



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.11) – JULY 2011**

PREPARED FOR
LEADER CIVIL ENGINEERING CORPORATION LIMITED

Quality Index

Date	Reference No.	Prepared By	Approved By
10 August 2011	TCS00512/09/600/R301v2		
		Nicola Hon Environmental Consultant	T.W. Tam Environmental Team Leader

Version	Date	Description
1	5 August 2011	First Submission
2	10 August 2011	Amended against IEC's comments on 9 August 2011

Scott Wilson CDM Joint Venture

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

Our reference: 05117/6/16/379765

Date: 11 August 2011

Attention: Mr. C K Au

BY FAX ONLY

Dear Sirs,

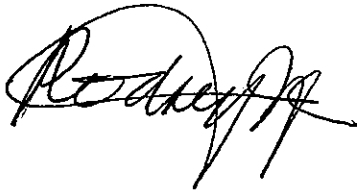
Contract No. DC/2009/13

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

Monthly Environmental Monitoring and Audit (EM&A) Report No. 11 (Jul 2011)

We refer to the Monthly EM&A Monitoring Report No. 11 for July 2011 received under cover of the email from the Environmental Team, Action-United Environmental Services and Consulting (AUES), dated on 10 August 2011. We do not have further comment and have verified the captioned report.

Yours faithfully
SCOTT WILSON CDM JOINT VENTURE



Rodney Ip

ICWR/STKW/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 **11th** monthly EM&A Report for Yung Shue Wan (hereinafter ‘this Report’) for the designated works under Environmental Permit No.EP-282/2007, covering a period from **1 to 31 July 2011** (hereinafter ‘the Reporting Period’).

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

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

Issues	Environmental Monitoring Parameters / Inspection	Occasions
Air Quality	1-hour TSP	30
	24-hour TSP	10
Construction Noise	Leq (30min) Daytime	5
Water Quality	Marine Water Sampling	12
Ecology	Coral Monitoring	4
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 Month. The statistics of environmental exceedance, NOE issued and investigation of exceedance are summarized in the following table.

Environmental Issues	Monitoring Parameters	Action Level	Limit Level	Event & Action		
				NOE Issued	Investigation	Corrective Actions
Air Quality	1-hour TSP	0	0	0	--	--
	24-hour TSP	0	0	0	--	--
Construction Noise	Leq _{30min} Daytime	0	0	0	--	--
Water Quality	DO	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

ES.04. No written or verbal complaint was recorded in this Reporting Month. The statistics of environmental complaint are summarized in the following table.

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
14 September 2010 – 31 June 2011	0	0	NA
1 – 31 July 2011	0	0	NA

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES.05. No environmental summons or successful prosecutions were recorded in this Reporting Month. The statistics of environmental complaint are summarized in the following tables.

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
14 September 2010 – 31 June 2011	0	0	NA
1 – 31 July 2011	0	0	NA

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
14 September 2010 – 31 June 2011	0	0	NA
1 – 31 July 2011	0	0	NA

REPORTING CHANGE

ES.06. There are no reporting changes in this reporting month.

SITE INSPECTION BY EXTERNAL PARTIES

ES.07. No site inspection was undertaken by external parties i.e. EPD or AFCD within the Reporting Period.

FUTURE KEY ISSUES

ES.08. During wet season, the Contractor shall pay attention on the potential water impact as the construction site is adjacent to the coastline. Muddy water and other water quality pollutants via site surface water runoff into the coral zones of Yung Shue Wan seawall, Shek Kok Tsui and O Tsai should be avoided. Therefore, mitigation measures for water quality should be fully implemented also.

ES.09. Moreover, the construction dust mitigation measures identified at the EM&A Manual such as watering at haul road and covering of dusty material should also be implemented and properly maintained during wet season.

TABLE OF CONTENTS

1	INTRODUCTION	1
	PROJECT BACKGROUND	1
	REPORT STRUCTURE	1
2	PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS	3
	PROJECT ORGANIZATION AND MANAGEMENT STRUCTURE	3
	CONSTRUCTION PROGRESS	3
	SUMMARY OF ENVIRONMENTAL SUBMISSIONS	3
3	SUMMARY OF BASELINE MONITORING REQUIREMENTS	5
	ENVIRONMENTAL ASPECT	5
	MONITORING LOCATIONS	5
	MONITORING FREQUENCY AND PERIOD	6
	MONITORING EQUIPMENT	7
	EQUIPMENT CALIBRATION	8
	METEOROLOGICAL INFORMATION	9
	DATA MANAGEMENT AND DATA QA/QC CONTROL	9
	DETERMINATION OF ACTION/LIMIT (A/L) LEVELS	9
4	IMPACT MONITORING RESULTS - AIR QUALITY	11
5	IMPACT MONITORING RESULTS – CONSTRUCTION NOISE	12
6	IMPACT MONITORING RESULTS – WATER QUALITY	13
7	IMPACT MONITORING RESULTS – ECOLOGY MONITORING	15
8	WASTE MANAGEMENT	16
9	SITE INSPECTION	17
10	ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE	18
11	IMPLEMENTATION STATUS OF MITIGATION MEASURES	19
12	IMPACT FORECAST	25
13	CONCLUSIONS AND RECOMMENDATIONS	26
	CONCLUSIONS	26
	RECOMMENDATIONS	26

LIST OF TABLES

Table 2-1	Status of Environmental Licenses and Permits
Table 2-2	Status of EM&A Programme Submission
Table 3-1	Summary of the Air and Noise monitoring parameters of EM&A Requirements
Table 3-2	Location of Air Quality Monitoring Station
Table 3-3	Location of Construction Noise Monitoring Station
Table 3-4	Location of Marine Water Quality Monitoring Station
Table 3-5	Action and Limit Levels for Air Quality Monitoring
Table 3-6	Action and Limit Levels for Construction Noise
Table 3-7	Action and Limit Levels for Marine Water Quality Monitoring
Table 3-8	Action and Limit Levels for Coral Monitoring
Table 4-1	Summary of 24-hour and 1-hour TSP Monitoring Results at AC02b
Table 4-2	Summary of 24-hour and 1-hour TSP Monitoring Results at AC04c
Table 5-1	Summarized of Construction Noise Monitoring Results at NC05
Table 6-1	Summary of Water Quality Results – Mid-ebb Tides (Dissolved Oxygen)
Table 6-2	Summary of Water Quality Results – Mid-ebb Tides (Turbidity & Suspended Solids)
Table 6-3	Summary of Water Quality Results – Mid-flood Tides (Dissolved Oxygen)
Table 6-4	Summary of Water Quality Results – Mid-flood Tides (Turbidity & Suspended Solids)
Table 6-5	Summarized Exceedances of Marine Water Quality
Table 8-1	Summary of Quantities of Inert C&D Materials
Table 8-2	Summary of Quantities of C&D Wastes
Table 9-1	Site Observations
Table 10-1	Statistical Summary of Environmental Complaints
Table 10-2	Statistical Summary of Environmental Summons
Table 10-3	Statistical Summary of Environmental Prosecution
Table 11-1	Environmental Mitigation Measures

LIST OF APPENDICES

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

1 INTRODUCTION

PROJECT BACKGROUND

- 1.01 The Leader Civil Engineering Corporation Limited (Leader) has been awarded the *Contract DC/2009/13 - Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwn Wan* (the Project) by the Drainage Services Department (DSD) on 4 May 2010. The Project is part of an overall plan approved under a statutory EIA for Outlying Islands Sewerage Stage 1 Phase 2 Package J – Sok Kwu Wan Sewage Collection and Treatment (Register No. AEIAR-075/2003) and Disposal Facilities and Outlying Islands Sewerage Stage 1 Phase 1 Package C – Yung Shue Wan Sewage Treatment Works and Outfall (Register No. EIA-124/BC). The Environmental Permit No. EP-281/2007 and EP-282/2007 for the Project have been obtained by the DSD on 29 June 2007 for the relevant works. After July 2009, EP-281/2007/A stead EP-281/2007 is EP for Sok Kwu Wan relevant Works.
- 1.02 The Project involves construction of sewage treatment works at Sok Kwu Wan and Yung Shue Wan with a capacity of 1,430m³/day and 2,850m³/day respectively to provide secondary treatment, construction of 2 pumping stations at Sok Kwu Wan and 1 pumping station at Yung Shue Wan, construction of submarine outfall from the coastline and lying of underground sewerage pipeline. The site layout plan for the captioned work under the Project is showing in *Appendix A*
- 1.03 According to the Particular Specification (PS) and *Appendix 25* of the Project, Leader should establish an Environmental Team to implement the environmental monitoring and auditing works to fulfill the requirements as stipulated in the EM&A Manual. This EM&A Manual is referred to the Appendix D of the Review Report on EIA Study – Yung Shue Wan (Final) in January 2007 (Agreement No. CE 20/2005(DS)).
- 1.04 Action-United Environmental Services and Consulting (AUES) has been commissioned by Leader as the ET to implement the relevant EM&A program. Organization chart of the Environmental Team for the Project is shown in *Appendix B*. For ease of reporting, the proposed EM&A programme for baseline and impact monitoring is spilt to following two stand-alone parts:
- (a) Proposed EM&A Programme for Baseline and Impact Monitoring – Sok Kwu Wan (under EP No. 281/2007/A varied on 23 September 2009)
 - (b) Proposed EM&A Programme for Baseline and Impact Monitoring – Yung Shue Wan (under EP No. 282/2007)
- 1.05 According to the EM&A Manuals of Sok Kwu Wan and Yung Shue Wan, baseline water quality monitoring should be carried out for consecutive six months before the marine work commencement. Therefore, the baseline reports of Sok Kwu Wan and Yung Shue Wan are divided to two volumes i.e. the Volume 1 for air quality and noise monitoring; and the Volume II for water quality monitoring for separate submission.
- 1.06 This is the **11th** monthly EM&A report for Yung Shue Portion Area which presenting the monitoring results and inspection findings in the reporting period from **1 to 31 July 2011**.

REPORT STRUCTURE

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

SECTION 1	INTRODUCTION
SECTION 2	PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS
SECTION 3	SUMMARY OF MONITORING REQUIREMENTS
SECTION 4	AIR QUALITY MONITORING RESULTS
SECTION 5	CONSTRUCTION NOISE MONITORING RESULTS
SECTION 6	WATER QUALITY MONITORING RESULTS
SECTION 7	ECOLOGY MONITORING RESULTS
SECTION 8	WASTE MANAGEMENT
SECTION 9	SITE INSPECTIONS

SECTION 10	ENVIRONMENTAL COMPLAINTS AND NON-COMPLIANCE
SECTION 11	IMPLEMENTATION STATUES OF MITIGATION MEASURES
SECTION 12	IMPACT FORECAST
SECTION 13	CONCLUSIONS AND RECOMMENDATION

2 PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

PROJECT ORGANIZATION AND MANAGEMENT STRUCTURE

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

CONSTRUCTION PROGRESS

- 2.02 The master and three month rolling construction programs are enclosed in [Appendix C](#) and the major construction activities undertaken in this Reporting Month are listed below:-
- Construction of Buttress
 - U-channel behind barrier wall bay 4
 - steel staircase on cut-slope, Switch Room
 - Genset Room
 - Fuel Tanks Room
 - Grit Chambers and Equalization Tanks
 - Excavation of Grease Separators
 - HDD works

SUMMARY OF ENVIRONMENTAL SUBMISSIONS

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

Table 2-1 Status of Environmental Licenses and Permits

Item	Description	License/Permit Status
1	Air pollution Control (Construction Dust)	Notified 19/5/2010 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-RS0084-11)	Issued on 1 Feb 2011 Valid from 21 Feb 2011 until 20 Aug 2011
6	Construction Noise Permit (no. GW-RS0624-11)	Issued on 8 July 2011 Valid from 8 July 2011 until 24 December 2011

- 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 Cora 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	Verified by IEC and submitted to

Item	EM&A Programme Submission	Status
	Wan (TCS00512/09/600/R0132Ver.3)	EPD on 17 February 2011
6	Methodology of Coral Tagging for Impact Monitoring – Yung Shue Wan	Verified by IEC and submitted to EPD on 28 March 2011
7	Coral Tagging Report (TCS00512/09/600/R0214Ver.4)	Verified by IEC and submitted to EPD on 3 August 2011

3 SUMMARY OF BASELINE MONITORING REQUIREMENTS

ENVIRONMENTAL ASPECT

- 3.01 The EM&A baseline monitoring program cover the following environmental issues:
- Air quality;
 - Construction noise;
 - Marine Water quality; and
 - Ecological 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 program are presented in the following sub-sections.

3.03 A summary of the Air, Noise, Marine Water and ecological monitoring parameters is presented in **Table 3-1**:

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

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

MONITORING LOCATIONS

Air Quality

- 3.04 Two designated monitoring stations, AC02a located at Yung Shue Wan Refuse Transfer Station and AC04 located at residential area nearby Yung Shue Wan football pitch, were recommended in the *EM&A Manual Section 2.5*. In order to identify and seek for the access of the air monitoring locations designated in the EM&A Manual, site visit was conducted by Leader and ET.
- 3.05 At the site visit, all designated monitoring locations were identified however the premises for high volume sampler installation were objected by the owner or the residents of nearby. So, an alternative air monitoring locations were proposed in accordance with the criteria set out in *EM&A manual Section 2.5.2 and 2.5.3*. The proposed alternative air monitoring stations was accepted by the ER and IEC, and EPD endorsed. Details of renewed air monitoring stations are described in **Table 3-2**. The graphical of air monitoring stations is shown in **Appendix D**.

Table 3-2 Location of Air Quality Monitoring Station

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

Construction Noise

- 3.06 According to *EM&A Manual Section 3.4*, one noise sensitive receivers (NC05) designated for the construction noise monitoring was recommended at Yung Shue Wan Portion Area of the Project. The designated monitoring station is identified and successfully granted the premises. The detailed construction noise monitoring station is described in **Table 3-3** and graphical is shown in **Appendix D**.

Table 3-3 Location of Construction Noise Monitoring Station

Sensitive Receiver	Location
NC05	Roof of North Lamma Clinic

Marine Water Quality

- 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: Leq (30min) & Leq (5min), L10 and L90.

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

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

Duration: Throughout the construction period.

Marine Water Quality Monitoring

Parameters: Duplicate in-situ measurements: water depth, temperature, Dissolved Oxygen, pH, turbidity and salinity;

HOKLAS-accredited laboratory analysis: Suspended Solids

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

Sampling Depth (i.) Three depths: 1m below water surface, 1m above sea bottom and at mid-depth when the water depth exceeds 6m.

(ii.) If the water depth is between 3m and 6m, two depths: 1m below water surface and 1m above sea bottom.

(iii.) If the water depth is less than 3m, 1 sample at mid-depth is taken

Duration: During the course of marine works

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 – Ecological 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⁻¹.

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⁻¹ 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 SS 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 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 Dissolved Oxygen 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 program in the Reporting Month 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 program.

3.31 The monitoring data recorded in the equipment e.g. 1-hour TSP meter, noise meter and Multi-parameter Water Quality Monitoring System, are downloaded directly from the equipments at the end of each monitoring day. The downloaded monitoring data are input into a computerized database properly maintained by the ET. The laboratory results are input directly into the computerized database and QA/QC checked by personnel other than those who input the data. For monitoring activities require laboratory analysis, the local laboratory follows the QA/QC requirements as set out under the HOKLAS scheme for all laboratory testing.

DETERMINATION OF ACTION/LIMIT (A/L) LEVELS

3.32 According to the Sok Kwu 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

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 Monitoring

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
Suspended Solids (Depth-Average)	Action Level	17.52	14.04	14.52

Parameter (mg/L)	Performance Criteria	Impact Station		
		WY1	WY2	WY3
	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 program was begun as compliance with the contract Particular Specification, Yung Shue Wan EM&A Manual and the EP.

Result

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

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

Date	24-hour TSP ($\mu\text{g}/\text{m}^3$)	1-hour TSP ($\mu\text{g}/\text{m}^3$)				
		Date	Start Time	1 st hour measured	2 nd hour measured	3 rd hour measured
4-Jul-11	68	5-Jul-11	10:30	72	84	75
9-Jul-11	22	11-Jul-11	10:15	77	86	64
15-Jul-11	46	15-Jul-11	13:39	43	52	39
21-Jul-11	32	21-Jul-11	10:51	54	59	61
27-Jul-11	35	27-Jul-11	13:12	52	46	54
Average (Range)	41 (22 – 68)	Average (Range)		61 (39 – 86)		

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 st hour measured	2 nd hour measured	3 rd hour measured
4-Jul-11	17	5-Jul-11	10:35	82	85	78
9-Jul-11	36	11-Jul-11	10:20	88	84	77
15-Jul-11	27	15-Jul-11	13:36	52	57	46
21-Jul-11	55	21-Jul-11	11:04	53	57	58
27-Jul-11	44	27-Jul-11	13:07	53	59	49
Average (Range)	36 (17 – 55)	Average (Range)		65 (46 – 88)		

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

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

5 IMPACT MONITORING RESULTS – CONSTRUCTION NOISE

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

Result

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

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

Date	Start Time	End Time	1 st set Leq5	2 nd set Leq5	3 rd set Leq5	4 th set Leq5	5 th set Leq5	6 th set Leq5	Leq30	Corrected Leq30*
5-Jul-11	11:28	11:58	61.4	57.7	59.4	56.7	57.3	60.6	59.2	62.2
11-Jul-11	10:30	11:00	56.3	54.7	51.8	52.5	52.2	51.7	53.6	56.6
15-Jul-11	11:03	11:33	57.2	60.7	54.7	56.7	53.9	55.6	57.1	60.1
21-Jul-11	11:47	12:17	60.6	57.7	57.0	62.6	56.1	56.5	59.1	62.1
27-Jul-11	14:05	14:35	56.8	55.9	59.2	60.1	54.7	55.6	57.5	60.5
Limit Level									-	75 dB(A)

* 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 month.

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, 12 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 **22.47 to 33.50** ppt, and pH value was within **7.66 to 8.78**.
- 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	DO conc. of Depth Ave. of Surf. and Mid Layer (mg/L)					DO conc. of Depth Ave. of Bottom Layer (mg/L)				
	WY1	WY2	WY3	CY1	CY2	WY1	WY2	WY3	CY1	CY2
2-Jul-11	7.39	6.60	7.51	6.66	6.68	6.70	4.19	6.52	3.47	6.70
5-Jul-11	8.76	7.70	8.46	6.00	7.54	8.02	3.87	7.90	2.60	8.02
7-Jul-11	10.57	7.50	10.13	7.54	10.48	9.88	4.84	9.12	2.18	9.88
9-Jul-11	9.86	9.92	8.76	7.72	9.05	6.62	3.28	4.18	2.55	6.62
11-Jul-11	7.70	7.72	7.73	6.29	4.82	6.83	4.45	5.90	2.01	6.83
13-Jul-11	7.11	6.49	5.80	7.20	5.24	3.69	3.03	5.00	2.43	3.69
15-Jul-11	8.24	8.35	8.79	7.62	8.06	7.78	6.98	7.33	5.69	7.78
19-Jul-11	7.41	8.27	7.72	8.09	8.06	7.07	5.14	7.27	4.17	7.07
21-Jul-11	7.18	7.19	6.14	5.32	5.53	5.37	3.37	3.86	3.02	5.37
23-Jul-11	8.20	6.75	10.42	6.99	6.57	7.40	4.10	7.23	3.53	7.40
25-Jul-11	7.32	7.01	8.47	6.46	6.18	6.54	3.60	6.08	4.23	6.54
27-Jul-11	5.62	5.00	5.50	5.29	5.34	4.41	3.49	4.18	2.24	4.41
29-Jul-11	Monitoring was cancelled due to inclement weather									

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

Sampling date	Turbidity Depth Ave. (NTU)					SS Depth Ave. (mg/L)				
	WY1	WY2	WY3	CY1	CY2	WY1	WY2	WY3	CY1	CY2
2-Jul-11	3.13	2.52	2.82	2.76	3.07	4.30	3.53	5.00	5.57	4.33
5-Jul-11	2.84	2.19	2.57	2.01	2.93	9.70	8.37	7.05	4.87	3.93
7-Jul-11	3.09	2.18	2.56	1.98	2.92	6.60	4.60	4.55	8.50	6.77
9-Jul-11	7.18	8.23	6.38	9.07	8.90	6.00	6.47	5.15	4.47	4.87
11-Jul-11	8.78	7.70	10.68	7.42	7.08	5.20	2.83	8.60	6.43	4.80
13-Jul-11	8.15	6.68	6.28	6.65	6.12	4.20	3.63	2.30	3.27	5.80
15-Jul-11	9.18	6.52	7.30	6.73	5.78	3.40	2.97	4.55	3.23	4.80
19-Jul-11	6.60	6.08	5.85	7.13	6.70	3.50	3.27	5.05	3.00	2.87
21-Jul-11	6.23	9.97	9.78	7.12	11.67	2.50	3.83	5.05	2.80	5.27
23-Jul-11	6.10	6.57	8.13	6.60	8.42	7.25	10.10	7.30	3.37	3.33
25-Jul-11	8.58	6.70	8.10	8.72	9.65	6.50	4.33	7.00	7.33	6.00
27-Jul-11	3.95	3.03	3.14	2.93	4.17	2.55	1.30	1.95	2.00	1.50
29-Jul-11	Monitoring was cancelled due to inclement weather									

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

Sampling date	DO conc. of Depth Ave. of Surf. and Mid Layer (mg/L)					DO conc. of Depth Ave. of Bottom Layer (mg/L)				
	WY1	WY2	WY3	CY1	CY2	WY1	WY2	WY3	CY1	CY2
2-Jul-11	7.19	7.38	7.65	5.91	6.70	6.27	5.92	6.14	4.62	5.70
5-Jul-11	5.67	7.36	7.37	4.47	5.71	4.98	4.51	6.08	1.78	2.62
7-Jul-11	5.76	7.36	7.04	4.47	6.52	5.67	4.51	6.08	1.78	3.37
9-Jul-11	9.35	8.25	8.82	8.24	6.93	3.74	3.43	5.64	3.61	1.38
11-Jul-11	6.37	5.69	5.89	5.09	5.08	6.01	2.93	6.46	1.96	1.15
13-Jul-11	6.37	6.07	7.90	5.07	4.59	5.10	4.50	4.72	3.48	2.18
15-Jul-11	7.92	8.07	8.20	6.33	6.19	6.79	7.06	7.95	4.78	4.41
19-Jul-11	8.68	6.42	7.06	5.58	5.13	5.36	4.07	5.04	3.20	3.26
21-Jul-11	6.41	6.97	7.17	6.23	6.40	6.59	3.63	5.70	2.13	1.35
23-Jul-11	8.63	6.65	7.52	6.68	5.51	6.36	3.12	5.95	3.26	2.62
25-Jul-11	8.76	7.86	8.71	5.25	5.60	5.50	3.50	6.62	2.36	3.56
27-Jul-11	5.71	5.35	5.79	5.50	5.43	4.24	3.58	4.34	2.73	2.68
29-Jul-11	Monitoring was cancelled due to inclement weather									

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

Sampling date	Turbidity Depth Ave. (NTU)					SS Depth Ave. (mg/L)				
	WY1	WY2	WY3	CY1	CY2	WY1	WY2	WY3	CY1	CY2
2-Jul-11	2.34	2.02	2.59	2.40	2.47	11.70	4.23	8.75	4.00	4.70
5-Jul-11	2.81	2.32	2.93	2.90	3.13	4.50	3.60	3.95	3.60	4.13
7-Jul-11	2.74	2.32	2.94	2.92	3.12	7.05	4.83	7.35	5.53	5.47
9-Jul-11	6.28	9.15	6.28	7.30	8.35	6.00	12.40	4.55	4.20	4.90
11-Jul-11	7.70	10.18	7.25	10.48	8.10	13.10	4.50	9.60	6.10	3.87
13-Jul-11	8.40	7.12	8.83	12.22	9.82	2.65	1.97	1.30	2.67	3.53
15-Jul-11	5.75	7.78	7.15	7.82	8.03	3.40	2.77	1.55	3.67	4.27
19-Jul-11	8.65	8.37	7.18	8.90	12.03	4.60	3.37	3.40	3.03	5.87
21-Jul-11	7.18	8.50	2.73	6.82	5.15	2.60	2.30	1.90	1.67	2.80
23-Jul-11	9.05	7.97	7.48	6.97	9.45	6.80	6.40	5.90	3.20	2.43
25-Jul-11	7.63	10.77	9.75	8.63	9.28	8.50	5.67	5.20	3.67	4.67
27-Jul-11	3.72	3.19	4.20	3.95	4.16	2.60	1.43	1.75	0.93	1.87
29-Jul-11	Monitoring was cancelled due to inclement weather									

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
Mid-Ebb										
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
Mid-Flood										
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
No of Exceedance	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 month. Therefore, no associated corrective actions were then required. Besides, due to inclement weather and marine condition (refer to Appendix I), the monitoring works scheduled on 29 July 2011 was cancelled. The cancellation of the monitoring has been notified to the Contractor, RE and IEC by at the same day.

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 Since the construction of marine outfall works was commenced on 9 May 2011, impact coral monitoring is required accordingly. In this reporting period, impact coral monitoring have been conducted on **7, 14, 22 and 28 July 2011** by the marine ecologist. The impact coral monitoring report for this reporting month 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 ³)	0	Tuen Mun Area 38
Reused in this Contract (Inert) ('000m ³)	0	-
Reused in other Projects (Inert) ('000m ³)	0	-
Disposal as Public Fill (Inert) ('000m ³)	0.824	Tuen Mun Area 38

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

Type of Waste	Quantity	Disposal Location
Recycled Metal (kg)	0	-
Recycled Paper / Cardboard Packing (kg)	0	-
Recycled Plastic (kg)	0	-
Chemical Wastes (kg)	0	-
General Refuses (tonne)	5.0	Yung Shue Wan RTS

8.04 There was no site effluent discharged but the estimated volume of surface runoff was less than 50m³ 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 **5, 12, 19 and 26 July 2011** and a joint-site visit by IEC, RE, Leader and ET was carried out on **19 July 2011**.
- 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

Date	Findings / Deficiencies	Follow-Up Status
5 July 2011	<ul style="list-style-type: none">Stagnant water was accumulated on the roof of building structure. The Contractor should drain away stagnant water or apply larvicidal oil to avoid mosquito breeding.	The stagnant water was found to be removed on 12 July 2011.
12 July 2011	<ul style="list-style-type: none">No environmental issue was observed during the site inspection.	N.A
19 July 2011	<ul style="list-style-type: none">No environmental issue was observed during the site inspection.	N.A
26 July 2011	<ul style="list-style-type: none">No environmental issue was observed during the site inspection.	N.A

10 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

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

Table 10-1 Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
14 Sep – 30 April 2011	0	0	NA
1 – 31 May 2011	0	0	NA
1 – 30 June 2011	0	0	NA
1 – 31 July 2011	0	0	NA

Table 10-2 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
14 Sep – 30 April 2011	0	0	NA
1 – 31 May 2011	0	0	NA
1 – 30 June 2011	0	0	NA
1 – 31 July 2011	0	0	NA

Table 10-3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
14 Sep – 30 April 2011	0	0	NA
1 – 31 May 2011	0	0	NA
1 – 30 June 2011	0	0	NA
1 – 31 July 2011	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 program.
 - Mobile plant, if any, should be sited as far away from NSRs as possible.
 - Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.
 - Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.
 - Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.

Water Quality Mitigation Measure

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

- 11.05 During the dredging works, the Contractor should be responsible for the design and implementation of the following mitigation measures.
- Dredging should be undertaken using closed grab dredgers with a total production rate of 55m³/hr;
 - Deployment of 2-layer silt curtains with first layer enclosing the grab and the second layer at around 50, from the dredging area while dredging works are in progress;
 - all vessels should be sized such that adequate clearance (i.e. minimum clearance of 0.6m) is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;
 - all pipe leakages should be repaired promptly and plant shall not be operated with leaking pipes;
 - excess material should be cleaned from the decks and exposed fittings of barges before the vessel is moved;
 - adequate freeboard (i.e. minimum of 200m) should be maintained on barges to ensure that decks are not washed by wave action;
 - all barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material; and
 - loading of barges and hoppers should be controlled to prevent splashing of dredged material to the surrounding water, and barges and hoppers should not be filled to a level which would cause the overflow of materials or sediment laden water during loading or transportation; and
 - the decks of all vessels should be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard.

Construction Run-off and Drainage

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

General Construction Activities

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

Wastewater Arising from Workforce

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

Sediment Contamination Mitigation Measure

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

Construction Waste Mitigation Measure

Good Site Practices and Waste Reduction Measures

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

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

General Site Wastes

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

Chemical Wastes

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

Construction and Demolition Material

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

Ecology Mitigation Measure

- 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 Month are summarized in [Table 11-1](#).

Table 11-1 Environmental Mitigation Measures

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

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

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

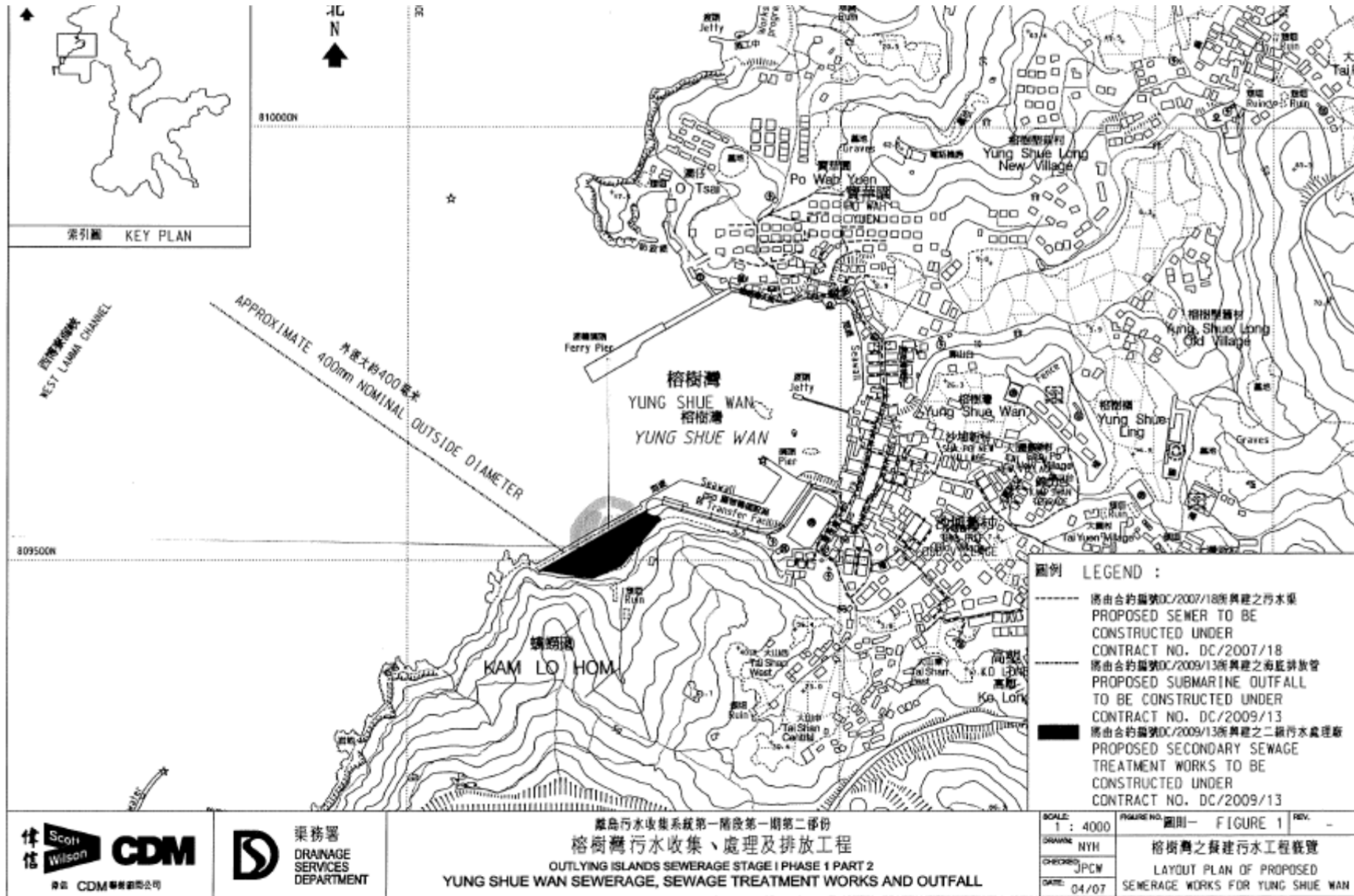
- 13.01 This is the **11th** Monthly EM&A Report covering the construction period from **1 to 31 July 2011** (the Reporting Period).
- 13.02 No 1-hour TSP and 24-TSP monitoring result was found to be triggered the Action or Limit Level in this Reporting Period.
- 13.03 No noise complaint (an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in this reporting month.
- 13.04 No exceedance of Action/Limit level was recorded in marine water monitoring in this reporting month.
- 13.05 No exceedance of Action/Limit level was recorded in coral monitoring in this reporting month.
- 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 **5, 12, 19 and 26 July 2011**. Besides, a joint-site visit by IEC, RE, Leader and ET was carried out on **19 July 2011**. All the observation has been rectified during the next week site inspection. The environmental performance of the Project was therefore considered as satisfactory.

RECOMMENDATIONS

- 13.08 During wet season, the Contractor shall pay attention on the potential water impact as the construction site is adjacent to the coastline. Muddy water and other water quality pollutants via site surface water runoff into the coral zones of Yung Shue Wan seawall, Shek Kok Tsui and O Tsai should be avoided. Therefore, mitigation measures for water quality should be fully implemented.
- 13.09 Moreover, the construction dust mitigation measures identified at the EM&A Manual such as watering at haul road and covering of dusty material should also be implemented and properly maintained in wet season.

