | YSW07202, YSW0800                   |      |     |     |     |     |  |
| YSW07202  | Water tightness test for Equalization Tanks      | 42                | 100              | 22/05/12 A  | 02/07/12 A   | 22/05/12 A | 02/07/12 A  |             | YSW07201                      | E&M0600, YSW07203, YSW0800          |      |     |     |     |     |  |
| YSW07203  | Water tightness test for Grit Chambers           | 42                | 100              | 17/09/12 A  | 29/09/12 A   | 17/09/12 A | 29/09/12 A  |             | YSW07202                      | YSW07204, YSW0800                   |      |     |     |     |     |  |
| YSW07204  | Water tightness test for Grease Separators       | 32                | 100              | 03/10/12 A  | 31/10/12 A   | 03/10/12 A | 31/10/12 A  |             | YSW06035, YSW07203            | E&M0570, YSW07205, YSW0800          |      |     |     |     |     |  |
| YSW07205  | Water tightness test for water channels          | 21                | 0                | 31/01/13    | 20/02/13     | 10/06/14   | 30/06/14    | 495d        | YSW07204                      | YSW0800                             |      |     |     |     |     |  |
| YSW0800   | ABWF installation                                | 271               | 88               | 03/07/12 A  | 04/03/13     | 03/07/12 A | 16/06/14    | 470d        | YSW06001, YSW06011, YSW06022, | KD0040                              |      |     |     |     |     |  |
| <b>YSW STW - GL T - X</b>                           |  |                   |                  |             |              |            |             |             |                               |                                     |      |     |     |     |     |  |
| YSW0610   | Excavate to formation                            | 10                | 100              | 08/09/10 A  | 17/09/10 A   | 08/09/10 A | 17/09/10 A  |             | YSW0035, YSW0422              | YSW0620                             |      |     |     |     |     |  |
| YSW0620   | Base slab construction                           | 248               | 100              | 18/09/10 A  | 23/05/11 A   | 18/09/10 A | 23/05/11 A  |             | YSW0610                       | YSW0630                             |      |     |     |     |     |  |

|             |          |  |                        |
|-------------|----------|--|------------------------|
| Start date  | 05/05/10 |  | Early bar              |
| Finish date | 28/10/16 |  | Progress bar           |
| Data date   | 31/01/13 |  | Critical bar           |
| Run date    | 05/02/13 |  | Summary bar            |
| Page number | 3A       |  | 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 (Feb 2013 - Apr 2013)**

|          |            |         |          |
|----------|------------|---------|----------|
| Date     | Revision   | Checked | Approved |
| 31/01/13 | Revision 0 | RH      | VC       |
|          |            |         |          |
|          |            |         |          |



| Activity ID                               | Description                                      | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors                | Successors                          | 2013 |     |     |     |     |  |
|---|--|-------------------|------------------|-------------|--------------|------------|-------------|-------------|-----------------------------|-------------------------------------|------|-----|-----|-----|-----|--|
|   |  |                   |                  |             |              |            |             |             |                             |                                     | JAN  | FEB | MAR | APR | MAY |  |
| YSW0630                                   | G/F to 1/F construction                          | 205               | 100              | 24/05/11 A  | 14/12/11 A   | 24/05/11 A | 14/12/11 A  |             | YSW0620                     | YSW0640                             |      |     |     |     |     |  |
| YSW0640                                   | 1/F to Roof Construction                         | 64                | 100              | 15/12/11 A  | 16/02/12 A   | 15/12/11 A | 16/02/12 A  |             | YSW0630                     | YSW0810                             |      |     |     |     |     |  |
| YSW0810                                   | ABWF installation                                | 80                | 100              | 28/12/11 A  | 16/03/12 A   | 28/12/11 A | 16/03/12 A  |             | YSW0640                     | E&M0610, E&M0620, E&M0630, E&M0640  |      |     |     |     |     |  |
| <b>YSW STW - GL F - H &amp; DN Tanks</b>  |  |                   |                  |             |              |            |             |             |                             |                                     |      |     |     |     |     |  |
| YSW0650                                   | ELS & Excavation for DN Tanks                    | 37                | 100              | 08/09/10 A  | 14/10/10 A   | 08/09/10 A | 14/10/10 A  |             | YSW0035, YSW0422            | YSW0660                             |      |     |     |     |     |  |
| YSW0660                                   | Sub-structure construction (DN Tanks)            | 78                | 100              | 15/10/10 A  | 31/12/10 A   | 15/10/10 A | 31/12/10 A  |             | YSW0650                     | YSW0530, YSW0670                    |      |     |     |     |     |  |
| YSW0670                                   | Backfill & Remove ELS (DN Tanks)                 | 70                | 100              | 01/01/11 A  | 11/03/11 A   | 01/01/11 A | 11/03/11 A  |             | YSW0660                     | YSW0680                             |      |     |     |     |     |  |
| YSW0680                                   | Base slab construction (SD1, SD2 & MBR4)         | 17                | 100              | 12/03/11 A  | 28/03/11 A   | 12/03/11 A | 28/03/11 A  |             | YSW0670                     | YSW0690                             |      |     |     |     |     |  |
| YSW0690                                   | Construct Superstructure SD1, SD2 & MBR4         | 82                | 100              | 29/03/11 A  | 18/06/11 A   | 29/03/11 A | 18/06/11 A  |             | YSW0680                     | YSW0710, YSW0820                    |      |     |     |     |     |  |
| YSW06901                                  | Construct Superstructure of DN Tanks             | 28                | 100              | 15/05/12 A  | 11/06/12 A   | 15/05/12 A | 11/06/12 A  |             | YSW0735                     | YSW0830                             |      |     |     |     |     |  |
| YSW0705                                   | Water test for MBR 4                             | 47                | 100              | 01/10/12 A  | 16/11/12 A   | 01/10/12 A | 16/11/12 A  |             | YSW0710                     | E&M0510, E&M0640, YSW07055, YSW0820 |      |     |     |     |     |  |
| YSW07055                                  | Water test for SD1 & SD2                         | 54                | 100              | 17/11/12 A  | 10/01/13 A   | 17/11/12 A | 10/01/13 A  |             | YSW0705, YSW07105           | E&M0610                             |      |     |     |     |     |  |
| YSW0710                                   | Apply protective paint for MBR 4                 | 7                 | 100              | 24/09/12 A  | 30/09/12 A   | 24/09/12 A | 30/09/12 A  |             | YSW0690                     | YSW0705, YSW07105                   |      |     |     |     |     |  |
| YSW07105                                  | Apply protective paint for SD1 & SD2             | 7                 | 100              | 01/10/12 A  | 07/10/12 A   | 01/10/12 A | 07/10/12 A  |             | YSW0710                     | YSW07055                            |      |     |     |     |     |  |
| YSW0820                                   | ABWF installation                                | 34                | 20               | 15/01/13 A  | 27/02/13     | 15/01/13 A | 08/01/13    | -49d        | YSW0690, YSW0705            | E&M0630, E&M0640                    |      |     |     |     |     |  |
| YSW0830                                   | Water test for DN Tanks                          | 28                | 0                | 07/02/13    | 06/03/13     | 10/02/13   | 10/03/13    | 4d          | YSW06901                    | YSW0850                             |      |     |     |     |     |  |
| YSW0850                                   | Apply protective paint for DN Tanks              | 6                 | 0                | 07/03/13    | 12/03/13     | 10/03/13   | 16/03/13    | 4d          | YSW0830                     | E&M0610                             |      |     |     |     |     |  |
| <b>YSW STW - GL A - F</b>                 |  |                   |                  |             |              |            |             |             |                             |                                     |      |     |     |     |     |  |
| YSW0730                                   | Completion of HDD                                | 0                 | 100              | 21/01/12 A  |              | 21/01/12 A |             |             | YSW03601, YSW03605          | YSW0732                             |      |     |     |     |     |  |
| YSW0732                                   | Excavate for MBR 2 & 3                           | 20                | 100              | 21/01/12 A  | 09/02/12 A   | 21/01/12 A | 09/02/12 A  |             | YSW0730                     | YSW0733                             |      |     |     |     |     |  |
| YSW0733                                   | Construct basement of MBR 2 & 3                  | 20                | 100              | 10/02/12 A  | 29/02/12 A   | 10/02/12 A | 29/02/12 A  |             | YSW0732                     | YSW0735, YSW0740                    |      |     |     |     |     |  |
| YSW0735                                   | Construct superstructure of MBR 2                | 75                | 100              | 01/03/12 A  | 14/05/12 A   | 01/03/12 A | 14/05/12 A  |             | YSW0733                     | YSW06901, YSW0736, YSW08302,        |      |     |     |     |     |  |
| YSW0736                                   | Construct superstructure of MBR 3                | 100               | 100              | 15/05/12 A  | 14/05/12 A   | 15/05/12 A | 14/05/12 A  |             | YSW0735                     | YSW08302, YSW08305                  |      |     |     |     |     |  |
| YSW0740                                   | ELS & excavate for Outfall Shaft                 | 75                | 100              | 01/03/12 A  | 14/05/12 A   | 01/03/12 A | 14/05/12 A  |             | YSW0733                     | YSW0750                             |      |     |     |     |     |  |
| YSW0750                                   | Construct basement of Outfall Shaft              | 19                | 100              | 15/05/12 A  | 02/06/12 A   | 15/05/12 A | 02/06/12 A  |             | YSW0740                     | YSW07501                            |      |     |     |     |     |  |
| YSW07501                                  | Connect additional flange to HDPE pipe (VO 042)  | 5                 | 100              | 03/06/12 A  | 07/06/12 A   | 03/06/12 A | 07/06/12 A  |             | YSW0750                     | YSW07502                            |      |     |     |     |     |  |
| YSW07502                                  | Construct sub-structure of Outfall Shaft         | 16                | 100              | 08/06/12 A  | 23/06/12 A   | 08/06/12 A | 23/06/12 A  |             | YSW07501                    | YSW0760                             |      |     |     |     |     |  |
| YSW0760                                   | Backfill & remove ELS (outfall shaft)            | 8                 | 100              | 24/06/12 A  | 01/07/12 A   | 24/06/12 A | 01/07/12 A  |             | YSW07502                    | YSW01800, YSW07601, YSW07603,       |      |     |     |     |     |  |
| YSW07601                                  | Construct superstructure for Outfall Shaft       | 30                | 100              | 03/07/12 A  | 31/07/12 A   | 03/07/12 A | 31/07/12 A  |             | YSW0760                     | YSW08301, YSW08305                  |      |     |     |     |     |  |
| YSW07603                                  | ELS & excavate for FSH Water Supply Tank         | 25                | 100              | 01/06/12 A  | 25/06/12 A   | 01/06/12 A | 25/06/12 A  |             | YSW0760                     | YSW07604                            |      |     |     |     |     |  |
| YSW07604                                  | Construct substructure for FSH Water Supply Tank | 24                | 100              | 26/06/12 A  | 19/07/12 A   | 26/06/12 A | 19/07/12 A  |             | YSW07603                    | YSW07605                            |      |     |     |     |     |  |
| YSW07605                                  | Backfill & remove ELS for FSH Water Supply Tank  | 12                | 100              | 20/07/12 A  | 31/07/12 A   | 20/07/12 A | 31/07/12 A  |             | YSW07604                    | YSW07607                            |      |     |     |     |     |  |
| YSW07607                                  | Construct basement of MBR 1 & Workshop           | 24                | 100              | 01/08/12 A  | 24/08/12 A   | 01/08/12 A | 24/08/12 A  |             | YSW07605                    | YSW07608, YSW07609                  |      |     |     |     |     |  |
| YSW07608                                  | Construct superstructure for FSH Water Supply Tk | 37                | 100              | 25/08/12 A  | 30/09/12 A   | 25/08/12 A | 30/09/12 A  |             | YSW07607                    | YSW08304, YSW08305                  |      |     |     |     |     |  |
| YSW07609                                  | Construct superstructure for MBR 1               | 37                | 100              | 25/08/12 A  | 30/09/12 A   | 25/08/12 A | 30/09/12 A  |             | YSW07607                    | YSW07610, YSW08303, YSW1470         |      |     |     |     |     |  |
| YSW07610                                  | Construct Workshop, FSSH Pump Rm, PW Pump Rm     | 31                | 100              | 03/10/12 A  | 31/10/12 A   | 03/10/12 A | 31/10/12 A  |             | YSW07609                    | YSW0840, YSW16606, YSW16607,        |      |     |     |     |     |  |
| YSW08301                                  | Water tightness test for Outfall Shaft           | 42                | 0                | 27/02/13    | 09/04/13     | 12/04/13   | 23/05/13    | 44d         | YSW0390, YSW07601           | E&M0690                             |      |     |     |     |     |  |
| YSW08302                                  | Water tightness test for MBR 2 & 3               | 95                | 100              | 03/07/12 A  | 05/10/12 A   | 03/07/12 A | 05/10/12 A  |             | YSW0735, YSW0736            | E&M0520, E&M0590, E&M0605, E&M0650  |      |     |     |     |     |  |
| YSW08303                                  | Water tightness test for MBR 1                   | 19                | 100              | 30/11/12 A  | 18/12/12 A   | 30/11/12 A | 18/12/12 A  |             | YSW07609                    | E&M0520                             |      |     |     |     |     |  |
| YSW08304                                  | Water tightness test for FSH Water Supply Tank   | 32                | 0                | 31/01/13    | 03/03/13     | 12/02/13   | 16/03/13    | 13d         | YSW07608                    | E&M0610                             |      |     |     |     |     |  |
| YSW08305                                  | Apply protective paint                           | 120               | 58               | 02/10/12 A  | 22/03/13     | 02/10/12 A | 16/03/13    | -6d         | YSW0735, YSW0736, YSW07601, | E&M0610, YSW0870                    |      |     |     |     |     |  |
| YSW0870                                   | ABWF installation                                | 30                | 0                | 22/03/13    | 21/04/13     | 18/05/14   | 16/06/14    | 422d        | YSW08305                    | KD0040                              |      |     |     |     |     |  |
| <b>Fire Hose Reel / Sprinkler Pump Rm</b> |  |                   |                  |             |              |            |             |             |                             |                                     |      |     |     |     |     |  |
| YSW0840                                   | ELS & excavate to formation (+0 mPD approx.)     | 40                | 0                | 09/02/13    | 20/03/13     | 17/01/13   | 25/02/13    | -23d        | YSW07610, YSW16606          | YSW0860                             |      |     |     |     |     |  |
| YSW0860                                   | Sub-structure construction                       | 40                | 0                | 21/03/13    | 29/04/13     | 26/02/13   | 06/04/13    | -23d        | YSW0840                     | YSW0880                             |      |     |     |     |     |  |
| YSW0880                                   | Backfill & remove ELS                            | 35                | 0                | 30/04/13    | 03/06/13     | 07/04/13   | 11/05/13    | -23d        | YSW0860                     | YSW0890                             |      |     |     |     |     |  |
| YSW0890                                   | Construction Ground Slab at +5.2mPD              | 40                | 0                | 04/06/13    | 13/07/13     | 12/05/13   | 20/06/13    | -23d        | YSW0880                     | YSW0900                             |      |     |     |     |     |  |
| YSW0900                                   | Superstructure construction upto +8.2mPD         | 35                | 0                | 14/07/13    | 17/08/13     | 21/06/13   | 25/07/13    | -23d        | YSW0890                     | YSW0910, YSW0925                    |      |     |     |     |     |  |
| YSW0910                                   | Water test                                       | 28                | 0                | 18/08/13    | 14/09/13     | 26/07/13   | 22/08/13    | -23d        | YSW0900                     | YSW0915                             |      |     |     |     |     |  |
| YSW0915                                   | Apply protective paint                           | 14                | 0                | 15/09/13    | 28/09/13     | 23/08/13   | 05/09/13    | -23d        | YSW0910                     | E&M0640, YSW0925                    |      |     |     |     |     |  |
| YSW0925                                   | ABWF installation                                | 30                | 0                | 30/08/13    | 28/09/13     | 18/05/14   | 16/06/14    | 261d        | YSW0900, YSW0915            | KD0040                              |      |     |     |     |     |  |
| <b>Emergency Storage Tank</b>             |  |                   |                  |             |              |            |             |             |                             |                                     |      |     |     |     |     |  |
| YSW1470                                   | ELS & excavate to formation (-1.5mPD Approx.)    | 16                | 100              | 17/09/12 A  | 02/10/12 A   | 17/09/12 A | 02/10/12 A  |             | YSW07609                    | YSW1480                             |      |     |     |     |     |  |
| YSW1480                                   | Sub-structure construction                       | 14                | 100              | 03/10/12 A  | 16/10/12 A   | 03/10/12 A | 16/10/12 A  |             | YSW1470                     | YSW1490                             |      |     |     |     |     |  |
| YSW1490                                   | Backfill & extract sheetpile                     | 3                 | 100              | 17/10/12 A  | 19/10/12 A   | 17/10/12 A | 19/10/12 A  |             | YSW1480                     | YSW1500                             |      |     |     |     |     |  |
| YSW1500                                   | Superstructure construction upto +10.5mPD        | 41                | 100              | 20/10/12 A  | 29/11/12 A   | 20/10/12 A | 29/11/12 A  |             | YSW1490                     | YSW1530, YSW1536                    |      |     |     |     |     |  |

|             |          |  |                        |
|-------------|----------|--|------------------------|
| Start date  | 05/05/10 |  | Early bar              |
| Finish date | 28/10/16 |  | Progress bar           |
| Data date   | 31/01/13 |  | Critical bar           |
| Run date    | 05/02/13 |  | Summary bar            |
| Page number | 4A       |  | 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 (Feb 2013 - Apr 2013)**

|          |            |         |          |
|----------|------------|---------|----------|
| Date     | Revision   | Checked | Approved |
| 31/01/13 | Revision 0 | RH      | VC       |
|          |            |         |          |
|          |            |         |          |

| Activity ID                                       | Description                                      | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors                                   | Successors                   | 2013 |     |     |     |     |  |
|---|--|-------------------|------------------|-------------|--------------|------------|-------------|-------------|--|------------------------------|------|-----|-----|-----|-----|--|
|   |  |                   |                  |             |              |            |             |             |  |                              | JAN  | FEB | MAR | APR | MAY |  |
| YSW1530   | Underground pipeline works                       | 40                | 0                | 31/01/13    | 11/03/13     | 14/04/13   | 23/05/13    | 73d         | YSW1500  | E&M0690, YSW1680             |      |     |     |     |     |  |
| YSW1536   | Water tightness test                             | 40                | 0                | 31/01/13    | 11/03/13     | 03/02/13   | 14/03/13    | 3d          | YSW1500  | YSW1538                      |      |     |     |     |     |  |
| YSW1538   | Apply protective paint                           | 30                | 0                | 12/03/13    | 10/04/13     | 15/03/13   | 13/04/13    | 3d          | YSW1536  | YSW1540                      |      |     |     |     |     |  |
| YSW1540   | ABWF installation                                | 40                | 0                | 11/04/13    | 20/05/13     | 14/04/13   | 23/05/13    | 3d          | YSW1538  | E&M0690                      |      |     |     |     |     |  |
| <b>Road, Drain, Cable Draw Pits &amp; Ducting</b> |  |                   |                  |             |              |            |             |             |  |                              |      |     |     |     |     |  |
| YSW16601  | ELS & excavate 6m deep sewer (FM1 - YFMH13)      | 60                | 0                | 09/02/13    | 09/04/13     | 12/01/13   | 12/03/13    | -28d        | YSW0760, YSW16606, YSW16607,                   | YSW16602                     |      |     |     |     |     |  |
| YSW16602  | Lay pipe & backfill 6m deep sewer (FM1 - YFMH13) | 45                | 0                | 10/04/13    | 24/05/13     | 13/03/13   | 26/04/13    | -28d        | YSW16601                                       | E&M0680, YSW1700             |      |     |     |     |     |  |
| YSW16603  | Construct UU & pipes along sea side (Grid Q-X)   | 60                | 0                | 07/02/13    | 08/04/13     | 24/03/13   | 22/05/13    | 45d         | YSW16607, YSW16608                             | YSW16604, YSW16703           |      |     |     |     |     |  |
| YSW16604  | Construct UU & pipes along sea side (Grid XA-D)  | 60                | 0                | 08/04/13    | 07/06/13     | 23/05/13   | 21/07/13    | 45d         | YSW16603                                       | YSW16605, YSW16701           |      |     |     |     |     |  |
| YSW16605  | Construct UU & pipes along sea side (Grid D-Q)   | 60                | 0                | 07/06/13    | 06/08/13     | 22/07/13   | 19/09/13    | 45d         | YSW16604                                       | YSW16702, YSW1700            |      |     |     |     |     |  |
| YSW16606  | Construct UU & pipes along hill side (Grid D-Q)  | 90                | 90               | 10/10/12 A  | 08/02/13     | 10/10/12 A | 11/01/13    | -28d        | YSW07610                                       | YSW0840, YSW16601            |      |     |     |     |     |  |
| YSW16607  | Construct UU & pipes along hill side (Grid Q-X)  | 72                | 90               | 20/08/12 A  | 07/02/13     | 20/08/12 A | 11/01/13    | -26d        | YSW07610                                       | YSW16601, YSW16603           |      |     |     |     |     |  |
| YSW16608  | Construct UU & pipes along hill side (Grid XA-D) | 72                | 90               | 30/11/12 A  | 07/02/13     | 30/11/12 A | 11/01/13    | -26d        | YSW07610                                       | YSW16601, YSW16603, YSW1690  |      |     |     |     |     |  |
| YSW16701  | Construct Boundary Wall (Grid XA-D)              | 80                | 90               | 10/01/13 A  | 15/06/13     | 10/01/13 A | 19/09/13    | 97d         | YSW16604                                       | YSW16702                     |      |     |     |     |     |  |
| YSW16702  | Construct Boundary Wall (Grid D-Q)               | 80                | 0                | 06/08/13    | 25/10/13     | 20/09/13   | 08/12/13    | 45d         | YSW16605, YSW16701                             | YSW16703                     |      |     |     |     |     |  |
| YSW16703  | Construct Boundary Wall (Grid Q-X)               | 80                | 0                | 25/10/13    | 13/01/14     | 09/12/13   | 26/02/14    | 45d         | YSW16603, YSW16702                             | YSW16704, YSW1700            |      |     |     |     |     |  |
| YSW16704  | ABWF installation for Boundary Wall              | 240               | 0                | 06/08/13    | 03/04/14     | 20/10/13   | 16/06/14    | 75d         | YSW16703                                       | KD0040                       |      |     |     |     |     |  |
| YSW1680   | Fire Hydrant & pipeline installation             | 120               | 10               | 26/01/13 A  | 27/06/13     | 26/01/13 A | 08/09/13    | 73d         | YSW1530  | YSW1690, YSW1700             |      |     |     |     |     |  |
| YSW1690   | Construction of Road Kerbs, Downpipes, U-channel | 180               | 5                | 02/01/13 A  | 15/12/13     | 02/01/13 A | 26/02/14    | 73d         | YSW16608, YSW1680                              | YSW1700                      |      |     |     |     |     |  |
| YSW1700   | Road Paving                                      | 110               | 0                | 13/01/14    | 03/05/14     | 27/02/14   | 16/06/14    | 45d         | YSW16602, YSW16605, YSW16703, YSW1680, YSW1690 | KD0040                       |      |     |     |     |     |  |
| <b>Submarine Outfall</b>                          |  |                   |                  |             |              |            |             |             |  |                              |      |     |     |     |     |  |
| YSW0180   | Coordination of HEC                              | 53                | 100              | 17/05/10 A  | 08/07/10 A   | 17/05/10 A | 08/07/10 A  |             | KD0020   | 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  |             | KD0020   | YSW0210                      |      |     |     |     |     |  |
| YSW0210   | Ecology Survey                                   | 211               | 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      | 103               | 100              | 17/05/10 A  | 27/08/10 A   | 17/05/10 A | 27/08/10 A  |             | KD0020   | YSW0230                      |      |     |     |     |     |  |
| YSW0230   | Hydrographical Survey (YSW)                      | 157               | 100              | 28/08/10 A  | 31/01/11 A   | 28/08/10 A | 31/01/11 A  |             | YSW0220  | YSW0350                      |      |     |     |     |     |  |
| YSW0240   | Material Submission, Approval of HDPE pipe       | 319               | 100              | 17/05/10 A  | 31/03/11 A   | 17/05/10 A | 31/03/11 A  |             | KD0020   | YSW0360                      |      |     |     |     |     |  |
| YSW02401  | Clarify Coordinate of Point Y (Reply of RFI 010) | 83                | 100              | 28/06/10 A  | 18/09/10 A   | 28/06/10 A | 18/09/10 A  |             | KD0020   | YSW0250                      |      |     |     |     |     |  |
| YSW0250   | Submit and Approval of Method Statement for HDD  | 188               | 100              | 19/09/10 A  | 25/03/11 A   | 19/09/10 A | 25/03/11 A  |             | YSW02401                                       | YSW0260, YSW0270, YSW0340    |      |     |     |     |     |  |
| YSW0260   | Submission of HDD Method Statement to HEC        | 14                | 100              | 26/03/11 A  | 08/04/11 A   | 26/03/11 A | 08/04/11 A  |             | YSW0250  | YSW0340                      |      |     |     |     |     |  |
| YSW0270   | Additional G.I. Boreholes (YSW)                  | 123               | 100              | 19/09/10 A  | 19/01/11 A   | 19/09/10 A | 19/01/11 A  |             | YSW0250  | YSW0280, YSW0290             |      |     |     |     |     |  |
| YSW0280   | Submission of propose alignment                  | 44                | 100              | 20/01/11 A  | 04/03/11 A   | 20/01/11 A | 04/03/11 A  |             | YSW0270  | YSW0310, YSW0340             |      |     |     |     |     |  |
| YSW0290   | Submission of Marine Notice                      | 69                | 100              | 20/01/11 A  | 29/03/11 A   | 20/01/11 A | 29/03/11 A  |             | YSW0270  | YSW0350                      |      |     |     |     |     |  |
| YSW0310   | Construction of Entry Pit and Preparation Work   | 27                | 100              | 05/03/11 A  | 31/03/11 A   | 05/03/11 A | 31/03/11 A  |             | YSW0280  | YSW0320                      |      |     |     |     |     |  |
| YSW0320   | Prepare of HDD Drill Rig Set-up (YSW)            | 28                | 100              | 01/04/11 A  | 28/04/11 A   | 01/04/11 A | 28/04/11 A  |             | YSW0310  | YSW0330, YSW0350             |      |     |     |     |     |  |
| YSW0330   | Establishment of HDD plant & equipment           | 6                 | 100              | 09/04/11 A  | 14/04/11 A   | 09/04/11 A | 14/04/11 A  |             | YSW0320  | YSW0340                      |      |     |     |     |     |  |
| YSW0340   | Setting up at drillhole location                 | 14                | 100              | 15/04/11 A  | 28/04/11 A   | 15/04/11 A | 28/04/11 A  |             | YSW0250, YSW0260, YSW0280,                     | YSW0350                      |      |     |     |     |     |  |
| YSW0350   | Drill pilot hole and reaming hole - NS400 - 530m | 229               | 100              | 29/04/11 A  | 13/12/11 A   | 29/04/11 A | 13/12/11 A  |             | YSW0040, YSW0180, YSW0210,                     | YSW0360                      |      |     |     |     |     |  |
| YSW0360   | Installation of NS400 HDPE 530m                  | 17                | 100              | 14/12/11 A  | 30/12/11 A   | 14/12/11 A | 30/12/11 A  |             | YSW0240, YSW0350                               | SKW1181, YSW03601, YSW03620, |      |     |     |     |     |  |
| YSW03601  | Demobilization of HDD plant & equipment          | 7                 | 100              | 31/12/11 A  | 06/01/12 A   | 31/12/11 A | 06/01/12 A  |             | YSW0360  | YSW03605, YSW03641, YSW0730  |      |     |     |     |     |  |
| YSW03605  | Remove Entry pit of HDD                          | 14                | 100              | 07/01/12 A  | 20/01/12 A   | 07/01/12 A | 20/01/12 A  |             | YSW03601                                       | YSW0730                      |      |     |     |     |     |  |
| YSW03620  | Removal of Receiving Pit                         | 14                | 100              | 31/12/11 A  | 13/01/12 A   | 31/12/11 A | 13/01/12 A  |             | YSW0360  | YSW0365                      |      |     |     |     |     |  |
| YSW03641  | Prepare backfilling material under VO 046A       | 120               | 100              | 07/01/12 A  | 05/05/12 A   | 07/01/12 A | 05/05/12 A  |             | YSW03601                                       | YSW0365                      |      |     |     |     |     |  |
| YSW0365   | Set up of Silt Curtain as per EP                 | 2                 | 100              | 23/11/12 A  | 24/11/12 A   | 23/11/12 A | 24/11/12 A  |             | SKW1431, YSW03620, YSW03641                    | YSW0370                      |      |     |     |     |     |  |
| YSW0370   | Dredging of Marine Deposit for Diffuser (YSW)    | 5                 | 100              | 24/11/12 A  | 29/11/12 A   | 24/11/12 A | 29/11/12 A  |             | YSW0360, YSW0365                               | YSW0380                      |      |     |     |     |     |  |
| YSW0380   | Diffuser Construction (YSW)                      | 60                | 55               | 30/11/12 A  | 26/02/13     | 30/11/12 A | 11/04/13    | 44d         | YSW0370  | E&M0690, YSW0400, YSW08301   |      |     |     |     |     |  |
| YSW0400   | Removal of silt curtain                          | 30                | 0                | 27/02/13    | 28/03/13     | 18/05/14   | 16/06/14    | 445d        | YSW0380  | KD0040                       |      |     |     |     |     |  |
| <b>E&amp;M Works - YSW STW</b>                    |  |                   |                  |             |              |            |             |             |  |                              |      |     |     |     |     |  |
| E&M0360   | Delivery of MBR Memb. Mod. (MBR Tk 4)            | 118               | 100              | 24/02/11 A  | 21/06/11 A   | 24/02/11 A | 21/06/11 A  |             | E&M0160  | E&M0510                      |      |     |     |     |     |  |
| E&M0370   | Delivery of MBR Membrane Modules - 2nd Shipment  | 236               | 100              | 24/02/11 A  | 17/10/11 A   | 24/02/11 A | 17/10/11 A  |             | E&M0160  | E&M0520                      |      |     |     |     |     |  |
| E&M0380   | Delivery of Grit Removal Equipment               | 81                | 100              | 10/10/11 A  | 29/12/11 A   | 10/10/11 A | 29/12/11 A  |             | E&M0150  | E&M0530                      |      |     |     |     |     |  |
| E&M0390   | Delivery of Coarse Screens                       | 129               | 100              | 06/09/11 A  | 12/01/12 A   | 06/09/11 A | 12/01/12 A  |             | E&M0110  | E&M0540                      |      |     |     |     |     |  |
| E&M0400   | Delivery of Fine Screens                         | 80                | 100              | 12/09/11 A  | 30/11/11 A   | 12/09/11 A | 30/11/11 A  |             | E&M0120  | E&M0550                      |      |     |     |     |     |  |
| E&M0410   | Delivery of Pumps                                | 75                | 100              | 23/06/11 A  | 05/09/11 A   | 23/06/11 A | 05/09/11 A  |             | E&M0130  | E&M0560                      |      |     |     |     |     |  |
| E&M0420   | Delivery of Submersible Mixers                   | 230               | 100              | 26/02/11 A  | 26/02/11 A   | 26/02/11 A | 26/02/11 A  |             | E&M0140  | E&M0570                      |      |     |     |     |     |  |

|             |          |  |                        |
|-------------|----------|--|------------------------|
| Start date  | 05/05/10 |  | Early bar              |
| Finish date | 28/10/16 |  | Progress bar           |
| Data date   | 31/01/13 |  | Critical bar           |
| Run date    | 05/02/13 |  | Summary bar            |
| Page number | 5A       |  | Progress point         |
|             |          |  | Critical point         |
|             |          |  | Summary point          |
|             |          |  | Start milestone point  |
|             |          |  | Finish milestone point |

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|          |            |         |          |
|----------|------------|---------|----------|
| Date     | Revision   | Checked | Approved |
| 31/01/13 | Revision 0 | RH      | VC       |
|          |            |         |          |
|          |            |         |          |



| Activity ID | Description                                      | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors   | Successors       | 2013 |     |     |     |     |
|-------------|--|-------------------|------------------|-------------|--------------|------------|-------------|-------------|--|------------------|------|-----|-----|-----|-----|
|             |  |                   |                  |             |              |            |             |             |  |                  | JAN  | FEB | MAR | APR | MAY |
| E&M0440     | Delivery of Sludge Dewatering Equipment          | 558               | 55               | 31/08/11 A  | 09/10/13     | 31/08/11 A | 10/06/13    | -121d       | E&M0170  | E&M0580          |      |     |     |     |     |
| E&M0450     | Delivery of Valves, Pipes & Fittings             | 560               | 90               | 30/08/11 A  | 29/08/13     | 30/08/11 A | 14/09/13    | 17d         | E&M0180  | E&M0590          |      |     |     |     |     |
| E&M0460     | Delivery of Penstocks                            | 135               | 100              | 12/08/11 A  | 24/12/11 A   | 12/08/11 A | 24/12/11 A  |             | E&M0190  | E&M0600, E&M0605 |      |     |     |     |     |
| E&M0470     | Delivery of Instruments                          | 232               | 100              | 03/11/11 A  | 21/06/11 A   | 03/11/11 A | 21/06/11 A  |             | E&M0200  | E&M0610          |      |     |     |     |     |
| E&M0480     | Delivery of MCC LVSB                             | 90                | 30               | 03/12/12 A  | 05/12/14     | 03/12/12 A | 05/04/13    | -609d       | E&M0210  | E&M0620          |      |     |     |     |     |
| E&M0490     | Delivery of BS Equipment                         | 446               | 38               | 10/12/11 A  | 18/08/14     | 10/12/11 A | 14/04/13    | -491d       | E&M0220  | E&M0630          |      |     |     |     |     |
| E&M0500     | Delivery FS Equipment                            | 507               | 25               | 11/12/11 A  | 12/12/14     | 11/12/11 A | 09/05/13    | -582d       | E&M0230  | E&M0330, E&M0640 |      |     |     |     |     |
| E&M0510     | Install Membrane Modules in MBR Tank no. 4       | 89                | 70               | 03/11/12 A  | 26/02/13     | 03/11/12 A | 23/05/13    | 86d         | E&M0360, YSW0705   | E&M0690          |      |     |     |     |     |
| E&M0520     | Install Membrane Modules in MBR Tank No. 1 to 3  | 57                | 50               | 03/12/12 A  | 28/02/13     | 03/12/12 A | 23/05/13    | 85d         | E&M0370, YSW08302, YSW08303  | E&M0690          |      |     |     |     |     |
| E&M0530     | Install Grit Removal Equipment                   | 122               | 100              | 01/06/12 A  | 30/09/12 A   | 01/06/12 A | 30/09/12 A  |             | E&M0380, YSW05923  | E&M0590, E&M0660 |      |     |     |     |     |
| E&M0540     | Install Coarse Screens                           | 240               | 90               | 23/04/12 A  | 23/02/13     | 23/04/12 A | 12/04/13    | 48d         | E&M0390, YSW05923  | E&M0660          |      |     |     |     |     |
| E&M0550     | Install Fine Screens                             | 122               | 80               | 01/06/12 A  | 24/02/13     | 01/06/12 A | 17/01/13    | -37d        | E&M0400, YSW05923  | E&M0590, E&M0660 |      |     |     |     |     |
| E&M0560     | Install Pumps                                    | 355               | 60               | 23/04/12 A  | 21/06/13     | 23/04/12 A | 12/04/13    | -70d        | E&M0410, YSW05923  | E&M0660          |      |     |     |     |     |
| E&M0570     | Install Submersible Mixers                       | 163               | 50               | 15/01/13 A  | 22/04/13     | 15/01/13 A | 12/04/13    | -10d        | E&M0420, YSW07204  | E&M0660, E&M0690 |      |     |     |     |     |
| E&M0580     | Install Sludge Dewatering Equipment              | 361               | 25               | 29/05/12 A  | 28/10/13     | 29/05/12 A | 24/05/13    | -157d       | E&M0440, YSW06023  | E&M0690          |      |     |     |     |     |
| E&M0590     | Install Valves, Pipes & Fittings                 | 232               | 45               | 15/01/13 A  | 02/07/13     | 15/01/13 A | 25/05/13    | -37d        | E&M0450, E&M0530, E&M0550,   | E&M0650, E&M0690 |      |     |     |     |     |
| E&M0600     | Install Penstocks (Batch 1, GL H - T)            | 213               | 90               | 23/04/12 A  | 21/02/13     | 23/04/12 A | 23/05/13    | 92d         | E&M0460, YSW07202  | E&M0690          |      |     |     |     |     |
| E&M0605     | Install Penstocks (Batch 2, GL A - F)            | 131               | 60               | 02/01/13 A  | 24/03/13     | 02/01/13 A | 23/05/13    | 61d         | E&M0460, YSW08302  | E&M0690          |      |     |     |     |     |
| E&M0610     | Install Instruments                              | 74                | 5                | 02/01/13 A  | 31/05/13     | 02/01/13 A | 25/05/13    | -6d         | E&M0470, YSW07055, YSW0810,  | E&M0690          |      |     |     |     |     |
| E&M0620     | Install SAT, MCC & LVSB                          | 8                 | 10               | 02/01/13 A  | 12/12/14     | 02/01/13 A | 12/04/13    | -609d       | E&M0480, YSW0810   | E&M0660, E&M0690 |      |     |     |     |     |
| E&M0630     | Install BS Equipment                             | 180               | 25               | 02/01/13 A  | 01/11/14     | 02/01/13 A | 28/06/13    | -491d       | E&M0490, YSW0810, YSW0820  | E&M0690          |      |     |     |     |     |
| E&M0640     | Install FS Equipment                             | 180               | 5                | 02/01/13 A  | 31/01/15     | 02/01/13 A | 28/06/13    | -582d       | E&M0500, YSW0705, YSW0810,   | E&M0690          |      |     |     |     |     |
| E&M0650     | Hydraulic Tests of Pipeworks                     | 153               | 20               | 02/01/13 A  | 06/06/13     | 02/01/13 A | 30/05/13    | -7d         | E&M0590, YSW08302  | E&M0690          |      |     |     |     |     |
| E&M0660     | Cabling Works                                    | 15                | 0                | 12/12/14    | 27/12/14     | 13/04/13   | 27/04/13    | -609d       | E&M0530, E&M0540, E&M0550,<br>E&M0560, E&M0570, E&M0620  | E&M0670          |      |     |     |     |     |
| E&M0670     | Insulation Tests of Cables and Cable Termination | 26                | 0                | 27/12/14    | 22/01/15     | 28/04/13   | 23/05/13    | -609d       | E&M0320, E&M0325, E&M0660,   | E&M0690          |      |     |     |     |     |
| E&M0680     | Energization                                     | 1                 | 0                | 12/12/14 *  | 13/12/14     | 27/04/13   | 27/04/13    | -595d       | E&M0305, E&M0325, E&M0620,   | E&M0670          |      |     |     |     |     |
| E&M0690     | Functional and Performance Tests of Equipment    | 35                | 0                | 22/01/15    | 26/02/15     | 24/05/13   | 27/06/13 *  | -609d       | E&M0510, E&M0520, E&M0570,<br>E&M0580, E&M0590, E&M0600,<br>E&M0605, E&M0610, E&M0630,<br>E&M0640, E&M0650, E&M0670,<br>YSW0380, YSW08301, YSW1530,<br>YSW1540 | E&M0700          |      |     |     |     |     |
| E&M0700     | T&C Period                                       | 137               | 0                | 26/02/15    | 13/07/15     | 12/12/13   | 27/04/14    | -442d       | E&M0330, E&M0690   | E&M0730, KD0040  |      |     |     |     |     |
| E&M0730     | Trial Operation Period                           | 413               | 0                | 13/07/15    | 28/10/16     | 28/04/14   | 14/06/15    | -442d       | E&M0700  | KD0132           |      |     |     |     |     |

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| 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, SKW0265, SKW0592, SKW0681, |  |  |  |  |  |
| SKW0265                                      | Baseline Monitoring Submission (A & N)           | 14  | 100 | 16/06/10 A | 08/07/10 A | 16/06/10 A | 08/07/10 A |      | SKW0260                   | SKW0242, SKW0592, SKW0681, SKW0921, |  |  |  |  |  |
| 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                                      | Retaining Wall Bay 0-10 (Incl. VO. 001A)         | 177 | 100 | 30/06/10 A | 23/12/10 A | 30/06/10 A | 23/12/10 A |      | SKW0241, SKW0260, SKW0265 | SKW0461                             |  |  |  |  |  |
| SKW0461                                      | Utilities Laying and Diversion                   | 70  | 100 | 24/12/10 A | 03/03/11 A | 24/12/10 A | 03/03/11 A |      | SKW0242                   | SKW0471                             |  |  |  |  |  |
| SKW0471                                      | Concreting for Pavement                          | 7   | 100 | 04/03/11 A | 10/03/11 A | 04/03/11 A | 10/03/11 A |      | SKW0461                   | SKW0481                             |  |  |  |  |  |
| SKW0481                                      | Footpath Diversion - Stage 1                     | 14  | 100 | 11/03/11 A | 24/03/11 A | 11/03/11 A | 24/03/11 A |      | SKW0471                   | KD0050, SKW04811, SKW0491           |  |  |  |  |  |
| SKW04811                                     | Excavate for FP transition at CH0-35 & CH130-141 | 37  | 100 | 25/03/11 A | 30/04/11 A | 25/03/11 A | 30/04/11 A |      | SKW0481                   | SKW04821                            |  |  |  |  |  |
| SKW04821                                     | Construction of Drainage outfall near bay 10     | 3   | 100 | 01/05/11 A | 03/05/11 A | 01/05/11 A | 03/05/11 A |      | SKW04811                  | SKW04831                            |  |  |  |  |  |
| SKW04831                                     | Cable diversion by HEC                           | 26  | 100 | 04/05/11 A | 29/05/11 A | 04/05/11 A | 29/05/11 A |      | SKW04821                  | SKW04841                            |  |  |  |  |  |
| SKW04841                                     | Diversion of Ducting and Drawpit by PCCW         | 12  | 100 | 20/05/11 A | 31/05/11 A | 20/05/11 A | 31/05/11 A |      | SKW04831                  | SKW04851                            |  |  |  |  |  |
| SKW04851                                     | Soil backfilling behind FP retaining wall        | 14  | 100 | 01/06/11 A | 14/06/11 A | 01/06/11 A | 14/06/11 A |      | SKW04841                  | SKW04861                            |  |  |  |  |  |
| SKW04861                                     | Concreting for footpath pavement                 | 7   | 100 | 15/06/11 A | 21/06/11 A | 15/06/11 A | 21/06/11 A |      | SKW04851                  | SKW04871                            |  |  |  |  |  |
| SKW04871                                     | Relocation of Temp Safety Fence at SKW STW A-G   | 57  | 100 | 22/06/11 A | 17/08/11 A | 22/06/11 A | 17/08/11 A |      | SKW04861                  | SKW04881                            |  |  |  |  |  |
| SKW04881                                     | Disposal of excavation material at A-G SKW STW   | 138 | 100 | 18/08/11 A | 02/01/12 A | 18/08/11 A | 02/01/12 A |      | SKW04871                  | SKW04885                            |  |  |  |  |  |
| SKW04885                                     | Footpath Diversion - Stage 2                     | 7   | 100 | 03/01/12 A | 09/01/12 A | 03/01/12 A | 09/01/12 A |      | SKW04881                  | SKW1261                             |  |  |  |  |  |
| SKW0491                                      | Removal of Haul Road after SKW STW               | 7   | 0   | 08/10/14   | 14/10/14   | 29/05/15   | 04/06/15   | 233d | KD0090, SKW0481, SKW1401  | SKW0501                             |  |  |  |  |  |

|             |          |  |                        |
|-------------|----------|--|------------------------|
| Start date  | 05/05/10 |  | Early bar              |
| Finish date | 28/10/16 |  | Progress bar           |
| Data date   | 31/01/13 |  | Critical bar           |
| Run date    | 05/02/13 |  | Summary bar            |
| Page number | 6A       |  | 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 (Feb 2013 - Apr 2013)**

|          |            |         |          |
|----------|------------|---------|----------|
| Date     | Revision   | Checked | Approved |
| 31/01/13 | Revision 0 | RH      | VC       |
|          |            |         |          |
|          |            |         |          |

| Activity ID  | Description                                     | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors              | Successors                        | 2013 |     |     |     |     |  |
|--|---|-------------------|------------------|-------------|--------------|------------|-------------|-------------|---------------------------|-----------------------------------|------|-----|-----|-----|-----|--|
|  |   |                   |                  |             |              |            |             |             |                           |                                   | JAN  | FEB | MAR | APR | MAY |  |
| SKW0501  | Concreting for no-fine concrete                 | 14                | 0                | 08/10/14    | 21/10/14     | 29/05/15   | 11/06/15    | 233d        | SKW0491                   | SKW0511                           |      |     |     |     |     |  |
| SKW0511  | Wall Tie & Stone Facing                         | 14                | 0                | 22/10/14    | 04/11/14     | 12/06/15   | 25/06/15    | 233d        | SKW0501                   | SKW0521                           |      |     |     |     |     |  |
| SKW0521  | Gabion Wall & Geotextile                        | 30                | 0                | 05/11/14    | 04/12/14     | 26/06/15   | 25/07/15    | 233d        | SKW0511                   | SKW0531                           |      |     |     |     |     |  |
| SKW0531  | Installation of Flower Pot                      | 7                 | 0                | 05/12/14    | 11/12/14     | 26/07/15   | 01/08/15    | 233d        | SKW0521                   | SKW0541                           |      |     |     |     |     |  |
| SKW0541  | Completion of Outstanding Works                 | 42                | 0                | 12/12/14    | 22/01/15     | 02/08/15   | 12/09/15    | 233d        | SKW0531                   | KD0125                            |      |     |     |     |     |  |
| <b>Section W 4 - Slope Works in Portions H &amp; I</b> |   |                   |                  |             |              |            |             |             |                           |                                   |      |     |     |     |     |  |
| <b>Geotechnical Works</b>                              |   |                   |                  |             |              |            |             |             |                           |                                   |      |     |     |     |     |  |
| 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              | 31/08/10 A  | 12/10/10 A   | 31/08/10 A | 12/10/10 A  |             | SKW0260, SKW0265, SKW0591 | SKW05931                          |      |     |     |     |     |  |
| SKW05931   | Construction of Haul Road (To +30mPD)           | 50                | 100              | 03/09/10 A  | 22/10/10 A   | 03/09/10 A | 22/10/10 A  |             | SKW0592                   | SKW05932                          |      |     |     |     |     |  |
| SKW05932   | Construction of Haul Road (To +42.5mPD)         | 68                | 100              | 23/10/10 A  | 29/12/10 A   | 23/10/10 A | 29/12/10 A  |             | SKW05931                  | SKW059322                         |      |     |     |     |     |  |
| SKW059321  | Removal of Boulders (IBG 1 - 119, SI No. 11B)   | 121               | 100              | 03/11/10 A  | 03/03/11 A   | 03/11/10 A | 03/03/11 A  |             |                           | SKW059411                         |      |     |     |     |     |  |
| SKW059322  | Add. Site Invest. Works (VO. No. 9,12 & 16)     | 174               | 100              | 11/01/11 A  | 03/07/11 A   | 11/01/11 A | 03/07/11 A  |             | SKW05932                  | SKW059341                         |      |     |     |     |     |  |
| SKW059323  | Revised Profile at West Slope (+56 to +42.5mPD) | 1                 | 100              | 17/03/11 A  | 17/03/11 A   | 17/03/11 A | 17/03/11 A  |             |                           | SKW059324                         |      |     |     |     |     |  |
| SKW059324  | Construction of Haul Road (+42.5 to +56mPD)     | 12                | 100              | 18/03/11 A  | 29/03/11 A   | 18/03/11 A | 29/03/11 A  |             | SKW059323                 | SKW059325                         |      |     |     |     |     |  |
| SKW059325  | Removal of Boulders (IBG 120-139, SI No. 11C)   | 17                | 100              | 30/03/11 A  | 15/04/11 A   | 30/03/11 A | 15/04/11 A  |             | SKW059324                 | SKW05933                          |      |     |     |     |     |  |
| SKW05933   | West Slope Cutting (+56mPD to +42.5mPD)         | 2                 | 100              | 16/04/11 A  | 17/04/11 A   | 16/04/11 A | 17/04/11 A  |             | SKW059325                 | SKW059331                         |      |     |     |     |     |  |
| SKW059331  | Removal of Boulders (IBG 140-189, SI No. 11D)   | 45                | 100              | 18/04/11 A  | 01/06/11 A   | 18/04/11 A | 01/06/11 A  |             | SKW05933                  | SKW05934                          |      |     |     |     |     |  |
| SKW05934   | West Slope Cutting (+42.5mPD to +35mPD)         | 32                | 100              | 02/06/11 A  | 03/07/11 A   | 02/06/11 A | 03/07/11 A  |             | SKW059331                 | SKW059341                         |      |     |     |     |     |  |
| SKW059341  | Revised Profile at West Slope (+20 to +4.8mPD)  | 1                 | 100              | 04/07/11 A  | 04/07/11 A   | 04/07/11 A | 04/07/11 A  |             | SKW059322, SKW05934       | SKW05935                          |      |     |     |     |     |  |
| SKW05935   | West Slope Cutting (+35mPD to +27.5mPD)         | 83                | 100              | 08/07/11 A  | 28/09/11 A   | 08/07/11 A | 28/09/11 A  |             | SKW059341                 | SKW05936                          |      |     |     |     |     |  |
| SKW05936   | West Slope Cutting (+27.5mPD to +20mPD)         | 61                | 100              | 29/09/11 A  | 28/11/11 A   | 29/09/11 A | 28/11/11 A  |             | SKW05935                  | SKW05937                          |      |     |     |     |     |  |
| SKW05937   | West Slope Cutting (+20mPD to +12.5mPD)         | 39                | 100              | 29/11/11 A  | 06/01/12 A   | 29/11/11 A | 06/01/12 A  |             | SKW05936                  | SKW05938                          |      |     |     |     |     |  |
| SKW05938   | West Slope Cutting (+12.5mPD to +4.8mPD)        | 90                | 100              | 07/01/12 A  | 27/03/12 A   | 07/01/12 A | 27/03/12 A  |             | SKW05937                  | KD0060, SKW1261, SKW1311, SKW1371 |      |     |     |     |     |  |
| SKW05941   | Slope Stormwater Drainage                       | 300               | 100              | 28/03/12 A  | 25/05/12 A   | 28/03/12 A | 25/05/12 A  |             | KD0060                    | SKW05942                          |      |     |     |     |     |  |
| SKW059411  | East Slope Cutting (+50mPD to +42.5mPD)         | 72                | 100              | 04/03/11 A  | 14/05/11 A   | 04/03/11 A | 14/05/11 A  |             | SKW059321                 | SKW059412                         |      |     |     |     |     |  |
| SKW059412  | East Slope Cutting (+42.5mPD to +35mPD)         | 82                | 100              | 15/05/11 A  | 04/08/11 A   | 15/05/11 A | 04/08/11 A  |             | SKW059411                 | SKW059413                         |      |     |     |     |     |  |
| SKW059413  | East Slope Cutting (+35mPD to +27.5mPD)         | 55                | 100              | 05/08/11 A  | 28/09/11 A   | 05/08/11 A | 28/09/11 A  |             | SKW059412                 | SKW059414                         |      |     |     |     |     |  |
| SKW059414  | East Slope Cutting (+27.5mPD to +20mPD)         | 61                | 100              | 29/09/11 A  | 28/11/11 A   | 29/09/11 A | 28/11/11 A  |             | SKW059413                 | SKW059415                         |      |     |     |     |     |  |
| SKW059415  | East Slope Cutting (+20mPD to +12.5mPD)         | 39                | 100              | 29/11/11 A  | 06/01/12 A   | 29/11/11 A | 06/01/12 A  |             | SKW059414                 | SKW059416                         |      |     |     |     |     |  |
| SKW059416  | East Slope Cutting (+12.5mPD to +4.8mPD)        | 81                | 100              | 07/01/12 A  | 27/03/12 A   | 07/01/12 A | 27/03/12 A  |             | SKW059415                 | KD0060, SKW1311, SKW1371          |      |     |     |     |     |  |
| SKW05942   | Slope Miscellaneous Works                       | 61                | 100              | 26/05/12 A  | 31/07/12 A   | 26/05/12 A | 31/07/12 A  |             | SKW05941                  | SKW05943, SKW0595                 |      |     |     |     |     |  |
| SKW05943   | Buttress & surface Protection (SI No. 31)       | 60                | 100              | 03/07/12 A  | 31/07/12 A   | 03/07/12 A | 31/07/12 A  |             | SKW05942                  | SKW05944                          |      |     |     |     |     |  |
| SKW05944   | Slope Treatment (SI. No. 36)                    | 60                | 100              | 03/07/12 A  | 31/07/12 A   | 03/07/12 A | 31/07/12 A  |             | SKW05943                  | SKW05945                          |      |     |     |     |     |  |
| SKW05945   | Rock Slope Treatment (SI. No. 68)               | 60                | 100              | 01/08/12 A  | 30/09/12 A   | 01/08/12 A | 30/09/12 A  |             | SKW05944                  | SKW05946                          |      |     |     |     |     |  |
| SKW05946   | Rock Slope Treatment (SI. No. 98)               | 60                | 85               | 10/09/12 A  | 08/02/13     | 10/09/12 A | 22/03/13    | 42d         | SKW05945                  | SKW05947                          |      |     |     |     |     |  |
| SKW05947   | Rock Slope Treatment (SI. No. 115)              | 60                | 70               | 01/11/12 A  | 17/02/13     | 01/11/12 A | 26/03/13    | 37d         | SKW05946                  | KD0135                            |      |     |     |     |     |  |
| SKW05948   | Soil Nailing Works (VO. No. 52)                 | 300               | 85               | 10/02/12 A  | 16/03/13     | 10/02/12 A | 15/06/14    | 456d        |                           | SKW05963                          |      |     |     |     |     |  |
| SKW0595  | Rock Meshing                                    | 60                | 0                | 08/05/14    | 06/07/14     | 07/08/15   | 05/10/15    | 456d        | SKW05942, SKW05972        | KD0165                            |      |     |     |     |     |  |
| SKW05963   | Determine Alignment & Foundation Design of RFB  | 120               | 100              | 10/02/12 A  | 08/06/12 A   | 10/02/12 A | 08/06/12 A  |             | SKW05948                  | SKW059631, SKW05964, SKW05965     |      |     |     |     |     |  |
| SKW059631  | GEO Approval of Foundation Design               | 70                | 100              | 09/06/12 A  | 31/07/12 A   | 09/06/12 A | 31/07/12 A  |             | SKW05963                  | SKW05968                          |      |     |     |     |     |  |
| SKW05964   | Fabrication & Shipping of RFB Material          | 180               | 100              | 09/06/12 A  | 30/11/12 A   | 09/06/12 A | 30/11/12 A  |             | SKW05963                  | SKW05972                          |      |     |     |     |     |  |
| SKW05965   | Site clearance & Fomation of access             | 62                | 100              | 09/06/12 A  | 31/07/12 A   | 09/06/12 A | 31/07/12 A  |             | SKW05963                  | SKW05967                          |      |     |     |     |     |  |
| SKW05967   | Plant mobilization                              | 14                | 100              | 02/01/13 A  | 15/01/13 A   | 02/01/13 A | 15/01/13 A  |             | SKW05965                  | SKW05968                          |      |     |     |     |     |  |
| SKW05968   | Construction of anchors & pull out test         | 180               | 10               | 16/01/13 A  | 11/07/13     | 16/01/13 A | 10/10/14    | 456d        | SKW059631, SKW05967       | SKW05969                          |      |     |     |     |     |  |
| SKW05969   | Construction of Foundation                      | 120               | 0                | 12/07/13    | 08/11/13     | 11/10/14   | 07/02/15    | 456d        | SKW05968                  | SKW05970                          |      |     |     |     |     |  |
| SKW05970   | Proof Load Test                                 | 60                | 0                | 09/11/13    | 07/01/14     | 08/02/15   | 08/04/15    | 456d        | SKW05969                  | SKW05971                          |      |     |     |     |     |  |
| SKW05971   | Transportation of Material (To the slope crest) | 30                | 0                | 08/01/14    | 06/02/14     | 09/04/15   | 08/05/15    | 456d        | SKW05970                  | SKW05972                          |      |     |     |     |     |  |
| SKW05972   | Installation of Flexible barrier                | 90                | 0                | 07/02/14    | 07/05/14     | 09/05/15   | 06/08/15    | 456d        | SKW05964, SKW05971        | KD0165, SKW0595                   |      |     |     |     |     |  |
| <b>Section W 5 - P.S. No. 1 in Portion D</b>           |   |                   |                  |             |              |            |             |             |                           |                                   |      |     |     |     |     |  |
| <b>Civil &amp; Geotechnical Works</b>                  |   |                   |                  |             |              |            |             |             |                           |                                   |      |     |     |     |     |  |
| 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                  |      |     |     |     |     |  |

