



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.17) – JANUARY 2012**

PREPARED FOR  
**LEADER CIVIL ENGINEERING CORPORATION LIMITED**

**Quality Index**

<b>Date</b>	<b>Reference No.</b>	<b>Prepared By</b>	<b>Approved By</b>
13 February 2012	TCS00512/09/600/R0426v2		
		Nicola Hon Environmental Consultant	T.W. Tam Environmental Team Leader

<b>Version</b>	<b>Date</b>	<b>Description</b>
1	8 February 2012	First Submission
2	13 February 2012	Amended against IEC's comments on 9 January 2012

# Scott Wilson CDM Joint Venture

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

Your reference:

Our reference: 05117/6/16/385903

Date: 14 February 2012

Attention: Mr. Kenley C K Kwok

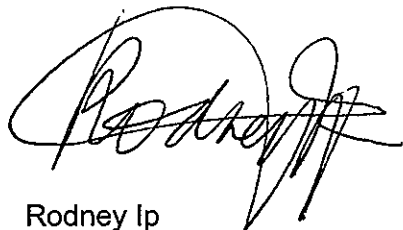
**BY FAX AND EMAIL**

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. 17 (January 2012)**

We refer to the Monthly EM&A Monitoring Report No. 17 for January 2012 received under cover of the email from the Environmental Team, Action-United Environmental Services and Consulting (AUES), dated on 13 February 2012. We have no comment and have verified the captioned report.

Yours faithfully  
SCOTT WILSON CDM JOINT VENTURE



Rodney Ip

ICWR/SYSL/ecwc

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

## EXECUTIVE SUMMARY

ES.01. This is the 17<sup>th</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 **1 to 31 January 2012** (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	8
Construction Noise	Leq (30min) Daytime	5
Water Quality	Marine Water Sampling	11
Ecology	Coral Monitoring	2
Inspection / Audit	ET Regular Environmental Site Inspection	4

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

ES.03. No exceedance in construction noise, air quality and water quality monitoring were 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	Leq <sub>30min</sub> 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

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

ES.04. No written or verbal complaint, environmental summons or successful prosecutions were recorded in this Reporting Period.

### REPORTING CHANGE

ES.05. There are no reporting changes in this Reporting Period.

### SITE INSPECTION BY EXTERNAL PARTIES

ES.06. 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.

### FUTURE KEY ISSUES

ES.07. During dry and windy season, construction dust would be the key environmental issue to concern. The construction dust mitigation measures identified at the EM&A Manual such as watering at haul road and covering of dusty material should be implemented and properly maintained.

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 also.



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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 17<sup>th</sup> monthly EM&A Report for Yung Shue Wan Portion Area which presenting the monitoring results and inspection findings in the Reporting Period from **1 to 31 January 2012**.

### 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>
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<b>SECTION 8</b>	<b>WASTE MANAGEMENT</b>
<b>SECTION 9</b>	<b>SITE INSPECTIONS</b>
<b>SECTION 10</b>	<b>ENVIRONMENTAL COMPLAINTS AND NON-COMPLIANCE</b>
<b>SECTION 11</b>	<b>IMPLEMENTATION STATUSES 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 Sewage Treatment Works
  - Construction of Submarine Outfall

### 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 Case No: 317486
2	Chemical Waste Producer Registration	Issued on 8/6/2010 WPN 5213-912-L2720-01
3	Water Pollution Control Ordinance	Issued on 22/9/2010 WT00007566-2010
4	Billing Account for Disposal of Construction Waste	Issued on 26 May 2010 A/C No: 7010815
5	Construction Noise Permit (no. GW-RS0045-12)	Issued on 20 January 2012 Valid from 20 January 2012 until 19 July 2012

- 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/R0011 Ver.5)	Verified by IEC and submitted to EPD on 8 July 2010
2	Method Statement for Coral Monitoring – Yung Shue Wan (TCS00512/09/600/R0071 Ver.3)	Verified by IEC and submitted to EPD on 25 November 2010
3	Baseline Air and Noise Monitoring Report - Volume 1 (TCS00512/09/600/R0061 Ver.3)	Verified by IEC and submitted to EPD on 31 August 2010
4	Baseline Monitoring Report Volume 2 - Water Quality (TCS00512/09/600/R0158 Ver.2)	Verified by IEC and submitted to EPD on 10 March 2011
5	Baseline Survey for Coral Monitoring – Yung Shue Wan (TCS00512/09/600/R0132 Ver.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/R0214 Ver.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>• Leq (30min) during normal working hours; and</li> <li>• Leq (15min) during Restricted Hours.</li> </ul>
Marine Water Quality	<p><b><i>In-situ Measurements</i></b></p> <ul style="list-style-type: none"> <li>• Dissolved Oxygen Concentration (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.

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

- 3.32 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) (mg/L)	Action Level	3.63	3.53	3.61
	Limit Level	3.32	3.47	3.42
DO Concentration (Bottom) (mg/L)	Action Level	3.33	2.92	3.36
	Limit Level	3.23	2.63	3.14
Turbidity (Depth-Average) (NTU)	Action Level	10.94	14.16	14.99
	Limit Level	17.35	15.20	16.21

Parameter	Performance Criteria	Impact Station		
		WY1	WY2	WY3
Suspended Solids (Depth-Average) (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. 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). 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.

- 3.33 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan enclosed in [Appendix F](#).

#### 4 IMPACT MONITORING RESULTS - AIR QUALITY

4.01 As informed by Leader, the construction of relevant land works at Yung Shue Wan was commenced on 14 September 2010, therefore, the impact EM&A 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 ( $\mu\text{g}/\text{m}^3$ )	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
5-Jan-12	156	3-Jan-12	10:08	82	84	73
11-Jan-12	135	9-Jan-12	8:36	72	79	77
17-Jan-12	63	13-Jan-12	8:21	77	86	80
27-Jan-12	38	19-Jan-12	10:45	74	79	68
		27-Jan-12	10:18	76	84	87
Average (Range)	<b>98</b> <b>(38 – 156)</b>	Average (Range)		<b>79</b> <b>(68 – 87)</b>		

\* Action Level exceedance

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

Date	24-hour TSP ( $\mu\text{g}/\text{m}^3$ )	1-hour TSP ( $\mu\text{g}/\text{m}^3$ )				
		Date	Start Time	1 <sup>st</sup> hour measured	2 <sup>nd</sup> hour measured	3 <sup>rd</sup> hour measured
5-Jan-12	64	3-Jan-12	13:19	78	72	87
11-Jan-12	74	9-Jan-12	14:18	92	84	88
17-Jan-12	79	13-Jan-12	11:49	92	81	88
27-Jan-12	34	19-Jan-12	13:27	86	79	87
		27-Jan-12	12:29	86	81	72
Average (Range)	<b>63</b> <b>(34 – 79)</b>	Average (Range)		<b>84</b> <b>(72 – 92)</b>		

\* Action Level exceedance

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

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

## 5 IMPACT MONITORING RESULTS – CONSTRUCTION NOISE

5.01 The noise monitoring results are presented in the following sub-sections.

### Result

5.02 In this report period, 5 construction noise monitoring events were undertaken at designated location NC05. The results for Leq<sub>30min</sub> 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 Leq5	2 <sup>nd</sup> set Leq5	3 <sup>rd</sup> set Leq5	4 <sup>th</sup> set Leq5	5 <sup>th</sup> set Leq5	6 <sup>th</sup> set Leq5	Leq30	Corrected Leq30*
3-Jan-12	10:59	11:29	44.9	43.6	44.8	46.3	43.0	44.9	44.7	47.7
9-Jan-12	13:19	13:49	50.9	51.4	52.8	50.1	49.8	51.6	51.2	54.2
13-Jan-12	11:15	11:45	50.9	51.2	50.7	50.4	51.1	50.5	50.8	53.8
19-Jan-12	12:38	13:08	50.6	52.3	51.9	52.3	51.6	53.8	52.2	55.2
27-Jan-12	13:09	13:39	51.3	54.6	52.3	53.8	53.2	51.9	53.0	56.0
<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 *Tables 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 The construction of marine outfall works was commenced on 9 May 2011 and therefore marine water quality monitoring is required in this reporting period. In this reporting period, **11** events of water quality monitoring were carried out at the designated locations. The monitoring results including in-situ measurements and laboratory testing results are presented in [Appendix G](#). The graphical plots are shown in [Appendix H](#).
- 6.02 During the Reporting Period, field measurements of both control and impact stations showed that marine water of the depth average of the salinity concentration was within **29.33 to 33.37** ppt, and pH value was within **8.02 to 8.50**.
- 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
3-Jan-12	8.15	8.27	8.27	8.27	8.41	8.29	8.27	8.22	8.24	8.38
5-Jan-12	6.75	7.13	7.22	7.16	7.21	6.78	6.96	6.86	6.96	6.68
7-Jan-12	6.89	6.87	6.96	7.09	6.86	6.62	6.73	6.75	6.79	6.66
9-Jan-12	6.99	6.59	6.88	6.73	6.74	6.50	6.47	6.85	6.54	6.52
11-Jan-12	7.09	6.74	6.60	6.75	6.70	6.82	6.37	6.30	6.49	6.40
13-Jan-12	7.02	6.83	6.89	6.75	6.86	6.70	6.53	6.52	6.38	6.52
17-Jan-12	7.00	6.73	7.12	6.70	6.88	6.85	6.45	6.89	6.31	6.55
19-Jan-12	6.69	6.68	6.60	6.98	6.96	6.47	6.30	6.30	6.59	6.56
21-Jan-12	7.11	7.03	6.72	6.91	6.99	7.11	6.68	6.66	6.74	6.76
28-Jan-12	7.15	7.04	7.09	7.12	7.09	6.87	6.76	6.61	6.81	6.75
31-Jan-12	7.16	7.08	7.02	7.14	7.19	6.85	6.83	6.79	6.94	7.04

**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
3-Jan-12	5.24	6.12	5.30	5.27	4.80	3.05	2.50	2.35	2.93	2.53
5-Jan-12	5.31	5.57	5.79	5.42	6.03	1.25	1.07	1.55	1.07	1.03
7-Jan-12	5.15	5.86	5.41	5.75	5.94	3.50	3.40	4.70	4.93	4.70
9-Jan-12	5.41	5.70	5.88	6.01	4.92	4.15	6.43	7.50	3.67	5.00
11-Jan-12	4.69	4.87	5.86	4.57	5.31	13.45	8.47	13.70	6.87	5.93
13-Jan-12	4.96	5.27	5.52	5.74	5.80	8.15	8.67	10.40	7.03	6.77
17-Jan-12	4.85	5.11	5.87	5.28	5.58	5.45	5.33	6.60	3.80	4.27
19-Jan-12	5.50	5.88	5.11	5.05	5.36	4.90	4.63	4.35	2.93	2.63
21-Jan-12	4.92	5.74	4.71	5.41	4.60	8.65	6.47	7.35	6.60	7.47
28-Jan-12	5.43	5.35	4.94	4.97	4.56	4.60	6.33	6.25	5.90	6.10
31-Jan-12	4.68	5.49	5.31	5.52	4.94	6.75	7.00	8.65	3.23	5.30

**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
3-Jan-12	8.33	8.38	8.25	8.54	8.41	8.19	7.87	8.06	8.37	8.41
5-Jan-12	6.90	6.94	6.91	7.17	7.07	6.53	6.42	6.63	6.83	6.67
7-Jan-12	7.06	6.70	6.92	7.02	7.06	7.11	6.35	6.95	6.80	6.42
9-Jan-12	6.90	7.09	7.02	6.79	6.83	6.75	6.56	6.74	6.51	6.62
11-Jan-12	7.13	6.87	6.96	6.68	6.83	6.83	6.68	6.84	6.45	6.65

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
13-Jan-12	6.81	6.97	6.89	6.72	6.71	6.56	6.67	6.67	6.20	6.51
17-Jan-12	7.06	6.90	7.14	6.81	6.89	6.96	6.65	6.87	6.60	6.66
19-Jan-12	7.01	6.77	6.93	6.90	6.73	6.64	6.36	6.77	6.63	6.30
21-Jan-12	7.16	6.94	7.13	6.98	6.96	7.08	6.77	6.95	6.68	6.78
28-Jan-12	7.06	7.13	7.21	7.08	6.92	6.96	6.93	6.90	6.99	6.66
31-Jan-12	7.18	6.96	7.07	7.08	6.95	6.83	6.84	6.76	6.88	6.69

**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
3-Jan-12	5.25	5.86	5.79	5.34	5.59	5.20	2.93	3.65	2.37	1.57
5-Jan-12	5.88	5.49	5.30	4.90	6.32	1.60	2.63	1.60	1.80	2.20
7-Jan-12	4.86	5.35	5.73	5.73	5.76	3.60	4.17	5.35	6.80	5.97
9-Jan-12	4.79	4.93	4.88	5.78	5.55	5.70	7.03	7.15	3.43	3.93
11-Jan-12	5.66	4.37	5.54	6.25	5.22	7.40	8.67	6.30	13.40	11.60
13-Jan-12	5.66	5.42	4.88	5.05	5.25	8.20	8.57	9.20	6.90	7.03
17-Jan-12	4.70	5.69	5.85	5.21	4.86	6.05	12.40	5.80	6.10	4.50
19-Jan-12	4.93	5.65	5.92	5.64	5.69	6.50	3.17	6.70	3.33	3.53
21-Jan-12	4.41	5.11	5.41	5.32	4.97	6.60	7.33	6.25	7.37	7.00
28-Jan-12	4.86	5.59	5.22	4.95	4.74	6.70	4.20	7.15	5.97	6.53
31-Jan-12	5.47	5.40	4.97	4.88	5.15	5.05	5.13	6.55	2.47	3.37

**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.

## 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 According to the EM&A Manual [*Appendix D of the Review Report on EIA Study – Yung Shue Wan (Final) in January 2007*] Section 7.3.1, if no exceedances are reported during first three month, then the frequency may be reduced to twice every month for the remainder of the marine works. In view of the monitoring results at the first three month and additional monitoring in September and October 2011, no adverse deterioration of the coral community was observed and identified by the marine ecologist. As agreed by the ER and IEC, the coral impact monitoring would be reduced to twice every month for the remainder of the marine works.
- 7.03 In this Reporting Period, impact coral monitoring have been conducted on **12 and 30 January 2012** by the marine ecologist. The impact coral monitoring report for this Reporting Period 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	-

**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)	22.530	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 site inspection by ET was carried out on **6, 10, 17 and 31 January 2012** and a joint-site visit by IEC Representative, RE, the Contractor and ET was carried out on **6 January 2012**.
- 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>
6 January 2012	<ul style="list-style-type: none"> <li>• Preparation work for mixing pre-mixed mortar was observed within the site (the north of transformer substation). Construction dust suppression measures are required to avoid adverse construction dust impacts.</li> <li>• Construction activities were observed within the site. Full implementation of the required environmental mitigation measures is reminded.</li> </ul>	<ul style="list-style-type: none"> <li>• The situation was rectified on site by providing wind screen for enclosing the preparation work for mixing the mortar.</li> <li>• Not required for reminders.</li> </ul>
10 January 2012	<ul style="list-style-type: none"> <li>• No environmental issue was observed during the site inspection.</li> <li>•</li> </ul>	N.A.
17 January 2012	<ul style="list-style-type: none"> <li>• Larvicidal oil to be placed to stagnant water and notice to be displayed.</li> </ul>	<ul style="list-style-type: none"> <li>• It has been inspected and rectified on 31 January 2012.</li> </ul>
31 January 2012	<ul style="list-style-type: none"> <li>• Chemical waste inside desilting tank to be removed.</li> </ul>	To be followed.

**10 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE**

10.01 No environmental complaint, summons and prosecution was received in this reporting period. The statistical summary table of environmental complaint is presented in *Tables 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 2012	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 2012	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 2012	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 200mm) should be maintained on barges to ensure that decks are not washed by wave action;
  - all barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material; and
  - loading of barges and hoppers should be controlled to prevent splashing of dredged material to the surrounding water, and barges and hoppers should not be filled to a level which would cause the overflow of materials or sediment laden water during loading or transportation; and
  - the decks of all vessels should be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard.

Construction Run-off and Drainage

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

General Construction Activities

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

Wastewater Arising from Workforce

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

**Sediment Contamination Mitigation Measure**

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

**Construction Waste Mitigation Measure**

Good Site Practices and Waste Reduction Measures

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

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

#### General Site Wastes

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

#### Chemical Wastes

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

#### Construction and Demolition Material

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

#### Ecology Mitigation Measure

- 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 barges and other vessels should maintain adequate clearance between vessels and the seabed at all states 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>
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>

Issues	Environmental Mitigation Measures
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

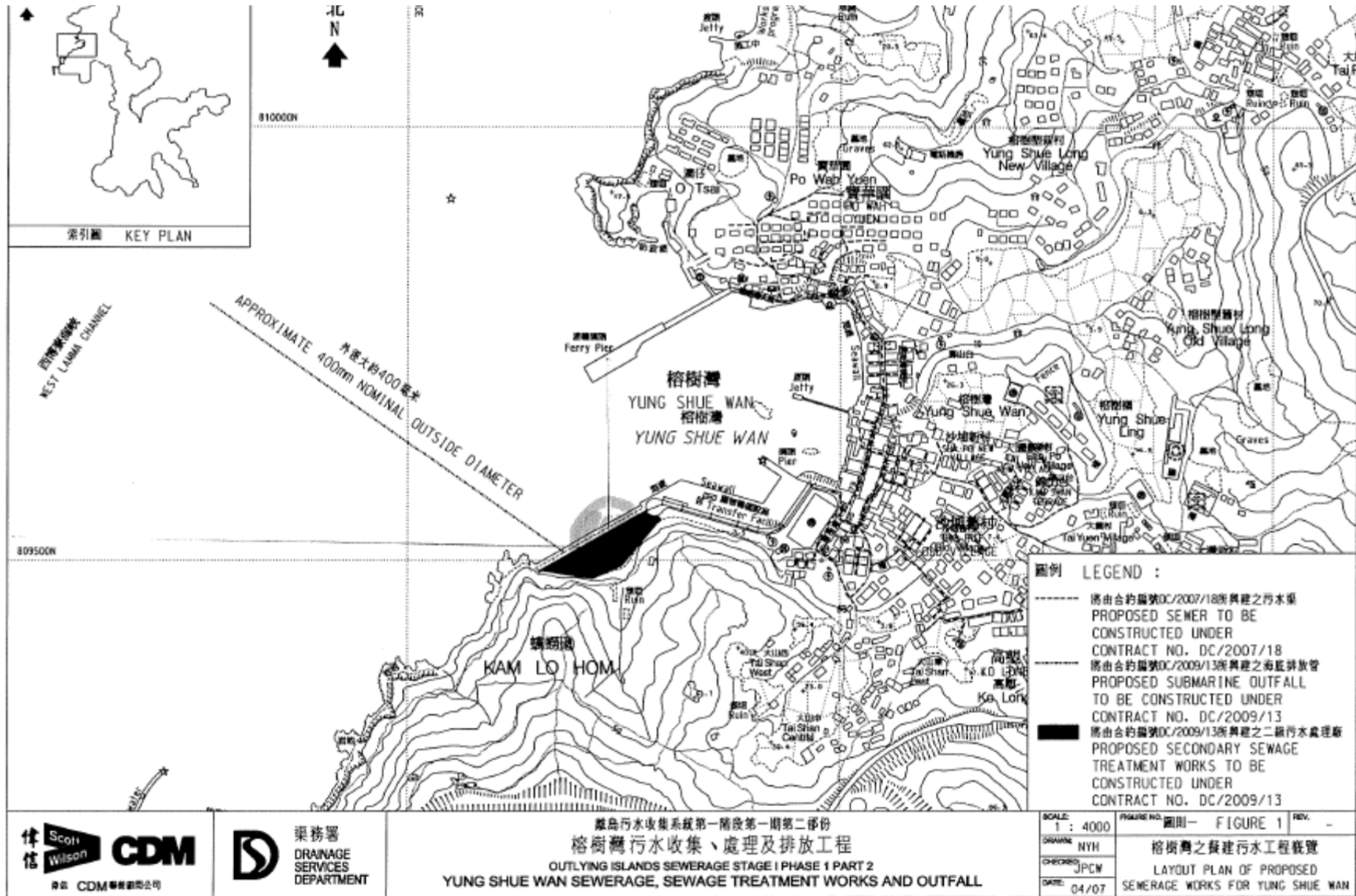
- 13.01 This is the 17<sup>th</sup> Monthly EM&A Report covering the construction period from 1 to 31 January 2012.
- 13.02 No 1-hour TSP and 24-TSP monitoring result was found to be triggered the Action or Limit Level in this Reporting Period.
- 13.03 No noise complaint (an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in this Reporting Period.
- 13.04 No exceedance of Action/Limit level was recorded in marine water monitoring in this Reporting Period.
- 13.05 No exceedance of Action/Limit level was recorded in coral monitoring in this Reporting Period.
- 13.06 No documented complaint, notification of summons or successful prosecution was received.
- 13.07 In this reporting period, weekly site inspection by ET was carried out on 6, 10, 17 and 31 January 2012. Besides, a joint-site visit by IEC Representative, RE, the Contractor and ET was carried out on 6 January 2012. All the observation has been rectified during the next week site inspection. The environmental performance of the Project was therefore 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 During dry and windy season, construction dust would be the key environmental issue to concern. The construction dust mitigation measures identified at the EM&A Manual such as watering at haul road and covering of dusty material should be implemented and properly maintained.
- 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 also.

## **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

<b>Organization</b>	<b>Project Role</b>	<b>Name of Key Staff</b>	<b>Tel No.</b>	<b>Fax No.</b>
DSD	Employer	Mr. Kenley CK Kwok	-	-
SCJV	Engineer's Representative	Mr. Neil Wong	2982 0240	2982 4129
SCJV	Resident Engineer (Yung Shue Wan Portion Area)	Mr. Alfred Cheung	2982 0240	2982 4129
Scott Wilson	Independent Environmental Checker	Mr. Rodney Ip	2410 3750	2428 9922
Leader	Project Manager	Mr. Vincent Chan	2982 1750	2982 1163
Leader	Site Agent	Mr. Ron Hung	2982 1750	2982 1163
Leader	Environmental Officer	Mr. William Wong	2982 8652	2982 8650
Leader	Section Engineer (Yung Shue Wan)	Mr. Burgess Yip	2982 1750	2982 1163
Leader	Site Engineer (Yung Shue Wan)	Mr. Justin Cheng	2982 1750	2982 1163
Leader	Safety Officer	Mr. Edwin Leung	2982 1750	2982 1163
AUES	Environmental Team Leader	Mr. T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Ms. Nicola Hon	2959 6059	2959 6079
AUES	Assistance Environmental Consultant	Mr. Ray Cheung	2959 6059	2959 6079
AUES	Team Supervisor	Mr. Ben Tam	2959 6059	2959 6079
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**

### **A 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	2011											
											OCT	NOV	DEC	JAN	FEB	MAR	APR	IA				
<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,												
KD0030	Section W1 - Slope Works in Portion A & C (456d)	0	100		14/10/11 A		14/10/11 A		YSW0150	KD0125												
KD0050	Section W3 - Footpath Diversion in Ptn G (273d)	0	100		24/03/11 A		24/03/11 A		SKW0551	KD0125												
KD0115	Start Operate Temp Sewage Treatment in Port. A&H	0	0		02/05/12		30/06/11 *	-307d *	E&M0510	KD0125												
<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	23/11/10 A	17/05/10 A	23/11/10 A		KD0020	SKW1151												
PRE0100	Application & Consent of XP from HyD (Mo Tat Rd)	120	100	17/05/10 A	13/10/10 A	17/05/10 A	13/10/10 A		KD0020	SKW1491, SKW1501												
PRE0130	Setup Web-site for EM&A Reporting	90	100	17/05/10 A	31/08/10 A	17/05/10 A	31/08/10 A		KD0020													
<b>Preliminary (E&amp;M)</b>																						
<b>Technical Submission</b>																						
Process Design of SKWSTW & YSWSTW																						
E&M0010	Submission	38	100	17/05/10 A	23/06/10 A	17/05/10 A	23/06/10 A		KD0020	E&M0020, E&M0040, E&M0235												
E&M0020	Vetting and Comment by ER	21	100	24/06/10 A	14/07/10 A	24/06/10 A	14/07/10 A		E&M0010	E&M0030, E&M0040												
E&M0030	Revision and Resubmission	125	100	17/05/10 A	30/11/11 A	17/05/10 A	30/11/11 A		E&M0020	E&M0080												
E&M0080	Approval from the Engineer	14	100	02/11/11 A	30/11/11 A	02/11/11 A	30/11/11 A		E&M0030	E&M0295												
Hydraulic Design																						
E&M0040	Submission	21	100	17/05/10 A	16/09/10 A	17/05/10 A	16/09/10 A		E&M0010, E&M0020	E&M0050, E&M0101, E&M0240,												
E&M0050	Vetting and Comment by ER	14	100	17/09/10 A	09/11/10 A	17/09/10 A	09/11/10 A		E&M0040	E&M0060												
E&M0060	Revision and Resubmission	97	100	19/08/10 A	30/11/11 A	19/08/10 A	30/11/11 A		E&M0050	E&M0430												
E&M0430	Approval from the Engineer	7	100	29/03/11 A	30/11/11 A	29/03/11 A	30/11/11 A		E&M0060	E&M0295												
Equipment Submission & Approval																						
E&M0070	Submission of Membrane Module	50	100	17/05/10 A	05/07/10 A	17/05/10 A	05/07/10 A		KD0020	E&M0090												
E&M0090	Vetting and Comment by ER	14	100	06/07/10 A	19/07/10 A	06/07/10 A	19/07/10 A		E&M0070	E&M0100												
E&M0100	Revision and Resubmission	14	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	04/08/10 A	30/11/11 A	04/08/10 A	30/11/11 A		E&M0040	E&M0102												
E&M0102	Vetting and Comment by ER	60	100	18/11/10 A	30/11/11 A	18/11/10 A	30/11/11 A		E&M0101	E&M0103												
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&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 (M.M.)	105	100	02/08/10 A	24/02/11 A	02/08/10 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	80	19/11/11 A	05/01/12	19/11/11 A	30/11/11	-36d	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	21/06/11 A	21/06/11 A	21/06/11 A		E&M0103	E&M0470, E&M3130												
E&M0210	Approval on MCC & LVSB	30	90	19/11/11 A	02/01/12	19/11/11 A	01/04/11	-276d	E&M0103	E&M0480, E&M3140												
E&M0220	Approval on BS Equipment	30	50	30/11/11 A	07/02/12	30/11/11 A	04/10/11	-126d	E&M0103, E&M0280	E&M0490, E&M3150												
E&M0230	Approval on FS Equipment	30	70	30/11/11 A	01/02/12	30/11/11 A	01/11/11	-92d	E&M0103, E&M0290	E&M0295, E&M0320, E&M0500,												
Drawings Submission & Approval																						
E&M0235	Sub. P&ID Drawings	100	100	24/06/10 A	22/08/10 A	24/06/10 A	22/08/10 A		E&M0010													
E&M0240	Sub. Plant GA Drawings	45	90	04/08/10 A	04/01/12	04/08/10 A	25/10/11	-71d	E&M0040	E&M0250, E&M0280, E&M0290												
E&M0250	Sub. Builder's Works Requirements Drawings	15	90	04/08/10 A	07/01/12	04/08/10 A	26/10/11	-73d	E&M0240, E&M0260, E&M0270	E&M0280, E&M0290												
E&M0260	Sub. Mechanical Installation Drawings	60	90	27/09/10 A	05/01/12	27/09/10 A	25/10/11	-73d	E&M0040	E&M0250												
E&M0270	Sub. Electrical Installation Drawings	60	90	27/09/10 A	05/01/12	27/09/10 A	25/10/11	-73d	E&M0040	E&M0250, E&M0280												
E&M0280	Sub. BS Installation Drawings	120	80	27/09/10 A	23/01/12	27/09/10 A	19/09/11	-126d	E&M0240, E&M0250, E&M0270	E&M0220												
E&M0290	Sub. FS Installation Drawings	120	80	13/11/10 A	23/01/12	13/11/10 A	23/10/11	-92d	E&M0240, E&M0250	E&M0230												
Statutory Submission																						

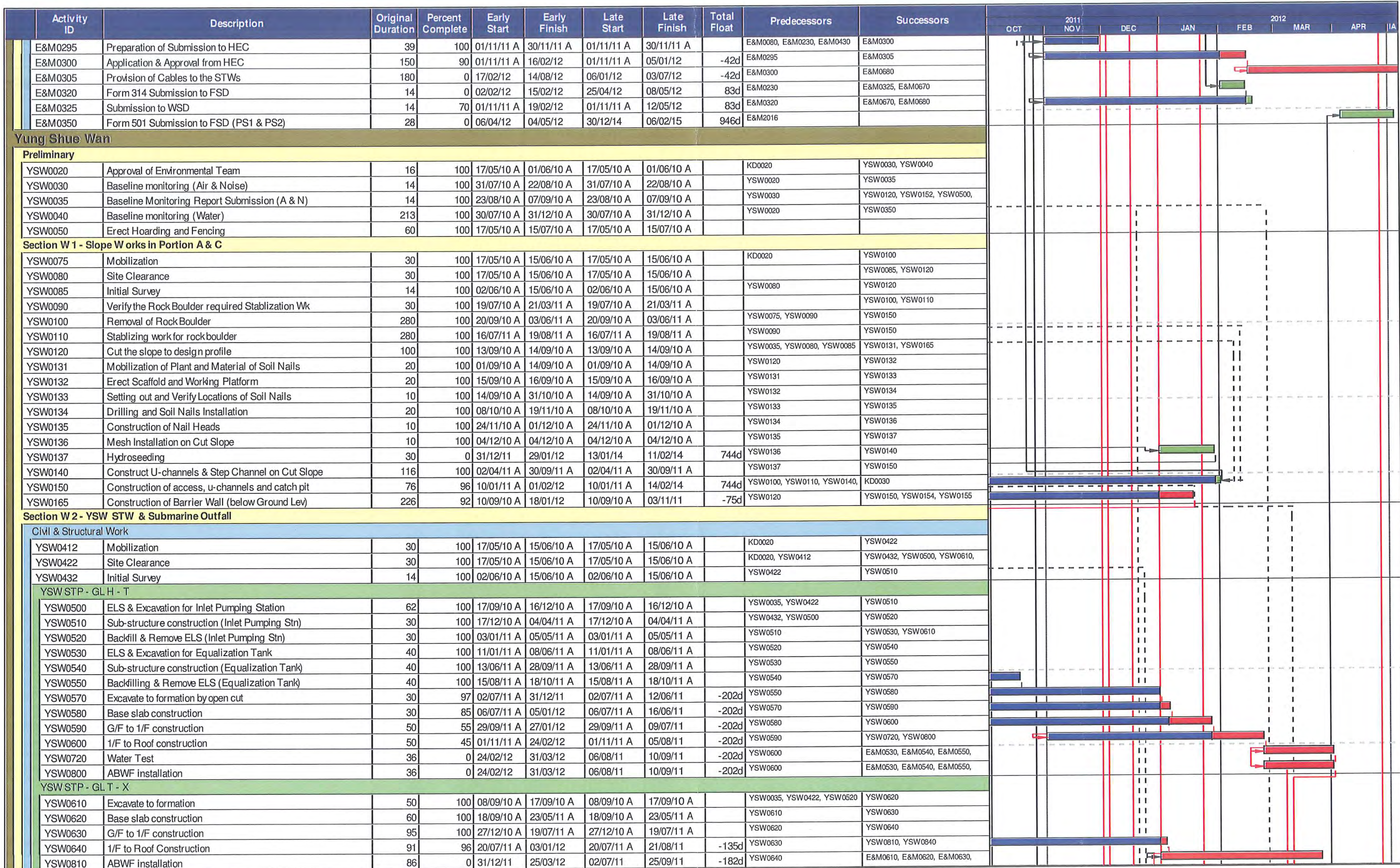
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		Critical point
		Summary point
		Start milestone point
		Finish milestone point

**Leader Civil Engineering Corp. Ltd.**  
 Contract No. DC/2009/13  
 Construction of Sewage Treatment Works at YSW & SKW  
 3-month Rolling Programme (Jan 2012 - Mar 2012)

Date	Revision	Checked	Approved
31/12/10	Revision 0	RH	VC

(Marked on 31 Dec 2011)





Start date	05/05/10		Early bar
Finish date	06/02/15		Progress bar
Data date	31/12/11		Critical bar
Run date	11/01/12		Summary bar
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			Summary point
			Start milestone point
			Finish milestone point
c Primavera Systems, Inc.			