Appendix A

Site Layout Plan – Yung Shue Wan Portion Area



Appendix B

Organization Structure and Contact Details of Relevant Parties

Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
DSD	Employer	Mr. AU Chi Kwong	-	-
SCJV	Engineer's Representative	Mr. Neil Wong	2982 0240	2982 4129
SCJV	Resident Engineer (Yung Shue Wan Portion Area)	Mr. Alfred Cheung	2982 0240	2982 4129
Scott Wilson	Independent Environmental Checker	Mr. Rodney Ip	2410 3750	2428 9922
Leader	Project Manager	Mr. Vincent Chan	2982 1750	2982 1163
Leader	Site Agent	Mr. Stephen Leung	2982 1750	2982 1163
Leader	Environmental Officer	Mr. K.Y. So	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

Legend:

DSD (Employer) – Drainage Services Department

CDM (Engineer) – Scott Wilson CDM Joint Venture

Leader (Main Contractor) – Leader Civil Engineering Corporation Limited

Scott Wilson (IEC) – Scott Wilson Limited

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

Appendix C

A Master and Three Months Rolling Construction Programs

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors
ESM0320	Form 314 Submission to FSD	14	0	29/08/11	11/09/11	15/04/12	28/04/12	230d	EAM0230	EAM0325, EAM0370
ESM0325	Submission to WSD	14	0	12/09/11	25/09/11	29/04/12	12/05/12	230d	EAM0320	EAM0670, EAM0950
ESM0350	Form 501 Submission to FSD (PS1 & PS2)	28	0	09/10/11	05/11/11	18/01/14	14/02/14	832d	EAM2016	

Yung Shue Wan

Preliminary										
YSW0020	Approval of Environmental Team	16	100	17/05/10 A	01/06/10 A	17/05/10 A	01/06/10 A		KD0020	YSW0003, YSW0010
YSW0030	Baseline monitoring (Air & Noise)	14	100	31/07/10 A	07/08/10 A	31/07/10 A	07/08/10 A		YSW0030	YSW0120, YSW0152, YSW0300
YSW0040	Baseline monitoring (Water)	213	100	30/07/10 A	31/12/10 A	30/07/10 A	31/12/10 A		YSW0030	YSW0050
YSW0050	Erect Hoarding and Fencing	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A			

Section W1 - Slope Works in Portion A & C

YSW0075	Mobilization	30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A		KD0020	YSW0110
YSW0080	Site Clearance	30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A			YSW0085, YSW0120
YSW0085	Initial Survey	14	100	02/05/10 A	15/06/10 A	02/06/10 A	15/06/10 A		YSW0080	YSW0120
YSW0090	Verify the Rock Boulder required Stabilization Wk	30	100	19/07/10 A	21/03/11 A	19/07/10 A	21/03/11 A			YSW0100, YSW0110
YSW0100	Removal of Rock Boulder	280	85	20/03/10 A	31/07/11	20/09/10 A	15/08/11	15d	YSW0075, YSW0090	YSW0150
YSW0110	Stabilizing work for rockboulder	280	0	20/05/11	25/03/12	09/11/10	15/08/11	-223d	YSW0090	YSW0150
YSW0120	Cut the slope to design profile	100	100	13/09/10 A	14/09/10 A	13/09/10 A	14/09/10 A		YSW0030, YSW0090, YSW0085	YSW0131, YSW0165
YSW0131	Mobilization of Plant and Material of Soil Nails	20	100	01/09/10 A	14/09/10 A	01/09/10 A	14/09/10 A		YSW0120	YSW0132
YSW0132	Erect Scaffold and Working Platform	20	100	15/09/10 A	16/09/10 A	15/09/10 A	16/09/10 A		YSW0131	YSW0133
YSW0133	Setting out and Verify Locations of Soil Nails	10	100	14/09/10 A	31/10/10 A	14/09/10 A	31/10/10 A		YSW0132	YSW0134
YSW0134	Drilling and Soil Nails Installation	20	100	08/10/10 A	19/11/10 A	08/10/10 A	19/11/10 A		YSW0133	YSW0135
YSW0135	Construction of Nail Heads	10	100	24/11/10 A	01/12/10 A	24/11/10 A	01/12/10 A		YSW0134	YSW0136
YSW0136	Mesh Installation on Cut Slope	10	100	04/12/10 A	04/12/10 A	04/12/10 A	04/12/10 A		YSW0135	YSW0137
YSW0137	Hydroseeding	30	0	31/05/11	23/06/11	10/04/11	09/05/11	-51d	YSW0136	YSW0140
YSW0140	Construction of U-channels, Catch Pit on slope	120	80	02/04/11 A	11/07/11	02/04/11 A	21/05/11	-51d	YSW0137	YSW0150
YSW0165	Construction of Barrier Wall (below Ground Lev)	240	92	10/09/10 A	19/06/11	10/09/10 A	21/05/11	-28d	YSW0120	YSW0150, YSW0154, YSW0165

Section W2 - YSW STW & Submarine Outfall

Civil & Structural Work										
YSW0412	Mobilization	30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A		KD0020	YSW0422
YSW0422	Site Clearance	30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A		KD0020, YSW0412	YSW0432, YSW0500, YSW0510
YSW0432	Initial Survey	14	100	02/05/10 A	15/06/10 A	02/06/10 A	15/06/10 A		YSW0422	YSW0510
YSW STP - GLH - T										
YSW0500	ELS & Excavation for Inlet Pumping Station	62	100	17/03/10 A	16/12/10 A	17/03/10 A	16/12/10 A		YSW0330, YSW0422	YSW0510
YSW0510	Sub-structure construction (Inlet Pumping Str)	30	100	17/12/10 A	04/04/11 A	17/12/10 A	04/04/11 A		YSW0432, YSW0500	YSW0520
YSW0520	Backfill & Remove ELS (Inlet Pumping Str)	30	100	03/01/11 A	05/05/11 A	03/01/11 A	05/05/11 A		YSW0510	YSW0530, YSW0610
YSW0530	ELS & Excavation for Equalization Tank	40	100	11/01/11 A	09/06/11 A	11/01/11 A	08/06/11 A		YSW0520	YSW0640
YSW0540	Sub-structure construction (Equalization Tank)	40	0	31/05/11	09/07/11	25/11/10	03/01/11	-167d	YSW0530	YSW0550
YSW0550	Backfilling & Remove ELS (Equalization Tank)	40	0	10/07/11	18/08/11	04/01/11	12/02/11	-167d	YSW0540	YSW0570
YSW0570	Excavate to formation by open cut	30	0	18/08/11	17/08/11	13/02/11	14/03/11	-167d	YSW0550	YSW0680
YSW0580	Base slab construction	30	0	18/09/11	17/10/11	15/03/11	13/04/11	-187d	YSW0570	YSW0690
YSW STP - GLT - X										
YSW0610	Excavate to formation	50	100	08/09/10 A	17/08/10 A	08/09/10 A	17/09/10 A		YSW0330, YSW0422, YSW0520	YSW0630
YSW0620	Base slab construction	60	100	18/09/10 A	23/05/11 A	18/09/10 A	23/05/11 A		YSW0610	YSW0630
YSW0630	G/F to 1/F construction	95	85	27/12/10 A	14/06/11	27/12/10 A	08/05/11	-35d	YSW0620	YSW0640
YSW0640	1/F to Roof Construction	91	0	14/06/11	13/09/11	09/05/11	07/08/11	-35d	YSW0630	YSW0810, YSW0940
YSW0810	ABWF Installation	100	0	24/07/11	01/11/11	18/06/11	25/09/11	-35d	YSW0640	EAM0610, EAM0620, EAM0630
YSW STP - GL F - H & DN Tanks										
YSW0650	ELS & Excavation for DN Tanks	72	100	21/08/10 A	14/10/10 A	21/08/10 A	14/10/10 A		YSW0330, YSW0422	YSW0660
YSW0660	Sub-structure construction (DN Tanks)	44	100	15/10/10 A	31/12/10 A	15/10/10 A	31/12/10 A		YSW0650	YSW0670
YSW0670	Backfill & Remove ELS (DN Tanks)	32	100	08/01/11 A	15/03/11 A	08/01/11 A	15/03/11 A		YSW0660	YSW0690
YSW0680	Base slab construction	30	100	28/03/11 A	28/03/11 A	28/03/11 A	28/03/11 A		YSW0670	YSW0690
YSW0690	Superstructure construction upto + 10.5mPD	60	80	30/03/11 A	11/06/11	30/03/11 A	16/01/11	-146d	YSW0680	YSW0700, YSW0820
YSW0700	Apply protective paint	35	0	12/06/11	16/07/11	17/01/11	20/02/11	-146d	YSW0690	YSW0710
YSW0710	Water test	30	0	17/07/11	16/08/11	21/02/11	22/03/11	-146d	YSW0700	EAM0510, EAM0630, EAM0640
YSW0820	ABWF Installation	65	0	12/06/11	15/08/11	17/01/11	22/03/11	-146d	YSW0680	EAM0510, EAM0630, EAM0640

Start date 05/05/10
 Finish date 18/12/14
 Data date 31/05/11
 Run date 16/06/11
 Page number 2A

- Green bar: Early tax
- Blue bar: Progress bar
- Red bar: Critical bar
- Grey bar: Summary bar
- Blue triangle: Progress point
- Red triangle: Critical point
- Grey triangle: Summary point
- Star: Start milestone point
- Circle with X: Work milestone point

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

Date	Revision	Checked	Approved
31/05/11	Revision 0	SLL	VC

(Marked on 31 May 2011)

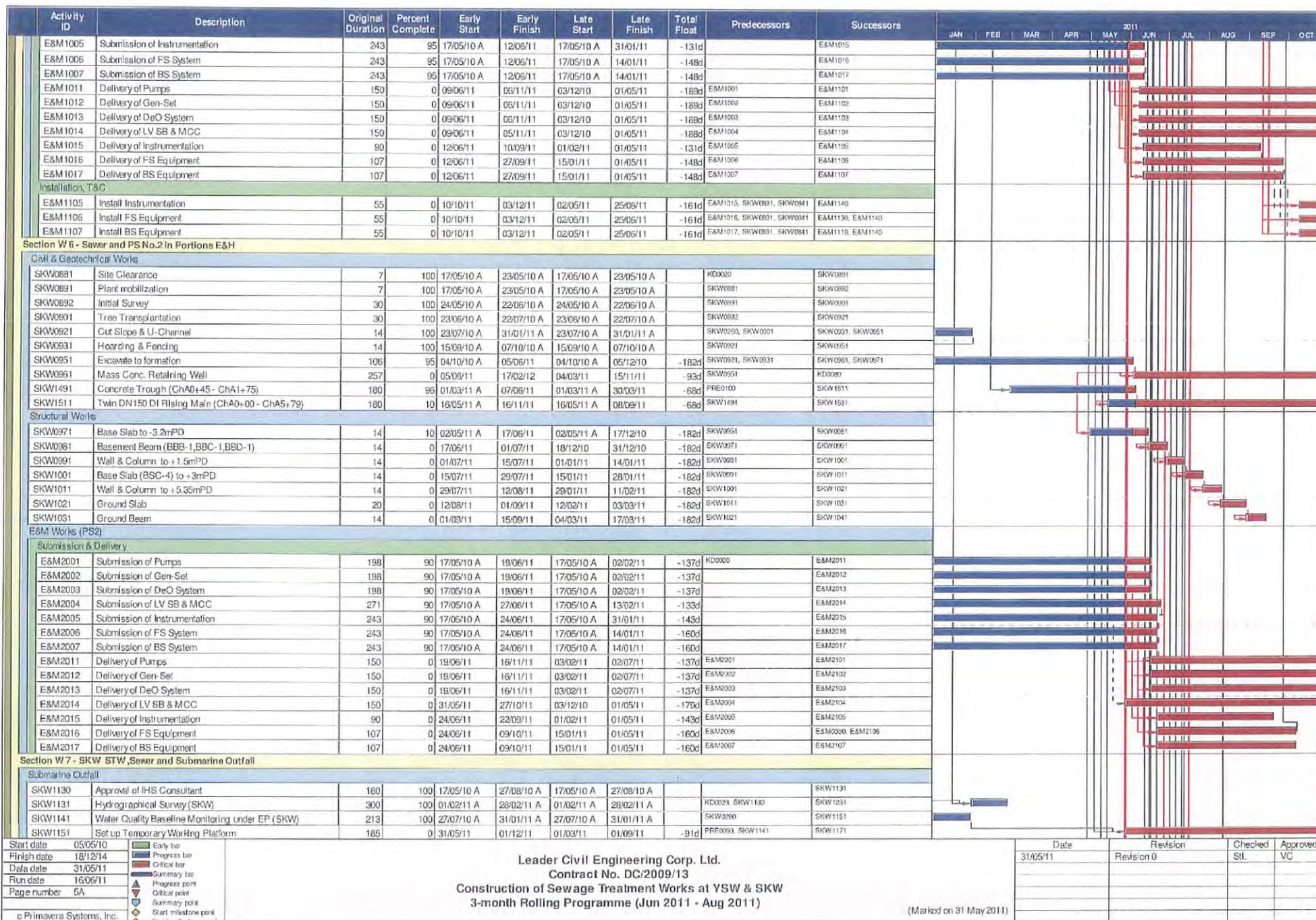
Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	
Fire Hose Reel / Sprinkler Pump Rm																					
YSW0340	ELS & excavate to formation (+0 MPD approx)	30	0	13/09/11	13/10/11	01/09/11	30/09/11	-12d	YSW0300, YSW0322, YSW0340	YSW0350											
Road, Drain, Cable Draw Pits & Ducting																					
YSW0152	Temporary Diversion of Drainage	92	100	02/12/10 A	09/05/11 A	02/12/10 A	09/05/11 A		YSW0030	YSW0153, YSW0154											
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											
YSW0154	Construction of Subsoil Drain	90	0	19/06/11	17/09/11	08/10/11	05/01/12	11d	YSW0152, YSW0153, YSW0155	YSW0155											
Submarine Outfall																					
YSW0180	Coordination of HEC	53	100	17/05/10 A	08/07/10 A	17/05/10 A	08/07/10 A			YSW0350											
YSW0200	Submission and Approval of Ecologist	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A			YSW0310											
YSW0210	Ecology Survey	90	100	16/07/10 A	11/02/11 A	16/07/10 A	11/02/11 A		YSW0300	YSW0350											
YSW0220	Submission and Approval of In. I Hydro Survey	90	100	17/05/10 A	27/08/10 A	17/05/10 A	27/08/10 A			YSW0330											
YSW0230	Hydrographical Survey (YSW)	45	100	31/08/10 A	31/01/11 A	31/08/10 A	31/01/11 A		YSW0320	YSW0350											
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			YSW0350											
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											
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											
YSW0270	Additional G.I. Boreholes (YSW)	62	100	05/11/10 A	19/01/11 A	05/11/10 A	19/01/11 A		YSW0250	YSW0280, YSW0320											
YSW0280	Submission of propose alignment to the Eng	14	100	02/02/11 A	04/03/11 A	02/02/11 A	04/03/11 A		YSW0270	YSW0290, YSW0310, YSW0340											
YSW0290	Submission of Marine Notice	60	100	31/01/11 A	29/03/11 A	31/01/11 A	29/03/11 A		YSW0280	YSW0350											
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		YSW0290	YSW0320, YSW0330											
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		YSW0310, YSW0320, YSW0310	YSW0330, YSW0350											
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											
YSW0340	Setting up at drillhole location	7	100	19/04/11 A	28/04/11 A	19/04/11 A	28/04/11 A		YSW0330, YSW0350, YSW0290	YSW0350											
YSW0350	Drill pilot hole and rearing hole - NS400 - 530m	123	33	29/04/11 A	21/09/11	29/04/11 A	16/05/11	-65d	YSW0340, YSW0310, YSW0320	YSW0360											
E&M Works - YSW-STP																					
E&M0360	Delivery of MBR Memb. Mod. (MBR Tk4)	150	0	31/05/11	27/10/11	24/10/10	22/03/11	-219d	E&M0160	E&M0510											
E&M0370	Delivery of MBR Membrane Modules - 2nd Shipment	150	0	31/05/11	27/10/11	29/09/11	25/02/12	121d	E&M0160	E&M0320											
E&M0380	Delivery of Grit Removal Equipment	180	0	28/07/11	24/01/12	29/05/11	24/11/11	-61d	E&M0150	E&M0530											
E&M0390	Delivery of Coarse Screens	162	0	13/07/11	22/12/11	02/04/11	10/09/11	-103d	E&M0110	E&M0540											
E&M0400	Delivery of Fine Screens	180	0	28/07/11	24/01/12	29/05/11	24/11/11	-61d	E&M0120	E&M0550											
E&M0410	Delivery of Pumps	162	0	28/07/11	06/01/12	02/04/11	10/09/11	-118d	E&M0130	E&M0560											
E&M0420	Delivery of Submersible Mixers	162	0	28/08/11	07/12/11	01/07/11	09/12/11	3d	E&M0140	E&M0570											
E&M0440	Delivery of Sludge Dewatering Equipment	180	0	28/07/11	24/01/12	02/04/11	28/09/11	-118d	E&M0170	E&M0580											
E&M0450	Delivery of Valves, Pipes & Fittings	180	0	28/07/11	24/01/12	28/07/11	23/01/12	-1d	E&M0180	E&M0590, E&M0600											
E&M0460	Delivery of Penstocks	160	0	28/07/11	24/01/12	11/07/11	05/01/12	-18d	E&M0190	E&M0630											
E&M0470	Delivery of Instruments	180	0	28/07/11	24/01/12	08/11/11	05/05/12	103d	E&M0210	E&M0610											
E&M0480	Delivery of MCC LV/SB	177	0	28/07/11	21/01/12	02/04/11	25/09/11	-118d	E&M0210	E&M0620											
E&M0490	Delivery of BS Equipment	180	0	30/07/11	25/01/12	30/08/11	25/02/12	31d	E&M0220	E&M0650											
E&M0500	Delivery FS Equipment	180	0	29/08/11	24/02/12	27/09/11	24/03/12	29d	E&M0230	E&M0630, E&M0640											
Sok Kwu Wan																					
Preliminary																					
SKW0250	Approval of Environmental Team	16	100	17/05/10 A	01/06/10 A	17/05/10 A	01/06/10 A		K0000	SKW0250											
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, SKW0282, SKW0261											
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			SKW0242											
SKW0242	Excavation to formation for Bay 1 to 5	57	100	16/06/10 A	11/08/10 A	16/06/10 A	11/08/10 A		SKW0241, SKW0260	SKW0251											
SKW0251	Drill & Install Dowel Bar for Bay 0 & 4	21	100	02/08/10 A	01/09/10 A	02/08/10 A	01/09/10 A		SKW0242	SKW0260											
SKW0301	Erect Formwork, mesh & weephole for Bay 0 & 2	14	100	02/09/10 A	15/09/10 A	02/09/10 A	15/09/10 A		SKW0251	SKW0311											
SKW0311	Concreting for Bay 0 & 2	14	100	16/09/10 A	29/09/10 A	16/09/10 A	29/09/10 A		SKW0301	SKW0321											
SKW0321	Drilling & Install Dowel Bar for Bay 4 & 6	7	100	20/09/10 A	05/10/10 A	30/09/10 A	05/10/10 A		SKW0311	SKW0331											
SKW0331	Erect Formwork, mesh & weephole for Bay 4 & 6	7	100	07/10/10 A	13/10/10 A	07/10/10 A	13/10/10 A		SKW0321	SKW0341											
SKW0341	Concreting for Bay 4 & 6	7	100	14/10/10 A	20/10/10 A	14/10/10 A	20/10/10 A		SKW0331	SKW0351											
SKW0351	Excavation to formation for Bay 7 to 9	21	100	21/10/10 A	10/11/10 A	21/10/10 A	10/11/10 A		SKW0341	SKW0361											
SKW0361	Erect Formwork, mesh weephole for Bay 1, 3 & 5	6	100	11/11/10 A	18/11/10 A	11/11/10 A	16/11/10 A		SKW0351	SKW0371											

Start date	05/05/10		Early bar
Finish date	18/12/14		Progress bar
Date date	31/05/11		Critical bar
Run date	16/06/11		Summary bar
Page number	3A		Progress point
			Critical point
			Summary point
			Start milestone point
			End 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 (Jun 2011 - Aug 2011)

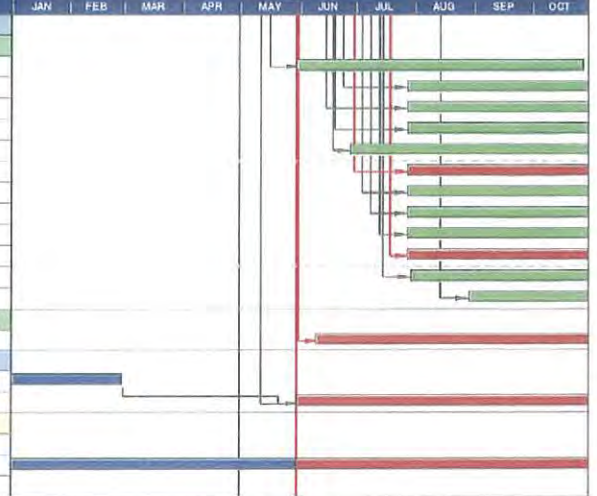
Date	Revision	Checked	Approved
31/05/11	Revision 0	STL	VC

(Marked on 31 May 2011)



(Marked on 31 May 2011)

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2011										
											JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	
SKW STW																					
Submission & Delivery (E&M)																					
E&M3010	Delivery of MBR M.M. - 1st shipment for Temp STP	150	0	31/05/11	27/10/11	24/04/13	20/09/13	694d	E&M0100	E&M3170											
E&M3030	Delivery of Grit Removal Equipment	180	0	28/07/11	24/01/12	31/08/11	28/02/12	34d	E&M0150	E&M3180											
E&M3060	Delivery of Fine Screens	136	0	28/07/11	11/12/11	15/08/11	28/12/11	18d	E&M0120	E&M3210											
E&M3070	Delivery of Pumps	136	0	28/07/11	11/12/11	15/08/11	28/12/11	18d	E&M0130	E&M3220											
E&M3080	Delivery of Submersible Mixers	180	0	28/06/11	25/12/11	15/09/11	12/03/12	79d	E&M0140	E&M3230											
E&M3090	Delivery of Sludge Dewatering Equipment	210	0	28/07/11	23/02/12	18/07/11	12/02/12	-11d	E&M0170	E&M3240											
E&M3100	Delivery of Valves, Pipes & Fittings	180	0	28/07/11	24/01/12	05/02/13	03/08/13	558d	E&M0180	E&M3250											
E&M3110	Delivery of Penstocks	180	0	28/07/11	24/01/12	18/02/13	16/08/13	571d	E&M0190	E&M3260											
E&M3130	Delivery of Instruments	180	0	28/07/11	24/01/12	04/05/13	30/10/13	646d	E&M0200	E&M3270											
E&M3140	Delivery of MCC LVSB	180	0	28/07/11	24/01/12	09/05/11	04/11/11	-81d	E&M0210	E&M3280											
E&M3150	Delivery of BS Equipment	180	0	30/07/11	25/01/12	20/02/13	18/08/13	571d	E&M0220	E&M3291											
E&M3160	Delivery of FS Equipment	180	0	29/08/11	24/02/12	14/01/12	11/07/12	138d	E&M0230	E&M0540, E&M3300											
Construction of Grid A-G																					
SKW1261	Excavate for SKW STW Structure (Grid A-G)	164	0	10/05/11	21/11/11	14/02/11	27/07/11	-117d	SKW0551	SKW1271, SKW1371											
Rising Main																					
SKW1481	Subm, Approval & Delivery of DI pipes	120	100	17/05/10 A	28/02/11 A	17/05/10 A	28/02/11 A		KD0020	SKW1501											
SKW1501	Concrete Trough (ChB0+00 - ChB1+20)	300	0	31/05/11	25/03/12	14/09/10	10/07/11	-259d	PRE0100, SKW1481	SKW1521											
Section W8- Landscape Softworks in All Portions																					
SKW1591	Tree Survey	21	100	17/05/10 A	06/06/10 A	17/05/10 A	06/06/10 A		KD0020	SKW1621											
SKW1611	Preservation & Protection of Trees	822	46	17/05/10 A	16/08/12	17/05/10 A	15/08/12	-1d	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	18/12/14		Progress bar
Data date	31/05/11		Critical bar
Run date	16/06/11		Summary bar
Page number	6A		Progress point
			Critical point
			Summary point
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			End milestone point

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

(Marked on 31 May 2011)

Date	Revision	Checked	Approved
31/05/11	Revision 0	SIL	VC

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2011											
											JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT		
Project Key Date																						
KD0010	Receive Letter of Acceptance	0	100		05/05/10 A		05/05/10 A			KD0125												
KD0020	Project Commencement Date	0	100		17/05/10 A		17/05/10 A			E&M0010, E&M0070, E&M1001,												
KD0050	Section W3 - Footpath Diversion in Ptn G (273d)	0	0		10/06/11		13/02/11 *	-117d	SKW0551	KD0125												
+Preliminary (Civil)																						
		191	100	17/05/10 A	23/11/10 A	17/05/10 A	23/11/10 A		K00020													
Preliminary (E&M)																						
Technical Submission																						
+Process Design of SKWSTW & YSWSTW																						
		398	90	17/05/10 A	18/06/11	17/05/10 A	30/08/11	12d														
+Hydraulic Design																						
		333	91	15/07/10 A	13/06/11	15/07/10 A	30/08/11	18d														
+Equipment Submission & Approval																						
		469	54	17/05/10 A	28/08/11	17/05/10 A	07/11/11	71d														
+Drawings Submission & Approval																						
		401	75	24/06/10 A	29/07/11	24/06/10 A	30/07/11	1d														
+Statutory Submission																						
		189	0	29/08/11	04/03/12	01/07/11	14/02/14	712d														
Yung Shue Wan																						
+Preliminary																						
		220	100	17/05/10 A	31/12/10 A	17/05/10 A	31/12/10 A															
+Section W 1 - Slope Works in Portion A & C																						
		679	69	17/05/10 A	25/03/12	17/05/10 A	15/08/11	-223d														
Section W 2 - YSW STW & Submarine Outfall																						
+Civil & Structural Work																						
		533	57	17/05/10 A	01/11/11	17/05/10 A	05/01/12	86d														
+Submarine Outfall																						
		461	91	17/05/10 A	21/08/11	17/05/10 A	15/08/11	-65d														
+E&M Works - YSW STP																						
		270	0	31/05/11	24/02/12	24/10/10	05/05/12	71d														
Sok Kwu Wan																						
+Preliminary																						
		30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A															
Section W 3 - Footpath Diversion in Portion G																						
+Civil & Geotechnical Works																						
		390	96	17/05/10 A	10/06/11	17/05/10 A	10/05/11	-117d														
Section W 4 - Slope Works in Portions H & I																						
+Geotechnical Works																						
		610	38	15/05/10 A	14/02/12	15/06/10 A	15/08/11	-193d														
Section W 5 - P.S. No. 1 in Portion D																						
+Civil & Geotechnical Works																						
		319	100	17/05/10 A	31/03/11 A	17/05/10 A	31/03/11 A															
+Structural Works																						
		341	1	20/04/11 A	25/03/12	01/01/11 A	15/11/11	-131d														
E&M Works (PS1)																						
+Submission & Delivery																						
		539	59	17/05/10 A	08/11/11	17/05/10 A	01/05/11	-189d														
+Installation, T&C																						
		55	0	10/10/11	03/12/11	02/05/11	25/06/11	-161d														
Section W 6 - Sewer and PS No.2 in Portions E&H																						
+Civil & Geotechnical Works																						
		641	48	17/05/10 A	17/02/12	17/05/10 A	15/11/11	-93d														
+Structural Works																						
		132	1	02/05/11 A	15/09/11	18/12/10 A	17/03/11	-182d														

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Finish date	18/12/14		Progress bar
Data date	31/05/11		Critical bar
Run date	16/06/11		Summary bar
Page number	1A		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 (Jun 2011 - Aug 2011)

Outline (P.1 of 2) Marked on 31 May 2011

Date	Revision	Checked	Approved
31/05/11	Revision 0	SL	VC

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2011											
											JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT		
E&M Works (PS2)																						
	+Submission & Delivery	549	57	17/05/10 A	16/11/11	17/05/10 A	02/07/11	-137d														
Section W 7 - SKW STW, Sewer and Submarine Outfall																						
	+Submarine Outfall	564	79	17/05/10 A	01/12/11	17/05/10 A	01/09/11	-91d														
SKW STW																						
	+Submission & Delivery (E&M)	270	0	31/05/11	24/02/12	09/05/11	30/10/13	614d														
	+Construction of Grid A-G	164	0	10/06/11	21/11/11	14/02/11	27/07/11	-117d														
	+Rising Main	679	29	17/05/10 A	25/03/12	17/05/10 A	10/07/11	-250d														
+Section W B - Landscape Softworks in All Portions																						
		823	51	17/05/10 A	16/08/12	17/05/10 A	15/08/12	-1d														

Start date	05/05/10		Early bar
Finish date	18/12/14		Progress bar
Data date	31/05/11		Critical bar
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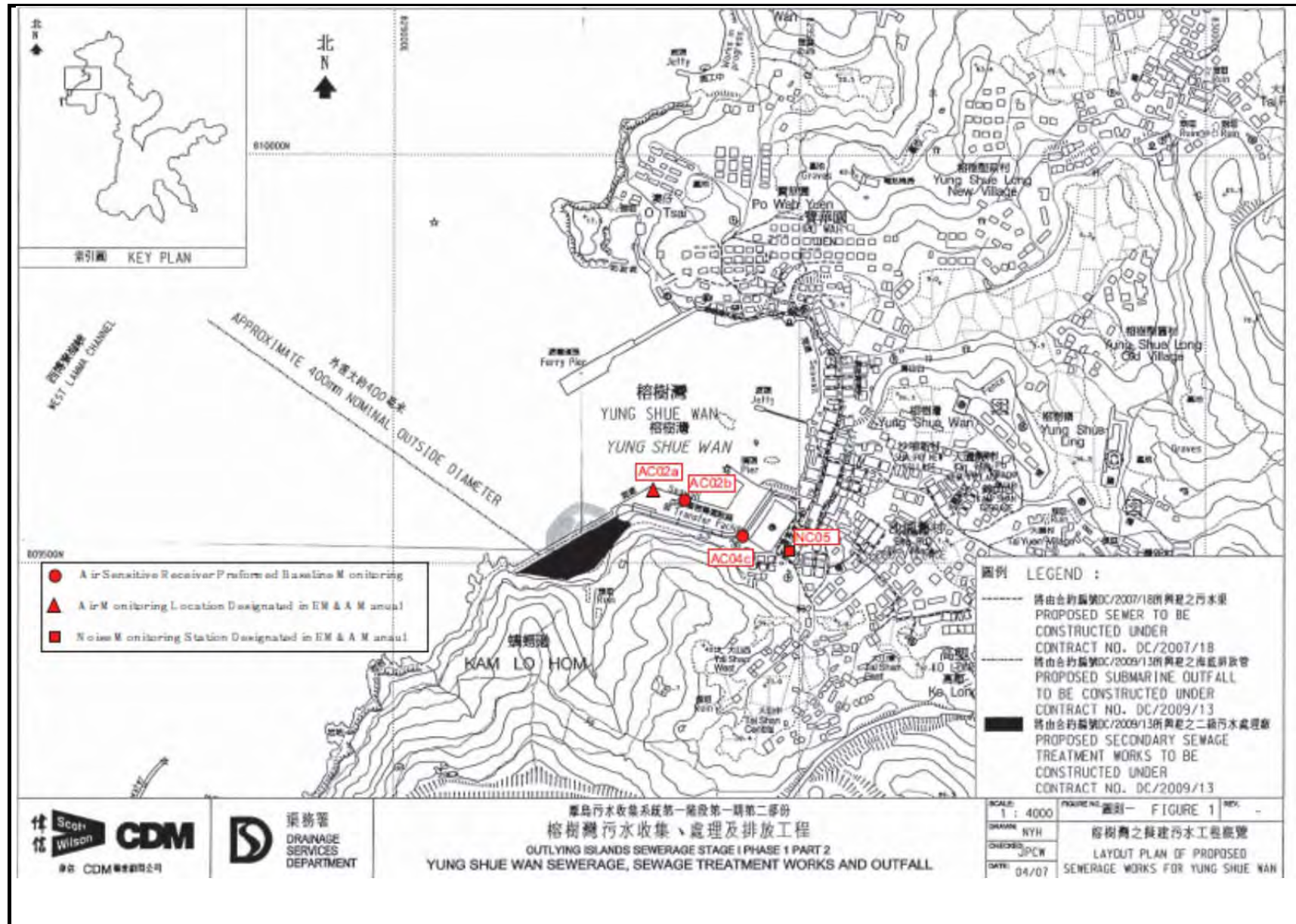
Leader Civil Engineering Corp. Ltd.
 Contract No. DC/2009/13
 Construction of Sewage Treatment Works at YSW & SKW
 3-month Rolling Programme (Jun 2011 - Aug 2011)

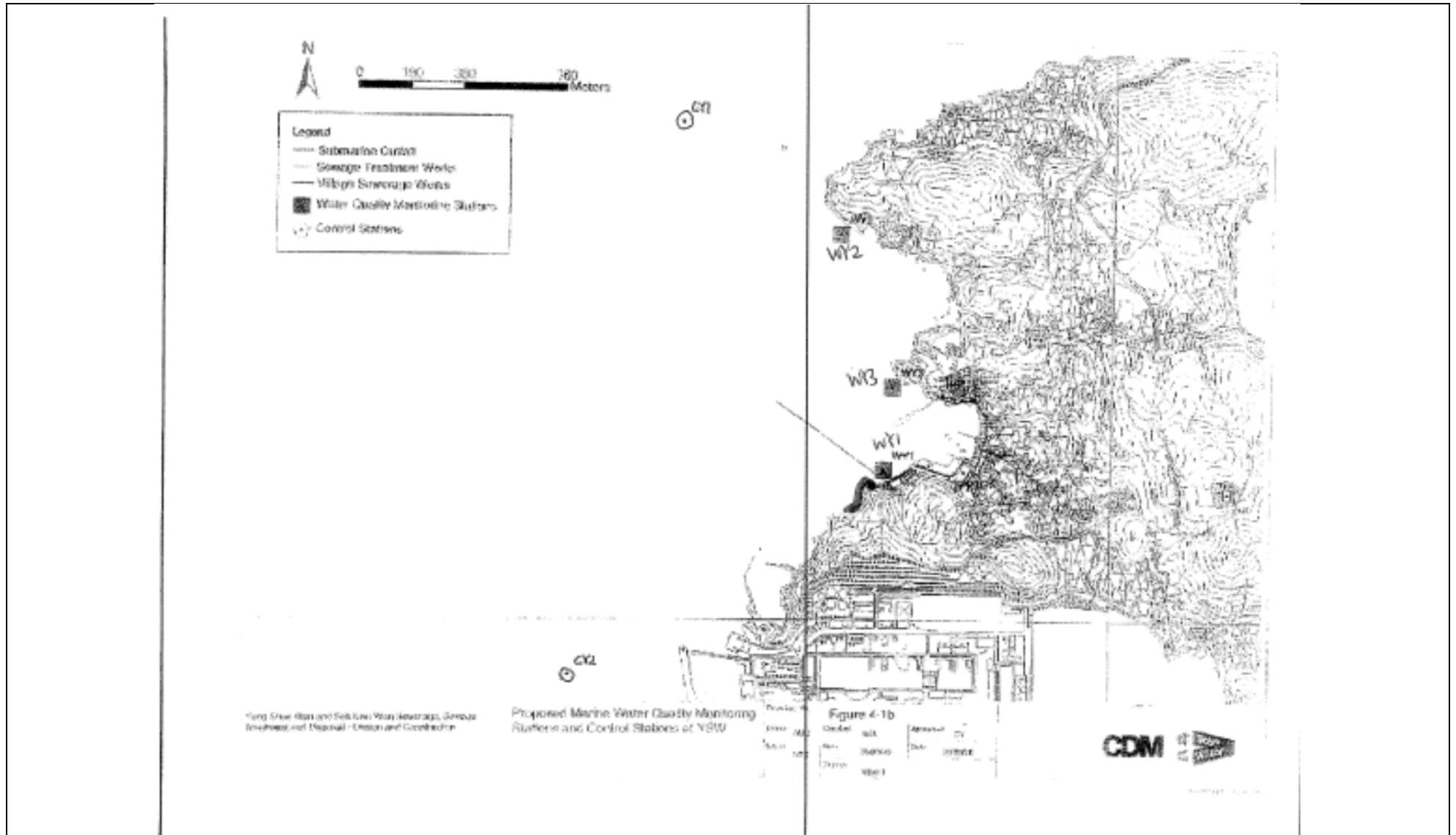
Outline (P1 fr) (Marked on 31 May 2011)