|             |          |  |                        |
|-------------|----------|--|------------------------|
| Start date  | 05/05/10 |  | Early bar              |
| Finish date | 28/10/16 |  | Progress bar           |
| Data date   | 31/01/13 |  | Critical bar           |
| Run date    | 05/02/13 |  | Summary bar            |
| Page number | 7A       |  | 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 (Feb 2013 - Apr 2013)**

|          |            |         |          |
|----------|------------|---------|----------|
| Date     | Revision   | Checked | Approved |
| 31/01/13 | Revision 0 | RH      | VC       |
|          |            |         |          |
|          |            |         |          |

| Activity ID   | Description                                      | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors               | Successors                          | 2013 |     |     |     |     |  |
|---|--|-------------------|------------------|-------------|--------------|------------|-------------|-------------|----------------------------|-------------------------------------|------|-----|-----|-----|-----|--|
|   |  |                   |                  |             |              |            |             |             |                            |                                     | JAN  | FEB | MAR | APR | MAY |  |
| SKW0661   | Transplantation for uncommon vegetation          | 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, SKW0265, SKW0652, | 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                            | 270               | 100              | 17/09/10 A  | 13/06/11 A   | 17/09/10 A | 13/06/11 A  |             | SKW0691                    | SKW0741                             |      |     |     |     |     |  |
| SKW0722   | Construction of Manholes (VO. No. 21A)           | 107               | 0                | 10/08/13    | 25/11/13     | 24/03/14   | 08/07/14    | 225d        | E&M11800                   | E&M3360                             |      |     |     |     |     |  |
| <b>Structural Works</b>                                   |  |                   |                  |             |              |            |             |             |                            |                                     |      |     |     |     |     |  |
| SKW0741   | RC Works for Structure                           | 240               | 100              | 14/06/11 A  | 08/02/12 A   | 14/06/11 A | 08/02/12 A  |             | SKW0721                    | KD0070, SKW0841                     |      |     |     |     |     |  |
| SKW0841   | ABWF works                                       | 60                | 100              | 09/02/12 A  | 08/04/12 A   | 09/02/12 A | 08/04/12 A  |             | SKW0741                    | E&M1101, E&M1102, E&M1103, E&M1104, |      |     |     |     |     |  |
| SKW0861   | 300mm U-channel & 675mm Step Channel             | 30                | 0                | 10/08/13    | 09/09/13     | 06/09/15   | 05/10/15    | 756d        | E&M11800, SKW0841          | KD0165                              |      |     |     |     |     |  |
| <b>E&amp;M Works (PS1)</b>                                |  |                   |                  |             |              |            |             |             |                            |                                     |      |     |     |     |     |  |
| <b>Submission &amp; Delivery</b>                          |  |                   |                  |             |              |            |             |             |                            |                                     |      |     |     |     |     |  |
| E&M1001   | Submission of Pumps                              | 198               | 100              | 17/05/10 A  | 24/02/11 A   | 17/05/10 A | 24/02/11 A  |             | KD0020                     | E&M1011                             |      |     |     |     |     |  |
| E&M1002   | Submission of Gen-Set                            | 198               | 100              | 17/05/10 A  | 24/02/11 A   | 17/05/10 A | 24/02/11 A  |             |                            | E&M1012                             |      |     |     |     |     |  |
| E&M1003   | Submission of DeO System                         | 198               | 100              | 17/05/10 A  | 16/07/13 A   | 17/05/10 A | 16/07/13 A  |             |                            | E&M1013                             |      |     |     |     |     |  |
| E&M1004   | Submission of LV SB & MCC                        | 180               | 100              | 17/05/10 A  | 09/01/12 A   | 17/05/10 A | 09/01/12 A  |             |                            | E&M1014                             |      |     |     |     |     |  |
| E&M1005   | Submission of Instrumentation                    | 243               | 100              | 17/05/10 A  | 12/03/12 A   | 17/05/10 A | 12/03/12 A  |             |                            | E&M1015                             |      |     |     |     |     |  |
| E&M1006   | Submission of FS System                          | 243               | 100              | 17/05/10 A  | 30/09/12 A   | 17/05/10 A | 30/09/12 A  |             |                            | E&M1016                             |      |     |     |     |     |  |
| E&M1007   | Submission of BS System                          | 243               | 97               | 17/05/10 A  | 07/02/13     | 17/05/10 A | 27/09/13    | 232d        |                            | E&M1017                             |      |     |     |     |     |  |
| E&M1011   | Delivery of Pumps                                | 150               | 100              | 24/02/11 A  | 21/07/11 A   | 24/02/11 A | 21/07/11 A  |             | E&M1001                    | E&M1101                             |      |     |     |     |     |  |
| E&M1012   | Delivery of Gen-Set                              | 150               | 100              | 24/02/11 A  | 23/09/11 A   | 24/02/11 A | 23/09/11 A  |             | E&M1002                    | E&M1102                             |      |     |     |     |     |  |
| E&M1013   | Delivery of DeO System                           | 150               | 100              | 11/07/11 A  | 28/10/11 A   | 11/07/11 A | 28/10/11 A  |             | E&M1003                    | E&M1103                             |      |     |     |     |     |  |
| E&M1014   | Delivery of LV SB & MCC                          | 150               | 100              | 01/06/12 A  | 31/07/12 A   | 01/06/12 A | 31/07/12 A  |             | E&M1004                    | E&M1104                             |      |     |     |     |     |  |
| E&M1015   | Delivery of Instrumentation                      | 90                | 100              | 01/11/11 A  | 03/11/11 A   | 01/11/11 A | 03/11/11 A  |             | E&M1005                    | E&M1105                             |      |     |     |     |     |  |
| E&M1016   | Delivery of FS Equipment                         | 107               | 80               | 01/12/11 A  | 21/02/13     | 01/12/11 A | 04/10/13    | 225d        | E&M1006                    | E&M1106                             |      |     |     |     |     |  |
| E&M1017   | Delivery of BS Equipment                         | 107               | 80               | 15/11/11 A  | 28/02/13     | 15/11/11 A | 18/10/13    | 232d        | E&M1007                    | E&M1107                             |      |     |     |     |     |  |
| <b>Installation, T&amp;C</b>                              |  |                   |                  |             |              |            |             |             |                            |                                     |      |     |     |     |     |  |
| E&M1101   | Install Pumps                                    | 55                | 90               | 02/10/12 A  | 05/02/13     | 02/10/12 A | 03/11/13    | 272d        | E&M1011, SKW0841           | E&M1110, E&M1140                    |      |     |     |     |     |  |
| E&M1102   | Install Gen Set                                  | 55                | 80               | 02/10/12 A  | 10/02/13     | 02/10/12 A | 03/11/13    | 266d        | E&M1012, SKW0841           | E&M1110, E&M1140                    |      |     |     |     |     |  |
| E&M1103   | Install DeO System                               | 55                | 60               | 03/12/12 A  | 21/02/13     | 03/12/12 A | 03/11/13    | 255d        | E&M1013, SKW0841           | E&M1110, E&M1140                    |      |     |     |     |     |  |
| E&M1104   | Install LV SB & MCC                              | 55                | 100              | 02/01/13 A  | 26/03/13 A   | 02/01/13 A | 26/03/13 A  |             | E&M1014, SKW0841           | E&M1140                             |      |     |     |     |     |  |
| E&M1105   | Install Instrumentation                          | 55                | 20               | 01/11/12 A  | 15/03/13     | 01/11/12 A | 03/11/13    | 233d        | E&M1015, SKW0841           | E&M1140                             |      |     |     |     |     |  |
| E&M1106   | Install FS Equipment                             | 55                | 45               | 02/10/12 A  | 23/03/13     | 02/10/12 A | 03/11/13    | 225d        | E&M1016, SKW0841           | E&M1130, E&M1140                    |      |     |     |     |     |  |
| E&M1107   | Install BS Equipment                             | 55                | 70               | 02/10/12 A  | 17/03/13     | 02/10/12 A | 03/11/13    | 232d        | E&M1017, SKW0841           | E&M1110, E&M1140                    |      |     |     |     |     |  |
| E&M1110   | Install Valves, Pipes & Fittings                 | 46                | 60               | 02/01/13 A  | 04/04/13     | 02/01/13 A | 15/01/14    | 287d        | E&M1101, E&M1102, E&M1103, | E&M1120                             |      |     |     |     |     |  |
| E&M1120   | Hydraulic Test of Pipeworks                      | 7                 | 0                | 04/04/13    | 11/04/13     | 16/01/14   | 22/01/14    | 287d        | E&M1110                    | E&M11800                            |      |     |     |     |     |  |
| E&M1130   | Form 501 Submission to FSD                       | 28                | 0                | 23/03/13    | 20/04/13     | 26/12/13   | 22/01/14    | 277d        | E&M1106                    | E&M11800                            |      |     |     |     |     |  |
| E&M1140   | Cabling Works                                    | 43                | 0                | 23/03/13    | 05/05/13     | 04/11/13   | 16/12/13    | 225d        | E&M1101, E&M1102, E&M1103, | E&M1150                             |      |     |     |     |     |  |
| E&M1150   | Insulation Tests of Cables and Cable Termination | 7                 | 0                | 05/05/13    | 12/05/13     | 17/12/13   | 23/12/13    | 225d        | E&M1140                    | E&M1160                             |      |     |     |     |     |  |
| E&M1160   | Energization                                     | 3                 | 0                | 12/05/13    | 15/05/13     | 24/12/13   | 26/12/13    | 225d        | E&M1150                    | E&M1170                             |      |     |     |     |     |  |
| E&M1170   | Functional and Performance Tests of Equipment    | 30                | 10               | 02/01/13 A  | 11/06/13     | 02/01/13 A | 22/01/14    | 225d        | E&M1160                    | E&M11800                            |      |     |     |     |     |  |
| E&M11800  | Commissioning Test                               | 60                | 0                | 11/06/13    | 10/08/13     | 23/01/14   | 23/03/14    | 225d        | E&M0350, E&M1120, E&M1130, | SKW0722, SKW0861                    |      |     |     |     |     |  |
| <b>Section W6 - Sewer and PS No.2 in Portions E&amp;H</b> |  |                   |                  |             |              |            |             |             |                            |                                     |      |     |     |     |     |  |
| <b>Civil &amp; Geotechnical Works</b>                     |  |                   |                  |             |              |            |             |             |                            |                                     |      |     |     |     |     |  |
| 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                             | 90                | 100              | 23/06/10 A  | 20/09/10 A   | 23/06/10 A | 20/09/10 A  |             | SKW0892                    | SKW0921                             |      |     |     |     |     |  |
| SKW0921   | Cut Slope & U-Channel                            | 14                | 100              | 21/09/10 A  | 04/10/10 A   | 21/09/10 A | 04/10/10 A  |             | SKW0260, SKW0265, SKW0901  | SKW0931, SKW0951                    |      |     |     |     |     |  |
| SKW0931   | Hoarding & Fencing                               | 14                | 100              | 05/10/10 A  | 18/10/10 A   | 05/10/10 A | 18/10/10 A  |             | SKW0921                    | SKW0950, SKW0951                    |      |     |     |     |     |  |
| SKW0950   | Removal of Rock Boulders before ELS              | 66                | 100              | 19/10/10 A  | 23/12/10 A   | 19/10/10 A | 23/12/10 A  |             | SKW0931                    | SKW0951                             |      |     |     |     |     |  |
| SKW0951   | ELS & Excavate to formation                      | 169               | 100              | 24/12/10 A  | 10/06/11 A   | 24/12/10 A | 10/06/11 A  |             | SKW0921, SKW0931, SKW0950  | SKW0971                             |      |     |     |     |     |  |
| SKW0961   | Mass Conc. Retaining Wall                        | 90                | 20               | 16/01/13 A  | 12/04/13     | 16/01/13 A | 09/02/13    | -62d        | SKW1081                    | KD0155                              |      |     |     |     |     |  |
| SKW1491   | LCS (ChA0+45 to 1+75) VO.7                       | 90                | 100              | 24/03/12 A  | 21/06/12 A   | 24/03/12 A | 21/06/12 A  |             | PRE0100, SKW1021           | SKW15111                            |      |     |     |     |     |  |
| SKW15111  | Twin DN150 DI Rising Main (ChA1+75 - ChA5+79)    | 180               | 100              | 22/06/12 A  | 30/11/12 A   | 22/06/12 A | 30/11/12 A  |             | SKW1491                    | SKW1531                             |      |     |     |     |     |  |
| SKW15112  | Twin DN150 DI Rising Main (ChA0+00 - ChA0+45)    | 30                | 0                | 02/03/13    | 01/04/13     | 09/06/14   | 08/07/14    | 463d        | SKW1581                    | E&M3360                             |      |     |     |     |     |  |

|             |          |  |                        |
|-------------|----------|--|------------------------|
| Start date  | 05/05/10 |  | Early bar              |
| Finish date | 28/10/16 |  | Progress bar           |
| Data date   | 31/01/13 |  | Critical bar           |
| Run date    | 05/02/13 |  | Summary bar            |
| Page number | 8A       |  | 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 (Feb 2013 - Apr 2013)**

|          |            |         |          |
|----------|------------|---------|----------|
| Date     | Revision   | Checked | Approved |
| 31/01/13 | Revision 0 | RH      | VC       |
|          |            |         |          |
|          |            |         |          |



| Activity ID   | Description                                      | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors               | Successors                          | 2013                                     |     |     |     |     |
|---|--|-------------------|------------------|-------------|--------------|------------|-------------|-------------|----------------------------|-------------------------------------|--|-----|-----|-----|-----|
|   |  |                   |                  |             |              |            |             |             |                            |                                     | JAN                                      | FEB | MAR | APR | MAY |
| SKW1531   | Extent village sewers S163.1 & S164.1            | 34                | 100              | 30/11/12 A  | 10/01/13 A   | 30/11/12 A | 10/01/13 A  |             | SKW15111                   | SKW1581                             | Extent village sewers S163.1 & S164.1    |     |     |     |     |
| SKW1581   | Construct Manhole no. S163 & S164                | 34                | 10               | 11/01/13 A  | 02/03/13     | 11/01/13 A | 26/03/13    | 24d         | SKW1531                    | KD0135, SKW15112                    | Construct Manhole no. S163 & S164        |     |     |     |     |
| <b>Structural Works</b>                                   |  |                   |                  |             |              |            |             |             |                            |                                     |  |     |     |     |     |
| SKW0971   | Structural Works (Phase 1)                       | 245               | 100              | 11/06/11 A  | 10/02/12 A   | 11/06/11 A | 10/02/12 A  |             | SKW0951                    | KD0080, SKW1021                     |  |     |     |     |     |
| SKW1021   | Structural Works (Phase 2)                       | 42                | 100              | 11/02/12 A  | 23/03/12 A   | 11/02/12 A | 23/03/12 A  |             | SKW0971                    | SKW1061, SKW1081, SKW1491           |  |     |     |     |     |
| SKW1061   | ABWF Works                                       | 90                | 100              | 24/03/12 A  | 21/06/12 A   | 24/03/12 A | 21/06/12 A  |             | SKW1021                    | E&M2101, E&M2102, E&M2103, E&M2104, |  |     |     |     |     |
| SKW1081   | 375mm U-channel/catchpits/outfall                | 30                | 100              | 22/06/12 A  | 31/01/13 A   | 22/06/12 A | 31/01/13 A  |             | SKW1021, SKW1061           | KD0155, SKW0961                     | 375mm U-channel/catchpits/outfall        |     |     |     |     |
| <b>E&amp;M Works (PS2)</b>                                |  |                   |                  |             |              |            |             |             |                            |                                     |  |     |     |     |     |
| <b>Submission &amp; Delivery</b>                          |  |                   |                  |             |              |            |             |             |                            |                                     |  |     |     |     |     |
| E&M2001   | Submission of Pumps                              | 198               | 100              | 17/05/10 A  | 24/02/11 A   | 17/05/10 A | 24/02/11 A  |             | KD0020                     | E&M2011                             |  |     |     |     |     |
| E&M2002   | Submission of Gen-Set                            | 198               | 100              | 17/05/10 A  | 24/02/11 A   | 17/05/10 A | 24/02/11 A  |             |                            | E&M2012                             |  |     |     |     |     |
| E&M2003   | Submission of DeO System                         | 198               | 100              | 17/05/10 A  | 11/07/11 A   | 17/05/10 A | 11/07/11 A  |             |                            | E&M2013                             |  |     |     |     |     |
| E&M2004   | Submission of LV SB & MCC                        | 271               | 100              | 17/05/10 A  | 30/06/12 A   | 17/05/10 A | 30/06/12 A  |             |                            | E&M2014                             |  |     |     |     |     |
| E&M2005   | Submission of Instrumentation                    | 243               | 100              | 17/05/10 A  | 30/06/12 A   | 17/05/10 A | 30/06/12 A  |             |                            | E&M2015                             |  |     |     |     |     |
| E&M2006   | Submission of FS System                          | 243               | 97               | 17/05/10 A  | 07/02/13     | 17/05/10 A | 02/08/12    | -189d       |                            | E&M2016                             | Submission of FS System                  |     |     |     |     |
| E&M2007   | Submission of BS System                          | 243               | 97               | 17/05/10 A  | 07/02/13     | 17/05/10 A | 30/07/12    | -192d       |                            | E&M2017                             | Submission of BS System                  |     |     |     |     |
| E&M2011   | Delivery of Pumps                                | 150               | 100              | 24/02/11 A  | 21/07/11 A   | 24/02/11 A | 21/07/11 A  |             | E&M2001                    | E&M2101                             |  |     |     |     |     |
| E&M2012   | Delivery of Gen-Set                              | 150               | 100              | 24/02/11 A  | 23/09/11 A   | 24/02/11 A | 23/09/11 A  |             | E&M2002                    | E&M2102                             |  |     |     |     |     |
| E&M2013   | Delivery of DeO System                           | 150               | 100              | 11/07/11 A  | 28/10/11 A   | 11/07/11 A | 28/10/11 A  |             | E&M2003                    | E&M2103                             |  |     |     |     |     |
| E&M2014   | Delivery of LV SB & MCC                          | 150               | 100              | 29/02/12 A  | 31/07/12 A   | 29/02/12 A | 31/07/12 A  |             | E&M2004                    | E&M2104                             |  |     |     |     |     |
| E&M2015   | Delivery of Instrumentation                      | 90                | 100              | 21/06/11 A  | 03/11/11 A   | 21/06/11 A | 03/11/11 A  |             | E&M2005                    | E&M2105                             |  |     |     |     |     |
| E&M2016   | Delivery of FS Equipment                         | 107               | 80               | 01/12/11 A  | 28/02/13     | 01/12/11 A | 23/08/12    | -189d       | E&M2006                    | E&M0350, E&M2106                    | Delivery of FS Equipment                 |     |     |     |     |
| E&M2017   | Delivery of BS Equipment                         | 107               | 80               | 15/01/11 A  | 28/02/13     | 15/01/11 A | 20/08/12    | -192d       | E&M2007                    | E&M2107                             | Delivery of BS Equipment                 |     |     |     |     |
| <b>Installation, T&amp;C</b>                              |  |                   |                  |             |              |            |             |             |                            |                                     |  |     |     |     |     |
| E&M2101   | Install Pumps                                    | 55                | 80               | 02/10/12 A  | 10/02/13     | 02/10/12 A | 12/01/13    | -29d        | E&M2011, SKW1061           | E&M2110                             | Install Pumps                            |     |     |     |     |
| E&M2102   | Install Gen Set                                  | 55                | 80               | 01/09/12 A  | 10/02/13     | 01/09/12 A | 12/01/13    | -29d        | E&M2012, SKW1061           | E&M2110                             | Install Gen Set                          |     |     |     |     |
| E&M2103   | Install DeO System                               | 55                | 90               | 03/12/12 A  | 05/02/13     | 03/12/12 A | 12/01/13    | -24d        | E&M2013, SKW1061           | E&M2110                             | Install DeO System                       |     |     |     |     |
| E&M2104   | Install LV SB & MCC                              | 55                | 100              | 02/01/13 A  | 31/01/13 A   | 02/01/13 A | 31/01/13 A  |             | E&M2014, SKW1061           | E&M2140                             | Install LV SB & MCC                      |     |     |     |     |
| E&M2105   | Install Instrumentation                          | 55                | 0                | 31/01/13    | 26/03/13     | 30/07/12   | 22/09/12    | -185d       | E&M2015, SKW1061           | E&M2140                             | Install Instrumentation                  |     |     |     |     |
| E&M2106   | Install FS Equipment                             | 55                | 45               | 02/10/12 A  | 30/03/13     | 02/10/12 A | 22/09/12    | -189d       | E&M2016, SKW1061           | E&M2140                             | Install FS Equipment                     |     |     |     |     |
| E&M2107   | Install BS Equipment                             | 55                | 40               | 01/09/12 A  | 02/04/13     | 01/09/12 A | 22/09/12    | -192d       | E&M2017, SKW1061           | E&M2110, E&M2140                    | Install BS Equipment                     |     |     |     |     |
| E&M2110   | Install Valves, Pipes & Fittings                 | 46                | 100              | 02/01/13 A  | 31/01/13 A   | 02/01/13 A | 31/01/13 A  |             | E&M2101, E&M2102, E&M2103, | E&M2120                             | Install Valves, Pipes & Fittings         |     |     |     |     |
| E&M2120   | Hydraulic Test of Pipeworks                      | 7                 | 100              | 02/01/13 A  | 31/01/13 A   | 02/01/13 A | 31/01/13 A  |             | E&M2110                    | E&M2130                             | Hydraulic Test of Pipeworks              |     |     |     |     |
| E&M2130   | Form 501 Submission to FSD                       | 28                | 0                | 02/04/13    | 30/04/13     | 13/01/13   | 09/02/13    | -80d        | E&M2120                    | KD0155                              | Form 501 Submission                      |     |     |     |     |
| E&M2140   | Cabling Works                                    | 43                | 0                | 02/04/13    | 15/05/13     | 23/09/12   | 04/11/12    | -192d       | E&M2104, E&M2105, E&M2106, | E&M2150                             | Cabling Works                            |     |     |     |     |
| E&M2150   | Insulation Tests of Cables and Cable Termination | 7                 | 0                | 15/05/13    | 22/05/13     | 05/11/12   | 11/11/12    | -192d       | E&M2140                    | E&M2160                             | Insulation Tests                         |     |     |     |     |
| E&M2160   | Engergization                                    | 3                 | 0                | 22/05/13    | 25/05/13     | 12/11/12   | 14/11/12    | -192d       | E&M2150                    | E&M2170                             | Engergization                            |     |     |     |     |
| E&M2170   | Functional and Performance Tests of Equipment    | 30                | 10               | 15/01/13 A  | 21/06/13     | 15/01/13 A | 11/12/12    | -192d       | E&M2160                    | E&M2180                             | Functional and Performance Tests         |     |     |     |     |
| E&M2180   | Commissioning Test                               | 60                | 0                | 21/06/13    | 20/08/13     | 12/12/12   | 09/02/13    | -192d       | E&M0350, E&M2170           | KD0155                              | Commissioning Test                       |     |     |     |     |
| <b>Section W 7 - SKW STW ,Sewer and Submarine Outfall</b> |  |                   |                  |             |              |            |             |             |                            |                                     |  |     |     |     |     |
| <b>Submarine Outfall</b>                                  |  |                   |                  |             |              |            |             |             |                            |                                     |  |     |     |     |     |
| 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   | Baseline Monitoring (Water)                      | 213               | 100              | 27/07/10 A  | 31/12/10 A   | 27/07/10 A | 31/12/10 A  |             | SKW0260, SKW0265           | SKW1151                             |  |     |     |     |     |
| SKW1151   | Set up Temporary Working Platform                | 90                | 100              | 15/06/11 A  | 30/09/11 A   | 15/06/11 A | 30/09/11 A  |             | PRE0090, SKW1141           | SKW1171                             |  |     |     |     |     |
| SKW1171   | ELS for HDD Set-up (SKW)                         | 90                | 100              | 01/09/11 A  | 30/09/11 A   | 01/09/11 A | 30/09/11 A  |             | SKW1151                    | SKW1181                             |  |     |     |     |     |
| SKW1181   | Mobilization of HDD plant & equipment to SKW     | 8                 | 100              | 06/01/12 A  | 07/01/12 A   | 06/01/12 A | 07/01/12 A  |             | SKW1171, YSW0360           | SKW1191                             |  |     |     |     |     |
| SKW1191   | Setting up at drillhole location                 | 7                 | 100              | 09/01/12 A  | 14/01/12 A   | 09/01/12 A | 14/01/12 A  |             | SKW1181                    | SKW1201                             |  |     |     |     |     |
| SKW1201   | Drill pilot hole and reaming hole - NS280 - 750m | 33                | 100              | 16/01/12 A  | 16/02/12 A   | 16/01/12 A | 16/02/12 A  |             | SKW1191                    | SKW1211                             |  |     |     |     |     |
| SKW1211   | Receiving Pit for HDD (SKW)                      | 13                | 100              | 16/01/12 A  | 29/02/12 A   | 16/01/12 A | 29/02/12 A  |             | SKW1201                    | SKW1221                             |  |     |     |     |     |
| SKW1221   | Installation of NS280 HDPE 450mm dia. pipe       | 61                | 100              | 31/03/12 A  | 30/04/12 A   | 31/03/12 A | 30/04/12 A  |             | SKW1211                    | KD0090, SKW1231, SKW1441            |  |     |     |     |     |
| SKW1231   | Removal of Receiving Platform                    | 50                | 100              | 01/05/12 A  | 19/06/12 A   | 01/05/12 A | 19/06/12 A  |             | SKW1131, SKW1221           | SKW1241                             |  |     |     |     |     |
| SKW1241   | Dredging of MD for Diffuser (PS CL 1.122(3))     | 16                | 100              | 20/06/12 A  | 05/07/12 A   | 20/06/12 A | 05/07/12 A  |             | SKW1231                    | E&M3359, SKW1251                    |  |     |     |     |     |
| SKW1251   | Diffuser Construction                            | 77                | 100              | 01/09/12 A  | 16/11/12 A   | 01/09/12 A | 16/11/12 A  |             | SKW1241                    | SKW1431                             |  |     |     |     |     |
| SKW1431   | Removal of silt curtain                          | 1                 | 100              | 17/11/12 A  | 17/11/12 A   | 17/11/12 A | 17/11/12 A  |             | SKW1251                    | KD0090, SKW1440, YSW0365            |  |     |     |     |     |
| SKW1440   | Sewer of Outfall Chamber to connection pit VO37A | 90                | 35               | 31/12/12 A  | 30/03/13     | 31/12/12 A | 08/12/13    | 254d        | SKW1431                    | SKW1441                             | Sewer of Outfall Chamber to connection p |     |     |     |     |

|             |          |  |                        |
|-------------|----------|--|------------------------|
| Start date  | 05/05/10 |  | Early bar              |
| Finish date | 28/10/16 |  | Progress bar           |
| Data date   | 31/01/13 |  | Critical bar           |
| Run date    | 05/02/13 |  | Summary bar            |
| Page number | 9A       |  | 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 (Feb 2013 - Apr 2013)**

|          |            |         |          |
|----------|------------|---------|----------|
| Date     | Revision   | Checked | Approved |
| 31/01/13 | Revision 0 | RH      | VC       |
|          |            |         |          |
|          |            |         |          |





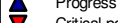
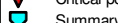
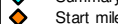


| Activity ID                                | Description                                      | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors                                | Successors  | 2013 |     |     |     |  |
|--|--|-------------------|------------------|-------------|--------------|------------|-------------|-------------|---|---|------|-----|-----|-----|--|
|  |  |                   |                  |             |              |            |             |             |   |   | JAN  | FEB | MAR | APR | MAY  |
| SKW1441                                    | Sewer of Connection Pit to Outfall VO45          | 177               | 0                | 30/03/13    | 23/09/13     | 09/12/13   | 03/06/14    | 254d        | SKW1221, SKW1440                            | E&M3359, KD0090   |      |     |     |     |  |
| <b>SKW STW</b>                             |  |                   |                  |             |              |            |             |             |   |   |      |     |     |     |  |
| <b>Submission &amp; Delivery (E&amp;M)</b> |  |                   |                  |             |              |            |             |             |   |   |      |     |     |     |  |
| E&M3010                                    | Delivery of MBR M.M. - 1st shipment for Temp STP | 150               | 100              | 24/02/11 A  | 17/10/11 A   | 24/02/11 A | 17/10/11 A  |             | E&M0160                                     | E&M3170   |      |     |     |     |  |
| E&M3030                                    | Delivery of Grit Removal Equipment               | 180               | 100              | 10/10/11 A  | 29/12/11 A   | 10/10/11 A | 29/12/11 A  |             | E&M0150                                     | E&M3190   |      |     |     |     |  |
| E&M3060                                    | Delivery of Fine Screens                         | 136               | 100              | 12/09/11 A  | 30/11/11 A   | 12/09/11 A | 30/11/11 A  |             | E&M0120                                     | E&M3210   |      |     |     |     |  |
| E&M3070                                    | Delivery of Pumps                                | 136               | 100              | 23/06/11 A  | 05/09/11 A   | 23/06/11 A | 05/09/11 A  |             | E&M0130                                     | E&M3220   |      |     |     |     |  |
| E&M3080                                    | Delivery of Submersible Mixers                   | 180               | 100              | 26/07/11 A  | 17/11/11 A   | 26/07/11 A | 17/11/11 A  |             | E&M0140                                     | E&M3230   |      |     |     |     |  |
| E&M3090                                    | Delivery of Sludge Dewatering Equipment          | 210               | 50               | 01/09/11 A  | 15/05/13     | 01/09/11 A | 11/01/14    | 241d        | E&M0170                                     | E&M3240   |      |     |     |     | Delivery of                                    |
| E&M3100                                    | Delivery of Valves, Pipes & Fittings             | 180               | 50               | 30/08/11 A  | 05/05/13     | 30/08/11 A | 19/11/13    | 199d        | E&M0180                                     | E&M3250   |      |     |     |     | Delivery of Valve                              |
| E&M3110                                    | Delivery of Penstocks                            | 180               | 100              | 12/08/11 A  | 24/12/11 A   | 12/08/11 A | 24/12/11 A  |             | E&M0190                                     | E&M3260   |      |     |     |     |  |
| E&M3130                                    | Delivery of instruments                          | 180               | 100              | 21/06/11 A  | 03/11/11 A   | 21/06/11 A | 03/11/11 A  |             | E&M0200                                     | E&M3270   |      |     |     |     |  |
| E&M3140                                    | Delivery of MCC LVSB                             | 180               | 0                | 01/02/13    | 31/07/13     | 07/04/13   | 03/10/13    | 65d         | E&M0210                                     | E&M3261   |      |     |     |     |  |
| E&M3150                                    | Delivery of BS Equipment                         | 180               | 8                | 03/07/12 A  | 20/08/13     | 03/07/12 A | 04/12/13    | 107d        | E&M0220                                     | E&M3291   |      |     |     |     |  |
| E&M3160                                    | Delivery of FS Equipment                         | 180               | 5                | 30/06/12 A  | 06/09/13     | 30/06/12 A | 23/12/13    | 109d        | E&M0230                                     | E&M0340, E&M3300  |      |     |     |     |  |
| <b>Construction of Grid A-G</b>            |  |                   |                  |             |              |            |             |             |   |   |      |     |     |     |  |
| SKW1261                                    | Excavate for SKW STW Structure (Grid A -G)       | 164               | 100              | 28/03/12 A  | 31/08/12 A   | 28/03/12 A | 31/08/12 A  |             | SKW04885, SKW05938                          | SKW1271, SKW1371  |      |     |     |     |  |
| SKW1271                                    | 55 M3 Fire Sprinkle Water Tank (FL +0.9 mPD)     | 36                | 100              | 03/07/12 A  | 31/07/12 A   | 03/07/12 A | 31/07/12 A  |             | SKW1261                                     | SKW1281   |      |     |     |     |  |
| SKW1281                                    | Ground Floor Slab (Grid A-G)                     | 46                | 100              | 03/07/12 A  | 31/07/12 A   | 03/07/12 A | 31/07/12 A  |             | SKW1271                                     | SKW1291   |      |     |     |     |  |
| SKW1291                                    | Columns & Walls to 1/F & 1/F Slab (Grid A-G)     | 50                | 100              | 03/07/12 A  | 31/07/12 A   | 03/07/12 A | 31/07/12 A  |             | SKW1281                                     | KD0090, SKW1301   |      |     |     |     |  |
| SKW1301                                    | Columns & Walls to R/F & R/F Slab (Grid A-G)     | 50                | 100              | 01/09/12 A  | 31/01/13 A   | 01/09/12 A | 31/01/13 A  |             | SKW1291                                     | E&M3261, E&M3291, E&M3311, SKW1411                            |      |     |     |     | Columns & Walls to R/F & R/F Slab (Grid A-G)   |
| SKW1411                                    | ABWF Works                                       | 105               | 0                | 31/01/13    | 15/05/13     | 07/03/13   | 19/06/13    | 35d         | SKW1301                                     | E&M3261, E&M3291, E&M3311, SKW1551                            |      |     |     |     | ABWF Works                                     |
| <b>Construction of Grid G-N</b>            |  |                   |                  |             |              |            |             |             |   |   |      |     |     |     |  |
| SKW1311                                    | Excavate for SKW STW Structure (Grid G-N)        | 90                | 100              | 28/03/12 A  | 25/06/12 A   | 28/03/12 A | 25/06/12 A  |             | SKW05938, SKW059416                         | SKW1321, SKW1371  |      |     |     |     |  |
| SKW1321                                    | Equalization Tank no.1 & 2 with base slabs (-2.1 | 42                | 100              | 26/06/12 A  | 30/09/12 A   | 26/06/12 A | 30/09/12 A  |             | SKW1311                                     | SKW1331   |      |     |     |     |  |
| SKW1331                                    | Columns & Walls from B/S to G/F Slab (Grid G-N)  | 35                | 100              | 01/09/12 A  | 30/09/12 A   | 01/09/12 A | 30/09/12 A  |             | SKW1321                                     | SKW1341   |      |     |     |     |  |
| SKW1341                                    | Ground Floor Slab (Grid G-N)                     | 35                | 100              | 01/09/12 A  | 17/12/12 A   | 01/09/12 A | 17/12/12 A  |             | SKW1331                                     | SKW1351   |      |     |     |     | floor Slab (Grid G-N)                          |
| SKW1351                                    | Columns & Walls to 1/F & 1/F Slab (Grid G-N)     | 28                | 100              | 01/11/12 A  | 15/01/13 A   | 01/11/12 A | 15/01/13 A  |             | SKW1341                                     | SKW1361   |      |     |     |     | Columns & Walls to 1/F & 1/F Slab (Grid G-N)   |
| SKW1361                                    | Columns & Walls to R/F & R/F Slab (Grid G-N)     | 35                | 25               | 01/11/12 A  | 26/02/13     | 01/11/12 A | 17/12/12    | -70d        | SKW1351                                     | SKW1451   |      |     |     |     | Columns & Walls to R/F & R/F Slab (Grid G-N)   |
| SKW1451                                    | ABWF Works                                       | 54                | 0                | 26/02/13    | 21/04/13     | 18/12/12   | 09/02/13    | -70d        | SKW1361                                     | E&M3170, E&M3190, E&M3210, E&M3291, E&M3300, SKW1391, SKW1551 |      |     |     |     | ABWF Works                                     |
| <b>Construction of Grid N-T</b>            |  |                   |                  |             |              |            |             |             |   |   |      |     |     |     |  |
| SKW1371                                    | Excavate for SKW STW Structure (Grid N-T)        | 97                | 100              | 03/07/12 A  | 25/01/13 A   | 03/07/12 A | 25/01/13 A  |             | SKW05938, SKW059416, SKW1261,               | SKW1381   |      |     |     |     | Excavate for SKW STW Structure (Grid N-T)      |
| SKW1381                                    | Ground Floor Slabs include MBR Tank (Grid N-T)   | 58                | 100              | 02/10/12 A  | 31/01/13 A   | 02/10/12 A | 31/01/13 A  |             | SKW1371                                     | SKW1391   |      |     |     |     | Ground Floor Slabs include MBR Tank (Grid N-T) |
| SKW1391                                    | Columns & Walls to 1/F & 1/F Slab (Grid N-T)     | 35                | 0                | 21/04/13    | 26/05/13     | 10/02/13   | 16/03/13    | -70d        | SKW1381, SKW1451                            | SKW1401   |      |     |     |     |  |
| SKW1401                                    | Columns & Walls to R/F & R/F Slab (Grid N-T)     | 35                | 0                | 26/05/13    | 30/06/13     | 17/03/13   | 20/04/13    | -70d        | SKW1391                                     | E&M3240, SKW0491, SKW1421                                     |      |     |     |     |  |
| SKW1421                                    | ABWF Works                                       | 60                | 0                | 30/06/13    | 29/08/13     | 21/04/13   | 19/06/13    | -70d        | SKW1401                                     | E&M3240, SKW1551  |      |     |     |     |  |
| SKW1551                                    | Drainage (SSMH1-SSMH7)                           | 35                | 0                | 29/08/13    | 03/10/13     | 20/06/13   | 24/07/13    | -70d        | SKW1411, SKW1421, SKW1451                   | SKW1561   |      |     |     |     |  |
| SKW1561                                    | Sewer (SMFH1-SMFH2, SMFH3-SMFH7)                 | 220               | 0                | 03/10/13    | 11/05/14     | 25/07/13   | 01/03/14    | -70d        | SKW1551                                     | SKW1571   |      |     |     |     |  |
| SKW1571                                    | Roadwork & Drainage Channel (SKW)                | 220               | 0                | 11/05/14    | 17/12/14     | 02/03/14   | 07/10/14    | -70d        | SKW1561                                     | KD0090  |      |     |     |     |  |
| <b>SKW STW - E&amp;M Works</b>             |  |                   |                  |             |              |            |             |             |   |   |      |     |     |     |  |
| E&M3170                                    | Install Membrane Modules in MBR Tank No. 1 to 2  | 100               | 0                | 21/04/13    | 30/07/13     | 07/01/14   | 16/04/14    | 261d        | E&M3010, SKW1451                            | E&M3311   |      |     |     |     |  |
| E&M3190                                    | Install Grit Removal Equipment                   | 60                | 0                | 20/06/13    | 19/08/13     | 21/09/13   | 19/11/13    | 93d         | E&M3030, E&M3210, SKW1451                   | E&M3250, E&M3320  |      |     |     |     |  |
| E&M3210                                    | Install Fine Screens                             | 60                | 0                | 21/04/13    | 20/06/13     | 24/05/13   | 22/07/13    | 33d         | E&M3060, SKW1451                            | E&M3190, E&M3220, E&M3250, E&M3260, E&M3320                   |      |     |     |     |  |
| E&M3220                                    | Install Pumps                                    | 75                | 0                | 20/06/13    | 03/09/13     | 23/07/13   | 05/10/13    | 33d         | E&M3070, E&M3210                            | E&M3230, E&M3250, E&M3260, E&M3320                            |      |     |     |     |  |
| E&M3230                                    | Install Submersible Mixers                       | 45                | 0                | 03/09/13    | 18/10/13     | 06/10/13   | 19/11/13    | 33d         | E&M3080, E&M3220                            | E&M3250, E&M3260, E&M3311, E&M3320                            |      |     |     |     |  |
| E&M3240                                    | Install Sludge Dewatering Equipment              | 74                | 0                | 29/08/13    | 11/11/13     | 12/01/14   | 26/03/14    | 136d        | E&M3090, SKW1401, SKW1421                   | E&M3320   |      |     |     |     |  |
| E&M3250                                    | Install Valves, Pipes & Fittings                 | 75                | 0                | 18/10/13    | 01/01/14     | 20/11/13   | 02/02/14    | 33d         | E&M3100, E&M3190, E&M3210, E&M3220, E&M3230 | E&M3270, E&M3291, E&M3300, E&M3310                            |      |     |     |     |  |
| E&M3260                                    | Install Penstocks                                | 135               | 0                | 18/10/13    | 02/03/14     | 03/12/13   | 16/04/14    | 46d         | E&M3110, E&M3210, E&M3220,                  | E&M3311   |      |     |     |     |  |
| E&M3261                                    | Install SAT of MCC & LVSB                        | 174               | 0                | 31/07/13    | 21/01/14     | 04/10/13   | 26/03/14    | 65d         | E&M3140, SKW1301, SKW1411                   | E&M3311, E&M3320  |      |     |     |     |  |
| E&M3270                                    | Install instruments                              | 60                | 0                | 01/01/14    | 02/03/14     | 16/02/14   | 16/04/14    | 46d         | E&M3130, E&M3250                            | E&M3311   |      |     |     |     |  |
| E&M3291                                    | Install BS Equipment                             | 180               | 0                | 02/11/13    | 01/05/14     | 05/12/13   | 02/06/14    | 33d         | E&M3150, E&M3250, SKW1301, SKW1411, SKW1451 | E&M3331, E&M3359  |      |     |     |     |  |

|             |          |  |                        |
|-------------|----------|--|------------------------|
| Start date  | 05/05/10 |  | Early bar              |
| Finish date | 28/10/16 |  | Progress bar           |
| Data date   | 31/01/13 |  | Critical bar           |
| Run date    | 05/02/13 |  | Summary bar            |
| Page number | 10A      |  | 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 (Feb 2013 - Apr 2013)**

|          |            |         |          |
|----------|------------|---------|----------|
| Date     | Revision   | Checked | Approved |
| 31/01/13 | Revision 0 | RH      | VC       |
|          |            |         |          |
|          |            |         |          |

| Activity ID   | Description                                      | Original Duration | Percent Complete | Early Start | Early Finish | Late Start | Late Finish | Total Float | Predecessors  | Successors       | 2013 |     |     |     |     |  |
|---|--|-------------------|------------------|-------------|--------------|------------|-------------|-------------|---|------------------|------|-----|-----|-----|-----|--|
|   |  |                   |                  |             |              |            |             |             |   |                  | JAN  | FEB | MAR | APR | MAY |  |
| E&M3300   | Install FS Equipment                             | 161               | 0                | 02/11/13    | 12/04/14     | 24/12/13   | 02/06/14    | 52d         | E&M3160, E&M3250, SKW1451                             | E&M3331, E&M3359 |      |     |     |     |     |  |
| E&M3310   | Hydraulic Tests of Pipeworks                     | 90                | 0                | 01/01/14    | 01/04/14     | 06/03/14   | 03/06/14    | 64d         | E&M3250   | E&M3359          |      |     |     |     |     |  |
| E&M3311   | Cabling Works                                    | 47                | 0                | 02/03/14    | 18/04/14     | 17/04/14   | 02/06/14    | 46d         | E&M3170, E&M3230, E&M3260, E&M3261, E&M3270, SKW1301, | E&M3331, E&M3359 |      |     |     |     |     |  |
| E&M3320   | Cabling Works for Dewatering Equipment           | 47                | 0                | 21/01/14    | 09/03/14     | 27/03/14   | 12/05/14    | 65d         | E&M3190, E&M3210, E&M3220, E&M3230, E&M3240, E&M3261  | E&M3321          |      |     |     |     |     |  |
| E&M3321   | Insulation Tests of Cables and Cable Termination | 21                | 0                | 09/03/14    | 30/03/14     | 13/05/14   | 02/06/14    | 65d         | E&M3320   | E&M3331          |      |     |     |     |     |  |
| E&M3331   | Energization                                     | 1                 | 0                | 01/05/14    | 02/05/14     | 03/06/14   | 03/06/14    | 33d         | E&M3291, E&M3300, E&M3311,                            | E&M3359          |      |     |     |     |     |  |
| E&M3359   | Functional and Performance Tests of Equipment    | 35                | 0                | 02/05/14    | 06/06/14     | 04/06/14   | 08/07/14    | 33d         | E&M3291, E&M3300, E&M3310, E&M3311, E&M3331, SKW1241, | E&M3360          |      |     |     |     |     |  |
| E&M3360   | T&C Period                                       | 91                | 0                | 06/06/14    | 05/09/14     | 09/07/14   | 07/10/14    | 33d         | E&M0340, E&M3359, SKW0722, SKW15112                   | E&M3370, KD0090  |      |     |     |     |     |  |
| E&M3370   | Trial Operation Period                           | 456               | 0                | 05/09/14    | 05/12/15     | 31/05/15   | 28/10/16    | 269d        | E&M3360   |                  |      |     |     |     |     |  |
| <b>Rising Main</b>                                      |  |                   |                  |             |              |            |             |             |   |                  |      |     |     |     |     |  |
| SKW1481   | Subm, Approval & Delivery of DI pipes            | 120               | 100              | 17/05/10 A  | 13/09/10 A   | 17/05/10 A | 13/09/10 A  |             | KD0020  | SKW1501          |      |     |     |     |     |  |
| SKW1501   | LCS (ChB0+00 - ChB1+20)                          | 300               | 100              | 14/09/10 A  | 10/07/11 A   | 14/09/10 A | 10/07/11 A  |             | PRE0100, SKW1481                                      | SKW1521          |      |     |     |     |     |  |
| SKW1521   | Twin DN150 DI Rising Main (ChB0+00 - ChA4+55)    | 250               | 85               | 11/07/11 A  | 09/03/13     | 11/07/11 A | 07/10/14    | 578d        | SKW1501   | KD0090           |      |     |     |     |     |  |
| <b>Section W8 - Landscape Softworks in All Portions</b> |  |                   |                  |             |              |            |             |             |   |                  |      |     |     |     |     |  |
| 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               | 1053              | 99               | 17/05/10 A  | 10/02/13     | 17/05/10 A | 03/04/13    | 53d         | KD0020  | KD0100, SKW1631  |      |     |     |     |     |  |
| SKW1621   | Transplantation at SKW                           | 90                | 100              | 07/06/10 A  | 04/09/10 A   | 07/06/10 A | 04/09/10 A  |             | SKW1591   | KD0100           |      |     |     |     |     |  |
| <b>Section W9 - Establishment Works in All Portions</b> |  |                   |                  |             |              |            |             |             |   |                  |      |     |     |     |     |  |
| SKW1631   | Section W9 - Establishment Works                 | 365               | 0                | 10/02/13    | 10/02/14     | 04/04/13   | 03/04/14    | 53d         | SKW1611   | KD0110           |      |     |     |     |     |  |

|             |          |   |                        |
|-------------|----------|---|------------------------|
| Start date  | 05/05/10 |  | Early bar              |
| Finish date | 28/10/16 |  | Progress bar           |
| Data date   | 31/01/13 |  | Critical bar           |
| Run date    | 05/02/13 |  | Summary bar            |
| Page number | 11A      |  | 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 (Feb 2013 - Apr 2013)**

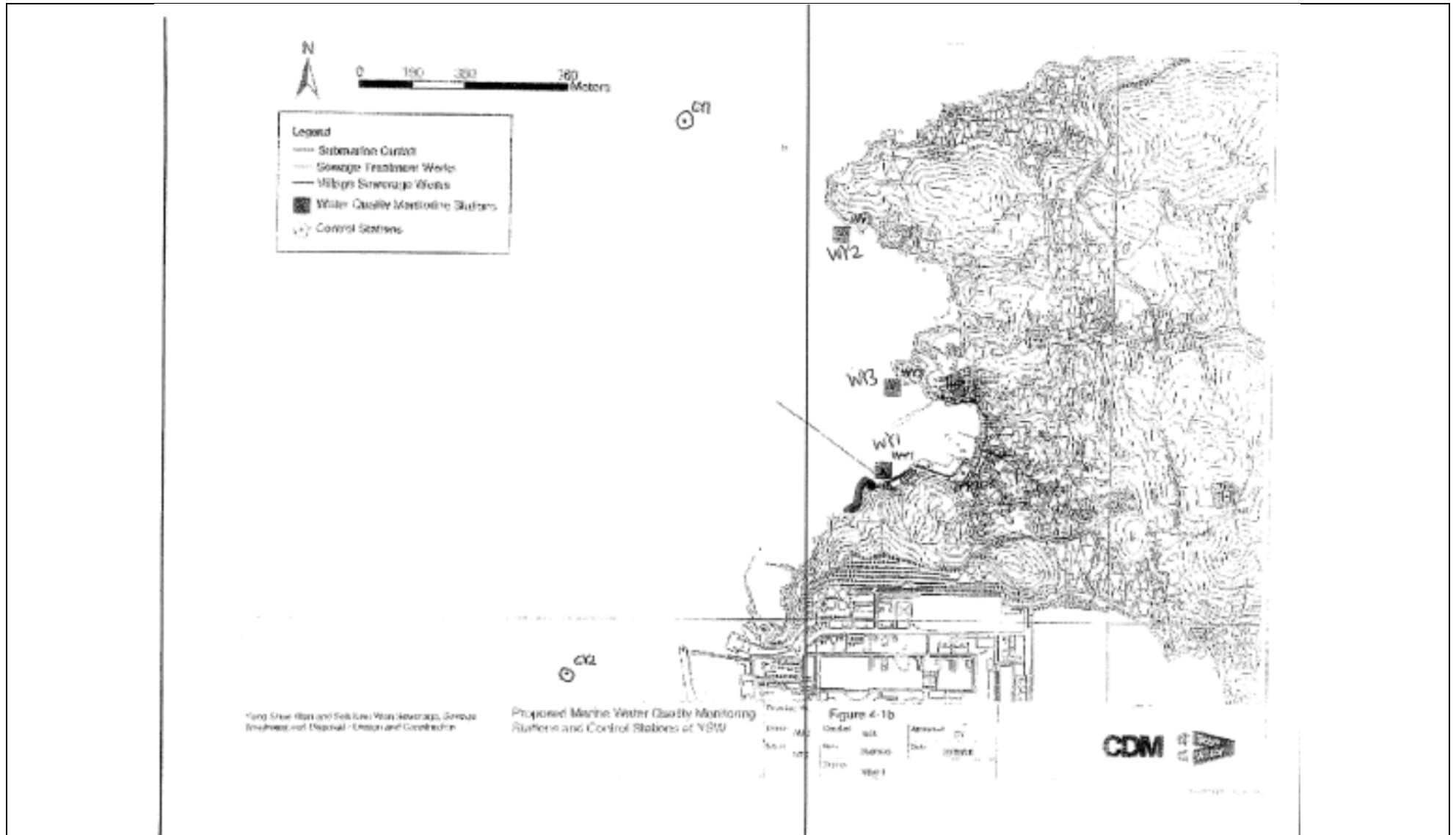
| Date     | Revision   | Checked | Approved |
|----------|------------|---------|----------|
| 31/01/13 | Revision 0 | RH      | VC       |
|          |            |         |          |
|          |            |         |          |
|          |            |         |          |

