

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.29) – JANUARY 2013

PREPARED FOR LEADER CIVIL ENGINEERING CORPORATION LIMITED

Date Reference No. Prepared By Approved By

22 February 2013 TCS00512/09/600/R0606v2

Nicola Hon T.W. Tam
Environmental Consultant Environmental Team Leader

Version	Date	Description
1	21 February 2013	First Submission
2	22 February 2013	Amended against IEC's comments on 22 Feb 13

Quality Index

Scott Wilson CDM Joint Venture

Chief Engineer/Harbour Area Treatment Scheme

Drainage Services Department

5/F Western Magistracy

2A Pok Fu Lam Road

Hong Kong

Your reference:

Our reference:

05117/6/16/410584

Date:

22 February 2013

BY FAX AND EMAIL

Attention: Ms. Jacky C M Wong

Dear Sirs,

Contract No. DC/2009/13 Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan Yung Shue Wan Portion Area

Monthly Environmental Monitoring and Audit (EM&A) Report No. 29 (January 2013)

We refer to the Monthly EM&A Monitoring Report No. 29 for January 2013 received under cover of the email from the Environmental Team, Action-United Environmental Services and Consulting (AUES), dated on 22 February 2013. We have no comment and have verified the captioned report.

Yours faithfully

SCOTT WILSON CDM JOINT VENTURE

Rodney Ip

Independent Environmental Checker

ICWR/SYSL/ycky

cc Leader Civil Engineering

AUES

ER/LAMMA

CDM

(Attn: Mr Vincent Chan)

(Attn: Mr T.W. Tam)

(Attn: Mr lan Jones)

(Attn: Mr Mark Sin)



EXECUTIVE SUMMARY

ES.01. This is the 29th monthly Environmental Monitoring and Audit (EM&A) for Yung Shue Wan (hereinafter 'this Report') for the designated works under Environmental Permit [EP-282/2007], covering a period from 26 December 2012 to 25 January 2013 (hereinafter 'the Reporting Period').

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

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

Issues	Environmental Monitoring Parameters / Inspection	Occasions
Air Quality	1-hour TSP	36
Air Quality	24-hour TSP	10
Construction Noise	L _{eq (30min)} Daytime	5
Water Quality	Marine Water Sampling	12
Ecology	Coral Monitoring	2
Inspection / Audit	ET Regular Environmental Site Inspection	5

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES.03. No exceedance in construction noise monitoring was recorded in this Reporting Period. For air quality monitoring, 2 Limit Level exceedances of 24-hour TSP result was recorded on 10 January 2013 which concluded as not project related. The statistics of environmental exceedance, NOE issued and investigation of exceedance are summarized in the following table.

Environmental Monitoring		Action	Limit	Event & Action		
Issues	Parameters	Level	Level	NOE Issued	Investigation	Corrective Actions
Air Quality	1-hour TSP	0	0	0		
7 in Quanty	24-hour TSP	0	2	2	Not works related	N.A.
Construction Noise	L _{eq(30min)} Daytime	0	0	0		
	DO	0	0	0		
Water Quality	Turbidity	0	0	0		
	SS	0	0	0		-
	Sediment Cover (%)	0	0	0		-
Ecology (Coral)	Bleaching (%)	0	0	0		
	Mortality (%)	0	0	0		

Note: NOE – Notification of Exceedance

SITE INSPECTION

ES.04. In this Reporting Period, 5 events of weekly joint inspection by the RE, the Contractor and ET were carried out on 27 December 2012, 2, 8, 15 and 22 January 2013.

ENVIRONMENTAL COMPLAINT, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

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

REPORTING CHANGE

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

FUTURE KEY ISSUES

ES.07. During dry and windy season, construction dust would be the key environmental issue to concern in the upcoming months. The construction dust mitigation measures identified at the EM&A

Contract No. DC/2009/13 – Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan Yung Shue Wan –Monthly EM&A Report (January 2013)



Manual such as watering at haul road and covering of dusty material should be implemented and properly maintained.

ES.08. Nevertheless, the Contractor shall keep paying attention on the potential water impact as the construction site is adjacent to the coastline. Muddy water and other water quality pollutants via site surface water runoff into the sea body within Fish culture zone at Picnic Bay and the Secondary recreation contact subzone at Mo Tat Wan should be avoided. Therefore, mitigation measures for water quality should be fully implemented.



TABLE OF CONTENTS

1	INTRODUCTION PROJECT BACKGROUND REPORT STRUCTURE	1 1 1
2	PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS PROJECT ORGANIZATION AND MANAGEMENT STRUCTURE CONSTRUCTION PROGRESS SUMMARY OF ENVIRONMENTAL SUBMISSIONS	2 2 2 2
3	SUMMARY OF BASELINE MONITORING REQUIREMENTS ENVIRONMENTAL ASPECT MONITORING LOCATIONS MONITORING FREQUENCY AND PERIOD MONITORING EQUIPMENT EQUIPMENT CALIBRATION METEOROLOGICAL INFORMATION DATA MANAGEMENT AND DATA QA/QC CONTROL REPORTING DETERMINATION OF ACTION/LIMIT (A/L) LEVELS	3 3 3 4 5 6 7 7 7
4	IMPACT MONITORING RESULTS - AIR QUALITY	9
5	IMPACT MONITORING RESULTS – CONSTRUCTION NOISE	11
6	IMPACT MONITORING RESULTS – WATER QULAITY	12
7	IMPACT MONITORING RESULTS – ECOLOGY MONITORING	14
8	WASTE MANAGEMENT	15
9	SITE INSPECTION	16
10	ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE	17
11	IMPLEMENTATION STATUS OF MITIGATION MEASURES	18
12	IMPACT FORECAST	24
13	CONCLUSIONS AND RECOMMENDATIONS CONCLUSIONS RECOMMENDATIONS	25 25 25



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 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
Table 3-6	Action and Limit Levels for Construction Noise
Table 3-7	Action and Limit Levels for Marine Water Quality
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	Master and Three Months Rolling Construction Programme
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	Coral Monitoring Report
Appendix N	Investigation Report for Exceedance



1 INTRODUCTION

PROJECT BACKGROUND

- 1.01 The Leader Civil Engineering Corporation Limited (Leader) has been awarded the *Contract DC/2009/13 Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan* (the Project) by the Drainage Services Department (DSD) on 4 May 2010. The Project is part of an overall plan approved under a statutory EIA for Outlying Islands Sewerage Stage 1 Phase 2 Package J Sok Kwu Wan Sewage Collection and Treatment (Register No. AEIAR-075/2003) and Disposal Facilities and Outlying Islands Sewerage Stage 1 Phase 1 Package C Yung Shue Wan Sewage Treatment Works and Outfall (Register No. EIA-124/BC). The Environmental Permit (EP) No. EP-281/2007 and EP-282/2007 for the Project have been obtained by the DSD on 29 June 2007 for the relevant works. After July 2009, EP-281/2007/A 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 (ET) to implement the environmental monitoring and auditing works to fulfill the requirements as stipulated in the EM&A Manual. This EM&A Manual is referred to the Appendix D of the Review Report on EIA Study Yung Shue Wan (Final) in January 2007 (Agreement No. CE 20/2005(DS)).
- 1.04 Action-United Environmental Services and Consulting (AUES) has been commissioned by Leader as the ET to implement the relevant EM&A programme. Organization chart of the Environmental Team for the Project is shown in *Appendix B*. For ease of reporting, the proposed EM&A programme for baseline and impact monitoring is 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 This is the 29th monthly EM&A Report for Yung Shue Wan Portion Area which presenting the monitoring results and inspection findings in the Reporting Period from 26 December 2012 to 25 January 2013.

REPORT STRUCTURE

SECTION 13

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

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	

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 programme are enclosed in *Appendix C* and the major construction activities undertaken in this Reporting Period are listed below:-
 - Construction of YSWSTW and yard plan: Excavation, Soil Compaction, Concreting, Steel Fixing, Formwork Erection, Formwork Removal, Backfilling, pipe laying, Painting and E&M Works Installation.

SUMMARY OF ENVIRONMENTAL SUBMISSIONS

2.03 Summary of the relevant permits, licences, and/or notifications on environmental protection for this Project in this Reporting Period is presented in *Table 2-1*.

Table 2-1 Status of Environmental Licenses and Permits

Item	Description	License/Permit Status
1	Air Pollution Control (Construction Dust) Regulation	Notified 19/5/2010
		Case No: 317486
2	Chemical Waste Producer Registration	Issued on 8/6/2010
		WPN 5213-912-L2720-01
3	Water Pollution Control Ordinance	Issued on 22/9/2010
		WT00007566-2010
4	Billing Account for Disposal of Construction Waste	Issued on 26 May 2010
		A/C No: 7010815
5	Construction Noise Permit (no. GW-RS0772-12)	Issued on 30 July 2012
		Valid from 30 July 2012
		until 19 January 2013
6	Construction Noise Permit (no. GW-RS0074-13)	Issued on 29 January 2013
		Valid from 29 January 2013
		until 25 July2013

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



3 SUMMARY OF BASELINE MONITORING REQUIREMENTS

ENVIRONMENTAL ASPECT

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

Table 3-1 Summary of the EM&A Requirements

Environmental Issue	Parameters
Air Quality	 1-hour TSP Monitoring by Real-Time Portable Dust Meter; and 24-hour TSP Monitoring by High Volume Air Sampler.
Noise	 L_{eq (30min)} during normal working hours; and L_{eq (15min)} during Restricted Hours.
In-situ Measurements Dissolved Oxygen Concentration (DO) (mg/L); Dissolved Oxygen Saturation (%); Turbidity (NTU); pH unit; Salinity (ppt); Water depth (m); and Temperature (°C). Laboratory Analysis Suspended Solids (SS) (mg/L)	
Ecology	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, alternative air monitoring locations were proposed in accordance with the criteria set out in *EM&A manual Section 2.5.2 and 2.5.3*. The proposed alternative air monitoring stations were accepted by the Engineer Representative (ER) and Independent Environmental Checker (IEC) and EPD for endorsement. Details of renewed air monitoring stations are described in *Table 3-2*. The graphical of air monitoring stations is shown in *Appendix D*.

Table 3-2 Location of Air Quality Monitoring Station

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



Construction Noise

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

Table 3-3 Location of Construction Noise Monitoring Station

Sensitive Receiver	Location
NC05	Roof of North Lamma Clinic

Marine Water Quality

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

Table 3-4 Location of Marine Water Quality Monitoring Station

Station	Description	Coordinates			
Station	Description	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

<u>Parameters</u>: $L_{eq 30min}$ & $L_{eq(5min)}$, L_{10} and L_{90} .

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

of public holiday and Sunday)



Frequency: Once per week during 0700-1900 hours on normal weekdays. Restricted hour

monitoring should depend on conditions stipulated in Construction Noise Permit

Duration: Throughout the construction period

Marine Water Quality Monitoring

<u>Parameters</u>: 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

<u>Sampling</u> (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

<u>Duration</u>: 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

<u>Frequency</u>: 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

<u>Duration</u>: During the course of marine works

Post-Construction Monitoring – Marine Water

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

Post-Construction Monitoring - Ecology Monitoring

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

MONITORING EQUIPMENT

Air Quality Monitoring

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

Noise Monitoring

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



wind speed in m/s.

Water Quality Monitoring

- 3.14 **Dissolved Oxygen and Temperature Measuring Equipment** The instrument should be a portable and weatherproof dissolved oxygen (DO) measuring instrument complete with cable and sensor, and use a DC power source. The equipment should be capable of measuring as included a DO level in the range of 0 20 mg 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 suspended solids should be stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4°C without being frozen).
- 3.21 *Monitoring Position Equipment* A hand-held or boat-fixed type digital Differential Global Positioning System (DGPS) with way point bearing indication and Radio Technical Commission for maritime (RTCM) Type 16 error message 'screen pop-up' facilities (for real-time auto-display of error messages and DGPS corrections from the Hong Kong Hydrographic Office), or other equipment instrument of similar accuracy, should be provided and used during marine water monitoring to ensure the monitoring vessel is at the correct location before taking measurements.
- 3.22 **Suspended Solids Analysis** Analysis of suspended solids shall be carried out in a HOKLAS or other international accredited laboratory.

Coral Monitoring

3.23 The monitoring equipments used for the coral monitoring could be referred to *Impact Coral Monitoring report* which enclosed in *Appendix M*.

EQUIPMENT CALIBRATION

- 3.24 Calibration of the High Volume Sampler (HVS) is performed upon installation in accordance with the manufacturer's instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5025A). The calibration data are properly documented and the records are maintained by ET for future reference.
- 3.25 The 1-hour TSP meter was calibrated by the supplier prior to purchase. Zero response of the equipment was checked before and after each monitoring event. In-house calibration with the



High Volume Sampler (HVS) in same condition was undertaken in yearly basis.

- 3.26 The sound level meter and calibrator are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at yearly basis.
- 3.27 The water quality monitoring equipments such as DO meter, pH Meter, turbidity measuring instrument and salinometer, are calibrated by HOKLAS accredited laboratory of three month intervals.
- 3.28 All updated calibration certificates of the monitoring equipment used for the impact monitoring programme in the Reporting Period would be attached in *Appendix E*.

METEOROLOGICAL INFORMATION

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

DATA MANAGEMENT AND DATA QA/QC CONTROL

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

REPORTING

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

DETERMINATION OF ACTION/LIMIT (A/L) LEVELS

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

Table 3-5 Action and Limit Levels for Air Quality

Monitoring Station	Action Lev	$vel (\mu g / m^3)$	Limit Level (μg/m³)			
Momitoring Station	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	Action Level	Limit Level								
Location	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

Downwoodow	Performance	Impact Station			
Parameter	Criteria	WY1	WY2	WY3	
DO Concentration (Surface and Middle)	Action Level	3.63	3.53	3.61	
(mg/L)	Limit Level	3.32	3.47	3.42	
DO Concentration (Bottom)	Action Level	3.33	2.92	3.36	
(mg/L)	Limit Level	3.23	2.63	3.14	
Turbidity (Depth-Average)	Action Level	10.94	14.16	14.99	
(NTU)	Limit Level	17.35	15.20	16.21	
Suspended Solids (Depth-Average)	Action Level	17.52	14.04	14.52	
(mg/L)	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 no 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 discus 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.

3.34 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan enclosed in *Appendix F*.



4 IMPACT MONITORING RESULTS - AIR QUALITY

4.01 As informed by the Contractor, the construction of relevant land works at Yung Shue Wan was commenced on 14 September 2010. The impact EM&A programme was begun as compliance with the contract Particular Specification, Yung Shue Wan EM&A Manual and the EP.

Result

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

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

	24-hour TSP	1-hour TSP (μg/m³)							
Date	$(\mu g/m^3)$	Date	Start Time	1 st hour measured	2 nd hour measured	3 rd hour measured			
29-Dec-12	145	28-Dec-12	14:16	159	167	153			
4-Jan-13	73	3-Jan-13	9:20	149	155	162			
10-Jan-13	<u>312</u>	9-Jan-13	12:05	132	157	164			
16-Jan-13	70	15-Jan-13	9:00	169	177	172			
22-Jan-13	98	21-Jan-13	14:20	174	185	176			
		25-Jan-13	10:25	159	166	151			
Average	140	Aver	age	163					
(Range)	(70 - 312)	(Ran	ge)		(132 - 185)				

Remark: bold and underlined indicated Limit Level exceedance.

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

	24-hour TSP	1-hour TSP (μg/m³)								
Date	(μg/m ³)	Date	Start Time	1 st hour measured	2 nd hour measured	3 rd hour measured				
29-Dec-12	155	28-Dec-12	10:00	172	187	177				
4-Jan-13	127	3-Jan-13	13:15	187	201	193				
10-Jan-13	438	9-Jan-13	8:45	143	156	147				
16-Jan-13	104	15-Jan-13	13:15	178	185	183				
22-Jan-13	94	21-Jan-13	9:00	163	169	162				
		25-Jan-13	13:09	164	170	154				
Average	184	Averag	ge	172						
(Range)	(94 - 438)	(Rang	e)	(143 - 201)						

Remark: bold and underlined indicated Limit Level exceedance.

- 4.03 As shown in *Tables 4-1 and 4-2*, the 1-hour TSP monitoring values fluctuated below the Action Level during the Reporting Period. For 24-hour TSP monitoring, 2 Limit Level exceedances were recorded on 10 January 2013. Notification of Exceedance (NOE) has been issued to relevant parties upon confirmation of the monitoring result.
- 4.04 According to the construction information provided by the Contractor for the site environmental conditions, investigation of the exceedance of 24-hour TSP Limit Levels at AC02b and AC04c concludes that the exceedances were not related to the works under the Project. As no consecutive exceedances were recorded on the next monitoring date, no remedial actions are required. The investigation result is summarized as follows:
 - The construction activities conducted on 10 January 2013 included precast concrete pipe installation; formwork erection for U-Channel; excavation for 2 no. of 750mm depth drain pits and indoor E&M equipment installation.
 - The majority of works were carried out inside building. With the implementation of the required construction dust suppression measures such as watering of haul roads and wheel washing prior to exit the site, major construction activities undertaken during the captioned exceedance i.e. indoor works etc., were not dusty as shown by the TSP results before 10 January 2013.



- It was recorded that some sand and aggregate which not related to the project were delivered to
 the stockpile next to Yung Shue Wan playground in early of January 2013. The unmitigated
 sand stockpile created fugitive dust over the playground and access road during dry and windy
 season.
- Other the other hand, a concurrent construction project, R.C. construction for new police station, was in progress in the Architectural Service Department's (ASD) work site which is about 10m and 25m adjacent to monitoring location AC04c and AC02b respectively. It was considered as one of the source attributable to the 24-hour TSP exceedance.
- It is concluded that the exceedance was not related to the works under the Project. As no consecutive exceedances were recorded on the next monitoring, no remedial actions are required. Nevertheless, full implementation of the recommended environmental mitigation measures, in particular construction dust suppression measures during dusty construction activities including vehicle and construction plant movement, is strongly recommended under dry and windy conditions.
- 4.05 The investigation report for the cause of exceedance was conducted and it is shown in *Appendix N*.
- 4.06 The meteorological information during the impact monitoring days are summarized in *Appendix I*.



5 IMPACT MONITORING RESULTS - CONSTRUCTION NOISE

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

Result

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

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

Date	Start Time	End Time	1 st set L _{eq5}	$2^{ m nd}$ set $L_{ m eq5}$	$\begin{matrix} 3^{rd} \ set \\ L_{eq5} \end{matrix}$	4 th set L _{eq5}	5 th set L _{eq5}	6 th set L _{eq5}	$ m L_{eq30}$	Corrected L _{eq30} *
28-Dec-12	13:15	13:45	60.7	61.5	60.9	61.1	61.8	60.5	61.1	64.1
3-Jan-13	13:00	13:30	61.6	61.9	62.2	62.8	62.1	63.0	62.3	65.3
9-Jan-13	13:25	13:55	58.8	59.4	59.1	60.1	60.5	61.2	59.9	62.9
15-Jan-13	10:30	11:00	63.2	62.5	62.9	63.0	62.0	63.6	62.9	65.9
21-Jan-13	10:25	10:55	57.1	59.7	58.4	57.6	60.5	60.7	59.2	62.2
Lim		-							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 *Table 5-1*, all the values are well below 75dB(A), therefore, no Action or Limit Level exceedance was triggered during this Reporting Period.



6 IMPACT MONITORING RESULTS – WATER QULAITY

- 6.01 In this Reporting Period, 12 days of water quality monitoring were carried out at the designated locations. Nevertheless, monitoring at both tides of 26 November and flood tides of 22 December were only carried out at impact stations (WY1 WY3) as the working boat unable to travel far from the coast of Yung Shun Wan due to high surge of the sea.
- 6.02 Field measurements of both control and impact stations showed that marine water of the depth average of the salinity concentration was within 33.18 to 37.43 ppt, and pH value was within 7.30 to 8.04. The monitoring results including in-situ measurements and laboratory testing results are presented in *Appendix G*. The graphical plots are shown in *Appendix H*.
- 6.03 Monitoring results of 3 key parameters: dissolved oxygen (DO), turbidity and suspended solids in this Reporting Period, are summarized in *Tables 6-1*, 6-2, 6-3 and 6-4. A summary of exceedances for the three parameters: dissolved oxygen (DO), turbidity and suspended solids are shown in *Table 6-5*.

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

Sampling		• •	en conc. of Mid Laye	-	Dissolved Oxygen conc. of Depth Ave. of Bottom Layer (mg/L)					
date	WY1	WY2	WY3	CY1	CY2	WY1	WY2	WY3	CY1	CY2
28-Dec-12	8.44	9.36	7.98	9.63	8.06	7.55	8.57	7.29	8.76	7.30
3-Jan-13	9.16	8.97	9.89	8.70	9.00	8.54	8.50	8.36	8.52	8.95
5-Jan-13	8.06	8.39	8.55	8.65	8.75	8.50	8.30	8.44	8.90	8.91
7-Jan-13	6.88	6.37	6.31	6.38	6.15	6.63	6.12	6.26	6.35	6.23
9-Jan-13	10.02	9.02	8.11	9.16	10.55	9.47	9.29	8.71	9.36	9.60
11-Jan-13	9.41	9.34	9.43	8.96	9.19	9.33	9.08	9.20	8.93	9.00
15-Jan-13	8.16	8.78	8.41	8.50	7.88	8.57	8.68	8.73	8.39	7.81
17-Jan-13	8.08	8.35	7.18	8.01	7.23	8.91	8.33	8.36	8.18	7.10
19-Jan-13	8.44	8.43	7.86	7.63	7.51	8.50	8.70	8.65	8.48	7.78
21-Jan-13	8.52	9.40	8.71	9.45	9.30	8.84	9.72	9.33	9.50	9.60
23-Jan-13	7.80	8.40	7.35	7.93	7.39	8.14	8.41	8.31	7.99	7.32
25-Jan-13	7.06	7.95	7.27	8.62	6.73	8.02	8.43	8.13	8.56	6.82

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

Compling data	Т	Turbidity	y Depth A	ve. (NTU	J)	Suspended Solids Depth Ave. (mg/L)				
Sampling date	WY1	WY2	WY3	CY1	CY2	WY1	WY2	WY3	CY1	CY2
28-Dec-12	3.85	3.52	4.23	2.18	4.82	12.95	8.13	8.75	7.23	9.47
3-Jan-13	2.55	1.20	2.00	1.73	2.85	8.80	9.47	7.10	9.83	5.13
5-Jan-13	2.43	2.43	2.35	2.07	1.65	2.75	2.30	3.30	2.07	2.07
7-Jan-13	3.28	2.47	3.60	1.92	1.80	2.95	2.10	3.35	1.27	1.70
9-Jan-13	1.30	1.82	2.08	3.00	0.92	3.40	2.03	3.75	2.50	1.73
11-Jan-13	1.43	1.42	1.38	1.92	0.58	4.85	2.70	3.80	4.90	4.00
15-Jan-13	3.70	2.02	1.05	2.22	2.53	5.00	4.17	4.65	3.27	3.77
17-Jan-13	1.13	1.95	1.18	2.20	2.33	6.55	4.30	6.50	3.17	4.60
19-Jan-13	3.08	1.32	1.35	1.20	1.70	8.20	5.20	4.60	4.40	4.63
21-Jan-13	1.13	1.35	1.38	1.32	2.90	5.70	4.17	4.90	2.77	3.93
23-Jan-13	1.23	1.45	0.88	1.82	2.55	4.60	2.83	3.35	1.50	2.80
25-Jan-13	1.45	1.30	1.65	1.48	1.17	3.70	3.03	3.20	2.90	6.20



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

Sampling			en conc. of Mid Laye		Dissolved Oxygen conc. of Depth Ave. of Bottom Layer (mg/L)					
date	WY1	WY2	WY3	CY1	CY2	WY1	WY2	WY3	CY1	CY2
28-Dec-12	8.70	9.80	9.23	10.01	9.19	7.95	8.37	8.33	8.71	9.49
3-Jan-13	8.49	8.66	8.62	8.84	8.90	8.64	8.62	8.60	8.50	8.73
5-Jan-13	9.58	8.60	8.93	9.15	9.27	9.42	8.65	8.82	8.76	9.21
7-Jan-13	6.69	5.35	6.22	6.23	6.95	6.24	5.57	6.38	4.14	6.42
9-Jan-13	9.74	9.20	8.63	8.27	7.95	8.70	8.85	8.45	8.17	7.83
11-Jan-13	8.75	8.77	8.88	9.14	8.97	9.03	8.98	9.05	9.07	8.59
15-Jan-13	7.72	8.53	7.99	9.03	9.46	8.00	8.68	8.39	9.15	9.55
17-Jan-13	8.29	8.88	8.30	8.86	8.21	8.98	8.92	8.68	8.93	8.36
19-Jan-13	7.78	8.37	8.48	8.30	8.27	8.46	8.41	8.50	8.26	8.14
21-Jan-13	9.71	9.26	8.76	9.40	8.96	9.44	9.59	9.63	9.37	8.82
23-Jan-13	8.26	7.68	7.57	7.22	6.92	8.14	7.53	7.89	7.34	6.88
25-Jan-13	7.66	7.45	7.25	7.29	7.93	8.59	8.12	8.13	7.33	7.60

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

Compling data	Т	Turbidit	y Depth A	ve. (NTU	J)	Suspended Solids Depth Ave. (mg/L)					
Sampling date	WY1	WY2	WY3	CY1	CY2	WY1	WY2	WY3	CY1	CY2	
28-Dec-12	3.85	2.22	3.23	1.60	1.03	14.80	7.57	11.05	5.57	6.00	
3-Jan-13	1.48	0.52	0.88	0.70	3.98	5.55	10.63	5.75	4.23	8.83	
5-Jan-13	1.15	0.77	0.65	1.37	1.97	2.65	2.67	3.45	2.30	3.07	
7-Jan-13	1.40	0.93	1.30	1.28	1.88	2.45	1.57	2.25	1.50	1.23	
9-Jan-13	1.25	1.13	0.98	1.05	0.73	1.50	2.47	1.50	2.23	1.93	
11-Jan-13	0.93	0.85	1.05	0.98	1.25	4.75	3.97	4.90	4.80	5.70	
15-Jan-13	0.93	1.67	0.68	0.43	1.72	4.55	3.20	2.55	8.63	5.60	
17-Jan-13	1.05	1.02	1.18	1.67	3.20	3.70	4.20	5.00	4.77	5.20	
19-Jan-13	1.60	1.23	1.33	1.43	1.62	4.45	5.10	5.95	5.13	3.63	
21-Jan-13	1.25	1.17	0.85	1.58	1.28	5.45	4.37	5.05	3.17	4.07	
23-Jan-13	2.28	1.18	1.18	1.50	1.47	2.80	4.53	5.60	3.47	3.77	
25-Jan-13	2.45	2.52	1.98	4.38	1.37	6.00	3.90	7.65	3.37	2.33	

Table 6-5 Summarized Exceedances of Marine Water Quality

Station	DO (Ave of Surf. & mid-depth)		7		Turb (Depth	•	S: (Depth	_	To: Excee	
	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	l-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 Period. Therefore, no associated corrective actions were then required.



7 IMPACT MONITORING RESULTS – ECOLOGY MONITORING

- 7.01 Impact monitoring for coral shall be conducted initially at a frequency of once per week for the first three months of the marine works (HDD and dredging). If no exceedances are reported during this period, then the frequency may be reduced to twice every month for the reminder of the marine works.
- 7.02 In this Reporting Period, impact coral monitoring was conducted on **4 and 17 January 2013**. The coral monitoring report presents the result coral monitoring at Yung Shue Wan and Sham Wan is presented in *Appendix M*.



8 WASTE MANAGEMENT

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

Records of Waste Quantities

- 8.02 All types of waste arising from the construction work are classified into the following:
 - Construction & Demolition (C&D) material;
 - Chemical waste:
 - General refuse; and
 - Excavated soil.
- 8.03 The quantities of waste for disposal in this Reporting Period are summarized in *Tables 8-1* and 8-2 and the Monthly Summary Waste Flow Table is shown in *Appendix J*. Whenever possible, materials were reused on-site as far as practicable.

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

Type of Waste	Quantity	Disposal Location
C&D Materials (Inert) ('000m³)	0	-
Reused in this Contract (Inert) ('000m ³)	0	-
Reused in other Projects (Inert) ('000m ³)	0	-
Disposal as Public Fill (Inert) ('000m ³)	0.332	Tuen Mun Area 38

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

Type of Waste	Quantity	Disposal Location	
Metals (kg)	0	-	
Paper / Cardboard Packing (kg)	0	-	
Plastics (kg)	0	-	
Chemical Wastes (kg)	0	-	
General Refuses (tonne)	9.04	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 been formulation by ET Leader. Regular environmental site inspections had been carried out by the ET to confirm the environmental performance. In this Reporting Period, weekly joint-site visit by RE, the Contractor and ET was carried out on 27 December 2012, 2, 8, 15 and 22 January 2013.
- 9.02 The findings/ deficiencies that observed during the weekly site inspection are listed in *Table 9-1* and the relevant checklists are attached in *Appendix K*.

Table 9-1 Site Observations

Date	Findings / Deficiencies	Follow-Up Status
27 December 2012	Cumulated stagnant water was observed indie the chemical storage room, the Contractor should clean the cumulated water regularly.	Stagnant water in the chemical storage room was cleared on 2 January 2013.
2 January 2013	• No environmental issue was observed during the site inspection. However, full implementation of the required environmental mitigation measures is reminded in particular water quality mitigation measures to avoid adverse impacts on the receiving water bodies	Not required for general reminder.
8 January 2013	No environmental issue was observed during the site inspection. However, full implementation of the required environmental mitigation measures is reminded in particular water quality mitigation measures to avoid adverse impacts on the receiving water bodies	Not required for general reminder.
15 January 2013	No environmental issue was observed during the site inspection. However, full implementation of the required environmental mitigation measures is reminded in particular water quality mitigation measures to avoid adverse impacts on the receiving water bodies	Not required for general reminder.
22 January 2013	• No environmental issue was observed during the site inspection. However, full implementation of the required environmental mitigation measures is reminded in particular water quality mitigation measures to avoid adverse impacts on the receiving water bodies	Not required for general reminder.



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

Donauting Davied	Environmental Complaint Statistics				
Reporting Period	Frequency	Cumulative	Complaint Nature		
14 Sep – 30 September 2011	0	0	NA		
October – December 2011	0	0	NA		
January –December 2012	0	0	NA		
January 2013	0	0	NA		

Table 10-2 Statistical Summary of Environmental Summons

Donouting Donied	Environmental Summons Statistics				
Reporting Period	Frequency Cumulative Comp		Complaint Nature		
14 Sep – 30 September 2011	0	0	NA		
October – December 2011	0	0	NA		
January –December 2012	0	0	NA		
January 2013	0	0	NA		

Table 10-3 Statistical Summary of Environmental Prosecution

Depositing Davied	Environmental Prosecution Statistics				
Reporting Period	Frequency	Cumulative	Complaint Nature		
14 Sep – 30 September 2011	0	0	NA		
October – December 2011	0	0	NA		
January –December 2012	0	0	NA		
January 2013	0	0	NA		



11 IMPLEMENTATION STATUS OF MITIGATION MEASURES

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

Dust Mitigation Measure

- 11.02 Installation of 2m high solid fences around the construction site of Pumping Station P2 is recommended. Implementation of the requirements stipulated in the Air Pollution Control (Construction Dust) Regulation and the following good site practices are recommended to control dust emission from the site:
 - Stockpiles of imported material kept on site should be contained within hoardings, dampened and / or covered during dry and windy weather;
 - Material stockpiled alongside trenches should be covered with tarpaulins whenever works are close to village houses;
 - Water sprays should be used during the delivery and handling of cement, sands, aggregates and the like.
 - Any vehicle used for moving sands, aggregates and construction waste shall have properly fitting side and tail boards. Materials should not be loaded to a level higher than the side and tail boards, and should be covered by a clean tarpaulin.

Noise Mitigation Measure

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

Water Quality Mitigation Measure

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



- 11.05 During the dredging works, the Contractor should be responsible for the design and implementation of the following mitigation measures.
 - Dredging should be undertaken using closed grab dredgers with a total production rate of 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;
 - 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.
- 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



- All pie leakages should be repaired promptly and plant Should not be operated with leaking pipes; and
- All banges and other vessels should maintain adequate clearance between vessels and the seabed at all stats of the tide and reduce operational speeds to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.
- 11.21 In the event of exceedances of ecological action or limit level, the Contractor will be required to revise his operations as a further mitigation measure. Revisions to the operation method may include (but not be limited to):
 - Reduction in dredging rate'
 - Restriction of dredging in particular areas to specific periods in the tidal cycle
- 11.22 Should repeated non-compliances with limit level(s) occur the Contractor shall modify his working method until he is able to achieve the required compliances with the limit levels to the satisfaction of the IC(E)

Fisheries Mitigation Measure

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

Landscape & Visual Mitigation Measure

- 11.24 Mitigation measures recommended in the EIA Report for landscape and visual impacts during the construction stage are summarised below.
 - Screening of site construction works by use of hoarding that is appropriate to its site context;
 - Retaining existing trees and minimising damage to vegetation where possible by close
 co-ordination and on site alignment adjusted of rising main and gravity sewer
 pipelines. Tree protective measures should be implemented to ensure trees identified as to
 be retained are satisfactorily protected during the construction phase;
 - Careful and efficient transplanting of affected trees (1 no.) to temporary or final transplant location (the proposed tree to be transported is a semi-mature *Macaranga tanarius* and is located at the proposed Pumping Station P2 location);
 - Short excavation and immediate backfilling of sections upon completion of works to reduce active site area;
 - Conservation of top-soil for reuse;
 - Night-time light source from marine fleets should be directed away from the residential units
- 11.25 The implementation schedule of mitigation measures is presented in *Appendix L*.
- 11.26 Leader had been implementing the required environmental mitigation measures according to the Yung Shue Wan Environmental Monitoring and Audit Manual subject to the site condition. Environmental mitigation measures generally implemented by Leader in this Reporting Period are summarized in *Table 11-1*.

Table 11-1 Environmental Mitigation Measures

Issues	Environmental Mitigation Measures
Water Quality	 Drainage channels were provided to convey run-off into the treatment facilities; and Drainage systems were regularly and adequately maintained.



Issues	Environmental Mitigation Measures
	 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.
Noise	 Good site practices to limit noise emissions at the sources; Use of quite 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.
Chemical Management	 Excavated material should be reused on site as far as possible to minimize off-site disposal. Scrap metals or abandoned equipment should be recycled if possible; 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	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 29th Monthly EM&A Report covering the construction period from 26 December 2012 to 25 January 2013.
- 13.02 In this Reporting Period, no 1-hour TSP result was found to be triggered the Action or Limit Level. However, 2 Limit Level exceedances in 24-hour TSP monitoring were recorded on 10 January 2013. Investigation report for the cause of exceedance was completed and it was concluded that the exceedances were not related to the works under the project.
- 13.03 No noise complaint (an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in this Reporting Period.
- 13.04 No marine water monitoring exceedance was recorded in this Reporting Period.
- 13.05 Impact coral monitoring was conducted on 4 and 17 January 2013 and no exceedance was recorded.
- 13.06 No documented complaint, notification of summons or successful prosecution was received.
- 13.07 In this Reporting Period, joint-site visit by RE, the Contractor and ET was carried out on 27 December 2012, 2, 8, 15 and 22 January 2013. The environmental performance of the Project was considered as satisfactory.
- 13.08 No site inspection was undertaken by external parties i.e. Environmental Protection Department (EPD) or Agriculture, Fisheries and Conservation Department (AFCD) within the Reporting Period.

RECOMMENDATIONS

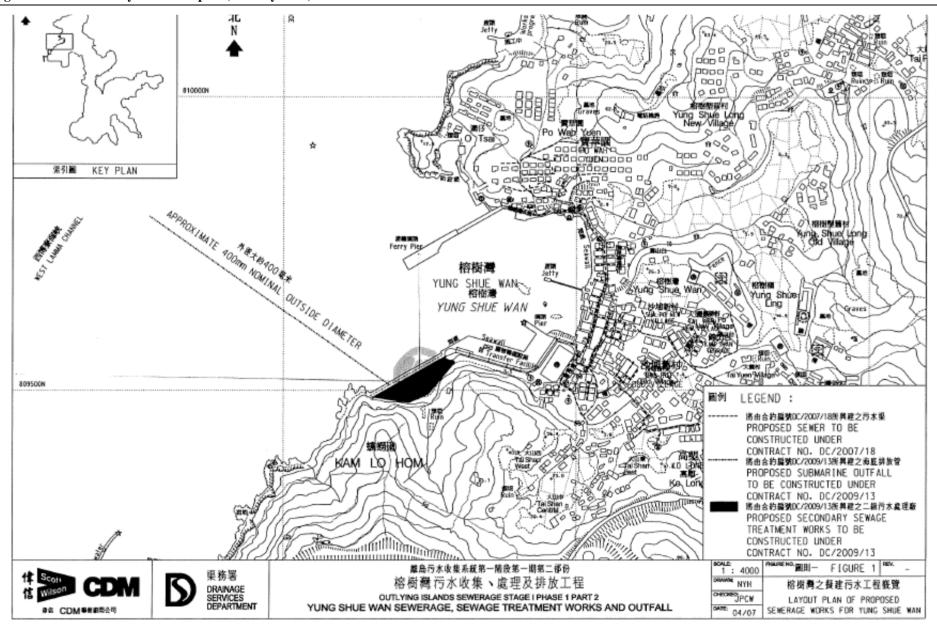
- 13.09 During dry and windy season, construction dust would be the key environmental issue to concern. The construction dust mitigation measures identified at the EM&A Manual such as watering at haul road and covering of dusty material should be implemented and properly maintained.
- 13.10 Nevertheless, the Contractor shall keep paying attention on the potential water impact as the construction site is adjacent to the coastline. Muddy water and other water quality pollutants via site surface water runoff into the sea body within Fish culture zone at Picnic Bay and the Secondary recreation contact subzone at Mo Tat Wan should be avoided. Therefore, mitigation measures for water quality should be fully implemented.