Date	Revision	Checked	Approved
31/05/11	Revision 0	StL	VC

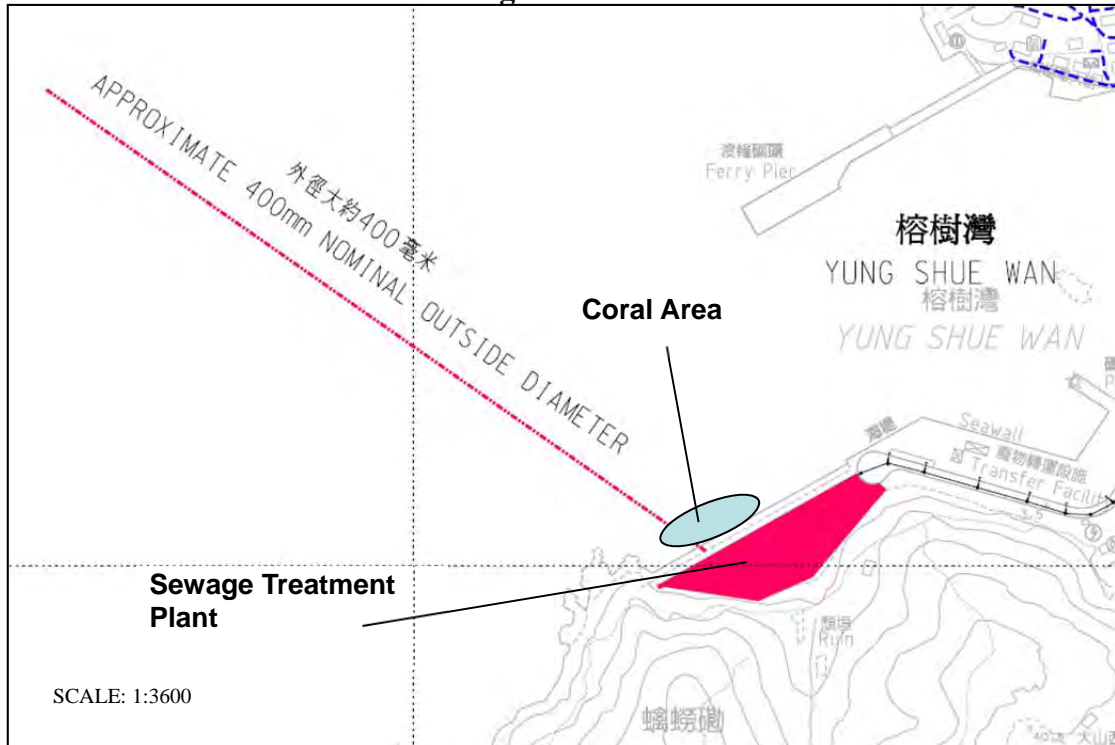
Appendix D

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

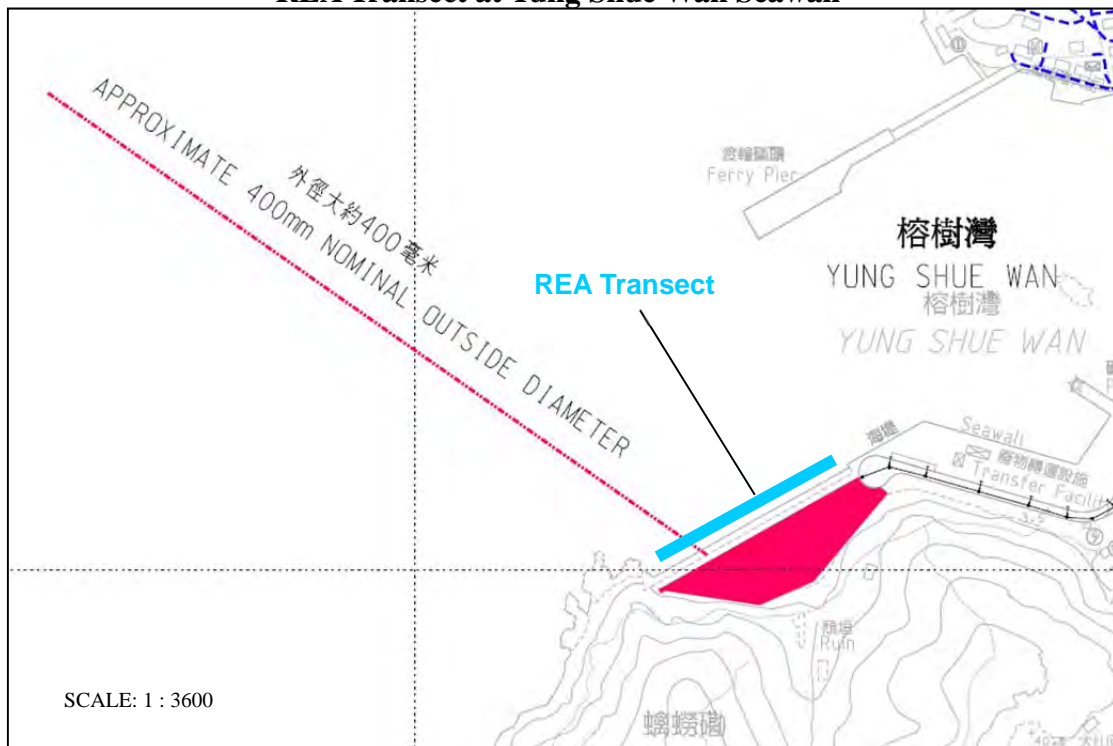




Coral Area at Yung Shue Wan Seawall



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 Rootsometer 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)	ORFICE 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 = SQRT[H2O(Pa/760) (298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

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

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

For subsequent flow rate calculations:

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

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

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : YSW RE Offices
 Location ID : AC02b

Date of Calibration: 1-Jun-11
 Next Calibration Date: 1-Aug-11
 Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1006.6	Corrected Pressure (mm Hg)	754.95
Temperature (°C)	27.9	Temperature (K)	301

CALIBRATION ORIFICE

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

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.3	5.3	10.6	1.615	58	57.25	Slope = 29.3177 Intercept = 9.9817 Corr. coeff. = 0.9997
13	4.2	4.2	8.4	1.438	53	52.31	
10	3.3	3.3	6.6	1.275	48	47.38	
7	2.1	2.1	4.2	1.017	40	39.48	
5	1.4	1.4	2.8	0.831	35	34.55	

Calculations :

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

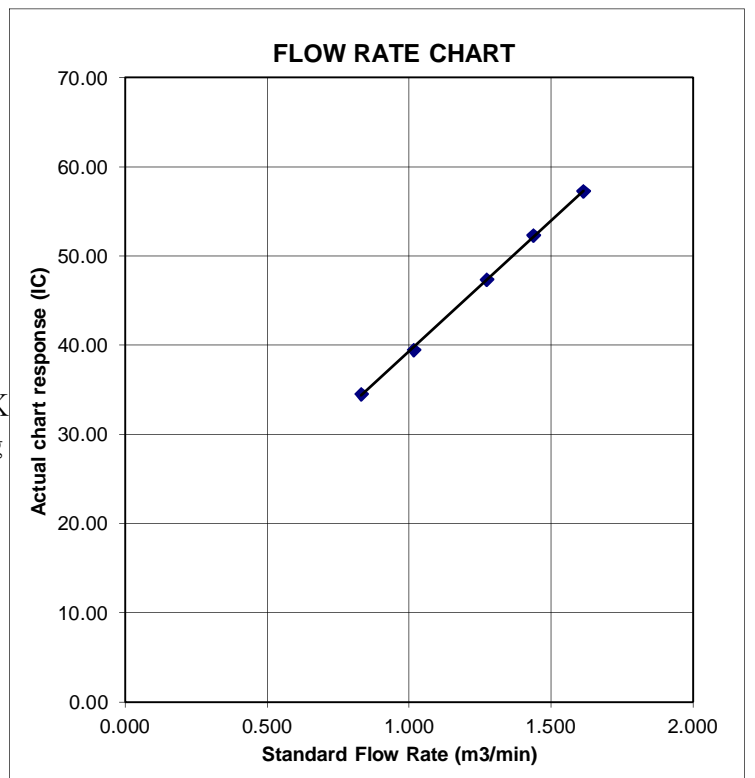
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

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: 1-Jun-11
 Next Calibration Date: 1-Aug-11
 Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1006.6	Corrected Pressure (mm Hg)	754.95
Temperature (°C)	27.9	Temperature (K)	301

CALIBRATION ORIFICE

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

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.1	5.1	10.2	1.584	59	58.24	Slope = 31.4030 Intercept = 8.2771 Corr. coeff. = 0.9996
13	4.2	4.2	8.4	1.438	54	53.30	
10	3.3	3.3	6.6	1.275	49	48.37	
7	2.6	2.6	5.2	1.132	44	43.43	
5	1.5	1.5	3	0.860	36	35.53	

Calculations :

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

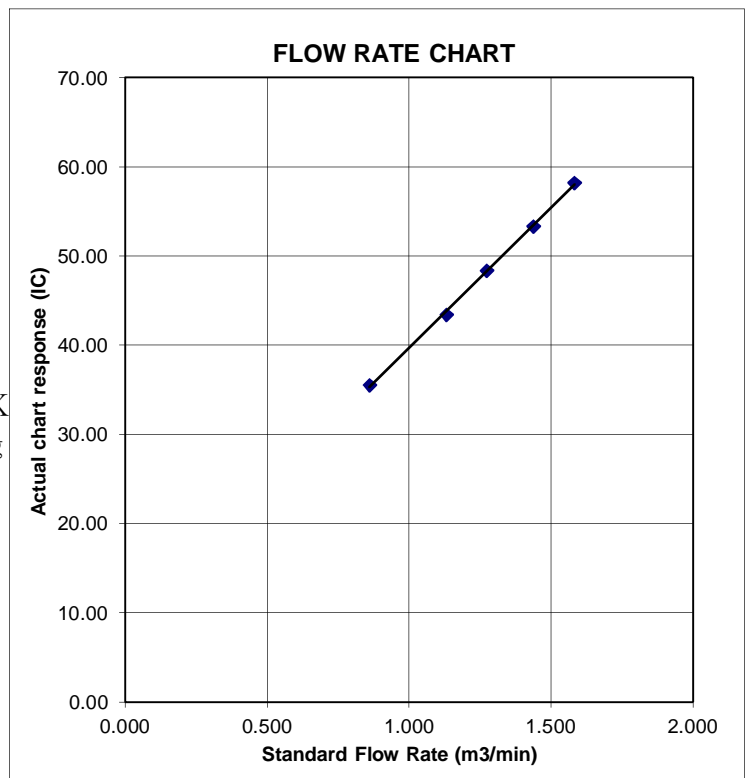
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

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



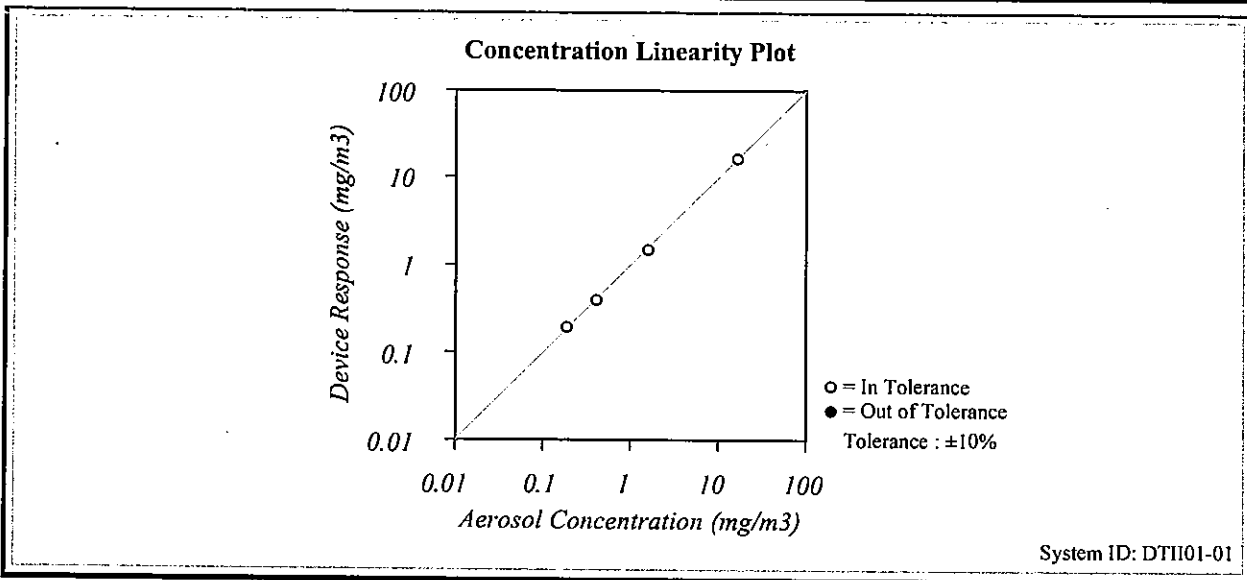


CERTIFICATE OF CALIBRATION AND TESTING

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

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



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

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

Rao Vang
Calibrated

Final Function
Check

August 17, 2010

Date

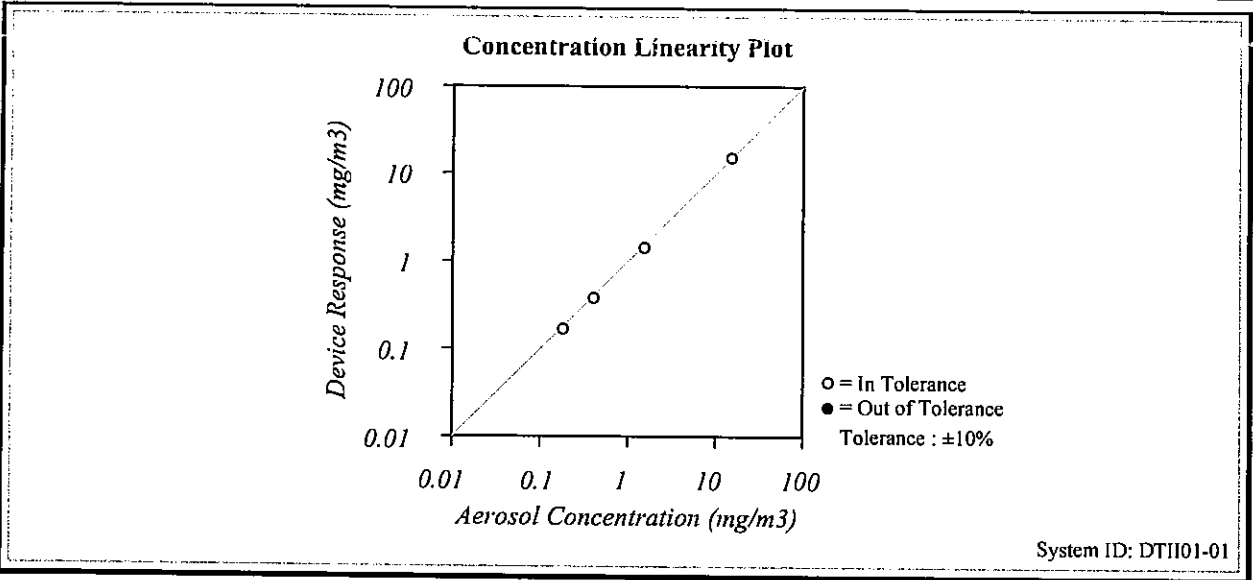


CERTIFICATE OF CALIBRATION AND TESTING

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

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

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



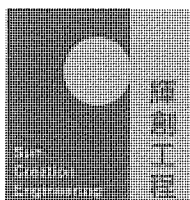
TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required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

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

Soua H.
Calibrated

Final Function
Check

August 6, 2010
Date



輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : 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.*

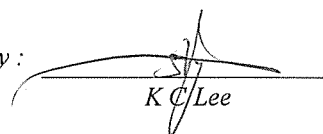
The equipment is supplied by

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

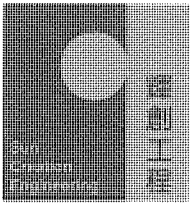
c/o 4/F, Tsing Shan Wan Exchange Building, I Hing On Lane, Tuen Mun, New Territories, Hong Kong

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

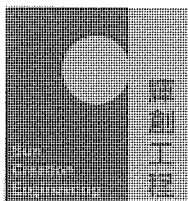
Date : 19 April 2011

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

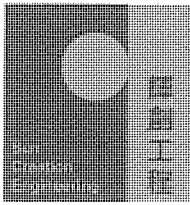
UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L _{AFP}	A	F	94.00	1	94.0	± 0.7

6.1.2 Linearity

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

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

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 _{AFP}	A	F	94.00	1	94.0	Ref.
	L _{ASP}		S			94.0	± 0.1
	L _{AIP}		I			94.1	± 0.1

6.2.2 Tone Burst Signal (2 kHz)

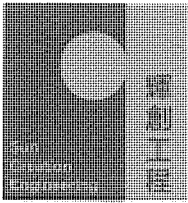
UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L _{AFP}	A	F	106.0	Continuous	106.0	Ref.
	L _{AFMax}				200 ms	105.0	-1.0 ± 1.0
	L _{ASP}	S	Continuous		106.0	Ref.	
	L _{ASMax}		500 ms		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 _{AFP}	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 _{CFP}	C	F	94.00	31.5 Hz	91.1	-3.0 ± 1.5
					63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	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 _{Aeq}	A	10 sec.	4	1	1/10	110.0	100	99.9	± 0.5		
								1/10 ²	90	89.6	± 0.5	
								60 sec.	1/10 ³	80	79.3	± 1.0
								5 min.	1/10 ⁴	70	69.9	± 1.0

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

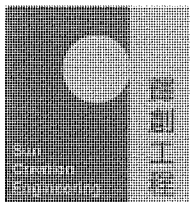
- Uncertainties of Applied Value :
 - 94 dB : 31.5 Hz - 125 Hz : ± 0.40 dB
 - 250 Hz - 500 Hz : ± 0.30 dB
 - 1 kHz : ± 0.20 dB
 - 2 kHz : ± 0.40 dB
 - 4 kHz : ± 0.50 dB
 - 8 kHz : ± 0.70 dB
 - 12.5 kHz : ± 1.20 dB
 - 104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
 - 114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)
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

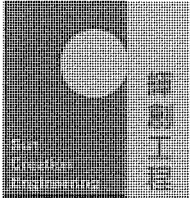
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong

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

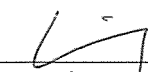
TEST RESULTS

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

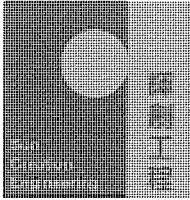
Tel: 2927 2606

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: HK1110511
LABORATORY: HONG KONG
DATE RECEIVED: 09/05/2011
DATE OF ISSUE: 13/05/2011

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 / 02K0788AA
Equipment No.: --
Date of Calibration: 11 May, 2011

NOTES

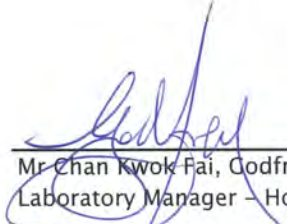
This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

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


Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

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Page 1 of 3

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1110511
 Date of Issue: 13/05/2011
 Client: ACTION UNITED ENVIRO SERVICES



Description: YSI Sonde
 Brand Name: YSI
 Model No.: YSI 6820 / 650MDS
 Serial No.: 02J0912 / 02K0788AA
 Equipment No.: --
 Date of Calibration: 11 May, 2011

Date of next Calibration: 11 August, 2011

Parameters:

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

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
4.18	4.13	-0.05
5.70	5.74	0.04
8.36	8.43	0.07
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)
4.00	4.09	0.09
7.00	6.85	-0.15
10.00	10.11	0.11
Tolerance Limit (\pm unit)		0.20

Salinity

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

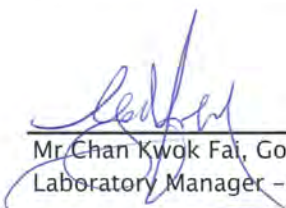
Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0.0	0.00	--
10.0	10.19	1.9
20.0	20.81	4.0
30.0	31.09	3.6
Tolerance Limit (\pm %)		10.0

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)
10.5	12.0	1.5
25.5	25.3	-0.2
46.0	44.2	-1.8
Tolerance Limit ($^{\circ}$ C)		2.0


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

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1110511
Date of Issue: 13/05/2011
Client: ACTION UNITED ENVIRO SERVICES



Description: YSI Sonde
Brand Name: YSI
Model No.: YSI 6820 / 650MDS
Serial No.: 02J0912 / 02K0788AA
Equipment No.: --
Date of Calibration: 11 May, 2011

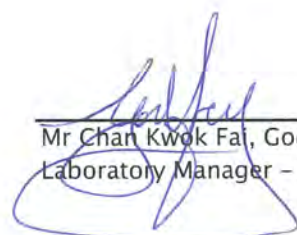
Date of next Calibration: 11 August, 2011

Parameters:

Turbidity

Method Ref: APHA 21st Ed. 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.0	--
4	3.8	-5.0
10	10.5	5.0
20	21.4	7.0
50	47.7	-4.6
100	96.4	-3.6
	Tolerance Limit (±%)	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	IC(E)	ER	CONTRACTOR
	ET			
ACTION LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IC(E) and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IC(E) and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IC(E) and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IC(E) and ER; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Submit proposals for remedial to ER within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.
LIMIT LEVEL				
1. Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IC(E) within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Notify IC(E), ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IC(E) and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IC(E), agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 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. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IC(E) within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Construction Noise

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

Water Quality

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

Coral Monitoring

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

Appendix G

Monitoring Data Sheet

24-hour TSP Monitoring Results - AC02b

Date of Calibration: 1-Jun-11 Slope = 29.3177
 Next Calibration Date: 1-Aug-11 Intercept = 9.9817

DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP (oC)	STANDARD			INITIAL FILTER WEIGHT (g)	FINAL FILTER WEIGHT (g)	WEIGHT DUST COLLECTED (g)	DUST 24-hour TSP IN AIR (ug/m ³)
		INITIAL	FINAL	ACTUAL (min)	MIN	MAX	AVG		AVG PRESS (hPa)	FLOW RATE (m3/min)	AIR VOLUME (std m3)				
4-Jul-11	23769	4046.48	4070.22	1424.40	31	34	32.5	29.7	1009.1	0.76	1078	2.7872	2.8604	0.0732	68
9-Jul-11	23941	4070.22	4095.95	1543.80	29	32	30.5	29.8	1003.6	0.69	1060	2.9753	2.9988	0.0235	22
15-Jul-11	23889	4095.95	4119.81	1431.60	30	35	32.5	26.5	1002.2	0.76	1087	2.7646	2.8148	0.0502	46
21-Jul-11	23929	4119.81	4143.35	1412.40	31	34	32.5	28.6	1004.6	0.76	1069	2.9826	3.0163	0.0337	32
27-Jul-11	23971	4143.35	4167.22	1432.20	29	35	32.0	30.2	1007.1	0.74	1057	2.9847	3.0221	0.0374	35

24-hour TSP Monitoring Results - AC04c

Date of Calibration: 1-Jun-11 Slope = 31.4030
 Next Calibration Date: 1-Aug-11 Intercept = 8.2771

DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP (oC)	STANDARD			INITIAL FILTER WEIGHT (g)	FINAL FILTER WEIGHT (g)	WEIGHT DUST COLLECTED (g)	DUST 24-hour TSP IN AIR (ug/m ³)
		INITIAL	FINAL	ACTUAL (min)	MIN	MAX	AVG		AVG PRESS (hPa)	FLOW RATE (m3/min)	AIR VOLUME (std m3)				
4-Jul-11	23892	6613.48	6638.18	1482.00	32	34	33.0	29.7	1009.1	0.78	1151	2.7523	2.7719	0.0196	17
9-Jul-11	23942	6638.18	6662.77	1475.40	30	33	31.5	29.8	1003.6	0.73	1072	2.9899	3.028	0.0381	36
15-Jul-11	23924	6662.77	6686.62	1431.00	31	35	33.0	26.5	1002.2	0.78	1115	2.9896	3.0193	0.0297	27
21-Jul-11	23930	6686.62	6710.08	1407.60	29	34	31.5	28.6	1004.6	0.73	1026	3.0022	3.0583	0.0561	55
27-Jul-11	23973	6710.08	6733.76	1420.80	29	33	31.0	30.2	1007.1	0.71	1012	2.9863	3.0313	0.0450	44

Contract No. DC/2009/13

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



Yung Shue Wan

Date 2-Jul-11

Date / Time	Location	Tide	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	°C	mg/L	%	NTU	ppt	unit	mg/l
2011/2/7 12:38:14	WY1	ME	829166	809548	5.2	1.050	28.70	7.80	102.3	2.9	23.63	8.33	4
2011/2/7 12:38:19						1.070	28.60	6.98	102.4	2.9	23.60	8.35	
2011/2/7 12:38:30						4.200	28.40	6.96	102.2	3.2	24.65	8.44	4.6
2011/2/7 12:38:35						4.200	28.30	6.43	94.6	3.5	24.43	8.37	
2011/2/7 12:52:10	WY2	ME	829023	810386	7.1	1.050	28.70	7.20	99.9	2.4	23.56	8.16	2.1
2011/2/7 12:52:14						1.060	28.70	6.82	99.7	2.7	23.96	8.20	
2011/2/7 12:52:27						3.550	28.00	6.68	98.3	2.5	24.31	8.19	3.1
2011/2/7 12:52:31						3.570	27.60	5.70	83.7	2.6	24.46	8.17	
2011/2/7 12:52:46						6.100	27.20	4.39	64.5	2.3	27.93	8.18	5.4
2011/2/7 12:52:50						6.100	27.10	3.98	58.7	2.6	28.18	8.17	
2011/2/7 12:44:21	WY3	ME	829211	809866	4.9	1.060	28.40	7.78	100.3	2.8	23.29	7.33	3.1
2011/2/7 12:44:26						1.055	28.50	7.24	100.1	2.7	23.69	7.76	
2011/2/7 12:44:37						3.920	28.60	6.67	98.4	3.0	24.01	7.99	6.9
2011/2/7 12:44:41						3.900	28.40	6.37	93.8	2.8	24.23	8.01	
2011/2/7 13:21:43	CY1	ME	828432	810785	12.2	0.998	28.40	7.77	100.1	2.4	23.30	8.33	4.9
2011/2/7 13:21:47						0.995	28.60	7.32	101.3	2.7	23.49	8.34	
2011/2/7 13:22:02						6.100	27.40	6.14	89.6	2.9	24.40	8.25	5.4
2011/2/7 13:22:06						6.110	27.20	5.40	78.7	2.9	24.12	8.21	
2011/2/7 13:22:28						11.220	26.30	3.63	53.3	2.7	26.02	8.10	6.4
2011/2/7 13:22:34						11.210	26.10	3.31	48.6	3.0	26.57	8.10	
2011/2/7 13:42:59	CY2	ME	828006	808812	17.2	1.031	28.40	7.10	92.8	2.8	24.65	8.30	4.7
2011/2/7 13:43:03						1.250	28.40	6.60	95.3	3.1	24.70	8.30	
2011/2/7 13:43:13						8.620	28.50	6.61	97.1	3.0	25.75	8.31	4.1
2011/2/7 13:43:18						8.600	27.80	6.41	93.4	3.2	25.39	8.28	
2011/2/7 13:43:27						16.200	27.50	6.22	90.8	3.1	26.26	8.21	4.2
2011/2/7 13:43:32						16.210	27.20	5.29	76.9	3.2	26.66	8.15	
2011/2/7 18:03:57	WY1	MF	829182	809560	5	1.000	28.80	7.64	100.3	2.4	23.63	8.13	11.6
2011/2/7 18:04:03						1.020	28.70	6.74	98.5	2.3	23.40	8.07	
2011/2/7 18:04:16						4.060	28.10	6.46	94.6	2.3	25.31	8.27	11.8
2011/2/7 18:04:20						4.100	28.00	6.08	88.9	2.4	25.42	8.10	
2011/2/7 18:14:49	WY2	MF	829011	810423	6.8	1.030	28.40	7.85	101.1	2.0	23.33	7.89	5.6
2011/2/7 18:14:53						1.010	28.90	7.73	101.9	1.9	23.67	8.03	
2011/2/7 18:15:00						3.400	28.90	7.07	104.0	2.0	24.69	8.17	3.1
2011/2/7 18:15:05						3.400	28.30	6.87	100.7	1.9	24.79	8.09	
2011/2/7 18:15:14						5.780	28.00	6.41	94.1	2.2	26.08	8.03	4
2011/2/7 18:15:18						5.770	27.60	5.42	79.6	2.2	26.41	8.00	
2011/2/7 18:09:18	WY3	MF	829218	809863	4.8	1.000	27.80	7.81	99.6	2.6	23.31	8.10	8.1
2011/2/7 18:09:23						1.020	28.50	7.48	97.9	2.9	23.67	8.08	
2011/2/7 18:09:34						3.760	28.60	6.38	94.2	2.7	24.44	8.04	9.4
2011/2/7 18:09:38						3.800	27.80	5.90	86.5	2.2	24.36	8.02	
2011/2/7 17:14:11	CY1	MF	828432	810782	11.9	1.012	28.70	6.59	96.9	2.0	23.25	8.31	6.1
2011/2/7 17:14:15						1.022	28.70	6.60	97.1	2.1	23.26	8.31	
2011/2/7 17:14:30						5.950	27.20	5.37	78.2	2.2	24.76	8.19	3.2
2011/2/7 17:14:34						5.900	27.20	5.06	73.5	2.6	24.69	8.17	
2011/2/7 17:14:42						10.800	27.00	4.90	71.9	2.8	27.72	8.20	2.7
2011/2/7 17:14:46						10.850	26.60	4.33	63.6	2.8	27.08	8.14	
2011/2/7 17:33:28	CY2	MF	828011	808812	16.9	0.998	28.20	7.22	94.0	2.7	23.68	8.30	3.8
2011/2/7 17:33:33						0.985	28.60	6.48	94.5	2.2	23.93	8.31	
2011/2/7 17:33:39						8.450	28.40	6.57	96.4	2.4	24.65	8.26	5
2011/2/7 17:33:44						8.400	27.80	6.51	94.9	2.5	24.31	8.28	
2011/2/7 17:33:51						15.980	27.70	6.23	90.9	2.4	26.83	8.32	5.3
2011/2/7 17:33:56						15.880	27.10	5.16	75.2	2.5	26.55	8.18	

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

Contract No. DC/2009/13

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



Yung Shue Wan

Date 5-Jul-11

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									
2011/5/7 14:56:14	WY1	ME	829176	809543	4.8	1.033	29.30	8.87	131.7	2.7	23.06	8.80	7.6
2011/5/7 14:56:23						1.025	29.20	8.64	128.1	2.7	23.11	8.76	
2011/5/7 14:56:47						3.805	29.00	8.60	127.4	3.0	23.44	8.67	11.8
2011/5/7 14:56:53						3.800	28.70	7.43	109.6	3.0	23.75	8.57	
2011/5/7 15:09:27	WY2	ME	829017	810422	6.9	1.011	29.40	8.11	120.6	2.0	23.02	8.74	7.9
2011/5/7 15:09:38						1.015	29.20	8.10	120.0	2.0	23.13	8.70	
2011/5/7 15:10:17						3.450	28.60	7.45	109.7	2.1	23.59	8.55	7.2
2011/5/7 15:10:22						3.400	28.60	7.14	105.0	2.2	23.61	8.53	
2011/5/7 15:10:51						5.900	27.00	4.13	61.4	2.3	30.33	8.31	10
2011/5/7 15:10:57						5.920	27.00	3.62	53.8	2.4	30.48	8.32	
2011/5/7 15:01:32	WY3	ME	829186	809832	4.4	1.030	29.70	8.42	122.2	2.6	22.65	8.99	7.6
2011/5/7 15:01:36						1.050	29.90	8.49	126.7	2.4	22.33	8.90	
2011/5/7 15:02:06						3.412	29.00	8.29	122.6	2.6	23.35	8.66	6.5
2011/5/7 15:02:11						3.400	28.90	7.52	111.1	2.7	23.47	8.58	
2011/5/7 15:40:43	CY1	ME	828417	810821	11.5	1.022	29.10	7.74	114.5	1.9	22.94	8.65	4.1
2011/5/7 15:40:55						1.015	29.20	7.78	115.3	2.0	22.99	8.64	
2011/5/7 15:42:22						5.750	27.80	4.26	62.6	1.7	25.76	8.35	5.9
2011/5/7 15:42:28						5.800	27.90	4.19	62.0	1.6	26.67	8.35	
2011/5/7 15:44:22						10.500	25.80	2.68	39.4	2.4	31.77	8.26	4.6
2011/5/7 15:44:29						10.550	25.50	2.51	36.7	2.6	32.15	8.23	
2011/5/7 16:01:44	CY2	ME	828012	808816	17.3	1.016	28.30	8.35	107.3	2.6	32.26	8.90	4.2
2011/5/7 16:01:49						1.010	28.30	8.33	108.5	2.8	32.66	8.70	
2011/5/7 16:02:01						8.600	28.00	7.23	105.6	3.1	24.13	8.39	3.8
2011/5/7 16:02:05						8.650	27.30	6.23	90.3	3.2	24.63	8.36	
2011/5/7 16:02:37						16.300	24.60	2.23	32.3	2.9	33.08	8.15	3.8
2011/5/7 16:02:41						16.350	24.60	2.12	30.7	2.9	33.10	8.15	
2011/5/7 09:34:45	WY1	MF	829156	809544	4.7	1.013	28.00	5.67	82.5	2.6	23.25	8.40	5.1
2011/5/7 09:34:47						1.020	28.00	5.66	82.3	2.7	23.36	8.38	
2011/5/7 09:35:40						3.760	27.70	5.36	78.3	3.0	24.76	8.28	3.9
2011/5/7 09:35:49						3.700	27.60	4.59	67.3	3.0	26.02	8.23	
2011/5/7 09:22:34	WY2	MF	829028	81410	7.2	1.006	28.50	7.97	117.0	1.9	23.33	8.53	4.6
2011/5/7 09:22:38						1.008	28.60	7.68	113.0	2.0	23.51	8.49	
2011/5/7 09:23:03						3.600	28.60	6.98	102.7	2.5	23.61	8.40	3
2011/5/7 09:23:08						3.650	28.60	6.82	100.4	2.6	23.61	8.39	
2011/5/7 09:23:36						7.200	26.90	4.93	72.0	2.5	27.45	8.24	3.2
2011/5/7 09:23:41						7.250	26.10	4.08	59.7	2.4	29.82	8.21	
2011/5/7 09:30:15	WY3	MF	829217	809868	4.4	1.030	28.90	7.33	108.4	2.8	23.57	8.46	4.2
2011/5/7 09:30:25						1.022	28.80	7.40	109.3	2.8	23.57	8.44	
2011/5/7 09:30:45						3.420	27.70	6.17	89.6	3.1	23.82	8.31	3.7
2011/5/7 09:30:47						3.400	27.70	5.99	87.0	3.1	23.83	8.30	
2011/5/7 09:05:51	CY1	MF	828382	810830	11.8	1.010	28.10	6.34	92.7	2.3	23.99	8.23	3.6
2011/5/7 09:06:01						0.998	28.10	6.38	93.2	2.3	23.83	8.23	
2011/5/7 09:07:04						5.900	25.10	2.48	36.1	3.1	32.36	8.09	3.8
2011/5/7 09:07:10						5.880	25.40	2.66	38.8	3.0	31.86	8.10	
2011/5/7 09:08:00						10.800	24.50	1.79	25.9	3.1	33.08	8.14	3.4
2011/5/7 09:08:06						10.760	24.50	1.77	25.7	3.6	33.12	8.14	
2011/5/7 09:46:48	CY2	MF	827986	808790	17.1	1.030	28.50	7.97	116.2	2.5	28.10	8.63	3.4
2011/5/7 09:46:53						0.996	28.50	8.14	119.0	2.6	28.79	8.60	
2011/5/7 09:47:46						8.500	26.50	3.55	52.2	3.2	29.63	8.23	4
2011/5/7 09:47:52						8.580	26.40	3.18	46.8	3.2	30.11	8.22	
2011/5/7 09:48:28						16.100	26.00	2.62	38.6	3.6	31.82	8.23	5
2011/5/7 09:48:33						16.170	26.00	2.61	38.6	3.6	31.80	8.23	