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Date	Revision	Checked	Approved
31/12/10	Revision 0	RH	VC

(Marked on 31 Dec 2011)



Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	Gantt Chart (OCT 2011 - APR 2012)											
<b>YSW STP - GL F - H &amp; DN Tanks</b>																						
YSW0650	ELS & Excavation for DN Tanks	70	100	21/08/10 A	14/10/10 A	21/08/10 A	14/10/10 A		YSW0035, YSW0422	YSW0660	[Gantt bar: 21/08/10 to 14/10/10]											
YSW0660	Sub-structure construction (DN Tanks)	40	100	15/10/10 A	31/12/10 A	15/10/10 A	31/12/10 A		YSW0650	YSW0670	[Gantt bar: 15/10/10 to 31/12/10]											
YSW0670	Backfill & Remove ELS (DN Tanks)	32	100	08/01/11 A	15/03/11 A	08/01/11 A	15/03/11 A		YSW0660	YSW0680	[Gantt bar: 08/01/11 to 15/03/11]											
YSW0680	Base slab construction	30	100	16/03/11 A	28/03/11 A	16/03/11 A	28/03/11 A		YSW0670	YSW0690	[Gantt bar: 16/03/11 to 28/03/11]											
YSW0690	Superstructure construction upto +10.5mPD	60	100	30/03/11 A	18/06/11 A	30/03/11 A	18/06/11 A		YSW0680	YSW0700, YSW0820	[Gantt bar: 30/03/11 to 18/06/11]											
YSW0700	Apply protective paint	20	0	31/12/11	19/01/12	27/02/11	18/03/11	-307d	YSW0690	YSW0710	[Gantt bar: 31/12/11 to 19/01/12]											
YSW0710	Water test	14	0	20/01/12	02/02/12	19/03/11	01/04/11	-307d	YSW0700	E&M0510, E&M0630, E&M0640	[Gantt bar: 20/01/12 to 02/02/12]											
YSW0820	ABWF installation	34	0	31/12/11	02/02/12	27/02/11	01/04/11	-307d	YSW0690	E&M0510, E&M0630, E&M0640	[Gantt bar: 31/12/11 to 02/02/12]											
<b>YSW STP - GL A - F</b>																						
YSW0730	Completion of HDD	0	0	31/12/11		01/07/11		-183d	YSW0360	YSW0740	[Gantt bar: 31/12/11 to 01/07/11]											
YSW0740	ELS & excavate for Outfall Shaft	22	0	31/12/11	21/01/12	01/07/11	22/07/11	-183d	YSW0730	YSW0750	[Gantt bar: 31/12/11 to 21/01/12]											
YSW0750	Sub-structure construction (outfall shaft)	22	0	22/01/12	12/02/12	23/07/11	13/08/11	-183d	YSW0740	YSW0760	[Gantt bar: 22/01/12 to 12/02/12]											
YSW0760	Backfill & remove ELS (outfall shaft)	24	0	13/02/12	07/03/12	14/08/11	06/09/11	-183d	YSW0750	YSW0770, YSW1470	[Gantt bar: 13/02/12 to 07/03/12]											
YSW0770	Excavate to formation by open cut	22	0	08/03/12	29/03/12	07/09/11	28/09/11	-183d	YSW0760	YSW0780	[Gantt bar: 08/03/12 to 29/03/12]											
YSW0780	Base slab construction	21	0	30/03/12	19/04/12	29/09/11	19/10/11	-183d	YSW0770	YSW0790	[Gantt bar: 30/03/12 to 19/04/12]											
YSW0790	Superstructure construction upto +10.5mPD	30	0	20/04/12	19/05/12	20/10/11	18/11/11	-183d	YSW0780	YSW0795, YSW0870	[Gantt bar: 20/04/12 to 19/05/12]											
<b>Fire Hose Reel / Sprinkler Pump Rm</b>																						
YSW0840	ELS & excavate to formation (+0 mPD approx)	30	0	03/01/12	02/02/12	01/09/11	30/09/11	-125d	YSW0035, YSW0422, YSW0640	YSW0860	[Gantt bar: 03/01/12 to 02/02/12]											
YSW0860	Sub-structure construction	30	0	02/02/12	03/03/12	01/10/11	30/10/11	-125d	YSW0840	YSW0880	[Gantt bar: 02/02/12 to 03/03/12]											
YSW0880	Backfill & remove ELS	30	0	03/03/12	02/04/12	31/10/11	29/11/11	-125d	YSW0860	YSW0890	[Gantt bar: 03/03/12 to 02/04/12]											
YSW0890	Construction Ground Slab at +5.2mPD	30	0	02/04/12	02/05/12	30/11/11	29/12/11	-125d	YSW0880	YSW0900, YSW0930	[Gantt bar: 02/04/12 to 02/05/12]											
YSW0900	Superstructure construction upto +8.2mPD	35	0	02/05/12	06/06/12	30/12/11	02/02/12	-125d	YSW0890	YSW0910, YSW0925	[Gantt bar: 02/05/12 to 06/06/12]											
YSW0930	Construction of Guard House	60	0	02/05/12	01/07/12	06/05/12	04/07/12	3d	YSW0890	E&M0690, KD0040	[Gantt bar: 02/05/12 to 01/07/12]											
<b>Emergency Storage Tank</b>																						
YSW1470	ELS & excavate to formation (-1.5mPD Approx)	30	0	08/03/12	06/04/12	07/11/11	06/12/11	-122d	YSW0035, YSW0760	YSW1480	[Gantt bar: 08/03/12 to 06/04/12]											
YSW1480	Sub-structure construction	40	0	07/04/12	16/05/12	07/12/11	15/01/12	-122d	YSW1470	YSW1490	[Gantt bar: 07/04/12 to 16/05/12]											
<b>Road, Drain, Cable Draw Pits &amp; Ducting</b>																						
YSW0152	Temporary Diversion of Drainage	92	100	02/12/10 A	09/05/11 A	02/12/10 A	09/05/11 A		YSW0035	YSW0153	[Gantt bar: 02/12/10 to 09/05/11]											
YSW0153	Removal of Ex U-Channel where clash with B. Wall	50	100	20/11/10 A	20/04/11 A	20/11/10 A	20/04/11 A		YSW0152	YSW0154	[Gantt bar: 20/11/10 to 20/04/11]											
YSW0154	Construction of Subsoil Drain	90	30	24/08/11 A	21/03/12	24/08/11 A	05/01/12	-75d	YSW0153, YSW0165	YSW0155	[Gantt bar: 24/08/11 to 21/03/12]											
YSW0155	RC Concrete Barrier (above Ground Level)	120	0	21/03/12	19/07/12	06/01/12	04/05/12	-75d	YSW0154, YSW0165	YSW1640, YSW1660	[Gantt bar: 21/03/12 to 19/07/12]											
<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			YSW0350	[Gantt bar: 17/05/10 to 08/07/10]											
YSW0200	Submission and Approval of Ecologist	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A			YSW0210	[Gantt bar: 17/05/10 to 15/07/10]											
YSW0210	Ecology Survey	90	100	16/07/10 A	11/02/11 A	16/07/10 A	11/02/11 A		YSW0200	YSW0350	[Gantt bar: 16/07/10 to 11/02/11]											
YSW0220	Submission and Approval of In. Hydro Survey	90	100	17/05/10 A	27/08/10 A	17/05/10 A	27/08/10 A			YSW0230	[Gantt bar: 17/05/10 to 27/08/10]											
YSW0230	Hydrographical Survey (YSW)	45	100	31/08/10 A	31/01/11 A	31/08/10 A	31/01/11 A		YSW0220	YSW0350	[Gantt bar: 31/08/10 to 31/01/11]											
YSW0240	Material Submission, Approval of HDPE pipe	93	100	17/05/10 A	31/03/11 A	17/05/10 A	31/03/11 A			YSW0250	[Gantt bar: 17/05/10 to 31/03/11]											
YSW0250	Submit and Approval of Method Statement for HDD	120	100	24/09/10 A	25/03/11 A	24/09/10 A	25/03/11 A		YSW0240	YSW0260, YSW0270, YSW0340	[Gantt bar: 24/09/10 to 25/03/11]											
YSW0260	Submission of HDD Method Statement to HEC	14	100	26/01/11 A	24/03/11 A	26/01/11 A	24/03/11 A		YSW0250	YSW0320, YSW0340	[Gantt bar: 26/01/11 to 24/03/11]											
YSW0270	Additional G.I. Boreholes (YSW)	62	100	06/11/10 A	19/01/11 A	06/11/10 A	19/01/11 A		YSW0250	YSW0280, YSW0320	[Gantt bar: 06/11/10 to 19/01/11]											
YSW0280	Submission of propose alignment to the Eng	14	100	02/02/11 A	04/03/11 A	02/02/11 A	04/03/11 A		YSW0270	YSW0290, YSW0310, YSW0340	[Gantt bar: 02/02/11 to 04/03/11]											
YSW0290	Submission of Marine Notice	60	100	31/01/11 A	29/03/11 A	31/01/11 A	29/03/11 A		YSW0280	YSW0350	[Gantt bar: 31/01/11 to 29/03/11]											
YSW0310	Construction of Entry Pit and Preparation Work	39	100	15/03/11 A	31/03/11 A	15/03/11 A	31/03/11 A		YSW0280	YSW0320, YSW0330	[Gantt bar: 15/03/11 to 31/03/11]											
YSW0320	Prepare of HDD Drill Rig Set-up (YSW)	39	100	02/04/11 A	28/04/11 A	02/04/11 A	28/04/11 A		YSW0260, YSW0270, YSW0310	YSW0330, YSW0350	[Gantt bar: 02/04/11 to 28/04/11]											
YSW0330	Establishment of HDD plant & equipment	14	100	09/04/11 A	14/04/11 A	09/04/11 A	14/04/11 A		YSW0310, YSW0320	YSW0340	[Gantt bar: 09/04/11 to 14/04/11]											
YSW0340	Setting up at drillhole location	7	100	19/04/11 A	28/04/11 A	19/04/11 A	28/04/11 A		YSW0250, YSW0260, YSW0280	YSW0350	[Gantt bar: 19/04/11 to 28/04/11]											
YSW0350	Drill pilot hole and reaming hole - NS400 - 530m	123	100	29/04/11 A	08/12/11 A	29/04/11 A	08/12/11 A		YSW0040, YSW0180, YSW0210	YSW0360	[Gantt bar: 29/04/11 to 08/12/11]											
YSW0360	Installation of NS400 HDPE 530m	14	100	14/12/11 A	30/12/11 A	14/12/11 A	30/12/11 A		YSW0350	SKW1181, YSW0365, YSW0370	[Gantt bar: 14/12/11 to 30/12/11]											
YSW0365	Set up of Silt Curtain as per EP	30	0	31/12/11	29/01/12	20/07/13	18/08/13	567d	YSW0360	YSW0370	[Gantt bar: 31/12/11 to 29/01/12]											
YSW0370	Dredging of Marine Deposit for Diffuser (YSW)	60	0	30/01/12	29/03/12	19/08/13	17/10/13	567d	YSW0360, YSW0365	YSW0380	[Gantt bar: 30/01/12 to 29/03/12]											
YSW0380	Diffuser Construction (YSW)	60	0	30/03/12	28/05/12	18/10/13	16/12/13	567d	YSW0370	YSW0390	[Gantt bar: 30/03/12 to 28/05/12]											
<b>E&amp;M Works - YSW STP</b>																						
E&M0360	Delivery of MBR Memb. Mod. (MBR Tk4)	137	100	24/02/11 A	21/06/11 A	24/02/11 A	21/06/11 A		E&M0160	E&M0510	[Gantt bar: 24/02/11 to 21/06/11]											
E&M0370	Delivery of MBR Membrane Modules - 2nd Shipment	150	100	24/02/11 A	17/10/11 A	24/02/11 A	17/10/11 A		E&M0160	E&M0520	[Gantt bar: 24/02/11 to 17/10/11]											

Start date	05/05/10	Early bar
Finish date	06/02/15	Progress bar
Data date	31/12/11	Critical bar
Run date	11/01/12	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 (Jan 2012 - Mar 2012)

Date	Revision	Checked	Approved
31/12/10	Revision 0	RH	VC

(Marked on 31 Dec 2011)



Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	Gantt Chart (OCT 2011 - APR 2012)											
E&M0380	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&M0530	[Gantt bar: Oct 10 - Dec 29, 2011]											
E&M0390	Delivery of Coarse Screens	162	90	06/09/11 A	15/01/12	06/09/11 A	10/09/11	-127d	E&M0110	E&M0540	[Gantt bar: Oct 06 - Jan 15, 2012]											
E&M0400	Delivery of Fine Screens	180	100	12/09/11 A	30/11/11 A	12/09/11 A	30/11/11 A		E&M0120	E&M0550	[Gantt bar: Oct 12 - Nov 30, 2011]											
E&M0410	Delivery of Pumps	162	100	23/06/11 A	05/09/11 A	23/06/11 A	05/09/11 A		E&M0130	E&M0560	[Gantt bar: Oct 23 - Sep 05, 2011]											
E&M0420	Delivery of Submersible Mixers	162	100	26/02/11 A	17/11/11 A	26/02/11 A	17/11/11 A		E&M0140	E&M0570	[Gantt bar: Oct 26 - Nov 17, 2011]											
E&M0440	Delivery of Sludge Dewatering Equipment	180	50	01/09/11 A	29/03/12	01/09/11 A	28/09/11	-183d	E&M0170	E&M0580	[Gantt bar: Oct 01 - Mar 29, 2012]											
E&M0450	Delivery of Valves, Pipes & Fittings	180	70	30/08/11 A	28/02/12	30/08/11 A	23/01/12	-36d	E&M0180	E&M0590, E&M0605	[Gantt bar: Oct 30 - Feb 28, 2012]											
E&M0460	Delivery of Penstocks	180	100	12/08/11 A	24/12/11 A	12/08/11 A	24/12/11 A		E&M0190	E&M0600	[Gantt bar: Oct 12 - Dec 24, 2011]											
E&M0470	Delivery of Instruments	180	100	03/11/11 A	21/06/11 A	03/11/11 A	21/06/11 A		E&M0200	E&M0610	[Gantt bar: Oct 03 - Jun 21, 2011]											
E&M0480	Delivery of MCC LVSB	177	0	03/01/12	27/06/12	02/04/11	25/09/11	-276d	E&M0210	E&M0620	[Gantt bar: Oct 03 - Jun 27, 2012]											
E&M0490	Delivery of BS Equipment	180	20	11/12/11 A	30/06/12	11/12/11 A	25/02/12	-126d	E&M0220	E&M0630	[Gantt bar: Oct 11 - Jun 30, 2012]											
E&M0500	Delivery FS Equipment	180	20	11/12/11 A	24/06/12	11/12/11 A	24/03/12	-92d	E&M0230	E&M0630, E&M0640	[Gantt bar: Oct 11 - Jun 24, 2012]											
E&M0510	Install Membrane Modules in MBR Tank no. 4	90	0	03/02/12	02/05/12	02/04/11	30/06/11	-307d	E&M0360, YSW0710, YSW0820	KD0115	[Gantt bar: Oct 03 - May 02, 2012]											
E&M0540	Install Coarse Screens	75	0	31/03/12	14/06/12	11/09/11	24/11/11	-202d	E&M0390, YSW0720, YSW0800	E&M0530, E&M0550, E&M0570,	[Gantt bar: Oct 31 - Jun 14, 2012]											
E&M0560	Install Pumps	90	0	31/03/12	29/06/12	11/09/11	09/12/11	-202d	E&M0410, YSW0720, YSW0800	E&M0570, E&M0590, E&M0660	[Gantt bar: Oct 31 - Jun 29, 2012]											
E&M0580	Install Sludge Dewatering Equipment	280	0	31/03/12	05/01/13	29/09/11	04/07/12	-184d	E&M0440, YSW0720, YSW0800	E&M0690	[Gantt bar: Oct 31 - Jan 05, 2013]											
E&M0600	Install Penstocks (Batch 1, GL H - T)	180	0	31/03/12	27/09/12	07/01/12	04/07/12	-84d	E&M0460, YSW0720, YSW0800	E&M0690	[Gantt bar: Oct 31 - Sep 27, 2012]											

**Sok Kwu Wan**

**Preliminary**

SKW0250	Approval of Environmental Team	16	100	17/05/10 A	01/06/10 A	17/05/10 A	01/06/10 A		KD0020	SKW0260
SKW0260	Baseline monitoring (Air & Noise)	14	100	02/06/10 A	15/06/10 A	02/06/10 A	15/06/10 A		SKW0250	SKW0242, SKW0265, SKW0592,
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,

**Section W3 - Footpath Diversion in Portion G**

**Civil & Geotechnical Works**

SKW0240	Site Clearance	21	100	17/05/10 A	06/06/10 A	17/05/10 A	06/06/10 A			SKW0241
SKW0241	Initial Survey	9	100	07/06/10 A	15/06/10 A	07/06/10 A	15/06/10 A		SKW0240	SKW0242
SKW0242	Excavation to formation for Bay 1 to 5	50	100	16/06/10 A	11/08/10 A	16/06/10 A	11/08/10 A		SKW0241, SKW0260, SKW0265	SKW0251
SKW0251	Drill & Install Dowel Bar for Bay 1 & 3	20	100	02/08/10 A	01/09/10 A	02/08/10 A	01/09/10 A		SKW0242	SKW0301
SKW0301	Erect Formwork, mesh & weephole for Bay 1 & 3	12	100	02/09/10 A	15/09/10 A	02/09/10 A	15/09/10 A		SKW0251	SKW0311
SKW0311	Concreting for Bay 1 & 3	12	100	19/06/10 A	29/09/10 A	19/06/10 A	29/09/10 A		SKW0301	SKW0321
SKW0321	Drilling & install Dowel Bar for Bay 2 & 5	6	100	30/09/10 A	06/10/10 A	30/09/10 A	06/10/10 A		SKW0311	SKW0331
SKW0331	Erect Formwork, mesh & weephole for Bay 2 & 5	7	100	07/10/10 A	13/10/10 A	07/10/10 A	13/10/10 A		SKW0321	SKW0341
SKW0341	Concreting for Bay 2 & 5	7	100	14/10/10 A	20/10/10 A	14/10/10 A	20/10/10 A		SKW0331	SKW0351
SKW0351	Excavation to formation for Bay 6 to 9	20	100	21/10/10 A	10/11/10 A	21/10/10 A	10/11/10 A		SKW0341	SKW0361
SKW0361	Drill & install dowel Bar for Bay 4 & 7	6	100	11/11/10 A	16/11/10 A	11/11/10 A	16/11/10 A		SKW0351	SKW0371
SKW0371	Erect formwork, mesh & weephole for Bay 4 & 7	7	100	11/11/10 A	16/11/10 A	11/11/10 A	16/11/10 A		SKW0361	SKW0381
SKW0381	Concreting for Bay 4 & 7	7	100	17/11/10 A	23/11/10 A	17/11/10 A	23/11/10 A		SKW0371	SKW0391
SKW0391	Drill & install dowel Bar for Bay 6 & 9	3	100	24/11/10 A	27/11/10 A	24/11/10 A	27/11/10 A		SKW0381	SKW0401
SKW0401	Erect formwork, mesh & weephole for Bay 6 & 9	7	100	28/11/10 A	05/12/10 A	28/11/10 A	05/12/10 A		SKW0391	SKW0411
SKW0411	Concreting for Bay 6 & 9	7	100	06/12/10 A	12/12/10 A	06/12/10 A	12/12/10 A		SKW0401	SKW0421
SKW0421	Drill & install dowel Bar for Bay 8	1	100	13/12/10 A	13/12/10 A	13/12/10 A	13/12/10 A		SKW0411	SKW0431
SKW0431	Erect formwork, mesh & weephole for Bay 8	4	100	15/12/10 A	21/12/10 A	15/12/10 A	21/12/10 A		SKW0421	SKW0441
SKW0441	Concreting for Bay 8	4	100	22/12/10 A	27/12/10 A	22/12/10 A	27/12/10 A		SKW0431	SKW0461
SKW0461	Excavation for no fine concrete Bay (1-9)	3	100	26/07/11 A	28/07/11 A	26/07/11 A	28/07/11 A		SKW0441	SKW0471
SKW0471	Concreting for no-fine concrete	7	100	01/02/11 A	07/02/11 A	01/02/11 A	07/02/11 A		SKW0461	SKW0481
SKW0481	Installation of Wall tie & stone facing	14	100	08/02/11 A	11/02/11 A	08/02/11 A	11/02/11 A		SKW0471	SKW0491
SKW0491	Construction of Gabion Wall	7	100	08/02/11 A	14/02/11 A	08/02/11 A	14/02/11 A		SKW0481	SKW0501
SKW0501	Place Geotextile	3	100	08/01/11 A	28/02/11 A	08/01/11 A	28/02/11 A		SKW0491	SKW0511
SKW0511	Backfill behind the retaining wall to approx +4	7	100	11/01/11 A	28/02/11 A	11/01/11 A	28/02/11 A		SKW0501	SKW0521
SKW0521	Watermain Laying and Diversion	14	100	01/04/11 A	10/05/11 A	01/04/11 A	10/05/11 A		SKW0511	SKW0531
SKW0531	Concreting for Pavement	7	100	02/06/11 A	30/07/11 A	02/06/11 A	30/07/11 A		SKW0521	SKW0541
SKW0541	Installation of Flower Pot	7	0	31/12/11	06/01/12	11/03/11	18/03/11	-294d	SKW0531	SKW0551
SKW0551	Permanent Footpath Diversion	1	100	30/07/11 A	30/07/11 A	30/07/11 A	30/07/11 A		SKW0541	KD0050, SKW1261, SKW1311

**Section W4 - Slope Works in Portions H & I**

**Geotechnical Works**

Start date	05/05/10
Finish date	06/02/15
Data date	31/12/11
Run date	11/01/12
Page number	4A

- Early bar
- Progress bar
- Critical bar
- Summary bar
- ▲ Progress point
- ▼ Critical point
- ◆ Summary point
- ◆ Start milestone point
- ◆ Finish milestone point

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**Leader Civil Engineering Corp. Ltd.**  
**Contract No. DC/2009/13**  
**Construction of Sewage Treatment Works at YSW & SKW**  
**3-month Rolling Programme (Jan 2012 - Mar 2012)**

(Marked on 31 Dec 2011)

Date	Revision	Checked	Approved
31/12/10	Revision 0	RH	VC



Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2011																						
											OCT	NOV	DEC	2012			JAN	FEB	MAR	APR	IA												
SKW0588	Construct scaffolding access	30	100	15/06/10 A	14/07/10 A	15/06/10 A	14/07/10 A		KD0020	SKW0590																							
SKW0590	Site Clearance for Slope	100	100	15/07/10 A	22/10/10 A	15/07/10 A	22/10/10 A		SKW0588	SKW0591																							
SKW0591	Initial Survey for Slope	28	100	21/09/10 A	18/10/10 A	21/09/10 A	18/10/10 A		SKW0590	SKW0592																							
SKW0592	Temporary Rockfall fence at ex. Footpath	43	100	19/10/10 A	06/01/11 A	19/10/10 A	06/01/11 A		SKW0260, SKW0265, SKW0591	SKW05931																							
SKW05931	Construction of Haul Road (To +21mPD)	50	100	28/11/10 A	30/12/10 A	28/11/10 A	30/12/10 A		SKW0592	SKW05932																							
SKW05932	Construction of Haul Road (To +42mPD)	60	100	15/12/10 A	31/01/11 A	15/12/10 A	31/01/11 A		SKW05931	SKW05933, SKW05940, SKW0595																							
SKW05933	Excavation of Rock Berm (+50mPD to +42.5mPD)	30	100	01/03/11 A	03/05/11 A	01/03/11 A	03/05/11 A		SKW05932	SKW05934																							
SKW05934	Excavation of Rock Berm (+42.5mPD to +35mPD)	30	100	04/05/11 A	31/05/11 A	04/05/11 A	31/05/11 A		SKW05933	SKW05935, SKW05941																							
SKW05935	Excavation of Rock Berm (+35mPD to +27.5mPD)	30	100	02/07/11 A	30/09/11 A	02/07/11 A	30/09/11 A		SKW05934	SKW05936																							
SKW05936	Excavation of Rock Berm (+27.5mPD to +20mPD)	30	100	15/09/11 A	31/12/11 A	15/09/11 A	31/12/11 A		SKW05935	SKW05937, SKW05942																							
SKW05937	Excavation of Rock Berm (+20mPD to +12.5mPD)	30	20	01/12/11 A	23/01/12	01/12/11 A	20/05/11	-248d	SKW05936	SKW05938																							
SKW05938	Excavation of Rock Berm (+12.5mPD to +5mPD)	28	0	24/01/12	20/02/12	21/05/11	17/06/11	-248d	SKW05937	SKW05943, SKW1311, SKW1371																							
SKW05940	Slope Drainage & Misc. at 50mPD	60	100	01/04/11 A	03/05/11 A	01/04/11 A	03/05/11 A		SKW05932	SKW05941																							
SKW05941	Slope Drainage & Misc. (+50 to +35mPD)	60	50	04/05/11 A	29/01/12	04/05/11 A	19/05/11	-255d	SKW05934, SKW05940	SKW05942																							
SKW05942	Slope Drainage & Misc. (+35 to +20mPD)	58	50	01/11/11 A	27/02/12	01/11/11 A	17/06/11	-255d	SKW05936, SKW05941	SKW05943																							
SKW05943	Slope Drainage & Misc. (+20 to +5mPD)	59	0	28/02/12	26/04/12	18/06/11	15/08/11	-255d	SKW05938, SKW05942	KD0060																							
SKW0595	Rock Meshing & Rockfall Fence	260	0	31/12/11	15/09/12	29/11/10	15/08/11	-397d	SKW05932	KD0060																							
<b>Section W5 - 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																							
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	92	100	17/09/10 A	31/03/11 A	17/09/10 A	31/03/11 A		SKW0691	SKW0741																							
<b>Structural Works</b>																																	
SKW0741	Base Slab (BSD2 & BSD3)	15	100	20/04/11 A	28/07/11 A	20/04/11 A	28/07/11 A		SKW0721	SKW0751																							
SKW0751	Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) Approx.	14	100	01/09/11 A	30/09/11 A	01/09/11 A	30/09/11 A		SKW0741	SKW0761																							
SKW0761	Base Slab (BSD1) to +3.98	14	100	01/09/11 A	30/09/11 A	01/09/11 A	30/09/11 A		SKW0751	SKW0771																							
SKW0771	Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) to +6.3	14	100	01/10/11 A	31/10/11 A	01/10/11 A	31/10/11 A		SKW0761	SKW0781																							
SKW0781	Base Slab (GSB1-3, GSC1-5, GSD1-2)	14	100	15/10/11 A	15/11/11 A	15/10/11 A	15/11/11 A		SKW0771	SKW0791																							
SKW0791	Base Slab (GSE1 & GSF1)	14	100	01/11/11 A	30/11/11 A	01/11/11 A	30/11/11 A		SKW0781	SKW0801																							
SKW0801	Wall & Column (CE1-3, CF1-3)	14	100	01/11/11 A	30/11/11 A	01/11/11 A	30/11/11 A		SKW0791	SKW0811																							
SKW0811	Ground Beam (GB1-1, 2 GB2-1, 2 GB3-1, GBA-1, GBB1-4)	14	100	30/11/11 A	31/12/11 A	30/11/11 A	31/12/11 A		SKW0801	SKW0821																							
SKW0821	Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) to +10.	14	60	19/12/11 A	05/01/12	19/12/11 A	17/04/11	-263d	SKW0811	SKW0831																							
SKW0831	Roof Beams & Parapet	14	0	05/01/12	19/01/12	18/04/11	01/05/11	-263d	SKW0821	E&M1101, E&M1102, E&M1103																							
SKW0841	ABWF installation	45	0	05/01/12	19/02/12	18/04/11	01/06/11	-263d	SKW0831	E&M1101, E&M1102, E&M1103																							
SKW0861	300mm U-channel & 675mm Step Channel	168	0	19/01/12	05/07/12	01/06/11	15/11/11	-233d	SKW0831, SKW0841	KD0070																							
<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	11/07/11 A	17/05/10 A	11/07/11 A			E&M1013																							
E&M1004	Submission of LV SB & MCC	180	95	17/05/10 A	08/01/12	17/05/10 A	02/12/10	-402d		E&M1014																							
E&M1005	Submission of Instrumentation	243	95	17/05/10 A	12/01/12	17/05/10 A	01/05/11	-255d		E&M1015																							
E&M1006	Submission of FS System	243	95	17/05/10 A	12/01/12	17/05/10 A	05/02/11	-341d		E&M1016																							
E&M1007	Submission of BS System	243	95	17/05/10 A	12/01/12	17/05/10 A	05/02/11	-341d		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&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	20	01/12/11 A	06/04/12	01/12/11 A	01/05/11	-341d	E&M1006	E&M1106																							
E&M1017	Delivery of BS Equipment	107	20	15/11/11 A	06/04/12	15/11/11 A	01/05/11	-341d	E&M1007	E&M1107																							
<b>Installation, T&amp;C</b>																																	
E&M1101	Install Pumps	55	0	19/01/12	14/03/12	02/05/11	25/06/11	-263d	E&M1011, SKW0831, SKW0841	E&M1110, E&M1140																							
E&M1102	Install Gen Set	55	0	19/01/12	14/03/12	02/05/11	25/06/11	-263d	E&M1012, SKW0831, SKW0841	E&M1110, E&M1140																							

Start date	05/05/10
Finish date	06/02/15
Data date	31/12/11
Run date	11/01/12
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c Primavera Systems, Inc.	

