



PROJECT NO.: TCS/00512/09

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

**SOK KWU WAN PORTION AREA  
MONTHLY ENVIRONMENTAL MONITORING AND AUDIT  
(EM&A) REPORT (No.22) – MAY 2012**

PREPARED FOR  
**LEADER CIVIL ENGINEERING CORPORATION LIMITED**

**Quality Index**

<b>Date</b>	<b>Reference No.</b>	<b>Prepared By</b>	<b>Approved By</b>
13 June 2012	TCS00512/09/600/R0498v3	 Nicola Hon Environmental Consultant	 T.W. Tam Environmental Team Leader

<b>Version</b>	<b>Date</b>	<b>Description</b>
1	6 June 2012	First Submission
2	12 June 2012	Amended against IEC's comments on 7 June 2012
3	13 June 2012	Amended against IEC's comments on 13 June 2012

# Scott Wilson CDM Joint Venture

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

Your reference:

Our reference: 05117/6/16/389418

Date: 14 June 2012

**BY FAX & EMAIL**

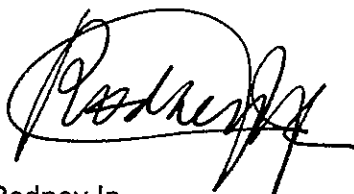
Attention: Mr Kenley C K Kwok

Dear Sirs,

**Contract No. DC/2009/13**  
**Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan**  
**Sok Kwu Wan Portion Area**  
**Monthly Environmental Monitoring and Audit (EM&A) Report No. 22 (May 2012)**

We refer to the Monthly EM&A Monitoring Report No. 22 for May 2012 received under cover of the email from the Environmental Team, Action-United Environmental Services and Consulting (AUES), dated 12 June 2012. 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	(Attn: Mr Vincent Chan)
	AUES	(Attn: Mr T.W. Tam)
	ER/LAMMA	(Attn: Mr Neil Wong)
	CDM	(Attn: Mr Mark Sin)

## EXECUTIVE SUMMARY

ES.01. This is the 22<sup>nd</sup> monthly Environmental Monitoring and Audit (EM&A) Report for Sok Kwu Wan (hereinafter ‘this Report’) for the designated works under the Environmental Permit [EP-281/2007/A], covering a period from 26 April to 25 May 2012 (hereinafter ‘the Reporting Period’).

### ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

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

Issues	Environmental Monitoring Parameters / Inspection	Occasions
Air Quality	1-hour TSP	45
	24-hour TSP	15
Construction Noise	$L_{eq(30min)}$ Daytime	20
Water Quality	Marine Water Sampling	12
Inspection / Audit	ET Regular Environmental Site Inspection	4

ES.03. As informed by the Contractor, the marine work of outfall construction has been commenced on 19 July 2011, therefore, water quality was undertaken in this Reporting Period.

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

ES.04. No exceedance of air quality and construction noise monitoring were recorded in this Reporting Period. The statistics of environmental exceedance, NOE issued and investigation of exceedance are summarized in the following table.

Environmental Issues	Monitoring Parameters	Action Level	Limit Level	Event & Action		
				NOE Issued	Investigation	Corrective Actions
Air Quality	1-hour TSP	0	0	0	--	--
	24-hour TSP	0	0	0	--	--
Construction Noise	$L_{eq(30min)}$ Daytime	0	0	0	--	--
Water Quality	DO	0	0	0	--	--
	Turbidity	0	0	0	--	--
	SS	0	0	0	--	--

Note: NOE – Notification of Exceedance

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

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

### REPORTING CHANGE

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

### SITE INSPECTION BY EXTERNAL PARTIES

ES.07. No site inspection was undertaken by external parties i.e. Environmental Protection Department (EPD) or Agriculture, Fisheries and Conservation Department (AFCD) within the Reporting Period.

### FUTURE KEY ISSUES

ES.08. During wet season, 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 is the key issue of the Project. Mitigation measures for water quality should be properly maintained to prevent any muddy or sandy runoff from the loose soil surface overflow

on the site boundary.

ES.09. Moreover, special attention should be also paid on the dust mitigation measures to avoid fugitive dust emissions from loose soil surface or haul road. Mitigation measures implemented for control the surface runoff including wheel wash facilities, covering of the loose soil surface or stockpile with tarpaulin sheet, etc., should fully implement.

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## 1 INTRODUCTION

### PROJECT BACKGROUND

- 1.01 The Leader Civil Engineering Corporation Limited (Leader) has been awarded the *Contract DC/2009/13 - Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan* (the Project) by the Drainage Services Department (DSD) on 4 May 2010. The Project is part of an overall plan approved under a statutory EIA for Outlying Islands Sewerage Stage 1 Phase 2 Package J – Sok Kwu Wan Sewage Collection and Treatment (Register No. AEIAR-075/2003) and Disposal Facilities and Outlying Islands Sewerage Stage 1 Phase 1 Package C – Yung Shue Wan Sewage Treatment Works and Outfall (Register No. EIA-124/BC). The Environmental Permit (EP) No. EP-281/2007 and EP-282/2007 for the Project have been obtained by the DSD on 29 June 2007 for the relevant works. After July 2009, EP-281/2007/A instead EP-281/2007 is EP for Sok Kwu Wan relevant works.
- 1.02 The Project involves construction of sewage treatment works at Sok Kwu Wan and Yung She Wan with a capacity of 1,430m<sup>3</sup>/day and 2,850m<sup>3</sup>/day respectively to provide secondary treatment, construction of 2 pumping stations at Sok Kwu Wan and 1 pumping station at Yung Shue Wan, construction of submarine outfall from the coastline and laying of underground sewerage pipeline. The site layout plan for the captioned work under the Project is showing in **Appendix A**.
- 1.03 According to the Particular Specification (PS) and **Appendix 25** of the Project, Leader should establish an Environmental Team (ET) to implement the environmental monitoring and auditing works to fulfill the requirements as stipulated in the Environmental Monitoring and Audit (EM&A) Manual. This EM&A Manual is referred to the Appendix B of the Review Report on EIA Study – Sok Kwu Wan (Final) in January 2007 (Agreement No. CE 20/2005(DS)).
- 1.04 Action-United Environmental Services and Consulting (AUES) has been commissioned by Leader as the ET to implement the relevant EM&A programme. Organization chart of the Environmental Team for the Project is shown in **Appendix B**. For ease of reporting, the proposed EM&A programme for baseline and impact monitoring is split to following two stand-alone parts:
- (a) Proposed EM&A Programme for Baseline and Impact Monitoring – Sok Kwu Wan (under EP No. 281/2007/A varied on 23 September 2009)
  - (b) Proposed EM&A Programme for Baseline and Impact Monitoring – Yung Shue Wan (under EP No. 282/2007)
- 1.05 According to the EM&A Manual of Sok Kwu Wan and Yung Shue Wan, baseline water quality monitoring should be carried out for consecutive six months before the marine work commencement. Therefore, the baseline reports of Sok Kwu Wan and Yung Shue Wan are divided to two volumes i.e. the Volume 1 for air quality and noise monitoring; and the Volume II for water quality monitoring for separate submission.
- 1.06 There is a concurrent DSD contract “*DC/2007/18 Yung Shue Wan and Sok Kwu Wan Village Sewerage, Stage 1 Works*” undertaking at Sok Kwu Wan since April 2008.
- 1.07 Consider that the construction works of DC/2007/18 and DC/2009/13 at Sok Kwu Wan is under the same Environmental Permit and EM&A Manual, the performance criteria of air quality and construction noise at Sok Kwu Wan under the Project is recommended to adopt the Action/Limit Levels established by contract DC/2007/18. The Baseline Monitoring Report Volume 1 under the Project for air quality and noise at Sok Kwu Wan was submitted on 9 July 2010 and verified by IEC and for EPD endorsement before the relevant land works commencement on 27 July 2010.
- 1.08 This is the 22<sup>nd</sup> monthly EM&A Report – Sok Kwu Wan Portion Area presenting the monitoring results and inspection findings for the Reporting Period from **26 April to 25 May 2012**.

**REPORT STRUCTURE**

1.09 The Monthly Environmental Monitoring and Audit (EM&A) Report – Sok Kwu Wan is structured into the following sections:-

<b>SECTION 1</b>	<b>INTRODUCTION</b>
<b>SECTION 2</b>	<b>PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS</b>
<b>SECTION 3</b>	<b>SUMMARY OF MONITORING REQUIREMENTS</b>
<b>SECTION 4</b>	<b>AIR QUALITY MONITORING RESULTS</b>
<b>SECTION 5</b>	<b>CONSTRUCTION NOISE MONITORING RESULTS</b>
<b>SECTION 6</b>	<b>WATER QUALITY MONITORING RESULTS</b>
<b>SECTION 7</b>	<b>WASTE MANAGEMENT</b>
<b>SECTION 8</b>	<b>SITE INSPECTIONS</b>
<b>SECTION 9</b>	<b>ENVIRONMENTAL COMPLAINTS AND NON-COMPLIANCE</b>
<b>SECTION 10</b>	<b>IMPLEMENTATION STATUES OF MITIGATION MEASURES</b>
<b>SECTION 11</b>	<b>IMPACT FORECAST</b>
<b>SECTION 12</b>	<b>CONCLUSIONS AND RECOMMENDATION</b>



## 2 PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

### PROJECT ORGANIZATION AND MANAGEMENT STRUCTURE

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

### CONSTRUCTION PROGRESS

- 2.02 The master and three month rolling construction programme are enclosed in [Appendix C](#) and the major construction activities undertaken in this Reporting Period are listed below:-
- Construction of Pumping Station No. 1 & 2
  - Rock Slope Cutting Works
  - Construction of submarine outfall

### SUMMARY OF ENVIRONMENTAL SUBMISSIONS

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

**Table 2-1 Status of Environmental Licenses and Permits**

Item	Description	License/Permit Status
1	Air Pollution Control (Construction Dust) Regulation	Notified EPD on 19 May 2010 Ref.: 317486
2	Chemical Waste Producer Registration	Issued on 8/6/2010 WPN 5213-912-L2720-01
3	Water Pollution Control Ordinance	Approved on 29/9/2010 Valid to: 30/09/2015 Licence no.: WT00007567-2010
4	Billing Account for Disposal of Construction Waste	Issued on 26 May 2010 A/C No: 7010815
5	Construction Noise Permit	Permit no. GW-RS0284-12 Valid from: 26 Mar 2012 Until: 25 Sep 2012
6	Marine Dumping Permit (no. EP/MD/12-133)	Issued on 28 March 2012 Valid from 29 March 2012 Until 31 May 2012

- 2.04 The “Baseline/Impact Monitoring Methodology (TCS00512/09/600/R0010Ver.4)” was set out in accordance with the Sok Kwu Wan EM&A Manual’ requirements. It was approved by the Engineer Representative (ER) and agreed with the Independent Environmental Checker (IEC) and then submitted to the EPD on 8 July 2010.
- 2.05 Baseline Monitoring Report - Volume 1 for Sok Kwu Wan (TCS00512/09/600/R0020Ver.3) was verified by the IEC on 12 July 2010 and submitted to EPD on 12 July 2010.
- 2.06 Baseline Water Quality Monitoring Report - Volume 2 for Sok Kwu Wan (TCS00512/09/600/R0182v7) was revised against EPD comments and re-submitted on 11 October 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; and
  - Marine water quality
- 3.02 The ET implements the EM&A programme in accordance with the aforementioned requirements. Detailed air quality, construction noise and water quality of the EM&A programme are presented in the following sub-sections.
- 3.03 A summary monitoring parameters for the air quality, noise and marine water monitoring is presented in *Table 3-1*:

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

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

#### MONITORING LOCATIONS

##### Air Quality

- 3.04 Three air monitoring stations: AM1, AM2 and AM3 were designated in the *EM&A Manual Section 2.5*. The detailed air monitoring stations is described in *Table 3-2* and graphical is shown in *Appendix D*.

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

Sensitive Receiver	Location
AM1	Squatter house in Chung Mei Village
AM2	Squatter house in Chung Mei Village
AM3	Football court

##### Construction Noise

- 3.05 According to *EM&A Manual Section 3.4*, there were four noise sensitive receivers (NM1-NM4) designated for the construction noise monitoring. NM1, NM2 and NM4 of the three designated monitoring stations were identified and are monitored by the current DSD contract DC/2007/18. However, the premises monitoring station NM3 was rejected by the owner of 1B Sok Kwu Wan and an alternative noise monitoring station RNM3 replacement was proposed by the contract DC/2007/18 ET and accepted by the IEC and EPD before the baseline monitoring commencement in April 2008. The location RNM3 is located at Sok Kwu Wan Sitting-out area which just 3m width footpath away from the original location house 1B. The detailed construction noise monitoring stations to also under the Project 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
NM1	1, Chung Mei Village
NM2	20, Sok Kwu Wan
RNM3	Sok Kwu Wan Sitting-out Area
NM4	2-storey village house at Ta Shui Wan

**Water Quality**

- 3.06 Three control stations (C1-C3) and three impact stations (W1-W3) were recommended in the *EM&A Manual Section 4.5*. Impact stations W1-W3 identified at the sensitive receivers (FCZ and secondary contact recreation subzone) to monitor the impacts from the construction of the submarine outfall as well as the effluent discharge from the proposed STW on water quality. Three control stations: C1, C2 & C3 were specified at locations representative of the project site in its undisturbed condition and located at upstream and downstream of the works area. Detailed and co-ordination of marine water quality monitoring stations is described in *Table 3-4* and the graphical is shown in *Appendix D* and would be performed for EM&A programme.

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

Station	Description	Co-ordnance	
		Easting	Northing
W1	Secondary recreation contact subzone at Mo Tat Wan	832 968	807 732
W2	Fish culture zone at Picnic Bay	832 670	807 985
W3	Fish culture zone at Picnic Bay	832 045	807 893
C1 (flood)	Control Station	833 703	808 172
C2	Control Station	831 467	807 747
C3 (ebb)	Control Station	832 220	808 862

**MONITORING FREQUENCY AND PERIOD**

- 3.07 The impact monitoring carried out in the EM&A programme is basically in accordance with the requirements in *EM&A Manual Sections 2.7, 3.6, 4.7 and 4.8*. The monitoring requirements are listed as follows.

**Air Quality Monitoring**

Parameters: 1-hour TSP and 24-hour TSP.

Frequency: Once in every six days for 24-hour TSP and three times in every six days for 1-hour TSP.

Duration: Throughout the construction period.

**Noise Monitoring**

Parameters:  $L_{eq(30min)}$  &  $L_{eq(5min)}$ ,  $L_{10}$  and  $L_{90}$ .  
 $L_{eq(15min)}$  &  $L_{eq(5min)}$ ,  $L_{10}$  and  $L_{90}$  during the construction undertaken during Restricted hours (19:00 to 07:00 hours next of normal working day and full day of public holiday and Sunday)

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

Duration: Throughout the construction period.

**Marine Water Quality Monitoring**

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

- Frequency: Three days a week, at mid ebb and mid flood tides. The interval between 2 sets of monitoring will be more than 36 hours.
- Sampling Depth
- (i.) Three depths: 1m below water surface, 1m above sea bottom and at mid-depth when the water depth exceeds 6m.
  - (ii.) If the water depth is between 3m and 6m, two depths: 1m below water surface and 1m above sea bottom.
  - (iii.) If the water depth is less than 3m, 1 sample at mid-depth is taken
- Duration: During the course of marine works

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

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

### **MONITORING EQUIPMENT**

#### Air Quality Monitoring

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

#### Noise Monitoring

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

#### Water Quality Monitoring

- 3.11 ***Dissolved Oxygen and Temperature Measuring Equipment*** – The instrument should be a portable and weatherproof dissolved oxygen (DO) measuring instrument complete with cable and sensor, and use a DC power source. The equipment should be capable of measuring as included a DO level in the range of 0 – 20mg L<sup>-1</sup> and 0 – 200% saturation; and a temperature of 0 – 45 degree Celsius.
- 3.12 ***pH Meter*** – The instrument shall consist of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It shall be readable to 0.1 pH in a range of 0 to 14.
- 3.13 ***Turbidity (NTU) Measuring Equipment*** – The instrument should be a portable and weatherproof turbidity measuring instrument using a DC power source. It should have a photoelectric sensor capable of measuring turbidity between 0 - 1000 NTU.
- 3.14 ***Water Sampling Equipment*** – A water sampler should comprise a transparent PVC cylinder, with a capacity of not less than 2 litres, which can be effectively sealed with latex cups at both ends. The sampler should have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth.
- 3.15 ***Water Depth Detector*** – A portable, battery-operated echo sounder should be used for the determination of water depth at each designated monitoring station. This unit can either be hand held or affixed to the bottom of the work boat.
- 3.16 ***Salinity Measuring Equipment*** – A portable salinometer capable of measuring salinity in the range of 0 - 40 parts per thousand (ppt) should be provided for measuring salinity of the water at each monitoring location.

- 3.17 **Sample Containers and Storage** – Water samples for suspended solids should be stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4°C without being frozen).
- 3.18 **Monitoring Position Equipment** - A hand-held or boat-fixed type digital Differential Global Positioning System (DGPS) with way point bearing indication and Radio Technical Commission for maritime (RTCM) Type 16 error message ‘screen pop-up’ facilities (for real-time auto-display of error messages and DGPS corrections from the Hong Kong Hydrographic Office), or other equipment instrument of similar accuracy, should be provided and used during marine water monitoring to ensure the monitoring vessel is at the correct location before taking measurements.
- 3.19 **Suspended Solids Analysis** – Analysis of suspended solids shall be carried out in a HOKLAS or other international accredited laboratory.

#### EQUIPMENT CALIBRATION

- 3.20 Calibration of the HVS is performed upon installation in accordance with the manufacturer’s instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5025A). The calibration data are properly documented and the records are maintained by ET for future reference.
- 3.21 The 1-hour TSP meter was calibrated by the supplier prior to purchase. Zero response of the equipment was checked before and after each monitoring event. In-house calibration with the High Volume Sampler (HVS) in same condition was undertaken in yearly basis.
- 3.22 The sound level meter and calibrator are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at yearly basis.
- 3.23 The Water Quality Monitoring equipments such as DO meter, pH meter, turbidity measuring instrument and salinometer, are calibrated by HOKLAS accredited laboratory of three month intervals.
- 3.24 All updated calibration certificates of the monitoring equipment used for the impact monitoring programme in the Reporting Period would be attached in [Appendix E](#).

#### METEOROLOGICAL INFORMATION

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

#### DATA MANAGEMENT AND DATA QA/QC CONTROL

- 3.26 The impact monitoring data are handled by the ET’s systematic data recording and management, which complies with in-house Quality Management System. Standard Field Data Sheets (FDS) are used in the impact monitoring programme.
- 3.27 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

- 3.28 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 26<sup>th</sup> of the last month and the end

day, the 25<sup>th</sup> of that month.

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

- 3.29 According to the Sok Kwu Wan Environmental Monitoring and Audit Manual, the air quality, construction noise and marine water quality were set up, namely Action and Limit levels are listed in *Tables 3-5, 3-6 and 3-7* as below.

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

Monitoring Station	Action Level ( $\mu\text{g}/\text{m}^3$ )		Limit Level ( $\mu\text{g}/\text{m}^3$ )	
	1-hour	24-hour	1-hour	24-hour
AM1	343	173	500	260
AM2	331	175	500	260
AM3	353	191	500	260

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

Monitoring Location	Action Level	Limit Level
	0700-1900 hours on normal weekdays	
NM1 NM2 RNM3 NM4	When one or more documented complaints are received	75 dB(A) of $L_{\text{eq}(30\text{min})}$ during normal hours from 0700 to 1900 hours on normal weekdays, reduced to 70 dB(A) of $L_{\text{eq}(30\text{min})}$ for schools and 65 dB(A) during school examination periods

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

Parameter	Performance Criteria	Impact Station		
		W1	W2	W3
DO Concentration (Surface and Middle) (mg/L)	Action Level	5.39	4.64	4.71
	Limit Level	5.29	4.56	4.54
DO Concentration (Bottom) (mg/L)	Action Level	N/A	3.60	3.37
	Limit Level	N/A	3.06	3.18
Turbidity (Depth-Average) (NTU)	Action Level	4.39	4.84	6.48
	Limit Level	6.06	5.99	6.71
Suspended Solids (Depth-Average) (mg/L)	Action Level	12.41	9.24	10.79
	Limit Level	12.68	11.28	12.25

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



#### 4 IMPACT MONITORING RESULTS - AIR QUALITY

4.01 The impact EM&A programme was carried out as compliance with the contract Particular Specification, Sok Kwu Wan EM&A Manual and the EP.

##### Results of Air Quality Monitoring

4.02 In this Reporting Period, **45** and **15** monitoring events were performed for 1-hour TSP and 24-hour TSP monitoring respectively at the designated locations AM1, AM2 and AM3. The monitoring results for 24-hour and 1-hour TSP are summarized in *Tables 4-1, 4-2 and 4-3*. The detail 24-hour TSP data are shown in *Appendix G* and the graphical plots of are shown in *Appendix H*.

**Table 4-1 Summary of 24-hour and 1-hour TSP Monitoring Results – AM1**

Date	24-hour TSP ( $\mu\text{g}/\text{m}^3$ )	1-hour TSP ( $\mu\text{g}/\text{m}^3$ )				
		Date	Start Time	1 <sup>st</sup> hour measured	2 <sup>nd</sup> hour measured	3 <sup>rd</sup> hour measured
27-Apr-12	33	30-Apr-12	10:00	79	87	84
3-May-12	22	5-May-12	10:00	77	81	79
9-May-12	14	10-May-12	8:00	49	46	47
15-May-12	17	16-May-12	9:00	51	48	46
21-May-12	43	22-May-12	8:00	54	58	55
Average (Range)	<b>26</b> (14 – 43)	Average (Range)		<b>63</b> (46 – 87)		

**Table 4-2 Summary of 24-hour and 1-hour TSP Monitoring Results – AM2**

Date	24-hour TSP ( $\mu\text{g}/\text{m}^3$ )	1-hour TSP ( $\mu\text{g}/\text{m}^3$ )				
		Date	Start Time	1 <sup>st</sup> hour measured	2 <sup>nd</sup> hour measured	3 <sup>rd</sup> hour measured
27-Apr-12	52	30-Apr-12	12:05	82	86	83
3-May-12	30	5-May-12	12:05	67	74	68
9-May-12	27	10-May-12	10:15	57	51	53
15-May-12	19	16-May-12	11:45	69	73	66
21-May-12	30	22-May-12	10:30	60	69	57
Average (Range)	<b>32</b> (19 – 52)	Average (Range)		<b>68</b> (51 – 86)		

**Table 4-3 Summary of 24-hour and 1-hour TSP Monitoring Results – AM3**

Date	24-hour TSP ( $\mu\text{g}/\text{m}^3$ )	1-hour TSP ( $\mu\text{g}/\text{m}^3$ )				
		Date	Start Time	1 <sup>st</sup> hour measured	2 <sup>nd</sup> hour measured	3 <sup>rd</sup> hour measured
27-Apr-12	65	30-Apr-12	14:20	174	179	171
3-May-12	40	5-May-12	14:30	141	149	145
9-May-12	69	10-May-12	12:30	149	145	147
15-May-12	132	16-May-12	14:00	139	149	141
21-May-12	40	22-May-12	12:30	137	148	139
Average (Range)	<b>69</b> (40 – 132)	Average (Range)		<b>150</b> (137– 179)		

Remark: bold and italic indicated Action Level exceedance.

4.03 As shown in *Tables 4-1, 4-2 and 4-3*, 1-hour and 24-hour TSP results fluctuated well below the Action Level during the Reporting Period.

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

## 5 IMPACT MONITORING RESULTS – CONSTRUCTION NOISE

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

### Results of Construction Noise Monitoring

5.02 In this Reporting Period, a total of **20** construction noise monitoring events were undertaken at designated location NM1, NM2, RNM3 and NM4. The results for  $L_{eq30min}$  at NM1, NM2, RNM3 and NM4 are summarized in *Tables 5-1, 5-2, 5-3 and 5-4* and graphical plots are shown in *Appendix H*.

**Table 5-1 Summarized of Construction Noise Monitoring Results at NM1**

Date	Start Time	End time	1 <sup>st</sup> Leq5	2 <sup>nd</sup> Leq5	3 <sup>rd</sup> Leq5	4 <sup>th</sup> Leq5	5 <sup>th</sup> Leq5	6 <sup>th</sup> Leq5	Leq30
30-Apr-12	13:07	13:37	57.6	55.8	61.0	55.7	54.5	53.0	57.1
5-May-12	14:00	14:30	53.4	51.6	50.1	52.9	55.2	53.9	53.1
10-May-12	11:00	11:30	58.8	56.3	62.6	59.9	65.8	56.0	61.3
16-May-12	13:00	13:30	58.8	58.9	58.1	60.7	62.5	56.9	59.7
22-May-12	10:30	11:00	49.7	50.3	51.6	50.5	52.9	51.7	51.3
<b>Limit Level in dB(A)</b>									<b>75</b>

**Table 5-2 Summarized of Construction Noise Monitoring Results at NM2**

Date	Start Time	End time	1 <sup>st</sup> Leq5	2 <sup>nd</sup> Leq5	3 <sup>rd</sup> Leq5	4 <sup>th</sup> Leq5	5 <sup>th</sup> Leq5	6 <sup>th</sup> Leq5	Leq30
30-Apr-12	13:42	14:12	64.6	62.7	62.8	63.0	62.6	62.7	63.1
5-May-12	14:51	15:21	63.3	63.4	63.0	63.4	64.9	66.4	64.2
10-May-12	11:10	11:40	65.9	65.9	66.5	66.8	66.1	66.2	66.2
16-May-12	13:40	14:10	66.4	66.5	64.4	64.5	64.6	64.1	65.2
22-May-12	11:05	11:35	56.0	55.2	60.4	58.3	58.9	60.5	58.7
<b>Limit Level in dB(A)</b>									<b>75</b>

**Table 5-3 Summarized of Construction Noise Monitoring Results at RNM3**

Date	Start Time	End time	1 <sup>st</sup> Leq5	2 <sup>nd</sup> Leq5	3 <sup>rd</sup> Leq5	4 <sup>th</sup> Leq5	5 <sup>th</sup> Leq5	6 <sup>th</sup> Leq5	Leq30	Corrected* Leq30
30-Apr-12	14:21	14:51	63.1	63.8	63.0	62.9	66.8	63.1	64.0	67.0
5-May-12	15:30	16:00	64.7	71.0	68.1	65.0	64.9	63.7	67.1	70.1
10-May-12	13:00	13:30	64.5	66.2	64.5	64.8	65.6	66.1	65.3	68.3
16-May-12	14:15	14:45	63.8	65.6	65.7	65.7	65.4	67.5	65.8	68.8
22-May-12	11:40	12:10	56.2	55.2	56.5	55.0	56.2	55.2	55.8	58.8
<b>Limit Level in dB(A)</b>									<b>75</b>	

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

**Table 5-4 Summarized of Construction Noise Monitoring Results at NM4**

Date	Start Time	End time	1 <sup>st</sup> Leq5	2 <sup>nd</sup> Leq5	3 <sup>rd</sup> Leq5	4 <sup>th</sup> Leq5	5 <sup>th</sup> Leq5	6 <sup>th</sup> Leq5	Leq30
30-Apr-12	15:07	15:37	61.2	60.3	58.9	64.2	61.3	59.4	61.3
5-May-12	16:05	16:35	64.3	64.2	64.0	64.8	64.1	64.1	64.3
10-May-12	13:35	14:05	66.7	65.9	66.0	66.4	66.4	76.7	70.5
16-May-12	14:50	15:20	66.7	65.9	66.0	66.4	66.4	66.7	66.4
22-May-12	13:00	13:30	59.3	59.8	59.7	61.9	60.6	61.3	60.5
<b>Limit Level in dB(A)</b>									<b>75</b>

5.03 It was noted that no noise complaint (which is an Action Level exceedance) was received. During the noise monitoring, external noise sources from traffic road, animals, human, trolley and ventilation system were observed occasionally. In view of the results shown in *Tables 5-1, 5-2, 5-3 and 5-4* which were all below 75dB(A), no Action or Limit Level exceedance was triggered during this month.



## 6 IMPACT MONITORING RESULTS – WATER QUALITY

- 6.01 The construction of marine outfall works was commenced on 19 July 2011 and therefore marine water quality monitoring is required in this Reporting Period. In this Reporting Period, 12 events of water quality monitoring were carried out at the designated locations.
- 6.02 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 During the Reporting Period, field measurements of both control and impact stations showed that marine water of the depth average of the salinity concentration was within **24.93 to 34.03** ppt, and pH value was within **7.13 to 8.60**.
- 6.04 Monitoring results of 3 key parameters: dissolved oxygen (DO), turbidity and suspended solids (SS) in this Reporting Period, are summarized in *Tables 6-1, 6-2, 6-3 and 6-4*. A summary of exceedances for the 3 parameters are shown in *Table 6-5*.