Appendix A

Site Layout Plan – Yung Shue Wan Portion Area







Appendix B

Organization Structure and Contact Details of Relevant Parties



Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
DSD	Employer	Ms. Jacky C.M. Wong	2159-3413	2833-9162
SCJV	Engineer's Representative	Mr. Ian Jones	2982 0240	2982 4129
SCJV	Resident Engineer	Mr. Alfred Cheung	2982 0240	2982 4129
Scott Wilson	Independent Environmental Checker	Mr. Rodney Ip	2410 3750	2428 9922
Leader	Director	Mr. Wilfred So	2982 1750	2982 1163
Leader	Project Manager	Mr. Vincent Chan	2982 1750	2982 1163
Leader	Construction Manager	Mr. K. Y. So	2982 1750	2982 1163
Leader	Assistant Construction Manager	Mr. Ron Hung	2982 1750	2982 1163
Leader	Environmental Officer	Mr. K. Y. So	2982 8652	2982 8650
Leader	Environmental Supervisor	Mr. Chan Shut Man	2982 8652	2982 8650
Leader	Sub-Agent	Mr. Burgess Yip	2982 1750	2982 1163
Leader	Senior Safety Officer	Mr. Edwin Leung	2982 1750	2982 1163
AUES	Environmental Team Leader	Mr. T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Ms. Nicola Hon	2959 6059	2959 6079
AUES	Team Supervisor	Mr. Ben Tam	2959 6059	2959 6079
AUES	Coral Specialist	Mr. Keith Kei	2959 6059	2959 6079

Legend:

DSD (Employer) – Drainage Services Department

CDM (Engineer) – Scott Wilson CDM Joint Venture

Leader (Main Contractor) - Leader Civil Engineering Corporation Limited

Scott Wilson (IEC) – Scott Wilson Limited

 $AUES\left(ET\right)-Action-United\ Environmental\ Services\ \&\ Consulting$



Appendix C

Master and Three Months Rolling Construction Programme

Activity		Original	Percent	Early	Early	Late	Late	Total								
ID	Description		Complete	Start	Finish	Start	Finish	Float	Predecessors	Successors	JAN	FEB	2013 MAR	APR		MAY
Project Key I	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, E&M2001, KD0125, PRE0020, PRE0040, PRE0050, PRE0060, PRE0130, SKW0250, SKW0588, SKW0651, SKW0881, SKW1131, SKW1481, SKW1591, SKW1611, YSW0020, YSW0050, YSW0075, YSW0180, YSW0200, YSW02401, YSW02401, YSW0412, YSW0422						
KD0030	Section W1 - Slope Works in Portion A & C	0	100		14/10/11 A		14/10/11 A		YSW0100, YSW0110, YSW0140,	KD0125, KD0130, YSW01755						
KD0040	Section W2 - YSW STW & Submarine Outfall (1370d)	0	0		16/06/14 *		16/06/14 *	0 *	E&M0700, YSW0400, YSW0800, YSW0870, YSW0925, YSW16704, YSW1700	KD0125, KD0132	· !		<u>-</u> = =	:======	=====:	=====
KD0050	Section W3 - Footpath Diversion in Ptn G	0	0		30/01/13 *		24/03/11 *	-678d *	SKW0481	KD0125	 _ =	Section W3 - Foot	oath Diversio	n in Ptn G	<u> </u>	
KD0060	Section W4 - Slope Works in Portios H & I	0	0		30/01/13 *		27/03/12 *	-309d *	SKW05938, SKW059416	KD0125, KD0135, SKW05941	· - - 	Section W4 - Slop	e Works in Po	ortios H & I = = = =	====:	
KD0070	Section W5 - P.S. No. 1 in Portion D	0			30/01/13 *		10/02/12 *	-355d *	SKW0741	KD0125	ـِ ا أ	Section W5 - P.S.	— — — — — No. 1 in Porti	on D	7	
KD0080	Section W6 - Sewer & PS No2 in Ptn. E & F	0	0		30/01/13 *		10/02/12 *	-355d *	SKW0971	KD0125		Section W6 - Sewe	1 1			
KD0090	Section W7 - SKW STW, RM & Sm. Outfall	0	0		07/10/14 *		07/10/14 *	0 *	E&M3360, SKW1221, SKW1291,	KD0125, KD0165, SKW0491			= = = = = = =	======	=====	=====
									SKW1431, SKW1441, SKW1521,							
KD0100	Section W8 - Landscape Softworks	0	0		05/04/13 *		05/04/13 *		SKW1611, SKW1621				+ †	Section	W8 - Landscar	pe Softworks
KD0110	Section W9 - Establishment Works	0	0		03/04/14 *	<u> </u>	03/04/14 *		SKW1631	KD0125	1.11		i i i	ļ.	<u> </u>	
KD0125	Project Completion		0		12/09/15 *		12/09/15 *	0 *	KD0010, KD0020, KD0030, KD0040, KD0050, KD0060, KD0070, KD0080, KD0090, KD0110, SKW0541					1		
KD0130	Completion of Maintenance Period of W1	1	0	31/01/13	31/01/13 *	13/10/12	13/10/12 *	-110d	KD0030, YSW01755, YSW01805, YSW01810		 	-Completion of Mair	ntenance Peri	od of W1		
KD0132	Completion of Maintenance Period of W2	1	0	15/06/15	15/06/15 *	15/06/15	15/06/15 *	0	E&M0730, KD0040		<u> </u>		1 1 1	į	į	
KD0135	Completion of Maintenance Period of W4	1	Ŭ	27/03/13	27/03/13 *	27/03/13	27/03/13 *	0	KD0060, SKW05947, SKW1581		lii	1		Completion of	Maintenance P	eriod of W4
	<u> </u>		<u> </u>									 	1 1	ii		
KD0145	Completion of Maintenance Period of W5	1	0	10/02/13	10/02/13 *	10/02/13	10/02/13 *	0			111			ce Period of W5	<u> </u>	
KD0155	Completion of Maintenance Period of W6	1	0	10/02/13	10/02/13 *	10/02/13	10/02/13 *		E&M2130, E&M2180, SKW0961,		111	ן וון וון Completion	of Maintenand	ce Period of W6		
KD0165	Completion of Maintenance period of W7	1	0	06/10/15	06/10/15 *	06/10/15	06/10/15 *	0 ^	KD0090, SKW0595, SKW05972, SKW0861		11.1	iξii				
Preliminary (Civil)										iii	1111		ii i	<u> </u>	
PRE0020	Pre-condition Survey	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A		KD0020							
PRE0040	Erection of Engineer's Site Accommodation at YSW	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A		KD0020			1 81 1		11 1		
PRE0050	Taking over the Secondary Engineer's Site Accomm	75	100	17/05/10 A	30/07/10 A	17/05/10 A	30/07/10 A		KD0020		11.1	1 11 1	i i	ii i	<u> </u>	
PRE0060	Application of Consent from Marine Department	60	100		1	17/05/10 A			KD0020		11.1					
PRE0090	Working Group Meeting for Outfall Construction	120		17/05/10 A					KD0020	SKW1151				11		
PRE0100 PRE0130	Application & Consent of XP from HyD (Mo Tat Rd) Setup Web-site for EM&A Reporting	120 90	100	17/05/10 A 17/05/10 A	13/09/10 A				KD0020 KD0020	SKW1491, SKW1501	111	11111	1 1	II I	j	
	<u> </u>	90	100	17/05/10 A	14/08/10 A	17/05/10 A	14/08/10 A		KD0020			1 81 1	 		++-	
Preliminary (•											1 81 1				
	n of SKWSTW & YSWSTW										11.1	1 1	i i	ii i	<u> </u>	
E&M0010	Submission	38	100	17/05/10 A	23/06/10 A	17/05/10 A	23/06/10 A		KD0020	E&M0020, E&M0040, E&M0235						
E&M0020	Vetting and Comment by ER	21		24/06/10 A			14/07/10 A		E&M0010	E&M0030, E&M0040		1 81 1		11 1		
E&M0030	Revision and Resubmission	125		15/07/10 A	16/11/10 A	15/07/10 A	16/11/10 A		E&M0020	E&M0080	11.1	1 1	i i	ii i	j	
E&M0080	Approval from the Engineer	14	100	17/11/10 A	30/11/10 A	17/11/10 A	30/11/10 A		E&M0030	E&M0295					<u> </u>	
Hydraulic Desi											11.1	1 11 1		11 1		
E&M0040	Submission	21		15/07/10 A			04/08/10 A		E&M0010, E&M0020	E&M0050, E&M0101, E&M0240, E&M0260,	11.1	1.1111			j	
E&M0050	Vetting and Comment by ER	14		05/08/10 A			18/08/10 A		E&M0040	E&M0060		1 81 1	1 1	11 1		
E&M0060	Revision and Resubmission	97		19/08/10 A			10/10/10 A		E&M0050	E&M0430	111	11111	i i	ii i	!	
E&M0430	Approval from the Engineer	7	100	24/11/10 A	30/11/10 A	24/11/10 A	30/11/10 A		E&M0060	E&M0295	111	1	i i	11 1	-	
Equipment Sub E&M0070	omission & Approval Submission of Membrane Module	50	100	17/05/10 A	05/07/10 4	17/05/10 ^	05/07/10 A	1	KD0020	E&M0090		1 81 1				
E&M0090	Vetting and Comment by ER	14		06/07/10 A			19/07/10 A		E&M0070	E&M0100	11.1	1 1	i i	ii i		
E&M0100	Revision and Resubmission	14		20/07/10 A			24/02/11 A		E&M0090	E&M0160	11.1					
E&M0101	Submission of Equipment	90		05/08/10 A	30/11/11 A				E&M0040	E&M0102	11.1	1 81 1		!! ! !! !		
E&M0102	Vetting and Comment by ER	60		03/11/10 A					E&M0101	E&M0103		iiii		ii i	_i_	
Finish date 28 Data date 31	Early bar 1/0/16 1/01/13 1/02) ction of S	Contract Sewage 1	No. DO	ering Corp. Ltd. C/2009/13 ent Works at YSW & S (Feb 2013 - Apr 2013)	KW		31/01/13	Re	Revision vision 0	Checked RH	d Approved VC
c Primavera Svst	Ctart milestone naint				3-11101	1101111	ig r rugra		(100 2010 - Api 2013)							+
o i iiiiavoi a Syst	Einich milactona naint															

Activity ID	Description			Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors			2013			
E&M0103	Revision and Resubmission	60	100 01/			01/02/11 A	30/11/11 A	Tiout	E&M0102	E&M0110, E&M0120, E&M0130, E&M0140,	JAN	FEB	MAR	A	PR	MAY
E&M0110	Approval on Coarse Screens	30		/05/11 A	25/05/11 A	25/05/11 A	25/05/11 A		E&M0103	E&M0390	- iii i i		i i	i i	i	
E&M0120	Approval on Fine Screens	30	100	/09/11 A	12/09/11 A	12/09/11 A	12/09/11 A		E&M0103	E&M0400, E&M3060	- !!! !!		1 1	! !	l I	
E&M0130	Approval on Pumps	30	1001	/06/11 A	23/06/11 A	23/06/11 A	23/06/11 A		E&M0103	E&M0410, E&M3070	- !!! !!			! !	ļ.	
E&M0140	Approval on Submersible Mixers	30	100	/03/11 A	23/03/11 A	23/03/11 A	23/03/11 A		E&M0103	E&M0420, E&M3080	- iii ii		iii	; ;	i	
E&M0150	Approval on Grit Removal Equipment	30	100	/10/11 A	10/10/11 A	10/10/11 A	10/10/11 A		E&M0103	E&M0380, E&M3030	+		- +!	<u>+</u> <u>-</u> -	!	
E&M0160	Approval on MBR Membrane Modules (M.M.)	105	100	/08/10 A	24/02/11 A	03/08/10 A	24/02/11 A		E&M0100	E&M0360, E&M0370, E&M3010	-		1 1	1 1		
E&M0170	1 ''	30	100		<u> </u>				E&M0103	E&M0440, E&M3090	- 111 11		-	1 1	1	
	Approval on Sludge Dewatering Equipment		100	/09/11 A	01/09/11 A	01/09/11 A	01/09/11 A	174		E&M0450, E&M3100	111 11		-	I I	!	
E&M0180	Approval on Valves, Pipes & Fittings	30	00	/11/11 A	04/02/13	19/11/11 A	20/02/13	170	E&M0103		111 11	Approval on Valves	I I	1 -	i	
E&M0190	Approval on Penstocks	30	100	/11/11 A	15/11/11 A	15/11/11 A	15/11/11 A		E&M0103	E&M0460, E&M3110	+			- - -		
E&M0200	Approval on Instrumentation	30	100	/06/11 A	08/03/12 A	21/06/11 A	08/03/12 A		E&M0103	E&M0470, E&M3130	111 111	1.1	1 1	i i	i	
E&M0210	Approval on MCC & LVSB	30		/11/11 A	01/02/13	19/11/11 A	03/06/11		E&M0103	E&M0480, E&M3140	A	opproval on MCC & I		1	. !	
E&M0220	Approval on BS Equipment	30	1 001	/11/11 A	07/03/13	30/11/11 A	02/11/11		E&M0103, E&M0280	E&M0490, E&M3150	1111 111	<u> </u>	Approval	on BS Equipme	nt ¦	
E&M0230	Approval on FS Equipment	30	85 30/	/11/11 A	19/03/13	30/11/11 A	15/08/11	-582d	E&M0103, E&M0290	E&M0295, E&M0320, E&M0500, E&M3160				pproval on FS E	quipment	
Drawings Sub	omission & Approval											 []	<u> </u>	1 1	i	
E&M0235	Sub. P&ID Drawings	100			24/02/13	24/06/10 A	24/07/11	-582d	E&M0010	E&M0250		Sub.	P&ID Drawi	ings _I	1	
E&M0240	Sub. Plant GA Drawings	45	68 04/	/08/10 A	14/02/13	04/08/10 A	24/07/11	-571d	E&M0040	E&M0250, E&M0280, E&M0290		Sub. Plant G			l l	
E&M0250	Sub. Builder's Works Requirements Drawings	15	100 04/	/08/10 A	31/01/13 A	04/08/10 A	31/01/13 A		E&M0235, E&M0240, E&M0260,	E&M0280, E&M0290	Su	ub. Builder's Works	Requireme	nts Drawings	i	
E&M0260	Sub. Mechanical Installation Drawings	60	70 27/	/09/10 A	17/02/13	27/09/10 A	24/07/11	-575d	E&M0040	E&M0250	HI	Sub. Mech	nanical Insta	allation Drawing	s !	
E&M0270	Sub. Electrical Installation Drawings	60		/09/10 A	14/02/13	27/09/10 A	24/07/11	-572d	E&M0040	E&M0250, E&M0280		Sub. Electric	al Installati	on Drawings	i	
E&M0280	Sub. BS Installation Drawings	120	· · · · · · · · · · · · · · · · · · ·		02/03/13	27/09/10 A	28/10/11	-491d	E&M0240, E&M0250, E&M0270	E&M0220		S	ub. BS Insta	allation Drawing	i	†
E&M0290	Sub. FS Installation Drawings	120			14/03/13	13/11/11 A	11/08/11	-582d	E&M0240, E&M0250	E&M0230		11 1		FS Installation		
Statutory Subn		1	00 10		1,	1	1				11.1	11 1	1 1	1 1	I	
E&M0295	Preparation of Submission to HEC	39	100 01/	/11/11 A	30/11/11 A	Ι 01/11/11 Δ	30/11/11 A		E&M0080, E&M0230, E&M0430	E&M0300	- !!!			!!!	!	
	Application & Approval from HEC				<u> </u>	01/11/11 A		1574	E&M0295	E&M0305	111 11		<u>' '</u>	I I	I ntion & Λην	rough from HEC
E&M0300	1	150			03/04/13		28/10/12			E&M0680	1111 111		<u> </u>		αιίοτι α Αρι	proval from HEC
E&M0305	Provision of Cables to the STWs	180	<u> </u>	/04/13	30/09/13	29/10/12	26/04/13		E&M0300		- :: ::					
E&M0320	Form 314 Submission to FSD	14	<u> </u>	/03/13	02/04/13	13/04/13	26/04/13	25d	E&M0230	E&M0325, E&M0670	iii ii		; -	1 1 1	1	sion to FSD
E&M0325	Submission to WSD	14	100 01/	/11/11 A	29/02/12 A	01/11/11 A	29/02/12 A		E&M0320	E&M0670, E&M0680			<u> </u>			[
E&M0330	Form 501 Submission to FSD (YSW)	28	0 12/	/12/14	09/01/15	14/11/13	11/12/13		E&M0500	E&M0700			- +	+		T
E&M0340	Form 501 Submission to FSD (SKW)	28	0 06/	/09/13	04/10/13	11/06/14	08/07/14	278d	E&M3160	E&M3360	111 11	11 1		I I	1	
E&M0350	Form 501 Submission to FSD (PS1 & PS2)	28	0 28/	/02/13	28/03/13	14/11/12	11/12/12	-107d	E&M2016	E&M11800, E&M2180				Form 501 9	Submission	to FSD (PS1 & PS
Yung Shue \	Wan										111 11	· ·	i	 - - - - - 		
Preliminary													!!!	! !	!	
YSW0020	Approval of Environmental Team	I 16	100 17	/05/10 A	01/06/10 A	17/05/10 A	01/06/10 A I		KD0020	YSW00201, YSW0030, YSW00351,			; ;	; ;	i	
YSW00201	Change Baseline Monitoring Location (Air&Noise)	59					30/07/10 A		YSW0020	YSW0030	- 111 11		1 1	1	ı	
YSW0030	Baseline monitoring (Air & Noise)	23			22/08/10 A				YSW0020, YSW00201	YSW0035				1 1	l I	
YSW0035	Baseline Monitoring Report Submission (A & N)	16			07/09/10 A				YSW0030	YSW0120, YSW01545, YSW0500,	- iii iii		i i	i i	i	
							1		YSW0020		- !! ! !		1 !	! !	!	
YSW00351	Submission & Approval for Monitoring Method (W)	58	100		29/07/10 A					YSW0040	 		- ¦ ¦	¦ ¦ -		
YSW0040	Baseline monitoring (Water)	155		/07/10 A	31/12/10 A				YSW0020, YSW00351	YSW0350				I I	1	
YSW0050	Erect Hoarding and Fencing	60	100 19/	/05/10 A	17/07/10 A	19/05/10 A	17/07/10 A		KD0020	YSW0155	111 11		1 1	! !		
Section W 1 - S	Slope W orks in Portion A & C										iii iii		i i	i i	i	
YSW0075	Mobilization	30	100 17/		15/06/10 A	17/05/10 A	15/06/10 A		KD0020	YSW0080, YSW0100			1 1	! !	I .	
YSW0080	Site Clearance	30	100		15/07/10 A	16/06/10 A	15/07/10 A		YSW0075	YSW0085, YSW0090, YSW0120] " ;				l I	
YSW0085	Initial Survey	14	100 02/		15/07/10 A	02/07/10 A	15/07/10 A		YSW0080	YSW0120		11 1	i i	i i	i	
YSW0090	Verify the Rock Boulder required Stablization Wk	249		/07/10 A	21/03/11 A	16/07/10 A	21/03/11 A		YSW0080	YSW0100, YSW0110	1 !!!!!!		1 1	1 1	l i	
YSW0100	Removal of Rock Boulder	257	100 20/		<u> </u>	20/09/10 A	03/06/11 A		YSW0075, YSW0090	KD0030						
YSW0110	Stablizing work for rock boulder	35		/07/11 A		16/07/11 A	19/08/11 A		YSW0090	KD0030	† no - n	п г	- Ţi	Ţ r -	<u>i</u>	†
YSW0120	Cut the slope to design profile	2	100 24/		<u> </u>	24/09/10 A	25/09/10 A		YSW0035, YSW0080, YSW0085	YSW0131, YSW0155, YSW0170			1 1		l I	
YSW0131	Mobilization of Plant and Material of Soil Nails	14	 	/09/10 A /09/10 A	25/09/10 A	<u> </u>	25/09/10 A		YSW0120	YSW0132			i i	i i	i	
l I————		14	.00		27/09/10 A				YSW0131	YSW0133			1 !	1 1	!	
YSW0132	Erect Scaffold and Working Platform	2	100 26/				27/09/10 A								i	
YSW0133	Setting out and Verify Locations of Soil Nails	45	100 28/		<u>!</u>	28/09/10 A	11/11/10 A		YSW0132	YSW0134	+ u u	LI	_ <u>+</u> i	1 i _	I	ļ
YSW0134	Drilling and Soil Nails Installation	43	100 19/		30/11/10 A	<u> </u>	30/11/10 A		YSW0133	YSW0135	- :: ::		1 !	! !	l I	
YSW0135	Construction of Nail Heads	12	1001		<u>!</u>	01/12/10 A	12/12/10 A		YSW0134	YSW0136] " ;;		i i	i i	i	
	Mesh Installation on Cut Slope	3	100 13/		15/12/10 A	13/12/10 A	15/12/10 A		YSW0135	YSW01361	<u> </u>		1 !	! !	I :	
YSW0136			100 16/	/12/10 A	12/04/11 A	16/12/10 A	12/04/11 A		YSW0136	YSW0140] " ;		-	1 1	l I	
YSW0136 YSW01361	Verify alignment of access & channels on slope	118	1001						YSW01361	KD0030	1 iii iii		: :		:	
l I——————	<u> </u>	118 182		/04/11 A	11/10/11 A	13/04/11 A	11/10/11 A				1 1	• • • • • • • • • • • • • • • • • • • •				
YSW01361 YSW0140	Verify alignment of access & channels on slope			/04/11 A	11/10/11 A	13/04/11 A	11/10/11 A					Date	' '	Revision	1	Checked Approve
YSW01361 YSW0140 Start date 09 Finish date 20	Verify alignment of access & channels on slope Construct U-channels & Step Channel on Cut Slope 5/05/10 Early bar Progress bar			/04/11 A	11/10/11 A	l	<u> </u>	ainee	ering Corp. Ltd.				Revi	Revision sion 0		Checked Approve
YSW01361 YSW0140 Start date 0: Finish date 2: Data date 3:	Verify alignment of access & channels on slope Construct U-channels & Step Channel on Cut Slope 5/05/10 Early bar Progress bar Critical bar Summary bar			/04/11 A	11/10/11 A	Leade	r Civil En		ering Corp. Ltd. 2/2009/13			Date	Revi			
YSW01361 YSW0140 Start date 0: Finish date 2: Data date 3 Run date 0:	Verify alignment of access & channels on slope Construct U-channels & Step Channel on Cut Slope 5/05/10 Early bar Progress bar Critical bar Critical bar Summary bar Progress point					Leade (r Civil En Contract N	lo. DO	2/2009/13		,	Date	Revi			
YSW01361 YSW0140 Start date 0: Finish date 2: Data date 3:	Verify alignment of access & channels on slope Construct U-channels & Step Channel on Cut Slope 5/05/10 Early bar Progress bar Critical bar Summary bar Progress point Critical point				Construc	Leade (ction of S	r Civil En Contract N Sewage Ti	lo. DO	c/2009/13 ent Works at YSW & S			Date	Revi			
YSW01361 YSW0140 Start date 0: Finish date 2: Data date 3 Run date 0:	Verify alignment of access & channels on slope Construct U-channels & Step Channel on Cut Slope 5/05/10 Early bar Progress bar Critical bar Summary bar Progress point Critical point Summary point				Construc	Leade (ction of S	r Civil En Contract N Sewage Ti	lo. DO	2/2009/13			Date	Revi			

Activity ID	Description		Percent Early Complete Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	JAN		FEB		2013 MAR	Δ	PR	MAY
YSW0153	Removal of Ex U-Channel where clash with B. Wall	151	100 10/05/11 A	07/10/11 A	10/05/11 A	07/10/11 A		YSW01545	YSW01750	II	1 1 1 11 1	125	1 1	11	1	 I	
YSW01545	Temporary Diversion of Drainage	244	100 08/09/10 A	09/05/11 A	08/09/10 A	09/05/11 A	1	YSW0035	YSW0153	1 !!	1 1 111 1		1 1	11	1	ı	
YSW0155	RC Barrier Wall Bay 1-13 (below Ground Level)	256	100 26/09/10 A	08/06/11 A	26/09/10 A	08/06/11 A	<u> </u>	YSW0050, YSW0120	KD0030, YSW0170, YSW0175, YSW01750	1 "				11	-	1	
YSW0170	RC Barrier Wall Bay 1-13 (above Ground Level)	125	100 09/06/11 A	11/10/11 A	09/06/11 A	11/10/11 A	<u> </u>	YSW0120, YSW0155	KD0030	1 "	 		1 1	11	<u> </u>	1	
YSW0175	Construct U-channels and Catchpits (Phase 1)	76	100 09/06/11 A	23/08/11 A	09/06/11 A	23/08/11 A	1	YSW0155	KD0030	1 !!	1 1 111 1		1 1	11	1	ı	
YSW01750	Construction of subsoil drain (phase 1)	7	100 12/10/11 A	08/02/12 A	12/10/11 A	08/02/12 A	i i	YSW0153, YSW0155	KD0030	† -	1 - 1-01-1 1 1-01-1			1+ -			[
YSW01755	Construct subsoil drain (phase 2)	14	100 06/12/12 A	31/12/12 A	06/12/12 A	31/12/12 A	i i	KD0030, YSW01800	KD0130	Construct subsoi	1.1	ohase 2)	1 1	11	1	į.	
YSW01800	RC Barrier Wall Bay 14 (below & above Ground)	87	100 03/09/12 A	28/11/12 A	03/09/12 A	28/11/12 A	i i	YSW0760	YSW01755, YSW01810	4 (below & above	Ground)		- ; ;	11	-	¦	
YSW01805	Hydroseeding	14	0 31/01/13	13/02/13	29/09/12	12/10/12	-124d	YSW01810	KD0130	<u> </u>		Hydrose	eeding !	11	!	Į.	
YSW01810	Construct U-channels and Catchpits (Phase 2)	30	100 29/11/12 A	22/12/12 A	29/11/12 A	22/12/12 A	<u> </u>	YSW01800	KD0130, YSW01805	ruct U-channels a		hpits (Phase	2)	- ;;	-	;	
Section W2 - Y	SW STW & Submarine Outfall						<u> </u>		-	!			<u></u>	TIT T	<u>:</u>	- !	
Civil & Structu	ral Work									;			1 1	11	;	;	
YSW0412	Mobilization	30	100 17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A	1	KD0020	YSW0422	1 :	11::::		1 1	11	!	!	
YSW0422	Site Clearance	30	100 17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A		KD0020, YSW0412	YSW0432, YSW0500, YSW0610, YSW0650	1 ;			- ; ;	ii	i	i	
YSW0432	Initial Survey	14	100 02/06/10 A	15/06/10 A	02/06/10 A	15/06/10 A	i	YSW0422	YSW0510	1 !	11::::		1 1	11	!	!	
YSW STW -	GLH - T						<u> </u>			i	1 1111		1 1	11	i	i	
YSW0500	ELS & Excavation for Inlet Pumping Station	105	100 08/09/10 A	21/12/10 A	08/09/10 A	21/12/10 A		YSW0035, YSW0422	YSW0510	1 :			1 1	11	l ,	l I	1
YSW0510	Sub-structure construction (Inlet Pumping Stn)	129	100 22/12/10 A	29/04/11 A	22/12/10 A	29/04/11 A	İ	YSW0432, YSW0500	YSW0520	1 ;			; ;	11	;	i	1
YSW0520	Backfill & Remove ELS (Inlet Pumping Stn)	40		08/06/11 A	30/04/11 A	08/06/11 A	İ	YSW0510	YSW05701	1 :			1 1	11	!	!	
YSW0530	ELS & Excavation for Equalization Tank	159	100 01/01/11 A	08/06/11 A	01/01/11 A	08/06/11 A		YSW0660	YSW0540, YSW05701	1 ;			- ; ;	ii	i	i	
YSW0540	Sub-structure construction (Equalization Tank)	112	100 09/06/11 A	28/09/11 A	09/06/11 A	28/09/11 A		YSW0530	YSW0550, YSW05901	1 :			1 1	11	1	!	
YSW0550	Backfilling & Remove ELS (Equalization Tank)	20		18/10/11 A	29/09/11 A	18/10/11 A		YSW0540	YSW05901	T ;			i-i-	ii -	<u>-</u>	i	[
YSW05701	ELS & Excavation for Grit Chambers	28		06/07/11 A	09/06/11 A	06/07/11 A		YSW0520, YSW0530	YSW05711, YSW05731	1 :			1 1	11	1	!	
YSW05711	Construct sub-structure for Grit Chambers	106	100 07/07/11 A	20/10/11 A	07/07/11 A	20/10/11 A		YSW05701	YSW05721, YSW05911	1 ;			- ; ;	ii	i	i	
YSW05721	Backfill & Remove ELS for Grit Chambers	12		01/11/11 A	21/10/11 A	01/11/11 A	İ	YSW05711	YSW05911	1 :			1 1	11	!	!	
YSW05731	ELS & Excavation for Grease Separators (GS)	34		09/08/11 A	07/07/11 A	09/08/11 A	İ	YSW05701	YSW05741	1 ;			- ; ;	ii	i	i	
YSW05741	Construct sub-structure for Grease Separators	52		30/09/11 A	10/08/11 A	30/09/11 A		YSW05731	YSW05751	T :			I-T-	IT _		!	[
YSW05751	Install Dia.400 Puddles in Grease Separators	27	100 01/10/11 A	27/10/11 A	01/10/11 A	27/10/11 A	İ	YSW05741	YSW05752	1 ;			- i i	ii	i	i	
YSW05752	Construct sub-structure for GS (above puddles)	48	100 28/10/11 A	14/12/11 A	28/10/11 A	14/12/11 A	İ	YSW05751	YSW05761	1 :			1 1	11	1	!	
YSW05761	Backfill & remove ELS for Grease Separators	10		24/12/11 A	15/12/11 A	24/12/11 A	İ	YSW05752	YSW0580, YSW05921	1 ;			- i i	ii	i	i	
YSW0580	Excavate to Formation for Deodorizer Room	10	100 ^{25/12/11} A	03/01/12 A	25/12/11 A	03/01/12 A		YSW05761	YSW05801, YSW05922	1 :			1 1	11	1	1	
YSW05801	Excavate to formation - Grid J-N/5-7	40	100 04/01/12 A	12/02/12 A	04/01/12 A	12/02/12 A		YSW0580	YSW05802, YSW05923	T ;			i-i-	ii -	<u>-</u>	i	[
YSW05802	Excavate to formation - Grid GA-H/5-7	10	100 13/02/12 A	22/02/12 A	13/02/12 A	22/02/12 A		YSW05801	YSW05924	1 :			1 1	11	1	1	
YSW05901	G/F to 1/F Construction Grid GA-K/1-5	90	100 29/09/11 A	27/12/11 A	29/09/11 A	27/12/11 A		YSW0540, YSW0550	YSW06001	1 ;			i i	ii	i	i	
YSW05911	G/F to 1/F Construction Grid N-S/1-5	80	100 21/10/11 A	08/01/12 A	21/10/11 A	08/01/12 A		YSW05711, YSW05721	YSW06011, YSW06035	1 :			1 1	11	1	l I	
YSW05921	G/F to 1/F Construction Grid K-N/1-5	45	100 25/12/11 A	07/02/12 A	25/12/11 A	07/02/12 A	İ	YSW05761	YSW06021	1 ;	1 1111		i i	ii	i	i	
YSW05922	G/F to 1/F Construction for Deodorizer Room	80	100 04/01/12 A	23/03/12 A	04/01/12 A	23/03/12 A		YSW0580	YSW06022	T :			- -	IT -			
YSW05923	G/F to 1/F Construction for Grid J-N/5-7	60	100 13/02/12 A	12/04/12 A	13/02/12 A	12/04/12 A	İ	YSW05801	E&M0530, E&M0540, E&M0550, E&M0560,	1 ;	il liiii		i i	ii	i	i	
YSW05924	G/F to 1/F Construction for Grid GA-H/5-7	50	100 28/05/12 A	16/07/12 A	28/05/12 A	16/07/12 A	İ	YSW05802, YSW06023	YSW06034	1 :			1 1	11	1	<u> </u>	
YSW06001	1/F to Roof Constuction for Grid GA-K/1-5	87	100 28/12/11 A	23/03/12 A	28/12/11 A	23/03/12 A	İ	YSW05901	YSW0800	1 ;	1 1111		i i	ii	i	i	
YSW06011	1/F to Roof Constuction for Grid N-S/1-5	75	100 09/01/12 A	23/03/12 A	09/01/12 A	23/03/12 A	Ì	YSW05911	YSW0800	1 :			1 1	11	1	<u> </u>	
YSW06021	1/F to Roof Constuction for Grid K-N/1-5	44	100 08/02/12 A	22/03/12 A	08/02/12 A	22/03/12 A	İ	YSW05921	YSW07201	T i	1 1111		i-i-	ii -	i	i	
YSW06022	1/F to Roof Constuction for Deodorizer Room	60	100 24/03/12 A	22/05/12 A	24/03/12 A	22/05/12 A	İ	YSW05922	YSW0800	1 :			1 1	11	1	<u> </u>	
YSW06023	1/F to Roof Constuction for Grid J-N/5-7	45	100 13/04/12 A	27/05/12 A	13/04/12 A	27/05/12 A	Ì	YSW05923	E&M0580, YSW05924] ;	1 1111		i i	ii	i	i	
YSW06034	1/F to Roof Constuction for Grid GA-H/5-7	28	100 27/07/12 A	13/08/12 A	27/07/12 A	13/08/12 A	İ	YSW05924	YSW0800	1 :			1 1	11	1	 	
YSW06035	Construct buffle walls in Grease Separators	90	100 18/04/12 A	16/07/12 A	18/04/12 A	16/07/12 A	İ	YSW05911	YSW07204	1 ;	il liiii		i i	ii	i	i	
YSW07201	Water tightness test for Inlet Pumping Station	60	100 23/03/12 A	21/05/12 A	23/03/12 A	21/05/12 A	İ	YSW06021	YSW07202, YSW0800	T :			I_ T	IT -			i
YSW07202	Water tightness test for Equalization Tanks	42	100 22/05/12 A	02/07/12 A	22/05/12 A	02/07/12 A	İ	YSW07201	E&M0600, YSW07203, YSW0800	1 ;	1 1111		ii	ii	i	i	1
YSW07203	Water tightness test for Grit Chambers	42	100 17/09/12 A	29/09/12 A	17/09/12 A	29/09/12 A	İ	YSW07202	YSW07204, YSW0800] :			1 1	11	1	l I	1
YSW07204	Water tightness test for Grease Separators	32		31/10/12 A	03/10/12 A	31/10/12 A	İ	YSW06035, YSW07203	E&M0570, YSW07205, YSW0800]s i			ii	ii	i	i	1
YSW07205		21	0 31/01/13	20/02/13	10/06/14	30/06/14	495d	YSW07204	YSW0800	╁	-	Wa	ter tightne	ss test for v	water chann	els ¦	1
YSW0800	ABWF installation	271	88 03/07/12 A	04/03/13	03/07/12 A	16/06/14	470d	YSW06001, YSW06011, YSW06022,	KD0040				ABWI	installatio	on	i	í
YSW STW -	GLT-X							•	·		 		 	11	 	 	
YSW0610	Excavate to formation	10	100 08/09/10 A	17/09/10 A	08/09/10 A	17/09/10 A		YSW0035, YSW0422	YSW0620	7) i	1 1111		i	ii	i	i	1
YSW0620	Base slab construction	248	100 18/09/10 A	23/05/11 A	18/09/10 A	23/05/11 A		YSW0610	YSW0630	11 :			l I	11	1	I I	1
			· · · · · · · · · · · · · · · · · · ·					<u> </u>	·	<u> </u>							
Start date 05	6/05/10 Early bar											Date	е		Revision	С	Checked Approved

Start date 05/05/10 Early bar
Finish date 28/10/16 Progress bar
Critical bar
Summary bar
Run date 05/02/13 Progress point
Progress point
Critical point
Summary point
Summary point
Summary point
Start milestone point
Finish milestone point

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

Date	Revision	Checked	Approved
1/01/13	Revision 0	RH	S

Activity ID	Description	Original	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors		550		2013 IAR	APR	MA	v
YSW0630	G/F to 1/F construction	205		24/05/11 A	14/12/11 A	24/05/11 A	14/12/11 A		YSW0620	YSW0640	JAN	FEB	IVI	An II	AFN	WA	ı
YSW0640	1/F to Roof Construction	64		15/12/11 A	16/02/12 A	15/12/11 A	16/02/12 A		YSW0630	YSW0810	†	11.1	i	ii	i i		
YSW0810	ABWF installation	80	100	28/12/11 A		28/12/11 A	16/03/12 A		YSW0640	E&M0610, E&M0620, E&M0630, E&M0640	11 :: ;	111	1	11	1 1		
YSW STW - 0	GLF-H&DN Tanks		100				<u> </u>				 	 					
YSW0650	ELS & Excavation for DN Tanks	37	100	08/09/10 A	14/10/10 A	08/09/10 A	14/10/10 A	l	YSW0035, YSW0422	YSW0660	-	11.1	i	11	i i		
YSW0660	Sub-struction construction (DN Tanks)	78			31/12/10 A	15/10/10 A	31/12/10 A		YSW0650	YSW0530, YSW0670			I I	11	1 1		
YSW0670	Backfill & Remove ELS (DN Tanks)	70	100	01/01/11 A	11/03/11 A	01/01/11 A	11/03/11 A		YSW0660	YSW0680	†	111	i	ii	i i		
YSW0680	Base slab construction (SD1, SD2 & MBR4)	17			28/03/11 A	12/03/11 A	28/03/11 A		YSW0670	YSW0690			1	11	1 1		
YSW0690	Construct Superstructure SD1, SD2 & MBR4	82	100	29/03/11 A	18/06/11 A	29/03/11 A	18/06/11 A		YSW0680	YSW0710, YSW0820	11	 	i	ii	i i		
YSW06901	Construct Superstructure of DN Tanks	28	100	15/05/12 A	11/06/12 A	15/05/12 A	11/06/12 A		YSW0735	YSW0830	H '11'		+-	!+			
YSW0705	Water test for MBR 4	47	100	01/10/12 A	16/11/12 A	01/10/12 A	16/11/12 A		YSW0710	E&M0510, E&M0640, YSW07055, YSW0820			i	ii	i i		
YSW07055	Water test for SD1 & SD2	54	100	17/11/12 A	10/01/13 A	17/11/12 A	10/01/13 A		YSW0705, YSW07105	E&M0610	Water test for S	lii :D1 & SD2 = =	!	11	1 1		
YSW0710	Apply protective paint for MBR 4	7	100	24/09/12 A	30/09/12 A	24/09/12 A	30/09/12 A		YSW0690	YSW0705, YSW07105		111	! ;	H	; ;		
YSW07105	Apply protective paint for SD1 & SD2	7		01/10/12 A	07/10/12 A	01/10/12 A	07/10/12 A		YSW0710	YSW07055	-1 !!!!	!!	-	11	1 1		
 	ABWF installation	/ /	.00					404	YSW0690, YSW0705	E&M0630, E&M0640	+ <u> </u> :	<u> </u>	_ ı ı ⊒- ABWFins	tollotion	-		
YSW0820	<u>.</u>	34	!	15/01/13 A	27/02/13	15/01/13 A	08/01/13	<u> </u>		YSW0850	- <u>-</u> <u>'</u>	[1]		1.1	I I		
YSW0830	Water test for DN Tanks	28	<u> </u>	07/02/13	06/03/13	10/02/13	10/03/13		YSW06901	<u> </u>				r test for DN T	•	Taula	
YSW0850	Apply protecitve paint for DN Tanks	6	0 (07/03/13	12/03/13	10/03/13	16/03/13	40	YSW0830	E&M0610		!'! 	A	pply protecitve	paint for DIN	I anks	
YSW STW - (<u>, , , , , , , , , , , , , , , , , , , </u>	1			·		•	1	1		111 7 111		11	1 1		
YSW0730	Completion of HDD	0		21/01/12 A		21/01/12 A			YSW03601, YSW03605	YSW0732		;;;	i	H	-		
YSW0732	Excavate for MBR 2 & 3	20				21/01/12 A	09/02/12 A	<u> </u>	YSW0730	YSW0733		111	1	11	1 1		
YSW0733	Construct basement of MBR 2 & 3	20	100 1	10/02/12 A	29/02/12 A	10/02/12 A	29/02/12 A		YSW0732	YSW0735, YSW0740				- 11	; ;		
YSW0735	Construct superstructure of MBR 2	75	100 ⁽	01/03/12 A	14/05/12 A	01/03/12 A	14/05/12 A		YSW0733	YSW06901, YSW0736, YSW08302,	11	11.1	1	1.1	1 1		
YSW0736	Construct superstructure of MBR 3	100	100	15/05/12 A	14/05/12 A	15/05/12 A	14/05/12 A		YSW0735	YSW08302, YSW08305		III II I			_	L	
YSW0740	ELS & excavate for Outfall Shaft	75	100	01/03/12 A	14/05/12 A	01/03/12 A	14/05/12 A		YSW0733	YSW0750		1111	i	11	i i		
YSW0750	Construct basement of Outfall Shaft	19	100	15/05/12 A	02/06/12 A	15/05/12 A	02/06/12 A		YSW0740	YSW07501			I	11	1 1		
YSW07501	Connect additional flange to HDPE pipe (VO 042)	5	100	03/06/12 A	07/06/12 A	03/06/12 A	07/06/12 A		YSW0750	YSW07502		111	i	ii	ii		
YSW07502	Construct sub-structure of Outfall Shaft	16	100	08/06/12 A	23/06/12 A	08/06/12 A	23/06/12 A		YSW07501	YSW0760		!!!	!		1 1		
YSW0760	Backfill & remove ELS (outfall shaft)	8	100 2	24/06/12 A	01/07/12 A	24/06/12 A	01/07/12 A		YSW07502	YSW01800, YSW07601, YSW07603,	11		i	- ;;	1 1		
YSW07601	Construct superstructure for Outfall Shaft	30		03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		YSW0760	YSW08301, YSW08305	11 11	ит – – – –	T -	_I T			
YSW07603	ELS & excavate for FSH Water Supply Tank	25		01/06/12 A	25/06/12 A	01/06/12 A	25/06/12 A		YSW0760	YSW07604	╂┦╾╺╶╶╶╏╣┪╬		. I	11	1 1		
YSW07604	Construct substructure for FSH Water Supply Tank	24		26/06/12 A	19/07/12 A	26/06/12 A	19/07/12 A		YSW07603	YSW07605	†	111 1	i	ii	i i		
YSW07605	Backfill & remove ELS for FSH Water Supply Tank	12		20/07/12 A	31/07/12 A	20/07/12 A	31/07/12 A		YSW07604	YSW07607			1	11	1 1		
YSW07607	Construct basement of MBR 1 & Workshop	24	100	01/08/12 A	24/08/12 A	01/08/12 A	24/08/12 A		YSW07605	YSW07608, YSW07609		iii i	i	ii	ii		
YSW07608	Construct superstructure for FSH Water Supply Tk	37		25/08/12 A	30/09/12 A	25/08/12 A	30/09/12 A		YSW07607	YSW08304, YSW08305	11 ''11		+-	!+			
YSW07609	1 11 11 11 11 11 11 11 11 11 11 11 11 1	37			30/09/12 A		30/09/12 A		YSW07607	YSW07610, YSW08303, YSW1470	11	iii i	i	H	-		
	·	31			31/10/12 A		31/10/12 A		YSW07609	YSW0840, YSW16606, YSW16607,	_ II W Pump Rm	!!! !	1	11	1 1		
YSW08301	Water tightness test for Outfall Shaft	42			09/04/13	12/04/13	23/05/13	111	YSW0380, YSW07601	E&M0690	 	114 1	!	11	Water tie	htness test for C	Juffall Ck
	1	95	<u> </u>		05/10/12 A	03/07/12 A	05/10/12 A	1 440	YSW0735, YSW0736	E&M0520, E&M0590, E&M0605, E&M0650	┤│	99	ļ.	11	VValer lig		
		<u> </u>							YSW07609	E&M0520			 -		-		
YSW08303	Water tightness test for MBR 1	19			18/12/12 A	30/11/12 A	18/12/12 A	101	YSW07608	E&M0610	Thirless test for MBA	1111	I N/otes t	1.1	I I	u CommissTamis	
YSW08304	Water tightness test for FSH Water Supply Tank	32	<u> </u>		03/03/13	12/02/13	16/03/13					II.	vvater t	ightness test fo		r Suppry Lank	
YSW08305	Apply protective paint	120			22/03/13	02/10/12 A	16/03/13		YSW0735, YSW0736, YSW07601,	E&M0610, YSW0870	-	ı III	ı	Apply pro	tective paint		
YSW0870	ABWF installation	30	0 2	22/03/13	21/04/13	18/05/14	16/06/14	422d	YSW08305	KD0040	1 1 11		ļ.			ABWF installatio	'n
	eel / Sprinkler Pump Rm	<u> </u>											<u> </u>		i,		
YSW0840	ELS & excavate to formation (+0 mPD approx.)	40			20/03/13	17/01/13	25/02/13		YSW07610, YSW16606	YSW0860] [' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '	Hie	:	ELS & exc	avate to form	ation (+0 mPD a	
YSW0860	Sub-structure construction	40	<u> </u>		29/04/13	26/02/13	06/04/13		YSW0840	YSW0880					1	Sub-structu	ure cons
YSW0880	Backfill & remove ELS	35			03/06/13	07/04/13	11/05/13	!	YSW0860	YSW0890		III	Ī	11	!		
YSW0890	Construction Ground Slab at +5.2mPD	40	0 (04/06/13	13/07/13	12/05/13	20/06/13	-23d	YSW0880	YSW0900			I I	11	I I		
YSW0900	Superstructure construction upto +8.2mPD	35	0 1	14/07/13	17/08/13	21/06/13	25/07/13	-23d	YSW0890	YSW0910, YSW0925] r	III			_ [[
YSW0910	Water test	28	0 1	18/08/13	14/09/13	26/07/13	22/08/13	-23d		YSW0915		111	Ī	IT	1 '		
YSW0915	Apply protective paint	14	0 1	15/09/13	28/09/13	23/08/13	05/09/13	-23d	YSW0910	E&M0640, YSW0925	i ii ii	iii	i	ii	i		
YSW0925	ABWF installation	30	0 3	30/08/13	28/09/13	18/05/14	16/06/14	261d	YSW0900, YSW0915	KD0040	┧ ╎ ╏╴╴╶╴╴╴╎╢┤ <mark>╢</mark>	!!+ +	+-	+			
Emergency S	Storage Tank		<u></u>					•		<u></u>			+	11	i		
YSW1470	ELS & excavate to formation (-1.5mPD Approx.)	16	100 1	17/09/12 A	02/10/12 A	17/09/12 A	02/10/12 A		YSW07609	YSW1480	- 1 1 1 1 1 1 1 1 1	III	I .	11	!		
YSW1480	Sub-structure construction	14			16/10/12 A		16/10/12 A	i	YSW1470	YSW1490	7 1		I I	11	I I		
YSW1490	Backfill & extract sheetpile	3			19/10/12 A		19/10/12 A	 	YSW1480	YSW1500	- 1 1 1 1 1 1 1 1 1	III	i	11	1		
YSW1500	Superstructure construction upto +10.5mPD	41			29/11/12 A		ļ.	<u> </u>	YSW1490	YSW1530, YSW1536	_		 	11	l I		
	5/05/10 Early bar	41	100 4	-0/10/12 A	20/11/12 A	20/10/12 A	20/11/12 A				astron apto + 10.5mir b	Da	<u>'</u>	Revis	ion.	Checked A	Approved
	3/10/16 Progress bar					Laada	r Civil E	naina	ering Corp. Ltd.			31/01/13		Revision 0	,,,,,,,		√C
	I/01/13 Critical bar								2/2009/13					- 2: - ::•		 	
	Summary bar Divide Summary bar Progress point				Canatan					ZW							
Page number 4A	Critical point								ent Works at YSW & S	N VV							
o Delmanica C	Summary point Start milestone point				s-mor	ılıı Kollin	y Progra	ıııme	(Feb 2013 - Apr 2013)								
c Primavera Syst	ICITID, ITIC. Einich milostone point																