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

**Leader Civil Engineering Corp. Ltd.**  
**Contract No. DC/2009/13**  
**Construction of Sewage Treatment Works at YSW & SKW**  
**3-month Rolling Programme (Jan 2012 - Mar 2012)**

Date	31/12/10	Revision	Revision 0	Checked	RH	Approved	VC

(Marked on 31 Dec 2011)



Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	Gantt Chart (OCT 2011 - APR 2012)											
E&M1103	Install DeO System	55	0	19/01/12	14/03/12	02/05/11	25/06/11	-263d	E&M1013, SKW0831, SKW0841	E&M1110, E&M1140	[Gantt bar: Oct 2011 - Jan 2012]											
E&M1105	Install Instrumentation	55	0	19/01/12	14/03/12	02/05/11	25/06/11	-263d	E&M1015, SKW0831, SKW0841	E&M1140	[Gantt bar: Oct 2011 - Jan 2012]											
E&M1106	Install FS Equipment	55	0	06/04/12	31/05/12	02/05/11	25/06/11	-341d	E&M1016, SKW0831, SKW0841	E&M1130, E&M1140	[Gantt bar: Feb 2012 - Apr 2012]											
E&M1107	Install BS Equipment	55	0	06/04/12	31/05/12	02/05/11	25/06/11	-341d	E&M1017, SKW0831, SKW0841	E&M1110, E&M1140	[Gantt bar: Feb 2012 - Apr 2012]											
<b>Section W 6 - 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	[Gantt bar: May 2010 - May 2010]											
SKW0891	Plant mobilization	7	100	17/05/10 A	23/05/10 A	17/05/10 A	23/05/10 A		SKW0881	SKW0892	[Gantt bar: May 2010 - May 2010]											
SKW0892	Initial Survey	30	100	24/05/10 A	22/06/10 A	24/05/10 A	22/06/10 A		SKW0891	SKW0901	[Gantt bar: May 2010 - Jun 2010]											
SKW0901	Tree Transplantation	30	100	23/06/10 A	22/07/10 A	23/06/10 A	22/07/10 A		SKW0892	SKW0921	[Gantt bar: Jun 2010 - Jul 2010]											
SKW0921	Cut Slope & U-Channel	14	100	23/07/10 A	31/01/11 A	23/07/10 A	31/01/11 A		SKW0260, SKW0265, SKW0901	SKW0931, SKW0951	[Gantt bar: Jul 2010 - Jan 2011]											
SKW0931	Hoarding & Fencing	14	100	15/09/10 A	07/10/10 A	15/09/10 A	07/10/10 A		SKW0921	SKW0951	[Gantt bar: Sep 2010 - Oct 2010]											
SKW0951	Excavate to formation	106	100	04/10/10 A	13/06/11 A	04/10/10 A	13/06/11 A		SKW0921, SKW0931	SKW0961, SKW0971	[Gantt bar: Oct 2010 - Jun 2011]											
SKW0961	Mass Conc. Retaining Wall	257	0	31/12/11	12/09/12	04/03/11	15/11/11	-302d	SKW0951	KD0080	[Gantt bar: Dec 2011 - Sep 2012]											
SKW1491	Concrete Trough (ChA0+45 - ChA1+75)	180	100	01/03/11 A	31/08/11 A	01/03/11 A	31/08/11 A		PRE0100	SKW15111	[Gantt bar: Mar 2011 - Aug 2011]											
SKW15111	Twin DN150 DI Rising Main (ChA0+45 - ChA5+79)	150	95	16/05/11 A	07/01/12	16/05/11 A	09/08/11	-151d	SKW1491	SKW1531	[Gantt bar: May 2011 - Jan 2012]											
SKW15112	Twin DN150 DI Rising Main (ChA0+00 - ChA0+45)	30	0	15/03/12	14/04/12	17/10/11	15/11/11	-151d	SKW1581	KD0080	[Gantt bar: Mar 2012 - Apr 2012]											
SKW1531	Extent village sewers S163.1 & S164.1	34	0	07/01/12	10/02/12	10/08/11	12/09/11	-151d	SKW15111	SKW1581	[Gantt bar: Jan 2012 - Feb 2012]											
SKW1581	Construct Manhole no. S163 & S164	34	0	10/02/12	15/03/12	13/09/11	16/10/11	-151d	SKW1531	KD0080, SKW15112	[Gantt bar: Feb 2012 - Mar 2012]											
<b>Structural Works</b>																						
SKW0971	Base Slab to -3.2mPD	14	100	02/05/11 A	31/08/11 A	02/05/11 A	31/08/11 A		SKW0951	SKW0981	[Gantt bar: May 2011 - Aug 2011]											
SKW0981	Basement Beam (BBB-1,BBC-1,BBD-1)	14	100	01/09/11 A	15/10/11 A	01/09/11 A	15/10/11 A		SKW0971	SKW0991	[Gantt bar: Sep 2011 - Oct 2011]											
SKW0991	Wall & Column to +1.5mPD	14	100	15/10/11 A	31/10/11 A	15/10/11 A	31/10/11 A		SKW0981	SKW1001	[Gantt bar: Oct 2011 - Nov 2011]											
SKW1001	Base Slab (BSC-4) to +3mPD	14	100	01/11/11 A	30/11/11 A	01/11/11 A	30/11/11 A		SKW0991	SKW1011	[Gantt bar: Nov 2011 - Dec 2011]											
SKW1011	Wall & Column to +5.35mPD	14	0	31/12/11	13/01/12	29/01/11	11/02/11	-336d	SKW1001	SKW1021	[Gantt bar: Dec 2011 - Jan 2012]											
SKW1021	Ground Slab	20	0	14/01/12	02/02/12	12/02/11	03/03/11	-336d	SKW1011	SKW1031	[Gantt bar: Jan 2012 - Feb 2012]											
SKW1031	Ground Beam	14	0	03/02/12	16/02/12	04/03/11	17/03/11	-336d	SKW1021	SKW1041	[Gantt bar: Feb 2012 - Mar 2012]											
SKW1041	Wall & Column to +9.35mPD	14	0	17/02/12	01/03/12	18/03/11	31/03/11	-336d	SKW1031	SKW1051	[Gantt bar: Mar 2012 - Apr 2012]											
SKW1051	Roof Beams & Parapet	14	0	02/03/12	15/03/12	01/04/11	14/04/11	-336d	SKW1041	E&M2101, E&M2102, E&M2103,	[Gantt bar: Apr 2012 - May 2012]											
SKW1061	ABWF installation (wet tray/dry tray)	90	0	02/03/12	30/05/12	18/04/11	16/07/11	-319d	SKW1051	E&M2101, E&M2102, E&M2103,	[Gantt bar: Apr 2012 - Jun 2012]											
SKW1081	375mm U-channel with catchpits	215	0	16/03/12	16/10/12	15/04/11	15/11/11	-336d	SKW1051	KD0080	[Gantt bar: Mar 2012 - Oct 2012]											
<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	[Gantt bar: May 2010 - Feb 2011]											
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	[Gantt bar: May 2010 - Feb 2011]											
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	[Gantt bar: May 2010 - Jul 2011]											
E&M2004	Submission of LV SB & MCC	271	95	17/05/10 A	13/01/12	17/05/10 A	13/02/11	-334d		E&M2014	[Gantt bar: May 2010 - Feb 2011]											
E&M2005	Submission of Instrumentation	243	95	17/05/10 A	12/01/12	17/05/10 A	01/05/11	-255d		E&M2015	[Gantt bar: May 2010 - Jan 2011]											
E&M2006	Submission of FS System	243	95	17/05/10 A	12/01/12	17/05/10 A	05/02/11	-341d		E&M2016	[Gantt bar: May 2010 - Jan 2011]											
E&M2007	Submission of BS System	243	95	17/05/10 A	12/01/12	17/05/10 A	05/02/11	-341d		E&M2017	[Gantt bar: May 2010 - Jan 2011]											
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	[Gantt bar: Feb 2011 - Jul 2011]											
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	[Gantt bar: Feb 2011 - Sep 2011]											
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	[Gantt bar: Jul 2011 - Oct 2011]											
E&M2014	Delivery of LV SB & MCC	150	0	31/12/11	28/05/12	03/12/10	01/05/11	-393d	E&M2004	E&M2104	[Gantt bar: Dec 2011 - Sep 2012]											
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	[Gantt bar: Jun 2011 - Nov 2011]											
E&M2016	Delivery of FS Equipment	107	20	01/12/11 A	06/04/12	01/12/11 A	01/05/11	-341d	E&M2006	E&M0350, E&M2106	[Gantt bar: Dec 2011 - Apr 2012]											
E&M2017	Delivery of BS Equipment	107	20	15/01/11 A	06/04/12	15/01/11 A	01/05/11	-341d	E&M2007	E&M2107	[Gantt bar: Jan 2011 - Apr 2012]											
<b>Installation, T&amp;C</b>																						
E&M2101	Install Pumps	55	0	16/03/12	09/05/12	03/07/11	26/08/11	-257d	E&M2011, SKW1051, SKW1061	E&M2110	[Gantt bar: Mar 2012 - May 2012]											
E&M2102	Install Gen Set	55	0	16/03/12	09/05/12	03/07/11	26/08/11	-257d	E&M2012, SKW1051, SKW1061	E&M2110	[Gantt bar: Mar 2012 - May 2012]											
E&M2103	Install DeO System	55	0	16/03/12	09/05/12	03/07/11	26/08/11	-257d	E&M2013, SKW1051, SKW1061	E&M2110	[Gantt bar: Mar 2012 - May 2012]											
E&M2105	Install Instrumentation	55	0	16/03/12	09/05/12	02/05/11	25/06/11	-319d	E&M2015, SKW1051, SKW1061	E&M2140	[Gantt bar: Mar 2012 - Jun 2012]											
E&M2106	Install FS Equipment	55	0	06/04/12	31/05/12	02/05/11	25/06/11	-341d	E&M2016, SKW1051, SKW1061	E&M2140	[Gantt bar: Apr 2012 - Jun 2012]											
E&M2107	Install BS Equipment	55	0	06/04/12	31/05/12	02/05/11	25/06/11	-341d	E&M2017, SKW1051, SKW1061	E&M2110, E&M2140	[Gantt bar: Apr 2012 - Jun 2012]											
<b>Section W 7 - SKW STW, Sewer and Submarine Outfall</b>																						
<b>Submarine Outfall</b>																						

Start date	05/05/10	■ Early bar
Finish date	06/02/15	■ Progress bar
Data date	31/12/11	■ Critical bar
Run date	11/01/12	■ 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 (Jan 2012 - Mar 2012)

Date	Revision	Checked	Approved
31/12/10	Revision 0	RH	VC

(Marked on 31 Dec 2011)



Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	Gantt Chart																
											OCT	2011 NOV	DEC	JAN	FEB	2012 MAR	APR	IA									
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	185	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)	120	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	60	0	31/12/11	28/02/12	14/01/12	13/03/12	14d	SKW1171, YSW0360	SKW1191																	
SKW1191	Setting up at drillhole location	30	0	29/02/12	29/03/12	14/03/12	12/04/12	14d	SKW1181	SKW1201																	
SKW1201	Drill pilot hole and reaming hole - NS280 - 750m	196	0	30/03/12	11/10/12	13/04/12	25/10/12	14d	SKW1191	SKW1211																	
<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	13/04/12	01/09/11 A	12/02/12	-61d	E&M0170	E&M3240																	
E&M3100	Delivery of Valves, Pipes & Fittings	180	70	30/08/11 A	28/02/12	30/08/11 A	25/05/14	816d	E&M0180	E&M3250																	
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	03/01/12	30/06/12	09/05/11	04/11/11	-239d	E&M0210	E&M3261																	
E&M3150	Delivery of BS Equipment	180	0	08/02/12	05/08/12	11/12/13	09/06/14	672d	E&M0220	E&M3291																	
E&M3160	Delivery of FS Equipment	180	0	02/02/12	30/07/12	14/01/12	11/07/12	-19d	E&M0230	E&M0340, E&M3300																	
<b>Construction of Grid A-G</b>																											
SKW1261	Excavate for SKW STW Structure (Grid A-G)	164	20	30/07/11 A	17/05/12	30/07/11 A	27/07/11	-294d	SKW0551	SKW1271, SKW1371																	
<b>Construction of Grid G-N</b>																											
SKW1311	Excavate for SKW STW Structure (Grid G-N)	36	0	21/02/12	27/03/12	29/06/11	03/08/11	-237d	SKW0551, SKW05938	SKW1321																	
SKW1321	Equalization Tank no.1 & 2 with base slabs (-2.1	35	0	28/03/12	01/05/12	04/08/11	07/09/11	-237d	SKW1311	SKW1331																	
SKW1331	Columns & Walls from B/S to G/F Slab (Grid G-N)	35	0	02/05/12	05/06/12	08/09/11	12/10/11	-237d	SKW1321	SKW1341																	
<b>SKW STP - E&amp;M Works</b>																											
E&M3220	Install Pumps	75	0	31/12/11	14/03/12	29/12/11	12/03/12	-2d	E&M3070	E&M3230, E&M3250, E&M3260,																	
E&M3230	Install Submersible Mixers	45	0	15/03/12	28/04/12	13/03/12	26/04/12	-2d	E&M3080, E&M3220	E&M3250, E&M3260, E&M3311,																	
<b>Rising Main</b>																											
SKW1481	Subm, Approval & Delivery of DI pipes	120	100	17/05/10 A	28/02/11 A	17/05/10 A	28/02/11 A		KD0020	SKW1501																	
SKW1501	Concrete Trough (ChB0+00 - ChB1+20)	300	100	15/08/11 A	30/09/11 A	15/08/11 A	30/09/11 A		PRE0100, SKW1481	SKW1521																	
SKW1521	Twin DN150 DI Rising Main (ChB0+00 - ChA4+55)	250	75	15/08/11 A	02/03/12	15/08/11 A	16/03/12	15d	SKW1501	SKW1541																	
SKW1541	DN250 DI Pipe (ChC0+00 - ChC0+35 Connection Pit)	208	0	02/03/12	26/09/12	17/03/12	10/10/12	15d	SKW1521	SKW1561																	
<b>Section W 8 - 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	822	70	17/05/10 A	02/09/12	17/05/10 A	15/08/12	-18d	KD0020	KD0100, SKW1631																	
SKW1621	Transplantation at SKW	60	100	07/06/10 A	05/10/10 A	07/06/10 A	05/10/10 A		SKW1591																		

Start date	05/05/10		Early bar
Finish date	06/02/15		Progress bar
Data date	31/12/11		Critical bar
Run date	11/01/12		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 (Jan 2012 - Mar 2012)**

(Marked on 31 Dec 2011)

Date	Revision	Checked	Approved
31/12/10	Revision 0	RH	VC



Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2011											
											OCT	NOV	DEC	2012			JAN	FEB	MAR	APR	IA	
<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,												
KD0030	Section W1 - Slope Works in Portion A & C (456d)	0	100		14/10/11 A		14/10/11 A		YSW0150	KD0125												
KD0050	Section W3 - Footpath Diversion in Ptn G (273d)	0	100		24/03/11 A		24/03/11 A		SKW0551	KD0125												
KD0115	Start Operate Temp Sewage Treatment in Port. A&H	0	0		02/05/12		30/06/11 *	-307d *	E&M0510	KD0125												
<b>+Preliminary (Civil)</b>																						
		191	100	17/05/10 A	23/11/10 A	17/05/10 A	23/11/10 A		KD0020													
<b>Preliminary (E&amp;M)</b>																						
<b>Technical Submission</b>																						
<b>+Process Design of SKWSTW &amp; YSWSTW</b>																						
		563	100	17/05/10 A	30/11/11 A	17/05/10 A	30/11/11 A															
<b>+Hydraulic Design</b>																						
		563	100	17/05/10 A	30/11/11 A	17/05/10 A	30/11/11 A															
<b>+Equipment Submission &amp; Approval</b>																						
		632	96	17/05/10 A	07/02/12	17/05/10 A	30/11/11	-69d														
<b>+Drawings Submission &amp; Approval</b>																						
		579	87	24/06/10 A	23/01/12	24/06/10 A	26/10/11	-89d														
<b>+Statutory Submission</b>																						
		255	43	01/11/11 A	14/08/12	01/11/11 A	06/02/15	843d														
<b>Yung Shue Wan</b>																						
<b>+Preliminary</b>																						
		229	100	17/05/10 A	31/12/10 A	17/05/10 A	31/12/10 A															
<b>+Section W 1 - Slope Works in Portion A &amp; C</b>																						
		626	96	17/05/10 A	01/02/12	17/05/10 A	14/02/14	744d														
<b>Section W 2 - YSW STW &amp; Submarine Outfall</b>																						
<b>+Civil &amp; Structural Work</b>																						
		794	56	17/05/10 A	19/07/12	17/05/10 A	04/07/12	-14d														
<b>+Submarine Outfall</b>																						
		743	86	17/05/10 A	28/05/12	17/05/10 A	16/12/13	567d														
<b>+E&amp;M Works - YSW STP</b>																						
		681	57	24/02/11 A	05/01/13	24/02/11 A	04/07/12	-184d														
<b>Sok Kwu Wan</b>																						
<b>+Preliminary</b>																						
		53	100	17/05/10 A	08/07/10 A	17/05/10 A	08/07/10 A															
<b>Section W 3 - Footpath Diversion in Portion G</b>																						
<b>+Civil &amp; Geotechnical Works</b>																						
		600	98	17/05/10 A	06/01/12	17/05/10 A	30/07/11	-294d														
<b>Section W 4 - Slope Works in Portions H &amp; I</b>																						
<b>+Geotechnical Works</b>																						
		824	56	15/06/10 A	15/09/12	15/06/10 A	31/12/11	-397d														
<b>Section W 5 - P.S. No. 1 in Portion D</b>																						
<b>+Civil &amp; Geotechnical Works</b>																						
		319	100	17/05/10 A	31/03/11 A	17/05/10 A	31/03/11 A															
<b>+Structural Works</b>																						
		443	34	20/04/11 A	05/07/12	18/04/11 A	31/12/11	-233d														
<b>E&amp;M Works (PS1)</b>																						
<b>+Submission &amp; Delivery</b>																						
		691	90	17/05/10 A	06/04/12	17/05/10 A	03/11/11	-341d														
<b>+Installation, T&amp;C</b>																						
		133	0	19/01/12	31/05/12	02/05/11	25/06/11	-341d														
<b>Section W 6 - Sewer and PS No.2 in Portions E&amp;H</b>																						
<b>+Civil &amp; Geotechnical Works</b>																						
		850	59	17/05/10 A	12/09/12	17/05/10 A	15/11/11	-302d														

Start date	05/05/10		Early bar
Finish date	06/02/15		Progress bar
Data date	31/12/11		Critical bar
Run date	11/01/12		Summary bar
Page number	1A		Progress point
			Critical point
			Summary point
			Start milestone point
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**Leader Civil Engineering Corp. Ltd.**  
**Contract No. DC/2009/13**  
**Construction of Sewage Treatment Works at YSW & SKW**  
**3-month Rolling Programme (Jan 2012 - Mar 2012)**

<<Outline>>

Date	Revision	Checked	Approved
31/12/10	Revision 0	RH	VC

(Marked on 31 Dec 2011)



Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2011											
											OCT	NOV	DEC	2012			JAN	FEB	MAR	APR	IA	
<b>+Structural Works</b>																						
		534	13	02/05/11 A	16/10/12	29/01/11 A	30/11/11	-336d														
<b>E&amp;M Works (PS2)</b>																						
<b>+Submission &amp; Delivery</b>																						
		743	85	17/05/10 A	28/05/12	17/05/10 A	03/11/11	-393d														
<b>+Installation, T&amp;C</b>																						
		77	0	16/03/12	31/05/12	02/05/11	26/08/11	-279d														
<b>Section W 7 - SKW STW, Sewer and Submarine Outfall</b>																						
<b>+Submarine Outfall</b>																						
		879	78	17/05/10 A	11/10/12	17/05/10 A	25/10/12	14d														
<b>SKW STW</b>																						
<b>+Submission &amp; Delivery (E&amp;M)</b>																						
		529	66	24/02/11 A	05/08/12	24/02/11 A	09/06/14	672d														
<b>+Construction of Grid A-G</b>																						
		164	20	30/07/11 A	17/05/12	30/07/11 A	27/07/11	-294d														
<b>+Construction of Grid G-N</b>																						
		106	0	21/02/12	05/06/12	29/06/11	12/10/11	-237d														
<b>+SKW STP - E&amp;M Works</b>																						
		120	0	31/12/11	28/04/12	29/12/11	26/04/12	-2d														
<b>+Rising Main</b>																						
		864	69	17/05/10 A	26/09/12	17/05/10 A	10/10/12	15d														
<b>+Section W 8 - Landscape Softworks in All Portions</b>																						
		840	73	17/05/10 A	02/09/12	17/05/10 A	15/08/12	-18d														

Start date	05/05/10		Early bar
Finish date	06/02/15		Progress bar
Data date	31/12/11		Critical bar
Run date	11/01/12		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 (Jan 2012 - Mar 2012)**

« Outline »

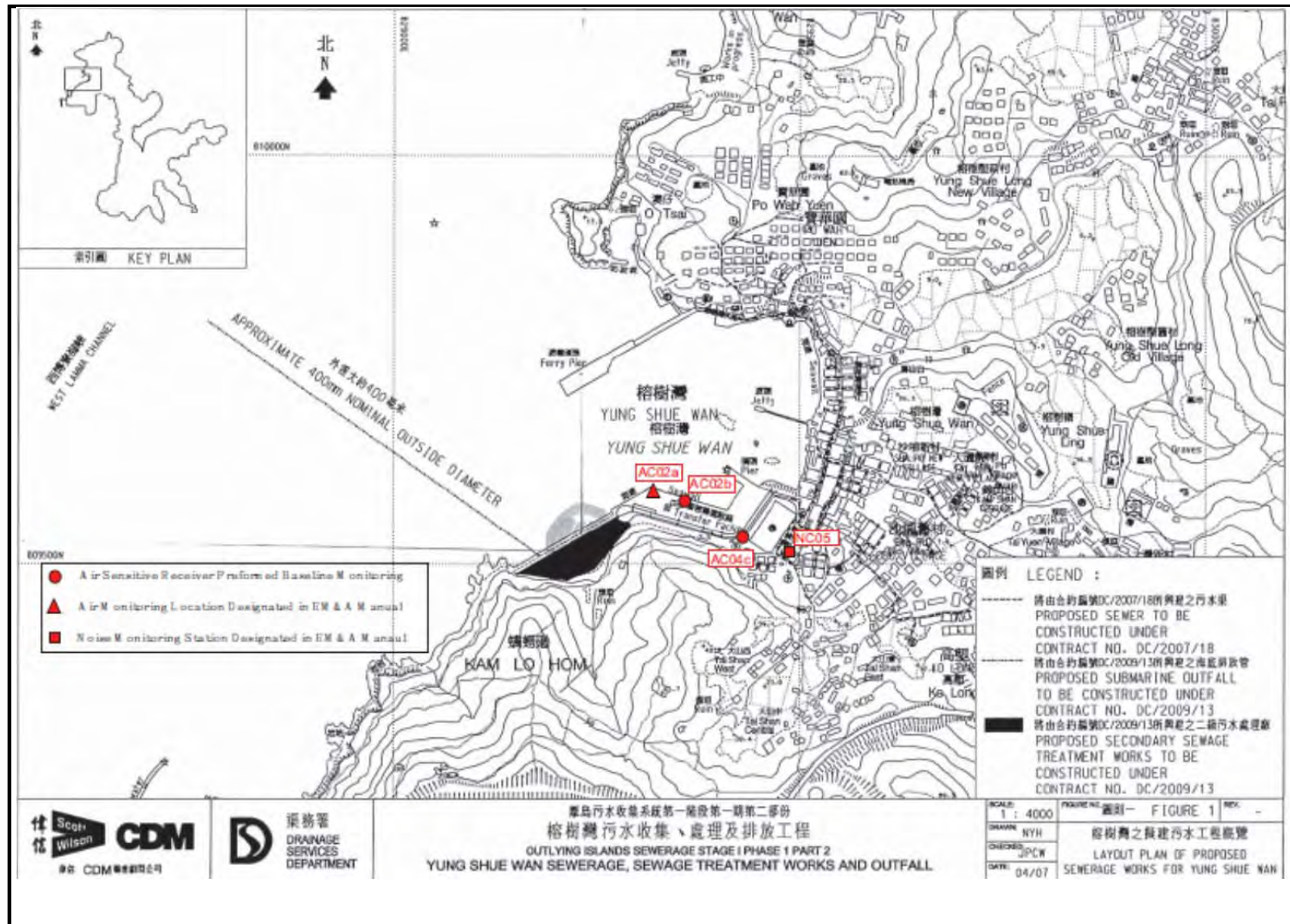
(Marked on 31 Dec 2011)

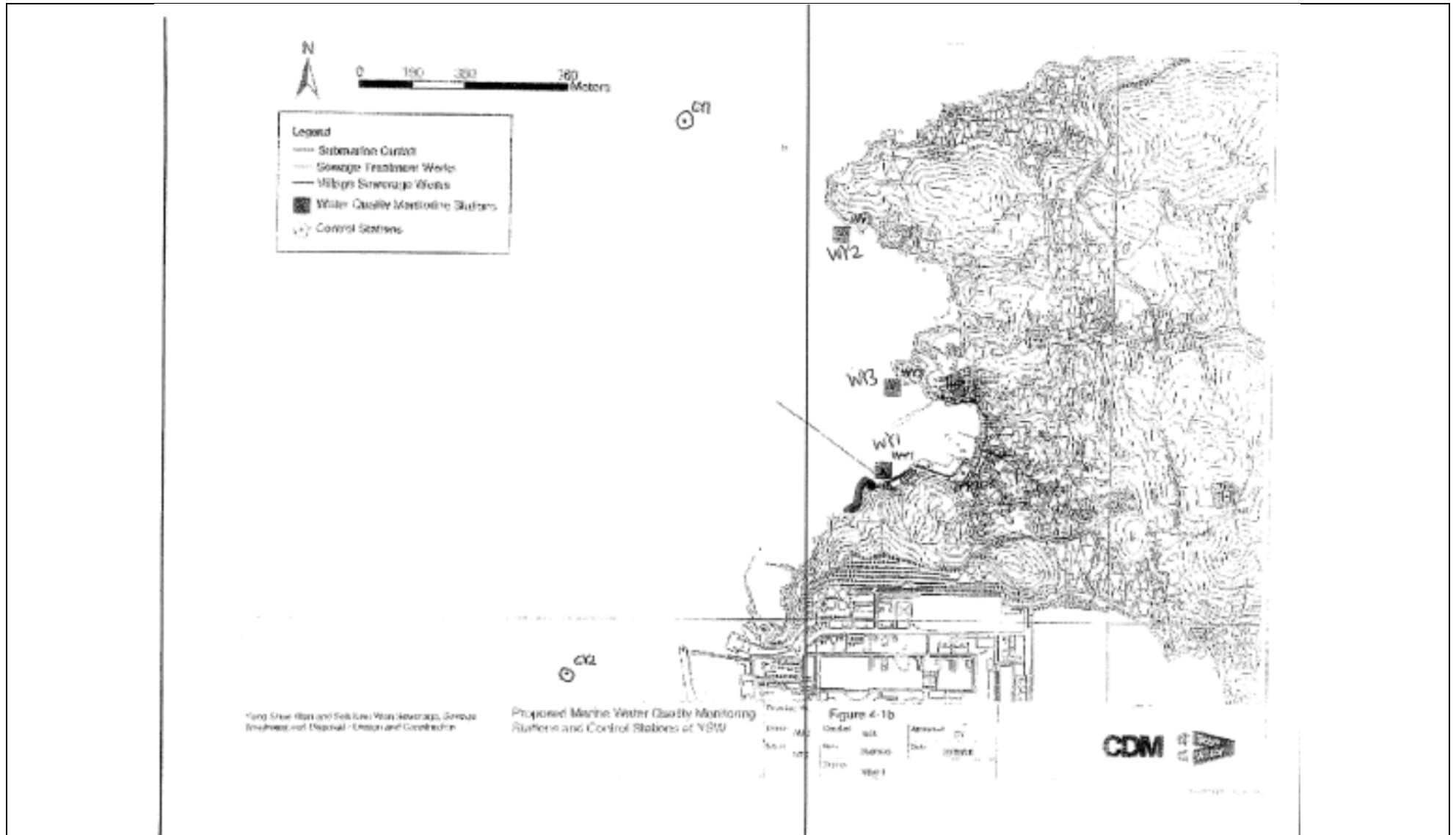
Date	Revision	Checked	Approved
31/12/10	Revision 0	RH	VC

## **Appendix D**

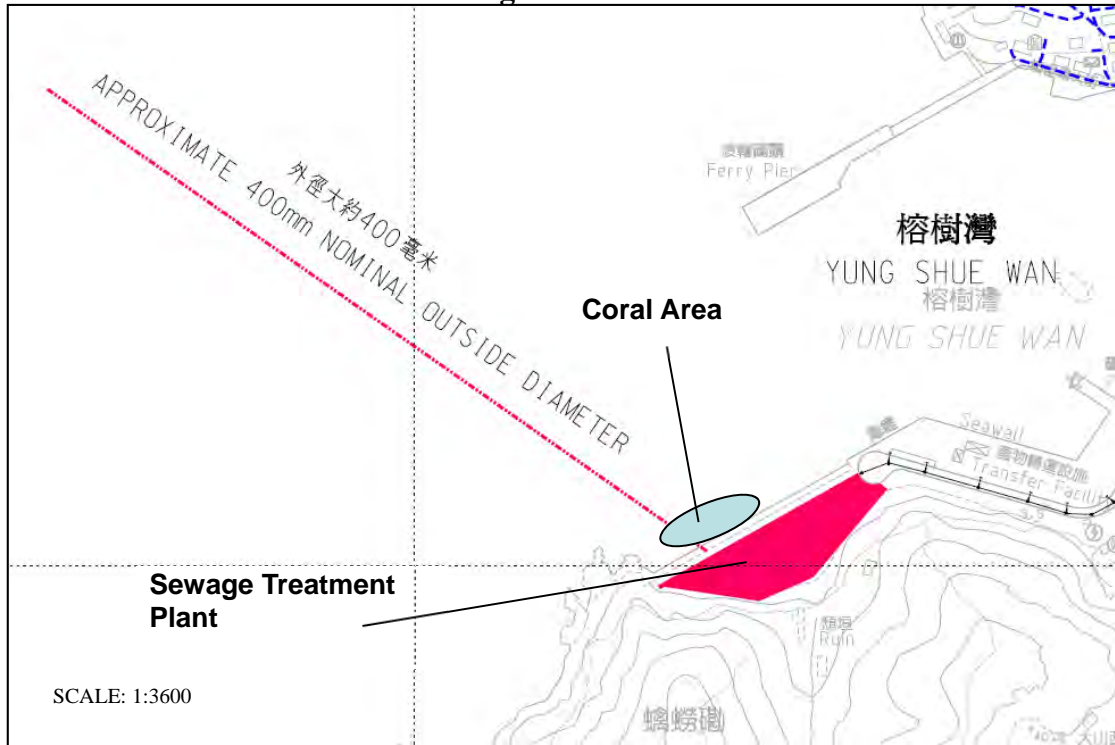
### **Location of Monitoring Stations (Air Quality / Construction Noise / Water Quality / Dive Surveys of Coral)**



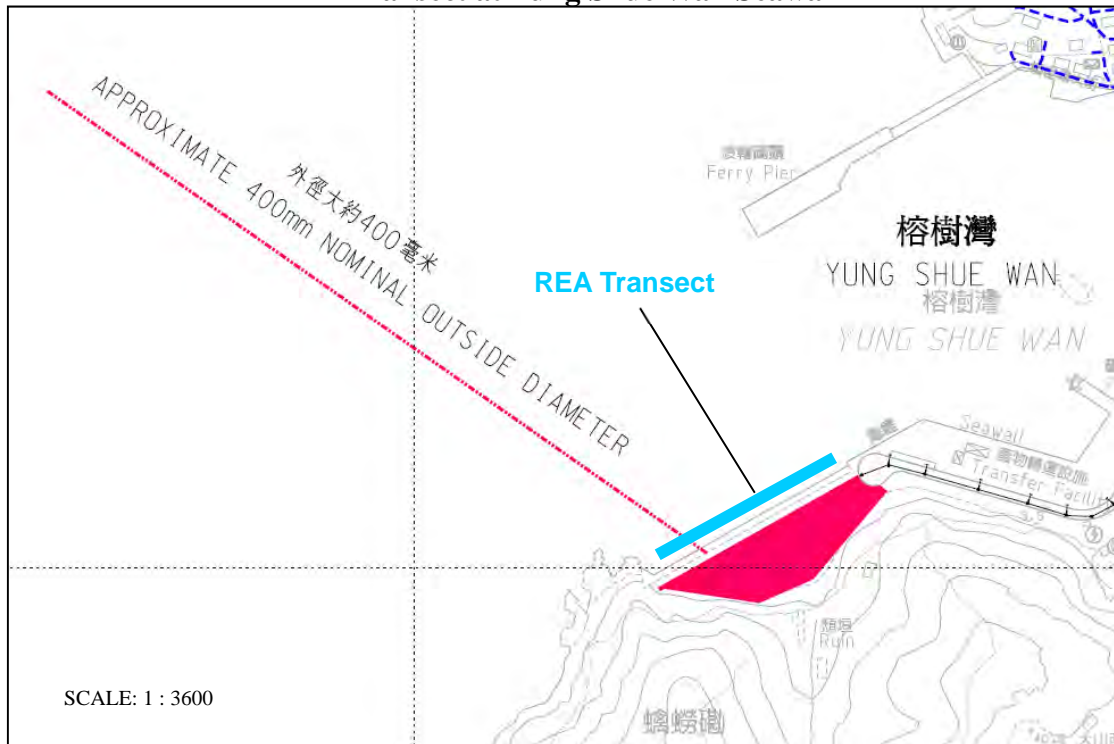




### Coral Area at Yung Shue Wan Seawall



### REA Transect at Yung Shue Wan Seawall





### Coral Area at Sham Wan



### REA Transect at Sham Wan



## **Appendix E**

# **Monitoring Equipments Calibration Certificate**





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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Jun 02, 2011 Roots-meter S/N 0438320 Ta (K) - 294  
 Operator Tisch Orifice I.D. - 1941 Pa (mm) - 754.38

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF. VOLUME (m3)	DIFF. TIME (min)	METER DIFF. Hg (mm)	ORIFICE DIFF. H2O (in.)
1	NA	NA	1.00	1.4660	3.3	2.00
2	NA	NA	1.00	1.0410	6.4	4.00
3	NA	NA	1.00	0.9310	8.1	5.00
4	NA	NA	1.00	0.8830	8.9	5.50
5	NA	NA	1.00	0.7310	13.0	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0017	0.6833	1.4185	0.9956	0.6791	0.8829
0.9975	0.9582	2.0061	0.9914	0.9524	1.2486
0.9952	1.0690	2.2429	0.9892	1.0625	1.3959
0.9942	1.1260	2.3524	0.9882	1.1191	1.4641
0.9887	1.3526	2.8371	0.9827	1.3444	1.7657
Qstd slope (m) =		2.11693	Qa slope (m) =		1.32558
intercept (b) =		-0.02568	intercept (b) =		-0.01598
coefficient (r) =		0.99993	coefficient (r) =		0.99993
y axis = $\text{SQRT}[\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta})]$			y axis = $\text{SQRT}[\text{H}_2\text{O}(\text{Ta}/\text{Pa})]$		

CALCULATIONS

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

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

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

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

For subsequent flow rate calculations:

$$\text{Qstd} = 1/m \{ [\text{SQRT}(\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta}))] - b \}$$

$$\text{Qa} = 1/m \{ [\text{SQRT}(\text{H}_2\text{O}(\text{Ta}/\text{Pa}))] - b \}$$

## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : YSW RE Offices  
 Location ID : AC02b

Date of Calibration: 3-Dec-11  
 Next Calibration Date: 3-Feb-12  
 Technician: Mr. Ben Tam

### CONDITIONS

Sea Level Pressure (hPa)	1017.5	Corrected Pressure (mm Hg)	763.125
Temperature (°C)	15.1	Temperature (K)	288

### 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	5.5	5.5	11	1.609	59	61.15	Slope = 30.8545 Intercept = 11.0000 Corr. coeff. = 0.9990
13	4.4	4.4	8.8	1.440	53	54.93	
10	3.4	3.4	6.8	1.268	48	49.75	
7	2.3	2.3	4.6	1.045	42	43.53	
5	1.4	1.4	2.8	0.818	35	36.28	