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

Sampling date	Dissolved Oxygen conc. of Depth Ave. of Surf. and Mid Layer (mg/L)						Dissolved Oxygen conc. of Depth Ave. of Bottom Layer (mg/L)					
	W1	W2	W3	C1	C2	C3	W1	W2	W3	C1	C2	C3
27-Apr-12	6.73	6.74	6.71	6.34	6.56	6.43	NA	6.45	6.49	6.26	6.46	6.32
30-Apr-12	6.53	6.54	6.56	6.53	6.48	6.55	NA	6.51	6.48	6.46	6.55	6.23
2-May-12	5.55	5.51	5.54	4.91	5.62	4.05	NA	5.42	5.28	4.83	5.43	3.70
5-May-12	5.57	5.35	6.19	4.42	6.43	5.22	NA	4.51	4.14	4.07	5.05	4.17
7-May-12	5.51	5.21	5.91	6.21	4.79	4.79	NA	4.45	5.21	5.90	4.44	4.44
10-Apr-12	7.81	7.97	6.75	6.77	7.60	7.60	NA	6.95	7.91	7.08	7.37	7.37
12-Apr-12	7.21	6.94	5.77	7.02	5.80	5.80	NA	5.97	4.05	5.64	5.09	5.09
14-May-12	7.11	7.78	6.54	6.57	6.51	6.51	NA	6.54	5.85	6.49	6.29	6.29
16-May-12	7.52	6.12	8.90	6.57	7.07	7.07	NA	4.09	6.91	5.10	6.32	6.32
18-May-12	10.74	11.34	10.79	10.55	9.50	9.50	NA	10.75	10.49	9.58	7.69	7.69
22-May-12	6.77	5.76	5.68	6.23	5.50	5.50	NA	4.91	4.94	5.18	5.33	5.33
24-May-12	7.53	7.60	7.13	7.40	6.39	6.39	NA	7.30	6.55	7.41	6.55	6.55

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

Sampling date	Turbidity Depth Ave. (NTU)						Suspended Solids Depth Ave. (mg/L)					
	W1	W2	W3	C1	C2	C3	W1	W2	W3	C1	C2	C3
27-Apr-12	1.31	1.51	1.56	1.77	1.64	1.61	2.80	2.87	2.23	2.67	3.50	5.23
30-Apr-12	0.73	1.53	1.21	1.82	1.27	1.64	2.70	0.90	1.60	1.20	3.30	3.07
2-May-12	0.66	1.05	0.89	0.89	0.76	1.08	0.80	2.10	1.10	0.57	0.50	2.03
5-May-12	0.77	1.07	0.92	0.85	0.81	0.92	1.70	1.17	0.70	1.03	0.50	0.80
7-May-12	0.65	0.81	0.91	0.89	0.77	0.96	1.70	1.20	1.37	1.47	1.00	1.70
10-Apr-12	0.70	1.22	1.93	1.08	1.03	2.06	1.00	0.73	1.20	1.40	1.80	1.53
12-Apr-12	0.70	1.18	1.38	1.15	0.80	0.53	0.50	1.30	0.97	1.13	0.80	1.40
14-May-12	0.50	0.57	1.98	0.78	1.82	0.65	1.60	3.43	3.63	3.83	4.40	3.20
16-May-12	0.75	1.92	0.75	1.63	0.83	1.00	3.00	3.87	2.50	2.83	3.23	3.73
18-May-12	0.40	1.48	0.82	1.28	0.58	0.88	1.00	0.80	1.83	0.50	1.73	2.70
22-May-12	0.85	1.43	1.32	1.03	1.65	1.05	0.60	0.77	1.90	0.63	0.90	0.63
24-May-12	4.30	3.03	2.72	2.83	0.55	2.55	5.70	0.83	0.60	2.53	1.47	1.27

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

Sampling date	Dissolved Oxygen conc. of Depth Ave. of Surf. and Mid Layer (mg/L)						Dissolved Oxygen conc. of Depth Ave. of Bottom Layer (mg/L)					
	W1	W2	W3	C1	C2	C3	W1	W2	W3	C1	C2	C3
27-Apr-12	7.92	7.81	7.87	7.37	7.77	7.06	NA	7.53	7.43	7.11	7.49	6.88
30-Apr-12	6.64	6.68	6.68	6.83	6.65	6.69	NA	6.55	6.38	6.42	6.14	6.38
2-May-12	5.50	4.95	5.65	5.15	4.41	4.52	NA	4.32	5.15	4.60	4.14	4.17

Sampling date	Dissolved Oxygen conc. of Depth Ave. of Surf. and Mid Layer (mg/L)						Dissolved Oxygen conc. of Depth Ave. of Bottom Layer (mg/L)					
	W1	W2	W3	C1	C2	C3	W1	W2	W3	C1	C2	C3
5-May-12	5.69	6.05	6.41	5.06	4.61	4.52	NA	5.85	6.19	4.76	4.31	4.62
7-May-12	5.68	5.08	5.85	4.17	4.45	4.22	NA	4.46	4.95	4.45	4.87	3.98
10-Apr-12	7.62	6.96	7.47	6.30	6.08	6.85	NA	6.11	6.77	6.08	6.55	6.91
12-Apr-12	6.84	6.53	5.54	5.73	5.11	5.87	NA	5.64	4.56	5.11	5.58	4.82
14-May-12	7.37	7.67	7.86	7.71	7.07	7.81	NA	7.08	6.65	7.07	7.25	6.66
16-May-12	7.46	7.78	8.09	9.81	8.50	7.81	NA	6.05	6.55	8.50	6.36	6.26
18-May-12	10.84	9.61	9.30	8.80	8.24	8.75	NA	8.17	8.65	8.24	8.10	7.77
22-May-12	7.66	6.90	6.47	7.98	7.60	6.54	NA	6.84	6.34	7.60	5.86	5.53
24-May-12	7.32	7.26	6.52	7.89	8.07	7.68	NA	6.98	6.57	8.07	6.35	6.95

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

Sampling date	Turbidity Depth Ave. (NTU)						Suspended Solids Depth Ave. (mg/L)					
	W1	W2	W3	C1	C2	C3	W1	W2	W3	C1	C2	C3
27-Apr-12	1.57	1.73	1.59	1.90	1.61	1.34	5.50	4.37	3.67	3.67	2.47	2.43
30-Apr-12	1.09	1.70	1.26	1.76	1.25	1.76	1.70	3.37	2.03	3.23	1.75	3.10
2-May-12	0.72	0.69	0.88	1.00	0.77	0.93	0.50	1.70	3.03	0.90	2.17	1.43
5-May-12	0.65	0.77	0.83	0.85	0.77	0.88	1.80	1.40	1.63	1.57	1.13	2.17
7-May-12	0.74	0.86	0.82	0.95	0.80	0.83	0.60	0.50	1.10	0.80	0.60	0.60
10-Apr-12	0.20	1.47	1.38	0.38	3.85	0.50	1.10	1.13	1.37	0.90	1.47	0.70
12-Apr-12	3.50	0.90	0.73	0.73	1.45	0.88	0.50	0.93	1.07	0.73	0.80	0.97
14-May-12	0.50	1.13	1.42	2.28	1.08	0.72	4.60	2.77	1.93	2.93	3.40	3.03
16-May-12	0.50	0.93	1.05	0.72	0.75	0.60	3.10	4.27	3.13	3.47	4.07	3.07
18-May-12	0.55	1.08	0.85	0.50	1.20	0.60	1.10	0.80	0.93	0.63	1.70	0.80
22-May-12	1.05	1.22	1.55	1.00	1.00	1.08	0.50	0.50	0.57	0.80	0.57	1.07
24-May-12	1.25	0.82	0.78	0.60	0.73	0.75	0.70	0.50	0.60	2.07	0.87	0.80

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

Station	DO (Ave of Surf. & mid-depth)		DO (Ave. of Bottom Layer)		Turbidity (Depth Ave.)		SS (Depth Ave)		Total Exceedance	
	Action	Limit	Action	Limit	Action	Limit	Action	Limit	Action	Limit
<b>Mid-Ebb</b>										
W1	0	0	0	0	0	0	0	0	0	0
W2	0	0	0	0	0	0	0	0	0	0
W3	0	0	0	0	0	0	0	0	0	0
<b>Mid-Flood</b>										
W1	0	0	0	0	0	0	0	0	0	0
W2	0	0	0	0	0	0	0	0	0	0
W3	0	0	0	0	0	0	0	0	0	0
No of Exceedance	0	0	0	0	0	0	0	0	0	0

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

## 7 ECOLOGY

- 7.01 According to Clause 3.7 and Figure 4 in the Environmental Permit No. EP-281/2007/A, a total of 12 numbers *Celtis Timorensis* (uncommon species) in Chung Mei at Sok Kwu Wan, are identified to require labeling, fencing and protection. Out of these, four numbers located in the Pumping Station No.1 area are required to be transplanted in advance of pumping station construction and the transplantation proposal has been submitted to EPD previously.
- 7.02 Regular inspection of the transplanted tree was carried out by the landscaping sub-Contractor (Melofield Nursery and Landscape Contractor Limited) on **30 April and 15 May 2012**. As a contingency measure in case that CT7 to CT10 can no longer be recovered, additional 7 no. of *Celtis Timorensis* (No. CT\_1A to CT7A) were planted adjacent to the under-monitoring *Celtis Timorensis* CT7 to CT10 on 30 April 2011. The tree inspection report is presented in [Appendix M](#).
- 7.03 Following a damage of uncommon tree species, *Celtis Timorensis* reported by the ET on 25 April 2012, a site inspection has been carried out by the landscape sub-contractor – Melofield Nursery & Landscape Contractor Ltd. (Melofield) on 30 April 2012 to investigate the incident. The investigation result is summarized as below:-
- During the Site Inspection on 30 April 2012, it was found that 3 nos. of additionally planted *Celtis Timorensis*, namely CT\_1A, CT\_3A and CT\_7A, were damaged by tree trunks unexpectedly fell down to the protection area.
  - The trunks end was found attacked by white ants and decayed seriously.
  - For tree ID. CT\_1A, the stem was snapped by a broken tree trunk. The status of the plant was death.
  - For tree ID. CT\_3A, the stem was damaged by a broken tree trunk. No significant improvement in health and the status of plant is weak.
  - For tree ID. CT\_7A, the stem was snapped by a broken tree trunk. The status of the plant was death.
- 7.04 It is concluded that the damage of the plant was due to the tree decayed by white ants, in view of this natural phenomena, no prompt action was recommended by the landscape sub-contractor. However, considering that the condition of remaining plants were in very poor condition, compensatory of additional *Celtis Timorensis* is proposed and will carried out in the coming warm water season for better growing.

## 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 [Table 8-1](#) and [8-2](#) and the Monthly Summary Waste Flow Table is shown in [Appendix J](#). Whenever possible, materials were reused on-site as far as practicable.

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

Type of Waste	Quantity	Disposal Location
C&D Materials (Inert) ('000m <sup>3</sup> )	0	-
Reused in the Contract (Inert) ('000m <sup>3</sup> )	0	-
Reused in other Projects (Inert) ('000m <sup>3</sup> )	0	-
Disposal as Public Fill (Inert) ('000m <sup>3</sup> )	0.916	WENT Landfill Site

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

Type of Waste	Quantity	Disposal Location
Metal (kg)	0	-
Paper / Cardboard Packing (kg)	0	-
Plastic (kg)	0	-
Chemical Wastes (kg)	0	-
General Refuses (tonne)	5.09	Outlying Islands Transfer Facilities (Sok Kwu Wan)

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

## 9 SITE INSPECTION

- 9.01 According to the Environmental Monitoring and Audit Manual, the environmental site inspection should be formulated by ET Leader. Regular environmental site inspections had been carried out by the ET to confirm the environmental performance. In this Reporting Period, weekly site inspection by ET was carried out on **2, 8, 15 and 22 May 2012** and a joint-site visit by IEC Representative, RE, the Contractor and ET was carried out on **8 May 2012**.
- 9.02 The findings/ deficiencies that observed during the weekly site inspection are listed in *Table 9-1* and the relevant checklists are attached in *Appendix K*.

**Table 9-1 Site Observations**

<b>Date</b>	<b>Findings / Deficiencies</b>	<b>Follow-Up Status</b>
2 May 2012	<ul style="list-style-type: none"><li>Mosquito control is reminded near PS1.</li></ul>	Not required for reminder.
8 May 2012	<ul style="list-style-type: none"><li>No environmental issue was observed during site inspection.</li></ul>	N.A.
15 May 2012	<ul style="list-style-type: none"><li>No environmental issue was observed during site inspection.</li></ul>	N.A.
22 May 2012	<ul style="list-style-type: none"><li>No environmental issue was observed during site inspection.</li></ul>	N.A.

## 10 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

10.01 No environmental complaint, summons and prosecution was received in this Reporting Period. The statistical summary table of environmental complaint is presented in [Tables 10-1, 10-2](#) and [10-3](#).

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

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
27 July 2010 – 31 December 2011	1 (Nov 2011)	1 (Nov 2011)	water quality
January - April 2012	0	1 (Nov 2011)	NA
May 2012	0	1 (Nov 2011)	NA

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

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
27 July 2010 – 31 December 2011	0	0	NA
January - April 2012	0	0	NA
May 2012	0	0	NA

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

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
27 July 2010 – 31 December 2011	0	0	NA
January - April 2012	0	0	NA
May 2012	0	0	NA

## 11 IMPLEMENTATION STATUS OF MITIGATION MEASURES

11.01 The environmental mitigation measures that recommended in the Sok Kwu Wan Environmental Monitoring and Audit 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:

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

### Noise Mitigation Measure

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

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

### Water Quality Mitigation Measure

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



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

Construction Run-off and Drainage

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

General Construction Activities

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



Wastewater Arising from Workforce

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

**Sediment Contamination Mitigation Measure**

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

**Construction Waste Mitigation Measure**

Good Site Practices and Waste Reduction Measures

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

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

#### General Site Wastes

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

#### Chemical Wastes

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

#### Construction and Demolition Material

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

#### Ecology Mitigation Measure

##### Terrestrial Ecology

- 11.20 The uncommon tree species should be labelled and probably fenced to avoid direct or indirect disturbance during construction. Works areas should avoid woodland habitats, in particular where these trees are located.
- 11.21 Construction and maintenance of site runoff control measures would be required at all work sites during construction. These should include barriers to direct runoff to sand/silt removal facilities (sand/silt/traps and/or sediment basins); minimisation of earthworks during rainy season (May to September); and coverage of sand/fill piles and exposed earth during storms.

11.22 Special attention should be paid during the breeding season of Romer’s Tree Frog (March to September) to ensure their habitat landward to Pumping Station P2 site is well protected from site runoff. Barriers should be deployed completely along the landward side of the pumping station site boundary to prevent any site runoff from entering the tree frog habitat. Intactness of the barriers should be frequently inspected.

Intertidal and Subtidal Ecology

11.23 Construction and maintenance of site runoff control measures would be required at all work sites during construction. These should include barriers to direct runoff to sand/silt removal facilities (sand/silt/traps and/or sediment basins); use of silt curtains along coastline; minimisation of earthworks during rainy season (May to September); and coverage of sand/fill piles and exposed earth during storms.

11.24 To reduce impacts of sediment resuspension upon nearby habitats and organisms during dredging, all dredging should be done using a closed-grab dredger, and silt curtains should be deployed around the dredger during all dredging activity

Fisheries Mitigation Measure

11.25 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

11.26 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

11.27 The implementation schedule of mitigation measures is presented in [Appendix L](#).

11.28 Leader had been implementing the required environmental mitigation measures according to the Sok Kwu Wan Environmental Monitoring and Audit Manual subject to the site condition. Environmental mitigation measures generally implemented by Leader in this Reporting Period are summarized in [Table 11-1](#).

**Table 11-1 Environmental Mitigation Measures**

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

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

## 12 IMPACT FORECAST

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

### Water Quality

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

### Air Quality

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

### Noise

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

### Waste and Chemical Management

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

### 13 CONCLUSIONS AND RECOMMENDATIONS

#### CONCLUSIONS

- 13.01 This is the **22<sup>nd</sup>** monthly EM&A Report covering the construction period from **26 April to 25 May 2012**.
- 13.02 No 1-hour and 24-hour TSP results were found to be triggered the Action or Limit Level in this Reporting Period.
- 13.03 No noise complaint (an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in this Reporting Period.
- 13.04 The monitoring result demonstrated no exceedance of Action or Limit Level of marine water quality monitoring in this Reporting Period.
- 13.05 No documented complaint, notification of summons or successful prosecution was received.
- 13.06 In this Reporting Period, weekly site inspection by ET was carried out on **2, 8, 15 and 22 May 2012** and a joint-site visit by IEC Representative, RE, the Contractor and ET was carried out on **8 May 2012**. All the observation has been rectified during the next week site inspection. The environmental performance of the Project was therefore considered as satisfactory.
- 13.07 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.

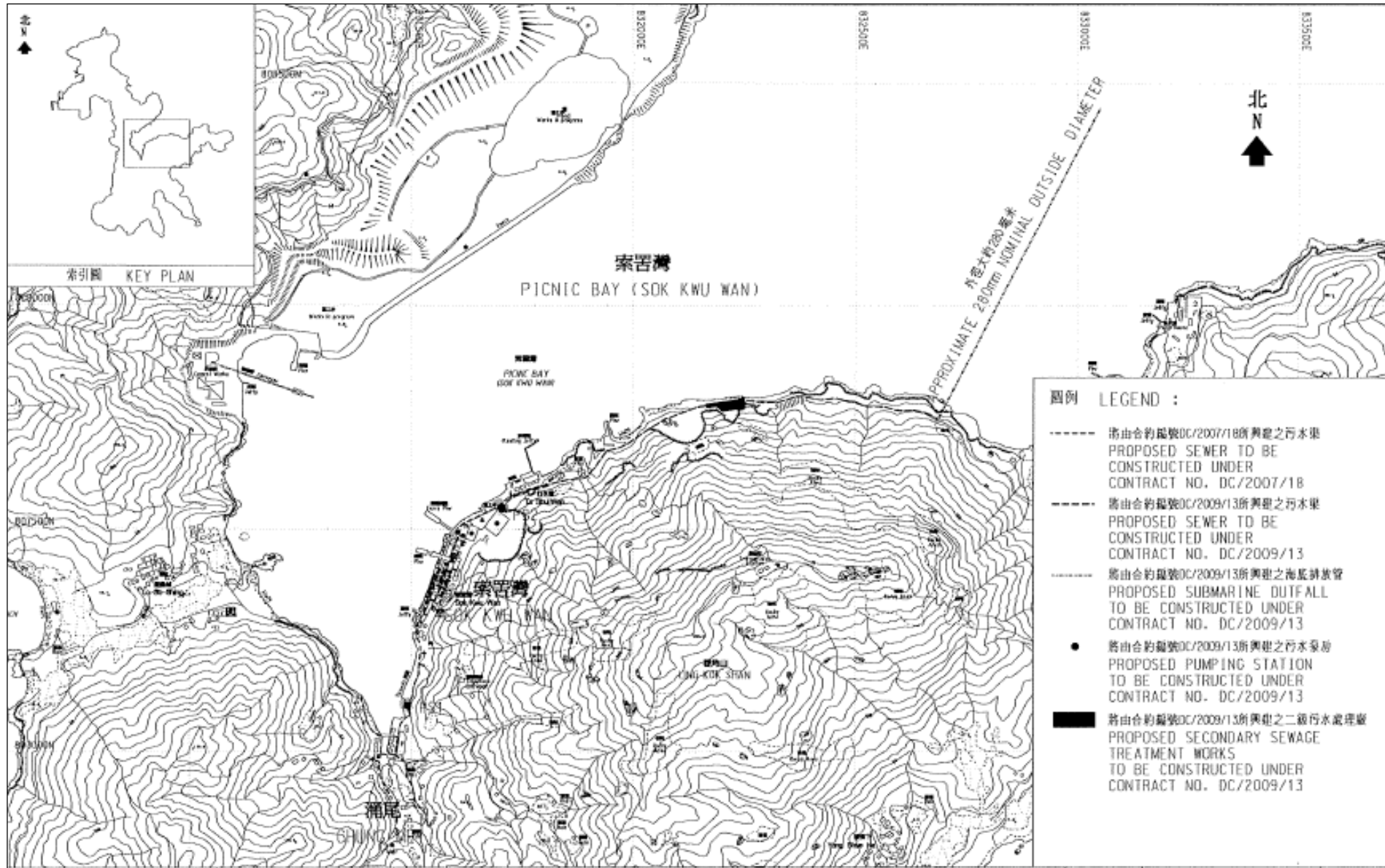
#### RECOMMENDATIONS

- 13.08 During wet season, 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 is the key issue of the Project. Mitigation measures for water quality should be properly maintained to prevent any muddy or sandy runoff from the loose soil surface overflow on the site boundary.
- 13.09 Moreover, special attention should be also paid on the dust mitigation measures to avoid fugitive dust emissions from loose soil surface or haul road. Mitigation measures implemented for control the surface runoff including wheel wash facilities, covering of the loose soil surface or stockpile with tarpaulin sheet, etc., should fully implement.

## **Appendix A**

### **Site Layout Plan – Sok Kwu Wan Portion Area**







## **Appendix B**

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

Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
DSD	Employer	Mr Kenley C K Kwok	-	-
SCJV	Engineer's Representative	Mr. Neil Wong	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	Project Manager	Mr. Vincent Chan	2982 1750	2982 1163
Leader	Site Agent	Mr. Ron Hung	2982 1750	2982 1163
Leader	Environmental Officer	Mr. K.Y. So	2982 8652	2982 8650
Leader	Section Engineer	Mr. Burgess Yip	2982 1750	2982 1163
Leader	Safety Officer	Mr. Edwin Leung	2982 1750	2982 1163
AUES	Environmental Team Leader	Mr. T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Ms. Nicola Hon	2959 6059	2959 6079
AUES	Assistance Environmental Consultant	Mr. Ray Cheung	2959 6059	2959 6079
AUES	Team Supervisor	Mr. Ben Tam	2959 6059	2959 6079

Legend:

*DSD (Employer) – Drainage Services Department*

*CDM (Engineer) – Scott Wilson CDM Joint Venture*

*Leader (Main Contractor) – Leader Civil Engineering Corporation Limited*

*Scott Wilson (IEC) – Scott Wilson Limited*

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

## **Appendix C**

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

Activity ID	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	2010	2011	2012	2013	2014	2015	2016	2017	2018	
<b>Project Key Date</b>																
KD0010	0	05/05/10 A	05/05/10 A		05/05/10 A		Receive Letter of Acceptance									
KD0020	0	17/05/10 A	17/05/10 A		17/05/10 A		Project Commencement Date									
KD0030	0	15/08/11 *	15/08/11 *		15/08/11 *	0 *	Section W1 - Slope Works in Portion A & C (456d)									
KD0040	0	14/02/14 *	14/02/14 *		14/02/14 *	0 *	Section W2 - YSW STW & Submarine Outfall (1370d)									
KD0050	0	13/02/11 *	13/02/11 *		13/02/11 *	0 *	Section W3 - Footpath Diversion in Ptn G (273d)									
KD0060	0	15/08/11 *	15/08/11 *		15/08/11 *	0 *	Section W4 - Slope Works in Portion H & I (456d)									
KD0070	0	15/11/11 *	15/11/11 *		15/11/11 *	0 *	Section W5 - P.S. No. 1 in Portion D (548d)									
KD0080	0	15/11/11 *	15/11/11 *		15/11/11 *	0 *	Section W6 - Sewer & PS No2 in Ptn. E & F (548d)									
KD0090	0	14/02/14 *	14/02/14 *		14/02/14 *	0 *	Section W7 - SKW STW, RM & Sm. Outfall (1370d)									
KD0100	0	15/08/12 *	15/08/12 *		15/08/12 *	0 *	Section W8 - Landscape Softworks (822d)									
KD0110	0	15/08/13 *	15/08/13 *		15/08/13 *	0 *	Section W9 - Establishment Works (1187d)									
KD0115	0	30/06/11 *	30/06/11 *		30/06/11 *	0 *	Start Operate Temp. Sewage Treatment in Port. A&H									
KD0125	0	14/02/14 *	14/02/14 *		14/02/14 *	0 *	Project Completion									
<b>Preliminary (Civil)</b>																
PRE0020	60	17/05/10	15/07/10	19/05/10	17/07/10 *	2d	Pre-condition Survey									
PRE0040	60	17/05/10 *	15/07/10	19/05/10	17/07/10 *	2d	Erection of Engineer's Site Accommodation at YSW									
PRE0050	75	17/05/10	30/07/10	18/05/10	31/07/10 *	1d	Taking over the Secondary Engineer's Site Accom									
PRE0060	60	17/05/10	15/07/10	18/05/10	16/07/10 *	1d	Application of Consent from Marine Department									
PRE0090	120	17/05/10	13/09/10	17/09/10	14/01/11	123d	Working Group Meeting for Outfall Construction									
PRE0100	120	17/05/10	13/09/10	17/05/10	13/09/10	0	Application & Consent of XP from HyD (Mo Tat Rd)									
PRE0130	90	17/05/10	14/08/10	18/05/10	15/08/10 *	1d	Setup Web-site for EM&A Reporting									
<b>Preliminary (E&amp;M)</b>																
<b>Technical Submission</b>																
<b>Process Design of SKWSTW &amp; YSWSTW</b>																
E&M0010	38	17/05/10	23/06/10	17/05/10	23/06/10	0	Submission									
E&M0020	21	24/06/10	14/07/10	24/06/10	14/07/10	0	Vetting and Comment by ER									
E&M0030	28	15/07/10	11/08/10	20/05/11	16/06/11	309d	Revision and Resubmission									
E&M0080	14	12/08/10	25/08/10	17/06/11	30/06/11	309d	Approval from the Engineer									
<b>Hydraulic Design</b>																
E&M0040	21	15/07/10	04/08/10	15/07/10	04/08/10	0	Submission									
E&M0050	14	05/08/10	18/08/10	27/05/11	09/06/11	295d	Vetting and Comment by ER									
E&M0060	14	19/08/10	01/09/10	10/06/11	23/06/11	295d	Revision and Resubmission									
E&M0430	7	02/09/10	08/09/10	24/06/11	30/06/11	295d	Approval from the Engineer									
<b>Equipment Submission &amp; Approval</b>																
E&M0070	50	17/05/10	05/07/10	08/06/10	27/07/10	22d	Submission of Membrane Module									
E&M0090	14	06/07/10	19/07/10	28/07/10	10/08/10	22d	Vetting and Comment by ER									
E&M0100	14	20/07/10	02/08/10	11/08/10	24/08/10	22d	Revision and Resubmission									
E&M0101	90	05/08/10	02/11/10	05/08/10	02/11/10	0	Submission of Equipment									
E&M0102	60	03/11/10	01/01/11	03/11/10	01/01/11	0	Vetting and Comment by ER									
E&M0103	60	02/01/11	02/03/11	02/01/11	02/03/11	0	Revision and Resubmission									
E&M0110	30	03/03/11	01/04/11	03/03/11	01/04/11	0	Approval on Coarse Screens									
E&M0120	30	03/03/11	01/04/11	03/03/11	01/04/11	0	Approval on Fine Screens									
E&M0130	30	03/03/11	01/04/11	03/03/11	01/04/11	0	Approval on Pumps									
E&M0140	30	03/03/11	01/04/11	03/04/11	02/05/11	31d	Approval on Submersible Mixers									
E&M0150	30	03/03/11	01/04/11	19/03/11	17/04/11	16d	Approval on Grit Removal Equipment									
E&M0160	60	03/08/10	01/10/10	25/08/10	23/10/10	22d	Approval on MBR Membrane Modules (M.M.)									
E&M0170	30	03/03/11	01/04/11	03/03/11	01/04/11	0	Approval on Sludge Dewatering Equipment									
E&M0180	30	03/03/11	01/04/11	18/05/11	16/06/11	76d	Approval on Valves, Pipes & Fittings									
E&M0190	30	03/03/11	01/04/11	18/05/11	16/06/11	76d	Approval on Penstocks									
E&M0200	30	03/03/11	01/04/11	01/08/11	30/08/11	151d	Approval on Instrumentation									
E&M0210	30	03/03/11	01/04/11	03/03/11	01/04/11	0	Approval on MCC & LVSB									
E&M0220	30	03/03/11	01/04/11	11/06/11	10/07/11	100d	Approval on BS Equipment									
E&M0230	30	03/03/11	01/04/11	01/06/11	30/06/11	90d	Approval on FS Equipment									
<b>Drawings Submission &amp; Approval</b>																
E&M0235	60	24/06/10	22/08/10	12/01/11	12/03/11	202d	Sub. P&DI Drawings									
E&M0240	45	05/08/10	18/09/10	18/12/10	31/01/11	135d	Sub. Plant GA Drawings									
E&M0250	45	05/08/10	18/09/10	18/12/10	31/01/11	135d	Sub. Civil Works Requirements Drawings									
E&M0260	90	19/09/10	17/12/10	13/03/11	10/06/11	175d	Sub. Mechanical Installation Drawings									
E&M0270	120	19/09/10	16/01/11	11/02/11	10/06/11	145d	Sub. Electrical Installation Drawings									
E&M0280	120	19/09/10	16/01/11	11/02/11	10/06/11	145d	Sub. BS Installation Drawings									
E&M0290	120	19/09/10	16/01/11	01/02/11	31/05/11	135d	Sub. FS Installation Drawings									
<b>Statutory Submission</b>																
E&M0295	39	02/04/11	10/05/11	01/07/11	08/08/11	90d	Preparation of Submission to HEC									
E&M0300	150	11/05/11	07/10/11	09/08/11	05/01/12	90d	Application & Approval from HEC									
E&M0305	180	08/10/11	04/04/12	06/01/12	03/07/12	90d	Provision of Cables to the STWs									
E&M0320	14	02/04/11	15/04/11	15/04/12	28/04/12	379d	Form 314 Submission to FSD									
E&M0325	14	16/04/11	29/04/11	29/04/12	12/05/12	379d	Submission to WSD									
E&M0330	28	29/09/11	26/10/11	12/07/12	08/08/12	287d	Form 501 Submission to FSD (YSW)									
E&M0340	28	29/09/11	26/10/11	12/07/12	08/08/12	287d	Form 501 Submission to FSD (SKW)									
E&M0350	28	15/04/11	12/05/11	18/01/14	14/02/14	1009d	Form 501 Submission to FSD (PS1 & PS2)									
<b>+Yung Shue Wan</b>																
	1370	17/05/10	14/02/14	17/05/10	14/02/14	0										
<b>Sok Kwu Wan</b>																
<b>Preliminary</b>																
SKW0250	16	17/05/10	01/06/10	17/05/10	01/06/10	0	Approval of Environmental Team									
SKW0260	14	02/06/10	15/06/10	02/06/10	15/06/10	0	Baseline monitoring (Air & Noise)									
SKW0270	213	16/06/10	14/01/11	16/06/10	14/01/11	0	Baseline monitoring (Water)									
<b>Section W3 - Footpath Diversion in Portion G</b>																
<b>Civil &amp; Geotechnical Works</b>																
SKW0240	21	17/05/10	06/06/10	17/05/10	06/06/10	0	Site Clearance									

Start date	05/05/10	Early bar
Finish date	14/02/14	Progress bar
Data date	17/05/10	Critical bar
Run date	11/08/10	Summary bar
Page number	1A	Progress point
		Critical point
		Summary point
		Start milestone point
		Finish milestone point

**Leader Civil Engineering Corp. Ltd.**  
**Contract No. DC/2009/13**  
**Construction of Sewage Treatment Works at YSW & SKW**  
**Works Programme (Rev. 1)**

Date	Revision	Checked	Approved
17/05/10	Revision 0	SiL	VC
31/07/10	Revision 1	SiL	VC

Activity ID	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	2010	2011	2012	2013	2014	2015	2016	2017	2018		
SKW0241	9	07/06/10	15/06/10	07/06/10	15/06/10	0	Initial Survey										
SKW0242	57	16/06/10	11/08/10	16/06/10	11/08/10	0	Excavation to formation for Bay 1 to 5										
SKW0251	21	12/08/10	01/09/10	12/08/10	01/09/10	0	Drill & install Dowel Bar for Bay 1 & 3										
SKW0301	14	02/09/10	15/09/10	02/09/10	15/09/10	0	Erect Formwork, mesh & weephole for Bay 1 & 3										
SKW0311	14	16/09/10	29/09/10	16/09/10	29/09/10	0	Concreting for Bay 1 & 3										
SKW0321	7	30/09/10	06/10/10	30/09/10	06/10/10	0	Drilling & install Dowel Bar for Bay 2 & 5										
SKW0331	7	07/10/10	13/10/10	07/10/10	13/10/10	0	Erect Formwork, mesh & weephole for Bay 2 & 5										
SKW0341	7	14/10/10	20/10/10	14/10/10	20/10/10	0	Concreting for Bay 2 & 5										
SKW0351	21	21/10/10	10/11/10	21/10/10	10/11/10	0	Excavation to formation for Bay 6 to 9										
SKW0361	6	11/11/10	16/11/10	11/11/10	16/11/10	0	Drill & install dowel Bar for Bay 4 & 7										
SKW0371	7	17/11/10	23/11/10	17/11/10	23/11/10	0	Erect formwork, mesh & weephole for Bay 4 & 7										
SKW0381	7	24/11/10	30/11/10	24/11/10	30/11/10	0	Concreting for Bay 4 & 7										
SKW0391	3	01/12/10	03/12/10	01/12/10	03/12/10	0	Drill & install dowel Bar for Bay 6 & 9										
SKW0401	7	04/12/10	10/12/10	04/12/10	10/12/10	0	Erect formwork, mesh & weephole for Bay 6 & 9										
SKW0411	7	11/12/10	17/12/10	11/12/10	17/12/10	0	Concreting for Bay 6 & 9										
SKW0421	1	18/12/10	18/12/10	18/12/10	18/12/10	0	Drill & install dowel Bar for Bay 8										
SKW0431	4	19/12/10	22/12/10	19/12/10	22/12/10	0	Erect formwork, mesh & weephole for Bay 8										
SKW0441	4	23/12/10	26/12/10	23/12/10	26/12/10	0	Concreting for Bay 8										
SKW0461	3	27/12/10	29/12/10	27/12/10	29/12/10	0	Excavation for no fine concrete Bay (1-9)										
SKW0471	7	30/12/10	05/01/11	30/12/10	05/01/11	0	Concreting for no-fine concrete										
SKW0481	14	06/01/11	19/01/11	06/01/11	19/01/11	0	Installation of Wall tie & stone facing										
SKW0491	7	06/01/11	12/01/11	06/01/11	12/01/11	0	Construction of Gabion Wall										
SKW0501	3	06/01/11	08/01/11	06/01/11	08/01/11	0	Place Geotextile										
SKW0511	7	09/01/11	15/01/11	09/01/11	15/01/11	0	Backfill behind the retaining wall to approx. +4										
SKW0521	14	16/01/11	29/01/11	16/01/11	29/01/11	0	Utilities Laying and diversion										
SKW0531	7	30/01/11	05/02/11	30/01/11	05/02/11	0	Concreting for Pavement										
SKW0541	7	06/02/11	12/02/11	06/02/11	12/02/11	0	Installation of Flower Pot										
SKW0551	1	13/02/11	13/02/11	13/02/11	13/02/11	0	Permanent Footpath Diversion										
<b>Section W4 - Slope Works in Portions H &amp; I</b>																	
<b>Geotechnical Works</b>																	
SKW0588	30	15/06/10	14/07/10	15/06/10	14/07/10	0	Construct scaffolding access										
SKW0590	100	15/07/10	22/10/10	15/07/10	22/10/10	0	Site Clearance for Slope										
SKW0591	28	21/09/10	18/10/10	21/09/10	18/10/10	0	Initial Survey for Slope										
SKW0592	80	19/10/10	06/01/11	19/10/10	06/01/11	0	Temporary Rockfall fence at ex. Footpath										
SKW0593	200	28/11/10	15/06/11	28/11/10	15/06/11	0	Cut Slope										
SKW0594	248	11/12/10	15/08/11	11/12/10	15/08/11	0	Road & Drains Works										
SKW0595	260	29/11/10	15/08/11	29/11/10	15/08/11	0	Rock Meshing & Rockfall Fence										
<b>Section W5 - P.S. No. 1 in Portion D</b>																	
<b>Civil &amp; Geotechnical Works</b>																	
SKW0651	7	17/05/10	23/05/10	17/05/10	23/05/10	0	Site Clearance										
SKW0652	7	24/05/10	30/05/10	24/05/10	30/05/10	0	Initial Survey										
SKW0661	30	31/05/10	29/06/10	31/05/10	29/06/10	0	Transplantation for uncommon vegetation										
SKW0681	49	30/06/10	17/08/10	30/06/10	17/08/10	0	Excavate to lower the working platform to +3mPD										
SKW0691	40	18/08/10	26/09/10	18/08/10	26/09/10	0	ELS to +2.2mPD										
SKW0721	92	17/09/10	17/12/10	17/09/10	17/12/10	0	Excavate to formation										
<b>Structural Works</b>																	
SKW0741	15	18/12/10	01/01/11	18/12/10	01/01/11	0	Base Slab (BSD2 & BSD3)										
SKW0751	14	01/01/11	14/01/11	01/01/11	14/01/11	0	Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) Approx.										
SKW0761	14	14/01/11	27/01/11	14/01/11	27/01/11	0	Base Slab (BSD1) to +3.98										
SKW0771	14	27/01/11	09/02/11	27/01/11	09/02/11	0	Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) to +6.3										
SKW0781	14	09/02/11	22/02/11	09/02/11	22/02/11	0	Base Slab (GSB1-3, GSC1-5, GSD1-2)										
SKW0791	14	22/02/11	07/03/11	22/02/11	07/03/11	0	Base Slab (GSE1 & GSF1)										
SKW0801	14	07/03/11	20/03/11	07/03/11	20/03/11	0	Wall & Column (CE1-3, CF1-3)										
SKW0811	14	21/03/11	03/04/11	21/03/11	03/04/11	0	Ground Beam (GB1-1,2 GB2-1,2 GB3-1, GBA-1, GBB1-4)										
SKW0821	14	04/04/11	17/04/11	04/04/11	17/04/11	0	Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) to +10.										
SKW0831	14	18/04/11	01/05/11	18/04/11	01/05/11	0	Roof Beams & Parapet										
SKW0841	45	18/04/11	01/06/11	18/04/11	01/06/11	0	ABWF installation										
SKW0861	168	02/05/11	16/10/11	01/06/11	15/11/11	30d	300mm U-channel & 675mm Step Channel										
<b>E&amp;M Works (PS1)</b>																	
<b>Submission &amp; Delivery</b>																	
E&M1001	113	17/05/10	06/09/10	10/11/10	02/03/11	177d	Submission of Pumps										
E&M1002	143	17/05/10	06/10/10	11/10/10	02/03/11	147d	Submission of Gen-Set										
E&M1003	133	17/05/10	26/09/10	21/10/10	02/03/11	157d	Submission of DeO System										
E&M1004	180	17/05/10	12/11/10	04/09/10	02/03/11	110d	Submission of LV SB & MCC										
E&M1005	180	17/05/10	12/11/10	04/09/10	02/03/11	110d	Submission of Instrumentation										
E&M1006	213	17/05/10	15/12/10	02/08/10	02/03/11	77d	Submission of FS System										
E&M1007	213	17/05/10	15/12/10	02/08/10	02/03/11	77d	Submission of BS System										
E&M1011	60	07/09/10	05/11/10	03/03/11	01/05/11	177d	Delivery of Pumps										
E&M1012	60	07/10/10	05/12/10	03/03/11	01/05/11	147d	Delivery of Gen-Set										
E&M1013	60	27/09/10	25/11/10	03/03/11	01/05/11	157d	Delivery of DeO System										
E&M1014	60	13/11/10	11/01/11	03/03/11	01/05/11	110d	Delivery of LV SB & MCC										
E&M1015	60	13/11/10	11/01/11	03/03/11	01/05/11	110d	Delivery of Instrumentation										
E&M1016	60	16/12/10	13/02/11	03/03/11	01/05/11	77d	Delivery of FS Equipment										
E&M1017	60	16/12/10	13/02/11	03/03/11	01/05/11	77d	Delivery of BS Equipment										
<b>Installation, T&amp;C</b>																	
E&M1101	55	02/05/11	25/06/11	02/05/11	25/06/11	0	Install Pumps										
E&M1102	55	02/05/11	25/06/11	02/05/11	25/06/11	0	Install Gen Set										
E&M1103	55	02/05/11	25/06/11	02/05/11	25/06/11	0	Install DeO System										
E&M1104	55	02/05/11	25/06/11	02/05/11	25/06/11	0	Install LV SB & MCC										
E&M1105	55	02/05/11	25/06/11	02/05/11	25/06/11	0	Install Instrumentation										
E&M1106	55	02/05/11	25/06/11	02/05/11	25/06/11	0	Install FS Equipment										
E&M1107	55	02/05/11	25/06/11	02/05/11	25/06/11	0	Install BS Equipment										
E&M1110	46	26/06/11	10/08/11	27/08/11	11/10/11	62d	Install Valves, Pipes & Fittings										