## **Appendix D**

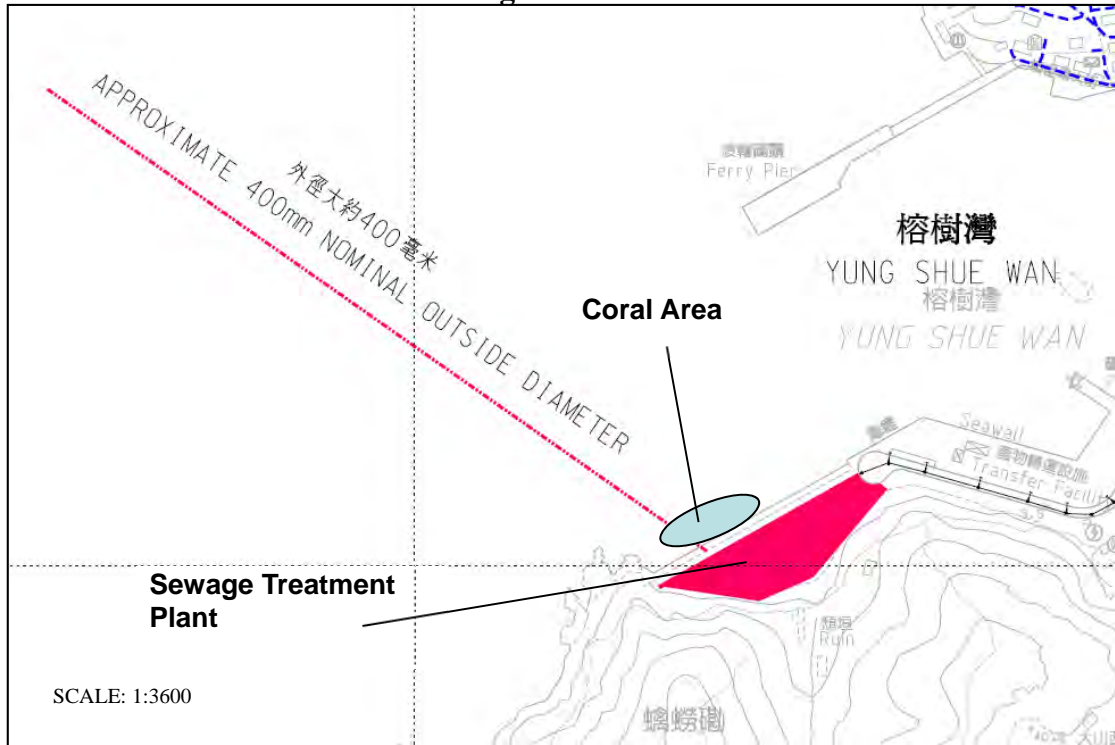
### **Location of Monitoring Stations (Air Quality / Construction Noise / Water Quality / Dive Surveys of Coral)**



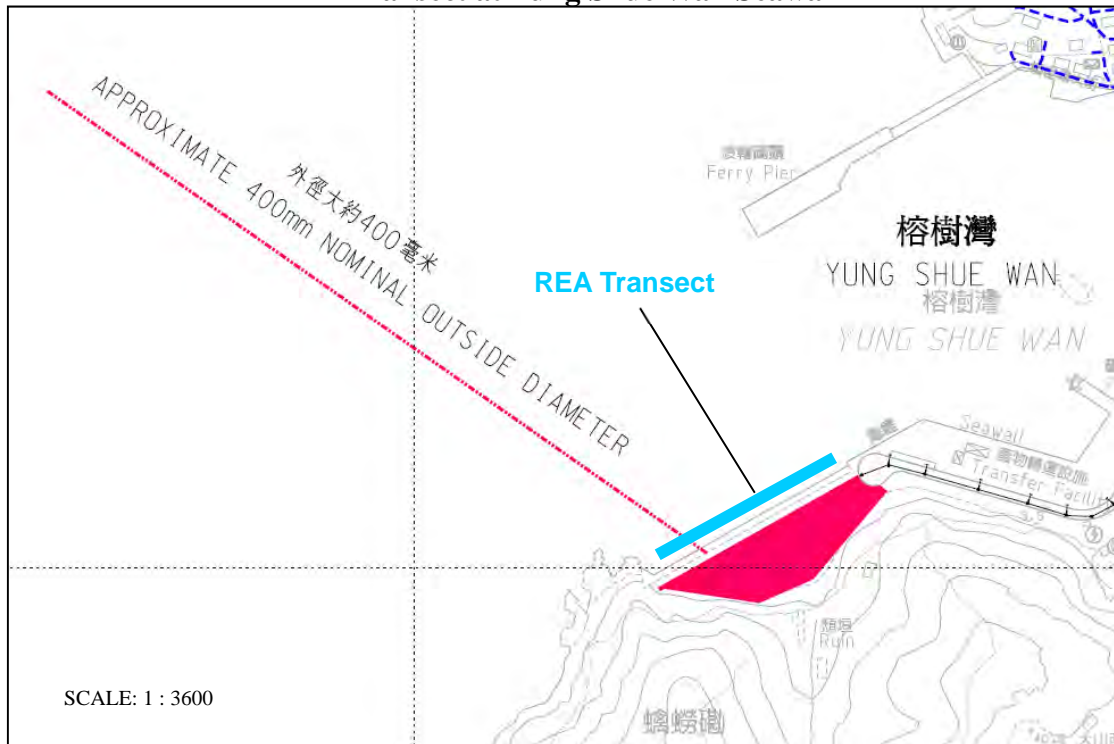




### Coral Area at Yung Shue Wan Seawall



### REA Transect at Yung Shue Wan Seawall





**Coral Area at Sham Wan**



**REA Transect at Sham Wan**



**Appendix E**

**Monitoring Equipments Calibration Certificate**

## Equipment Calibration Record

### Equipment Calibrated:

Type: Dust Trak Model 8520  
 Manufacturer: TSI  
 Serial No. 21060  
 Equipment Ref: EQ021

### Standard Equipment:

Standard Equipment: Higher Volume Sampler  
 Location & Location ID: Block A of Government Dockyard Offices  
 Equipment Ref: AM8  
 Last Calibration Date: 20-Jul-12

### Equipment Calibration Results:

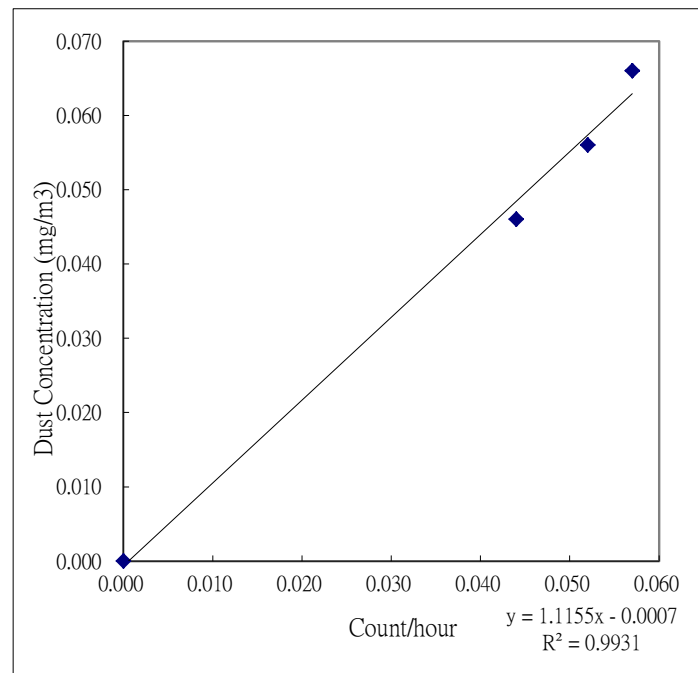
Calibration Date: 6-Aug-12

| Hour | Time          | Temp °C | RH % | Dust Concentration in mg/m <sup>3</sup> |                        |
|------|---------------|---------|------|---|------------------------|
|      |               |         |      | (Standard Equipment)                    | (Calibrated Equipment) |
| 1    | 9:00 ~ 10:00  | 29.8    | 84   | 0.052                                   | 0.056                  |
| 1    | 10:05 ~ 11:05 | 30.2    | 84   | 0.057                                   | 0.066                  |
| 1    | 11:10 ~ 12:10 | 30.9    | 84   | 0.044                                   | 0.046                  |

Sensitivity Adjustment Zero Calibration (Before Calibration) 0 (mg/m<sup>3</sup>)  
 Sensitivity Adjustment Zero Calibration (After Calibration) 0 (mg/m<sup>3</sup>)

### Linear Regression of Y or X

Slope: 1.1155  
 Correlation Coefficient 0.9931



Operator : Ray Cheung

Signature : *Ray*

Date : 8/8/2012

QC Reviewer Ben Tam

Signature : *[Signature]*

Date : 8/8/2012



## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : YSW RE Offices  
 Location ID : AC02b

Date of Calibration: 31-Jan-13  
 Next Calibration Date: 31-Mar-13  
 Technician: Mr. Ben Tam

### CONDITIONS

|                          |        |                            |         |
|--------------------------|--------|----------------------------|---------|
| Sea Level Pressure (hPa) | 1021.7 | Corrected Pressure (mm Hg) | 766.275 |
| Temperature (°C)         | 18.6   | Temperature (K)            | 292     |

### CALIBRATION ORIFICE

|             |       |                   |          |
|-------------|-------|-------------------|----------|
| Make->      | TISCH | Qstd Slope ->     | 2.11693  |
| Model->     | 5025A | Qstd Intercept -> | -0.02568 |
| Serial # -> | 1941  |                   |          |

### CALIBRATION

| Plate No. | H2O (L) (in) | H2O (R) (in) | H2O (in) | Qstd (m3/min) | I (chart) | IC corrected | LINEAR REGRESSION  |
|-----------|--------------|--------------|----------|---------------|-----------|--------------|--|
| 18        | 5.6          | 5.6          | 11.2     | 1.617         | 60        | 61.57        | Slope = 32.8227<br>Intercept = 8.6752<br>Corr. coeff. = 0.9984 |
| 13        | 4.4          | 4.4          | 8.8      | 1.435         | 55        | 56.44        |  |
| 10        | 3.3          | 3.3          | 6.6      | 1.244         | 48        | 49.26        |  |
| 7         | 2.3          | 2.3          | 4.6      | 1.041         | 41        | 42.07        |  |
| 5         | 1.4          | 1.4          | 2.8      | 0.814         | 35        | 35.92        |  |

**Calculations :**

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

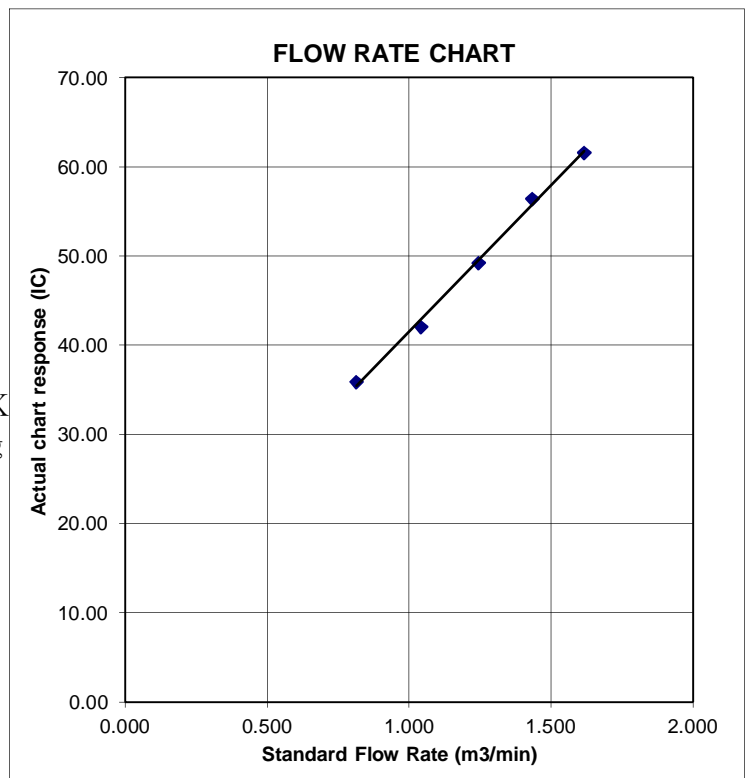
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

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

**For subsequent calculation of sampler flow:**

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

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



## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : YSW Playground  
 Location ID : AC04c

Date of Calibration: 31-Jan-13  
 Next Calibration Date: 31-Mar-13  
 Technician: Mr. Ben Tam

### CONDITIONS

|                          |        |                            |         |
|--------------------------|--------|----------------------------|---------|
| Sea Level Pressure (hPa) | 1021.7 | Corrected Pressure (mm Hg) | 766.275 |
| Temperature (°C)         | 18.6   | Temperature (K)            | 292     |

### CALIBRATION ORIFICE

|             |       |                   |          |
|-------------|-------|-------------------|----------|
| Make->      | TISCH | Qstd Slope ->     | 2.11693  |
| Model->     | 5025A | Qstd Intercept -> | -0.02568 |
| Serial # -> | 1941  |                   |          |

### CALIBRATION

| Plate No. | H2O (L) (in) | H2O (R) (in) | H2O (in) | Qstd (m3/min) | I (chart) | IC corrected | LINEAR REGRESSION  |
|-----------|--------------|--------------|----------|---------------|-----------|--------------|--|
| 18        | 5.2          | 5.2          | 10.4     | 1.558         | 60        | 61.57        | Slope = 35.5667<br>Intercept = 5.9415<br>Corr. coeff. = 0.9986 |
| 13        | 4.1          | 4.1          | 8.2      | 1.385         | 54        | 55.41        |  |
| 10        | 3            | 3            | 6        | 1.187         | 46        | 47.20        |  |
| 7         | 2            | 2            | 4        | 0.971         | 40        | 41.05        |  |
| 5         | 1.4          | 1.4          | 2.8      | 0.814         | 34        | 34.89        |  |

**Calculations :**

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

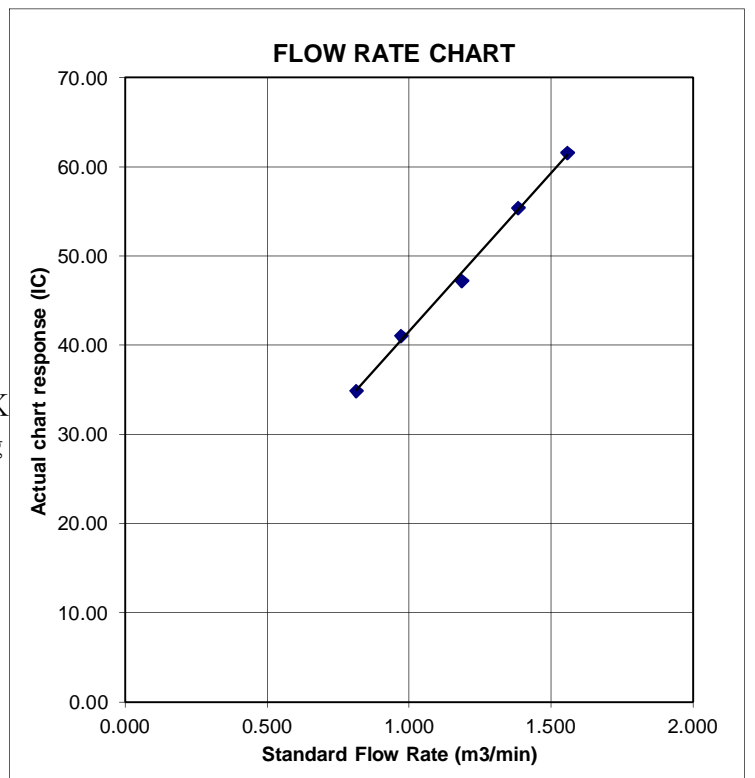
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

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

**For subsequent calculation of sampler flow:**

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

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





TISCH ENVIRONMENTAL, INC.  
 145 SOUTH MIAMI AVE.  
 VILLAGE OF CLEVELAND, OH 45002  
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 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 - May 17, 2012 Rootsometer S/N 0438320 Ta (K) - 294  
 Operator Tisch Orifice I.D. - 1483 Pa (mm) - 754.38

| PLATE<br>OR<br>Run # | VOLUME<br>START<br>(m3) | VOLUME<br>STOP<br>(m3) | DIFF<br>VOLUME<br>(m3) | DIFF<br>TIME<br>(min) | METER              | ORFICE               |
|----------------------|-------------------------|------------------------|------------------------|-----------------------|--------------------|----------------------|
|                      |                         |                        |                        |                       | DIFF<br>Hg<br>(mm) | DIFF<br>H2O<br>(in.) |
| 1                    | NA                      | NA                     | 1.00                   | 1.4140                | 3.2                | 2.00                 |
| 2                    | NA                      | NA                     | 1.00                   | 0.9960                | 6.4                | 4.00                 |
| 3                    | NA                      | NA                     | 1.00                   | 0.8910                | 7.9                | 5.00                 |
| 4                    | NA                      | NA                     | 1.00                   | 0.8510                | 8.7                | 5.50                 |
| 5                    | NA                      | NA                     | 1.00                   | 0.7020                | 12.8               | 8.00                 |

DATA TABULATION

| Vstd                                | (x axis)<br>Qstd | (y axis) | Va                        | (x axis)<br>Qa | (y axis) |
|-------------------------------------|------------------|----------|---------------------------|----------------|----------|
| 1.0018                              | 0.7085           | 1.4185   | 0.9957                    | 0.7042         | 0.8829   |
| 0.9976                              | 1.0016           | 2.0061   | 0.9915                    | 0.9955         | 1.2486   |
| 0.9955                              | 1.1173           | 2.2429   | 0.9894                    | 1.1105         | 1.3959   |
| 0.9945                              | 1.1686           | 2.3524   | 0.9884                    | 1.1615         | 1.4641   |
| 0.9890                              | 1.4088           | 2.8371   | 0.9830                    | 1.4003         | 1.7657   |
| Qstd slope (m) = 2.02742            |                  |          | Qa slope (m) = 1.26953    |                |          |
| intercept (b) = -0.02027            |                  |          | intercept (b) = -0.01262  |                |          |
| coefficient (r) = 0.99996           |                  |          | coefficient (r) = 0.99996 |                |          |
| y axis = SQRT[H2O(Pa/760) (298/Ta)] |                  |          | y axis = SQRT[H2O(Ta/Pa)] |                |          |

CALCULATIONS

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

$$Qstd = Vstd/Time$$

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

$$Qa = Va/Time$$

For subsequent flow rate calculations:

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

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



# Certificate of Calibration 校正證書

Certificate No. : C122418  
證書編號

**ITEM TESTED / 送檢項目** ( Job No. / 序引編號 : IC12-0960 )

Description / 儀器名稱 : Sound Level Meter (EQ068)  
Manufacturer / 製造商 : Rion  
Model No. / 型號 : NL-31  
Serial No. / 編號 : 00410247  
Supplied By / 委託者 : Action-United Environmental Services and Consulting  
Unit A, 20/F., Gold King Industrial Building,  
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

**TEST CONDITIONS / 測試條件**

Temperature / 溫度 : (23 ± 2)°C  
Line Voltage / 電壓 : ---  
Relative Humidity / 相對濕度 : (55 ± 20)%

**TEST SPECIFICATIONS / 測試規範**

Calibration

**DATE OF TEST / 測試日期** : 20 April 2012

**TEST RESULTS / 測試結果**

The results apply to the particular unit-under-test only.  
All results are within manufacturer's specification. (after adjustment)  
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 :   
測試 : L K Yeung

Certified By :   
核證 : K C Lee

Date of Issue : 23 April 2012  
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。



# Certificate of Calibration

## 校正證書

Certificate No. : C122418  
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- Self-calibration using the internal standard (After Adjustment) was performed before the test form 6.1.1.2 to 6.4.
- 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 | C120016         |
| CL281        | Multifunction Acoustic Calibrator   | DC110233        |

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Adjustment

| UUT Setting |                |                     |                | Applied Value |             | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|----------------|---------------------|----------------|---------------|-------------|------------------|-----------------------------|
| Range (dB)  | Mode           | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |                             |
| 30 - 120    | L <sub>A</sub> | A                   | Fast           | 94.00         | 1           | * 92.9           | ± 0.7                       |

\* Out of Mfr's Spec.

6.1.1.2 After Adjustment

| UUT Setting |                |                     |                | Applied Value |             | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|----------------|---------------------|----------------|---------------|-------------|------------------|-----------------------------|
| Range (dB)  | Mode           | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |                             |
| 30 - 120    | L <sub>A</sub> | A                   | Fast           | 94.00         | 1           | 94.0             | ± 0.7                       |

6.1.2 Linearity

| UUT Setting |                |                     |                | Applied Value |             | UUT Reading (dB) |
|-------------|----------------|---------------------|----------------|---------------|-------------|------------------|
| Range (dB)  | Mode           | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |
| 30 - 120    | L <sub>A</sub> | A                   | Fast           | 94.00         | 1           | 94.0 (Ref.)      |
|             |                |                     |                | 104.00        |             | 104.0            |
|             |                |                     |                | 114.00        |             | 114.0            |

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

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室所書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory

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

輝創工程有限公司 – 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

# Certificate of Calibration

## 校正證書

Certificate No. : C122418

證書編號

### 6.2 Time Weighting

#### 6.2.1 Continuous Signal

| UUT Setting |                |                     |                | Applied Value |             | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|----------------|---------------------|----------------|---------------|-------------|------------------|-----------------------------|
| Range (dB)  | Mode           | Frequency Weighting | Time Weighting | Level (dB)    | Freq. (kHz) |                  |                             |
| 30 - 120    | L <sub>A</sub> | A                   | Fast           | 94.00         | 1           | 94.0             | Ref.                        |
|             |                |                     | Slow           |               |             | 94.0             | ± 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)  | Mode              | Frequency Weighting | Time Weighting | Level (dB)    | Burst Duration |                  |                             |
| 20 -110     | L <sub>A</sub>    | A                   | Fast           | 106.00        | Continuous     | 106.0            | Ref.                        |
|             | L <sub>Amax</sub> |                     |                |               | 200 ms         | 105.1            | -1.0 ± 1.0                  |
|             | L <sub>A</sub>    | Slow                | Continuous     |               | 106.0          | Ref.             |                             |
|             | L <sub>Amax</sub> |                     | 500 ms         |               | 102.0          | -4.1 ± 1.0       |                             |

### 6.3 Frequency Weighting

#### 6.3.1 A-Weighting

| UUT Setting |                |                     |                | Applied Value |         | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|----------------|---------------------|----------------|---------------|---------|------------------|-----------------------------|
| Range (dB)  | Mode           | Frequency Weighting | Time Weighting | Level (dB)    | Freq.   |                  |                             |
| 30 - 120    | L <sub>A</sub> | A                   | Fast           | 94.00         | 31.5 Hz | 54.3             | -39.4 ± 1.5                 |
|             |                |                     |                |               | 63 Hz   | 67.7             | -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   | 95.3             | +1.2 ± 1.0                  |
|             |                |                     |                |               | 4 kHz   | 95.1             | +1.0 ± 1.0                  |
|             |                |                     |                |               | 8 kHz   | 93.0             | -1.1 (+1.5; -3.0)           |
| 12.5 kHz    | 90.1           | -4.3 (+3.0; -6.0)   |                |               |         |                  |                             |

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# Certificate of Calibration

## 校正證書

Certificate No. : C122418  
證書編號

### 6.3.2 C-Weighting

| UUT Setting |                |                     |                | Applied Value |          | UUT Reading (dB) | IEC 60651 Type 1 Spec. (dB) |
|-------------|----------------|---------------------|----------------|---------------|----------|------------------|-----------------------------|
| Range (dB)  | Mode           | Frequency Weighting | Time Weighting | Level (dB)    | Freq.    |                  |                             |
| 30 - 120    | L <sub>C</sub> | C                   | Fast           | 94.00         | 31.5 Hz  | 90.7             | -3.0 ± 1.5                  |
|             |                |                     |                |               | 63 Hz    | 93.1             | -0.8 ± 1.5                  |
|             |                |                     |                |               | 125 Hz   | 93.8             | -0.2 ± 1.0                  |
|             |                |                     |                |               | 250 Hz   | 94.0             | 0.0 ± 1.0                   |
|             |                |                     |                |               | 500 Hz   | 94.0             | 0.0 ± 1.0                   |
|             |                |                     |                |               | 1 kHz    | 94.0             | Ref.                        |
|             |                |                     |                |               | 2 kHz    | 93.9             | -0.2 ± 1.0                  |
|             |                |                     |                |               | 4 kHz    | 93.4             | -0.8 ± 1.0                  |
|             |                |                     |                |               | 8 kHz    | 91.1             | -3.0 (+1.5; -3.0)           |
|             |                |                     |                |               | 12.5 kHz | 88.2             | -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 | Freq. (kHz)   | Burst Duration (ms) | Burst Duty Factor | Burst Level (dB) | Equivalent Level (dB) |                  |                             |       |
| 20 - 110    | L <sub>Aeq</sub> | A                   | 10 sec.          | 4             | 1                   | 1/10              | 110.0            | 100                   | 100.0            | ± 0.5                       |       |
|             |                  |                     |                  |               |                     |                   |                  | 1/10 <sup>2</sup>     | 90               | 90.0                        | ± 0.5 |
|             |                  |                     |                  |               |                     |                   |                  | 1/10 <sup>3</sup>     | 80               | 80.0                        | ± 1.0 |
|             |                  |                     |                  |               |                     |                   |                  | 1/10 <sup>4</sup>     | 70               | 70.0                        | ± 1.0 |
|             |                  |                     |                  |               |                     |                   |                  | 60 sec.               |                  |                             |       |
|             |                  |                     | 5 min.           |               |                     |                   |                  |                       |                  |                             |       |

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

- Uncertainties of Applied Value : 94 dB : 63 Hz - 125 Hz : ± 0.35 dB  
 250 Hz - 500 Hz : ± 0.30 dB  
 1 kHz : ± 0.20 dB  
 2 kHz - 4 kHz : ± 0.35 dB  
 8 kHz : ± 0.45 dB  
 12.5 kHz : ± 0.70 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 Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

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# Certificate of Calibration 校正證書

Certificate No. : C122712  
證書編號

**ITEM TESTED / 送檢項目 ( Job No. / 序引編號 : IC12-0960 )**

Description / 儀器名稱 : Acoustical Calibrator (EQ081)  
Manufacturer / 製造商 : Bruel & Kjaer  
Model No. / 型號 : 4231  
Serial No. / 編號 : 2326408  
Supplied By / 委託者 : Action-United Environmental Services and Consulting  
Unit A, 20/F., Gold King Industrial Building,  
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

**TEST CONDITIONS / 測試條件**

Temperature / 溫度 :  $(23 \pm 2)^{\circ}\text{C}$       Relative Humidity / 相對濕度 :  $(55 \pm 20)\%$   
Line Voltage / 電壓 : ---

**TEST SPECIFICATIONS / 測試規範**

Calibration check

**DATE OF TEST / 測試日期** : 7 May 2012

**TEST RESULTS / 測試結果**

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

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

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

Tested By :   
測試 : L K Yeung

Certified By :   
核證 : K C Lee

Date of Issue : 8 May 2012  
簽發日期

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。



# Certificate of Calibration

## 校正證書

Certificate No. : C122712  
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

| <u>Equipment ID</u> | <u>Description</u>                | <u>Certificate No.</u> |
|---------------------|-----------------------------------|------------------------|
| CL130               | Universal Counter                 | C113350                |
| CL281               | Multifunction Acoustic Calibrator | DC110233               |
| TST150A             | Measuring Amplifier               | C120886                |

- Test procedure : MA100N.

- Results :

### 5.1 Sound Level Accuracy

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

### 5.2 Frequency Accuracy

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

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

### Note :

The values given in this Certificate 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.



## ALS Technichem (HK) Pty Ltd

### REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

**CONTACT:** MR BEN TAM  
**CLIENT:** ACTION UNITED ENVIRO SERVICES  
**ADDRESS:** RM A 20/F., GOLDEN KING IND BLDG,  
NO. 35-41 TAI LIN PAI ROAD,  
KWAI CHUNG,  
N.T., HONG KONG.

**WORK ORDER:** HK1204157  
**AMENDMENT:** 1  
**LABORATORY:** HONG KONG  
**DATE RECEIVED:** 10/02/2012  
**DATE OF ISSUE:** 23/02/2012

**PROJECT:** --

#### COMMENTS

It is certified that the item under calibration/checking has been calibrated/checked by corresponding calibrated equipment in the laboratory.  
Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of ALS will be followed.

Scope of Test: Dissolved Oxygen, pH, Salinity and Temperature  
Description: YSI Professional Plus  
Brand Name: YSI  
Model No.: YSI Professional Plus  
Serial No.: 10G101946  
Equipment No.: --  
Date of Calibration: 16 February, 2012

#### NOTES

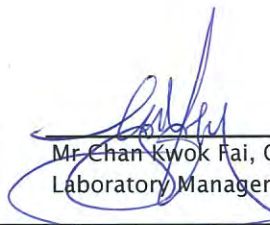
This is the Final Report and supersedes any preliminary report with this batch number.  
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

#### ISSUING LABORATORY: HONG KONG

##### Address

ALS Technichem (HK) Pty Ltd  
11/F Chung Shun Knitting Centre  
1-3 Wing Yip Street  
Kwai Chung  
HONG KONG

**Phone:** 852-2610 1044  
**Fax:** 852-2610 2021  
**Email:** [hongkong@alsglobal.com](mailto:hongkong@alsglobal.com)

  
Mr. Chan Kwok Fai, Godfrey  
Laboratory Manager - Hong Kong

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Page 1 of 2



# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

**Work Order:** HK1204157  
**Amendment:** 1  
**Date of Issue:** 23/02/2012  
**Client:** ACTION UNITED ENVIRO SERVICES



**Description:** YSI Professional Plus  
**Brand Name:** YSI  
**Model No.:** YSI Professional Plus  
**Serial No.:** 10G101946  
**Equipment No.:** --  
**Date of Calibration:** 16 February, 2012      **Date of next Calibration:** 16 May, 2012

## Parameters:

### Dissolved Oxygen      Method Ref: APHA (21st edition), 4500O: G

| Expected Reading (mg/L) | Displayed Reading (mg/L) | Tolerance (mg/L) |
|-------------------------|--------------------------|------------------|
| 7.00                    | 6.90                     | -0.1             |
| 7.40                    | 7.22                     | -0.18            |
| 8.85                    | 8.70                     | -0.15            |
| Tolerance Limit (±mg/L) |                          | 0.20             |

### pH Value      Method Ref: APHA (21st edition), 4500H:B

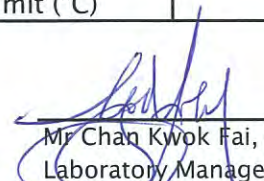
| Expected Reading (pH Unit) | Displayed Reading (pH Unit) | Tolerance (pH unit) |
|----------------------------|-----------------------------|---------------------|
| 4.0                        | 3.96                        | -0.04               |
| 7.0                        | 7.00                        | 0.00                |
| 10.0                       | 10.01                       | 0.01                |
| Tolerance Limit (±unit)    |                             | 0.20                |

### Salinity      Method Ref: APHA (21st edition), 2520B

| Expected Reading (g/L) | Displayed Reading (g/L) | Tolerance (%) |
|------------------------|-------------------------|---------------|
| 0                      | 0.00                    | --            |
| 10                     | 9.83                    | -1.7          |
| 20                     | 19.35                   | -3.2          |
| 30                     | 29.66                   | -1.1          |
| Tolerance Limit (±%)   |                         | 10.0          |

### Temperature      Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

| Reading of Ref. thermometer (°C) | Displayed Reading (°C) | Tolerance (°C) |
|----------------------------------|------------------------|----------------|
| 10.0                             | 10.0                   | 0.0            |
| 21.5                             | 21.0                   | -0.5           |
| 31.0                             | 30.9                   | -0.1           |
| Tolerance Limit (°C)             |                        | 2.0            |

  
 Mr Chan Kwok Fai, Godfrey  
 Laboratory Manager - Hong Kong





## ALS Technichem (HK) Pty Ltd

### REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

**CONTACT:** MR BEN TAM  
**CLIENT:** ACTION UNITED ENVIRO SERVICES  
**ADDRESS:** RM A 20/F., GOLDEN KING IND BLDG,  
NO. 35-41 TAI LIN PAI ROAD,  
KWAI CHUNG,  
N.T., HONG KONG.

**WORK ORDER:** HK1300617  
**LABORATORY:** HONG KONG  
**DATE RECEIVED:** 08/01/2013  
**DATE OF ISSUE:** 17/01/2013

**PROJECT:** --

#### COMMENTS

It is certified that the item under calibration/checking has been calibrated/checked by corresponding calibrated equipment in the laboratory.  
Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of ALS will be followed.

Scope of Test: Turbidity  
Description: Turbidimeter  
Brand Name: HACH  
Model No.: 2100Q  
Serial No.: 11030C008499  
Equipment No.: --  
Date of Calibration: 14 January, 2013

#### NOTES

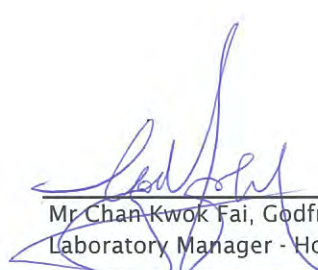
This is the Final Report and supersedes any preliminary report with this batch number.  
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

#### ISSUING LABORATORY: HONG KONG

##### Address

ALS Technichem (HK) Pty Ltd  
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HONG KONG

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Mr. Chan Kwok Fai, Godfrey  
Laboratory Manager - Hong Kong

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Page 1 of 2

# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

**Work Order:** HK1300617  
**Date of Issue:** 17/01/2013  
**Client:** ACTION UNITED ENVIRO SERVICES



**Description:** Turbidimeter  
**Brand Name:** HACH  
**Model No.:** 2100Q  
**Serial No.:** 11030C008499  
**Equipment No.:** --

**Date of Calibration:** 14 January, 2013      **Date of next Calibration:** 14 April, 2013

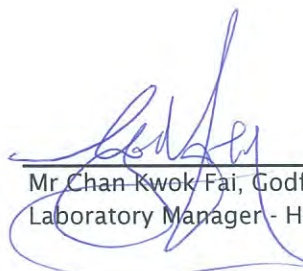
## Parameters:

### Turbidity

**Method Ref: ALPHA 21st Ed. 2130B**

| Expected Reading (NTU) | Displayed Reading (NTU) | Tolerance (%) |
|------------------------|-------------------------|---------------|
| 0                      | 0                       | --            |
| 4                      | 3.9                     | -2.50         |
| 40                     | 42.1                    | 5.25          |
| 80                     | 78                      | -2.50         |
| 400                    | 405                     | 1.25          |
| 800                    | 815                     | 1.88          |
|                        | Tolerance Limit (±%)    | 10.0          |

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

  
Mr Chan Kwok Fai, Godfrey  
Laboratory Manager - Hong Kong





Hong Kong Accreditation Service  
香港認可處

**Certificate of Accreditation**  
認可證書

*This is to certify that*  
特此證明

**ALS TECHNICHEM (HK) PTY LIMITED**

**11/F., Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, New Territories, Hong Kong**  
香港新界葵涌永業街1-3號忠信針織中心11樓

*has been accepted by the HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a*  
為香港認可處執行機關根據認可諮詢委員會建議而接受的

**HOKLAS Accredited Laboratory**  
「香港實驗所認可計劃」認可實驗所

*This laboratory meets the requirements of ISO / IEC 17025 : 2005 – General requirements for the competence of testing and calibration laboratories and it has been accredited for performing specific tests or calibrations as listed in the HOKLAS Directory of Accredited Laboratories within the test category of*  
此實驗所符合ISO / IEC 17025 : 2005 –《測試及校正實驗所能力的通用規定》所訂的要求，獲認可進行載於香港實驗所認可計劃《認可實驗所名冊》內下述測試類別中的指定  
測試或校正工作

**Environmental Testing**  
環境測試

*This laboratory is accredited in accordance with the recognised International Standard ISO / IEC 17025 : 2005.*  
本實驗所乃根據公認的國際標準 ISO / IEC 17025 : 2005 獲得認可。

*This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (see joint IAF-ILAC-ISO Communiqué).*  
這項認可資格演示在指定範疇所需的技術能力及實驗所質量管理體系的運作  
(見國際認可論壇、國際實驗所認可合作組織及國際標準化組織的聯合公報)。

*The common seal of the Hong Kong Accreditation Service is affixed hereto by the authority of the HKAS Executive*  
香港認可處根據認可處執行機關的權限在此蓋上通用印章

CHAN Sing Sing, Terence, Executive Administrator  
執行幹事 陳成城  
Issue Date : 5 May 2009  
簽發日期：二零零九年五月五日

Registration Number : **HOKLAS 066**  
註冊號碼：

Date of First Registration : 15 September 1995  
首次註冊日期：一九九五年九月十五日



## **Appendix F**

### **Event and Action Plan**

## Air Quality

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



### Construction Noise

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

### Water Quality

| EVENT   | ACTION   |  |  |   |
|---|--|--|--|---|
|   | ET   | IC(E)  | ER   | CONTRACTOR  |
| <b>ACTION LEVEL</b>                                     |  |  |  |   |
| 1. Exceedance for one sampling day                      | <ol style="list-style-type: none"> <li>1. Repeat in-situ measurement on the next day of exceedance to confirm findings;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform ICE, Contractor, ER, EPD and AFCD; and</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods.</li> </ol>   | <ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET and Contractor's working methods</li> </ol>  | <ol style="list-style-type: none"> <li>1. Confirm receipt of notification of non-compliance in writing; and</li> <li>2. Notify Contractor</li> </ol>   | <ol style="list-style-type: none"> <li>1. Information the ER and confirm notification of the non-compliance in writing;</li> <li>2. Rectify unacceptable practice; and</li> <li>3. Amend working methods if appropriate</li> </ol>  |
| 2. Exceedance for two or more consecutive sampling days | <ol style="list-style-type: none"> <li>1. Same as the above;</li> <li>2. Inform ICE, Contractor, ER, EPD and AFCD;</li> <li>3. Discuss mitigation measures with IC(E), RE and Contractor;</li> <li>4. Ensure well implementation of mitigation measures; and</li> <li>5. Increase the monitoring frequency to daily until no exceedance of Action Level</li> </ol>                                     | <ol style="list-style-type: none"> <li>1. Same as the above;</li> <li>2. Discuss with ET and Contractor on possible remedial actions;</li> <li>3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly; and</li> <li>4. Supervise the implementation of mitigation measures.</li> </ol> | <ol style="list-style-type: none"> <li>1. Discuss with IC(E) on the proposed mitigation measures;</li> <li>2. Ensure well implementation of mitigation measures; and</li> <li>3. Assess the effectiveness of the implemented mitigation measures</li> </ol>  | <ol style="list-style-type: none"> <li>1. Same as the above;</li> <li>2. Check all plant and equipment and consider changes of working methods;</li> <li>3. Submit proposal of additional mitigation measures to ER within 3 working days of notification and discuss with ET, IC(E), and ER; and</li> <li>4. Implement the agreed mitigation measures</li> </ol>   |
| <b>LIMIT LEVEL</b>                                      |  |  |  |   |
| 1. Exceedance for one sampling day                      | <ol style="list-style-type: none"> <li>1. Repeat in-situ measurement on the next day of exceedance to confirm findings;</li> <li>2. Identify source(s) of impact;</li> <li>3. Inform ICE, Contractor, ER, EPD and AFCD;</li> <li>4. Check monitoring data, all plant, equipment and Contractor's working methods; and</li> <li>5. Discuss mitigation measures with IC(E), RE and Contractor</li> </ol> | <ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET and Contractor's working method</li> <li>2. Discuss with ER and Contractor on possible remedial actions; and</li> <li>3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly</li> </ol>                | <ol style="list-style-type: none"> <li>1. Confirm receipt of notification failure in writing; and</li> <li>2. Discuss with IC(E), ET and Contractor on the proposed mitigation measures; and</li> <li>4. Request Contractor to review the working methods</li> </ol>   | <ol style="list-style-type: none"> <li>1. Inform the ER and confirm notification of the failure in writing;</li> <li>2. Rectify unacceptable practice;</li> <li>3. Check all plant and equipment and consider changes of working methods; and</li> <li>4. Submit proposal of mitigation measures to ER within 3 working days of notification and discuss with ET and ER</li> </ol>  |
| 2. Exceedance for two or more consecutive sampling days | <ol style="list-style-type: none"> <li>1. Same as the above;</li> <li>2. Ensure mitigation measures are implemented; and</li> <li>3. Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days</li> </ol>   | <ol style="list-style-type: none"> <li>1. Same as the above; and</li> <li>2. Supervise the Implementation of mitigation measures</li> </ol>  | <ol style="list-style-type: none"> <li>1. Same as the above;</li> <li>2. Ensure well implementation of mitigation measures</li> <li>3. Make agreement on the mitigation measures to be implemented; and</li> <li>4. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of limit level</li> </ol> | <ol style="list-style-type: none"> <li>1. Same as the above;</li> <li>2. Take immediate action to avoid further exceedance;</li> <li>3. Implement the agreed mitigation measures;</li> <li>4. Resubmit proposals of mitigation measures if problem still not under control; and</li> <li>5. As directed by the Engineer, to slow down or to stop all or part of the construction activities until to no exceedance of Limit Level.</li> </ol> |

### Coral Monitoring

| EVENT                       | ACTION   | CONTRACTOR  | ER/ IC(E)   |
|-----------------------------|--|---|---|
| Action Level being exceeded | <p>Inform contractor, AFCD and EPD immediately;</p> <p>Discuss mitigation measure with ER/IC(E) and Contractor;</p> <p>Ensure mitigation measures are implemented.</p> | <p>Inform the Engineer and confirm notification of the non-compliance in writing;</p> <p>Propose mitigation measure to ER/IC(E) within 1 working day and discuss with Et and ER/IC(E);</p> <p>Ensure mitigation measures are implemented.</p>                                       | <p>Inform contractor, Review water quality monitoring data;</p> <p>Determine whether water quality monitoring data shows effects attributable to the backfilling works;</p> <p>If water quality monitoring data indicates effects attributable to backfilling works, then make agreement on mitigation measures to be implemented;</p> <p>If water quality monitoring data indicates no effects attributable to backfilling works then Action Level is not triggered;</p> <p>Assess the effectiveness of the implemented mitigation measures.</p> |
| Limit Level                 | <p>Inform contractor, AFCD and EPD immediately;</p> <p>Discuss mitigation measure with ER/IC(E) and Contractor;</p> <p>Ensure mitigation measures are implemented.</p> | <p>Inform the Engineer and confirm notification of the non-compliance in writing;</p> <p>Suspend backfilling operations;</p> <p>Propose mitigation measure to ER/IC(E) within 3 working days and discuss with Et and ER/IC(E);</p> <p>Implement the agreed mitigation measures.</p> | <p>Inform contractor to suspend backfilling operations;</p> <p>Make agreement on the mitigation measures to be implemented;</p> <p>Assess the effectiveness of the implemented mitigation measures.</p>   |

## **Appendix G**

### **Monitoring Data Sheet**

## 24-hour TSP Monitoring Data Sheet



## Air Quality Monitoring - 24-hour TSP monitoring data for Yung Shue Wan

### 24-hour TSP Monitoring Results - AC02b

| DATE      | ELAPSED TIME     |         | CHART READING |                 |     |     |      | AVG<br>TEMP<br>(oC) | STANDARD              |                          |                           | INITIAL<br>FILTER<br>WEIGHT<br>(g) | FINAL<br>FILTER<br>WEIGHT<br>(g) | WEIGHT<br>DUST<br>COLLECTED<br>(g) | DUST<br>24-hour TSP<br>IN AIR<br>(ug/m <sup>3</sup> ) |
|-----------|------------------|---------|---------------|-----------------|-----|-----|------|---------------------|-----------------------|--------------------------|---------------------------|------------------------------------|----------------------------------|------------------------------------|---|
|           | SAMPLE<br>NUMBER | INITIAL | FINAL         | ACTUAL<br>(min) | MIN | MAX | AVG  |                     | AVG<br>PRESS<br>(hPa) | FLOW<br>RATE<br>(m3/min) | AIR<br>VOLUME<br>(std m3) |                                    |                                  |                                    |   |
| 26-Feb-13 | 102575           | 6039.16 | 6063.15       | 1439.40         | 32  | 34  | 33.0 | 16.9                | 1018.2                | 0.76                     | 1090                      | 2.6857                             | 2.7872                           | 0.1015                             | 93  |
| 4-Mar-13  | 102578           | 6063.15 | 6087.14       | 1439.40         | 32  | 34  | 33.0 | 17.6                | 1017.9                | 0.76                     | 1088                      | 2.7816                             | 2.9062                           | 0.1246                             | 114   |
| 9-Mar-13  | 102582           | 6087.14 | 6111.13       | 1439.40         | 31  | 33  | 32.0 | 18                  | 1017.8                | 0.72                     | 1043                      | 2.7795                             | 2.8381                           | 0.0586                             | 56  |
| 15-Mar-13 | 102609           | 6111.13 | 6135.12       | 1439.40         | 32  | 33  | 32.5 | 19.2                | 1021.3                | 0.74                     | 1065                      | 2.8014                             | 2.881                            | 0.0796                             | 75  |
| 21-Mar-13 | 102590           | 6135.12 | 6159.11       | 1439.40         | 32  | 34  | 33.0 | 20.8                | 1013.8                | 0.75                     | 1077                      | 2.7774                             | 2.8368                           | 0.0594                             | 55  |

Action Level: 161ug/m<sup>3</sup>

Limit Level: 260ug/m<sup>3</sup>

### 24-hour TSP Monitoring Results - AC04c

| DATE      | ELAPSED TIME     |         | CHART READING |                 |     |     |      | AVG<br>TEMP<br>(oC) | STANDARD              |                          |                           | INITIAL<br>FILTER<br>WEIGHT<br>(g) | FINAL<br>FILTER<br>WEIGHT<br>(g) | WEIGHT<br>DUST<br>COLLECTED<br>(g) | DUST<br>24-hour TSP<br>IN AIR<br>(ug/m <sup>3</sup> ) |
|-----------|------------------|---------|---------------|-----------------|-----|-----|------|---------------------|-----------------------|--------------------------|---------------------------|------------------------------------|----------------------------------|------------------------------------|---|
|           | SAMPLE<br>NUMBER | INITIAL | FINAL         | ACTUAL<br>(min) | MIN | MAX | AVG  |                     | AVG<br>PRESS<br>(hPa) | FLOW<br>RATE<br>(m3/min) | AIR<br>VOLUME<br>(std m3) |                                    |                                  |                                    |   |
| 26-Feb-13 | 102576           | 9008.29 | 9032.28       | 1439.40         | 32  | 34  | 33.0 | 16.9                | 1018.2                | 0.78                     | 1117                      | 2.7852                             | 2.8228                           | 0.0376                             | 34  |
| 4-Mar-13  | 102578           | 9032.28 | 9056.27       | 1439.40         | 32  | 34  | 33.0 | 17.6                | 1017.9                | 0.77                     | 1115                      | 2.7886                             | 2.9038                           | 0.1152                             | 103   |
| 9-Mar-13  | 102582           | 9056.27 | 9080.26       | 1439.40         | 31  | 33  | 32.0 | 18                  | 1017.8                | 0.75                     | 1073                      | 2.8                                | 2.8538                           | 0.0538                             | 50  |
| 15-Mar-13 | 102610           | 9080.26 | 9104.25       | 1439.40         | 32  | 34  | 33.0 | 19.2                | 1021.3                | 0.77                     | 1114                      | 2.7568                             | 2.9147                           | 0.1579                             | 142   |
| 21-Mar-13 | 102617           | 9104.25 | 9128.24       | 1439.40         | 33  | 34  | 33.5 | 20.8                | 1013.8                | 0.78                     | 1125                      | 2.7763                             | 2.871                            | 0.0947                             | 84  |

Action Level: 176ug/m<sup>3</sup>

Limit Level: 260ug/m<sup>3</sup>

## Marine Water Quality Monitoring Data Sheet

Contract No. DC/2009/13

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



Marine Water Quality Monitoring Result at Yung Shue Wan

Date 26-Feb-13

| Date / Time     | Location | Tide* | Co-ordinates |        | Water Depth<br>m | Sampling<br>Depth<br>m | Temp<br>°C | DO Conc<br>mg/L | DO Saturation<br>% | Turbidity<br>NTU | Salinity<br>ppt | pH<br>unit | SS<br>mg/l |
|-----------------|----------|-------|--------------|--------|------------------|------------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
|                 |          |       | East         | North  |                  |                        |            |                 |                    |                  |                 |            |            |
| 2013/2/26 12:41 | WY1      | ME    | 829179       | 809546 | 4.2              | 1.000                  | 18.54      | 7.99            | 104.4              | 1.88             | 33.88           | 7.58       | 3.2        |
|                 |          |       |              |        |                  | 1.000                  | 18.51      | 8.19            | 107.0              | 1.70             | 33.88           | 7.53       |            |
|                 |          |       |              |        |                  | 3.200                  | 18.23      | 8.56            | 111.4              | 2.04             | 34.01           | 7.43       |            |
|                 |          |       |              |        |                  | 3.200                  | 18.23      | 8.77            | 114.0              | 2.13             | 34.03           | 7.37       |            |
| 2013/2/26 12:57 | WY2      | ME    | 829011       | 810413 | 7.6              | 1.000                  | 18.69      | 8.66            | 113.6              | 1.57             | 34.13           | 7.68       | 3.3        |
|                 |          |       |              |        |                  | 1.000                  | 18.62      | 8.76            | 114.9              | 1.55             | 34.15           | 7.63       |            |
|                 |          |       |              |        |                  | 3.800                  | 18.21      | 9.00            | 117.2              | 2.28             | 34.23           | 7.51       | 3.5        |
|                 |          |       |              |        |                  | 3.800                  | 18.25      | 9.01            | 117.3              | 2.56             | 34.20           | 7.48       |            |
|                 |          |       |              |        |                  | 6.600                  | 17.94      | 8.93            | 115.7              | 1.75             | 34.33           | 7.36       | 4.6        |
|                 |          |       |              |        |                  | 6.600                  | 17.94      | 8.62            | 111.7              | 1.96             | 34.35           | 7.32       |            |
| 2013/2/26 12:48 | WY3      | ME    | 829204       | 809858 | 4.5              | 1.000                  | 18.61      | 8.45            | 110.6              | 1.96             | 33.97           | 7.61       | 6.2        |
|                 |          |       |              |        |                  | 1.000                  | 18.61      | 8.45            | 110.7              | 1.86             | 33.94           | 7.55       |            |
|                 |          |       |              |        |                  | 3.500                  | 18.32      | 8.73            | 113.8              | 1.99             | 34.10           | 7.38       | 5.3        |
|                 |          |       |              |        |                  | 3.500                  | 18.33      | 8.69            | 113.3              | 2.00             | 34.09           | 7.35       |            |
| 2013/2/26 13:13 | CY1      | ME    | 828422       | 810816 | 12.3             | 1.000                  | 19.23      | 8.32            | 110.3              | 1.02             | 33.97           | 7.72       | 3.1        |
|                 |          |       |              |        |                  | 1.000                  | 19.14      | 8.51            | 112.5              | 1.00             | 33.96           | 7.69       |            |
|                 |          |       |              |        |                  | 6.150                  | 18.15      | 8.73            | 113.5              | 1.48             | 34.26           | 7.47       | 2.4        |
|                 |          |       |              |        |                  | 6.150                  | 18.15      | 8.55            | 111.2              | 1.47             | 34.29           | 7.48       |            |
|                 |          |       |              |        |                  | 11.300                 | 18.01      | 8.37            | 108.7              | 1.45             | 34.43           | 7.37       | 4.5        |
|                 |          |       |              |        |                  | 11.300                 | 18.03      | 8.34            | 108.3              | 1.48             | 34.43           | 7.36       |            |
| 2013/2/26 13:36 | CY2      | ME    | 828020       | 808828 | 15.6             | 1.000                  | 19.15      | 8.74            | 115.7              | 1.19             | 34.10           | 7.60       | 2.9        |
|                 |          |       |              |        |                  | 1.000                  | 19.15      | 8.71            | 115.4              | 1.06             | 34.22           | 7.52       |            |
|                 |          |       |              |        |                  | 7.800                  | 18.85      | 9.27            | 122.2              | 1.27             | 34.38           | 7.28       | 3.6        |
|                 |          |       |              |        |                  | 7.800                  | 18.72      | 9.35            | 123.0              | 1.40             | 34.36           | 7.21       |            |
|                 |          |       |              |        |                  | 14.600                 | 17.98      | 9.46            | 123.0              | 1.32             | 34.62           | 6.99       | 4.4        |
|                 |          |       |              |        |                  | 14.600                 | 17.99      | 9.06            | 117.7              | 1.38             | 34.67           | 6.97       |            |
| 2013/2/26 17:00 | WY1      | MF    | 829173       | 809558 | 4.3              | 1.000                  | 18.79      | 8.79            | 115.8              | 1.85             | 34.38           | 7.42       | 3.4        |
|                 |          |       |              |        |                  | 1.000                  | 18.74      | 8.89            | 117.0              | 1.76             | 34.41           | 7.39       |            |
|                 |          |       |              |        |                  | 3.300                  | 18.59      | 9.05            | 118.8              | 1.97             | 34.48           | 7.30       | 3.5        |
|                 |          |       |              |        |                  | 3.300                  | 18.59      | 9.06            | 118.9              | 1.91             | 34.49           | 7.29       |            |
| 2013/2/26 17:16 | WY2      | MF    | 829006       | 810392 | 7.9              | 1.000                  | 18.58      | 7.50            | 98.4               | 1.61             | 34.36           | 7.82       | 2.6        |
|                 |          |       |              |        |                  | 1.000                  | 18.59      | 7.91            | 103.7              | 1.63             | 34.34           | 7.76       |            |
|                 |          |       |              |        |                  | 3.950                  | 18.44      | 8.78            | 114.8              | 1.57             | 34.32           | 7.67       | 2.1        |
|                 |          |       |              |        |                  | 3.950                  | 18.35      | 8.76            | 114.4              | 1.59             | 34.36           | 7.65       |            |
|                 |          |       |              |        |                  | 6.900                  | 18.38      | 8.72            | 114.1              | 2.60             | 34.41           | 7.62       | 14.3       |
|                 |          |       |              |        |                  | 6.900                  | 18.38      | 8.73            | 114.2              | 2.52             | 34.42           | 7.61       |            |
| 2013/2/26 17:07 | WY3      | MF    | 829194       | 809836 | 4.7              | 1.000                  | 18.64      | 7.64            | 100.1              | 1.99             | 33.99           | 7.84       | 4.2        |
|                 |          |       |              |        |                  | 1.000                  | 18.65      | 7.99            | 105.0              | 2.01             | 34.43           | 7.75       |            |
|                 |          |       |              |        |                  | 3.700                  | 18.67      | 8.86            | 116.5              | 2.17             | 34.45           | 7.57       | 8          |
|                 |          |       |              |        |                  | 3.700                  | 18.67      | 8.80            | 115.7              | 2.09             | 34.45           | 7.55       |            |
| 2013/2/26 17:30 | CY1      | MF    | 828417       | 810819 | 12.9             | 1.000                  | 18.76      | 7.10            | 93.4               | 0.90             | 34.12           | 7.88       | 1.8        |
|                 |          |       |              |        |                  | 1.000                  | 18.75      | 7.51            | 98.7               | 0.75             | 34.11           | 7.85       |            |
|                 |          |       |              |        |                  | 6.450                  | 18.49      | 8.13            | 106.4              | 1.33             | 34.15           | 7.77       | 1.6        |
|                 |          |       |              |        |                  | 6.450                  | 18.52      | 8.30            | 108.6              | 1.68             | 34.11           | 7.74       |            |
|                 |          |       |              |        |                  | 11.900                 | 18.45      | 8.30            | 108.6              | 0.86             | 34.33           | 7.72       | 8          |
|                 |          |       |              |        |                  | 11.900                 | 18.43      | 8.40            | 109.5              | 1.05             | 33.67           | 7.72       |            |
| 2013/2/26 17:58 | CY2      | MF    | 828013       | 808815 | 16               | 1.000                  | 18.66      | 7.35            | 96.4               | 0.70             | 34.06           | 7.93       | 2.9        |
|                 |          |       |              |        |                  | 1.000                  | 18.63      | 7.33            | 96.1               | 0.73             | 34.07           | 7.89       |            |
|                 |          |       |              |        |                  | 8.000                  | 18.33      | 8.13            | 106.2              | 0.63             | 34.34           | 7.79       | 2.7        |
|                 |          |       |              |        |                  | 8.000                  | 18.33      | 8.15            | 106.5              | 0.61             | 34.32           | 7.78       |            |
|                 |          |       |              |        |                  | 15.000                 | 18.31      | 8.08            | 105.6              | 0.72             | 34.54           | 7.75       | 3.2        |
|                 |          |       |              |        |                  | 15.000                 | 18.30      | 8.16            | 106.7              | 0.73             | 34.59           | 7.75       |            |