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

Contract No. DC/2009/13

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



Yung Shue Wan

Date 7-Jul-11

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														
2011/7/7 16:12:37	WY1	ME	829176	809543	4.4	1.060	29.70	10.53	152.8	2.9	22.63	8.99	5					
2011/7/7 16:12:42						1.000	29.90	10.61	158.4	3.0	22.33	8.90						
2011/7/7 16:12:51						3.400	29.00	10.36	153.3	3.2	23.35	8.66	8.2					
2011/7/7 16:12:58						3.340	28.90	9.40	138.9	3.2	23.47	8.58						
2011/7/7 16:32:00	WY2	ME	829017	810422	6.9	1.022	27.00	9.68	143.1	2.0	30.33	8.31	4.4					
2011/7/7 16:32:06						1.012	27.00	9.73	144.1	2.0	30.48	8.32						
2011/7/7 16:32:18						3.450	29.10	5.33	78.3	2.1	22.94	8.65	5.1					
2011/7/7 16:32:24						3.490	29.20	5.24	77.5	2.2	22.99	8.64						
2011/7/7 16:32:37						5.900	27.80	5.16	76.8	2.3	25.76	8.35	4.3					
2011/7/7 16:32:42						5.806	27.90	4.52	67.3	2.4	26.67	8.35						
2011/7/7 16:21:34	WY3	ME	829186	809832	4.6	1.012	29.40	10.14	150.7	2.6	23.02	8.74	5.4					
2011/7/7 16:21:41						1.032	29.20	10.12	150.0	2.4	23.13	8.70	3.7					
2011/7/7 16:21:51						3.602	28.60	9.31	137.1	2.6	23.59	8.55						
2011/7/7 16:21:57						3.612	28.60	8.92	131.3	2.7	23.61	8.53						
2011/7/7 16:45:58	CY1	ME	828417	810821	11.6	1.033	28.30	8.35	107.3	1.8	24.60	8.90	9.1					
2011/7/7 16:46:04						1.023	28.30	8.33	108.5	1.9	24.66	8.70	7.6					
2011/7/7 16:46:28						5.800	28.00	7.23	105.6	1.6	24.13	8.39						
2011/7/7 16:46:33						5.7.6	27.30	6.23	90.3	1.6	24.63	8.36	8.8					
2011/7/7 16:47:45						10.600	24.60	2.23	32.3	2.3	33.08	8.15						
2011/7/7 16:47:51						10.511	24.60	2.12	30.7	2.6	33.10	8.15						
2011/7/7 16:02:38	CY2	ME	828012	808816	16.8	0.996	26.00	11.09	164.6	2.6	31.82	8.23	7.4					
2011/7/7 16:02:43						0.988	26.00	10.80	160.1	2.7	31.80	8.23	6.7					
2011/7/7 16:03:22						8.360	29.30	10.75	159.2	3.1	23.06	8.80						
2011/7/7 16:03:27						8.400	29.20	9.29	137.0	3.2	23.11	8.76	6.2					
2011/7/7 16:03:55						15.800	29.00	2.62	38.6	2.9	23.44	8.67						
2011/7/7 16:04:01						15.805	28.70	2.61	38.6	3.0	23.75	8.57						
2011/7/7 10:10:50						WY1	MF	829156	809544	4.6	1.030	28.20	5.80	83.5	2.5	20.57	8.42	6.9
2011/7/7 10:10:55											1.000	28.10	5.72	83.1	2.6	22.68	8.38	7.2
2011/7/7 10:11:20	3.600	28.00	5.67	82.5	2.9						23.25	8.40						
2011/7/7 10:11:27	3.600	28.00	5.66	82.3	2.9						23.36	8.38						
2011/7/7 09:46:15	WY2	MF	829028	81410	7	1.026	28.50	7.97	117.0	1.9	23.33	8.53	5					
2011/7/7 09:46:20						1.032	28.60	7.68	113.0	2.0	23.51	8.49	4.3					
2011/7/7 09:46:38						3.500	28.60	6.98	102.7	2.6	23.61	8.40						
2011/7/7 09:46:42						3.508	28.60	6.82	100.4	2.5	23.61	8.39	5.2					
2011/7/7 09:47:01						6.012	26.90	4.93	72.0	2.5	27.45	8.24						
2011/7/7 09:47:13						6.008	26.10	4.08	59.7	2.4	29.82	8.21						
2011/7/7 10:05:11	WY3	MF	829217	809868	4.5	1.026	28.80	7.40	109.3	2.8	23.57	8.44	8.7					
2011/7/7 10:05:17						1.011	28.00	6.68	97.3	2.8	23.60	8.38	6					
2011/7/7 10:05:40						3.500	27.70	6.17	89.6	3.1	23.82	8.31						
2011/7/7 10:05:45						3.044	27.70	5.99	87.0	3.1	23.83	8.30						
2011/7/7 09:35:47	CY1	MF	828382	810830	11.4	1.001	28.10	6.34	92.7	2.2	23.99	8.23	4.5					
2011/7/7 09:35:54						1.006	28.10	6.38	93.2	2.6	23.83	8.23	6.4					
2011/7/7 09:36:23						5.700	25.10	2.48	36.1	3.1	32.36	8.09						
2011/7/7 09:36:28						5.706	25.40	2.66	38.8	2.9	31.86	8.10	5.7					
2011/7/7 09:37:17						10.406	24.50	1.79	25.9	3.2	33.08	8.14						
2011/7/7 09:37:23						10.411	24.50	1.77	25.7	3.6	33.12	8.14						
2011/7/7 10:31:59	CY2	MF	827986	808790	16.9	0.994	27.70	7.97	116.2	2.5	24.76	8.28	5.2					
2011/7/7 10:32:04						0.984	27.60	8.14	119.0	2.6	26.02	8.23	7					
2011/7/7 10:32:39						8.450	28.50	5.36	78.3	3.2	22.10	8.63						
2011/7/7 10:32:45						8.550	28.50	4.59	67.3	3.3	22.79	8.60	4.2					
2011/7/7 10:34:14						15.900	26.50	3.55	52.2	3.6	29.63	8.23						
2011/7/7 10:34:19						15.850	26.40	3.18	46.8	3.6	30.11	8.22						

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

Contract No. DC/2009/13

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



Yung Shue Wan

Date 9-Jul-11

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									
2011/9/7 17:52:52	WY1	ME	829179	809533	4.6	1.019	29.97	9.84	148.8	6.3	24.00	8.62	10.8
2011/9/7 17:52:58						1.055	29.97	9.87	148.9	6.6	23.99	8.62	
2011/9/7 17:53:27						3.582	29.98	6.94	104.7	8.4	24.41	8.54	
2011/9/7 17:53:31						3.550	29.88	6.31	95.1	7.4	24.27	8.54	
2011/9/7 18:04:35	WY2	ME	828984	810425	7.2	0.920	29.86	10.36	155.8	6.1	23.72	8.67	7.2
2011/9/7 18:04:49						1.058	29.88	10.56	158.8	6.3	23.70	8.66	
2011/9/7 18:05:26						3.626	29.88	9.41	141.6	6.0	23.74	8.66	6.6
2011/9/7 18:05:34						3.650	29.89	9.36	140.8	6.3	23.74	8.66	
2011/9/7 18:06:10						6.265	24.99	3.13	51.6	12.9	33.42	7.88	5.6
2011/9/7 18:06:28	6.126	25.42	3.43	54.6	11.8	32.07	7.91						
2011/9/7 17:56:45	WY3	ME	829217	809877	4.5	0.984	29.76	8.74	132.2	6.3	23.85	8.60	4.7
2011/9/7 17:57:11						1.036	29.78	8.78	132.3	6.4	23.86	8.61	
2011/9/7 17:57:32						3.462	29.56	3.86	58.2	6.2	23.88	8.56	5.6
2011/9/7 17:57:49						3.509	29.61	4.51	68.0	6.6	23.91	8.57	
2011/9/7 17:05:54	CY1	ME	828388	810876	11.5	1.108	29.95	8.73	131.6	6.3	23.91	8.52	3.7
2011/9/7 17:06:01						0.954	29.97	9.08	136.9	6.1	23.86	8.52	
2011/9/7 17:06:54						5.766	25.42	7.06	104.2	9.9	33.36	7.67	5
2011/9/7 17:07:02						5.637	25.24	6.00	88.2	10.6	33.27	7.66	
2011/9/7 17:07:23						10.140	23.92	2.33	33.8	10.5	34.84	7.54	4.7
2011/9/7 17:07:32						10.302	23.88	2.76	35.5	11.0	34.89	7.53	
2011/9/7 17:28:26	CY2	ME	828028	808817	16.2	1.080	30.07	9.73	146.9	5.7	23.85	8.57	5
2011/9/7 17:28:34						0.951	30.08	10.14	153.2	5.6	23.86	8.58	
2011/9/7 17:29:00						8.045	24.19	8.00	116.2	10.0	34.61	7.69	4.2
2011/9/7 17:29:11						8.007	24.16	8.33	120.8	9.2	34.63	7.65	
2011/9/7 17:30:03						15.038	23.62	2.24	27.9	11.5	35.12	7.56	5.4
2011/9/7 17:30:22						15.451	23.62	2.17	26.9	11.4	35.12	7.55	
2011/9/7 14:08:21	WY1	MF	829158	809577	4.3	0.987	29.74	9.59	144.3	6.3	24.16	8.46	6.6
2011/9/7 14:08:43						0.930	29.54	9.10	140.1	6.1	23.82	8.47	
2011/9/7 14:09:20						3.342	30.39	3.78	56.6	6.8	24.44	8.48	5.4
2011/9/7 14:09:36						3.398	30.03	3.71	55.6	5.9	24.37	8.47	
2011/9/7 13:44:13	WY2	MF	829017	809440	7.3	1.045	29.64	9.14	137.3	6.1	24.30	8.45	7.5
2011/9/7 13:44:23						1.028	29.64	9.01	135.5	6.2	24.29	8.44	
2011/9/7 13:45:15						3.744	29.67	7.40	111.3	5.9	24.32	8.47	15
2011/9/7 13:45:25						3.794	29.66	7.46	113.2	5.8	24.32	8.46	
2011/9/7 13:45:54						6.397	26.14	3.39	49.8	15.2	30.54	7.96	14.7
2011/9/7 13:46:09						6.412	26.12	3.46	50.8	15.7	30.57	7.94	
2011/9/7 13:59:32	WY3	MF	829206	809824	4.4	1.100	29.49	8.55	128.0	6.2	23.97	8.43	5.9
2011/9/7 14:00:16						0.903	29.52	9.09	136.1	6.0	23.97	8.44	
2011/9/7 14:00:36						3.344	29.57	5.72	85.8	6.2	24.09	8.45	3.2
2011/9/7 14:01:14						3.405	29.63	5.57	83.6	6.7	24.16	8.44	
2011/9/7 14:22:59	CY1	MF	828388	810779	11.2	0.903	30.03	9.14	137.3	5.8	23.92	8.40	4.6
2011/9/7 14:23:07						1.080	29.92	9.01	135.5	6.0	23.88	8.41	
2011/9/7 14:23:54						5.644	25.53	7.40	111.3	8.3	32.76	7.45	4.6
2011/9/7 14:23:59						5.650	25.22	7.40	111.4	7.6	33.15	7.38	
2011/9/7 14:24:25						10.260	23.95	3.77	55.3	7.7	34.82	7.18	3.4
2011/9/7 14:25:02						10.287	23.90	3.46	50.8	8.4	34.86	7.13	
2011/9/7 14:41:35	CY2	MF	828017	808824	16.6	0.995	30.00	9.82	148.0	6.1	23.87	8.38	4.4
2011/9/7 14:41:50						1.103	30.07	10.42	157.4	6.4	23.87	8.41	
2011/9/7 14:42:34						8.219	24.25	3.72	54.0	7.6	34.55	7.40	4.8
2011/9/7 14:42:41						8.345	24.27	3.76	54.2	7.6	34.54	7.40	
2011/9/7 14:43:20						15.621	23.62	1.40	20.3	11.8	35.14	7.34	5.5
2011/9/7 14:43:27						15.517	23.62	1.35	19.5	10.6	35.14	7.32	

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

Contract No. DC/2009/13

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



Yung Shue Wan

Date 11-Jul-11

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									
2011/11/7 09:18:19	WY1	ME	829161	809543	4.3	0.998	28.41	7.74	115.5	7.6	26.65	8.26	6.2
2011/11/7 09:18:37						1.050	28.41	7.65	114.1	7.0	26.63	8.26	
2011/11/7 09:19:01						3.364	27.42	7.30	108.7	10.3	29.37	8.15	
2011/11/7 09:19:12						3.478	27.47	6.35	94.6	10.2	29.20	8.14	
2011/11/7 09:06:27	WY2	ME	829019	810424	7.2	0.948	28.06	8.22	121.8	6.1	26.41	8.27	2.9
2011/11/7 09:06:33						0.961	28.25	8.14	121.4	6.3	27.21	8.23	
2011/11/7 09:07:01						3.542	27.95	7.43	110.8	6.6	27.87	8.20	3.3
2011/11/7 09:07:07						3.567	27.95	7.08	105.5	7.7	27.86	8.19	
2011/11/7 09:07:32						6.094	26.03	4.18	65.2	9.4	32.98	8.00	2.3
2011/11/7 09:07:40						5.976	26.03	4.72	70.0	10.1	32.91	7.99	
2011/11/7 09:13:21	WY3	ME	829214	809880	4.4	0.959	28.34	7.71	114.9	6.9	26.75	8.28	8.9
2011/11/7 09:13:29						1.022	28.28	7.74	115.5	11.4	27.09	8.25	
2011/11/7 09:14:29						3.493	27.77	5.89	87.8	11.8	28.47	8.17	8.3
2011/11/7 09:14:46						3.388	27.71	5.90	88.0	12.6	28.69	8.16	
2011/11/7 08:56:30	CY1	ME	828427	810824	11.1	1.041	27.13	7.39	108.0	6.5	26.77	8.13	4.1
2011/11/7 08:57:11						0.934	27.10	7.16	104.6	6.6	26.84	8.15	
2011/11/7 08:59:32						5.431	26.81	5.31	78.4	6.2	29.36	8.10	6.6
2011/11/7 08:59:49						5.650	26.76	5.31	78.3	6.5	29.43	8.11	
2011/11/7 09:00:31						9.922	24.40	2.21	32.2	9.6	34.57	7.85	8.6
2011/11/7 09:00:41						9.937	24.39	1.81	26.4	9.1	34.56	7.84	
2011/11/7 10:44:33	CY2	ME	828024	808814	17.2	0.963	28.43	5.77	86.4	6.4	27.21	8.32	4.5
2011/11/7 10:44:40						1.083	28.41	6.38	95.5	6.2	27.14	8.34	
2011/11/7 10:45:22						8.652	24.77	3.46	50.6	5.3	34.34	7.93	4.8
2011/11/7 10:46:28						8.534	25.00	3.65	53.3	5.5	34.15	7.89	
2011/11/7 10:47:37						16.288	23.79	1.90	27.6	9.6	35.13	7.80	5.1
2011/11/7 10:47:59						16.265	23.79	1.82	26.4	9.5	35.12	7.78	
2011/11/7 15:51:30	WY1	MF	829129	809532	4.8	0.939	29.26	6.35	96.7	8.0	27.84	8.26	7.1
2011/11/7 15:51:38						1.047	29.60	6.38	97.7	7.7	27.78	8.26	
2011/11/7 15:51:58						4.619	28.68	6.62	100.2	7.5	28.37	8.22	
2011/11/7 15:52:18						4.571	27.91	5.40	80.9	7.6	28.84	8.18	
2011/11/7 16:08:01	WY2	MF	829017	810432	6.5	1.065	29.15	6.22	94.5	6.7	27.73	8.29	4.3
2011/11/7 16:08:13						0.920	29.31	6.78	103.3	7.0	27.66	8.30	
2011/11/7 16:08:40						3.296	27.26	4.99	72.6	11.8	30.17	8.15	2.9
2011/11/7 16:09:29						3.358	27.35	4.78	71.2	11.2	29.72	8.15	
2011/11/7 16:10:26						6.525	26.06	2.94	43.5	12.1	32.06	8.04	6.3
2011/11/7 16:11:03						6.497	26.09	2.92	43.2	12.3	32.06	8.03	
2011/11/7 15:57:45	WY3	MF	829207	809876	4.9	1.060	29.48	5.25	80.2	7.2	27.95	8.27	<0.5
2011/11/7 15:58:24						1.079	29.62	6.53	100.1	7.4	27.91	8.28	
2011/11/7 15:58:45						4.502	29.03	6.68	101.7	6.6	28.39	8.26	9.6
2011/11/7 15:59:03						4.573	28.99	6.23	94.7	7.8	28.37	8.24	
2011/11/7 16:27:46	CY1	MF	828437	810811	11.8	1.015	29.27	7.05	107.2	6.0	27.44	8.31	5.4
2011/11/7 16:27:56						1.024	29.33	6.79	103.4	6.0	27.52	8.32	
2011/11/7 16:29:01						5.959	25.51	3.66	54.1	11.9	33.35	8.03	8
2011/11/7 16:29:14						5.848	25.49	2.87	42.3	11.3	33.42	8.02	
2011/11/7 16:30:19						10.876	23.51	2.02	29.0	14.1	34.96	7.94	4.9
2011/11/7 16:31:20						10.833	23.50	1.90	27.4	13.6	34.96	7.91	
2011/11/7 15:32:52	CY2	MF	828031	808804	17.2	0.984	28.26	7.02	104.9	4.9	27.09	8.30	4
2011/11/7 15:33:01						1.037	28.31	7.00	104.6	5.3	27.08	8.31	
2011/11/7 15:33:36						8.683	24.81	3.78	55.4	8.8	34.32	7.91	4.4
2011/11/7 15:33:47						8.652	24.76	2.50	36.7	9.4	34.35	7.89	
2011/11/7 15:34:15						16.279	23.78	1.24	17.9	9.7	35.09	7.82	3.2
2011/11/7 15:34:24						16.290	23.79	1.05	15.3	10.5	35.13	7.82	

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

Contract No. DC/2009/13

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



Yung Shue Wan

Date 13-Jul-11

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									
07/13/11 10:36:34	WY1	ME	829192	809537	4.5	1.072	27.81	7.65	113.5	6.3	28.64	8.23	3.6
07/13/11 10:36:40						1.059	27.77	6.57	97.5	6.3	28.64	8.24	
07/13/11 10:37:31						3.565	27.08	3.46	50.6	9.5	29.61	8.16	
07/13/11 10:37:40						3.475	26.97	3.92	57.2	10.5	30.16	8.14	
07/13/11 10:23:08	WY2	ME	829031	810386	7.5	0.963	27.60	7.87	117.1	5.0	28.64	8.22	2
07/13/11 10:23:22						1.061	27.44	6.63	98.5	6.2	28.74	8.20	
07/13/11 10:23:59						3.308	27.41	5.95	88.8	6.8	29.87	8.13	2.5
07/13/11 10:24:21						3.444	27.41	5.51	82.6	6.6	29.96	8.13	
07/13/11 10:24:43						6.784	27.36	2.94	42.6	7.6	31.56	8.17	6.4
07/13/11 10:24:55						6.798	27.51	3.11	45.0	7.9	31.65	8.21	
07/13/11 10:31:44	WY3	ME	829222	809868	4.5	1.069	27.87	5.65	84.6	6.1	28.95	8.15	2.8
07/13/11 10:31:58						0.957	27.94	5.94	88.5	6.1	28.84	8.15	
07/13/11 10:32:20						3.230	27.25	5.11	75.6	6.4	29.87	8.12	1.8
07/13/11 10:32:28						3.144	27.16	4.88	73.1	6.5	29.94	8.13	
07/13/11 10:09:42	CY1	ME	829456	809788	11.6	1.094	27.38	8.38	123.7	5.5	27.90	8.11	2.1
07/13/11 10:09:52						1.076	27.35	8.00	118.2	4.6	27.94	8.12	
07/13/11 10:11:29						5.778	25.40	6.35	94.9	7.6	30.60	7.90	5
07/13/11 10:11:42						5.809	25.43	6.08	90.9	7.6	30.59	7.91	
07/13/11 10:16:46						10.518	25.18	2.00	29.2	7.4	32.26	7.94	2.7
07/13/11 10:17:09						10.637	25.34	2.85	41.7	7.2	32.55	7.96	
07/13/11 10:55:43	CY2	ME	828026	808787	17.7	1.072	27.34	6.40	94.7	5.1	28.22	8.24	8.2
07/13/11 10:55:57						1.062	27.47	6.29	92.8	4.9	28.01	8.24	
07/13/11 10:56:58						8.819	25.21	4.45	64.5	5.9	31.48	7.99	3.7
07/13/11 10:57:05						8.759	25.13	3.80	56.2	6.2	31.39	7.98	
07/13/11 10:59:07						16.594	24.51	2.10	30.7	7.1	34.27	7.89	5.5
07/13/11 10:59:24						16.877	24.51	1.77	25.8	7.5	34.21	7.89	
07/13/11 17:25:53	WY1	MF	829151	809531	4.5	1.060	27.80	6.38	95.8	6.7	29.24	8.18	2.7
07/13/11 17:26:13						1.017	27.76	6.36	95.3	5.5	29.27	8.18	
07/13/11 17:27:33						3.402	26.94	5.05	75.1	10.3	30.29	8.13	2.6
07/13/11 17:27:42						3.517	26.74	5.14	76.2	11.1	30.28	8.14	
07/13/11 17:34:50	WY2	MF	828984	810386	7	1.078	27.42	6.63	98.3	5.2	29.07	8.21	2.1
07/13/11 17:35:01						1.069	27.55	6.85	99.5	5.4	29.02	8.21	
07/13/11 17:35:20						3.848	26.89	5.68	84.7	5.4	30.07	8.14	1.3
07/13/11 17:36:14						3.878	26.85	5.11	80.6	8.9	30.47	8.14	
07/13/11 17:37:26						6.040	26.45	4.87	72.4	8.8	31.93	8.13	2.5
07/13/11 17:38:02						5.977	26.45	4.12	61.3	9.0	31.91	8.13	
07/13/11 17:29:44	WY3	MF	829173	809879	4.8	0.931	27.33	7.91	117.5	5.9	29.16	8.20	1.4
07/13/11 17:30:06						1.045	26.67	7.88	115.1	7.0	29.92	8.15	
07/13/11 17:30:31						3.755	26.26	4.77	70.2	11.0	30.87	8.12	1.2
07/13/11 17:30:39						3.877	26.29	4.67	68.9	11.4	30.88	8.11	
07/13/11 17:42:08	CY1	MF	829151	809531	11.8	1.097	25.85	5.18	75.4	5.6	30.49	8.08	2.2
07/13/11 17:42:15						1.108	25.84	5.95	88.8	5.8	30.46	8.08	
07/13/11 17:42:41						5.895	25.30	4.54	67.8	10.4	31.63	8.03	2.8
07/13/11 17:42:48						6.044	25.29	4.59	66.8	11.2	31.61	8.02	
07/13/11 17:43:22						10.860	25.09	3.66	53.2	19.7	31.93	8.01	3
07/13/11 17:43:32						10.856	25.08	3.30	47.9	20.6	31.93	8.00	
07/13/11 17:11:18	CY2	MF	828016	808817	17.4	0.988	27.66	5.95	88.5	4.9	27.57	8.24	2.5
07/13/11 17:11:32						0.948	27.41	5.96	88.2	4.8	28.11	8.24	
07/13/11 17:12:30						8.692	25.12	3.43	49.8	7.0	31.49	7.98	4.1
07/13/11 17:13:00						8.729	25.13	3.02	43.8	7.0	31.73	7.99	
07/13/11 17:14:15						16.424	24.58	2.18	31.9	18.0	34.28	7.93	4
07/13/11 17:14:28						16.395	24.58	2.18	31.9	17.2	34.20	7.93	

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

Contract No. DC/2009/13

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



Yung Shue Wan

Date 15-Jul-11

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														
07/15/11 13:16:12	WY1	ME	829166	809542	4.2	0.995	28.04	8.19	123.2	6.9	29.21	8.30	3.2					
07/15/11 13:16:19						0.937	28.13	8.28	124.6	8.0	29.19	8.30						
07/15/11 13:16:40						3.170	27.39	8.05	120.5	11.2	30.32	8.23	3.6					
07/15/11 13:16:49						3.155	27.30	7.51	112.4	10.6	30.49	8.22						
07/15/11 12:57:58	WY2	ME	829014	810386	7	0.918	27.87	8.70	130.5	6.2	29.33	8.31	2.1					
07/15/11 12:58:07						0.992	27.67	8.60	128.9	6.1	29.65	8.31						
07/15/11 12:58:28						3.509	27.18	8.19	122.2	6.3	30.36	8.28	4.8					
07/15/11 12:58:37						3.563	27.26	7.91	118.2	6.1	30.26	8.28						
07/15/11 12:59:01						6.040	26.12	7.14	105.7	6.5	32.14	8.17	2					
07/15/11 12:59:07						6.020	26.27	6.81	100.9	7.9	31.82	8.18						
07/15/11 13:10:52	WY3	ME	829389	810827	5.2	0.977	28.17	8.83	133.1	6.8	29.24	8.34	4					
07/15/11 13:11:01						0.975	28.15	8.75	131.8	5.9	29.16	8.36						
07/15/11 13:11:50						4.201	26.44	7.80	115.9	8.1	31.94	8.20	5.1					
07/15/11 13:12:06						4.215	26.23	6.86	101.7	8.4	31.99	8.17						
07/15/11 12:50:31	CY1	ME	8.8419	810792	11.6	0.958	27.20	8.53	126.5	5.2	29.20	8.24	4.4					
07/15/11 12:50:40						0.929	27.18	8.61	127.6	5.3	29.24	8.26						
07/15/11 12:51:28						5.878	26.69	6.86	101.8	5.6	30.93	8.19	3.2					
07/15/11 12:51:42						5.712	26.64	6.48	96.1	5.5	30.78	8.19						
07/15/11 12:52:10						10.598	26.22	5.82	86.2	9.1	31.92	8.17	2.1					
07/15/11 12:52:22						10.574	26.17	5.55	82.1	9.7	31.91	8.15						
07/15/11 13:29:07						CY2	ME	828010	808788	16.8	0.972	27.48	9.00	134.0	4.9	29.07	8.40	2.4
07/15/11 13:29:20											1.054	27.44	9.53	141.8	4.8	29.13	8.39	
07/15/11 13:30:17	8.435	26.37	7.22	106.8	5.9						31.33	8.19	6.3					
07/15/11 13:30:35	8.440	26.41	6.49	96.0	6.2						31.13	8.20						
07/15/11 13:32:34	16.005	24.56	3.66	53.2	6.6						33.55	8.05	5.7					
07/15/11 13:34:07	15.954	24.33	3.41	49.5	6.3						33.81	8.02						
07/15/11 17:33:57	WY1	MF	829164	809546	4.5	0.996	27.46	8.01	120.0	5.9	30.18	8.33	2.7					
07/15/11 17:34:05						1.004	27.49	7.83	117.3	6.0	30.10	8.34						
07/15/11 17:34:46						3.550	27.08	6.79	101.5	5.5	30.97	8.28	4.1					
07/15/11 17:34:58						3.467	26.93	6.78	101.2	5.6	31.17	8.28						
07/15/11 17:44:16	WY2	MF	829008	809871	7.2	1.011	27.80	8.38	125.9	6.1	29.75	8.37	2.6					
07/15/11 17:44:30						0.935	27.69	8.59	129.0	6.0	29.95	8.34						
07/15/11 17:45:02						3.588	27.00	7.84	117.0	8.2	30.93	8.30	3.4					
07/15/11 17:45:10						3.648	26.97	7.48	111.6	7.6	30.98	8.30						
07/15/11 17:45:25						6.300	26.52	7.42	110.4	9.6	31.81	8.26	2.3					
07/15/11 17:45:37						6.180	26.54	6.70	99.7	9.2	31.81	8.25						
07/15/11 17:37:44	WY3	MF	829179	809876	5.4	1.065	27.67	8.22	123.4	7.0	30.02	8.34	1.5					
07/15/11 17:37:56						1.011	27.64	8.17	122.6	7.1	30.08	8.34						
07/15/11 17:38:14						4.436	27.20	8.15	122.3	7.3	30.76	8.32	1.6					
07/15/11 17:38:26						4.431	27.15	7.74	115.7	7.2	30.83	8.30						
07/15/11 17:50:34	CY1	MF	829179	809535	11.2	0.951	26.08	7.40	108.5	6.2	30.49	8.21	5.2					
07/15/11 17:50:41						0.994	26.08	7.32	107.3	6.0	30.51	8.20						
07/15/11 17:51:27						5.684	25.24	5.64	82.0	7.7	31.51	8.06	1.7					
07/15/11 17:51:48						5.594	25.22	4.95	71.9	7.6	31.56	8.06						
07/15/11 17:52:23						10.238	25.23	4.79	69.6	9.5	31.59	8.06	4.1					
07/15/11 17:52:31						10.199	25.24	4.77	69.4	9.9	31.59	8.06						
07/15/11 17:21:40						CY2	MF	828026	808811	17.2	0.929	26.43	7.11	104.8	7.7	30.47	8.28	3.4
07/15/11 17:21:48											0.976	26.38	7.13	105.0	7.2	30.54	8.27	
07/15/11 17:22:50	8.647	25.52	5.36	78.4	8.8						31.69	8.14	5.4					
07/15/11 17:23:14	8.575	25.54	5.15	75.4	8.9						31.66	8.16						
07/15/11 17:23:50	16.298	24.15	4.70	68.0	7.6						33.92	8.05	4					
07/15/11 17:23:57	16.264	24.13	4.12	59.5	8.0						33.92	8.06						

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

Contract No. DC/2009/13



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

Yung Shue Wan

Date 19-Jul-11

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									
07/19/11 14:49:16	WY1	ME	829191	809531	4.6	1.098	26.37	7.44	109.3	6.0	29.89	8.08	4.9
07/19/11 14:49:29						1.050	26.36	7.38	108.3	6.0	29.87	8.08	
07/19/11 14:50:17						3.622	26.09	7.14	104.5	7.4	30.27	8.07	
07/19/11 14:50:33						3.652	26.10	7.00	102.4	7.0	30.27	8.07	
07/19/11 15:37:47	WY2	ME	829024	810423	7	1.027	26.40	8.80	129.2	4.7	29.80	8.15	2.6
07/19/11 15:37:56						1.012	26.41	8.64	126.9	6.0	29.86	8.15	
07/19/11 15:38:37						3.586	26.24	7.91	116.1	5.9	30.19	8.14	3.7
07/19/11 15:38:46						3.598	26.30	7.74	113.6	5.6	30.14	8.15	
07/19/11 15:39:38						6.050	24.67	4.95	72.1	7.1	33.67	8.11	3.5
07/19/11 15:39:47						6.066	24.18	5.32	77.0	7.2	34.05	8.10	
07/19/11 14:28:39	WY3	ME	829183	809836	4.5	1.044	26.28	7.81	114.5	5.7	29.79	8.07	6.8
07/19/11 14:28:50						0.967	26.27	7.63	111.8	5.8	29.80	8.06	
07/19/11 14:29:17						3.473	26.31	7.36	108.0	5.9	30.03	8.04	3.3
07/19/11 14:29:40						3.514	26.30	7.18	105.4	6.0	30.04	8.04	
07/19/11 15:29:00	CY1	ME	828411	810807	11.4	1.046	25.73	9.93	144.1	5.7	29.79	8.12	3.1
07/19/11 15:29:42						1.078	25.70	8.85	135.5	5.7	29.81	8.12	
07/19/11 15:31:09						5.797	25.46	6.92	100.5	6.0	30.65	8.11	3.3
07/19/11 15:32:01						5.732	25.39	6.66	96.8	5.6	30.96	8.11	
07/19/11 15:32:32						10.481	23.36	4.28	62.6	9.5	34.99	8.01	2.6
07/19/11 15:32:42						10.405	23.37	4.06	58.2	10.3	34.99	8.01	
07/19/11 15:05:27	CY2	ME	828021	808816	17	0.904	26.16	8.55	126.5	5.7	28.59	8.11	3
07/19/11 15:05:47						1.073	26.11	8.99	130.5	5.9	28.68	8.11	
07/19/11 15:06:26						8.474	25.39	7.62	111.4	7.1	32.21	8.08	2.9
07/19/11 15:06:36						8.514	25.37	7.08	103.6	6.8	32.25	8.08	
07/19/11 15:07:18						16.046	23.26	4.60	65.9	7.3	34.99	8.01	2.7
07/19/11 15:07:51						15.982	23.27	3.93	56.3	7.4	34.96	8.00	
07/19/11 08:50:55	WY1	MF	829191	809570	4.5	0.845	26.28	9.14	133.3	5.8	28.96	8.03	2.5
07/19/11 08:51:05						0.917	26.32	8.21	119.8	6.6	28.96	8.03	
07/19/11 08:51:28						3.528	24.15	5.66	75.4	12.1	33.64	7.99	6.7
07/19/11 08:52:02						3.589	24.50	5.05	73.0	10.1	33.02	7.98	
07/19/11 08:32:30	WY2	MF	828991	810426	7.1	0.913	26.10	7.00	102.1	5.6	29.55	8.04	4
07/19/11 08:32:44						0.803	26.12	7.19	104.9	5.8	29.48	8.04	
07/19/11 08:33:12						3.584	24.30	5.77	82.9	7.6	33.79	8.02	1.6
07/19/11 08:33:21						3.472	24.25	5.70	82.5	8.3	33.81	8.02	
07/19/11 08:33:51						6.044	23.48	4.33	62.1	10.5	34.58	7.99	4.5
07/19/11 08:34:09						6.215	23.41	3.80	54.6	12.4	34.64	7.99	
07/19/11 08:08:01	WY3	MF	829179	809872	4.3	1.051	25.85	7.64	110.8	6.9	29.42	7.91	2
07/19/11 08:08:25						1.037	25.83	6.47	93.9	6.1	29.47	7.98	
07/19/11 08:10:18						3.416	25.46	4.84	70.3	7.7	30.85	8.01	4.8
07/19/11 08:10:47						3.381	25.40	5.24	76.2	8.0	31.07	8.01	
07/19/11 11:10:55	CY1	MF	828386	810792	11.2	0.928	26.14	7.15	104.7	5.6	30.10	8.11	2.4
07/19/11 11:11:07						1.071	26.13	6.93	101.5	5.6	30.15	8.10	
07/19/11 11:12:22						5.622	23.37	4.29	61.6	8.1	34.90	8.07	3.4
07/19/11 11:12:31						5.696	23.38	3.96	56.9	8.0	34.88	8.07	
07/19/11 11:16:07						10.257	23.08	3.20	45.8	12.6	35.02	8.03	3.3
07/19/11 11:16:07						10.257	23.08	3.20	45.8	13.5	35.02	8.03	
07/19/11 10:15:53	CY2	MF	828011	808817	15.2	0.943	26.09	6.66	97.5	6.2	30.14	8.06	4.1
07/19/11 10:16:11						0.905	26.09	6.72	98.4	5.8	30.15	8.06	
07/19/11 10:17:14						7.774	23.11	3.66	52.3	12.5	35.19	8.00	9.3
07/19/11 10:17:27						7.597	23.11	3.48	49.9	13.3	35.19	7.99	
07/19/11 10:23:34						14.066	23.05	3.26	46.6	16.9	35.16	8.04	4.2
07/19/11 10:23:53						14.096	23.05	3.26	46.6	17.5	35.18	8.03	