Activity	Description	Original		Early	Early	Late	Late	Total	Predecessors	Successors				20	13	
ID VSW1530		Juration	Complete		Finish	Start	Finish	Float			JAN		FEB	MA	R APR	MAY
YSW1530	Underground pipeline works	40	'] C	31/01/13	11/03/13	14/04/13	23/05/13		YSW1500 YSW1500	E&M0690, YSW1680 YSW1538				Un	derground pipeline works	= = = = = = = = = = = = = = = = = = = =
YSW1536 YSW1538	Water tightness test	30	! '	31/01/13	11/03/13	03/02/13	14/03/13		YSW1536	YSW1538 YSW1540	: '	<u> </u>		, vva	ter tightness test — — —	ective naint
YSW1538 YSW1540	Apply protective paint ABWF installation	40		12/03/13	20/05/13	15/03/13	23/05/13		YSW1538	F&M0690	⊣ !			7	'' <u>'</u>	ective paint
		40	'] (11/04/13	20/05/13	14/04/13	23/03/13	J 30	13W1330	Lawooo		1 1 11 11 1 1 11 11		<u> </u>	11 1	ABVVI
YSW16601	Cable Draw Pits & Ducting ELS & excavate 6m deep sewer (FM1 - YFMH13)	l 60	1 .	09/02/13	09/04/13	12/01/13	12/03/13	l -384	YSW0760, YSW16606, YSW16607,	YSW16602	- :			ı	FIS & eyes	 avate 6m deep sewer (F
<u> </u>			<u> </u>	<u> </u>							⊣ ¦	H 77		i	11	vate off deep sewer (1
YSW16602	Lay pipe & backfill 6m deep sewer (FM1 - YFMH13)	45		10/04/13	24/05/13	13/03/13	26/04/13		YSW16601 YSW16607, YSW16608	E&M0680, YSW1700 YSW16604, YSW16703	—— I I I	::1 112	' <u> </u>	ı	II Topotrust I	Lay
YSW16603	Construct UU & pipes along sea side (Grid Q-X)	60		07/02/13	08/04/13	24/03/13	22/05/13		YSW16603	YSW16605, YSW16701		: 	1	l I	11 Construct C	JU & pipes along sea s
YSW16604	Construct UU & pipes along sea side (Grid XA-D)	60	· · · · · · · · ·	08/04/13	07/06/13	23/05/13	21/07/13		YSW16604	YSW16702, YSW1700		<u> </u>		l I	11	
YSW16605 YSW16606	Construct UU & pipes along sea side (Grid D-Q)	90	· · · · · · · · ·	07/06/13 10/10/12 A	08/02/13	10/10/12 A	11/01/13		YSW07610	YSW0840, YSW16601	<u> </u>	iil Hi		 	and hill side (Grid D. O)	
YSW16607	Construct UU & pipes along hill side (Grid D-Q) Construct UU & pipes along hill side (Grid Q-X)	72	00	20/08/12 A	07/02/13	20/08/12 A	11/01/13		YSW07610	YSW16601, YSW16603	<u> </u>	. ا راد			ong hill side (Grid D-Q) ong hill side (Grid Q-X)	
YSW16608	Construct UU & pipes along hill side (Grid XA-D)	72		30/11/12 A	07/02/13	30/11/12 A	11/01/13		YSW07610	YSW16601, YSW16603, YSW1690	111 1	تند اب	11	•	ong hill side (Grid XA-D)	
YSW16701	Construct Boundary Wall (Grid XA-D)	80		10/01/13 A	15/06/13	10/01/13 A	19/09/13		YSW16604	YSW16702	─ - - - - - - - - - - - -	11 111	- Construct		ong till side (dha 704 b)	
YSW16702	Construct Boundary Wall (Grid D-Q)	80		06/08/13	25/10/13	20/09/13	08/12/13		YSW16605, YSW16701	YSW16703		п п		l I	11 1	
YSW16703	Construct Boundary Wall (Grid Q-X)	80		25/10/13	13/01/14	09/12/13	26/02/14		YSW16603, YSW16702	YSW16704, YSW1700		빔				
YSW16704	ABWF installation for Boundary Wall	240		06/08/13	03/04/14	20/10/13	16/06/14		YSW16703	KD0040	 	11 111	I	i	ii i	
YSW1680	Fire Hydrant & pipeline installation	120	<u> </u>	26/01/13 A	27/06/13	26/01/13 A	08/09/13		YSW1530	YSW1690, YSW1700	- ¦	11 111	<u> </u>	I	II I	
YSW1690	Construction of Road Kerbs, Downpipes, U-channel	180		02/01/13 A	15/12/13	02/01/13 A	26/02/14		YSW16608, YSW1680	YSW1700		سللت		<u> </u>	11 1	
YSW1700	Road Paving	110		13/01/14	03/05/14	27/02/14	16/06/14		YSW16602, YSW16605, YSW16703,	KD0040	─ ∏;		l			
								.50	YSW1680, YSW1690	<u> </u>	<u> </u>	н н	I	l 	II I	
Submarine Ou														ı	11 I ——————————————————————————————————	
YSW0180	Coordination of HEC	53	•	17/05/10 A	08/07/10 A	<u> </u>			KD0020	YSW0350	_ :			!	11 1	
YSW0200	Submission and Approval of Ecologist	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A		KD0020	YSW0210	;			;	ii i	
YSW0210	Ecology Survey	211	100	16/07/10 A	11/02/11 A	16/07/10 A	11/02/11 A		YSW0200	YSW0350	!			!	11 1	
YSW0220	Submission and Approval of In. Hydro Survey	103	100		27/08/10 A	17/05/10 A	27/08/10 A	<u> </u>	KD0020	YSW0230	i			i	11 1	
YSW0230	Hydrogrophical Survey (YSW)	157			31/01/11 A	28/08/10 A	31/01/11 A	<u> </u>	YSW0220	YSW0350	<u> </u>				II I	_
YSW0240	Material Submission, Approval of HDPE pipe	319	100		31/03/11 A	!	31/03/11 A	<u> </u>	KD0020	YSW0360	i	11 111	I	i	ii i	
YSW02401	Clarify Coordinate of Point Y (Reply of RFI 010)	83	100		18/09/10 A	28/06/10 A	18/09/10 A	<u> </u>	KD0020	YSW0250	 ;			!	11 1	
YSW0250	Submit and Approval of Method Statement for HDD	188			25/03/11 A	19/09/10 A	25/03/11 A	<u> </u>	YSW02401	YSW0260, YSW0270, YSW0340	i	11 111	I	i	ii i	
YSW0260	Submission of HDD Method Statement to HEC	14	100		08/04/11 A	26/03/11 A	08/04/11 A	<u> </u>	YSW0250	YSW0340	 ;			!	11 1	
YSW0270	Additional G.I. Boreholes (YSW)	123	100		19/01/11 A	19/09/10 A	19/01/11 A	<u> </u>	YSW0250	YSW0280, YSW0290	i	미그미	1	i	_ii i	
YSW0280	Submission of propose alignment	44	100	!	04/03/11 A	20/01/11 A	04/03/11 A	<u> </u>	YSW0270	YSW0310, YSW0340	¦				11 1	
YSW0290	Submission of Marine Notice	69			29/03/11 A	20/01/11 A	29/03/11 A	<u> </u>	YSW0270	YSW0350	i	11 111	I	i	ii i	
YSW0310	Construction of Entry Pit and Preparation Work	27	100			05/03/11 A	31/03/11 A		YSW0280	YSW0320	 :					
YSW0320	Prepare of HDD Drill Rig Set-up (YSW)	28		01/04/11 A	!	01/04/11 A	!	 	YSW0310	YSW0330, YSW0350	i	11 111	I	i	ii i	
YSW0330	Establishment of HDD plant & equipment	6	100		!	09/04/11 A	14/04/11 A	<u> </u>	YSW0320	YSW0340				 		
YSW0340	Setting up at drillhole location	14	100				28/04/11 A		YSW0250, YSW0260, YSW0280,	YSW0350	 !	11 111	I	!	11 1	
YSW0350	Drill pilot hole and reaming hole - NS400 - 530m	229			!	29/04/11 A	13/12/11 A	<u> </u>	YSW0040, YSW0180, YSW0210,	YSW0360	⊣ ¦				11 1	
YSW0360	Installation of NS400 HDPE 530m	17	.1			1	30/12/11 A	<u> </u>	YSW0240, YSW0350	SKW1181, YSW03601, YSW03620,	<u> </u>	11 111	I	!	11 1	
YSW03601	Demobilization of HDD plant & equipment	/	100			1	06/01/12 A	1	YSW0360	YSW03605, YSW03641, YSW0730	 ¦			;	11 1	
YSW03605	Remove Entry pit of HDD	14	100		!	1	20/01/12 A		YSW03601 YSW0360	YSW0730 YSW0365	<u> </u>	미그미	1		- <u>!</u> 1 <u>-</u> <u>-</u>	
YSW03620 YSW03641	Removal of Receiving Pit Prepare backfilling material under VO 046A	120	100		!	31/12/11 A 07/01/12 A	13/01/12 A 05/05/12 A	<u> </u>	YSW03601	YSW0365	 ;				11 1	
YSW03641 YSW0365	Set up of Silt Curtain as per EP	120	1		!	1	05/05/12 A 24/11/12 A	<u> </u>	SKW1431, YSW03620, YSW03641	YSW0370	I i ber EP			!	11 1	
YSW0365 YSW0370	Dredging of Marine Deposit for Diffuser (YSW)	2	100		!		24/11/12 A 29/11/12 A		YSW0360, YSW0365	YSW0370 YSW0380	i	iii IIII er (VS)			11 1	
YSW0370 YSW0380	Diffuser Construction (YSW)	60	100		29/11/12 A 26/02/13	30/11/12 A	11/04/13		YSW0370	E&M0690, YSW0400, YSW08301	eposit for Diffus	1111111	'¥')	Diffusor Co	nstruction (YSW)	
YSW0400	Removal of silt curtain	30		27/02/13	28/03/13	18/05/14	16/06/14		YSW0380	KD0040	Г	п п		Dilluser COI	Removal of silt cur	- <u>+</u> = = = = = = = =
<u> </u>	/SW STW	1 30	<u>′I</u> (21/02/13	120/03/13	1 10/03/14	10/00/14	4450	1 . 3.1. 3000	1.555.5	 	. 	•	1	Removal of Sill cur	<u> </u>
E&M Works - ` E&M0360	Delivery of MBR Memb. Mod. (MBR Tk 4)	118	100	24/02/11 A	21/06/11 ^	24/02/11 A	21/06/11 4	T	E&M0160	E&M0510	- i	11 111	I	¦	ii i	
E&M0370	Delivery of MBR Membrane Modules - 2nd Shipment	236		24/02/11 A	!	1	17/10/11 A		E&M0160	E&M0520	- ¦			!		
E&M0380	Delivery of Wish Membrane Woodles - 2nd Snipment	81							E&M0150	E&M0530	⊣ i	11 111	I	i	ii i	
E&M0390	Delivery of Coarse Screens	129	100		1	06/09/11 A	12/01/12 A	_	E&M0110	E&M0540	- ¦			!		
E&M0400	Delivery of Coalse Screens Delivery of Fine Screens	80			!	1	30/11/11 A		E&M0120	E&M0550	- i	11 111	I	i	ii i	
E&M0410	Delivery of Pumps	75	100			!	05/09/11 A		E&M0130	E&M0560	 	비-비		<u>1</u>	_II L	- +
E&M0420	Delivery of Fullips Delivery of Submersible Mixers	230	100	1	!	26/02/11 A	ļ .		E&M0140	E&M0570	- i	11 111	I	i	ii i	
	· · · · · · · · · · · · · · · · · · ·	1 200	100	LOVELLIA	LOJOZITIA	LOGUETTA	20,02,11 A		<u> </u>		<u>ļlī</u>	ш		<u> </u>	II I	Observation 1.1. A
	//05/10					1	01		nina Com I tal				31/01/13	ate F	Revision Revision 0	Checked Approved RH VC
	/01/13 Critical bar								ering Corp. Ltd.				31/01/13		ICVISION U	1111 VO
	Summary bar Progress point				0				C/2009/13	1/14/						
Page number 5A	Critical point								ent Works at YSW & S	r. vv						
o Delegación C	Summary point Start milestone point				3-moi	ıın Kollin	ig Progra	amme	(Feb 2013 - Apr 2013)							
c Primavera Sys	ems, Inc.															

Activity ID	Description	Original Percent Ouration Complete	Early Start	Early Finish	Late Start	Late Finish	Total Predecessors	Successors	JAN	FEB	2013 MAR	APR	MAY
E&M0440	Delivery of Sludge Dewatering Equipment	558 55	31/08/11 A	09/10/13	31/08/11 A	10/06/13	-121d E&M0170	E&M0580					
E&M0450	Delivery of Valves, Pipes & Fittings	560 90	30/08/11 A	29/08/13	30/08/11 A	14/09/13	17d E&M0180	E&M0590					
E&M0460	Delivery of Penstocks		12/08/11 A	24/12/11 A	12/08/11 A	24/12/11 A	E&M0190	E&M0600, E&M0605	1 : , :: - :				·
E&M0470	Delivery of Instruments		03/11/11 A	21/06/11 A	03/11/11 A	21/06/11 A	E&M0200	E&M0610		HH +			
E&M0480	Delivery of MCC LVSB		03/12/12 A	05/12/14	03/12/12 A	05/04/13	-609d E&M0210	E&M0620					
E&M0490	Delivery of BS Equipment	1	10/12/11 A	18/08/14	10/12/11 A	14/04/13	-491d E&M0220	E&M0630	.		II I		
E&M0500	Delivery FS Equipment		11/12/11 A	12/12/14	11/12/11 A	09/05/13	-582d E&M0230	E&M0330, E&M0640					
E&M0510	Install Membrane Modules in MBR Tank no. 4		03/11/12 A	26/02/13	03/11/12 A	23/05/13	86d E&M0360, YSW0705	E&M0690	1111 111	Install N	1 I I I I I I I I I I I I I I I I I I I	/IBR Tank no. 4	
E&M0520	Install Membrane Modules in MBR Tank No. 1 to 3		03/12/12 A	28/02/13	03/12/12 A	23/05/13	85d E&M0370, YSW08302, YSW08303	E&M0690	111	+	Membrane Modules in	1	, 3= = = = =
E&M0530	Install Grit Removal Equipment		01/06/12 A	30/09/12 A	01/06/12 A	30/09/12 A	E&M0380, YSW05923	E&M0590, E&M0660				+	·
E&M0540	Install Coarse Screens		23/04/12 A	23/02/13	23/04/12 A	12/04/13	48d E&M0390, YSW05923	E&M0660			arse Screens		
E&M0550	Install Fine Screens		01/06/12 A	24/02/13	01/06/12 A	17/01/13	-37d E&M0400, YSW05923	E&M0590, E&M0660	11111 111		ne Screens [
E&M0560	Install Pumps		23/04/12 A	21/06/13	23/04/12 A	12/04/13	-70d E&M0410, YSW05923	E&M0660		IIIstaiiii	ic oci cci is		
	<u>'</u>			<u> </u>			-10d E&M0420, YSW07204	E&M0660, E&M0690		 	I¥ L	Inotall Culpme	oroible Mixor
E&M0570	Install Submersible Mixers		15/01/13 A	22/04/13	15/01/13 A	12/04/13		<u> </u>				Install Subme	FSIDIE IVIIXE
E&M0580	Install Sludge Dewatering Equipment	+ ·	29/05/12 A	28/10/13	29/05/12 A	24/05/13	-157d E&M0440, YSW06023	E&M0690	1 11111		II I		
E&M0590	Install Valves, Pipes & Fittings		15/01/13 A	02/07/13	15/01/13 A	25/05/13	-37d E&M0450, E&M0530, E&M0550,	E&M0650, E&M0690	1-11-			- ,	
E&M0600	Install Penstocks (Batch 1, GL H - T)		23/04/12 A	21/02/13	23/04/12 A	23/05/13	92d E&M0460, YSW07202	E&M0690		Install Pens	stocks (Batch 1, GL H -	' I	
E&M0605	Install Penstocks (Batch 2, GL A - F)	+	02/01/13 A	24/03/13	02/01/13 A	23/05/13	61d E&M0460, YSW08302	E&M0690			Install Penst	ocks (Batch 2, GL A -	- F) ⁻
E&M0610	Install Instruments	74 5	02/01/13 A	31/05/13	02/01/13 A	25/05/13	-6d E&M0470, YSW07055, YSW0810,	E&M0690			ı ı		
E&M0620	Install SAT, MCC & LVSB	1 10	02/01/13 A	12/12/14	02/01/13 A	12/04/13	-609d E&M0480, YSW0810	E&M0660, E&M0680					
E&M0630	Install BS Equipment	180 25	02/01/13 A	01/11/14	02/01/13 A	28/06/13	-491d E&M0490, YSW0810, YSW0820	E&M0690					
E&M0640	Install FS Equipment	180 5	02/01/13 A	31/01/15	02/01/13 A	28/06/13	-582d E&M0500, YSW0705, YSW0810,	E&M0690					
E&M0650	Hydraulic Tests of Pipeworks	153 20	02/01/13 A	06/06/13	02/01/13 A	30/05/13	-7d E&M0590, YSW08302	E&M0690					
E&M0660	Cabling Works	15 0	12/12/14	27/12/14	13/04/13	27/04/13	-609d E&M0530, E&M0540, E&M0550, E&M0560, E&M0570, E&M0620	E&M0670		1111	11 1		
							E&IVI0360, E&IVI0370, E&IVI0620		1		11 1		
E&M0670	Insulation Tests of Cables and Cable Termination	26 0	27/12/14	22/01/15	28/04/13	23/05/13	-609d E&M0320, E&M0325, E&M0660,	E&M0690	1		11 1		
E&M0680	Energization	1 0	12/12/14 *	13/12/14	27/04/13	27/04/13	-595d E&M0305, E&M0325, E&M0620,	E&M0670	I I I	1111	11 !		
E&M0690	Functional and Performance Tests of Equipment	35 0	22/01/15	26/02/15	24/05/13	27/06/13 *	-609d E&M0510, E&M0520, E&M0570, E&M0580, E&M0590, E&M0600, E&M0605, E&M0610, E&M0630, E&M0640, E&M0650, E&M0670, YSW0380, YSW08301, YSW1530, YSW1540	E&M0700	11				
E&M0700	T&C Period	137 0	26/02/15	13/07/15	12/12/13	27/04/14	-442d E&M0330, E&M0690	E&M0730, KD0040	1 1 1	1111	ii i		
E&M0730	Trial Operation Period	413 0	13/07/15	28/10/16	28/04/14	14/06/15	-442d E&M0700	KD0132	t <u></u>	пп т	II		
Sok Kwu Wai	1				<u> </u>				11	1111	ii i		
Preliminary	•									1111	11 1		
,	Approval of Environmental Team	I 16I 100	17/05/10 A	I 01/06/10 A	17/05/10 A	101/06/10 A	KD0020	SKW0260	1 11		ii i		
SKW0260	Baseline monitoring (Air & Noise)	14 100	02/06/10 A	15/06/10 A	02/06/10 A	15/06/10 A	SKW0250	SKW0242, SKW0265, SKW0592, SKW0681,	1 !!!!		11 1		
SKW0265	Baseline Monitoring Submission (A & N)		16/06/10 A				SKW0260	SKW0242, SKW0592, SKW0681, SKW0921,			11 1		
	potpath Diversion in Portion G	1 17 100	10/00/10 A	00/01/10 A	10/00/10 A	00/01/10 A	OKW 0200	SIXVOLAE, SIXVOSSE, SIXVOSSEI, SIXVOSSEI,	11				
	•										11 1		
Civil & Geotech		1 041	147/05/40 A	Lociocito	147/05/40 A	Lociocito	, , , , , , , , , , , , , , , , , , ,	SKW0241		iiii	ii i		
SKW0240	Site Clearance		17/05/10 A				l ciavas is				11 1		
SKW0241	Initial Survey		07/06/10 A	15/06/10 A			SKW0240	SKW0242		1111	ii i		
SKW0242	Retaining Wall Bay 0-10 (Incl. VO. 001A)		30/06/10 A		30/06/10 A		SKW0241, SKW0260, SKW0265	SKW0461			11 1		
SKW0461	Utilities Laying and Diversion		24/12/10 A		24/12/10 A	1	SKW0242	SKW0471			11 1		
SKW0471	Concreting for Pavement		04/03/11 A		04/03/11 A		SKW0461	SKW0481		UU	<u>i</u> i.		
SKW0481	Footpath Diversion - Stage 1		11/03/11 A		11/03/11 A	1	SKW0471	KD0050, SKW04811, SKW0491	1				
SKW04811	Excavate for FP transition at CH0-35 &CH130-141		25/03/11 A	30/04/11 A	25/03/11 A	30/04/11 A	SKW0481	SKW04821			11 1	_ [_	
SKW04821	Construction of Drainage outfall near bay 10		01/05/11 A		01/05/11 A		SKW04811	SKW04831			11 1		
SKW04831	Cable diversion by HEC	26 100	04/05/11 A	29/05/11 A	04/05/11 A	29/05/11 A	SKW04821	SKW04841		1111	11 1		
SKW04841	Diversion of Ducting and Drawpit by PCCW	12 100	20/05/11 A	31/05/11 A	20/05/11 A	31/05/11 A	SKW04831	SKW04851	1 14	1111	11 1		
SKW04851	Soil backfilling behind FP retaining wall		01/06/11 A	14/06/11 A	01/06/11 A	14/06/11 A	SKW04841	SKW04861	1	HH +	I+		
SKW04861	Concreting for footpath pavement		15/06/11 A	21/06/11 A	15/06/11 A	21/06/11 A	SKW04851	SKW04871	1 14 1	1111	ii i		
SKW04871	Relocation of Temp Safety Fence at SKW STW A-G		22/06/11 A	17/08/11 A	22/06/11 A		SKW04861	SKW04881			11 1		
SKW04881	Disposal of excavation material at A-G SKW STW		18/08/11 A		18/08/11 A		SKW04871	SKW04885		1111	ii i		
SKW04885	Footpath Diversion - Stage 2		03/01/12 A		03/01/12 A	!	SKW04881	SKW1261		1111	11 1		
SKW04903	Removal of Haul Road after SKW STW		08/10/14	14/10/14		04/06/15	233d KD0090, SKW0481, SKW1401	SKW0501				·	
		<u> </u>	00/10/14	17/10/14	20,00,10	104,00,13	2004 1.2000, 0.000, 0.000, 100						
	05/10 Early bar									Date	Revision		Approved
	(10/16 Progress bar Critical bar						ngineering Corp. Ltd.			31/01/13	Revision 0	RH	VC
	U1/13 Summary har						No. DC/2009/13						
Run date 05/ Page number 6A	Progress point Critical point			Constru	ction of S	Sewage T	reatment Works at YSW & Sk	CW					+
1 ago number OA	Summary point						mme (Feb 2013 - Apr 2013)						+
c Primavera Syste	ems, Inc. Start milestone point												

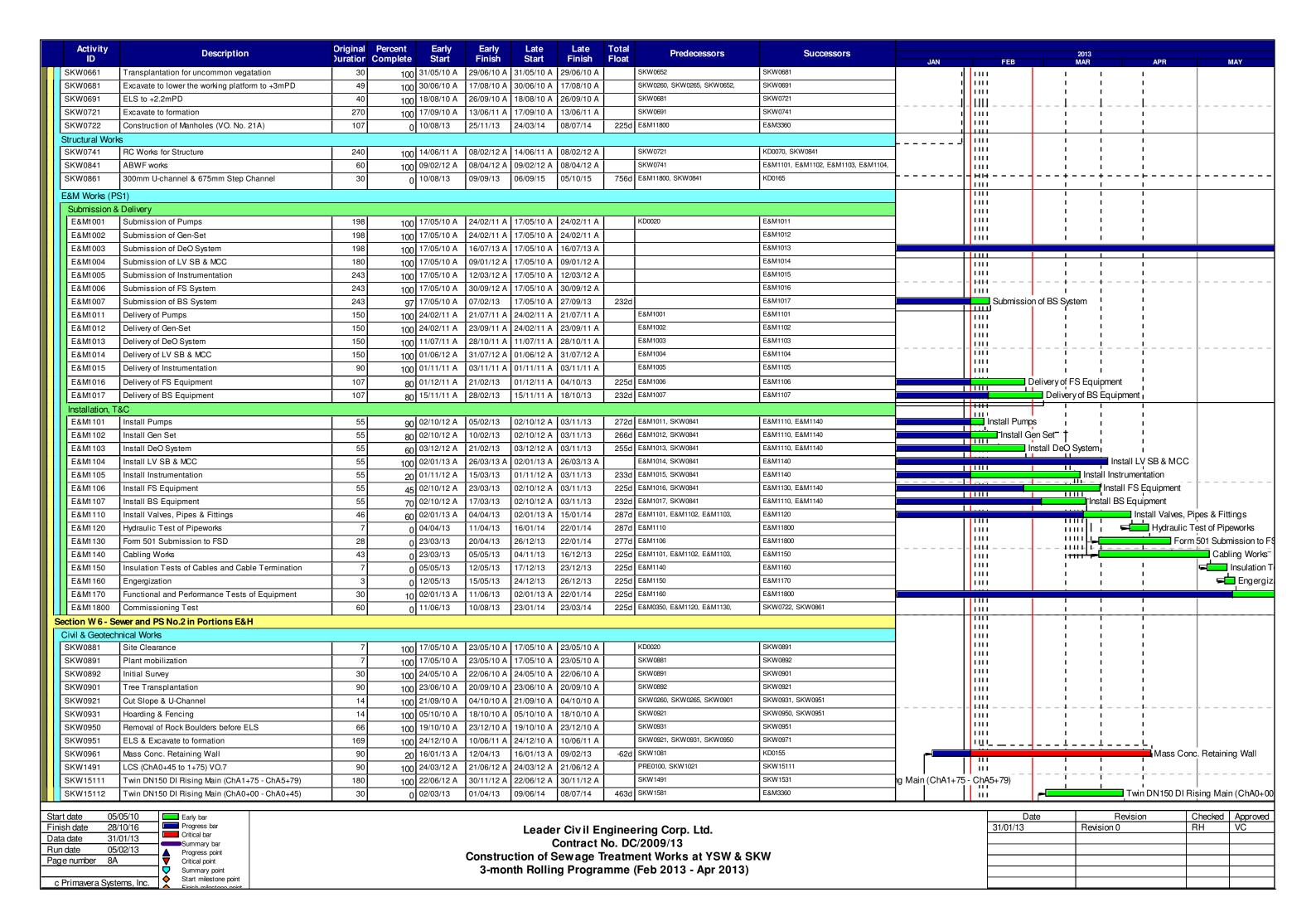
Activity ID	Description	_	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors			FF0		2013 MAR		400	MAY
SKW0501	Concreting for no-fine concrete	14	•	08/10/14	21/10/14	29/05/15	11/06/15		SKW0491	SKW0511	JAN	1 1111	FEB	<u> </u>	WAR II		APR	MAY
SKW0511	Wall Tie & Stone Facing	14	0	22/10/14	04/11/14	12/06/15	25/06/15		SKW0501	SKW0521	- ;;	liiii		i	ii	i		ı
SKW0521	Gabion Wall & Geotextile	30	0	05/11/14	04/12/14	26/06/15	25/07/15		SKW0511	SKW0531	┤ !!			!	11	1		ı
SKW0531	Installation of Flower Pot	7		05/12/14	11/12/14	26/07/15	01/08/15		SKW0521	SKW0541	╡ !!			!	- !!			ı
SKW0541	Completion of Outstanding Works	42	0	12/12/14	22/01/15	02/08/15	12/09/15		SKW0531	KD0125	 ii	700		i -	i i -	i -		
	lope W orks in Portions H & I		U) ,,		10-700710	12,00,10			<u> </u>		1111			11			
Geotechnical V	•										ii			i	ii	i		ı
SKW0588	Construct scaffolding access	30	100	15/06/10 A	14/07/10 A	15/06/10 A	14/07/10 A	l I	KD0020	SKW0590	- !!			!	11	1		ı
SKW0590	Site Clearance for Slope	100		15/07/10 A	22/10/10 A				SKW0588	SKW0591	- ;;			i	ii	i		ı
SKW0591	Initial Survey for Slope	28		21/09/10 A	18/10/10 A	21/09/10 A		l	SKW0590	SKW0592	┤ !!			!	11	1		ı
SKW0592	Temporary Rockfall fence at ex. Footpath	43		31/08/10 A	12/10/10 A	31/08/10 A	12/10/10 A	l	SKW0260, SKW0265, SKW0591	SKW05931	d ii			i	ii	i		ı
SKW05931	Construction of Haul Road (To +30mPD)	50		03/09/10 A	22/10/10 A			 	SKW0592	SKW05932	┤ !!			!	11	1		ı
SKW05932	Construction of Haul Road (To +42.5mPD)	68		23/10/10 A	29/12/10 A	23/10/10 A			SKW05931	SKW059322	 :	100		 -	 - -	 -		
SKW059321	Removal of Boulders (IBG 1 - 119, SI No. 11B)	121			03/03/11 A		03/03/11 A			SKW059411	┤ !!	11111		!	11			ı
SKW059322	Add. Site Invest. Works (VO. No. 9,12 &16)	174		11/01/11 A	03/03/11 A		03/03/11 A		SKW05932	SKW059341	-{ ;;	11111		;	H	i		ı
SKW059323	Revised Profile at West Slope (+56 to +42.5mPD)	1/4		17/03/11 A	17/03/11 A		17/03/11 A		-	SKW059324	-	11111		!	11			ı
SKW059323	Construction of Haul Road (+42.5 to +56mPD)	12		18/03/11 A	29/03/11 A		29/03/11 A		SKW059323	SKW059325	-{ ;;	11111		;	"			ı
SKW059324 SKW059325	Removal of Boulders (IBG 120-139, SI No. 11C)	17		30/03/11 A	15/04/11 A		15/04/11 A	 	SKW059324	SKW05933	+	- 44		! -	14 -	-		
	West Slope Cutting (+56mPD to +42.5mPD)	1 1/		16/04/11 A	 		17/04/11 A		SKW059325	SKW059331	-{ ''	11111			- !!			ı
SKW05933 SKW059331	Removal of Boulders (IBG 140-189, SI No. 11D)	45		1	17/04/11 A 01/06/11 A	16/04/11 A			SKW05933	SKW05934	- ii	11111		i i	11	į		ı
	` ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '						03/07/11 A		SKW059331	SKW059341	- ';;				11	1		ı
SKW05934	West Slope Cutting (+42.5mPD to +35mPD)	32		02/06/11 A	03/07/11 A				SKW059321, SKW05934	SKW05935	- ii	11111		i	11	i		ı
SKW059341	Revised Profile at West Slope (+20 to +4.8mPD)	1 00		04/07/11 A	04/07/11 A		04/07/11 A		SKW059341	SKW05936	+::	- 1111			-	¦-		r ·
SKW05935	West Slope Cutting (+35mPD to +27.5mPD)	83		08/07/11 A	28/09/11 A				SKW05935		- ii	11111		i	11	i		ı
SKW05936	West Slope Cutting (+27.5mPD to +20mPD)	61		29/09/11 A	28/11/11 A	29/09/11 A				SKW05937	- ':				11	1		ı
SKW05937	West Slope Cutting (+20mPD to +12.5mPD)	39		29/11/11 A	06/01/12 A	29/11/11 A			SKW05936	SKW05938	- ii	11111		i	ii	i		ı
SKW05938	West Slope Cutting (+12.5mPD to +4.8mPD)	90		07/01/12 A	27/03/12 A		27/03/12 A		SKW05937	KD0060, SKW1261, SKW1311, SKW1371	- ':				11	1		ı
SKW05941	Slope Stormwater Drainage	300		28/03/12 A	25/05/12 A		25/05/12 A		KD0060	SKW05942	4 ii	- 44		i _	ii _	i		
SKW059411	East Slope Cutting (+50mPD to +42.5mPD)	72		04/03/11 A	14/05/11 A		14/05/11 A		SKW059321	SKW059412		11111		!	11	1		ı
SKW059412	East Slope Cutting (+42.5mPD to +35mPD)	82		15/05/11 A	04/08/11 A		04/08/11 A		SKW059411	SKW059413	- ii			i	ii	i		ı
SKW059413	East Slope Cutting (+35mPD to +27.5mPD)	55		05/08/11 A	28/09/11 A	05/08/11 A			SKW059412	SKW059414					11	- 1		ı
SKW059414	East Slope Cutting (+27.5mPD to +20mPD)	61		1	28/11/11 A	29/09/11 A			SKW059413	SKW059415	- ii			i	ii	i		ı
SKW059415	East Slope Cutting (+20mPD to +12.5mPD)	39		29/11/11 A	06/01/12 A				SKW059414	SKW059416	╆╺╺╺╺╶╏					 		
SKW059416	East Slope Cutting (+12.5mPD to +4.8mPD)	81		07/01/12 A	27/03/12 A	07/01/12 A			SKW059415	KD0060, SKW1311, SKW1371	- i	11111		i	ii	i		ı
SKW05942	Slope Miscellaneous Works	61		26/05/12 A	31/07/12 A	26/05/12 A			SKW05941	SKW05943, SKW0595	┨╻╻╻╻╏							
SKW05943	Buttress & surface Protection (SI No. 31)	60		' I	31/07/12 A				SKW05942	SKW05944	_ i			i	ii	i		ı
SKW05944	Slope Treatment (SI. No. 36)	60		03/07/12 A					SKW05943	SKW05945		11111		!	11	1		ı
SKW05945	Rock Slope Treatment (SI. No. 68)	60			30/09/12 A	01/08/12 A			SKW05944	SKW05946		шш		٠	1.1	<u>-</u>		
SKW05946	Rock Slope Treatment (SI. No. 98)	60			08/02/13	10/09/12 A			SKW05945	SKW05947		1		e Treatment				ı
SKW05947	Rock Slope Treatment (SI. No. 115)	60			17/02/13	01/11/12 A			SKW05946	KD0135			Hoc	k Slope Trea				
SKW05948	Soil Nailing Works (VO. No. 52)	300			16/03/13	!	15/06/14	456d	OKAMORO AO OKAMOROZO	SKW05963		1111		i	Soil Na	aiiing Worl	ks (VO. No. 5	∠)
SKW0595	Rock Meshing	60	-	08/05/14	06/07/14	07/08/15	05/10/15	456d	SKW05942, SKW05972	KD0165	- ;	11111			i	i		ı
SKW05963	Determine Alignment & Foundation Design of RFB	120			08/06/12 A		08/06/12 A		SKW05948	SKW059631, SKW05964, SKW05965	 	1111 1111		+ _	! _	<u> </u>		
SKW059631	GEO Approval of Foundation Design	70			31/07/12 A	09/06/12 A			SKW05963	SKW05968	- ,;	11		'	i	i		ı
SKW05964	Fabrication & Shipping of RFB Material	180				!			SKW05963	SKW05972	ng of RFB Materia		=	 +	 +	. .		L
SKW05965	Site clearance & Formation of access	62			31/07/12 A				SKW05963	SKW05967		 	_ 	- + -	+-			
SKW05967	Plant mobilization	14			15/01/13 A	02/01/13 A			SKW05965	SKW05968	Plant m	obilizati L	on	l .	ı			<u> </u>
SKW05968	Construction of anchors & pull out test	180			11/07/13	!	10/10/14		SKW059631, SKW05967	SKW05969		- нн		+-	4 _			
SKW05969	Construction of Foundation	120		12/07/13	08/11/13	11/10/14	07/02/15		SKW05968	SKW05970	-			!	!	!		ı
SKW05970	Proof Load Test	60		09/11/13	07/01/14	08/02/15	08/04/15		SKW05969	SKW05971	- ;	1111				1		ı
SKW05971	Transportation of Material (To the slope crest)	30		08/01/14	06/02/14	09/04/15	08/05/15	l .	SKW05970	SKW05972	-			I :	1	!		ı
SKW05972	Installation of Flexible barrier	90	0	07/02/14	07/05/14	09/05/15	06/08/15	456d	SKW05964, SKW05971	KD0165, SKW0595	<u> </u>	1111		¦	¦	¦		<u>. </u>
Section W 5 - P.	S. No. 1 in Portion D										i	1111		İ	ı	i		
Civil & Geotech	nnical Works															1		ı
SKW0651	Site Clearance	7		17/05/10 A					KD0020	SKW0652		11111		I :	I .	i		ı
SKW0652	Initial Survey	7	100	24/05/10 A	30/05/10 A	24/05/10 A	30/05/10 A		SKW0651	SKW0661, SKW0681	<u>] </u>	1111		!	¦	!		<u>. </u>
		· ·																
	V05/10 Early bar											Ţ	Da	ate	<u> </u>	Revision		hecked Approv
	/10/16 Progress bar //01/12 Critical bar					Leade	r Civil Eı	nginee	ering Corp. Ltd.			F	31/01/13		Revision	n U	R	H VC

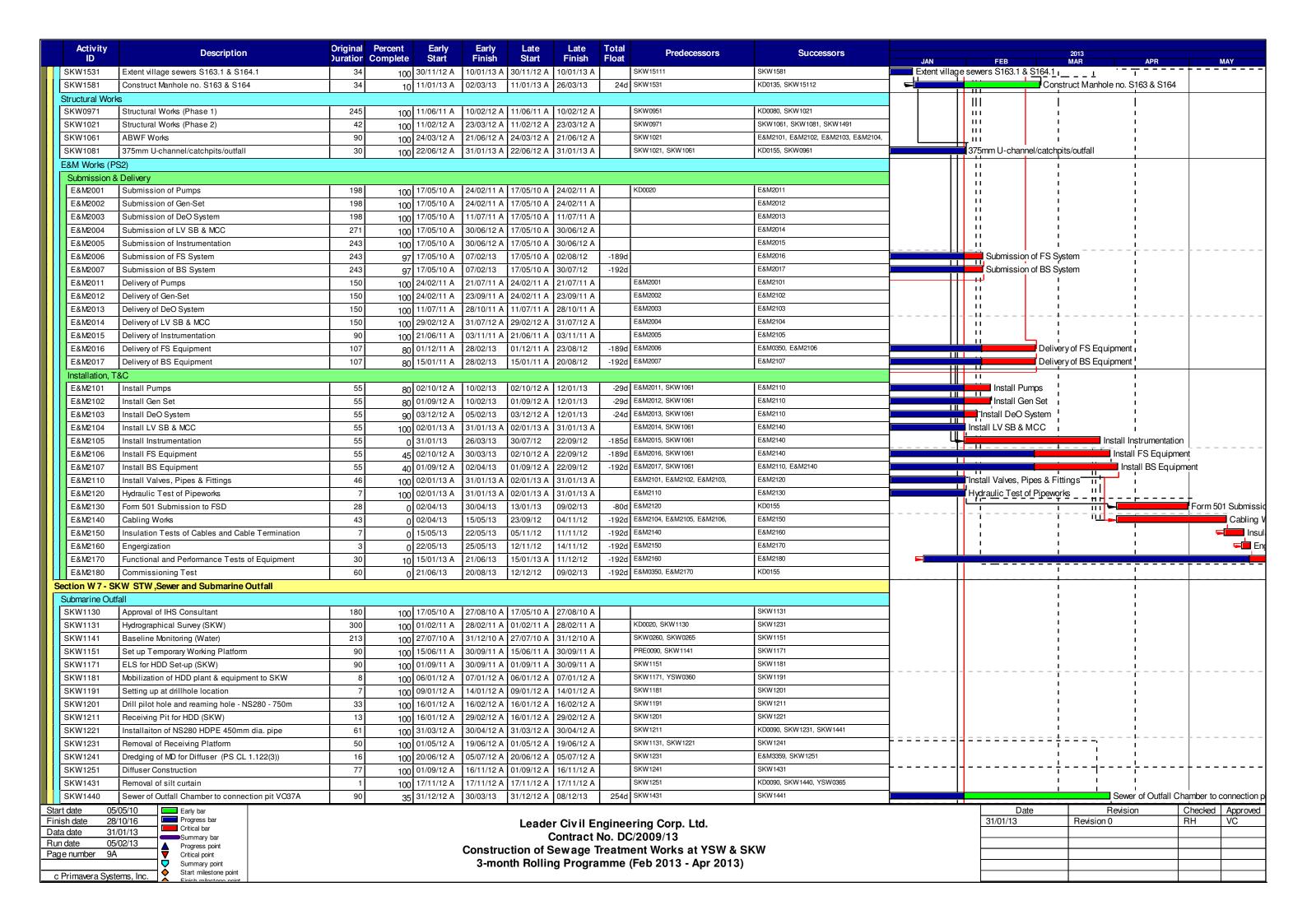
Start date 05/05/10
Finish date 28/10/16
Data date 31/01/13
Run date 05/02/13
Page number 7A