Remarks: MF - Middle Flood tide  
ME - Middle Ebb tide

Marine Water Quality Monitoring Result at Yung Shue Wan

Date 28-Feb-13

| Date / Time     | Location | Tide* | Co-ordinates |        | Water Depth<br>m | Sampling Depth<br>m | Temp<br>°C | DO Conc<br>mg/L | DO Saturation<br>% | Turbidity<br>NTU | Salinity<br>ppt | pH<br>unit | SS<br>mg/l |
|-----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
|                 |          |       | East         | North  |                  |                     |            |                 |                    |                  |                 |            |            |
| 2013/2/28 13:19 | WY1      | ME    | 829166       | 809557 | 5.3              | 1.000               | 18.55      | 6.95            | 91.4               | 1.77             | 34.81           | 7.77       | 4.4        |
|                 |          |       |              |        |                  | 1.000               | 18.60      | 7.09            | 93.3               | 1.64             | 34.88           | 7.73       |            |
|                 |          |       |              |        |                  | 4.300               | 18.23      | 7.75            | 101.5              | 1.73             | 35.22           | 7.58       |            |
|                 |          |       |              |        |                  | 4.300               | 18.23      | 7.57            | 99.2               | 1.85             | 35.29           | 7.54       |            |
| 2013/2/28 13:37 | WY2      | ME    | 829010       | 810413 | 8.3              | 1.000               | 18.40      | 7.37            | 96.8               | 1.17             | 35.08           | 7.88       | 2.2        |
|                 |          |       |              |        |                  | 1.000               | 18.42      | 7.51            | 98.7               | 1.29             | 35.07           | 7.84       |            |
|                 |          |       |              |        |                  | 4.150               | 18.14      | 7.86            | 102.8              | 1.08             | 35.17           | 7.74       | 2.4        |
|                 |          |       |              |        |                  | 4.150               | 18.15      | 7.92            | 103.6              | 1.10             | 35.17           | 7.73       |            |
|                 |          |       |              |        |                  | 7.300               | 18.09      | 7.73            | 101.0              | 1.10             | 35.33           | 7.70       | 2.2        |
|                 |          |       |              |        |                  | 7.300               | 18.09      | 7.71            | 100.8              | 1.15             | 35.33           | 7.69       |            |
| 2013/2/28 13:27 | WY3      | ME    | 829187       | 809861 | 5.6              | 1.000               | 18.38      | 7.46            | 98.0               | 1.80             | 35.17           | 7.74       | 2.7        |
|                 |          |       |              |        |                  | 1.000               | 18.40      | 7.52            | 98.8               | 1.81             | 35.16           | 7.71       |            |
|                 |          |       |              |        |                  | 4.600               | 18.27      | 7.64            | 100.1              | 1.94             | 35.26           | 7.64       |            |
|                 |          |       |              |        |                  | 4.600               | 18.22      | 7.68            | 100.6              | 1.96             | 35.27           | 7.63       |            |
| 2013/2/28 13:54 | CY1      | ME    | 828410       | 810822 | 13.5             | 1.000               | 18.66      | 7.31            | 96.3               | 1.24             | 34.84           | 7.89       | 1.9        |
|                 |          |       |              |        |                  | 1.000               | 18.65      | 7.59            | 100.0              | 1.42             | 34.85           | 7.87       |            |
|                 |          |       |              |        |                  | 6.750               | 18.45      | 8.03            | 105.5              | 1.16             | 35.03           | 7.80       | 4.8        |
|                 |          |       |              |        |                  | 6.750               | 18.42      | 8.08            | 105.6              | 1.04             | 34.28           | 7.78       |            |
|                 |          |       |              |        |                  | 12.500              | 18.13      | 7.87            | 102.0              | 1.15             | 33.89           | 7.72       | 5          |
|                 |          |       |              |        |                  | 12.500              | 18.12      | 7.76            | 101.6              | 1.11             | 35.36           | 7.72       |            |
| 2013/2/28 14:17 | CY2      | ME    | 828024       | 808814 | 17.2             | 1.000               | 18.68      | 7.38            | 97.1               | 0.90             | 34.60           | 7.87       | 7          |
|                 |          |       |              |        |                  | 1.000               | 18.63      | 7.64            | 100.1              | 1.03             | 33.91           | 7.84       |            |
|                 |          |       |              |        |                  | 8.600               | 18.63      | 8.07            | 106.3              | 1.09             | 34.77           | 7.80       | 6.6        |
|                 |          |       |              |        |                  | 8.600               | 18.71      | 8.10            | 106.8              | 1.14             | 34.78           | 7.77       |            |
|                 |          |       |              |        |                  | 16.200              | 18.65      | 8.11            | 106.9              | 1.27             | 34.96           | 7.77       | 2.8        |
|                 |          |       |              |        |                  | 16.200              | 18.64      | 8.12            | 107.0              | 1.27             | 35.00           | 7.76       |            |
| 2013/2/28 8:46  | WY1      | MF    | 829179       | 809553 | 4.2              | 1.000               | 18.85      | 7.00            | 92.4               | 1.16             | 34.56           | 7.83       | 4.8        |
|                 |          |       |              |        |                  | 1.000               | 18.82      | 7.20            | 94.5               | 1.18             | 33.65           | 7.80       |            |
|                 |          |       |              |        |                  | 3.200               | 18.78      | 7.37            | 97.2               | 1.35             | 34.69           | 7.78       | 2.7        |
|                 |          |       |              |        |                  | 3.200               | 18.77      | 7.45            | 98.3               | 1.47             | 34.70           | 7.77       |            |
| 2013/2/28 8:29  | WY2      | MF    | 829006       | 810392 | 7.6              | 1.000               | 18.68      | 6.79            | 89.5               | 1.14             | 34.89           | 7.82       | 3.1        |
|                 |          |       |              |        |                  | 1.000               | 18.74      | 7.05            | 93.0               | 1.07             | 34.86           | 7.80       |            |
|                 |          |       |              |        |                  | 3.800               | 18.61      | 7.38            | 97.2               | 1.55             | 34.99           | 7.76       | 2          |
|                 |          |       |              |        |                  | 3.800               | 18.54      | 7.46            | 98.2               | 1.43             | 35.05           | 7.77       |            |
|                 |          |       |              |        |                  | 6.600               | 18.53      | 7.52            | 98.9               | 1.37             | 35.09           | 7.75       | 4.3        |
|                 |          |       |              |        |                  | 6.600               | 18.52      | 7.50            | 98.6               | 1.34             | 35.10           | 7.74       |            |
| 2013/2/28 8:40  | WY3      | MF    | 829211       | 809837 | 4.5              | 1.000               | 18.83      | 7.10            | 93.7               | 1.35             | 34.66           | 7.88       | 3.7        |
|                 |          |       |              |        |                  | 1.000               | 18.82      | 7.14            | 94.2               | 1.34             | 34.67           | 7.84       |            |
|                 |          |       |              |        |                  | 3.500               | 18.62      | 7.34            | 96.6               | 1.41             | 34.86           | 7.80       | 4.5        |
|                 |          |       |              |        |                  | 3.500               | 18.59      | 7.48            | 97.7               | 1.37             | 33.58           | 7.77       |            |
| 2013/2/28 8:13  | CY1      | MF    | 828419       | 810808 | 12.1             | 1.000               | 18.67      | 6.80            | 89.5               | 0.93             | 34.60           | 8.05       | 3.8        |
|                 |          |       |              |        |                  | 1.000               | 18.67      | 6.91            | 91.0               | 0.94             | 34.68           | 7.98       |            |
|                 |          |       |              |        |                  | 6.050               | 18.55      | 7.43            | 97.1               | 1.22             | 33.74           | 7.81       | 4.2        |
|                 |          |       |              |        |                  | 6.050               | 18.55      | 7.45            | 97.3               | 1.21             | 33.80           | 7.79       |            |
|                 |          |       |              |        |                  | 11.100              | 18.57      | 7.36            | 97.3               | 1.59             | 35.63           | 7.73       | 5.8        |
|                 |          |       |              |        |                  | 11.100              | 18.56      | 7.35            | 97.1               | 1.66             | 35.71           | 7.74       |            |
| 2013/2/28 9:00  | CY2      | MF    | 828016       | 808821 | 15.7             | 1.000               | 19.08      | 7.14            | 94.8               | 1.14             | 34.87           | 7.90       | 2.4        |
|                 |          |       |              |        |                  | 1.000               | 18.82      | 7.42            | 98.1               | 1.27             | 34.98           | 7.85       |            |
|                 |          |       |              |        |                  | 7.850               | 18.10      | 7.70            | 100.5              | 1.10             | 35.01           | 7.75       | 3.8        |
|                 |          |       |              |        |                  | 7.850               | 18.06      | 7.70            | 99.9               | 1.13             | 34.00           | 7.74       |            |
|                 |          |       |              |        |                  | 14.700              | 18.03      | 7.61            | 99.2               | 1.28             | 35.22           | 7.71       | 4.2        |
|                 |          |       |              |        |                  | 14.700              | 18.02      | 7.58            | 99.0               | 1.23             | 35.24           | 7.71       |            |

Remarks: MF - Middle Flood tide  
ME - Middle Ebb tide

Marine Water Quality Monitoring Result at Yung Shue Wan

Date 2-Mar-13

| Date / Time    | Location | Tide* | Co-ordinates |        | Water Depth<br>m | Sampling Depth<br>m | Temp<br>°C | DO Conc<br>mg/L | DO Saturation<br>% | Turbidity<br>NTU | Salinity<br>ppt | pH<br>unit | SS<br>mg/l |
|----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
|                |          |       | East         | North  |                  |                     |            |                 |                    |                  |                 |            |            |
| 2013/3/2 14:44 | WY1      | ME    | 829175       | 809557 | 4.3              | 1.000               | 18.39      | 7.29            | 95.7               | 2.87             | 34.98           | 8.03       | 4.7        |
|                |          |       |              |        |                  | 1.000               | 18.40      | 7.36            | 96.7               | 2.89             | 35.06           | 8.01       |            |
|                |          |       |              |        |                  | 3.300               | 18.32      | 7.14            | 93.7               | 1.88             | 35.34           | 7.95       |            |
|                |          |       |              |        |                  | 3.300               | 18.32      | 7.15            | 93.9               | 1.91             | 35.35           | 7.97       |            |
| 2013/3/2 15:01 | WY2      | ME    | 829002       | 810392 | 7.5              | 1.000               | 18.29      | 7.25            | 94.9               | 1.08             | 35.01           | 7.93       | 3.2        |
|                |          |       |              |        |                  | 1.000               | 18.29      | 7.25            | 94.9               | 1.05             | 35.02           | 7.92       |            |
|                |          |       |              |        |                  | 3.750               | 18.26      | 7.48            | 97.2               | 1.04             | 33.75           | 7.89       | 5.4        |
|                |          |       |              |        |                  | 3.750               | 18.26      | 7.44            | 97.5               | 0.95             | 35.13           | 7.91       |            |
|                |          |       |              |        |                  | 6.500               | 18.14      | 7.32            | 95.8               | 0.90             | 35.27           | 7.89       |            |
|                |          |       |              |        |                  | 6.500               | 18.15      | 7.30            | 95.6               | 0.91             | 35.28           | 7.89       |            |
| 2013/3/2 14:52 | WY3      | ME    | 829206       | 829855 | 4.7              | 1.000               | 18.47      | 7.20            | 94.6               | 2.47             | 35.08           | 7.93       | 5          |
|                |          |       |              |        |                  | 1.000               | 18.46      | 7.27            | 95.6               | 2.28             | 35.11           | 7.92       |            |
|                |          |       |              |        |                  | 3.700               | 18.37      | 7.33            | 96.3               | 2.82             | 35.22           | 7.91       |            |
|                |          |       |              |        |                  | 3.700               | 18.37      | 7.28            | 95.6               | 2.92             | 35.23           | 7.91       |            |
| 2013/3/2 15:19 | CY1      | ME    | 828409       | 810820 | 12.3             | 1.000               | 18.63      | 7.48            | 98.3               | 0.99             | 34.47           | 7.94       | 3.8        |
|                |          |       |              |        |                  | 1.000               | 18.65      | 7.51            | 98.7               | 1.00             | 34.47           | 7.93       |            |
|                |          |       |              |        |                  | 6.150               | 18.54      | 7.30            | 95.9               | 0.97             | 34.83           | 7.93       | 6          |
|                |          |       |              |        |                  | 6.150               | 18.55      | 7.36            | 96.8               | 0.83             | 34.83           | 7.92       |            |
|                |          |       |              |        |                  | 11.300              | 18.47      | 7.22            | 94.1               | 0.73             | 33.43           | 7.90       |            |
|                |          |       |              |        |                  | 11.300              | 18.50      | 7.23            | 95.0               | 0.74             | 34.97           | 7.92       |            |
| 2013/3/2 15:40 | CY2      | ME    | 828022       | 808816 | 16.5             | 1.000               | 18.23      | 7.39            | 96.0               | 0.92             | 33.73           | 7.92       | 3.4        |
|                |          |       |              |        |                  | 1.000               | 18.26      | 7.38            | 96.4               | 0.70             | 34.71           | 7.94       |            |
|                |          |       |              |        |                  | 8.250               | 18.27      | 7.27            | 95.1               | 0.77             | 34.84           | 7.94       | 5.1        |
|                |          |       |              |        |                  | 8.250               | 18.24      | 7.36            | 95.4               | 0.92             | 33.45           | 7.92       |            |
|                |          |       |              |        |                  | 15.500              | 18.22      | 7.19            | 93.2               | 0.84             | 33.47           | 7.91       |            |
|                |          |       |              |        |                  | 15.500              | 18.25      | 7.15            | 93.5               | 0.95             | 34.96           | 7.94       |            |
| 2013/3/2 10:03 | WY1      | MF    | 829174       | 809561 | 5.2              | 1.000               | 18.76      | 7.44            | 97.7               | 0.99             | 33.97           | 7.90       | 4.9        |
|                |          |       |              |        |                  | 1.000               | 18.76      | 7.39            | 97.0               | 0.97             | 33.98           | 7.90       |            |
|                |          |       |              |        |                  | 4.200               | 18.49      | 7.36            | 96.4               | 1.28             | 34.39           | 7.90       | 8.4        |
|                |          |       |              |        |                  | 4.200               | 18.49      | 7.39            | 96.9               | 1.46             | 34.40           | 7.90       |            |
| 2013/3/2 9:38  | WY2      | MF    | 829014       | 810427 | 8.4              | 1.000               | 18.76      | 7.57            | 99.4               | 0.92             | 33.83           | 7.90       | 6.8        |
|                |          |       |              |        |                  | 1.000               | 18.76      | 7.51            | 98.5               | 0.95             | 33.82           | 7.88       |            |
|                |          |       |              |        |                  | 4.200               | 18.92      | 7.38            | 97.2               | 0.84             | 34.00           | 7.88       | 7.7        |
|                |          |       |              |        |                  | 4.200               | 18.83      | 7.51            | 98.8               | 0.88             | 34.02           | 7.85       |            |
|                |          |       |              |        |                  | 7.400               | 18.57      | 7.54            | 98.9               | 0.95             | 34.28           | 7.87       | 7.7        |
|                |          |       |              |        |                  | 7.400               | 18.57      | 7.52            | 98.6               | 0.95             | 34.29           | 7.86       |            |
| 2013/3/2 9:56  | WY3      | MF    | 829183       | 809832 | 5.6              | 1.000               | 18.82      | 7.45            | 98.1               | 0.85             | 34.13           | 7.94       | 5.6        |
|                |          |       |              |        |                  | 1.000               | 18.81      | 7.43            | 97.7               | 0.85             | 34.08           | 7.90       |            |
|                |          |       |              |        |                  | 4.600               | 18.52      | 7.46            | 97.8               | 1.23             | 34.41           | 7.92       | 5.3        |
|                |          |       |              |        |                  | 4.600               | 18.49      | 7.47            | 97.8               | 1.18             | 34.42           | 7.91       |            |
| 2013/3/2 10:17 | CY1      | MF    | 828414       | 810813 | 13.3             | 1.000               | 18.75      | 7.32            | 95.8               | 0.86             | 33.53           | 7.78       | 5.9        |
|                |          |       |              |        |                  | 1.000               | 18.75      | 7.21            | 94.5               | 0.92             | 33.54           | 7.73       |            |
|                |          |       |              |        |                  | 6.650               | 18.54      | 7.45            | 97.4               | 0.75             | 33.95           | 7.73       | 7.6        |
|                |          |       |              |        |                  | 6.650               | 18.67      | 7.48            | 97.9               | 0.71             | 33.76           | 7.69       |            |
|                |          |       |              |        |                  | 12.300              | 18.48      | 7.52            | 98.3               | 0.67             | 34.07           | 7.70       | 7.5        |
|                |          |       |              |        |                  | 12.300              | 18.48      | 7.54            | 98.5               | 0.70             | 34.08           | 7.70       |            |
| 2013/3/2 10:17 | CY2      | MF    | 828012       | 810427 | 17.4             | 1.000               | 19.20      | 7.51            | 99.7               | 0.79             | 34.36           | 7.97       | 6.2        |
|                |          |       |              |        |                  | 1.000               | 19.23      | 7.50            | 99.6               | 0.99             | 34.40           | 7.98       |            |
|                |          |       |              |        |                  | 8.700               | 18.29      | 7.60            | 99.3               | 0.78             | 34.54           | 7.94       | 6.6        |
|                |          |       |              |        |                  | 8.700               | 18.27      | 7.63            | 99.6               | 0.71             | 34.55           | 7.94       |            |
|                |          |       |              |        |                  | 16.400              | 18.24      | 7.56            | 98.7               | 0.91             | 34.65           | 7.92       | 9.7        |
|                |          |       |              |        |                  | 16.400              | 18.24      | 7.55            | 98.6               | 0.92             | 34.66           | 7.91       |            |

Remarks: MF - Middle Flood tide  
ME - Middle Ebb tide



Marine Water Quality Monitoring Result at Yung Shue Wan

Date 4-Mar-13

| Date / Time    | Location | Tide* | Co-ordinates |        | Water Depth<br>m | Sampling Depth<br>m | Temp<br>°C | DO Conc<br>mg/L | DO Saturation<br>% | Turbidity<br>NTU | Salinity<br>ppt | pH<br>unit | SS<br>mg/l |
|----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
|                |          |       | East         | North  |                  |                     |            |                 |                    |                  |                 |            |            |
| 2013/3/4 17:08 | WY1      | ME    | 829171       | 809563 | 4.1              | 1.000               | 18.15      | 7.85            | 102.1              | 3.47             | 34.43           | 7.87       | 4.6        |
|                |          |       |              |        |                  | 1.000               | 17.74      | 7.46            | 99.8               | 3.61             | 34.60           | 7.82       |            |
|                |          |       |              |        |                  | 3.100               | 17.68      | 7.10            | 91.9               | 3.64             | 34.97           | 7.66       |            |
|                |          |       |              |        |                  | 3.100               | 17.66      | 7.08            | 91.6               | 3.54             | 35.03           | 7.68       |            |
| 2013/3/4 17:22 | WY2      | ME    | 829010       | 810409 | 7.3              | 1.000               | 18.19      | 7.65            | 99.6               | 1.52             | 34.24           | 7.84       | 4.2        |
|                |          |       |              |        |                  | 1.000               | 18.24      | 7.68            | 100.2              | 1.42             | 34.57           | 7.82       |            |
|                |          |       |              |        |                  | 3.650               | 18.14      | 7.54            | 97.8               | 1.30             | 33.82           | 7.74       | 5.1        |
|                |          |       |              |        |                  | 3.650               | 18.13      | 7.53            | 97.6               | 1.32             | 33.77           | 7.74       |            |
|                |          |       |              |        |                  | 6.300               | 17.66      | 7.45            | 96.6               | 2.77             | 35.18           | 7.71       |            |
|                |          |       |              |        |                  | 6.300               | 17.65      | 7.32            | 94.9               | 2.24             | 35.20           | 7.69       |            |
| 2013/3/4 17:15 | WY3      | ME    | 829191       | 809857 | 4.6              | 1.000               | 17.77      | 7.08            | 91.8               | 3.29             | 34.91           | 7.78       | 3.3        |
|                |          |       |              |        |                  | 1.000               | 17.77      | 7.08            | 91.7               | 3.32             | 34.92           | 7.75       |            |
|                |          |       |              |        |                  | 3.600               | 17.67      | 7.17            | 92.9               | 3.55             | 35.02           | 7.69       | 5          |
|                |          |       |              |        |                  | 3.600               | 17.67      | 7.17            | 92.9               | 3.61             | 35.02           | 7.70       |            |
| 2013/3/4 17:35 | CY1      | ME    | 828414       | 810813 | 12.3             | 1.000               | 18.12      | 7.63            | 99.3               | 1.05             | 34.44           | 7.90       | 0.7        |
|                |          |       |              |        |                  | 1.000               | 18.16      | 7.84            | 102.1              | 1.27             | 34.41           | 7.85       |            |
|                |          |       |              |        |                  | 6.150               | 17.83      | 7.31            | 94.7               | 1.32             | 34.71           | 7.78       | 4.1        |
|                |          |       |              |        |                  | 6.150               | 17.75      | 7.36            | 94.5               | 1.52             | 33.28           | 7.75       |            |
|                |          |       |              |        |                  | 11.300              | 17.68      | 7.03            | 91.1               | 1.55             | 35.06           | 7.74       |            |
|                |          |       |              |        |                  | 11.300              | 17.68      | 7.05            | 91.3               | 1.37             | 35.02           | 7.74       |            |
| 2013/3/4 17:56 | CY2      | ME    | 828027       | 808823 | 14.9             | 1.000               | 17.97      | 7.78            | 101.0              | 0.92             | 34.56           | 7.98       | 2.5        |
|                |          |       |              |        |                  | 1.000               | 17.97      | 7.77            | 100.9              | 0.97             | 34.59           | 7.96       |            |
|                |          |       |              |        |                  | 7.450               | 17.76      | 7.52            | 97.3               | 1.18             | 34.80           | 7.90       | 2          |
|                |          |       |              |        |                  | 7.450               | 17.72      | 7.50            | 97.1               | 1.19             | 34.85           | 7.89       |            |
|                |          |       |              |        |                  | 13.900              | 17.54      | 7.15            | 91.4               | 1.13             | 33.43           | 7.81       |            |
|                |          |       |              |        |                  | 13.900              | 17.56      | 7.04            | 91.0               | 1.06             | 35.09           | 7.84       |            |
| 2013/3/4 9:52  | WY1      | MF    | 829177       | 809556 | 5.3              | 1.000               | 18.04      | 7.42            | 96.4               | 1.30             | 34.34           | 7.71       | 2.4        |
|                |          |       |              |        |                  | 1.000               | 18.08      | 7.55            | 98.2               | 1.32             | 34.34           | 7.74       |            |
|                |          |       |              |        |                  | 4.300               | 17.66      | 7.45            | 96.1               | 1.38             | 34.43           | 7.72       | 2.8        |
|                |          |       |              |        |                  | 4.300               | 17.67      | 7.38            | 95.2               | 1.48             | 34.45           | 7.72       |            |
| 2013/3/4 9:34  | WY2      | MF    | 829006       | 810417 | 8.4              | 1.000               | 17.68      | 7.41            | 95.5               | 1.26             | 34.16           | 7.90       | 3.5        |
|                |          |       |              |        |                  | 1.000               | 17.67      | 7.31            | 94.2               | 1.25             | 34.24           | 7.84       |            |
|                |          |       |              |        |                  | 4.200               | 17.68      | 7.40            | 95.4               | 1.40             | 34.23           | 7.81       | 4.7        |
|                |          |       |              |        |                  | 4.200               | 17.68      | 7.28            | 93.8               | 1.33             | 34.24           | 7.80       |            |
|                |          |       |              |        |                  | 7.400               | 17.69      | 7.29            | 94.0               | 1.64             | 34.29           | 7.78       |            |
|                |          |       |              |        |                  | 7.400               | 17.69      | 7.29            | 94.0               | 1.70             | 34.30           | 7.77       |            |
| 2013/3/4 9:43  | WY3      | MF    | 829211       | 809823 | 5.7              | 1.000               | 17.84      | 7.50            | 96.9               | 1.41             | 34.21           | 7.82       | 1.4        |
|                |          |       |              |        |                  | 1.000               | 17.64      | 7.46            | 96.2               | 1.43             | 34.40           | 7.80       |            |
|                |          |       |              |        |                  | 4.700               | 17.51      | 7.35            | 94.1               | 1.52             | 33.58           | 7.76       | 3.2        |
|                |          |       |              |        |                  | 4.700               | 17.53      | 7.19            | 92.6               | 1.66             | 34.70           | 7.78       |            |
| 2013/3/4 9:21  | CY1      | MF    | 828416       | 810811 | 13.4             | 1.000               | 17.67      | 7.25            | 93.3               | 1.32             | 34.01           | 7.75       | 1.4        |
|                |          |       |              |        |                  | 1.000               | 17.65      | 7.30            | 93.9               | 1.27             | 34.06           | 7.69       |            |
|                |          |       |              |        |                  | 6.700               | 17.59      | 7.26            | 93.4               | 1.57             | 34.20           | 7.69       | 2.1        |
|                |          |       |              |        |                  | 6.700               | 17.59      | 7.24            | 93.1               | 1.63             | 34.21           | 7.68       |            |
|                |          |       |              |        |                  | 12.400              | 17.54      | 7.16            | 92.1               | 1.53             | 34.35           | 7.66       |            |
|                |          |       |              |        |                  | 12.400              | 17.54      | 7.15            | 91.9               | 1.63             | 34.30           | 7.65       |            |
| 2013/3/4 10:06 | CY2      | MF    | 828015       | 808821 | 15.6             | 1.000               | 17.57      | 7.49            | 96.6               | 1.81             | 34.75           | 7.86       | 1.8        |
|                |          |       |              |        |                  | 1.000               | 17.55      | 7.63            | 97.9               | 1.91             | 33.93           | 7.82       |            |
|                |          |       |              |        |                  | 7.800               | 17.39      | 7.40            | 95.3               | 1.55             | 34.89           | 7.81       | 4.4        |
|                |          |       |              |        |                  | 7.800               | 17.39      | 7.43            | 95.6               | 1.64             | 34.90           | 7.81       |            |
|                |          |       |              |        |                  | 14.600              | 17.39      | 7.26            | 93.5               | 1.84             | 35.07           | 7.78       |            |
|                |          |       |              |        |                  | 14.600              | 17.41      | 7.04            | 90.8               | 1.87             | 35.06           | 7.75       |            |

Remarks: MF - Middle Flood tide  
ME - Middle Ebb tide

Marine Water Quality Monitoring Result at Yung Shue Wan

Date 6-Mar-13

| Date / Time    | Location | Tide* | Co-ordinates |        | Water Depth<br>m | Sampling Depth<br>m | Temp<br>°C | DO Conc<br>mg/L | DO Saturation<br>% | Turbidity<br>NTU | Salinity<br>ppt | pH<br>unit | SS<br>mg/l |
|----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
|                |          |       | East         | North  |                  |                     |            |                 |                    |                  |                 |            |            |
| 2013/3/6 17:04 | WY1      | ME    | 829164       | 809562 | 4.2              | 1.000               | 18.28      | 7.84            | 102.4              | 2.18             | 34.67           | 7.97       | 3.9        |
|                |          |       |              |        |                  | 1.000               | 18.28      | 7.79            | 101.8              | 2.21             | 34.75           | 7.90       |            |
|                |          |       |              |        |                  | 3.200               | 18.17      | 7.76            | 101.4              | 2.45             | 34.84           | 7.68       | 3.2        |
|                |          |       |              |        |                  | 3.200               | 18.13      | 7.71            | 100.6              | 2.42             | 34.86           | 7.65       |            |
| 2013/3/6 17:17 | WY2      | ME    | 829014       | 810423 | 7.3              | 1.000               | 18.37      | 7.53            | 98.7               | 1.67             | 34.84           | 7.53       | 0.5        |
|                |          |       |              |        |                  | 1.000               | 18.37      | 7.63            | 100.0              | 1.57             | 34.83           | 7.52       |            |
|                |          |       |              |        |                  | 3.650               | 18.32      | 7.73            | 101.2              | 1.56             | 34.85           | 7.51       | 0.7        |
|                |          |       |              |        |                  | 3.650               | 18.27      | 7.97            | 104.2              | 1.32             | 34.87           | 7.48       |            |
|                |          |       |              |        |                  | 6.300               | 17.94      | 8.11            | 105.5              | 1.31             | 35.05           | 7.48       | 1.1        |
|                |          |       |              |        |                  | 6.300               | 17.93      | 8.01            | 104.3              | 1.25             | 35.07           | 7.46       |            |
| 2013/3/6 17:10 | WY3      | ME    | 829204       | 809838 | 4.5              | 1.000               | 18.30      | 7.46            | 97.6               | 2.85             | 34.85           | 7.53       | 4.7        |
|                |          |       |              |        |                  | 1.000               | 18.30      | 7.67            | 100.4              | 2.69             | 34.84           | 7.52       |            |
|                |          |       |              |        |                  | 3.500               | 18.17      | 7.89            | 103.1              | 2.40             | 34.90           | 7.48       | 5          |
|                |          |       |              |        |                  | 3.500               | 18.15      | 7.87            | 102.7              | 2.51             | 34.90           | 7.46       |            |
| 2013/3/6 17:28 | CY1      | ME    | 828417       | 810788 | 12.5             | 1.000               | 18.49      | 7.20            | 94.5               | 1.20             | 34.66           | 7.54       | 0.5        |
|                |          |       |              |        |                  | 1.000               | 18.52      | 7.32            | 96.1               | 1.11             | 34.66           | 7.54       |            |
|                |          |       |              |        |                  | 6.250               | 17.98      | 7.38            | 95.9               | 1.14             | 34.70           | 7.53       | 0.5        |
|                |          |       |              |        |                  | 6.250               | 17.90      | 7.41            | 96.2               | 1.24             | 34.76           | 7.51       |            |
|                |          |       |              |        |                  | 11.500              | 17.82      | 7.29            | 94.7               | 1.67             | 35.13           | 7.52       | 0.5        |
|                |          |       |              |        |                  | 11.500              | 17.82      | 7.29            | 94.7               | 1.62             | 35.13           | 7.52       |            |
| 2013/3/6 17:50 | CY2      | ME    | 828025       | 808809 | 16.2             | 1.000               | 18.08      | 6.37            | 83.0               | 1.20             | 34.77           | 7.66       | 0.5        |
|                |          |       |              |        |                  | 1.000               | 18.09      | 6.75            | 87.9               | 1.26             | 34.78           | 7.64       |            |
|                |          |       |              |        |                  | 8.100               | 18.01      | 6.81            | 88.7               | 1.12             | 34.95           | 7.64       | 0.8        |
|                |          |       |              |        |                  | 8.100               | 18.00      | 6.78            | 88.3               | 1.11             | 34.98           | 7.61       |            |
|                |          |       |              |        |                  | 15.200              | 17.81      | 6.44            | 83.6               | 1.86             | 35.10           | 7.59       | 2          |
|                |          |       |              |        |                  | 15.200              | 17.81      | 6.40            | 83.2               | 1.56             | 35.14           | 7.59       |            |
| 2013/3/6 11:26 | WY1      | MF    | 829164       | 809552 | 5.1              | 1.000               | 18.27      | 7.89            | 103.2              | 1.15             | 34.71           | 7.97       | 1.1        |
|                |          |       |              |        |                  | 1.000               | 18.22      | 7.90            | 102.5              | 1.08             | 33.62           | 7.88       |            |
|                |          |       |              |        |                  | 4.100               | 18.03      | 7.90            | 102.9              | 1.12             | 34.94           | 7.73       | 2          |
|                |          |       |              |        |                  | 4.100               | 18.03      | 7.94            | 103.5              | 1.05             | 34.95           | 7.69       |            |
| 2013/3/6 11:38 | WY2      | MF    | 829014       | 810407 | 8.6              | 1.000               | 18.34      | 7.58            | 99.2               | 0.66             | 34.78           | 7.44       | 1.4        |
|                |          |       |              |        |                  | 1.000               | 18.38      | 7.48            | 98.0               | 0.76             | 34.77           | 7.48       |            |
|                |          |       |              |        |                  | 4.300               | 18.07      | 7.90            | 101.9              | 0.75             | 33.11           | 7.47       | 2.2        |
|                |          |       |              |        |                  | 4.300               | 18.14      | 7.60            | 99.1               | 0.94             | 34.91           | 7.48       |            |
|                |          |       |              |        |                  | 7.600               | 17.96      | 7.83            | 100.8              | 0.76             | 33.15           | 7.48       | 2.1        |
|                |          |       |              |        |                  | 7.600               | 17.96      | 7.78            | 100.1              | 0.76             | 33.18           | 7.49       |            |
| 2013/3/6 11:31 | WY3      | MF    | 829204       | 809857 | 5.3              | 1.000               | 18.08      | 7.95            | 103.7              | 1.08             | 34.94           | 7.44       | 1          |
|                |          |       |              |        |                  | 1.000               | 18.07      | 7.97            | 103.2              | 1.21             | 33.70           | 7.44       |            |
|                |          |       |              |        |                  | 4.300               | 17.99      | 8.08            | 105.2              | 1.15             | 35.01           | 7.45       | 2.2        |
|                |          |       |              |        |                  | 4.300               | 17.98      | 8.12            | 105.8              | 1.16             | 35.03           | 7.45       |            |
| 2013/3/6 11:53 | CY1      | MF    | 828417       | 810812 | 13.6             | 1.000               | 18.31      | 6.79            | 88.8               | 0.74             | 34.71           | 7.64       | 1.8        |
|                |          |       |              |        |                  | 1.000               | 18.29      | 6.45            | 84.3               | 0.72             | 34.71           | 7.59       |            |
|                |          |       |              |        |                  | 6.800               | 18.14      | 6.83            | 88.1               | 0.87             | 33.00           | 7.58       | 1          |
|                |          |       |              |        |                  | 6.800               | 18.13      | 6.61            | 85.2               | 0.74             | 33.00           | 7.57       |            |
|                |          |       |              |        |                  | 12.600              | 17.95      | 6.67            | 86.8               | 1.53             | 35.14           | 7.58       | 1.5        |
|                |          |       |              |        |                  | 12.600              | 17.96      | 6.50            | 84.6               | 1.60             | 35.16           | 7.58       |            |
| 2013/3/6 11:08 | CY2      | MF    | 828025       | 808817 | 17.2             | 1.000               | 18.59      | 7.85            | 103.2              | 0.79             | 34.78           | 7.44       | 0.6        |
|                |          |       |              |        |                  | 1.000               | 18.68      | 7.93            | 104.6              | 0.82             | 34.80           | 7.42       |            |
|                |          |       |              |        |                  | 8.600               | 17.78      | 8.16            | 105.9              | 1.12             | 34.96           | 7.29       | 0.6        |
|                |          |       |              |        |                  | 8.600               | 17.76      | 8.05            | 104.4              | 1.22             | 35.02           | 7.27       |            |
|                |          |       |              |        |                  | 16.200              | 17.76      | 7.96            | 103.3              | 1.49             | 35.19           | 7.24       | 2.6        |
|                |          |       |              |        |                  | 16.200              | 17.73      | 7.99            | 103.5              | 1.44             | 34.90           | 7.23       |            |

Remarks: MF - Middle Flood tide  
ME - Middle Ebb tide

Marine Water Quality Monitoring Result at Yung Shue Wan

Date 8-Mar-13

| Date / Time    | Location | Tide* | Co-ordinates |        | Water Depth<br>m | Sampling Depth<br>m | Temp<br>°C | DO Conc<br>mg/L | DO Saturation<br>% | Turbidity<br>NTU | Salinity<br>ppt | pH<br>unit | SS<br>mg/l |
|----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
|                |          |       | East         | North  |                  |                     |            |                 |                    |                  |                 |            |            |
| 2013/3/8 11:08 | WY1      | ME    | 829178       | 809552 | 4.3              | 1.000               | 18.75      | 6.74            | 88.9               | 1.2              | 34.62           | 7.10       | 1.4        |
|                |          |       |              |        |                  | 1.000               | 18.83      | 6.84            | 90.2               | 1.3              | 34.63           | 7.07       |            |
|                |          |       |              |        |                  | 3.300               | 18.40      | 7.37            | 96.6               | 1.0              | 34.71           | 7.01       |            |
|                |          |       |              |        |                  | 3.300               | 18.40      | 7.31            | 95.7               | 1.0              | 34.73           | 6.99       |            |
| 2013/3/8 10:45 | WY2      | ME    | 829008       | 810416 | 7.7              | 1.000               | 18.25      | 8.21            | 107.3              | 1.0              | 34.69           | 7.74       | 1.9        |
|                |          |       |              |        |                  | 1.000               | 18.27      | 8.12            | 106.1              | 1.0              | 34.63           | 7.68       |            |
|                |          |       |              |        |                  | 3.850               | 18.04      | 8.35            | 108.7              | 1.0              | 34.73           | 7.55       | 0.8        |
|                |          |       |              |        |                  | 3.850               | 18.04      | 8.40            | 109.3              | 1.0              | 34.73           | 7.52       |            |
|                |          |       |              |        |                  | 6.700               | 18.00      | 8.50            | 110.6              | 1.0              | 34.76           | 7.42       | 1.3        |
|                |          |       |              |        |                  | 6.700               | 17.99      | 8.71            | 113.3              | 1.0              | 34.78           | 7.34       |            |
| 2013/3/8 11:02 | WY3      | ME    | 829206       | 809855 | 4.6              | 1.000               | 18.70      | 7.30            | 96.1               | 1.5              | 34.62           | 7.19       | 2.3        |
|                |          |       |              |        |                  | 1.000               | 18.73      | 7.42            | 97.8               | 1.6              | 34.57           | 7.07       |            |
|                |          |       |              |        |                  | 3.600               | 18.40      | 7.64            | 99.8               | 1.4              | 34.08           | 6.98       | 1          |
|                |          |       |              |        |                  | 3.600               | 18.41      | 7.63            | 99.9               | 1.3              | 34.68           | 6.93       |            |
| 2013/3/8 10:33 | CY1      | ME    | 828014       | 808811 | 12.7             | 1.000               | 18.51      | 7.81            | 102.1              | 1.9              | 34.10           | 7.60       | 2.5        |
|                |          |       |              |        |                  | 1.000               | 18.48      | 8.02            | 104.8              | 2.1              | 34.14           | 7.58       |            |
|                |          |       |              |        |                  | 6.350               | 18.17      | 8.48            | 110.4              | 1.0              | 34.48           | 7.50       | 2.6        |
|                |          |       |              |        |                  | 6.350               | 18.15      | 8.41            | 109.5              | 1.1              | 34.50           | 7.51       |            |
|                |          |       |              |        |                  | 11.700              | 18.00      | 8.73            | 113.5              | 1.0              | 34.60           | 7.45       | 2.8        |
|                |          |       |              |        |                  | 11.700              | 18.01      | 8.62            | 112.1              | 1.1              | 34.61           | 7.42       |            |
| 2013/3/8 11:22 | CY2      | ME    | 828021       | 808813 | 15.9             | 1.000               | 18.68      | 7.91            | 104.1              | 1.0              | 34.60           | 7.89       | 0.8        |
|                |          |       |              |        |                  | 1.000               | 18.53      | 8.03            | 105.4              | 1.0              | 34.70           | 7.78       |            |
|                |          |       |              |        |                  | 7.950               | 18.13      | 8.22            | 107.2              | 0.8              | 34.89           | 7.59       | 0.5        |
|                |          |       |              |        |                  | 7.950               | 18.12      | 8.17            | 106.6              | 0.8              | 34.91           | 7.55       |            |
|                |          |       |              |        |                  | 14.900              | 17.95      | 8.13            | 105.8              | 1.0              | 35.03           | 7.44       | 2.2        |
|                |          |       |              |        |                  | 14.900              | 17.96      | 8.07            | 105.0              | 1.0              | 35.04           | 7.42       |            |
| 2013/3/8 14:24 | WY1      | MF    | 829171       | 809543 | 4.1              | 1.000               | 19.02      | 7.66            | 101.5              | 1.2              | 34.79           | 7.11       | 1.2        |
|                |          |       |              |        |                  | 1.000               | 18.99      | 7.98            | 105.8              | 1.1              | 34.81           | 6.98       |            |
|                |          |       |              |        |                  | 3.100               | 18.35      | 8.58            | 112.5              | 0.9              | 34.97           | 6.66       | 5.4        |
|                |          |       |              |        |                  | 3.100               | 18.34      | 8.63            | 113.1              | 0.9              | 34.97           | 6.61       |            |
| 2013/3/8 14:40 | WY2      | MF    | 829017       | 810403 | 8.4              | 1.000               | 19.12      | 7.94            | 105.5              | 0.8              | 34.76           | 7.20       | 0.7        |
|                |          |       |              |        |                  | 1.000               | 19.19      | 8.04            | 107.0              | 0.9              | 34.74           | 7.18       |            |
|                |          |       |              |        |                  | 4.200               | 18.59      | 8.32            | 109.5              | 1.0              | 34.97           | 7.11       | 2.3        |
|                |          |       |              |        |                  | 4.200               | 18.52      | 8.37            | 110.1              | 1.0              | 35.00           | 7.10       |            |
|                |          |       |              |        |                  | 7.400               | 18.19      | 8.54            | 111.7              | 0.9              | 35.07           | 7.08       | 2.5        |
|                |          |       |              |        |                  | 7.400               | 18.18      | 8.63            | 112.9              | 0.9              | 35.11           | 7.07       |            |
| 2013/3/8 14:31 | WY3      | MF    | 829210       | 809833 | 5.3              | 1.000               | 19.38      | 8.04            | 107.4              | 1.1              | 34.79           | 7.39       | 0.6        |
|                |          |       |              |        |                  | 1.000               | 19.24      | 8.07            | 107.5              | 1.3              | 34.81           | 7.30       |            |
|                |          |       |              |        |                  | 4.300               | 18.95      | 8.31            | 109.9              | 1.3              | 34.47           | 7.13       | 1.6        |
|                |          |       |              |        |                  | 4.300               | 18.87      | 8.31            | 109.9              | 1.3              | 34.83           | 7.06       |            |
| 2013/3/8 14:53 | CY1      | MF    | 828421       | 810806 | 13.6             | 1.000               | 19.06      | 7.53            | 99.7               | 1.2              | 34.52           | 7.39       | 1.1        |
|                |          |       |              |        |                  | 1.000               | 18.98      | 7.51            | 99.4               | 1.3              | 34.53           | 7.31       |            |
|                |          |       |              |        |                  | 6.800               | 18.47      | 8.19            | 107.4              | 0.8              | 34.82           | 7.16       | 1.1        |
|                |          |       |              |        |                  | 6.800               | 18.46      | 8.19            | 107.5              | 0.8              | 34.82           | 7.15       |            |
|                |          |       |              |        |                  | 12.600              | 18.09      | 8.29            | 108.2              | 1.0              | 35.21           | 7.10       | 2.2        |
|                |          |       |              |        |                  | 12.600              | 18.10      | 8.25            | 107.8              | 0.9              | 35.23           | 7.10       |            |
| 2013/3/8 15:16 | CY2      | MF    | 828015       | 808822 | 17.1             | 1.000               | 18.30      | 8.48            | 110.9              | 1.0              | 34.63           | 7.74       | 1.5        |
|                |          |       |              |        |                  | 1.000               | 18.29      | 8.54            | 111.6              | 1.0              | 34.65           | 7.61       |            |
|                |          |       |              |        |                  | 8.550               | 18.10      | 8.42            | 109.7              | 0.8              | 34.75           | 7.52       | 1.1        |
|                |          |       |              |        |                  | 8.550               | 18.09      | 8.51            | 110.9              | 0.9              | 34.78           | 7.49       |            |
|                |          |       |              |        |                  | 16.100              | 18.10      | 8.26            | 107.8              | 0.9              | 34.91           | 7.41       | 1.3        |
|                |          |       |              |        |                  | 16.100              | 18.10      | 8.36            | 109.0              | 1.0              | 34.93           | 7.39       |            |

Remarks: MF - Middle Flood tide  
ME - Middle Ebb tide

Marine Water Quality Monitoring Result at Yung Shue Wan

Date 12-Mar-13

| Date / Time     | Location | Tide* | Co-ordinates |        | Water Depth<br>m | Sampling Depth<br>m | Temp<br>°C | DO Conc<br>mg/L | DO Saturation<br>% | Turbidity<br>NTU | Salinity<br>ppt | pH<br>unit | SS<br>mg/l |
|-----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
|                 |          |       | East         | North  |                  |                     |            |                 |                    |                  |                 |            |            |
| 2013/3/12 12:55 | WY1      | ME    | 829163       | 809558 | 4.5              | 1.000               | 18.88      | 7.51            | 99.2               | 1.45             | 34.53           | 7.68       | 2.5        |
|                 |          |       |              |        |                  | 1.000               | 18.76      | 8.59            | 113.2              | 1.30             | 34.55           | 7.58       |            |
|                 |          |       |              |        |                  | 3.500               | 18.64      | 8.14            | 107.0              | 1.46             | 34.60           | 7.48       |            |
|                 |          |       |              |        |                  | 3.500               | 18.65      | 8.04            | 105.8              | 1.41             | 34.60           | 7.44       |            |
| 2013/3/12 13:11 | WY2      | ME    | 829007       | 810409 | 7.8              | 1.000               | 19.34      | 8.09            | 107.3              | 1.53             | 33.79           | 7.40       | 1.8        |
|                 |          |       |              |        |                  | 1.000               | 19.35      | 8.06            | 106.9              | 1.38             | 33.80           | 7.37       |            |
|                 |          |       |              |        |                  | 3.900               | 19.08      | 7.11            | 94.2               | 1.36             | 34.39           | 7.29       |            |
|                 |          |       |              |        |                  | 3.900               | 19.08      | 7.12            | 94.3               | 1.39             | 34.40           | 7.26       |            |
|                 |          |       |              |        |                  | 6.800               | 18.63      | 7.03            | 92.6               | 1.44             | 34.76           | 7.20       |            |
|                 |          |       |              |        |                  | 6.800               | 18.58      | 7.33            | 96.4               | 1.33             | 34.81           | 7.18       |            |
| 2013/3/12 13:01 | WY3      | ME    | 829212       | 809833 | 4.8              | 1.000               | 19.11      | 6.62            | 87.8               | 1.31             | 34.48           | 7.47       | 1.8        |
|                 |          |       |              |        |                  | 1.000               | 19.07      | 7.75            | 102.7              | 1.39             | 34.49           | 7.42       |            |
|                 |          |       |              |        |                  | 3.800               | 18.78      | 7.63            | 100.7              | 1.28             | 34.64           | 7.33       |            |
|                 |          |       |              |        |                  | 3.800               | 18.75      | 7.54            | 99.3               | 1.25             | 34.50           | 7.33       |            |
| 2013/3/12 13:25 | CY1      | ME    | 828417       | 810820 | 12.7             | 1.000               | 19.18      | 7.64            | 101.0              | 1.67             | 33.69           | 7.51       | 1.3        |
|                 |          |       |              |        |                  | 1.000               | 19.15      | 7.93            | 104.7              | 1.64             | 33.70           | 7.45       |            |
|                 |          |       |              |        |                  | 6.350               | 18.85      | 7.55            | 99.6               | 1.68             | 34.32           | 7.23       |            |
|                 |          |       |              |        |                  | 6.350               | 18.83      | 7.41            | 97.6               | 1.72             | 34.33           | 7.23       |            |
|                 |          |       |              |        |                  | 11.700              | 18.87      | 7.08            | 93.4               | 1.45             | 34.44           | 7.14       |            |
|                 |          |       |              |        |                  | 11.700              | 18.86      | 7.28            | 96.1               | 1.59             | 34.44           | 7.13       |            |
| 2013/3/12 13:49 | CY2      | ME    | 828019       | 808813 | 16.8             | 1.000               | 19.18      | 6.91            | 91.4               | 1.37             | 33.89           | 7.19       | 1.9        |
|                 |          |       |              |        |                  | 1.000               | 19.19      | 6.83            | 90.3               | 1.21             | 33.80           | 7.15       |            |
|                 |          |       |              |        |                  | 8.400               | 18.80      | 6.66            | 87.9               | 0.98             | 34.62           | 6.99       |            |
|                 |          |       |              |        |                  | 8.400               | 18.80      | 6.76            | 89.1               | 1.04             | 34.63           | 6.96       |            |
|                 |          |       |              |        |                  | 15.800              | 18.69      | 6.59            | 87.0               | 1.50             | 34.98           | 6.88       |            |
|                 |          |       |              |        |                  | 15.800              | 18.65      | 6.59            | 87.0               | 1.37             | 35.01           | 6.88       |            |
| 2013/3/12 17:03 | WY1      | MF    | 829172       | 809556 | 4.4              | 1.000               | 19.62      | 5.98            | 79.7               | 1.05             | 33.86           | 7.65       | 1.7        |
|                 |          |       |              |        |                  | 1.000               | 19.65      | 6.19            | 82.6               | 0.96             | 33.89           | 7.59       |            |
|                 |          |       |              |        |                  | 3.400               | 19.64      | 7.26            | 97.1               | 1.11             | 34.32           | 7.39       |            |
|                 |          |       |              |        |                  | 3.400               | 19.64      | 6.93            | 92.7               | 1.04             | 34.33           | 7.37       |            |
| 2013/3/12 17:19 | WY2      | MF    | 829014       | 810415 | 7.6              | 1.000               | 19.55      | 6.35            | 84.8               | 0.63             | 34.10           | 7.42       | 0.8        |
|                 |          |       |              |        |                  | 1.000               | 19.68      | 7.10            | 94.8               | 0.67             | 34.04           | 7.41       |            |
|                 |          |       |              |        |                  | 3.800               | 19.64      | 5.60            | 74.9               | 0.77             | 34.08           | 7.40       |            |
|                 |          |       |              |        |                  | 3.800               | 19.61      | 6.49            | 86.6               | 0.67             | 34.08           | 7.39       |            |
|                 |          |       |              |        |                  | 6.600               | 19.40      | 6.14            | 81.1               | 0.85             | 32.85           | 7.38       |            |
|                 |          |       |              |        |                  | 6.600               | 19.42      | 6.43            | 85.7               | 0.78             | 34.23           | 7.36       |            |
| 2013/3/12 17:11 | WY3      | MF    | 829205       | 809846 | 4.7              | 1.000               | 19.54      | 6.51            | 86.8               | 1.08             | 34.17           | 7.42       | 1.5        |
|                 |          |       |              |        |                  | 1.000               | 19.53      | 6.75            | 90.0               | 1.17             | 34.17           | 7.39       |            |
|                 |          |       |              |        |                  | 3.700               | 19.46      | 6.84            | 91.2               | 0.84             | 34.24           | 7.33       |            |
|                 |          |       |              |        |                  | 3.700               | 19.49      | 6.65            | 88.6               | 0.97             | 34.25           | 7.32       |            |
| 2013/3/12 17:32 | CY1      | MF    | 828408       | 810775 | 12.7             | 1.000               | 19.61      | 6.79            | 90.4               | 0.75             | 33.70           | 7.47       | 1.5        |
|                 |          |       |              |        |                  | 1.000               | 19.62      | 6.49            | 86.5               | 0.69             | 33.70           | 7.47       |            |
|                 |          |       |              |        |                  | 6.350               | 19.50      | 6.03            | 80.2               | 0.76             | 33.87           | 7.44       |            |
|                 |          |       |              |        |                  | 6.350               | 19.52      | 5.58            | 74.3               | 0.73             | 33.85           | 7.44       |            |
|                 |          |       |              |        |                  | 11.700              | 19.29      | 5.50            | 73.0               | 0.61             | 33.99           | 7.45       |            |
|                 |          |       |              |        |                  | 11.700              | 19.29      | 5.45            | 72.3               | 0.67             | 34.00           | 7.45       |            |
| 2013/3/12 18:00 | CY2      | MF    | 828013       | 808827 | 15.5             | 1.000               | 19.41      | 7.02            | 93.2               | 0.73             | 33.70           | 7.59       | 1.2        |
|                 |          |       |              |        |                  | 1.000               | 19.36      | 6.38            | 84.7               | 0.65             | 33.75           | 7.57       |            |
|                 |          |       |              |        |                  | 7.750               | 19.26      | 5.36            | 70.6               | 0.67             | 32.95           | 7.57       |            |
|                 |          |       |              |        |                  | 7.750               | 19.28      | 5.55            | 73.7               | 0.73             | 34.14           | 7.58       |            |
|                 |          |       |              |        |                  | 14.500              | 19.14      | 5.44            | 72.2               | 0.98             | 34.65           | 7.58       |            |
|                 |          |       |              |        |                  | 14.500              | 19.13      | 5.39            | 71.5               | 0.80             | 34.66           | 7.58       |            |