Start date	05/05/10	■ Early bar
Finish date	14/02/14	■ Progress bar
Data date	17/05/10	■ Critical bar
Run date	11/08/10	■ Summary bar
Page number	2A	▲ Progress point
		▼ Critical point
		◆ Summary point
		◆ Start milestone point
		◆ Finish milestone point

**Leader Civil Engineering Corp. Ltd.**  
**Contract No. DC/2009/13**  
**Construction of Sewage Treatment Works at YSW & SKW**  
**Works Programme (Rev. 1)**

Date	Revision	Checked	Approved
17/05/10	Revision 0	StL	VC
31/07/10	Revision 1	StL	VC

Activity ID	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	2010	2011	2012	2013	2014	2015	2016	2017	2018	
E&M1120	7	11/08/11	17/08/11	12/10/11	18/10/11	62d										
E&M1130	28	18/08/11	14/09/11	19/10/11	15/11/11	62d										
E&M1140	43	26/06/11	07/08/11	26/06/11	07/08/11	0										
E&M1150	7	08/08/11	14/08/11	08/08/11	14/08/11	0										
E&M1160	3	15/08/11	17/08/11	15/08/11	17/08/11	0										
E&M1170	30	18/08/11	16/09/11	18/08/11	16/09/11	0										
E&M11800	60	17/09/11	15/11/11	17/09/11	15/11/11	0										
<b>Section W6 - Sewer and PS No.2 in Portions E&amp;H</b>																
<b>Civil &amp; Geotechnical Works</b>																
SKW0881	7	17/05/10	23/05/10	17/05/10	23/05/10	0										
SKW0891	7	17/05/10	23/05/10	17/05/10	23/05/10	0										
SKW0892	30	24/05/10	22/06/10	24/05/10	22/06/10	0										
SKW0901	30	23/06/10	22/07/10	23/06/10	22/07/10	0										
SKW0921	14	23/07/10	05/08/10	23/07/10	05/08/10	0										
SKW0931	14	06/08/10	19/08/10	06/08/10	19/08/10	0										
SKW0951	106	20/08/10	03/12/10	20/08/10	03/12/10	0										
SKW0961	257	04/12/10	17/08/11	04/03/11	15/11/11	90d										
SKW1491	180	14/09/10	12/03/11	14/09/10	12/03/11	0										
SKW1511	180	13/03/11	08/09/11	13/03/11	08/09/11	0										
SKW1531	34	09/09/11	12/10/11	09/09/11	12/10/11	0										
SKW1581	34	13/10/11	15/11/11	13/10/11	15/11/11	0										
<b>Structural Works</b>																
SKW0971	14	04/12/10	17/12/10	04/12/10	17/12/10	0										
SKW0981	14	18/12/10	31/12/10	18/12/10	31/12/10	0										
SKW0991	14	01/01/11	14/01/11	01/01/11	14/01/11	0										
SKW1001	14	15/01/11	28/01/11	15/01/11	28/01/11	0										
SKW1011	14	29/01/11	11/02/11	29/01/11	11/02/11	0										
SKW1021	20	12/02/11	03/03/11	12/02/11	03/03/11	0										
SKW1031	14	04/03/11	17/03/11	04/03/11	17/03/11	0										
SKW1041	14	18/03/11	31/03/11	18/03/11	31/03/11	0										
SKW1051	14	01/04/11	14/04/11	01/04/11	14/04/11	0										
SKW1061	90	01/04/11	29/06/11	01/04/11	29/06/11	0										
SKW1081	215	15/04/11	15/11/11	15/04/11	15/11/11	0										
<b>E&amp;M Works (PS2)</b>																
<b>Submission &amp; Delivery</b>																
E&M2001	113	17/05/10	06/09/10	17/05/10	06/09/10	0										
E&M2002	143	17/05/10	06/10/10	17/05/10	06/10/10	0										
E&M2003	133	17/05/10	26/09/10	17/05/10	26/09/10	0										
E&M2004	271	17/05/10	11/02/11	17/05/10	11/02/11	0										
E&M2005	243	17/05/10	14/01/11	17/05/10	14/01/11	0										
E&M2006	213	17/05/10	15/12/10	17/05/10	15/12/10	0										
E&M2007	213	17/05/10	15/12/10	17/05/10	15/12/10	0										
E&M2011	282	07/09/10	15/06/11	07/09/10	15/06/11	0										
E&M2012	252	07/10/10	15/06/11	07/10/10	15/06/11	0										
E&M2013	262	27/09/10	15/06/11	27/09/10	15/06/11	0										
E&M2014	62	12/02/11	14/04/11	12/02/11	14/04/11	0										
E&M2015	90	15/01/11	14/04/11	15/01/11	14/04/11	0										
E&M2016	120	16/12/10	14/04/11	16/12/10	14/04/11	0										
E&M2017	120	16/12/10	14/04/11	16/12/10	14/04/11	0										
<b>Installation, T&amp;C</b>																
E&M2101	60	16/06/11	14/08/11	16/06/11	14/08/11	0										
E&M2102	60	16/06/11	14/08/11	16/06/11	14/08/11	0										
E&M2103	60	16/06/11	14/08/11	16/06/11	14/08/11	0										
E&M2104	60	15/04/11	13/06/11	15/04/11	13/06/11	0										
E&M2105	60	15/04/11	13/06/11	15/04/11	13/06/11	0										
E&M2106	60	15/04/11	13/06/11	15/04/11	13/06/11	0										
E&M2107	60	15/04/11	13/06/11	15/04/11	13/06/11	0										
E&M2110	58	15/08/11	11/10/11	15/08/11	11/10/11	0										
E&M2120	7	12/10/11	18/10/11	12/10/11	18/10/11	0										
E&M2130	28	19/10/11	15/11/11	19/10/11	15/11/11	0										
E&M2140	55	14/06/11	07/08/11	14/06/11	07/08/11	0										
E&M2150	7	08/08/11	14/08/11	08/08/11	14/08/11	0										
E&M2160	3	15/08/11	17/08/11	15/08/11	17/08/11	0										
E&M2170	30	18/08/11	16/09/11	18/08/11	16/09/11	0										
E&M2180	60	17/09/11	15/11/11	17/09/11	15/11/11	0										
<b>Section W7 - SKW STW, Sewer and Submarine Outfall</b>																
<b>Submarine Outfall</b>																
SKW1131	60	17/05/10	15/07/10	17/05/10	15/07/10	0										
SKW1141	183	16/07/10	14/01/11	16/07/10	14/01/11	0										
SKW1151	185	15/01/11	18/07/11	15/01/11	18/07/11	0										
SKW1161	90	19/07/11	16/10/11	19/07/11	16/10/11	0										
SKW1171	120	17/10/11	13/02/12	17/10/11	13/02/12	0										
SKW1181	60	14/02/12	13/04/12	14/02/12	13/04/12	0										
SKW1191	30	14/04/12	13/05/12	14/04/12	13/05/12	0										
SKW1201	210	14/05/12	09/12/12	14/05/12	09/12/12	0										
SKW1211	180	10/12/12	07/06/13	10/12/12	07/06/13	0										
SKW1221	57	08/06/13	03/08/13	08/06/13	03/08/13	0										
SKW1231	60	04/08/13	02/10/13	04/08/13	02/10/13	0										
SKW1241	60	03/10/13	01/12/13	03/10/13	01/12/13	0										
SKW1251	45	02/12/13	15/01/14	02/12/13	15/01/14	0										
SKW1431	30	16/01/14	14/02/14	16/01/14	14/02/14	0										
<b>SKW STW</b>																
<b>Submission &amp; Delivery (E&amp;M)</b>																

Start date	05/05/10		Early bar
Finish date	14/02/14		Progress bar
Data date	17/05/10		Critical bar
Run date	11/08/10		Summary bar
Page number	3A		Progress point
			Critical point
			Summary point
			Start milestone point
			Finish milestone point

**Leader Civil Engineering Corp. Ltd.**  
**Contract No. DC/2009/13**  
**Construction of Sewage Treatment Works at YSW & SKW**  
**Works Programme (Rev. 1)**

Date	Revision	Checked	Approved
17/05/10	Revision 0	StL	VC
31/07/10	Revision 1	StL	VC

Activity ID	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	2010	2011	2012	2013	2014	2015	2016	2017	2018
E&M3010	150	02/10/10	28/02/11	21/08/11	17/01/12	323d									
E&M3030	180	02/04/11	28/09/11	18/04/11	14/10/11	16d									
E&M3060	136	02/04/11	15/08/11	02/04/11	15/08/11	0									
E&M3070	136	02/04/11	15/08/11	02/04/11	15/08/11	0									
E&M3080	180	02/04/11	28/09/11	03/05/11	29/10/11	31d									
E&M3090	210	02/04/11	28/10/11	18/07/11	12/02/12	107d									
E&M3100	180	02/04/11	28/09/11	17/06/11	13/12/11	76d									
E&M3110	180	02/04/11	28/09/11	17/06/11	13/12/11	76d									
E&M3130	180	02/04/11	28/09/11	31/08/11	26/02/12	151d									
E&M3140	180	02/04/11	28/09/11	09/05/11	04/11/11	37d									
E&M3150	180	02/04/11	28/09/11	11/07/11	06/01/12	100d									
E&M3160	180	02/04/11	28/09/11	30/07/11	25/01/12	119d									
<b>Construction of Grid A-G</b>															
SKW1261	164	14/02/11	27/07/11	14/02/11	27/07/11	0									
SKW1271	25	28/07/11	21/08/11	28/07/11	21/08/11	0									
SKW1281	25	22/08/11	15/09/11	22/08/11	15/09/11	0									
SKW1291	25	16/09/11	10/10/11	16/09/11	10/10/11	0									
SKW1301	25	11/10/11	04/11/11	11/10/11	04/11/11	0									
SKW1411	85	11/10/11	03/01/12	11/10/11	03/01/12	0									
<b>Construction of Grid G-N</b>															
SKW1311	36	14/02/11	21/03/11	14/02/11	21/03/11	0									
SKW1321	35	22/03/11	25/04/11	22/03/11	25/04/11	0									
SKW1331	35	26/04/11	30/05/11	26/04/11	30/05/11	0									
SKW1341	35	31/05/11	04/07/11	31/05/11	04/07/11	0									
SKW1351	18	05/07/11	22/07/11	05/07/11	22/07/11	0									
SKW1361	24	23/07/11	15/08/11	23/07/11	15/08/11	0									
<b>Construction of Grid N-T</b>															
SKW1371	80	28/07/11	15/10/11	28/07/11	15/10/11	0									
SKW1381	30	16/10/11	14/11/11	16/10/11	14/11/11	0									
SKW1391	30	15/11/11	14/12/11	15/11/11	14/12/11	0									
SKW1401	30	15/12/11	13/01/12	15/12/11	13/01/12	0									
SKW1421	30	14/01/12	12/02/12	14/01/12	12/02/12	0									
<b>SKW STP - E&amp;M Works</b>															
E&M3170	100	16/08/11	23/11/11	18/01/12	26/04/12	155d									
E&M3190	60	15/10/11	13/12/11	15/10/11	13/12/11	0									
E&M3210	60	16/08/11	14/10/11	16/08/11	14/10/11	0									
E&M3220	75	16/08/11	29/10/11	16/08/11	29/10/11	0									
E&M3230	45	30/10/11	13/12/11	30/10/11	13/12/11	0									
E&M3240	74	13/02/12	26/04/12	13/02/12	26/04/12	0									
E&M3250	75	14/12/11	26/02/12	14/12/11	26/02/12	0									
E&M3260	135	14/12/11	26/04/12	14/12/11	26/04/12	0									
E&M3261	174	05/11/11	26/04/12	05/11/11	26/04/12	0									
E&M3270	60	27/02/12	26/04/12	27/02/12	26/04/12	0									
E&M3291	180	29/12/11	25/06/12	07/01/12	04/07/12	9d									
E&M3300	161	29/12/11	06/06/12	26/01/12	04/07/12	28d									
E&M3310	90	27/02/12	26/05/12	11/05/12	08/08/12	74d									
E&M3311	47	27/04/12	12/06/12	27/04/12	12/06/12	0									
E&M3320	47	27/04/12	12/06/12	27/04/12	12/06/12	0									
E&M3321	21	13/06/12	03/07/12	13/06/12	03/07/12	0									
E&M3331	1	04/07/12	04/07/12	04/07/12	04/07/12	0									
E&M3359	35	05/07/12	08/08/12	05/07/12	08/08/12	0									
E&M3360	505	09/08/12	26/12/13	09/08/12	26/12/13	0									
E&M3370	50	27/12/13	14/02/14	27/12/13	14/02/14	0									
<b>Rising Main</b>															
SKW1481	120	17/05/10	13/09/10	17/05/10	13/09/10	0									
SKW1501	300	14/09/10	10/07/11	14/09/10	10/07/11	0									
SKW1521	230	11/07/11	25/02/12	11/07/11	25/02/12	0									
SKW1541	180	26/02/12	23/08/12	26/02/12	23/08/12	0									
SKW1551	180	24/08/12	19/02/13	24/08/12	19/02/13	0									
SKW1561	180	20/02/13	18/08/13	20/02/13	18/08/13	0									
SKW1571	180	19/08/13	14/02/14	19/08/13	14/02/14	0									
<b>Section W8 - Landscape Softworks in All Portions</b>															
SKW1591	21	17/05/10	06/06/10	26/11/13	16/12/13	1289d									
SKW1611	822	17/05/10	15/08/12	17/05/10	15/08/12	0									
SKW1621	60	07/06/10	05/08/10	17/12/13	14/02/14	1289d									
<b>Section W9 - Establishment Works in All Portions</b>															
SKW1631	365	16/08/12	15/08/13	16/08/12	15/08/13	0									

Start date	05/05/10	Early bar
Finish date	14/02/14	Progress bar
Data date	17/05/10	Critical bar
Run date	11/08/10	Summary bar
Page number	4A	Progress point
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		Summary point
		Start milestone point
		Finish milestone point

**Leader Civil Engineering Corp. Ltd.**  
**Contract No. DC/2009/13**  
**Construction of Sewage Treatment Works at YSW & SKW**  
**Works Programme (Rev. 1)**

Date	Revision	Checked	Approved
17/05/10	Revision 0	SiL	VC
31/07/10	Revision 1	SiL	VC



Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012						
											FEB	MAR	APR	MAY	JUN	JUL	
<b>Project Key Date</b>																	
KD0010	Receive Letter of Acceptance	0	100		05/05/10 A		05/05/10 A			KD0125							
KD0020	Project Commencement Date	0	100		17/05/10 A		17/05/10 A			E&M0010, E&M0070, E&M1001,							
KD0030	Section W1 - Slope Works in Portion A & C (456d)	0	100		14/10/11 A		14/10/11 A		YSW0150	KD0125							
KD0050	Section W3 - Footpath Diversion in Ptn G (273d)	0	100		24/03/11 A		24/03/11 A		SKW0551	KD0125							
KD0115	Start Operate Temp Sewage Treatment in Port. A&H	0	0		31/08/12		30/06/11 *	-428d *	E&M0510	KD0125							
<b>Preliminary (Civil)</b>																	
PRE0020	Pre-condition Survey	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A		KD0020								
PRE0040	Erection of Engineer's Site Accommodation at YSW	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A		KD0020								
PRE0050	Taking over the Secondary Engineer's Site Accom	75	100	17/05/10 A	30/07/10 A	17/05/10 A	30/07/10 A		KD0020								
PRE0060	Application of Consent from Marine Department	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A		KD0020								
PRE0090	Working Group Meeting for Outfall Construction	120	100	17/05/10 A	23/11/10 A	17/05/10 A	23/11/10 A		KD0020	SKW1151							
PRE0100	Application & Consent of XP from HyD (Mo Tat Rd)	120	100	17/05/10 A	13/10/10 A	17/05/10 A	13/10/10 A		KD0020	SKW1491, SKW1501							
PRE0130	Setup Web-site for EM&A Reporting	90	100	17/05/10 A	31/08/10 A	17/05/10 A	31/08/10 A		KD0020								
<b>Preliminary (E&amp;M)</b>																	
<b>Technical Submission</b>																	
<b>Process Design of SKWSTW &amp; YSWSTW</b>																	
E&M0010	Submission	38	100	17/05/10 A	23/06/10 A	17/05/10 A	23/06/10 A		KD0020	E&M0020, E&M0040, E&M0235							
E&M0020	Vetting and Comment by ER	21	100	24/06/10 A	14/07/10 A	24/06/10 A	14/07/10 A		E&M0010	E&M0030, E&M0040							
E&M0030	Revision and Resubmission	125	100	17/05/10 A	30/11/11 A	17/05/10 A	30/11/11 A		E&M0020	E&M0080							
E&M0080	Approval from the Engineer	14	100	02/11/11 A	30/11/11 A	02/11/11 A	30/11/11 A		E&M0030	E&M0295							
<b>Hydraulic Design</b>																	
E&M0040	Submission	21	100	17/05/10 A	16/09/10 A	17/05/10 A	16/09/10 A		E&M0010, E&M0020	E&M0050, E&M0101, E&M0240,							
E&M0050	Vetting and Comment by ER	14	100	17/09/10 A	09/11/10 A	17/09/10 A	09/11/10 A		E&M0040	E&M0060							
E&M0060	Revision and Resubmission	97	100	19/08/10 A	30/11/11 A	19/08/10 A	30/11/11 A		E&M0050	E&M0430							
E&M0430	Approval from the Engineer	7	100	29/03/11 A	30/11/11 A	29/03/11 A	30/11/11 A		E&M0060	E&M0295							
<b>Equipment Submission &amp; Approval</b>																	
E&M0070	Submission of Membrane Module	50	100	17/05/10 A	05/07/10 A	17/05/10 A	05/07/10 A		KD0020	E&M0090							
E&M0090	Vetting and Comment by ER	14	100	06/07/10 A	19/07/10 A	06/07/10 A	19/07/10 A		E&M0070	E&M0100							
E&M0100	Revision and Resubmission	14	100	20/07/10 A	24/02/11 A	20/07/10 A	24/02/11 A		E&M0090	E&M0160							
E&M0101	Submission of Equipment	90	100	04/08/10 A	30/11/11 A	04/08/10 A	30/11/11 A		E&M0040	E&M0102							
E&M0102	Vetting and Comment by ER	60	100	18/11/10 A	30/11/11 A	18/11/10 A	30/11/11 A		E&M0101	E&M0103							
E&M0103	Revision and Resubmission	60	100	01/02/11 A	30/11/11 A	01/02/11 A	30/11/11 A		E&M0102	E&M0110, E&M0120, E&M0130,							
E&M0110	Approval on Coarse Screens	30	100	25/05/11 A	25/05/11 A	25/05/11 A	25/05/11 A		E&M0103	E&M0390							
E&M0120	Approval on Fine Screens	30	100	12/09/11 A	12/09/11 A	12/09/11 A	12/09/11 A		E&M0103	E&M0400, E&M3060							
E&M0130	Approval on Pumps	30	100	23/06/11 A	23/06/11 A	23/06/11 A	23/06/11 A		E&M0103	E&M0410, E&M3070							
E&M0140	Approval on Submersible Mixers	30	100	23/03/11 A	23/03/11 A	23/03/11 A	23/03/11 A		E&M0103	E&M0420, E&M3080							
E&M0150	Approval on Grit Removal Equipment	30	100	10/10/11 A	10/10/11 A	10/10/11 A	10/10/11 A		E&M0103	E&M0380, E&M3030							
E&M0160	Approval on MBR Membrane Modules (M.M.)	105	100	02/08/10 A	24/02/11 A	02/08/10 A	24/02/11 A		E&M0100	E&M0360, E&M0370, E&M3010							
E&M0170	Approval on Sludge Dewatering Equipment	30	100	01/09/11 A	01/09/11 A	01/09/11 A	01/09/11 A		E&M0103	E&M0440, E&M3090							
E&M0180	Approval on Valves, Pipes & Fittings	30	100	19/11/11 A	29/02/12 A	19/11/11 A	29/02/12 A		E&M0103	E&M0450, E&M3100							
E&M0190	Approval on Penstocks	30	100	15/11/11 A	15/11/11 A	15/11/11 A	15/11/11 A		E&M0103	E&M0460, E&M3110							
E&M0200	Approval on Instrumentation	30	70	21/06/11 A	08/05/12	21/06/11 A	05/05/12	-3d	E&M0103	E&M0470, E&M3130							
E&M0210	Approval on MCC & LVSB	30	95	19/11/11 A	01/05/12	19/11/11 A	01/04/11	-396d	E&M0103	E&M0480, E&M3140							
E&M0220	Approval on BS Equipment	30	65	30/11/11 A	16/05/12	30/11/11 A	13/10/11	-216d	E&M0103, E&M0280	E&M0490, E&M3150							
E&M0230	Approval on FS Equipment	30	75	30/11/11 A	13/05/12	30/11/11 A	10/11/11	-185d	E&M0103, E&M0290	E&M0295, E&M0320, E&M0500,							
<b>Drawings Submission &amp; Approval</b>																	
E&M0235	Sub. P&ID Drawings	100	100	24/06/10 A	22/08/10 A	24/06/10 A	22/08/10 A		E&M0010								
E&M0240	Sub. Plant GA Drawings	45	100	04/08/10 A	29/02/12 A	04/08/10 A	29/02/12 A		E&M0040	E&M0250, E&M0280, E&M0290							
E&M0250	Sub. Builder's Works Requirements Drawings	15	95	04/08/10 A	03/05/12	04/08/10 A	27/11/11	-158d	E&M0240, E&M0260, E&M0270	E&M0280, E&M0290							
E&M0260	Sub. Mechanical Installation Drawings	60	95	27/09/10 A	02/05/12	27/09/10 A	26/11/11	-158d	E&M0040	E&M0250							
E&M0270	Sub. Electrical Installation Drawings	60	95	27/09/10 A	02/05/12	27/09/10 A	26/11/11	-158d	E&M0040	E&M0250, E&M0280							

Start date	05/05/10		Early bar
Finish date	29/06/15		Progress bar
Data date	30/04/12		Critical bar
Run date	10/05/12		Summary bar
Page number	1A		Progress point
			Critical point
			Summary point
			Start milestone point
			Finish milestone point

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

(Marked on 31 Apr 2012)

Date	Revision	Checked	Approved
30/04/12	Revision 0	RH	VC



Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012						
											FEB	MAR	APR	MAY	JUN	JUL	
E&M0280	Sub. BS Installation Drawings	120	95	27/09/10 A	05/05/12	27/09/10 A	03/10/11	-216d	E&M0240, E&M0250, E&M0270	E&M0220							
E&M0290	Sub. FS Installation Drawings	120	95	13/11/10 A	05/05/12	13/11/10 A	03/11/11	-185d	E&M0240, E&M0250	E&M0230							
<b>Statutory Submission</b>																	
E&M0295	Preparation of Submission to HEC	39	100	01/11/11 A	30/11/11 A	01/11/11 A	30/11/11 A		E&M0080, E&M0230, E&M0430	E&M0300							
E&M0300	Application & Approval from HEC	150	90	01/11/11 A	28/05/12	01/11/11 A	05/01/12	-144d	E&M0295	E&M0305							
E&M0305	Provision of Cables to the STWs	180	0	28/05/12	24/11/12	06/01/12	03/07/12	-144d	E&M0300	E&M0680							
E&M0320	Form 314 Submission to FSD	14	0	13/05/12	27/05/12	29/04/12	12/05/12	-15d	E&M0230	E&M0325, E&M0670							
E&M0325	Submission to WSD	14	100	01/11/11 A	29/02/12 A	01/11/11 A	29/02/12 A		E&M0320	E&M0670, E&M0680							
E&M0350	Form 501 Submission to FSD (PS1 & PS2)	28	0	26/07/12	23/08/12	20/05/15	29/06/15	936d	E&M2016								
<b>Yung Shue Wan</b>																	
<b>Preliminary</b>																	
YSW0020	Approval of Environmental Team	16	100	17/05/10 A	01/06/10 A	17/05/10 A	01/06/10 A		KD0020	YSW0030, YSW0040							
YSW0030	Baseline monitoring (Air & Noise)	14	100	31/07/10 A	22/08/10 A	31/07/10 A	22/08/10 A		YSW0020	YSW0035							
YSW0035	Baseline Monitoring Report Submission (A & N)	14	100	23/08/10 A	07/09/10 A	23/08/10 A	07/09/10 A		YSW0030	YSW0120, YSW0152, YSW0500,							
YSW0040	Baseline monitoring (Water)	213	100	30/07/10 A	31/12/10 A	30/07/10 A	31/12/10 A		YSW0020	YSW0350							
YSW0050	Erect Hoarding and Fencing	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A										
<b>+Section W 1 - Slope Works in Portion A &amp; C</b>																	
		747	96	17/05/10 A	01/06/12	17/05/10 A	14/02/14	623d									
<b>Section W 2 - YSW STW &amp; Submarine Outfall</b>																	
<b>Civil &amp; Structural Work</b>																	
YSW0412	Mobilization	30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A		KD0020	YSW0422							
YSW0422	Site Clearance	30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A		KD0020, YSW0412	YSW0432, YSW0500, YSW0610,							
YSW0432	Initial Survey	14	100	02/06/10 A	15/06/10 A	02/06/10 A	15/06/10 A		YSW0422	YSW0510							
<b>YSW STP - GLH - T</b>																	
YSW0500	ELS & Excavation for Inlet Pumping Station	62	100	17/09/10 A	16/12/10 A	17/09/10 A	16/12/10 A		YSW0035, YSW0422	YSW0510							
YSW0510	Sub-structure construction (Inlet Pumping Str)	30	100	17/12/10 A	04/04/11 A	17/12/10 A	04/04/11 A		YSW0432, YSW0500	YSW0520							
YSW0520	Backfill & Remove ELS (Inlet Pumping Str)	30	100	03/01/11 A	05/05/11 A	03/01/11 A	05/05/11 A		YSW0510	YSW0530, YSW0610							
YSW0530	ELS & Excavation for Equalization Tank	40	100	11/01/11 A	08/06/11 A	11/01/11 A	08/06/11 A		YSW0520	YSW0540							
YSW0540	Sub-structure construction (Equalization Tank)	40	100	13/06/11 A	28/09/11 A	13/06/11 A	28/09/11 A		YSW0530	YSW0550							
YSW0550	Backfilling & Remove ELS (Equalization Tank)	40	100	15/08/11 A	18/10/11 A	15/08/11 A	18/10/11 A		YSW0540	YSW0570							
YSW0570	Excavate to formation by open cut	30	100	02/07/11 A	31/01/12 A	02/07/11 A	31/01/12 A		YSW0550	YSW0580							
YSW0580	Base slab construction	30	100	06/07/11 A	31/03/12 A	06/07/11 A	31/03/12 A		YSW0570	YSW0590							
YSW0590	G/F to 1/F construction	50	98	29/09/11 A	30/04/12	29/09/11 A	30/07/11	-275d	YSW0580	YSW0600							
YSW0600	1/F to Roof construction	50	88	01/11/11 A	06/05/12	01/11/11 A	05/08/11	-275d	YSW0590	YSW0720, YSW0800							
YSW0720	Water Test	36	12	22/02/12 A	07/06/12	22/02/12 A	10/09/11	-271d	YSW0600	E&M0530, E&M0540, E&M0550,							
YSW0800	ABWF installation	36	0	21/03/12 A	11/06/12	21/03/12 A	10/09/11	-275d	YSW0600	E&M0530, E&M0540, E&M0550,							
<b>YSW STP - GLT - X</b>																	
YSW0610	Excavate to formation	50	100	08/09/10 A	17/09/10 A	08/09/10 A	17/09/10 A		YSW0035, YSW0422, YSW0520	YSW0620							
YSW0620	Base slab construction	60	100	18/09/10 A	23/05/11 A	18/09/10 A	23/05/11 A		YSW0610	YSW0630							
YSW0630	G/F to 1/F construction	95	100	27/12/10 A	19/07/11 A	27/12/10 A	19/07/11 A		YSW0620	YSW0640							
YSW0640	1/F to Roof Construction	91	98	20/07/11 A	01/05/12	20/07/11 A	31/08/11	-244d	YSW0630	YSW0810, YSW0840							
YSW0810	ABWF installation	86	35	02/01/12 A	24/06/12	02/01/12 A	25/09/11	-273d	YSW0640	E&M0610, E&M0620, E&M0630,							
<b>YSW STP - GLF - H &amp; DN Tanks</b>																	
YSW0650	ELS & Excavation for DN Tanks	70	100	21/08/10 A	14/10/10 A	21/08/10 A	14/10/10 A		YSW0035, YSW0422	YSW0660							
YSW0660	Sub-structure construction (DN Tanks)	40	100	15/10/10 A	31/12/10 A	15/10/10 A	31/12/10 A		YSW0650	YSW0670							
YSW0670	Backfill & Remove ELS (DN Tanks)	32	100	08/01/11 A	15/03/11 A	08/01/11 A	15/03/11 A		YSW0660	YSW0680							
YSW0680	Base slab construction	30	100	16/03/11 A	28/03/11 A	16/03/11 A	28/03/11 A		YSW0670	YSW0690							
YSW0690	Superstructure construction upto +10.5mPD	60	100	30/03/11 A	18/06/11 A	30/03/11 A	18/06/11 A		YSW0680	YSW0700, YSW0820							
YSW0700	Apply protective paint	20	0	30/04/12	19/05/12	27/02/11	18/03/11	-428d	YSW0690	YSW0710							
YSW0710	Water test	14	0	20/05/12	02/06/12	19/03/11	01/04/11	-428d	YSW0700	E&M0510, E&M0630, E&M0640							
YSW0820	ABWF installation	34	0	30/04/12	02/06/12	27/02/11	01/04/11	-428d	YSW0690	E&M0510, E&M0630, E&M0640							
<b>YSW STP - GLA - F</b>																	
YSW0730	Completion of HDD	0	100	06/01/12 A		06/01/12 A			YSW0360	YSW0740							

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

(Marked on 31 Apr 2012)