**Calculations :**

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

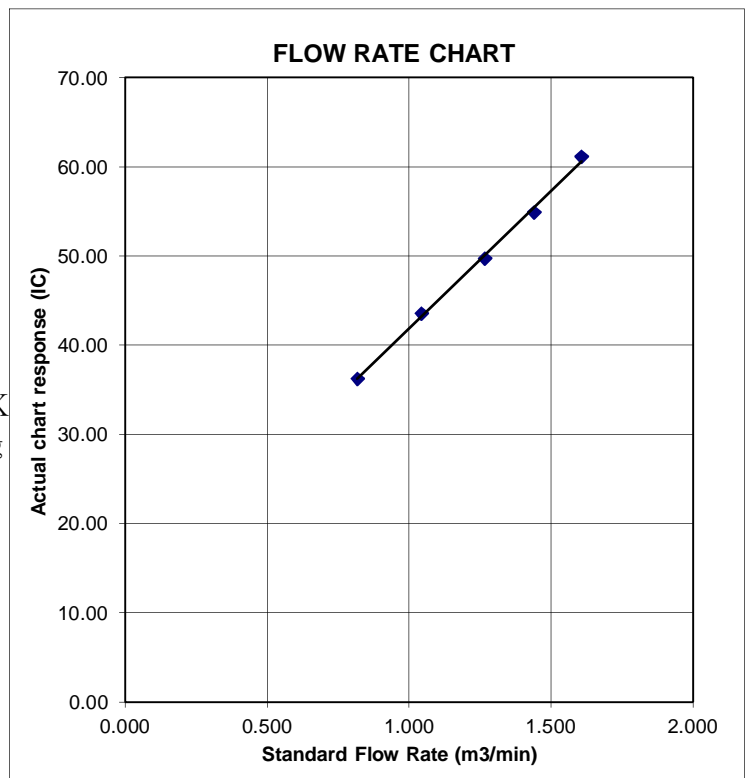
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

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: 3-Dec-11  
 Next Calibration Date: 3-Feb-12  
 Technician: Mr. Ben Tam

### CONDITIONS

Sea Level Pressure (hPa)	1017.5	Corrected Pressure (mm Hg)	763.125
Temperature (°C)	15.1	Temperature (K)	288

### 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	5.1	5.1	10.2	1.550	60	62.19	Slope = 38.4206 Intercept = 2.9199 Corr. coeff. = 0.9993
13	4.2	4.2	8.4	1.407	55	57.01	
10	3.2	3.2	6.4	1.230	49	50.79	
7	2.5	2.5	5	1.089	43	44.57	
5	1.7	1.7	3.4	0.900	36	37.31	

**Calculations :**

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

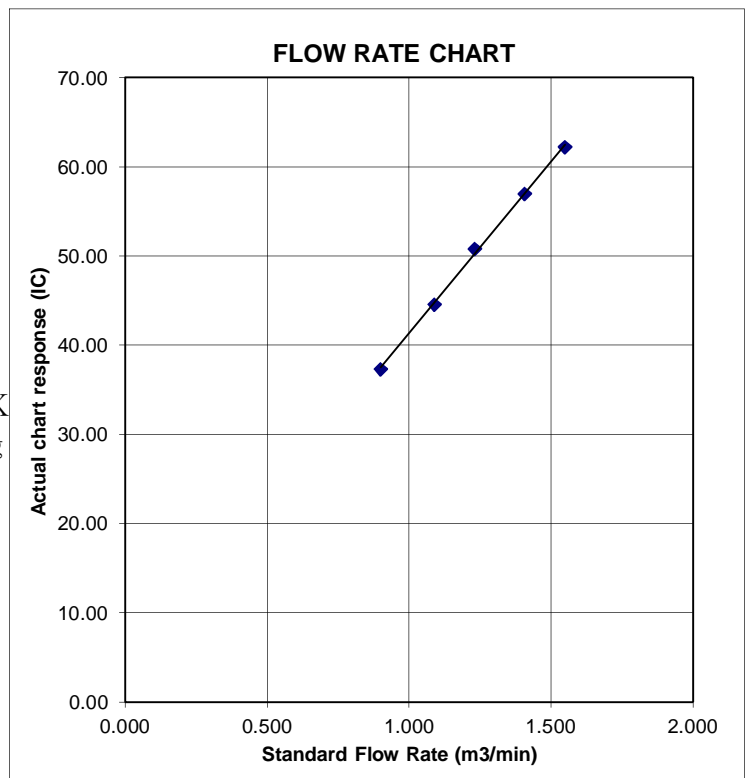
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

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



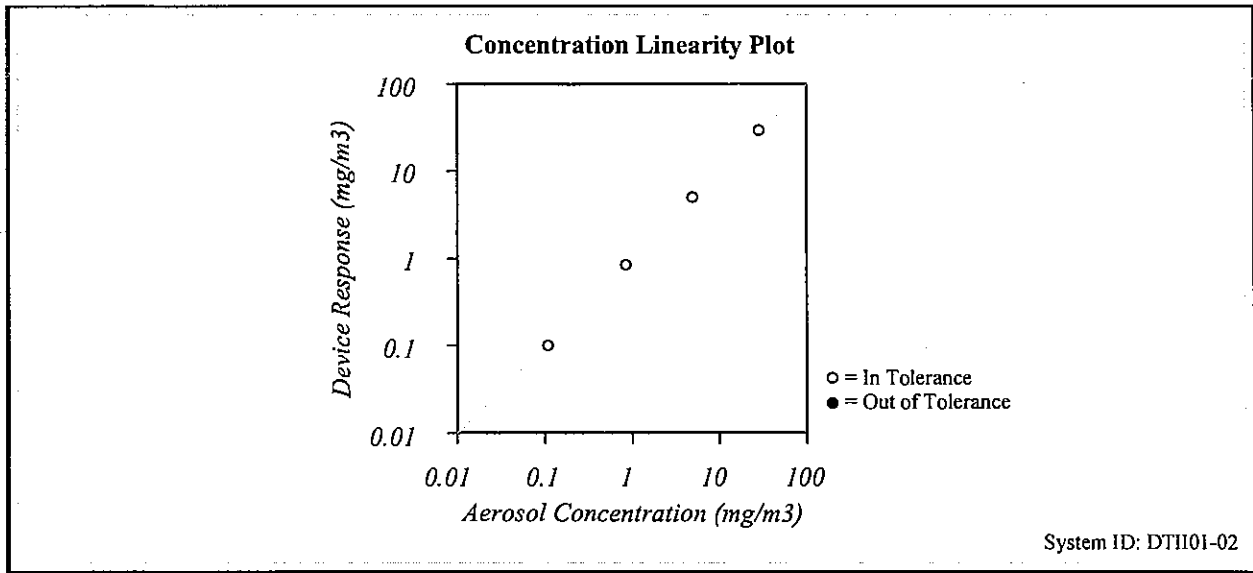


# CERTIFICATE OF CALIBRATION AND TESTING

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

Environment Condition			Model	8520
Temperature	73.8 (23.2)	°F (°C)	Serial Number	23080
Relative Humidity	14	%RH		
Barometric Pressure	29.41 (995.9)	inHg (hPa)		

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



Zero Stability Results			
Average:	Minimum:	Maximum:	Time:
0.000 :mg/m <sup>3</sup>	0.000 :mg/m <sup>3</sup>	0.001 :mg/m <sup>3</sup>	4:00 :hrs.

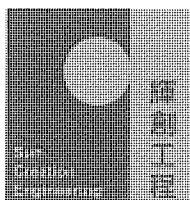
*TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required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

<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Measurement Variable</th> <th>System ID</th> <th>Last Cal.</th> <th>Cal. Due</th> </tr> </thead> <tbody> <tr><td>Barometric Pressure</td><td>E003733</td><td>01-15-11</td><td>02-15-12</td></tr> <tr><td>Humidity</td><td>E002873</td><td>11-24-10</td><td>11-24-11</td></tr> <tr><td>DC Voltage</td><td>E003315</td><td>01-05-11</td><td>01-05-12</td></tr> <tr><td>Microbalance</td><td>E001324</td><td>01-04-11</td><td>01-04-12</td></tr> <tr><td>Pressure</td><td>E003511</td><td>11-12-10</td><td>11-12-11</td></tr> </tbody> </table>	Measurement Variable	System ID	Last Cal.	Cal. Due	Barometric Pressure	E003733	01-15-11	02-15-12	Humidity	E002873	11-24-10	11-24-11	DC Voltage	E003315	01-05-11	01-05-12	Microbalance	E001324	01-04-11	01-04-12	Pressure	E003511	11-12-10	11-12-11	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Measurement Variable</th> <th>System ID</th> <th>Last Cal.</th> <th>Cal. Due</th> </tr> </thead> <tbody> <tr><td>Temperature</td><td>E002873</td><td>11-24-10</td><td>11-24-11</td></tr> <tr><td>DC Voltage</td><td>E003314</td><td>01-05-11</td><td>01-05-12</td></tr> <tr><td>Photometer</td><td>E003319</td><td>01-27-11</td><td>07-27-11</td></tr> <tr><td>Flow and Temperature</td><td>E003769</td><td>06-15-10</td><td>06-15-11</td></tr> </tbody> </table>	Measurement Variable	System ID	Last Cal.	Cal. Due	Temperature	E002873	11-24-10	11-24-11	DC Voltage	E003314	01-05-11	01-05-12	Photometer	E003319	01-27-11	07-27-11	Flow and Temperature	E003769	06-15-10	06-15-11
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Flow and Temperature	E003769	06-15-10	06-15-11																																										

*[Signature]*  
 \_\_\_\_\_  
 Calibrated

Final Function Check

February 1, 2011  
 \_\_\_\_\_  
 Date



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C112202

## Certificate of Calibration

*This is to certify that the equipment*

*Description : Integrating Sound Level Meter (EQ010)*

*Manufacturer : Bruel & Kjaer*

*Model No. : 2238*

*Serial No. : 2285721*

*has been calibrated for the specific items and ranges.  
The results are shown in the Calibration Report No. C112202.*

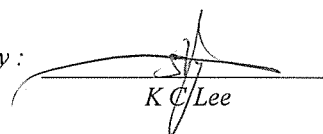
*The equipment is supplied by*

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

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

*Date of Issue : 19 April 2011*

*Certified by :*

  
K C Lee

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

Calibration and Testing Laboratory of Sun Creation Engineering Limited

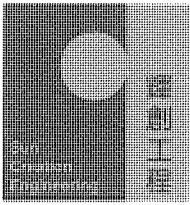
c/o 4/F, Tsing Shan Wan Exchange Building, I Hing On Lane, Tuen Mun, New Territories, Hong Kong

Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C112202

## Calibration Report

### ITEM TESTED

DESCRIPTION : Integrating Sound Level Meter (EQ010)  
MANUFACTURER : Bruel & Kjaer  
MODEL NO. : 2238  
SERIAL NO. : 2285721

### TEST CONDITIONS

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

### TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 18 April 2011

JOB NO. : IC11-0947

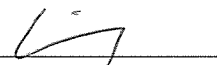
### TEST RESULTS

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

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

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

Tested by :

  
L L Cheung

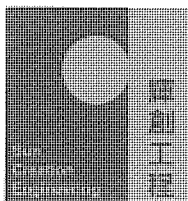
Date : 19 April 2011

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

Calibration and Testing Laboratory of Sun Creation Engineering Limited

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

Page 1 of 4



# Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
2. Self-calibration using the B & K Acoustic Calibrator 4231, S/N : 2713428 was performed before the test.
3. The results presented are the mean of 3 measurements at each calibration point.
4. Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL280	40 MHz Arbitrary Waveform Generator	C110018
CL281	Multifunction Acoustic Calibrator	C1006860

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

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

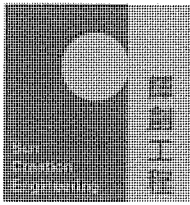
6.1.2 Linearity

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

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

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





# Calibration Report

## 6.2 Time Weighting

### 6.2.1 Continuous Signal

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

### 6.2.2 Tone Burst Signal (2 kHz)

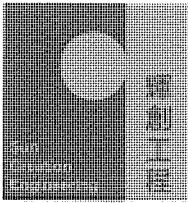
UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L <sub>AFP</sub>	A	F	106.0	Continuous	106.0	Ref.
	L <sub>AFMax</sub>				200 ms	105.0	-1.0 ± 1.0
	L <sub>ASP</sub>	S	Continuous		106.0	Ref.	
	L <sub>ASMax</sub>		500 ms		101.9	-4.1 ± 1.0	

## 6.3 Frequency Weighting

### 6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L <sub>AFP</sub>	A	F	94.00	31.5 Hz	54.6	-39.4 ± 1.5
					63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.7	-16.1 ± 1.0
					250 Hz	85.2	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.0
					4 kHz	95.0	+1.0 ± 1.0
					8 kHz	92.8	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.7	-4.3 (+3.0 ; -6.0)

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



## Calibration Report

### 6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L <sub>CFP</sub>	C	F	94.00	31.5 Hz	91.1	-3.0 ± 1.5
					63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	94.0	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.0
					4 kHz	93.2	-0.8 ± 1.0
					8 kHz	90.9	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.8	-6.2 (+3.0 ; -6.0)

### 6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)	
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)			
30 - 110	L <sub>Aeq</sub>	A	10 sec.	4	1	1/10	110.0	100	99.9	± 0.5	
			60 sec.					1/10 <sup>2</sup>	90	89.6	± 0.5
			5 min.					1/10 <sup>3</sup>	80	79.3	± 1.0
								1/10 <sup>4</sup>	70	69.9	± 1.0

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

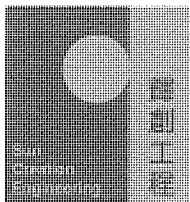
- Uncertainties of Applied Value :
  - 94 dB : 31.5 Hz - 125 Hz : ± 0.40 dB
  - 250 Hz - 500 Hz : ± 0.30 dB
  - 1 kHz : ± 0.20 dB
  - 2 kHz : ± 0.40 dB
  - 4 kHz : ± 0.50 dB
  - 8 kHz : ± 0.70 dB
  - 12.5 kHz : ± 1.20 dB
  - 104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
  - 114 dB : 1 kHz : ± 0.10 dB (Ref.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

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

#### Note :

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

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



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C112201

## Certificate of Calibration

*This is to certify that the equipment*

*Description : Acoustical Calibrator (EQ082)*

*Manufacturer : Bruel & Kjaer*

*Model No. : 4231*

*Serial No. : 2713428*

*has been calibrated for the specific items and ranges.  
The results are shown in the Calibration Report No. C112201.*

*The equipment is supplied by*

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

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

*Date of Issue : 19 April 2011*

*Certified by :*

*K C Lee*

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

Calibration and Testing Laboratory of Sun Creation Engineering Limited

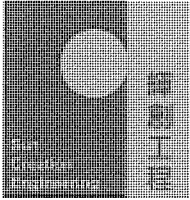
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C112201

## Calibration Report

### ITEM TESTED

DESCRIPTION : Acoustical Calibrator (EQ082)  
MANUFACTURER : Bruel & Kjaer  
MODEL NO. : 4231  
SERIAL NO. : 2713428

### TEST CONDITIONS

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

### TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 18 April 2011

JOB NO. : IC11-0947

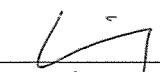
### TEST RESULTS

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

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

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

Tested by :

  
L L Cheung

Date : 19 April 2011

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

Calibration and Testing Laboratory of Sun Creation Engineering Limited

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

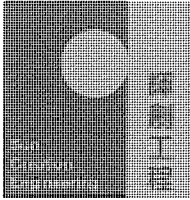
Tel: 2927 2606

Fax: 2744 8986

E-mail: callab@suncreation.com

Website: www.suncreation.com

Page 1 of 2



## Calibration Report

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

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL130	Universal Counter	C103289
CL281	Multifunction Acoustic Calibrator	C1006860
TST150A	Measuring Amplifier	C101008

4. Test procedure : MA100N.

5. Results :

- 5.1 Sound Level Accuracy

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

- 5.2 Frequency Accuracy

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

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

Note :

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



# 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:** HK1129081  
**LABORATORY:** HONG KONG  
**DATE RECEIVED:** 09/12/2011  
**DATE OF ISSUE:** 16/12/2011

**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, Temperature and Turbidity  
**Description:** YSI Sonde  
**Brand Name:** YSI  
**Model No.:** YSI 6820 / 650MDS  
**Serial No.:** 02J0912/02K0788 AA  
**Equipment No.:** --  
**Date of Calibration:** 16 December, 2011

### 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

*This report may not be reproduced except with prior written approval from ALS Technichem (HK) Pty Ltd.*

Page 1 of 3



# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

**Work Order:** HK1129081  
**Date of Issue:** 16/12/2011  
**Client:** ACTION UNITED ENVIRO SERVICES



**Description:** YSI Sonde  
**Brand Name:** YSI  
**Model No.:** YSI 6820 / 650MDS  
**Serial No.:** 02J0912/02K0788 AA  
**Equipment No.:** --  
**Date of Calibration:** 16 December, 2011

**Date of next Calibration:** 16 March, 2012

**Parameters:**

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

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
5.70	5.83	0.13
6.91	7.05	0.14
8.00	8.08	0.08
Tolerance Limit ( $\pm$ 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	3.95	-0.05
7.0	6.95	-0.05
10.0	9.92	-0.08
Tolerance Limit ( $\pm$ unit)		0.20

**Salinity**

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

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	--
10	10.05	0.5
20	20.10	0.5
30	30.89	3.0
Tolerance Limit ( $\pm$ %)		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 ( $^{\circ}$ C)	Displayed Reading ( $^{\circ}$ C)	Tolerance ( $^{\circ}$ C)
11.0	10.80	-0.2
22.0	21.40	-0.6
32.0	31.83	-0.2
Tolerance Limit ( $^{\circ}$ C)		2.0

  
 Mr Chan Kwok Fai, Godfrey  
 Laboratory Manager - Hong Kong

# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1129081  
Date of Issue: 16/12/2011  
Client: ACTION UNITED ENVIRO SERVICES



Description: YSI Sonde  
Brand Name: YSI  
Model No.: YSI 6820 / 650MDS  
Serial No.: 02J0912/02K0788 AA  
Equipment No.: --  
Date of Calibration: 16 December, 2011

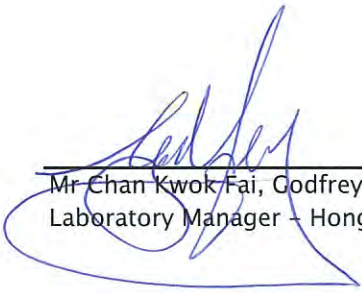
Date of next Calibration: 16 March, 2012

## Parameters:

### Turbidity

Method Ref: APHA 21st Ed. 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.6	--
4	4.3	7.5
10	10.0	0.0
20	21.5	7.5
50	50.9	1.8
100	99.4	-0.6
	Tolerance Limit ( $\pm\%$ )	10.0

  
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 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)
	ET		
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

DATE	ELAPSED TIME		CHART READING				AVG TEMP (oC)	STANDARD			INITIAL FILTER WEIGHT (g)	FINAL FILTER WEIGHT (g)	WEIGHT DUST COLLECTED (g)	DUST 24-hour TSP IN AIR (ug/m <sup>3</sup> )	
	SAMPLE NUMBER	INITIAL	FINAL	ACTUAL (min)	MIN	MAX		AVG	AVG PRESS (hPa)	FLOW RATE (m3/min)					AIR VOLUME (std m3)
5-Jan-12	24509	4809.3	4833.19	1433.40	36	38	37.0	11	1023.4	0.88	1258	2.7943	2.9903	0.1960	156
11-Jan-12	24475	4833.19	4856.68	1409.40	36	38	37.0	16	1023.7	0.87	1223	2.831	2.9965	0.1655	135
17-Jan-12	24511	4856.68	4880.56	1432.80	33	36	34.5	16.5	1014.8	0.78	1116	2.7864	2.8568	0.0704	63
27-Jan-12	24518	4880.56	4904.5	1436.40	30	32	31.0	14.7	1016.6	0.67	959	2.7876	2.8236	0.0360	38

### 24-hour TSP Monitoring Results - AC04c

DATE	ELAPSED TIME		CHART READING				AVG TEMP (oC)	STANDARD			INITIAL FILTER WEIGHT (g)	FINAL FILTER WEIGHT (g)	WEIGHT DUST COLLECTED (g)	DUST 24-hour TSP IN AIR (ug/m <sup>3</sup> )	
	SAMPLE NUMBER	INITIAL	FINAL	ACTUAL (min)	MIN	MAX		AVG	AVG PRESS (hPa)	FLOW RATE (m3/min)					AIR VOLUME (std m3)
5-Jan-12	24495	7374.5	7398.03	1411.80	31	35	33.0	11	1023.4	0.81	1141	2.8485	2.9219	0.0734	64
11-Jan-12	24476	7398.03	7421.82	1427.40	29	35	32.0	16	1023.7	0.77	1105	2.8429	2.9248	0.0819	74
17-Jan-12	24512	7421.82	7445.61	1427.40	33	36	34.5	16.5	1014.8	0.84	1193	2.788	2.8819	0.0939	79
27-Jan-12	24517	7445.61	7469.8	1451.40	30	32	31.0	14.7	1016.6	0.75	1083	2.7912	2.8277	0.0365	34

## **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 3-Jan-12

Date / Time	Location	Tide	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/1/3 8:18	WY1	ME	829159	809576	4.3	1.000	18.10	8.14	102.5	4.8	29.44	8.34	3.2
						1.000	18.10	8.15	102.7	5.3	29.44	8.34	
						3.300	18.00	8.29	104.4	6.0	29.44	8.32	
						3.300	18.00	8.29	104.5	4.9	29.44	8.34	
2012/1/3 8:38	WY2	ME	828985	810415	7.6	1.000	18.20	8.29	104.4	5.8	29.45	8.30	2.1
						1.000	18.20	8.28	104.3	6.2	29.45	8.29	
						3.800	18.10	8.28	104.3	6.8	29.45	8.29	2.5
						3.800	18.10	8.24	103.8	6.4	29.45	8.29	
						6.600	18.00	8.27	104.1	5.7	29.44	8.30	2.9
						6.600	18.00	8.27	104.2	5.9	29.44	8.30	
2012/1/3 8:27	WY3	ME	829214	809860	4.5	1.000	18.20	8.26	104.1	5.2	29.45	8.31	4.1
						1.000	18.20	8.27	104.2	5.4	29.45	8.31	
						3.500	18.00	8.21	103.4	4.9	29.44	8.30	0.6
						3.500	18.00	8.22	103.6	5.7	29.45	8.31	
2012/1/3 8:52	CY1	ME	828404	810827	11.8	1.000	18.30	8.30	104.6	5.7	29.45	8.28	3.6
						1.000	18.30	8.30	104.6	5.1	29.45	8.30	
						5.900	18.10	8.24	103.8	4.9	29.45	8.30	1.7
						5.900	18.10	8.24	103.9	4.7	29.45	8.30	
						10.800	18.00	8.22	103.6	5.2	29.45	8.30	3.5
						10.800	18.00	8.25	103.9	6.0	29.45	8.30	
2012/1/3 8:03	CY2	ME	828004	808816	17.9	1.000	18.40	8.40	106.8	4.8	29.42	8.33	1.5
						1.000	18.40	8.35	106.1	5.4	29.41	8.33	
						8.950	18.10	8.43	106.3	5.2	29.41	8.38	2.8
						8.950	18.00	8.45	106.5	3.5	29.43	8.38	
						16.900	18.00	8.38	105.6	4.2	29.44	8.38	3.3
						16.900	18.00	8.38	105.6	5.7	29.44	8.37	
2012/1/3 13:17	WY1	MF	829156	809572	4.6	1.000	18.30	8.37	106.0	4.7	29.44	7.88	4.6
						1.000	18.30	8.29	104.9	5.9	29.43	7.93	
						3.600	18.10	8.26	104.2	5.8	29.22	8.13	
						3.600	18.10	8.12	102.4	4.5	29.24	8.14	
2012/1/3 13:33	WY2	MF	829019	810423	7.2	1.000	18.40	8.36	106.1	5.9	29.46	8.41	3.2
						1.000	18.40	8.32	105.6	6.8	29.46	8.39	
						3.600	18.30	8.36	106.0	7.2	29.40	8.55	3.5
						3.600	18.20	8.48	107.2	5.8	29.45	8.51	
						6.200	18.10	7.91	99.9	4.4	29.39	8.56	2.1
						6.200	18.10	7.83	98.9	5.1	29.39	8.56	
2012/1/3 13:25	WY3	MF	829214	809859	4.7	1.000	18.10	8.29	104.8	6.3	29.48	8.19	3.9
						1.000	18.10	8.21	103.7	6.2	29.50	8.20	
						3.700	18.10	8.24	104.0	4.9	29.35	8.42	3.4
						3.700	18.10	7.87	99.2	5.8	29.35	8.38	
2012/1/3 13:53	CY1	MF	828424	810815	12.1	1.000	18.50	8.56	108.9	6.0	29.42	8.47	1.6
						1.000	18.50	8.56	108.9	4.9	29.43	8.46	
						6.050	18.50	8.52	108.6	5.4	29.42	8.43	2.4
						6.050	18.40	8.52	108.6	5.0	29.41	8.43	
						11.100	18.20	8.40	107.1	5.0	29.42	8.39	3.1
						11.100	18.20	8.33	106.1	5.9	29.42	8.39	
2012/1/3 12:47	CY2	MF	827998	808818	17.5	1.000	18.40	8.41	106.8	5.8	29.42	8.37	1.4
						1.000	18.40	8.40	106.6	5.8	29.42	8.37	
						8.750	18.30	8.45	107.1	7.0	29.42	8.35	2.4
						8.750	18.40	8.38	106.4	4.8	29.42	8.35	
						16.500	18.20	8.40	106.6	5.3	29.44	8.34	0.9
						16.500	18.20	8.41	106.7	4.9	29.42	8.35	

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

Marine Water Quality Monitoring Result at Yung Shue Wan

Date 5-Jan-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/1/3 8:37	WY1	ME	829151	809577	4.5	1.000	12.40	6.96	99.8	5.9	30.72	8.40	0.9
						1.000	12.30	6.53	101.7	4.8	31.26	8.20	
						3.500	12.00	6.75	95.0	6.3	32.20	8.10	
						3.500	11.90	6.80	96.4	4.3	33.27	8.20	
2012/1/3 8:18	WY2	ME	829007	810423	7.7	1.000	12.40	7.05	99.1	5.8	32.24	8.30	1.6
						1.000	12.00	7.06	97.4	6.3	31.80	8.10	
						3.850	11.90	7.25	95.6	5.9	30.68	8.10	0.6
						3.850	11.80	7.17	94.8	4.7	31.74	8.30	
						6.700	11.80	6.88	94.7	4.8	32.26	8.20	1
						6.700	11.80	7.03	96.3	5.9	31.91	8.00	
2012/1/3 8:29	WY3	ME	829184	809872	4.6	1.000	12.00	7.19	98.5	5.7	30.44	8.30	2.1
						1.000	12.10	7.25	97.6	6.4	31.98	8.10	
						3.600	11.80	6.84	95.9	6.2	32.51	8.20	1
						3.600	11.80	6.88	94.4	4.9	30.65	8.20	
2012/1/3 8:09	CY1	ME	828397	810816	12.3	1.000	12.40	7.19	101.3	5.8	30.32	8.30	0.6
						1.000	12.20	7.02	100.6	6.3	31.96	8.30	
						6.150	12.60	7.26	100.8	4.2	33.88	8.40	1.1
						6.150	12.10	7.17	94.7	6.0	32.44	8.20	
						11.300	12.00	6.96	96.5	4.5	31.91	8.20	1.5
						11.300	12.00	6.74	95.8	5.7	30.09	8.40	
2012/1/3 8:58	CY2	ME	827985	808811	17.6	1.000	12.10	7.09	100.8	4.9	30.01	8.20	0.9
						1.000	11.90	7.14	97.6	5.4	33.62	8.30	
						8.800	11.80	7.36	95.3	5.7	32.69	8.30	1.1
						8.800	11.80	7.23	94.0	7.1	31.48	8.40	
						16.600	11.60	6.81	92.2	6.2	32.21	8.30	1.1
						16.600	11.70	6.54	90.3	7.0	32.91	8.10	
2012/1/3 14:22	WY1	MF	829154	809562	4.1	1.000	12.00	6.84	90.9	5.4	32.49	8.10	1.6
						1.000	12.10	6.96	88.6	6.9	30.84	8.30	
						3.100	12.00	6.59	82.4	4.4	32.21	8.00	1.6
						3.100	11.90	6.46	86.5	6.8	33.92	8.30	
2012/1/3 14:59	WY2	MF	829033	810419	7.2	1.000	12.40	6.96	99.7	5.9	31.80	8.10	2.2
						1.000	12.20	7.21	97.6	4.8	32.01	8.40	
						3.600	12.40	6.75	95.3	6.0	32.94	8.30	3.5
						3.600	12.30	6.83	95.6	4.2	30.09	8.30	
						6.200	11.80	6.24	92.1	6.3	32.28	8.40	2.2
						6.200	11.90	6.59	90.8	5.7	31.14	8.40	
2012/1/3 14:37	WY3	MF	829179	809864	4.4	1.000	12.50	6.88	94.6	6.3	32.21	8.30	1.9
						1.000	12.40	6.94	90.1	5.9	30.82	8.20	
						3.400	11.80	6.55	83.6	4.2	30.74	8.20	1.3
						3.400	11.80	6.70	85.7	4.9	31.48	8.30	
2012/1/3 15:17	CY1	MF	828436	810815	11.8	1.000	12.60	7.09	100.6	4.8	30.32	8.50	1
						1.000	12.50	7.17	99.7	5.7	31.90	8.40	
						5.900	11.80	7.24	98.5	6.4	30.14	8.30	1.7
						5.900	11.90	7.19	99.4	4.5	32.24	8.30	
						10.800	11.70	6.82	93.6	3.2	30.99	8.60	2.7
						10.800	11.70	6.84	95.9	5.0	33.24	8.20	
2012/1/3 14:00	CY2	MF	828006	808812	17.2	1.000	12.30	7.25	100.6	5.2	30.53	8.20	1.3
						1.000	12.30	7.19	98.3	7.0	31.45	8.10	
						8.600	12.10	6.88	95.9	7.0	32.59	8.20	0.7
						8.600	12.10	6.97	96.6	5.4	33.88	8.40	
						16.200	12.00	6.62	92.5	6.8	33.50	8.30	4.6
						16.200	12.00	6.71	93.1	6.5	32.46	8.00	

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

Marine Water Quality Monitoring Result at Yung Shue Wan

Date 7-Jan-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/1/7 10:52	WY1	ME	829158	809559	4.6	1.000	17.90	6.84	102.3	4.2	30.23	8.10	3.8
						1.000	17.60	6.93	99.4	4.2	31.46	8.20	
						3.600	17.80	6.65	96.3	6.0	32.78	8.20	3.2
						3.600	17.50	6.59	95.9	6.2	32.99	8.10	
2012/1/7 11:18	WY2	ME	828994	810415	6.8	1.000	17.60	6.94	100.4	5.6	32.28	8.30	2
						1.000	17.60	6.88	99.5	5.7	30.23	8.20	
						3.400	17.50	6.81	93.8	6.1	31.21	8.30	4.8
						3.400	17.60	6.85	92.4	5.9	32.24	8.20	
						5.800	17.30	6.70	90.1	5.8	33.18	8.30	3.4
						5.800	17.30	6.76	88.6	6.1	32.80	8.30	
2012/1/7 10:59	WY3	ME	829426	810814	4.5	1.000	17.70	7.03	100.8	5.3	31.94	8.10	5.1
						3.500	17.50	6.75	96.1	6.3	30.27	8.20	
						3.500	17.40	6.74	97.2	5.3	31.95	8.20	4.3
						1.000	17.60	7.19	92.8	7.0	30.54	8.20	
2012/1/7 11:39	CY1	ME	828409	810812	11.9	1.000	17.50	7.24	91.4	5.2	32.65	8.30	4.8
						5.950	17.50	6.95	88.4	5.2	32.28	8.30	
						5.950	17.50	6.99	83.7	6.0	31.79	8.20	2.3
						10.900	17.30	6.85	84.2	6.2	30.82	8.30	
						10.900	17.20	6.72	85.1	5.0	31.44	8.40	7.7
						1.000	17.70	6.99	95.2	7.1	32.72	8.20	
2012/1/7 11:58	CY2	ME	827995	808815	17.2	1.000	17.60	6.80	96.7	6.3	31.96	8.10	<0.05
						8.600	17.80	6.85	93.4	6.2	31.80	8.20	
						8.600	17.40	6.81	90.8	5.1	32.74	8.20	4.3
						16.200	17.50	6.64	84.6	5.3	31.70	8.10	
						16.200	17.40	6.67	85.1	5.6	30.65	8.30	5.1
						1.000	17.90	7.09	102.3	4.2	30.28	8.20	
2012/1/7 15:02	WY1	MF	829177	809558	4.4	1.000	17.40	7.02	101.4	4.8	31.24	8.10	3.4
						3.400	17.50	7.08	101.8	5.3	32.96	8.30	
						3.400	17.60	7.14	99.5	5.2	31.31	8.10	3.8
						1.000	17.60	6.77	100.1	6.5	30.09	8.20	
2012/1/7 15:29	WY2	MF	829008	810426	7.2	1.000	17.50	6.80	99.5	5.7	32.27	8.20	3.6
						3.600	17.40	6.59	96.7	4.5	32.24	8.30	
						3.600	17.50	6.64	98.4	4.2	31.45	8.10	5.7
						6.200	17.30	6.38	95.1	5.1	32.25	8.10	
						6.200	17.10	6.31	96.2	6.2	32.09	8.40	3.2
						1.000	17.30	6.88	102.4	6.5	32.28	8.30	
2012/1/7 15:14	WY3	MF	829218	809872	4.7	1.000	17.20	6.96	99.8	6.0	30.24	8.40	7.6
						3.700	17.20	7.04	95.9	5.2	30.95	8.30	
						3.700	17.20	6.85	96.4	5.2	31.22	8.00	3.1
						1.000	17.40	7.25	96.3	6.2	30.88	8.10	
2012/1/7 15:46	CY1	MF	828411	810804	12.4	1.000	17.40	7.15	95.9	5.3	31.46	8.30	7.2
						6.200	17.10	6.85	92.4	5.5	32.44	8.20	
						6.200	17.10	6.84	91.8	5.0	30.99	8.10	7
						11.400	17.10	6.81	90.1	6.1	29.48	8.10	
						11.400	17.00	6.79	89.4	6.3	30.98	8.20	6.2
						1.000	17.80	7.18	100.8	5.2	33.18	8.20	
2012/1/7 16:18	CY2	MF	828007	808816	17.6	1.000	17.50	7.14	100.9	5.4	32.00	8.30	8.1
						8.800	17.60	6.95	97.2	5.6	30.08	8.20	
						8.800	17.30	6.96	96.5	5.9	32.46	8.40	4.7
						16.600	17.00	6.38	90.8	6.3	31.86	8.50	
						16.600	17.10	6.45	91.2	6.2	30.79	8.40	5.1
						1.000	17.90	7.09	102.3	4.2	30.28	8.20	