Remarks: MF - Middle Flood tide  
ME - Middle Ebb tide

Marine Water Quality Monitoring Result at Yung Shue Wan

Date 14-Mar-13

| Date / Time     | Location | Tide* | Co-ordinates |        | Water Depth<br>m | Sampling Depth<br>m | Temp<br>°C | DO Conc<br>mg/L | DO Saturation<br>% | Turbidity<br>NTU | Salinity<br>ppt | pH<br>unit | SS<br>mg/l |
|-----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
|                 |          |       | East         | North  |                  |                     |            |                 |                    |                  |                 |            |            |
| 2013/3/14 13:28 | WY1      | ME    | 829181       | 809556 | 4.2              | 1.000               | 19.10      | 6.75            | 89.7               | 1.19             | 34.86           | 7.63       | 1.1        |
|                 |          |       |              |        |                  | 1.000               | 19.09      | 7.03            | 93.5               | 1.26             | 34.95           | 7.51       |            |
|                 |          |       |              |        |                  | 3.200               | 18.92      | 6.85            | 91.1               | 1.17             | 35.42           | 7.23       | 1.3        |
|                 |          |       |              |        |                  | 3.200               | 18.92      | 7.26            | 96.4               | 1.30             | 35.44           | 7.21       |            |
| 2013/3/14 13:45 | WY2      | ME    | 829006       | 810413 | 7.5              | 1.000               | 19.12      | 6.71            | 89.3               | 1.02             | 35.14           | 7.46       | 0.6        |
|                 |          |       |              |        |                  | 1.000               | 19.06      | 6.62            | 87.4               | 1.16             | 33.86           | 7.44       |            |
|                 |          |       |              |        |                  | 3.750               | 18.90      | 6.95            | 92.3               | 1.42             | 35.39           | 7.42       | 0.7        |
|                 |          |       |              |        |                  | 3.750               | 18.89      | 6.70            | 88.2               | 1.27             | 33.95           | 7.43       |            |
|                 |          |       |              |        |                  | 6.500               | 18.88      | 6.48            | 85.4               | 1.44             | 34.06           | 7.42       | 9.8        |
| 6.500           | 18.89    | 6.49  | 86.2         | 1.48   | 35.52            | 7.40                |            |                 |                    |                  |                 |            |            |
| 2013/3/14 13:36 | WY3      | ME    | 829214       | 809861 | 4.5              | 1.000               | 19.19      | 7.19            | 95.0               | 1.35             | 33.66           | 7.27       | 0.6        |
|                 |          |       |              |        |                  | 1.000               | 19.16      | 7.11            | 94.7               | 1.39             | 35.19           | 7.28       |            |
|                 |          |       |              |        |                  | 3.500               | 18.98      | 7.09            | 94.2               | 1.37             | 35.38           | 7.28       | 2.6        |
|                 |          |       |              |        |                  | 3.500               | 18.96      | 7.22            | 95.1               | 1.46             | 33.86           | 7.28       |            |
| 2013/3/14 14:00 | CY1      | ME    | 828387       | 810808 | 12.4             | 1.000               | 19.17      | 6.19            | 82.3               | 0.73             | 34.94           | 7.52       | 0.6        |
|                 |          |       |              |        |                  | 1.000               | 19.20      | 6.12            | 81.5               | 0.87             | 34.91           | 7.51       |            |
|                 |          |       |              |        |                  | 6.200               | 19.17      | 5.82            | 77.6               | 0.62             | 35.11           | 7.50       | 0.9        |
|                 |          |       |              |        |                  | 6.200               | 19.19      | 5.63            | 75.1               | 0.83             | 35.11           | 7.51       |            |
|                 |          |       |              |        |                  | 11.400              | 19.03      | 5.51            | 73.2               | 1.56             | 35.27           | 7.50       | 1.5        |
| 11.400          | 19.01    | 5.62  | 74.8         | 1.79   | 35.29            | 7.48                |            |                 |                    |                  |                 |            |            |
| 2013/3/14 14:21 | CY2      | ME    | 828022       | 808809 | 16.5             | 1.000               | 19.07      | 7.82            | 103.6              | 1.33             | 34.56           | 8.15       | 1          |
|                 |          |       |              |        |                  | 1.000               | 19.07      | 7.82            | 103.7              | 1.29             | 34.71           | 8.02       |            |
|                 |          |       |              |        |                  | 8.250               | 19.00      | 7.24            | 96.1               | 1.61             | 35.00           | 7.85       | 0.8        |
|                 |          |       |              |        |                  | 8.250               | 18.95      | 6.96            | 92.4               | 1.43             | 35.09           | 7.77       |            |
|                 |          |       |              |        |                  | 15.500              | 18.88      | 6.90            | 90.7               | 0.66             | 33.64           | 7.71       | 0.5        |
| 15.500          | 18.89    | 6.92  | 91.8         | 0.60   | 35.26            | 7.70                |            |                 |                    |                  |                 |            |            |
| 2013/3/14 8:59  | WY1      | MF    | 829178       | 809556 | 5.1              | 1.000               | 19.31      | 7.29            | 96.7               | 0.85             | 34.09           | 7.63       | 0.7        |
|                 |          |       |              |        |                  | 1.000               | 19.32      | 6.96            | 92.4               | 0.83             | 34.06           | 7.63       |            |
|                 |          |       |              |        |                  | 4.100               | 19.05      | 6.66            | 88.4               | 0.81             | 34.74           | 7.68       | 0.9        |
|                 |          |       |              |        |                  | 4.100               | 19.03      | 6.58            | 87.3               | 0.92             | 34.76           | 7.68       |            |
| 2013/3/14 8:39  | WY2      | MF    | 829010       | 810407 | 8.4              | 1.000               | 19.20      | 8.03            | 106.6              | 0.81             | 34.48           | 7.65       | 1.2        |
|                 |          |       |              |        |                  | 1.000               | 19.21      | 7.89            | 104.8              | 0.85             | 34.49           | 7.65       |            |
|                 |          |       |              |        |                  | 4.200               | 19.14      | 7.89            | 104.8              | 1.10             | 34.60           | 7.65       | 1.4        |
|                 |          |       |              |        |                  | 4.200               | 19.15      | 7.74            | 102.7              | 1.10             | 34.58           | 7.65       |            |
|                 |          |       |              |        |                  | 7.400               | 18.95      | 7.69            | 101.9              | 1.15             | 34.83           | 7.65       | 3          |
| 7.400           | 18.95    | 7.76  | 102.8        | 1.25   | 34.84            | 7.66                |            |                 |                    |                  |                 |            |            |
| 2013/3/14 8:52  | WY3      | MF    | 829212       | 809842 | 5.6              | 1.000               | 19.45      | 7.29            | 96.9               | 0.99             | 33.93           | 7.62       | 1.1        |
|                 |          |       |              |        |                  | 1.000               | 19.48      | 7.26            | 96.7               | 0.78             | 34.00           | 7.63       |            |
|                 |          |       |              |        |                  | 4.600               | 18.98      | 6.90            | 91.5               | 1.13             | 34.83           | 7.68       | 1.9        |
|                 |          |       |              |        |                  | 4.600               | 18.94      | 6.50            | 86.1               | 1.23             | 34.86           | 7.68       |            |
| 2013/3/14 8:24  | CY1      | MF    | 828411       | 810820 | 13.4             | 1.000               | 19.40      | 8.08            | 107.1              | 0.64             | 33.48           | 7.75       | 0.9        |
|                 |          |       |              |        |                  | 1.000               | 19.41      | 8.10            | 107.3              | 0.67             | 33.54           | 7.72       |            |
|                 |          |       |              |        |                  | 6.700               | 19.12      | 8.21            | 108.8              | 0.50             | 34.31           | 7.65       | 1.4        |
|                 |          |       |              |        |                  | 6.700               | 19.11      | 8.31            | 110.1              | 0.68             | 34.37           | 7.63       |            |
|                 |          |       |              |        |                  | 12.400              | 18.91      | 8.35            | 110.4              | 1.34             | 34.71           | 7.64       | 3.6        |
| 12.400          | 18.91    | 8.40  | 111.2        | 1.41   | 34.72            | 7.63                |            |                 |                    |                  |                 |            |            |
| 2013/3/14 9:15  | CY2      | MF    | 828016       | 808813 | 17.4             | 1.000               | 20.33      | 7.40            | 100.5              | 0.73             | 34.69           | 7.71       | 1.2        |
|                 |          |       |              |        |                  | 1.000               | 20.32      | 7.61            | 103.1              | 0.81             | 34.39           | 7.71       |            |
|                 |          |       |              |        |                  | 8.700               | 19.06      | 6.61            | 87.8               | 0.89             | 34.83           | 7.73       | 1.7        |
|                 |          |       |              |        |                  | 8.700               | 19.03      | 6.09            | 80.7               | 1.07             | 34.87           | 7.72       |            |
|                 |          |       |              |        |                  | 16.400              | 18.86      | 5.84            | 77.3               | 0.53             | 35.08           | 7.73       | 1.9        |
| 16.400          | 18.84    | 5.84  | 77.3         | 0.47   | 35.10            | 7.71                |            |                 |                    |                  |                 |            |            |

Remarks: MF - Middle Flood tide  
ME - Middle Ebb tide



Marine Water Quality Monitoring Result at Yung Shue Wan

Date 16-Mar-13

| Date / Time     | Location | Tide* | Co-ordinates |        | Water Depth<br>m | Sampling Depth<br>m | Temp<br>°C | DO Conc<br>mg/L | DO Saturation<br>% | Turbidity<br>NTU | Salinity<br>ppt | pH<br>unit | SS<br>mg/l |
|-----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
|                 |          |       | East         | North  |                  |                     |            |                 |                    |                  |                 |            |            |
| 2013/3/16 15:06 | WY1      | ME    | 829163       | 809542 | 4.2              | 1.000               | 19.36      | 4.75            | 63.4               | 1.45             | 34.87           | 7.20       | 2.5        |
|                 |          |       |              |        |                  | 1.000               | 19.37      | 5.22            | 69.8               | 1.51             | 34.90           | 7.08       |            |
|                 |          |       |              |        |                  | 3.200               | 19.15      | 5.42            | 72.2               | 1.75             | 35.03           | 6.97       |            |
|                 |          |       |              |        |                  | 3.200               | 19.16      | 5.49            | 73.1               | 1.54             | 35.04           | 6.95       |            |
| 2013/3/16 15:24 | WY2      | ME    | 829003       | 810381 | 7.5              | 1.000               | 19.44      | 4.15            | 55.4               | 1.24             | 34.81           | 6.98       | 2          |
|                 |          |       |              |        |                  | 1.000               | 19.44      | 4.36            | 58.0               | 1.23             | 34.03           | 6.99       |            |
|                 |          |       |              |        |                  | 3.750               | 19.35      | 4.85            | 64.8               | 1.17             | 34.89           | 6.96       | 2.3        |
|                 |          |       |              |        |                  | 3.750               | 19.39      | 4.65            | 62.1               | 1.19             | 34.87           | 6.96       |            |
|                 |          |       |              |        |                  | 6.500               | 19.09      | 4.94            | 65.7               | 1.38             | 35.02           | 6.96       |            |
| 2013/3/16 15:19 | WY3      | ME    | 829207       | 809861 | 4.8              | 1.000               | 19.08      | 4.86            | 64.7               | 1.45             | 35.03           | 6.95       | 2.4        |
|                 |          |       |              |        |                  | 1.000               | 19.29      | 5.02            | 67.0               | 1.85             | 35.02           | 6.91       |            |
|                 |          |       |              |        |                  | 1.000               | 19.42      | 5.00            | 66.9               | 1.62             | 34.94           | 6.89       |            |
|                 |          |       |              |        |                  | 3.800               | 19.11      | 5.43            | 72.3               | 1.83             | 35.04           | 6.84       |            |
| 2013/3/16 15:38 | CY1      | ME    | 828027       | 808810 | 12.6             | 1.000               | 19.12      | 5.16            | 68.7               | 1.65             | 35.05           | 6.82       | 2.5        |
|                 |          |       |              |        |                  | 1.000               | 19.57      | 4.85            | 64.8               | 1.01             | 34.49           | 7.28       |            |
|                 |          |       |              |        |                  | 1.000               | 19.58      | 4.89            | 65.4               | 1.12             | 34.50           | 7.26       |            |
|                 |          |       |              |        |                  | 6.300               | 19.55      | 4.58            | 61.3               | 0.98             | 34.70           | 7.24       |            |
|                 |          |       |              |        |                  | 6.300               | 19.59      | 4.63            | 62.0               | 0.94             | 34.69           | 7.25       |            |
| 2013/3/16 14:45 | CY2      | ME    | 828417       | 810815 | 16.1             | 11.600              | 19.22      | 4.63            | 61.7               | 1.62             | 34.97           | 7.23       | 2.1        |
|                 |          |       |              |        |                  | 11.600              | 19.19      | 4.63            | 61.7               | 1.62             | 34.99           | 7.21       |            |
|                 |          |       |              |        |                  | 1.000               | 19.91      | 6.47            | 87.2               | 1.16             | 34.71           | 7.72       | 2.7        |
|                 |          |       |              |        |                  | 1.000               | 20.00      | 6.77            | 91.7               | 1.17             | 35.23           | 7.63       |            |
|                 |          |       |              |        |                  | 8.050               | 19.37      | 7.05            | 94.3               | 1.59             | 35.11           | 7.27       |            |
| 2013/3/16 8:34  | WY1      | MF    | 829179       | 809563 | 5.3              | 15.100              | 19.40      | 7.08            | 94.8               | 1.34             | 35.12           | 7.27       | 2.4        |
|                 |          |       |              |        |                  | 15.100              | 19.00      | 7.04            | 93.7               | 2.35             | 35.37           | 7.19       |            |
|                 |          |       |              |        |                  | 15.100              | 19.01      | 7.08            | 94.2               | 2.24             | 35.39           | 7.19       |            |
|                 |          |       |              |        |                  | 1.000               | 20.90      | 7.79            | 106.6              | 1.17             | 34.43           | 7.43       |            |
|                 |          |       |              |        |                  | 1.000               | 20.78      | 7.96            | 108.9              | 1.04             | 34.53           | 7.42       |            |
| 2013/3/16 8:18  | WY2      | MF    | 829011       | 810410 | 8.6              | 4.300               | 19.24      | 8.11            | 107.8              | 1.05             | 34.61           | 7.27       | 1.9        |
|                 |          |       |              |        |                  | 4.300               | 19.21      | 8.27            | 109.9              | 1.15             | 34.63           | 7.28       |            |
|                 |          |       |              |        |                  | 1.000               | 20.86      | 8.07            | 110.6              | 1.14             | 34.66           | 7.27       |            |
|                 |          |       |              |        |                  | 1.000               | 21.02      | 7.87            | 108.1              | 1.11             | 34.57           | 7.29       |            |
| 2013/3/16 8:45  | WY3      | MF    | 829208       | 809837 | 5.7              | 4.300               | 19.24      | 8.34            | 110.9              | 0.99             | 34.67           | 7.26       | 2          |
|                 |          |       |              |        |                  | 4.300               | 19.21      | 8.09            | 107.6              | 0.92             | 34.69           | 7.22       |            |
|                 |          |       |              |        |                  | 7.600               | 19.09      | 8.09            | 107.3              | 1.05             | 34.73           | 7.21       |            |
|                 |          |       |              |        |                  | 7.600               | 19.09      | 8.01            | 106.3              | 1.20             | 34.74           | 7.20       |            |
|                 |          |       |              |        |                  | 1.000               | 19.74      | 8.72            | 117.0              | 1.32             | 34.49           | 7.24       |            |
| 2013/3/16 9:14  | CY1      | MF    | 828416       | 810822 | 13.7             | 1.000               | 20.68      | 7.93            | 108.4              | 1.38             | 34.78           | 7.27       | 2.2        |
|                 |          |       |              |        |                  | 4.700               | 19.24      | 8.30            | 110.4              | 1.27             | 34.64           | 7.26       |            |
|                 |          |       |              |        |                  | 4.700               | 19.20      | 8.20            | 109.0              | 1.34             | 34.67           | 7.24       |            |
|                 |          |       |              |        |                  | 1.000               | 20.48      | 6.93            | 94.2               | 0.87             | 34.48           | 7.71       |            |
| 2013/3/16 9:35  | CY2      | MF    | 828012       | 808818 | 17.1             | 1.000               | 19.92      | 7.15            | 96.4               | 0.79             | 34.73           | 7.69       | 2.6        |
|                 |          |       |              |        |                  | 1.000               | 20.44      | 7.37            | 100.3              | 1.08             | 34.84           | 7.46       |            |
|                 |          |       |              |        |                  | 1.000               | 20.49      | 7.47            | 101.7              | 1.03             | 34.79           | 7.50       |            |
|                 |          |       |              |        |                  | 8.550               | 19.03      | 7.24            | 95.4               | 1.29             | 33.80           | 7.43       |            |
|                 |          |       |              |        |                  | 8.550               | 19.00      | 7.23            | 95.8               | 1.33             | 34.85           | 7.43       |            |
| 2013/3/16 9:35  | CY2      | MF    | 828012       | 808818 | 17.1             | 16.100              | 18.97      | 7.17            | 94.4               | 1.66             | 33.66           | 7.40       | 1.8        |
|                 |          |       |              |        |                  | 16.100              | 18.99      | 7.11            | 94.4               | 1.42             | 34.94           | 7.40       |            |
|                 |          |       |              |        |                  | 16.100              | 18.99      | 7.11            | 94.4               | 1.42             | 34.94           | 7.40       |            |

Remarks: MF - Middle Flood tide  
ME - Middle Ebb tide

Marine Water Quality Monitoring Result at Yung Shue Wan

Date 18-Mar-13

| Date / Time     | Location | Tide* | Co-ordinates |        | Water Depth<br>m | Sampling Depth<br>m | Temp<br>°C | DO Conc<br>mg/L | DO Saturation<br>% | Turbidity<br>NTU | Salinity<br>ppt | pH<br>unit | SS<br>mg/l |
|-----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
|                 |          |       | East         | North  |                  |                     |            |                 |                    |                  |                 |            |            |
| 2013/3/18 16:45 | WY1      | ME    | 829176       | 809583 | 4.8              | 1.000               | 21.01      | 5.85            | 79.5               | 1.01             | 32.78           | 7.67       | 4.2        |
|                 |          |       |              |        |                  | 1.000               | 21.02      | 6.10            | 83.7               | 0.99             | 34.51           | 7.64       |            |
|                 |          |       |              |        |                  | 3.800               | 20.36      | 6.33            | 86.0               | 2.38             | 34.69           | 7.51       |            |
|                 |          |       |              |        |                  | 3.800               | 20.37      | 6.31            | 85.7               | 2.52             | 34.68           | 7.48       |            |
| 2013/3/18 17:05 | WY2      | ME    | 829006       | 810371 | 3.3              | 1.000               | 20.84      | 5.58            | 76.4               | 1.04             | 34.66           | 7.75       | 2.3        |
|                 |          |       |              |        |                  | 1.000               | 20.79      | 5.84            | 79.2               | 1.20             | 33.12           | 7.70       |            |
|                 |          |       |              |        |                  | 1.650               | 20.10      | 6.14            | 83.2               | 1.23             | 35.03           | 7.66       | 2.2        |
|                 |          |       |              |        |                  | 1.650               | 20.09      | 6.21            | 84.1               | 1.37             | 35.04           | 7.64       |            |
|                 |          |       |              |        |                  | 2.300               | 19.19      | 6.39            | 85.2               | 1.22             | 35.28           | 7.57       | 3          |
|                 |          |       |              |        |                  | 2.300               | 19.20      | 6.44            | 86.0               | 1.23             | 35.30           | 7.55       |            |
| 2013/3/18 16:54 | WY3      | ME    | 829201       | 809837 | 4.9              | 1.000               | 20.62      | 6.14            | 82.5               | 1.23             | 32.19           | 7.67       | 2.8        |
|                 |          |       |              |        |                  | 1.000               | 20.70      | 5.98            | 81.4               | 1.31             | 33.81           | 7.63       |            |
|                 |          |       |              |        |                  | 3.900               | 20.69      | 6.00            | 81.9               | 1.78             | 34.47           | 7.56       | 4.4        |
|                 |          |       |              |        |                  | 3.900               | 20.69      | 6.06            | 82.7               | 1.98             | 34.48           | 7.55       |            |
| 2013/3/18 17:20 | CY1      | ME    | 828406       | 810790 | 12.7             | 1.000               | 20.33      | 5.57            | 75.1               | 1.10             | 33.65           | 7.75       | 3.5        |
|                 |          |       |              |        |                  | 1.000               | 20.28      | 5.71            | 77.0               | 1.12             | 33.66           | 7.70       |            |
|                 |          |       |              |        |                  | 6.350               | 19.58      | 5.86            | 78.4               | 0.93             | 34.52           | 7.62       | 2.1        |
|                 |          |       |              |        |                  | 6.350               | 19.56      | 5.83            | 77.9               | 1.10             | 34.53           | 7.60       |            |
|                 |          |       |              |        |                  | 11.700              | 19.29      | 6.12            | 81.7               | 1.01             | 35.11           | 7.58       | 2.2        |
|                 |          |       |              |        |                  | 11.700              | 19.23      | 6.16            | 82.2               | 1.06             | 35.16           | 7.56       |            |
| 2013/3/18 16:20 | CY2      | ME    | 827992       | 808774 | 17.2             | 1.000               | 21.04      | 5.77            | 79.3               | 1.10             | 34.52           | 7.48       | 1.2        |
|                 |          |       |              |        |                  | 1.000               | 20.98      | 5.81            | 79.0               | 1.25             | 32.87           | 7.43       |            |
|                 |          |       |              |        |                  | 8.600               | 19.21      | 6.28            | 83.9               | 1.43             | 35.61           | 7.33       | 1.5        |
|                 |          |       |              |        |                  | 8.600               | 19.21      | 6.35            | 84.9               | 1.76             | 35.61           | 7.31       |            |
|                 |          |       |              |        |                  | 16.200              | 19.06      | 6.28            | 83.9               | 1.79             | 35.74           | 7.22       | 1.8        |
|                 |          |       |              |        |                  | 16.200              | 19.07      | 6.33            | 84.5               | 1.81             | 35.73           | 7.20       |            |
| 2013/3/18 10:36 | WY1      | MF    | 829177       | 809566 | 5.1              | 1.000               | 19.84      | 6.17            | 82.7               | 0.92             | 34.00           | 7.37       | 1.4        |
|                 |          |       |              |        |                  | 1.000               | 19.83      | 6.17            | 82.7               | 0.84             | 34.01           | 7.35       |            |
|                 |          |       |              |        |                  | 4.100               | 19.71      | 6.09            | 81.6               | 1.66             | 34.21           | 7.27       | 3.2        |
|                 |          |       |              |        |                  | 4.100               | 19.72      | 6.10            | 81.7               | 1.69             | 34.20           | 7.26       |            |
| 2013/3/18 10:13 | WY2      | MF    | 829011       | 810405 | 8.7              | 1.000               | 19.80      | 6.00            | 80.3               | 0.73             | 33.93           | 7.43       | 2.4        |
|                 |          |       |              |        |                  | 1.000               | 19.82      | 6.13            | 82.0               | 0.76             | 33.89           | 7.41       |            |
|                 |          |       |              |        |                  | 4.350               | 19.78      | 6.27            | 83.8               | 0.87             | 33.82           | 7.35       | 3          |
|                 |          |       |              |        |                  | 4.350               | 19.78      | 6.32            | 84.8               | 0.79             | 34.18           | 7.34       |            |
|                 |          |       |              |        |                  | 7.700               | 19.63      | 6.36            | 84.7               | 0.96             | 33.51           | 7.29       | 2.5        |
|                 |          |       |              |        |                  | 7.700               | 19.64      | 6.27            | 83.8               | 1.03             | 34.25           | 7.28       |            |
| 2013/3/18 10:27 | WY3      | MF    | 829183       | 809841 | 5.7              | 1.000               | 19.90      | 6.43            | 86.3               | 0.68             | 33.91           | 7.61       | 2.7        |
|                 |          |       |              |        |                  | 1.000               | 19.88      | 6.27            | 84.1               | 0.66             | 33.94           | 7.55       |            |
|                 |          |       |              |        |                  | 4.700               | 19.52      | 6.51            | 86.6               | 1.72             | 33.73           | 7.36       | 2.9        |
|                 |          |       |              |        |                  | 4.700               | 19.49      | 6.55            | 87.2               | 1.58             | 33.86           | 7.33       |            |
| 2013/3/18 9:55  | CY1      | MF    | 828422       | 810817 | 13.3             | 1.000               | 19.74      | 6.79            | 90.5               | 0.66             | 33.16           | 7.66       | 1.5        |
|                 |          |       |              |        |                  | 1.000               | 19.74      | 6.51            | 86.6               | 0.69             | 33.17           | 7.61       |            |
|                 |          |       |              |        |                  | 6.650               | 19.46      | 6.52            | 86.9               | 0.78             | 34.18           | 7.56       | 1.2        |
|                 |          |       |              |        |                  | 6.650               | 19.46      | 6.54            | 87.1               | 0.66             | 34.15           | 7.55       |            |
|                 |          |       |              |        |                  | 12.300              | 19.23      | 6.71            | 89.2               | 1.95             | 34.53           | 7.49       | 5.3        |
|                 |          |       |              |        |                  | 12.300              | 19.23      | 6.69            | 89.0               | 1.63             | 34.54           | 7.49       |            |
| 2013/3/18 10:50 | CY2      | MF    | 828024       | 808825 | 17.6             | 1.000               | 20.55      | 5.62            | 76.5               | 0.95             | 34.47           | 7.45       | 4          |
|                 |          |       |              |        |                  | 1.000               | 20.31      | 5.72            | 77.2               | 1.02             | 33.79           | 7.43       |            |
|                 |          |       |              |        |                  | 8.800               | 19.27      | 5.71            | 76.1               | 1.03             | 34.88           | 7.31       | 3.2        |
|                 |          |       |              |        |                  | 8.800               | 19.27      | 5.79            | 77.2               | 1.02             | 34.89           | 7.28       |            |
|                 |          |       |              |        |                  | 16.600              | 19.04      | 5.85            | 77.7               | 1.55             | 34.99           | 7.23       | 3.9        |
|                 |          |       |              |        |                  | 16.600              | 19.03      | 5.91            | 77.7               | 1.63             | 33.40           | 7.22       |            |

Remarks: MF - Middle Flood tide  
ME - Middle Ebb tide

Marine Water Quality Monitoring Result at Yung Shue Wan

Date 20-Mar-13

| Date / Time     | Location | Tide* | Co-ordinates |        | Water Depth<br>m | Sampling Depth<br>m | Temp<br>°C | DO Conc<br>mg/L | DO Saturation<br>% | Turbidity<br>NTU | Salinity<br>ppt | pH<br>unit | SS<br>mg/l |
|-----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
|                 |          |       | East         | North  |                  |                     |            |                 |                    |                  |                 |            |            |
| 2013/3/20 17:41 | WY1      | ME    | 829161       | 809557 | 4.1              | 1.000               | 22.31      | 7.12            | 100.0              | 2.32             | 34.28           | 7.40       | 2.1        |
|                 |          |       |              |        |                  | 1.000               | 22.24      | 7.30            | 102.3              | 2.17             | 34.32           | 7.39       |            |
|                 |          |       |              |        |                  | 3.100               | 21.57      | 7.15            | 99.0               | 2.56             | 34.28           | 7.32       | 2.7        |
|                 |          |       |              |        |                  | 3.100               | 21.13      | 7.23            | 99.5               | 2.29             | 34.57           | 7.31       |            |
| 2013/3/20 17:32 | WY2      | ME    | 829015       | 810416 | 8                | 1.000               | 23.01      | 7.04            | 99.9               | 1.69             | 34.08           | 7.45       | 0.7        |
|                 |          |       |              |        |                  | 1.000               | 23.03      | 7.04            | 99.9               | 1.80             | 34.07           | 7.46       |            |
|                 |          |       |              |        |                  | 4.000               | 21.07      | 6.48            | 89.2               | 1.91             | 34.63           | 7.38       | 2.8        |
|                 |          |       |              |        |                  | 4.000               | 21.09      | 6.51            | 89.6               | 2.08             | 34.62           | 7.37       |            |
|                 |          |       |              |        |                  | 7.000               | 19.47      | 5.86            | 78.5               | 3.03             | 35.27           | 7.19       | 3.9        |
|                 |          |       |              |        |                  | 7.000               | 19.44      | 5.78            | 77.4               | 2.95             | 35.28           | 7.17       |            |
| 2013/3/20 17:22 | WY3      | ME    | 829209       | 829834 | 4.5              | 1.000               | 21.71      | 6.65            | 92.2               | 1.89             | 34.08           | 7.37       | 3          |
|                 |          |       |              |        |                  | 1.000               | 21.61      | 6.66            | 92.3               | 1.82             | 34.24           | 7.36       |            |
|                 |          |       |              |        |                  | 3.500               | 21.03      | 6.65            | 91.3               | 1.67             | 34.57           | 7.29       | 2.8        |
|                 |          |       |              |        |                  | 3.500               | 20.96      | 6.69            | 91.9               | 1.85             | 34.60           | 7.25       |            |
| 2013/3/20 17:44 | CY1      | ME    | 828412       | 810821 | 12.8             | 1.000               | 21.18      | 6.58            | 89.7               | 1.34             | 32.79           | 7.43       | 2.4        |
|                 |          |       |              |        |                  | 1.000               | 21.27      | 6.10            | 83.5               | 1.68             | 33.28           | 7.39       |            |
|                 |          |       |              |        |                  | 6.400               | 20.23      | 6.00            | 81.2               | 1.59             | 34.41           | 7.39       | 2.6        |
|                 |          |       |              |        |                  | 6.400               | 20.28      | 5.87            | 79.4               | 1.46             | 34.44           | 7.39       |            |
|                 |          |       |              |        |                  | 11.800              | 19.22      | 6.00            | 80.2               | 1.92             | 35.42           | 7.30       | 3.9        |
|                 |          |       |              |        |                  | 11.800              | 19.22      | 5.89            | 78.7               | 1.80             | 35.44           | 7.28       |            |
| 2013/3/20 17:04 | CY2      | ME    | 828008       | 808813 | 17.9             | 1.000               | 22.67      | 6.60            | 93.5               | 1.29             | 34.73           | 7.30       | 2.2        |
|                 |          |       |              |        |                  | 1.000               | 22.63      | 6.61            | 93.5               | 1.20             | 34.81           | 7.27       |            |
|                 |          |       |              |        |                  | 8.950               | 19.27      | 7.25            | 97.0               | 1.48             | 35.50           | 6.75       | 2.5        |
|                 |          |       |              |        |                  | 8.950               | 19.27      | 7.25            | 97.0               | 1.56             | 35.51           | 6.69       |            |
|                 |          |       |              |        |                  | 16.900              | 19.17      | 7.27            | 97.1               | 2.06             | 35.65           | 6.59       | 3.1        |
|                 |          |       |              |        |                  | 16.900              | 19.17      | 7.27            | 97.1               | 2.11             | 35.66           | 6.56       |            |
| 2013/3/20 8:34  | WY1      | MF    | 829179       | 809556 | 4.4              | 1.000               | 20.88      | 7.05            | 96.2               | 1.97             | 33.80           | 7.42       | 2.3        |
|                 |          |       |              |        |                  | 1.000               | 20.87      | 7.60            | 103.7              | 1.83             | 33.80           | 7.42       |            |
|                 |          |       |              |        |                  | 3.400               | 20.55      | 7.19            | 97.6               | 2.79             | 33.97           | 7.41       | 5.9        |
|                 |          |       |              |        |                  | 3.400               | 20.45      | 7.12            | 96.5               | 2.73             | 34.04           | 7.38       |            |
| 2013/3/20 8:18  | WY2      | MF    | 829003       | 810389 | 8.5              | 1.000               | 21.23      | 8.07            | 110.6              | 1.12             | 33.63           | 7.49       | 2.3        |
|                 |          |       |              |        |                  | 1.000               | 21.23      | 7.29            | 99.9               | 1.29             | 33.63           | 7.49       |            |
|                 |          |       |              |        |                  | 4.250               | 20.05      | 6.91            | 93.1               | 2.38             | 34.16           | 7.35       | 6.7        |
|                 |          |       |              |        |                  | 4.250               | 19.92      | 6.84            | 91.9               | 2.52             | 34.33           | 7.32       |            |
|                 |          |       |              |        |                  | 7.500               | 19.28      | 6.66            | 88.7               | 1.69             | 34.67           | 7.20       | 9          |
|                 |          |       |              |        |                  | 7.500               | 19.27      | 6.62            | 88.2               | 1.74             | 34.66           | 7.19       |            |
| 2013/3/20 8:25  | WY3      | MF    | 829198       | 809841 | 4.2              | 1.000               | 20.74      | 6.15            | 83.8               | 2.06             | 33.82           | 7.44       | 1.8        |
|                 |          |       |              |        |                  | 1.000               | 20.65      | 6.01            | 81.6               | 2.07             | 33.88           | 7.42       |            |
|                 |          |       |              |        |                  | 3.200               | 20.42      | 5.92            | 80.1               | 3.56             | 34.02           | 7.39       | 1.1        |
|                 |          |       |              |        |                  | 3.200               | 20.38      | 5.85            | 79.2               | 3.44             | 34.04           | 7.37       |            |
| 2013/3/20 8:08  | CY1      | MF    | 828407       | 810796 | 12.4             | 1.000               | 20.22      | 8.79            | 117.7              | 1.35             | 32.69           | 7.41       | 0.6        |
|                 |          |       |              |        |                  | 1.000               | 20.19      | 8.32            | 111.4              | 1.25             | 32.74           | 7.36       |            |
|                 |          |       |              |        |                  | 6.200               | 19.74      | 7.11            | 95.4               | 1.16             | 34.38           | 7.23       | 1          |
|                 |          |       |              |        |                  | 6.200               | 19.57      | 7.07            | 94.5               | 1.21             | 34.52           | 7.22       |            |
|                 |          |       |              |        |                  | 11.400              | 19.16      | 6.92            | 92.0               | 2.29             | 34.78           | 7.16       | 3.1        |
|                 |          |       |              |        |                  | 11.400              | 19.16      | 6.94            | 92.3               | 2.23             | 34.78           | 7.15       |            |
| 2013/3/20 8:47  | CY2      | MF    | 828012       | 808785 | 17.2             | 1.000               | 21.37      | 7.02            | 96.6               | 1.34             | 33.63           | 7.55       | 1.1        |
|                 |          |       |              |        |                  | 1.000               | 21.39      | 7.21            | 99.1               | 1.37             | 33.58           | 7.56       |            |
|                 |          |       |              |        |                  | 8.600               | 19.18      | 7.72            | 102.5              | 1.61             | 34.39           | 7.41       | 1.4        |
|                 |          |       |              |        |                  | 8.600               | 19.20      | 7.54            | 100.5              | 1.56             | 35.03           | 7.36       |            |
|                 |          |       |              |        |                  | 16.200              | 19.15      | 7.35            | 97.5               | 1.20             | 34.41           | 7.28       | 1.1        |
|                 |          |       |              |        |                  | 16.200              | 19.18      | 7.32            | 97.6               | 1.22             | 35.11           | 7.28       |            |

Remarks: MF - Middle Flood tide  
ME - Middle Ebb tide

Marine Water Quality Monitoring Result at Yung Shue Wan

Date 22-Mar-13

| Date / Time     | Location | Tide* | Co-ordinates |        | Water Depth<br>m | Sampling Depth<br>m | Temp<br>°C | DO Conc<br>mg/L | DO Saturation<br>% | Turbidity<br>NTU | Salinity<br>ppt | pH<br>unit | SS<br>mg/l |
|-----------------|----------|-------|--------------|--------|------------------|---------------------|------------|-----------------|--------------------|------------------|-----------------|------------|------------|
|                 |          |       | East         | North  |                  |                     |            |                 |                    |                  |                 |            |            |
| 2013/3/22 17:14 | WY1      | ME    | 829181       | 809543 | 4.6              | 1.000               | 20.91      | 8.55            | 117.5              | 1.99             | 34.87           | 7.26       | 3          |
|                 |          |       |              |        |                  | 1.000               | 21.00      | 8.37            | 115.1              | 2.03             | 34.84           | 7.24       |            |
|                 |          |       |              |        |                  | 3.600               | 19.91      | 8.26            | 112.0              | 2.14             | 35.82           | 7.18       |            |
|                 |          |       |              |        |                  | 3.600               | 19.90      | 8.25            | 111.9              | 2.33             | 35.86           | 7.18       |            |
| 2013/3/22 17:30 | WY2      | ME    | 829012       | 810387 | 7.3              | 1.000               | 21.15      | 6.30            | 86.6               | 1.69             | 34.31           | 7.30       | 1.6        |
|                 |          |       |              |        |                  | 1.000               | 21.20      | 6.23            | 85.8               | 1.70             | 34.31           | 7.32       |            |
|                 |          |       |              |        |                  | 3.650               | 19.74      | 6.44            | 87.1               | 1.31             | 35.84           | 7.25       |            |
|                 |          |       |              |        |                  | 3.650               | 19.69      | 6.45            | 87.1               | 1.42             | 35.89           | 7.24       |            |
|                 |          |       |              |        |                  | 6.300               | 19.61      | 6.48            | 87.5               | 1.58             | 36.01           | 7.25       |            |
|                 |          |       |              |        |                  | 6.300               | 19.62      | 6.36            | 85.9               | 1.60             | 35.99           | 7.23       |            |
| 2013/3/22 17:21 | WY3      | ME    | 829188       | 809845 | 5                | 1.000               | 20.89      | 6.95            | 95.4               | 1.82             | 34.88           | 7.24       | 1.9        |
|                 |          |       |              |        |                  | 1.000               | 20.90      | 6.84            | 94.0               | 1.76             | 34.88           | 7.21       |            |
|                 |          |       |              |        |                  | 4.000               | 19.97      | 6.92            | 93.9               | 2.01             | 35.74           | 7.16       |            |
|                 |          |       |              |        |                  | 4.000               | 19.93      | 6.88            | 93.3               | 2.18             | 35.83           | 7.15       |            |
| 2013/3/22 17:47 | CY1      | ME    | 828421       | 810809 | 12.3             | 1.000               | 21.75      | 5.83            | 81.0               | 1.30             | 34.30           | 7.44       | 2.4        |
|                 |          |       |              |        |                  | 1.000               | 21.74      | 5.91            | 82.1               | 1.44             | 34.31           | 7.47       |            |
|                 |          |       |              |        |                  | 6.150               | 20.90      | 5.60            | 77.1               | 1.10             | 35.40           | 7.45       |            |
|                 |          |       |              |        |                  | 6.150               | 21.06      | 5.99            | 82.7               | 1.06             | 35.23           | 7.45       |            |
|                 |          |       |              |        |                  | 11.300              | 19.55      | 6.08            | 82.0               | 1.13             | 35.93           | 7.41       |            |
| 2013/3/22 18:08 | CY2      | ME    | 828016       | 808822 | 17.7             | 1.000               | 20.82      | 5.96            | 81.5               | 1.00             | 34.32           | 7.56       | 1.6        |
|                 |          |       |              |        |                  | 1.000               | 20.83      | 5.80            | 79.3               | 0.87             | 34.36           | 7.54       |            |
|                 |          |       |              |        |                  | 8.850               | 19.76      | 6.07            | 81.9               | 0.66             | 35.48           | 7.53       |            |
|                 |          |       |              |        |                  | 8.850               | 19.75      | 6.05            | 81.7               | 0.69             | 35.51           | 7.52       |            |
|                 |          |       |              |        |                  | 16.700              | 19.63      | 5.81            | 78.3               | 1.89             | 35.60           | 7.48       |            |
|                 |          |       |              |        |                  | 16.700              | 19.63      | 5.86            | 79.0               | 2.00             | 35.61           | 7.48       |            |
| 2013/3/22 9:43  | WY1      | MF    | 829179       | 809565 | 5.5              | 1.000               | 19.58      | 7.95            | 106.6              | 1.67             | 34.80           | 7.72       | 5          |
|                 |          |       |              |        |                  | 1.000               | 19.57      | 7.68            | 102.9              | 1.81             | 34.80           | 7.70       |            |
|                 |          |       |              |        |                  | 4.500               | 19.52      | 6.75            | 90.4               | 1.84             | 34.86           | 7.66       |            |
|                 |          |       |              |        |                  | 4.500               | 19.52      | 6.70            | 89.7               | 1.90             | 34.86           | 7.66       |            |
| 2013/3/22 9:26  | WY2      | MF    | 829007       | 810418 | 8.3              | 1.000               | 19.72      | 7.46            | 103.9              | 1.04             | 34.71           | 7.74       | 1          |
|                 |          |       |              |        |                  | 1.000               | 19.73      | 7.46            | 100.2              | 1.22             | 34.70           | 7.73       |            |
|                 |          |       |              |        |                  | 4.150               | 19.57      | 6.38            | 85.5               | 1.05             | 34.80           | 7.67       |            |
|                 |          |       |              |        |                  | 4.150               | 19.57      | 6.30            | 84.4               | 1.33             | 34.82           | 7.66       |            |
|                 |          |       |              |        |                  | 7.300               | 19.54      | 6.03            | 80.7               | 1.42             | 34.84           | 7.61       |            |
|                 |          |       |              |        |                  | 7.300               | 19.55      | 5.88            | 78.8               | 1.67             | 34.84           | 7.63       |            |
| 2013/3/22 9:36  | WY3      | MF    | 829183       | 809832 | 5.9              | 1.000               | 19.63      | 7.38            | 98.9               | 1.59             | 34.72           | 7.72       | 3.6        |
|                 |          |       |              |        |                  | 1.000               | 19.62      | 7.05            | 94.5               | 1.59             | 34.73           | 7.69       |            |
|                 |          |       |              |        |                  | 4.900               | 19.56      | 6.58            | 88.2               | 1.60             | 34.78           | 7.63       |            |
|                 |          |       |              |        |                  | 4.900               | 19.56      | 6.64            | 88.9               | 1.71             | 34.79           | 7.65       |            |
| 2013/3/22 9:13  | CY1      | MF    | 828411       | 810817 | 13.3             | 1.000               | 20.07      | 7.64            | 102.4              | 1.01             | 33.41           | 7.59       | 0.8        |
|                 |          |       |              |        |                  | 1.000               | 20.08      | 7.28            | 97.6               | 1.16             | 33.41           | 7.59       |            |
|                 |          |       |              |        |                  | 6.650               | 19.84      | 6.70            | 90.1               | 0.74             | 34.57           | 7.62       |            |
|                 |          |       |              |        |                  | 6.650               | 19.88      | 6.62            | 89.1               | 0.68             | 34.59           | 7.61       |            |
|                 |          |       |              |        |                  | 12.300              | 19.53      | 6.20            | 83.0               | 0.87             | 34.72           | 7.56       |            |
|                 |          |       |              |        |                  | 12.300              | 19.53      | 6.18            | 82.7               | 0.94             | 34.72           | 7.58       |            |
| 2013/3/22 10:00 | CY2      | MF    | 828028       | 808813 | 18.5             | 1.000               | 20.67      | 7.62            | 104.2              | 0.70             | 34.86           | 7.79       | 1.1        |
|                 |          |       |              |        |                  | 1.000               | 20.66      | 7.63            | 104.3              | 0.83             | 34.86           | 7.78       |            |
|                 |          |       |              |        |                  | 9.250               | 19.61      | 7.20            | 96.7               | 0.56             | 35.02           | 7.72       |            |
|                 |          |       |              |        |                  | 9.250               | 19.60      | 7.19            | 96.5               | 0.63             | 35.04           | 7.73       |            |
|                 |          |       |              |        |                  | 17.500              | 19.43      | 6.62            | 88.7               | 1.48             | 35.18           | 7.67       |            |
|                 |          |       |              |        |                  | 17.500              | 19.43      | 6.55            | 87.7               | 1.56             | 35.12           | 7.66       |            |

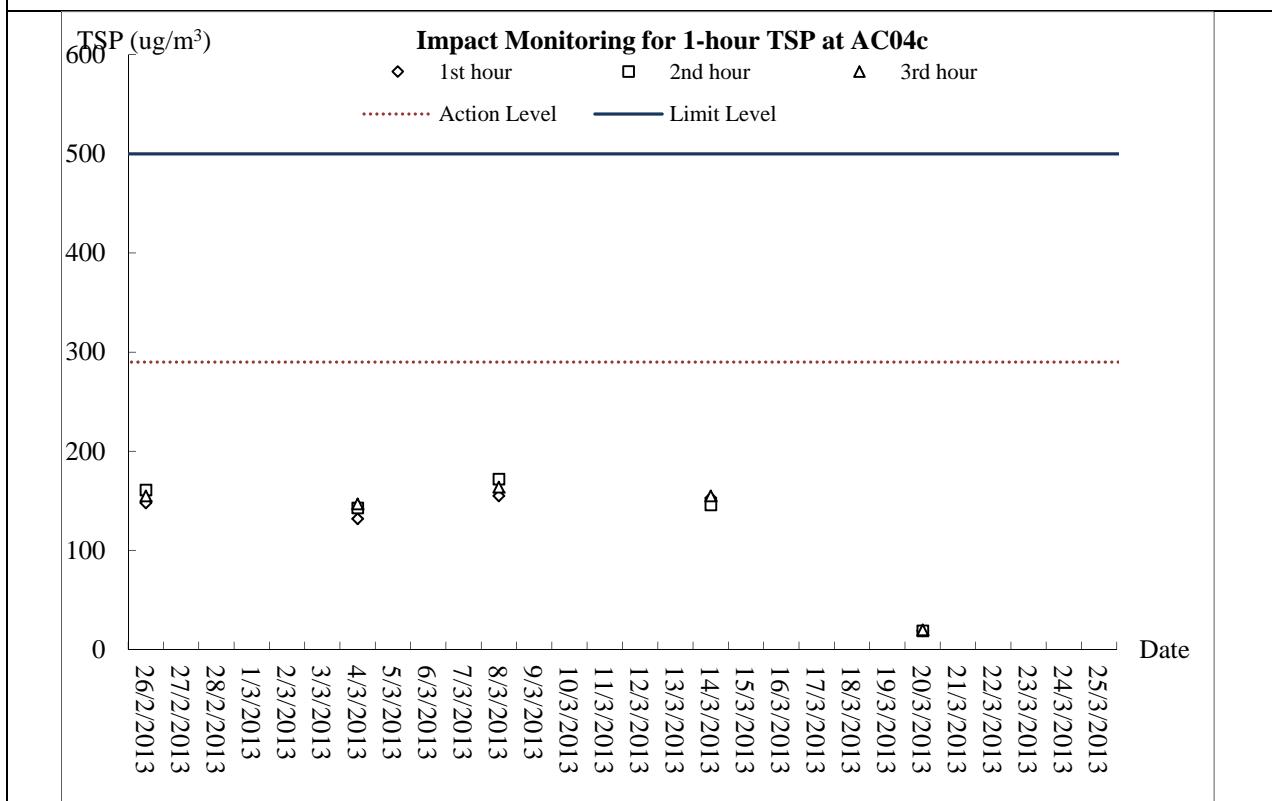
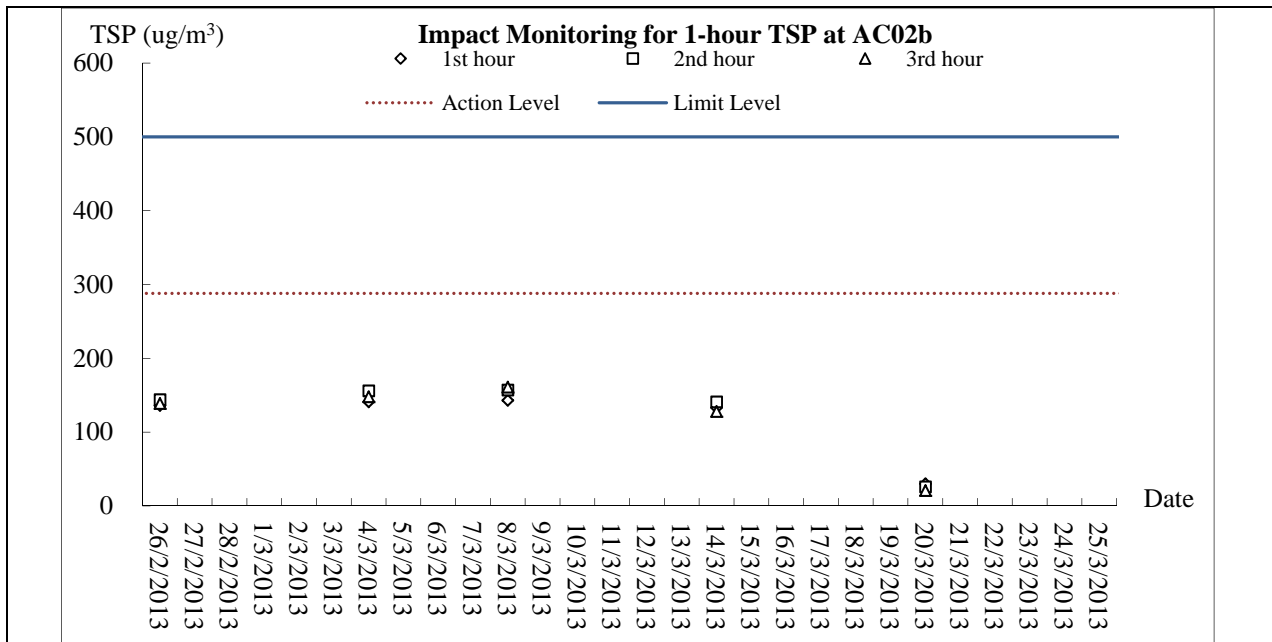
Remarks: MF - Middle Flood tide  
ME - Middle Ebb tide