Date	Revision	Checked	Approved
30/04/12	Revision 0	RH	VC

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012						
											FEB	MAR	APR	MAY	JUN	JUL	
YSW0740	ELS & excavate for Outfall Shaft	22	75	29/02/12 A	05/05/12	29/02/12 A	16/08/11	-263d	YSW0730	YSW0750							
YSW0750	Sub-structure construction (outfall shaft)	22	0	05/05/12	27/05/12	17/08/11	07/09/11	-263d	YSW0740	YSW0760							
YSW0760	Backfill & remove ELS (outfall shaft)	24	0	27/05/12	20/06/12	08/09/11	01/10/11	-263d	YSW0750	YSW0770, YSW1470							
YSW0770	Excavate to formation by open cut	22	60	30/01/12 A	29/06/12	30/01/12 A	10/10/11	-263d	YSW0760	YSW0780							
YSW0780	Base slab construction	21	20	20/02/12 A	15/07/12	20/02/12 A	27/10/11	-263d	YSW0770	YSW0790							
YSW0790	Superstructure construction upto +10.5mPD	30	25	01/03/12 A	07/08/12	01/03/12 A	18/11/11	-263d	YSW0780	YSW0795, YSW0870							
YSW0795	Apply protective paint	30	0	07/08/12	06/09/12	19/11/11	18/12/11	-263d	YSW0790	YSW0830							
YSW0830	Water test	30	0	06/09/12	06/10/12	19/12/11	17/01/12	-263d	YSW0795	E&M0520, E&M0605, E&M0630,							
YSW0870	ABWF installation	60	0	07/08/12	06/10/12	28/12/11	25/02/12	-224d	YSW0790	E&M0520, E&M0605, E&M0630,							
<b>Fire Hose Reel / Sprinkler Pump Rm</b>																	
YSW0840	ELS & excavate to formation (+0 mPD approx.)	30	0	01/05/12	31/05/12	01/09/11	30/09/11	-244d	YSW0035, YSW0422, YSW0640	YSW0860							
YSW0860	Sub-structure construction	30	0	31/05/12	30/06/12	01/10/11	30/10/11	-244d	YSW0840	YSW0880							
YSW0880	Backfill & remove ELS	30	0	30/06/12	30/07/12	31/10/11	29/11/11	-244d	YSW0860	YSW0890							
YSW0890	Construction Ground Slab at +5.2mPD	30	0	30/07/12	29/08/12	30/11/11	29/12/11	-244d	YSW0880	YSW0900, YSW0930							
YSW0900	Superstructure construction upto +8.2mPD	35	0	29/08/12	03/10/12	30/12/11	02/02/12	-244d	YSW0890	YSW0910, YSW0925							
YSW0930	Construction of Gurad House	60	0	29/08/12	28/10/12	06/05/12	04/07/12	-116d	YSW0890	E&M0690, KD0040							
<b>Emergency Storage Tank</b>																	
YSW1470	ELS & excavate to formation (-1.5mPD Approx.)	30	0	20/06/12	20/07/12	07/11/11	06/12/11	-227d	YSW0035, YSW0760	YSW1480							
YSW1480	Sub-structure construction	40	0	20/07/12	29/08/12	07/12/11	15/01/12	-227d	YSW1470	YSW1490							
YSW1490	Backfill & extract sheetpile	30	0	29/08/12	28/09/12	16/01/12	14/02/12	-227d	YSW1480	YSW1500							
<b>Road, Drain, Cable Draw Pits &amp; Ducting</b>																	
YSW0152	Temporary Diversion of Drainage	92	100	02/12/10 A	09/05/11 A	02/12/10 A	09/05/11 A		YSW0035	YSW0153							
YSW0153	Removal of Ex-U-Channel where clash with B. Wall	50	100	20/11/10 A	20/04/11 A	20/11/10 A	20/04/11 A		YSW0152	YSW0154							
YSW0154	Construction of Subsoil Drain	90	30	24/08/11 A	20/07/12	24/08/11 A	26/04/12	-85d	YSW0153, YSW0165	YSW0155							
YSW0155	RC Concrete Barrier (above Ground Level)	120	93	01/06/11 A	28/07/12	01/06/11 A	04/05/12	-85d	YSW0154, YSW0165	YSW1640, YSW1660							
<b>Submarine Outfall</b>																	
YSW0180	Coordination of HEC	53	100	17/05/10 A	08/07/10 A	17/05/10 A	08/07/10 A			YSW0350							
YSW0200	Submission and Approval of Ecologist	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A			YSW0210							
YSW0210	Ecology Survey	90	100	16/07/10 A	11/02/11 A	16/07/10 A	11/02/11 A		YSW0200	YSW0350							
YSW0220	Submission and Approval of In. Hydro Survey	90	100	17/05/10 A	27/08/10 A	17/05/10 A	27/08/10 A			YSW0230							
YSW0230	Hydrographical Survey (YSW)	45	100	31/08/10 A	31/01/11 A	31/08/10 A	31/01/11 A		YSW0220	YSW0350							
YSW0240	Material Submission, Approval of HDPE pipe	93	100	17/05/10 A	31/03/11 A	17/05/10 A	31/03/11 A			YSW0250							
YSW0250	Submit and Approval of Method Statement for HDD	120	100	24/09/10 A	25/03/11 A	24/09/10 A	25/03/11 A		YSW0240	YSW0260, YSW0270, YSW0340							
YSW0260	Submission of HDD Method Statement to HEC	14	100	26/01/11 A	24/03/11 A	26/01/11 A	24/03/11 A		YSW0250	YSW0320, YSW0340							
YSW0270	Additional G.I. Boreholes (YSW)	62	100	06/11/10 A	19/01/11 A	06/11/10 A	19/01/11 A		YSW0250	YSW0280, YSW0320							
YSW0280	Submission of propose alignment to the Eng	14	100	02/02/11 A	04/03/11 A	02/02/11 A	04/03/11 A		YSW0270	YSW0290, YSW0310, YSW0340							
YSW0290	Submission of Marine Notice	60	100	31/01/11 A	29/03/11 A	31/01/11 A	29/03/11 A		YSW0280	YSW0350							
YSW0310	Construction of Entry Pit and Preparation Work	39	100	15/03/11 A	31/03/11 A	15/03/11 A	31/03/11 A		YSW0280	YSW0320, YSW0330							
YSW0320	Prepare of HDD Drill Rig Set-up (YSW)	39	100	02/04/11 A	28/04/11 A	02/04/11 A	28/04/11 A		YSW0260, YSW0270, YSW0310	YSW0330, YSW0350							
YSW0330	Establishment of HDD plant & equipment	14	100	09/04/11 A	14/04/11 A	09/04/11 A	14/04/11 A		YSW0310, YSW0320	YSW0340							
YSW0340	Setting up at drillhole location	7	100	19/04/11 A	28/04/11 A	19/04/11 A	28/04/11 A		YSW0250, YSW0260, YSW0280,	YSW0350							
YSW0350	Drill pilot hole and reaming hole - NS400 - 530m	123	100	29/04/11 A	08/12/11 A	29/04/11 A	08/12/11 A		YSW0040, YSW0180, YSW0210,	YSW0360							
YSW0360	Installation of NS400 HDPE 530m	14	100	14/12/11 A	30/12/11 A	14/12/11 A	30/12/11 A		YSW0350	SKW1181, YSW0365, YSW0370,							
YSW0365	Set up of Silt Curtain as per EP	30	0	30/04/12	29/05/12	20/07/13	18/08/13	446d	YSW0360	YSW0370							
YSW0370	Dredging of Marine Deposit for Diffuser (YSW)	60	0	30/05/12	28/07/12	19/08/13	17/10/13	446d	YSW0360, YSW0365	YSW0380							
YSW0380	Diffuser Construction (YSW)	60	0	29/07/12	26/09/12	18/10/13	16/12/13	446d	YSW0370	YSW0390							
<b>E&amp;M Works - YSW STP</b>																	
E&M0360	Delivery of MBR Memb. Mod. (MBR Tk4)	137	100	24/02/11 A	21/06/11 A	24/02/11 A	21/06/11 A		E&M0160	E&M0510							
E&M0370	Delivery of MBR Membrane Modules - 2nd Shipment	150	100	24/02/11 A	17/10/11 A	24/02/11 A	17/10/11 A		E&M0160	E&M0520							
E&M0380	Delivery of Grit Removal Equipment	180	100	10/10/11 A	29/12/11 A	10/10/11 A	29/12/11 A		E&M0150	E&M0530							
E&M0390	Delivery of Coarse Screens	162	100	06/09/11 A	12/01/12 A	06/09/11 A	12/01/12 A		E&M0110	E&M0540							
E&M0400	Delivery of Fine Screens	180	100	12/09/11 A	30/11/11 A	12/09/11 A	30/11/11 A		E&M0120	E&M0550							
E&M0410	Delivery of Pumps	162	100	23/06/11 A	05/09/11 A	23/06/11 A	05/09/11 A		E&M0130	E&M0560							

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E&M0420	Delivery of Submersible Mixers	162	100	26/02/11 A	17/11/11 A	26/02/11 A	17/11/11 A		E&M0140	E&M0570							
E&M0440	Delivery of Sludge Dewatering Equipment	180	50	01/09/11 A	28/07/12	01/09/11 A	28/09/11	-304d	E&M0170	E&M0580							
E&M0450	Delivery of Valves, Pipes & Fittings	180	90	30/08/11 A	17/05/12	30/08/11 A	23/01/12	-115d	E&M0180	E&M0590, E&M0605							
E&M0460	Delivery of Penstocks	180	100	12/08/11 A	24/12/11 A	12/08/11 A	24/12/11 A		E&M0190	E&M0600							
E&M0470	Delivery of Instruments	180	100	03/11/11 A	21/06/11 A	03/11/11 A	21/06/11 A		E&M0200	E&M0610							
E&M0480	Delivery of MCC LVSB	177	0	01/05/12	25/10/12	02/04/11	25/09/11	-396d	E&M0210	E&M0620							
E&M0490	Delivery of BS Equipment	180	25	11/12/11 A	28/09/12	11/12/11 A	25/02/12	-216d	E&M0220	E&M0630							
E&M0500	Delivery FS Equipment	180	25	11/12/11 A	25/09/12	11/12/11 A	24/03/12	-185d	E&M0230	E&M0330, E&M0640							
E&M0510	Install Membrane Modules in MBR Tank no. 4	90	0	03/06/12	31/08/12	02/04/11	30/06/11	-428d	E&M0360, YSW0710, YSW0820	KD0115							
E&M0530	Install Grit Removal Equipment	60	0	26/08/12	24/10/12	25/11/11	23/01/12	-275d	E&M0380, E&M0540, YSW0720,	E&M0590, E&M0660							
E&M0540	Install Coarse Screens	75	0	12/06/12	25/08/12	11/09/11	24/11/11	-275d	E&M0390, YSW0720, YSW0800	E&M0530, E&M0550, E&M0570,							
E&M0550	Install Fine Screens	60	0	26/08/12	24/10/12	25/11/11	23/01/12	-275d	E&M0400, E&M0540, YSW0720,	E&M0590, E&M0660							
E&M0560	Install Pumps	90	0	12/06/12	09/09/12	11/09/11	09/12/11	-275d	E&M0410, YSW0720, YSW0800	E&M0570, E&M0590, E&M0660							
E&M0570	Install Submersible Mixers	45	0	10/09/12	24/10/12	10/12/11	23/01/12	-275d	E&M0420, E&M0540, E&M0560,	E&M0590, E&M0660, E&M0690							
E&M0580	Install Sludge Dewatering Equipment	280	0	29/07/12	04/05/13	29/09/11	04/07/12	-304d	E&M0440, YSW0720, YSW0800	E&M0690							
E&M0600	Install Penstocks (Batch 1, GL H - T)	180	0	12/06/12	08/12/12	07/01/12	04/07/12	-157d	E&M0460, YSW0720, YSW0800	E&M0690							
<b>Sok Kwu Wan</b>																	
<b>Preliminary</b>																	
SKW0250	Approval of Environmental Team	16	100	17/05/10 A	01/06/10 A	17/05/10 A	01/06/10 A		KD0020	SKW0260							
SKW0260	Baseline monitoring (Air & Noise)	14	100	02/06/10 A	15/06/10 A	02/06/10 A	15/06/10 A		SKW0250	SKW0242, SKW0265, SKW0592,							
SKW0265	Baseline Monitoring Submission (A & N)	14	100	16/06/10 A	08/07/10 A	16/06/10 A	08/07/10 A		SKW0260	SKW0242, SKW0592, SKW0681,							
<b>+Section W 3 - Footpath Diversion in Portion G</b>																	
		721	98	17/05/10 A	06/05/12	17/05/10 A	30/07/11	-284d									
<b>Section W 4 - Slope Works in Portions H &amp; I</b>																	
<b>Geotechnical Works</b>																	
SKW0588	Construct scaffolding access	30	100	15/06/10 A	14/07/10 A	15/06/10 A	14/07/10 A		KD0020	SKW0590							
SKW0590	Site Clearance for Slope	100	100	15/07/10 A	22/10/10 A	15/07/10 A	22/10/10 A		SKW0588	SKW0591							
SKW0591	Initial Survey for Slope	28	100	21/09/10 A	18/10/10 A	21/09/10 A	18/10/10 A		SKW0590	SKW0592							
SKW0592	Temporary Rockfall fence at ex. Footpath	43	100	19/10/10 A	06/01/11 A	19/10/10 A	06/01/11 A		SKW0260, SKW0265, SKW0591	SKW05931							
SKW05931	Construction of Haul Road (To +21mPD)	50	100	28/11/10 A	30/12/10 A	28/11/10 A	30/12/10 A		SKW0592	SKW05932							
SKW05932	Construction of Haul Road (To +42mPD)	60	100	15/12/10 A	31/01/11 A	15/12/10 A	31/01/11 A		SKW05931	SKW05933, SKW05940, SKW0595							
SKW05933	Excavation of Rock Berm (+50mPD to +42.5mPD)	30	100	01/03/11 A	03/05/11 A	01/03/11 A	03/05/11 A		SKW05932	SKW05934							
SKW05934	Excavation of Rock Berm (+42.5mPD to +35mPD)	30	100	04/05/11 A	31/05/11 A	04/05/11 A	31/05/11 A		SKW05933	SKW05935, SKW05941							
SKW05935	Excavation of Rock Berm (+35mPD to +27.5mPD)	30	100	02/07/11 A	30/09/11 A	02/07/11 A	30/09/11 A		SKW05934	SKW05936							
SKW05936	Excavation of Rock Berm (+27.5mPD to +20mPD)	30	100	15/09/11 A	31/12/11 A	15/09/11 A	31/12/11 A		SKW05935	SKW05937, SKW05942							
SKW05937	Excavation of Rock Berm (+20mPD to +12.5mPD)	30	100	01/12/11 A	31/01/12 A	01/12/11 A	31/01/12 A		SKW05936	SKW05938							
SKW05938	Excavation of Rock Berm (+12.5mPD to +5mPD)	28	100	02/01/12 A	30/04/12 A	02/01/12 A	30/04/12 A		SKW05937	SKW05943, SKW1371							
SKW05940	Slope Drainage & Misc. at 50mPD	60	100	01/04/11 A	03/05/11 A	01/04/11 A	03/05/11 A		SKW05932	SKW05941							
SKW05941	Slope Drainage & Misc. (+50 to +35mPD)	60	75	04/05/11 A	14/05/12	04/05/11 A	03/06/11	-347d	SKW05934, SKW05940	SKW05942							
SKW05942	Slope Drainage & Misc. (+35 to +20mPD)	58	75	01/11/11 A	29/05/12	01/11/11 A	17/06/11	-347d	SKW05936, SKW05941	SKW05943							
SKW05943	Slope Drainage & Misc. (+20 to +5mPD)	59	0	17/05/12 A	27/07/12	17/05/12 A	15/08/11	-347d	SKW05938, SKW05942	KD0060							
SKW0595	Rock Meshing & Rockfall Fence	260	15	02/04/12 A	06/12/12	02/04/12 A	15/08/11	-479d	SKW05932	KD0060							
<b>Section W 5 - P.S. No. 1 in Portion D</b>																	
<b>Civil &amp; Geotechnical Works</b>																	
SKW0651	Site Clearance	7	100	17/05/10 A	23/05/10 A	17/05/10 A	23/05/10 A		KD0020	SKW0652							
SKW0652	Initial Survey	7	100	24/05/10 A	30/05/10 A	24/05/10 A	30/05/10 A		SKW0651	SKW0661, SKW0681							
SKW0661	Transplantation for uncommon vegetation	30	100	31/05/10 A	29/06/10 A	31/05/10 A	29/06/10 A		SKW0652	SKW0681							
SKW0681	Excavate to lower the working platform to +3mPD	49	100	30/06/10 A	17/08/10 A	30/06/10 A	17/08/10 A		SKW0260, SKW0265, SKW0652,	SKW0691							
SKW0691	ELS to +2.2mPD	40	100	18/08/10 A	26/09/10 A	18/08/10 A	26/09/10 A		SKW0681	SKW0721							
SKW0721	Excavate to formation	92	100	17/09/10 A	31/03/11 A	17/09/10 A	31/03/11 A		SKW0691	SKW0741							
<b>Structural Works</b>																	
SKW0741	Base Slab (BSD2 & BSD3)	15	100	20/04/11 A	28/07/11 A	20/04/11 A	28/07/11 A		SKW0721	SKW0751							
SKW0751	Wall & Column (CA1-3,CB1-3,CC1-3, CD1-2) Approx.	14	100	01/09/11 A	30/09/11 A	01/09/11 A	30/09/11 A		SKW0741	SKW0761							

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c Primavera Systems, Inc.	

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SKW0761	Base Slab (BSD1) to +3.98	14	100	01/09/11 A	30/09/11 A	01/09/11 A	30/09/11 A		SKW0751	SKW0771							
SKW0771	Wall & Column (CA1-3,CB1-3,CC1-3, CD1-2) to +6.3	14	100	01/10/11 A	31/10/11 A	01/10/11 A	31/10/11 A		SKW0761	SKW0781							
SKW0781	Base Slab (GSB1-3,GSC1-5,GSD1-2)	14	100	15/10/11 A	15/11/11 A	15/10/11 A	15/11/11 A		SKW0771	SKW0791							
SKW0791	Base Slab (GSE1 & GSF1)	14	100	01/11/11 A	30/11/11 A	01/11/11 A	30/11/11 A		SKW0781	SKW0801							
SKW0801	Wall & Column (CE1-3, CF1-3)	14	100	01/11/11 A	30/11/11 A	01/11/11 A	30/11/11 A		SKW0791	SKW0811							
SKW0811	Ground Beam (GB1-1,2 GB2-1,2 GB3-1, GBA-1,GBB1-4	14	100	30/11/11 A	31/12/11 A	30/11/11 A	31/12/11 A		SKW0801	SKW0821							
SKW0821	Wall & Column (CA1-3,CB1-3,CC1-3, CD1-2) to +10.	14	100	19/12/11 A	31/01/12 A	19/12/11 A	31/01/12 A		SKW0811	SKW0831							
SKW0831	Roof Beams & Parapet	14	100	02/01/12 A	18/01/12 A	02/01/12 A	18/01/12 A		SKW0821	E&M1101, E&M1102, E&M1103,							
SKW0841	ABWF installation	45	65	18/01/12 A	15/05/12	18/01/12 A	01/06/11	-349d	SKW0831	E&M1101, E&M1102, E&M1103,							
SKW0861	300mm U-channel & 675mm Step Channel	168	0	30/04/12	14/10/12	01/06/11	15/11/11	-334d	SKW0831, SKW0841	KD0070							
<b>E&amp;M Works (PS1)</b>																	
<b>Submission &amp; Delivery</b>																	
E&M1001	Submission of Pumps	198	100	17/05/10 A	24/02/11 A	17/05/10 A	24/02/11 A		KD0020	E&M1011							
E&M1002	Submission of Gen-Set	198	100	17/05/10 A	24/02/11 A	17/05/10 A	24/02/11 A			E&M1012							
E&M1003	Submission of DeO System	198	100	17/05/10 A	11/07/11 A	17/05/10 A	11/07/11 A			E&M1013							
E&M1004	Submission of LV SB & MCC	180	100	17/05/10 A	09/01/12 A	17/05/10 A	09/01/12 A			E&M1014							
E&M1005	Submission of Instrumentation	243	100	17/05/10 A	12/04/12 A	17/05/10 A	12/04/12 A			E&M1015							
E&M1006	Submission of FS System	243	97	17/05/10 A	07/05/12	17/05/10 A	10/02/11	-452d		E&M1016							
E&M1007	Submission of BS System	243	97	17/05/10 A	07/05/12	17/05/10 A	04/03/11	-430d		E&M1017							
E&M1011	Delivery of Pumps	150	100	24/02/11 A	21/07/11 A	24/02/11 A	21/07/11 A		E&M1001	E&M1101							
E&M1012	Delivery of Gen-Set	150	100	24/02/11 A	23/09/11 A	24/02/11 A	23/09/11 A		E&M1002	E&M1102							
E&M1013	Delivery of DeO System	150	100	11/07/11 A	28/10/11 A	11/07/11 A	28/10/11 A		E&M1003	E&M1103							
E&M1014	Delivery of LV SB & MCC	150	30	02/04/12 A	12/08/12	02/04/12 A	01/05/11	-469d	E&M1004	E&M1104							
E&M1015	Delivery of Instrumentation	90	100	01/11/11 A	31/03/12 A	01/11/11 A	31/03/12 A		E&M1005	E&M1105							
E&M1016	Delivery of FS Equipment	107	25	01/12/11 A	26/07/12	01/12/11 A	01/05/11	-452d	E&M1006	E&M1106							
E&M1017	Delivery of BS Equipment	107	45	15/11/11 A	05/07/12	15/11/11 A	01/05/11	-430d	E&M1007	E&M1107							
<b>Installation, T&amp;C</b>																	
E&M1101	Install Pumps	55	0	30/04/12	23/06/12	02/05/11	25/06/11	-364d	E&M1011, SKW0831, SKW0841	E&M1110, E&M1140							
E&M1102	Install Gen Set	55	0	30/04/12	23/06/12	02/05/11	25/06/11	-364d	E&M1012, SKW0831, SKW0841	E&M1110, E&M1140							
E&M1103	Install DeO System	55	0	30/04/12	23/06/12	02/05/11	25/06/11	-364d	E&M1013, SKW0831, SKW0841	E&M1110, E&M1140							
E&M1104	Install LV SB & MCC	55	0	13/08/12	06/10/12	02/05/11	25/06/11	-469d	E&M1014, SKW0831, SKW0841	E&M1140							
E&M1105	Install Instrumentation	55	0	30/04/12	23/06/12	02/05/11	25/06/11	-364d	E&M1015, SKW0831, SKW0841	E&M1140							
E&M1106	Install FS Equipment	55	0	26/07/12	19/09/12	02/05/11	25/06/11	-452d	E&M1016, SKW0831, SKW0841	E&M1130, E&M1140							
E&M1107	Install BS Equipment	55	0	05/07/12	29/08/12	02/05/11	25/06/11	-430d	E&M1017, SKW0831, SKW0841	E&M1110, E&M1140							
E&M1110	Install Valves, Pipes & Fittings	46	0	29/08/12	14/10/12	15/04/15	18/06/15	877d	E&M1101, E&M1102, E&M1103,	E&M1120							
<b>Section W 6 - Sewer and PS No.2 in Portions E&amp;H</b>																	
<b>Civil &amp; Geotechnical Works</b>																	
SKW0881	Site Clearance	7	100	17/05/10 A	23/05/10 A	17/05/10 A	23/05/10 A		KD0020	SKW0891							
SKW0891	Plant mobilization	7	100	17/05/10 A	23/05/10 A	17/05/10 A	23/05/10 A		SKW0881	SKW0892							
SKW0892	Initial Survey	30	100	24/05/10 A	22/06/10 A	24/05/10 A	22/06/10 A		SKW0891	SKW0901							
SKW0901	Tree Transplantation	30	100	23/06/10 A	22/07/10 A	23/06/10 A	22/07/10 A		SKW0892	SKW0921							
SKW0921	Cut Slope & U-Channel	14	100	23/07/10 A	31/01/11 A	23/07/10 A	31/01/11 A		SKW0260, SKW0265, SKW0901	SKW0931, SKW0951							
SKW0931	Hoarding & Fencing	14	100	15/09/10 A	07/10/10 A	15/09/10 A	07/10/10 A		SKW0921	SKW0951							
SKW0951	Excavate to formation	106	100	04/10/10 A	13/06/11 A	04/10/10 A	13/06/11 A		SKW0921, SKW0931	SKW0961, SKW0971							
SKW0961	Mass Conc. Retaining Wall	257	20	31/03/12 A	21/11/12	31/03/12 A	15/11/11	-372d	SKW0951	KD0080							
SKW1491	Concrete Trough (ChA0+45 - ChA1+75)	180	100	01/03/11 A	31/08/11 A	01/03/11 A	31/08/11 A		PRE0100	SKW15111							
SKW15111	Twin DN150 DI Rising Main (ChA0+45 - ChA5+79)	150	95	16/05/11 A	07/05/12	16/05/11 A	26/08/11	-255d	SKW1491	SKW1531							
SKW15112	Twin DN150 DI Rising Main (ChA0+00 - ChA0+45)	30	0	27/06/12	27/07/12	17/10/11	15/11/11	-255d	SKW1581	KD0080							
SKW1531	Extent village sewers S163.1 & S164.1	34	50	07/04/12 A	24/05/12	07/04/12 A	12/09/11	-255d	SKW15111	SKW1581							
SKW1581	Construct Manhole no. S163 & S164	34	0	24/05/12	27/06/12	13/09/11	16/10/11	-255d	SKW1531	KD0080, SKW15112							
<b>Structural Works</b>																	
SKW0971	Base Slab to -3.2mPD	14	100	02/05/11 A	31/08/11 A	02/05/11 A	31/08/11 A		SKW0951	SKW0981							
SKW0981	Basement Beam (BBB-1,BBC-1,BBD-1)	14	100	01/09/11 A	15/10/11 A	01/09/11 A	15/10/11 A		SKW0971	SKW0991							

Start date	05/05/10		Early bar
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Data date	30/04/12		Critical bar
Run date	10/05/12		Summary bar
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			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 (May 2012 - Jul 2012)**

(Marked on 31 Apr 2012)

Date	Revision	Checked	Approved
30/04/12	Revision 0	RH	VC

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012						
											FEB	MAR	APR	MAY	JUN	JUL	
SKW0991	Wall & Column to +1.5mPD	14	100	15/10/11 A	31/10/11 A	15/10/11 A	31/10/11 A		SKW0981	SKW1001							
SKW1001	Base Slab (BSC-4) to +3mPD	14	100	01/11/11 A	30/11/11 A	01/11/11 A	30/11/11 A		SKW0991	SKW1011							
SKW1011	Wall & Column to +5.35mPD	14	100	02/01/12 A	31/01/12 A	02/01/12 A	31/01/12 A		SKW1001	SKW1021							
SKW1021	Ground Slab	20	100	31/01/12 A	29/02/12 A	31/01/12 A	29/02/12 A		SKW1011	SKW1031							
SKW1031	Ground Beam	14	100	01/02/12 A	29/02/12 A	01/02/12 A	29/02/12 A		SKW1021	SKW1041							
SKW1041	Wall & Column to +9.35mPD	14	0	30/04/12	13/05/12	04/04/11	17/04/11	-392d	SKW1031	SKW1051							
SKW1051	Roof Beams & Parapet	14	0	14/05/12	27/05/12	18/04/11	01/05/11	-392d	SKW1041	E&M2101, E&M2102, E&M2103,							
SKW1061	ABWF installation (wet tray/dry tray)	90	60	14/04/12 A	18/06/12	14/04/12 A	16/07/11	-338d	SKW1051	E&M2101, E&M2102, E&M2103,							
SKW1081	375mm U-channel with catchpits	215	20	28/04/12 A	15/11/12	28/04/12 A	15/11/11	-366d	SKW1051	KD0080							
<b>E&amp;M Works (PS2)</b>																	
<b>Submission &amp; Delivery</b>																	
E&M2001	Submission of Pumps	198	100	17/05/10 A	24/02/11 A	17/05/10 A	24/02/11 A		KD0020	E&M2011							
E&M2002	Submission of Gen-Set	198	100	17/05/10 A	24/02/11 A	17/05/10 A	24/02/11 A			E&M2012							
E&M2003	Submission of DeO System	198	100	17/05/10 A	11/07/11 A	17/05/10 A	11/07/11 A			E&M2013							
E&M2004	Submission of LV SB & MCC	271	100	17/05/10 A	13/04/12 A	17/05/10 A	13/04/12 A			E&M2014							
E&M2005	Submission of Instrumentation	243	100	17/05/10 A	12/04/12 A	17/05/10 A	12/04/12 A			E&M2015							
E&M2006	Submission of FS System	243	97	17/05/10 A	07/05/12	17/05/10 A	10/02/11	-452d		E&M2016							
E&M2007	Submission of BS System	243	97	17/05/10 A	07/05/12	17/05/10 A	04/03/11	-430d		E&M2017							
E&M2011	Delivery of Pumps	150	100	24/02/11 A	21/07/11 A	24/02/11 A	21/07/11 A		E&M2001	E&M2101							
E&M2012	Delivery of Gen-Set	150	100	24/02/11 A	23/09/11 A	24/02/11 A	23/09/11 A		E&M2002	E&M2102							
E&M2013	Delivery of DeO System	150	100	11/07/11 A	28/10/11 A	11/07/11 A	28/10/11 A		E&M2003	E&M2103							
E&M2014	Delivery of LV SB & MCC	150	30	02/04/12 A	12/08/12	02/04/12 A	01/05/11	-469d	E&M2004	E&M2104							
E&M2015	Delivery of Instrumentation	90	100	21/06/11 A	03/11/11 A	21/06/11 A	03/11/11 A		E&M2005	E&M2105							
E&M2016	Delivery of FS Equipment	107	25	01/12/11 A	26/07/12	01/12/11 A	01/05/11	-452d	E&M2006	E&M0350, E&M2106							
E&M2017	Delivery of BS Equipment	107	45	15/01/11 A	05/07/12	15/01/11 A	01/05/11	-430d	E&M2007	E&M2107							
<b>Installation, T&amp;C</b>																	
E&M2101	Install Pumps	55	0	28/05/12	21/07/12	03/07/11	26/08/11	-330d	E&M2011, SKW1051, SKW1061	E&M2110							
E&M2102	Install Gen Set	55	0	28/05/12	21/07/12	03/07/11	26/08/11	-330d	E&M2012, SKW1051, SKW1061	E&M2110							
E&M2103	Install DeO System	55	0	28/05/12	21/07/12	03/07/11	26/08/11	-330d	E&M2013, SKW1051, SKW1061	E&M2110							
E&M2105	Install Instrumentation	55	0	28/05/12	21/07/12	02/05/11	25/06/11	-392d	E&M2015, SKW1051, SKW1061	E&M2140							
E&M2106	Install FS Equipment	55	0	26/07/12	19/09/12	02/05/11	25/06/11	-452d	E&M2016, SKW1051, SKW1061	E&M2140							
E&M2107	Install BS Equipment	55	0	05/07/12	29/08/12	02/05/11	25/06/11	-430d	E&M2017, SKW1051, SKW1061	E&M2110, E&M2140							
E&M2110	Install Valves, Pipes & Fittings	46	0	29/08/12	14/10/12	27/08/11	11/10/11	-368d	E&M2101, E&M2102, E&M2103,	E&M2120							
<b>Section W7 - SKW STW, Sewer and Submarine Outfall</b>																	
<b>Submarine Outfall</b>																	
SKW1130	Approval of IHS Consultant	180	100	17/05/10 A	27/08/10 A	17/05/10 A	27/08/10 A			SKW1131							
SKW1131	Hydrographical Survey (SKW)	300	100	01/02/11 A	28/02/11 A	01/02/11 A	28/02/11 A		KD0020, SKW1130	SKW1231							
SKW1141	Baseline Monitoring (Water)	213	100	27/07/10 A	31/12/10 A	27/07/10 A	31/12/10 A		SKW0260, SKW0265	SKW1151							
SKW1151	Set up Temporary Working Platform	185	100	15/06/11 A	30/09/11 A	15/06/11 A	30/09/11 A		PRE0090, SKW1141	SKW1171							
SKW1171	ELS for HDD Set-up (SKW)	120	100	01/09/11 A	30/09/11 A	01/09/11 A	30/09/11 A		SKW1151	SKW1181							
SKW1181	Mobilization of HDD plant & equipment to SKW	60	100	06/01/12 A	07/01/12 A	06/01/12 A	07/01/12 A		SKW1171, YSW0360	SKW1191							
SKW1191	Setting up at drillhole location	30	100	09/01/12 A	14/01/12 A	09/01/12 A	14/01/12 A		SKW1181	SKW1201							
SKW1201	Drill pilot hole and reaming hole - NS280 - 750m	196	100	16/01/12 A	06/07/12 A	16/01/12 A	06/07/12 A		SKW1191	SKW1211							
SKW1211	Receiving Pit for HDD (SKW)	180	100	16/01/12 A	29/02/12 A	16/01/12 A	29/02/12 A		SKW1201	SKW1221							
SKW1221	Installation of NS280 HDPE 450mm dia. pipe	57	100	14/03/12 A	14/03/12 A	14/03/12 A	14/03/12 A		SKW1211	KD0090, SKW1231, SKW1441							
SKW1231	Dredging of MD for Diffuser (PS CL 1.122(3))	60	0	30/04/12	28/06/12	04/08/13	02/10/13	461d	SKW1131, SKW1221	SKW1241							
SKW1241	Diffuser Construction	60	0	29/06/12	27/08/12	03/10/13	01/12/13	461d	SKW1231	SKW1251							
SKW1251	Removal of Receiving Pit	45	0	28/08/12	11/10/12	02/12/13	15/01/14	461d	SKW1241	SKW1431							
SKW1441	Construct of 33m Pipe Succeeding Connection Pit	240	0	30/04/12	25/12/12	20/06/13	14/02/14	416d	SKW1221	KD0090							
<b>SKW STW</b>																	
<b>Submission &amp; Delivery (E&amp;M)</b>																	
E&M3010	Delivery of MBR M.M. - 1st shipment for Temp STP	150	100	24/02/11 A	17/10/11 A	24/02/11 A	17/10/11 A		E&M0160	E&M3170							