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

Marine Water Quality Monitoring Result at Yung Shue Wan

Date 9-Jan-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/1/9 12:32	WY1	ME	829159	809564	4.6	1.000	16.50	6.88	95.9	5.6	31.11	8.20	3.9
						1.000	16.50	7.09	96.4	5.1	31.96	8.10	
						3.600	16.40	6.55	95.2	4.7	32.14	8.20	
						3.600	16.30	6.44	94.1	6.2	31.92	8.40	
2012/1/9 13:28	WY2	ME	829008	810424	7.2	1.000	16.20	6.84	99.4	6.3	30.81	8.30	7.3
						1.000	16.20	6.72	96.5	6.1	30.24	8.20	
						3.600	16.10	6.55	93.1	4.2	31.14	8.10	4.2
						3.600	16.10	6.23	90.8	6.1	30.38	8.10	
						6.200	16.00	6.28	88.4	5.3	32.55	8.20	7.8
						6.200	16.00	6.65	87.2	6.2	31.62	8.00	
2012/1/9 13:02	WY3	ME	829224	809872	4.5	1.000	16.20	6.92	95.8	5.3	32.24	8.30	5.7
						1.000	16.10	6.84	96.2	6.1	30.21	8.20	
						3.500	16.10	6.88	93.9	6.1	32.96	8.40	9.3
						3.500	16.00	6.81	92.8	6.0	32.26	8.30	
2012/1/9 13:47	CY1	ME	828414	810823	11.8	1.000	16.40	7.02	90.9	5.9	32.46	8.20	3.1
						1.000	16.40	6.85	92.4	6.1	32.21	8.10	
						5.900	15.80	6.86	92.4	6.3	30.91	8.20	5.2
						5.900	15.90	6.17	91.9	6.1	33.08	8.00	
						10.800	15.80	6.53	90.8	5.1	32.26	8.00	2.7
						10.800	15.70	6.54	90.2	6.6	32.44	8.20	
2012/1/9 12:18	CY2	ME	828012	808811	17.2	1.000	16.90	6.84	100.8	4.3	30.23	8.10	5.3
						1.000	16.80	6.77	99.4	5.2	30.06	8.20	
						8.600	16.20	6.75	95.4	4.2	31.96	8.20	5.1
						8.600	16.40	6.59	96.8	5.3	30.16	8.30	
						16.200	16.10	6.58	92.5	4.5	30.10	8.20	4.6
						16.200	16.10	6.46	93.1	6.1	32.48	8.10	
2012/1/9 17:03	WY1	MF	829176	809554	4.6	1.000	16.50	6.84	100.8	4.4	31.96	8.20	5
						1.000	16.50	6.96	99.5	4.2	32.24	8.10	
						3.600	16.20	6.72	95.9	5.2	30.92	8.10	6.4
						3.600	16.20	6.77	94.2	5.4	31.48	8.30	
2012/1/9 17:31	WY2	MF	829004	810424	7.2	1.000	16.40	7.24	99.1	4.3	30.92	8.20	9.2
						1.000	16.40	7.25	98.6	5.4	31.41	8.20	
						3.600	16.30	6.98	97.9	4.1	29.48	8.30	5.1
						3.600	16.30	6.90	98.1	6.2	30.27	8.40	
						6.200	16.20	6.65	96.3	4.2	30.96	8.20	6.8
						6.200	16.20	6.46	95.4	5.3	33.48	8.00	
2012/1/9 17:18	WY3	MF	829218	809872	4.5	1.000	16.40	6.98	99.8	4.3	31.74	8.10	6.4
						1.000	16.30	7.05	97.9	3.7	32.46	8.00	
						3.500	16.20	6.82	96.2	5.3	32.98	8.20	7.9
						3.500	16.20	6.65	95.3	6.2	31.44	8.20	
2012/1/9 17:54	CY1	MF	828415	810809	11.9	1.000	16.40	6.94	99.9	6.3	32.44	8.20	2.9
						1.000	16.40	6.83	98.8	5.2	35.23	8.10	
						5.950	16.30	6.74	96.4	6.1	30.96	8.30	2.9
						5.950	16.30	6.65	93.8	6.4	31.24	8.20	
						10.900	16.20	6.43	92.1	5.2	32.18	8.20	4.5
						10.900	16.20	6.59	90.3	5.4	30.92	8.30	
2012/1/9 18:25	CY2	MF	828006	808812	17.6	1.000	16.70	6.83	62.3	4.3	31.96	8.10	2.4
						1.000	16.80	6.95	101.9	4.6	32.48	8.20	
						8.800	16.40	6.72	98.4	5.3	32.40	8.20	3.1
						8.800	16.40	6.83	96.5	6.0	31.07	8.30	
						16.600	16.40	6.59	97.2	6.2	30.28	8.20	6.3
						16.600	16.30	6.64	97.9	6.9	31.42	8.10	

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

Marine Water Quality Monitoring Result at Yung Shue Wan

Date 11-Jan-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/1/11 13:05	WY1	ME	829176	809572	4.9	1.000	17.20	7.02	96.3	4.8	30.31	8.10	10.8
						1.000	17.00	7.16	95.4	5.2	32.44	8.40	
						3.900	17.00	6.84	93.8	3.5	32.78	8.40	16.1
						3.900	16.90	6.80	94.7	5.3	31.72	8.30	
2012/1/11 13:49	WY2	ME	828980	810417	7.5	1.000	17.30	6.82	96.5	4.2	32.09	8.10	5.8
						1.000	17.10	6.94	96.7	5.9	32.08	8.30	
						3.750	16.90	6.65	95.3	4.2	32.28	8.20	9.2
						3.750	16.90	6.53	94.6	5.1	33.96	8.40	
						6.500	16.80	6.28	90.1	5.4	33.99	8.40	10.4
						6.500	16.80	6.46	92.8	4.5	32.09	8.50	
2012/1/11 14:04	WY3	ME	829218	809862	4.3	1.000	17.00	6.59	95.7	5.6	30.54	8.30	8.2
						1.000	16.80	6.60	96.2	6.0	31.94	8.20	
						3.300	16.80	6.32	90.1	6.3	32.26	8.40	19.2
						3.300	16.70	6.28	92.8	5.6	31.23	8.50	
2012/1/11 13:38	CY1	ME	828410	810811	11.9	1.000	17.20	6.80	96.1	5.0	30.83	8.40	6.6
						1.000	17.20	6.75	98.2	4.8	31.44	8.30	
						5.950	17.00	6.65	98.6	5.8	32.53	8.20	6.1
						5.950	17.00	6.78	97.6	5.3	30.62	8.30	
						10.900	17.00	6.38	92.8	3.5	32.22	8.40	7.9
						10.900	17.00	6.59	93.6	3.0	31.28	8.50	
2012/1/11 13:21	CY2	ME	827994	808816	18.1	1.000	17.10	6.85	97.9	4.8	33.86	8.20	6
						1.000	17.10	6.77	96.8	5.9	32.53	8.30	
						9.050	16.80	6.65	96.2	5.2	30.41	8.20	4.2
						9.050	16.80	6.53	93.6	4.2	32.76	8.40	
						17.100	16.50	6.48	90.2	6.1	32.59	8.30	7.6
						17.100	16.50	6.32	90.7	5.7	31.92	8.20	
2012/1/11 8:09	WY1	MF	829159	809546	4.7	1.000	17.00	7.09	100.3	4.8	30.38	8.10	7.2
						1.000	17.10	7.16	97.8	5.3	31.86	8.20	
						3.700	17.10	6.80	99.4	5.7	31.48	8.30	7.6
						3.700	17.00	6.86	96.3	6.8	32.24	8.20	
2012/1/11 8:51	WY2	MF	829004	810416	7.6	1.000	16.90	6.92	94.7	4.4	30.08	8.30	7.8
						1.000	16.90	6.93	95.8	4.4	30.96	8.40	
						3.800	16.50	6.84	90.0	5.7	32.24	8.30	8
						3.800	16.50	6.80	89.2	3.2	30.28	8.30	
						6.600	16.50	6.70	85.3	4.5	31.45	8.30	10.2
						6.600	16.40	6.65	86.1	4.0	31.58	8.40	
2012/1/11 9:08	WY3	MF	829218	809871	4.3	1.000	16.80	7.00	90.8	5.4	30.54	8.30	6.4
						1.000	16.70	6.92	88.4	5.9	31.46	8.30	
						3.300	16.60	6.84	84.6	5.1	32.26	8.40	6.2
						3.300	16.60	6.83	83.2	5.8	33.58	8.30	
2012/1/11 8:37	CY1	MF	828426	810817	11.8	1.000	16.70	6.80	97.6	6.3	30.22	8.30	9.6
						1.000	16.70	6.81	96.3	5.8	32.48	8.40	
						5.900	16.80	6.52	92.1	4.2	30.24	8.30	14.1
						5.900	16.70	6.60	90.9	6.0	32.28	8.20	
						10.800	16.50	6.43	90.8	9.9	31.40	8.30	16.5
						10.800	16.50	6.46	90.1	5.4	32.21	8.20	
2012/1/11 8:21	CY2	MF	827994	808811	17.2	1.000	17.00	6.79	98.4	6.8	30.83	8.10	15.3
						1.000	16.90	6.97	98.1	3.2	31.86	8.20	
						8.600	16.80	6.80	96.9	6.2	32.26	8.20	10.6
						8.600	16.60	6.75	97.9	5.4	31.48	8.30	
						16.200	16.50	6.64	92.4	4.5	30.28	8.10	8.9
						16.200	16.60	6.65	90.8	5.2	31.41	8.20	

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

Marine Water Quality Monitoring Result at Yung Shue Wan

Date 13-Jan-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/1/3 9:07	WY1	ME	829154	809526	4.6	1.000	16.80	7.09	95.3	4.0	30.38	8.10	8.4
						1.000	16.80	6.94	94.6	4.8	31.65	8.20	
						3.600	16.70	6.65	86.7	5.2	32.49	8.10	
						3.600	16.70	6.74	83.9	5.9	30.96	8.30	
2012/1/3 9:53	WY2	ME	829006	810411	7.8	1.000	16.80	6.90	92.8	5.9	33.36	8.40	5.8
						1.000	16.80	6.88	91.4	5.7	31.15	8.30	
						3.900	16.60	6.81	90.9	5.9	30.91	8.40	11
						3.900	16.60	6.74	89.7	5.0	32.24	8.10	
						6.800	16.50	6.50	85.1	4.2	32.84	8.30	
						6.800	16.50	6.56	86.3	4.9	30.96	8.30	
2012/1/3 10:07	WY3	ME	829214	809863	5.2	1.000	16.80	6.93	90.9	4.9	32.23	8.20	9
						1.000	16.80	6.84	87.4	5.7	31.47	8.30	
						4.200	16.70	6.52	85.1	5.2	32.59	8.30	11.8
						4.200	16.70	6.51	84.9	6.3	33.60	8.40	
2012/1/3 9:41	CY1	ME	828410	810825	12.3	1.000	16.80	6.85	93.6	4.4	32.67	8.30	8.1
						1.000	16.60	6.87	92.1	4.9	30.91	8.40	
						6.150	16.60	6.76	92.6	5.9	31.42	8.30	6.6
						6.150	16.50	6.53	93.7	6.8	32.68	8.20	
						11.300	16.50	6.37	90.9	6.3	32.49	8.40	
						11.300	16.40	6.38	89.6	6.2	32.98	8.40	
2012/1/3 9:22	CY2	ME	828027	808813	17.9	1.000	16.70	7.00	94.8	6.3	31.44	8.20	6.3
						1.000	16.60	6.83	90.1	5.5	32.58	8.00	
						8.950	16.70	6.85	90.8	5.8	30.31	8.30	6.3
						8.950	16.50	6.74	92.7	4.5	32.28	8.40	
						16.900	16.50	6.55	83.1	6.8	32.45	8.30	
						16.900	16.50	6.49	82.9	6.0	30.56	8.30	
2012/1/3 10:10	WY1	MF	829154	809536	5.3	1.000	16.90	6.85	91.4	4.8	33.05	8.30	7.3
						1.000	17.10	6.77	89.6	5.4	31.84	8.30	
						4.300	17.00	6.61	85.3	6.0	31.59	8.20	9.1
						4.300	17.00	6.50	86.2	6.5	32.47	8.20	
2012/1/3 9:51	WY2	MF	829006	810410	7.6	1.000	16.70	7.09	95.0	4.5	32.19	8.30	6
						1.000	16.80	7.02	94.4	6.2	30.86	8.30	
						3.800	16.90	6.88	90.1	5.3	31.64	8.40	9.6
						3.800	16.90	6.87	91.4	6.2	32.99	8.30	
						6.600	16.70	6.65	88.6	6.0	32.38	8.30	
						6.600	16.80	6.69	87.7	4.3	33.85	8.20	
2012/1/3 10:02	WY3	MF	829219	809869	5.1	1.000	17.00	6.94	92.2	4.8	34.66	8.30	9.3
						1.000	16.80	6.83	93.8	5.5	33.40	8.30	
						4.100	16.70	6.70	90.1	4.2	32.94	8.20	9.1
						4.100	16.80	6.64	90.9	5.0	32.48	8.30	
2012/1/3 9:37	CY1	MF	828416	810819	12.1	1.000	16.70	6.96	96.2	4.2	30.08	8.20	5.4
						1.000	16.70	6.97	95.0	4.7	31.31	8.10	
						6.050	16.60	6.56	93.1	5.4	32.48	8.30	6.4
						6.050	16.70	6.38	92.2	3.9	30.93	8.20	
						11.100	16.50	6.21	89.6	6.5	31.55	8.20	
						11.100	16.50	6.19	88.1	5.6	32.28	8.30	
2012/1/3 9:14	CY2	MF	827994	808812	19.6	1.000	16.80	6.84	99.7	4.6	30.31	8.10	7.4
						1.000	16.70	6.79	98.4	5.3	32.21	8.20	
						9.800	16.70	6.53	97.1	4.8	36.38	8.30	6.5
						9.800	16.70	6.66	96.5	6.2	31.96	8.30	
						18.600	16.50	6.57	93.8	5.6	32.24	8.30	
						18.600	16.50	6.44	92.1	5.0	33.09	8.10	

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



Marine Water Quality Monitoring Result at Yung Shue Wan

Date 17-Jan-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/1/17 17:03	WY1	ME	829159	809572	4.6	1.000	20.30	7.01	96.3	4.2	30.19	8.10	5.6
						1.000	20.30	6.98	95.4	5.3	32.14	8.20	
						3.600	20.20	6.84	93.1	5.7	30.25	8.30	
						3.600	20.10	6.86	93.8	4.3	30.28	8.40	
2012/1/17 17:46	WY2	ME	828981	810412	7.2	1.000	20.30	6.94	100.9	4.2	31.96	8.40	6.9
						1.000	20.30	6.90	101.4	6.2	32.84	8.30	
						3.600	20.20	6.53	95.8	5.9	30.85	8.30	
						3.600	20.10	6.54	94.6	5.0	31.88	8.30	
2012/1/17 17:32	WY3	ME	829217	809865	4.9	1.000	20.10	6.38	90.1	3.5	30.15	8.30	6.8
						1.000	20.20	6.51	92.4	5.9	32.15	8.40	
						1.000	20.20	7.09	99.4	5.5	31.38	8.30	
						1.000	20.20	7.14	98.3	4.6	32.24	8.30	
2012/1/17 17:58	CY1	ME	828416	810813	11.8	3.900	20.10	6.96	95.1	6.2	32.45	8.40	7.8
						3.900	20.10	6.81	94.5	7.2	33.36	8.40	
						1.000	20.20	6.92	99.8	4.4	31.44	8.20	
						1.000	20.20	6.84	98.4	6.0	30.56	8.30	
2012/1/17 17:19	CY2	ME	828008	808817	18.1	5.900	20.10	6.59	95.6	5.1	32.50	8.30	4.2
						5.900	20.10	6.46	95.3	5.2	32.81	8.40	
						10.800	20.00	6.23	90.1	5.9	30.44	8.30	
						10.800	20.00	6.38	90.8	5.1	32.88	8.30	
2012/1/17 12:32	WY1	MF	829172	809536	4.8	1.000	20.20	6.93	100.9	5.5	31.22	8.30	4.4
						1.000	20.20	6.98	98.4	5.2	32.24	8.30	
						9.050	20.30	6.88	97.1	6.1	33.48	8.20	
						9.050	20.20	6.74	96.5	5.3	32.44	8.40	
2012/1/17 13:24	WY2	MF	829008	810421	7.3	17.100	20.10	6.53	93.4	6.2	32.25	8.20	5.3
						17.100	20.00	6.56	94.6	5.2	30.29	8.40	
						1.000	20.20	7.09	101.9	4.2	30.31	8.10	
						1.000	20.20	7.02	100.8	5.4	32.24	8.40	
2012/1/17 13:32	WY3	MF	829207	809831	4.6	3.800	20.10	6.98	95.4	4.1	33.38	8.30	6.5
						3.800	20.10	6.94	96.3	5.2	32.38	8.30	
						1.000	20.30	7.01	99.8	5.9	31.79	8.10	
						1.000	20.30	6.95	99.6	5.0	31.44	8.40	
2012/1/17 13:16	CY1	MF	828423	810811	10.6	3.650	20.30	6.81	93.8	6.4	30.31	8.30	11.3
						3.650	20.20	6.84	90.1	6.9	32.41	8.40	
						6.300	20.00	6.75	87.6	4.7	32.21	8.30	
						6.300	20.00	6.54	85.3	5.2	33.86	8.20	
2012/1/17 12:51	CY2	MF	828006	808818	17.3	1.000	20.40	7.19	97.9	4.9	30.92	8.10	14.5
						1.000	20.10	7.08	98.1	6.4	35.18	8.30	
						3.600	20.10	6.84	90.1	6.2	31.48	8.20	
						3.600	20.00	6.90	92.4	5.9	34.92	8.20	
2012/1/17 13:32	WY3	MF	829207	809831	4.6	1.000	20.40	6.91	101.4	6.0	32.28	8.30	6.8
						1.000	20.20	6.83	102.1	6.2	32.25	8.30	
						5.300	20.20	6.74	95.3	5.1	30.91	8.20	
						5.300	20.20	6.77	97.6	5.5	33.36	8.30	
2012/1/17 13:16	CY1	MF	828423	810811	10.6	9.600	20.00	6.65	92.3	4.1	32.28	8.20	4.8
						9.600	20.10	6.54	91.7	4.4	32.38	8.30	
						1.000	20.20	6.99	100.1	4.9	31.41	8.10	
						1.000	20.20	6.90	98.3	5.9	30.31	8.30	
2012/1/17 12:51	CY2	MF	828006	808818	17.3	8.650	20.10	6.83	95.1	3.2	32.21	8.20	9.3
						8.650	20.10	6.84	96.4	5.4	32.28	8.40	
						16.300	20.00	6.72	92.7	4.8	30.90	8.30	
						16.300	20.00	6.59	93.8	5.0	33.94	8.30	

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

Marine Water Quality Monitoring Result at Yung Shue Wan

Date 19-Jan-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/1/19 10:09	WY1	ME	829177	809567	5.6	1.000	20.50	6.69	95.9	5.3	33.84	8.10	5
						1.000	20.40	6.68	94.8	5.9	30.84	8.20	
						4.600	20.20	6.44	91.4	4.9	32.28	8.20	4.8
						4.600	20.20	6.49	90.2	5.9	32.28	8.30	
2012/1/19 9:49	WY2	ME	828990	810424	7.9	1.000	20.60	6.88	100.2	6.1	30.91	8.40	3.1
						1.000	20.70	6.70	99.4	6.3	30.61	8.30	
						3.950	20.50	6.59	96.8	6.0	32.28	8.40	6.3
						3.950	20.70	6.56	95.8	6.2	33.18	8.40	
						6.900	20.40	6.32	90.4	5.3	30.28	8.40	4.5
						6.900	20.30	6.28	88.1	5.5	32.40	8.30	
2012/1/19 10:01	WY3	ME	829188	809865	5.2	1.000	20.40	6.56	99.5	4.2	31.46	8.30	2.7
						1.000	20.50	6.64	95.1	5.7	33.19	8.20	
						4.200	20.30	6.31	92.8	5.4	32.29	8.20	6
						4.200	20.20	6.28	91.9	5.2	33.96	8.40	
2012/1/19 9:36	CY1	ME	828424	810816	11.9	1.000	20.80	7.07	101.9	4.3	32.28	8.30	4
						1.000	20.60	7.08	100.1	5.0	33.19	8.20	
						5.950	20.80	6.90	97.2	4.1	31.16	8.40	2.6
						5.950	20.60	6.88	96.4	5.8	32.45	8.20	
						10.900	20.50	6.54	90.1	5.9	32.24	8.30	2.2
						10.900	20.40	6.64	89.2	5.2	33.56	8.40	
2012/1/19 11:09	CY2	ME	828009	808811	18.6	1.000	20.90	7.19	102.3	4.2	30.31	8.20	2.4
						1.000	20.80	7.01	101.9	5.2	30.28	8.30	
						9.300	20.70	6.84	96.4	5.2	32.28	8.30	2
						9.300	20.60	6.80	98.3	6.4	31.16	8.40	
						17.600	20.50	6.55	92.8	6.0	33.96	8.20	3.5
						17.600	20.50	6.56	90.4	5.2	32.13	8.40	
2012/1/19 13:38	WY1	MF	829159	809559	5.2	1.000	20.80	7.16	100.9	4.8	30.32	8.10	5.9
						1.000	20.70	6.85	98.4	4.7	33.38	8.20	
						4.200	20.60	6.56	95.1	5.1	29.81	8.20	7.1
						4.200	20.70	6.72	94.6	5.1	32.26	8.30	
2012/1/19 14:27	WY2	MF	829005	810408	7.8	1.000	20.50	6.98	100.7	4.3	33.84	8.20	2.4
						1.000	20.50	6.87	96.8	6.3	33.11	8.30	
						3.900	20.40	6.64	93.1	5.4	32.08	8.30	3
						3.900	20.30	6.59	95.0	7.2	32.28	8.40	
						6.800	20.30	6.22	90.8	4.5	33.96	8.20	4.1
						6.800	20.30	6.49	91.5	6.2	33.88	8.30	
2012/1/19 14:34	WY3	MF	829212	809864	5.6	1.000	20.60	6.99	99.6	5.5	32.21	8.30	6.2
						1.000	20.60	6.86	98.2	6.0	30.47	8.20	
						4.600	20.50	6.81	93.0	6.4	33.96	8.20	7.2
						4.600	20.50	6.72	94.2	5.8	31.59	8.30	
2012/1/19 14:15	CY1	MF	828421	810811	12.7	1.000	20.40	6.97	102.7	6.0	32.08	8.30	3.6
						1.000	20.40	6.98	99.6	5.8	32.49	8.30	
						6.350	20.40	6.84	95.3	5.6	31.96	8.30	3.3
						6.350	20.30	6.80	96.4	6.8	33.05	8.40	
						11.700	20.00	6.65	90.9	4.5	32.23	8.30	3.1
						11.700	20.10	6.61	92.8	5.2	32.08	8.30	
2012/1/19 13:56	CY2	MF	828004	808812	19.6	1.000	20.50	6.90	99.1	6.4	33.19	8.30	3.9
						1.000	20.60	6.83	98.4	5.3	33.63	8.40	
						9.800	20.50	6.55	95.7	4.5	32.28	8.20	3.3
						9.800	20.50	6.64	96.2	5.3	32.91	8.30	
						18.600	20.20	6.38	90.8	6.7	31.49	8.20	3.4
						18.600	20.20	6.21	89.6	6.0	30.81	8.20	

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

Marine Water Quality Monitoring Result at Yung Shue Wan

Date 21-Jan-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/1/21 11:09	WY1	ME	829154	809571	4.7	1.000	16.70	7.19	97.2	4.2	30.32	8.20	8
						1.000	16.80	7.02	96.2	5.2	31.24	8.20	
						3.700	16.60	7.08	95.1	5.4	32.25	8.10	
						3.700	16.60	7.14	94.8	4.9	32.18	8.40	
2012/1/21 11:57	WY2	ME	828991	810413	7.9	1.000	17.00	7.23	100.5	5.3	30.21	8.20	5.8
						1.000	17.00	7.32	102.4	6.5	32.49	8.20	
						3.950	16.90	6.86	96.3	6.3	31.45	8.30	
						3.950	16.80	6.72	95.5	5.3	32.24	8.10	
						6.900	16.60	6.65	92.7	5.6	32.59	8.50	
						6.900	16.60	6.71	97.6	5.5	33.08	8.30	
2012/1/21 12:12	WY3	ME	829208	809863	5.2	1.000	16.80	6.72	94.9	4.9	31.19	8.30	9.2
						1.000	16.80	6.72	95.1	5.9	32.15	8.30	
						4.200	16.60	6.64	90.3	4.7	32.24	8.40	
						4.200	16.70	6.68	91.5	3.3	30.17	8.40	
2012/1/21 11:43	CY1	ME	828416	810820	13.1	1.000	16.90	7.12	100.3	6.0	33.11	8.30	6
						1.000	16.90	7.02	99.4	6.2	32.54	8.40	
						6.550	16.80	6.72	94.5	5.1	32.24	8.20	
						6.550	16.80	6.76	93.0	5.0	30.25	8.30	
						12.100	16.60	6.72	90.1	4.9	33.19	8.40	
						12.100	16.60	6.76	92.4	5.3	31.58	8.20	
2012/1/21 11:22	CY2	ME	827994	808813	18.6	1.000	16.80	7.23	103.8	4.9	32.24	8.30	7.4
						1.000	16.90	7.21	101.1	5.1	33.21	8.40	
						9.300	16.70	6.68	96.4	4.1	32.24	8.30	
						9.300	16.70	6.84	97.0	5.3	30.25	8.50	
						17.600	16.50	6.72	93.9	3.2	33.19	8.20	
						17.600	16.50	6.80	91.4	4.9	31.58	8.30	
2012/1/21 15:21	WY1	MF	829159	809555	5.1	1.000	16.80	7.15	103.6	4.5	32.46	8.20	5.8
						1.000	16.80	7.16	101.9	2.5	31.16	8.00	
						4.100	16.70	7.09	97.3	5.4	31.48	8.40	
						4.100	16.70	7.07	98.4	5.3	32.18	8.10	
2012/1/21 15:42	WY2	MF	828990	810422	7.9	1.000	16.80	7.02	103.8	6.2	32.44	8.30	8.7
						1.000	16.70	7.01	100.1	4.0	31.45	8.40	
						3.950	16.70	6.88	97.1	6.9	33.86	8.50	
						3.950	16.70	6.84	96.8	4.5	32.59	8.40	
						6.900	16.50	6.74	92.3	4.5	32.45	8.30	
						6.900	16.50	6.79	95.6	4.6	32.26	8.40	
2012/1/21 15:29	WY3	MF	829211	809871	5.2	1.000	16.80	7.17	102.1	5.2	32.21	8.40	7
						1.000	16.80	7.09	101.9	4.5	31.10	8.30	
						4.200	16.60	6.95	95.3	5.7	33.09	8.30	
						4.200	16.60	6.94	96.7	6.3	32.92	8.40	
2012/1/21 16:09	CY1	MF	828423	810811	13.4	1.000	16.90	7.02	100.1	5.3	31.19	8.30	9.4
						1.000	16.80	7.13	99.4	4.9	33.96	8.30	
						6.700	16.60	6.88	93.2	4.5	32.23	8.20	
						6.700	16.50	6.90	95.7	5.2	32.28	8.20	
						12.400	16.40	6.71	90.9	5.6	33.08	8.30	
						12.400	16.40	6.65	91.8	6.5	31.45	8.10	
2012/1/21 15:09	CY2	MF	828004	808813	17.9	1.000	16.70	7.08	102.3	4.2	30.38	8.30	7
						1.000	16.70	7.09	100.9	4.2	31.45	8.50	
						8.950	16.60	6.84	96.3	5.9	32.44	8.20	
						8.950	16.50	6.81	97.2	5.9	30.28	8.20	
						16.900	16.30	6.77	90.9	3.2	31.59	8.20	
						16.900	16.30	6.79	91.3	6.4	33.92	8.30	

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

Marine Water Quality Monitoring Result at Yung Shue Wan

Date 28-Jan-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/1/28 16:02	WY1	ME	829178	809565	5.3	1.000	18.60	7.14	102.6	5.38	31.15	8.30	4.2
						1.000	18.70	7.15	101.3	5.64	33.15	8.20	
						4.300	18.60	6.85	98.1	5.91	32.24	8.40	
						4.300	18.60	6.88	99.6	4.78	32.23	8.30	
2012/1/28 15:36	WY2	ME	828996	810426	8.6	1.000	18.40	7.08	100.8	4.79	29.47	8.30	6.4
						1.000	18.70	7.09	102.3	5.96	30.44	8.30	
						4.300	18.30	6.98	101.9	5.65	33.26	8.20	4.4
						4.300	18.30	6.99	98.4	4.48	32.29	8.40	
						7.600	18.00	6.75	95.4	6.64	32.48	8.30	
						7.600	18.10	6.76	97.1	4.59	33.08	8.30	
2012/1/28 15:50	WY3	ME	829187	809865	5.2	1.000	18.70	7.09	100.3	4.22	33.48	8.30	7.6
						1.000	18.60	7.08	100.4	4.80	33.56	8.40	
						4.200	18.60	6.54	96.3	5.82	32.14	8.30	4.9
						4.200	18.60	6.67	97.3	4.91	32.64	8.40	
2012/1/28 15:21	CY1	ME	828413	810795	13	1.000	18.50	7.19	100.4	4.18	30.38	8.40	7.1
						1.000	18.60	7.24	100.8	4.26	33.44	8.30	
						6.500	18.50	7.02	99.7	5.32	31.45	8.30	4.3
						6.500	18.40	7.01	98.4	5.24	32.28	8.20	
						12.000	18.30	6.80	95.1	6.69	31.55	8.30	
						12.000	18.30	6.81	96.8	4.14	30.09	8.20	
2012/1/28 14:49	CY2	ME	828007	808816	17.9	1.000	18.70	7.28	102.4	4.48	32.28	8.20	5.3
						1.000	18.70	7.14	103.8	5.96	32.28	8.40	
						8.950	18.60	7.04	97.2	4.12	30.95	8.30	4.5
						8.950	18.60	6.90	96.1	5.22	31.45	8.30	
						16.900	18.40	6.72	95.3	3.24	32.45	8.20	
						16.900	18.40	6.77	94.6	4.31	32.23	8.40	
2012/1/28 9:19	WY1	MF	829162	809572	4.7	1.000	18.60	7.02	7.0	4.49	32.91	8.10	6.1
						1.000	18.60	7.09	7.1	5.09	31.15	8.20	
						3.700	16.50	6.95	7.0	5.38	33.38	8.30	7.3
						3.700	16.50	6.96	7.0	4.46	32.55	8.00	
2012/1/28 10:13	WY2	MF	829004	810426	7.6	1.000	18.80	7.19	7.2	5.30	31.45	8.30	4.1
						1.000	18.80	7.11	7.1	4.07	34.65	8.40	
						3.800	18.40	7.18	7.2	6.28	32.24	8.40	4.6
						3.800	18.40	7.03	7.0	6.92	32.45	8.20	
						6.600	18.20	6.90	6.9	6.82	30.08	8.20	
						6.600	18.20	6.95	7.0	4.14	30.59	8.30	
2012/1/28 10:18	WY3	MF	829208	809864	4.9	1.000	18.80	7.18	7.2	4.12	31.45	8.30	9.5
						1.000	18.80	7.24	7.2	6.28	31.50	8.30	
						3.900	18.60	6.88	6.9	5.64	31.59	8.30	4.8
						3.900	18.60	6.92	6.9	4.83	32.25	8.30	
2012/1/28 9:59	CY1	MF	828419	810809	12.3	1.000	18.60	7.18	7.2	4.18	30.39	8.00	5.4
						1.000	18.50	7.02	7.0	4.96	31.18	8.30	
						6.150	18.70	7.09	7.1	5.39	32.48	8.10	4.9
						6.150	18.60	7.01	7.0	4.65	32.24	8.20	
						11.300	18.50	6.98	7.0	4.91	30.41	8.30	
						11.300	18.50	6.99	7.0	5.59	30.96	8.00	
2012/1/28 9:35	CY2	MF	827994	808811	17.8	1.000	18.80	7.11	7.1	4.77	32.28	8.20	6.1
						1.000	18.80	6.94	6.9	5.28	32.48	8.30	
						8.900	18.70	6.85	6.9	5.96	33.91	8.30	7
						8.900	18.70	6.77	6.8	4.34	33.84	8.20	
						16.800	18.50	6.64	6.6	4.83	32.36	8.40	
						16.800	18.50	6.68	6.7	3.26	30.52	8.30	