Critical bar
Summary bar
Progress point
Critical point
Summary point
Summary point
Summary point
Summary point
Summary point
Start milestone point

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

Date	Revision	Checked	Approved
1/01/13	Revision 0	RH	S





Activity ID	Description	Original Ouration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	JAN	FEB	2013 MAR	APR	MA	Y
SKW1441	Sewer of Connection Pit to Outfall VO45	177	0	30/03/13	23/09/13	09/12/13	03/06/14	254d	SKW1221, SKW1440	E&M3359, KD0090			ı +=			
SKW STW													i I	1		
	& Delivery (E&M)	1 4501		I a . /a a /	Lizuaria	Laviagua	Lizuou	1	Leavage	Leavers			1	1		
E&M3010	Delivery of MBR M.M 1st shipment for Temp STP	150		24/02/11 A	17/10/11 A	24/02/11 A	17/10/11 A		E&M0160	E&M3170	<u> </u>		· · · · · · · · · · · · · · · · · · ·	 - 		
E&M3030	Delivery of Grit Removal Equipment	180	100		29/12/11 A	10/10/11 A	29/12/11 A		E&M0150	E&M3190	<u> </u>		_i	. <u>i.</u> L	L	
E&M3060	Delivery of Fine Screens	136	100		30/11/11 A	12/09/11 A	30/11/11 A		E&M0120	E&M3210			· +	 - - -		
E&M3070	Delivery of Pumps	136	100		05/09/11 A	23/06/11 A	05/09/11 A		E&M0130	E&M3220	<u> </u>		_i	.il-		
E&M3080	Delivery of Submersible Mixers	180	100		17/11/11 A	26/07/11 A	17/11/11 A		E&M0140	E&M3230			_ !	<u>. L li</u>	<u> </u>	D - 15
E&M3090	Delivery of Sludge Dewatering Equipment	210	50		15/05/13	01/09/11 A	11/01/14	<u> </u>	E&M0170	E&M3240			ı	1 11		Deliver
E&M3100	Delivery of Valves, Pipes & Fittings	180	50		05/05/13	30/08/11 A	19/11/13	199d	E&M0180	E&M3250	-		•	1 11	Deliver	y of Va
E&M3110	Delivery of Penstocks	180	100	12/08/11 A	24/12/11 A	12/08/11 A	24/12/11 A		E&M0190	E&M3260			_ i	. i. ii		
E&M3130	Delivery of instruments	180	100		03/11/11 A	21/06/11 A	03/11/11 A		E&M0200	E&M3270			_ <u> </u>			
E&M3140	Delivery of MCC LVSB	180	0	01/02/13	31/07/13	07/04/13	03/10/13		E&M0210	E&M3261				- H	.	
E&M3150	Delivery of BS Equipment	180	8	03/07/12 A	20/08/13	03/07/12 A	04/12/13	<u> </u>	E&M0220	E&M3291				:		
E&M3160	Delivery of FS Equipment	180	5	30/06/12 A	06/09/13	30/06/12 A	23/12/13	109d	E&M0230	E&M0340, E&M3300				1 11		
Construction	of Grid A-G												1	1.11		
SKW1261	Excavate for SKW STW Structure (Grid A -G)	164	100	28/03/12 A	31/08/12 A	28/03/12 A	31/08/12 A		SKW04885, SKW05938	SKW1271, SKW1371			l i	 		
SKW1271	55 M3 Fire Sprinkle Water Tank (FL +0.9 mPD)	36	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		SKW1261	SKW1281			i	1.11		
SKW1281	Ground Floor Slab (Grid A-G)	46	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		SKW1271	SKW1291	<u> </u>		-+	 	L	
SKW1291	Columns & Walls to 1/F & 1/F Slab (Grid A-G)	50	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		SKW1281	KD0090, SKW1301]		i	1 11		
SKW1301	Columns & Walls to R/F & R/F Slab (Grid A-G)	50	100	01/09/12 A	31/01/13 A	01/09/12 A	31/01/13 A	İ	SKW1291	E&M3261, E&M3291, E&M3311, SKW1411		Columns & Walls to F	R/F & R/F Slab (Grid A	-G)!!		
SKW1411	ABWF Works	105	0	31/01/13	15/05/13	07/03/13	19/06/13	35d	SKW1301	E&M3261, E&M3291, E&M3311, SKW1551			_ +			ABWF
Construction	n of Grid G-N			<u> </u>	<u> </u>	<u> </u>							Ī	1 11	<u> </u>	
SKW1311	Excavate for SKW STW Structure (Grid G-N)	90	100	28/03/12 A	25/06/12 A	28/03/12 A	25/06/12 A	l	SKW05938, SKW059416	SKW1321, SKW1371			i I	 		
SKW1321	Equalization Tank no.1 & 2 with base slabs (-2.1	42	100		30/09/12 A	26/06/12 A	30/09/12 A	İ	SKW1311	SKW1331	-		1	1.0		
SKW1331	Columns & Walls from B/S to G/F Slab (Grid G-N)	35	100		30/09/12 A	01/09/12 A	30/09/12 A	İ	SKW1321	SKW1341	=		I I	1 11		
SKW1341	Ground Floor Slab (Grid G-N)	35	100	01/09/12 A	17/12/12 A	01/09/12 A	17/12/12 A		SKW1331	SKW1351	loor Slab (Grid G-N)	i	i ii		
SKW1351	Columns & Walls to 1/F & 1/F Slab (Grid G-N)	28	100		15/01/13 A	01/11/12 A	15/01/13 A	l	SKW1341	SKW1361	- `	, & Walls to 1/F & 1/F SI	ı lab (Grid G-N)	 		
SKW1361	Columns & Walls to R/F & R/F Slab (Grid G-N)	35		01/11/12 A	26/02/13	01/11/12 A	17/12/12	-70d	SKW1351	SKW1451			lumns & Walls to R/F &		I G-N)	
SKW1451	ABWF Works	54		26/02/13	21/04/13	18/12/12	09/02/13	<u>!</u>	SKW1361		-		I	1 11 `	/F Works	
01(11431	ABWI Wolld	34	U	20/02/10	21/04/10	10/12/12	03/02/10	'00		E&M3170, E&M3190, E&M3210, E&M3291, E&M3300, SKW1391, SKW1551			İ	1 11	+	
Construction	of Grid N-T			<u> </u>	<u> </u>		<u> </u>	<u> </u>					<u> </u>	 		
SKW1371	Excavate for SKW STW Structure (Grid N-T)	l 97 l	100	03/07/12 A	1 25/01/13 A	103/07/12 Δ	25/01/13 A	ı	SKW05938, SKW059416, SKW1261,	SKW1381	Evo	avate for SKW STW S	I Structure (Grid N-T)	1 II 1 II		
SKW1381	Ground Floor Slabs include MBR Tank (Grid N-T)	58	100		31/01/13 A	02/10/12 A	31/01/13 A	<u> </u>	SKW1371	SKW1391	-		nclude MBR Tank (Gri	1 11		
SKW1391	Columns & Walls to 1/F & 1/F Slab (Grid N-T)	35	100	21/04/13	26/05/13	10/02/13	16/03/13	704	SKW1381, SKW1451	SKW1401	-		- T	- r nr		
			0		<u> </u>		<u> </u>			E&M3240, SKW0491, SKW1421	-		i	iii		
SKW1401	Columns & Walls to R/F & R/F Slab (Grid N-T)	35		26/05/13	30/06/13	17/03/13	20/04/13		SKW1391 SKW1401	E&M3240, SKW1551	-		1	1 11		_
SKW1421	ABWF Works	60	U	30/06/13	29/08/13	21/04/13	19/06/13		SKW1401 SKW1411, SKW1421, SKW1451					- н н – – –		
SKW1551	Drainage (SSMH1-SSMH7)	35	0	29/08/13	03/10/13	20/06/13	24/07/13	-700	3KW 1411, 3KW 1421, 3KW 1431	SKW1561			1	 		
SKW1561	Sewer (SMFH1-SMFH2, SMFH3-SMFH7)	220	0	03/10/13	11/05/14	25/07/13	01/03/14	-70d	SKW1551	SKW1571	1		i	1 11		
SKW1571	Roadwork & Drainage Channel (SKW)	220	n	11/05/14	17/12/14	02/03/14	07/10/14		SKW1561	KD0090	1		1	1 11		
SKW STW - E						•	,			•			i I	1 11		
E&M3170	Install Membrane Modules in MBR Tank No. 1 to 2	100	n	21/04/13	30/07/13	07/01/14	16/04/14	261d	E&M3010, SKW1451	E&M3311	1		1	! II		
E&M3190	Install Grit Removal Equipment	60		20/06/13	19/08/13	21/09/13	19/11/13		E&M3030, E&M3210, SKW1451	E&M3250, E&M3320	1		i			
E&M3210	Install Fine Screens	60	·	21/04/13	20/06/13	24/05/13	22/07/13		E&M3060, SKW1451	E&M3190, E&M3220, E&M3250, E&M3260, E&M3320	1		!	¦ 1		
E&M3220	Install Pumps	75		20/06/13	03/09/13	23/07/13	05/10/13	334	E&M3070, E&M3210	E&M3230, E&M3250, E&M3260, E&M3320	1		i	i		
E&M3230	Install Submersible Mixers	45	0	03/09/13	18/10/13	06/10/13	19/11/13		E&M3080, E&M3220	E&M3250, E&M3260, E&M3311, E&M3320	1		!	!		
E&M3240	Install Sludge Dewatering Equipment	7/	0	29/08/13	11/11/13	12/01/14	26/03/14	<u> </u>	E&M3090, SKW1401, SKW1421	E&M3320	+		- 	-		
E&M3250	Install Valves, Pipes & Fittings	75	0	18/10/13	01/01/14	20/11/13	02/02/14		E&M3100, E&M3190, E&M3210, E&M3220, E&M3230	E&M3270, E&M3291, E&M3300, E&M3310	-		i !			
E&M3260	Install Penstocks	135	_	18/10/13	02/03/14	03/12/13	16/04/14	104	E&M3110, E&M3210, E&M3220,	E&M3311	-		! !	1		
	Install SAT of MCC & LVSB	174	Ŭ		21/01/14	03/12/13	26/03/14	<u> </u>	E&M3140, SKW1301, SKW1411	E&M3311, E&M3320	-		!	!		
E&M3261	-	60	V	31/07/13	02/03/14	16/02/14	16/04/14	<u> </u>	E&M3130, E&M3250	E&M3311, E&M3320	-		I I	1 1		
E&M3270 E&M3291	Install Install BS Equipment	180	·	01/01/14	01/05/14	05/12/13	02/06/14		E&M3150, E&M3250 E&M3150, E&M3250, SKW1301, SKW1411, SKW1451	E&M3331, E&M3359			- <u>1</u>	<u> </u>		
rt data or	5/05/10					<u> </u>						D-+-	I Destri	on T.	Shool and I a	\nn==
nish date 28 ta date 31	Summary point) ction of S	Contract Sewage 1	No. Do	ering Corp. Ltd. C/2009/13 ent Works at YSW & SI (Feb 2013 - Apr 2013)	ΚW		31/01/13	Revision 0		Checked ARH V	Approv VC
Primavera Syst	Ctart milestone point															

Activity	Description	- 3		Early	Early	Late	Late	Total	Predecessors	Successors			2013		
ID	Bescription	Ouration	Complete S	Start	Finish	Start	Finish	Float	110000033013	000000000000000000000000000000000000000	JAN	FEB	MAR	APR	MAY
E&M3300	Install FS Equipment	161	0 02/1	11/13 1	12/04/14	24/12/13	02/06/14	52d	E&M3160, E&M3250, SKW1451	E&M3331, E&M3359			ı	ı	
E&M3310	Hydraulic Tests of Pipeworks	90	0 01/0	01/14	01/04/14	06/03/14	03/06/14	64d	E&M3250	E&M3359]		1	1	
E&M3311	Cabling Works	47	0 02/0	03/14 1	18/04/14	17/04/14	02/06/14	46d	E&M3170, E&M3230, E&M3260, E&M3261, E&M3270, SKW1301,	E&M3331, E&M3359			į	į	
E&M3320	Cabling Works for Dewatering Equipment	47	0 21/0)1/14	09/03/14	27/03/14	12/05/14	65d	E&M3190, E&M3210, E&M3220, E&M3230, E&M3240, E&M3261	E&M3321				<u> </u>	
E&M3321	Insulation Tests of Cables and Cable Termination	21	0 09/0	03/14	30/03/14	13/05/14	02/06/14	65d	E&M3320	E&M3331					
E&M3331	Energization	1	0 01/0	05/14	02/05/14	03/06/14	03/06/14	33d	E&M3291, E&M3300, E&M3311,	E&M3359			!	!	
E&M3359	Functional and Performance Tests of Equipment	35	0 02/0	05/14	06/06/14	04/06/14	08/07/14	33d	E&M3291, E&M3300, E&M3310, E&M3311, E&M3331, SKW1241,	E&M3360			i i	; ;	
E&M3360	T&C Period	91	0 06/0	06/14	05/09/14	09/07/14	07/10/14	33d	E&M0340, E&M3359, SKW0722, SKW15112	E&M3370, KD0090			1	1 1	
E&M3370	Trial Operation Period	456	0 05/0	09/14	05/12/15	31/05/15	28/10/16	269d	E&M3360				i	i	
Rising Main										•			<u>.</u>	!	
SKW1481	Subm, Approval & Delivery of DI pipes	120	100 17/0	05/10 A 1	13/09/10 A	17/05/10 A	13/09/10 A		KD0020	SKW1501			i	i	
SKW1501	LCS (ChB0+00 - ChB1+20)	300	100 14/0	09/10 A 1	10/07/11 A	14/09/10 A	10/07/11 A		PRE0100, SKW1481	SKW1521	1		!	1	
SKW1521	Twin DN150 DI Rising Main (ChB0+00 - ChA4+55)	250	85 11/0	07/11 A	09/03/13	11/07/11 A	07/10/14	578d	SKW1501	KD0090			Twin DN150	DI Rising Main (ChB	0+00 - ChA4+55)
Section W8-L	andscape Softworks in All Portions	•								•				!	
SKW1591	Tree Survey	21	100 17/0	05/10 A	06/06/10 A	17/05/10 A	06/06/10 A		KD0020	SKW1621	1	<u></u>		;	
SKW1611	Preservation & Protection of Trees	1053	99 17/0	05/10 A	10/02/13	17/05/10 A	03/04/13	53d	KD0020	KD0100, SKW1631		Preservation	n & Protection of Tr	ees	
SKW1621	Transplantation at SKW	90	100 07/0	06/10 A	04/09/10 A	07/06/10 A	04/09/10 A		SKW1591	KD0100]				
Section W9 - E	stablishment W orks in All Portions														
SKW1631	Section W9 - Establishment Works	365	0 10/0	02/13 1	10/02/14	04/04/13	03/04/14	53d	SKW1611	KD0110	1				

Start date	05/05/10		Early bar
Finish date	28/10/16		Progress bar
Data date	31/01/13	╚	Critical bar
Run date	05/02/13	$\overline{\mathbf{A}}$	Summary bar Progress point
Page number	11A	7₹	Critical point
		V	Summary point
c Primavera	Systems, Inc.	1 ♦	Start milestone point

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

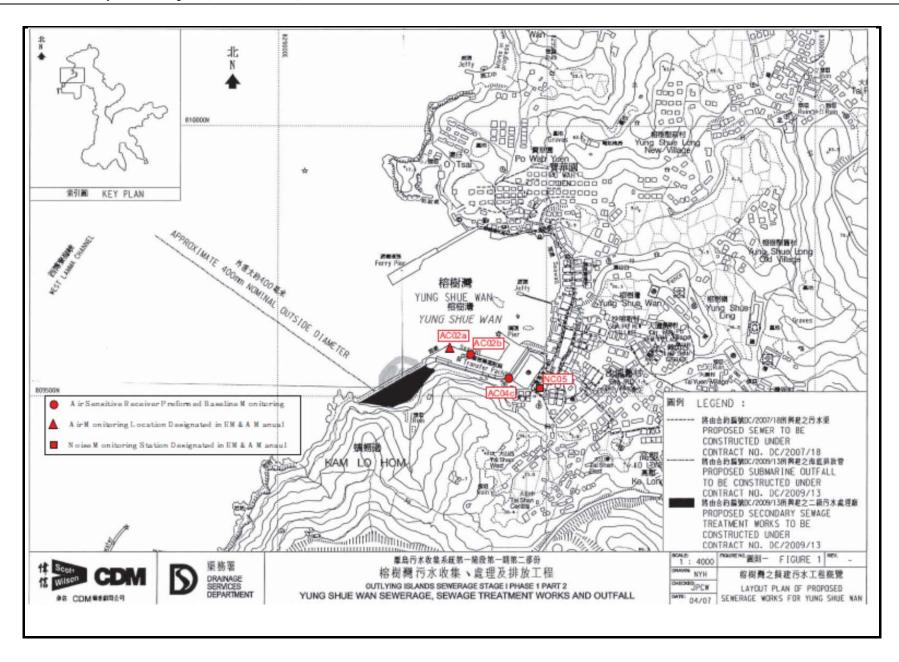
Date	Revision	Checked	Approved
31/01/13	Revision 0	RH	VC



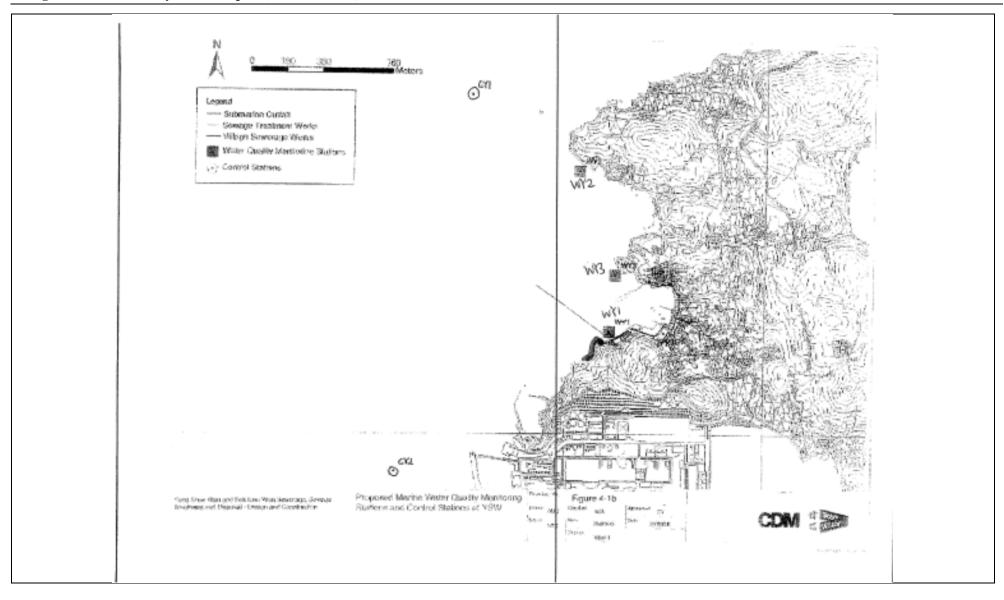
Appendix D

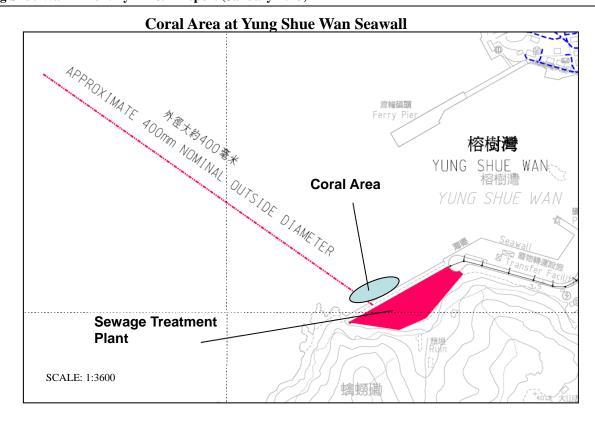
Location of Monitoring Stations (Air Quality / Construction Noise / Water Quality / Dive Surveys of Coral)

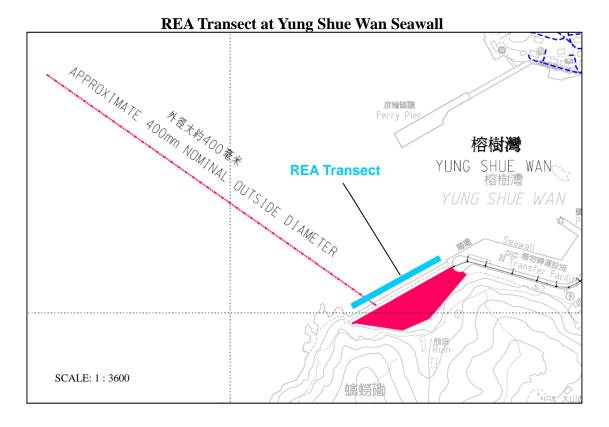












Coral Area at Sham Wan





Appendix E

Monitoring Equipments Calibration Certificate

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location: YSW RE Offices

Location ID: AC02b

Date of Calibration: 29-Nov-12

Next Calibration Date: 29-Jan-13

Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)
Temperature (°C)

1015.2 22.7

Corrected Pressure (mm Hg)

Temperature (K)

761.4 296

CALIBRATION ORIFICE

Make->	TISCH
Model->	5025A
Serial # ->	1941

Qstd Slope -> Qstd Intercept ->

2.11693 -0.02568

CALIBRATION

Plate	H20 (L)	H2O (R)	H20	Qstd	I	IC	LINEAR
No.	(in)	(in)	(in)	(m3/min)	(chart)	corrected	REGRESSION
18	5.6	5.6	11.2	1.601	60	60.52	Slope = 33.3221
13	4.3	4.3	8.6	1.404	54	54.47	Intercept = 7.3572
10	3.3	3.3	6.6	1.232	48	48.42	Corr. coeff. = 0.9997
7	2.3	2.3	4.6	1.030	41	41.36	
5	1.5	1.5	3	0.834	35	35.30	

Calculations:

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

IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate

IC = corrected chart respones

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

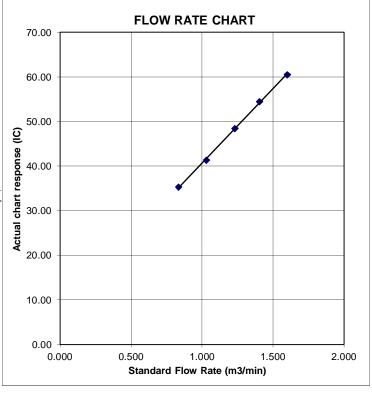
m = sampler slope

b = sampler intercept

I = chart response

Tay = daily average temperature

Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location: YSW Playground

Date of Calibration: 29-Nov-12

Location ID: AC04c

Next Calibration Date: 29-Jan-13

Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa) Temperature (°C) 1015.2 22.7

Corrected Pressure (mm Hg)
Temperature (K)

761.4 296

CALIBRATION ORIFICE

Make-> TISCH
Model-> 5025A
Serial # -> 1941

Qstd Slope -> Qstd Intercept ->

2.11693 -0.02568

CALIBRATION

Plate	нэо (г.)	H2O (R)	H20	Ostd	Ţ	IC	LINEAR
	1120 (L)	1120 (K)	1120	_	1	IC	
No.	(in)	(in)	(in)	(m3/min)	(chart)	corrected	REGRESSION
18	5.2	5.2	10.4	1.543	60	60.52	Slope = 34.9387
13	4	4	8	1.355	53	53.46	Intercept = 6.1003
10	3.1	3.1	6.2	1.194	46	46.40	Corr. coeff. = 0.9964
7	2.1	2.1	4.2	0.985	41	41.36	
5	1.4	1.4	2.8	0.806	34	34.30	

Calculations:

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

IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate

IC = corrected chart respones

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

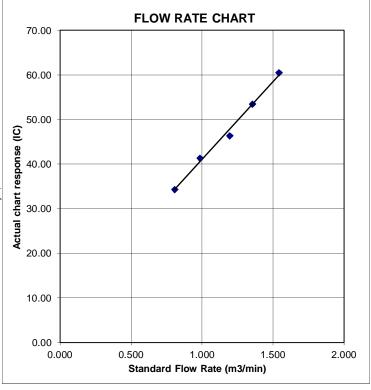
m = sampler slope

b = sampler intercept

I = chart response

Tay = daily average temperature

Pav = daily average pressure





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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Ma Operator		Rootsmeter Orifice I.I)438320 1483	Ta (K) - Pa (mm) -	294 754.38
PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1 2 3 4 5	NA NA NA NA NA	NA NA NA NA NA	1.00 1.00 1.00 1.00	1.4140 0.9960 0.8910 0.8510 0.7020	3.2 6.4 7.9 8.7 12.8	2.00 4.00 5.00 5.50 8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0018 0.9976 0.9955 0.9945 0.9890	0.7085 1.0016 1.1173 1.1686 1.4088	1.4185 2.0061 2.2429 2.3524 2.8371	0.9957 0.9915 0.9894 0.9884 0.9830	0.7042 0.9955 1.1105 1.1615 1.4003	0.8829 1.2486 1.3959 1.4641 1.7657
Qstd slo intercep coeffici y axis =	ot (b) = lent (r) =	2.02742 -0.02027 0.99996 	Qa slor intercer coeffici y axis =	ot (b) =	1.26953 -0.01262 0.99996

CALCULATIONS

Vstd = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta)Qstd = Vstd/Time

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

For subsequent flow rate calculations:

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



CERTIFICATE OF CALIBRATION AND TESTING

Environment Condition			Model			3 52 0
l'emperature	68.5 (20.3)	°F (°C)	TYTOUC!			
Relative Humidity	19	%RH	Serial Number		1 2	23080
Barometric Pressure	29.11 (985.8)	inHg (hPa)				
🖾 As Left		×	In Tolerance			
☐ As Found			Out of Tolerance			
100, 27 hans the desired professional and the second of th	**************************************	Concentratio	n Linearity Plot			
	100	Concentratio	ii Linearity 1 lot			
	Device Response (mg/m3) 1°0 1		0			
	(mg		0			
	011.56		:			
	lesp		0			
	ice I	- 0	4			
	Devi			o = In Tolerance		
	0.01			● = Out of Tolerance)	
		01 0.1	1 10 100	0		
	0.		entration (mg/m3)			
					System	ID: DTH01-02
Zero Stability Results						
Average:	Minimum:		Maximum:	Time:	: 50	
0.000 :mg	/m3 0.00	:mg/m ²	n	$:mg/m^3$:hrs

Final Function Check

March 8, 2012

Date



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No.: C122427

證書編號

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

Description / 儀器名稱

Integrating Sound Level Meter (EQ010)

Manufacturer / 製造商 Model No. / 型號

Bruel & Kjaer

Serial No. / 編號

2238

2285721

Action-United Environmental Services and Consulting Supplied By / 委託者

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

TEST CONDITIONS / 測試條件

Temperature / 溫度 :

 $(23 \pm 2)^{\circ}$ C

Relative Humidity / 相對濕度 :

 $(55 \pm 20)\%$

Line Voltage / 電壓 :

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期

20 April 2012

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.

All results are within manufacturer's specification.

The results are detailed in the subsequent page(s).

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

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

Tested By

測試

L K Yeung

Certified By

核證

K/C Lee

Date of Issue 簽發日期

23 April 2012

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

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



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No.: C122427

證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

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:

Equipment ID

Description

Certificate No.

CL280 CL281

40 MHz Arbitrary Waveform Generator

C120016

Multifunction Acoustic Calibrator

DC110233

5. Test procedure: MA101N.

6. Results:

Sound Pressure Level 6.1

Reference Sound Pressure Level 6.1.1

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

6.1.2 Linearity

	UU	Γ Setting		Applie	d Value	UUT
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)
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. : \pm 0.4 dB per 10 dB step and \pm 0.7 dB for overall different.

6.2 Time Weighting

6.2.1 Continuous Signal

	UUT	Setting		Applied Value		Applied Value		UUT	IEC 60651
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	Reading (dB)	Type 1 Spec. (dB)		
50 - 130	L _{AFP}	A	F	94.00	1	94.0	Ref.		
	L _{ASP}	3	S			94.0	± 0.1		
	L _{AIP}		I			94.1	± 0.1		

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

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



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No.:

C122427

證書編號

6.2.2 Tone Burst Signal (2 kHz)

	UUT Setting			App	lied Value	UUT	IEC 60651
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration	Reading (dB)	Type 1 Spec. (dB)
30 - 110	LAFP	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}		Application of the same		500 ms	101.9	-4.1 ± 1.0

6.3 Frequency Weighting

6.3.1 A-Weighting

	UUT	Setting		Appli	ed Value	UUT	IEC 60651			
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.	Reading (dB)	Type 1 Spec. (dB)			
50 - 130	LAFP	A	F	94.00	31.5 Hz	54.6	-39.4 ± 1.5			
	27.24				63 Hz	67.8	-26.2 ± 1.5			
				125 Hz	77.8	-16.1 ± 1.0				
					250 Hz	85.3	-8.6 ± 1.0			
					500 Hz	90.7	-3.2 ± 1.0			
							1 kHz	1 kHz	94.0	Ref.
					2 kHz	95.2	$+1.2 \pm 1.0$			
					4 kHz	95.0	$+1.0 \pm 1.0$			
					8 kHz	92.9	-1.1 (+1.5; -3.0)			
		11			12.5 kHz	89.7	-4.3 (+3.0; -6.0)			

6.3.2 C-Weighting

	UUT	Setting		Appli	ed Value	UUT	IEC 60651
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.	Reading (dB)	Type 1 Spec. (dB)
50 - 130	L _{CFP}	C	F	94.00	31.5 Hz	91.1	-3.0 ± 1.5
					63 Hz	93.3	-0.8 ± 1.5
				250 500	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
- 1					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)

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

Sun Creation Engineering Limited - Calibration & Testing Laboratory

c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong 精動工程有限公司。数定及除到原始的

輝創工程有限公司 - 校正及檢測實驗所 c/o 香港新界屯門興安里一號青山灣機樓四樓

Tel/電話: 2927 2606 Fax/傳真: 2744 8986

E-mail/厄郵: callab@suncreation.com

Website/網址: www.suncreation.com

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



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration

校正證書

Certificate No.: C122427

證書編號

6.4 Time Averaging

	UUI	Setting		Applied Value			UUT	IEC 60804						
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)	Reading (dB)	Type 1 Spec. (dB)				
30 - 110	LAcq	L _{Acq} A	10 sec. 4	4 1	1/10	110.0	100	99.9	± 0.5					
	The second second								THE RESERVE		1/102		90	89.6
			60 sec.			1/103		80	79.8	± 1.0				
			5 min.		11	1/104		70	69.8	± 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 : \pm 0.40 dB

 $\begin{array}{lll} 104 \ dB : 1 \ kHz & : \pm 0.10 \ dB \ (Ref. 94 \ dB) \\ 114 \ dB : 1 \ kHz & : \pm 0.10 \ dB \ (Ref. 94 \ dB) \\ Burst equivalent level & : \pm 0.2 \ dB \ (Ref. 110 \ dB) \end{array}$

continuous sound level)

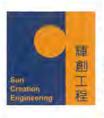
Note

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

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

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

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



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No.: C122426

證書編號

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

Description / 儀器名稱

Acoustical Calibrator (EQ082)

Manufacturer / 製造商

Bruel & Kjaer

Model No. / 型號

4231

Serial No. / 編號

2713428

Supplied By / 委託者

Action-United Environmental Services and Consulting

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

TEST CONDITIONS / 測試條件

Temperature / 溫度 :

 $(23 \pm 2)^{\circ}C$

Relative Humidity / 相對濕度 :

 $(55 \pm 20)\%$

Line Voltage / 電壓:

TEST SPECIFICATIONS / 測試規範

Calibration

DATE OF TEST / 測試日期

20 April 2012

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.

All results are within manufacturer's specification.

The results are detailed in the subsequent page(s).

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

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

Tested By 測試

L K Yeung

Certified By 核證

K/C Lee

Date of Issue 簽發日期

23 April 2012

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

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

Sun Creation Engineering Limited - Calibration & Testing Laboratory

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

輝創工程有限公司 - 核正及檢測實驗所

c/o 香港新界屯門與安里一號青山灣機樓四樓

Tel 7世話: 2927 2606 Fax/傳真: 2744 8986

E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Page 1 of 3



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No.: C122426

證書編號

The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement
of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment:

Equipment ID CL130 CL281 TST150A DescriptionCertificate No.Universal CounterC113350Multifunction Acoustic CalibratorDC110233Measuring AmplifierC120886

Test procedure : MA100N.

5. Results:

5.1 Sound Level Accuracy

5.1.1 Before Adjustment

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.1	± 0.2	± 0.2
114 dB, 1 kHz	114.1	1 11 27 7 . 7	

5.1.2 After Adjustment

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

5.2.1 Before Adjustment

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

5.2.2 After Adjustment

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

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

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



Sun Creation Engineering Limited

Calibration and Testing Laboratory

Certificate of Calibration 校正證書

Certificate No.: C122426

證書編號

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

Note:

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

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

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



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.

PROIECT: -

WORK ORDER: HK1229602 LABORATORY: HONG KONG DATE RECEIVED: 07/11/2012

DATE OF ISSUE: 14/11/2012

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.: Serial No.: YSI 6820 / 650MDS 02J0912 / 02K0788 AA

Equipment No.:

No ·

Date of Calibration: 13 November, 2012

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

ISSUING LABORATORY: HONG KONG

Address

ALS Technichem (HK) Pty Ltd

11/F Chung Shun Knitting Centre

1-3 Wing Yip Street

Kwai Chung HONG KONG Phone:

852-2610 1044

Fax:

852-2610 2021

Email:

hongkong@alsglobal.com

Mr Chan Kwok Fai, dodfrey Laboratory Manager - Hong Kong

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

Page 1 of 3

ADDRESS 11/F, Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong PHONE +852 2610 1044 FAX +852 2610 2021

ALS TECHNICHEM (HK) PTY LTD Part of the ALS Laboratory Group A Campbell Brothers Limited Company

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1229602 Date of Issue: 14/11/2012

Client: ACTION UNITED ENVIRO SERVICES



Description: YSI Sonde

Brand Name: YSI

Model No.: YSI 6820 / 650MDS Serial No.: 02J0912 / 02K0788 AA

Equipment No.:

Date of Calibration: 13 November, 2012 Date of next Calibration: 13 February, 2013

Parameters:

Dissolved Oxygen Method Ref: APHA (21st edition), 45000: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
3.02	3.04	0.02
6.26	6.20	-0.06
7.78	7.90	0.12
	Tolerance Limit (±mg/L)	0.20

pH Value Method Ref: APHA 21st Ed. 4500H:B

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	4.10	0.10
7.0	7.09	0.09
10.0	10.07	0.07
	Tolerance Limit (±unit)	0.2

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

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.06	
10	10.49	4.9
20	20.22	1.1
30	30.68	2.3
	Tolerance Limit (±%)	10.0

Mr Chan Kwol/ Fai, Godfrey Laboratory Manager - Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order:

HK1229602

Date of Issue:

14/11/2012

Client:

ACTION UNITED ENVIRO SERVICES



Description: Brand Name: YSI Sonde

Branu Name

YSI

Model No.: Serial No.: YSI 6820 / 650MDS 02J0912 / 02K0788 AA

Equipment No.:

--

Date of Calibration:

13 November, 2012

Date of next Calibration:

13 February, 2013

Parameters:

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical

Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
11.50	11.48	0.0
21.35	21.34	0.0
36.50	36.32	-0.2
	Tolerance Limit (°C)	2.0

Turbidity

Method Ref: APHA (21st edition), 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.1	
0	0.1 4.1	2.5
40	40.3	0.7
80	80.1	0.1
400	380.2	-5.0
800	760.4	-5.0
	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 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, of testing and calibration laboratories and it has been accredited for performing specific tests or calibrations as 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 listed in the HOKLAS Directory of Accredited Laboratories within the test category of 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 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 quality management system (see joint IAF-ILAC-ISO Communiqué). (見國際認可論壇‧國際實驗所認可合作組織及國際標準化組織的聯合公報)。

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

CHAN Sing Sing, Terence, Executive Administrator

執行幹事 陳成城 Issue Date: 5 May 2009

簽發日期:二零零九年五月五日

Registration Number : HOKLAS 066

註冊號碼:



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

Appendix F

Event and Action Plan



Air Quality

EVENT	ACTION			
	ET	IC(E)	ER	CONTRACTOR
ACTION LEVEL				
Exceedance for one sample	 Identify source, investigate the causes of exceedance and propose remedial measures; Inform IC(E) and ER; Repeat measurement to confirm finding; Increase monitoring frequency to daily. 	Check monitoring data submitted by ET; Check Contractor's working method.	Notify Contractor.	Rectify any unacceptable practice; Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	 Identify source; Inform IC(E) and ER; Advise the ER on the effectiveness of the proposed remedial measures; Repeat measurements to confirm findings; Increase monitoring frequency to daily; Discuss with IC(E) and Contractor on remedial actions required; If exceedance continues, arrange meeting with IC(E) and ER; If exceedance stops, cease additional monitoring. 	 Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ET on the effectiveness of the proposed remedial measures; Supervise Implementation of remedial measures. 	 Confirm receipt of notification of failure in writing; Notify Contractor; Ensure remedial measures properly implemented. 	 Submit proposals for remedial to ER within 3 working days of notification; Implement the agreed proposals; Amend proposal if appropriate.
		LIMIT LEVEL		
Exceedance for one sample	 Identify source, investigate the causes of exceedance and propose remedial measures; Inform ER, Contractor and EPD; Repeat measurement to confirm finding; Increase monitoring frequency to daily; Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results. 	 Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ER on the effectiveness of the proposed remedial measures; Supervise implementation of remedial measures. 	Confirm receipt of notification of failure in writing; Notify Contractor; Ensure remedial measures properly implemented.	Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IC(E) within 3 working days of notification; Implement the agreed proposals; Amend proposal if appropriate.
Exceedance for two or more consecutive samples	 Notify IC(E), ER, Contractor and EPD; Identify source; Repeat measurement to confirm findings; Increase monitoring frequency to daily; Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; Arrange meeting with IC(E) and ER to discuss the remedial actions to be taken; Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results; If exceedance stops, cease additional monitoring. 	Discuss amongst ER, ET, and Contractor on the potential remedial actions; Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; Supervise the implementation of remedial measures.	 Confirm receipt of notification of failure in writing; Notify Contractor; In consolidation with the IC(E), agree with the Contractor on the remedial measures to be implemented; Ensure remedial measures properly implemented; 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. 	 Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IC(E) within 3 working days of notification; Implement the agreed proposals; Resubmit proposals if problem still not under control; 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	 Notify IC(E) and Contractor; Carry out investigation; Report the results of investigation to the IC(E), ER and Contractor; Discuss with the Contractor and formulate remedial measures; Increase monitoring frequency to check mitigation effectiveness 	 Review the analysed results submitted by the ET; Review the proposed remedial measures by the Contractor and advise the ER accordingly; Supervise the implementation of remedial measures. 	 Confirm receipt of notification of failure in writing; Notify Contractor; Require Contractor to propose remedial measures for the analysed noise problem; Ensure remedial measures are properly implemented. 	 Submit noise mitigation proposals to IC(E); Implement noise mitigation proposals.
Limit Level	 Identify source; Inform IC(E), ER, EPD and Contractor; Repeat measurements to confirm findings; Increase monitoring frequency; Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; Inform IC(E), ER and EPD the causes and actions taken for the exceedances; Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results; If exceedance stops, cease additional monitoring. 	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.	 Confirm receipt of notification of failure in writing; Notify Contractor; Require Contractor to propose remedial measures for the analysed noise problem; Ensure remedial measures properly implemented; If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	1. Take immediate action to avoid further exceedance; 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							
EVENI	ET	IC(E)	ER	CONTRACTOR			
ACTION LEVEL	EI	IC(E)	EK	CONTRACTOR			
Exceedance for one sampling day	 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. 	Check monitoring data submitted by ET and Contractor's working methods	Confirm receipt of notification of non-compliance in writing; and Notify Contractor	Information the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; and Amend working methods if appropriate			
Exceedance for two or more consecutive sampling days	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	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.	Discuss with IC(E) on the proposed mitigation measures; Ensure well implementation of mitigation measures; and Assess the effectiveness of the implemented mitigation measures	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					
Exceedance for one sampling day	 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 	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	failure in writing; and 2. Discuss with IC(E), ET and 3. Contractor on the proposed mitigation measures; and 4. Request Contractor to review the working methods	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			
Exceedance for two or more consecutive sampling days	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	Same as the above; and Supervise the Implementation of mitigation measures	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 stow down or to stop all or part of the construction activities until no exceedance of limit level	measures; 4. Resubmit proposals of mitigation measures if problem still not under control; and			



Coral Monitoring

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



Appendix G

Monitoring Data Sheet



24-hour TSP Monitoring Data Sheet

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

24-hour TSP Monitoring Results - AC02b

	EL	APSED TIN	ИE	CHA	ART READ	ING			STANDARD			INITIAL	FINAL	WEIGHT	DUST
DATE	SAMPLE							AVG	AVG	FLOW	AIR	FILTER	FILTER	DUST	24-hour TSP
	NUMBER	INITIAL	FINAL	ACTUAL	MIN	MAX	AVG	TEMP	PRESS	RATE	VOLUME	WEIGHT	WEIGHT	COLLECTED	IN AIR
				(min)				(oC)	(hPa)	(m3/min)	(std m3)	(g)	(g)	(g)	(ug/m^3)
29-Dec-12	25266	6150.26	6174.25	1439.40	36	40	38.0	18	1016.3	0.93	1346	2.778	2.9726	0.1946	145
4-Jan-13	25270	6174.25	6198.24	1439.40	36	40	38.0	12.9	1021	0.95	1364	2.843	2.9428	0.0998	73
10-Jan-13	25275	6198.24	6222.23	1439.40	36	40	38.0	14.7	1021	0.94	1359	2.8137	3.2377	0.4240	312
16-Jan-13	25301	6222.23	6246.22	1439.40	34	37	35.5	17.4	1021.2	0.86	1242	2.8065	2.8932	0.0867	70
22-Jan-13	25306	6246.22	6270.21	1439.40	34	36	35.0	21.4	1019.1	0.84	1208	2.7656	2.8845	0.1189	98