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Run date	10/05/12		Summary bar
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Leader Civil Engineering Corp. Ltd.  
Contract No. DC/2009/13  
Construction of Sewage Treatment Works at YSW & SKW  
3-month Rolling Programme (May 2012 - Jul 2012)

(Marked on 31 Apr 2012)

Date	Revision	Checked	Approved
30/04/12	Revision 0	RH	VC

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012						
											FEB	MAR	APR	MAY	JUN	JUL	
E&M3030	Delivery of Grit Removal Equipment	180	100	10/10/11 A	29/12/11 A	10/10/11 A	29/12/11 A		E&M0150	E&M3190							
E&M3060	Delivery of Fine Screens	136	100	12/09/11 A	30/11/11 A	12/09/11 A	30/11/11 A		E&M0120	E&M3210							
E&M3070	Delivery of Pumps	136	100	23/06/11 A	05/09/11 A	23/06/11 A	05/09/11 A		E&M0130	E&M3220							
E&M3080	Delivery of Submersible Mixers	180	100	26/07/11 A	17/11/11 A	26/07/11 A	17/11/11 A		E&M0140	E&M3230							
E&M3090	Delivery of Sludge Dewatering Equipment	210	50	01/09/11 A	12/08/12	01/09/11 A	12/02/12	-182d	E&M0170	E&M3240							
E&M3100	Delivery of Valves, Pipes & Fittings	180	70	30/08/11 A	22/06/12	30/08/11 A	29/09/14	803d	E&M0180	E&M3250							
E&M3110	Delivery of Penstocks	180	100	12/08/11 A	24/12/11 A	12/08/11 A	24/12/11 A		E&M0190	E&M3260							
E&M3130	Delivery of instruments	180	100	21/06/11 A	03/11/11 A	21/06/11 A	03/11/11 A		E&M0200	E&M3270							
E&M3140	Delivery of MCC LVSB	180	0	01/05/12	28/10/12	09/05/11	04/11/11	-359d	E&M0210	E&M3261							
E&M3150	Delivery of BS Equipment	180	0	16/05/12	12/11/12	22/03/14	20/10/14	675d	E&M0220	E&M3291							
E&M3160	Delivery of FS Equipment	180	5	13/04/12 A	31/10/12	13/04/12 A	11/07/12	-112d	E&M0230	E&M0340, E&M3300							
<b>Construction of Grid A-G</b>																	
SKW1261	Excavate for SKW STW Structure (Grid A -G)	164	100	30/07/11 A	30/04/12 A	30/07/11 A	30/04/12 A		SKW0551	SKW1271, SKW1371							
SKW1271	55 M3 Fire Sprinkle Water Tank (FL +0.9 mPD)	25	0	07/05/12	31/05/12	28/07/11	21/08/11	-284d	SKW1261	SKW1281							
SKW1281	Ground Floor Slab (Grid A-G)	25	0	01/06/12	25/06/12	22/08/11	15/09/11	-284d	SKW1271	SKW1291							
SKW1291	Columns & Walls to 1/F & 1/F Slab (Grid A-G)	25	0	26/06/12	20/07/12	16/09/11	10/10/11	-284d	SKW1281	KD0090, SKW1301							
SKW1301	Columns & Walls to R/F & R/F Slab (Grid A-G)	25	0	21/07/12	14/08/12	11/10/11	04/11/11	-284d	SKW1291	E&M3261, E&M3291, E&M3311,							
SKW1411	ABWF installation	85	0	21/07/12	13/10/12	11/10/11	03/01/12	-284d	SKW1301	E&M3261, E&M3291, E&M3311							
<b>Construction of Grid G-N</b>																	
SKW1321	Equalization Tank no.1 & 2 with base slabs (-2.1	35	60	02/04/12 A	13/05/12	02/04/12 A	07/09/11	-249d		SKW1331							
SKW1331	Columns & Walls from B/S to G/F Slab (Grid G-N)	35	0	14/05/12	17/06/12	08/09/11	12/10/11	-249d	SKW1321	SKW1341							
SKW1341	Ground Floor Slab (Grid G-N)	35	0	18/06/12	22/07/12	13/10/11	16/11/11	-249d	SKW1331	SKW1351							
SKW1351	Columns & Walls to 1/F & 1/F Slab (Grid G-N)	18	0	23/07/12	09/08/12	17/11/11	04/12/11	-249d	SKW1341	SKW1361							
SKW1361	Columns & Walls to R/F & R/F Slab (Grid G-N)	24	0	10/08/12	02/09/12	05/12/11	28/12/11	-249d	SKW1351	E&M3170, E&M3190, E&M3210,							
<b>Construction of Grid N-T</b>																	
SKW1371	Excavate for SKW STW Structure (Grid N-T)	80	20	02/04/12 A	09/07/12	02/04/12 A	15/10/11	-268d	SKW05938, SKW1261	SKW1381							
SKW1381	Ground Floor Slabs include MBR Tank (Grid N-T)	30	0	10/07/12	08/08/12	16/10/11	14/11/11	-268d	SKW1371	SKW1391							
SKW1391	Columns & Walls to 1/F & 1/F Slab (Grid N-T)	30	0	09/08/12	07/09/12	15/11/11	14/12/11	-268d	SKW1381	SKW1401							
<b>SKW STP - E&amp;M Works</b>																	
E&M3220	Install Pumps	75	0	30/04/12	13/07/12	29/12/11	12/03/12	-123d	E&M3070	E&M3230, E&M3250, E&M3260,							
E&M3230	Install Submersible Mixers	45	0	14/07/12	27/08/12	13/03/12	26/04/12	-123d	E&M3080, E&M3220	E&M3250, E&M3260, E&M3311,							
<b>Rising Main</b>																	
SKW1481	Subm, Approval & Delivery of DI pipes	120	100	17/05/10 A	28/02/11 A	17/05/10 A	28/02/11 A		KD0020	SKW1501							
SKW1501	Concrete Trough (ChB0+00 - ChB1+20)	300	100	15/08/11 A	30/09/11 A	15/08/11 A	30/09/11 A		PRE0100, SKW1481	SKW1521							
SKW1521	Twin DN150 DI Rising Main (ChB0+00 - ChA4+55)	250	80	15/08/11 A	18/06/12	15/08/11 A	16/03/12	-94d	SKW1501	SKW1541							
SKW1541	DN250 DI Pipe (ChC0+00 - ChC0+35 Connection Pit)	208	0	19/06/12	12/01/13	17/03/12	10/10/12	-94d	SKW1521	SKW1561							
<b>Section W8 - Landscape Softworks in All Portions</b>																	
SKW1591	Tree Survey	21	100	17/05/10 A	06/06/10 A	17/05/10 A	06/06/10 A		KD0020	SKW1621							
SKW1611	Preservation & Protection of Trees	822	85	17/05/10 A	31/08/12	17/05/10 A	15/08/12	-15d	KD0020	KD0100, SKW1631							
SKW1621	Transplantation at SKW	60	100	07/06/10 A	05/10/10 A	07/06/10 A	05/10/10 A		SKW1591								

Start date	05/05/10		Early bar
Finish date	29/06/15		Progress bar
Data date	30/04/12		Critical bar
Run date	10/05/12		Summary bar
Page number	7A		Progress point
			Critical point
			Summary point
			Start milestone point
			Finish milestone point

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

(Marked on 31 Apr 2012)

Date	Revision	Checked	Approved
30/04/12	Revision 0	RH	VC

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	2012					
										FEB	MAR	APR	MAY	JUN	JUL
<b>+Project Key Date</b>															
		725	0	05/05/10 A	31/08/12	05/05/10 A	14/10/11	-428d							
<b>+Preliminary (Civil)</b>															
		191	100	17/05/10 A	23/11/10 A	17/05/10 A	23/11/10 A		KD0020						
<b>Preliminary (E&amp;M)</b>															
<b>Technical Submission</b>															
<b>+Process Design of SKWSTW &amp; YSWSTW</b>															
		563	100	17/05/10 A	30/11/11 A	17/05/10 A	30/11/11 A								
<b>+Hydraulic Design</b>															
		563	100	17/05/10 A	30/11/11 A	17/05/10 A	30/11/11 A								
<b>+Equipment Submission &amp; Approval</b>															
		731	96	17/05/10 A	16/05/12	17/05/10 A	05/05/12	-11d							
<b>+Drawings Submission &amp; Approval</b>															
		682	96	24/06/10 A	05/05/12	24/06/10 A	29/02/12	-161d							
<b>+Statutory Submission</b>															
		376	44	01/11/11 A	24/11/12	01/11/11 A	29/06/15	843d							
<b>Yung Shue Wan</b>															
<b>+Preliminary</b>															
		229	100	17/05/10 A	31/12/10 A	17/05/10 A	31/12/10 A								
<b>+Section W1 - Slope Works in Portion A &amp; C</b>															
		747	96	17/05/10 A	01/06/12	17/05/10 A	14/02/14	623d							
<b>Section W2 - YSW STW &amp; Submarine Outfall</b>															
<b>+Civil &amp; Structural Work</b>															
		896	63	17/05/10 A	28/10/12	17/05/10 A	04/07/12	-116d							
<b>+Submarine Outfall</b>															
		864	86	17/05/10 A	26/09/12	17/05/10 A	16/12/13	446d							
<b>+E&amp;M Works - YSW STP</b>															
		801	56	24/02/11 A	04/05/13	24/02/11 A	04/07/12	-304d							
<b>Sok Kwu Wan</b>															
<b>+Preliminary</b>															
		53	100	17/05/10 A	08/07/10 A	17/05/10 A	08/07/10 A								
<b>+Section W3 - Footpath Diversion in Portion G</b>															
		721	98	17/05/10 A	06/05/12	17/05/10 A	30/07/11	-284d							
<b>Section W4 - Slope Works in Portions H &amp; I</b>															
<b>+Geotechnical Works</b>															
		906	69	15/06/10 A	06/12/12	15/06/10 A	30/04/12	-479d							
<b>Section W5 - P.S. No. 1 in Portion D</b>															
<b>+Civil &amp; Geotechnical Works</b>															
		319	100	17/05/10 A	31/03/11 A	17/05/10 A	31/03/11 A								
<b>+Structural Works</b>															
		544	48	20/04/11 A	14/10/12	20/04/11 A	31/01/12	-334d							
<b>E&amp;M Works (PS1)</b>															
<b>+Submission &amp; Delivery</b>															
		819	89	17/05/10 A	12/08/12	17/05/10 A	12/04/12	-469d							
<b>+Installation, T&amp;C</b>															
		167	0	30/04/12	14/10/12	02/05/11	18/06/15	877d							

Start date	05/05/10		Early bar
Finish date	29/06/15		Progress bar
Data date	30/04/12		Critical bar
Run date	09/05/12		Summary bar
Page number	1A		Progress point
c Primavera Systems, Inc.			Critical point
			Summary point
			Start milestone point
			Finish milestone point










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

(Marked on 31 Apr 2012)

Date	Revision	Checked	Approved
30/04/12	Revision 0	RH	VC



Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	2012					
										FEB	MAR	APR	MAY	JUN	JUL
<b>Section W6 - Sewer and PS No.2 in Portions E&amp;H</b>															
<b>+Civil &amp; Geotechnical Works</b>															
		920	67	17/05/10 A	21/11/12	17/05/10 A	15/11/11	-372d							
<b>+Structural Works</b>															
		564	46	02/05/11 A	15/11/12	04/04/11 A	29/02/12	-366d							
<b>E&amp;M Works (PS2)</b>															
<b>+Submission &amp; Delivery</b>															
		819	90	17/05/10 A	12/08/12	17/05/10 A	13/04/12	-469d							
<b>+Installation, T&amp;C</b>															
		139	0	28/05/12	14/10/12	02/05/11	11/10/11	-368d							
<b>Section W7 - SKW STW, Sewer and Submarine Outfall</b>															
<b>+Submarine Outfall</b>															
		954	79	17/05/10 A	25/12/12	17/05/10 A	14/02/14	416d							
<b>+SKW STW</b>															
		628	59	24/02/11 A	12/11/12	24/02/11 A	20/10/14	675d							
<b>+SKW STP - E&amp;M Works</b>															
		120	0	30/04/12	27/08/12	29/12/11	26/04/12	-123d							
<b>+Rising Main</b>															
		972	71	17/05/10 A	12/01/13	17/05/10 A	10/10/12	-94d							
<b>+Section W8 - Landscape Softworks in All Portions</b>															
		837	86	17/05/10 A	31/08/12	17/05/10 A	15/08/12	-15d							

Start date	05/05/10	 Early bar
Finish date	29/06/15	 Progress bar
Data date	30/04/12	 Critical bar
Run date	09/05/12	 Summary bar
Page number	2A	 Progress point
c Primavera Systems, Inc.		 Critical point
		 Summary point
		 Start milestone point
		 Finish milestone point

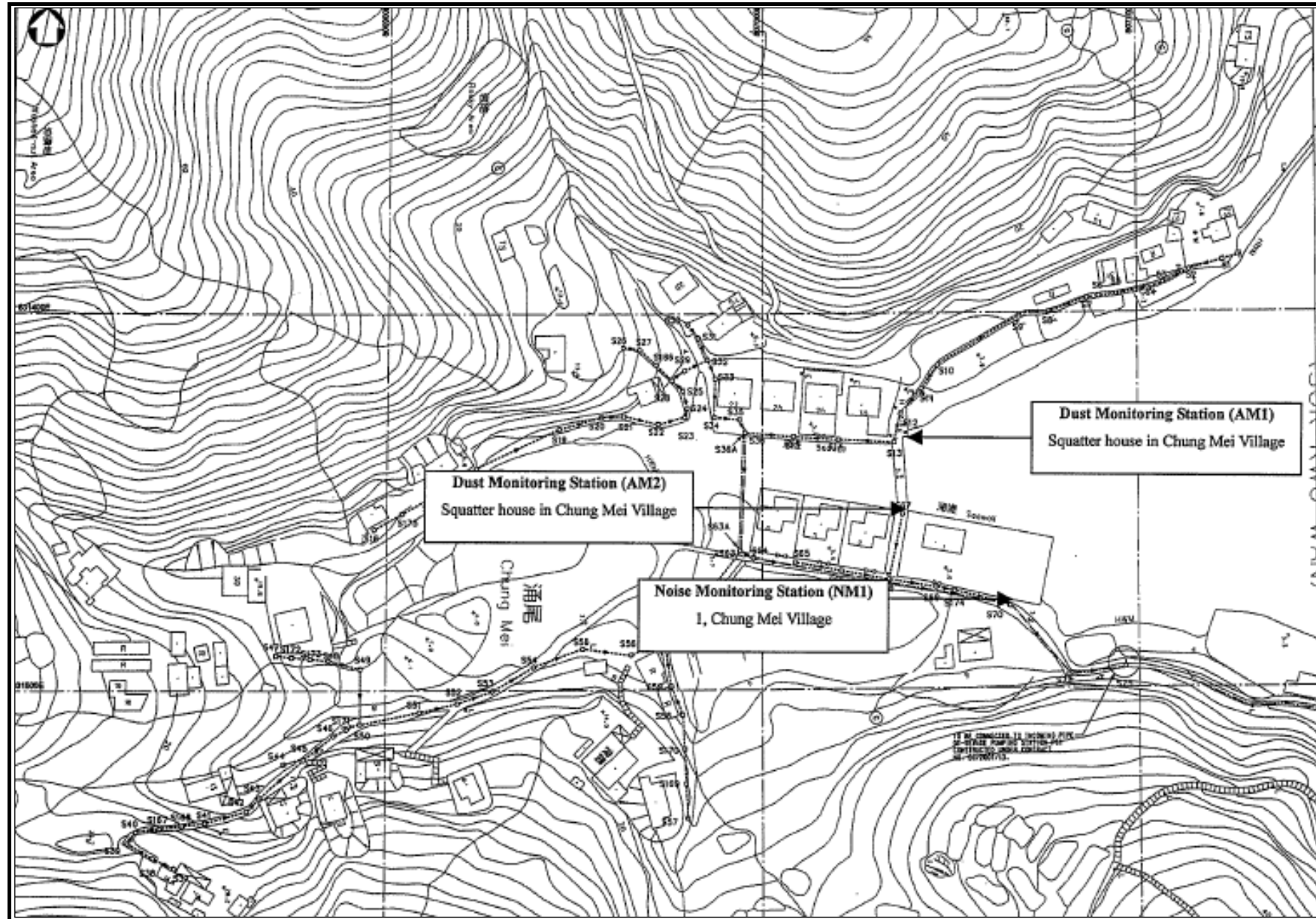
**Leader Civil Engineering Corp. Ltd.**  
**Contract No. DC/2009/13**  
**Construction of Sewage Treatment Works at YSW & SKW**  
**3-month Rolling Programme (May 2012 - Jul 2012)**

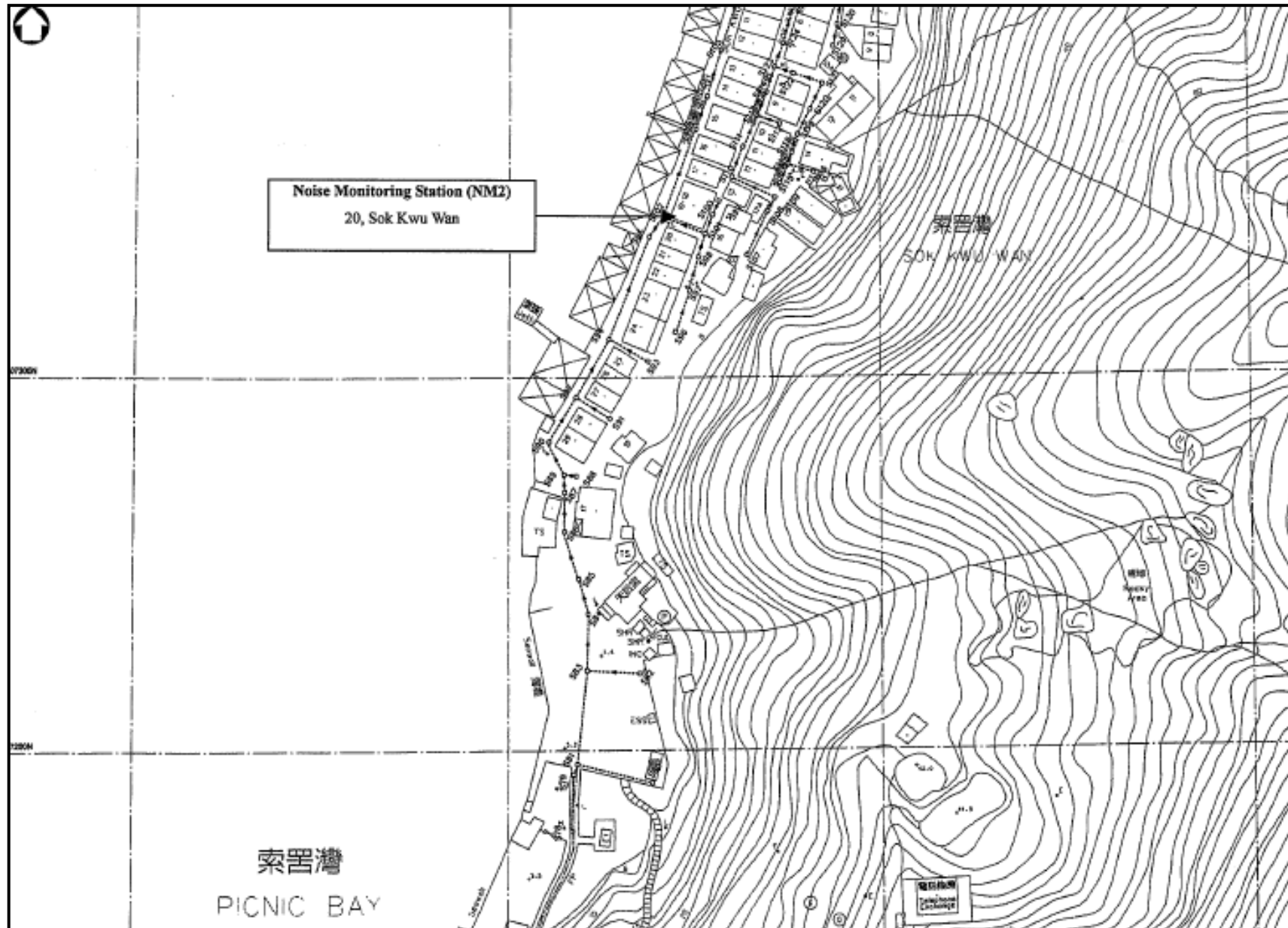
(Marked on 31 Apr 2012)

Date	Revision	Checked	Approved
30/04/12	Revision 0	RH	VC

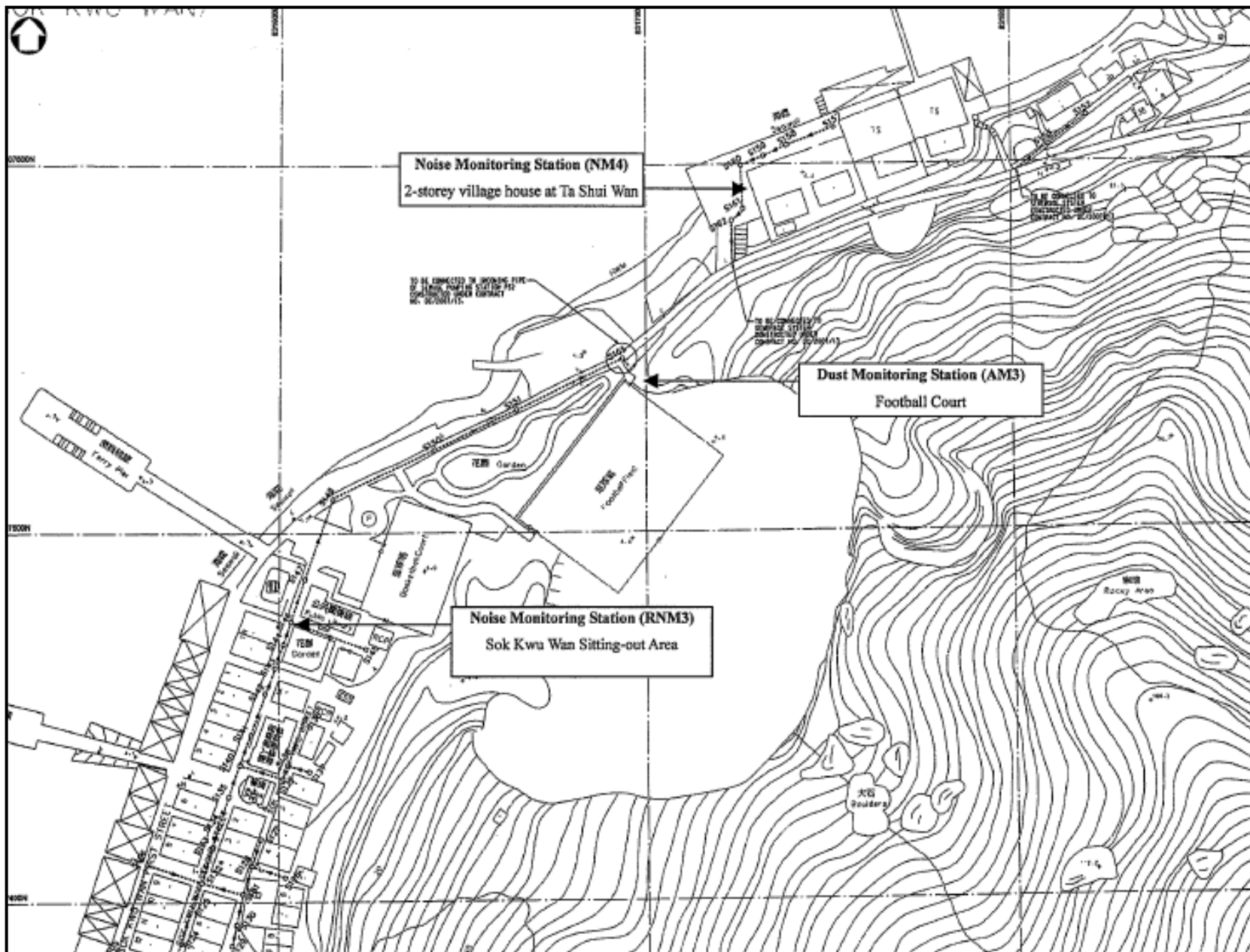
## **Appendix D**

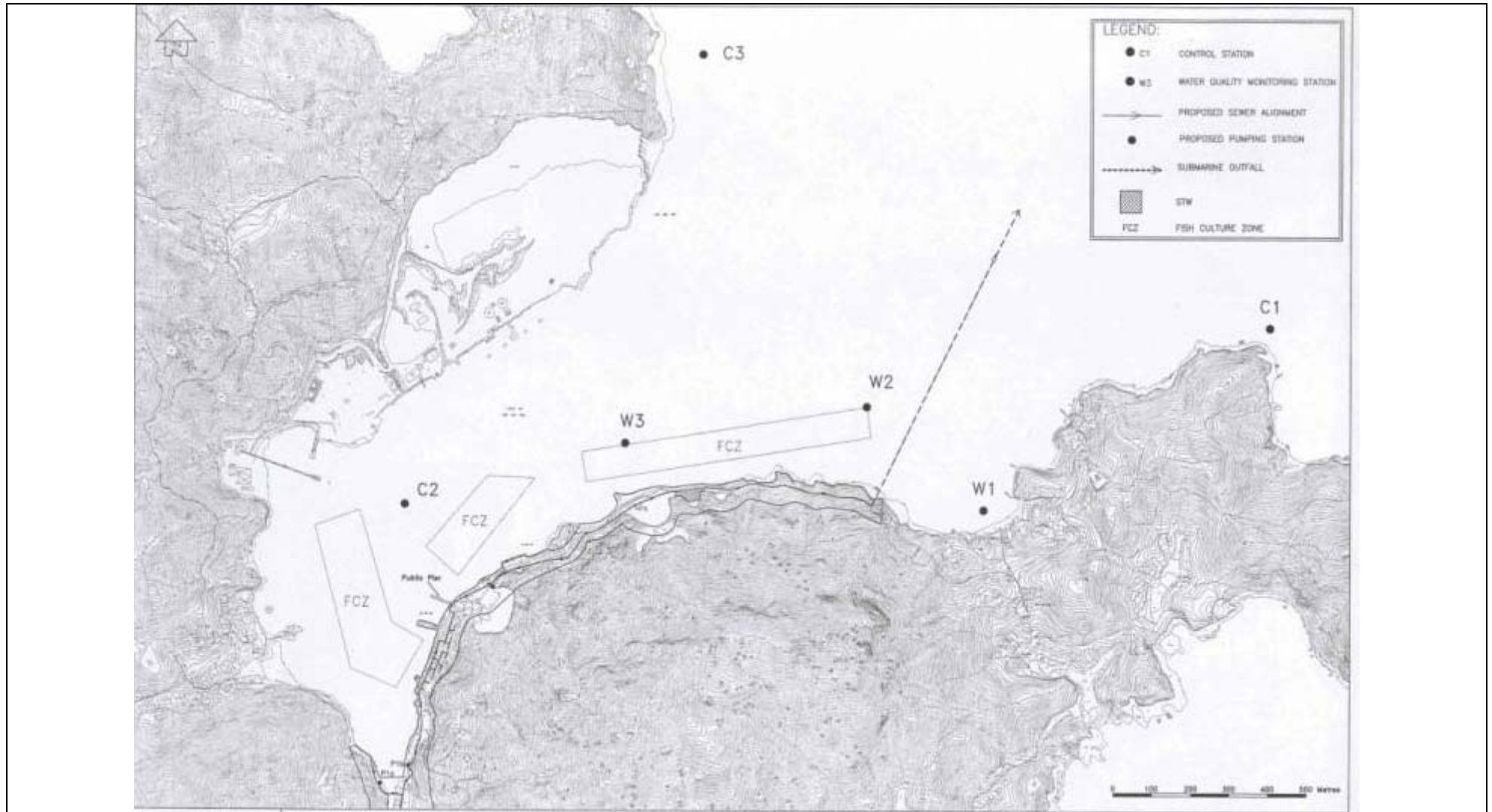
### **Location of Monitoring Stations (Air Quality / Construction Noise / Water Quality)**











**Appendix E**

**Monitoring Equipments Calibration Certificate**





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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

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

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

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
1.0017	0.6833	1.4185	0.9956	0.6791	0.8829
0.9975	0.9582	2.0061	0.9914	0.9524	1.2486
0.9952	1.0690	2.2429	0.9892	1.0625	1.3959
0.9942	1.1260	2.3524	0.9882	1.1191	1.4641
0.9887	1.3526	2.8371	0.9827	1.3444	1.7657
Qstd slope (m) = 2.11693			Qa slope (m) = 1.32558		
intercept (b) = -0.02568			intercept (b) = -0.01598		
coefficient (r) = 0.99993			coefficient (r) = 0.99993		
y axis = SQRT[H2O(Pa/760)(298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

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

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

For subsequent flow rate calculations:

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

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

## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Squatter house in Chung Mei Village  
 Location ID : AM1

Date of Calibration: 1-Mar-12  
 Next Calibration Date: 30-Apr-12  
 Technician: Mr. Ben Tam

### CONDITIONS

Sea Level Pressure (hPa)	1014.1	Corrected Pressure (mm Hg)	760.575
Temperature (°C)	16.7	Temperature (K)	290

### CALIBRATION ORIFICE

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

### CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.1	5.1	10.2	1.543	58	59.68	Slope = 32.0196 Intercept = 9.8964 Corr. coeff. = 0.9995
13	4	4	8	1.368	52	53.51	
10	3	3	6	1.186	46	47.34	
7	1.6	1.6	3.2	0.869	37	38.07	
5	0.9	0.9	1.8	0.655	30	30.87	

**Calculations :**

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

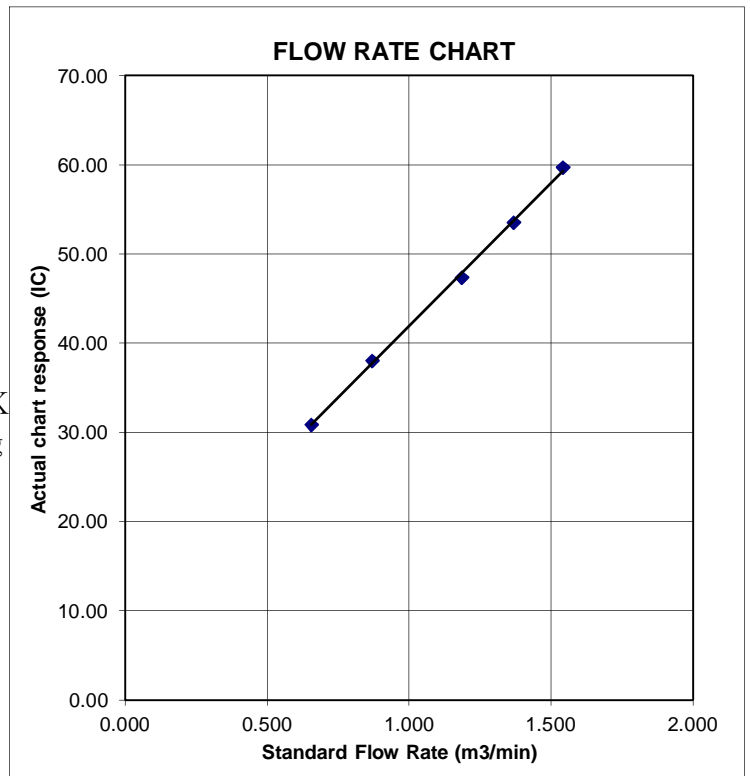
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

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

**For subsequent calculation of sampler flow:**

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

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



## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Squatter house in Chung Mei Village  
 Location ID : AM2

Date of Calibration: 1-Mar-12  
 Next Calibration Date: 30-Apr-12  
 Technician: Mr. Ben Tam

### CONDITIONS

Sea Level Pressure (hPa)	1014.1	Corrected Pressure (mm Hg)	760.575
Temperature (°C)	16.7	Temperature (K)	290

### CALIBRATION ORIFICE

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

### CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.8	5.8	11.6	1.645	58	59.68	Slope = 28.8551 Intercept = 12.1734 Corr. coeff. = 0.9998
13	4.2	4.2	8.4	1.401	51	52.48	
10	3	3	6	1.186	45	46.31	
7	1.8	1.8	3.6	0.922	38	39.10	
5	1.0	1.0	2	0.690	31	31.90	