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

Contract No. DC/2009/13

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



Yung Shue Wan

Date 21-Jul-11

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									
07/21/11 15:29:19	WY1	ME	829199	809536	4.6	1.045	27.10	7.13	104.8	5.8	27.84	8.20	3.6
07/21/11 15:29:32						1.090	27.09	7.23	47.4	6.1	27.52	8.20	
07/21/11 15:29:56						3.644	26.17	5.13	74.4	6.8	28.33	8.19	1.4
07/21/11 15:30:08						3.661	26.14	5.61	77.0	6.2	18.65	8.18	
07/21/11 15:55:49	WY2	ME	829014	810433	7	1.027	28.27	8.65	119.5	5.8	27.32	8.22	3.5
07/21/11 15:56:01						0.914	28.22	8.42	116.7	5.8	27.36	8.22	
07/21/11 15:56:30						3.504	26.25	5.87	83.8	6.6	28.16	8.21	2.5
07/21/11 15:57:24						3.555	26.18	5.81	83.1	6.0	28.09	8.21	
07/21/11 15:57:50						6.085	24.58	3.65	51.7	17.5	30.47	8.15	5.5
07/21/11 15:58:00	5.997	24.57	3.08	43.7	18.1	30.76	8.14						
07/21/11 15:39:59	WY3	ME	829191	809839	4.6	1.003	27.22	6.07	86.2	6.8	27.82	8.17	1.6
07/21/11 15:40:07						1.091	26.77	6.20	82.2	6.2	28.08	8.17	
07/21/11 15:40:45						3.518	26.14	3.61	53.2	13.5	28.54	8.14	8.5
07/21/11 15:40:58						3.606	25.86	4.12	60.2	12.6	28.49	8.15	
07/21/11 16:22:29	CY1	ME	828407	810816	11.6	0.967	26.08	7.84	112.4	5.8	26.65	8.15	3.3
07/21/11 16:22:40						0.940	26.02	7.22	110.3	5.5	27.06	8.14	
07/21/11 16:26:28						5.801	24.83	3.14	45.5	6.4	28.58	8.09	3.7
07/21/11 16:26:36						5.854	24.82	3.07	44.4	6.1	28.22	8.08	
07/21/11 16:24:28						10.615	23.26	2.57	36.2	9.9	32.08	8.04	1.4
07/21/11 16:24:49						10.561	23.26	3.47	48.8	9.0	31.88	8.02	
07/21/11 15:11:57	CY2	ME	828417	810802	17.5	1.036	25.58	7.62	109.0	6.0	27.70	8.16	5.6
07/21/11 15:12:45						1.053	25.58	7.71	110.1	6.7	27.48	8.16	
07/21/11 15:13:17						8.791	23.53	3.38	41.5	9.5	31.93	8.11	5.2
07/21/11 15:13:25						8.853	23.49	3.39	47.5	8.2	31.63	8.11	
07/21/11 15:14:21						16.663	22.76	2.78	40.3	20.1	32.66	8.05	5
07/21/11 15:14:31						16.560	22.77	1.95	28.3	19.5	32.74	8.06	
07/21/11 09:47:20	WY1	MF	829193	809581	4.7	1.084	26.20	6.37	91.7	5.8	27.33	8.11	2.7
07/21/11 09:47:28						0.991	26.01	6.44	93.1	5.7	27.28	8.11	
07/21/11 09:47:54						3.762	26.12	6.63	94.5	8.6	29.21	8.10	2.5
07/21/11 09:48:03						3.713	26.03	6.54	92.3	8.6	28.84	8.10	
07/21/11 09:32:29	WY2	MF	828989	810417	7.1	1.003	26.47	7.75	113.0	5.6	27.51	8.12	2.9
07/21/11 09:32:43						1.011	26.47	7.61	110.7	6.1	27.52	8.12	
07/21/11 09:33:06						3.586	24.78	6.51	94.5	7.0	28.91	8.07	2
07/21/11 09:33:14						3.582	24.79	6.00	87.3	7.2	28.85	8.07	
07/21/11 09:33:53						6.144	23.71	3.62	43.6	12.3	31.48	8.03	2
07/21/11 09:34:01	6.069	23.72	3.64	43.9	12.8	31.26	8.03						
07/21/11 09:39:05	WY3	MF	829196	809870	4.6	0.976	26.40	7.60	109.8	2.7	27.04	8.13	2.9
07/21/11 09:39:13						0.921	26.25	6.74	97.3	2.1	27.37	8.11	
07/21/11 09:39:43						3.598	26.30	4.80	68.0	3.1	28.58	8.11	0.9
07/21/11 09:40:00						3.642	26.32	6.60	94.0	3.0	28.39	8.11	
07/21/11 09:09:08	CY1	MF	828390	810789	11.2	1.056	25.83	8.73	112.7	6.7	27.79	7.79	1.5
07/21/11 09:09:21						1.001	25.84	7.65	98.6	5.7	27.49	7.91	
07/21/11 09:10:56						5.791	24.09	4.61	57.5	8.2	30.85	7.93	1.5
07/21/11 09:11:12						5.717	24.00	3.93	55.6	7.7	30.88	7.94	
07/21/11 09:13:55						10.227	22.93	2.25	31.5	6.5	32.60	7.90	2
07/21/11 09:14:19						10.159	22.93	2.01	28.2	6.1	32.61	7.91	
07/21/11 10:01:54	CY2	MF	828007	808815	16.8	1.051	25.77	9.30	135.0	3.5	28.90	8.14	3.6
07/21/11 10:02:02						1.127	25.72	8.80	127.4	3.1	28.88	8.13	
07/21/11 10:03:10						8.460	23.56	3.96	56.9	5.9	30.94	8.07	3.2
07/21/11 10:03:42						8.389	23.53	3.55	54.2	6.1	31.84	8.08	
07/21/11 10:11:54						15.821	22.79	1.48	19.9	6.1	32.21	8.04	1.6
07/21/11 10:12:11						15.828	22.79	1.22	17.6	6.2	32.23	8.04	

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

Contract No. DC/2009/13

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



Yung Shue Wan

Date 23-Jul-11

Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	°C	mg/L	%	NTU	ppt	unit	mg/l
07/23/11 17:18:50	WY1	ME	829201	809540	4.5	1.013	29.06	8.26	120.5	6.0	23.45	8.84	3.7
07/23/11 17:18:59						1.029	29.13	8.13	118.0	6.2	23.55	8.84	
07/23/11 17:19:27						3.507	27.22	7.67	113.6	6.2	26.12	8.64	
07/23/11 17:19:46						3.565	27.02	7.13	108.1	6.0	25.91	8.58	
07/23/11 16:35:56	WY2	ME	829012	810437	7	1.099	30.31	8.32	125.2	5.3	22.54	8.83	17.2
07/23/11 16:36:07						0.936	30.30	7.87	118.4	6.0	22.64	8.83	
07/23/11 16:36:39						3.561	28.24	5.73	77.3	6.9	23.66	8.59	5.8
07/23/11 16:36:47						3.462	27.75	5.09	72.1	7.2	23.79	8.53	
07/23/11 16:37:31						5.959	24.76	3.73	53.4	6.8	30.33	8.12	7.3
07/23/11 16:37:50	5.974	24.62	4.48	64.0	7.2	30.43	8.11						
07/23/11 16:16:13	WY3	ME	829185	809835	4.6	0.978	29.94	10.65	159.3	6.7	22.65	8.84	5
07/23/11 16:16:21						0.934	30.24	10.20	153.4	6.3	22.60	8.84	
07/23/11 16:16:44						3.654	28.19	7.00	105.1	10.0	25.65	8.61	9.6
07/23/11 16:17:13						3.605	28.07	7.45	109.9	9.5	25.61	8.57	
07/23/11 16:55:34	CY1	ME	828412	810822	12.2	1.074	29.04	9.13	148.1	5.0	23.20	8.86	3.6
07/23/11 16:55:46						1.058	28.67	10.18	150.4	5.8	24.10	8.83	
07/23/11 16:56:21						6.145	25.09	4.13	59.2	5.7	29.43	8.21	3
07/23/11 16:56:34						6.194	24.47	4.52	64.5	7.7	30.71	8.16	
07/23/11 16:57:35						11.254	23.14	3.31	46.5	7.7	31.95	8.00	3.5
07/23/11 16:58:29	11.180	23.14	3.75	52.7	7.7	31.94	7.99						
07/23/11 15:58:16	CY2	ME	828426	810800	17	0.963	29.08	9.08	133.4	5.7	22.02	8.78	3.2
07/23/11 15:58:26						1.011	29.12	9.16	134.8	5.5	22.00	8.78	
07/23/11 16:00:03						8.597	23.48	3.92	55.4	7.7	31.84	8.04	4
07/23/11 16:00:14						8.543	23.47	4.11	58.0	7.4	31.57	8.04	
07/23/11 16:00:49						15.947	22.80	2.84	39.8	11.5	32.62	7.98	2.8
07/23/11 16:01:01	15.946	22.80	0.84	11.7	12.7	32.40	7.98						
07/23/11 11:20:35	WY1	MF	829182	809590	4.5	0.955	28.48	8.97	131.3	6.3	23.06	8.70	5.7
07/23/11 11:20:44						0.924	28.79	8.28	120.7	6.6	22.93	8.72	
07/23/11 11:21:14						3.469	27.59	6.39	93.5	10.4	25.64	8.44	7.9
07/23/11 11:21:29						3.543	27.31	6.33	90.3	12.9	25.84	8.35	
07/23/11 11:39:00	WY2	MF	828988	810407	7.2	1.027	28.90	7.75	114.1	5.5	22.28	8.76	6.8
07/23/11 11:39:14						0.973	29.09	7.02	100.7	5.7	22.29	8.76	
07/23/11 11:40:19						3.605	27.38	5.88	85.9	7.6	25.97	8.35	5
07/23/11 11:40:30						3.661	25.96	5.93	84.7	7.4	27.07	8.22	
07/23/11 11:40:59						6.227	24.58	3.01	44.2	10.9	30.43	8.07	7.4
07/23/11 11:41:07	6.229	24.57	3.22	45.5	10.7	30.44	8.07						
07/23/11 11:28:48	WY3	MF	829197	809899	4.7	0.946	29.02	7.92	116.6	5.6	22.54	8.70	5.3
07/23/11 11:29:03						1.045	29.16	7.13	104.0	6.3	22.44	8.73	
07/23/11 11:29:37						3.714	27.26	6.28	91.8	8.9	26.12	8.35	6.5
07/23/11 11:29:49						3.774	27.49	5.62	82.9	9.1	25.76	8.39	
07/23/11 10:54:16	CY1	MF	828401	810796	12	1.008	28.48	8.58	125.0	5.6	22.09	8.53	1.1
07/23/11 10:54:28						1.056	28.45	8.56	122.4	6.2	22.00	8.57	
07/23/11 10:56:32						6.019	25.17	5.44	79.5	5.1	28.80	7.91	2.7
07/23/11 10:56:47						6.093	25.15	4.13	58.3	5.5	28.76	7.92	
07/23/11 10:58:21						10.255	23.37	3.26	45.8	9.6	32.13	7.77	5.8
07/23/11 10:59:22	10.914	23.08	3.26	45.8	9.8	32.19	7.75						
07/23/11 12:04:50	CY2	MF	828014	808806	17.2	1.051	28.77	6.53	93.2	6.2	21.99	8.83	3.1
07/23/11 12:05:03						1.052	28.78	7.00	102.4	8.4	22.12	8.84	
07/23/11 12:05:53						8.576	23.61	4.16	58.8	7.6	31.56	8.08	1.3
07/23/11 12:06:07						8.515	23.54	4.37	61.7	7.4	31.52	8.05	
07/23/11 12:07:17						16.075	22.83	2.90	40.7	13.6	32.58	7.98	2.9
07/23/11 12:07:33	16.014	22.81	2.34	32.7	13.5	32.03	7.99						

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

Contract No. DC/2009/13

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



Yung Shue Wan

Date 25-Jul-11

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									
07/25/11 08:30:31	WY1	ME	829021	810386	4.6	1.030	28.73	7.53	111.9	7.3	25.80	8.57	6
07/25/11 08:30:45						1.079	28.74	7.11	105.7	8.0	25.71	8.56	
07/25/11 08:31:02						3.714	27.02	6.45	96.2	9.4	28.03	8.32	7
07/25/11 08:31:17						3.743	27.42	6.62	97.2	9.6	27.87	8.34	
07/25/11 08:04:15	WY2	ME	829161	809548	7.2	1.080	28.65	8.34	121.6	4.2	25.34	8.60	4
07/25/11 08:04:27						1.056	28.69	7.97	116.7	4.2	25.07	8.61	
07/25/11 08:05:11						3.569	26.76	5.73	82.0	8.2	27.57	8.37	4
07/25/11 08:05:25						3.680	27.03	6.00	85.8	8.2	27.36	8.36	
07/25/11 08:05:56						6.240	24.55	3.75	55.5	7.7	30.79	8.10	5
07/25/11 08:06:07	6.290	24.57	3.45	50.4	7.7	30.61	8.09						
07/25/11 08:14:08	WY3	ME	829188	809838	4.7	1.063	29.15	8.20	123.2	7.8	25.57	8.58	8
07/25/11 08:14:15						0.936	29.09	8.74	128.9	7.0	25.16	8.60	
07/25/11 08:14:35						3.699	27.13	6.00	87.5	8.5	28.44	8.36	6
07/25/11 08:14:46						3.706	26.43	6.15	92.0	9.1	28.51	8.30	
07/25/11 07:50:24	CY1	ME	828387	810782	12.2	0.926	27.34	8.37	120.4	5.8	25.90	8.47	10
07/25/11 07:50:34						1.159	27.10	7.16	102.9	6.3	26.01	8.47	
07/25/11 07:51:00						6.266	25.57	5.57	81.3	5.8	28.74	8.17	6
07/25/11 07:51:14						6.158	25.52	4.73	68.9	6.5	28.72	8.16	
07/25/11 07:52:03						11.273	22.55	4.56	63.6	14.6	32.76	7.88	6
07/25/11 07:52:27						11.289	22.55	3.89	54.4	13.3	32.74	7.87	
07/25/11 09:03:23	CY2	ME	827989	808791	17.1	1.082	27.52	8.13	118.8	6.1	26.12	8.57	4
07/25/11 09:03:33						1.065	27.47	8.98	131.3	5.8	25.94	8.58	
07/25/11 09:04:07						8.667	23.19	3.66	51.6	6.7	32.19	8.02	6
07/25/11 09:05:17						8.614	23.14	3.93	55.2	6.8	31.88	7.98	
07/25/11 09:05:57						16.212	22.56	3.29	45.9	16.9	32.48	7.96	8
07/25/11 09:06:04						16.167	22.56	2.91	40.6	15.6	32.27	7.94	
07/25/11 14:50:18	WY1	MF	828987	810396	4.7	0.982	29.62	8.70	131.6	6.3	25.57	8.71	7
07/25/11 14:50:28						1.035	29.65	8.82	133.1	6.1	25.09	8.71	
07/25/11 14:51:35						3.764	27.11	5.66	83.2	8.8	27.74	8.37	10
07/25/11 14:51:44						3.788	26.57	5.34	78.5	9.3	28.12	8.32	
07/25/11 15:08:50	WY2	MF	829158	809544	7.4	0.938	29.76	8.23	125.5	4.9	25.74	8.65	4
07/25/11 15:09:02						0.949	29.65	8.11	121.2	5.5	25.53	8.65	
07/25/11 15:09:25						3.747	25.99	7.45	108.2	8.4	29.14	8.29	4
07/25/11 15:09:39						3.721	25.99	7.65	111.4	8.6	29.60	8.26	
07/25/11 15:10:25						6.480	23.98	3.60	51.1	17.3	31.00	8.06	9
07/25/11 15:10:32						6.477	23.97	3.39	46.2	19.9	31.40	8.05	
07/25/11 14:58:29	WY3	MF	829199	809849	4.7	1.050	29.65	8.97	125.8	7.4	25.50	8.68	7
07/25/11 14:58:40						1.075	29.59	8.45	126.2	8.0	25.20	8.67	
07/25/11 14:59:03						3.756	28.36	6.55	97.6	11.1	26.89	8.50	3.4
07/25/11 14:59:11						3.730	28.16	6.69	101.2	12.5	27.15	8.48	
07/25/11 15:33:10	CY1	MF	827988	808791	12.3	0.921	29.62	7.07	106.9	5.5	25.62	8.68	2
07/25/11 15:33:18						0.938	29.83	7.22	108.5	5.6	25.21	8.70	
07/25/11 15:34:38						8.629	23.02	3.51	45.6	8.5	31.50	7.98	6
07/25/11 15:34:51						8.606	23.02	3.21	45.0	8.9	31.89	7.97	
07/25/11 15:39:22						11.207	22.82	2.43	32.6	11.1	32.20	7.95	3
07/25/11 15:42:23						11.343	22.82	2.28	31.8	12.2	32.13	7.97	
07/25/11 14:49:09	CY2	MF	828001	808811	17	1.002	28.84	7.36	110.2	5.6	25.93	8.55	6
07/25/11 14:49:25						0.945	28.32	7.76	115.0	5.9	25.74	8.57	
07/25/11 14:49:54						8.546	23.14	3.83	54.0	7.7	32.26	8.06	4
07/25/11 14:50:04						8.588	23.16	3.43	48.3	6.4	32.29	8.05	
07/25/11 14:50:41						16.081	22.55	3.90	54.4	15.2	32.50	7.99	4
07/25/11 14:50:52						16.012	22.57	3.21	40.2	14.9	32.65	7.97	

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

Contract No. DC/2009/13

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



Yung Shue Wan

Date 27-Jul-11

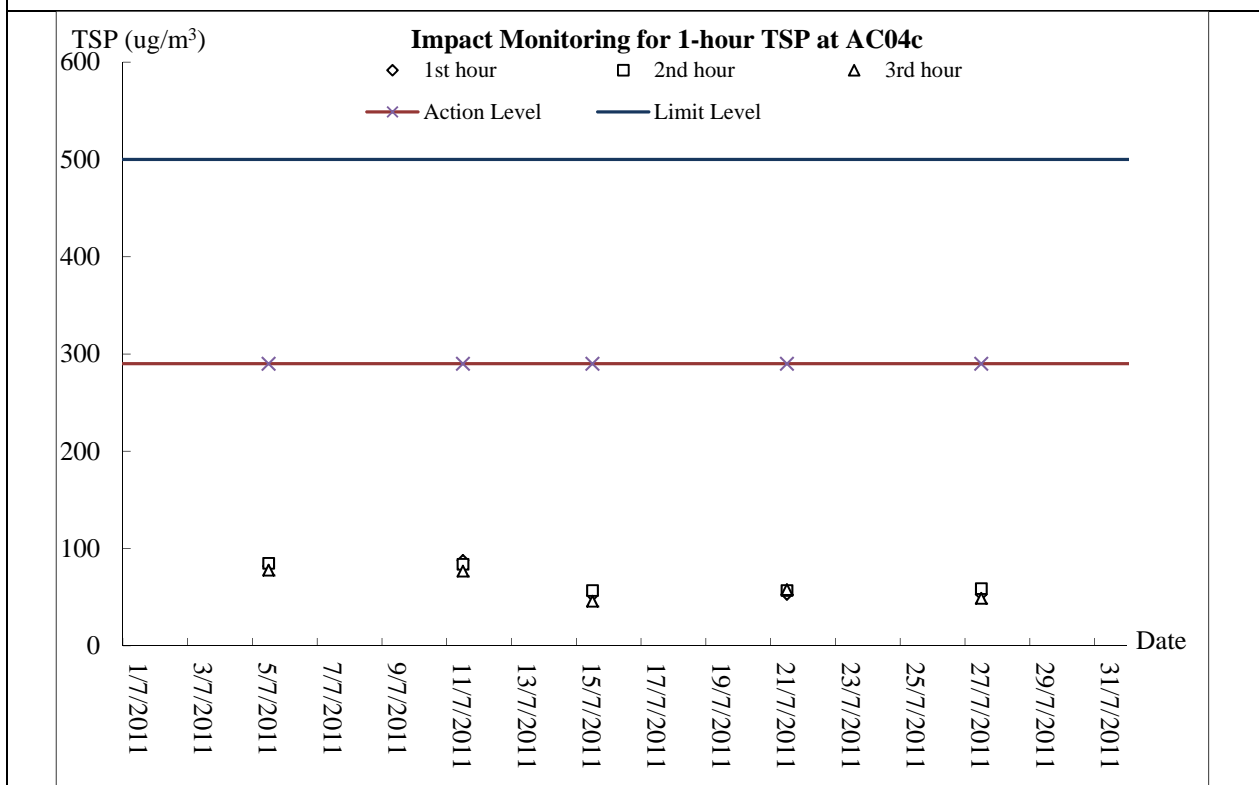
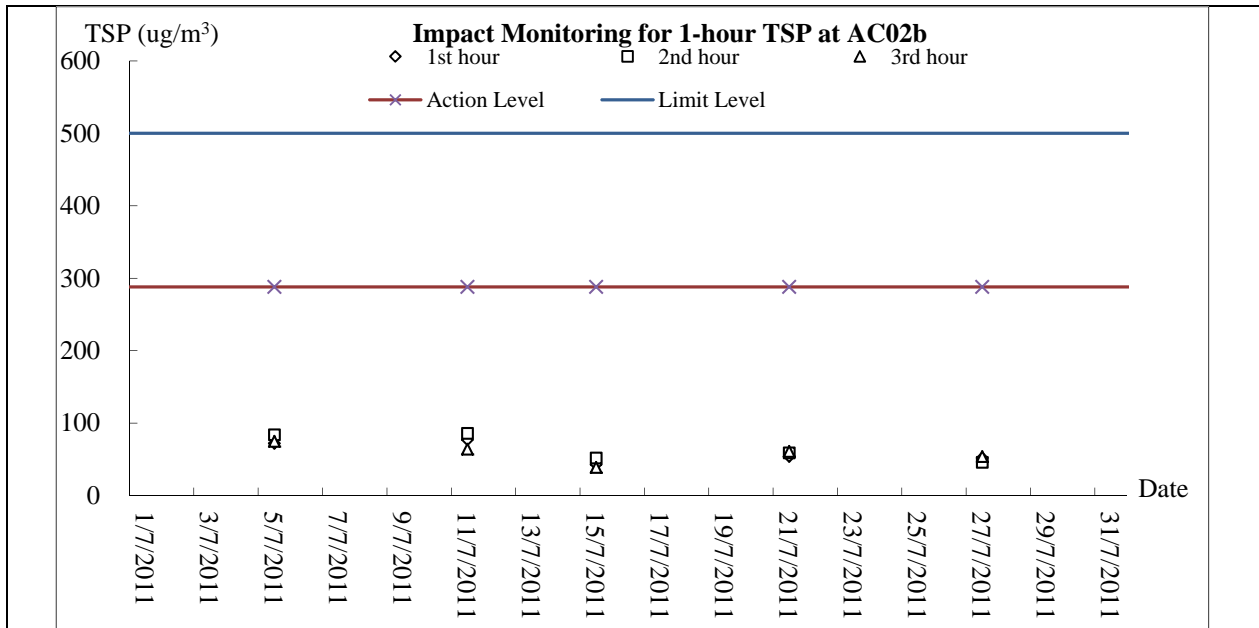
Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l					
			East	North														
2011/7/27 09:07:15	WY1	ME	829177	809540	4.5	1.023	26.40	5.69	84.3	3.5	31.25	8.17	3					
2011/7/27 09:07:20						1.035	26.40	5.54	82.0	3.6	31.29	8.22						
2011/7/27 09:07:33						3.550	25.15	4.48	66.2	4.3	32.38	8.38	2.1					
2011/7/27 09:07:38						3.610	25.25	4.34	64.2	4.3	32.41	8.36						
2011/7/27 09:20:13	WY2	ME	829021	810420	7.2	0.986	26.60	5.73	84.8	3.0	30.77	8.42	0.7					
2011/7/27 09:20:19						0.991	26.60	5.50	81.6	3.0	31.23	8.44						
2011/7/27 09:20:32						3.156	25.06	4.39	64.9	2.7	32.77	8.51	2					
2011/7/27 09:20:36						3.201	25.06	4.39	64.9	2.8	32.81	8.46						
2011/7/27 09:20:46						6.120	24.70	3.56	52.6	3.3	33.54	8.57	1.2					
2011/7/27 09:20:51						6.230	24.51	3.43	50.4	3.5	33.60	8.47						
2011/7/27 09:32:42	WY3	ME	829196	809849	4.8	1.012	25.90	5.60	82.6	3.7	31.96	8.56	3.4					
2011/7/27 09:32:49						1.008	25.90	5.40	79.6	3.5	31.97	8.45						
2011/7/27 09:33:00						3.850	24.86	4.23	62.3	3.2	32.93	8.50	0.5					
2011/7/27 09:33:04						3.864	24.86	4.14	61.0	2.2	32.93	8.48						
2011/7/27 09:52:39	CY1	ME	828417	810820	12	1.120	26.20	7.92	112.1	2.8	31.88	8.88	3.3					
2011/7/27 09:52:47						1.020	25.80	5.44	80.0	2.9	31.82	8.65						
2011/7/27 09:53:19						6.069	24.58	3.95	58.0	2.3	33.07	8.66	0.7					
2011/7/27 09:53:24						6.195	24.58	3.86	56.6	2.2	33.07	8.52						
2011/7/27 09:53:36						11.230	24.13	2.30	33.6	3.5	33.82	8.47	2					
2011/7/27 09:53:40						11.300	24.13	2.18	31.8	3.8	33.83	8.47						
2011/7/27 10:16:04						CY2	ME	828012	808816	16.5	1.036	26.30	6.81	86.4	3.7	31.15	8.60	1.8
2011/7/27 10:16:13											1.050	26.30	5.69	84.1	3.9	31.33	8.54	
2011/7/27 10:16:33	8.260	24.86	4.46	65.8	4.7						32.91	8.54	0.7					
2011/7/27 10:16:38	8.245	24.96	4.39	64.8	4.8						32.89	8.46						
2011/7/27 10:16:52	15.546	24.51	2.64	38.8	3.9						33.58	8.53	2					
2011/7/27 10:16:56	15.556	24.51	2.50	36.7	4.0						33.59	8.50						
2011/7/27 16:48:07	WY1	MF	829160	809540	4.5	1.098	26.60	5.67	84.3	3.0	31.37	8.56	2.5					
2011/7/27 16:48:14						1.088	26.50	5.74	85.1	3.1	31.39	8.54						
2011/7/27 16:48:46						3.521	24.86	4.27	63.0	4.3	32.93	8.44	2.7					
2011/7/27 16:48:51						3.465	24.86	4.22	62.2	4.4	32.95	8.49						
2011/7/27 16:56:17	WY2	MF	829028	81405	7	0.956	27.10	6.51	89.7	2.7	29.24	8.51	1					
2011/7/27 16:56:22						0.974	26.90	5.81	85.8	2.9	29.36	8.52						
2011/7/27 16:56:33						3.540	25.44	4.56	67.7	3.9	32.48	8.53	1.7					
2011/7/27 16:56:38						3.666	25.25	4.53	67.0	3.8	32.73	8.51						
2011/7/27 16:56:48						6.032	24.80	3.65	54.0	3.0	33.45	8.41	1.6					
2011/7/27 16:56:53						6.123	24.70	3.50	51.7	2.8	33.51	8.48						
2011/7/27 17:13:43	WY3	MF	829219	809868	4.7	1.064	26.70	5.82	86.8	3.7	31.71	8.49	1.7					
2011/7/27 17:13:52						1.098	26.80	5.76	86.1	3.8	31.68	8.48						
2011/7/27 17:15:33						3.770	25.44	4.49	66.7	4.6	32.71	8.47	1.8					
2011/7/27 17:15:40						3.741	25.44	4.18	62.2	4.7	32.72	8.47						
2011/7/27 17:22:55	CY1	MF	828375	810826	11.5	0.996	27.20	6.41	92.2	3.1	30.76	8.52	0.6					
2011/7/27 17:23:01						1.150	27.20	6.08	90.8	3.7	30.49	8.50						
2011/7/27 17:23:13						5.850	26.02	4.82	72.3	3.7	32.39	8.49	0.5					
2011/7/27 17:23:18						5.996	25.73	4.70	70.2	3.5	32.55	8.48						
2011/7/27 17:23:33						10.463	25.27	2.77	41.2	4.5	33.27	8.48	1.7					
2011/7/27 17:23:39						10.550	25.27	2.70	40.2	5.2	33.29	8.45						
2011/7/27 17:41:16						CY2	MF	827983	808792	16.8	1.165	27.60	6.47	93.5	3.7	30.50	8.85	1.9
2011/7/27 17:41:22											1.098	26.70	5.96	88.2	3.9	30.54	8.65	
2011/7/27 17:41:35	8.450	25.25	4.66	69.1	4.3						32.75	8.65	1.7					
2011/7/27 17:41:40	8.366	25.15	4.62	68.4	4.4						32.85	8.62						
2011/7/27 17:41:51	15.566	24.61	2.76	40.6	4.3						33.50	8.48	2					
2011/7/27 17:41:57	15.460	24.42	2.61	38.4	4.3						33.62	8.53						

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

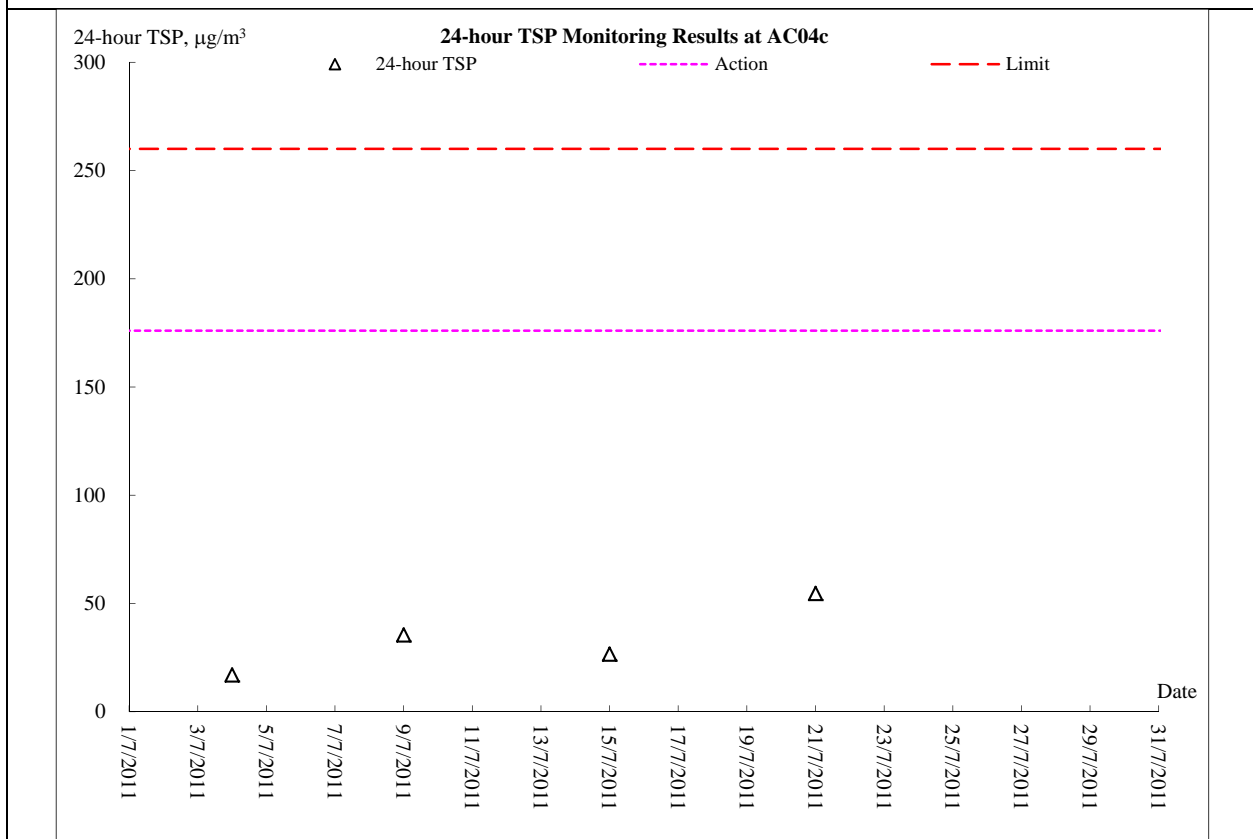
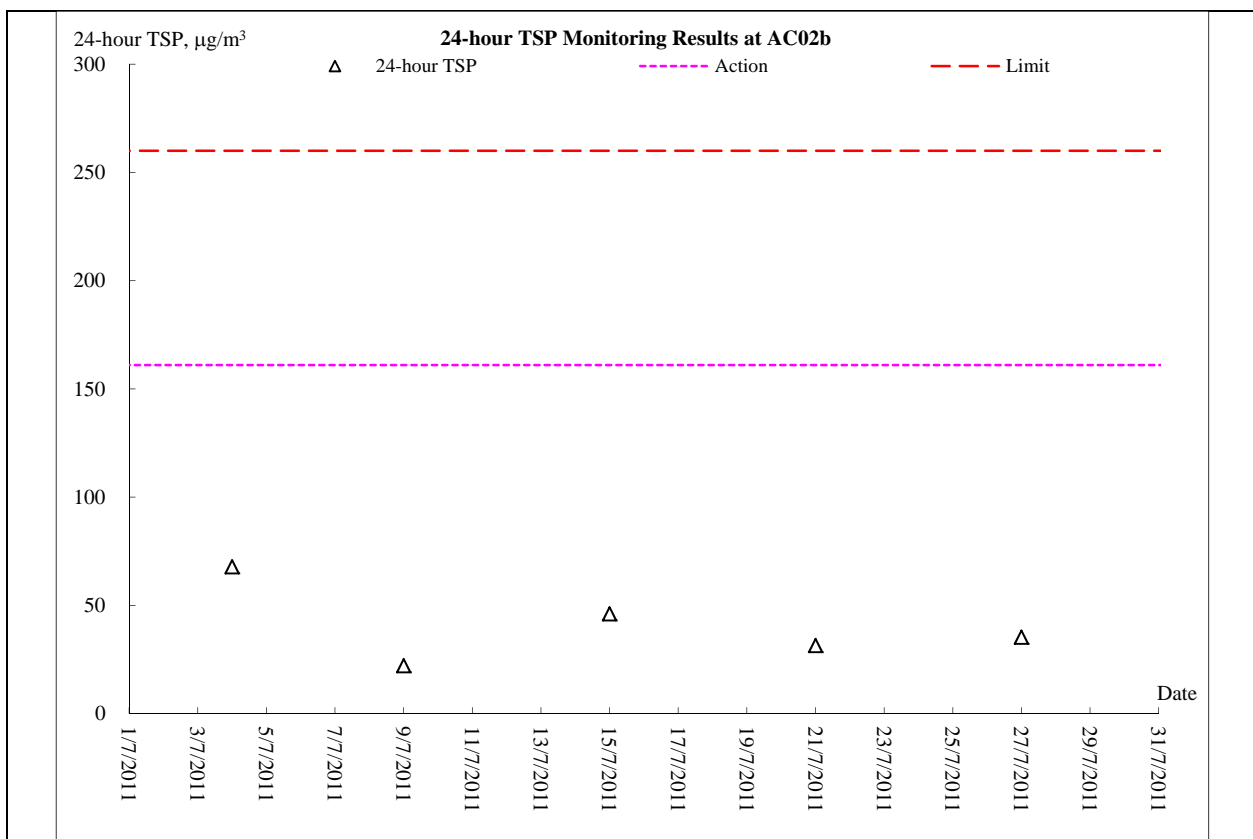
Appendix H