Action Level: 161ug/m³ Limit Level: 260ug/m³

24-hour TSP Monitoring Results - AC04c

	EI	APSED TIN	MЕ	CHA	ART READ	ING			STANDARD)		INITIAL	FINAL	WEIGHT	DUST
DATE	SAMPLE							AVG	AVG	FLOW	AIR	FILTER	FILTER	DUST	24-hour TSP
	NUMBER	INITIAL	FINAL	ACTUAL	MIN	MAX	AVG	TEMP	PRESS	RATE	VOLUME	WEIGHT	WEIGHT	COLLECTED	IN AIR
				(min)				(oC)	(hPa)	(m3/min)	(std m3)	(g)	(g)	(g)	(ug/m^3)
29-Dec-12	25267	8768.39	8792.38	1439.40	36	40	38.0	18	1016.3	0.93	1335	2.7935	3.0003	0.2068	155
4-Jan-13	25271	8792.38	8816.37	1439.40	36	40	38.0	12.9	1021	0.94	1353	2.8314	3.0031	0.1717	127
10-Jan-13	25276	8816.37	8840.36	1439.40	36	40	38.0	14.7	1021	0.94	1348	2.8089	3.399	0.5901	438
16-Jan-13	25302	8840.36	8864.35	1439.40	35	40	37.5	17.4	1021.2	0.92	1320	2.8155	2.9527	0.1372	104
22-Jan-13	25307	8864.35	8888.34	1439.40	35	40	37.5	21.4	1019.1	0.91	1307	2.77	2.8934	0.1234	94

Action Level: 176ug/m³ Limit Level: 260ug/m³



Marine Water Quality Monitoring Data Sheet



Marine Water Quality Monitoring Result at Yung Shue Wan

Date 28-Dec-12

Date / Time	Location	Tide*	Co-ord	linates	Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pН	SS
Date / Time	Location	Tiuc	East	North	m	m	°C	mg/L	%	NTU	ppt	unit	mg/l
						1.000	21.08	8.46	117.5	3.90	36.15	7.68	11
2012/12/28 12:37	WY1	ME	829179	809543	4.2	1.000	21.06	8.42	116.9	3.80	36.19	7.67	11
2012/12/20 12.3/	WII	IVIE	829179	809343	4.2	3.200	20.73	7.62	104.1	3.90	34.59	7.53	14.9
						3.200	20.77	7.48	103.4	3.80	36.36	7.54	14.9
						1.000	21.10	9.61	133.8	2.80	36.65	7.53	7.2
						1.000	21.14	9.58	133.4	2.70	36.59	7.55	1.2
2012/12/28 13:01	WY2	ME	829011	810417	8,6	4.300	21.16	9.12	126.8	3.40	36.37	7.54	8
2012/12/20 10:01	W 12	IVIL	829011	010417	0.0	4.300	21.21	9.14	127.4	3.60	36.38	7.54	6
						7.600	21.00	8.20	113.8	4.00	36.44	7.53	9.2
						7.600	21.10	8.93	124.3	4.60	36.46	7.53	7.2
						1.000	21.19	8.00	111.3	4.10	36.17	7.43	8.5
2012/12/28 12:45	WY3	ME	829217	809866	4.4	1.000	21.22	7.96	110.8	4.30	36.15	7.43	0.5
	15		023211	003000		3.400	20.87	7.28	100.8	4.40	36.24	7.39	9
						3.400	20.82	7.31	101.0	4.10	36.30	7.39	
						1.000	21.35	9.76	136.4	1.70	36.52	7.54	7
						1.000	21.35	9.69	135.5	1.40	36.54	7.55	-
2012/12/28 13:16	CY1	ME	828387	810783	12.1	6.050	20.94	9.54	132.3	2.40	36.41	7.48	7.1
						6.050	20.86	9.54	132.1	2.10	36.55	7.48	
						11.100	20.74	8.80	121.5	3.00	36.43	7.45	7.6
						11.100	20.68	8.72	120.4	2.50	36.55	7.45	
						1.000	22.25	8.08	113.8	3.50	34.87	7.46	7.7
						1.000	22.27	8.06	113.5	3.50	35.02	7.47	
2012/12/28 12:21	CY2	ME	828016	808812	15.9	7.950	21.33	8.05	112.1	5.70	35.93	7.55	9,9
						7.950	21.26	8.06	112.1	5.00	35.98	7.55	
						14.900	21.07	7.30	101.2	5.80	35.98	7.52	10.8
						14.900	21.01	7.30	101.2	5.40	36.06	7.52	
						1,000	21.70	8,70	122,9	3,40	37.26	7.84	
						1,000	21.71	8,69	122.9	3,40	37.25	7.81	13.9
2012/12/28 16:51	WY1	MF	829164	809531	5.3	4,300	21.11	7.92	110.5	4,30	36,89	7.65	
						4,300	21.09	7.97	111.1	4,30	36,98	7.64	15.7
						1,000	21.07	10.04	139.9	2,50	36.90	7.74	
						1,000	21.06	10.02	139.7	2,20	36,97	7.70	7.2
0040/40/00 47 40	******		222225	010411	0.6	4,800	20,81	9,58	132.8	2,00	36.78	7.66	
2012/12/28 17:13	WY2	MF	828996	810411	9.6	4,800	20.78	9,56	132.5	2.00	36.79	7.66	7.4
						8,600	20,78	8.42	116.7	2.30	36,80	7.65	0.1
						8,600	20,73	8.32	115.2	2.30	36,80	7.66	8.1
						1,000	21,25	9.29	130.0	3,30	37.04	7.67	0.0
0040/40/00 47 00	******		020210	000055	5.5	1.000	21.30	9.18	128.4	3.50	36.92	7.65	9.9
2012/12/28 17:00	WY3	MF	829210	809855	5.7	4.700	21.06	8.33	116.1	3.20	36.77	7.59	10.0
						4.700	21.04	8.33	115.9	2.90	36.78	7.60	12.2
						1.000	20.58	10.76	148.3	1.80	36.60	8.20	5.2
						1.000	20.57	10.59	146.1	1.50	36.57	8.14	5.3
2012/12/28 17:39	CY1	ME	929407	010705	13.8	6.900	20.56	9.39	129.2	1.30	36.34	7.97	5.6
2012/12/20 17:39	CYI	MF	828407	810785	15.8	6.900	20.54	9.32	128.2	1.40	36.34	7.97	5.6
						12.800	20.36	8.74	119.9	1.90	36.35	7.92	5,8
	<u> </u>					12.800	20.34	8.68	118.9	1.70	36.35	7.92	2.8
	1					1.000	20.47	9.12	125.3	0.60	36.29	7.89	5.7
						1.000	20.48	9.22	126.6	0.70	36.25	7.90	5.1
2012/12/28 18:02	CY2	MF	827986	808813	17.2	8.600	20.57	9.18	126.4	0.90	36.30	7.87	5.7
2012/12/20 10:02	CIZ	IVIP	827980	000013	17.2	8.600	20.53	9.23	126.0	1.00	34.98	7.87	3.1
						16.200	20.12	9.55	130.6	1.50	36.56	7.82	6.6
	1	1				16,200	20.27	9.44	129.3	1.50	36.38	7.81	0.0



Marine Water Quality Monitoring Result at Yung Shue Wan

3-Jan-13 Date

Date / Time	Location	Tide*	Co-or	linates	Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
Date / Time	Location	110E	East	North	m	m	ဗ	mg/L	%	NTU	ppt	unit	mg/l
						1.000	20.18	9.19	125.3	3.00	35.80	8.06	57
2013/1/3 15:25	WY1	ME	829173	809542	4.3	1.000	20.18	9.13	124.5	2.80	35.83	8.05	5.7
2013/1/3 13.23	WII	NIE	829173	009342	4.5	3.300	20.07	8.47	116.0	2.10	37.06	8.03	11.9
						3.300	20.06	8.61	117.8	2.30	36.88	8.03	11.9
						1.000	19.92	9.30	114.6	1.10	37.14	7.99	7,5
						1.000	20.05	9.32	114.8	1.00	36.90	7.99	7.5
2013/1/3 15:48	WY2	ME	829015	810417	7.9	3.950	20.05	8.61	117.7	1.20	36.88	7.95	10
			023013	010111	7.5	3.950	20.05	8.66	118.3	1.20	35.40	7.96	10
						6.900	19.98	8.49	116.1	1.40	36.88	7.93	10.9
						6.900	19.98	8.51	116.5	1.30	36.87	7.94	
						1.000	20.03	9.81	120.7	1.70	36.12	7.96	7
2013/1/3 15:33	WY3	ME	829217	809836	4.5	1.000	20.01	9.96	122.6	1.90	36.22	7.96	
						3.500	19.88	8.33	113.7 114.4	2.20	36.86	7.92	7.2
						3.500	19.84	8.39		2.20	36.90	7.93	
						1.000	19.85 19.70	8.81 8.77	119.6 119.1	1.20	36.53 36.69	7.98 7.98	8.3
						6,050	19.70	8.77	116.9		36.47	7.98	ł
2013/1/3 16:03	CY1	ME	828386	810822	12.1	6.050	19.79	8.63	117.2	1.10	36.61	7.95	9.4
						11.100	19.70	8.46	117.2	2.80	36.77	7.94	ł
						11.100	19.65	8.40	115.2	2.80	36.79	7.94	11.8
						1.000	19.65	8.99	121.8	2.70	36.79	7.96	
						1.000	19.55	8.99	121.8	3.10	36.81	7.99	4.5
							19.57	8.98	121.8	2.80	36.84	7.99	
2013/1/3 16:26	CY2	ME	828015	808787	16.2	8.100 8.100	19.51	9.02	121.8	2.60	36.50	7.97	5
						15.200	19.48	8.91	120.9	2.80	36,64	7.99	
						15.200	19.63	8.98	120.9	3,00	35.38	7.90	5.9
						13.200	19.03	0.70	120.8	5.00	33.36	7.71	
						1.000	20.44	8.50	117.4	1.50	37.14	7.59	
0040440440						1.000	20.47	8.47	116.9	1.40	37.11	7.58	5
2013/1/3 11:20	WY1	MF	829163	809558	5.4	4,400	20.07	8,65	118.6	1.20	37.09	7.50	
						4,400	20.03	8,63	118.2	1.80	37.14	7.51	6.1
						1.000	20.81	8.69	121.1	0.60	37.72	7.94	0.5
						1.000	20.73	8.69	120.9	0.30	37.69	7.91	8.5
0040/4/0 44-04	TYTYO) m	020010	010400	0.0	4.650	20.40	8.66	119.6	0.50	37.40	7.80	10.0
2013/1/3 11:01	WY2	MF	829013	810409	9.3	4.650	20.43	8.59	118.7	0.30	37.39	7.81	10.9
						8.300	20.20	8.66	118.3	0.90	36.13	7.70	10.5
						8.300	20.24	8.57	118.0	0.50	37.31	7.75	12.5
						1.000	20.42	8.65	119.5	0.80	37.42	7.78	
2013/1/3 11:12	WY3) m	020207	0000000		1.000	20.55	8.59	119.1	0.70	37.47	7.74	5.6
2013/1/3 11.12	WY3	MF	829207	809872	5.5	4.500	20.07	8.63	118.4	0.90	37.20	7.63	5,9
						4.500	20.09	8.56	117.4	1.10	37.20	7.63	3.9
						1.000	20.59	8.95	124.2	0.50	37.62	8.06	4
		1				1.000	20.60	8.83	122.5	0.40	37.60	8.02	4
2013/1/3 10:51	CY1	MF	828414	810809	13.7	6.850	20.14	8.89	122.2	0.60	37.42	7.93	4
2013/1/3 10.31	CII	IVIF	020414	010009	15.7	6.850	20.14	8.70	119.6	0.70	37.42	7.92	4
		1				12.700	20.02	8.51	116.6	1.00	37.26	7.86	4.7
						12.700	20.02	8.49	116.4	1.00	37.26	7.83	4.7
						1.000	20.49	9.13	126.3	4.20	37.44	8.03	7,5
		1				1.000	20.49	9.07	124.7	4.70	36.29	7.94	1.3
2013/1/3 10:32	CY2	MF	828021	808822	18.3	9.150	20.26	8.70	119.7	3.80	37.18	7.94	8
2010/1/0 10.32	C12	1011	020021	-000022	10.5	9.150	20.26	8.68	119.4	3.70	37.20	7.92	0
		1				17.300	20.19	8.50	116.7	3.80	37.03	7.89	11
		ĺ				17.300	20.15	8.95	122.8	3.70	37.10	7.91	11



Marine Water Quality Monitoring Result at Yung Shue Wan

Date 5-Jan-13

Date / Time	Location	Tide*	Co-or	dinates	Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pН	SS
Date / Time	Location	Tiue.	East	North	m	m	ဇ	mg/L	%	NTU	ppt	unit	mg/l
						1.000	19.76	8.02	109.1	2.50	36.77	7.44	2.5
2013/1/5 17:05	WY1	ME	829176	809571	4.1	1.000	19.70	8.09	109.3	2.30	35.70	7.41	2.5
2013/1/3 17.03	WII	NIE	829170	809371	4.1	3.100	19.73	8.55	116.3	2.60	36.76	7.42	3
						3.100	19.74	8.45	114.8	2.30	36.74	7.43	3
						1.000	19.56	8.26	111.3	2.40	35.82	7.26	2.2
						1.000	19.58	8.32	112.2	2.60	35.81	7.27	2.2
2013/1/5 17:31	WY2	ME	829017	810421	7.9	3.950	19.64	8.48	115.2	2.40	36.90	7.33	1.9
			023011	010 121		3.950	19.59	8.50	114.6	2.30	35.82	7.28	
						6.900	19.37	8.34	112.8	2.50	36.93	7.31	2.8
						6.900	19.41	8.25	111.5	2.40	36.90	7.34	
						1.000	19.52	8.63	116.9	2.50	36.75	7.31	3.4
2013/1/5 17:17	WY3	ME	829196	809866	4.1	1.000	19.52	8.46	114.6	2.40	36.74	7.32	
						3.100	19.49	8.47	114.8 113.9	2.10	36.85	7.34	3.2
						3.100	19.49	8.41		2.40	36.84	7.35	
						1.000	19.31 19.29	8.63 8.51	116.6 114.9	1.80 2.20	36.95 36.97	7.34 7.32	1.7
							19.29		114.9				
2013/1/5 17:50	CY1	ME	828374	810825	12.2	6.100		8.72 8.72	117.7	2.50	36.94 35.84	7.34 7.29	2
						6.100	19.29 19.20			2.10 1.90	36.99		
						11.200 11.200	19.20	8.95 8.84	120.6 119.2	1.90	36.97	7.34 7.35	2.5
	1				_	1,000	19.20	8.67	116.8	1.50	36.87	7.29	
						1.000	19.25	8.63	116.8	1.30	36.83	7.29	2.1
						8,650	19.26	8.03	119.5	1.50	35.74	7.27	
2013/1/5 18:13	CY2	ME	828024	808826	17.3	8,650	19.41	8.78	119.5	1.60	36.91	7.31	2
						16.300	19.42	8.97	121.2	1.90	36.89	7.32	
						16,300	19.37	8.85	119.6	2.10	36.88	7.30	2.1
						10.300	17.30	0.03	117.0	2.10	30.00	7.30	
						1,000	20.46	9.72	133.4	1.40	36.10	7.89	
0040/4/5 40:40	*****					1,000	20,46	9,44	129.1	1.00	35.46	7.82	3
2013/1/5 12:18	WY1	MF	829177	809555	5.5	4.500	19.82	9.51	129.6	1.10	36.98	7.78	2.2
						4,500	19.83	9.33	127.2	1.10	36.92	7.78	2.3
						1.000	20.16	8.55	117.2	1.00	36.96	7.78	2.5
						1.000	20.19	8.50	116.7	0.70	36.92	7.78	2.5
2013/1/5 12:41	WINZO) m	020005	010411	0.0	4.900	20.03	8.73	119.4	0.80	36.79	7.74	2.3
2013/1/5 12.41	WY2	MF	828995	810411	9.8	4.900	20.06	8.63	118.0	0.50	36.76	7.72	2.5
						8.800	19.36	8.66	116.8	1.00	36.50	7.66	2.0
						8.800	19.37	8.64	116.6	0.60	36.73	7.69	3.2
						1.000	20.31	9.02	123.2	0.70	35.81	7.85	3
2013/1/5 12:27	WY3	MF	829206	810413	5,8	1.000	20.32	8.84	121.0	0.60	36.19	7.83	٥
2010/1/0 12.2/	WID	1011	029200	010413	5.0	4.800	19.93	8.79	120.1	0.70	36.92	7.81	3,9
						4.800	19.91	8.84	119.7	0.60	35.63	7.75	3.9
						1.000	20.02	9.33	127.6	1.60	36.92	8.00	1.9
	1	1				1.000	20.00	9.27	125.9	1.70	35.83	7.92	1.7
2013/1/5 12:57	CY1	MF	828421	808792	14	7.000	19.53	8.94	121.2	1.10	36.86	7.79	2.4
2010/1/0 12:07	CII	1411	020421	000172	17	7.000	19.48	9.05	122.5	1.20	36.92	7.78	4.7
	1	1				13.000	19.47	8.82	118.5	1.40	35.58	7.62	2.6
	ļ					13.000	19.48	8.70	117.6	1.20	36.74	7.67	2.0
	1	1				1.000	20.38	9.25	127.5	1.80	37.12	7.85	2.7
	1	1				1.000	20.42	9.05	124.8	1.90	37.10	7.84	2.7
2013/1/5 12:05	CY2	MF	828019	808783	20,2	10.100	19.74	9.56	130.2	1.80	37.08	7.78	3.3
	C12	1411	62601)	606763	20.2	10.100	19.72	9.23	125.7	1.80	37.11	7.78	5.5
	1	1				19.200	19.45	9.26	125.5	2.20	37.07	7.73	3.2
	1					19.200	19.44	9.15	123.9	2.30	37.07	7.73	2.2



Marine Water Quality Monitoring Result at Yung Shue Wan

Date 7-Jan-13

Date / Time	Location	Tide*	Co-or	linates	Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pН	SS
Date / Time	Location	110e-	East	North	m	m	ဗ	mg/L	%	NTU	ppt	unit	mg/l
						1.000	17.54	6.95	80.5	3.60	32.60	7.71	1.7
2013/1/7 8:24	WY1	ME	829177	809558	4.3	1.000	17.54	6.81	78.8	3.40	32.55	7.72	1.7
2010/11/ 0.21		IVIL	027111	007550	4.5	3.300	17.81	6.67	85.4	3.10	32.80	7.61	4.2
						3.300	17.81	6.59	85.5	3.00	34.77	7.68	112
						1.000	17.73	6.38	83.0	2.50	35.46	7.72	2.2
						1.000 3.900	17.74 17.74	6.42	83.4 82.1	2.50	35.45 35.33	7.72 7.70	
2013/1/7 8:50	WY2	ME	829012	810413	7.8	3.900	17.74	6.34	82.1 82.4	2.70	35.34	7.70	2.1
						6,800	17.73	6.11	79.2	2.70	35.47	7.69	
						6,800	17.70	6.14	79.7	2.30	35.39	7.71	2
						1,000	18.20	6.28	82.2	3.50	35.39	7.68	
00404477.0.00	*****					1,000	18.14	6.34	82.2	3,70	33.87	7.63	3.4
2013/1/7 8:36	WY3	ME	829212	809861	4.6	3.600	18.14	6.27	82.1	3.30	35.53	7.70	3,3
						3.600	18.11	6.25	81.8	3.90	35.56	7.71	3.3
						1.000	16.92	6.50	83.0	2.00	35.23	7.67	1.3
						1.000	16.94	6.44	82.3	2.00	35.19	7.68	1.3
2013/1/7 9:09	CY1	ME	828417	810785	12.6	6.300	17.04	6.27	79.7	1.90	34.05	7.60	1
	CII	IVIL	020117	010/05	12.0	6.300	17.10	6.29	80.8	1.70	35.25	7.66	-
						11.600	17.31	6.32	81.2	1.90	35.06	7.68	1.5
						11.600	17.26	6.39	82.1	2.00	35.13	7.67	
						1.000	16.75	6.25	79.0	1.90	34.06	7.60	1.6
						1.000	17.01	6.27	80.2	2.10	34.96	7.67	
2013/1/7 9:32	CY2	ME	828019	808788	15.8	7.900 7.900	17.15 17.20	6.01	77.2 78.2	1.60	35.28 35.21	7.67 7.68	1.4
						14.800	17.20	6.22	80.1	1.70	35.18	7.69	
						14.800	17.37	6.24	80.4	1.80	35.16	7.70	2.1
						14.000	17.57	0.24	00.4	1.00	33.10	7.70	
						1.000	19.20	6.47	86.7	1.70	36.02	7.78	
001011771010						1,000	19.18	6,90	92.5	1.40	36.07	7.80	1.9
2013/1/7 13:49	WY1	MF	829173	809542	5.3	4.300	19.12	6.20	83.0	1.20	36.11	7.78	0
						4.300	19.17	6.28	84.2	1.30	36.07	7.84	3
						1.000	19.20	5.48	73.2	0.70	35.35	7.75	1.5
						1.000	19.24	5.50	73.7	0.60	35.70	7.74	1.3
2013/1/7 14:08	WY2	MF	829018	810388	9,2	4.600	18.97	5.14	68.6	0.90	36.12	7.71	1.7
2010/1// 11.00	W 12	IVII	62,016	010500	7.2	4.600	19.01	5.27	70.5	0.90	36.08	7.67	117
						8.200	19.01	5.29	70.7	0.90	36.11	7.68	1.5
						8.200	18.86	5.84	77.7	1.60	36.00	7.64	
						1.000	19.28	6.07	81.5 85.5	1.10	36.17 36.16	7.81 7.82	1.9
2013/1/7 13:56	WY3	MF	829210	809842	5.5	4,500	19.28	6.51	85.5 87.3	1.10	36.16	7.82	
						4.500	19.22	6.25	83.9	1.80	36.08	7.83	2.6
						1,000	18.59	6.31	83.7	0.90	36.19	7.80	
						1,000	18.60	6.28	83.3	0.90	36.20	7.79	1.6
004044744.67	OV.		020.407	000000	10.0	6.900	18.41	6.16	80.7	1.60	34.57	7.71	1.0
2013/1/7 14:27	CY1	MF	828407	808822	13.8	6.900	18.44	6.16	81.4	1.30	36.00	7.73	1.3
						12.800	18.42	4.14	54.7	1.50	36.03	7.78	1.6
						12.800	18.40	4.14	54.6	1.50	36.03	7.75	1.0
						1.000	18.73	7.24	94.1	1.80	32.38	7.92	1.1
						1.000	18.79	7.03	93.5	1.80	35.97	7.90	1.1
2013/1/7 13:39	CY2	MF	828015	808809	17.3	8.650	18.37	6.76	89.3	1.80	36.10	7.77	1
	512		023013	555007	.7.5	8.650	18.44	6.76	89.3	2.00	36.05	7.78	
						16.300	18.64	5.98	79.3	1.90	36.04	7.75	1.6
	MF - Middle Fi	I				16.300	18.66	6.87	91.1	2.00	35.99	7.76	



Marine Water Quality Monitoring Result at Yung Shue Wan

Date 9-Jan-13

Date / Time	Location	Tide*	Co-ore	linates	Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pН	SS
Date / Time	Location	110E	East	North	m	m	ဇ	mg/L	%	NTU	ppt	unit	mg/l
						1.000	18.38	10.14	134.0	1.70	36.21	8.00	2.8
2013/1/9 10:49	WY1	ME	829174	809558	4,3	1.000	18.40	9.89	130.6	1.50	36.02	7.97	2.8
2013/1/9 10.49	WII	IVIL	029174	007330	4.5	3.300	18.39	9.46	124.9	1.00	36.06	7.87	4
						3.300	18.33	9.48	125.1	1.00	36.16	7.88	**
						1.000	17.90	8.72	114.0	2.20	36.03	7.95	1.8
						1.000	17.92	8.71	113.3	2.30	35.14	7.94	1.0
2013/1/9 10:28	WY2	ME	829008	810407	8,3	4.150	17.89	9.47	112.5	1.70	35.66	7.87	2.2
		1112	027000	010107	0.5	4.150	17.89	9.17	112.0	1.60	35.64	7.88	2.2
						7.300	17.85	9.53	113.5	1.60	36.54	7.82	2.1
						7.300	17.84	9.05	113.1	1.50	36.65	7.83	
						1.000	18.13	8.30	106.0	2.10	35.29	7.84	3.9
2013/1/9 10:40	WY3	ME	829213	809843	4.6	1.000	18.17	7.92	103.8	2.40	35.32	7.83	
						3.600	18.09	8.73	114.7	1.80	36.11	7.82	3.6
	1					3.600	18.13	8.68	114.1	2.00	36.06	7.80	
		İ				1.000	17.42	9.40	109.2	3.40	35.73	7.95	3
		İ				1.000	17.42	9.37	108.7	3.50	35.55	7.95	1
2013/1/9 10:12	CY1	ME	828418	810786	12.2	6.100	17.51	8.84	114.4	2.90	35.57	7.90	2.1
						6.100	17.60	9.01	114.2	2.90	35.73	7.91	
						11.200	17.75	9.72	115.0	2.70	36.82	7.91	2.4
						11.200	17.71	9.00	115.7	2.60	36.65	7.90	
						1.000	19.20	10.52	134.9	1.40	35.66	7.94	2
						1.000	19.20	10.04	134.2	1.20	35.56	7.93	
2013/1/9 11:10	CY2	ME	828017	808789	15.9	7.950	18.21	10.68	129.7	0.90	35.64	7.72	1.6
						7.950	18.21	10.94	129.4	1.00	36.84	7.73	
						14.900	18.28	9.75	127.4	0.60	36.75 36.09	7.67	1.6
						14.900	18.41	9.45	124.9	0.40	36.09	7.67	
						1.000	20.18	9,80	120.9	1.60	33.64	8.01	
0040/4/0 45:00	*****			000555		1,000	20.20	9,68	119.3	1.30	33,66	7.98	1.4
2013/1/9 15:06	WY1	MF	829176	809557	5.1	4.100	19.40	8.62	114.5	1.10	34.00	7.88	1.0
						4.100	19.43	8.77	115.3	1.00	34.96	7.87	1.6
						1.000	18.23	8.98	118.3	2.00	36.20	8.00	0.0
						1.000	18.39	8.81	116.4	1.60	36.24	7.88	2.3
2013/1/9 15:24	11/1/2) (F	020010	010207	0.6	4.800	18.10	9.41	113.2	0.80	36.25	7.75	2.9
2013/1/9 13.24	WY2	MF	829010	810396	9.6	4.800	18.11	9.60	113.6	0.90	36.61	7.75	2.9
						8.600	17.93	8.86	112.7	0.80	36.19	7.70	2.2
						8.600	17.95	8.83	113.1	0.70	36.27	7.70	2.2
						1.000	19.64	8.64	116.7	0.90	35.90	7.96	1.5
2013/1/9 15:13	WY3	MF	829212	809861	5,4	1.000	19.66	8.62	116.6	0.80	36.14	7.95	1.0
2010/1/0 10.10	WIJ	1011	027212	007001	3.4	4.400	19.31	8.43	113.2	1.10	36.02	7.84	1.5
	<u> </u>					4.400	19.34	8.46	113.7	1.10	36.01	7.83	1.3
						1.000	18.26	8.21	108.2	1.30	36.16	7.62	2.2
	1	1				1.000	18.27	8.27	109.1	1.20	36.16	7.62	4.2
2013/1/9 15:41	CY1	MF	828422	810816	13.6	6.800	18.02	8.26	108.4	1.10	36.21	7.60	2.4
2010/1/0 10.41	CII	1911	020422	010010	15.0	6.800	18.01	8.32	109.2	1.10	36.26	7.60	2.4
	1	1				12.600	17.94	8.13	106.6	0.80	36.16	7.58	2.1
	ļ					12.600	17.94	8.20	107.4	0.80	36.15	7.59	2.1
						1.000	17.98	7.95	104.2	1.00	36.13	7.57	1.8
	1	1				1.000	17.99	7.98	104.7	0.90	36.11	7.56	1.0
2013/1/9 16:07	CY2	MF	828027	808812	17.4	8.700	17.97	7.94	104.0	0.70	36.11	7.56	2
	C12	1911	020021	000012	17.4	8.700	17.96	7.94	104.0	0.80	36.14	7.58	
	1	1				16.400	17.91	7.82	102.5	0.60	36.16	7.58	2
	I	l				16,400	17.92	7.83	102.5	0.40	36.16	7.58	



Marine Water Quality Monitoring Result at Yung Shue Wan

11-Jan-13 Date

Date / Time	Location	Tide*	Co-or	linates	Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pН	SS
Date / Time	Location	11QE*	East	North	m	m	ဗ	mg/L	%	NTU	ppt	unit	mg/l
						1.000	17.81	9.43	123.3	1.40	36.29	8.00	5.4
2013/1/11 12:12	WY1	ME	829173	809558	4.3	1.000	17.73	9.38	122.5	1.40	36.28	7.95	241
						3.300	17.66	9.26	120.9	1.70	36.30	7.88	4.3
						3.300	17.68	9.39	122.5 123.2	1.20	36.30	7.87	
						1.000	17.82 17.82	9.41 9.52	125.2	1.30	36.31 36.31	7.94 7.94	1.9
						3,800	17.82	9.32	120.1	1.00	36.33	7.94	
2013/1/11 11:53	WY2	ME	829003	810395	7.6	3,800	17.72	9,24	120.7	1.00	36.30	7.84	3.4
						6.600	17.69	9.07	118.4	1.90	36.31	7.80	
						6,600	17.67	9,08	118.5	2.00	36,36	7.79	2.8
						1,000	17.76	9.50	124.1	1.60	36.27	7.95	2.2
2013/1/11 12:04	WY3) (F	020210	000007	1.5	1.000	17.78	9.36	122.4	1.30	36.27	7.92	3.3
2013/1/11 12:04	WY3	ME	829210	809837	4.5	3.500	17.65	9.23	120.4	1.40	36.30	7.87	4.3
						3.500	17.67	9.17	119.7	1.20	36.31	7.88	4.3
						1.000	17.80	8.76	114.6	2.50	36.33	7.96	3.7
						1.000	17.76	9.02	117.8	2.00	36.29	7.91	5.1
2013/1/11 11:41	CY1	ME	828411	810822	12,3	6.150	17.47	9.04	117.5	1.90	36.31	7.79	5.6
	011	1,112	020111	010022	12.5	6.150	17.46	9.03	117.3	1.80	36.32	7.78	
						11.300	17.49	8.95	116.4	1.70	36.37	7.75	5.4
						11.300	17.47	8.91	115.9	1.60	36.40	7.73	
						1.000	18.05	9.34	122.7	2.00	36.20	8.00	3.1
						1.000	18.12 17.52	9.18 9.13	120.7 118.7	0.90	36.18 36.26	7.94	
2013/1/11 12:26	CY2	ME	828019	808827	15.9	7.950 7.950	17.52	9.13	118.7	0.10	36.22	7.85 7.85	4.8
						14.900	17.33	9.10	117.0	0.10	36.29	7.80	
						14.900	17.51	8,99	116.8	0.00	36.25	7.79	4.1
						14.500	17.21	0.77	110.0	0.00	30,23	1.19	
						1,000	18.21	8,73	114.4	1.30	35.30	8.08	
						1,000	18.18	8.76	114.7	1,20	35,32	7.99	5.1
2013/1/11 16:30	WY1	MF	829174	809556	5.1	4.100	17.93	9.04	118.1	0.60	35.62	7.81	4.4
						4.100	17.93	9.01	117.6	0.60	35.63	7.79	4.4
						1.000	18.59	8.54	113.3	0.50	36.09	7.92	2
						1.000	18.60	8.61	114.1	0.20	36.12	7.89	2
2013/1/11 16:47	WY2	MF	828984	810397	9	4.500	18.04	8.94	117.4	0.70	36.23	7.81	3.9
2010/1/11 10:11	W 12	1411	020704	610577	,	4.500	18.01	8.97	117.7	1.10	36.16	7.81	2.7
						8.000	17.72	8.96	117.0	1.10	36.30	7.76	6
						8.000	17.70	8.99	117.4	1.50	36.34	7.75	
						1.000	18.48	8.86	117.1	1.20	35.97	7.83	3.2
2013/1/11 16:37	WY3	MF	829196	809843	5.3	1.000 4.300	18.44 17.92	8.90 9.06	117.6 118.6	1.20	36.02 36.13	7.81 7.76	
						4.300	17.92	9.06	118.0	0.80	35.74	7.76	6.6
						1,000	18.29	9.03	121.0	0.50	36.25	8.00	
	I	1				1.000	18.29	9.17	120.3	0.60	36.32	7.98	2.7
						6.900	17.97	9.11	120.5	1.20	36.35	7.91	
2013/1/11 17:16	CY1	MF	828422	810813	13.8	6.900	17.97	9.10	119.5	1.20	36.37	7.90	6.6
	1					12.800	17.54	9.07	118.2	1.40	36.51	7.86	
	1					12.800	17.54	9.06	118.1	1.00	36.52	7.84	5.1
						1.000	17.65	9.12	118.8	0.20	36.20	7.96	4.5
	I	1				1.000	17.64	9.10	118.6	1.20	36.23	7.94	4.5
2013/1/11 17:41	CY2	MF	828019	808817	17.6	8.800	17.59	8.85	115.3	3.40	36.37	7.87	4.6
2010/1/11 17.41	C12	IVIF	020019	000017	17.0	8.800	17.59	8.82	114.9	0.60	36.38	7.86	4.0
	1					16.600	17.56	8.59	112.0	0.90	36.45	7.82	8
						16.600	17.58	8.59	112.0	1.20	36.44	7.83	O



Marine Water Quality Monitoring Result at Yung Shue Wan

15-Jan-13 Date

Date / Time	Location	Tide*	Co-or	dinates	Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pН	SS
Date / Time	Location	110e*	East	North	m	m	ರೆ	mg/L	%	NTU	ppt	unit	mg/l
						1.000	17.56	8.12	104.8	1.10	34.87	7.99	5.5
2013/1/15 14:49	WY1	ME	829176	809555	4.3	1.000	17.57	8.20	106.0	1.50	34.96	7.93	5.5
			023170	669555	5	3.300	17.59	8.51	110.2	1.10	35.20	7.87	4.5
						3.300	17.56	8.63	111.7	11.10	35.25	7.83	
						1.000	17.29 17.28	8.63 8.66	109.6 111.4	2.20	33.09 35.24	7.61 7.64	4.8
						3,950	17.28	8.00	111.4	1.80	35.24	7.63	
2013/1/15 15:04	WY2	ME	828987	810391	7.9	3,950	17.29	8,93	114.9	1.80	35.24	7.63	3.4
						6.900	17.32	8.66	111.5	2.10	35.31	7.63	
						6,900	17.32	8,69	112.0	2,30	35,31	7.64	4.3
						1,000	17.61	8.31	107.6	1.00	35.23	7.73	
0040/4/45 44:50	******) m	020102	000007	1.6	1.000	17.59	8.50	110.0	1.20	35.25	7.71	3
2013/1/15 14:56	WY3	ME	829193	809837	4.6	3.600	17.57	8.73	113.0	0.90	35.31	7.69	6,3
						3.600	17.57	8.73	113.0	1.10	35.33	7.69	0.5
						1.000	17.45	8.50	109.7	2.40	35.15	7.63	2.8
						1.000	17.46	8.48	109.4	2.30	35.16	7.63	2.0
2013/1/15 15:16	CY1	ME	828407	810829	12.4	6.200	17.17	8.49	109.0	2.10	35.21	7.61	3.7
	CII	IVIL	020107	010027	12.4	6.200	17.17	8.51	109.2	2.30	35.21	7.58	217
						11.400	17.17	8.36	107.4	2.20	35.30	7.61	3,3
						11.400	17.16	8.42	108.2	2.00	35.31	7.58	
						1.000	17.42	7.83	100.9	2.50	35.14	7.68	3.4
						1.000	17.39 17.20	8.00	103.1 101.2	2.40	35.17	7.66	
2013/1/15 15:38	CY2	ME	828027	808823	16.3	8.150 8.150	17.20	7.87 7.80	101.2	2.40	35.27 35.29	7.62 7.65	3.5
						15.300	17.29	7.81	100.4	2.40	35.33	7.64	
						15.300	17.20	7.81	99.3	2.70	33,60	7.61	4.4
						13,300	17.20	7.01	77.5	2.70	33.00	7.01	
						1,000	17.60	7,68	99.5	1.60	35.27	7,65	_
00101115 1001						1,000	17.63	7.76	100.6	1.00	35,27	7.65	5
2013/1/15 10:31	WY1	MF	829177	809559	5.3	4.300	17.48	7.97	103.0	0.80	35.32	7.66	4.1
						4.300	17.48	8.03	103.7	0.30	35.33	7.66	4.1
						1.000	17.43	8.29	106.9	0.80	35.09	7.63	3,6
						1.000	17.43	8.41	108.5	0.70	35.11	7.63	5.0
2013/1/15 10:14	WY2	MF	829007	810395	9.2	4.600	17.43	8.67	111.8	0.60	35.19	7.63	3
	"12	1411	027007	010373	7.2	4.600	17.45	8.75	112.9	0.80	35.16	7.63	
						8.200	17.43	8.69	111.8	3.50	34.65	7.61	3
						8.200	17.45	8.66	111.8	3.60	35.20	7.62	
						1.000	17.52	7.95	102.7	0.80	35.20	7.65	2.4
2013/1/15 10:24	WY3	MF	829213	809827	5.6	1.000 4.600	17.55 17.45	8.02 8.42	103.7 108.8	0.50	35.21 35.30	7.65 7.66	
		1				4.600	17.45	8.42	108.8	0.80	35.29	7.65	2.7
						1,000	17.47	8.81	113.3	0.80	34.93	7.73	
						1.000	17.39	9,02	115.5	0.30	35.02	7.74	5.1
00101115 10 -:	2774		00011	010015	10.6	6.800	17.32	9.12	117.4	0.20	35.02	7.74	
2013/1/15 10:01	CY1	MF	828416	810817	13.6	6.800	17.31	9.17	118.0	0.80	35.09	7.75	10.6
						12.600	17.26	9.12	117.3	0.70	35.14	7.75	10.0
						12.600	17.24	9.17	117.5	0.30	34.75	7.73	10.2
						1.000	17.12	9.27	118.5	2.30	34.62	7.76	4.2
		l				1.000	17.12	9.44	120.7	2.00	34.64	7.72	4.2
2013/1/15 9:41	CY2	MF	828017	808823	18.7	9.350	17.14	9.56	122.3	1.40	34.79	7.75	4.4
2010/1/10 0.41	C12	1011	020017	000023	10.7	9.350	17.13	9.56	122.3	1.40	34.82	7.73	7.7
						17.700	17.24	9.53	122.2	1.60	34.92	7.76	8.2
						17.700	17.24	9.57	122.8	1.60	34.87	7.75	5.2



Marine Water Quality Monitoring Result at Yung Shue Wan

17-Jan-13 Date

Date / Time	Location	Tide*	Co-on	dinates	Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pН	SS
Date / Time	Location	110E	East	North	m	m	ဇ	mg/L	%	NTU	ppt	unit	mg/l
						1.000	17.64	7.76	100.3	1.80	34.92	7.99	
2013/1/17 16:05	WY1	ME	829176	809550	4.4	1.000	17.65	8.39	108.6	1.50	35.03	7.93	6.6
2013/1/17 10.03	WII	NE	829170	809330	4.4	3.400	17.57	8.87	114.8	0.80	35.25	7.85	6.5
						3.400	17.56	8.94	115.7	0.40	35.28	7.82	0.5
						1.000	17.56	8.15	105.5	2.00	35.27	7.63	2.8
						1.000	17.56	8.76	113.3	1.90	35.29	7.62	2.0
2013/1/17 16:19	WY2	ME	829006	810409	7.6	3.800	17.57	8.17	105.8	2.20	35.29	7.66	5.5
2010/1/11 10:10	"12	IVIL	023000	010407	7.0	3.800	17.56	8.31	107.5	1.90	35.29	7.66	5.5
						6.600	17.33	8.33	107.4	1.80	35.29	7.62	4.6
						6.600	17.36	8.32	107.2	1.90	35.30	7.68	110
						1.000	17.75	7.09	92.1	1.10	35.31	7.75	7
2013/1/17 16:11	WY3	ME	829211	810414	4.5	1.000	17.77	7.26	94.4	1.00	35.32	7.74	
						3.500	17.69	8.33	108.2	1.40	35.35	7.72	6
						3.500	17.69	8.38	108.7	1.20	35.36	7.72	
						1.000	17.46	7.65	98.8	2.50	35.21	7.65	3.6
						1.000	17.43	7.88	101.6	2.50	35.23	7.61	
2013/1/17 16:31	CY1	ME	828413	810821	12.8	6.400	17.43	8.24	104.9	2.40	33.10	7.63	3.2
						6.400	17.43	8.28	105.5	2.50	33.15	7.63	-
						11.800	17.40	8.17	105.5	1.10	35.40	7.65	2.7
						11.800	17.40	8.18	105.7	2.20	35.42	7.65	
						1.000	17.47	7.25	93.7	2.60	35.23	7.67	3.7
						1.000	17.49	7.16	92.4	2.60	35.23	7.64	
2013/1/17 16:53	CY2	ME	828027	808813	15.9	7.950	17.39	7.27	93.9	2.40	35.31	7.63	4.9
						7.950	17.38	7.25	93.4	2.50	35.32	7.60	
						14.900	17.38	7.07	91.3	1.30	35.36	7.63	5.2
						14.900	17.36	7.13	90.7	2.60	33.17	7.60	
						1,000	17.61	8,24	106.5	1.00	35.01	7,55	
						1,000	17.60	8.34	107.9	0.80	35.04	7.55	4.1
2013/1/17 11:18	WY1	MF	829172	809559	5.1	4.100	17.42	9,00	116.0	1.30	35.05	7,57	
						4.100	17.40	8,96	115.3	1.10	35.07	7.56	3.3
	1					1,000	17.75	8.86	114.8	1.10	34.97	7.69	
						1.000	17.81	8.83	114.6	0.90	34.96	7.67	2.8
2013/1/17 11:00	WINZO) m	020012	010407	0.7	4.350	17.53	8.87	114.6	0.70	34.99	7.66	2.9
2013/1/17 11:00	WY2	MF	829013	810407	8.7	4.350	17.53	8.95	115.5	1.40	34.99	7.65	2.9
						7.700	17.54	8.93	115.3	0.70	35.00	7.63	6,9
	<u></u>					7.700	17.54	8.92	115.2	1.30	35.00	7.62	0.9
						1.000	17.60	8.25	106.7	1.20	35.03	7.56	4
2013/1/17 11:12	WY3	MF	829216	809832	5,3	1.000	17.69	8.34	108.0	1.30	35.02	7.56	4
2010/1/1/ 11.12	WID	1011.	029210	007032	5.5	4.300	17.53	8.60	111.2	1.00	35.04	7.56	6
						4.300	17.53	8.76	113.0	1.20	35.05	7.56	U
						1.000	18.05	8.67	112.9	1.60	34.69	7.56	3.8
	1	1				1.000	17.71	8.79	113.8	1.30	34.66	7.56	5.0
2013/1/17 10:46	CY1	MF	828415	810822	13.6	6.800	17.47	8.96	115.3	1.60	34.78	7.50	4.7
2010/1/17 10:40	CII	1411	020413	010022	15.0	6.800	17.47	9.01	116.0	1.50	34.78	7.49	7.7
	1	1				12.600	17.47	8.92	115.0	1.50	34.86	7.47	5.8
	.					12.600	17.46	8.95	115.2	2.50	34.91	7.46	5.0
		1				1.000	17.37	7.97	102.0	2.20	34.11	7.63	4.2
	1	1				1.000	17.38	8.08	104.1	2.10	35.06	7.64	712
2013/1/17 11:31	CY2	MF	828023	808809	17.8	8.900	17.31	8.39	107.9	2.20	35.10	7.62	4.2
	C12	1411	020023	606609	17.0	8.900	17.30	8.40	108.0	2.40	35.12	7.63	712
	1	1				16.800	17.19	8.42	107.1	5.20	33.67	7.59	7.2
	1					16.800	17.21	8,30	106.7	5.10	35.19	7.60	7.2