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

Marine Water Quality Monitoring Result at Yung Shue Wan

Date 31-Jan-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/1/31 17:25	WY1	ME	829164	809566	4.9	1.000	17.60	7.14	102.1	4.9	32.44	8.40	7.3
						1.000	17.50	7.18	101.6	4.5	30.91	8.30	
						3.900	17.50	6.88	95.1	4.5	32.48	8.30	
						3.900	17.40	6.81	96.4	4.8	32.14	8.30	
2012/1/31 17:44	WY2	ME	829004	810424	7.4	1.000	17.90	7.25	102.3	6.7	32.48	8.40	0.9
						1.000	17.80	7.18	103.8	4.3	32.44	8.30	
						3.700	17.80	6.96	100.1	5.9	32.49	8.40	5.6
						3.700	17.70	6.94	98.4	4.1	32.48	8.30	
						6.400	17.60	6.83	95.4	6.6	31.49	8.30	
						6.400	17.60	6.82	96.3	5.3	30.48	8.40	
2012/1/31 17:31	WY3	ME	829203	809869	4.8	1.000	17.70	7.02	103.8	5.6	31.44	8.40	4.2
						1.000	17.70	7.01	104.6	4.9	33.38	8.40	
						3.800	17.50	6.80	99.5	6.5	32.48	8.30	13.1
						3.800	17.50	6.77	98.4	4.3	30.59	8.30	
2012/1/31 18:09	CY1	ME	828424	810813	12.5	1.000	17.70	7.19	102.3	4.2	30.38	8.30	2.2
						1.000	17.80	7.24	103.2	4.9	31.44	8.20	
						6.250	17.60	7.11	101.9	5.3	32.31	8.40	5.6
						6.250	17.60	7.02	100.2	5.6	30.48	8.30	
						11.500	17.30	7.00	99.4	6.7	33.95	8.40	
						11.500	17.30	6.87	99.5	6.5	31.22	8.30	
2012/1/31 17:12	CY2	ME	828012	808817	18.6	1.000	17.60	7.25	102.6	4.5	32.59	8.30	6.8
						1.000	17.50	7.29	104.9	6.4	30.25	8.20	
						9.300	17.30	7.18	103.8	4.2	33.55	8.30	5.3
						9.300	17.30	7.04	100.1	4.5	31.18	8.30	
						17.600	17.00	7.09	95.3	5.3	35.51	8.30	
						17.600	17.00	6.98	94.9	4.8	33.82	8.40	
2012/1/31 11:04	WY1	MF	829159	809564	5.5	1.000	17.90	7.18	98.5	4.2	32.59	8.30	2.7
						1.000	17.60	7.17	99.6	5.6	32.58	8.50	
						4.500	17.70	6.85	97.8	6.5	30.51	8.40	7.4
						4.500	17.70	6.81	96.4	5.6	32.18	8.50	
2012/1/31 11:48	WY2	MF	829002	810420	8.6	1.000	17.70	7.08	103.1	5.5	32.28	8.40	7.3
						1.000	17.80	6.99	102.6	5.0	31.18	8.40	
						4.300	17.60	6.92	99.4	5.5	33.09	8.40	3.6
						4.300	17.50	6.84	98.5	5.8	32.89	8.40	
						7.600	17.40	6.88	92.4	5.9	32.45	8.40	
						7.600	17.40	6.80	93.5	4.8	32.18	8.40	
2012/1/31 11:57	WY3	MF	829206	809859	5.6	1.000	17.60	7.09	103.1	4.5	31.18	8.40	7.7
						1.000	17.70	7.04	100.4	5.9	33.89	8.40	
						4.600	17.50	6.75	99.4	5.0	32.28	8.40	5.4
						4.600	17.50	6.76	98.4	4.4	32.45	8.30	
2012/1/31 11:39	CY1	MF	828423	810810	13.1	1.000	17.90	7.18	102.3	4.5	30.38	8.30	1.6
						1.000	17.70	7.09	101.9	4.9	33.34	8.20	
						6.550	17.50	7.02	100.3	4.2	31.32	8.40	3.4
						6.550	17.50	7.04	100.9	5.2	32.28	8.30	
						12.100	17.30	6.84	96.5	5.9	32.48	8.40	
						12.100	17.30	6.92	97.4	4.5	33.11	8.30	
2012/1/31 11:22	CY2	MF	828004	808816	19.2	1.000	17.70	7.02	102.8	4.5	33.05	8.40	3.4
						1.000	17.60	7.09	101.4	5.3	30.15	8.30	
						9.600	17.50	6.88	99.8	5.8	32.28	8.30	4.7
						9.600	17.50	6.81	98.5	4.9	32.28	8.30	
						18.200	17.30	6.72	97.6	4.5	33.25	8.30	
						18.200	17.30	6.65	97.2	5.9	30.48	8.30	

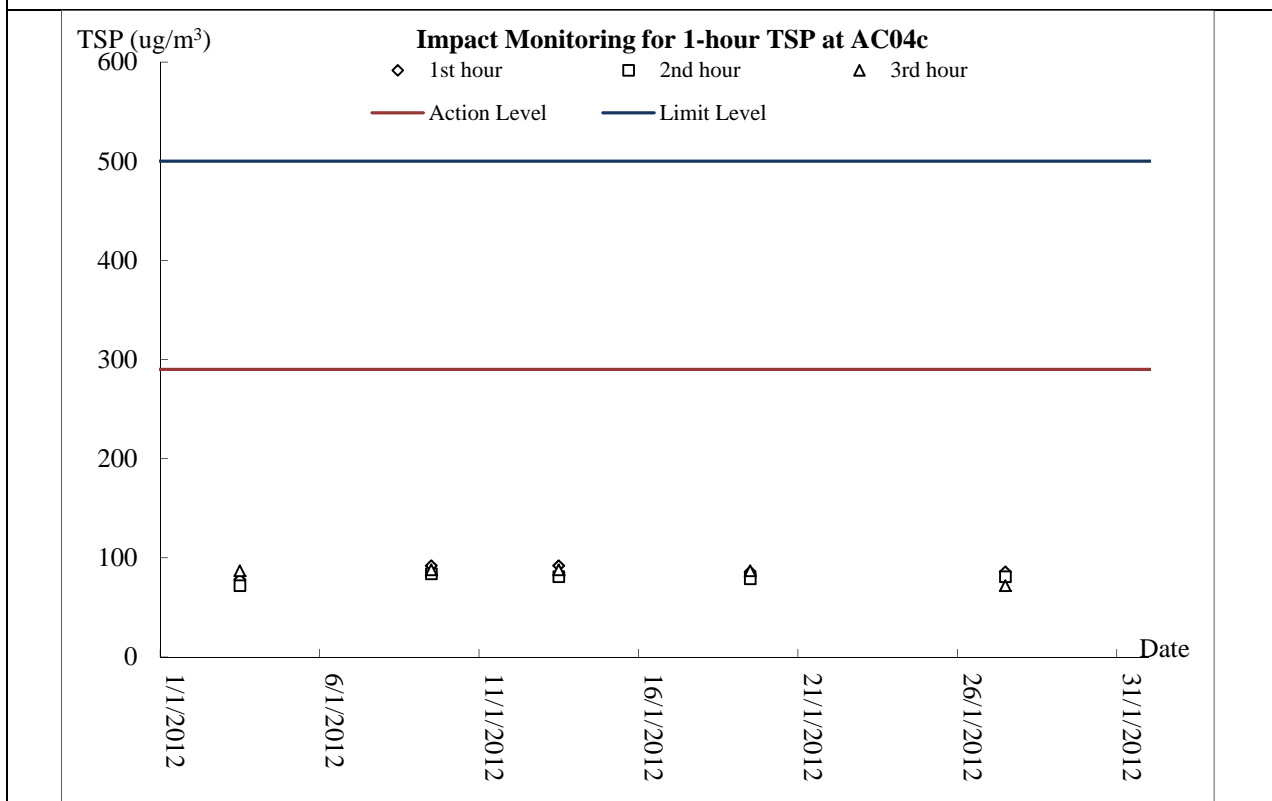
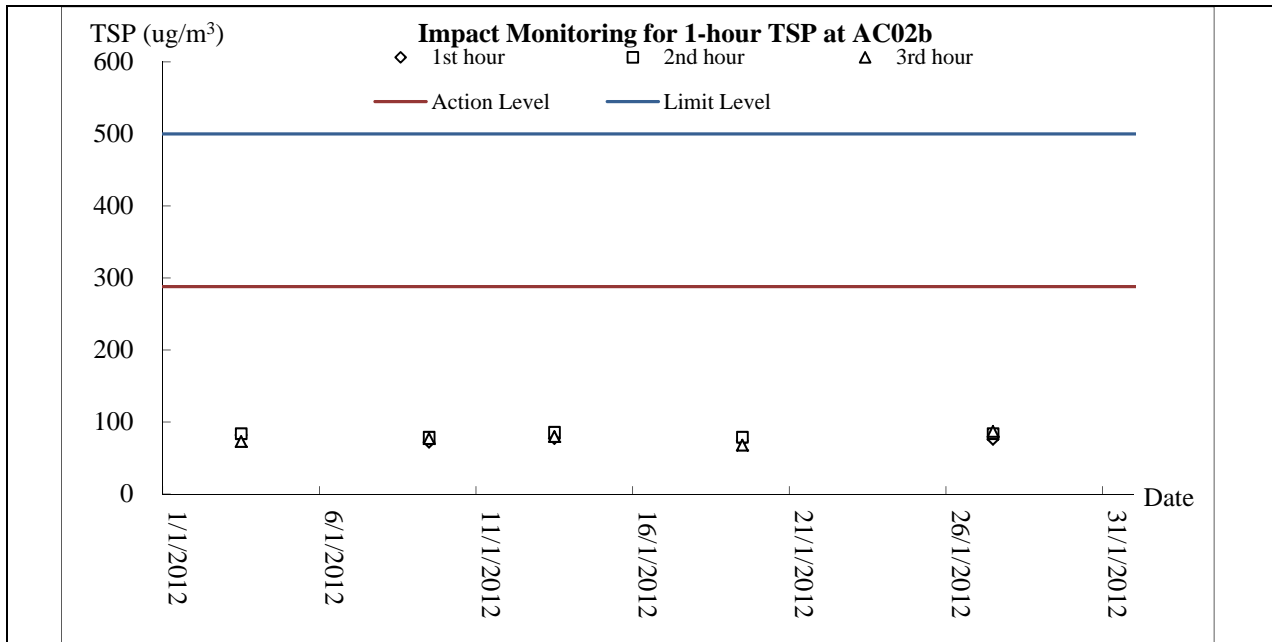
Remarks: MF - Middle Flood tide  
ME - Middle Ebb tide

## **Appendix H**

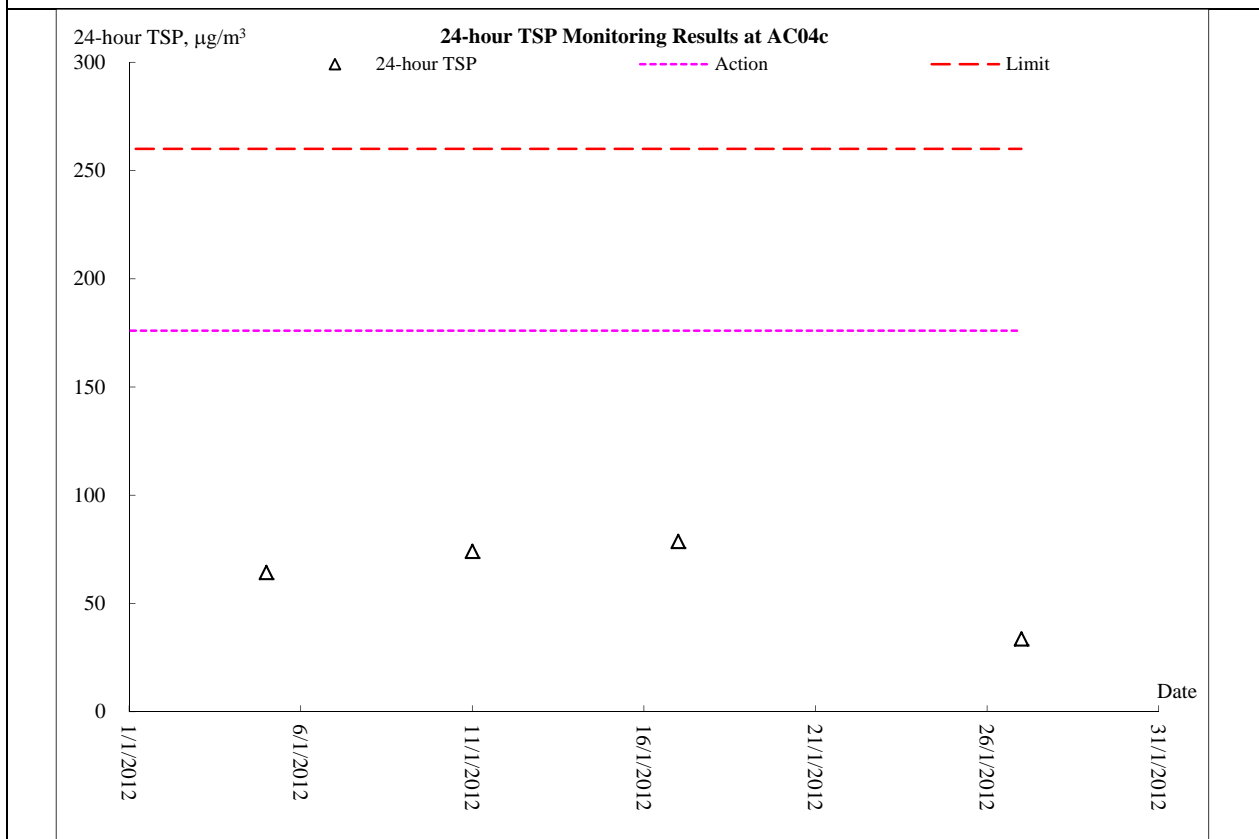
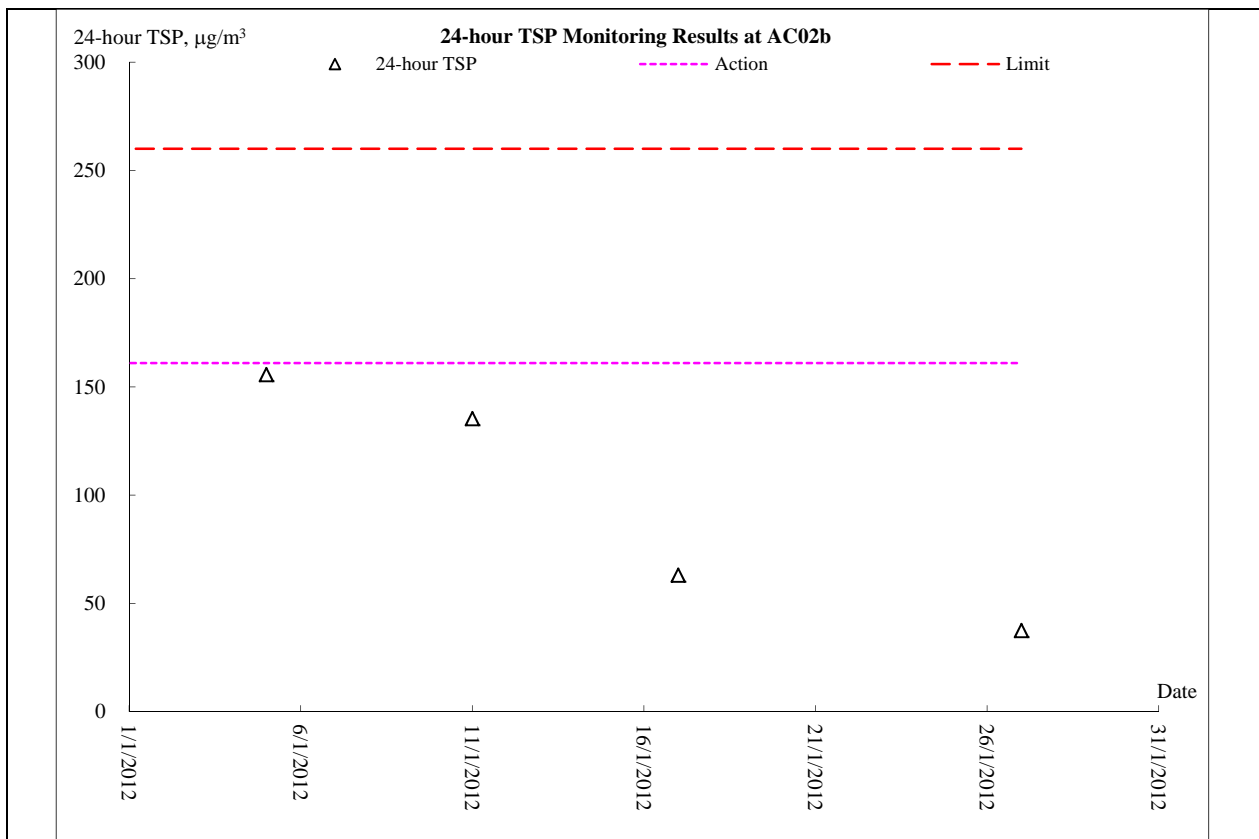
### **Graphical Plots of Monitoring Results**



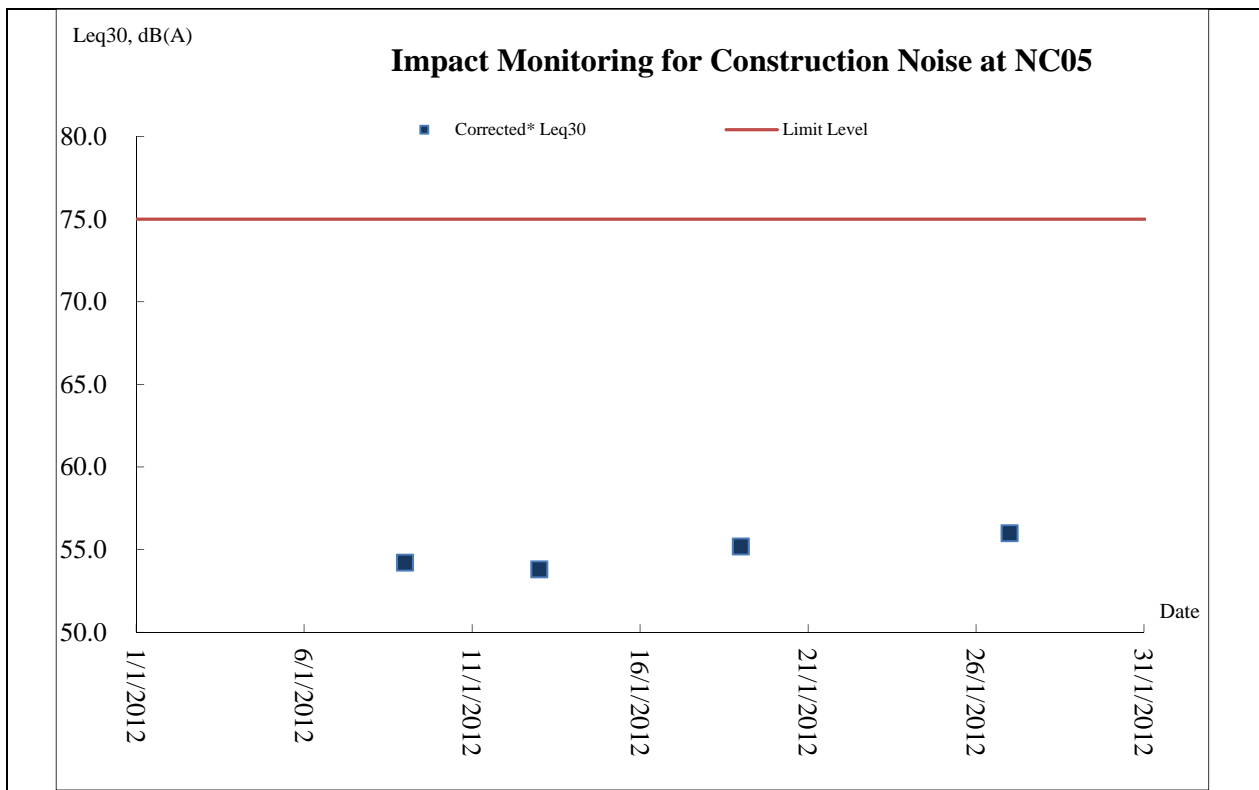
**1-hour TSP Monitoring**



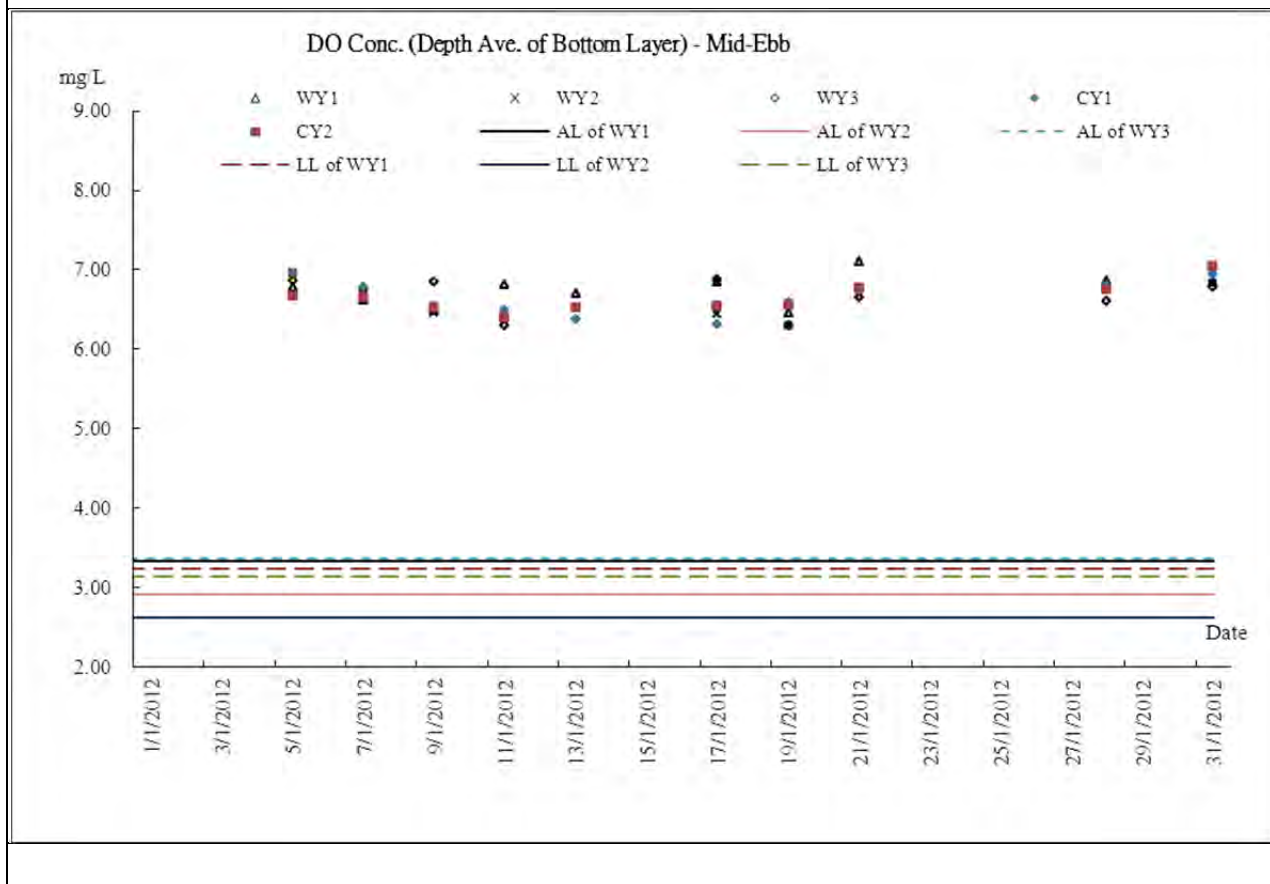
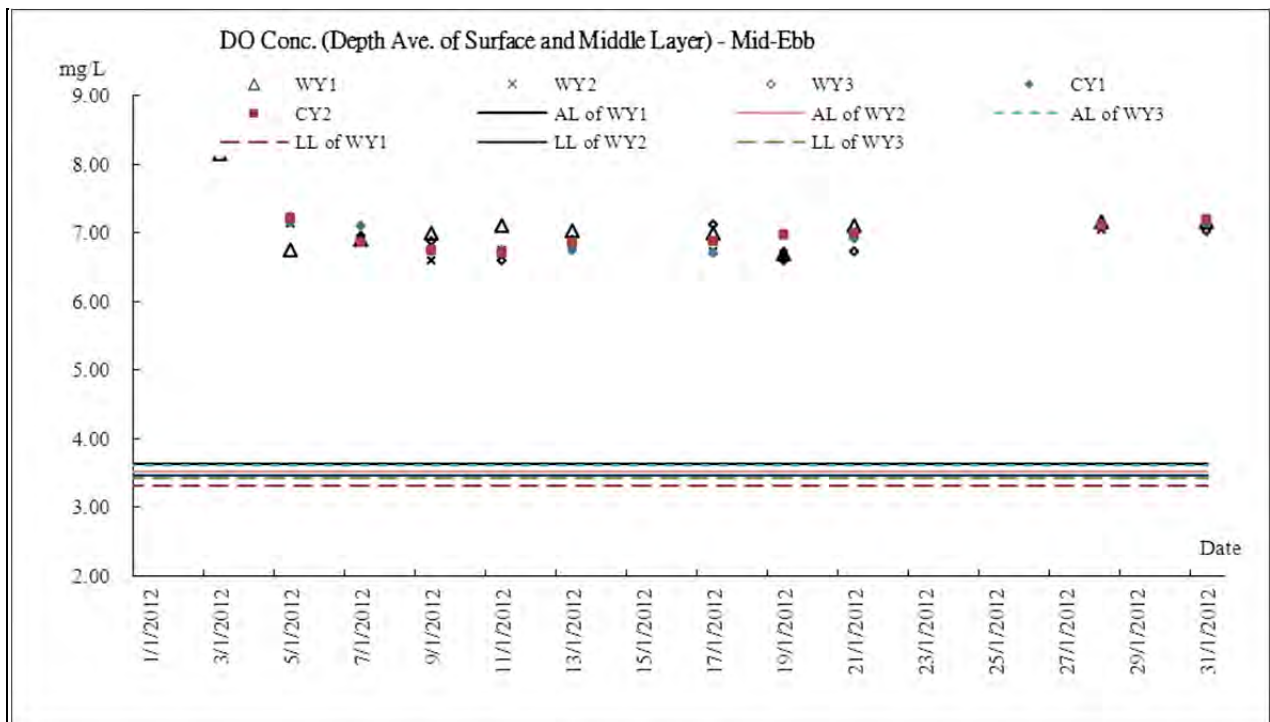
**24-hour TSP Monitoring**

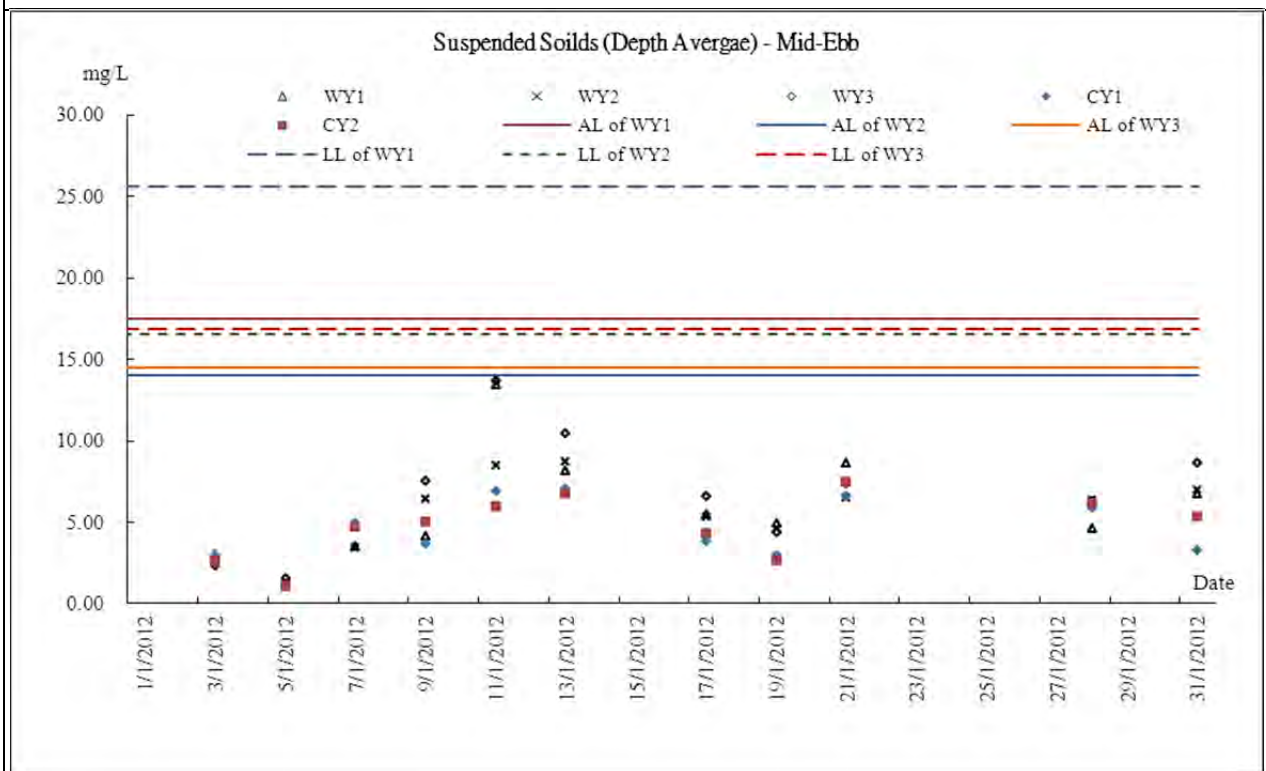
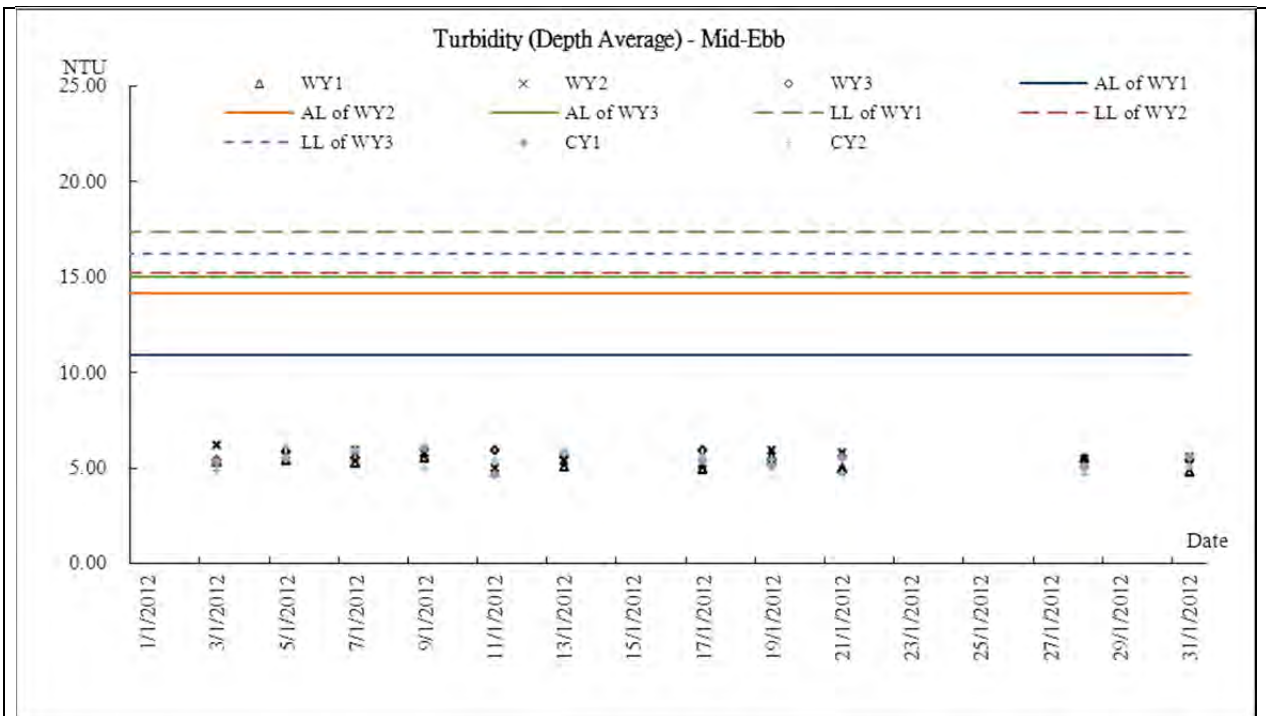