Graphical Plots of Monitoring Results

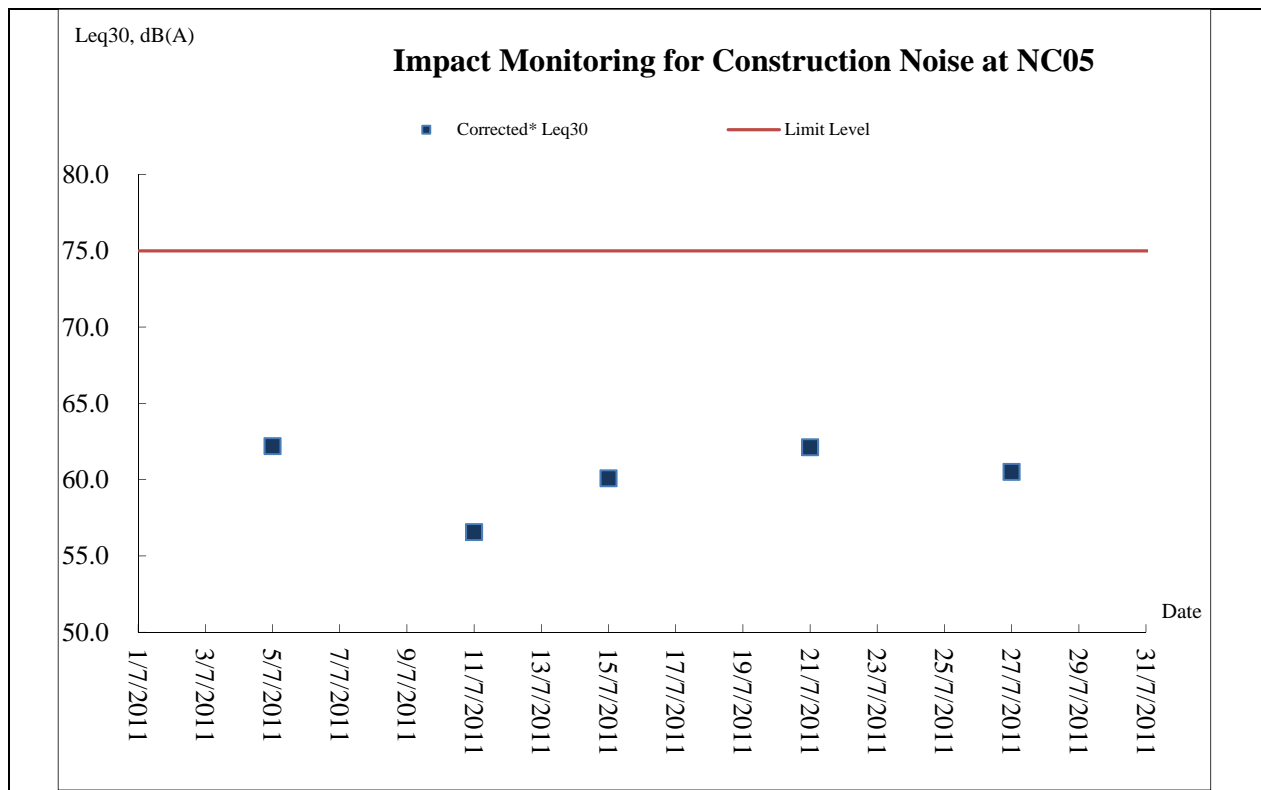
1-hour TSP Monitoring



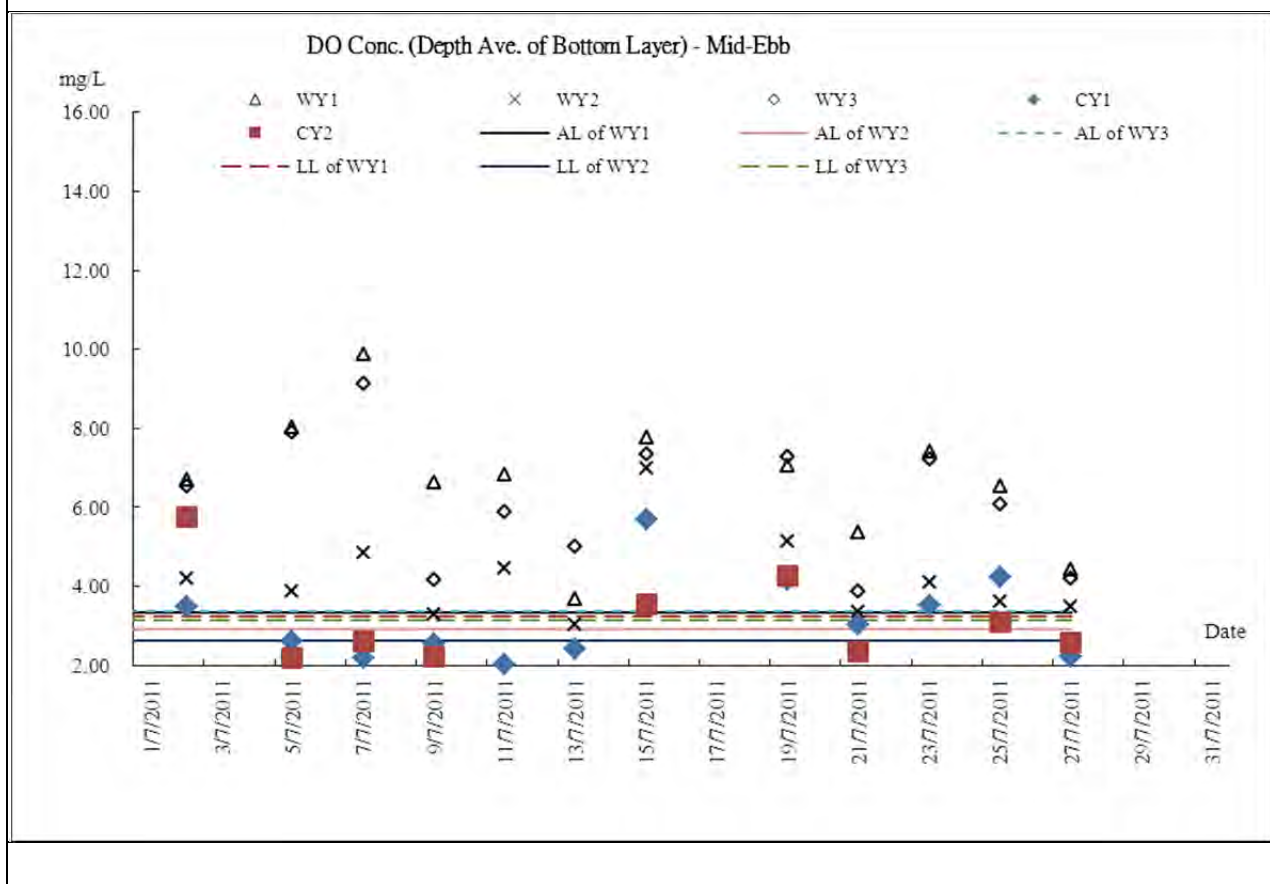
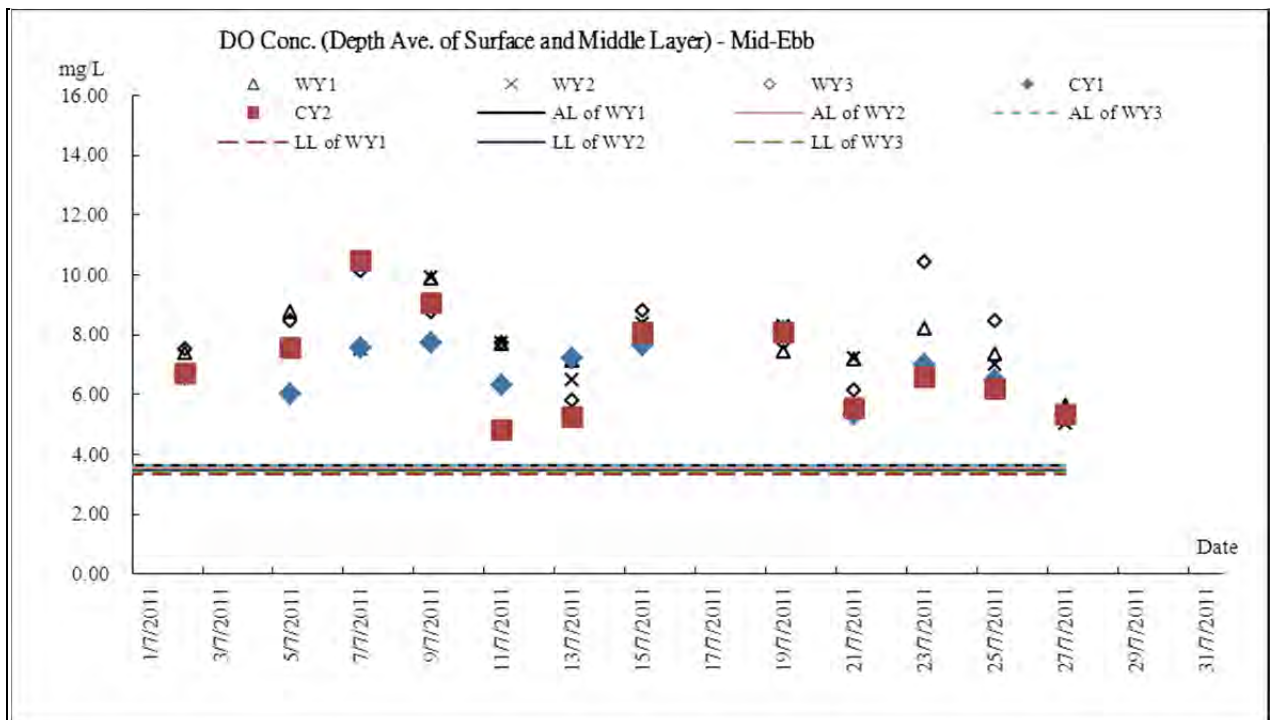
24-hour TSP Monitoring

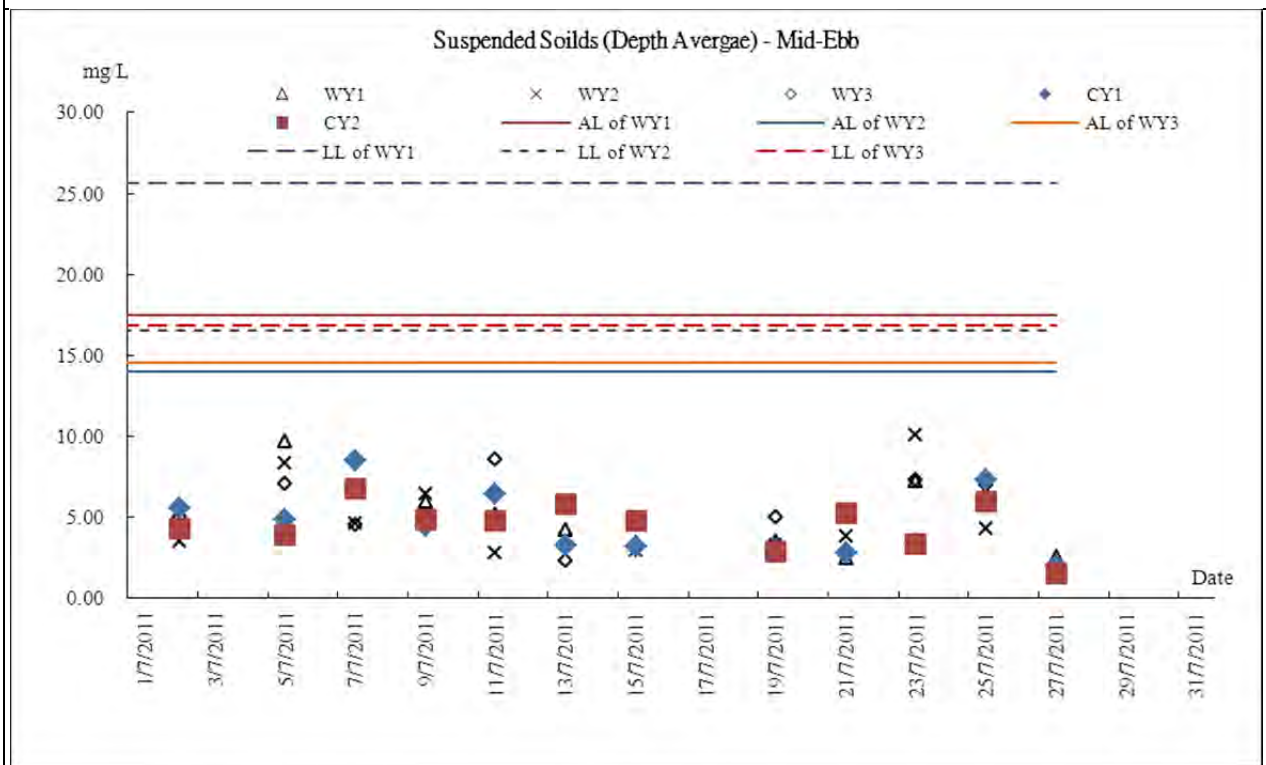
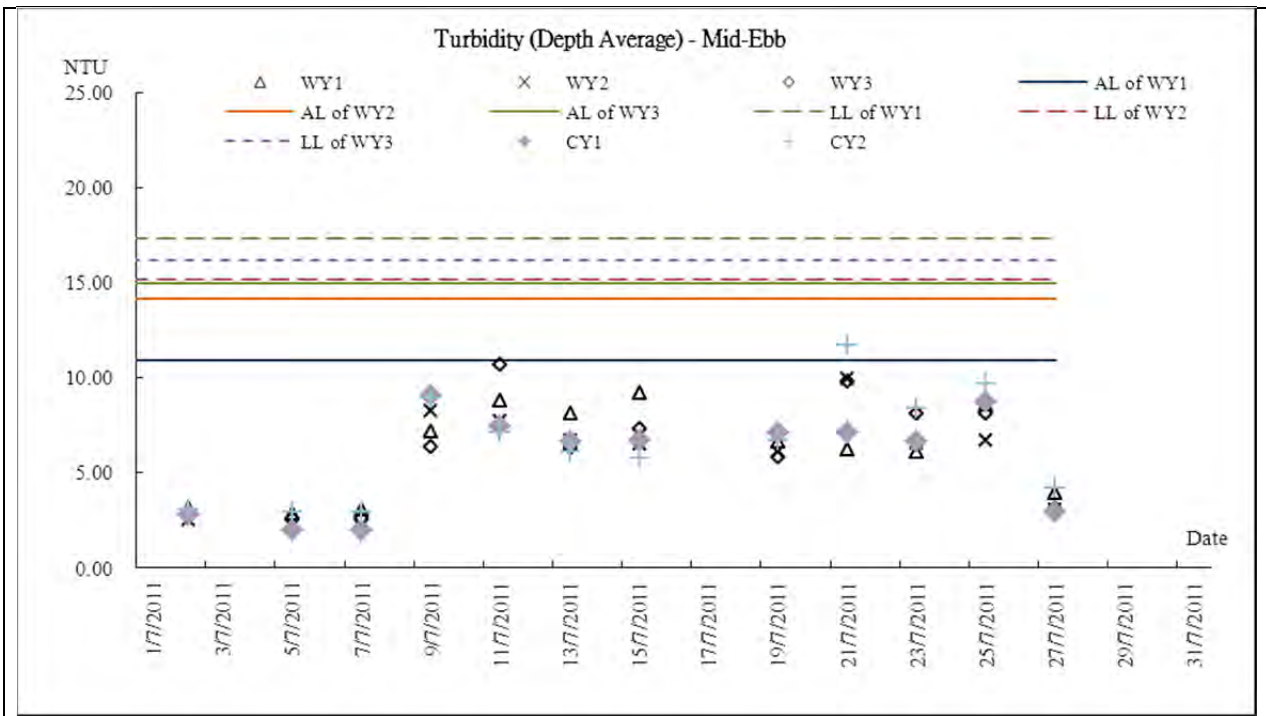


Noise Monitoring

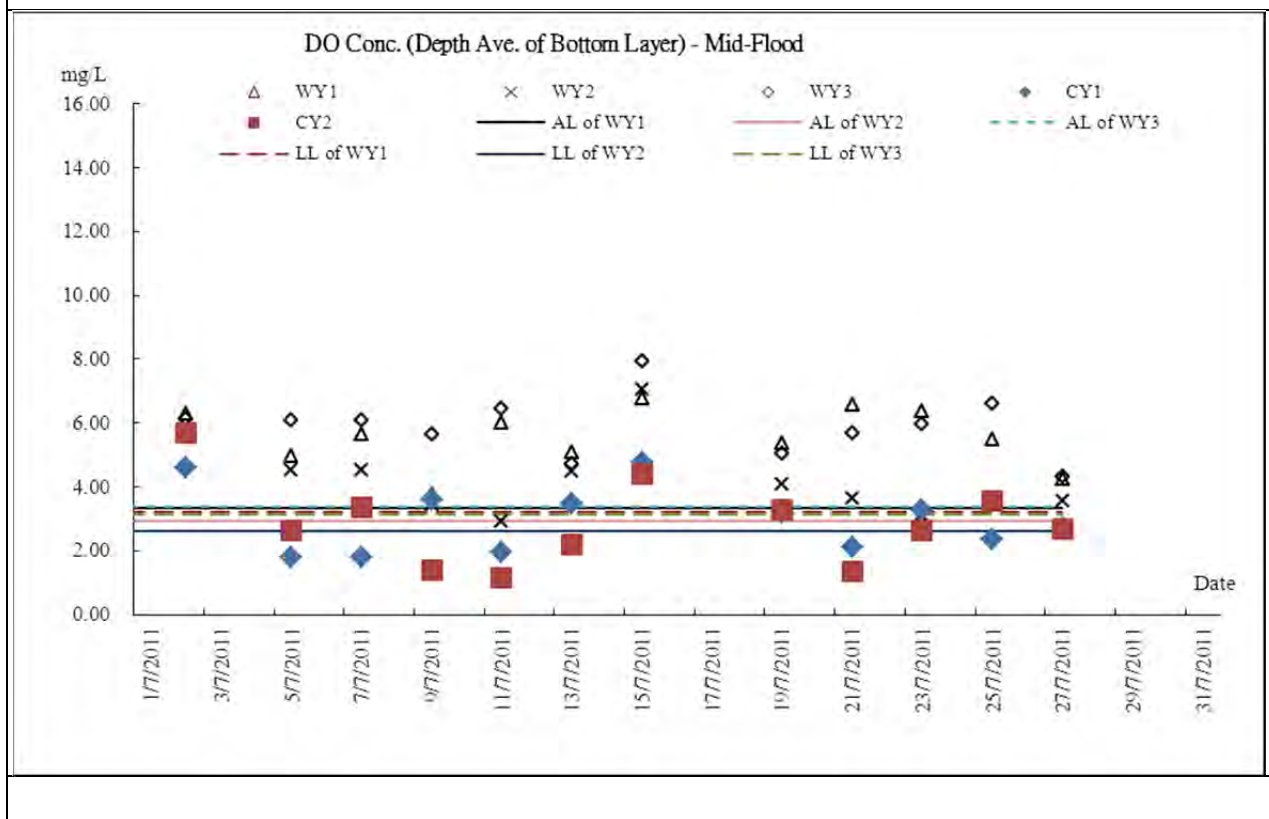
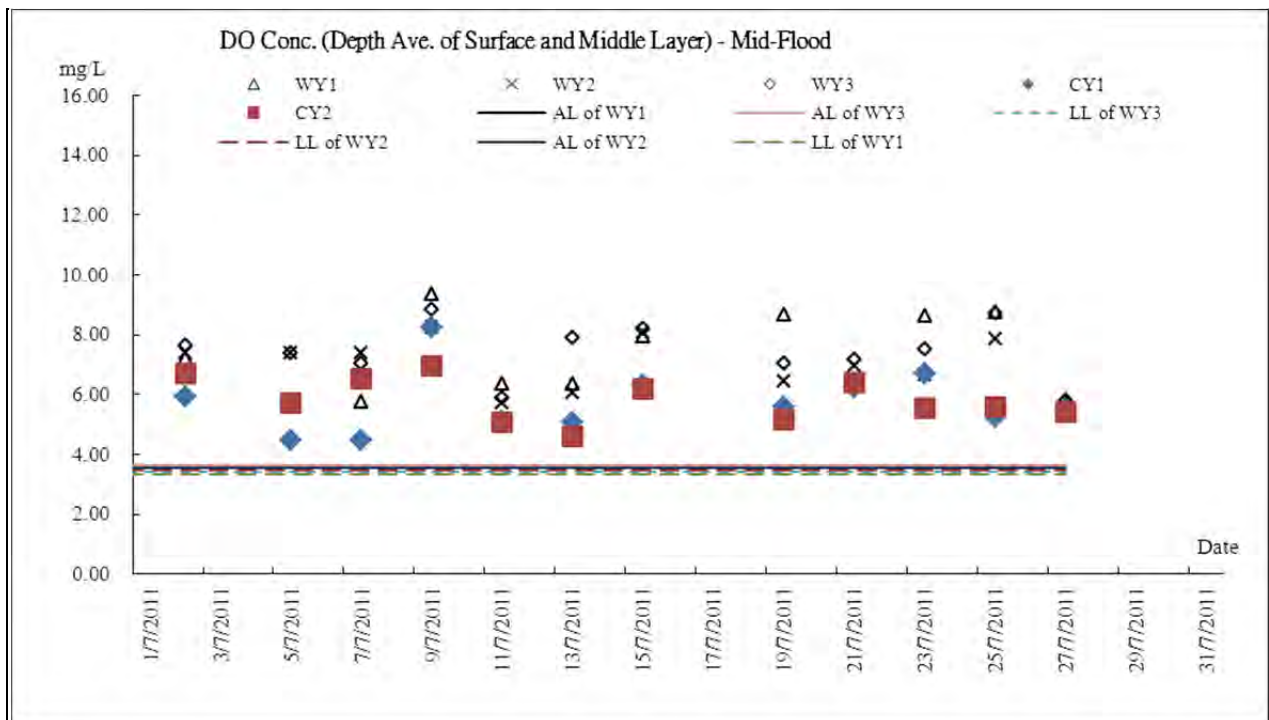


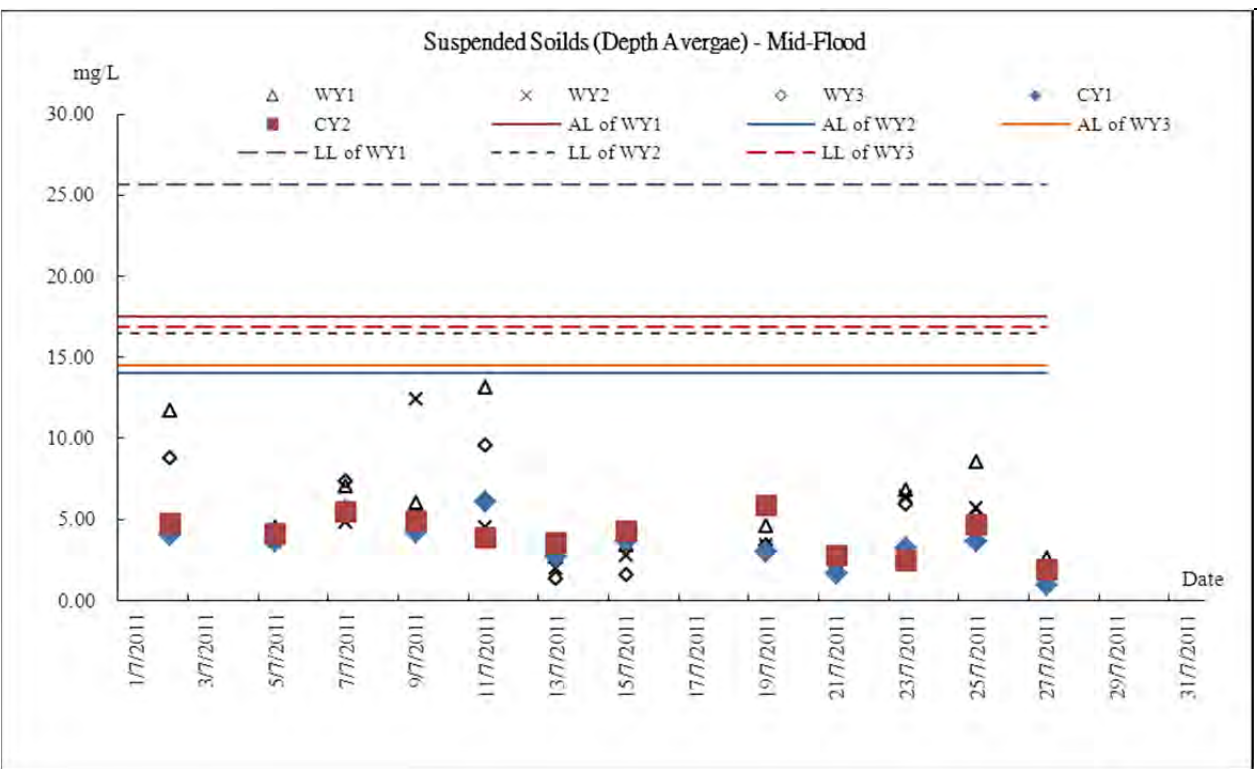
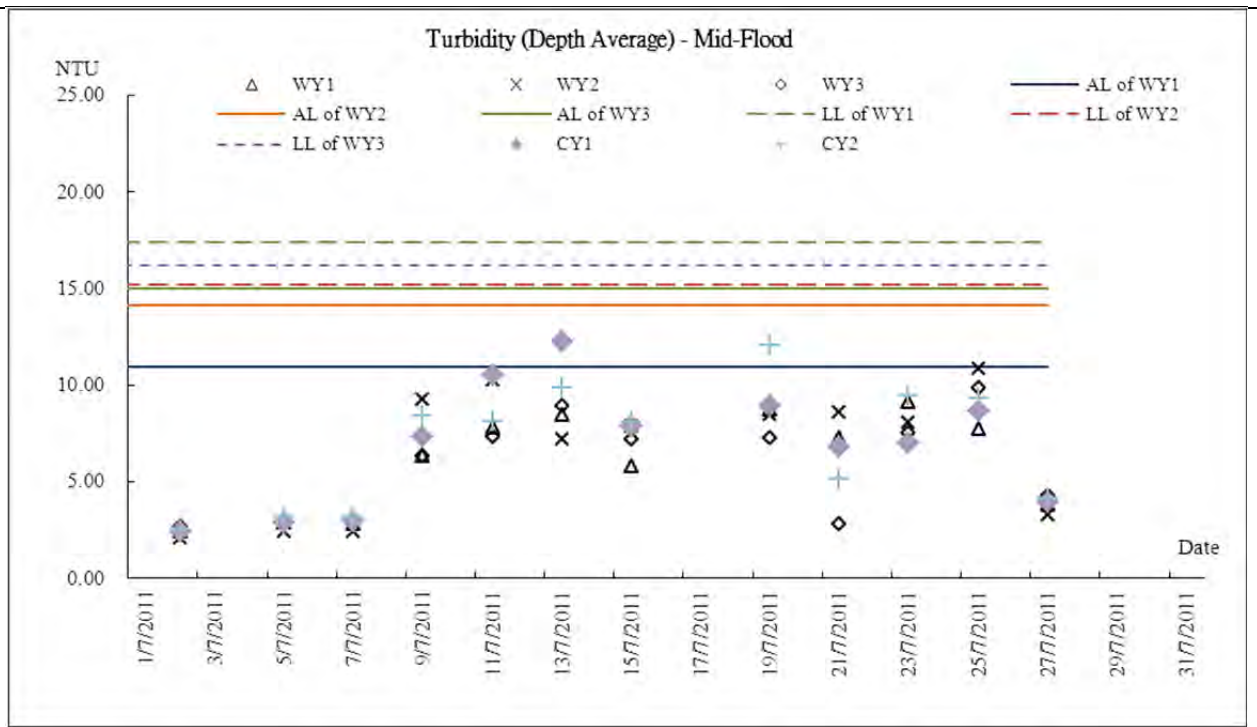
Marine Water Quality Monitoring – Mid Ebb Tide





Marine Water Quality Monitoring – Mid-Flood Tide





Appendix I

Meteorological Information

Meteorological Data Extracted from HKO during the Reporting Period

Date		Weather
1-Jul-11	Fri	Fine and very hot.
2-Jul-11	Sat	Moderate southwesterly winds.
3-Jul-11	Sun	Fine and very hot.
4-Jul-11	Mon	Moderate southwesterly winds.
5-Jul-11	Tue	Mainly cloudy with showers.
6-Jul-11	Wed	Moderate easterly winds
7-Jul-11	Thu	Mainly cloudy with showers.
8-Jul-11	Fri	Light to moderate southwesterly winds.
9-Jul-11	Sat	Moderate southwesterly winds, occasionally fresh.
10-Jul-11	Sun	Mainly cloudy with showers.
11-Jul-11	Mon	Mainly cloudy with showers
12-Jul-11	Tue	Light to moderate southerly winds.
13-Jul-11	Wed	Sunny intervals during the day.
14-Jul-11	Thu	Moderate easterly winds
15-Jul-11	Fri	Cloudy with occasional rain.
16-Jul-11	Sat	Cloudy with occasional rain and squally thunderstorms.
17-Jul-11	Sun	Moderate westerly winds
18-Jul-11	Mon	Cloudy with showers and a few squally thunderstorms
19-Jul-11	Tue	Mainly cloudy with occasional rain .
20-Jul-11	Wed	Mainly cloudy with showers.
21-Jul-11	Thu	Sunny intervals during the day.
22-Jul-11	Fri	Mainly fine and very hot.
23-Jul-11	Sat	Mainly cloudy with showers
24-Jul-11	Sun	Moderate westerly winds
25-Jul-11	Mon	Light to moderate southerly winds.
26-Jul-11	Tue	Mainly fine and very hot.
27-Jul-11	Wed	Moderate westerly winds
28-Jul-11	Thu	Cloudy with squally showers and thunderstorms.
29-Jul-11*	Fri	Cloudy with squally showers and a few thunderstorms; strong wind and tides
30-Jul-11	Sat	Fine and hot. Light winds.
31-Jul-11	Sun	Hot with sunny periods

**Due to inclement weather and marine condition, marine water monitoring on 29 July was cancelled.*

Appendix J

Monthly Summary Waste Flow Table

Monthly Summary Waste Flow Table for July 2011

Month	Actual Quantities of Inert C&D Materials Generated Monthly												Actual Quantities of C&D Wastes Generated Monthly										
	Total Quantity Generated (a) = (c)+(d)+(e)		Hard Rock and Large Broken Concrete (b)		Reused in the Contract (c)		Reused in other Projects (d)		Disposed as Public Fill (e)		Imported Fill (f)		Metals		Paper/ cardboard packaging		Plastics		Chemical Waste		Others, e.g. rubbish		
	(in '000m ³)		(in '000m ³)		(in '000m ³)		(in '000m ³)		(in '000m ³)		(in '000m ³)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in tonne)		
	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	
2010	4.522	0.030	0.068	0.104	0.488	0.000	0.000	0.000	0.000	4.033	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.460
Jan	0.985	3.045	0.003	0.013	0.120	0.419	0.000	2.626	0.865	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.240
Feb	0.377	0.000	0.000	0.043	0.000	0.000	0.000	0.000	0.377	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.350
Mar	0.758	1.175	0.002	0.106	0.006	0.000	0.000	1.175	0.752	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.360
Apr	1.135	1.339	0.017	0.025	0.112	0.180	0.000	1.159	1.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.830	5.160
May	0.614	1.362	0.030	0.036	0.014	0.400	0.000	0.962	0.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.150	0.860
Jun	0.505	1.014	0.000	0.022	0.000	0.060	0.000	0.954	0.505	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.610	1.510
Sub-total	8.8954	7.9653	0.1184	0.3497	0.7397	1.0590	0.0000	6.8760	8.1558	0.0303	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	15.5900	28.9400
Jul	0.824	1.077	0.000	0.004	0.000	0.000	0.000	1.077	0.824	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.000	0.510
Aug																							
Sep																							
Oct																							
Nov																							
Dec																							
Total	9.7194	9.0423	0.1184	0.3540	0.740	1.059	0.000	7.953	8.9798	0.0303	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.59	29.45
	18.762		0.472		1.799		7.953		9.010		0.000		0.000		0.000		0.000		0.000		50.04		

Remark: Assume 1.0 m³ vehicle dump load = 1.6 tonnes C&D materials

YSW: Yung Shue Wan

SKW: Sok Kwu Wan

Appendix K

Weekly Site Inspection Checklist

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

Inspected by _____
ETL/ ET's Representative: Ray Cheung
RE's Representative: C.C. Cheung
Contractor's Representative: Edwin Leung
IEC's Representative: _____

Date: 5 July 2011

Time: 11:00

PART A: GENERAL INFORMATION

Environmental Permit No.

Weather: Sunny Fine Cloudy Rainy
 Temperature: 29.7 °C
 Humidity: High Moderate Low
 Wind: Strong Breeze Light Calm

EP- 282/2007

Area Inspected

1 Yung Shue Wan

PART B: SITE AUDIT

Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance;	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
	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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.07	Is drainage system well maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.09	Are temporary exposed slopes properly covered?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.10	Are earthworks final surfaces well compacted or protected?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.11	Are manholes adequately covered or temporarily sealed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.12	Are there any procedures and equipment for rainstorm protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.13	Are wheel washing facilities well maintained?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.14	Is runoff from wheel washing facilities avoided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.15	Are there toilets provided on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.16	Are toilets properly maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.18	Is the oil/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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.22	Are the oil interceptors/grease traps maintained properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
1.23	Is used bentonite recycled where appropriate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.24	Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m ³ capacities for sedimentation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.25	No excavation is undertaken in the settlement area.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.26	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.27	Mobile toilets should provide on site and located away the stream course.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.28	License collector should be employed for handling the sewage of mobile toilet.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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Section 2: Air Quality							
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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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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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Section 3: Noise							
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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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3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.02	Are receptacles available for general refuse collection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.03	Is general refuse sorting or recycling implemented?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.04	Is general refuse disposed of properly and regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.05	Is the Contractor registered as a chemical waste producer?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.06	Are the chemical waste containers 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 waste storage area properly labelled?	<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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.11	Are the chemical wastes disposed of by licensed collectors?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.13	Are chemical/fuel storage areas bounded?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.14	Are designated areas identified for storage and sorting of construction wastes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.15	Are construction wastes sorted (inert and non-inert) on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.16	Are construction wastes reused?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.17	Are construction wastes disposed of properly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.20	Are appropriate procedures followed if contaminated material exists?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.23	Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 5: Landscape & Visual							
5.01	Are retained and transplanted trees in health condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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5.02	Are retained and transplanted trees properly protected?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.03	Are surgery works carried out for the damaged trees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 7: Others							
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"/>	

Remarks

Findings of Site Inspection (5 July 2011):

Follow up:



The stagnant water was drained away.

Stagnant water was accumulated on the roof of building structure. The Contractor should drain away stagnant water or apply larvicidal oil to avoid mosquito breeding.

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

Ray

() () (Ray Cheung) () ()

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

Inspected by _____
ETL/ ET's Representative: F.N. Wong
RE's Representative: C.C. Cheung
Contractor's Representative: Edwin Leung
IEC's Representative: _____

Date: 12 July 2011

Time: 12:00

PART A: GENERAL INFORMATION

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

Environmental Permit No.

EP- 282/2007

Area Inspected

1 Yung Shue Wan

PART B: SITE AUDIT

Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance;	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
	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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.07	Is drainage system well maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.09	Are temporary exposed slopes properly covered?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.10	Are earthworks final surfaces well compacted or protected?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.11	Are manholes adequately covered or temporarily sealed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.12	Are there any procedures and equipment for rainstorm protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.13	Are wheel washing facilities well maintained?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.14	Is runoff from wheel washing facilities avoided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.15	Are there toilets provided on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.16	Are toilets properly maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.18	Is the oil/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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.22	Are the oil interceptors/grease traps maintained properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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3.11	Are valid Construction Noise Permit(s) posted at site entrances?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.02	Are receptacles available for general refuse collection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.03	Is general refuse sorting or recycling implemented?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.04	Is general refuse disposed of properly and regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.05	Is the Contractor registered as a chemical waste producer?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.06	Are the chemical waste containers 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 waste storage area properly labelled?	<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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.11	Are the chemical wastes disposed of by licensed collectors?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.13	Are chemical/fuel storage areas bounded?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.14	Are designated areas identified for storage and sorting of construction wastes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.15	Are construction wastes sorted (inert and non-inert) on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.16	Are construction wastes reused?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.17	Are construction wastes disposed of properly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.20	Are appropriate procedures followed if contaminated material exists?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.23	Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 5: Landscape & Visual							
5.01	Are retained and transplanted trees in health condition?	<input checked="" type="checkbox"/>	<input 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
5.02	Are retained and transplanted trees properly protected?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.03	Are surgery works carried out for the damaged trees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 7: Others							
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"/>	

Remarks

Findings of Site Inspection (12 July 2011):

Follow up:

No environmental issue was observed during the site inspection..