**Calculations :**

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

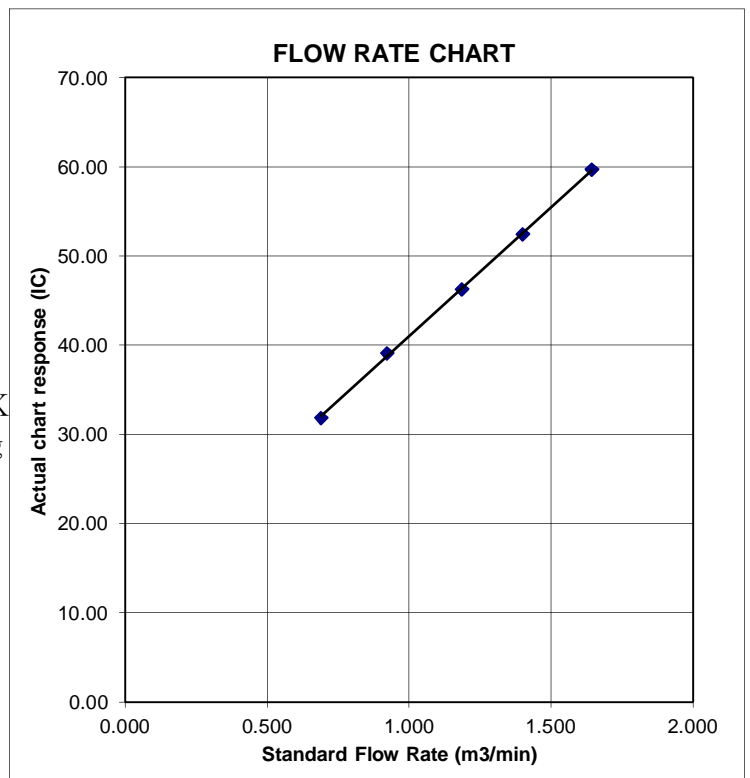
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

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

**For subsequent calculation of sampler flow:**

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

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



## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Football court  
 Location ID : AM3

Date of Calibration: 1-Mar-12  
 Next Calibration Date: 30-Apr-12  
 Technician: Mr. Ben Tam

### CONDITIONS

Sea Level Pressure (hPa)	1014.1	Corrected Pressure (mm Hg)	760.575
Temperature (°C)	16.7	Temperature (K)	290

### CALIBRATION ORIFICE

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

### CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.4	5.4	10.8	1.587	47	48.36	Slope = 23.5114 Intercept = 11.1340 Corr. coeff. = 0.9999
13	4.2	4.2	8.4	1.401	43	44.25	
10	2.6	2.6	5.2	1.105	36	37.05	
7	1.5	1.5	3	0.842	30	30.87	
5	0.8	0.8	1.6	0.618	25	25.73	

**Calculations :**

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

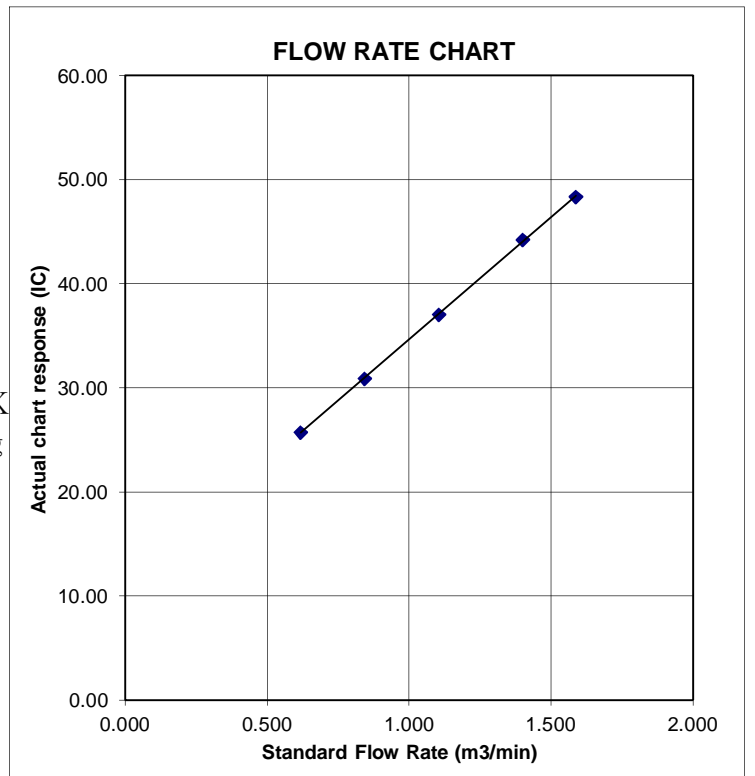
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

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

**For subsequent calculation of sampler flow:**

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

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



## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Squatter house in Chung Mei Village	Date of Calibration: 30-Apr-12
Location ID : AM1	Next Calibration Date: 30-Jun-12
	Technician: Mr. Ben Tam

### CONDITIONS

Sea Level Pressure (hPa)	1005.8	Corrected Pressure (mm Hg)	754.35
Temperature (°C)	28.5	Temperature (K)	302

### CALIBRATION ORIFICE

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

### CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.1	5.1	10.2	1.506	58	57.11	Slope = 31.6154 Intercept = 8.9091 Corr. coeff. = 0.9992
13	4.1	4.1	8.2	1.352	52	51.20	
10	3	3	6	1.158	46	45.30	
7	1.6	1.6	3.2	0.849	36	35.45	
5	0.9	0.9	1.8	0.640	30	29.54	

**Calculations :**

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

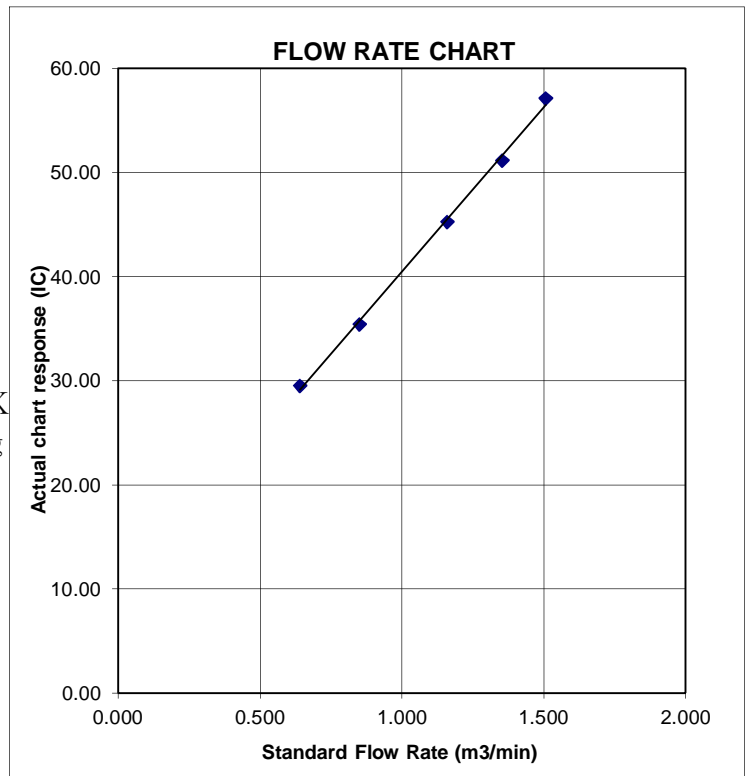
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

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

**For subsequent calculation of sampler flow:**

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

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



## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Squatter house in Chung Mei Village	Date of Calibration: 30-Apr-12
Location ID : AM2	Next Calibration Date: 30-Jun-12
	Technician: Mr. Ben Tam

### CONDITIONS

Sea Level Pressure (hPa)	1005.8	Corrected Pressure (mm Hg)	754.35
Temperature (°C)	28.5	Temperature (K)	302

### CALIBRATION ORIFICE

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

### CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.8	5.8	11.6	1.606	57	56.13	Slope = 27.7477 Intercept = 12.1561 Corr. coeff. = 0.9989
13	4.3	4.3	8.6	1.384	52	51.20	
10	3	3	6	1.158	45	44.31	
7	1.8	1.8	3.6	0.900	38	37.42	
5	0.9	0.9	1.8	0.640	30	29.54	

#### Calculations :

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

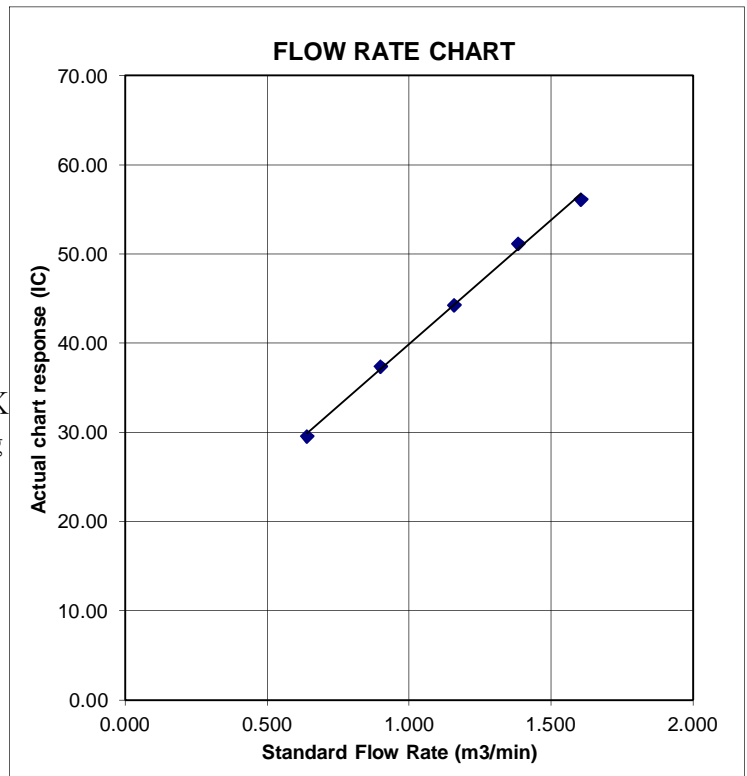
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

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

#### For subsequent calculation of sampler flow:

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

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



## TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Football court	Date of Calibration: 30-Apr-12
Location ID : AM3	Next Calibration Date: 30-Jun-12
	Technician: Mr. Ben Tam

### CONDITIONS

Sea Level Pressure (hPa)	1005.8	Corrected Pressure (mm Hg)	754.35
Temperature (°C)	28.5	Temperature (K)	302

### CALIBRATION ORIFICE

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

### CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.4	5.4	10.8	1.550	47	46.28	Slope = 22.7418 Intercept = 10.4615 Corr. coeff. = 0.9971
13	4.1	4.1	8.2	1.352	41	40.37	
10	2.6	2.6	5.2	1.079	36	35.45	
7	1.5	1.5	3	0.823	29	28.56	
5	0.8	0.8	1.6	0.604	25	24.62	

**Calculations :**

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

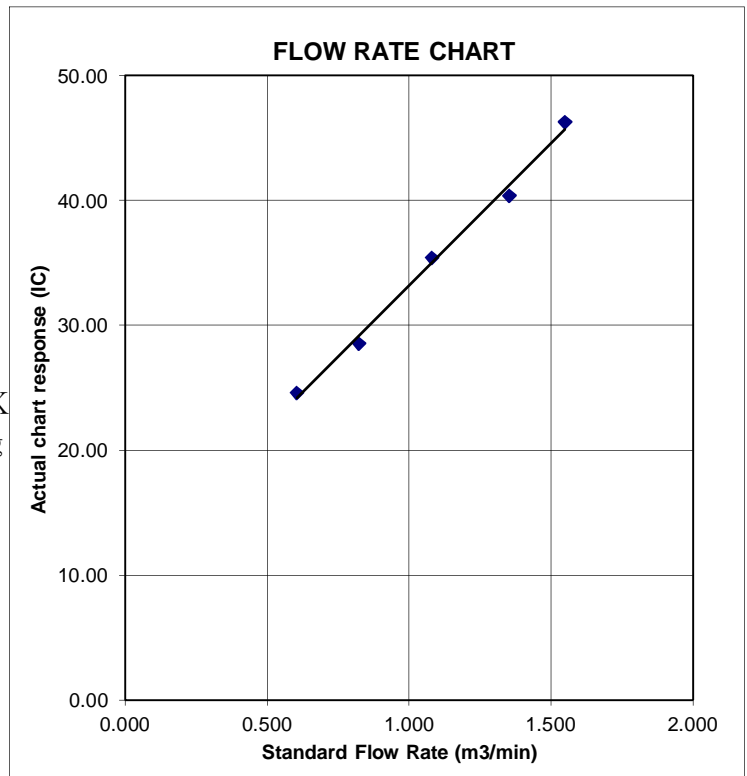
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

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

**For subsequent calculation of sampler flow:**

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

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









# Certificate of Calibration 校正證書

Certificate No. : C122418  
證書編號

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

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

**TEST CONDITIONS / 測試條件**

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

**TEST SPECIFICATIONS / 測試規範**

Calibration

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

**TEST RESULTS / 測試結果**

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

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

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

Tested By :   
測試 : L K Yeung

Certified By :   
核證 : K C Lee

Date of Issue : 23 April 2012  
簽發日期

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

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

# Certificate of Calibration

## 校正證書

Certificate No. : C122418  
證書編號

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 internal standard (After Adjustment) was performed before the test form 6.1.1.2 to 6.4.
3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C120016
CL281	Multifunction Acoustic Calibrator	DC110233

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Adjustment

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

\* Out of Mfr's Spec.

6.1.1.2 After Adjustment

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

6.1.2 Linearity

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

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

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

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

Sun Creation Engineering Limited – Calibration & Testing Laboratory

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

輝創工程有限公司 – 校正及檢測實驗室

c/o 香港新界屯門興安里一號青山灣機樓四樓

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



# Certificate of Calibration

## 校正證書

Certificate No. : C122418

證書編號

### 6.2 Time Weighting

#### 6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 120	L <sub>A</sub>	A	Fast	94.00	1	94.0	Ref.
			Slow			94.0	± 0.1

#### 6.2.2 Tone Burst Signal (2 kHz)

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

### 6.3 Frequency Weighting

#### 6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L <sub>A</sub>	A	Fast	94.00	31.5 Hz	54.3	-39.4 ± 1.5
					63 Hz	67.7	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.3	+1.2 ± 1.0
					4 kHz	95.1	+1.0 ± 1.0
					8 kHz	93.0	-1.1 (+1.5; -3.0)
12.5 kHz	90.1	-4.3 (+3.0; -6.0)					

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

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

# Certificate of Calibration

## 校正證書

Certificate No. : C122418  
證書編號

### 6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 120	L <sub>C</sub>	C	Fast	94.00	31.5 Hz	90.7	-3.0 ± 1.5
					63 Hz	93.1	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	94.0	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.9	-0.2 ± 1.0
					4 kHz	93.4	-0.8 ± 1.0
					8 kHz	91.1	-3.0 (+1.5; -3.0)
					12.5 kHz	88.2	-6.2 (+3.0; -6.0)

### 6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)
Range (dB)	Mode	Frequency Weighting	Integrating Time	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
20 - 110	L <sub>Aeq</sub>	A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5
								1/10 <sup>2</sup>	90	± 0.5
								1/10 <sup>3</sup>	80	± 1.0
								1/10 <sup>4</sup>	70	± 1.0
								60 sec.		
			5 min.							

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

- Uncertainties of Applied Value : 94 dB : 63 Hz - 125 Hz : ± 0.35 dB  
 250 Hz - 500 Hz : ± 0.30 dB  
 1 kHz : ± 0.20 dB  
 2 kHz - 4 kHz : ± 0.35 dB  
 8 kHz : ± 0.45 dB  
 12.5 kHz : ± 0.70 dB  
 104 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)  
 114 dB : 1 kHz : ± 0.10 dB (Ref. 94 dB)  
 Burst equivalent level : ± 0.2 dB (Ref. 110 dB continuous sound level)

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

#### Note :

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

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

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





輝創工程有限公司

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 :  $(23 \pm 2)^{\circ}\text{C}$   
Line Voltage / 電壓 : ---

Relative Humidity / 相對濕度 :  $(55 \pm 20)\%$

**TEST SPECIFICATIONS / 測試規範**

Calibration

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

**TEST RESULTS / 測試結果**

The results apply to the particular unit-under-test only.  
All results are within manufacturer's specification.  
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 : 23 April 2012  
簽發日期

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

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

Sun Creation Engineering Limited – Calibration & Testing Laboratory

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

輝創工程有限公司 – 校正及檢測實驗室

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Tel/電話: 2927 2606

Fax/傳真: 2744 8986

E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com

# Certificate of Calibration

## 校正證書

Certificate No. : 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.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

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

- Test procedure : MA100N.

- Results :

### 5.1 Sound Level Accuracy

#### 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		

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

#### 5.2.2 After Adjustment

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

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

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輝創工程有限公司  
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.

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Fax/傳真: 2744 8986

E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com



## ALS Technichem (HK) Pty Ltd

### REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

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

**WORK ORDER:** HK1210811  
**LABORATORY:** HONG KONG  
**DATE RECEIVED:** 25/04/2012  
**DATE OF ISSUE:** 02/05/2012

**PROJECT:** --

#### COMMENTS

It is certified that the item under calibration/checking has been calibrated/checked by corresponding calibrated equipment in the laboratory.

Maximum Tolerance and calibration frequency stated in the report, unless otherwise stated, the internal acceptance criteria of ALS will be followed.

Scope of Test: Dissolved Oxygen, pH, Salinity, Temperature and Turbidity  
Description: YSI Sonde  
Brand Name: YSI  
Model No.: YSI 6820 / 650MDS  
Serial No.: 02J0912 / 02K0788 AA  
Equipment No.: --  
Date of Calibration: 27 April, 2012

#### NOTES

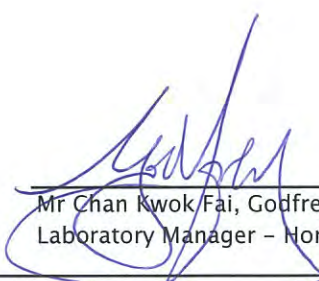
This is the Final Report and supersedes any preliminary report with this batch number.  
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

#### ISSUING LABORATORY: HONG KONG

##### Address

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

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

  
Mr Chan Kwok Fai, Godfrey  
Laboratory Manager - Hong Kong

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Page 1 of 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:** HK1210811  
**Date of Issue:** 02/05/2012  
**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:** 27 April, 2012

**Date of next Calibration:** 27 July, 2012

**Parameters:**

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

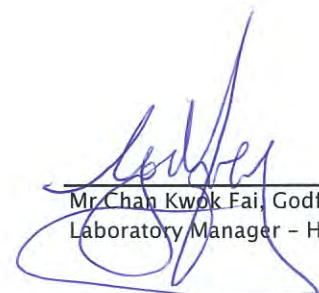
Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
6.43	6.33	-0.10
7.80	7.76	-0.04
8.35	8.30	-0.05
Tolerance Limit (±mg/L)		0.20

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

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	4.07	0.07
7.0	7.08	0.08
10.0	9.94	-0.06
Tolerance Limit (±unit)		0.2

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

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.00	--
10	10.67	6.7
20	21.12	5.6
30	31.59	5.3
Tolerance Limit (±%)		10.0

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



# REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

**Work Order:** HK1210811  
**Date of Issue:** 02/05/2012  
**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:** 27 April, 2012

**Date of next Calibration:** 27 July, 2012

**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)
16.0	15.46	-0.5
25.0	24.66	-0.3
35.0	34.40	-0.6
	Tolerance Limit (°C)	2.0

**Turbidity**

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

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.7	--
4	4.31	7.7
10	10.7	7.0
20	20.9	4.5
50	53.8	7.6
100	107.4	7.4
	Tolerance Limit (±%)	10.0

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



Hong Kong Accreditation Service  
香港認可處

**Certificate of Accreditation**  
認可證書

*This is to certify that*  
特此證明

**ALS TECHNICHEM (HK) PTY LIMITED**

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

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

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

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

**Environmental Testing**  
環境測試

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

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

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

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

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

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



**Appendix F**  
**Event/Action Plan**

### Air Quality

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



### Construction Noise

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

### Water Quality

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

## **Appendix G**

### **Monitoring Data Sheet**

## 24-hour TSP Monitoring Data Sheet

### Air Quality Monitoring - 24-hour TSP Monitoring data sheet

DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP (oC)	STANDARD			INITIAL FILTER WEIGHT (g)	FINAL FILTER WEIGHT (g)	WEIGHT DUST COLLECTED (g)	DUST 24-hour TSP IN AIR (ug/m <sup>3</sup> )
		INITIAL	FINAL	ACTUAL (min)	MIN	MAX	AVG		AVG PRESS (hPa)	FLOW RATE (m3/min)	AIR VOLUME (std m3)				
<b>24-hour TSP Monitoring Results - AM1</b>															
27-Apr-12	24714	11929.91	11953.9	1439.40	32	34	33.0	23.6	1009.5	0.72	1039	2.7588	2.7932	0.0344	33
3-May-12	24719	11953.9	11977.89	1439.40	32	34	33.0	29	1005.5	0.75	1081	2.7461	2.77	0.0239	22
9-May-12	24753	11977.89	12001.88	1439.40	32	34	33.0	29.2	1008.9	0.75	1083	2.734	2.7495	0.0155	14
15-May-12	24756	12001.88	12025.87	1439.40	32	34	33.0	28	1007.6	0.75	1085	2.7545	2.7726	0.0181	17
21-May-12	24761	12025.87	12049.86	1439.40	32	34	33.0	25.9	1007.6	0.76	1090	2.7374	2.7839	0.0465	43
<b>24-hour TSP Monitoring Results - AM2</b>															
27-Apr-12	24713	10430.01	10454	1439.40	32	34	33.0	23.6	1009.5	0.72	1040	2.743	2.7967	0.0537	52
3-May-12	24717	10454	10477.99	1439.40	32	34	33.0	29	1005.5	0.74	1063	2.7474	2.7793	0.0319	30
9-May-12	24752	10477.99	10501.98	1439.40	32	34	33.0	29.2	1008.9	0.74	1066	2.728	2.7567	0.0287	27
15-May-12	24755	10501.98	10525.97	1439.40	32	34	33.0	28	1007.6	0.74	1068	2.7402	2.76	0.0198	19
21-May-12	24762	10525.97	10549.96	1439.40	32	34	33.0	25.9	1007.6	0.75	1074	2.751	2.7836	0.0326	30
<b>24-hour TSP Monitoring Results - AM3</b>															
27-Apr-12	24715	5995.91	6019.9	1439.4	34	36	35	23.6	1009.5	1.02	1462	2.7597	2.8552	0.0955	65
3-May-12	24721	6019.9	6043.89	1439.4	33	35	34	29	1005.5	1.02	1467	2.7454	2.8044	0.0590	40
9-May-12	24754	6043.89	6067.88	1439.4	33	35	34	29.2	1008.9	1.02	1470	2.7686	2.8695	0.1009	69
15-May-12	24757	6067.88	6091.87	1439.4	33	35	34	28	1007.6	1.02	1473	2.7506	2.9453	0.1947	132
21-May-12	24788	6091.87	6115.86	1439.4	33	35	34	25.9	1007.6	1.03	1480	2.7636	2.8224	0.0588	40

## Marine Water Quality Monitoring Data Sheet



Contract No. DC/2009/13

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



Sok Kwu Wan

Date 27-Apr-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/4/27 15:25	W1	ME	832971	807727	2.2	1.100	29.59	6.77	82.9	1.2	29.59	8.44	2.8
						1.100	29.58	6.69	82.8	1.4	29.58	8.38	
2012/4/27 15:15	W2	ME	832683	808001	13.4	1.000	29.43	6.94	82.4	1.7	29.43	8.58	3.4
						1.000	29.50	6.86	82.6	1.6	29.50	8.51	4.2
						6.700	29.82	6.60	83.5	1.5	29.82	8.39	
						6.700	29.79	6.59	83.4	1.6	29.79	8.37	1.0
						12.400	30.31	6.45	84.9	1.3	30.31	8.30	
						12.400	30.13	6.46	84.4	1.4	30.13	8.31	
2012/4/27 15:00	W3	ME	832065	807891	13.5	1.000	29.52	6.84	82.7	1.6	29.52	8.48	1.0
						1.000	29.54	6.77	82.7	1.7	29.54	8.44	2.0
						6.750	30.43	6.65	85.2	1.6	30.43	8.39	
						6.750	30.46	6.58	85.3	1.7	30.46	8.36	3.7
						12.500	29.84	6.52	83.6	1.4	29.84	8.34	
						12.500	29.71	6.46	83.2	1.4	29.71	8.32	
2012/4/27 15:45	C1	ME	833697	808164	15.7	1.000	29.08	6.39	81.4	2.1	29.08	8.37	3.9
						1.000	29.07	6.38	81.4	2.1	29.07	8.35	1.7
						7.850	29.17	6.31	81.7	1.5	29.17	8.31	
						7.850	29.17	6.29	81.7	1.5	29.17	8.28	2.4
						14.700	29.16	6.29	81.6	1.8	29.16	8.27	
						14.700	29.08	6.23	81.4	1.6	29.08	8.25	
2012/4/27 14:45	C2	ME	831454	808001	13.3	1.000	28.43	6.61	79.6	1.6	28.43	8.31	2.3
						1.000	28.43	6.60	79.6	1.6	28.43	8.29	6.8
						6.650	29.94	6.51	83.8	1.8	29.94	8.32	
						6.650	29.92	6.51	83.8	1.7	29.92	8.32	1.4
						12.300	30.43	6.46	85.2	1.4	30.43	8.32	
						12.300	30.41	6.46	85.1	1.7	30.41	8.32	
2012/4/27 16:05	C3	ME	832219	808889	15.9	1.000	28.64	6.45	80.2	1.6	28.64	8.29	2.3
						1.000	29.03	6.44	81.3	1.7	29.03	8.27	6.0
						7.950	29.10	6.42	81.5	1.8	29.10	8.23	
						7.950	29.12	6.42	81.5	1.9	29.12	8.24	7.4
						14.900	29.47	6.32	82.5	1.3	29.47	8.24	
						14.900	29.41	6.32	82.5	1.2	29.41	8.24	
2012/4/27 8:55	W1	MF	832985	807737	2.7	1.350	29.68	7.96	83.10	1.5	29.68	8.52	5.5
						1.350	29.73	7.88	83.24	1.6	29.73	8.46	
2012/4/27 8:45	W2	MF	832691	807991	15.3	1.000	29.74	8.08	83.27	1.9	29.74	8.56	5.7
						1.000	29.77	7.94	83.36	1.9	29.77	8.48	5.4
						7.650	29.90	7.63	83.72	1.8	29.90	8.36	
						7.650	29.92	7.57	83.78	1.9	29.92	8.34	2.0
						14.300	30.70	7.56	85.96	1.4	30.70	8.52	
						14.300	30.72	7.50	86.02	1.5	30.72	8.40	
2012/4/27 8:30	W3	MF	832062	807874	15.5	1.000	28.82	8.17	80.70	1.8	28.82	8.44	4.4
						1.000	28.96	8.09	81.09	1.8	28.96	8.38	4.2
						7.750	30.11	7.65	84.31	1.4	30.11	8.29	
						7.750	30.03	7.59	84.08	1.5	30.03	8.28	2.4
						14.500	31.21	7.43	87.39	1.5	31.21	8.26	
						14.500	31.24	7.43	87.47	1.6	31.24	8.26	
2012/4/27 9:15	C1	MF	833721	808156	17.1	1.000	29.83	7.48	83.52	1.8	29.83	8.46	4.1
						1.000	29.83	7.46	83.52	2.0	29.83	8.42	4.2
						8.550	30.04	7.30	84.11	1.6	30.04	8.30	
						8.550	30.05	7.25	84.14	1.8	30.05	8.29	2.7
						16.100	30.97	7.14	86.72	2.0	30.97	8.28	
						16.100	31.01	7.09	86.83	2.2	31.01	8.27	
2012/4/27 8:15	C2	MF	831449	807765	15.1	1.000	29.62	7.91	82.94	1.4	29.62	8.22	1.3
						1.000	29.48	7.91	82.54	1.5	29.48	8.21	3.9
						7.550	31.03	7.66	86.88	1.7	31.03	8.21	
						7.550	31.03	7.60	86.88	1.8	31.03	8.20	2.2
						14.100	30.87	7.49	86.44	1.6	30.87	8.17	
						14.100	30.88	7.49	86.46	1.6	30.88	8.17	
2012/4/27 9:35	C3	MF	832246	808847	17.3	1.000	29.32	7.15	82.10	1.3	29.32	8.40	3.7
						1.000	29.32	7.08	82.10	1.4	29.32	8.36	2.4
						8.650	29.47	7.01	82.52	1.2	29.47	8.32	
						8.650	29.49	7.00	82.57	1.2	29.49	8.30	1.2
						16.300	29.99	6.88	83.97	1.4	29.99	8.26	
						16.300	30.08	6.88	84.22	1.5	30.08	8.26	

MF- Mid Flood Tide

ME- Mid Ebb tide

Contract No. DC/2009/13

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



Sok Kwu Wan

Date 30-Apr-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/4/30 16:45	W1	ME	832943	832943	2.2	1.100	30.34	6.54	87.5	0.7	30.34	8.49	2.7
						1.100	30.35	6.51	87.2	0.8	30.35	8.45	
2012/4/30 16:35	W2	ME	832680	832680	13.3	1.000	30.47	6.49	86.9	1.8	30.47	8.42	1.4
						1.000	30.59	6.56	88.0	1.6	30.59	8.41	
						6.650	30.73	6.58	88.3	1.3	30.73	8.35	0.7
						6.650	30.74	6.53	87.4	1.4	30.74	8.34	
						12.300	30.19	6.46	86.6	1.5	30.19	8.58	0.6
						12.300	30.34	6.57	88.0	1.6	30.34	8.48	
2012/4/30 16:20	W3	ME	832049	832049	13.5	1.000	30.53	6.57	87.9	0.9	30.53	8.40	0.7
						1.000	30.55	6.54	87.7	1.1	30.55	8.39	
						6.750	30.70	6.53	87.6	1.5	30.70	8.34	3.0
						6.750	30.72	6.59	88.3	1.5	30.72	8.31	
						12.500	30.16	6.56	87.8	1.1	30.16	8.49	1.1
						12.500	30.15	6.40	85.7	1.2	30.15	8.44	
2012/4/30 17:05	C1	ME	833713	833713	15.3	1.000	30.48	6.32	84.6	1.9	30.48	8.35	1.2
						1.000	30.49	6.59	88.4	1.8	30.49	8.33	
						7.650	30.63	6.62	88.9	1.6	30.63	8.32	1.1
						7.650	30.64	6.59	88.3	1.7	30.64	8.32	
						14.300	15.75	6.63	88.9	2.0	30.40	8.56	1.3
						14.300	26.52	6.29	84.2	1.9	30.34	8.47	
2012/4/30 16:05	C2	ME	831479	831479	13.2	1.000	30.29	6.30	84.2	1.6	30.29	8.35	2.7
						1.000	30.31	6.48	86.9	1.7	30.31	8.33	
						6.600	30.42	6.50	87.0	1.2	30.42	8.30	3.6
						6.600	30.38	6.62	88.7	1.3	30.38	8.30	
						12.200	30.54	6.61	88.6	1.0	30.54	8.29	3.6
						12.200	30.55	6.49	86.9	0.9	30.55	8.29	
2012/4/30 17:25	C3	ME	832234	832234	15.7	1.000	30.15	6.36	85.1	1.4	30.15	8.40	3.0
						1.000	30.19	6.68	89.7	1.4	30.19	8.36	
						7.850	30.41	6.69	89.8	1.6	30.41	8.32	5.2
						7.850	30.44	6.45	86.4	1.6	30.44	8.31	
						14.700	30.48	6.28	84.2	1.9	30.48	8.30	1.0
						14.700	30.48	6.18	82.8	1.9	30.48	8.28	
2012/4/30 11:55	W1	MF	832957	807719	2.8	1.400	30.17	6.66	89.24	1.2	30.17	8.21	1.7
						1.400	30.17	6.62	88.92	1.0	30.17	8.20	
2012/4/30 11:45	W2	MF	832653	808007	15.4	1.000	30.59	6.69	89.82	2.0	30.59	8.22	4.3
						1.000	30.59	6.72	89.55	2.1	30.59	8.23	
						7.700	30.55	6.65	89.15	1.6	30.55	8.23	4.1
						7.700	30.60	6.65	89.24	1.8	30.60	8.23	
						14.400	30.25	6.60	88.29	1.3	30.25	8.45	1.7
						14.400	30.28	6.51	87.08	1.4	30.28	8.41	
2012/4/30 11:30	W3	MF	832062	807907	15.3	1.000	30.58	6.68	89.91	1.8	30.58	8.37	2.3
						1.000	30.64	6.67	89.64	1.8	30.64	8.36	
						7.650	30.69	6.71	90.09	0.6	30.69	8.32	2.2
						7.650	30.72	6.64	89.19	0.9	30.72	8.33	
						14.300	29.92	6.48	86.94	1.2	29.92	8.46	1.6
						14.300	29.91	6.27	84.06	1.2	29.91	8.42	
2012/4/30 12:15	C1	MF	833711	808159	17.4	1.000	30.62	6.86	92.12	2.1	30.62	8.40	3.3
						1.000	30.66	6.84	91.94	2.0	30.66	8.39	
						8.700	30.85	6.85	90.63	1.8	30.85	8.35	2.5
						8.700	30.85	6.77	90.41	2.0	30.85	8.35	
						16.400	30.37	6.45	86.40	1.4	30.37	8.46	3.9
						16.400	30.36	6.40	85.86	1.3	30.36	8.43	
2012/4/30 11:15	C2	MF	831454	807766	15.1	1.000	30.23	6.69	89.91	1.5	30.23	8.43	1.8
						1.000	30.23	6.70	90.09	1.5	30.23	8.40	
						7.550	30.88	6.66	89.46	1.2	30.88	8.37	1.7
						7.550	30.92	6.56	88.07	1.3	30.92	8.37	
						14.100	30.90	6.15	82.53	0.8	30.90	8.36	<0.5
						14.100	30.90	6.13	82.22	1.1	30.90	8.35	
2012/4/30 12:35	C3	MF	832246	808874	17.5	1.000	30.15	6.87	90.72	1.8	30.15	8.31	2.2
						1.000	30.24	6.81	90.99	1.9	30.24	8.29	
						8.750	30.76	6.61	88.20	1.9	30.76	8.32	3.4
						8.750	30.86	6.47	86.63	2.1	30.86	8.31	
						16.500	30.93	6.45	86.40	1.5	30.93	8.31	3.7
						16.500	30.93	6.31	84.69	1.4	30.93	8.31	