Marine Water Quality Monitoring Result at Yung Shue Wan

19-Jan-13 Date

Date / Time	T	775.3.4	Co-or	dinates	Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pН	SS
	Location	Tide*	East	North	m	m	ဗ	mg/L	%	NTU	ppt	unit	mg/
						1.000	17.24	8.37	107.6	4.30	35.26	7.62	8,4
2013/1/19 17:08	WY1	ME	829177	809552	4.6	1.000	17.22	8.52	108.8	1.90	34.29	7.58	0.4
						3.600	17.24	8.50	109.3	1.70	35.34	7.47	8
					-	3.600 1.000	17.23 17.39	8.51 8.03	109.4 103.6	4.40 1.70	35.34 35.29	7.45 7.34	
						1.000	17.39	8.03	105.0	1.70	35.29	7.35	5.3
						4.250	17.25	8.67	111.6	1.30	35.35	7.40	
2013/1/19 17:24	WY2	ME	829010	810387	8.5	4.250	17.26	8.69	111.8	1.30	35.35	7.40	5.8
						7.500	17.22	8.65	111.2	1.10	35.37	7.39	-
						7.500	17.21	8.74	111.3	1.20	33.61	7.42	4.5
						1.000	17.44	7.81	100.8	1.50	35.33	7.34	4.3
2013/1/19 17:15	WY3	ME	829213	809832	4.7	1.000	17.43	7.92	102.3	1.40	35.34	7.33	4.4
2010/1/10 17:10	**15	IVIL	027213	007032	4.7	3.700	17.28	8.69	110.4	1.40	33.18	7.33	5
						3.700	17.28	8.62	111.0	1.10	35.36	7.33	
						1.000	17.63	5.20	67.3	1.40	35.15	7.42	3.:
						1.000	17.62	8.50	110.0	1.40	35.24	7.42	<u> </u>
2013/1/19 17:35	CY1	ME	828417	810813	12.8	6.400 6.400	17.27 17.30	8.38 8.45	107.8 108.8	1.60	35.32 35.34	7.45 7.43	3.
						11.800	17.28	8.45	108.8	0.90	35.34	7.48	
						11.800	17.30	8.50	109.1	0.90	35.40	7.49	6.
						1.000	17.34	7.28	93.8	2.10	35.10	7.73	1
						1.000	17.40	7.31	93.0	1.90	33.01	7.67	- 5
00101110 17 57	2772				45.0	8,900	17.30	7.70	99.3	1.30	35.35	7.65	
2013/1/19 17:57	CY2	ME	828019	808812	17.8	8.900	17.29	7.76	99.9	1.20	35.40	7.64	4.
						16.800	17.30	7.78	100.3	1.90	35.45	7.66	4.
						16.800	17.31	7.78	100.3	1.80	35.47	7.66	4.
						1.000	17.12	7.25	93.0	1.80	35.14	7.79	
2013/1/19 11:11	11/1/1	\ m	0201770	000556	<i>5</i> 0	1.000	17.13	8.31	106.6	1.70	35.21	7.78	4.:
2013/1/19 11:11	WY1	MF	829173	809556	5.3	4.300	17.08	8.46	108.6	1.70	35.33	7.77	4.
						4.300	17.09	8.46	108.5	1.20	35.32	7.78	4.
						1.000	17.14	8.28	106.3	1.30	35.28	7.79	5.3
						1.000	17.13	8.35	107.2	1.00	35.29	7.76	
2013/1/19 11:36	WY2	MF	829018	810413	9.4	4.700	17.10	8.36	107.3	1.40	35.34	7.74	4.0
						4.700	17.09	8.48	107.5	1.20	33.49 33.37	7.74	
						8.400 8.400	17.04	8.48 8.34	107.4 107.0	1.40	35.38	7.73 7.74	5.
						1.000	17.04	8,46	107.0	1.10	35.32	7.78	
						1.000	17.15	8,50	109.2	1.40	35.31	7.78	6.0
2013/1/19 11:21	WY3	MF	829205	809843	5.5	4,500	17.10	8.50	109.0	1.40	35.33	7.77	
						4,500	17.11	8.50	109.2	1.40	35,34	7.77	5.
						1.000	17.18	8.22	105.6	1.40	35.32	7.76	_
						1.000	17.12	8.32	106.8	1.50	35.33	7.75	5
2013/1/19 11:54	CY1	MF	828406	810822	13.7	6.850	17.06	8.35	107.1	1.50	35.36	7.71	4.:
2013/1/19 11:54	CII	MF	828406	810822	13.7	6.850	17.07	8.31	106.6	1.50	35.38	7.71	4.
						12.700	17.09	8.26	105.9	1.40	35.40	7.74	5.
						12.700	17.08	8.26	105.9	1.30	35.41	7.74	J.,
						1.000	17.17	8.27	106.2	1.70	35.35	7.74	3.
						1.000	17.16	8.29	106.4	1.70	35.35	7.74	<u> </u>
	CY2	MF	828015	808821	19.2	9.600	17.07	8.22	105.5	1.50	35.41	7.70	3.
2013/1/19 12:17						9.600 18.200	17.05 17.15	8.31 8.14	105.3 104.6	1.80	33.37 35.44	7.71 7.73	
2013/1/19 12:17													



Marine Water Quality Monitoring Result at Yung Shue Wan

21-Jan-13 Date

Date / Time	Location	Tide*	Co-or	linates	Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pН	SS
Date / Time	Location	110e*	East	North	m	m	ဗ	mg/L	%	NTU	ppt	unit	mg/l
						1.000	17.36	8.32	107.1	0.60	35.16	7.95	5.6
2013/1/21 13:17	WY1	ME	829176	809553	4.5	1.000	17.38	8.72	112.5	1.20	35.28	7.90	5.0
			023170	003223	5	3.500	17.19	8.79	113.0	1.20	35.48	7.75	5.8
						3.500	17.18	8.88	114.3	1.50	35.55	7.72	
						1.000	17.49	8.94	115.8	1.50	35.73	7.66	3.5
						1.000 3.950	17.43 17.05	9.19 9.74	118.9 125.2	1.50 1.30	35.73 35.78	7.65 7.60	
2013/1/21 12:58	WY2	ME	829011	810408	7.9	3,950	17.03	9.74	125.2	1.20	35.77	7.60	2.8
						6.900	17.04	9.70	123.4	1.40	34.06	7.59	
						6,900	17.07	9,73	123.8	1,20	33,95	7,59	6.2
						1,000	17.34	8.53	110.2	1.50	35.82	7.68	
0040/4/04 40:40	******) m	020212	000055		1.000	17.28	8.88	114.7	1.20	35.81	7.64	4.5
2013/1/21 13:10	WY3	ME	829212	809855	4.7	3.700	17.15	9.30	119.8	1.60	35.84	7.62	5.3
						3.700	17.16	9.36	120.6	1.20	35.81	7.59	3.3
						1.000	17.33	9.21	119.0	1.40	35.73	7.68	3
						1.000	17.30	9.33	120.5	1.80	35.70	7.67	,
2013/1/21 12:46	CY1	ME	828423	810819	12,3	6.150	16.99	9.64	123.8	1.60	35.81	7.67	3,6
2010/1/21 12:10	CII	IVIL	020423	010017	12.3	6.150	16.98	9.63	123.7	1.30	35.81	7.64	5.0
						11.300	16.98	9.52	122.4	0.90	35.95	7.62	1.7
						11.300	16.98	9.48	121.9	0.90	36.01	7.62	
						1.000	17.31	8.96	115.7	3.10	35.75	7.77	4.4
						1.000	17.31	9.12	117.8	2.80	35.76	7.75	
2013/1/21 13:31	CY2	ME	828017	808811	17.2	8.600 8.600	17.31 17.31	9.54 9.59	123.2 124.0	2.70 3.00	35.84 35.84	7.71 7.70	4.4
						16.200	17.31	9.59	124.0	2.90	35.84	7.70	
						16,200	17.29	9.59	124.0	2.90	36.01	7.69	3
						10.200	17.27	7.00	124.1	2.70	50.01	7.09	
						1,000	17.43	9.59	124.0	0.40	35.50	7.51	
00404404 47.00						1,000	17.39	9.83	127.0	0.50	35,51	7.51	4.7
2013/1/21 17:06	WY1	MF	829174	809550	5.5	4.500	17.29	9.40	121.1	0.90	35.52	7.46	()
						4.500	17.27	9.49	122.2	3.20	35.52	7.47	6.2
						1.000	17.40	9.16	118.4	0.90	35.62	7.63	5,8
						1.000	17.31	8.91	114.1	0.70	34.31	7.59	3.6
2013/1/21 17:21	WY2	MF	829005	810413	9.2	4.600	17.12	9.44	121.4	1.20	35.63	7.49	3.7
2010/1/21 11:21	W 12	IVII	62,7003	010415	7.2	4.600	17.05	9.51	122.2	1.20	35.66	7.45	211
						8.200	17.07	9.59	123.1	1.60	35.63	7.43	3,6
						8.200	17.07	9.59	123.2	1.40	35.64	7.42	
						1.000	17.69	8.65	112.4	0.60	35.51	7.61	4.1
2013/1/21 17:14	WY3	MF	829206	809847	5.7	1.000 4.700	17.33 17.15	8.87 9.64	114.4 123.9	0.70 1.30	35.56 35.55	7.56 7.44	
						4.700	17.15	9.64	123.9	0.80	35.54	7.44	6
						1,000	17.13	9.32	120.3	0.70	35.71	7.54	
	1					1,000	17.31	9.32	120.3	0.70	35.70	7.52	3
						6.950	17.15	9,50	122.3	1.20	35.70	7.40	
2013/1/21 17:32	CY1	MF	828417	810824	13.9	6.950	17.17	9.46	121.9	1.30	35.74	7.40	3.8
	1					12.900	17.00	9.42	121.1	3.30	35.84	7.34	2.7
	1	1				12.900	17.01	9.32	119.8	2.30	35.85	7.31	2.7
						1.000	17.94	8.79	114.5	1.50	35.16	7.57	3.7
	I	l				1.000	17.88	8.92	116.3	1.40	35.52	7.56	5.1
2013/1/21 17:54	CY2	MF	828025	808817	19	9.500	16.94	9.07	115.1	0.80	33.95	7.46	3
2010/1/21 17:04	C12	1011	020023	000017	19	9.500	16.94	9.05	114.8	0.90	34.00	7.45	,
	1					18.000	17.00	8.82	113.1	2.00	35.68	7.43	5.5
						18.000	17.00	8.81	113.1	1.10	35.69	7.42	3.5



Marine Water Quality Monitoring Result at Yung Shue Wan

23-Jan-13 Date

Date / Time	Taratian	Tide*	Co-or	linates	Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pН	SS
Date / Time	Location	110e*	East	North	m	m	ဗ	mg/L	%	NTU	ppt	unit	mg/l
						1.000	17.34	7.72	99.4	1.20	35.11	7.99	4.2
2013/1/23 17:15	WY1	ME	829172	809558	4.6	1.000	17.34	7.88	101.6	1.20	35.24	7.95	1.2
						3.600	17.34	8.12	104.8	1.10	35.51	7.89	5
						1,000	17.34 17.38	8.16 8.14	105.3 104.2	1.40	35.56 33.99	7.88 7.73	
						1,000	17.38	8,34	104.2	1.40	35.53	7.74	3.5
						3,900	17.33	8,55	110.4	0.80	35.57	7.73	
2013/1/23 17:30	WY2	ME	829003	810396	7.8	3,900	17.36	8,57	110.6	1.70	35,58	7.73	2.2
						6.800	17.35	8.49	109.7	1.70	35.61	7.76	2.0
						6.800	17.36	8.33	107.5	1.70	35.62	7.76	2.8
						1.000	17.33	7.15	92.2	1.00	35.59	7.77	1.3
2013/1/23 17:23	WY3	ME	829213	809842	4.8	1.000	17.33	7.54	97.3	0.90	35.59	7.76	1.5
2010/1/20 11:20	"15	IVIL	027213	007042	4.0	3.800	17.31	8.25	106.4	0.70	35.66	7.76	5.4
						3.800	17.29	8.37	106.6	0.90	33.54	7.73	
						1.000	17.50	7.73	100.0	2.20	35.35	7.72	0.5
						1.000 6.400	17.50 17.28	7.81 7.98	100.9 102.8	2.20	35.36 35.47	7.71 7.73	
2013/1/23 17:40	CY1	ME	828421	810817	12.8	6,400	17.28	8,20	102.8	1.90	35.47	7.73	2.1
						11.800	17.44	7,95	102.9	1.40	35.83	7.74	
						11.800	17.42	8.03	102.7	1.20	33.75	7.72	1.9
						1,000	17.35	7.16	92.3	2.60	35.35	7.76	
						1,000	17.35	7.17	92.4	2.50	35.35	7.75	2.3
						7.850	17.32	7.59	97.9	2,50	35.50	7.74	
2013/1/23 17:58	CY2	ME	828020	808815	15.7	7.850	17.32	7.64	98.5	2.60	35.55	7.74	3.2
						14.700	17.32	7.33	94.6	2,60	35.70	7.75	
						14.700	17.35	7.30	94.3	2.50	35.73	7.76	2.9
						1.000	17.16	8.29	105.5	2.20	33.72	7.82	3
2013/1/23 10:09	WY1	MF	829178	809557	5.1	1.000	17.16	8.23	104.6	2.20	33.64	7.82	,
2013/1/23 10.09	W 1 1	IVII.	029170	009337	5.1	4.100	17.20	8.14	104.5	2.10	35.09	7.83	2.6
						4.100	17.18	8.14	104.5	2.60	35.12	7.82	2.0
						1.000	17.24	7.49	96.2	1.10	34.99	7.75	4.3
						1.000	17.24	7.57	97.2	1.10	34.99	7.74	11.5
2013/1/23 10:30	WY2	MF	829015	810411	8.3	4.150	17.21	7.80	100.1	1.10	35.04	7.72	4.9
						4.150	17.19 17.15	7.84	100.5 96.3	1.00	35.04	7.72	
						7.300 7.300	17.15	7.51 7.54	96.3	1.40	35.07 35.07	7.70 7.72	4.4
						1,000	17.10	7.62	97.8	1.40	34.97	7.72	
						1,000	17.24	7.52	96.6	1.20	34.97	7.78	6.3
2013/1/23 10:19	WY3	MF	829207	810406	5.2	4,200	17.24	7.96	102.2	1.20	35.03	7.74	
						4,200	17.20	7.82	100.3	1.10	35.03	7.73	4.9
						1,000	17.25	6,97	89.5	1,50	34.97	7.73	
	1	1				1.000	17.25	7.21	92.6	1.50	34.96	7.73	2.9
2013/1/23 10:45	CY1	ME	929416	010022	12.6	6.800	17.25	7.35	94.3	1.60	34.99	7.73	3
2013/1/23 10.45	CTI	MF	828416	810823	13.6	6.800	17.27	7.36	94.6	1.70	34.98	7.74	د
	1	1				12.600	17.32	7.35	94.7	1.40	35.26	7.75	4,5
						12.600	17.29	7.33	94.4	1.30	35.32	7.74	4.5
		l				1.000	17.91	6.77	88.0	1.60	34.93	7.77	2.7
	1	1				1.000	17.71	6.88	89.1	1.40	34.87	7.77	2.7
2013/1/23 11:06	CY2	MF	828027	808809	17.9	8.950	16.97	6.99	89.3	1.90	35.01	7.74	4.8
	C12	1411	-020027	-000009	17.5	8.950	16.98	7.02	89.7	1.60	35.04	7.75	
	1					16.900	17.21	6.84	87.9	1.10	35.30	7.75	3.8
						16.900	17.20	6.92	89.0	1.20	35.30	7.74	l



Marine Water Quality Monitoring Result at Yung Shue Wan

Date 25-Jan-13

Date / Time	Location	Tide*	Co-or	dinates	Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
Date / Time	LACALION	1100	East	North	m	m	ဇ	mg/L	%	NTU	ppt	unit	mg/l
						1.000	17.62	7.02	90.8	2.10	35.11	7.68	2.4
2013/1/25 12:03	WY1	ME	829176	809551	4.4	1.000	17.67	7.10	92.0	1.20	35.10	7.66	3.4
2010/1/20 12.00	WII	IVIL	829170	009331	4.4	3.400	17.52	8.00	102.5	1.70	33.81	7.65	4
						3.400	17.55	8.03	103.7	0.80	35.08	7.66	4
						1.000	17.78	7.77	100.9	0.30	35.11	7.55	3,5
						1.000	17.78	7.63	99.1	1.60	35.12	7.52	5.5
2013/1/25 11:42	WY2	ME	829016	810403	7.9	3.950	17.60	8.17	105.8	2.00	35.14	7.54	3.1
						3.950	17.58	8.21	106.2	2.00	35.14	7.54	
						6.900	17.44	8.52	108.6	0.70	33.16	7.54	2.5
						6.900	17.47 17.81	8.33 7.28	107.5 94.5	1.20	35.20 35.00	7.55 7.74	
						1.000	17.81	7.28	94.5	1.80 2.20	35.00 35.04	7.74	3.4
2013/1/25 11:56	WY3	ME	829203	809832	4.5	3,500	17.66	8.13	105,3	1.60	35.04	7.71	
						3,500	17.75	8.13	105.4	1.00	35.10	7.66	3
						1.000	17.52	8.59	110.9	1.60	35.10	7.53	
						1.000	17.57	8.52	110.9	1.50	35.10	7.46	< 0.5
						6.200	17.28	8.68	110.8	1.30	33.81	7.36	1
2013/1/25 11:27	CY1	ME	828408	810813	12.4	6.200	17.22	8.68	111.5	1.20	35.17	7.32	3.1
						11,400	17.15	8.60	110.4	1.40	35.40	7.24	
						11.400	17.15	8.52	109.5	1.90	35.44	7.23	2.7
						1.000	17.95	6,68	86.8	1.80	34,85	7.93	
						1.000	17.62	6,56	84.0	1.40	33.42	7.85	5.2
00404405 4040	27.72				4.50	7.900	17.19	6.81	87.4	1.20	35.08	7.73	
2013/1/25 12:18	CY2	ME	828023	808820	15.8	7.900	17.19	6.85	88.0	0.60	35.07	7.70	6.3
						14.800	17.16	6.82	87.5	0.40	35.21	7.65	7.1
						14.800	17.16	6.82	87.6	1.60	35.22	7.66	7.1
						1.000	17.88	7.66	99.5	2.70	34.97	7.74	2.2
2013/1/25 16:00	WY1	MF	829177	809550	5.1	1.000	17.89	7.66	99.5	2.80	34.97	7.75	2.2
2010/1/20 10:00	W 1 1	IVII.	029177	009330	5.1	4.100	17.76	8.57	111.2	2.50	35.00	7.74	9.8
						4.100	17.76	8.60	111.5	1.80	35.00	7.73	7.0
						1.000	17.97	7.01	91.2	3.30	34.89	7.64	3,3
						1.000	18.06	6.88	89.6	2.60	34.85	7.68	5.5
2013/1/25 16:15	WY2	MF	829016	810409	8.7	4.350	17.56	7.92	102.2	3.40	34.94	7.69	3,4
						4.350	17.54	7.99	103.2	2.20	34.95	7.69	
						7.700	17.30	8.16	104.9	1.40	35.00	7.66	5
						7.700	17.32	8.07	103.8	2.20	35.00	7.67	
						1.000	17.77	7.23	93.7	0.80	34.90 34.91	7.64	6.7
2013/1/25 16:07	WY3	MF	829212	809838	5.3	1.000 4.300	17.84 17.65	7.26 8.06	94.3 104.3	2.50	34.91	7.63 7.68	1
						4.300	17.65	8.00	104.3	2.50	34.98	7.68	8.6
	ł — — —					1,000	17.46	7.19	92.6	4.00	34.99	7.69	1
						1.000	17.46	7.19	92.0	4.00	34.93	7.66	2.9
						6.600	17.20	7.17	94.8	4.10	34.98	7.66	
		MF	828020	808814	13.2	6.600	17.24	7.41	95.1	4.20	34.97	7.70	3.8
2013/1/25 16:26	CY1					12,200	17.24	7.41	94.3	5.00	35.04	7.70	1
2013/1/25 16:26	CYI					12,200							3.4
2013/1/25 16:26	CYI					12.200	17.26	7 32	94.1	5.00	35 04	7.68	
2013/1/25 16:26	CYI					12.200	17.26	7.32 7.82	94.1 101.0	5.00	35.04 34.56	7.68 7.70	
2013/1/25 16:26	CYI					1.000	17.68	7.82	101.0	1.60	34.56	7.70	1.5
						1.000 1.000		7.82 7.93			34.56 34.62	7.70 7.66	
2013/1/25 16:26 2013/1/25 15:41	CY1	MF	828019	808823	17.1	1.000	17.68 17.68	7.82 7.93 8.03	101.0 102.4	1.60 1.60	34.56	7.70 7.66 7.56	1.5 2.5
		MF	828019	808823	17.1	1.000 1.000 8.550	17.68 17.68 17.25	7.82 7.93	101.0 102.4 103.0	1.60 1.60 1.20	34.56 34.62 34.77	7.70 7.66	

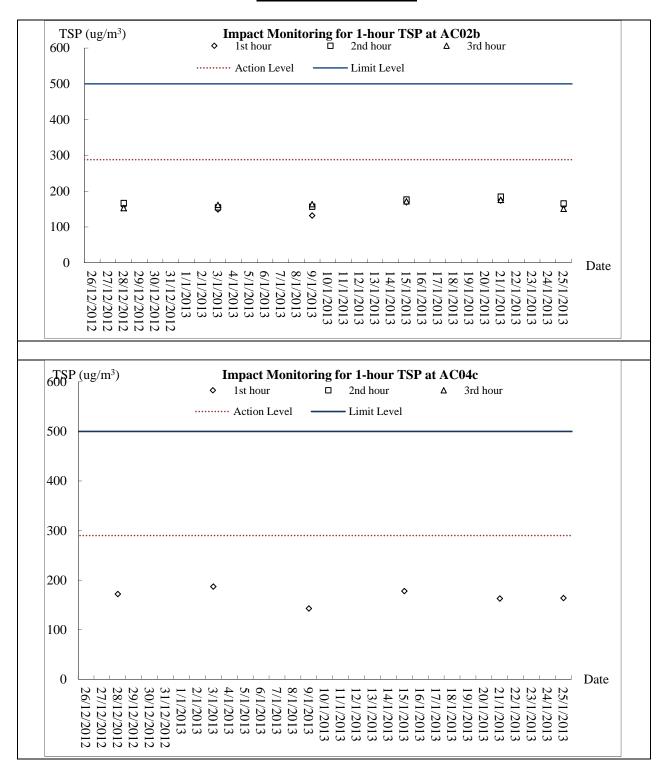


Appendix H

Graphical Plots of Monitoring Results

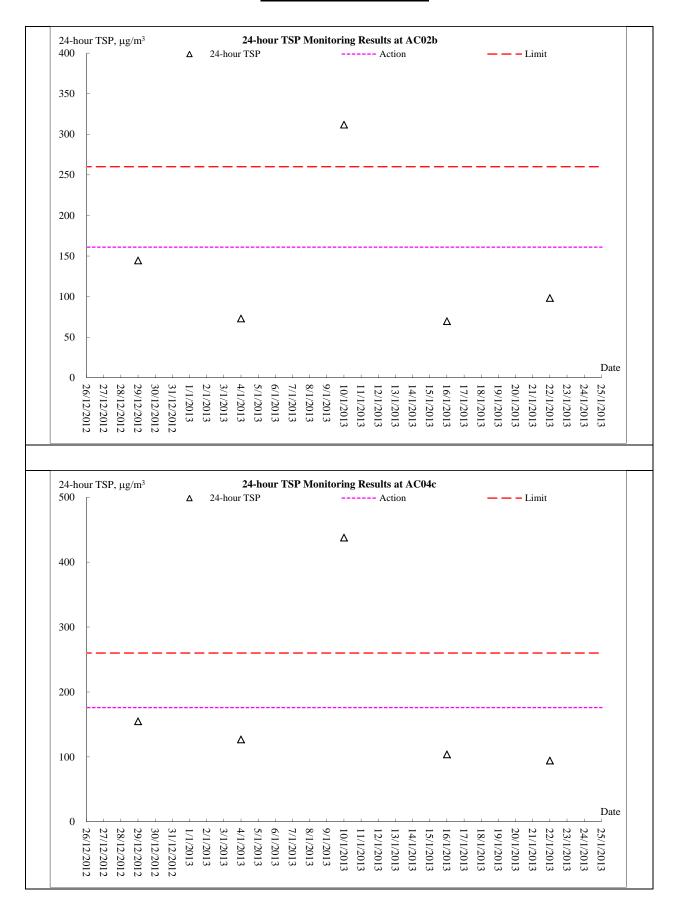


1-hour TSP Monitoring



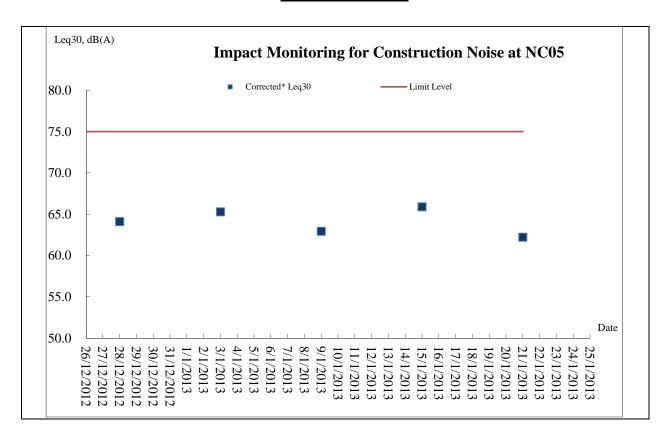


24-hour TSP Monitoring



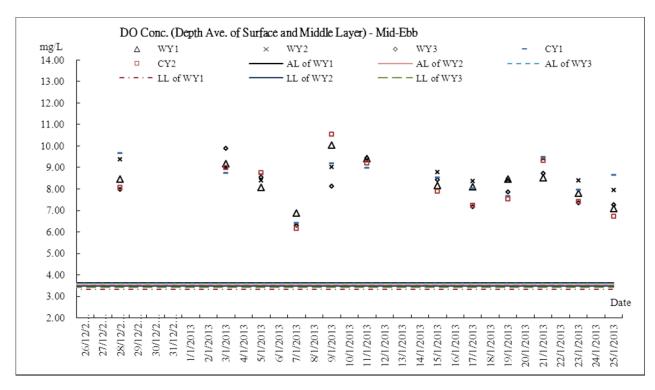


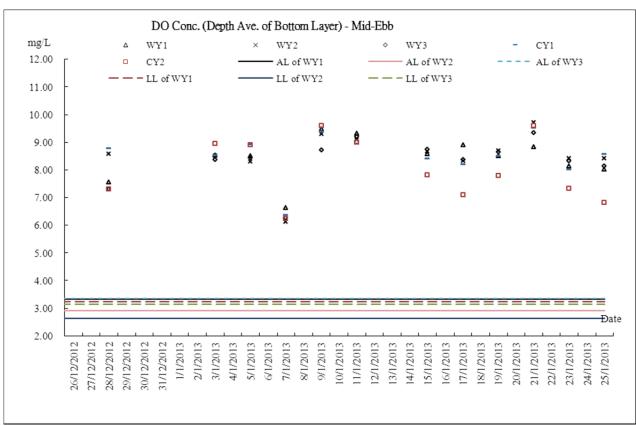
Noise Monitoring



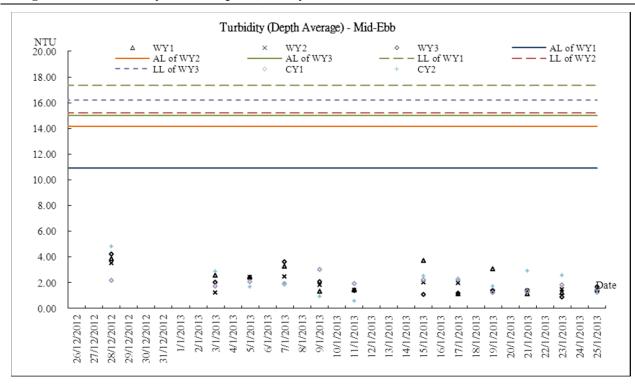


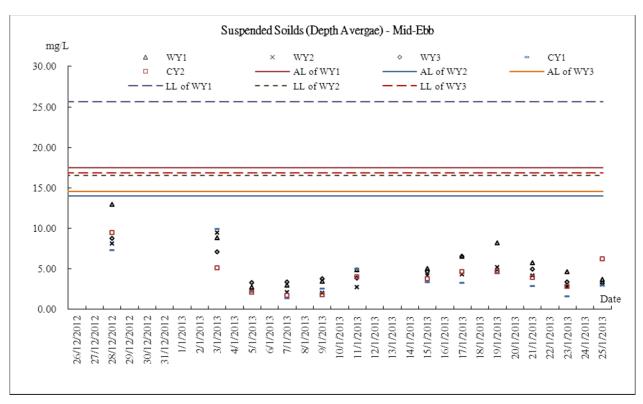
Marine Water Monitoring – Mid Ebb





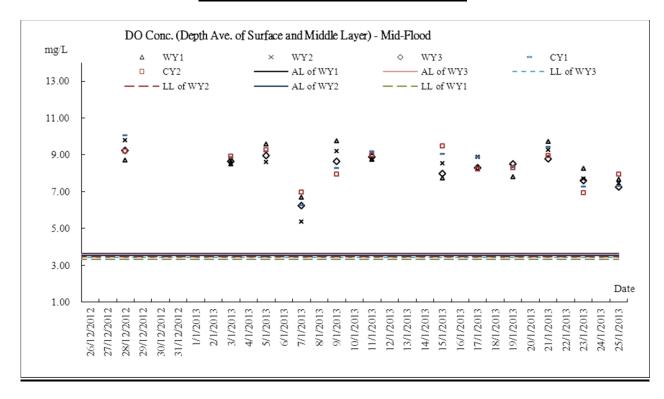


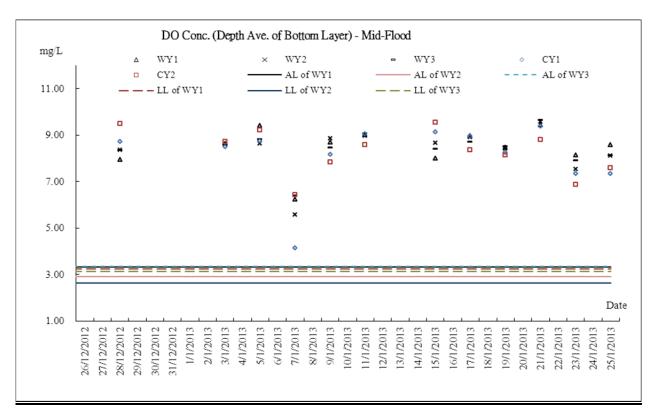




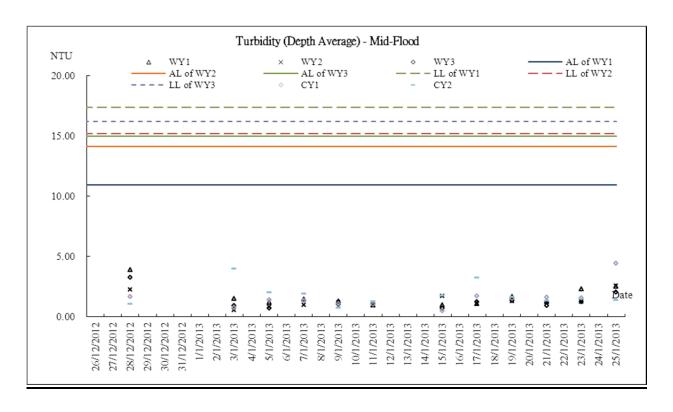


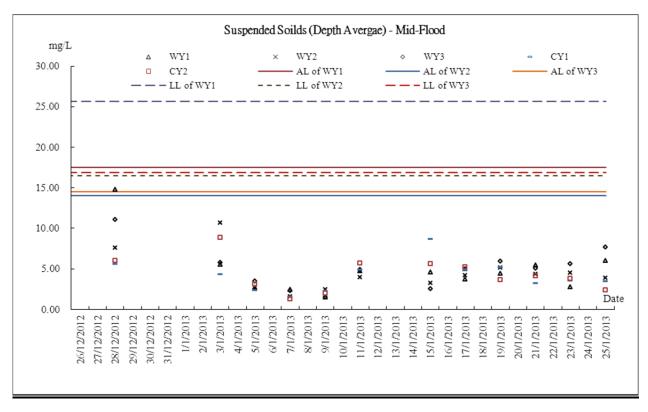
Marine Water Monitoring - Mid Flood













Appendix I

Meteorological Information



Meteorological Data Extracted from HKO during the Reporting Period

Date		Weather							
26-Dec-12	Wed	Fine, dry, cloudy, moderate northeasterly winds, fresh offshore.							
27-Dec-12	Thu	Fine, dry, cloudy, moderate northeasterly winds, fresh offshore.							
28-Dec-12	Fri	Sunny periods, cloudy, fresh easterly winds							
29-Dec-12	Sat	Sunny periods, cloudy, fresh easterly winds							
30-Dec-12	Sun	Fine, dry, cloudy, moderate northeasterly winds, fresh offshore.							
31-Dec-12	Mon	Fine, dry, cloudy, moderate northeasterly winds, fresh offshore.							
1-Jan-13	Tue	Sunny periods, cloudy, moderate to fresh north to northeasterly winds							
2-Jan-13	Wed	Sunny periods, cloudy, moderate east to northeasterly winds.							
3-Jan-13	Thu	Sunny periods, cloudy, moderate to fresh north to northeasterly winds							
4-Jan-13	Fri	Sunny periods, cloudy, moderate east to northeasterly winds.							
5-Jan-13	Sat	Sunny intervals, dry, haze, moderate north to northeasterly winds							
6-Jan-13	Sun	Sunny periods, cloudy, moderate to fresh north to northeasterly winds							
7-Jan-13	Mon	Sunny intervals, dry, haze, moderate north to northeasterly winds							
8-Jan-13	Tue	Sunny intervals, dry, haze, moderate north to northeasterly winds							
9-Jan-13	Wed	Sunny periods, cloudy, moderate east to northeasterly winds.							
10-Jan-13	Thu	Sunny periods, cloudy, moderate east to northeasterly winds.							
11-Jan-13	Fri	Dry, sunny periods, cloudy, moderate to fresh easterly winds.							
12-Jan-13	Sat	Sunny periods, cloudy, moderate east to northeasterly winds.							
13-Jan-13	Sun	Sunny intervals, dry, haze, moderate north to northeasterly winds							
14-Jan-13	Mon	Sunny periods, cloudy, moderate east to northeasterly winds.							
15-Jan-13	Tue	Dry, sunny periods, cloudy, moderate to fresh easterly winds.							
16-Jan-13	Wed	Sunny periods, cloudy, moderate east to northeasterly winds.							
17-Jan-13	Thu	Cloudy, haze, moderate to fresh easterly winds.							
18-Jan-13	Fri	Cloudy, haze, moderate to fresh easterly winds.							
19-Jan-13	Sat	Sunny periods, cloudy, moderate east to northeasterly winds.							
20-Jan-13	Sun	Dry, sunny periods, cloudy, moderate to fresh easterly winds.							
21-Jan-13	Mon	Dry, sunny periods, cloudy, moderate to fresh easterly winds.							
22-Jan-13	Tue	Cloudy, haze, moderate to fresh easterly winds.							
23-Jan-13	Wed	Sunny periods, cloudy, moderate east to northeasterly winds.							
24-Jan-13	Thu	Mainly fine, dry, moderate east to northeasterly winds.							
25-Jan-13	Fri	Dry, sunny periods, cloudy, moderate to fresh easterly winds.							