## **Appendix H**

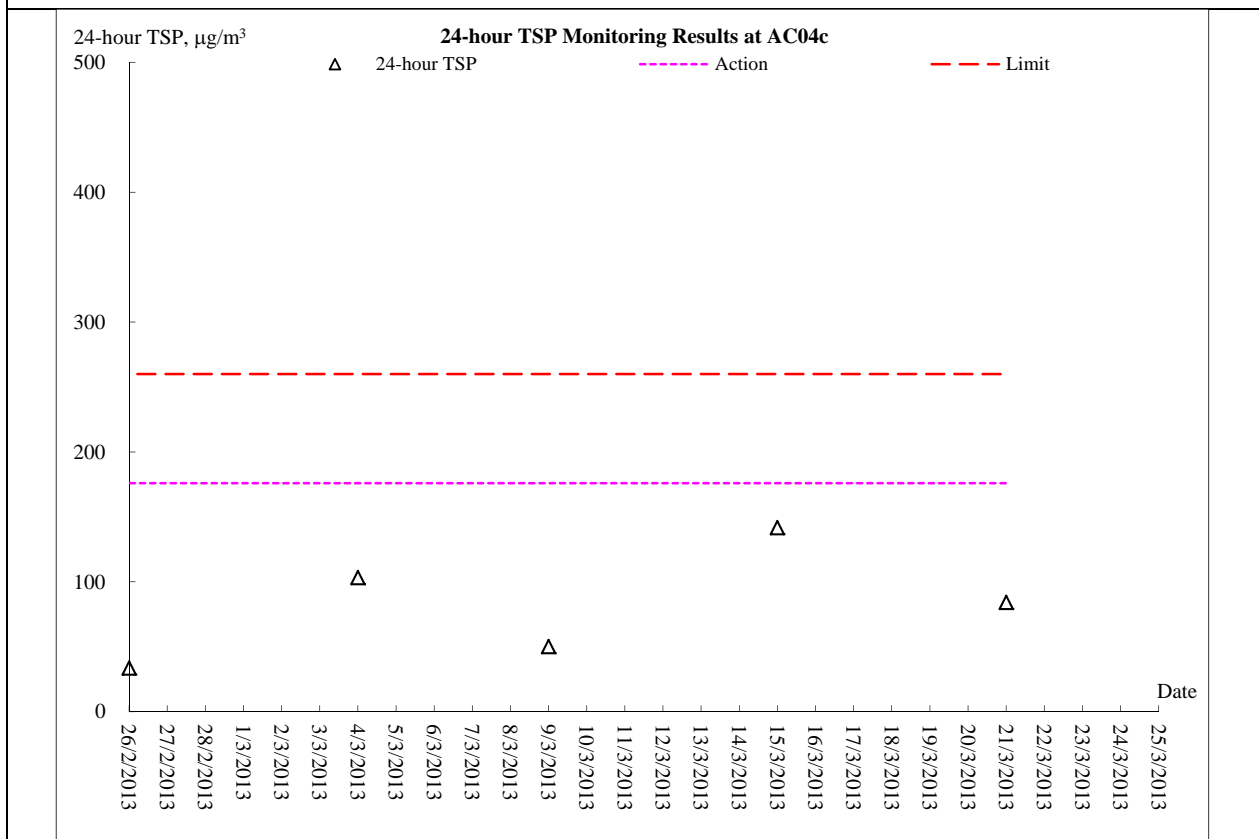
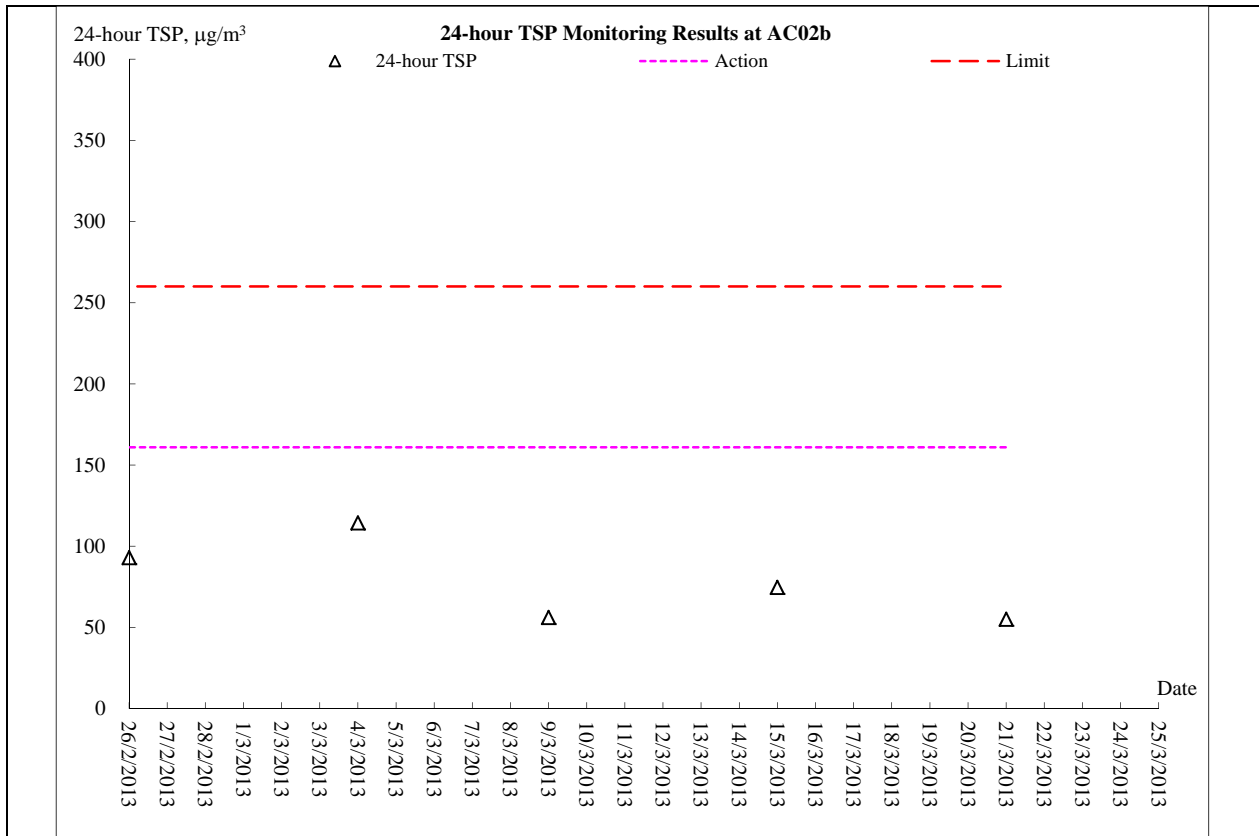
### **Graphical Plots of Monitoring Results**



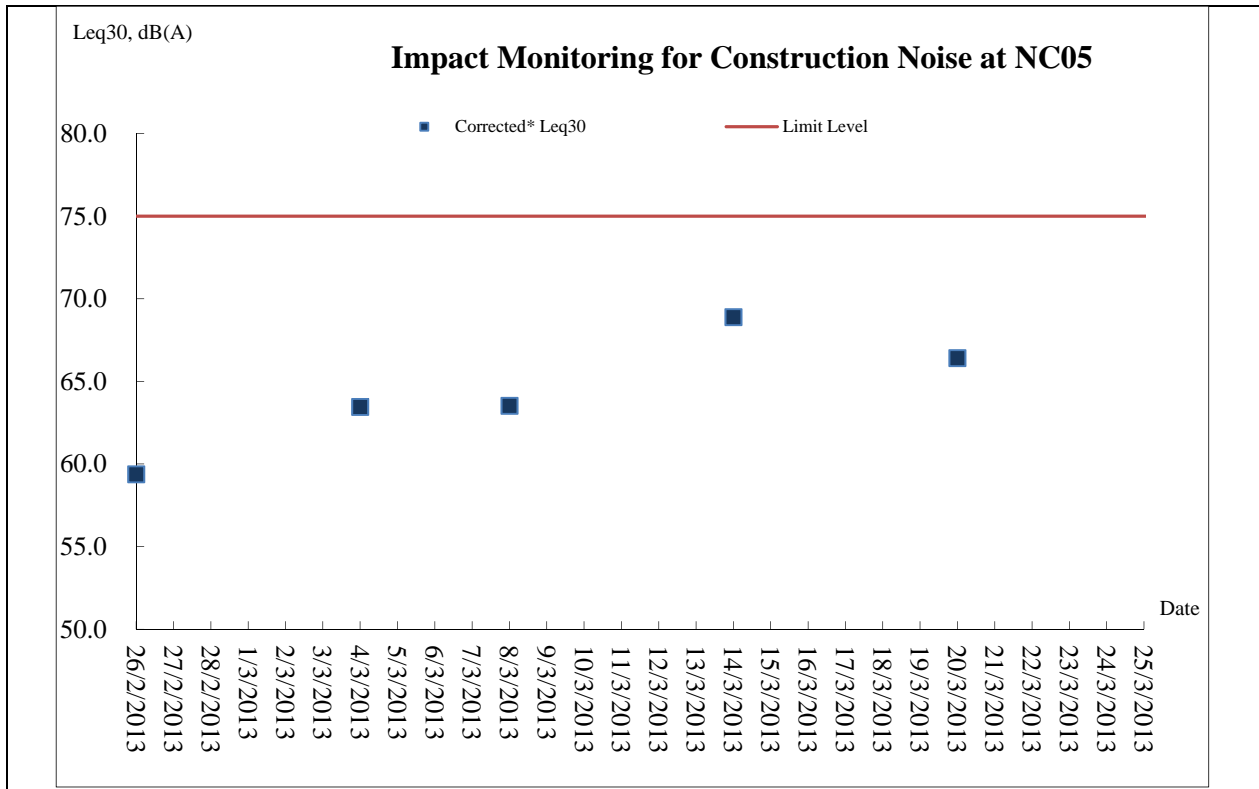
**1-hour TSP Monitoring**



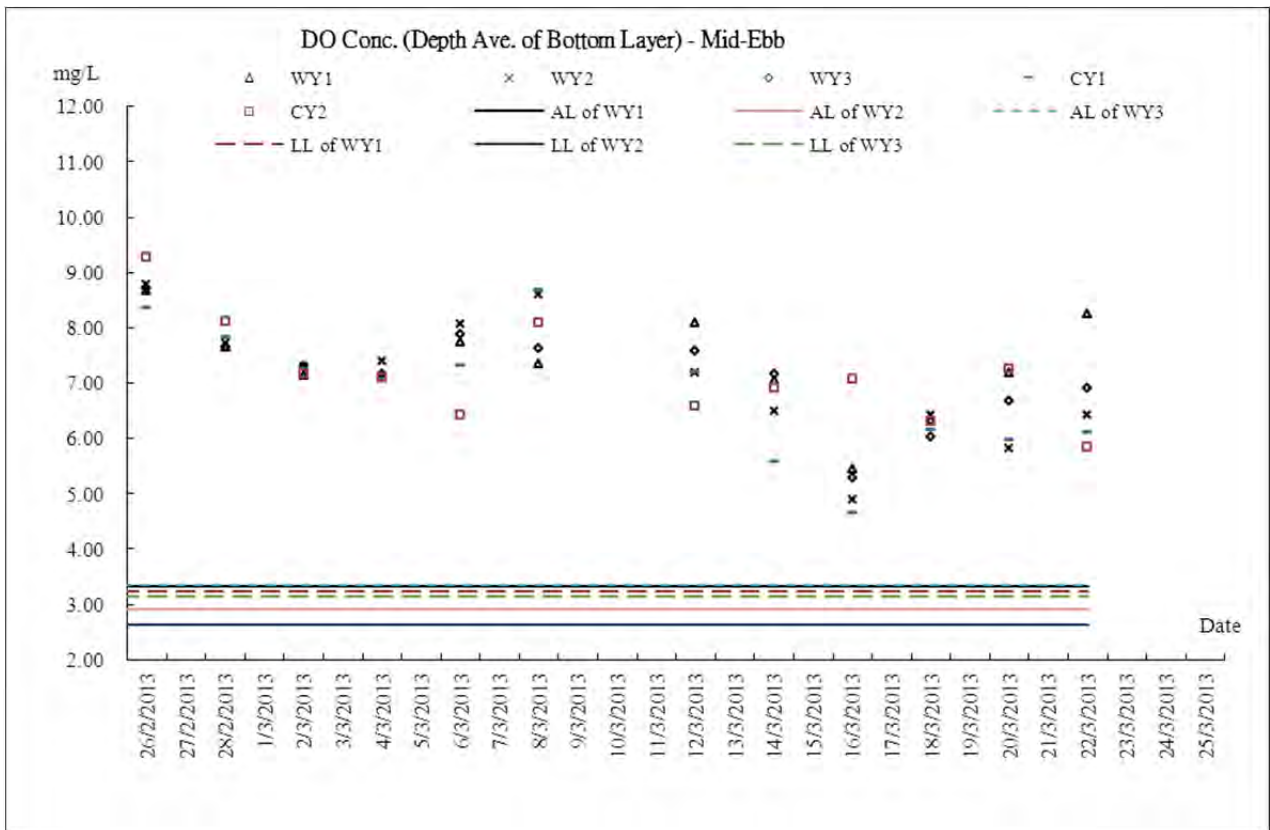
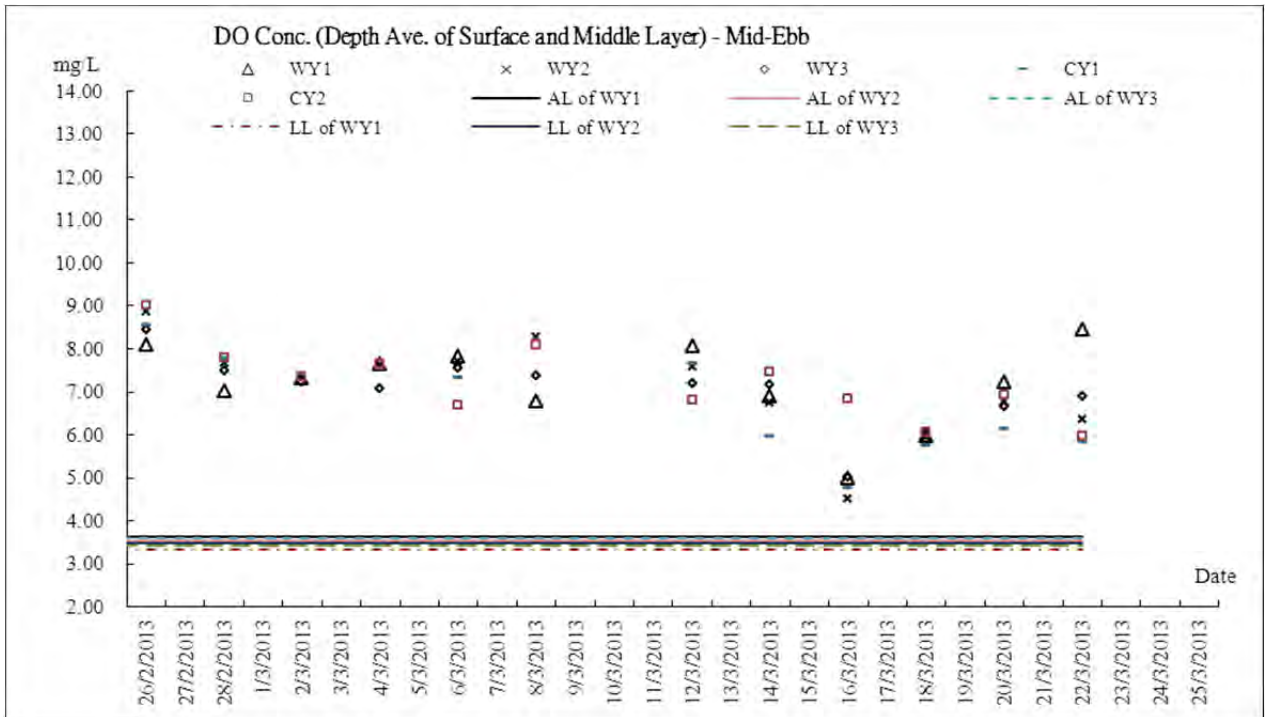
**24-hour TSP Monitoring**

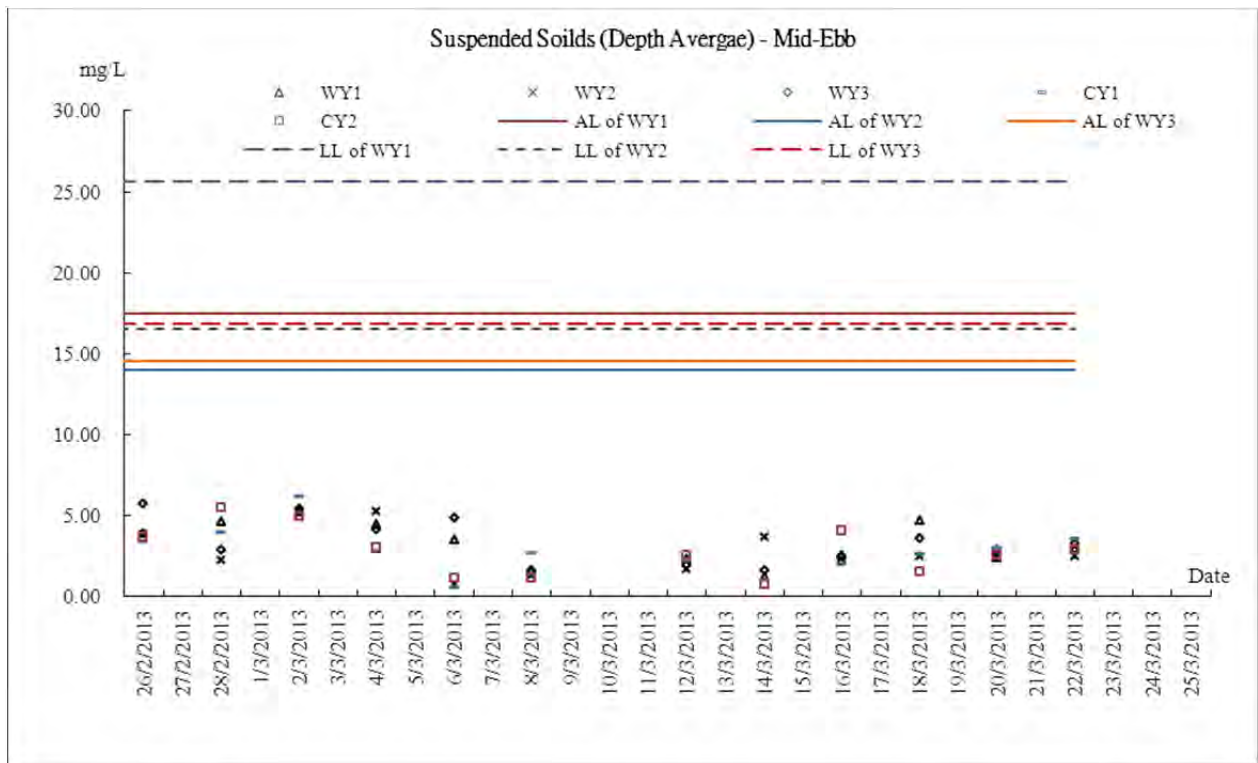
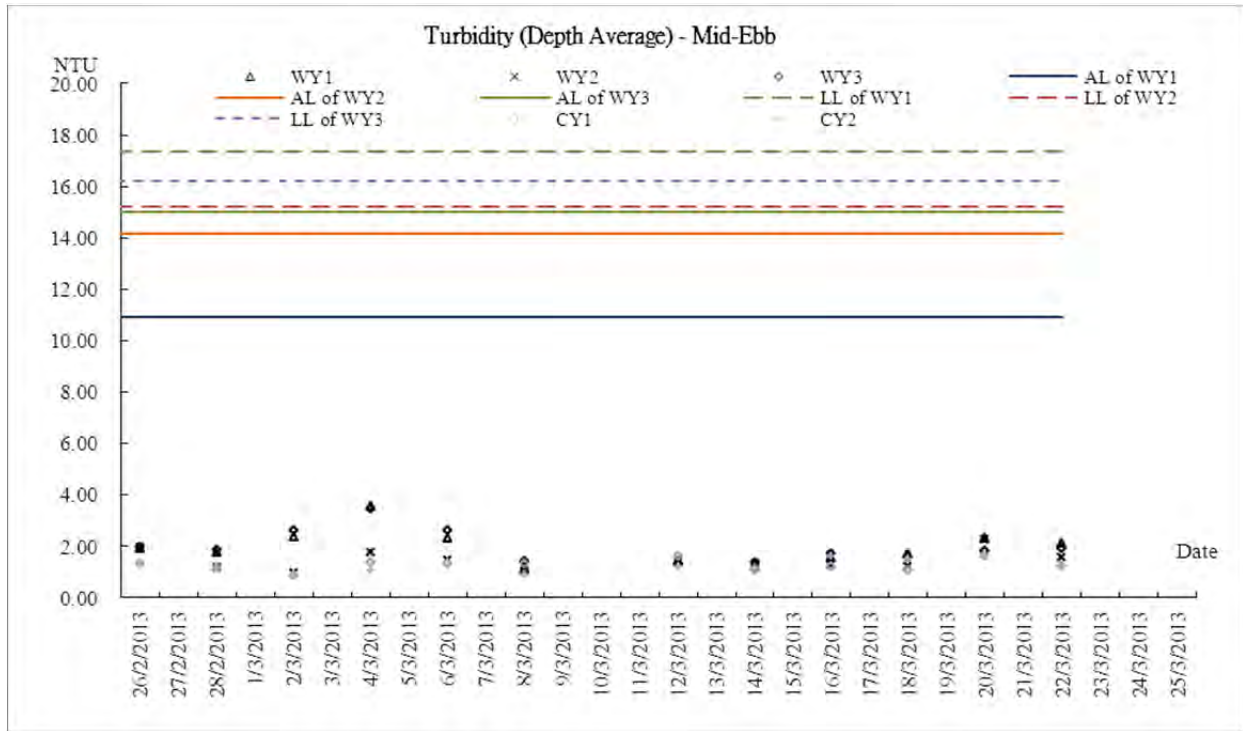


Noise Monitoring



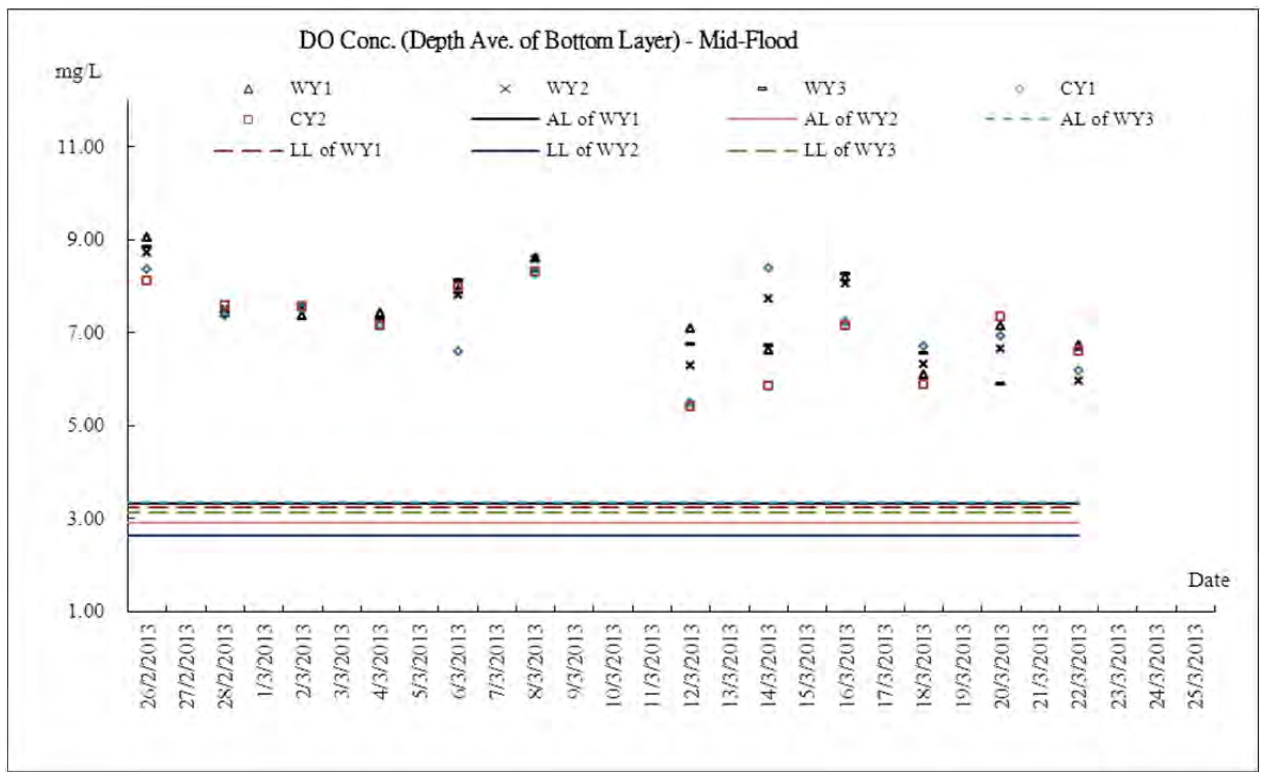
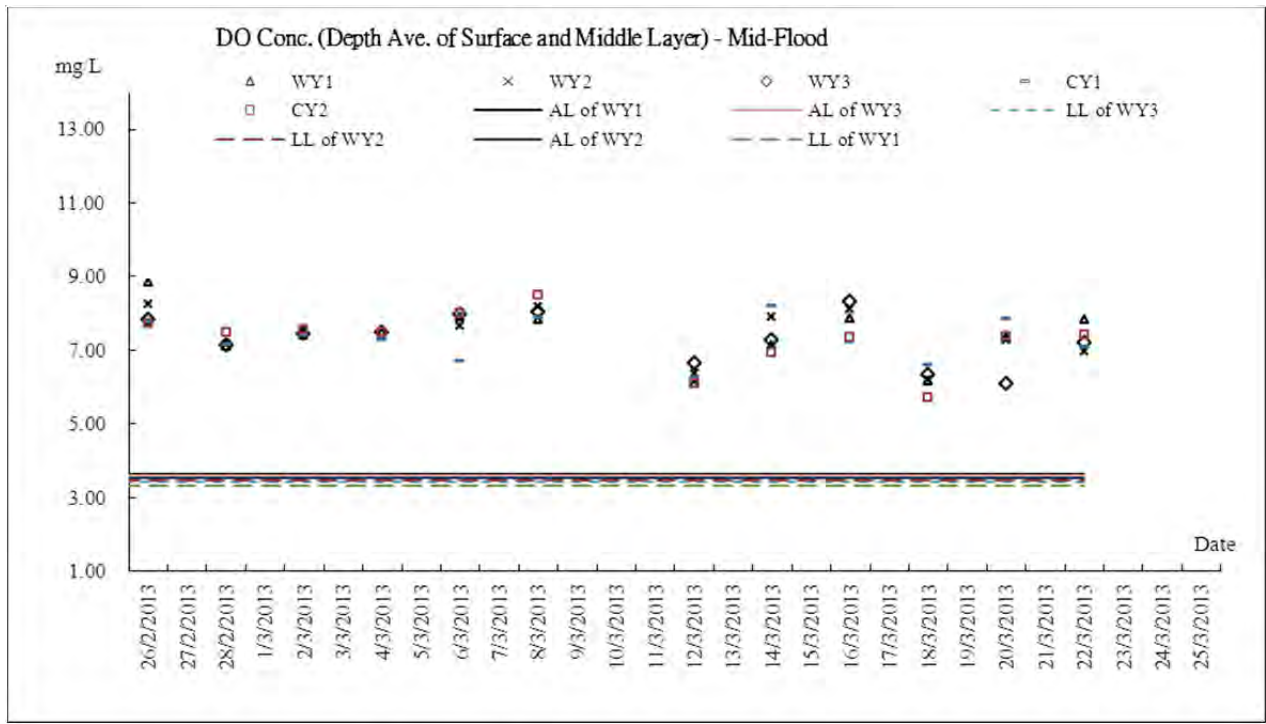
**Marine Water Monitoring – Mid Ebb**

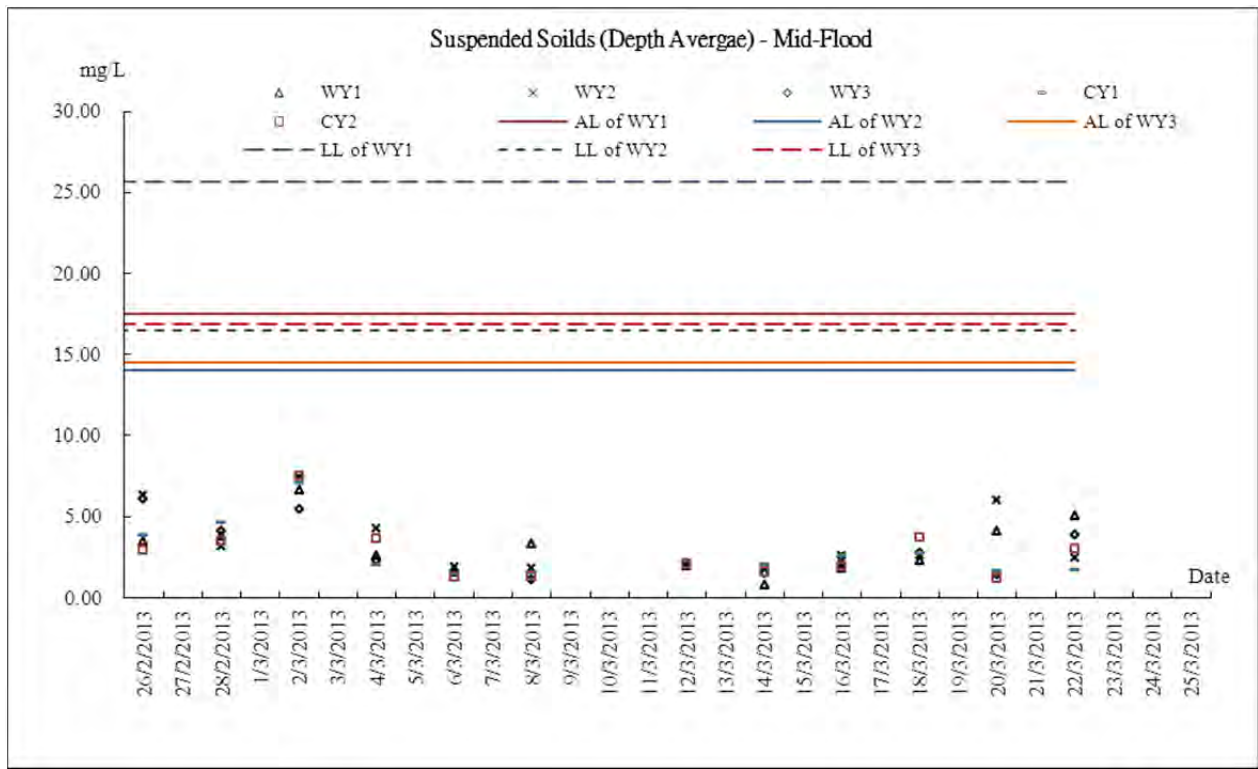
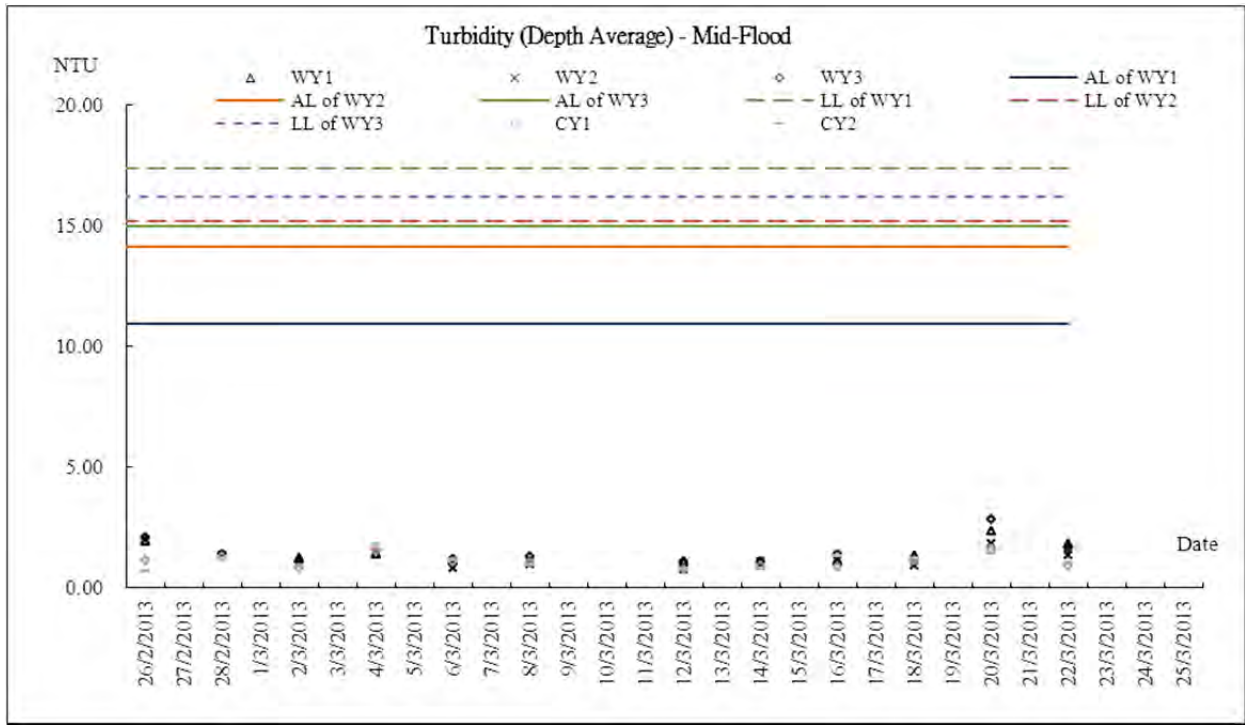






**Marine Water Monitoring – Mid Flood**





# **Appendix I**

## **Meteorological Information**

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

| Date      |     | Weather  |
|-----------|-----|--|
| 26-Feb-13 | Tue | Rain, sunny intervals, fog, moderate east to southeasterly winds.      |
| 27-Feb-13 | Wed | Cloudy, rain, fog, moderate east to southeasterly winds.               |
| 28-Feb-13 | Thu | Cloudy, rain, fog, moderate east to southeasterly winds.               |
| 1-Mar-13  | Fri | Fine, very dry, moderate easterly winds                                |
| 2-Mar-13  | Sat | Fine, dry, warm, haze, light winds.                                    |
| 3-Mar-13  | Sun | Fine, dry, warm, haze, light winds.                                    |
| 4-Mar-13  | Mon | Fine, very dry, moderate easterly winds                                |
| 5-Mar-13  | Tue | Fine, very dry, moderate easterly winds                                |
| 6-Mar-13  | Wed | Fine, very dry, moderate easterly winds                                |
| 7-Mar-13  | Thu | Fine, dry, warm, haze, light winds.                                    |
| 8-Mar-13  | Fri | Fine, dry, warm, haze, light winds.                                    |
| 9-Mar-13  | Sat | Misty, rain, sunny intervals, fresh easterly winds                     |
| 10-Mar-13 | Sun | Misty, rain, sunny intervals, fresh easterly winds                     |
| 11-Mar-13 | Mon | Misty, rain, sunny intervals, fresh easterly winds                     |
| 12-Mar-13 | Tue | Cloudy, misty, fine, moderate easterly winds                           |
| 13-Mar-13 | Wed | Cloudy, rain, fresh easterly winds                                     |
| 14-Mar-13 | Thu | Cloudy, sunny intervals, moderate easterly winds.                      |
| 15-Mar-13 | Fri | Cloudy, sunny intervals, moderate easterly winds.                      |
| 16-Mar-13 | Sat | Cloudy, sunny intervals, moderate easterly winds.                      |
| 17-Mar-13 | Sun | Cloudy, rain, fresh easterly winds                                     |
| 18-Mar-13 | Mon | Cloudy, sunny intervals, moderate easterly winds.                      |
| 19-Mar-13 | Tue | Amber Rainstorm Warning Signal Special Announcement issued at 3:50 p.m |
| 20-Mar-13 | Wed | Cloudy, mist, rain, moderate to fresh easterly winds                   |
| 21-Mar-13 | Thu | Cloudy, mist, rain, moderate to fresh easterly winds                   |
| 22-Mar-13 | Fri | Cloudy, fog, moderate southeasterly winds                              |
| 23-Mar-13 | Sat | Cloudy, fog, moderate southeasterly winds                              |
| 24-Mar-13 | Sun | Cloudy, mist, rain, fresh to strong easterly winds.                    |
| 25-Mar-13 | Mon | Cloudy, mist, rain, fresh to strong easterly winds.                    |

## **Appendix J**

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



## Monthly Summary Waste Flow Table for March 2013

| Month            | Actual Quantities of Inert C&D Materials Generated Monthly |        |  |       |                               |       |                                 |       |                                |        |                          |       | Actual Quantities of C&D Wastes Generated Monthly |       |                               |       |             |       |                |       |                         |         |
|------------------|--|--------|--|-------|-------------------------------|-------|---------------------------------|-------|--------------------------------|--------|--------------------------|-------|---|-------|-------------------------------|-------|-------------|-------|----------------|-------|-------------------------|---------|
|                  | Total Quantity Generated<br>(a) = (c)+(d)+(e)              |        | Hard Rock and Large Broken Concrete<br>(b) |       | Reused in the Contract<br>(c) |       | Reused in other Projects<br>(d) |       | Disposed as Public Fill<br>(e) |        | Imported Fill<br>(f)     |       | Metals  |       | Paper/<br>cardboard packaging |       | Plastics    |       | Chemical Waste |       | Others,<br>e.g. rubbish |         |
|                  | (in '000m <sup>3</sup> )                                   |        | (in '000m <sup>3</sup> )                   |       | (in '000m <sup>3</sup> )      |       | (in '000m <sup>3</sup> )        |       | (in '000m <sup>3</sup> )       |        | (in '000m <sup>3</sup> ) |       | (in '000kg)                                       |       | (in '000kg)                   |       | (in '000kg) |       | (in '000kg)    |       | (in tonne)              |         |
|                  | YSW  | SKW    | YSW  | SKW   | YSW                           | SKW   | YSW                             | SKW   | YSW                            | SKW    | YSW                      | SKW   | YSW   | SKW   | YSW                           | SKW   | YSW         | SKW   | YSW            | SKW   | YSW                     | SKW     |
| <b>2013</b>      | 13.341   | 50.328 | 0.160                                      | 0.410 | 0.740                         | 2.802 | 0.000                           | 0.000 | 12.601                         | 47.526 | 0.000                    | 0.000 | 0.000   | 0.000 | 0.000                         | 0.000 | 0.000       | 0.000 | 0.000          | 0.000 | 400.410                 | 103.440 |
| Jan              | 0.332  | 0.000  | 0.000                                      | 0.005 | 0.000                         | 0.000 | 0.000                           | 0.000 | 0.332                          | 0.000  | 0.000                    | 0.000 | 0.000   | 0.000 | 0.000                         | 0.000 | 0.000       | 0.000 | 0.000          | 0.000 | 9.040                   | 9.840   |
| Feb              | 0.082  | 0.000  | 0.000                                      | 0.000 | 0.000                         | 0.000 | 0.000                           | 0.000 | 0.082                          | 0.000  | 0.000                    | 0.000 | 0.000   | 0.000 | 0.000                         | 0.000 | 0.000       | 0.000 | 0.000          | 0.000 | 7.530                   | 6.530   |
| Mar              | 0.056  | 0.000  | 0.000                                      | 0.003 | 0.000                         | 0.000 | 0.000                           | 0.000 | 0.056                          | 0.000  | 0.000                    | 0.000 | 0.000   | 0.000 | 0.000                         | 0.000 | 0.000       | 0.000 | 0.000          | 0.000 | 10.430                  | 4.920   |
| Apr              |  |        |  |       |                               |       |                                 |       |                                |        |                          |       |   |       |                               |       |             |       |                |       |                         |         |
| May              |  |        |  |       |                               |       |                                 |       |                                |        |                          |       |   |       |                               |       |             |       |                |       |                         |         |
| Jun              |  |        |  |       |                               |       |                                 |       |                                |        |                          |       |   |       |                               |       |             |       |                |       |                         |         |
| <b>Sub-total</b> | 13.812   | 50.328 | 0.160                                      | 0.417 | 0.740                         | 2.802 | 0.000                           | 0.000 | 13.072                         | 47.526 | 0.000                    | 0.000 | 0.000   | 0.000 | 0.000                         | 0.000 | 0.000       | 0.000 | 0.000          | 0.000 | 427.410                 | 124.730 |
| Jul              |  |        |  |       |                               |       |                                 |       |                                |        |                          |       |   |       |                               |       |             |       |                |       |                         |         |
| Aug              |  |        |  |       |                               |       |                                 |       |                                |        |                          |       |   |       |                               |       |             |       |                |       |                         |         |
| Sep              |  |        |  |       |                               |       |                                 |       |                                |        |                          |       |   |       |                               |       |             |       |                |       |                         |         |
| Oct              |  |        |  |       |                               |       |                                 |       |                                |        |                          |       |   |       |                               |       |             |       |                |       |                         |         |
| Nov              |  |        |  |       |                               |       |                                 |       |                                |        |                          |       |   |       |                               |       |             |       |                |       |                         |         |
| Dec              |  |        |  |       |                               |       |                                 |       |                                |        |                          |       |   |       |                               |       |             |       |                |       |                         |         |
| <b>Total</b>     | 13.812   | 50.328 | 0.160                                      | 0.417 | 0.740                         | 2.802 | 0.000                           | 0.000 | 13.072                         | 47.526 | 0.000                    | 0.000 | 0.000   | 0.000 | 0.000                         | 0.000 | 0.000       | 0.000 | 0.000          | 0.000 | 427.410                 | 124.730 |
|                  | 64.139   |        | 0.577                                      |       | 3.542                         |       | 0.000                           |       | 60.598                         |        | 0.000                    |       | 0.000   |       | 0.000                         |       | 0.000       |       | 0.000          |       | 552.140                 |         |

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

YSW: Yung Shue Wan

SKW: Sok Kwu Wan

## **Appendix K**

### **Weekly Site Inspection Checklist**

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

**Inspected by:** ETL/ ET's Representative:  
**RE's Representative:**  
**Contractor's Representative:**  
**IEC's Representative:**

**Date:** 26 February 2013

**Checklist No.:** TCS512A-26 Feb 2013  
Ms. F. N. Wong  
Mr. Alfred Cheung/ Kwok Kwai Ming  
Mr. So K. Y

**Time:** 11:00

**PART A: GENERAL INFORMATION**

Weather:  Sunny  Fine  Cloudy  Rainy

Temperature:  °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.                 | Yes                                 | No                       | Follow Up                | N/A                                 | Photo/Remarks |
|---|--------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|---------------|
| <b>Section 1: Water Quality</b>   |                          |                                     |                          |                          |                                     |               |
| 1.01 Is an effluent discharge license obtained for the Project?   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.02 Is the effluent discharged in accordance with the discharge licence?   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.03 Is the discharge of turbid water avoided?  | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.04 Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?                                   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.05 Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?  | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.06 Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?                   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.07 Is drainage system well maintained?  | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.08 As excavation proceeds, are temporary access roads protected by crushed stone or gravel?   | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.09 Are temporary exposed slopes properly covered?   | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.10 Are earthworks final surfaces well compacted or protected?   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.11 Are manholes adequately covered or temporarily sealed?   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.12 Are there any procedures and equipment for rainstorm protection?   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.13 Are wheel washing facilities well maintained?  | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.14 Is runoff from wheel washing facilities avoided?   | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.15 Are there toilets provided on site?  | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.16 Are toilets properly maintained?   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.17 Are the vehicle and plant servicing areas paved and located within roofed areas?   | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.18 Is the oil/grease leakage or spillage avoided?   | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.19 Are there any measures to prevent leaked oil from entering the drainage system?  | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.20 Are there any measures to collect spilt cement and concrete washings during concreting works?                                    | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.21 Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc? | <input type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |

| Note:                         | Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable                                      | Not Obs.                            | Yes                                 | No                       | Follow Up                | N/A                                 | Photo/Remarks |
|-------------------------------|---|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|---------------|
| 1.22                          | Are the oil interceptors/grease traps maintained properly?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.23                          | Is used bentonite recycled where appropriate?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.24                          | Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m3 capacities for sedimentation.     | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.25                          | No excavation is undertaken in the settlement area.   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.26                          | Concreting wastes water should be neutralized below the pH Action Levels before discharge.  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.27                          | Mobile toilets should provide on site and located away the stream course.   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.28                          | License collector should be employed for handling the sewage of mobile toilet.  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.29                          | Is ponding /stand water avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| <b>Section 2: Air Quality</b> |   |                                     |                                     |                          |                          |                                     |               |
| 2.01                          | Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.02                          | Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 2.03                          | Are the excavated materials sprayed with water during handling?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.04                          | Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.05                          | Is the exposed earth properly treated within six months after the last construction activities?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.06                          | Are the access roads sprayed with water to maintain the entire road surface wet or paved?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 2.07                          | Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.08                          | Is the load on vehicles covered entirely by clean impervious sheeting?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.09                          | Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.10                          | Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.11                          | Is dark smoke emission from plant/equipment avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 2.12                          | Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.13                          | Are site vehicles travelling within the speed limit not more than 15km/hour?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.14                          | Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 2.15                          | Is open burning avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 2.16                          | Excavated materials from the stream must be removed from the site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site. | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| <b>Section 3: Noise</b>       |   |                                     |                                     |                          |                          |                                     |               |
| 3.01                          | Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 3.02                          | Is silenced equipment adopted?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 3.03                          | Is idle equipment turned off or throttled down?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 3.04                          | Are all plant and equipment well maintained and in good condition?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 3.05                          | Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 3.06                          | Are hand held breakers fitted with valid noise emission labels during operation?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 3.07                          | Are air compressors fitted with valid noise emission labels during operation?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |

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






| Note: Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable |   | Not Obs.                            | Yes                                 | No                       | Follow Up                | N/A                                 | Photo/Remarks |
|--|---|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|---------------|
| <b>Section 5: Landscape &amp; Visual</b>   |   |                                     |                                     |                          |                          |                                     |               |
| 5.01   | Are retained and transplanted trees in health condition?                              | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 5.02   | Are retained and transplanted trees properly protected?                               | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 5.03   | Are surgery works carried out for the damaged trees?                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 5.04   | Is damage to trees outside site boundary due to construction activities avoided?      | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 5.05   | Is the night-time lighting controlled to minimize glare to sensitive receivers?       | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| <b>Section 6: Others</b>   |   |                                     |                                     |                          |                          |                                     |               |
| 6.01   | Are relevant Environmental Permits posted at all vehicle site entrances/exits?        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 6.02   | Are the warning sign or larvicidal oil record shown clearly at the construction site? | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |

**Remarks**

Findings of Site Inspection (26 Feb 2013):

Follow up: Not required for general reminders.

1. No adverse environmental impacts were observed. However, full implementation of the required environmental mitigation measures, particularly construction dust suppression measures during dry and windy conditions, is reminded.

|                             |   |   |  |                                    |
|-----------------------------|---|---|--|------------------------------------|
| <u>IEC's representative</u> | <u>RE's representative</u>  | <u>ET's representative</u>  | <u>EO's representative</u>   | <u>Contractor's representative</u> |
| ( )                         | <br>(Alfred Cheung/<br>Kwok Kwai Ming) | <br>( Wong F. N. ) | <br>( Mr. So K. Y. ) | ( )                                |
|                             |   | 26 Feb 2013   |  |                                    |

|   |   |   |
|---|---|---|
| <b>Project:</b> <u>TCS/00512/09</u><br><u>Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan</u> | <b>Inspected by</b><br>ETL/ ET's Representative:<br>RE's Representative:<br>Contractor's Representative:<br>IEC's Representative: | <b>Checklist No.</b> <u>TCS512A-5 Mar 2013</u><br>Ms. F. N. Wong<br>Mr. Alfred Cheung/<br>Kwok Kwai Ming<br>Mr. So K. Y |
| <b>Date:</b> <u>5 March 2013</u>  | <b>Time:</b> <u>14:00</u>   |   |

**PART A: GENERAL INFORMATION** **Environmental Permit No.**

Weather:  Sunny  Fine  Cloudy  Rainy  EP-282/2007

Temperature:  °C

Humidity:  High  Moderate  Low

Wind:  Strong  Breeze  Light  Calm

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

| Note:                         | Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable                                      | Not Obs.                            | Yes                                 | No                       | Follow Up                | N/A                                 | Photo/Remarks |
|-------------------------------|---|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|---------------|
| 1.22                          | Are the oil interceptors/grease traps maintained properly?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.23                          | Is used bentonite recycled where appropriate?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.24                          | Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m3 capacities for sedimentation.     | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.25                          | No excavation is undertaken in the settlement area.   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.26                          | Concreting wastes water should be neutralized below the pH Action Levels before discharge.  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.27                          | Mobile toilets should provide on site and located away the stream course.   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.28                          | License collector should be employed for handling the sewage of mobile toilet.  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.29                          | Is ponding /stand water avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| <b>Section 2: Air Quality</b> |   |                                     |                                     |                          |                          |                                     |               |
| 2.01                          | Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.02                          | Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 2.03                          | Are the excavated materials sprayed with water during handling?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.04                          | Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.05                          | Is the exposed earth properly treated within six months after the last construction activities?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.06                          | Are the access roads sprayed with water to maintain the entire road surface wet or paved?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 2.07                          | Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.08                          | Is the load on vehicles covered entirely by clean impervious sheeting?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.09                          | Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.10                          | Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.11                          | Is dark smoke emission from plant/equipment avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 2.12                          | Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.13                          | Are site vehicles travelling within the speed limit not more than 15km/hour?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.14                          | Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 2.15                          | Is open burning avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 2.16                          | Excavated materials from the stream must be removed from the site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site. | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| <b>Section 3: Noise</b>       |   |                                     |                                     |                          |                          |                                     |               |
| 3.01                          | Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 3.02                          | Is silenced equipment adopted?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 3.03                          | Is idle equipment turned off or throttled down?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 3.04                          | Are all plant and equipment well maintained and in good condition?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 3.05                          | Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 3.06                          | Are hand held breakers fitted with valid noise emission labels during operation?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 3.07                          | Are air compressors fitted with valid noise emission labels during operation?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |

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

| Note: Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable |   | Not Obs.                            | Yes                                 | No                       | Follow Up                | N/A                                 | Photo/Remarks |
|--|---|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|---------------|
| <b>Section 5: Landscape &amp; Visual</b>   |   |                                     |                                     |                          |                          |                                     |               |
| 5.01   | Are retained and transplanted trees in health condition?                              | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 5.02   | Are retained and transplanted trees properly protected?                               | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 5.03   | Are surgery works carried out for the damaged trees?                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 5.04   | Is damage to trees outside site boundary due to construction activities avoided?      | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 5.05   | Is the night-time lighting controlled to minimize glare to sensitive receivers?       | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| <b>Section 6: Others</b>   |   |                                     |                                     |                          |                          |                                     |               |
| 6.01   | Are relevant Environmental Permits posted at all vehicle site entrances/exits?        | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 6.02   | Are the warning sign or larvicidal oil record shown clearly at the construction site? | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |

**Remarks**

**Findings of Site Inspection (5 March 2013):**

Follow up: (05 Mar 2013)  
 Not required for general reminders.