MF- Mid Flood Tide

ME- Mid Ebb tide

Contract No. DC/2009/13

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



**Sok Kwu Wan**

Date 2-May-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/5/2 9:45	W1	ME	832960	807713	2.1	1.050	25.50	5.65	79.5	0.6	25.60	8.27	0.8
						1.050	25.50	5.45	78.8	0.7	25.67	8.27	
2012/5/2 9:35	W2	ME	832674	807980	13.3	1.000	25.20	5.59	78.7	0.9	26.19	8.26	0.5
						1.000	25.20	5.56	78.4	0.8	26.13	8.25	
						6.650	24.10	5.46	76.6	0.8	28.86	8.28	0.6
						6.650	24.10	5.44	76.4	1.1	28.90	8.28	
						12.300	23.60	5.47	76.7	1.2	30.12	8.29	5.2
						12.300	23.60	5.36	75.2	1.5	30.15	8.29	
2012/5/2 9:20	W3	ME	832046	807889	13.1	1.000	25.20	5.63	79.4	0.7	26.52	8.22	0.5
						1.000	25.10	5.60	79.0	0.8	26.49	8.21	
						6.550	24.20	5.47	77.0	0.8	28.97	8.23	0.5
						6.550	24.10	5.46	76.8	0.9	29.04	8.22	
						12.100	23.70	5.36	75.0	1.0	29.62	8.25	2.3
						12.100	23.70	5.20	72.8	1.1	29.90	8.23	
2012/5/2 10:05	C1	ME	833724	808159	15.2	1.000	25.70	4.96	69.4	0.8	23.49	8.30	0.5
						1.000	25.70	4.94	69.2	0.9	23.43	8.29	
						7.600	24.50	4.86	68.2	0.7	27.62	8.27	0.7
						7.600	24.50	4.86	68.1	0.8	27.46	8.27	
						14.200	23.70	4.89	68.6	0.9	30.02	8.30	0.5
						14.200	23.70	4.77	66.9	1.2	30.05	8.29	
2012/5/2 9:05	C2	ME	831454	807725	13.2	1.000	24.40	5.65	79.5	0.6	28.24	8.15	0.5
						1.000	24.40	5.57	78.3	0.7	28.25	8.16	
						6.600	24.10	5.69	80.0	0.7	29.28	8.18	0.5
						6.600	24.00	5.58	78.4	0.8	29.24	8.18	
						12.200	23.80	5.53	77.5	0.8	29.44	8.17	0.5
						12.200	23.80	5.33	74.6	1.0	29.45	8.17	
2012/5/2 10:25	C3	ME	832227	808835	15.1	1.000	24.50	4.25	59.6	0.7	27.52	8.25	0.5
						1.000	24.50	4.20	59.0	0.9	27.41	8.25	
						7.550	23.60	3.99	56.0	0.8	30.14	8.28	1.6
						7.550	23.60	3.75	52.6	1.2	30.14	8.28	
						14.100	23.60	3.72	52.1	1.3	30.15	8.28	4.0
						14.100	23.60	3.68	51.7	1.5	30.15	8.27	
2012/5/2 15:00	W1	MF	832970	807741	2.7	1.350	25.20	5.45	76.5	0.7	26.21	8.34	0.5
						1.350	25.20	5.55	77.2	0.7	26.21	8.33	
2012/5/2 14:50	W2	MF	832660	807986	15.1	1.000	24.90	5.16	72.6	0.6	27.10	8.29	0.5
						1.000	24.90	5.04	70.8	0.6	27.05	8.29	
						7.550	23.50	4.80	67.8	0.6	30.82	8.29	0.7
						7.550	23.20	4.80	67.2	0.7	31.01	8.31	
						14.100	23.10	4.32	60.6	0.8	30.97	8.28	3.9
						14.100	23.10	4.32	60.0	0.8	30.97	8.26	
2012/5/2 14:35	W3	MF	832049	807902	15.3	1.000	24.10	5.90	82.80	0.8	29.47	8.26	0.8
						1.000	24.00	5.72	80.55	0.9	29.57	8.26	
						7.650	23.20	5.54	77.85	0.7	31.03	8.29	3.2
						7.650	23.20	5.45	76.50	0.8	31.03	8.29	
						14.300	23.20	5.22	72.45	0.9	30.69	8.24	5.1
						14.300	23.20	5.09	71.10	1.1	30.76	8.26	
2012/5/2 15:20	C1	MF	833711	808197	16.7	1.000	24.50	5.30	74.50	0.9	27.84	8.34	0.5
						1.000	24.50	5.20	73.50	1.0	27.81	8.33	
						8.350	23.20	5.10	71.00	0.7	30.99	8.33	1.6
						8.350	23.20	5.00	70.00	1.0	30.99	8.32	
						15.700	23.20	4.70	65.50	1.1	31.02	8.34	0.6
						15.700	23.20	4.50	63.00	1.3	31.02	8.33	
2012/5/2 14:20	C2	MF	831457	807761	15.1	1.000	25.80	4.62	65.7	0.6	26.35	8.13	0.5
						1.000	25.30	4.62	65.7	0.8	27.18	8.12	
						7.550	23.30	4.20	59.4	0.7	30.87	8.19	3.1
						7.550	23.30	4.20	58.8	0.7	30.79	8.18	
						14.100	23.30	4.14	57.6	0.8	30.80	8.18	2.9
						14.100	23.30	4.14	57.6	0.9	30.81	8.17	
2012/5/2 15:40	C3	MF	832225	808857	16.5	1.000	24.00	4.81	67.0	0.7	29.15	8.30	0.5
						1.000	24.00	4.75	67.0	0.9	29.18	8.29	
						8.250	23.30	4.26	60.0	0.9	30.92	8.27	3.2
						8.250	23.20	4.26	60.0	1.0	30.99	8.29	
						15.500	23.10	4.20	58.8	1.0	31.15	8.31	0.6
						15.500	23.10	4.14	58.2	1.0	31.15	8.30	

MF- Mid Flood Tide  
ME- Mid Ebb tide

Contract No. DC/2009/13

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



**Sok Kwu Wan**

Date 5-May-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/5/5 11:15	W1	ME	832960	807737	2.2	1.100	25.70	5.55	77.8	0.7	24.91	8.57	1.7
						1.100	25.70	5.58	78.1	0.8	24.94	8.54	
2012/5/5 11:05	W2	ME	832679	807973	13.2	1.000	25.70	5.58	78.7	0.7	25.03	8.55	1.4
						1.000	25.70	5.61	79.2	0.9	25.05	8.53	
						6.600	23.60	5.24	73.6	0.9	30.38	8.31	1.6
						6.600	23.50	4.97	69.7	1.2	30.31	8.29	
						12.200	23.30	4.59	64.3	1.3	30.81	8.26	0.5
						12.200	23.30	4.43	62.0	1.4	30.89	8.14	
2012/5/5 10:50	W3	ME	832049	807889	13.1	1.000	26.00	6.62	93.8	0.7	24.84	8.56	0.7
						1.000	25.90	6.60	93.6	0.7	25.10	8.52	
						6.550	23.90	5.83	81.9	0.8	29.64	8.30	0.9
						6.550	23.80	5.72	80.2	0.9	29.65	8.29	
						12.100	23.40	4.27	59.5	1.1	29.90	8.24	0.5
						12.100	23.40	4.01	55.9	1.3	29.89	8.21	
2012/5/5 11:35	C1	ME	833714	808184	15.2	1.000	25.40	4.51	63.6	0.8	25.63	8.53	1.0
						1.000	25.40	4.49	63.3	0.7	25.70	8.51	
						7.600	24.20	4.36	61.2	0.6	28.82	8.38	1.6
						7.600	24.40	4.33	60.9	0.8	28.27	8.39	
						14.200	23.30	4.14	58.1	0.9	31.05	8.31	0.5
						14.200	23.30	3.99	56.0	1.2	31.07	8.30	
2012/5/5 10:35	C2	ME	831472	807763	13.2	1.000	26.00	6.92	98.1	0.7	24.71	8.38	0.5
						1.000	26.00	6.95	98.5	0.8	24.73	8.39	
						6.600	23.70	6.15	86.3	0.7	30.05	8.17	0.5
						6.600	23.60	5.68	79.7	0.8	30.16	8.13	
						12.200	23.60	5.39	75.5	0.8	29.95	8.07	0.5
						12.200	23.60	4.71	66.0	1.0	29.99	8.06	
2012/5/5 11:55	C3	ME	832204	808871	15.3	1.000	25.10	5.46	77.0	0.7	26.55	8.49	1.0
						1.000	25.00	5.34	75.3	0.7	26.66	8.46	
						7.650	23.80	5.15	72.3	0.8	29.86	8.33	0.9
						7.650	24.00	4.91	69.0	1.0	29.07	8.33	
						14.300	23.30	4.26	59.4	1.2	30.18	8.27	0.5
						14.300	23.30	4.08	57.0	1.1	30.16	8.27	
2012/5/5 17:40	W1	MF	832971	807745	2.8	1.400	25.50	5.76	81.6	0.6	25.96	8.52	1.8
						1.400	25.50	5.61	79.2	0.7	25.98	8.51	
2012/5/5 17:30	W2	MF	832666	807962	15.3	1.000	25.10	6.21	87.6	0.7	26.78	8.44	1.3
						1.000	25.00	6.15	86.7	0.7	26.91	8.43	
						7.650	23.60	5.97	83.7	0.6	30.48	8.34	1.9
						7.650	23.50	5.88	82.5	0.8	30.43	8.30	
						14.300	23.10	5.85	81.9	0.8	31.55	8.29	1.0
						14.300	23.10	5.85	81.9	0.9	31.44	8.28	
2012/5/5 17:15	W3	MF	832055	807895	15.1	1.000	24.20	6.50	91.5	0.7	29.03	8.35	1.6
						1.000	24.10	6.45	90.5	0.9	29.17	8.32	
						7.550	23.80	6.38	89.5	0.8	29.76	8.31	1.1
						7.550	23.80	6.30	88.5	0.9	29.82	8.30	
						14.100	23.80	6.20	86.8	0.8	29.85	8.28	2.2
						14.100	23.70	6.18	86.5	0.9	29.86	8.26	
2012/5/5 18:00	C1	MF	833712	808175	17.1	1.000	25.30	5.34	75.3	0.8	26.10	8.52	1.9
						1.000	25.20	5.19	73.2	0.8	26.21	8.48	
						8.550	23.40	4.89	68.7	0.8	31.05	8.32	1.6
						8.550	23.40	4.83	67.5	0.7	30.83	8.30	
						16.100	23.10	4.77	66.9	1.0	31.37	8.27	1.2
						16.100	23.10	4.74	66.0	1.0	31.43	8.25	
2012/5/5 17:00	C2	MF	831469	807735	15.1	1.000	25.00	4.74	66.9	0.6	26.98	8.46	1.2
						1.000	24.90	4.71	66.6	0.7	27.08	8.45	
						7.550	24.20	4.53	63.9	0.8	28.86	8.31	1.2
						7.550	24.20	4.47	62.7	0.8	28.89	8.29	
						14.100	24.10	4.32	60.9	0.8	28.90	8.28	1.0
						14.100	24.10	4.29	60.3	0.9	28.90	8.27	
2012/5/5 18:20	C3	MF	832225	808887	17.3	1.000	25.50	4.50	63.6	0.7	25.75	8.47	2.1
						1.000	25.50	4.50	63.6	0.6	25.73	8.46	
						8.650	25.20	4.53	63.9	0.9	26.14	8.43	1.6
						8.650	25.20	4.53	63.9	0.9	26.13	8.42	
						16.300	23.80	4.62	65.1	1.0	29.79	8.29	2.8
						16.300	24.40	4.62	64.8	1.1	27.99	8.31	

MF- Mid Flood Tide

ME- Mid Ebb tide

Contract No. DC/2009/13

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



**Sok Kwu Wan**

Date 7-May-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/5/7 13:45	W1	ME	832974	807725	2.3	1.150	25.50	5.46	76.5	0.6	26.98	8.62	1.7
						1.150	25.50	5.55	79.5	0.7	26.97	8.57	
2012/5/7 13:35	W2	ME	832652	807988	13.3	1.000	25.40	5.54	79.1	0.7	27.05	8.58	0.5
						1.000	25.40	5.60	79.5	0.8	27.06	8.54	
						6.650	25.30	4.95	70.1	0.7	27.10	8.50	1.4
						6.650	25.30	4.75	68.4	0.8	27.10	8.48	
						12.300	24.70	4.50	64.5	0.9	28.54	8.45	1.7
						12.300	24.70	4.40	62.5	1.0	28.62	8.44	
2012/5/7 13:20	W3	ME	832051	807912	13.2	1.000	24.70	6.05	86.9	0.7	28.46	8.53	1.9
						1.000	24.60	6.05	85.8	0.7	28.62	8.47	
						6.600	24.20	5.83	82.5	0.8	29.51	8.37	1.7
						6.600	24.20	5.72	81.4	0.9	29.60	8.36	
						12.200	24.10	5.17	73.7	1.1	29.61	8.33	0.5
						12.200	24.10	5.25	75.1	1.2	29.48	8.30	
2012/5/7 14:05	C1	ME	833707	808159	15.3	1.000	25.40	6.30	90.1	0.7	27.07	8.49	1.7
						1.000	25.40	6.30	89.8	0.9	27.03	8.48	
						7.650	25.30	6.10	87.2	0.9	27.17	8.45	1.5
						7.650	25.20	6.15	85.5	1.0	27.35	8.45	
						14.300	25.20	5.90	84.2	0.9	27.35	8.44	1.2
						14.300	25.20	5.90	83.8	1.0	27.35	8.43	
2012/5/7 13:05	C2	ME	831461	807750	13.3	1.000	24.60	5.06	71.5	0.6	28.49	8.68	0.6
						1.000	24.60	4.95	69.3	0.7	28.51	8.63	
						6.650	23.80	4.62	66.1	0.7	30.47	8.48	1.1
						6.650	23.80	4.51	63.8	0.7	30.49	8.46	
						12.300	23.80	4.48	62.7	0.9	30.23	8.42	1.3
						12.300	23.80	4.40	61.6	1.0	30.26	8.40	
2012/5/7 14:25	C3	ME	832222	808875	15.5	1.000	25.50	4.41	62.7	0.8	27.00	8.43	0.8
						1.000	25.50	4.51	62.7	0.9	27.04	8.43	
						7.750	25.30	4.51	63.8	0.9	27.20	8.43	2.1
						7.750	25.30	4.40	61.6	1.0	27.20	8.41	
						14.500	25.30	4.29	60.5	1.0	27.20	8.42	2.2
						14.500	25.30	4.29	60.5	1.2	27.19	8.42	
2012/5/7 8:45	W1	MF	832969	807744	2.8	1.400	24.70	5.85	80.2	0.7	27.86	8.53	0.6
						1.400	24.70	5.51	78.9	0.8	27.98	8.48	
2012/5/7 8:35	W2	MF	832654	807963	15.5	1.000	24.80	5.47	77.4	0.7	27.69	8.48	0.5
						1.000	24.80	5.15	72.7	0.8	27.69	8.46	
						7.750	24.50	4.91	69.6	0.7	28.74	8.42	0.5
						7.750	24.40	4.80	67.7	0.8	28.97	8.41	
						14.500	24.00	4.58	64.0	0.9	28.83	8.25	0.5
						14.500	23.90	4.35	60.6	1.2	28.78	8.16	
2012/5/7 8:20	W3	MF	832053	807900	15.3	1.000	24.80	6.36	89.7	0.6	27.43	8.57	1.2
						1.000	24.70	6.15	86.4	0.7	27.67	8.48	
						7.650	24.30	5.55	78.3	0.7	29.18	8.39	1.3
						7.650	24.20	5.34	75.3	0.8	29.32	8.37	
						14.300	24.00	4.98	69.3	0.9	27.60	8.20	0.8
						14.300	24.00	4.92	68.4	1.2	27.62	8.19	
2012/5/7 9:05	C1	MF	833714	808175	17.1	1.000	24.70	4.32	60.6	0.8	27.99	8.47	0.8
						1.000	24.70	4.26	60.0	0.8	28.00	8.45	
						8.550	24.60	4.08	57.6	0.9	28.18	8.43	0.6
						8.550	24.60	4.02	57.0	1.1	28.18	8.42	
						16.100	24.30	4.48	63.0	1.1	29.23	8.38	1.0
						16.100	24.20	4.41	62.3	1.0	29.27	8.38	
2012/5/7 8:05	C2	MF	831453	807754	15.3	1.000	25.00	5.95	83.7	0.7	26.59	8.33	0.5
						1.000	25.00	5.81	81.6	0.7	26.58	8.32	
						7.650	24.90	5.43	76.6	0.8	27.17	8.30	0.6
						7.650	24.80	5.31	74.8	0.8	27.24	8.28	
						14.300	24.40	4.96	69.3	0.8	27.06	8.17	0.7
						14.300	24.40	4.77	66.6	1.0	27.08	8.16	
2012/5/7 9:25	C3	MF	832221	808879	16.7	1.000	24.70	4.35	60.8	0.7	27.95	8.39	0.5
						1.000	24.70	4.28	60.0	0.7	27.95	8.38	
						8.350	24.30	4.13	58.5	0.8	29.14	8.37	0.8
						8.350	24.30	4.13	57.8	0.9	29.16	8.37	
						15.700	24.20	3.98	56.3	1.0	29.36	8.36	0.5
						15.700	24.20	3.98	56.3	0.9	29.38	8.35	

MF- Mid Flood Tide

ME- Mid Ebb tide

Contract No. DC/2009/13

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



**Sok Kwu Wan**

Date 10-Apr-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/5/10 15:25	W1	ME	832975	807741	2.3	1.150	26.06	7.81	114.2	0.7	30.31	8.24	1.0
						1.150	26.07	7.82	114.5	0.7	30.33	8.24	
2012/5/10 15:15	W2	ME	832661	807974	13.4	1.000	26.09	8.91	130.6	0.8	30.38	8.18	0.5
						1.000	26.12	7.63	111.9	0.8	30.36	8.17	
						6.700	25.86	7.54	110.7	1.2	31.35	8.12	0.9
						6.700	25.82	7.78	114.4	0.9	31.69	8.10	
						12.400	24.46	6.88	100.5	0.8	34.66	8.00	0.8
						12.400	24.17	7.02	102.3	2.8	35.22	7.93	
2012/5/10 15:00	W3	ME	832039	807876	13.1	1.000	26.04	7.00	103.0	0.8	31.16	8.12	0.9
						1.000	26.07	6.75	99.2	0.8	31.12	8.10	
						6.550	25.85	6.92	102.1	1.1	32.31	8.05	1.1
						6.550	25.15	6.32	92.5	0.8	33.09	8.01	
						12.100	24.99	8.02	117.5	2.1	33.65	7.99	1.6
						12.100	24.53	7.80	114.0	6.0	34.44	7.92	
2012/5/10 15:45	C1	ME	833711	808163	15.1	1.000	25.88	7.64	111.6	1.0	30.94	8.22	1.5
						1.000	25.73	7.42	108.4	1.0	31.08	8.20	
						7.550	25.53	6.43	94.2	0.8	31.44	8.15	1.0
						7.550	25.52	5.59	81.7	2.5	31.46	8.15	
						14.100	24.76	7.06	103.0	0.6	33.86	8.07	1.7
						14.100	24.72	7.10	103.6	0.6	33.91	8.07	
2012/5/10 14:45	C2	ME	831449	807753	13.3	1.000	25.09	7.86	112.2	0.6	31.92	8.13	0.8
						1.000	25.07	7.64	111.0	0.6	31.92	8.09	
						6.650	24.72	7.56	109.7	0.6	32.84	7.98	0.8
						6.650	24.37	7.35	105.5	1.3	33.56	7.90	
						12.300	24.22	7.34	106.4	1.5	34.08	7.80	3.8
						12.300	24.20	7.39	107.2	1.6	34.21	7.76	
2012/5/10 16:05	C3	ME	832231	808874	15.1	1.000	25.59	7.43	108.6	0.8	31.45	8.12	0.8
						1.000	25.61	7.81	114.2	0.9	31.33	8.13	
						7.550	24.74	6.87	100.5	0.7	34.06	8.07	2.2
						7.550	24.64	7.18	104.8	0.9	34.14	8.06	
						14.100	23.52	6.22	90.4	4.6	36.59	7.92	1.6
						14.100	23.46	5.40	78.3	4.5	36.62	7.88	
2012/5/10 8:45	W1	MF	832969	807702	2.7	1.350	25.68	7.70	110.60	0.2	28.19	8.03	1.1
						1.350	25.66	7.55	108.43	0.2	28.21	8.03	
2012/5/10 8:35	W2	MF	832674	807989	15.4	1.000	25.26	7.11	102.32	0.8	29.60	8.10	1.5
						1.000	25.25	7.07	101.60	0.8	29.51	8.07	
						7.700	24.84	6.91	100.32	1.6	32.49	7.99	1.4
						7.700	24.60	6.75	97.76	1.2	32.76	7.97	
						14.400	23.24	6.02	86.64	2.2	35.86	7.82	0.5
						14.400	23.22	6.20	89.10	2.2	35.84	7.79	
2012/5/10 8:20	W3	MF	832049	807897	15.1	1.000	25.38	7.69	110.70	0.4	29.37	8.05	0.7
						1.000	25.36	7.73	111.24	0.6	29.40	8.04	
						7.550	24.48	7.36	106.47	1.5	32.96	7.97	0.8
						7.550	24.48	7.08	102.51	1.3	32.94	7.97	
						14.100	23.66	6.93	99.90	2.2	34.79	7.87	2.6
						14.100	23.67	6.61	95.40	2.3	34.82	7.86	
2012/5/10 9:05	C1	MF	833697	808186	16.7	1.000	25.66	6.88	98.95	0.4	28.46	8.02	0.5
						1.000	25.63	6.20	89.10	0.4	28.56	7.99	
						8.350	25.00	6.13	88.65	0.3	31.29	7.96	1.4
						8.350	24.98	6.02	86.95	0.7	31.34	7.95	
						15.700	24.68	6.06	87.95	0.1	33.03	7.91	0.8
						15.700	24.70	6.11	88.65	0.4	32.91	7.91	
2012/5/10 8:05	C2	MF	831477	807749	15.5	1.000	25.42	7.78	112.00	1.3	29.43	8.07	1.3
						1.000	25.40	7.82	112.70	0.8	29.41	8.08	
						7.750	24.48	7.78	112.50	3.5	33.00	8.00	0.5
						7.750	24.36	7.27	105.10	5.0	33.15	8.00	
						14.500	24.31	6.58	94.90	6.0	33.03	7.93	2.6
						14.500	24.31	6.52	94.00	6.5	32.87	7.91	
2012/5/10 9:25	C3	MF	832215	808879	17.3	1.000	25.02	6.74	97.45	0.9	31.36	7.93	1.0
						1.000	25.04	7.01	101.40	0.2	31.39	7.94	
						8.650	24.58	6.82	99.00	0.4	33.46	7.92	0.6
						8.650	24.61	6.86	99.60	0.6	33.36	7.92	
						16.300	24.59	6.85	99.55	0.6	33.39	7.91	0.5
						16.300	24.61	6.97	101.20	0.3	33.29	7.92	

MF- Mid Flood Tide  
ME- Mid Ebb tide



Contract No. DC/2009/13

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



**Sok Kwu Wan**

Date 12-Apr-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/5/12 17:40	W1	ME	832962	807741	2.2	1.100	25.80	7.13	103.5	0.7	30.85	8.24	0.5
						1.100	25.82	7.29	105.8	0.7	30.89	8.24	
2012/5/12 17:30	W2	ME	832661	807987	13.3	1.000	25.97	7.22	104.8	0.4	30.65	8.21	0.9
						1.000	25.92	7.02	101.8	0.6	30.50	8.20	
						6.650	25.74	6.82	98.9	0.8	30.80	8.17	0.7
						6.650	25.74	6.70	97.2	0.6	30.90	8.17	
						12.300	24.99	6.38	92.6	2.8	31.00	8.04	2.3
						12.300	25.08	5.56	80.6	1.9	31.22	8.05	
2012/5/12 17:15	W3	ME	832048	807879	13.1	1.000	25.88	6.09	88.5	1.3	30.66	8.12	1.1
						1.000	25.86	5.77	83.8	1.3	30.54	8.12	
						6.550	25.37	5.67	82.2	0.8	30.99	8.02	0.5
						6.550	25.31	5.55	80.6	0.7	31.00	8.02	
						12.100	24.59	4.00	58.1	1.5	31.22	7.83	1.3
						12.100	24.51	4.09	59.4	2.7	31.60	7.81	
2012/5/12 18:05	C1	ME	833705	808198	15.7	1.000	26.04	7.14	103.7	1.4	30.50	8.30	1.1
						1.000	25.94	7.43	107.8	0.3	30.65	8.28	
						7.850	25.41	6.84	99.3	0.9	30.88	8.22	1.8
						7.850	25.45	6.67	96.8	0.4	30.94	8.21	
						14.700	25.11	5.83	84.6	0.5	31.56	8.16	0.5
						14.700	25.26	5.46	79.3	3.4	31.50	8.17	
2012/5/12 17:00	C2	ME	831479	807746	13.3	1.000	26.38	5.91	85.7	0.3	30.50	7.81	1.2
						1.000	26.42	5.70	82.7	0.6	30.60	7.79	
						6.650	25.35	5.89	85.5	0.3	31.22	7.56	0.7
						6.650	25.35	5.71	82.9	0.4	31.46	7.55	
						12.300	24.85	5.05	70.2	1.4	32.10	7.56	0.5
						12.300	24.78	5.12	71.3	1.8	31.22	7.55	
2012/5/12 18:25	C3	ME	832213	808874	15.3	1.000	25.56	5.87	85.2	0.8	30.40	8.22	1.8
						1.000	25.56	5.89	85.5	0.6	30.50	8.22	
						7.650	25.28	5.71	82.9	0.4	31.20	8.18	0.8
						7.650	25.29	5.66	82.1	0.6	31.00	8.18	
						14.300	25.09	5.37	77.9	0.5	31.50	8.14	1.6
						14.300	25.10	5.28	76.6	0.3	31.66	8.14	
2012/5/12 10:40	W1	MF	832969	807754	2.7	1.350	25.42	6.84	99.3	3.5	30.69	8.28	0.5
						1.350	25.42	6.84	99.3	3.5	30.69	8.28	
2012/5/12 10:30	W2	MF	832681	807971	15.3	1.000	25.45	7.04	102.0	0.5	30.56	8.26	0.8
						1.000	25.44	6.66	96.6	0.9	30.56	8.25	
						7.650	24.87	6.22	90.4	0.6	32.51	8.18	1.0
						7.650	24.87	6.22	90.4	0.6	32.51	8.18	
						14.300	23.91	5.96	86.3	1.4	34.71	8.07	1.0
						14.300	23.59	5.33	76.7	1.4	34.96	8.05	
2012/5/12 10:15	W3	MF	832053	807891	15.1	1.000	25.42	5.57	80.7	0.9	30.38	8.12	1.1
						1.000	25.42	5.61	81.2	0.5	30.36	8.13	
						7.550	25.33	5.54	80.3	0.4	30.60	8.12	1.5
						7.550	25.30	5.43	78.6	0.3	30.64	8.11	
						14.100	24.48	4.62	66.7	1.2	32.76	7.96	0.6
						14.100	24.51	4.49	65.0	1.1	32.74	7.96	
2012/5/12 11:05	C1	MF	833717	808179	17.1	1.000	25.47	6.38	92.6	0.4	32.10	8.26	0.9
						1.000	25.50	5.71	82.8	0.7	32.20	8.26	
						8.550	25.32	5.46	79.2	0.7	32.51	8.24	0.5
						8.550	25.34	5.38	78.1	1.2	32.54	8.24	
						16.100	24.95	5.13	74.5	0.7	32.20	8.21	0.8
						16.100	25.00	5.09	73.9	0.7	32.10	8.21	
2012/5/12 10:00	C2	MF	831469	807762	15.1	1.000	25.42	6.11	88.7	0.9	30.70	8.27	0.7
						1.000	25.44	5.54	80.4	0.9	30.69	8.28	
						7.550	25.37	5.53	80.1	0.7	30.37	7.97	1.2
						7.550	25.34	5.57	80.6	0.7	30.41	8.00	
						14.100	25.04	5.63	81.5	3.5	31.34	7.99	0.5
						14.100	24.98	5.53	79.9	2.0	31.40	7.99	
2012/5/12 11:25	C3	MF	832218	808890	17.3	1.000	25.46	6.47	94.0	0.6	30.80	8.24	0.8
						1.000	25.47	6.83	99.1	1.4	30.85	8.25	
						8.650	25.13	5.17	75.0	1.5	30.90	8.22	1.0
						8.650	25.17	5.03	72.9	0.6	30.98	8.21	
						16.300	24.91	4.84	70.2	0.6	31.20	8.20	1.1
						16.300	24.94	4.80	69.6	0.6	31.10	8.20	

MF- Mid Flood Tide  
ME- Mid Ebb tide

Contract No. DC/2009/13

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



**Sok Kwu Wan**

Date 14-May-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/5/14 8:45	W1	ME	832969	807734	2.2	1.100	25.56	6.97	85.0	0.4	30.10	8.11	1.6
						1.100	25.57	7.26	88.6	0.6	30.20	8.11	
2012/5/14 8:35	W2	ME	832673	807991	13.3	1.000	25.61	8.36	102.0	0.7	30.22	8.01	3.7
						1.000	25.77	7.81	95.3	0.4	30.31	8.01	
						6.650	25.29	7.52	91.7	0.5	30.98	8.01	2.6
						6.650	25.27	7.43	90.6	0.3	30.99	8.00	
						12.300	24.98	6.55	79.8	0.7	31.25	7.97	4.0
						12.300	25.00	6.54	79.8	0.8	31.16	7.97	
2012/5/14 8:20	W3	ME	832049	807807	13.3	1.000	25.49	6.98	85.2	0.7	30.55	8.09	4.5
						1.000	25.45	6.85	83.5	0.9	30.46	8.08	
						6.650	25.19	6.23	76.0	0.4	30.80	8.06	2.5
						6.650	25.20	6.08	74.2	3.9	30.68	8.06	
						12.300	24.88	5.90	71.9	3.0	31.22	8.02	3.9
						12.300	24.85	5.80	70.8	3.0	31.66	8.00	
2012/5/14 9:05	C1	ME	833712	808165	15.7	1.000	25.55	7.17	87.4	0.6	30.54	8.12	4.7
						1.000	25.55	6.71	81.9	0.4	30.45	8.12	
						7.850	25.18	6.29	76.7	0.7	31.25	8.06	3.4
						7.850	25.17	6.12	74.7	0.9	31.45	8.05	
						14.700	24.69	6.27	76.5	1.1	32.10	8.00	3.4
						14.700	24.68	6.71	81.9	1.0	32.01	7.99	
2012/5/14 8:05	C2	ME	831473	807740	13.5	1.000	25.26	6.66	81.2	0.7	30.10	8.07	5.7
						1.000	25.25	6.52	79.5	0.6	30.23	8.08	
						6.750	25.06	6.52	79.5	2.0	30.35	8.07	4.2
						6.750	25.04	6.33	77.2	1.5	30.55	8.07	
						12.500	25.01	6.34	77.3	3.0	31.02	8.07	3.3
						12.500	25.00	6.24	76.2	3.1	30.10	8.06	
2012/5/14 9:25	C3	ME	832214	808853	15.5	1.000	25.56	6.94	84.6	0.5	30.45	8.07	2.5
						1.000	25.58	6.87	83.8	0.3	30.55	8.07	
						7.750	25.04	6.15	75.1	0.4	31.02	8.03	4.2
						7.750	25.02	6.21	75.7	0.5	30.90	8.03	
						14.500	24.77	5.98	72.9	0.9	31.55	7.98	2.9
						14.500	24.81	5.97	72.8	1.3	31.58	7.99	
2012/5/14 13:40	W1	MF	832966	807745	2.8	1.400	26.03	7.09	86.5	0.5	30.45	7.87	4.6
						1.400	26.00	7.65	93.3	0.5	30.55	7.86	
2012/5/14 13:30	W2	MF	832674	807989	15.4	1.000	26.26	7.93	96.7	1.0	31.02	7.73	1.2
						1.000	26.25	7.73	94.2	0.6	31.05	7.71	
						7.700	25.52	7.67	93.6	0.8	31.27	7.62	5.2
						7.700	25.53	7.37	89.9	0.6	31.46	7.62	
						14.400	24.75	7.31	89.2	2.0	32.15	7.48	1.9
						14.400	24.73	6.84	83.4	1.8	31.99	7.47	
2012/5/14 13:15	W3	MF	832051	807892	15.5	1.000	26.93	8.32	101.5	0.9	30.50	7.50	1.1
						1.000	26.92	8.16	99.6	1.7	30.55	7.43	
						7.750	25.58	7.58	92.5	1.1	31.12	7.21	3.4
						7.750	25.57	7.40	90.3	0.9	31.22	7.18	
						14.500	25.10	6.55	79.9	2.1	32.12	6.95	1.3
						14.500	25.13	6.75	82.3	1.8	32.66	6.94	
2012/5/14 14:00	C1	MF	833717	807189	17.3	1.000	26.32	7.80	95.2	1.4	30.14	7.82	3.2
						1.000	26.16	7.81	95.3	7.9	30.51	7.82	
						8.650	25.47	7.74	94.4	1.5	31.50	7.77	2.9
						8.650	25.40	7.48	91.3	0.7	31.64	7.77	
						16.300	25.33	7.11	86.8	1.3	32.10	7.74	2.7
						16.300	25.33	7.02	85.7	0.9	32.50	7.73	
2012/5/14 13:00	C2	MF	831460	807739	15.5	1.000	26.82	7.28	88.8	0.8	30.50	7.99	2.9
						1.000	26.82	6.91	84.3	0.1	30.46	7.98	
						7.750	25.98	7.50	91.5	0.5	30.98	7.63	3.1
						7.750	25.99	7.38	90.0	0.6	31.15	7.53	
						14.500	25.50	7.07	86.3	2.1	32.01	7.36	4.2
						14.500	25.48	7.42	90.5	2.4	32.55	7.36	
2012/5/14 14:20	C3	MF	832241	808882	17.3	1.000	25.95	8.10	98.8	0.7	30.90	7.83	2.8
						1.000	26.02	8.04	98.1	0.7	30.88	7.83	
						8.650	25.52	7.51	91.6	0.6	31.55	7.80	3.3
						8.650	25.52	7.57	92.4	0.4	31.65	7.80	
						16.300	25.26	6.71	81.9	0.9	32.60	7.76	3.0
						16.300	25.26	6.60	80.5	1.0	32.46	7.76	