Appendix J

Monthly Summary Waste Flow Table

Contract No.:

DC/2009/13

Monthly Summary Waste Flow Table for January 2013

	Actual Quantities of Inert C&D Materials Generated Monthly Actual Quantities of C&D Wastes Generated Monthly																					
Month	Gene	Quantity erated +(d)+(e)	Large 1	crete	Reused Con	tract	Reused Proj	ects	Dispo Publi	c Fill		ted Fill f)	Ме	tals		per/ poard aging	Pla	stics		mical aste	Oth e.g. ru	ers, ıbbish
	(in '00	00m ³)	(in '00	00m ³)	(in '00	00m ³)	(in '00	00m ³)	(in '00	00m ³)	(in '0	00m ³)	(in '0	00kg)	(in '0	00kg)	(in '0	00kg)	(in '0	00kg)	(in to	onne)
	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW
2013	13.341	50.328	0.160	0.410	0.740	2.802	0.000	0.000	12.601	47.526	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	400.410	103.440
Jan	0.332	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.332	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.040	9.840
Feb																						
Mar																						
Apr																						
May																						
Jun																						
Sub-total	13.674	50.328	0.160	0.410	0.740	2.802	0.000	0.000	12.934	47.526	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	409.450	113.280
Jul																						
Aug																						
Sep																						
Oct																						
Nov																						
Dec																						
Total	13.674	50.328	0.160	0.410	0.740	2.802	0.000	0.000	12.934	47.526	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	409.450	113.280
Total	64.0	001	0.5	69	3.5	42	0.0	00	60.4	460	0.0	000	0.0	000	0.0	000	0.0	000	0.0	000	522.	730

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

YSW: Yung Shue Wan

SKW: Sok Kwu Wan



Appendix K

Weekly Site Inspection Checklist

Project: Date: PART A Weather Tempera: Humidit Wind:	Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan 27 December 2012 : GENERAL INFORMATION : Sunny Fine Cloudy ature 18.6 °C y: High Moderate Low Strong Breeze V Light	RE's F Contra IEC's Time: ON	T's Rep Represer actor's F Represe	lepresen:		Mr. S.M. 11:00	TCS51 la Hon k Kwai Mir Chan	2A-27 Dec 12
Area Ins	rpecieu Yung Shue Wan							
PART B	A Character Vas: Compliance: No: Non-Compliance;		Not	Yes	No	Follow Up	N/A	Photol Remarks
Note: F	ollow Up: Observations requiring follow-Up actions M/A: Not Application	le l	Obs.			υh		
	1: Water Quality s an effluent discharge license obtained for the Project?			\checkmark				
	is the effluent discharged in accordance with the discharge licen	ıce?		$\sqrt{}$				
1.03	Is the discharge of turbid water avoided?							
1.04	Are there proper desilting facilities in the drainage system reduce SS levels in effluent?			$\sqrt{}$				
4.05	Are there channels, sandbags or bunds to direct surface run-c sedimentation tanks?			\checkmark				
1.06	Are there any perimeter channels provided at site boundaries intercept storm runoff from crossing the site?	es to						
1.07	Is drainage system well maintained?						_ <u> </u>	
1.08	As excavation proceeds, are temporary access roads protected crushed stone or gravel?	ed by						
1.09	Are temporary exposed slopes properly covered?				<u></u> ,		ر ک	
1.10	Are earthworks final surfaces well compacted or protected?							
1.11	Are manholes adequately covered or temporarily sealed?			\square				
1.12	Are there any procedures and equipment for rainstorm protec	tion?		[<u>N</u>]		. \square		
1.13	Are wheel washing facilities well maintained?						$\overline{\checkmark}$	·
1.14	Is runoff from wheel washing facilities avoided?						\Box	
1.15	Are there toilets provided on site?			☑				
1.16	Are toilets properly maintained?	l within			 			
1.17	Are the vehicle and plant servicing areas paved and located roofed areas?	3 AAICH 113 (-
1.18		ing the						-
1.19	urarrage system:				- [_]			
1.20	Washings during concreting works.				<u> </u>			
1.21	Are there any oil interceptors/grease traps in the drainage s for vehicle and plant servicing areas, canteen kitchen, etc?	systems		-				

Environmental Team - Weekly Site Inspection and Audit Checklist - Tung Shue Walt

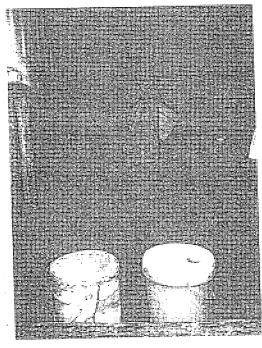
Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks	
	Are the oil interceptors/grease traps maintained properly?					\checkmark		
.1.22				П				
1.23	Is used bentonite recycled where appropriate? Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m3 capacities for sedimentation.							
1.25	No excavation is undertaken in the settlement area.					\square		
1.26	Concreting wastes water should be neutralized below the pH Action					\checkmark		
1.27	Levels before discharge. Mobile toilets should provide on site and located away the stream		\checkmark				,	
1.28	course. License collector should be employed for handling the sewage of		\checkmark					
1.29	mobile toilet. Is ponding /stand water avoided?		\checkmark					
	A.							
	on 2: Air Quality Are there wheel washing facilities with high pressure jets provided		П					
2.01	at every vehicle exit point? Are vehicles washed to remove any dusty materials from their							
	bodies and wheels before leaving construction sites? Are the excavated materials sprayed with water during handling?							
2.03	Are stockpiles of dusty materials sprayed with water, covered or					\checkmark		
2.05	placed in sheltered areas? Is the exposed earth properly treated within six months after the las	t 📑				$\overline{\checkmark}$		
2.06	construction activities? Are the access roads sprayed with water to maintain the entire road	=	\checkmark					
2.07	surface wet or paved? Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	9 🔲				\checkmark		•
2.08	Is the load on vehicles covered entirely by clean imperviou	s				\checkmark		-
2.09	sneeting?	il 🗌				V		-
2.10	Is the road leading to the construction site within 30m of the vehicle	le				\checkmark		_
2.1			\checkmark					
2.1	Are de-bagging hatching and mixing processes carried out	in				\checkmark		
2.1	Are site vehicles travelling within the speed limit not more the	an 🗌				\checkmark		
2.1	Are hoardings of not less than 2.4m high provided along the si	ite	\checkmark					_
2.1			\checkmark				-	_
2.1	Excavated materials from the stream must be removed from t	he ed				\checkmark		
Se	ction 3: Noise	*			_			
3.0	Are noisy equipment and activities positioned as far as practical from the sensitive receivers?	ble						
3.6	2 Is silenced equipment adopted?					\square		
3.	03 Is idle equipment turned off or throttled down?	\checkmark						
3.	O4 Are all plant and equipment well maintained and in good condition		$\overline{\checkmark}$] [] 			
3.	Are noise barriers or enclosures provided at areas wh construction activities cause noise impact on sensitive receivers	s? <u> </u>						
3	Of Are hand held breakers fitted with valid noise emission lat during operation?					\square		
3	Are air compressors fitted with valid noise emission labels du operation?	iring				\checkmark		

Envi	onmental Team - Weekly Site Inspection and Au	dit Ch∈	ecklist -	- Yung	Shue W	/an	
Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	οľί	Fellow . Up	N/A	Photol Remarks
3.08	Are flaps and panels of mechanical equipment closed during operation?			· 🔲		$\overline{\checkmark}$	
.09	Are Construction Noise Permit(s) applied for percussive piling works?				· 🔲	V - e-	
.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?					V	
.11	Are valid Construction Noise Permit(s) posted at site entrances?					$\overline{\checkmark}$	
.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).					<u> </u>	
.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)					<u> </u>	
.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).						
Secti	on 4: Waste/Chemical Management				· ·		
1.01	Waste Management Plan had been submit to Engineer for approval.		$\overline{\checkmark}$				
4.02	Are receptacies available for general refuse collection?		$\overline{\checkmark}$				
1.03	Is general refuse sorting or recycling implemented?		\checkmark		<u> </u>		
4.04	Is general refuse disposed of properly and regularly?		\checkmark				
4.05	Is the Contractor registered as a chemical waste producer?					\checkmark	
4.06	Are the chemical waste containers and storage area properly labelled?					\checkmark	
4.07	Are the chemical wastes stored in proper storage areas?						
4.08	Is the chemical container or equipment provided with drip tray?					\checkmark	
4.09	is the chemical waste storage area used for storage of chemical waste only?					\checkmark	
4.10	Are incompatible chemical wastes stored in different areas?					$\overline{\checkmark}$	
4.11	Are the chemical wastes disposed of by licensed collectors?					\checkmark	
4.12	Are trip tickets for chemical wastes disposal available for inspection?					\checkmark	
4.13	Are chemical/fuel storage areas bounded?					$\overline{\checkmark}$	
4.14	Are designated areas identified for storage and sorting of construction wastes?						
4.15	Are construction wastes sorted (inert and non-inert) on site?						
4,16	Are construction wastes reused?		\checkmark				***************************************
4.1	7 Are construction wastes disposed of properly?						
4.1	lustead of fumbers		\checkmark				
4.1	wastes and fecords available for inspection:	لـــا	\checkmark				
4.2	exists?	اا				A	-
4.2	excavated filaterials available for mapeonom:	. —				$\overline{\square}$	
4.2	provided for the site workers.		\checkmark				
4.2	Contaminated sediments will be managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.					\checkmark	

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

Remarks

Findings of Site Inspection (27 December 2012):



Follow up: (62 Jan 2013) Stagnant water in the Chemica Strage room was cleared.

My CHWONG 02 Jan 20

 Cumulated stagnant water was observed inside the chemical storage room, the Contractor should clean the cumulated water regularly.

IEC's representative	RE's representative	ET's representative	EO's representative	Contracto	r's representative
		A = A	,		
	A.		- (41)		12
			7 24		
()	(Kwok Kwai Ming)	(Nicola Hon)	(K.Y. S.)	()

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

AUES

Projec	-4·	TCS/00512/09		Inspected by				No. 103512A-2 Jan 2013			
riojec	,l		ge Treatment Works at		-	epresent	ative:	Ms. Ni	cola Hon		
		Yung Shue Wan and	Sok Kwu Wan			sentative			vok Kwai	Ming	
							entative:	Mr. S.	M. Chan		
D-4		2 January 2012		Tin	-	sentativ	s.	11:00			
Date:		2 January 2013			110.				nvironme	ntal Permit No.	
PART		D. D. D. D. D. D. D. D. D. D. D. D. D. D	GENERAL INFORMAT	ION	Rainy				- 282/2007		
Weat		Sunny	Fine Cloudy		Trainy						
;	eratur	18.6	<u></u>								
Humi	dity:	High	Moderate Low	_	٠						
Wind		Strong	Breeze ✓ Light		Caim	,					
Area i		ted Shue Wan									
PART	B:		SITE AUDIT								
Note:	Not O	bs.: Not Observed; Yes: Comp v Up: Observations requiring for	oliance; No : Non-Compliance; ollow-Up actions N/A : Not Applicabl	е	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks	
Sectio	n 1: V	Vater Quality						_			
1.01	is an	effluent discharge license	obtained for the Project?			\checkmark		Ш	U ₋		
1.02	Is the	effluent discharged in acco	ordance with the discharge licenc	ce?		\checkmark					
1.03	Is the	discharge of turbid water	avoided?			\checkmark					
1.04	redu	ce SS levels in effluent?	ilities in the drainage systems			\checkmark					
1.05		here channels, sandbags on nentation tanks?	or bunds to direct surface run-of	fto		\checkmark					
1.06	Are !		nels provided at site boundaries sing the site?	s to		\checkmark					
1.07	ls dr	ainage system well maintai	ned?			\checkmark					
1.08		xcavation proceeds, are te ned stone or gravel?	mporary access roads protected	l by					V		
1.09	Aref	emporary exposed slopes	properly covered?						\checkmark		
1.10	Are	earthworks final surfaces w	ell compacted or protected?			\checkmark					
1.11	Are	manholes adequately cover	red or temporarily sealed?			$\overline{\checkmark}$					
1.12	Are	here any procedures and e	equipment for rainstorm protection	n?		\checkmark	Ш		Ш		
1.13	Are	wheel washing facilities we	Il maintained?								
1.14	is ru	noff from wheel washing fa	cilities avoided?						\checkmark		
1.15	Are	there toilets provided on sit	e?								
1.16	Are	toilets properly maintained	?			\checkmark					
1.17		the vehicle and plant servi ed areas?	cing areas paved and located w	ithin					V		
1.18	is th	e oil/grease leakage or spil	llage avoided?							***************************************	
1.19	drai	nage system?	revent leaked oil from entering			$\overline{\checkmark}$					
1.20	Are was	there any measures to hings during concreting wo	collect spilt cement and cond rks?	rete		\checkmark					
1.21	Are	there any oil interceptors/g	rease traps in the drainage syst areas, canteen kitchen, etc?	ems					\checkmark		

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

AUES

		N-A			Follow		Photo/
Note:	Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Obs.	res	140	Up	WA	Remarks
1.22	Are the oil interceptors/grease traps maintained properly?						
1.23	Is used bentonite recycled where appropriate?						
1.24	Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m3 capacities for sedimentation.					\square	
1.25	No excavation is undertaken in the settlement area.					\square	
1.26	Concreting wastes water should be neutralized below the pH Action Levels before discharge.						
1.27	Mobile toilets should provide on site and located away the stream course.		\checkmark				
1.28	License collector should be employed for handling the sewage of mobile toilet.		\checkmark				
1.29	Is ponding /stand water avoided?						
Section	on 2: Air Quality						
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?					\square	
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?		\checkmark				
2.03	Are the excavated materials sprayed with water during handling?					\square	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?					\checkmark	
2.05	Is the exposed earth properly treated within six months after the last construction activities?					7	
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?		\checkmark				
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?						
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?						
2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?					<u> </u>	
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?						
2.11	Is dark smoke emission from plant/equipment avoided?		$\overline{\checkmark}$				
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?					<u> </u>	
2.13	Are site vehicles travelling within the speed limit not more than 15km/hour?					$\overline{\checkmark}$	
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?		\square				
2.15	Is open burning avoided?						
2.16	Excavated materials from the stream must be removed from the site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.					\checkmark	
Secti	ion 3: Noise						
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?						
3.02	Is silenced equipment adopted?						
3.03	Is idle equipment turned off or throttled down?						
3.04	Are all plant and equipment well maintained and in good condition?		\square				
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?						
3.06	Are hand held breakers fitted with valid noise emission labels during operation?					☑	
3.07	Are air compressors fitted with valid noise emission labels during operation?					\checkmark	

					Follow		Photo/
Note:	Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Obs.	Yes	NO	Up	WA	Remarks
3.08	Are flaps and panels of mechanical equipment closed during operation?						
3.09	Are Construction Noise Permit(s) applied for percussive piling works?					\checkmark	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?					\overline{V}	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?						
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).					\checkmark	
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)					\checkmark	
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).					\checkmark	
Section	n 4: Waste/Chemical Management						
4.01	Waste Management Plan had been submit to Engineer for approval.		\checkmark				
4.02	Are receptacles available for general refuse collection?		$\overline{\mathbf{V}}$				
4,03	Is general refuse sorting or recycling implemented?		$\overline{\checkmark}$				
4.04	Is general refuse disposed of properly and regularly?		· 🔽				
4.05	Is the Contractor registered as a chemical waste producer?					$\overline{\mathbf{V}}$	
4.06	Are the chemical waste containers and storage area properly labelled?					$\overline{\mathbf{Q}}$	
4.07	Are the chemical wastes stored in proper storage areas?					$\overline{\square}$	
4.08	Is the chemical container or equipment provided with drip tray?					$\overline{\mathbf{V}}$	
4.09	Is the chemical waste storage area used for storage of chemical waste only?						
4.10	Are incompatible chemical wastes stored in different areas?						
4.11	Are the chemical wastes disposed of by licensed collectors?					$\overline{\mathbf{V}}$	
4.12	Are trip tickets for chemical wastes disposal available for inspection?						
4.13	Are chemical/fuel storage areas bounded?					$\overline{\checkmark}$	
4.14	Are designated areas identified for storage and sorting of construction wastes?					$\overline{\mathbf{A}}$	
4.15	Are construction wastes sorted (inert and non-inert) on site?						
4.16	Are construction wastes reused?		$\overline{\mathbf{V}}$				
4.17	Are construction wastes disposed of properly?						
4.18	Are site hoardings and signboards made of durable materials instead of timber?		\checkmark				
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?						
4.20	Are appropriate procedures followed if contaminated material exists?						Martin de la companya
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?					$\overline{\checkmark}$	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.		\checkmark				
4.23	Contaminated sediments will be managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.					\checkmark	

AUES

1		Sf - 4			Eollow		Photo/
Note:	Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Obs.	Yes	NO	Up	IVIPA	Remarks
Section	on 5: Landscape & Visual						
5.01	Are retained and transplanted trees in health condition?		\checkmark				
5.02	Are retained and transplanted trees properly protected?		\checkmark				
5.03	Are surgery works carried out for the damaged trees?	\checkmark					
5.04	Is damage to trees outside site boundary due to construction activities avoided?		\checkmark				
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?					\checkmark	
Section	on 6: Others						
6.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?					\checkmark	4-1111-1111-1111-1111-1111-1111-1111-1111
6.02	Are the warning sign or larvicidal oil record shown clearly at the construction site?		$\overline{\checkmark}$				
Rem	arks			а	Λ	_	. 0
Find	ings of Site Inspection (2 Jan 2013):	Fo	ilow up:	Ø	ot re	guer	ed for
1	No adverse environmental			90	neral	rem.	ed for vinders.
	I I I I DISCO DISCO DELLE			,			
1.	Languer full implementation of						
	A MICHAEL AND MARKET AND THE STATE OF THE ST	gation	1				
•	measures, particularly construc	to on					
	A service of pro-	inh					
•	dust suppression measures and	12101	n dod				
	measures, particularly construct dust suppression measures duo. dry and windy conditions, is	MINI	, men,				
	J						

IEC's representative	RE's representative	ET's representative	EO's representative	Contractor's representative
() Z:\Jobs\2010\TC\$00512(DC-2009-13)\60	(Kwok Kwai Ming) 00\site inspection\Yung Shue Wan\2012\U	Alicola Hon (N Wong Dec 2012/2013/TCS512A-Yung Shue Wan_2	(S. M. Chan) K. Y. So .	(Vincent chow) Page 4 of 4

		ln.	spected b			Checki No.		512A-8 Jan2013		
Projec	t: TCS/00512/09 Construction of Sewage Treatment Works a		L/ ET's R	-	ative:	Ms. Nicola Hon Wong F.N.				
	Yung Shue Wan and Sok Kwu Wan		's Repre	=				ding Atted Cheung		
			Contractor's Representative:				Mr. S.M. Chan			
			C's Repre	esentativ	e:	14:00	14:00			
Date:	8 January 2013	111	me:				Environmental Permit No.			
PART		_	7 5 1				nvironmer - 282/2007			
Weatl	, , , , , , , , , , , , , , , , , , , ,	oudy	Rainy				- 202/2007			
Temp :	18.6 °C									
Humi		_	-							
Wind		iht [_	Calm							
Area I	nspected Yung Shue Wan									
PART	B: SITE AUI)IT								
Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Ap	plicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks		
Sectio	on 1: Water Quality									
1.01	Is an effluent discharge license obtained for the Project?			\checkmark		Ш	□ _			
1.02	Is the effluent discharged in accordance with the discharge	licence?								
1.03	Is the discharge of turbid water avoided?			\checkmark						
1.04	Are there proper desilting facilities in the drainage synteduce SS levels in effluent?			\checkmark						
1.05	Are there channels, sandbags or bunds to direct surface sedimentation tanks?									
1.06	Are there any perimeter channels provided at site boun intercept storm runoff from crossing the site?	daries to								
1.07	Is drainage system well maintained?			\checkmark		Ц	LJ.			
1.08	As excavation proceeds, are temporary access roads procrushed stone or gravel?	tected by								
1.09	Are temporary exposed slopes properly covered?									
1.10	Are earthworks final surfaces well compacted or protected	?		$\overline{\checkmark}$						
1.11	Are manholes adequately covered or temporarily sealed?									
1.12	Are there any procedures and equipment for rainstorm pro	tection?								
1.13	Are wheel washing facilities well maintained?									
1.14	Is runoff from wheel washing facilities avoided?									
1.15	Are there toilets provided on site?									
1.16	Are toilets properly maintained?			lacksquare						
1.17	Are the vehicle and plant servicing areas paved and loca roofed areas?	ted within		_ :						
1.18	Is the oil/grease leakage or spillage avoided?			$\overline{\checkmark}$						
1.19	Are there any measures to prevent leaked oil from endrainage system?									
1.20	Are there any measures to collect spilt cement and washings during concreting works?		ل ا							
1.21	Are there any oil interceptors/grease traps in the drainag for vehicle and plant servicing areas, canteen kitchen, etc.	e systems ?					\checkmark	W		

		35-4			- U		Phatal
Note:	Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Obs.	Yes	No	Uр	N/A	Remarks
1.22	Are the oil interceptors/grease traps maintained properly?						
1.23	Is used bentonite recycled where appropriate?					$\overline{\checkmark}$	
1.24	Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m3 capacities for sedimentation.						
1.25	No excavation is undertaken in the settlement area.					\square	
1.26	Concreting wastes water should be neutralized below the pH Action Levels before discharge.					$\overline{\mathbf{V}}$	
1.27	Mobile toilets should provide on site and located away the stream course.						
1.28	License collector should be employed for handling the sewage of mobile toilet.		\checkmark				
1.29	Is ponding /stand water avoided?		\checkmark				
Section	on 2: Air Quality						
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?					\checkmark	
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?		\checkmark				
2.03	Are the excavated materials sprayed with water during handling?					\checkmark	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?					\checkmark	
2.05	Is the exposed earth properly treated within six months after the last construction activities?					\checkmark	
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?		\checkmark				
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?					V	
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?					\checkmark	
2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?						
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?						
2,11	Is dark smoke emission from plant/equipment avoided?		\checkmark				
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?					$\overline{\checkmark}$	
2.13	Are site vehicles travelling within the speed limit not more than 15km/hour?						
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?						
2.15	Is open burning avoided?		\checkmark				
2.16	Excavated materials from the stream must be removed from the site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.					\checkmark	
Secti	on 3: Noise						
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?					\checkmark	
3.02	Is silenced equipment adopted?					V	
3.03	is idle equipment turned off or throttled down?	\checkmark					
3.04	Are all plant and equipment well maintained and in good condition?		\checkmark				
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?						
3.06	Are hand held breakers fitted with valid noise emission labels during operation?						
3.07	Are air compressors fitted with valid noise emission labels during operation?					\checkmark	

	NOT Obs.: Not Observed, Yes. Comphance, No. Non-Comphance,	1401				N/A	Dhatal
Note:	Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Obs.	Yes	No	Up		Remarks
3.08	Are flaps and panels of mechanical equipment closed during operation?						
3.09	Are Construction Noise Permit(s) applied for percussive piling works?						
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?						
3.11	Are valid Construction Noise Permit(s) posted at site entrances?						
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).					V	
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)					V	
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).						
Section	n 4: Waste/Chemical Management						
4.01	Waste Management Plan had been submit to Engineer for approval.		\checkmark				
4.02	Are receptacles available for general refuse collection?		\checkmark				
4.03	Is general refuse sorting or recycling implemented?		\checkmark				
4.04	Is general refuse disposed of properly and regularly?		\checkmark				
4.05	is the Contractor registered as a chemical waste producer?						
4.06	Are the chemical waste containers and storage area properly labelled?						
4.07	Are the chemical wastes stored in proper storage areas?						
4.08	Is the chemical container or equipment provided with drip tray?						
4.09	Is the chemical waste storage area used for storage of chemical waste only?						
4.10	Are incompatible chemical wastes stored in different areas?						
4.11	Are the chemical wastes disposed of by licensed collectors?					V	
4.12	Are trip tickets for chemical wastes disposal available for inspection?						
4.13	Are chemical/fuel storage areas bounded?					✓	
4.14	Are designated areas identified for storage and sorting of construction wastes?						
4.15	Are construction wastes sorted (inert and non-inert) on site?		\checkmark				
4.16	Are construction wastes reused?						
4.17	Are construction wastes disposed of properly?		\checkmark				
4.18	Are site hoardings and signboards made of durable materials instead of timber?						
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?		\checkmark				
4.20	Are appropriate procedures followed if contaminated material exists?						***************************************
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?					V	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.		\checkmark				***************************************
4.23	Contaminated sediments will be managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.					\checkmark	



							Dladel
Note:	Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Obs.	Yes	No	Uр	N/A	Remarks
Section	on 5: Landscape & Visual						
5.01	Are retained and transplanted trees in health condition?		\checkmark				
5.02	Are retained and transplanted trees properly protected?		\checkmark				
5.03	Are surgery works carried out for the damaged trees?	$\overline{\checkmark}$					
5.04	Is damage to trees outside site boundary due to construction activities avoided?		$\overline{\checkmark}$				
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?					<u></u>	
Section	on 6: Others						
6.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?					<u> </u>	
6.02	Are the warning sign or larvicidal oil record shown clearly at the construction site?		\checkmark				

Remarks

Findings of Site Inspection (8 Jan 2013):

Follow up:

Not required for general orminders.

1. No adverse environmental impacts
were observed during the sife inspection.

However, full implementation of the
required environmental mitigation
measures, particularly construction dust
suppression measures during day and
country conditions, is reminded.

IEC's representative	RE's representative	ET's representative	EO's representative Contractor's representative
	A < a	M	1 mm Por
()	(Kwok Wwai Wing)	(Wong F. N.)	(S. M. Ghan) (Vincent chan)
	Alfoed Cheung	& Jan 2013	K. Y-so.



Projec	ct:	TCS/00512/09	Ins	spected b	у		No.	No. TCS512A-15 Jan2013				
•			age Treatment Works at		L/ ET's F	•		.,	Mr. F. N. Wong			
	_	Yung Shue Wan and	I Sok Kwu Wan		e's Repre		e: sentative:		wok-Kwai M. Chan	Wing Alphoed Ch		
					C's Repre	-						
Date:		15 January 2013		Tii	ne:	`*.		11:00				
PART	Γ А :		GENERAL INFORMA	TION				E	invironme	ntal Permit No.		
Weat	her:	Sunny	Fine V Cloud	/ [Rainy			[✓] EF	P- 282/200	7		
Temp	eratur	15	_									
Humì	dity:	High	Moderate Low		-							
Wind Area I		Strong	Breeze Light	L	_ Calm							
1		Shue Wan										
PART	B:		SITE AUDIT									
Note:			npliance; No : Non-Compliance; follow-Up actions N/A: Not Applica	ble	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks		
Sectio	n 1: W	ater Quality										
1.01	ls an	effluent discharge license	e obtained for the Project?			✓						
1.02	Is the	effluent discharged in acc	cordance with the discharge lice	псе?		\checkmark						
1.03	Is the	discharge of turbid water	r avoided?			\checkmark						
1.04		here proper desilting fa e SS levels in effluent?	cilities in the drainage systen	ns to		\checkmark						
1.05		nere channels, sandbags nentation tanks?	or bunds to direct surface run-	off to		\checkmark						
1.06		here any perimeter chan ept storm runoff from cro	nnels provided at site boundari ssing the site?	es to		\checkmark						
1.07	ls dra	inage system well mainta	ained?			\checkmark						
1.08		cavation proceeds, are to ed stone or gravel?	emporary access roads protect	ed by					V			
1.09	Are to	emporary exposed slopes	s properly covered?						\checkmark			
1.10	Are e	arthworks final surfaces v	well compacted or protected?			\checkmark						
1.11	Are n	nanholes adequately cove	ered or temporarily sealed?			\checkmark						
1.12	Are t	nere any procedures and	equipment for rainstorm protect	іол?		\checkmark						
1.13	Are v	vheel washing facilities w	ell maintained?						\checkmark			
1.14	ls rur	off from wheel washing f	acilities avoided?						\checkmark			
1.15	Are t	here toilets provided on s	ite?			\checkmark						
1.16	Are t	oilets properly maintained	1?			\checkmark						
1.17		he vehicle and plant serv d areas?	ricing areas paved and located	within					\checkmark	And the first of t		
1.18	Is the	e oil/grease leakage or sp	village avoided?			\checkmark						
1.19		there any measures to page system?	prevent leaked oil from enterin	g the		\checkmark						
1.20	Are wash	there any measures to ings during concreting w	collect spilt cement and cor orks?	ocrete		\checkmark						
1.21	Are t	here any oil interceptors/	grease traps in the drainage sy areas, canteen kitchen, etc?	stems					\checkmark			



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



Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
3.08	Are flaps and panels of mechanical equipment closed during operation?						
3.09	Are Construction Noise Permit(s) applied for percussive piling works?					\checkmark	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?					\checkmark	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?					\checkmark	
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).					\checkmark	
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)					\checkmark	
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).					\checkmark	
Section	n 4: Waste/Chemical Management						
4.01	Waste Management Plan had been submit to Engineer for approval.		\checkmark				Anna 1
4.02	Are receptacles available for general refuse collection?		\checkmark				
4.03	Is general refuse sorting or recycling implemented?		\checkmark				
4.04	Is general refuse disposed of properly and regularly?		\checkmark				
4.05	Is the Contractor registered as a chemical waste producer?					\checkmark	
4.06	Are the chemical waste containers and storage area properly labelled?						***************************************
4.07	Are the chemical wastes stored in proper storage areas?					\checkmark	
4.08	Is the chemical container or equipment provided with drip tray?					V	
4.09	Is the chemical waste storage area used for storage of chemical waste only?					\checkmark	
4.10	Are incompatible chemical wastes stored in different areas?					\checkmark	
4.11	Are the chemical wastes disposed of by licensed collectors?					\checkmark	
4.12	Are trip tickets for chemical wastes disposal available for inspection?						
4.13	Are chemical/fuel storage areas bounded?						
4.14	Are designated areas identified for storage and sorting of construction wastes?					\checkmark	
4.15	Are construction wastes sorted (inert and non-inert) on site?		\checkmark				
4.16	Are construction wastes reused?		\checkmark				
4.17	Are construction wastes disposed of properly?		\checkmark				
4.18	Are site hoardings and signboards made of durable materials instead of timber?		\checkmark				
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?		\checkmark				
4.20	Are appropriate procedures followed if contaminated material exists?					\checkmark	
4.21	is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?					\checkmark	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.		\checkmark				
4.23	Contaminated sediments will be managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.					\checkmark	



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		
Sectio	on 5: Landscape & Visual								
5.01	Are retained and transplanted trees in health condition?		\checkmark						
5.02	Are retained and transplanted trees properly protected?		\checkmark						
5.03	Are surgery works carried out for the damaged trees?	\checkmark							
5.04	Is damage to trees outside site boundary due to construction activities avoided?		\checkmark						
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?					\checkmark			
Section	on 6: Others						•		
6.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?					\checkmark			
6.02	Are the warning sign or larvicidal oil record shown clearly at the construction site?								
		-							
Rem	arks						_		
Find	ings of Site Inspection (15 Jan 2013):	Fo	llow up:	Λ	ot rea	guir	ed for		
1.	No adverse environmental			9	eneral	re	ed for minders.		
,	impacts were observed. However	per ,							
	Full implementation of the requ	cred							
	No adverse environmental impacts were observed. However full implementation of the requiremental miligation in environmental miligation in	easur	es						
٤	in the charton dust	-							
•	in particular constructions dust	lar							
	suppression measures and regular suppression measures and regular clearance and disposal of construction clearance and disposal of construction								
	desposal of con	ns truc	10h						
	clearance and disposed)	inded	,						

IEC's representative	RE's representative	ET's representative	EO's representative	Contractor's representative
		MM >		
	,	UN		Λ .
	de		(31)	W
	(Kwok Kwai Ming)	(Wong F. N.)	(Edwin-Leung)	(vincent chain)
,	Alphred Chouse	151- 2013		The same of the sa

Proje	ct: TCS/00512	/09			Inspected by ETL/ ET's Representative:			No.	T	CS512A-22 Jan2013
			ge Treatment			-				Nam
	Tung Snue	e vvan and s	Sok Kwu Wan	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	RE's Repre Contractor					channa
		•			EC's Repr	=		. 1411.0		
Date:	22 January	2013			Γime:			11:00		
PAR	ГА:		GENER	AL INFORMATIO	N				nvironm	ental Permit No.
Weat	her: Su	nny	Fine	✓ Cloudy [Rainy			✓ EI	P- 282/200	
Temp	perature 18.6		°C							
Humi	dity: Hig	gh	. Moderate	Low						
Wind	: Str	ong	Breeze	✓ Light	Calm					
А геа I	nspected Yung Shue Wan			•						
				•						
PART	B:			SITE AUDIT						
Note:	Not Obs.: Not Observe Follow Up: Observation				Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
Sectio	n 1; Water Quality				_	_	_	_	_	
1.01	ls an effluent discha	arge license o	btained for the P	roject?	Ļ	$\overline{\mathbf{V}}$	Ш		Ш	
1.02	Is the effluent discha	arged in acco	rdance with the d	lischarge licence?		$\overline{\mathbf{V}}$				
1.03	Is the discharge of t	turbid water a	voided?		, 🔲	\checkmark				
1.04	Are there proper of reduce SS levels in	desilting facil effluent?	lities in the drai	nage systems to		$\overline{\checkmark}$				
1.05	Are there channels, sedimentation tanks	, sandbags o: s?	r bunds to direct	surface run-off to	. 🔲	\checkmark				
1.06	Are there any periodintercept storm runo			ite boundaries to		\checkmark				
1,07	Is drainage system	well maintain	ed?	,		\checkmark				
1.08	As excavation proc crushed stone or gr		nporary access re	oads protected by					\checkmark	
1.09	Are temporary expo	osed slopes p	roperly covered?						\checkmark	
1.10	Are earthworks fina	l surfaces we	ll compacted or p	protected?		$\overline{\mathbf{V}}$				
1.11	Are manholes adeq	uately covere	ed or temporarily	sealed?		$\overline{\checkmark}$				
1.12	Are there any proce	edures and eq	quipment for rains	storm protection?						
1.13	Are wheel washing	facilities well	maintained?			·			\checkmark	
1.14	Is runoff from wheel	l washing faci	ilities avoided?							
1.15	Are there toilets pro	vided on site	?							
1.16	Are toilets properly					\checkmark				
1.17	Are the vehicle and roofed areas?	l plant servicii	ng areas paved a	and located within					\checkmark	
1.18	Is the oil/grease lea	kage or spilla	ge avoided?			\checkmark				
1.19	Are there any mea drainage system?	isures to pre	vent leaked oil t	from entering the						
1.20	Are there any me washings during cor			ent and concrete		\checkmark				
1.21	Are there any oil int for vehicle and plant								$\overline{\checkmark}$	



	Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Obs.	Yes	No	11-	N/A	
1.22					Up		Remarks
	Are the oil interceptors/grease traps maintained properly?					$\overline{\mathbf{V}}$	
1.23	is used bentonite recycled where appropriate?						
1.24	Designated settlement area for runoff/wheel wash waste is provide and located at the streambed with 1-2m deep, 12m long and around 50m3 capacities for sedimentation.				Ģ	\checkmark	
1.25 I	No excavation is undertaken in the settlement area.					\checkmark	
	Concreting wastes water should be neutralized below the pH Action Levels before discharge.						
1//	Mobile toilets should provide on site and located away the stream course.		\checkmark				
	License collector should be employed for handling the sewage of mobile toilet.		\checkmark				
1.29	ls ponding /stand water avoided?		\checkmark				
Section	2: Air Quality			•			
	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?					V	
	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?		\checkmark			·	
2.03	Are the excavated materials sprayed with water during handling?					\checkmark	
	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?					\checkmark	
	Is the exposed earth properly treated within six months after the last construction activities?					\checkmark	
	Are the access roads sprayed with water to maintain the entire road surface wet or paved?		\checkmark				
	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?					\checkmark	
	Is the load on vehicles covered entirely by clean impervious sheeting?					\checkmark	
	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?					V	
	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?					\checkmark	
2.11	Is dark smoke emission from plant/equipment avoided?		\checkmark				
	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?					V	
714	Are site vehicles travelling within the speed limit not more than 15km/hour?					\checkmark	
	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?		\checkmark				
2.15	Is open burning avoided?		\checkmark				,
2.16	Excavated materials from the stream must be removed from the site on the same day. The materials shall be stored in covered impermeable skips awaiting removal from site.					\checkmark	
Section	1 3: Noise						
	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?					\checkmark	
3.02	Is silenced equipment adopted?					V	
3.03	Is idle equipment turned off or throttled down?	$\overline{\checkmark}$					
3.04	Are all plant and equipment well maintained and in good condition?		$ \overline{\checkmark} $				
	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?					\checkmark	
	Are hand held breakers fitted with valid noise emission labels during operation?					\checkmark	
	Are air compressors fitted with valid noise emission labels during operation?					V	, 10 Fill (18 10 10 10 10 10 10 10 10 10 10 10 10 10

		·····	***************************************		······		
Note:	Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Obs.	Yes	No	Up	N/A	Remarks
3.08	Are flaps and panels of mechanical equipment closed during operation?					\checkmark	
3.09	Are Construction Noise Permit(s) applied for percussive piling works?					\checkmark	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?					\checkmark	***************************************
3.11	Are valid Construction Noise Permit(s) posted at site entrances?					\checkmark	
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).					\checkmark	
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) Temporary/Moveable noise barrier equal to or more than 3m height					\square	
3.14	with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).					$\overline{\checkmark}$	**************************************
Section	on 4: Waste/Chemical Management						
4.01	Waste Management Plan had been submit to Engineer for approval.		\checkmark				
4.02	Are receptacles available for general refuse collection?						
4.03	Is general refuse sorting or recycling implemented?						
4.04	Is general refuse disposed of properly and regularly?						
4.05	Is the Contractor registered as a chemical waste producer?					\checkmark	
4.06	Are the chemical waste containers and storage area properly labelled?					\checkmark	
4.07	Are the chemical wastes stored in proper storage areas?					\checkmark	
4.08	is the chemical container or equipment provided with drip tray?					\checkmark	
4.09	Is the chemical waste storage area used for storage of chemical waste only?					\checkmark	
4.10	Are incompatible chemical wastes stored in different areas?						
4.11	Are the chemical wastes disposed of by licensed collectors?					\checkmark	
4.12	Are trip tickets for chemical wastes disposal available for inspection?					\checkmark	
4.13	Are chemical/fuel storage areas bounded?					\checkmark	
4.14	Are designated areas identified for storage and sorting of construction wastes?					\checkmark	
4.15	Are construction wastes sorted (inert and non-inert) on site?		\checkmark				
4.16	Are construction wastes reused?		$\overline{\checkmark}$				
4.17	Are construction wastes disposed of properly?		$\overline{\checkmark}$				
4.18	Are site hoardings and signboards made of durable materials instead of timber?		$\overline{\checkmark}$				
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?						***************************************
4. 2 0	Are appropriate procedures followed if contaminated material exists?					\checkmark	
4.21	is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?					\checkmark	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.						
4.23	Contaminated sediments will be managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.					\checkmark	

AUES

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

Remarks

Findings of Site Inspection (22 Jan 2013):

Follow up: Not required

1. No adverse environmental impacts were observed.

IEC's representative

RE's representative

ET's representative

EO's representative

Contractor's representative

A

(Alfred Chenny)

22 Jan 2013

SO. K.Y.

22 Jan 2013

Page 4 of 4



Appendix L

Implementation Schedule of Mitigation Measures



Implementation Schedule of Air Quality Measures

EIA	EM&A	Environmental Protection Measures*	Location /	Implementation		lementa Stages**		Relevant Legislation
Ref	Ref		Timing	Agent	D	C	0	& Guidelines
Constr	uction 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: 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		V		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



Implementation Schedule of Noise Measures

EIA	EM&A	Environmental Protection Magazires	Location/Timing	Implementation	_	olementa Stages *		Relevant Legislation &
Ref	Ref	21,110,11111111111111111111111111111111		Agent	D	C	0	Guidelines
Construc	tion Phase							
\2.4.16	3.8.2	 Implementation of following measures during the sewer construction: Use of quiet PME or method; Restriction on the number plant (1 item for each type of plant); and Good Site Practices Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme. Mobile plant, if any, should be sited as far away from NSRs as possible. Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum. Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities. 	Work site /during the construction of Sewer.	Contractor		1		EIAO-TM, NCO
2.10.5 to 2.10.9	Section 35	Noise monitoring	Designated noise monitoring locations / throughout construction period	Contractor/ Environmental Team		√ 		EM&A Manual

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

^{**} D=Design, C=Construction, O=Operation



Implementation Schedule of Water Quality Control Measures

EIA	EM&A	Environmental Protection Measures*	Location (duration	Implementation		lement Stages*		Relevant Legislation	
Ref	Ref	Environmental Protection Measures*	/completion of measures)	Agent	D	C	O	and Guidelines	
	ction Phase	No dia mashad using Harizantal Directional Drilling (HDD) mould be	Manina manles aita /	Controctor	1	1 .1	l	1	
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		V			
4.5.38	4.12.3	Dredging Works	Marine works site	Contractor		$\sqrt{}$			
		Implementation of following measures during the dredging works:	and at the identified						
		• dredging should be undertaken using closed grab dredgers with a maximum total production rate of 55m ³ /hr;	water sensitive receivers/ During construction						
		• 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;	a						
		• 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							



EIA	EM&A	Environmental Protection Measures*	Location (duration /completion of	Implementation	Implementation Stages**			Relevant Legislation
Ref	Ref	Environmentar i Totection ivicasures	measures)	Agent	D	C	O	and Guidelines
		• 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	Construction Run-off and Drainage	Construction works	Contractor				ProPECC
		Implementation of the following site practices outlined in ProPECC PN 1/94 for "Construction Site Drainage"	sites					PN 1/94
		• 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						
2.5.39	4.12.5	General Construction Activities	Construction works	Contractor		√		
		 Debris and rubbish generated on-site should be collected, handled and disposed of properly to avoid entering the nearby coastal waters and stormwater drains. 	sites					



EIA	EM&A	Environmental Protection Measures*	Location (duration /completion of	Implementation		ement tages*		Relevant Legislation
Ref	Ref	Environmentari rotection vicasures	measures)	Agent	D	C	О	and Guidelines
		• 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	Wastewater Arising from Workforce 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		V		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



Implementation Schedule of Sediment Contamination Mitigation Measures

EIA	EM&A	Environmental Protection Measures*	Landin / Timin	Implementation	Implemen	tation Sta	iges**	Relevant Legislation &
Ref	Ref	Environmental Protection Measures*	Location / Timing	Agent	D	С	O	Guidelines
2.9.24	5.2.1	Carrying out Sediment Quality Investigation	Marine works site / prior to construction	DSD	V			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		$\sqrt{}$		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		V		
2.9.23	5.2.3	 During the transportation and disposal of the dredged sediment, the following measures should be taken: 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		√		

^{*} 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



Implementation Schedule of Solid Waste Management Measures

EIA	EM&A		Location /	Implementation		plementa Stages **		Relevant Legislation &
Ref	Ref	Environmental Protection Measures*	Timing	Agent	D	С	О	Guidelines
Construc	tion Phase						II.	•
2.9.14	6.6.2	 Good site practices 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		٨		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		V		Waste disposal (Amendment) Ordinance 2004
2.9.16	6.2.4	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	Work sites/During construction	Contractor		V		WBTC No. 4/98, 5/98



EIA	EM&A		Location /	Implementation		olementa Stages **		Relevant Legislation &
Ref	Ref	Environmental Protection Measures*	Timing	Agent	D	C	0	Guidelines
		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. 						
2.9.18	6.2.5	General Site Wastes A collection area for construction site waste should be provided where waste can be stored prior to removal from site	Work sites/During construction	Contractor		$\sqrt{}$		Public Health and Municipal Services Ordinance (Cap. 132)
		An enclosed and covered area for the collection of the waste is recommended to reduce 'wind blow' of light material						
2.9.19	6.2.6 and 6.2.7	 Chemical Wastes 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 	Work sites/During construction	Contractor		V		Waste Disposal (Chemical Waste) (General) Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Wastes
		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.						



EIA	EM&A	Environmental Protection Measures*	Location /	Implementation		olementa Stages *:		Relevant Legislation &	
Ref	Ref	Environmental Protection Measures*	Timing	Agent	D	C	0	Guidelines	
		• 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	 Construction and Demolition Material The C&D waste should be separated on-site into three categories: 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		V		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



Implementation Schedule of Ecological Impact Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation	Implementation Stages			Relevant Legislation & Guidelines
	Kei		Tilling	Agent	D	С	O	Guidennes
Construc	tion Phase							
2.10.11	7.2 and	Carry out monitoring of corals before, during and after	Work sites /	Contractor				
and	7.3	marine works.	during					
2.10.12			construction					
			phase					
2.6.45	7.6.1	Use horizontal directional drilling to avoid direct	Marine works	Contractor				
to		disturbance to corals	site / during					
2.6.48			dredging works					
2.6.57	4.12.3	Deploying of 2-layer silt curtains with the first layer	All work sites /	Contractor				
to		enclosing the grab an the second layer at around 50m from	during					
2.6.58		the dredging area while dredging works are in progress	construction					
			phase					
2.6.51	7.6.1	Fence off the slope stabilisation works area from	STW/ During	Contractor				
		surrounding shrubland and/ woodland, to prevent access to	construction					
		or disturbance of adjacent habitats. The works area						
		should be as small as is possible, consistent with the						
		requirements of the works.						