- No adverse environmental impacts were observed. However, full implementation of the required environmental mitigation measures, in particular construction dust suppression measures during dry and windy conditions, is reminded.

|                      |  |                                 |                      |                             |
|----------------------|--|---------------------------------|----------------------|-----------------------------|
| IEC's representative | RE's representative                    | ET's representative             | EO's representative  | Contractor's representative |
| ( )                  | <br>(Alfred Cheung/<br>Kwok Kwai Ming) | <br>(Wong F. N.)<br>05 Mar 2013 | <br>( Mr. So K. Y. ) | ( )                         |

|   |   |  |
|---|---|--|
| <b>Project:</b> <u>TCS/00512/09</u><br><u>Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan</u> | <b>Inspected by</b><br>ETL/ ET's Representative:<br>RE's Representative:<br>Contractor's Representative:<br>IEC's Representative: | <b>Checklist No.</b> <u>TCS512A-12 Mar 2013</u><br>Ms. F. N. Wong<br>Mr. Alfred Cheung/<br>Kwok Kwai Ming / <i>Yuen</i><br>Mr. So K. Y |
| <b>Date:</b> <u>12 March 2013</u>   | <b>Time:</b>  | 14:00  |

|                |  |  |
|----------------|--|--|
| <b>PART A:</b> | <b>GENERAL INFORMATION</b>   | <b>Environmental Permit No.</b>                  |
| Weather:       | <input type="checkbox"/> Sunny <input type="checkbox"/> Fine <input type="checkbox"/> Cloudy <input type="checkbox"/> Rainy  | <input checked="" type="checkbox"/> EP- 282/2007 |
| Temperature:   | <input style="width:100px" type="text"/> °C  |  |
| Humidity:      | <input type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low                                 |  |
| Wind:          | <input type="checkbox"/> Strong <input type="checkbox"/> Breeze <input type="checkbox"/> Light <input type="checkbox"/> Calm |  |

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



| Note:                         | Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable                                      | Not Obs.                            | Yes                                 | No                       | Follow Up                | N/A                                 | Photo/Remarks |
|-------------------------------|---|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|---------------|
| 1.22                          | Are the oil interceptors/grease traps maintained properly?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.23                          | Is used bentonite recycled where appropriate?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.24                          | Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m3 capacities for sedimentation.     | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.25                          | No excavation is undertaken in the settlement area.   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.26                          | Concreting wastes water should be neutralized below the pH Action Levels before discharge.  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 1.27                          | Mobile toilets should provide on site and located away the stream course.   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.28                          | License collector should be employed for handling the sewage of mobile toilet.  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 1.29                          | Is ponding /stand water avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| <b>Section 2: Air Quality</b> |   |                                     |                                     |                          |                          |                                     |               |
| 2.01                          | Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.02                          | Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 2.03                          | Are the excavated materials sprayed with water during handling?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.04                          | Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.05                          | Is the exposed earth properly treated within six months after the last construction activities?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.06                          | Are the access roads sprayed with water to maintain the entire road surface wet or paved?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 2.07                          | Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.08                          | Is the load on vehicles covered entirely by clean impervious sheeting?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.09                          | Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.10                          | Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.11                          | Is dark smoke emission from plant/equipment avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 2.12                          | Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.13                          | Are site vehicles travelling within the speed limit not more than 15km/hour?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 2.14                          | Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 2.15                          | Is open burning avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 2.16                          | Excavated materials from the stream must be removed from the site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site. | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| <b>Section 3: Noise</b>       |   |                                     |                                     |                          |                          |                                     |               |
| 3.01                          | Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 3.02                          | Is silenced equipment adopted?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 3.03                          | Is idle equipment turned off or throttled down?   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 3.04                          | Are all plant and equipment well maintained and in good condition?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 3.05                          | Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 3.06                          | Are hand held breakers fitted with valid noise emission labels during operation?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 3.07                          | Are air compressors fitted with valid noise emission labels during operation?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |



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

| Note:  | Not Obs.                            | Yes                                 | No                       | Follow Up                | N/A                                 | Photo/Remarks |
|--|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|---------------|
| Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable |                                     |                                     |                          |                          |                                     |               |
| <b>Section 5: Landscape &amp; Visual</b>   |                                     |                                     |                          |                          |                                     |               |
| 5.01 Are retained and transplanted trees in health condition?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 5.02 Are retained and transplanted trees properly protected?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 5.03 Are surgery works carried out for the damaged trees?  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 5.04 Is damage to trees outside site boundary due to construction activities avoided?  | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |
| 5.05 Is the night-time lighting controlled to minimize glare to sensitive receivers?   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| <b>Section 6: Others</b>   |                                     |                                     |                          |                          |                                     |               |
| 6.01 Are relevant Environmental Permits posted at all vehicle site entrances/exits?  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |               |
| 6.02 Are the warning sign or larvicidal oil record shown clearly at the construction site?   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |               |




**Remarks**

**Findings of Site Inspection (12 March 2013):**

Follow up: (12 Mar 2013)

Not required

- No adverse environmental impacts were observed.

|                             |   |  |  |                                    |
|-----------------------------|---|--|--|------------------------------------|
| <u>IEC's representative</u> | <u>RE's representative</u>  | <u>ET's representative</u>   | <u>EO's representative</u>   | <u>Contractor's representative</u> |
| ( )                         | <br>( Alfred Cheung/<br>Kwok Kwai-Ming )<br>Mr. Yuen C. Y. | <br>( Wong F. N. )<br>12 Mar 2013 | <br>( Mr. So K. Y. ) | ( )                                |

## **Appendix L**

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

### Implementation Schedule of Air Quality Measures

| EIA Ref                   | EM&A Ref  | Environmental Protection Measures*  | Location / Timing  | Implementation Agent           | Implementation Stages** |   |   | Relevant Legislation & Guidelines                                    |
|---------------------------|-----------|---|--|--------------------------------|-------------------------|---|---|--|
|                           |           |   |  |                                | D                       | C | O |  |
| <b>Construction Phase</b> |           |   |  |                                |                         |   |   |  |
| 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: <ul style="list-style-type: none"> <li>• Stockpiles of imported material kept on site should be contained within hoardings, dampened and / or covered during dry and windy weather;</li> <li>• Material stockpiled alongside trenches should be covered with tarpaulins whenever works are close to village houses;</li> <li>• Water sprays should be used during the delivery and handling of cement, sands, aggregates and the like.</li> <li>• Any vehicle used for moving sands, aggregates and construction waste should have properly fitting side and tail boards. Materials should not be loaded to a level higher than the side and tail boards, and should be covered by a clean tarpaulin.</li> </ul> | Work site / during construction                                      | All contractors                |                         | √ |   | 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 |                                   |
| <b>Construction Phase</b> |            |   |  |                                |                          |   |   |                                   |
| 2.4.16                    | 3.8.2      | Implementation of following measures during the sewer construction: <ul style="list-style-type: none"> <li>• Use of quiet PME or method;</li> <li>• Restriction on the number plant (1 item for each type of plant); and</li> <li>• Good Site Practices               <ul style="list-style-type: none"> <li>➤ Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme.</li> <li>➤ Mobile plant, if any, should be sited as far away from NSRs as possible.</li> <li>➤ Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.</li> <li>➤ Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.</li> <li>➤ Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.</li> </ul> </li> </ul> | Work site /during the construction of Sewer.                           | Contractor                     |                          | √ |   | 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                       |

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

N/A Not applicable



### Implementation Schedule of Water Quality Control Measures

| EIA Ref                   | EM&A Ref | Environmental Protection Measures*   | Location (duration /completion of measures)  | Implementation Agent | Implementation Stages** |   |   | Relevant Legislation and Guidelines |
|---------------------------|----------|--|--|----------------------|-------------------------|---|---|-------------------------------------|
|                           |          |  |  |                      | D                       | C | O |                                     |
| <b>Construction Phase</b> |          |  |  |                      |                         |   |   |                                     |
| 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   | <p>Dredging Works</p> <p>Implementation of following measures during the dredging works:</p> <ul style="list-style-type: none"> <li>dredging should be undertaken using closed grab dredgers with a maximum total production rate of 55m<sup>3</sup>/hr;</li> <li>deployment of 2-layer silt curtains with the first layer enclosing the grab and the second layer at around 50m from the dredging area while dredging works are in progress;</li> <li>dredging operation should be undertaken during ebb tide only;</li> <li>all vessels should be sized such that adequate clearance (i.e. minimum clearance of 0.6m) is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;</li> <li>all pipe leakages should be repaired promptly and plant should not be operated with leaking pipes;</li> <li>excess material should be cleaned from the decks and exposed fittings of barges before the vessel is moved;</li> <li>adequate freeboard (i.e. minimum of 200mm) should be maintained on barges to ensure that decks are not washed by wave action;</li> <li>all barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material;</li> <li>loading of barges should be controlled to prevent splashing of dredged material to the surrounding water, and barges should not be filled to a level which will cause the overflow of materials or polluted water during loading or transportation; and</li> </ul> | 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 |                                     |
|         |          | <ul style="list-style-type: none"> <li>the decks of all vessels should be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard.</li> </ul>   |   |                      |                         |   |   |                                     |
| 2.5.39  | 4.12.4   | <p><u>Construction Run-off and Drainage</u></p> <p>Implementation of the following site practices outlined in ProPECC PN 1/94 for “Construction Site Drainage”</p> <ul style="list-style-type: none"> <li>Provision of perimeter channels to intercept storm-runoff from outside the site. These should be constructed in advance of site formation works and earthworks.</li> <li>Works programmes should be designed to minimize works areas at any one time, thus minimizing exposed soil areas and reducing the potential for increased siltation and runoff.</li> <li>Sand / silt removal facilities such as sand traps, silt traps and sediment basins should be provided to remove the sand / silt particles from run-off. These facilities should be properly and regularly maintained. These facilities should be carefully planned to ensure that they would be installed at appropriate locations to capture all surface water generated on site.</li> <li>Careful programming of the works to minimise soil excavation works during rainy seasons.</li> <li>Exposed soil surface should be protected by paving or hydroseeding as soon as possible to reduce the potential of soil erosion.</li> <li>Trench excavation should be avoided in the wet season, and if necessary, these should be excavated and backfilled in short sections.</li> <li>Open stockpiles of construction materials on site should be covered with tarpaulin or similar fabric</li> </ul> | Construction works sites                    | Contractor           |                         | √ |   | ProPECC PN 1/94                     |
| 2.5.39  | 4.12.5   | <p><u>General Construction Activities</u></p> <ul style="list-style-type: none"> <li>Debris and rubbish generated on-site should be collected, handled and disposed of properly to avoid entering the nearby coastal waters and stormwater drains.</li> </ul>  | 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 |                                     |
|         |           | <ul style="list-style-type: none"> <li>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.</li> <li>Open drainage channels and culverts near the works areas should be covered to block the entrance of large debris and refuse.</li> </ul> |   |                      |                         |   |   |                                     |
| 2.5.39  | 4.12.6    | <u>Wastewater Arising from Workforce</u><br>Portable toilets should be provided by the Contractors, where necessary, to handle sewage from the workforce. The Contractor should also be responsible for waste disposal and maintenance practices.  | Construction works sites  | Contractor           |                         | √ |   |                                     |
| 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: <ul style="list-style-type: none"> <li>• Bottom opening of barges should be fitted with tight fitting seals to prevent leakage of material. Excess material should be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved.</li> <li>• Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels should be equipped with automatic self monitoring devices as specified by the DEP.</li> </ul> | Marine works site and at the identified sensitive receivers | Contractor           |                         | √ |   |                                   |

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

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

N/A Not applicable

### Implementation Schedule of Solid Waste Management Measures

| EIA Ref                   | EM&A Ref | Environmental Protection Measures*  | Location / Timing              | Implementation Agent | Implementation Stages ** |   |   | Relevant Legislation & Guidelines         |
|---------------------------|----------|---|--------------------------------|----------------------|--------------------------|---|---|---|
|                           |          |   |                                |                      | D                        | C | O |   |
| <b>Construction Phase</b> |          |   |                                |                      |                          |   |   |   |
| 2.9.14                    | 6.6.2    | <u>Good site practices</u> <ul style="list-style-type: none"> <li>Nomination of an approved person, such as a site manager, to be responsible for implementation of good site practices, arranging for collection and effective disposal to an appropriate facility, of all wastes generated at the site</li> <li>Training (proper waste management and chemical handling procedure) should be provided for site staffs</li> <li>Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.</li> <li>Provision of sufficient waste disposal points and regular collection for disposal.</li> <li>Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Facility.</li> <li>Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.</li> <li>Maintain records of the quantities of wastes generated, recycled and disposed.</li> </ul> | Work sites/During construction | Contractor           |                          | √ |   | Waste Disposal Ordinance (Cap.54)         |
| 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: <ul style="list-style-type: none"> <li>segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;</li> <li>to encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to</li> </ul>  | Work sites/During construction | Contractor           |                          | √ |   | WBTC No. 4/98, 5/98                       |

| EIA Ref | EM&A Ref        | Environmental Protection Measures*  | Location / Timing              | Implementation Agent | Implementation Stages ** |   |   | Relevant Legislation & Guidelines  |
|---------|-----------------|---|--------------------------------|----------------------|--------------------------|---|---|--|
|         |                 |   |                                |                      | D                        | C | O |  |
|         |                 | segregate this waste from other general refuse generated by the work force; <ul style="list-style-type: none"> <li>any unused chemicals or those with remaining functional capacity should be recycled;</li> <li>use of reusable non-timber formwork to reduce the amount of C&amp;D material;</li> <li>prior to disposal of C&amp;D waste, it is recommended that wood, steel and other metals should be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill;</li> <li>proper storage and site practices to minimise the potential for damage or contamination of construction materials; and</li> <li>plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.</li> </ul> |                                |                      |                          |   |   |  |
| 2.9.18  | 6.2.5           | <u>General Site Wastes</u> <ul style="list-style-type: none"> <li>A collection area for construction site waste should be provided where waste can be stored prior to removal from site</li> <li>An enclosed and covered area for the collection of the waste is recommended to reduce 'wind blow' of light material</li> </ul>   | Work sites/During construction | Contractor           |                          | √ |   | Public Health and Municipal Services Ordinance (Cap. 132)  |
| 2.9.19  | 6.2.6 and 6.2.7 | <u>Chemical Wastes</u> <ul style="list-style-type: none"> <li>After use, chemical waste should be handled according to the Code of Practice on the Package, Labelling and Storage of Chemical Wastes</li> <li>Any unused chemicals or those with remaining functional capacity should be recycled</li> <li>Waste should be properly stored on site within suitably designed containers and should be collected by an approved licensed waste collectors for disposal at the Chemical Waste Treatment Facility or other licenced facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation under the Waste Disposal Ordance.</li> </ul>   | Work sites/During construction | Contractor           |                          | √ |   | Waste Disposal (Chemical Waste) (General) Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Wastes |



| EIA Ref           | EM&A Ref        | Environmental Protection Measures*  | Location / Timing              | Implementation Agent | Implementation Stages ** |   |   | Relevant Legislation & Guidelines            |
|-------------------|-----------------|---|--------------------------------|----------------------|--------------------------|---|---|--|
|                   |                 |   |                                |                      | D                        | C | O |  |
|                   |                 | <ul style="list-style-type: none"> <li>Any service shop and minor maintenance facilities should be located on hard standing within a bunded area, and sumps and oil interceptors should be provided.</li> <li>Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should be undertaken within the designated areas equipped control these discharges</li> </ul>  |                                |                      |                          |   |   |  |
| 2.9.21 and 2.9.22 | 6.2.8 and 6.2.9 | <p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> <li>The C&amp;D waste should be separated on-site into three categories: <ul style="list-style-type: none"> <li>➤ public fill, the inert portion of the C&amp;D material (e.g. concrete and rubble), which should be re-used on-site or disposed of at a public filling area;</li> <li>➤ C&amp;D waste for re-use and / or recycling, the non-inert portion of the C&amp;D material, (e.g. steel and other metals, woods, glass and plastic);</li> <li>➤ C&amp;D waste which cannot be re-used and / or recycled (e.g. wood, glass and plastic)</li> </ul> </li> <li>Where possible, inert material should be re-used on-site</li> <li>Where practicable, steel and other metals should be separated for re-use and/or recycling prior to disposal of C&amp;D material</li> </ul> | During all construction phases | Contractors          |                          | √ |   | WBTC No. 4/98, 5/98, 21/2002, 25/99, 12/2000 |

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

### Implementation Schedule of Ecological Impact Measures

| EIA Ref                   | EM&A Ref    | Environmental Protection Measures*  | Location / Timing                          | Implementation Agent | Implementation Stages |   |   | Relevant Legislation & Guidelines |
|---------------------------|-------------|---|--|----------------------|-----------------------|---|---|-----------------------------------|
|                           |             |   |  |                      | D                     | C | O |                                   |
| <b>Construction Phase</b> |             |   |  |                      |                       |   |   |                                   |
| 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 and 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                 |

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

**Implementation Schedule of Landscape and Visual Impact Measures**

| EIA Ref                   | EM&A Ref | Environmental Protection Measures*  | Location / Timing | Implementation Agent | Implementation Stages ** |   |   | Relevant Legislation & Guidelines |
|---------------------------|----------|---|-------------------|----------------------|--------------------------|---|---|-----------------------------------|
|                           |          |   |                   |                      | D                        | C | O |                                   |
| <b>Construction Phase</b> |          |   |                   |                      |                          |   |   |                                   |
| 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 <i>Macaranga tanarius</i> 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

## **Appendix M**

### **Coral Monitoring Report**

## 1. BACKGROUND

- 1.1 Further to the Sewerage Master Plan (SMP) study of the Outlying Islands in 1994, Drainage Services Department (DSD) was commissioned by Environmental Protection Department (EPD) to carry out a Preliminary Project Feasibility Study (PPFS) for the Outlying Islands Sewerage Stage I Phase II in 1996. The project is part of an Outlying Islands Sewerage Project, which involves construction of a sewage treatment works (STW) and submarine outfalls of approximately 500m in length and 325mm in diameter at Yung Shue Wan (YSW) on Lamma Island. Coral colonies were recorded at YSW site during the Environmental Impact Assessment (EIA) under the Preliminary Investigations Study (PIS).
- 1.2 According to the construction information provided by the Contractor, the marine works in Yung Shue Wan has been ceased since 19 January 2012. As agreed by the IEC and RE, the ecology monitoring was suspended from 6 February 2012 until further notice of the commencement of dredging works.
- 1.3 It is noticed that the remaining dredging work in Yung Shuen Wan has been commenced on 23 November 2012 and the coral monitoring work was resumed.
- 1.4 The coral monitoring report presents the result coral monitoring exercise of corals at YSW and SW in December 2012 following the tagging for 20 corals on both sites for the Contract No. DC/2009/13 - Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan.

## 2. MONITORING EQUIPMENT

- 2.1 The monitoring equipment used for the coral monitoring are listed in **Table 2-1**.

**Table 2-1 Monitoring Equipment for the Coral Monitoring**

| Equipment                 | Model  |
|---------------------------|--|
| A4 size underwater slates | Handmade A4 size underwater slates   |
| Coral Photos              | Laminated Tagged Coral Photos  |
| Quadrat                   | 50 cm x 50 cm plastic quadrat (with 10 cm x 10 cm grid)                        |
| Underwater Camera         | Canon G10 digital camera   |
| Scuba Diving Equipment    | Scubapro regulator, BCD and fins   |
| Diving Boat               | 33 feet long diving boat with two 200hp outboard engines, registration #128328 |

## 3. MONITORING LOCATION

- 3.1 One control station at Sham Wan, Lamma Island and one impact stations at boulder seawall at Yung Shue Wan, Lamma Island were recommended in the *Method Statement Section 3.3*. These sites represent the coral site where uncommon coral species were recorded from the coral surveys carried out as part of the Review Report on the EIA Study. The coordinates of the monitoring location is listed in **Table 3-1**.

**Table 3-1 Locations of Coral Monitoring Station**

| Dive Site                   | Coordinates |            |
|-----------------------------|-------------|------------|
|                             | Easting     | Northing   |
| Yung Shue Wan, Lamma Island | 829180.06E  | 809555.76N |
| Sham Wan, Lamma Island      | 832160.86E  | 805738.31N |

## 4. METHODOLOGY

- 4.1 20 tagged hard coral colonies were monitored at the impact (Yung Shue Wan) and



control station (Sham Wan). Laminated photos of the tagged corals were used underwater to relocate and identify the tagged corals.

- 4.2 Three parameters were recorded for each tagged coral and these are:
- Percentage sediment cover
    - Increase % sediment cover caused by marine work will affect the health of coral as it will block the sunlight that reaches the corals, this may result in bleaching or death of the coral colonies.
  - Percentage bleached tissue – two bleaching categories will be recorded;
    - Unhealthy corals will show bleached tissue especially when sediment and turbidity increased, prolonged bleaching may result in total or partial death of the coral colonies.
    - Blanched or pale – a loss of zooxanthellae or photosynthetic pigments
    - Bleached – a total loss zooxanthellae and coral tissue still present
  - Percentage dead – total or partial mortality.
    - Increased in total or partial mortality rate may be caused by the marine work.
- 4.3 Each parameter was assessed as a percentage of total colony area. To aid percentage cover estimates a 50 x 50 cm<sup>2</sup> quadrat with a 10x10 cm<sup>2</sup> lined grid was used.
- 4.4 During each survey, diversity, abundance and health status of the corals in the general area will be recorded.
- 4.5 Photos of each tagged corals were also taken during the monitoring survey.

## 5. RESULTS

- 5.1 Coral monitoring was carried out on 4<sup>th</sup>, 15<sup>th</sup> and 25<sup>th</sup> March 2013. The weather conditions were summarised in **Table 5-1**.

**Table 5-1 Weather Conditions on 4<sup>th</sup>, 15<sup>th</sup> and 25<sup>th</sup> March 2013**

| Date              | 4 <sup>th</sup> March 2013 |       | 4 <sup>th</sup> March 2013 |      | 25 <sup>th</sup> March 2013 |      |
|-------------------|----------------------------|-------|----------------------------|------|-----------------------------|------|
|                   | YSW                        | YSW   | YSW                        | SW   | YSW                         | SW   |
| Survey Time       | 12:00                      | 12:00 | 9:30                       | 8:00 | 10:00                       | 8:30 |
| Tidal Height      | 1.0m                       |       | 1.0m                       |      | 1.6m                        |      |
| Air Temperature   | 14° C                      |       | 14° C                      |      | 25° C                       |      |
| Water Temperature | 19° C                      |       | 19° C                      |      | 17° C                       |      |
| Water Depth       | 2m                         | 2m    | 2m                         | 2.5m | 2m                          | 2.5m |
| Wind Speed        | East force 4-5             |       | East force 4-5             |      | East force 5-6              |      |
| Weather           | Sunny                      |       | Sunny                      |      | Sunny                       |      |
| Water Visibility  | 0.5m                       | 0.5m  | 0.5m                       | 1m   | 0.5m                        | 1m   |

### Yung Shue Wan

- 5.2 This site is mainly composed of artificial sloping boulders down to 2.5 meters depth along coral area. Areas deeper than 3 meters are mainly muddy and sandy bottoms. The coral coverage was about 5% in which most of them were located on the artificial sloping boulders. 20 hard coral colonies were monitored on 4<sup>th</sup>, 15<sup>th</sup> and 25<sup>th</sup> March 2013 and their species name, size and health condition were shown in **Table 5-2** to **Table 5-4**.
- 5.3 On 4<sup>th</sup> March, coral colony #14 was recorded with 1% sediment while on 15<sup>th</sup> March

coral colonies #14 and #18 were both recorded to have 1% sediment respective. No sediment was recorded in other coral colonies during the survey. No bleaching or mortality was recorded during the monitoring survey on the monitoring dates. Photos of each tagged corals were shown in **Appendix II**.

5.4 In general the diversity and abundance of corals in this area is relatively low and common respectively when compared with other coral area in Hong Kong such as Hoi Ha Wan and Sharp Island.

**Table 5-2 Species Name, Size and Health Condition for Tagged Corals in YSW on 4<sup>th</sup> March 2013**

| Site: Yung Shue Wan |                              |                   |                         | Bleaching (%)      |               |          | Total/Partial Mortality (%) | Remarks |
|---------------------|------------------------------|-------------------|-------------------------|--------------------|---------------|----------|-----------------------------|---------|
| Coral No.           | Species Name                 | Specific Location | Size (cm) (Max. Length) | Sediment Cover (%) | Blanched/Pale | Bleached |                             |         |
| 1                   | <i>Favites chinensis</i>     | Boulder           | 32                      | 0                  | 0             | 0        | 0                           | N/A     |
| 2                   | <i>Favia speciosa</i>        | Boulder           | 30                      | 0                  | 0             | 0        | 0                           | N/A     |
| 3                   | <i>Favites pentagona</i>     | Boulder           | 38                      | 0                  | 0             | 0        | 0                           | N/A     |
| 4                   | <i>Favia fava</i>            | Boulder           | 17                      | 0                  | 0             | 0        | 0                           | N/A     |
| 5                   | <i>Porites lutea</i>         | Boulder           | 43                      | 0                  | 0             | 0        | 0                           | N/A     |
| 6                   | <i>Porites lobata</i>        | Boulder           | 18                      | 0                  | 0             | 0        | 0                           | N/A     |
| 7                   | <i>Cyphastrea serailia</i>   | Boulder           | 26                      | 0                  | 0             | 0        | 0                           | N/A     |
| 8                   | <i>Favites chinensis</i>     | Boulder           | 22                      | 0                  | 0             | 0        | 0                           | N/A     |
| 9                   | <i>Favites pentagona</i>     | Boulder           | 106                     | 0                  | 0             | 0        | 0                           | N/A     |
| 10                  | <i>Coscinaraea n sp.</i>     | Boulder           | 16                      | 0                  | 0             | 0        | 0                           | N/A     |
| 11                  | <i>Goniopora stutchburyi</i> | Boulder           | 45                      | 0                  | 0             | 0        | 0                           | N/A     |
| 12                  | <i>Favites pentagona</i>     | Boulder           | 20                      | 0                  | 0             | 0        | 0                           | N/A     |
| 13                  | <i>Goniopora stutchburyi</i> | Boulder           | 28                      | 0                  | 0             | 0        | 0                           | N/A     |
| 14                  | <i>Porites lobata</i>        | Boulder           | 42                      | 1                  | 0             | 0        | 0                           | N/A     |
| 15                  | <i>Goniastrea aspera</i>     | Boulder           | 19                      | 0                  | 0             | 0        | 0                           | N/A     |
| 16                  | <i>Cyphastrea serailia</i>   | Boulder           | 16                      | 0                  | 0             | 0        | 0                           | N/A     |
| 17                  | <i>Plesiastrea versipora</i> | Boulder           | 27                      | 0                  | 0             | 0        | 0                           | N/A     |
| 18                  | <i>Goniopora stutchburyi</i> | Boulder           | 23                      | 0                  | 0             | 0        | 0                           | N/A     |
| 19                  | <i>Cyphastrea serailia</i>   | Boulder           | 21                      | 0                  | 0             | 0        | 0                           | N/A     |
| 20                  | <i>Porites lutea</i>         | Boulder           | 52                      | 0                  | 0             | 0        | 0                           | N/A     |

**Table 5-3 Species Name, Size and Health Condition for Tagged Corals in YSW on 15<sup>th</sup> March 2013**

| Site: Yung Shue Wan |                          |                   |                         | Bleaching (%)      |               |          | Total/Partial Mortality (%) | Remarks |
|---------------------|--------------------------|-------------------|-------------------------|--------------------|---------------|----------|-----------------------------|---------|
| Coral No.           | Species Name             | Specific Location | Size (cm) (Max. Length) | Sediment Cover (%) | Blanched/Pale | Bleached |                             |         |
| 1                   | <i>Favites chinensis</i> | Boulder           | 32                      | 0                  | 0             | 0        | 0                           | N/A     |
| 2                   | <i>Favia speciosa</i>    | Boulder           | 30                      | 0                  | 0             | 0        | 0                           | N/A     |
| 3                   | <i>Favites pentagona</i> | Boulder           | 38                      | 0                  | 0             | 0        | 0                           | N/A     |

|    |                              |         |     |   |   |   |   |     |
|----|------------------------------|---------|-----|---|---|---|---|-----|
| 4  | <i>Favia fava</i>            | Boulder | 17  | 0 | 0 | 0 | 0 | N/A |
| 5  | <i>Porites lutea</i>         | Boulder | 43  | 0 | 0 | 0 | 0 | N/A |
| 6  | <i>Porites lobata</i>        | Boulder | 18  | 0 | 0 | 0 | 0 | N/A |
| 7  | <i>Cyphastrea serailia</i>   | Boulder | 26  | 0 | 0 | 0 | 0 | N/A |
| 8  | <i>Favites chinensis</i>     | Boulder | 22  | 0 | 0 | 0 | 0 | N/A |
| 9  | <i>Favites pentagona</i>     | Boulder | 106 | 0 | 0 | 0 | 0 | N/A |
| 10 | <i>Coscinaraea n. sp.</i>    | Boulder | 16  | 0 | 0 | 0 | 0 | N/A |
| 11 | <i>Goniopora stutchburyi</i> | Boulder | 45  | 0 | 0 | 0 | 0 | N/A |
| 12 | <i>Favites pentagona</i>     | Boulder | 20  | 0 | 0 | 0 | 0 | N/A |
| 13 | <i>Goniopora stutchburyi</i> | Boulder | 28  | 0 | 0 | 0 | 0 | N/A |
| 14 | <i>Porites lobata</i>        | Boulder | 42  | 1 | 0 | 0 | 0 | N/A |
| 15 | <i>Goniastrea aspera</i>     | Boulder | 19  | 0 | 0 | 0 | 0 | N/A |
| 16 | <i>Cyphastrea serailia</i>   | Boulder | 16  | 0 | 0 | 0 | 0 | N/A |
| 17 | <i>Plesiastrea versipora</i> | Boulder | 27  | 0 | 0 | 0 | 0 | N/A |
| 18 | <i>Goniopora stutchburyi</i> | Boulder | 23  | 1 | 0 | 0 | 0 | N/A |
| 19 | <i>Cyphastrea serailia</i>   | Boulder | 21  | 0 | 0 | 0 | 0 | N/A |
| 20 | <i>Porites lutea</i>         | Boulder | 52  | 0 | 0 | 0 | 0 | N/A |

**Table 5-4 Species Name, Size and Heath Condition for Tagged Corals in YSW on 25<sup>th</sup> March 2013**

| Site: Yung Shue Wan |                              |                   |                         | Bleaching (%)      |               |          | Total/Partial Mortality (%) | Remarks |
|---------------------|------------------------------|-------------------|-------------------------|--------------------|---------------|----------|-----------------------------|---------|
| Coral No.           | Species Name                 | Specific Location | Size (cm) (Max. Length) | Sediment Cover (%) | Blanched/Pale | Bleached |                             |         |
| 1                   | <i>Favites chinensis</i>     | Boulder           | 32                      | 0                  | 0             | 0        | 0                           | N/A     |
| 2                   | <i>Favia speciosa</i>        | Boulder           | 30                      | 0                  | 0             | 0        | 0                           | N/A     |
| 3                   | <i>Favites pentagona</i>     | Boulder           | 38                      | 0                  | 0             | 0        | 0                           | N/A     |
| 4                   | <i>Favia fava</i>            | Boulder           | 17                      | 0                  | 0             | 0        | 0                           | N/A     |
| 5                   | <i>Porites lutea</i>         | Boulder           | 43                      | 0                  | 0             | 0        | 0                           | N/A     |
| 6                   | <i>Porites lobata</i>        | Boulder           | 18                      | 0                  | 0             | 0        | 0                           | N/A     |
| 7                   | <i>Cyphastrea serailia</i>   | Boulder           | 26                      | 0                  | 0             | 0        | 0                           | N/A     |
| 8                   | <i>Favites chinensis</i>     | Boulder           | 22                      | 0                  | 0             | 0        | 0                           | N/A     |
| 9                   | <i>Favites pentagona</i>     | Boulder           | 106                     | 0                  | 0             | 0        | 0                           | N/A     |
| 10                  | <i>Coscinaraea n. sp.</i>    | Boulder           | 16                      | 0                  | 0             | 0        | 0                           | N/A     |
| 11                  | <i>Goniopora stutchburyi</i> | Boulder           | 45                      | 0                  | 0             | 0        | 0                           | N/A     |
| 12                  | <i>Favites pentagona</i>     | Boulder           | 20                      | 0                  | 0             | 0        | 0                           | N/A     |
| 13                  | <i>Goniopora stutchburyi</i> | Boulder           | 28                      | 0                  | 0             | 0        | 0                           | N/A     |
| 14                  | <i>Porites lobata</i>        | Boulder           | 42                      | 0                  | 0             | 0        | 0                           | N/A     |
| 15                  | <i>Goniastrea aspera</i>     | Boulder           | 19                      | 0                  | 0             | 0        | 0                           | N/A     |
| 16                  | <i>Cyphastrea serailia</i>   | Boulder           | 16                      | 0                  | 0             | 0        | 0                           | N/A     |
| 17                  | <i>Plesiastrea versipora</i> | Boulder           | 27                      | 0                  | 0             | 0        | 0                           | N/A     |

| Site: Yung Shue Wan |                              |                   |                         | Bleaching (%)      |               |          | Total/Partial Mortality (%) | Remarks |
|---------------------|------------------------------|-------------------|-------------------------|--------------------|---------------|----------|-----------------------------|---------|
| Coral No.           | Species Name                 | Specific Location | Size (cm) (Max. Length) | Sediment Cover (%) | Blanched/Pale | Bleached |                             |         |
| 18                  | <i>Goniopora stutchburyi</i> | Boulder           | 23                      | 0                  | 0             | 0        | 0                           | N/A     |
| 19                  | <i>Cyphastrea serailia</i>   | Boulder           | 21                      | 0                  | 0             | 0        | 0                           | N/A     |
| 20                  | <i>Porites lutea</i>         | Boulder           | 52                      | 0                  | 0             | 0        | 0                           | N/A     |

### Sham Wan

- 5.5 This site is mainly composed of bedrocks and big boulders down to 3.5 meters depth along the surveyed route. Areas deeper than 4 meters are mainly sandy bottoms. The coral coverage was about 10% in which most of corals were located on boulders or rock surfaces. 20 hard coral colonies were monitored 4<sup>th</sup>, 15<sup>th</sup> and 25<sup>th</sup> March 2013 and their species name, size and health condition were shown in **Table 5-5** to **Table 5-7**.
- 5.6 On 4<sup>th</sup> March, both coral colonies #19 and #20 were recorded with 5% mortality. No sediment was recorded during the survey. No bleaching or mortality was recorded in other tagged coral colonies during the monitoring survey on the monitoring dates.
- Appendix II.**
- 5.7 In general the diversity and abundance of corals in this area is relatively low and common respectively when compared with other coral area in Hong Kong such as Hoi Ha Wan and Sharp Island.

**Table 5-5 Species Name, Size and Health Condition for Tagged Corals in SW on 4<sup>th</sup> March 2013**

| Site: Sham Wan |                              |                   |                         | Bleaching (%)      |               |          | Total/Partial Mortality (%) | Remarks |
|----------------|------------------------------|-------------------|-------------------------|--------------------|---------------|----------|-----------------------------|---------|
| Coral No.      | Species Name                 | Specific Location | Size (cm) (Max. Length) | Sediment Cover (%) | Blanched/Pale | Bleached |                             |         |
| 1              | <i>Favia fавus</i>           | Boulder           | 14                      | 0                  | 0             | 0        | 0                           | N/A     |
| 2              | <i>Favia rotumana</i>        | Boulder           | 21                      | 0                  | 0             | 0        | 0                           | N/A     |
| 3              | <i>Favia rotumana</i>        | Boulder           | 27                      | 0                  | 0             | 0        | 0                           | N/A     |
| 4              | <i>Favia fавus</i>           | Rock              | 20                      | 0                  | 0             | 0        | 0                           | N/A     |
| 5              | <i>Goniopora stutchburyi</i> | Bedrock           | 32                      | 0                  | 0             | 0        | 0                           | N/A     |
| 6              | <i>Porites lobata</i>        | Bedrock           | 43                      | 0                  | 0             | 0        | 0                           | N/A     |
| 7              | <i>Porites lobata</i>        | Boulder           | 23                      | 0                  | 0             | 0        | 0                           | N/A     |
| 8              | <i>Goniopora stutchburyi</i> | Bedrock           | 29                      | 0                  | 0             | 0        | 0                           | N/A     |
| 9              | <i>Favites pentagona</i>     | Bedrock           | 31                      | 0                  | 0             | 0        | 0                           | N/A     |
| 10             | <i>Porites lobata</i>        | Bedrock           | 34                      | 0                  | 0             | 0        | 0                           | N/A     |
| 11             | <i>Porites lobata</i>        | Boulder           | 33                      | 0                  | 0             | 0        | 0                           | N/A     |
| 12             | <i>Coscinaraea n sp.</i>     | Rock              | 15                      | 0                  | 0             | 0        | 0                           | N/A     |
| 13             | <i>Cyphastrea serailia</i>   | Bedrock           | 13                      | 0                  | 0             | 0        | 0                           | N/A     |
| 14             | <i>Cyphastrea serailia</i>   | Bedrock           | 12                      | 0                  | 0             | 0        | 0                           | N/A     |
| 15             | <i>Favia fавus</i>           | Boulder           | 14                      | 0                  | 0             | 0        | 0                           | N/A     |
| 16             | <i>Favia rotumana</i>        | Boulder           | 30                      | 0                  | 0             | 0        | 0                           | N/A     |

| Site: Sham Wan |                            |                   |                         | Bleaching (%)      |               |          | Total/Partial Mortality (%) | Remarks |
|----------------|----------------------------|-------------------|-------------------------|--------------------|---------------|----------|-----------------------------|---------|
| Coral No.      | Species Name               | Specific Location | Size (cm) (Max. Length) | Sediment Cover (%) | Blanched/Pale | Bleached |                             |         |
| 17             | <i>Favia fавus</i>         | Bedrock           | 26                      | 0                  | 0             | 0        | 0                           | N/A     |
| 18             | <i>Favia rotumana</i>      | Bedrock           | 28                      | 0                  | 0             | 0        | 0                           | N/A     |
| 19             | <i>Cyphastrea serailia</i> | Bedrock           | 39                      | 0                  | 0             | 0        | 5                           | N/A     |
| 20             | <i>Cyphastrea serailia</i> | Bedrock           | 27                      | 0                  | 0             | 0        | 5                           | N/A     |

**Table 5-6 Species Name, Size and Heath Condition for Tagged Corals in SW on 15<sup>th</sup> March 2013**

| Site: Sham Wan |                              |                   |                         | Bleaching (%)      |               |          | Total/Partial Mortality (%) | Remarks |
|----------------|------------------------------|-------------------|-------------------------|--------------------|---------------|----------|-----------------------------|---------|
| Coral No.      | Species Name                 | Specific Location | Size (cm) (Max. Length) | Sediment Cover (%) | Blanched/Pale | Bleached |                             |         |
| 1              | <i>Favia fавus</i>           | Boulder           | 14                      | 0                  | 0             | 0        | 0                           | N/A     |
| 2              | <i>Favia rotumana</i>        | Boulder           | 21                      | 0                  | 0             | 0        | 0                           | N/A     |
| 3              | <i>Favia rotumana</i>        | Boulder           | 27                      | 0                  | 0             | 0        | 0                           | N/A     |
| 4              | <i>Favia fавus</i>           | Rock              | 14                      | 0                  | 0             | 0        | 0                           | N/A     |
| 5              | <i>Goniopora stutchburyi</i> | Bedrock           | 32                      | 0                  | 0             | 0        | 0                           | N/A     |
| 6              | <i>Porites lobata</i>        | Bedrock           | 43                      | 0                  | 0             | 0        | 0                           | N/A     |
| 7              | <i>Porites lobata</i>        | Boulder           | 23                      | 0                  | 0             | 0        | 0                           | N/A     |
| 8              | <i>Goniopora stutchburyi</i> | Bedrock           | 29                      | 0                  | 0             | 0        | 0                           | N/A     |
| 9              | <i>Favites pentagona</i>     | Bedrock           | 31                      | 0                  | 0             | 0        | 0                           | N/A     |
| 10             | <i>Porites lobata</i>        | Bedrock           | 34                      | 0                  | 0             | 0        | 0                           | N/A     |
| 11             | <i>Porites lobata</i>        | Boulder           | 33                      | 0                  | 0             | 0        | 0                           | N/A     |
| 12             | <i>Coscinaraea n sp.</i>     | Rock              | 15                      | 0                  | 0             | 0        | 0                           | N/A     |
| 13             | <i>Cyphastrea serailia</i>   | Bedrock           | 13                      | 0                  | 0             | 0        | 0                           | N/A     |
| 14             | <i>Cyphastrea serailia</i>   | Bedrock           | 12                      | 0                  | 0             | 0        | 0                           | N/A     |
| 15             | <i>Favia fавus</i>           | Boulder           | 14                      | 0                  | 0             | 0        | 0                           | N/A     |
| 16             | <i>Favia rutomana</i>        | Boulder           | 30                      | 0                  | 0             | 0        | 0                           | N/A     |
| 17             | <i>Favia fавus</i>           | Bedrock           | 26                      | 0                  | 0             | 0        | 0                           | N/A     |
| 18             | <i>Favia rotumana</i>        | Bedrock           | 28                      | 0                  | 0             | 0        | 0                           | N/A     |
| 19             | <i>Cyphastrea serailia</i>   | Bedrock           | 39                      | 0                  | 0             | 0        | 0                           | N/A     |
| 20             | <i>Cyphastrea serailia</i>   | Bedrock           | 27                      | 0                  | 0             | 0        | 0                           | N/A     |

**Table 5-7 Species Name, Size and Heath Condition for Tagged Corals in SW on 25<sup>th</sup> March 2013**

| Site: Sham Wan |                    |                   |                         | Bleaching (%)      |               |          | Total/Partial Mortality (%) | Remarks |
|----------------|--------------------|-------------------|-------------------------|--------------------|---------------|----------|-----------------------------|---------|
| Coral No.      | Species Name       | Specific Location | Size (cm) (Max. Length) | Sediment Cover (%) | Blanched/Pale | Bleached |                             |         |
| 1              | <i>Favia fавus</i> | Boulder           | 14                      | 0                  | 0             | 0        | 0                           | N/A     |



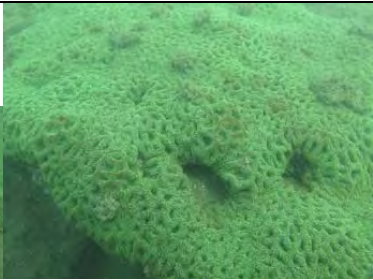



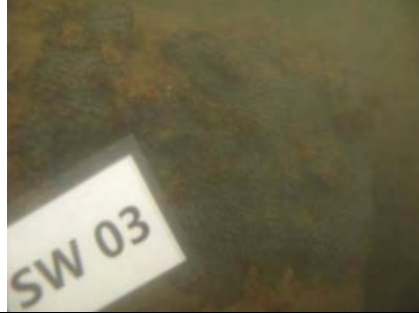








| Site: Sham Wan |                              |                   |                         | Bleaching (%)      |               |          | Total/Partial Mortality (%) | Remarks |
|----------------|------------------------------|-------------------|-------------------------|--------------------|---------------|----------|-----------------------------|---------|
| Coral No.      | Species Name                 | Specific Location | Size (cm) (Max. Length) | Sediment Cover (%) | Blanched/Pale | Bleached |                             |         |
| 2              | <i>Favia rotumana</i>        | Boulder           | 21                      | 0                  | 0             | 0        | 0                           | N/A     |
| 3              | <i>Favia rotumana</i>        | Boulder           | 27                      | 0                  | 0             | 0        | 0                           | N/A     |
| 4              | <i>Favia fавus</i>           | Rock              | 20                      | 0                  | 0             | 0        | 0                           | N/A     |
| 5              | <i>Goniopora stutchburyi</i> | Bedrock           | 32                      | 0                  | 0             | 0        | 0                           | N/A     |
| 6              | <i>Porites lobata</i>        | Bedrock           | 43                      | 0                  | 0             | 0        | 0                           | N/A     |
| 7              | <i>Porites lobata</i>        | Boulder           | 23                      | 0                  | 0             | 0        | 0                           | N/A     |
| 8              | <i>Goniopora stutchburyi</i> | Bedrock           | 29                      | 0                  | 0             | 0        | 0                           | N/A     |
| 9              | <i>Favites pentagona</i>     | Bedrock           | 31                      | 0                  | 0             | 0        | 0                           | N/A     |
| 10             | <i>Porites lobata</i>        | Bedrock           | 34                      | 0                  | 0             | 0        | 0                           | N/A     |
| 11             | <i>Porites lobata</i>        | Boulder           | 33                      | 0                  | 0             | 0        | 0                           | N/A     |
| 12             | <i>Coscinaraea n sp.</i>     | Rock              | 15                      | 0                  | 0             | 0        | 0                           | N/A     |
| 13             | <i>Cyphastrea serailia</i>   | Bedrock           | 13                      | 0                  | 0             | 0        | 0                           | N/A     |
| 14             | <i>Cyphastrea serailia</i>   | Bedrock           | 12                      | 0                  | 0             | 0        | 0                           | N/A     |
| 15             | <i>Favia fавus</i>           | Boulder           | 14                      | 0                  | 0             | 0        | 0                           | N/A     |
| 16             | <i>Favia rotumana</i>        | Boulder           | 30                      | 0                  | 0             | 0        | 0                           | N/A     |
| 17             | <i>Favia fавus</i>           | Bedrock           | 26                      | 0                  | 0             | 0        | 0                           | N/A     |
| 18             | <i>Favia rotumana</i>        | Bedrock           | 28                      | 0                  | 0             | 0        | 0                           | N/A     |
| 19             | <i>Cyphastrea serailia</i>   | Bedrock           | 39                      | 0                  | 0             | 0        | 0                           | N/A     |
| 20             | <i>Cyphastrea serailia</i>   | Bedrock           | 27                      | 0                  | 0             | 0        | 0                           | N/A     |


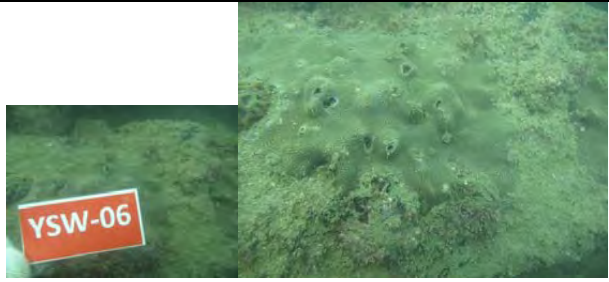





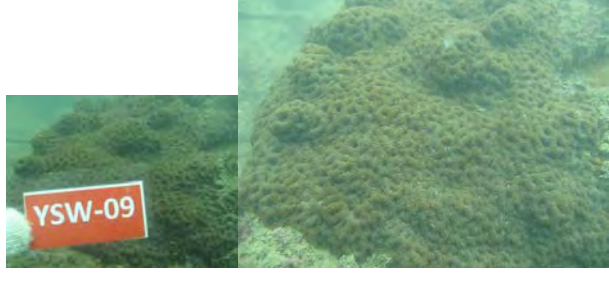


## 6. COMMENTS AND CONCLUSION

- 6.1 Coral monitoring were performed on 4<sup>th</sup>, 15<sup>th</sup> and 25<sup>th</sup> March 2013 at Yung Shue Wan and Sham Wan and 20 hard coral colonies were monitored at each sites.
- 6.2 In Yeung Shu Wan, coral colonies #14 and #18 were recorded to have 1% sediment on 15<sup>th</sup> March; coral colony #14 was recorded to have 1% sediment on 4<sup>th</sup> March. No sediment was recorded in other coral colonies during the survey. In Sham Wan, both coral colonies #19 and #20 were recorded with 5% mortality on 4<sup>th</sup> March. No sediment was recorded during the survey in Sham Wan. No beaching or mortality was recorded in SW and YSW during the monitoring period. The coral coverage in both impact site (YSW) and control site (SW) are relatively low when compared with other coral communities in Hong Kong (such as Sharp Island and Hoi Ha Wan). Most of the coral colonies recorded in both site are common species in Hong Kong water.
- 6.3 Partially mortality on the soft/black corals was not recorded at the monitoring site. No bleaching or deterioration in the general condition of the coral fauna was observed. No adverse deterioration of the coral community was observed in the ecological monitoring results when compared with the baseline ecological monitoring results.