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



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

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: Shanika Chui
Checklist No. TCS512A190711
Time: 12:00

Date: 19 July 2011

PART A: GENERAL INFORMATION

Weather: Sunny Fine Cloudy Rainy

Temperature: °C

Humidity: High Moderate Low

Wind: Strong Breeze Light Calm

Environmental Permit No.
 EP- 282/2007

Area Inspected
 1 Yung Shue Wan

PART B: SITE AUDIT

Note: Not Obs.: 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
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Section 1: Water Quality

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

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1.23	Is used bentonite recycled where appropriate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.24	Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m3 capacities for sedimentation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.25	No excavation is undertaken in the settlement area.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.26	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.27	Mobile toilets should provide on site and located away the stream course.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.28	License collector should be employed for handling the sewage of mobile toilet.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.29	Is ponding /stand water avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 2: Air Quality							
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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.11	Is dark smoke emission from plant/equipment avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	<input 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"/>	
Section 3: Noise							
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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.02	Are receptacles available for general refuse collection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.03	Is general refuse sorting or recycling implemented?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.04	Is general refuse disposed of properly and regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.05	Is the Contractor registered as a chemical waste producer?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.06	Are the chemical waste containers 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 waste storage area properly labelled?	<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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.11	Are the chemical wastes disposed of by licensed collectors?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.13	Are chemical/fuel storage areas bounded?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.14	Are designated areas identified for storage and sorting of construction wastes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.15	Are construction wastes sorted (inert and non-inert) on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.16	Are construction wastes reused?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.17	Are construction wastes disposed of properly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.20	Are appropriate procedures followed if contaminated material exists?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.23	Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 5: Landscape & Visual							
5.01	Are retained and transplanted trees in health condition?	<input checked="" type="checkbox"/>	<input 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
5.02	Are retained and transplanted trees properly protected?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.03	Are surgery works carried out for the damaged trees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 7: Others							
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"/>	

Remarks

Findings of Site Inspection (19 July 2011):

Follow up:

No environmental issue was observed during the site inspection.

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

Ray

() () (Ray Cheung) () ()

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

Inspected by _____
ETL/ ET's Representative: Ray Cheung
RE's Representative: C.C. Cheung
Contractor's Representative: Edwin Leung
IEC's Representative: _____

Date: 26 July 2011

Time: 11:00

PART A: GENERAL INFORMATION

Weather: Sunny Fine Cloudy Rainy
 Temperature: 29.8 °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;	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
	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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.07	Is drainage system well maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.09	Are temporary exposed slopes properly covered?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.10	Are earthworks final surfaces well compacted or protected?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.11	Are manholes adequately covered or temporarily sealed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.12	Are there any procedures and equipment for rainstorm protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.13	Are wheel washing facilities well maintained?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.14	Is runoff from wheel washing facilities avoided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.15	Are there toilets provided on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.16	Are toilets properly maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.18	Is the oil/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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.22	Are the oil interceptors/grease traps maintained properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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1.23	Is used bentonite recycled where appropriate?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.24	Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m ³ capacities for sedimentation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.25	No excavation is undertaken in the settlement area.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.26	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.27	Mobile toilets should provide on site and located away the stream course.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.28	License collector should be employed for handling the sewage of mobile toilet.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.29	Is ponding /stand water avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 2: Air Quality							
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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.11	Is dark smoke emission from plant/equipment avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	<input 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"/>	
Section 3: Noise							
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"/>	

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3.09	Are Construction Noise Permit(s) applied for percussive piling works?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.02	Are receptacles available for general refuse collection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.03	Is general refuse sorting or recycling implemented?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.04	Is general refuse disposed of properly and regularly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.05	Is the Contractor registered as a chemical waste producer?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.06	Are the chemical waste containers 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 waste storage area properly labelled?	<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 checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.11	Are the chemical wastes disposed of by licensed collectors?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.13	Are chemical/fuel storage areas bounded?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.14	Are designated areas identified for storage and sorting of construction wastes?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.15	Are construction wastes sorted (inert and non-inert) on site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.16	Are construction wastes reused?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.17	Are construction wastes disposed of properly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.20	Are appropriate procedures followed if contaminated material exists?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.23	Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 5: Landscape & Visual							
5.01	Are retained and transplanted trees in health condition?	<input checked="" type="checkbox"/>	<input 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
5.02	Are retained and transplanted trees properly protected?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.03	Are surgery works carried out for the damaged trees?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Section 7: Others							
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"/>	

Remarks

Findings of Site Inspection (26 July 2011):

Follow up:

No environmental issue was observed during the site inspection.

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

Ray

() () (Ray Cheung) () ()

Appendix L

Implementation Schedule of Mitigation Measures

Implementation Schedule of Air Quality Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation & Guidelines
					D	C	O	
Construction Phase								
2.3.18	2.10.2	Adopting the following good site practices and follow the dust control requirements of the Air Pollution Control (Construction Dust) Regulation: <ul style="list-style-type: none"> • 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 should have properly fitting side and tail boards. Materials should not be loaded to a level higher than the side and tail boards, and should be covered by a clean tarpaulin. 	Work site / during construction	All contractors		√		TM- EIAO, APCO, Air Pollution Control (Construction Dust) Regulation
2.10.3	Section 2	1 hour and 24 hour dust monitoring and site audit	Designated air monitoring locations / throughout construction period	Contractor/ Environmental Team		√		EM&A Manual

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

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

N/A Not applicable

Implementation Schedule of Noise Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location/Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
Construction Phase								
2.4.16	3.8.2	Implementation of following measures during the sewer construction: <ul style="list-style-type: none"> • Use of quiet PME or method; • Restriction on the number plant (1 item for each type of plant); and • Good Site Practices <ul style="list-style-type: none"> ➤ Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program. ➤ Mobile plant, if any, should be sited as far away from NSRs as possible. ➤ Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum. ➤ Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. ➤ Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities. 	Work site /during the construction of Sewer.	Contractor		√		EIAO-TM, NCO
2.10.5 to 2.10.9	Section 35	Noise monitoring	Designated noise monitoring locations / throughout construction period	Contractor/ Environmental Team		√		EM&A Manual

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

N/A Not applicable

Implementation Schedule of Water Quality Control Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location (duration /completion of measures)	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines
					D	C	O	
Construction Phase								
2.5.23	4.12.1	No-dig method using Horizontal Directional Drilling (HDD) would be used for the installation of main portion of outfall pipes	Marine works site / During construction of submarine outfall	Contractor		√		
4.5.38	4.12.3	<p>Dredging Works</p> <p>Implementation of following measures during the dredging works:</p> <ul style="list-style-type: none"> dredging should be undertaken using closed grab dredgers with a maximum total production rate of 55m³/hr; 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; dredging operation should be undertaken during ebb tide only; 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 should 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; loading of barges should be controlled to prevent splashing of dredged material to the surrounding water, and barges should not be filled to a level which will cause the overflow of materials or polluted water during loading or transportation; and 	Marine works site and at the identified water sensitive receivers/ During construction	Contractor		√		

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location (duration /completion of measures)	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines
					D	C	O	
		<ul style="list-style-type: none"> the decks of all vessels should be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard. 						
2.5.39	4.12.4	<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"> 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 minimizing 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 should 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 	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"> Debris and rubbish generated on-site should be collected, handled and disposed of properly to avoid entering the nearby coastal waters and stormwater drains. 	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"> 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. 						
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

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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"> • 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. 	Marine works site and at the identified sensitive receivers	Contractor		√		

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

N/A Not applicable

Implementation Schedule of Solid Waste Management Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
Construction Phase								
2.9.14	6.6.2	<u>Good site practices</u> <ul style="list-style-type: none"> 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 Training (proper waste management and chemical handling procedure) should be provided for site staffs 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. 	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"> 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 	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"> 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. 						
2.9.18	6.2.5	<u>General Site Wastes</u> <ul style="list-style-type: none"> A collection area for construction site waste should be provided where waste can be stored prior to removal from site An enclosed and covered area for the collection of the waste is recommended to reduce 'wind blow' of light material 	Work sites/During construction	Contractor		√		Public Health and Municipal Services Ordinance (Cap. 132)
2.9.19	6.2.6 and 6.2.7	<u>Chemical Wastes</u> <ul style="list-style-type: none"> After use, chemical waste should be handled according to the Code of Practice on the Package, Labelling and Storage of Chemical Wastes Any unused chemicals or those with remaining functional capacity should be recycled Waste should be properly stored on site within suitably designed containers and should be collected by an approved licensed waste collectors for disposal at the Chemical Waste Treatment Facility or other licenced facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation under the Waste Disposal Ordance. 	Work sites/During construction	Contractor		√		Waste Disposal (Chemical Waste) (General) Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Wastes

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

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

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

N/A Not applicable

Implementation Schedule of Ecological Impact Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages			Relevant Legislation & Guidelines
					D	C	O	
Construction Phase								
2.10.11 and 2.10.12	7.2 and 7.3	Carry out monitoring of corals before, during and after marine works.	Work sites / during construction phase	Contractor		√		
2.6.45 to 2.6.48	7.6.1	Use horizontal directional drilling to avoid direct disturbance to corals	Marine works site / during dredging works	Contractor		√		
2.6.57 to 2.6.58	4.12.3	Deploying of 2-layer silt curtains with the first layer enclosing the grab 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	
Construction Phase								
2.8.37	9.2.2	Careful and efficient transplanting of affected trees to temporary or final transplant location (the proposed tree to be transplanted is a semi-mature <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 is the 3rd coral monitoring report present the result coral monitoring exercise of corals at YSW and SW in June 2011 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.
 - Bleached 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 cm² quadrat with a 10x10 cm² 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 7th, 14th, 22nd and 28th July 2011. The weather conditions were summarised in **Table 5-1**.

Table 5-1 Weather Conditions on 7th, 14th, 22nd and 28th July 2011

Date	7 th July		14 th July		22 nd July		28 th July	
	YSW	SW	YSW	SW	YSW	SW	YSW	SW
Survey Time	9:00	8:00	9:00	8:00	9:00	8:00	9:00	8:00
Tidal Height	1.2m		2.2m		1.2m		2.1m	
Air Temperature	33° C		30° C		34° C		35° C	
Water Temperature	22° C		22° C		23° C		24° C	
Water Depth	2m	2.5m	2m	2.5m	2m	2.5m	2m	2.5m
Wind Speed	Southeast force 3-4		South force 3-4		Southwest force 4-5		East force 3	
Weather	Sunny		Cloudy with isolated showers		Sunny		Rainy	
Water Visibility	0.5m		0.5m		0.5m		0.5m	

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 7th, 14th, 22nd and 28th July- 2011 and their species name, size and health condition were shown in **Table 5-2** to **Table 5-5**.
- 5.3 No sediment was recorded 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 I**.
- 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 7th July 2011

Site: Yung Shue Wan				Sediment Cover (%)	Bleaching (%)		Total/Partial Mortality (%)	Remarks
Coral No.	Species Name	Specific Location	Size (cm) (Max. Length)		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>Porites lutea</i>	Boulder	36	0	0	0	0	N/A
12	<i>Favites pentagona</i>	Boulder	20	0	0	0	0	N/A
13	<i>Goniopora stutchburyi</i>	Boulder	28	0	0	0	0	N/A
14	<i>Porites lobata</i>	Boulder	42	0	0	0	0	N/A
15	<i>Goniastrea aspera</i>	Boulder	19	1	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 14th July 2011

Site: Yung Shue Wan				Sediment Cover (%)	Bleaching (%)		Total/Partial Mortality (%)	Remarks
Coral No.	Species Name	Specific Location	Size (cm) (Max. Length)		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				Sediment Cover (%)	Bleaching (%)		Total/Partial Mortality (%)	Remarks
Coral No.	Species Name	Specific Location	Size (cm) (Max. Length)		Blanched/Pale	Bleached		
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>Porites lutea</i>	Boulder	36	0	0	0	0	N/A
12	<i>Favites pentagona</i>	Boulder	20	0	0	0	0	N/A
13	<i>Goniopora stutchburyi</i>	Boulder	28	0	0	0	0	N/A
14	<i>Porites lobata</i>	Boulder	42	0	0	0	0	N/A
15	<i>Goniastrea aspera</i>	Boulder	19	0	0	0	0	N/A
16	<i>Cyphastrea serailia</i>	Boulder	16	0	0	0	0	N/A
17	<i>Plesiastrea versipora</i>	Boulder	27	0	0	0	0	N/A
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 5-4 Species Name, Size and Heath Condition for Tagged Corals in YSW on 22nd July 2011

Site: Yung Shue Wan				Sediment Cover (%)	Bleaching (%)		Total/Partial Mortality (%)	Remarks
Coral No.	Species Name	Specific Location	Size (cm) (Max. Length)		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>Porites lutea</i>	Boulder	36	0	0	0	0	N/A
12	<i>Favites pentagona</i>	Boulder	20	0	0	0	0	N/A
13	<i>Goniopora stutchburyi</i>	Boulder	28	0	0	0	0	N/A
14	<i>Porites lobata</i>	Boulder	42	0	0	0	0	N/A
15	<i>Goniastrea aspera</i>	Boulder	19	0	0	0	0	N/A
16	<i>Cyphastrea serailia</i>	Boulder	16	0	0	0	0	N/A
17	<i>Plesiastrea versipora</i>	Boulder	27	0	0	0	0	N/A
18	<i>Goniopora stutchburyi</i>	Boulder	23	0	0	0	0	N/A

Site: Yung Shue Wan				Bleaching (%)			Total/Partial Mortality (%)	Remarks
Coral No.	Species Name	Specific Location	Size (cm) (Max. Length)	Sediment Cover (%)	Blanched/Pale	Bleached		
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 5-5 Species Name, Size and Health Condition for Tagged Corals in YSW on 28th July 2011

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>Porites lutea</i>	Boulder	36	0	0	0	0	N/A
12	<i>Favites pentagona</i>	Boulder	20	0	0	0	0	N/A
13	<i>Goniopora stutchburyi</i>	Boulder	28	0	0	0	0	N/A
14	<i>Porites lobata</i>	Boulder	42	0	0	0	0	N/A
15	<i>Goniastrea aspera</i>	Boulder	19	0	0	0	0	N/A
16	<i>Cyphastrea serailia</i>	Boulder	16	0	0	0	0	N/A
17	<i>Plesiastrea versipora</i>	Boulder	27	0	0	0	0	N/A
18	<i>Goniopora stutchburyi</i>	Boulder	23	0	0	0	0	N/A
19	<i>Cyphastrea serailia</i>	Boulder	21	0	0	0	0	N/A
20	<i>Porites lutea</i>	Boulder	52	0	0	0	0	N/A

Sham Wan

- 5.5 This site is mainly composed of bedrocks and big boulders down to 3.5 meters depth along the surveyed route. Areas deeper than 4 meters are mainly sandy bottoms. The coral coverage was about 10% in which most of corals were located on boulders or rock surfaces. 20 hard coral colonies were monitored on 7th, 14th, 22nd and 28th July-2011 and their species name, size and health condition were shown in **Table 5-6** to **Table 5-9**.
- 5.6 Corals in this site showed fair to healthy condition. 50% mortality of coral colony #12 (*Favia fava*) was recorded during monitoring on 14th July 2011 in which it was

suspected it was killed by coral feeding snail *Drupella* sp. A new coral colony (*Coscinaraea n* sp.) was re-tagged on 22nd July 2011 to replace the unhealthy coral #12. To report such incident, an investigation report for the partial dead coral was conducted and submitted to EPD and AFCD (ref: 1004/03.09.00.00/2769/L). Besides, 10% mortality of coral colony #16 (*Favia rutomana*) was recorded on 22nd July 2011. It was suspected the 10% dead was eaten by coral feeding snail *Drupella* sp. Since there is no further increased in % mortality to the coral during the next monitoring on 28 July 2011, the ecologist decides to closely monitor the health condition of the coral and no replacement would be made at this stage. The relevant investigation report has been submitted to the Contactor for further submission to EPD and AFCD. No sediment was recorded during the survey. No bleaching was recorded for other corals during the survey. 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 5-6 Species Name, Size and Health Condition for Tagged Corals in SW on 4th July 2011

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

Table 5-7 Species Name, Size and Heath Condition for Tagged Corals in SW on 14th July 2011

Site: Sham Wan				Bleaching (%)			Total/Partial Mortality (%)	Remarks
Coral No.	Species Name	Specific Location	Size (cm) (Max. Length)	Sediment Cover (%)	Blanched/Pale	Bleached		
1	<i>Favia fавus</i>	Boulder	14	0	0	0	0	N/A
2	<i>Favia rotumana</i>	Boulder	21	0	0	0	0	N/A
3	<i>Favia rotumana</i>	Boulder	27	0	0	0	0	N/A
4	<i>Favia fавus</i>	Rock	20	0	0	0	0	N/A
5	<i>Goniopora stutchburyi</i>	Bedrock	32	0	0	0	0	N/A
6	<i>Porites lobata</i>	Bedrock	43	0	0	0	0	N/A
7	<i>Porites lobata</i>	Boulder	23	0	0	0	0	N/A
8	<i>Goniopora stutchburyi</i>	Bedrock	29	0	0	0	0	N/A
9	<i>Favites pentagona</i>	Bedrock	31	0	0	0	0	N/A
10	<i>Porites lobata</i>	Bedrock	34	0	0	0	0	N/A
11	<i>Porites lobata</i>	Boulder	33	0	0	0	0	N/A
12	<i>Favia fавus</i>	Rock	13	0	0	0	50	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 5-8 Species Name, Size and Heath Condition for Tagged Corals in SW on 22nd July 2011

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

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 rutumana</i>	Boulder	30	0	0	0	10	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 5-9 Species Name, Size and Heath Condition for Tagged Corals in SW on 28th July 2011







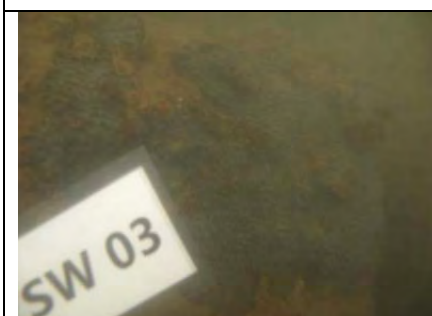
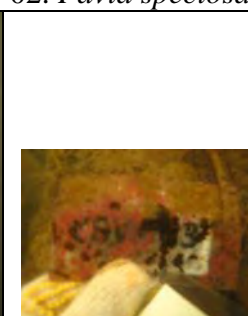


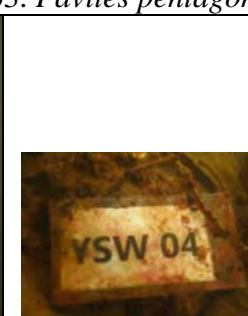

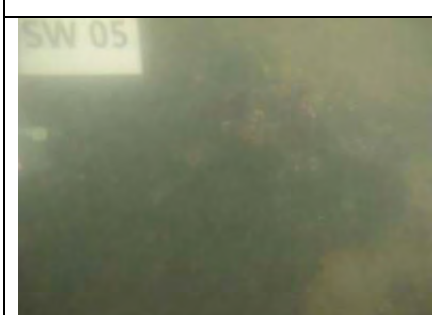


Site: Sham Wan					Bleaching (%)			
Coral No.	Species Name	Specific Location	Size (cm) (Max. Length)	Sediment Cover (%)	Blanched/Pale	Bleached	Total/Partial Mortality (%)	Remarks
1	<i>Favia fавus</i>	Boulder	14	0	0	0	0	N/A
2	<i>Favia rotumana</i>	Boulder	21	0	0	0	0	N/A
3	<i>Favia rotumana</i>	Boulder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



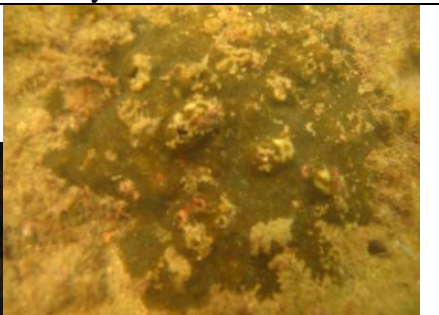
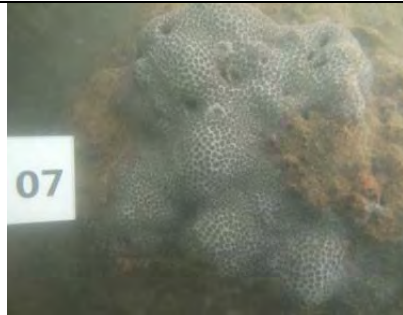










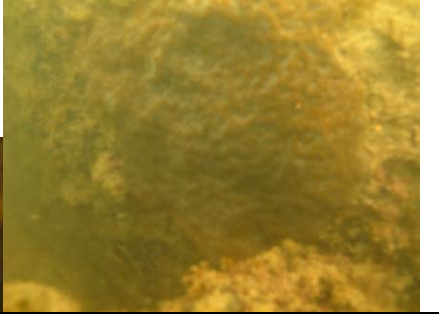
19	<i>Cyphastrea serailia</i>	Bedrock	39	0	0	0	0	N/A
20	<i>Cyphastrea serailia</i>	Bedrock	27	0	0	0	0	N/A



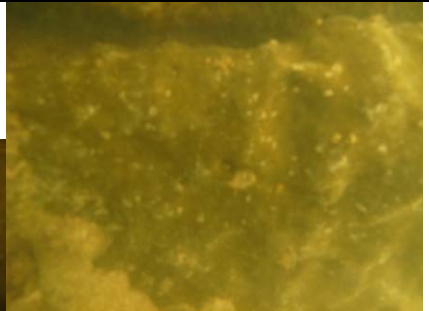












6. COMMENTS AND CONCLUSION




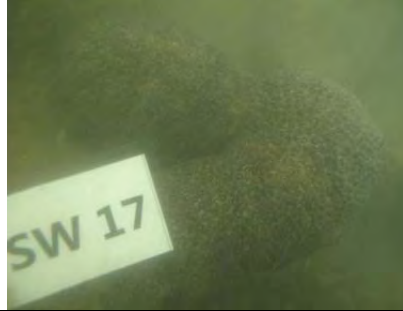




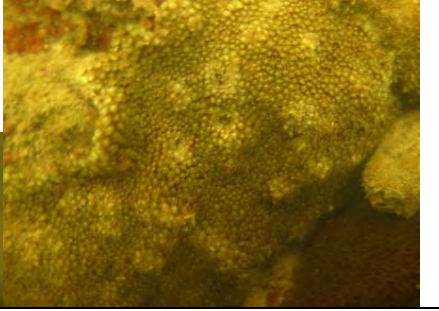
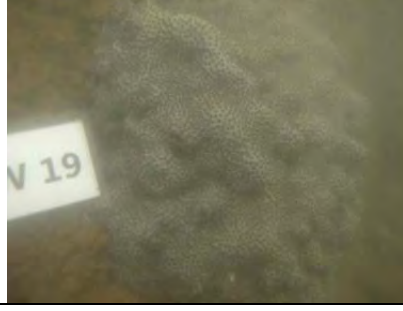




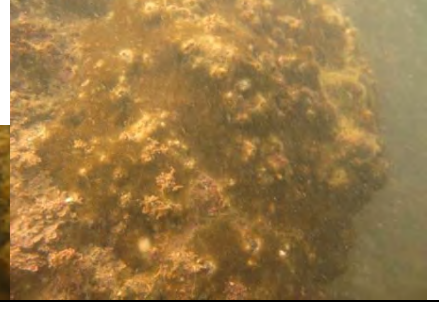
- 6.1 Coral monitoring were performed on 7th, 14th, 22nd and 28th July- 2011 at Yung Shue Wan and Sham Wan and 20 hard coral colonies were monitored at each sites.
- 6.2 No sediment was recorded during the survey in both sites. No beaching was recorded on both sites during the monitoring period. No mortality was recorded in Yung Shue Wan, 10% for mortality was recorded in Sham Wan coral #16 on 22nd July 2011. New coral #12 (*Coscinaraea n sp.*) was tagged on 22nd July 2011 at Sham Wan to replace the 50% mortality coral #12 *Favia favius* recorded on 14th July 2011. The coral coverage in both impact site (YSW) and control site (SW) are relatively low when compared with other coral communities in Hong Kong (such as Sharp Island and Hoi Ha Wan). Most of the coral colonies recorded in both site are common species in Hong Kong water.
- 6.3 Partially mortality on the soft/black corals was not recorded at the monitoring site. No bleaching or deterioration in the general condition of the coral fauna was observed. No adverse deterioration of the coral community was observed in the ecological monitoring results when compared with the baseline ecological monitoring results.



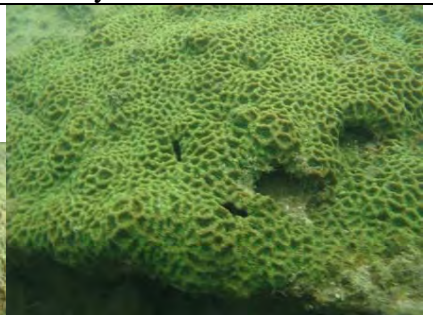



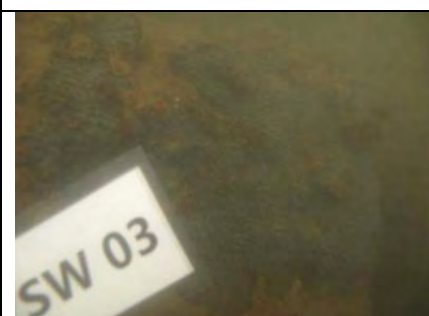
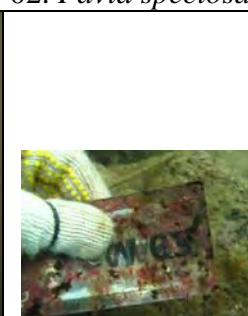




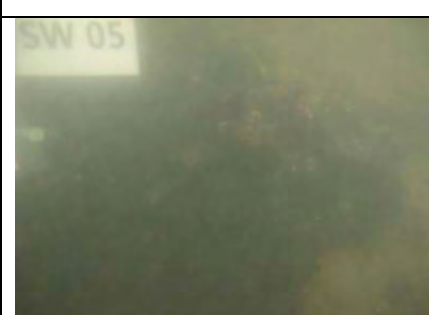
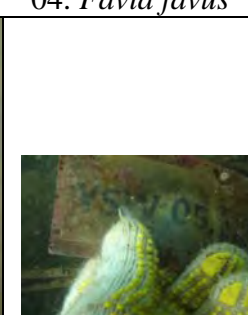

APPENDIX I Tagged Corals at Yung Shue Wan




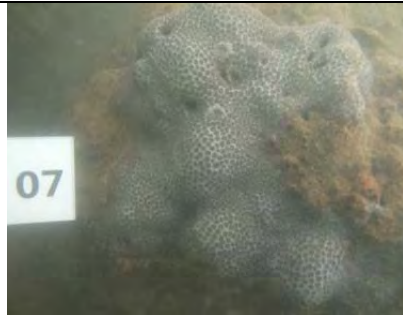











Baseline	7 th July 2011	
		
<i>01. Favites chinensis</i>		
		
<i>02. Favia speciosa</i>		
		
<i>03. Favites pentagona</i>		
		
<i>04. Favia favaus</i>		
		
<i>05. Porites lutea</i>		









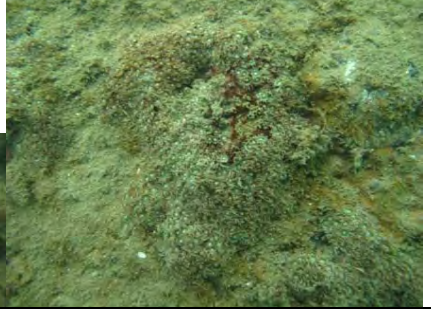






Baseline	7 th July 2011	
		
<i>06. Porites lobata</i>		
		
<i>07. Cyphastrea serailia</i>		
		
<i>08. Favites chinensis</i>		
		
<i>09. Favites pentagona</i>		
		
<i>10. Coscinaraea sp.</i>		




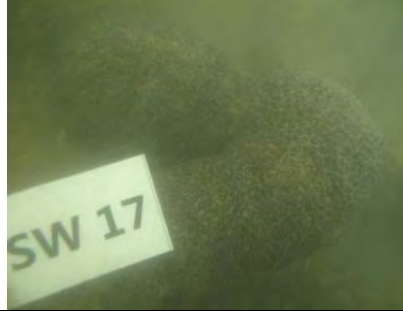




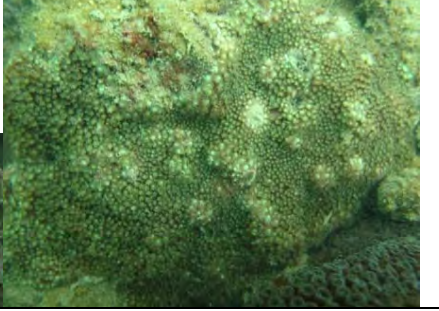
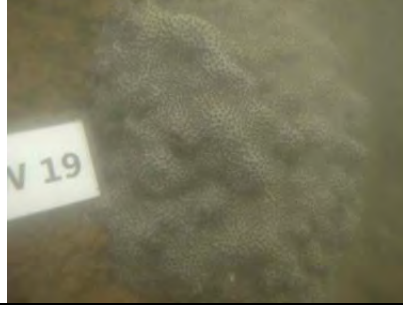





Baseline	7 th July 2011	
		
<i>11. Porites lutea</i>		
		
<i>12. Favites pentagona</i>		
		
<i>13. Goniopora stutchburyi</i>		
		
<i>14. Porites lobata</i>		
		
<i>15. Goniastrea aspera</i>		


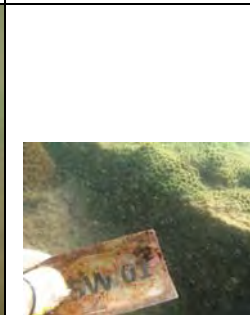




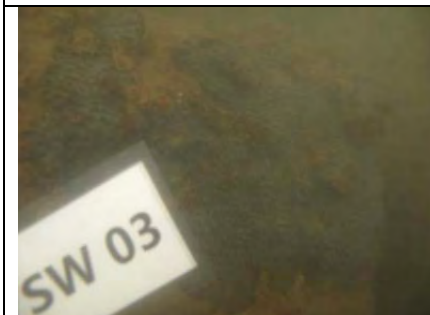



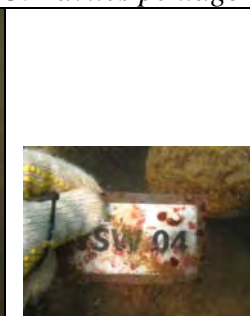

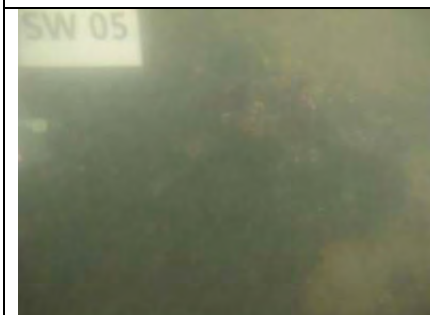


Baseline	7 th July 2011	
		
<i>16. Cyphastrea serailia</i>		
		
<i>17. Plesiastrea versipora</i>		
		
<i>18. Goniopora stutchburyi</i>		
		
<i>19. Cyphastrea serailia</i>		
		
<i>20. Porites lutea</i>		




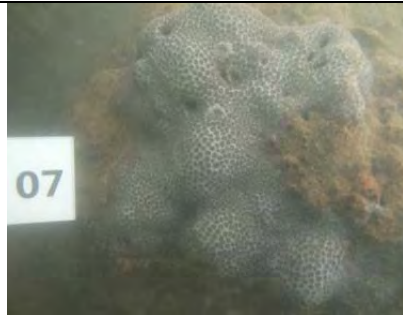











Baseline	14 July 2011	
		
<i>01. Favites chinensis</i>		
		
<i>02. Favia speciosa</i>		
		
<i>03. Favites pentagona</i>		
		
<i>04. Favia fava</i>		
		
<i>05. Porites lutea</i>		


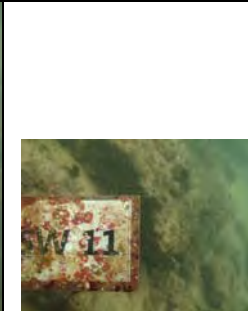


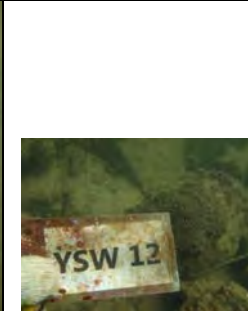








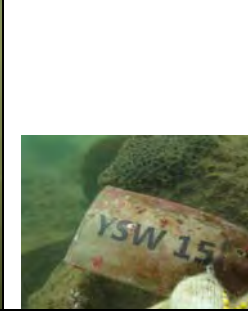

Baseline	14 July 2011	
		
<i>06. Porites lobata</i>		
		
<i>07. Cyphastrea serailia</i>		
		
<i>08. Favites chinensis</i>		
		
<i>09. Favites pentagona</i>		
		
<i>10. Coscinaraea sp.</i>		




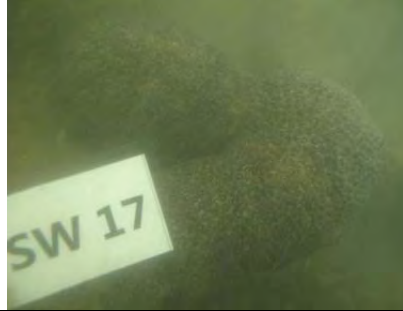




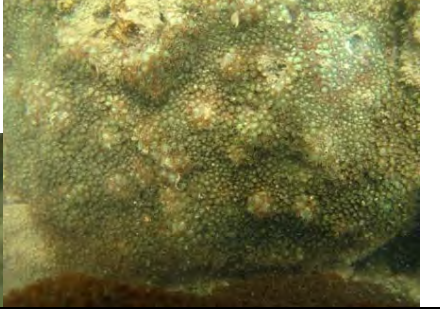
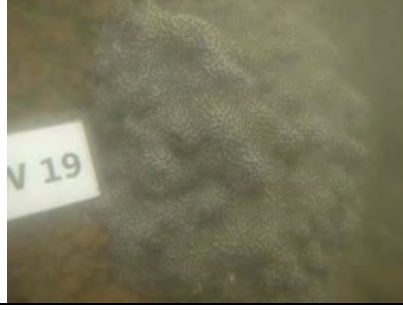





Baseline	14 July 2011	
		
<i>11. Porites lutea</i>		
		
<i>12. Favites pentagona</i>		
		
<i>13. Goniopora stutchburyi</i>		
		
<i>14. Porites lobata</i>		
		
<i>15. Goniastrea aspera</i>		


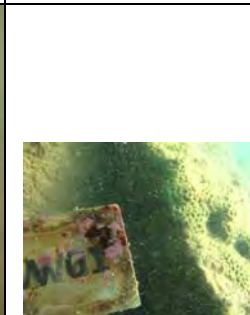




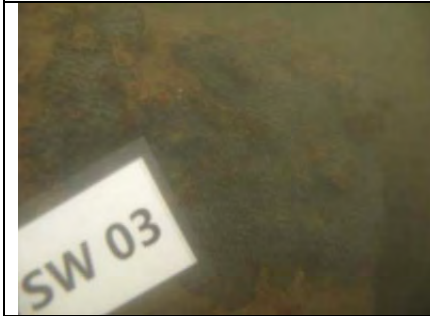
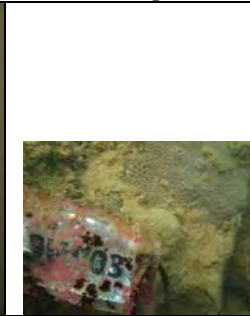