^{*} 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



Implementation Schedule of Fisheries Impact Measures

EIA EM&A		Environmental Protection Measures*	Location /	Implementation	Implementation Stages**			Relevant Legislation
Ref Ref	Ref		Timing	Agent	D	C	0	& Guidelines
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 &
Kei	Kti		Tilling	Agent	D	C	O	Guidelines
Constru	iction Pha	se						
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		V		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		V		
2.8.37	9.2.2	Screening of site construction works by use of hoarding that is appropriate to its site.	All sites	Contractor		V		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		V		

^{*} 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



Appendix M

Coral Monitoring Report

1. BACKGROUND

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

2. MONITORING EQUIPMENT

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

Table 2-1 Monitoring Equipment for the Coral Monitoring

Equipment	Model
A4 size underwater slates	Handmade A4 size underwater slates
Coral Photos	Laminated Tagged Coral Photos
Quadrat	50 cm x 50 cm plastic quadrat (with 10 cm x 10
Quadrat	cm grid)
Underwater Camera	Canon G10 digital camera
Scuba Diving Equipment	Scubapro regulator, BCD and fins
Diving Post	33 feet long diving boat with two 200hp
Diving Boat	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				
Dive site	Easting	Northing			
Yung Shue Wan, Lamma Island	829180.06E	809555.76N			
Sham Wan, Lamma Island	832160.86E	805738.31N			

4. METHODOLOGY

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

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

- 4.2 Three parameters were recorded for each tagged coral and these are:
 - Percentage sediment cover
 - Increase % sediment cover caused by marine work will affect the health of coral as it will block the sunlight that reaches the corals, this may result in bleaching or death of the coral colonies.
 - Percentage bleached tissue two bleaching categories will be recorded;
 - Unhealthy corals will show bleached tissue especially when sediment and turbidity increased, prolonged bleaching may result in total or partial death of the coral colonies.
 - Blanched or pale a loss of zooxanthellae or photosynthetic pigments
 - Bleached a total loss zooxanthellae and coral tissue still present
 - Percentage dead total or partial mortality.
 - Increased in total or partial mortality rate may be caused by the marine work.
- Each parameter was assessed as a percentage of total colony area. To aid percentage 4.3 cover estimates a 50 x 50 cm² quadrat with a 10x10 cm² lined grid was used.
- During each survey, diversity, abundance and health status of the corals in the general 4.4 area will be recorded.
- 4.5 Photos of each tagged corals were also taken during the monitoring survey.

5. **RESULTS**

Coral monitoring was carried out on 4th and 17th January 2013. The weather 5.1 conditions were summarised in Table 5-1.

Table 5-1 Wear	ther Conditions	ner Conditions on 4 th and 17 th January 2013						
Date	4 th Janu	ary 2013	17 th Janua	ary 2013				
Site	YSW	SW	YSW	SW				
Survey Time	9:30	8:00	9:30	8:00				
Tidal Height	0.9	9m	1.0)m				

Date	4 th Janu	ary 2013	17 th Janua	ary 2013	
Site	YSW	SW	YSW	SW	
Survey Time	9:30	8:00	9:30	8:00	
Tidal Height	0.9	9m	1.0	m	
Air Temperature	18°	15°	5° C		
Water Temperature	19°	C	19° C		
Water Depth	2m	2.5m	2m	2.5m	
Wind Speed	East fo	rce 4-5	Northeast force 4-5		
Weather	Sui	nny	Cloudy		
Water Visibility	0.5m	1m	0.5m	1m	

Yung Shue Wan

- 5.2 This site is mainly composed of artificial sloping boulders down to 2.5 meters depth along coral area. Areas deeper than 3 meters are mainly muddy and sandy bottoms. The coral coverage was about 5% in which most of them were located on the artificial sloping boulders. 20 hard coral colonies were monitored on 4th and 17th January 2013 and their species name, size and health condition were shown in Table 5-2 to Table 5-
- On 4th, coral colonies #14, #17 and #18 were recorded to have1%, 2% and 1% 5.3

sediment respectively. On 17th, coral colony was #16 recorded with 1% sediment. No sediment was recorded in other coral colonies during the survey. No bleaching or mortality was recorded during the monitoring survey on the monitoring dates. Photos of each tagged corals were shown in **Appendix II.**

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

Table 5-2 Species Name, Size and Heath Condition for Tagged Corals in YSW on 4^{th} January 2013

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

Table 5-3 Species Name, Size and Heath Condition for Tagged Corals in YSW on $17^{\rm th}$ January 2013

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

Site: Yung	Shue Wan				Bleaching	g (%)		
Coral No.	Species Name	Specific Location	Size (cm) (Max. Length)	Sediment Cover (%)	Blanched/Pale	Bleached	Total/Partial Mortality (%)	Remarks
4	Favia favus	Boulder	17	0	0	0	0	N/A
5	Porites lutea	Boulder	43	0	0	0	0	N/A
6	Porites lobata	Boulder	18	0	0	0	0	N/A
7	Cyphastrea serailia	Boulder	26	0	0	0	0	N/A
8	Favites chinensis	Boulder	22	0	0	0	0	N/A
9	Favites pentagona	Boulder	106	0	0	0	0	N/A
10	Coscinaraea n sp.	Boulder	16	0	0	0	0	N/A
11	Goniopora stutchburyi	Boulder	45	0	0	0	0	N/A
12	Favites pentagona	Boulder	20	0	0	0	0	N/A
13	Goniopora stutchburyi	Boulder	28	0	0	0	0	N/A
14	Porites lobata	Boulder	42	0	0	0	0	N/A
15	Goniastrea aspera	Boulder	19	0	0	0	0	N/A
16	Cyphastrea serailia	Boulder	16	1	0	0	0	N/A
17	Plesiastrea versipora	Boulder	27	0	0	0	0	N/A
18	Goniopora stutchburyi	Boulder	23	0	0	0	0	N/A
19	Cyphastrea serailia	Boulder	21	0	0	0	0	N/A
20	Porites lutea	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 4th and 17th January 2013 and their species name, size and health condition were shown in **Table 5-4** to **Table 5-5**.
- No sediment was recorded during the survey. No bleaching or mortality was recorded in other tagged coral colonies during the monitoring survey on the monitoring dates. **Appendix II.**
- 5.7 In general the diversity and abundance of corals in this area is relatively low and common respectively when compared with other coral area in Hong Kong such as Hoi Ha Wan and Sharp Island.

Table 5-4 Species Name, Size and Heath Condition for Tagged Corals in SW on 4th January 2013

Site: Sham Wan					Bleaching	g (%)		
		Specific	Size (cm) (Max.	Sediment			Total/Partial Mortality	
Coral No.	Species Name	Location	Length)	Cover (%)	Blanched/Pale	Bleached	(%)	Remarks
1	Favia favus	Boulder	14	0	0	0	0	N/A
2	Favia rotumana	Boulder	21	0	0	0	0	N/A
3	Favia rotumana	Boulder	27	0	0	0	0	N/A

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

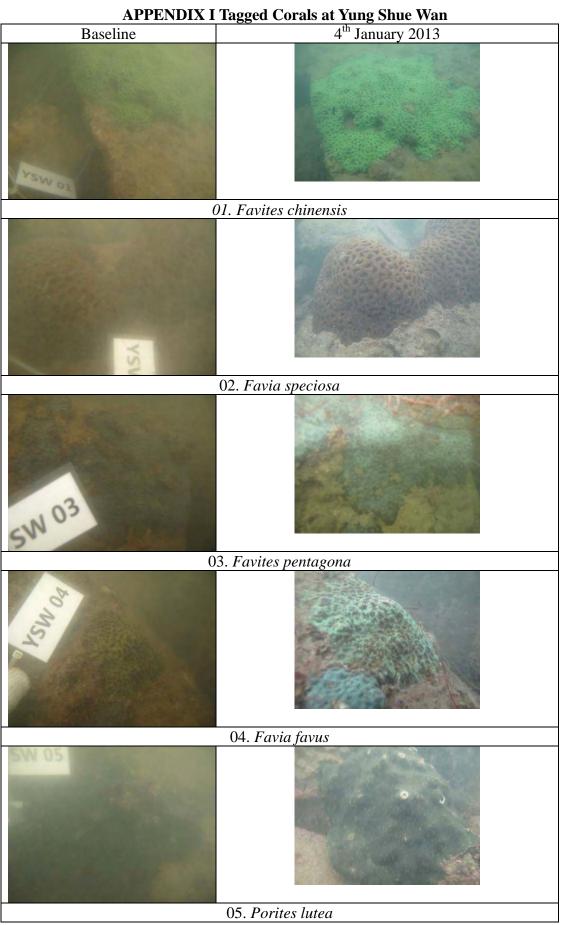
Table 5-5 Species Name, Size and Heath Condition for Tagged Corals in SW on $17^{\rm th}\ January\ 2013$

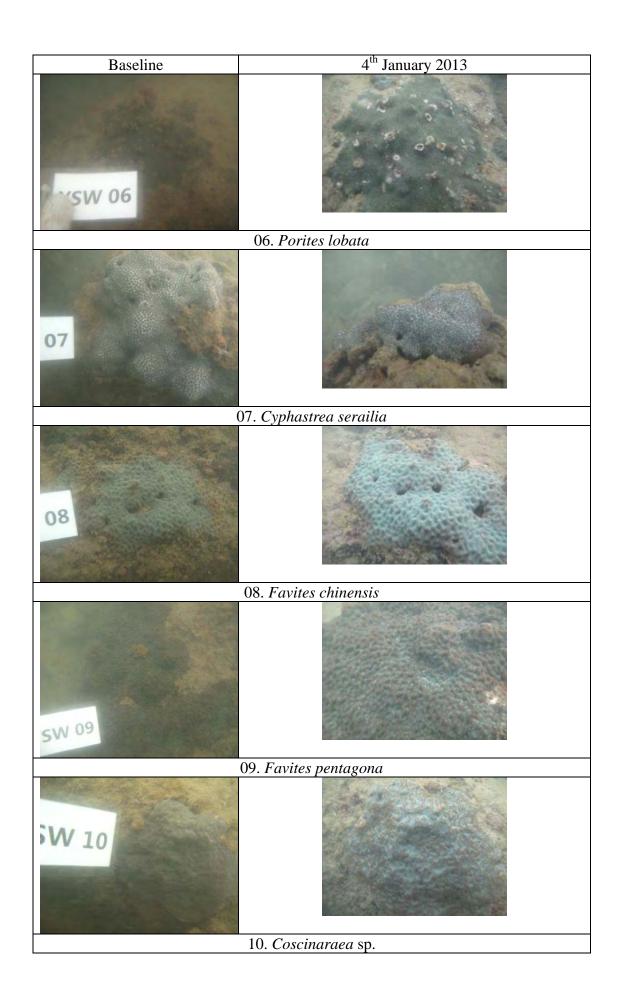
Site: Sham	Wan		Bleaching (%)					
Coral No.	Species Name	Specific Location	Size (cm) (Max. Length)	Sediment Cover (%)	Blanched/Pale	Bleached	Total/Partial Mortality (%)	Remarks
1	Favia favus	Boulder	14	0	0	0	0	N/A
2	Favia rotumana	Boulder	21	0	0	0	0	N/A
3	Favia rotumana	Boulder	27	0	0	0	0	N/A
4	Favia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

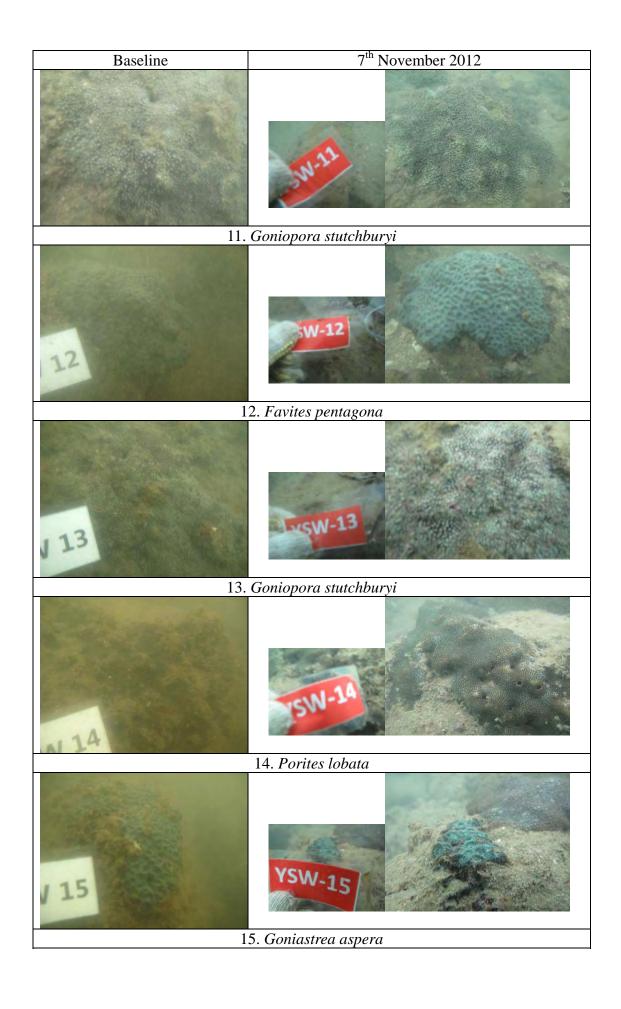
Site: Sham	Wan		Bleaching	g (%)				
Coral No.	Species Name	Specific Location	Size (cm) (Max. Length)	Sediment Cover (%)	Blanched/Pale	Bleached	Total/Partial Mortality (%)	Remarks
15	Favia favus	Boulder	14	0	0	0	0	N/A
16	Favia rotumana	Boulder	30	0	0	0	0	N/A
17	Favia favus	Bedrock	26	0	0	0	0	N/A
18	Favia rotumana	Bedrock	28	0	0	0	0	N/A
19	Cyphastrea serailia	Bedrock	39	0	0	0	0	N/A
20	Cyphastrea serailia	Bedrock	27	0	0	0	0	N/A

6. COMMENTS AND CONCLUSION

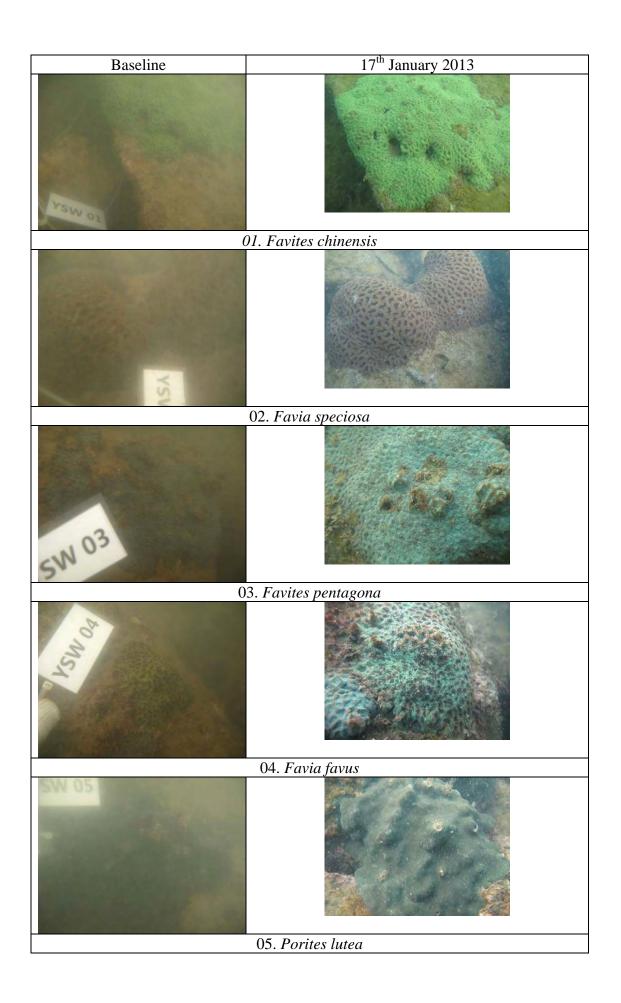
- 6.1 Coral monitoring were performed on 4th and 17th January 2013 at Yung Shue Wan and Sham Wan and 20 hard coral colonies were monitored at each sites.
- 6.2 In Yeung Shu Wan, coral colonies #14, #17 and #18 were recorded to have 1%. 2% and 1% sediment respectively on 4th; coral colonies #16 was recorded to have 1% sediment on 17th. No sediment was recorded in other coral colonies during the survey. No sediment was recorded during the survey in Sham Wan. No beaching or mortality was recorded on both sites during the monitoring period. The coral coverage in both impact site (YSW) and control site (SW) are relatively low when compared with other coral communities in Hong Kong (such as Sharp Island and Hoi Ha Wan). Most of the coral colonies recorded in both site are common species in Hong Kong water.
- 6.3 Partially mortality on the soft/black corals was not recorded at the monitoring site. No bleaching or deterioration in the general condition of the coral fauna was observed. No adverse deterioration of the coral community was observed in the ecological monitoring results when compared with the baseline ecological monitoring results. Some tags were missing in YSW during the January survey, new tags will be used in February 2013 survey.

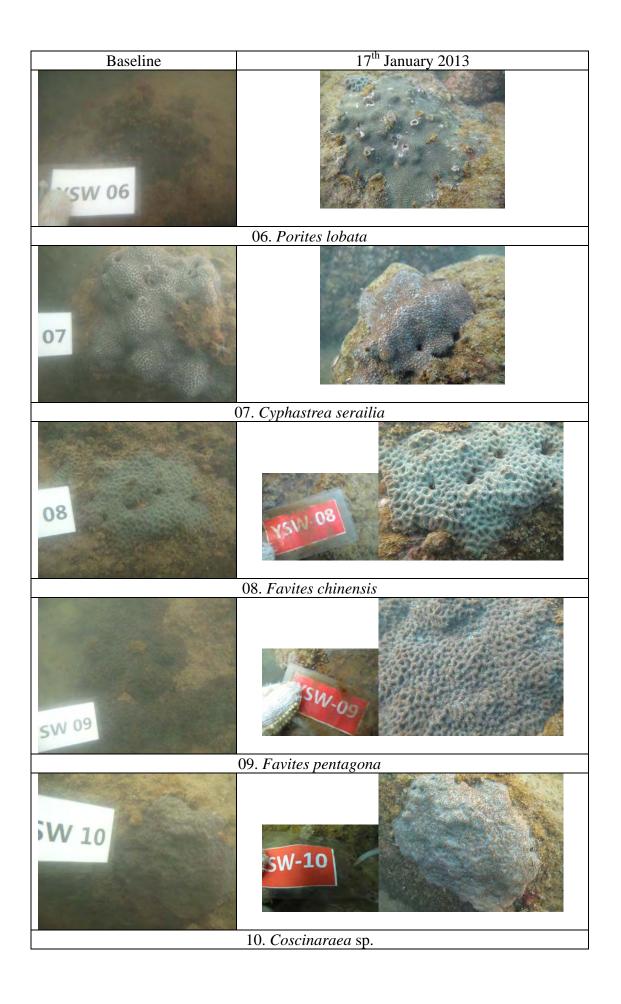


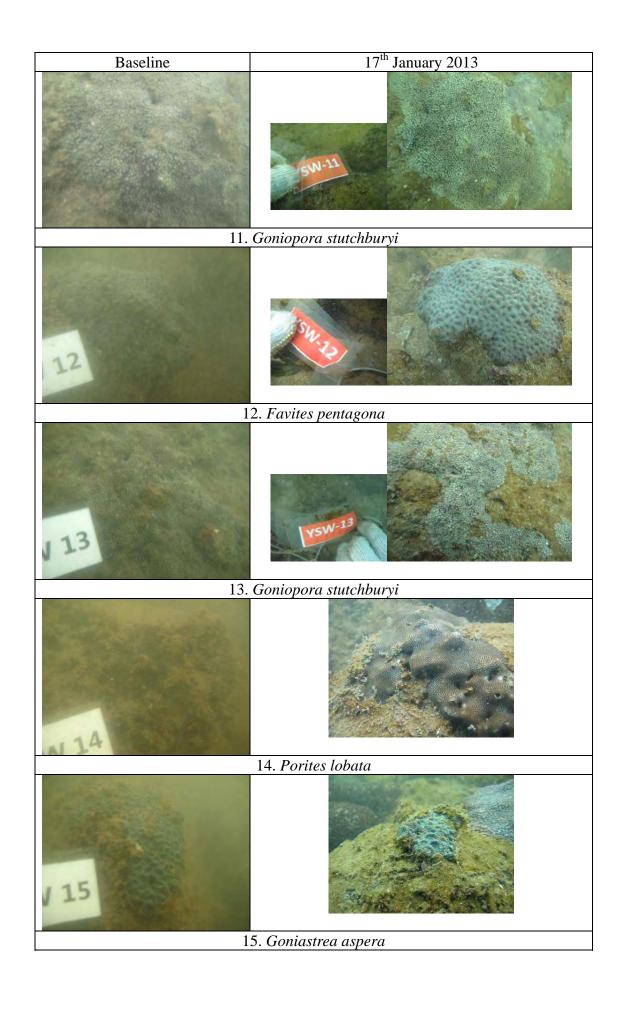


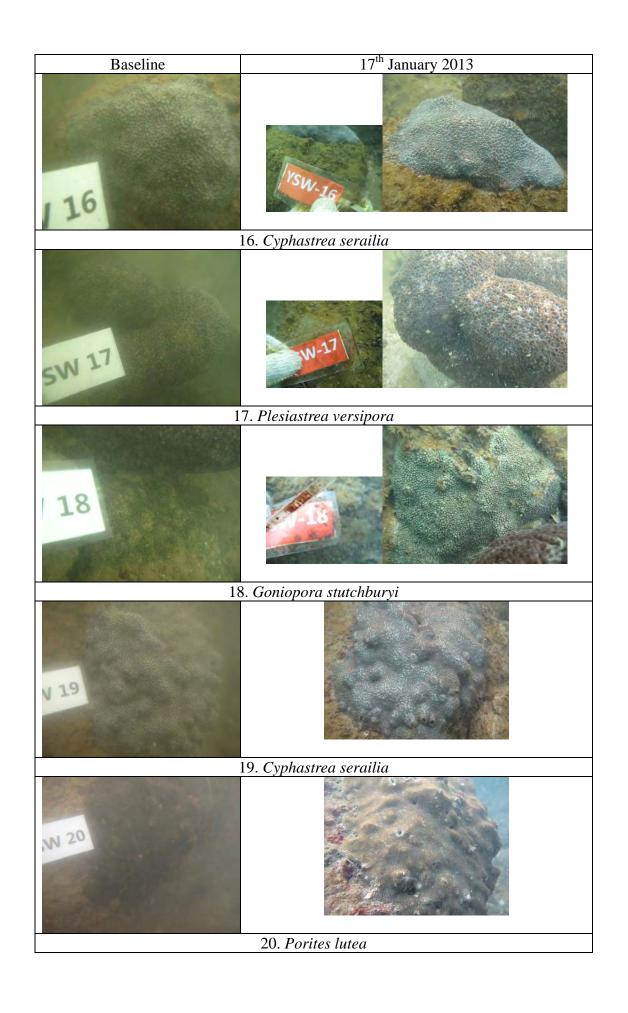




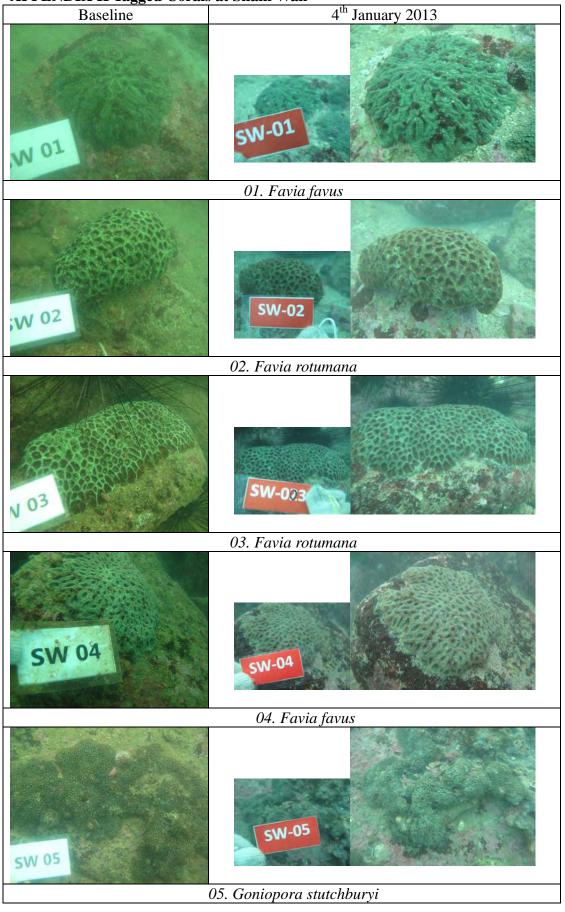


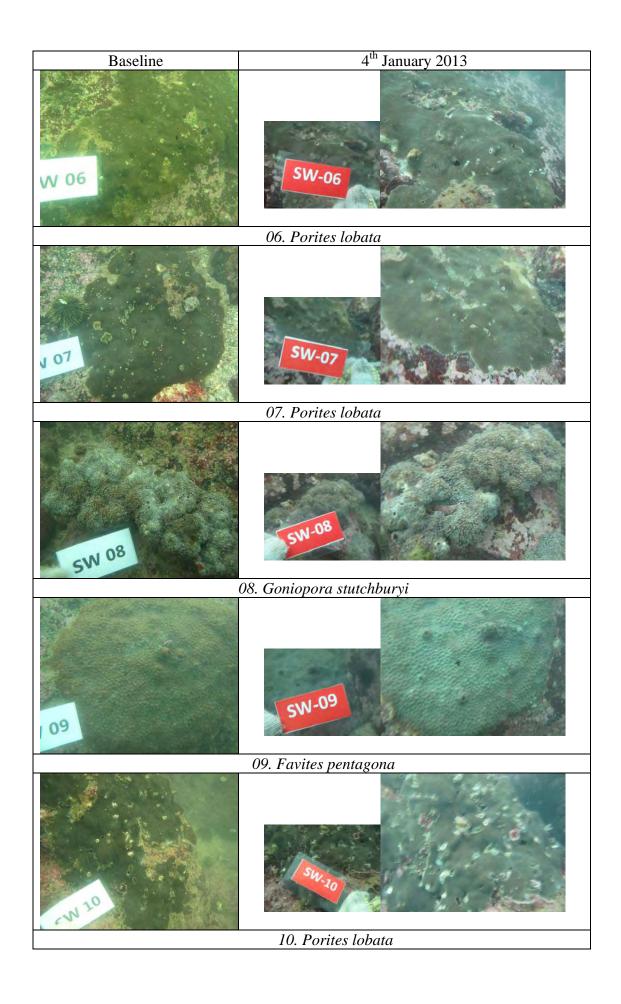


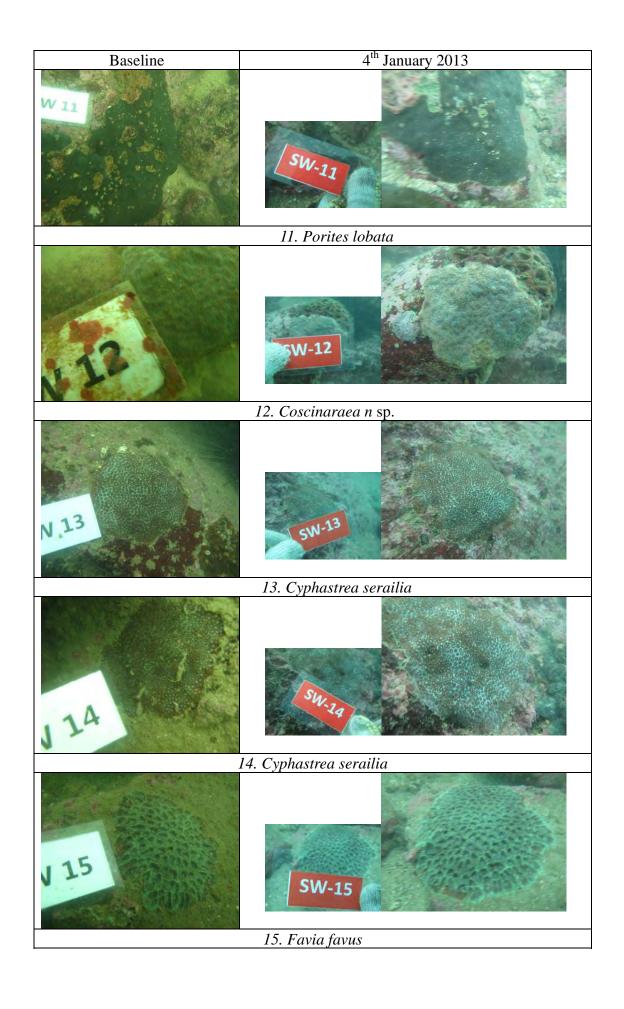


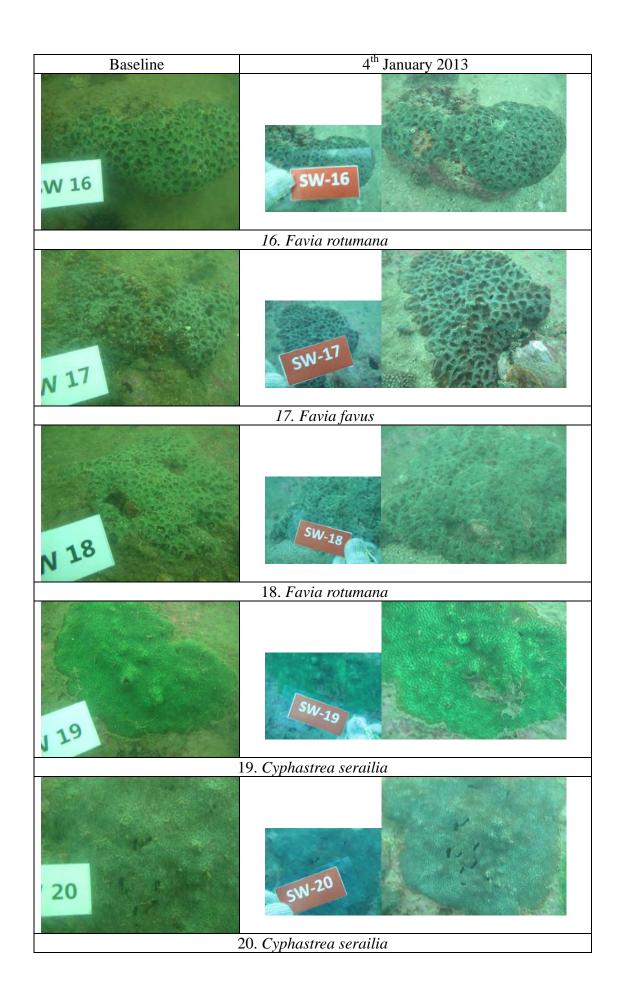


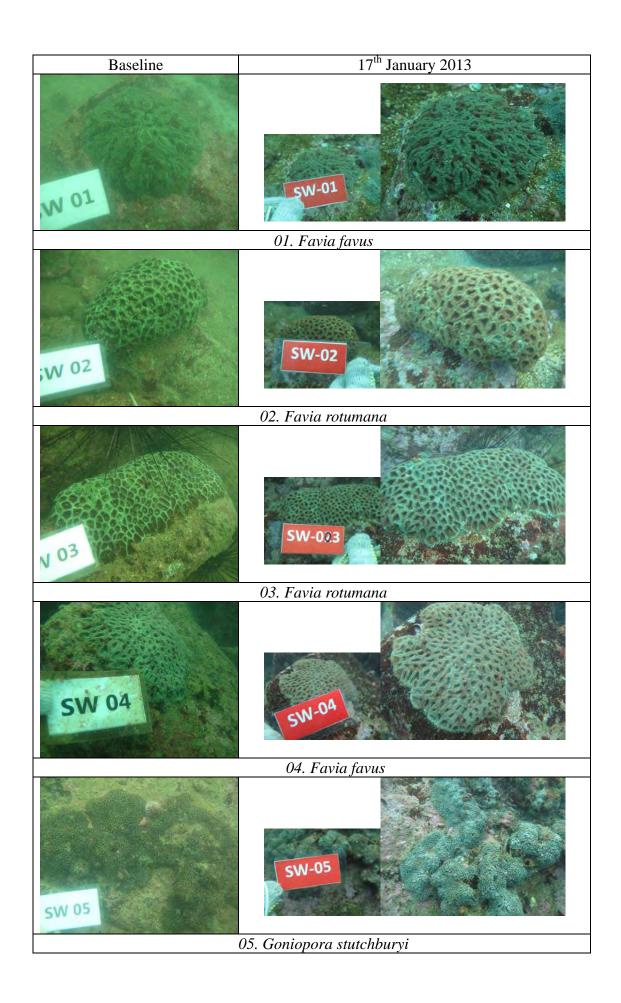
APPENDIX II Tagged Corals at Sham Wan

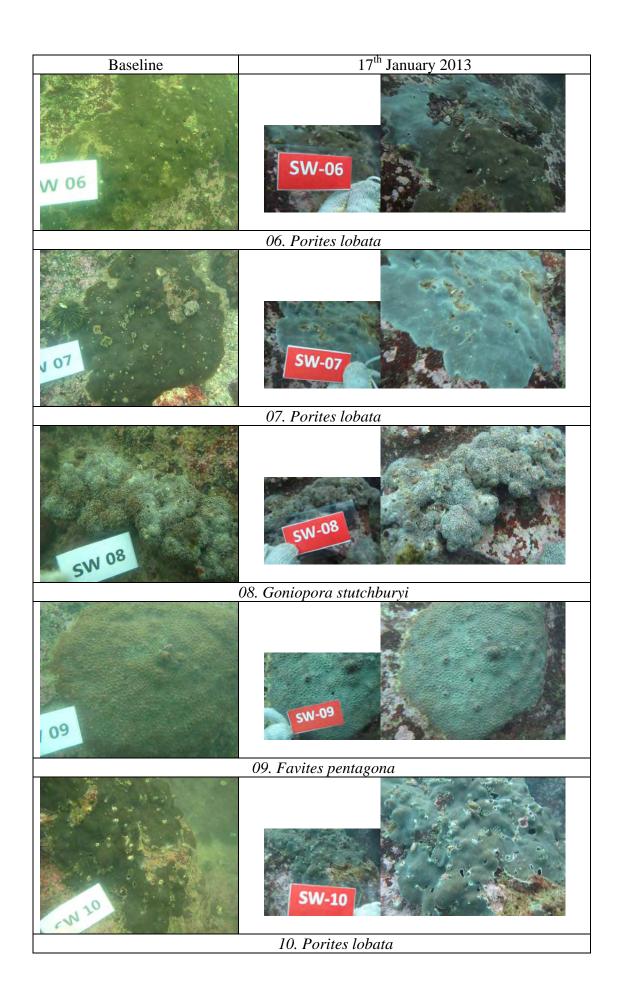


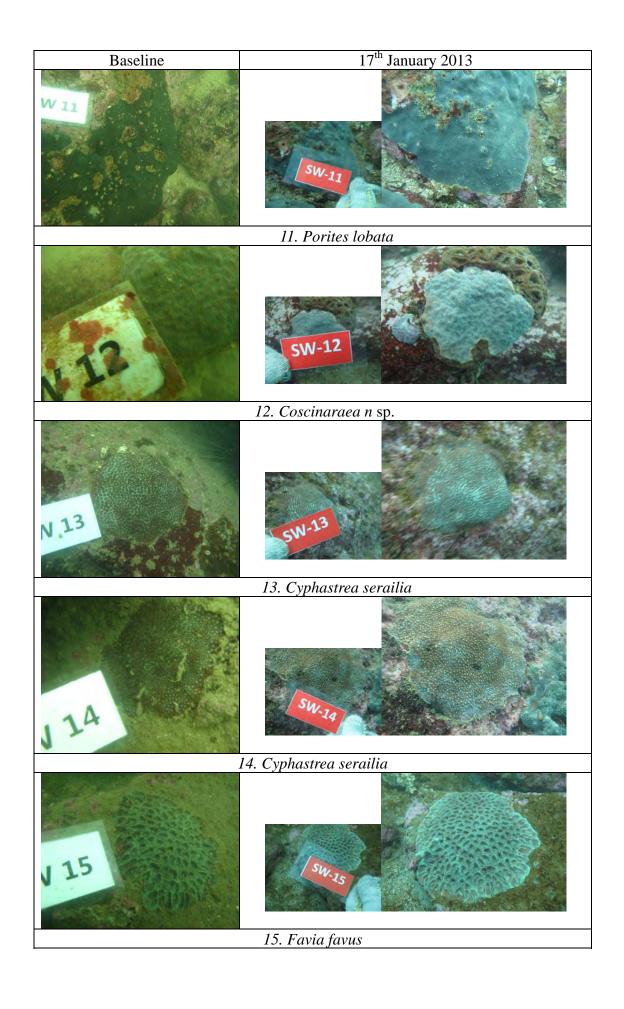


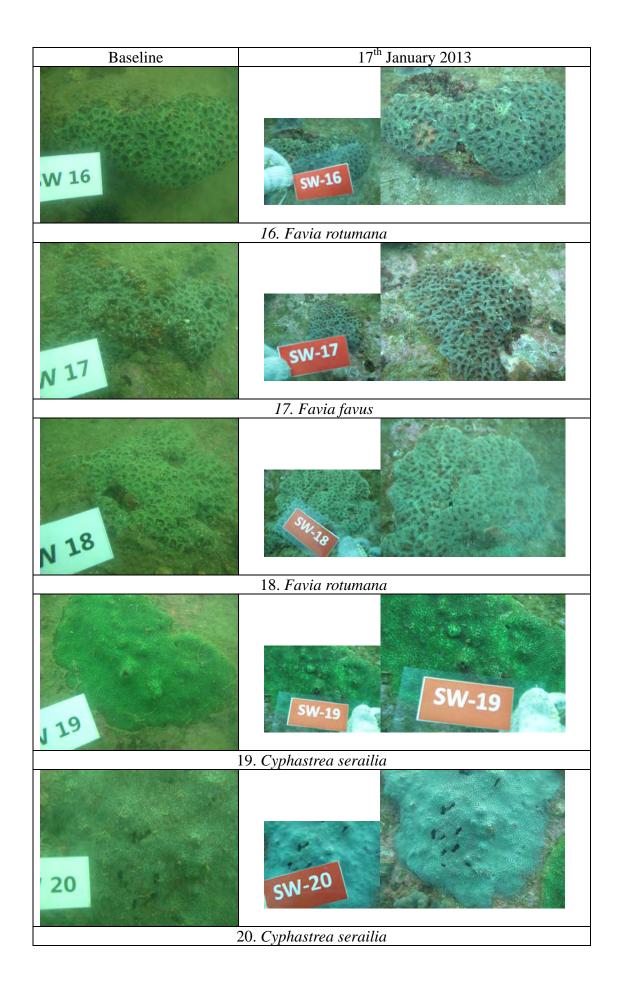














Appendix N

Investigation Report for Exceedance



To Mr. Vincent Chan Fax No 2982 1163

Company Leader Civil Engineering Corporation Ltd

From Nicola Hon Date 20 February 2013

Our Ref TCS00512/09/300/F0608 No of Pages 4 (Incl. cover sheet)

RE DSD Contract No. DC/2009/13 – Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan

Yung Shue Wan Portion Area – Investigation Report for Exceedances of 24-hour TSP monitoring at AC02b and AC04c on 10 January 2013

(NOE ref. TCS00512/09/300/F0600)

If you do not receive all pages, or transmission is illegible, please contact the originator on (852) 2959-6059 to re-send. Should this facsimile be sent to the wrong fax number, would receiver please destroy this copy and notify Action-United Environmental Services & Consulting immediately. Thank you.

With reference to facsimile from the Contractor on 8 February regards to the site activities and environmental conditions during the exceedance day. The investigation of the captioned exceedance concludes that the exceedance was not related to the works under the Project. Details are as follows:

- 1. The construction activities conducted on 10 January 2013 included precast concrete pipe installation; formwork erection for U-Channel; excavation for 2 no. of 750mm depth drain pits and indoor E&M equipment installation.
- 2. The majority of works were carried out inside building. With the implementation of the required construction dust suppression measures such as watering of haul roads and wheel washing prior to exit the site, major construction activities undertaken during the captioned exceedance i.e. indoor works etc., were not dusty as shown by the TSP results before 10 January 2013.
- 3. It was recorded that some sand and aggregate which not related to the project were delivered to the stockpile next to Yung Shue Wan playground in early of January 2013. The unmitigated sand stockpile created fugitive dust over the playground and access road during dry and windy season.
- 4. Other the other hand, a concurrent construction project, R.C. construction for new police station, was in progress in the Architectural Service Department's (ASD) work site which is about 10m and 25m adjacent to monitoring location AC04c and AC02b respectively. It was considered as one of the source attributable to the 24-hour TSP exceedance.
- 5. It is concluded that the exceedance was not related to the works under the Project. As no consecutive exceedances were recorded on the next monitoring, no remedial actions are required. Nevertheless, full implementation of the recommended environmental mitigation measures, in particular construction dust suppression measures during dusty construction activities including vehicle and construction plant movement, is strongly recommended under dry and windy conditions.

Please also find attached the annexes of below for your reference.

Annex A: Photo record

Annex B: Map for the Air Monitoring Locations and Active Construction Site in Yung Shue Wan

安順聯合環境服務及顧問 Action-United Environmental Services & Consulting Flat A, 20/F, Gold King Industrial Building, 35-41, Tai Lin Pai Road, Kwai Chung, New Territories. Tel (852) 2959-6059 Fax (852) 2959-6079 Should you have any queries, please do not hesitate to contact the undersigned at Tel: 2959-6059 or via Fax: 2959-6079.

Yours Faithfully, For and on Behalf of

Action-United Environmental Services & Consulting

Nicola Hon

Environmental Consultant

Encl.

c.c. SCJV (RE) Attn: Mr. Ian Jones (fax: 2982 4129)

Scott Wilson (IEC) Attn: Mr. Rodney Ip (fax: 2428 9922)
DSD Attn: Ms. Jacky Wong (fax: 2833 -9162)

EPD Attn: Mr. Simon Ho (fax: 2835 1153)

Annex B: Photo Records



Photo B1: Photo record for air quality mitigation measures provided by the Contractor regularly



Photo B2: Photo record for sand and aggregate stockpiled next to the Yung Shue Wan playground and ASD's work site

Annex C: Map for the Air Monitoring Locations and Active Construction Site in Yung Shue Wan



安順聯合環境服務及顧問 Action-United Environmental Services & Consulting Flat A, 20/F, Gold King Industrial Building, 35-41, Tai Lin Pai Road, Kwai Chung, New Territories. Tel (852) 2959-6059 Fax (852) 2959-6079