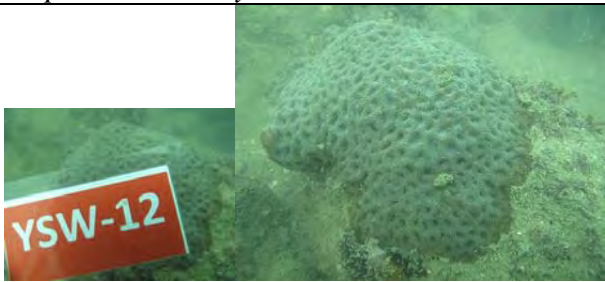

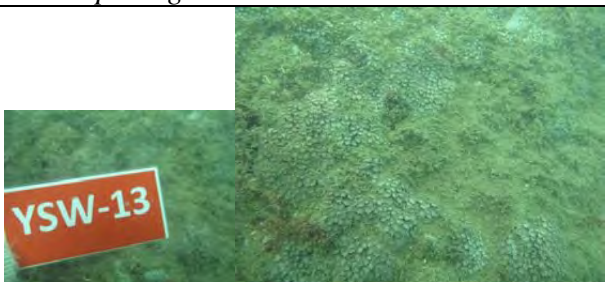

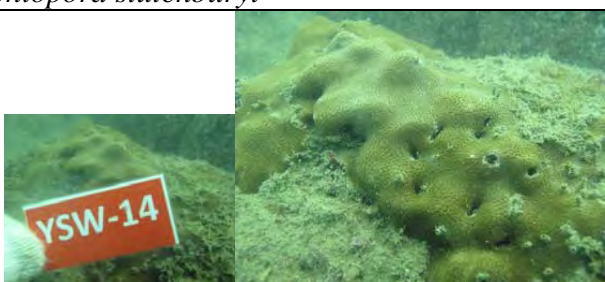
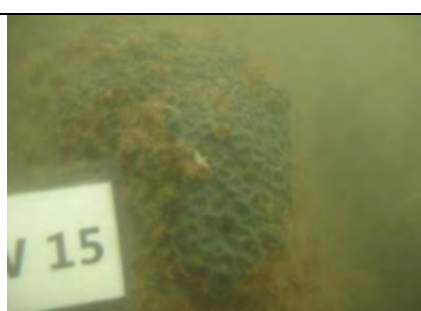
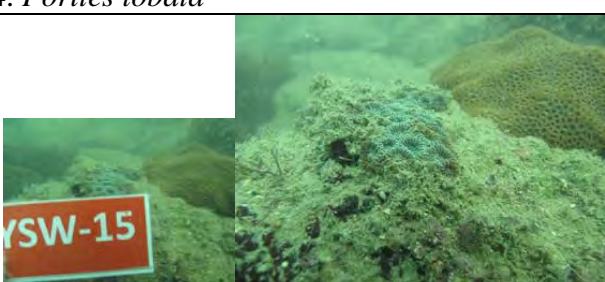


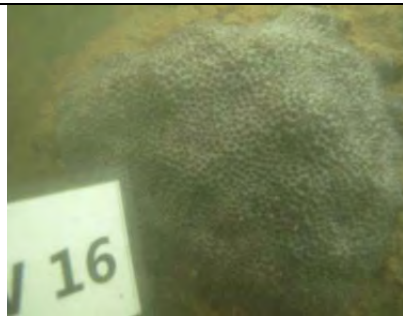


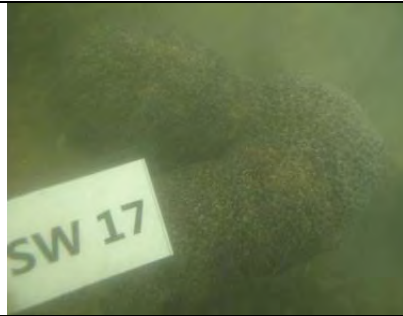

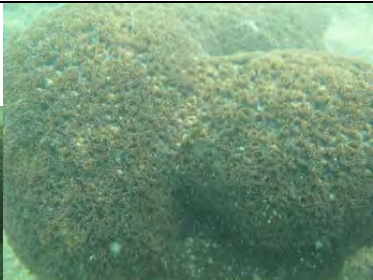


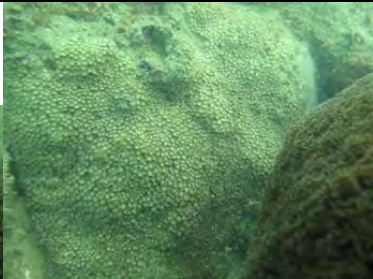
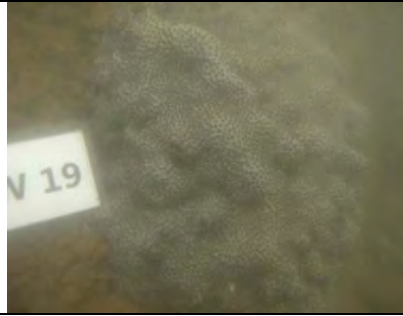





APPENDIX I Tagged Corals at Yung Shue Wan

| Baseline  | 4 <sup>th</sup> March 2013  |  |
|---|---|--|
|    |    |    |
| <i>01. Favites chinensis</i>  |   |  |
|    |    |    |
| <i>02. Favia speciosa</i>   |   |  |
|   |  |   |
| <i>03. Favites pentagona</i>  |   |  |
|  |  |  |
| <i>04. Favia fava</i>   |   |  |
|  |  |  |
| <i>05. Porites lutea</i>  |   |  |


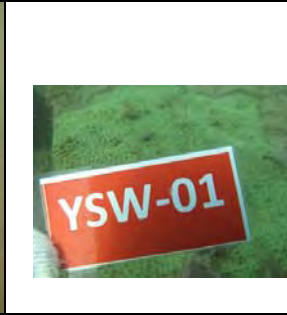
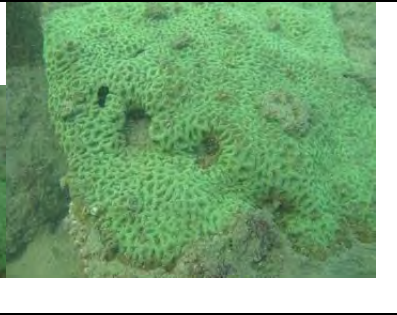

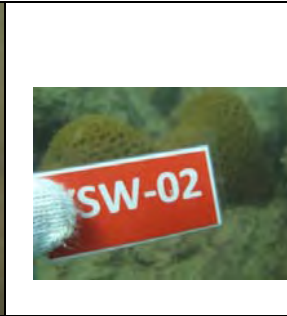

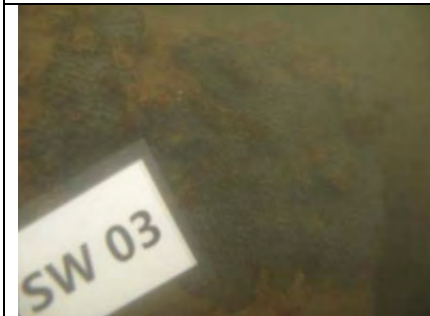
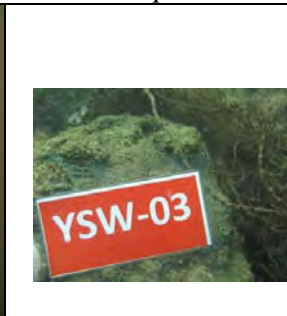


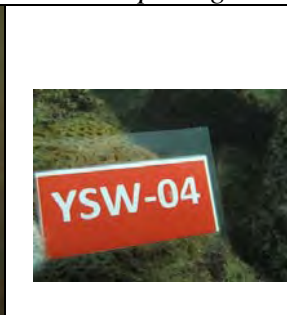


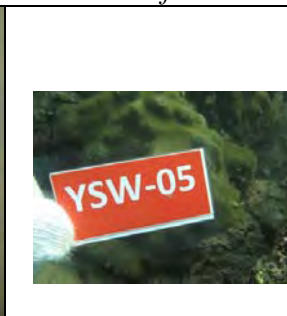

| Baseline  | 4 <sup>th</sup> March 2013   |  |
|---|--|--|
|    |    |  |
| <i>06. Porites lobata</i>   |  |  |
|    |    |  |
| <i>07. Cyphastrea serailia</i>  |  |  |
|   |   |  |
| <i>08. Favites chinensis</i>  |  |  |
|  |  |  |
| <i>09. Favites pentagona</i>  |  |  |
|  |  |  |
| <i>10. Coscinaraea sp.</i>  |  |  |
|   |  |  |



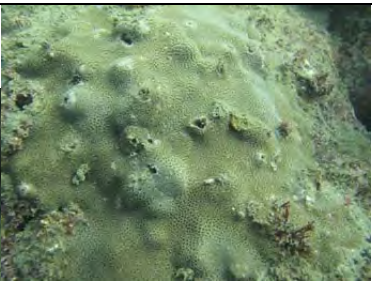
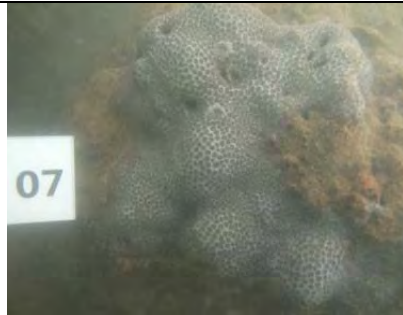




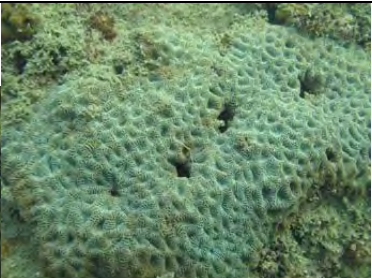





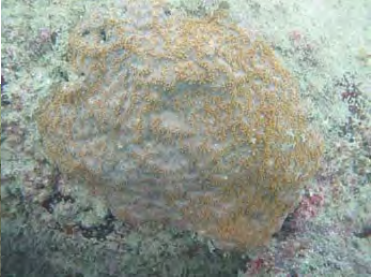


| Baseline  | 4 <sup>th</sup> March 2013   |  |
|---|--|--|
|    |    |  |
| <i>11. Goniopora stutchburyi</i>  |  |  |
|    |    |  |
| <i>12. Favites pentagona</i>  |  |  |
|   |   |  |
| <i>13. Goniopora stutchburyi</i>  |  |  |
|  |  |  |
| <i>14. Porites lobata</i>   |  |  |
|  |  |  |
| <i>15. Goniastrea aspera</i>  |  |  |


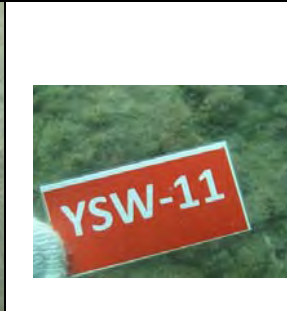


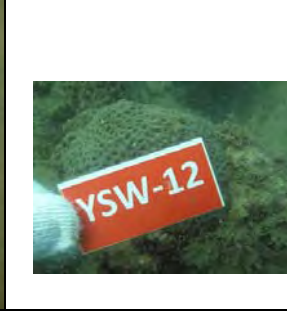





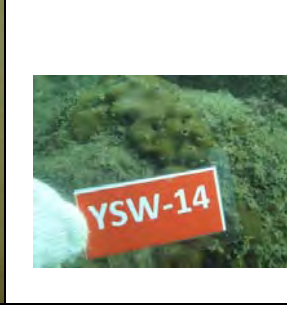



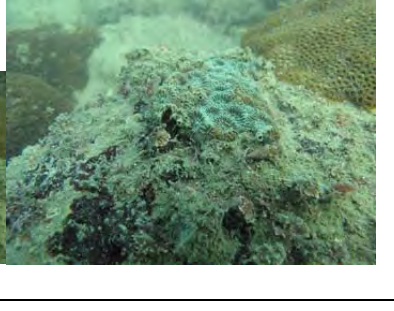
| Baseline  | 4 <sup>th</sup> March 2013  |  |
|---|---|--|
|    |    |    |
| <i>16. Cyphastrea serailia</i>  |   |  |
|    |    |    |
| <i>17. Plesiastrea versipora</i>  |   |  |
|   |  |   |
| <i>18. Goniopora stutchburyi</i>  |   |  |
|  |  |  |
| <i>19. Cyphastrea serailia</i>  |   |  |
|  |  |  |
| <i>20. Porites lutea</i>  |   |  |

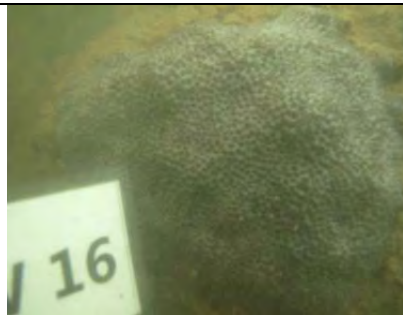
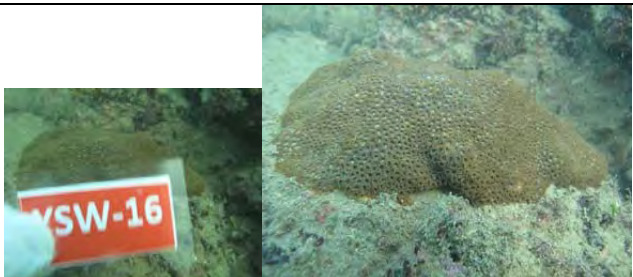
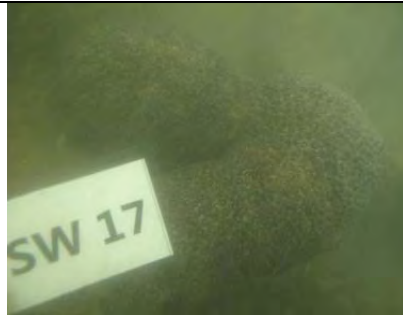



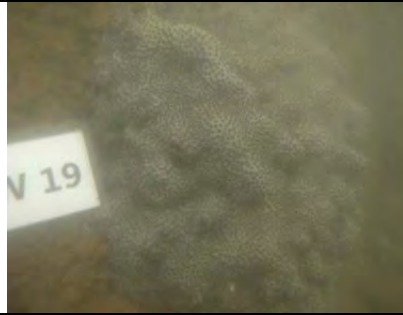


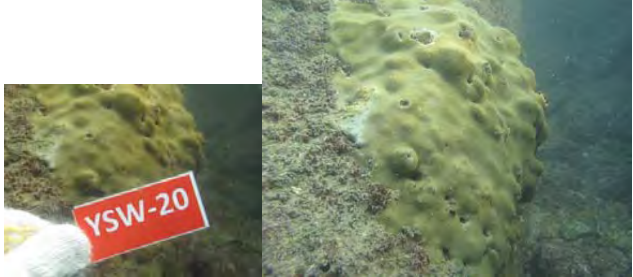


| Baseline  | 15 <sup>th</sup> March 2013   |  |
|---|---|--|
|    |    |    |
| <i>01. Favites chinensis</i>  |   |  |
|    |    |    |
| <i>02. Favia speciosa</i>   |   |  |
|   |   |   |
| <i>03. Favites pentagona</i>  |   |  |
|  |  |  |
| <i>04. Favia fava</i>   |   |  |
|  |  |  |
| <i>05. Porites lutea</i>  |   |  |



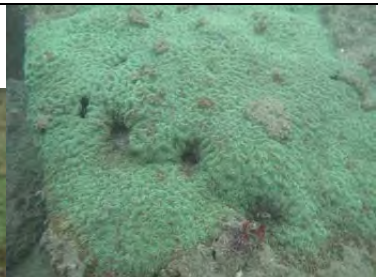



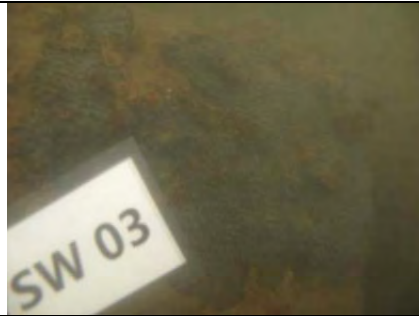

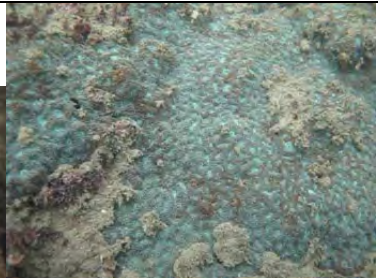





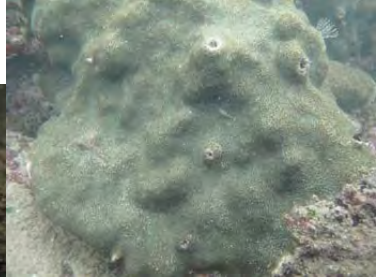
| Baseline  | 15 <sup>th</sup> March 2013   |  |
|---|---|--|
|    |    |    |
| <i>06. Porites lobata</i>   |   |  |
|    |    |    |
| <i>07. Cyphastrea serailia</i>  |   |  |
|   |  |   |
| <i>08. Favites chinensis</i>  |   |  |
|  |  |  |
| <i>09. Favites pentagona</i>  |   |  |
|  |  |  |
| <i>10. Coscinaraea sp.</i>  |   |  |



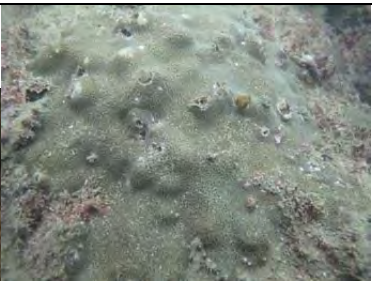
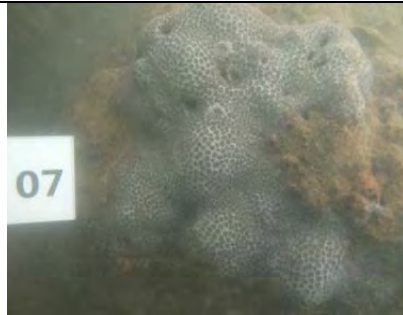










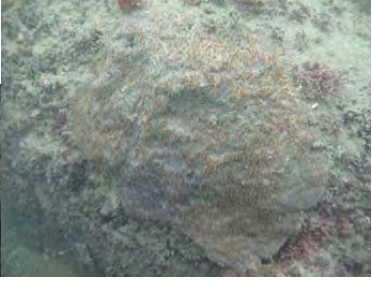


| Baseline  | 15 <sup>th</sup> March 2013   |  |
|---|---|--|
|    |    |    |
| <i>11. Goniopora stutchburyi</i>  |   |  |
|    |    |    |
| <i>12. Favites pentagona</i>  |   |  |
|   |   |   |
| <i>13. Goniopora stutchburyi</i>  |   |  |
|  |  |  |
| <i>14. Porites lobata</i>   |   |  |
|  |  |  |
| <i>15. Goniastrea aspera</i>  |   |  |









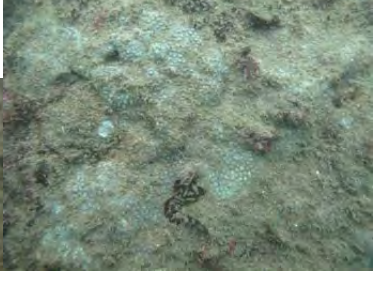



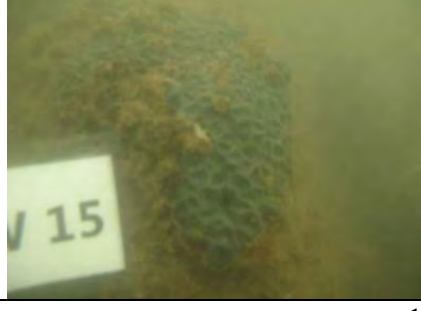


| Baseline  | 15 <sup>th</sup> March 2013  |  |
|---|--|--|
|    |    |  |
| <i>16. Cyphastrea serailia</i>  |  |  |
|    |    |  |
| <i>17. Plesiastrea versipora</i>  |  |  |
|   |   |  |
| <i>18. Goniopora stutchburyi</i>  |  |  |
|  |  |  |
| <i>19. Cyphastrea serailia</i>  |  |  |
|  |  |  |
| <i>20. Porites lutea</i>  |  |  |


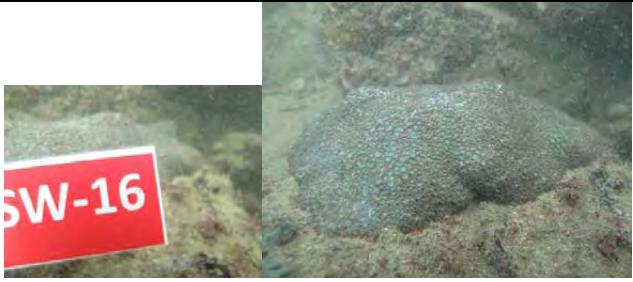
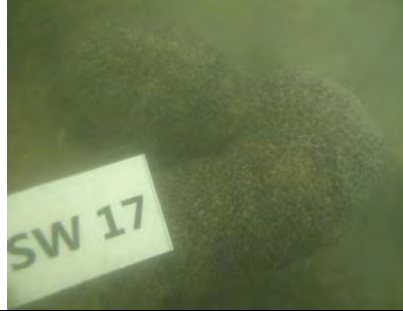



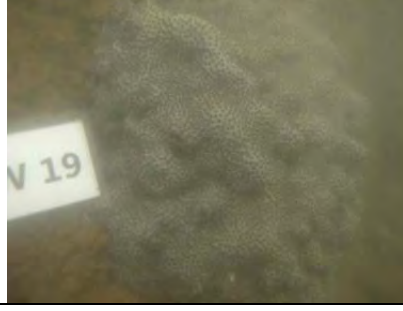





| Baseline  | 25 <sup>th</sup> March 2013   |  |
|---|---|--|
|    |    |    |
| <i>01. Favites chinensis</i>  |   |  |
|    |    |    |
| <i>02. Favia speciosa</i>   |   |  |
|   |  |   |
| <i>03. Favites pentagona</i>  |   |  |
|  |  |  |
| <i>04. Favia fava</i>   |   |  |
|  |  |  |
| <i>05. Porites lutea</i>  |   |  |

| Baseline  | 25 <sup>th</sup> March 2013   |  |
|---|---|--|
|    |    |    |
| <i>06. Porites lobata</i>   |   |  |
|    |    |    |
| <i>07. Cyphastrea serailia</i>  |   |  |
|   |  |   |
| <i>08. Favites chinensis</i>  |   |  |
|  |  |  |
| <i>09. Favites pentagona</i>  |   |  |
|  |  |  |
| <i>10. Coscinaraea sp.</i>  |   |  |


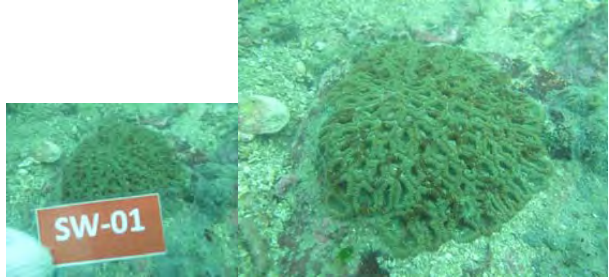

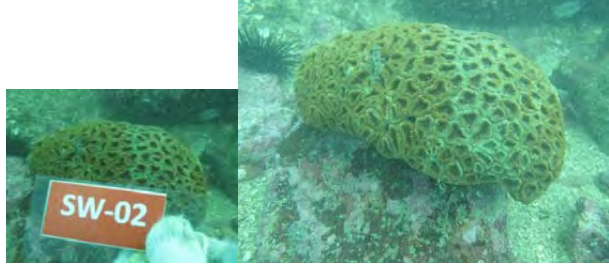





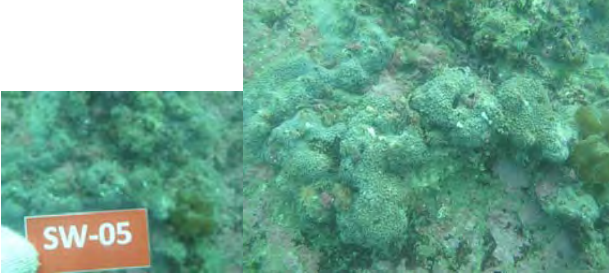


| Baseline  | 25 <sup>th</sup> March 2013   |  |
|---|---|--|
|    |    |    |
| <i>11. Goniopora stutchburyi</i>  |   |  |
|    |    |    |
| <i>12. Favites pentagona</i>  |   |  |
|   |  |   |
| <i>13. Goniopora stutchburyi</i>  |   |  |
|  |  |  |
| <i>14. Porites lobata</i>   |   |  |
|  |  |  |
| <i>15. Goniastrea aspera</i>  |   |  |


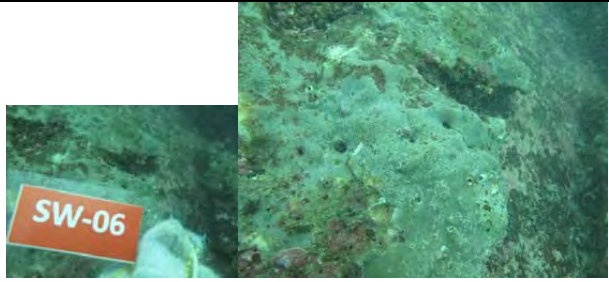

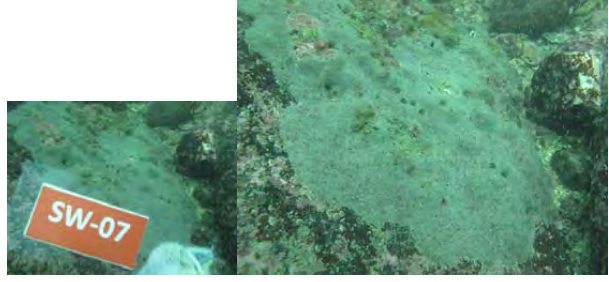


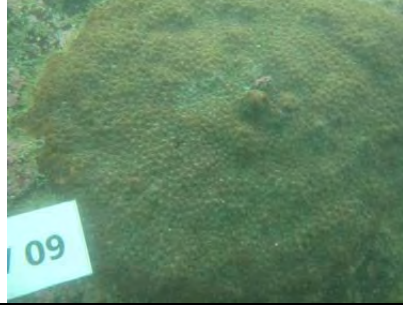
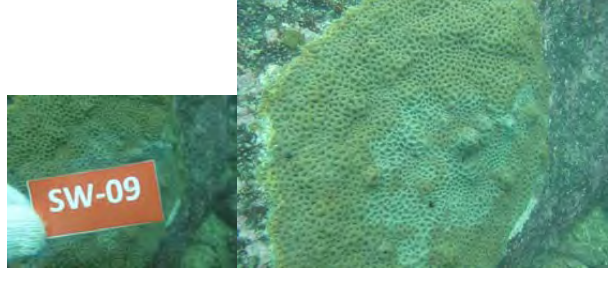

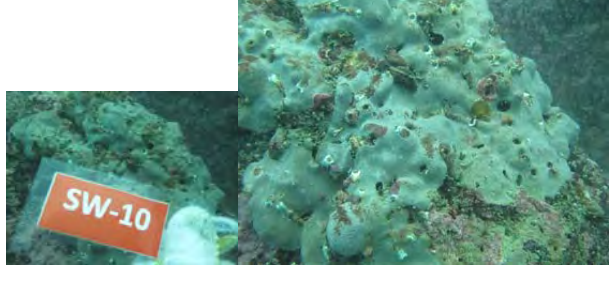
| Baseline  | 25 <sup>th</sup> March 2013  |  |
|---|--|--|
|    |    |  |
| <i>16. Cyphastrea serailia</i>  |  |  |
|    |    |  |
| <i>17. Plesiastrea versipora</i>  |  |  |
|   |   |  |
| <i>18. Goniopora stutchburyi</i>  |  |  |
|  |  |  |
| <i>19. Cyphastrea serailia</i>  |  |  |
|  |  |  |
| <i>20. Porites lutea</i>  |  |  |



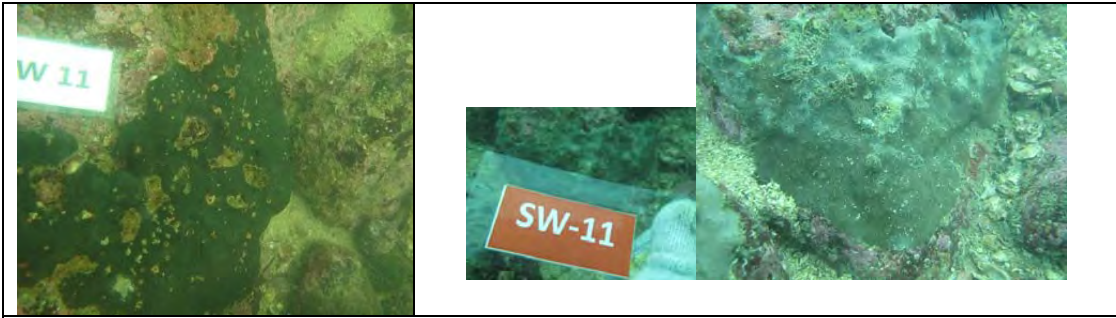
**APPENDIX II Tagged Corals at Sham Wan**

| Baseline   | 4 <sup>th</sup> March 2013  |
|--|---|
|  <p>SW 01</p>   |  <p>SW-01</p>   |
| <i>01. Favia favus</i>   |   |
|  <p>SW 02</p>   |  <p>SW-02</p>   |
| <i>02. Favia rotumana</i>  |   |
|  <p>SW 03</p>  |  <p>SW-03</p>  |
| <i>03. Favia rotumana</i>  |   |
|  <p>SW 04</p> |  <p>SW-04</p> |
| <i>04. Favia favus</i>   |   |
|  <p>SW 05</p> |  <p>SW-05</p> |
| <i>05. Goniopora stutchburyi</i>   |   |

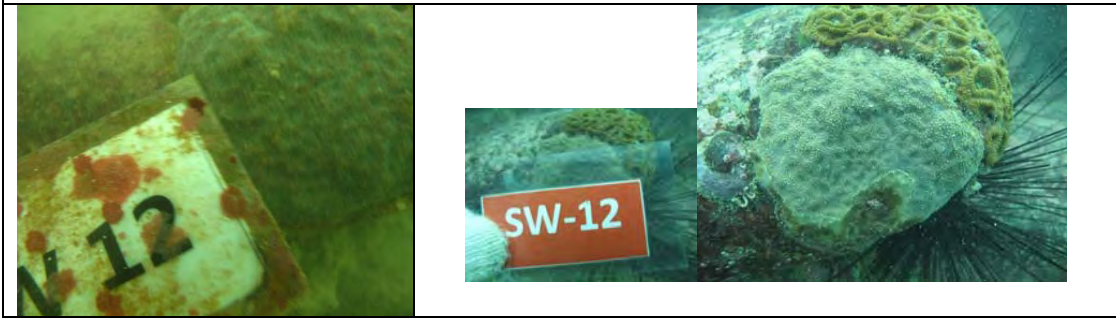


| Baseline  | 4 <sup>th</sup> March 2013   |  |
|---|--|--|
|    |    |  |
| <i>06. Porites lobata</i>   |  |  |
|    |    |  |
| <i>07. Porites lobata</i>   |  |  |
|   |   |  |
| <i>08. Goniopora stutchburyi</i>  |  |  |
|  |  |  |
| <i>09. Favites pentagona</i>  |  |  |
|  |  |  |
| <i>10. Porites lobata</i>   |  |  |
| Baseline  | 4 <sup>th</sup> March 2013   |  |

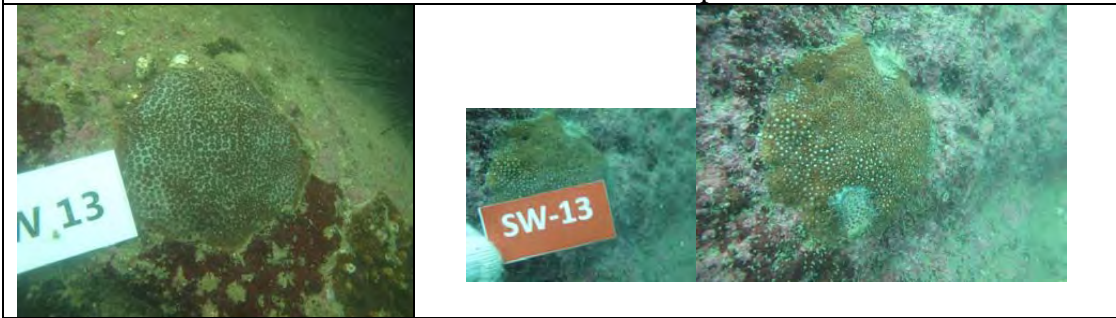




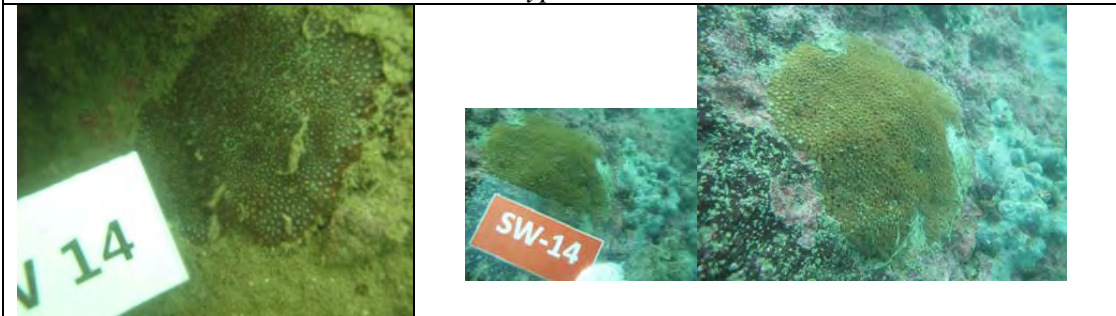
*11. Porites lobata*



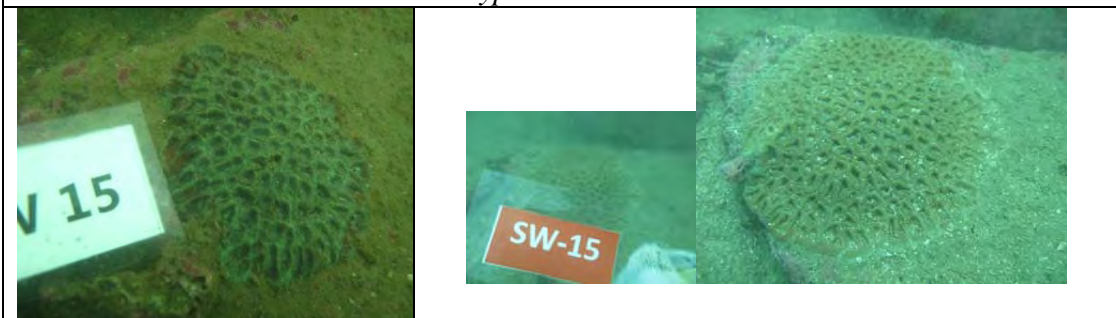
*12. Coscinaraea n sp.*






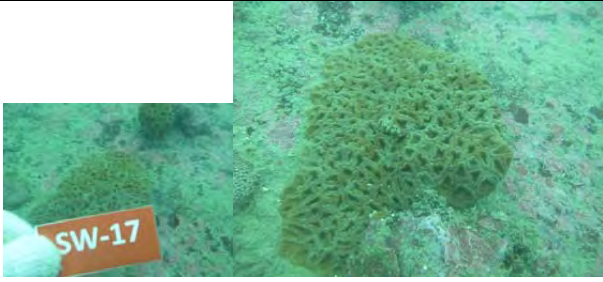



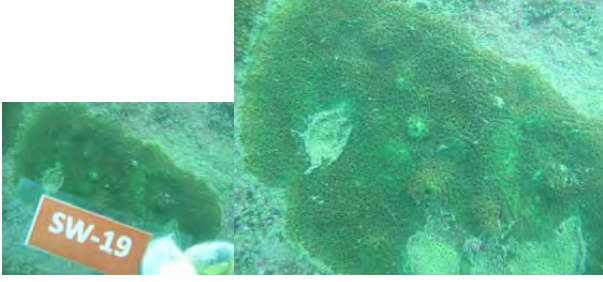
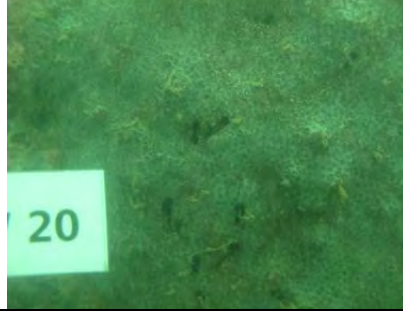

*13. Cyphastrea serailia*







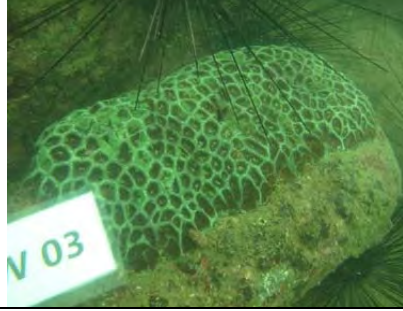




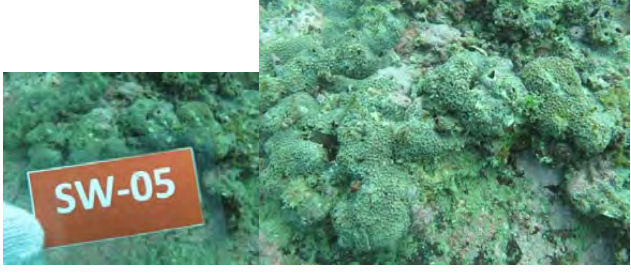
*14. Cyphastrea serailia*




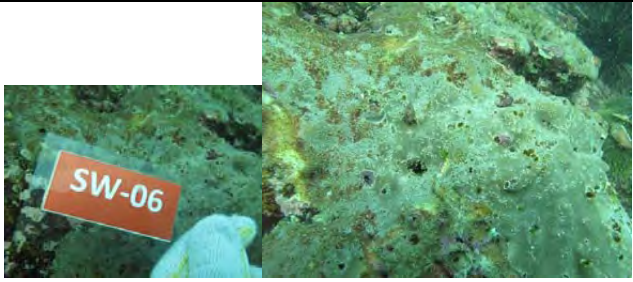

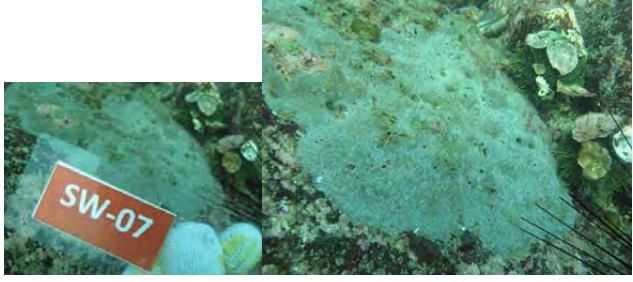

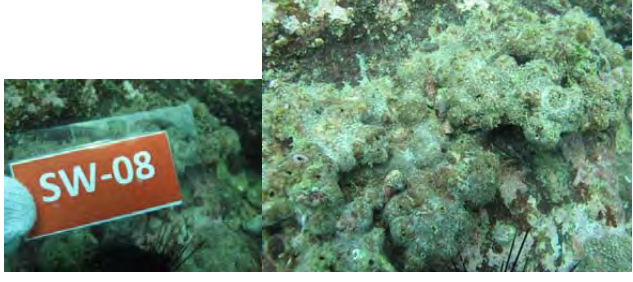
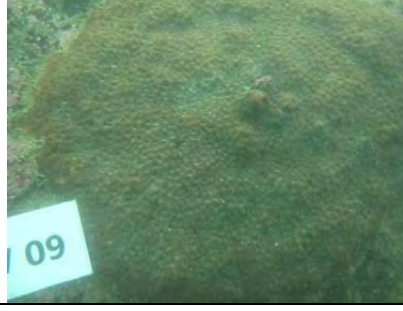
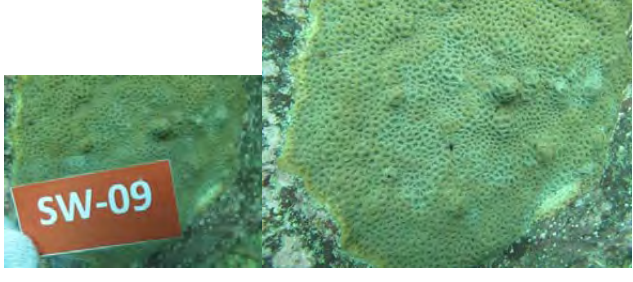


*15. Favia favus*

| Baseline  | 4 <sup>th</sup> March 2013   |  |
|---|--|--|
|    |    |  |
| <i>16. Favia rotumana</i>   |  |  |
|    |    |  |
| <i>17. Favia favus</i>  |  |  |
|   |   |  |
| <i>18. Favia rotumana</i>   |  |  |
|  |  |  |
| <i>19. Cyphastrea serailia</i>  |  |  |
|  |  |  |
| <i>20. Cyphastrea serailia</i>  |  |  |


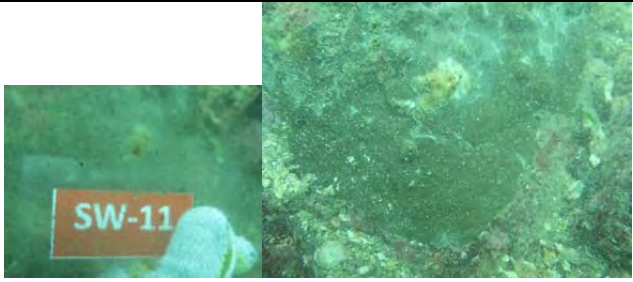


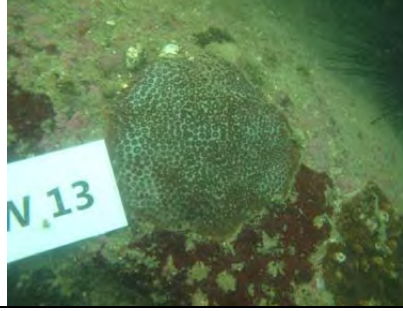
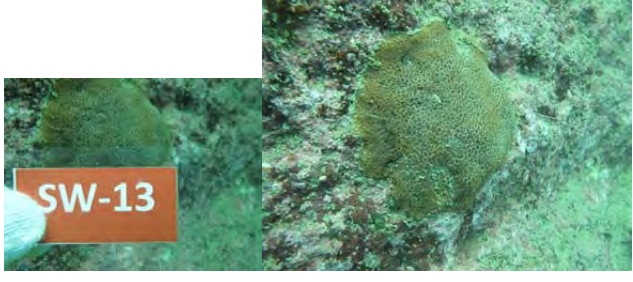

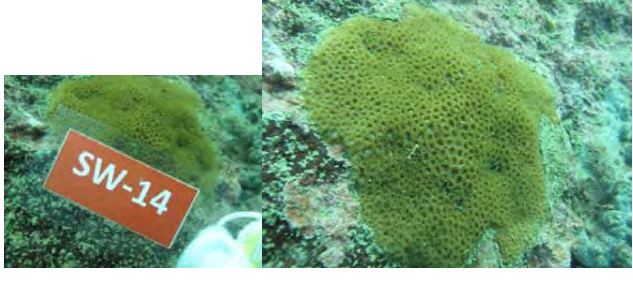




| Baseline  | 15 <sup>th</sup> March 2013  |  |
|---|--|--|
|    |    |  |
| <i>01. Favia favaus</i>   |  |  |
|    |    |  |
| <i>02. Favia rotumana</i>   |  |  |
|   |   |  |
| <i>03. Favia rotumana</i>   |  |  |
|  |  |  |
| <i>04. Favia favaus</i>   |  |  |
|  |  |  |
| <i>05. Goniopora stutchburyi</i>  |  |  |




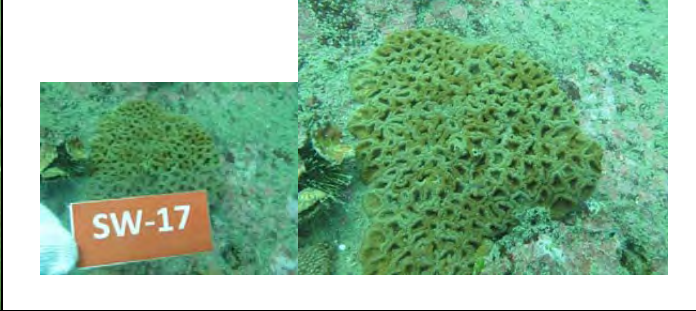
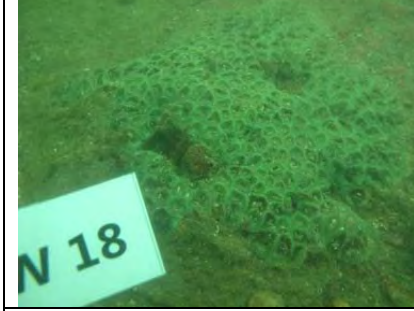


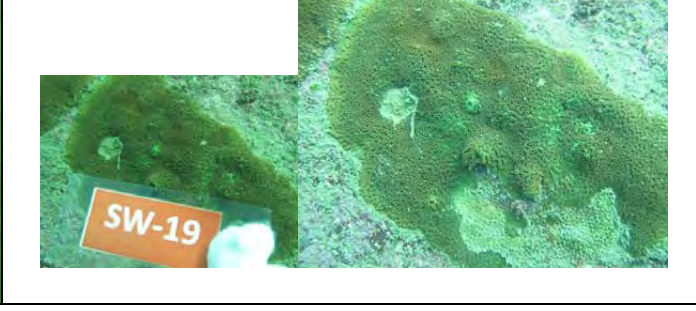
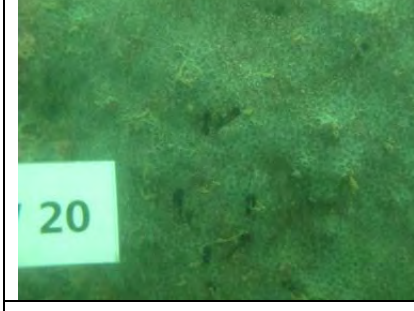
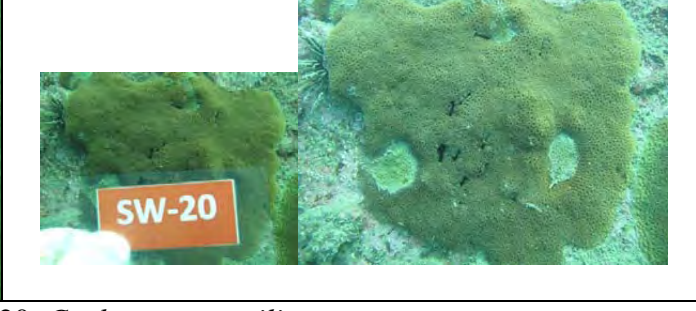


| Baseline  | 15 <sup>th</sup> March 2013  |  |
|---|--|--|
|    |    |  |
| <i>06. Porites lobata</i>   |  |  |
|    |    |  |
| <i>07. Porites lobata</i>   |  |  |
|   |   |  |
| <i>08. Goniopora stutchburyi</i>  |  |  |
|  |  |  |
| <i>09. Favites pentagona</i>  |  |  |
|  |  |  |
| <i>10. Porites lobata</i>   |  |  |


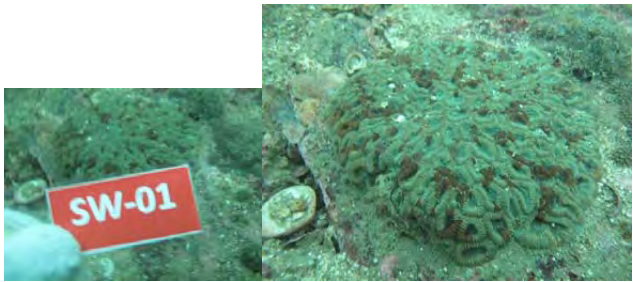


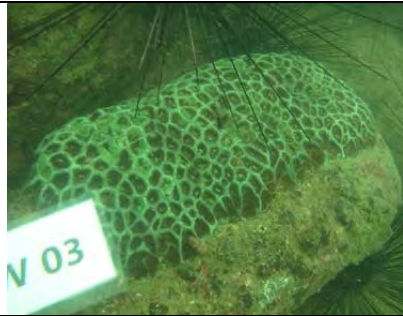



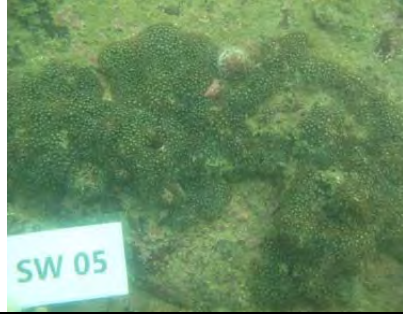



| Baseline  | 15 <sup>th</sup> March 2013  |  |
|---|--|--|
|    |    |  |
| <i>11. Porites lobata</i>   |  |  |
|    |    |  |
| <i>12. Coscinaraea n sp.</i>  |  |  |
|   |   |  |
| <i>13. Cyphastrea serailia</i>  |  |  |
|  |  |  |
| <i>14. Cyphastrea serailia</i>  |  |  |
|  |  |  |
| <i>15. Favia fava</i>   |  |  |

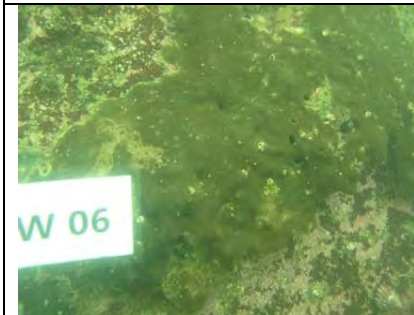
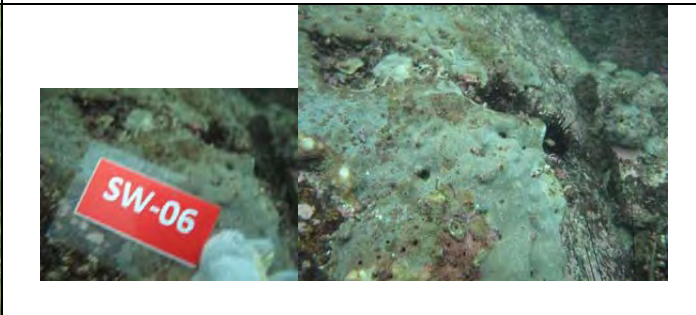
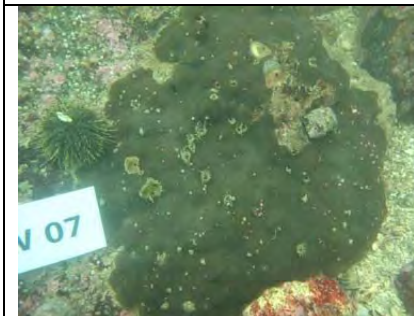
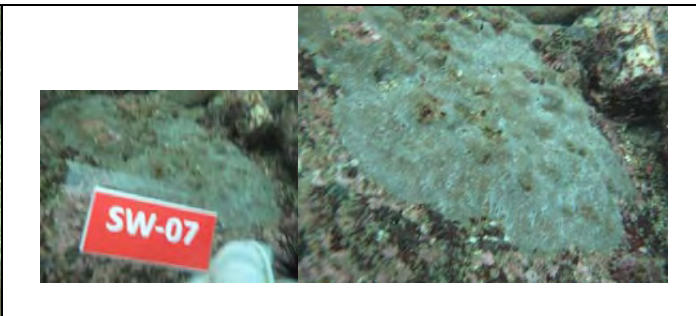
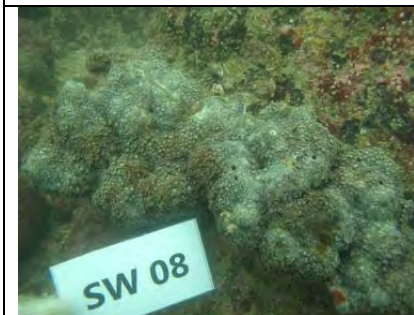

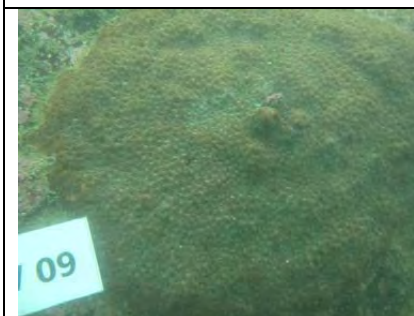
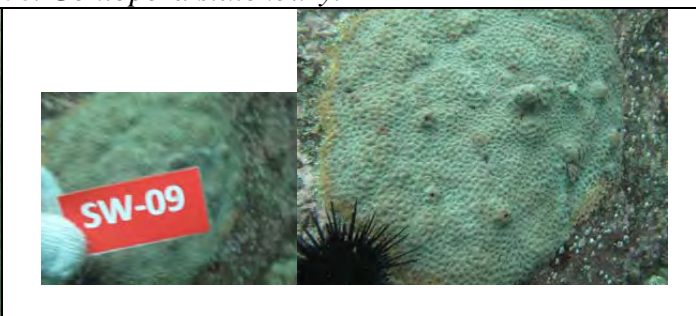
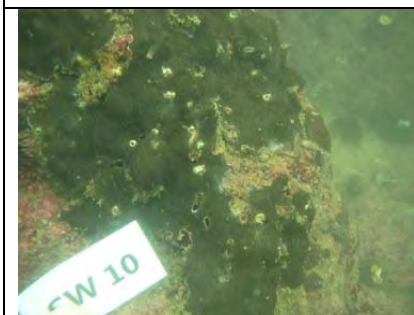
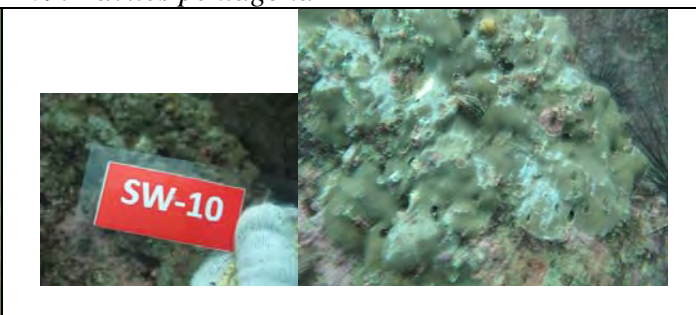


| Baseline  | 15 <sup>th</sup> March 2013  |  |
|---|--|--|
|    |    |  |
| <i>16. Favia rotumana</i>   |  |  |
|    |    |  |
| <i>17. Favia favus</i>  |  |  |
|   |   |  |
| <i>18. Favia rotumana</i>   |  |  |
|  |  |  |
| <i>19. Cyphastrea serailia</i>  |  |  |
|  |  |  |
| <i>20. Cyphastrea serailia</i>  |  |  |




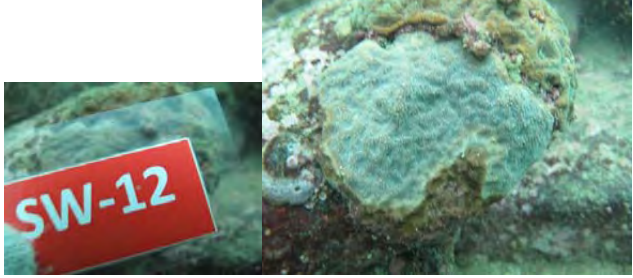
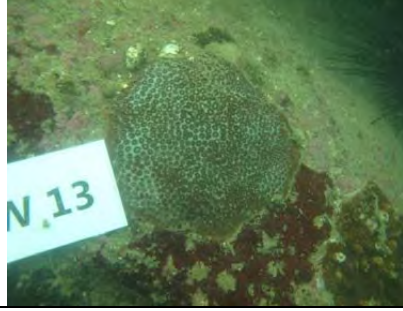
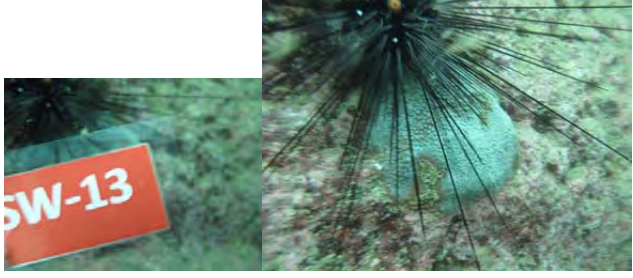

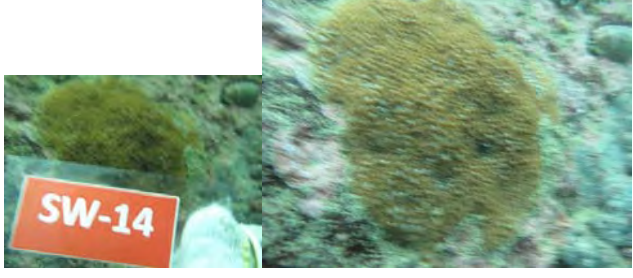

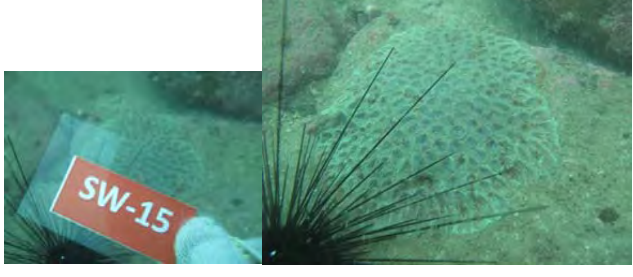


| Baseline  | 25 <sup>th</sup> March 2013  |
|---|--|
|    |    |
| <i>01. Favia favaus</i>   |  |
|    |    |
| <i>02. Favia rotumana</i>   |  |
|   |   |
| <i>03. Favia rotumana</i>   |  |
|  |  |
| <i>04. Favia favaus</i>   |  |
|  |  |
| <i>05. Goniopora stutchburyi</i>  |  |





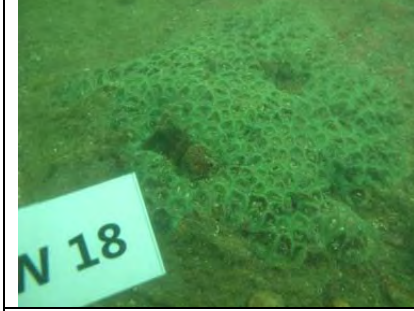



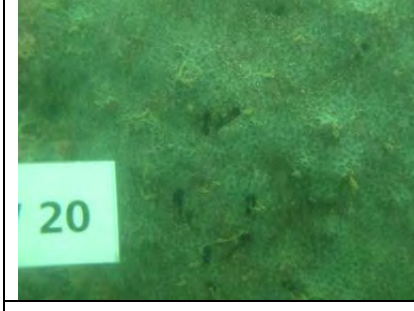



| Baseline  | 25 <sup>th</sup> March 2013  |  |
|---|--|--|
|    |    |  |
| <i>06. Porites lobata</i>   |  |  |
|    |    |  |
| <i>07. Porites lobata</i>   |  |  |
|   |   |  |
| <i>08. Goniopora stutchburyi</i>  |  |  |
|  |  |  |
| <i>09. Favites pentagona</i>  |  |  |
|  |  |  |
| <i>10. Porites lobata</i>   |  |  |



| Baseline  | 25 <sup>th</sup> March 2013  |  |
|---|--|--|
|    |    |  |
| <i>11. Porites lobata</i>   |  |  |
|    |    |  |
| <i>12. Coscinaraea n sp.</i>  |  |  |
|   |   |  |
| <i>13. Cyphastrea serailia</i>  |  |  |
|  |  |  |
| <i>14. Cyphastrea serailia</i>  |  |  |
|  |  |  |
| <i>15. Favia favius</i>   |  |  |



| Baseline  | 25 <sup>th</sup> March 2013  |  |
|---|--|--|
|    |    |  |
| <i>16. Favia rotumana</i>   |  |  |
|    |    |  |
| <i>17. Favia favaus</i>   |  |  |
|   |  |  |
| <i>18. Favia rotumana</i>   |  |  |
|  |  |  |
| <i>19. Cyphastrea serailia</i>  |  |  |
|  |  |  |
| <i>20. Cyphastrea serailia</i>  |  |  |