**Noise Monitoring**

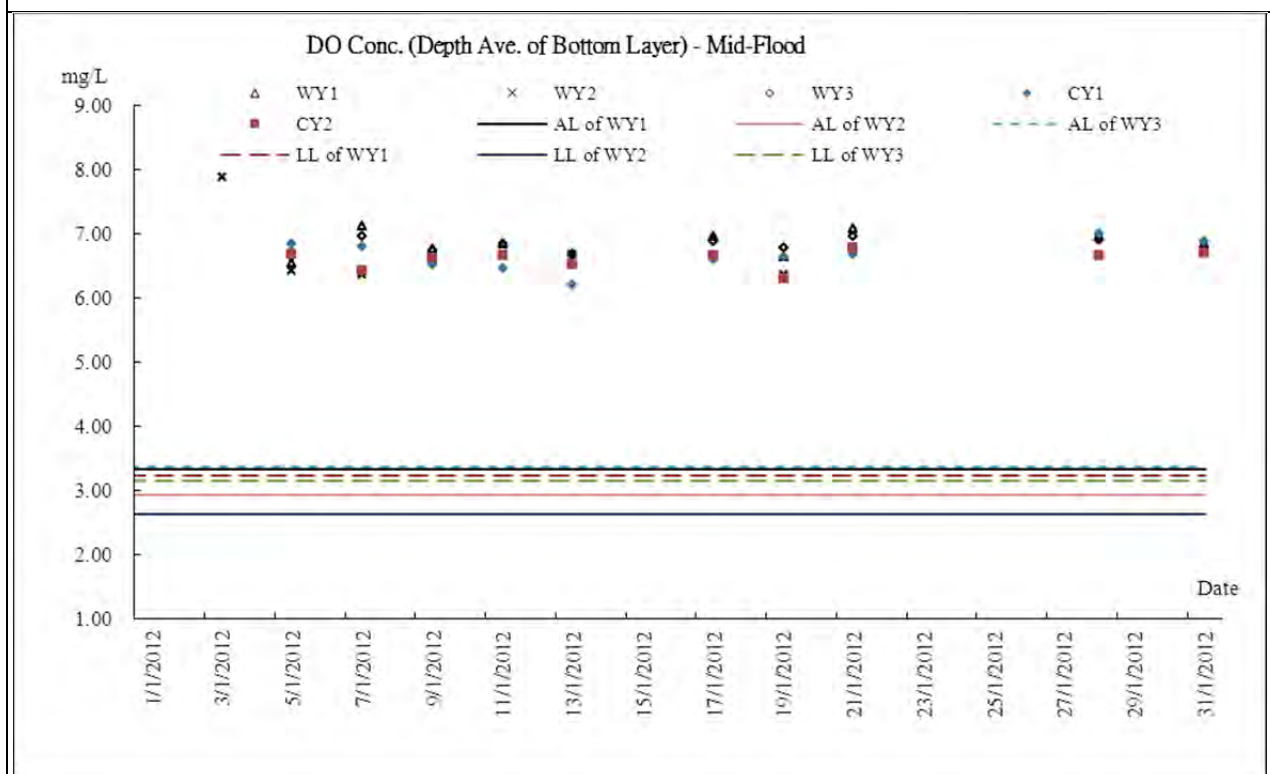
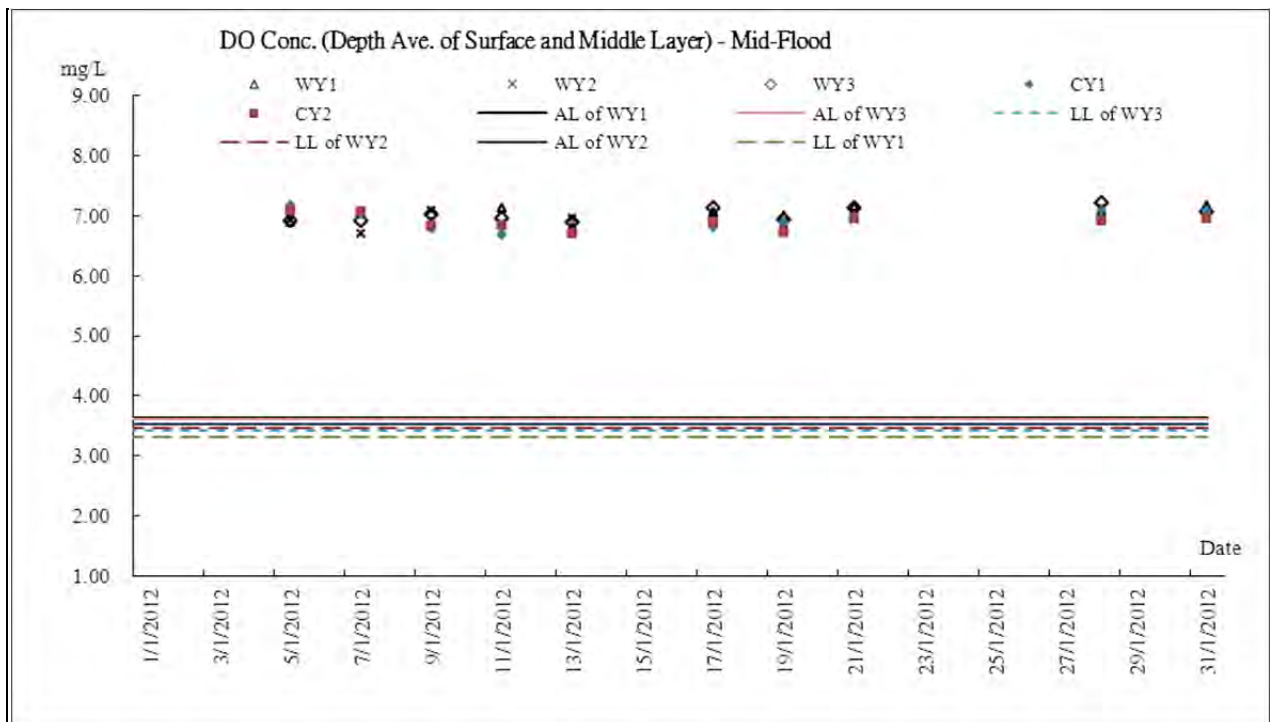


**Marine Water Quality Monitoring – Mid Ebb Tide**

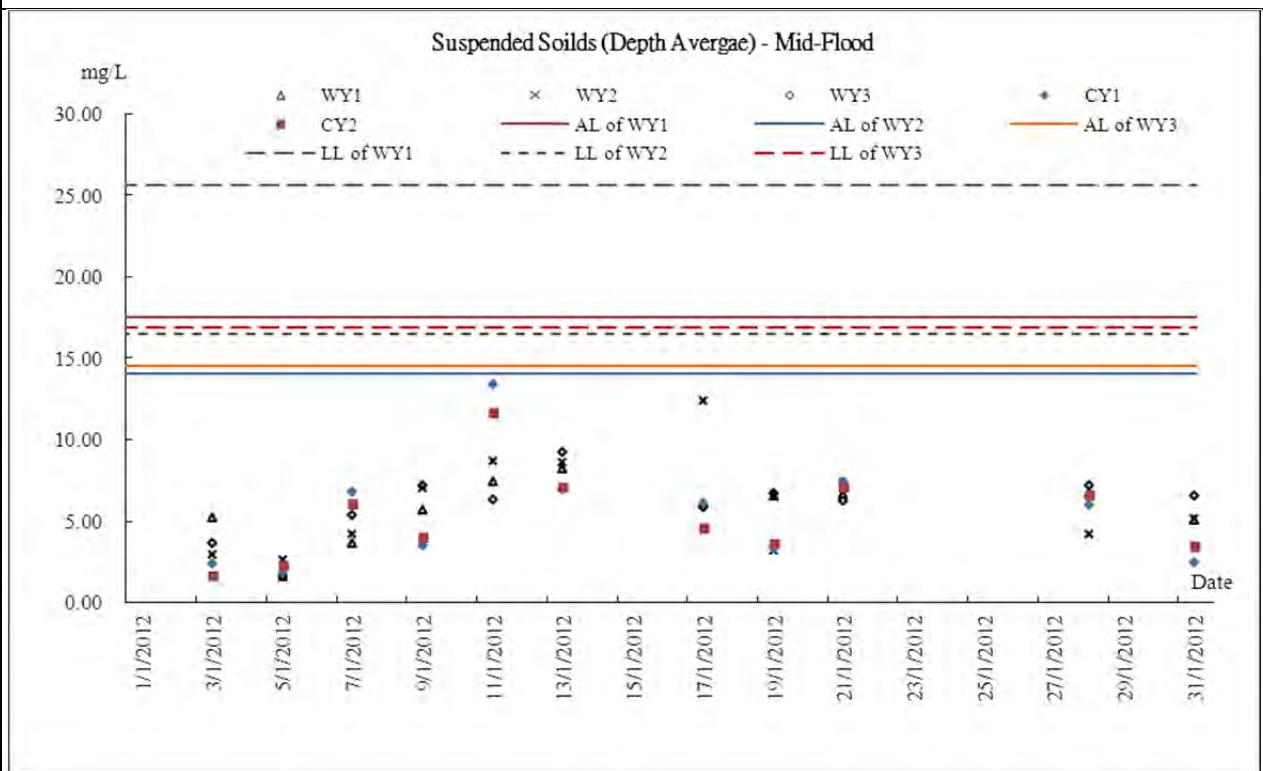
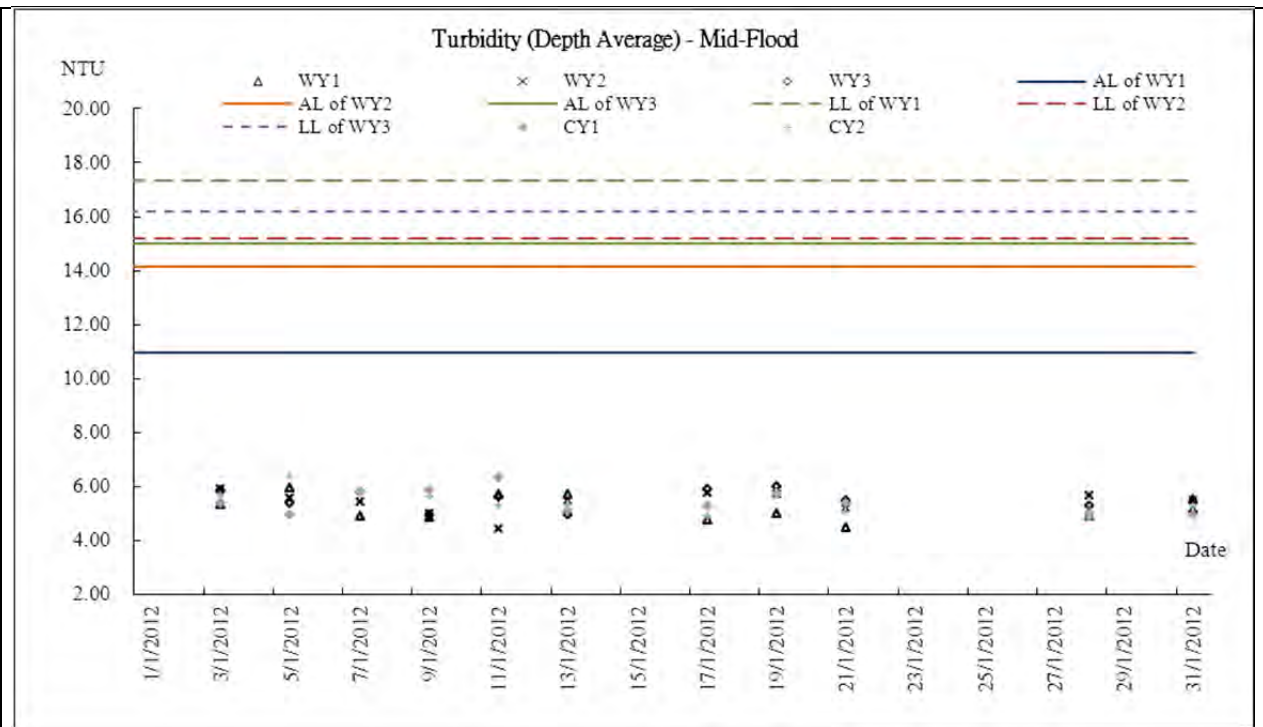




**Marine Water Quality Monitoring – Mid Flood Tide**







# **Appendix I**

## **Meteorological Information**

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

Date		Weather
1-Jan-12	Sun	Holiday
2-Jan-12	Mon	Holiday
3-Jan-12	Tue	Cloudy
4-Jan-12	Wed	Fresh northerly winds
5-Jan-12	Thu	Cloudy and misty.
6-Jan-12	Fri	Mainly fine
7-Jan-12	Sat	Mainly fine and dry.
8-Jan-12	Sun	Mainly fine and dry.
9-Jan-12	Mon	Cloudy
10-Jan-12	Tue	Moderate north to northeasterly winds.
11-Jan-12	Wed	Cloudy and misty.
12-Jan-12	Thu	Moderate north to northeasterly winds.
13-Jan-12	Fri	Mainly fine and dry.
14-Jan-12	Sat	Moderate north to northeasterly winds.
15-Jan-12	Sun	Moderate easterly winds.
16-Jan-12	Mon	Mainly fine and dry.
17-Jan-12	Tue	Cloudy.
18-Jan-12	Wed	Moderate northeasterly winds.
19-Jan-12	Thu	Cloudy and cold
20-Jan-12	Fri	Cool
21-Jan-12	Sat	Cloudy and misty.
22-Jan-12	Sun	Holiday
23-Jan-12	Mon	Holiday
24-Jan-12	Tue	Holiday
25-Jan-12	Wed	Holiday
26-Jan-12	Thu	Cloudy and misty.
27-Jan-12	Fri	Cloudy and misty.
28-Jan-12	Sat	Moderate easterly winds.
29-Jan-12	Sun	Moderate north to northeasterly winds.
30-Jan-12	Mon	Cloudy.
31-Jan-12	Tue	Mainly fine and dry.

## **Appendix J**

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

## Monthly Summary Waste Flow Table for January 2012

Month	Actual Quantities of Inert C&D Materials Generated Monthly											Actual Quantities of C&D Wastes Generated Monthly										
	Total Quantity Generated (a) = (c)+(d)+(e)		Hard Rock and Large Broken Concrete (b)		Reused in the Contract (c)		Reused in other Projects (d)		Disposed as Public Fill (e)		Imported Fill (f)		Metals		Paper/ cardboard packaging		Plastics		Chemical Waste		Others, e.g. rubbish	
	(in '000m <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>2011</b>	10.430	33.543	0.160	0.407	0.740	1.059	0.000	32.454	9.690	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	206.870	46.690
Jan	0.000	3.311	0.000	0.000	0.000	0.000	0.000	3.311	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.530	5.090
<b>Total</b>	10.430	36.854	0.160	0.407	0.740	1.059	0.000	35.765	9.690	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	229.400	51.780
	47.284		0.567		1.799		35.765		9.720		0.000		0.000		0.000		0.000		0.000		281.180	

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**



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

**AUES**

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:

Time:

Checklist No. TCS512A-06-Jan

FN Wong

ALFRED CHEUNG

Edwin Leung

Selina Leung

Date: 06 Jan 2012 11:15 am

11:15 am

**PART A:**

**GENERAL INFORMATION**

Weather:  Sunny  Fine  Cloudy  Rainy  
 Temperature: 15 °C  
 Humidity:  High  Moderate  Low  
 Wind:  Strong  Breeze  Light  Calm

Environmental Permit No.

EP- 282/2007

**Area Inspected**

1 Yung Shue Wan

**PART B:**

**SITE AUDIT**

**Note:** Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable

**Section 1: Water Quality**

	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.16 Are toilets properly maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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"/>	
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"/>	

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



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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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.26	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	<input 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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.05	Is the exposed earth properly treated within six months after the last construction activities?	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?	<input type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.11	Is dark smoke emission from plant/equipment avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.15	Is open burning avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.16	Excavated materials from the stream must remove form site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.	<input type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.02	Is silenced equipment adopted?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.03	Is idle equipment turned off or throttled down?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.04	Are all plant and equipment well maintained and in good condition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?	<input 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"/>	
3.08	Are flaps and panels of mechanical equipment closed during operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.13 Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.09 Is the chemical waste storage area used for storage of chemical waste only?	<input type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.12 Are trip tickets for chemical wastes disposal available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.13 Are chemical/fuel storage areas bounded?	<input type="checkbox"/>	<input 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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.22 Site cleanliness and appropriate waste management training had provided for the site workers.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.23 Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<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 checked="" type="checkbox"/>	

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5.02	Are retained and transplanted trees properly protected?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Refer to Monthly EM&A report - Appendix M
5.03	Are surgery works carried out for the damaged trees?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 7: Others</b>							
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.02	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"/>	

(Yung Shue Wan)

Remarks

Findings of Site Inspection (06 Jan 2012):

Follow up: 1) The situation was rectified on site by providing wind screen for enclosing the preparation work for mixing the mortar.  
2) Not required for reminders.

1) Preparation work for mixing pre-mixed mortar was observed within the site at ~~the pumping station~~ (to the north of transformer substation). Construction dust suppression measures is required to avoid adverse construction dust impacts. (Rectified on site)

2) Construction activities were observed within the site. Full implementation of the required environmental mitigation measures is reminded.

IEC's representative      RE's representative      ET's representative      EO's representative      Contractor's representative

*Selma*  
(Selma Leung)

*Alfred*  
(ALFRED CHEUNG)

*F.N. Wong*  
(F.N. Wong)

*H.S. Leung*  
(H.S. Leung)

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

Inspected by Yung Shue Wan Checklist No. TCS512B-A  
 ETL/ ET's Representative: Ray Cheung  
 RE's Representative: C P Cheung  
 Contractor's Representative: Edwin Leung  
 IEC's Representative: \_\_\_\_\_  
 Time: 11:00am

Date: 10-1-2012

**PART A: GENERAL INFORMATION**

Weather:  Sunny  Fine  Cloudy  Rainy  
 Temperature: 15 °C  
 Humidity:  High  Moderate  Low  
 Wind:  Strong  Breeze  Light  Calm

Environmental Permit No.

EP- 281/2007

Area Inspected  
 1 Sok Kwu Wan

**PART B: SITE AUDIT**

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<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"/>	<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"/>	<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"/>	<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"/>	<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"/>	<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"/>	<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"/>	<input type="checkbox"/>	
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.09	Are temporary exposed slopes properly covered?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.10	Are earthworks final surfaces well compacted or protected?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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"/>	<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"/>	<input type="checkbox"/>	
1.13	Are wheel washing facilities well maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.14	Is runoff from wheel washing facilities avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.15	Are there toilets provided on site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.16	Are toilets properly maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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1.30	Is open stockpiles well covered by impermeable sheet?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Section 2: Air Quality</b>							
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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2.15	Is open burning avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.16	Excavated materials from the stream must remove form site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Section 3: Noise</b>							
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.02	Is silenced equipment adopted?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.03	Is idle equipment turned off or throttled down?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.04	Are all plant and equipment well maintained and in good condition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.07	Are air compressors fitted with valid noise emission labels during operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



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3.08	Are flaps and panels of mechanical equipment closed during operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.06	Are the chemical waste containers and storage area properly labelled?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.07	Are the chemical wastes stored in proper storage areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.08	Is the chemical container or equipment provided with drip tray?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.10	Are incompatible chemical wastes stored in different areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.11	Are the chemical wastes disposed of by licensed collectors?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.13	Are chemical/fuel storage areas bounded?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.14	Are designated areas identified for storage and sorting of construction wastes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.15	Are construction wastes sorted (inert and non-inert) on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.16	Are construction wastes reused?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.17	Are construction wastes disposed of properly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.20	Are appropriate procedures followed if contaminated material exists?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.23	Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

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<b>Section 5: Landscape &amp; Visual</b>							
5.01	Are retained and transplanted trees in health condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Refer to Monthly EM&A report - Appendix M
5.02	Are retained and transplanted trees properly protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5.03	Are surgery works carried out for the damaged trees?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Section 6: Others</b>							
6.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

~~(Sok Kwu Wan)~~ King Shue Wan

Remarks:

Findings of Site Inspection: ( 10-1-2012 ): Follow up:

No environmental issue was observed during site inspection.

The transplanted and retained uncommon tree species trees were found to be labeled, fenced and protected.

IEC's representative      RE's representative      ET's representative      EO's representative      Contractor's representative

( )      ( CO. CHEUNG )      ( Ray Cheung )      ( H. S. Cheung )      ( )

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

Inspected by \_\_\_\_\_  
 ETL/ ET's Representative: Ray Cheung  
 RE's Representative: C.C. Cheung  
 Contractor's Representative: Edwin Leung  
 IEC's Representative: \_\_\_\_\_  
 Time: 11am

Checklist No. TCS512A-

Date: 17-1-2012

**PART A: GENERAL INFORMATION**

Weather:  Sunny  Fine  Cloudy  Rainy

Temperature: 17 °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:
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**Section 1: Water Quality**

Note:	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
1.01 Is an effluent discharge license obtained for the Project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.02 Is the effluent discharged in accordance with the discharge licence?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.03 Is the discharge of turbid water avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.04 Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.05 Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.06 Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.07 Is drainage system well maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.08 As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.09 Are temporary exposed slopes properly covered?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.10 Are earthworks final surfaces well compacted or protected?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.11 Are manholes adequately covered or temporarily sealed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.12 Are there any procedures and equipment for rainstorm protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.13 Are wheel washing facilities well maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.14 Is runoff from wheel washing facilities avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	??
1.15 Are there toilets provided on site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.16 Are toilets properly maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.17 Are the vehicle and plant servicing areas paved and located within roofed areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.22 Are the oil interceptors/grease traps maintained properly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.26	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.27	Mobile toilets should provide on site and located away the stream course.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.28	License collector should be employed for handling the sewage of mobile toilet.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.29	Is ponding /stand water avoided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Remark 1
<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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.03	Are the excavated materials sprayed with water during handling?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.05	Is the exposed earth properly treated within six months after the last construction activities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.11	Is dark smoke emission from plant/equipment avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.13	Are site vehicles travelling within the speed limit not more than 15km/hour?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.15	Is open burning avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.16	Excavated materials from the stream must remove form site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.02	Is silenced equipment adopted?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.03	Is idle equipment turned off or throttled down?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.04	Are all plant and equipment well maintained and in good condition?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.07	Are air compressors fitted with valid noise emission labels during operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	<input 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"/>	
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4.07	Are the chemical wastes stored in proper storage areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.08	Is the chemical container or equipment provided with drip tray?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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4.12	Are trip tickets for chemical wastes disposal available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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4.21	is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.23	Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>Section 5: Landscape &amp; Visual</b>							
5.01	Are retained and transplanted trees in health condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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
5.02	Are retained and transplanted trees properly protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Refer to Monthly EM&A report - Appendix M
5.03	Are surgery works carried out for the damaged trees?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Section 7: Others</b>							
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.02	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"/>	

(Yung Shue Wan)

**Remarks**

Findings of Site Inspection ( 17-1-2012 ):

Follow up: 31-1-2012

Remark

~~Display~~

Larvicidal to be placed to stagnant water & notice to be displayed.

(DN Tank No. 2)

Item has been inspected & rectified ~~item~~  
Rajen

IEC's representative      RE's representative      ET's representative      EO's representative      Contractor's representative

*[Signature]*

( CC Cheung )

*[Signature]*

( Ray Cheung )

*[Signature]*

( H.S. Gung )

( )

( )

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: \_\_\_\_\_

Checklist No. TCS512A-  
Ray Cheung  
CC Cheung  
Edwin Leung  
 \_\_\_\_\_  
 \_\_\_\_\_

Date: 31-1-2012

Time: 11am

**PART A: GENERAL INFORMATION** Environmental Permit No.  EP- 282/2007

Weather:  Sunny  Fine  Cloudy  Rainy

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



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

Note: Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
3.09 Are Construction Noise Permit(s) applied for percussive piling works?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.10 Are Construction Noise Permit(s) applied for general construction works during restricted hours?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.11 Are valid Construction Noise Permit(s) posted at site entrances?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.12 Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.13 Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	<input 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.06 Are the chemical waste containers and storage area properly labelled?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.07 Are the chemical wastes stored in proper storage areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.08 Is the chemical container or equipment provided with drip tray?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.09 Is the chemical waste storage area used for storage of chemical waste only?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.10 Are incompatible chemical wastes stored in different areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.11 Are the chemical wastes disposed of by licensed collectors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Remark
4.12 Are trip tickets for chemical wastes disposal available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.13 Are chemical/fuel storage areas bounded?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.14 Are designated areas identified for storage and sorting of construction wastes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.15 Are construction wastes sorted (inert and non-inert) on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.16 Are construction wastes reused?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.17 Are construction wastes disposed of properly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.18 Are site hoardings and signboards made of durable materials instead of timber?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.19 Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.20 Are appropriate procedures followed if contaminated material exists?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.21 Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.22 Site cleanliness and appropriate waste management training had provided for the site workers.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.23 Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>Section 5: Landscape &amp; Visual</b>						
5.01 Are retained and transplanted trees in health condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input 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
5.02	Are retained and transplanted trees properly protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Refer to Monthly EM&A report - Appendix M
5.03	Are surgery works carried out for the damaged trees?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" 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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Section 7: Others</b>							
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7.02	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"/>	

(Yung Shue Wan)

**Remarks**

Findings of Site Inspection ( 31-1-2012 ): Follow up:

Chemical waste inside deslitting tank to be removed (should be rectified within two weeks)

IEC's representative      RE's representative      ET's representative      EO's representative      Contractor's representative

( ) ( ) ( Ray Chan ) ( ) ( )

## **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

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

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

N/A Not applicable

### Implementation Schedule of Water Quality Control Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location (duration /completion of measures)	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines
					D	C	O	
<b>Construction Phase</b>								
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> 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**

### **Impact 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 As construction works of marine outfall was commenced on 9 May 2011 and coral monitoring is required in this reporting month. This coral monitoring report present the result coral monitoring exercise of corals at YSW and SW in January 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 12<sup>th</sup> and 30<sup>th</sup> January 2012. The weather conditions were summarised in **Table 5-1**.