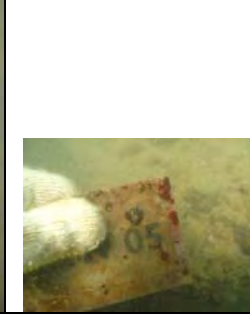

Baseline	14 July 2011	
		
<i>16. Cyphastrea serailia</i>		
		
<i>17. Plesiastrea versipora</i>		
		
<i>18. Goniopora stutchburyi</i>		
		
<i>19. Cyphastrea serailia</i>		
		
<i>20. Porites lutea</i>		



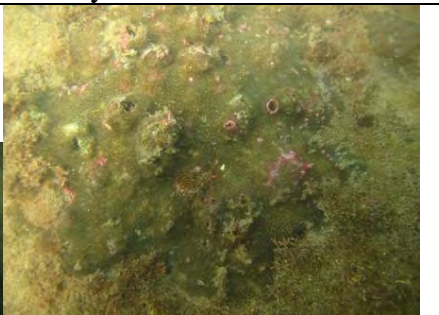
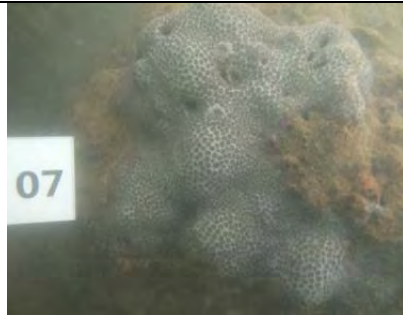











Baseline	22 July 2011	
		
<i>01. Favites chinensis</i>		
		
<i>02. Favia speciosa</i>		
		
<i>03. Favites pentagona</i>		
		
<i>04. Favia fava</i>		
		
<i>05. Porites lutea</i>		





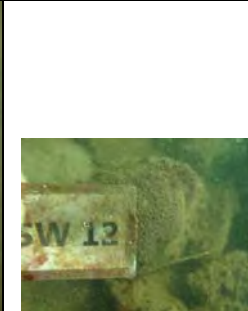










Baseline	22 July 2011	
		
<i>06. Porites lobata</i>		
		
<i>07. Cyphastrea serailia</i>		
		
<i>08. Favites chinensis</i>		
		
<i>09. Favites pentagona</i>		
		
<i>10. Coscinaraea sp.</i>		


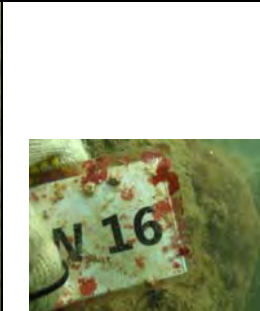

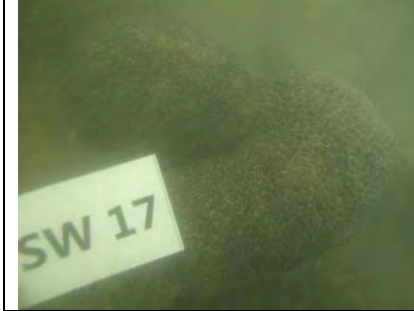


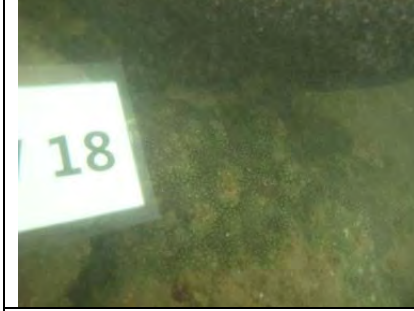

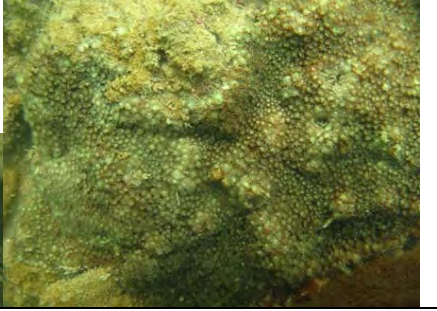
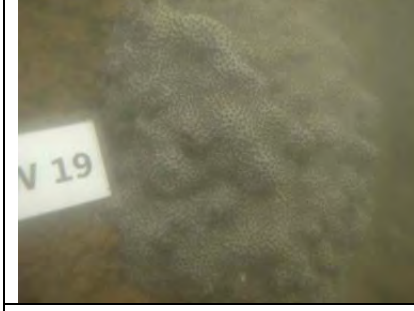





Baseline	22 July 2011	
		
11. <i>Porites lutea</i>		
		
12. <i>Favites pentagona</i>		
		
13. <i>Goniopora stutchburyi</i>		
		
14. <i>Porites lobata</i>		
		
15. <i>Goniastrea aspera</i>		

Baseline	22 July 2011	
		
<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>		













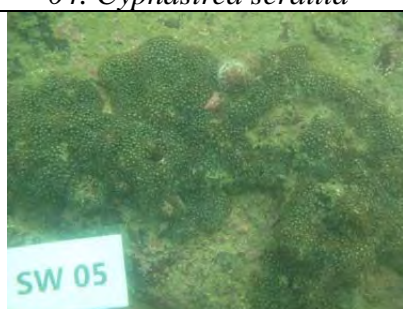

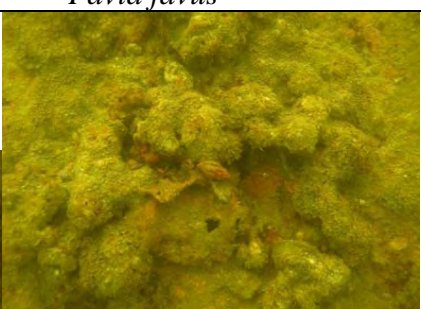
Baseline	28 July 2011	
		
<i>01. Favites chinensis</i>		
		
<i>02. Favia speciosa</i>		
		
<i>03. Favites pentagona</i>		
		
<i>04. Favia fava</i>		
		
<i>05. Porites lutea</i>		

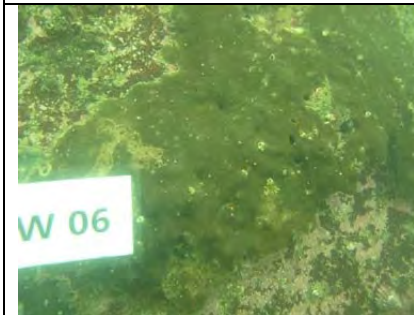

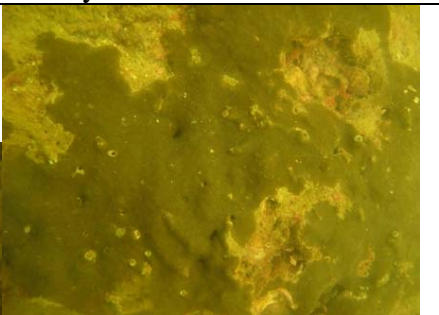
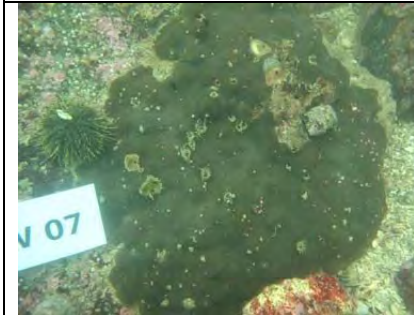

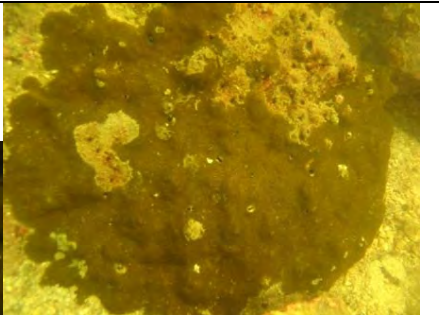
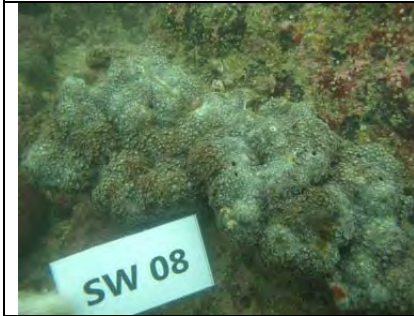


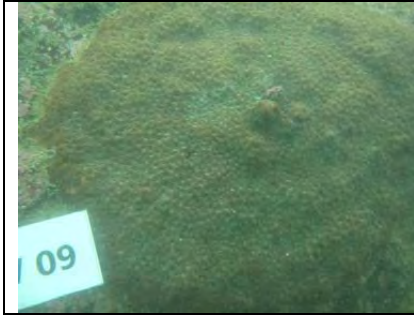




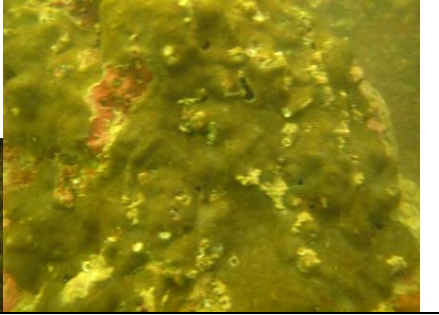
Baseline	28 July 2011	
		
<i>06. Porites lobata</i>		
		
<i>07. Cyphastrea serailia</i>		
		
<i>08. Favites chinensis</i>		
		
<i>09. Favites pentagona</i>		
		
<i>10. Coscinaraea sp.</i>		



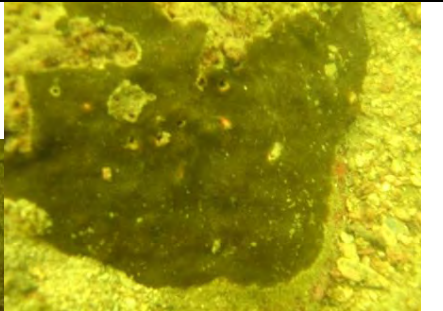



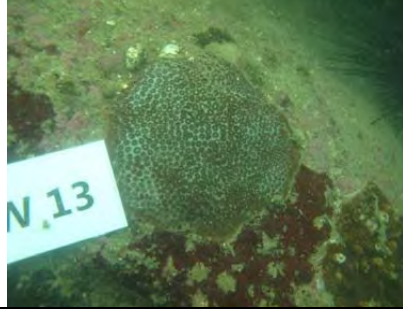

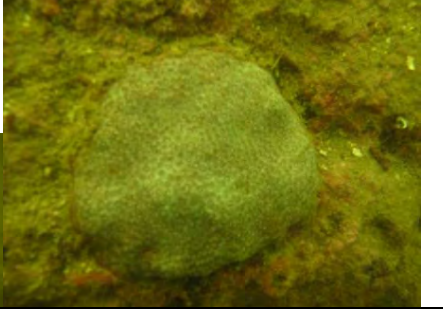






Baseline	28 July 2011	
		
<i>11. Porites lutea</i>		
		
<i>12. Favites pentagona</i>		
		
<i>13. Goniopora stutchburyi</i>		
		
<i>14. Porites lobata</i>		
		
<i>15. Goniastrea aspera</i>		



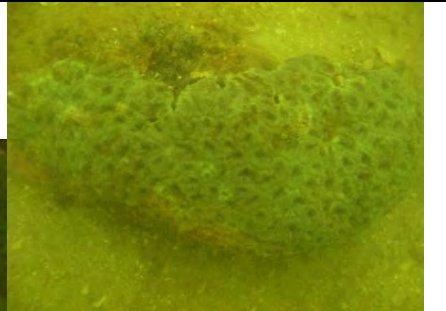



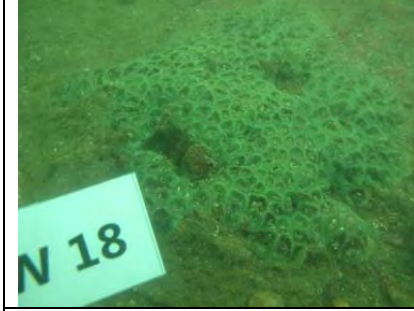

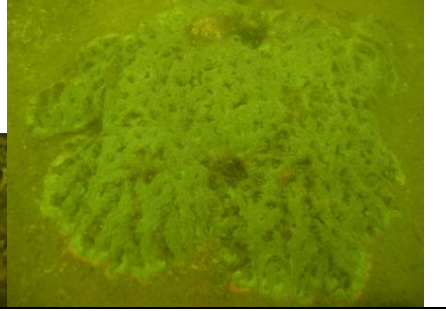



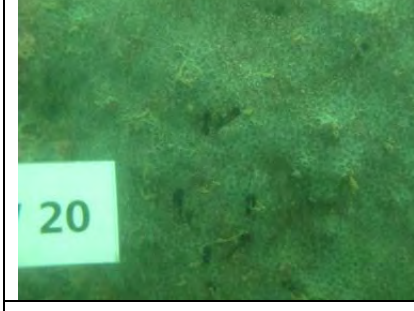


Baseline	28 July 2011	
		
<i>16. Cyphastrea serailia</i>		
		
<i>17. Plesiastrea versipora</i>		
		
<i>18. Goniopora stutchburyi</i>		
		
<i>19. Cyphastrea serailia</i>		
		
<i>20. Porites lutea</i>		







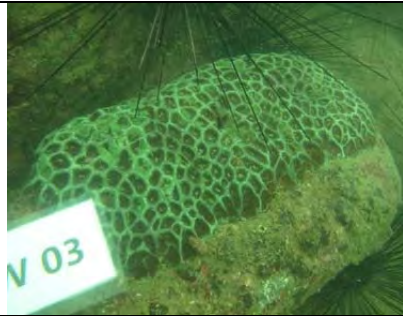





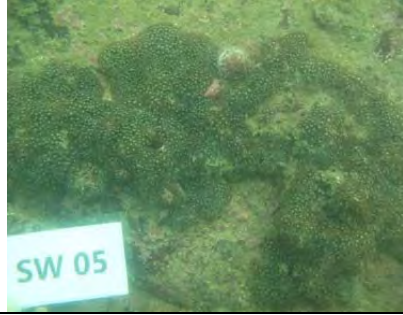


APPENDIX II Tagged Corals at Sham Wan

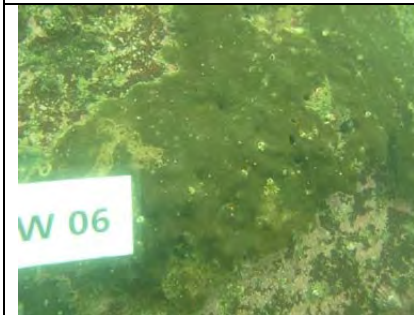

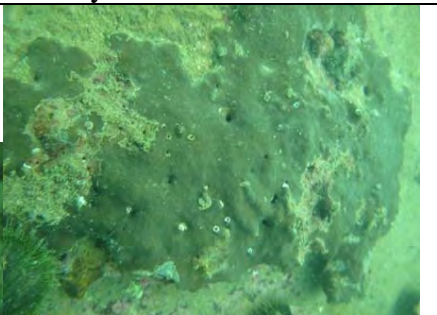
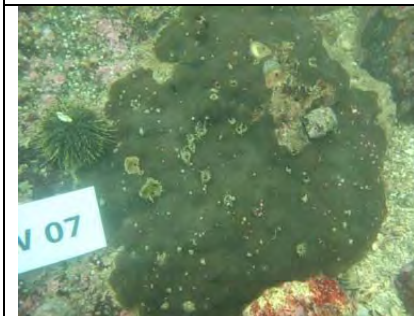

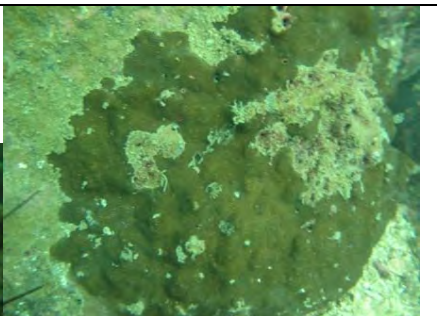
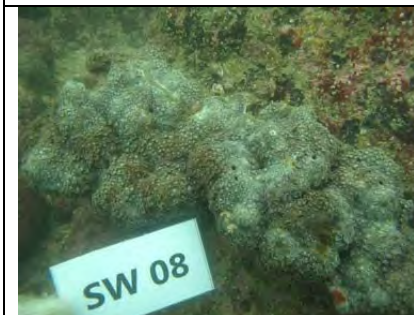


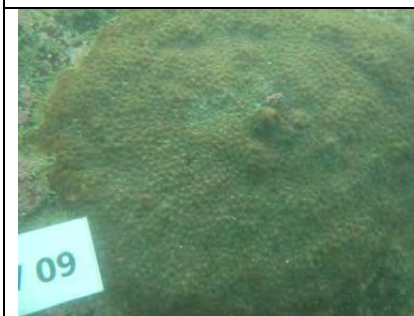


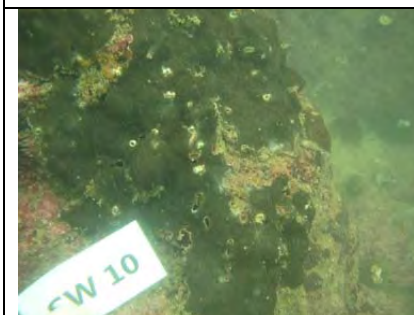


Baseline	7 July 2011	
		
<i>01. Favia favaus</i>		
		
<i>02. Favia rotumana</i>		
		
<i>03. Favia rotumana</i>		
		
<i>04. Cyphastrea serailia</i>	<i>Favia favaus</i>	
		
<i>05. Goniopora stutchburyi</i>		







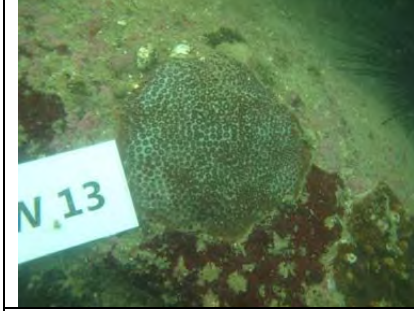








Baseline	7 July 2011	
		
<i>06. Porites lobata</i>		
		
<i>07. Porites lobata</i>		
		
<i>08. Goniopora stutchburyi</i>		
		
<i>09. Favites pentagona</i>		
		
<i>10. Porites lobata</i>		







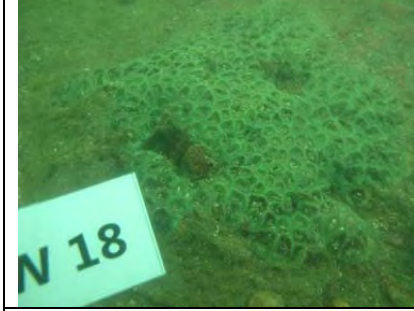



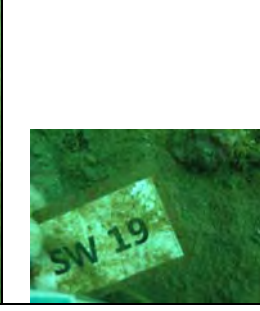

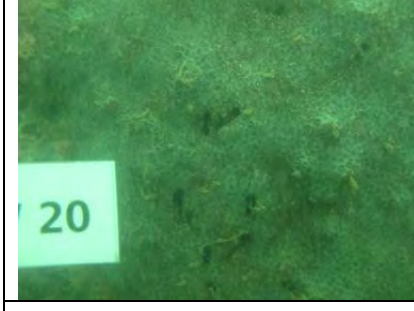


Baseline	7 July 2011	
		
<i>11. Porites lobata</i>		
		
<i>12. Favia fava</i>		
		
<i>13. Cyphastrea serailia</i>		
		
<i>14. Cyphastrea serailia</i>		
		
<i>15. Favia fava</i>		







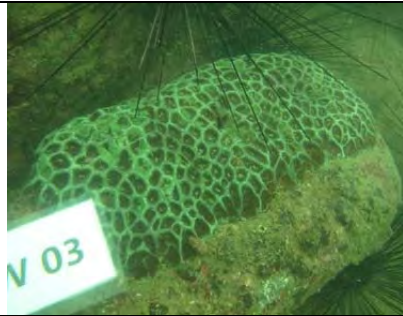





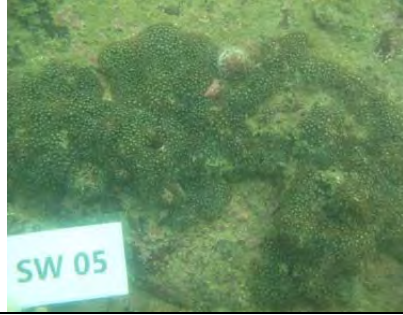


Baseline	7 July 2011	
 <p>W 16</p>	 <p>SW 16</p>	
<i>16. Favia rotumana</i>		
 <p>N 17</p>	 <p>SW 17</p>	
<i>17. Favia favaus</i>		
 <p>N 18</p>	 <p>SW 18</p>	
<i>18. Favia rotumana</i>		
 <p>V 19</p>	 <p>SW 19</p>	
<i>19. Cyphastrea serailia</i>		
 <p>20</p>	 <p>SW 20</p>	
<i>20. Cyphastrea serailia</i>		

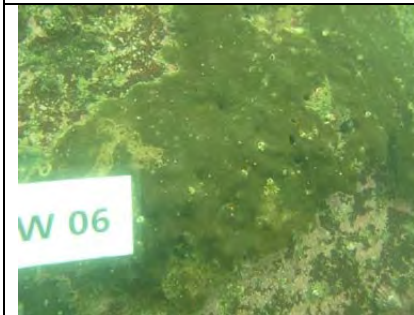

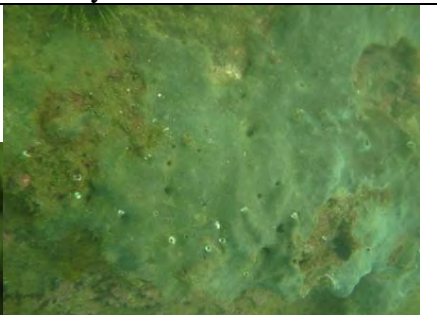
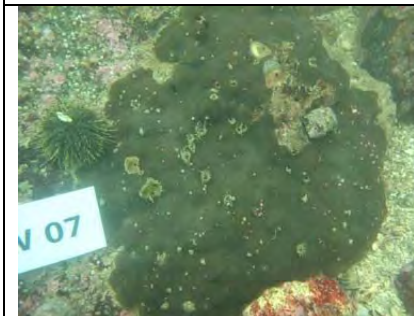

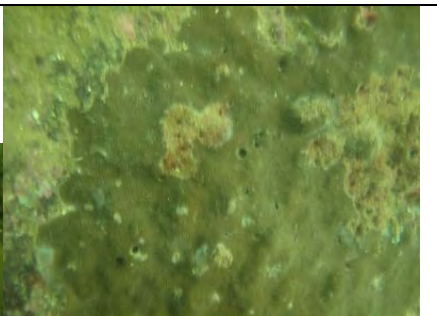
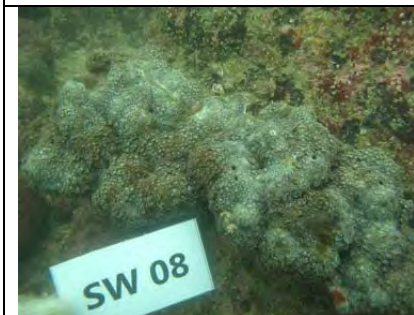

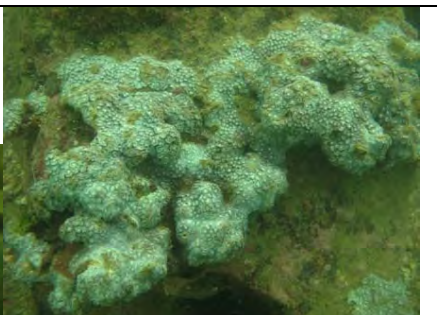
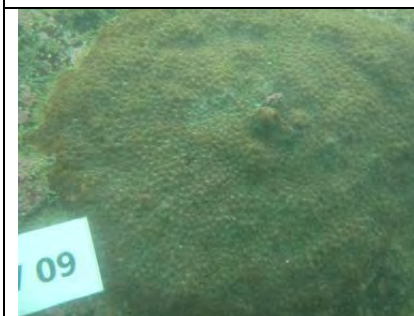


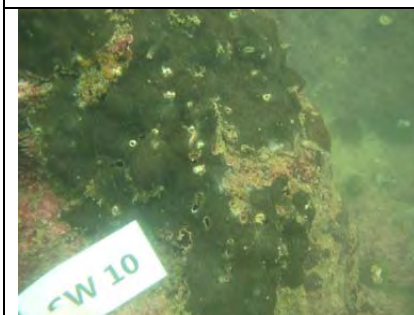

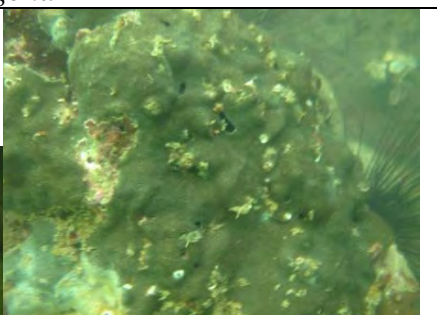
Baseline	14 July 2011	
		
<i>01. Favia favaus</i>		
		
<i>02. Favia rotumana</i>		
		
<i>03. Favia rotumana</i>		
		
<i>04. Favia favaus</i>		
		
<i>05. Goniopora stutchburyi</i>		







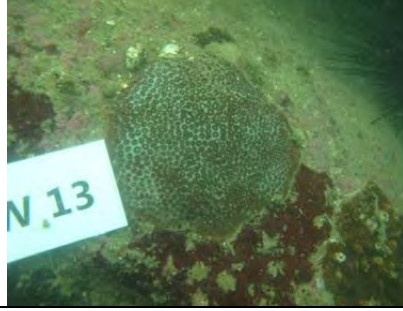








Baseline	14 July 2011	
		
<i>06. Porites lobata</i>		
		
<i>07. Porites lobata</i>		
		
<i>08. Goniopora stutchburyi</i>		
		
<i>09. Favites pentagona</i>		
		
<i>10. Porites lobata</i>		







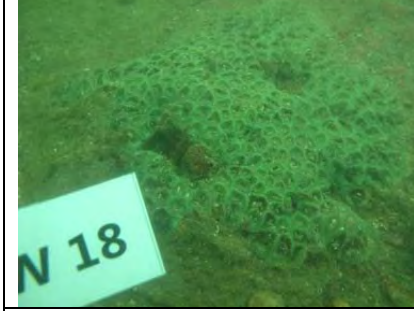

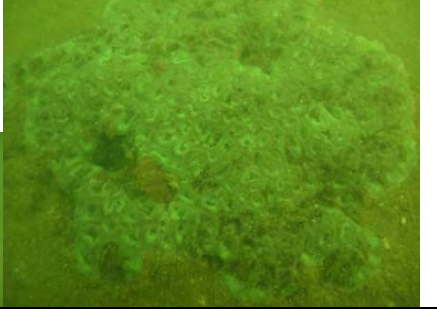



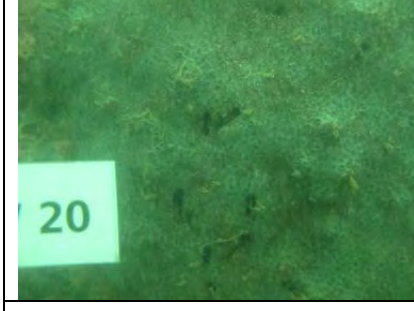


Baseline	14 July 2011	
		
<i>11. Porites lobata</i>		
		
<i>12. Favia fava</i>		
		
<i>13. Cyphastrea serailia</i>		
		
<i>14. Cyphastrea serailia</i>		
		
<i>15. Favia fava</i>		
















Baseline	14 July 2011	
		
<i>16. Favia rotumana</i>		
		
<i>17. Favia favus</i>		
		
<i>18. Favia rotumana</i>		
		
<i>19. Cyphastrea serailia</i>		
		
<i>20. Cyphastrea serailia</i>		

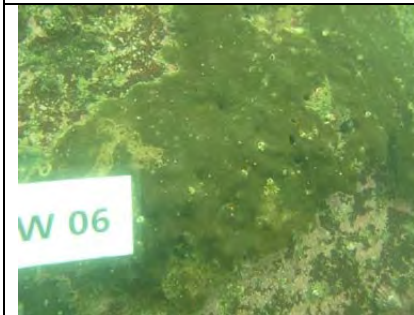

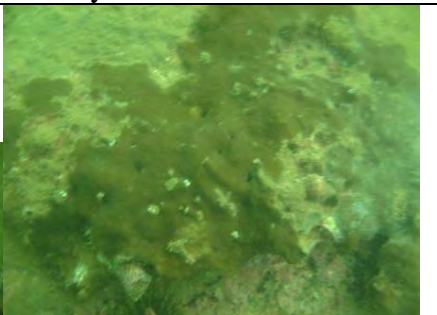
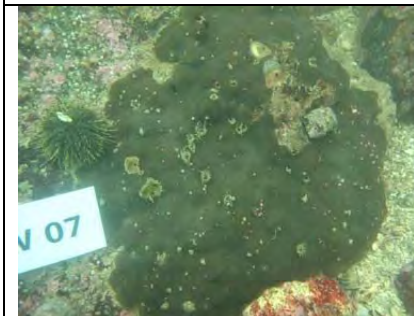

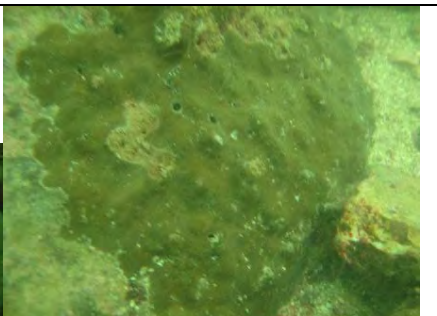
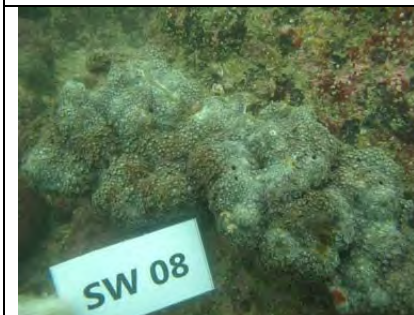

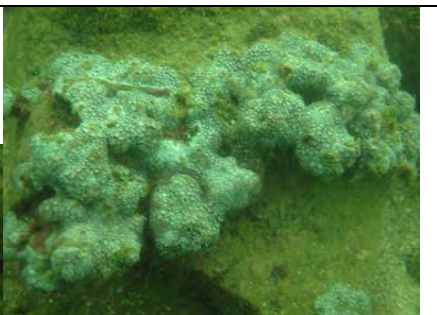
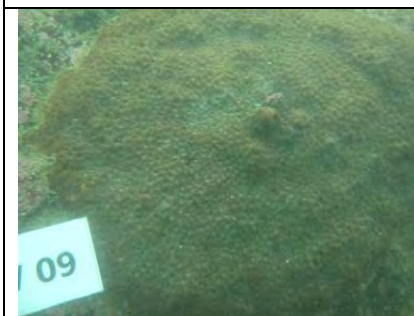

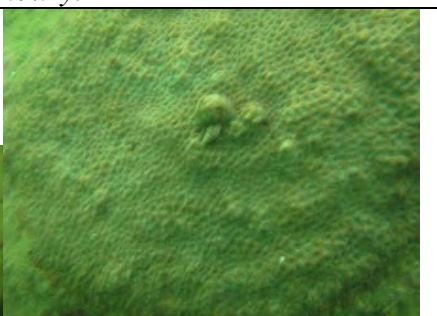
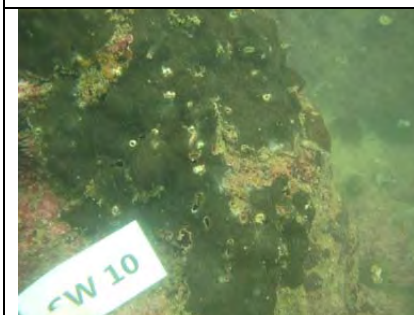


Baseline	22 July 2011	
		
<i>01. Favia favaus</i>		
		
<i>02. Favia rotumana</i>		
		
<i>03. Favia rotumana</i>		
		
<i>04. Favia favaus</i>		
		
<i>05. Goniopora stutchburyi</i>		







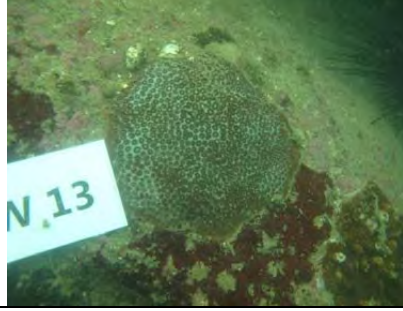
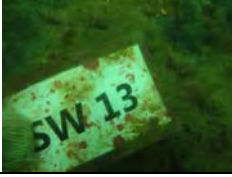
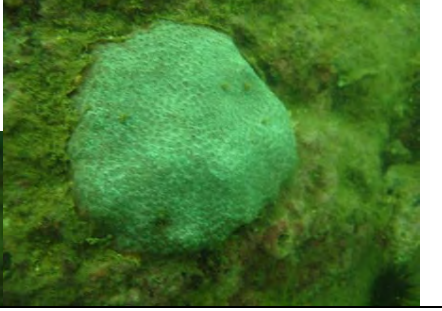






Baseline	22 July 2011	
		
<i>06. Porites lobata</i>		
		
<i>07. Porites lobata</i>		
		
<i>08. Goniopora stutchburyi</i>		
		
<i>09. Favites pentagona</i>		
		
<i>10. Porites lobata</i>		







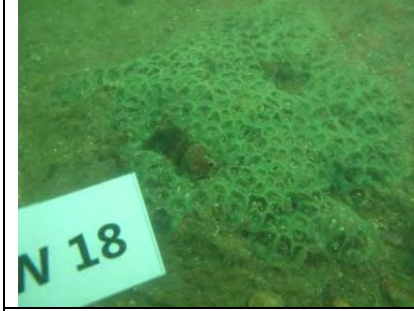



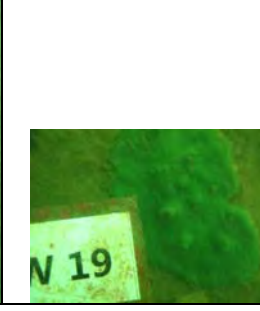

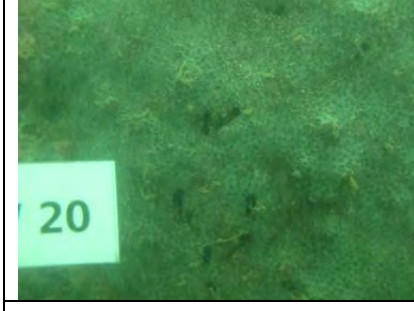


Baseline	22 July 2011	
		
<i>11. Porites lobata</i>		
		
<i>12. Coscinaraes n sp</i>		
		
<i>13. Cyphastrea serailia</i>		
		
<i>14. Cyphastrea serailia</i>		
		
<i>15. Favia fava</i>		

Baseline	22 July 2011	
		
<i>16. Favia rotumana</i>		
		
<i>17. Favia fava</i>		
		
<i>18. Favia rotumana</i>		
		
<i>19. Cyphastrea serailia</i>		
		
<i>20. Cyphastrea serailia</i>		

Baseline	28 July 2011	
		
<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	28 July 2011	
		
<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	28 July 2011	
		
<i>11. Porites lobata</i>		
		
<i>12. Coscinaraes n sp</i>		
		
<i>13. Cyphastrea serailia</i>		
		
<i>14. Cyphastrea serailia</i>		
		
<i>15. Favia favius</i>		

Baseline	28 July 2011	
		
<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>		