**Table 5-1 Weather Conditions on 12<sup>th</sup> and 30<sup>th</sup> January 2012**

Date	12 <sup>th</sup> January		30 <sup>th</sup> January	
	YSW	SW	YSW	SW
Site	YSW	SW	YSW	SW
Survey Time	9:00	8:00	9:00	8:00
Tidal Height	1.1m		1.1m	
Air Temperature	13° C		14° C	
Water Temperature	15° C		15° C	
Water Depth	2m	2.5m	2m	2.5m
Wind Speed	East force 4-5		East force 3-4	
Weather	Sunny		Sunny	
Water Visibility	0.5m	1m	0.5m	1.5m

### 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 12<sup>th</sup> and 30<sup>th</sup> January 2012 and their species name, size and health condition were shown in **Table 5-2** to **Table 5-3**.
- 5.3 On 12<sup>th</sup>, coral colonies #14 and #15 were recorded to have 2% and 4% sediment respectively. On 30<sup>th</sup>, coral colony #15 was recorded to have 1% sediment. 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 12<sup>th</sup> January 2012**

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	2	0	0	0	N/A
15	<i>Goniastrea aspera</i>	Boulder	19	4	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 30<sup>th</sup> January 2012**

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

Site: Yung Shue Wan				Bleaching (%)		Total/Partial Mortality (%)	Remarks
Coral No.	Species Name	Specific Location	Size (cm) (Max. Length)	Sediment Cover (%)	Blanched/Pale		
8	<i>Favites chinensis</i>	Boulder	22	0	0	0	N/A
9	<i>Favites pentagona</i>	Boulder	106	0	0	0	N/A
10	<i>Coscinaraea n sp.</i>	Boulder	16	0	0	0	N/A
11	<i>Goniopora stutchburyi</i>	Boulder	45	0	0	0	N/A
12	<i>Favites pentagona</i>	Boulder	20	0	0	0	N/A
13	<i>Goniopora stutchburyi</i>	Boulder	28	0	0	0	N/A
14	<i>Porites lobata</i>	Boulder	42	0	0	0	N/A
15	<i>Goniastrea aspera</i>	Boulder	19	1	0	0	N/A
16	<i>Cyphastrea serailia</i>	Boulder	16	0	0	0	N/A
17	<i>Plesiastrea versipora</i>	Boulder	27	0	0	0	N/A
18	<i>Goniopora stutchburyi</i>	Boulder	23	0	0	0	N/A
19	<i>Cyphastrea serailia</i>	Boulder	21	0	0	0	N/A
20	<i>Porites lutea</i>	Boulder	52	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 on 12<sup>th</sup> and 30<sup>th</sup> January 2012 and their species name, size and health condition were shown in **Table 5-4** to **Table 5-5**.
- 5.6 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. Photos of each tagged corals were shown in **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 5-4 Species Name, Size and Health Condition for Tagged Corals in SW on 12<sup>th</sup> January 2012**

Site: Sham Wan				Bleaching (%)		Total/Partial Mortality (%)	Remarks
Coral No.	Species Name	Specific Location	Size (cm) (Max. Length)	Sediment Cover (%)	Blanched/Pale		
1	<i>Favia fавus</i>	Boulder	14	0	0	0	N/A
2	<i>Favia rotumana</i>	Boulder	21	0	0	0	N/A
3	<i>Favia rotumana</i>	Boulder	27	0	0	0	N/A
4	<i>Favia fавus</i>	Rock	14	0	0	0	N/A
5	<i>Goniopora stutchburyi</i>	Bedrock	32	0	0	0	N/A
6	<i>Porites lobata</i>	Bedrock	43	0	0	0	N/A
7	<i>Porites lobata</i>	Boulder	23	0	0	0	N/A

Site: Sham Wan					Bleaching (%)			
Coral No.	Species Name	Specific Location	Size (cm) (Max. Length)	Sediment Cover (%)	Blanched/Pale	Bleached	Total/Partial Mortality (%)	Remarks
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

**Table 5-5 Species Name, Size and Heath Condition for Tagged Corals in SW on 30<sup>th</sup> January 2012**

Site: Sham Wan					Bleaching (%)			
Coral No.	Species Name	Specific Location	Size (cm) (Max. Length)	Sediment Cover (%)	Blanched/Pale	Bleached	Total/Partial Mortality (%)	Remarks
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
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



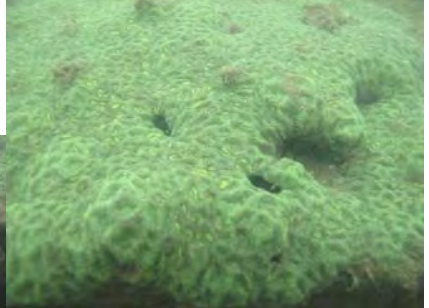



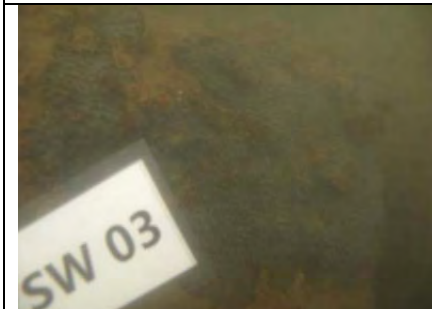

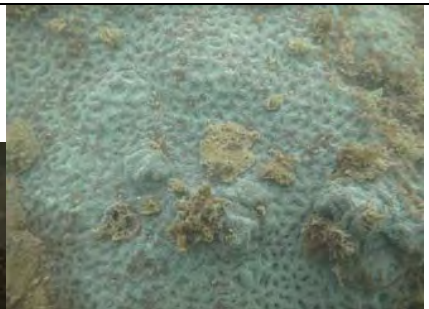


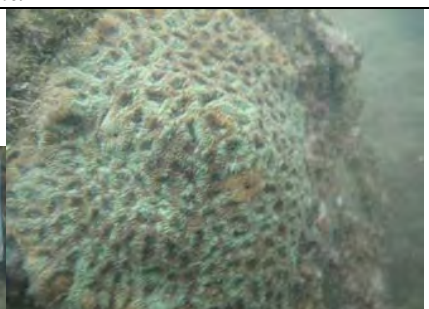
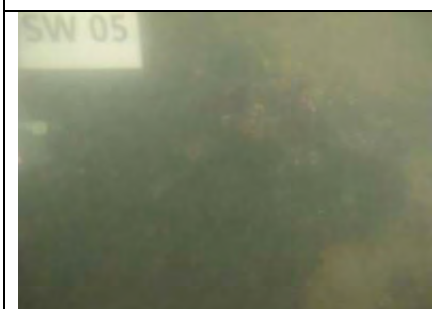







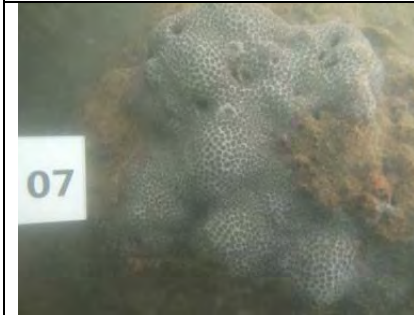


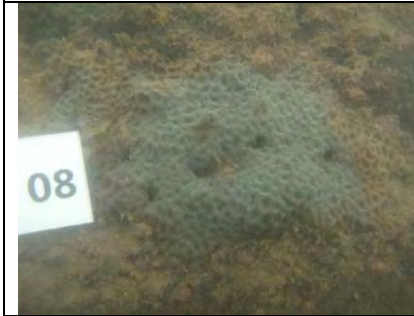




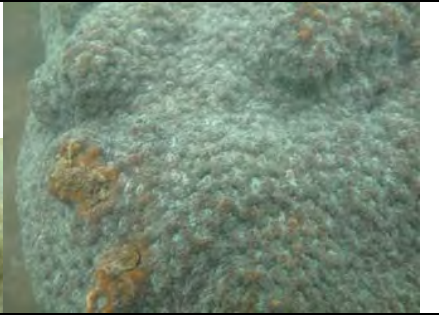



Site: Sham Wan				Bleaching (%)			Total/Partial Mortality (%)	Remarks
Coral No.	Species Name	Specific Location	Size (cm) (Max. Length)	Sediment Cover (%)	Blanched/Pale	Bleached		
19	<i>Cyphastrea serailia</i>	Bedrock	39	0	0	0	0	N/A
20	<i>Cyphastrea serailia</i>	Bedrock	27	0	0	0	0	N/A

## 6. COMMENTS AND CONCLUSION



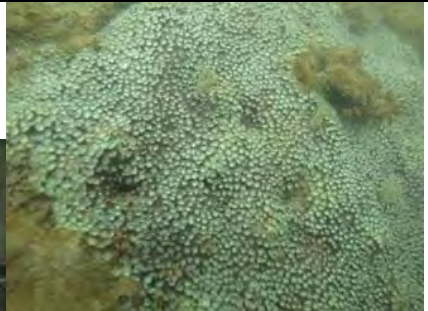








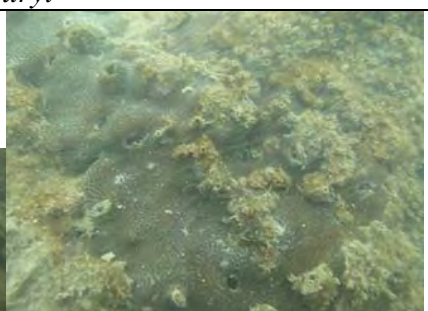

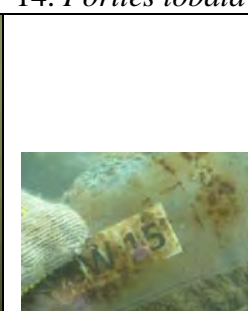

- 6.1 Coral monitoring were performed on 12<sup>th</sup> and 30<sup>th</sup> January 2012 at Yung Shue Wan and Sham Wan and 20 hard coral colonies were monitored at each sites.
- 6.2 In Yeung Shu Wan, coral colonies #14 and #15 were recorded to have 2% and 4% sediment respectively on 12<sup>th</sup>; coral colony #15 was recorded to have 1% sediment on 30<sup>th</sup>. No sediment was recorded in other coral colonies during the survey. No sediment was recorded during the survey in Sham Wan. No bleaching or mortality was recorded on both sites 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.










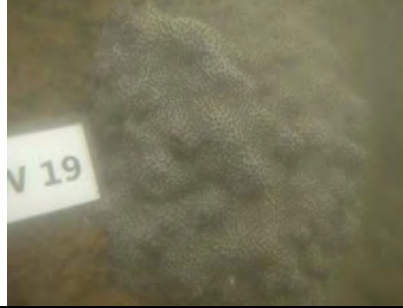





APPENDIX A Tagged Corals at Yung Shue Wan

Baseline	12 <sup>th</sup> January 2012	
		
<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>		



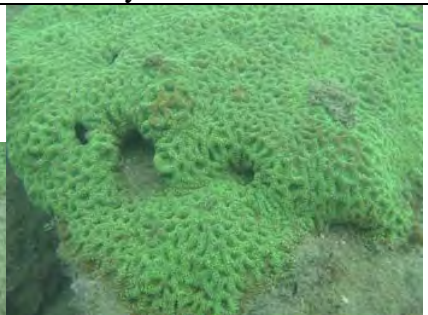



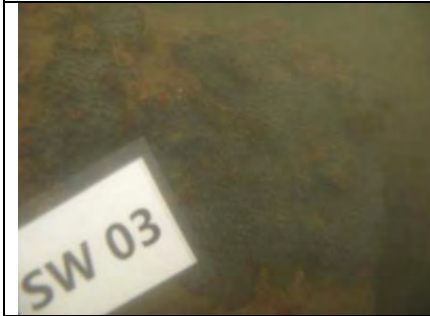



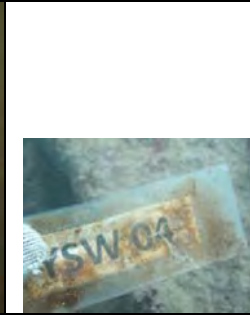



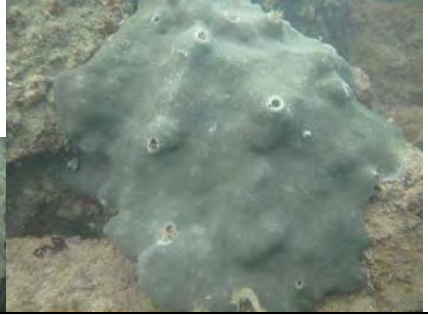
Baseline	12 <sup>th</sup> January 2012	
 <p>SW 06</p>	 <p>SW 06</p>	
<i>06. Porites lobata</i>		
 <p>07</p>	 <p>SW 07</p>	
<i>07. Cyphastrea serailia</i>		
 <p>08</p>	 <p>SW 08</p>	
<i>08. Favites chinensis</i>		
 <p>SW 09</p>	 <p>SW 09</p>	
<i>09. Favites pentagona</i>		
 <p>SW 10</p>	 <p>10</p>	
<i>10. Coscinaraea sp.</i>		




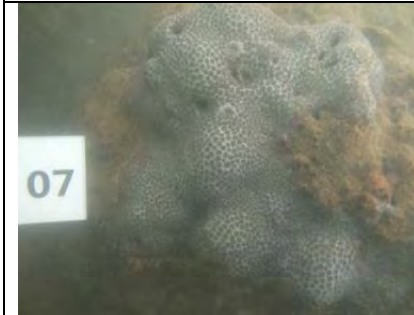


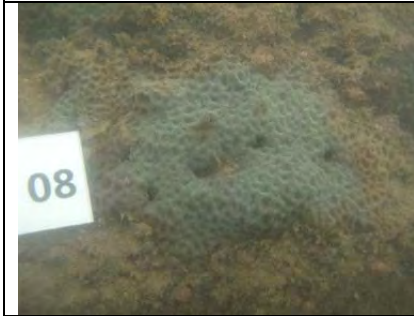
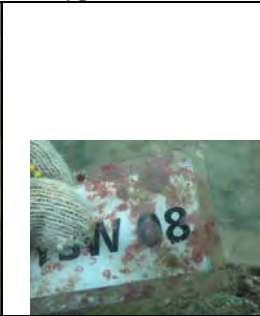



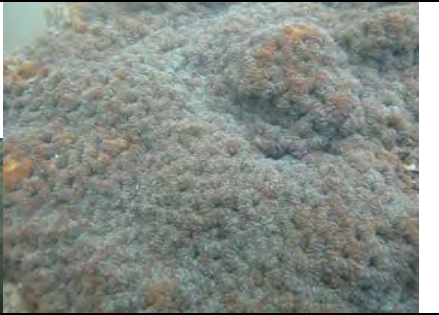





Baseline	12 <sup>th</sup> January 2012	
		
<i>11. Goniopora stutchburyi</i>		
		
<i>12. Favites pentagona</i>		
		
<i>13. Goniopora stutchburyi</i>		
		
<i>14. Porites lobata</i>		
		
<i>15. Goniastrea aspera</i>		







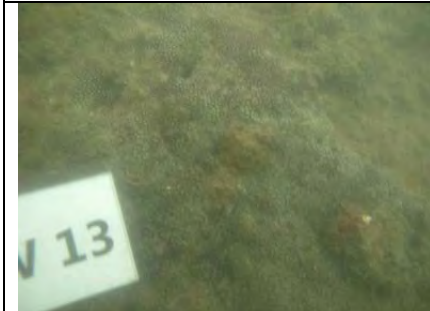
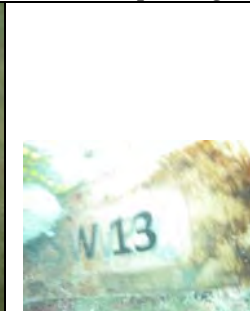
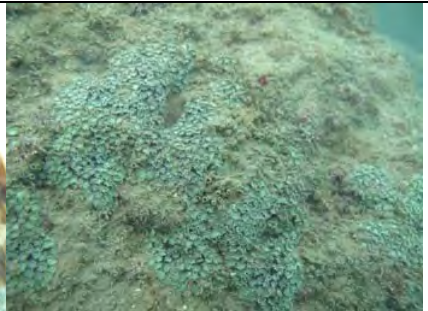
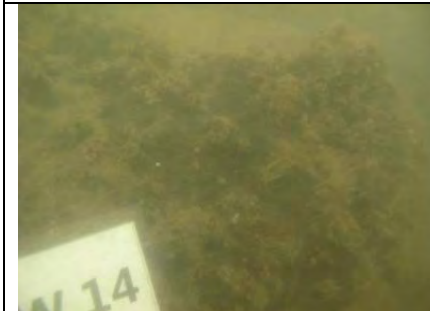
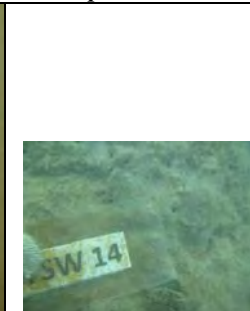

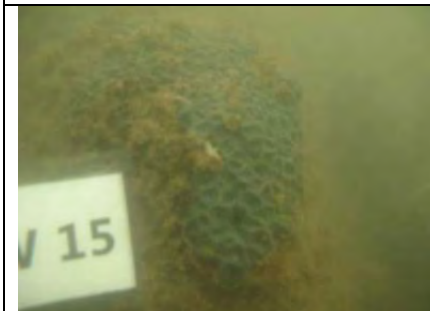

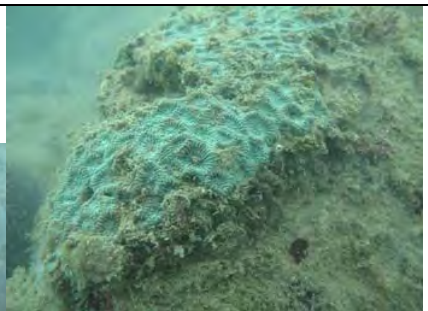
Baseline	12 <sup>th</sup> January 2012	
		
<i>16. Cyphastrea serailia</i>		
		
<i>17. Plesiastrea versipora</i>		
		
<i>18. Goniopora stutchburyi</i>		
		
<i>19. Cyphastrea serailia</i>		
		
<i>20. Porites lutea</i>		




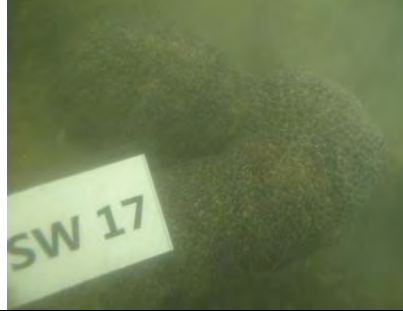




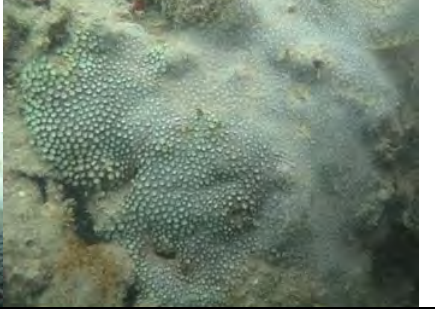
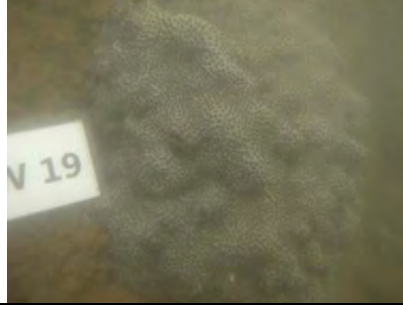







Baseline	30 <sup>th</sup> January 2012	
		
<i>01. Favites chinensis</i>		
		
<i>02. Favia speciosa</i>		
		
<i>03. Favites pentagona</i>		
		
<i>04. Favia fava</i>		
		
<i>05. Porites lutea</i>		

Baseline	30 <sup>th</sup> January 2012	
		
<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>		







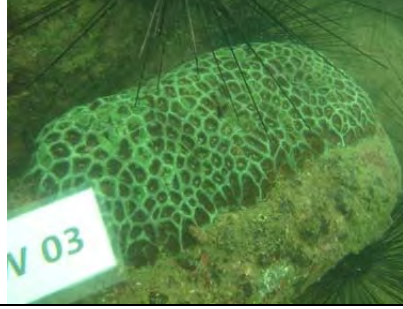







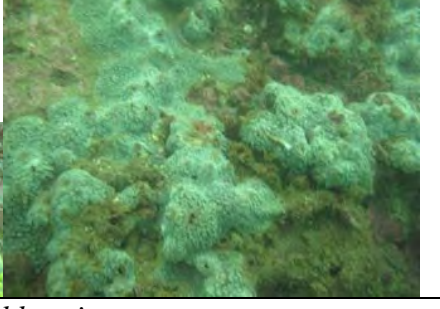


Baseline	30 <sup>th</sup> January 2012	
		
<i>11. Goniopora stutchburyi</i>		
		
<i>12. Favites pentagona</i>		
		
<i>13. Goniopora stutchburyi</i>		
		
<i>14. Porites lobata</i>		
		
<i>15. Goniastrea aspera</i>		

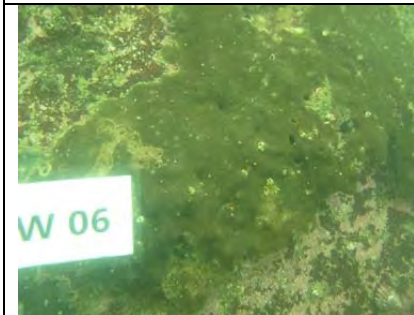

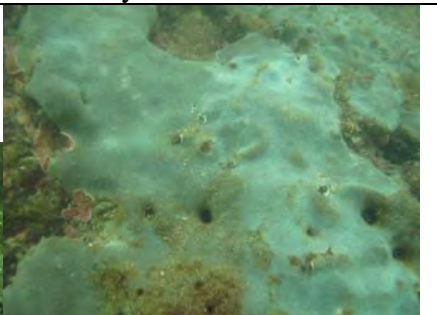
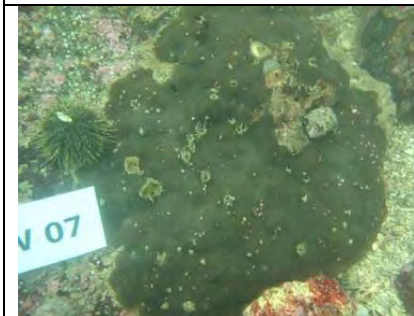

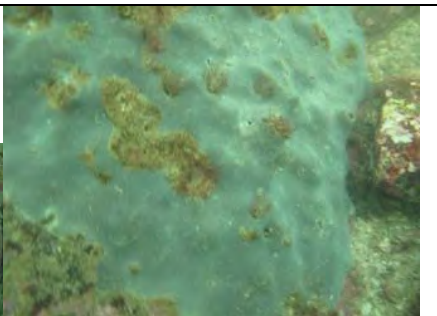
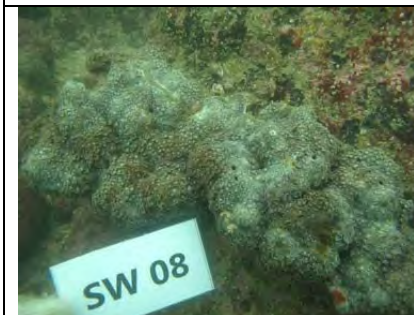

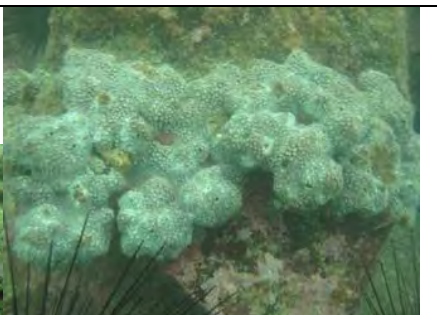
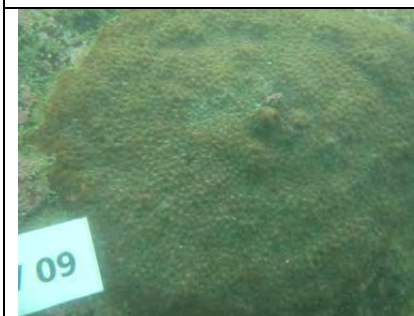
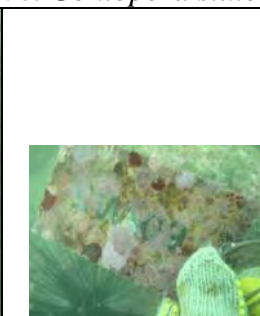

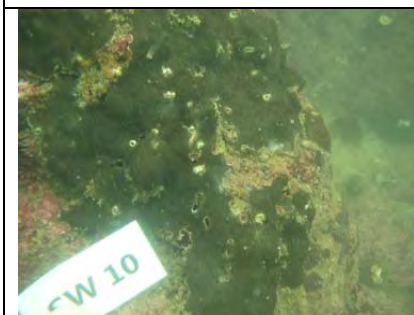
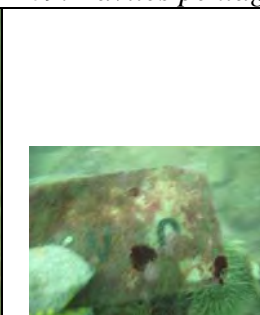
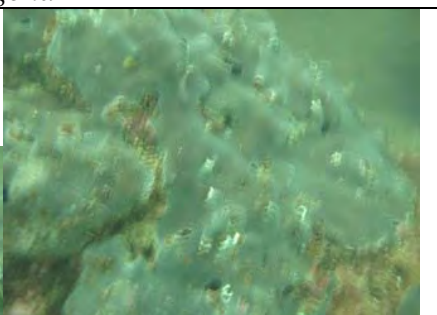
Baseline	30 <sup>th</sup> January 2012	
		
<i>16. Cyphastrea serailia</i>		
		
<i>17. Plesiastrea versipora</i>		
		
<i>18. Goniopora stutchburyi</i>		
		
<i>19. Cyphastrea serailia</i>		
		
<i>20. Porites lutea</i>		



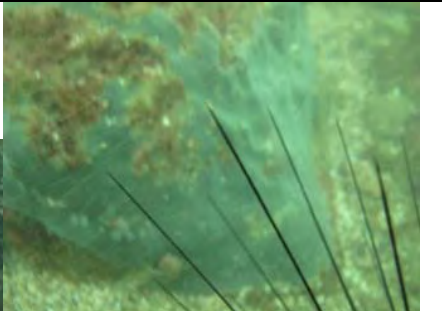



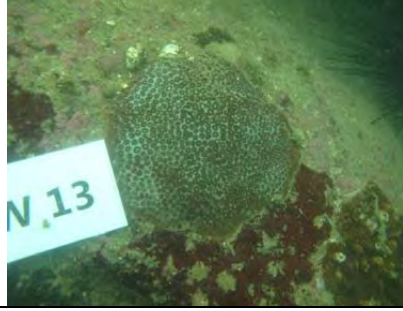

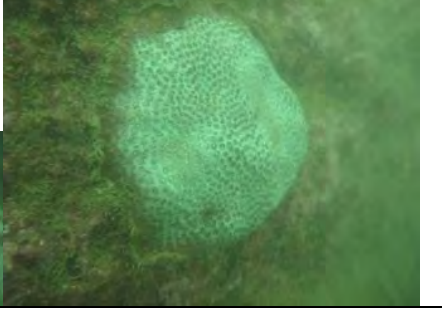








**APPENDIX B Tagged Corals at Sham Wan**


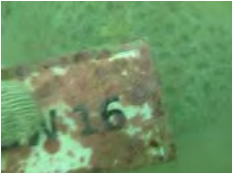



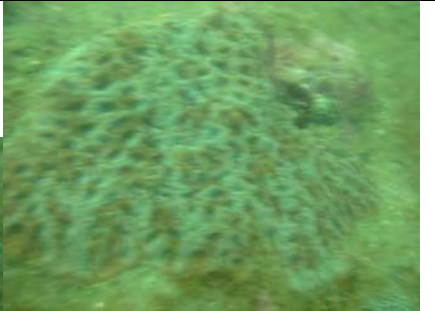





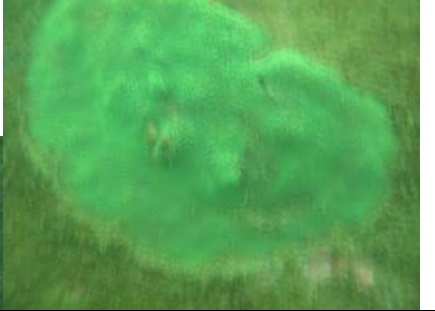
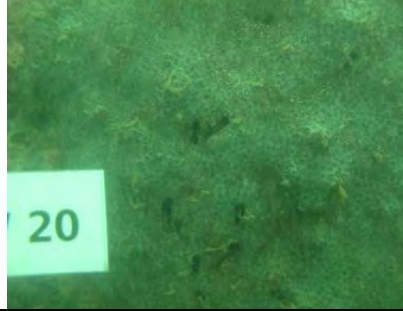


Baseline	12 <sup>th</sup> January 2012	
		
<i>01. Favia favaus</i>		
		
<i>02. Favia rotumana</i>		
		
<i>03. Favia rotumana</i>		
		
<i>04. Favia favaus</i>		
		
<i>05. Goniopora stutchburyi</i>		









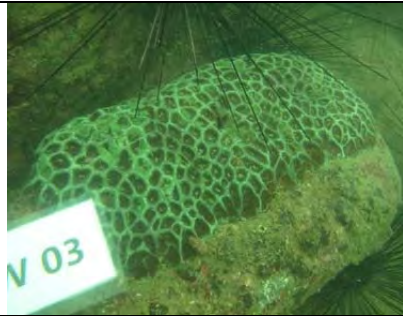





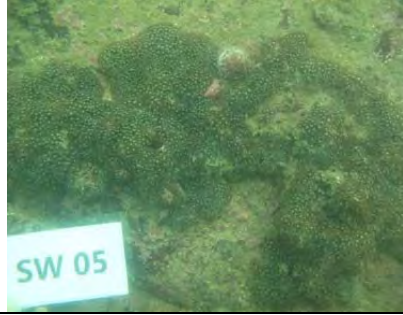

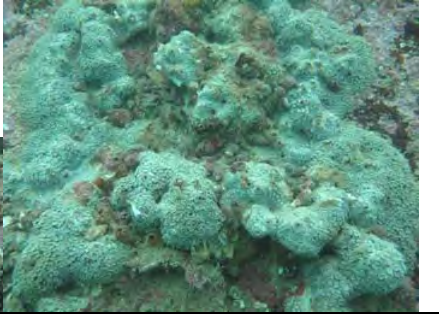
Baseline	12 <sup>th</sup> January 2012	
		
<i>06. Porites lobata</i>		
		
<i>07. Porites lobata</i>		
		
<i>08. Goniopora stutchburyi</i>		
		
<i>09. Favites pentagona</i>		
		
<i>10. Porites lobata</i>		

Baseline	12 <sup>th</sup> January 2012	
		
<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>		

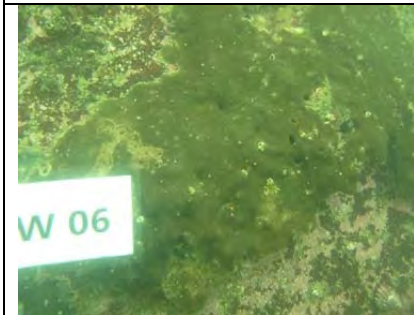

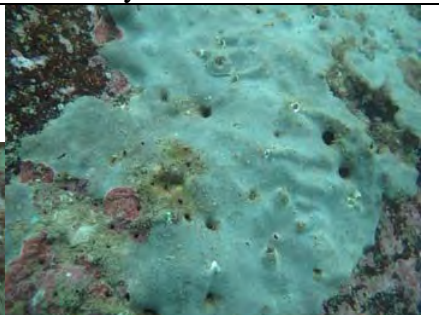
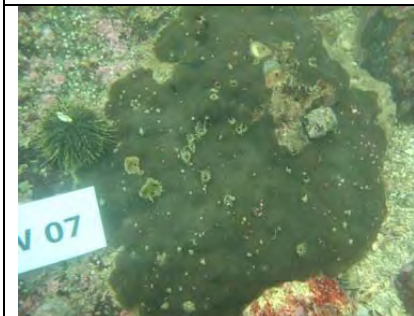
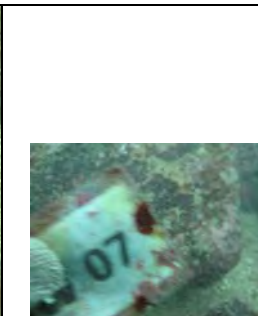
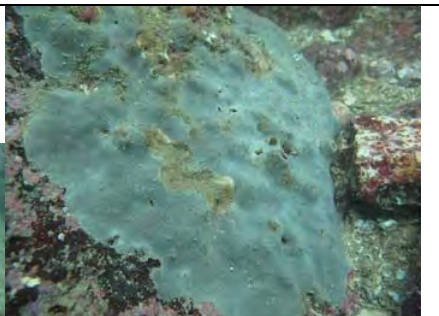
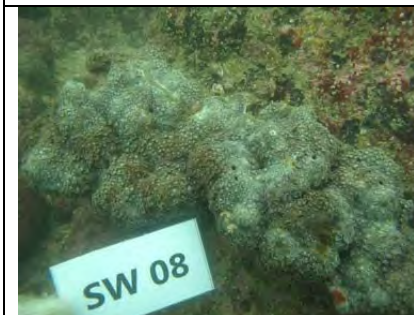


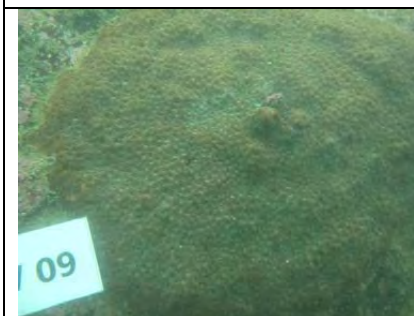


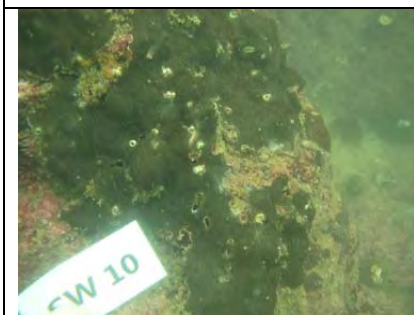

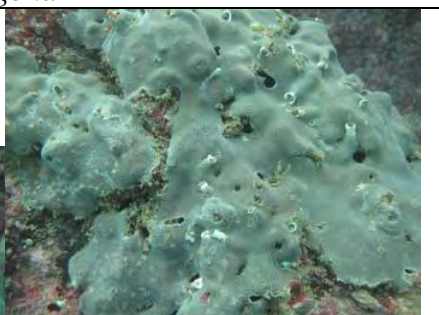


Baseline	12 <sup>th</sup> January 2012	
		
<i>16. Favia rotumana</i>		
		
<i>17. Favia favaus</i>		
		
<i>18. Favia rotumana</i>		
		
<i>19. Cyphastrea serailia</i>		
		
<i>20. Cyphastrea serailia</i>		







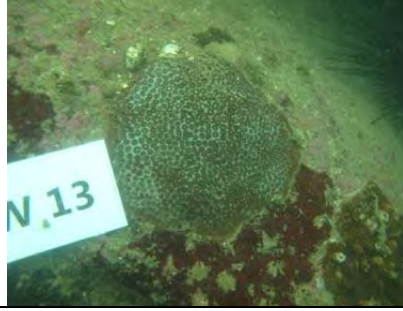




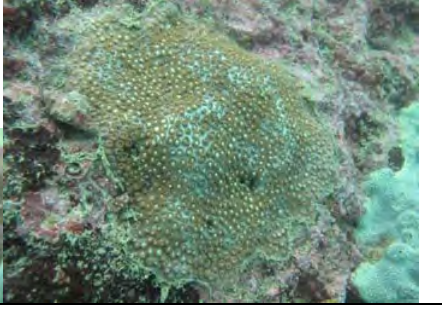

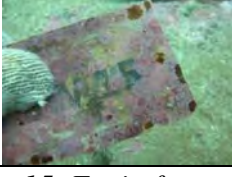



Baseline	30 <sup>th</sup> January 2012	
		
<i>01. Favia favus</i>		
		
<i>02. Favia rotumana</i>		
		
<i>03. Favia rotumana</i>		
		
<i>04. Favia favus</i>		
		
<i>05. Goniopora stutchburyi</i>		







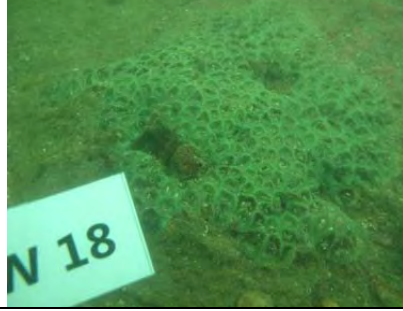




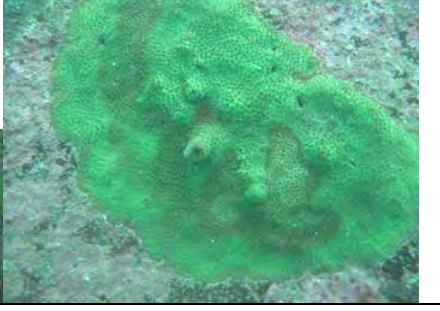





Baseline	30 <sup>th</sup> January 2012	
		
<i>06. Porites lobata</i>		
		
<i>07. Porites lobata</i>		
		
<i>08. Goniopora stutchburyi</i>		
		
<i>09. Favites pentagona</i>		
		
<i>10. Porites lobata</i>		



Baseline	30 <sup>th</sup> January 2012	
		
<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	30 <sup>th</sup> January 2012	
		
<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>		