MF- Mid Flood Tide

ME- Mid Ebb tide

Contract No. DC/2009/13

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



**Sok Kwu Wan**

Date 16-May-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/5/16 9:47	W1	ME	832968	807731	2.3	1.150	26.41	7.60	111.6	0.9	30.02	8.21	3.0
						1.150	26.40	7.44	109.2	0.6	30.05	8.22	
2012/5/16 9:37	W2	ME	832681	807980	13	1.000	26.39	6.48	95.5	6.9	30.42	8.20	3.6
						1.000	26.42	6.04	88.9	0.6	30.23	8.21	
						6.500	26.49	6.02	89.1	0.6	31.11	8.20	2.4
						6.500	26.50	5.96	88.1	1.0	31.11	8.20	
						12.000	24.93	5.48	80.3	1.2	34.44	8.12	5.6
						12.000	24.94	5.55	81.5	1.2	34.39	8.11	
2012/5/16 9:22	W3	ME	832044	807895	13.1	1.000	26.46	8.98	132.9	0.5	31.15	8.15	2.8
						1.000	26.47	9.13	135.1	0.5	31.13	8.16	
						6.550	26.11	8.84	130.9	0.6	32.11	8.17	2.0
						6.550	26.13	8.63	127.8	0.8	32.14	8.16	
						12.100	25.02	7.17	105.5	1.1	34.16	8.06	2.7
						12.100	25.02	6.65	97.8	1.0	34.16	8.06	
2012/5/16 10:07	C1	ME	833707	808180	14.6	1.000	26.44	7.80	114.8	0.6	29.97	8.17	2.5
						1.000	26.44	7.12	104.6	0.6	29.98	8.19	
						7.300	26.41	5.85	86.2	0.6	30.68	8.20	2.4
						7.300	26.38	5.51	81.4	0.8	30.74	8.20	
						13.600	25.04	5.24	77.2	3.6	34.22	8.15	3.6
						13.600	25.01	4.95	73.0	3.6	34.24	8.14	
2012/5/16 9:07	C2	ME	831470	807753	12.7	1.000	26.55	7.39	109.3	0.6	30.71	8.08	1.4
						1.000	26.60	7.13	105.5	0.8	30.69	8.10	
						6.350	25.56	6.90	101.7	0.8	32.99	8.04	5.0
						6.350	25.56	6.85	100.9	0.6	32.99	8.04	
						11.700	25.39	6.31	92.9	1.1	33.37	8.05	3.3
						11.700	25.38	6.33	93.3	1.1	33.40	8.05	
2012/5/16 10:27	C3	ME	832224	808858	14.5	1.000	26.48	7.02	103.5	0.6	29.71	8.22	1.1
						1.000	26.49	6.48	95.4	0.5	29.65	8.22	
						7.250	26.37	5.52	80.4	0.9	30.71	8.22	2.8
						7.250	26.37	5.28	76.8	0.5	30.72	8.22	
						13.500	25.15	4.50	67.5	2.1	34.13	8.18	7.3
						13.500	25.17	4.80	70.5	1.4	34.10	8.18	
2012/5/16 15:40	W1	MF	832969	807730	2.7	1.350	26.60	7.61	112.50	0.5	30.63	8.05	3.1
						1.350	26.59	7.32	108.45	0.5	30.65	8.06	
2012/5/16 15:30	W2	MF	832684	807986	15.1	1.000	26.70	8.39	124.10	0.6	30.25	7.91	4.4
						1.000	26.72	8.13	120.30	0.5	30.24	7.92	
						7.550	25.93	7.50	110.90	0.4	32.51	7.92	6.7
						7.550	25.93	7.10	105.00	0.4	32.50	7.92	
						14.100	24.43	6.24	91.35	2.1	35.27	7.76	1.7
						14.100	24.44	5.85	85.50	1.6	35.26	7.75	
2012/5/16 15:15	W3	MF	832051	807890	15.5	1.000	26.80	8.55	126.80	0.4	30.41	7.82	3.5
						1.000	26.80	8.45	125.20	0.9	30.39	7.81	
						7.750	26.31	7.78	115.20	0.4	31.71	7.75	2.2
						7.750	26.28	7.58	112.40	0.4	31.85	7.74	
						14.500	25.63	6.52	96.40	2.0	33.24	7.66	3.7
						14.500	25.50	6.57	97.10	2.2	33.59	7.65	
2012/5/16 16:10	C1	MF	833704	808175	16.3	1.000	26.89	9.95	147.30	0.4	29.77	8.09	3.9
						1.000	26.88	10.06	148.90	0.6	29.78	8.10	
						8.150	25.97	9.68	143.00	0.4	32.22	8.06	2.4
						8.150	25.97	9.55	141.20	0.8	32.21	8.06	
						15.300	25.41	8.38	123.60	1.2	33.65	8.02	4.1
						15.300	25.41	8.61	127.10	0.9	33.66	8.02	
2012/5/16 15:00	C2	MF	831473	807749	15.2	1.000	27.03	8.91	132.90	0.5	30.74	7.39	2.9
						1.000	27.00	9.48	141.40	0.6	30.81	7.35	
						7.600	26.59	9.33	138.70	0.7	31.44	7.23	3.9
						7.600	26.58	9.23	137.20	0.6	31.45	7.21	
						14.200	25.33	6.39	94.20	1.0	33.84	6.83	5.4
						14.200	25.34	6.33	93.30	1.1	33.84	6.79	
2012/5/16 16:30	C3	MF	832227	808871	16.4	1.000	26.39	8.07	119.30	0.4	31.03	8.08	2.9
						1.000	26.39	7.94	117.40	0.9	31.05	8.09	
						8.200	25.84	7.68	113.50	0.3	32.58	8.06	3.5
						8.200	25.84	7.53	111.30	0.4	32.60	8.07	
						15.400	25.30	6.17	90.90	0.7	33.85	8.01	2.8
						15.400	25.09	6.34	93.40	0.9	34.23	8.00	

MF- Mid Flood Tide

ME- Mid Ebb tide

Contract No. DC/2009/13

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



**Sok Kwu Wan**

Date 18-May-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/5/18 11:00	W1	ME	832962	807730	2.3	1.150	26.46	10.74	156.9	0.4	28.82	8.21	1.0
						1.150	26.48	10.74	156.9	0.4	28.74	8.22	
2012/5/18 10:50	W2	ME	832681	807979	12.9	1.000	26.49	11.74	171.7	0.5	28.87	8.21	1.4
						1.000	26.49	11.61	169.8	0.4	28.87	8.22	
						6.450	26.40	11.05	162.0	0.5	29.58	8.20	0.5
						6.450	26.46	10.97	160.6	0.8	29.13	8.22	
						11.900	25.42	10.86	159.8	2.6	33.14	8.12	0.5
						11.900	24.43	10.64	155.2	4.1	34.52	8.10	
2012/5/18 10:35	W3	ME	832043	807899	12.9	1.000	26.71	11.06	161.0	0.3	27.48	8.24	0.5
						1.000	26.70	10.81	157.4	0.5	27.50	8.23	
						6.450	26.48	10.65	156.1	0.5	29.19	8.19	3.1
						6.450	26.52	10.65	156.2	0.5	29.20	8.18	
						11.900	26.52	10.51	154.5	0.6	29.74	8.18	1.9
						11.900	26.57	10.46	153.9	2.5	29.58	8.16	
2012/5/18 11:20	C1	ME	833712	808179	15.2	1.000	26.46	10.73	156.8	0.4	28.84	8.21	0.5
						1.000	26.45	10.70	156.3	0.5	28.78	8.21	
						7.600	26.37	10.53	154.5	0.3	29.77	8.18	0.5
						7.600	26.36	10.24	150.2	0.5	29.77	8.19	
						14.200	25.62	9.77	143.6	3.0	32.30	8.14	0.5
						14.200	25.35	9.39	137.7	3.0	32.74	8.13	
2012/5/18 10:20	C2	ME	831470	807752	12.7	1.000	26.43	9.85	143.2	0.6	27.94	8.10	4.2
						1.000	26.41	9.54	138.7	0.3	27.94	8.10	
						6.350	26.58	9.33	136.8	0.5	29.02	8.14	0.5
						6.350	26.59	9.26	135.8	0.4	29.04	8.15	
						11.700	25.43	7.66	111.9	0.2	31.88	7.87	0.5
						11.700	26.49	7.71	113.0	1.5	29.28	8.14	
2012/5/18 11:40	C3	ME	832216	808870	15.3	1.000	26.48	9.81	143.4	0.4	28.85	8.21	0.5
						1.000	26.48	9.77	142.9	0.5	28.84	8.21	
						7.650	26.35	9.49	139.2	0.7	29.81	8.19	7.1
						7.650	26.35	9.36	137.3	0.8	29.80	8.19	
						14.300	26.06	9.27	136.6	2.2	31.52	8.14	0.5
						14.300	26.16	9.04	132.9	0.7	30.74	8.15	
2012/5/18 17:40	W1	MF	832960	807735	2.8	1.400	26.45	11.56	168.9	0.4	28.86	8.23	1.1
						1.400	26.45	10.11	147.8	0.7	28.89	8.23	
2012/5/18 17:30	W2	MF	832652	807969	15.5	1.000	26.42	8.23	120.4	0.4	28.99	8.22	0.5
						1.000	26.46	11.16	163.3	0.6	28.97	8.23	
						7.750	26.05	9.70	142.5	0.5	30.94	8.20	0.5
						7.750	26.05	9.34	137.2	0.6	30.94	8.19	
						14.500	25.26	8.28	121.4	2.0	33.07	8.15	1.4
						14.500	25.27	8.06	118.2	2.4	33.10	8.15	
2012/5/18 17:15	W3	MF	832048	807889	15.1	1.000	26.49	9.53	138.8	0.9	28.18	8.19	1.4
						1.000	26.51	9.34	136.2	0.6	28.21	8.19	
						7.550	26.49	9.18	134.4	0.5	29.00	8.19	0.9
						7.550	26.50	9.16	134.0	0.5	28.80	8.21	
						14.100	25.72	8.73	128.3	1.5	32.07	8.16	0.5
						14.100	26.02	8.56	125.9	1.1	31.14	8.18	
2012/5/18 18:00	C1	MF	833697	808179	17.1	1.000	26.47	9.50	148.9	0.4	28.69	8.21	0.5
						1.000	26.52	9.50	149.2	0.4	28.63	8.24	
						8.550	25.92	9.08	133.6	0.3	31.61	8.20	0.5
						8.550	25.93	8.83	129.5	0.7	30.95	8.19	
						16.100	25.54	8.35	122.6	0.7	32.34	8.15	0.9
						16.100	25.58	8.13	119.3	0.5	32.20	8.15	
2012/5/18 17:00	C2	MF	831457	807731	15.3	1.000	26.59	11.02	162.6	0.5	27.54	8.18	0.5
						1.000	26.60	11.43	166.3	0.5	27.55	8.22	
						7.650	26.53	9.11	133.3	1.4	28.81	8.15	4.1
						7.650	26.47	9.11	132.7	1.0	28.28	8.18	
						14.300	26.10	7.89	116.0	2.3	31.08	8.15	0.5
						14.300	26.09	8.31	122.2	1.5	31.00	8.15	
2012/5/18 18:20	C3	MF	832230	808869	16.7	1.000	26.55	8.95	130.8	0.4	28.65	8.25	0.5
						1.000	26.50	8.83	129.1	0.5	28.69	8.25	
						8.350	26.52	8.66	126.6	0.7	28.79	8.24	0.7
						8.350	26.54	8.57	125.4	0.5	28.76	8.25	
						15.700	25.26	8.09	118.8	0.9	33.30	8.14	1.2
						15.700	25.24	7.45	109.3	0.6	33.24	8.14	

MF- Mid Flood Tide  
ME- Mid Ebb tide

Contract No. DC/2009/13

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



**Sok Kwu Wan**

Date 22-May-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/5/22 13:40	W1	ME	832960	807735	2.2	1.100	26.08	6.63	97.9	0.8	31.91	7.71	0.6
						1.100	26.09	6.90	101.9	0.9	31.88	7.72	
2012/5/22 13:30	W2	ME	832659	807982	13.5	1.000	26.05	6.18	91.3	0.9	31.94	7.74	0.5
						1.000	26.04	6.30	93.0	1.2	31.94	7.71	
						6.750	26.05	5.25	77.6	1.6	32.13	7.68	1.3
						6.750	26.04	5.33	78.9	1.2	32.08	7.68	
						12.500	26.02	5.02	74.4	2.0	32.57	7.69	0.5
						12.500	26.05	4.79	70.9	1.7	32.29	7.68	
2012/5/22 13:15	W3	ME	832049	807890	13.1	1.000	26.22	6.27	92.6	1.0	31.43	7.66	1.6
						1.000	26.22	5.62	83.0	0.8	31.46	7.64	
						6.550	25.94	5.46	80.5	0.7	31.87	7.60	2.2
						6.550	25.98	5.36	79.0	1.7	31.80	7.60	
						12.100	25.93	5.09	75.5	2.8	32.92	7.64	1.9
						12.100	25.89	4.79	70.6	0.9	32.01	7.63	
2012/5/22 14:00	C1	ME	833716	808180	15.1	1.000	26.04	7.21	106.5	1.1	31.79	7.85	0.5
						1.000	26.01	6.08	89.7	0.9	31.82	7.84	
						7.550	26.07	6.01	88.7	0.9	31.88	7.84	0.9
						7.550	26.00	5.63	83.0	1.0	31.89	7.83	
						14.100	26.00	5.37	79.3	1.2	31.93	7.83	0.5
						14.100	25.99	4.99	73.6	1.1	31.94	7.83	
2012/5/22 13:00	C2	ME	831460	807757	13.2	1.000	26.22	6.29	92.9	1.0	31.42	7.56	0.8
						1.000	26.23	5.62	83.0	1.4	31.40	7.50	
						6.600	25.94	5.05	74.3	1.3	31.79	7.41	1.1
						6.600	25.90	5.04	74.2	2.4	31.98	7.39	
						12.200	25.88	5.00	74.2	2.0	33.19	7.41	0.8
						12.200	25.87	5.65	83.8	1.8	33.15	7.42	
2012/5/22 14:20	C3	ME	832212	808851	15.1	1.000	26.05	6.06	89.5	1.5	31.75	7.83	0.5
						1.000	26.05	5.86	86.5	1.1	31.75	7.83	
						7.550	26.03	5.47	80.8	0.8	31.87	7.84	0.5
						7.550	26.04	5.29	78.1	0.8	31.88	7.84	
						14.100	26.03	5.15	76.1	1.2	31.91	7.85	0.9
						14.100	26.00	5.08	74.9	0.9	31.92	7.84	
2012/5/22 8:45	W1	MF	832966	807732	2.7	1.350	25.82	7.74	113.56	1.2	31.47	8.07	0.5
						1.350	25.81	7.58	111.15	0.9	31.48	8.06	
2012/5/22 8:35	W2	MF	832682	807977	15.3	1.000	25.81	7.23	105.95	2.5	31.37	8.08	0.5
						1.000	25.84	6.97	102.18	0.9	31.35	8.08	
						7.650	25.79	6.65	97.50	1.2	31.45	8.09	0.5
						7.650	25.82	6.74	98.93	1.0	31.43	8.10	
						14.300	25.87	6.81	100.10	0.9	31.50	8.11	0.5
						14.300	25.86	6.87	100.88	0.8	31.48	8.09	
2012/5/22 8:20	W3	MF	832051	807901	15.1	1.000	25.84	6.58	96.53	1.3	31.13	8.03	0.7
						1.000	25.86	6.48	94.97	1.3	31.11	8.01	
						7.550	25.81	6.42	94.06	1.1	31.35	8.05	0.5
						7.550	25.81	6.40	93.86	2.2	31.35	8.03	
						14.100	25.79	6.36	93.34	1.7	31.42	8.05	0.5
						14.100	25.81	6.32	92.82	1.7	31.39	8.05	
2012/5/22 9:05	C1	MF	833713	808169	16.5	1.000	25.81	8.49	124.61	0.9	31.47	8.06	1.3
						1.000	25.84	8.00	117.39	0.8	31.45	8.04	
						8.250	25.89	7.77	114.21	0.9	31.59	8.07	0.5
						8.250	25.89	7.67	112.78	1.4	31.59	8.07	
						15.500	25.95	7.62	112.13	0.8	31.60	8.07	0.6
						15.500	25.90	7.58	111.54	1.2	31.78	8.08	
2012/5/22 8:05	C2	MF	831474	807732	15.1	1.000	25.98	5.89	86.06	1.1	30.33	7.93	0.5
						1.000	25.98	6.05	88.53	0.9	30.35	7.95	
						7.550	25.90	5.94	86.97	0.9	30.81	7.97	0.5
						7.550	25.95	6.00	87.75	0.8	30.56	7.97	
						14.100	25.93	5.92	86.84	1.2	30.88	7.98	0.7
						14.100	25.90	5.80	85.02	1.1	30.89	7.99	
2012/5/22 9:25	C3	MF	832219	808874	16.7	1.000	25.91	7.36	108.16	1.0	31.59	8.05	0.5
						1.000	25.92	6.85	100.82	1.0	31.60	8.05	
						8.350	25.93	6.01	88.47	1.2	31.60	8.07	1.7
						8.350	25.93	5.93	87.17	0.8	31.61	8.08	
						15.700	25.94	5.54	81.77	1.3	32.34	8.10	1.0
						15.700	26.00	5.53	81.71	1.2	32.21	8.09	

MF- Mid Flood Tide

ME- Mid Ebb tide

Contract No. DC/2009/13

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



Sok Kwu Wan

Date 24-May-12

Date / Time	Location	Tide*	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l
			East	North									
2012/5/24 14:00	W1	ME	832970	807724	2.1	1.050	26.35	7.67	114.5	4.1	32.73	8.16	5.7
						1.050	26.34	7.39	110.2	4.5	32.74	8.16	
2012/5/24 13:50	W2	ME	832662	807980	13.3	1.000	26.45	8.03	119.6	0.7	32.25	8.12	0.6
						1.000	26.45	7.65	114.0	0.7	32.26	8.11	
						6.650	26.33	7.51	112.1	1.6	32.85	8.14	1.4
						6.650	26.34	7.22	107.8	1.9	32.85	8.14	
						12.300	26.50	7.33	110.0	6.0	33.38	8.17	0.5
						12.300	26.55	7.28	109.3	7.3	33.33	8.17	
2012/5/24 13:35	W3	ME	832046	807890	13.1	1.000	26.29	7.17	106.1	0.4	31.57	8.01	0.6
						1.000	26.27	8.01	118.5	0.4	31.58	8.00	
						6.550	26.30	6.64	98.8	3.0	32.81	8.05	0.5
						6.550	26.28	6.71	99.9	2.4	32.81	8.05	
						12.100	26.49	6.62	99.3	4.7	33.26	8.08	0.7
						12.100	26.47	6.48	97.1	5.4	33.28	8.09	
2012/5/24 14:20	C1	ME	833717	808162	15.1	1.000	26.31	7.76	115.4	5.6	32.27	8.14	0.7
						1.000	26.34	7.38	109.7	0.5	32.26	8.13	
						7.550	26.29	7.12	105.9	0.6	32.50	8.15	6.4
						7.550	26.27	7.34	109.1	2.5	32.49	8.15	
						14.100	26.38	7.43	111.1	3.7	33.07	8.16	0.5
						14.100	26.45	7.39	110.5	4.1	32.99	8.18	
2012/5/24 13:20	C2	ME	831459	807744	13.1	1.000	26.29	5.92	87.4	0.3	31.38	7.94	0.5
						1.000	26.30	6.76	100.0	0.6	31.46	7.87	
						6.550	26.10	6.59	97.5	0.4	32.16	7.88	3.4
						6.550	26.10	6.31	93.5	0.4	32.20	7.89	
						12.100	26.29	6.64	99.0	0.8	32.92	7.89	0.5
						12.100	26.30	6.46	96.4	0.8	32.92	7.89	
2012/5/24 14:40	C3	ME	832207	808859	15.3	1.000	26.44	8.10	120.7	1.0	32.39	8.19	1.5
						1.000	26.45	8.90	132.8	2.0	32.38	8.18	
						7.650	26.40	7.69	114.7	2.4	32.62	8.17	0.9
						7.650	26.40	7.49	111.7	2.0	32.63	8.17	
						14.300	26.40	7.25	108.3	4.0	32.84	8.17	1.4
						14.300	26.40	7.22	107.8	3.9	32.81	8.17	
2012/5/24 8:45	W1	MF	832969	807733	2.6	1.300	26.15	7.21	106.75	1.1	32.02	8.14	0.7
						1.300	26.14	7.43	109.90	1.4	32.00	8.14	
2012/5/24 8:35	W2	MF	832659	807973	15.5	1.000	26.05	7.54	111.32	0.3	31.80	8.09	0.5
						1.000	26.07	7.70	113.68	0.8	31.80	8.09	
						7.750	26.10	6.87	101.57	0.4	31.97	8.12	0.5
						7.750	26.11	6.93	102.48	0.3	31.97	8.13	
						14.500	26.39	7.05	105.07	1.6	32.49	8.15	0.5
						14.500	26.36	6.92	102.97	1.5	32.49	8.14	
2012/5/24 8:20	W3	MF	832049	807894	15.3	1.000	26.00	6.53	95.97	0.8	31.05	8.01	0.8
						1.000	26.01	6.43	94.43	0.8	31.05	8.03	
						7.650	26.11	6.61	97.51	1.0	31.68	8.06	0.5
						7.650	26.19	6.51	96.25	1.2	31.73	8.07	
						14.300	26.23	6.42	95.20	0.5	32.04	8.11	0.5
						14.300	26.22	6.72	99.61	0.4	32.05	8.12	
2012/5/24 9:05	C1	MF	833691	808179	16.9	1.000	26.10	5.82	86.17	0.3	32.06	8.16	3.9
						1.000	26.12	8.78	129.99	0.4	32.07	8.17	
						8.450	26.18	8.67	128.59	0.3	32.15	8.15	1.5
						8.450	26.17	8.28	122.78	0.5	32.16	8.17	
						15.900	26.25	8.07	119.91	0.8	32.41	8.18	0.8
						15.900	26.26	8.06	119.84	1.3	32.43	8.18	
2012/5/24 8:05	C2	MF	831459	807761	15.3	1.000	26.03	6.44	94.43	0.5	30.68	7.88	1.1
						1.000	26.04	6.45	94.85	0.3	30.78	7.90	
						7.650	26.04	6.39	93.87	0.3	30.98	7.91	0.7
						7.650	26.04	6.34	93.10	0.2	31.03	7.91	
						14.300	26.17	6.29	93.17	1.9	31.91	7.95	0.8
						14.300	26.18	6.41	94.78	1.2	31.92	7.96	
2012/5/24 9:25	C3	MF	832202	808875	16.8	1.000	26.07	8.39	144.62	0.3	31.90	8.12	0.6
						1.000	26.09	7.60	131.04	0.4	31.89	8.12	
						8.400	26.13	7.42	128.03	0.4	32.02	8.11	0.7
						8.400	26.13	7.29	125.93	0.4	32.02	8.11	
						15.800	26.21	6.98	120.82	1.6	32.20	8.14	1.1
						15.800	26.19	6.92	119.77	1.4	32.21	8.12	

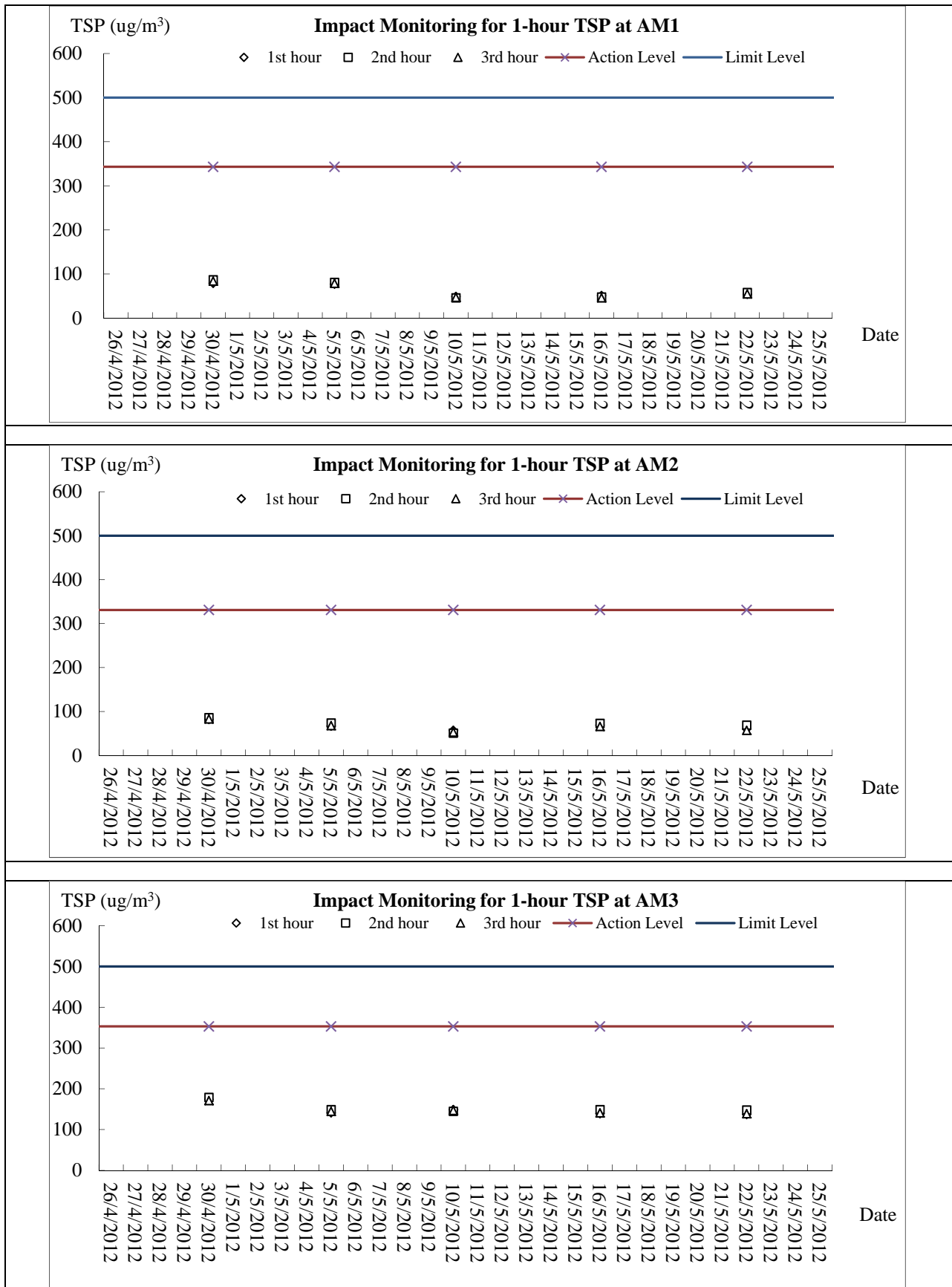
MF- Mid Flood Tide  
ME- Mid Ebb tide



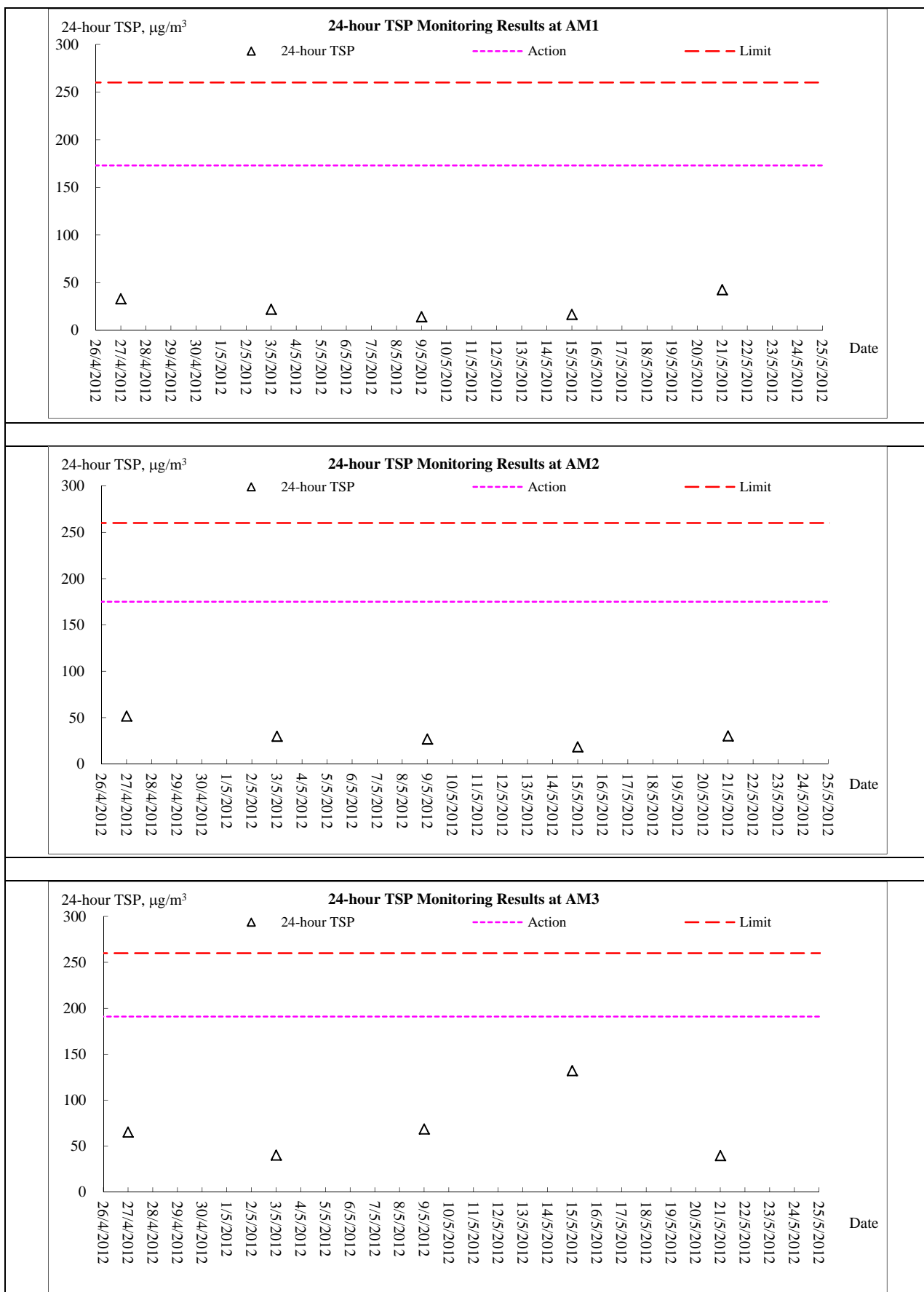
## **Appendix H**

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

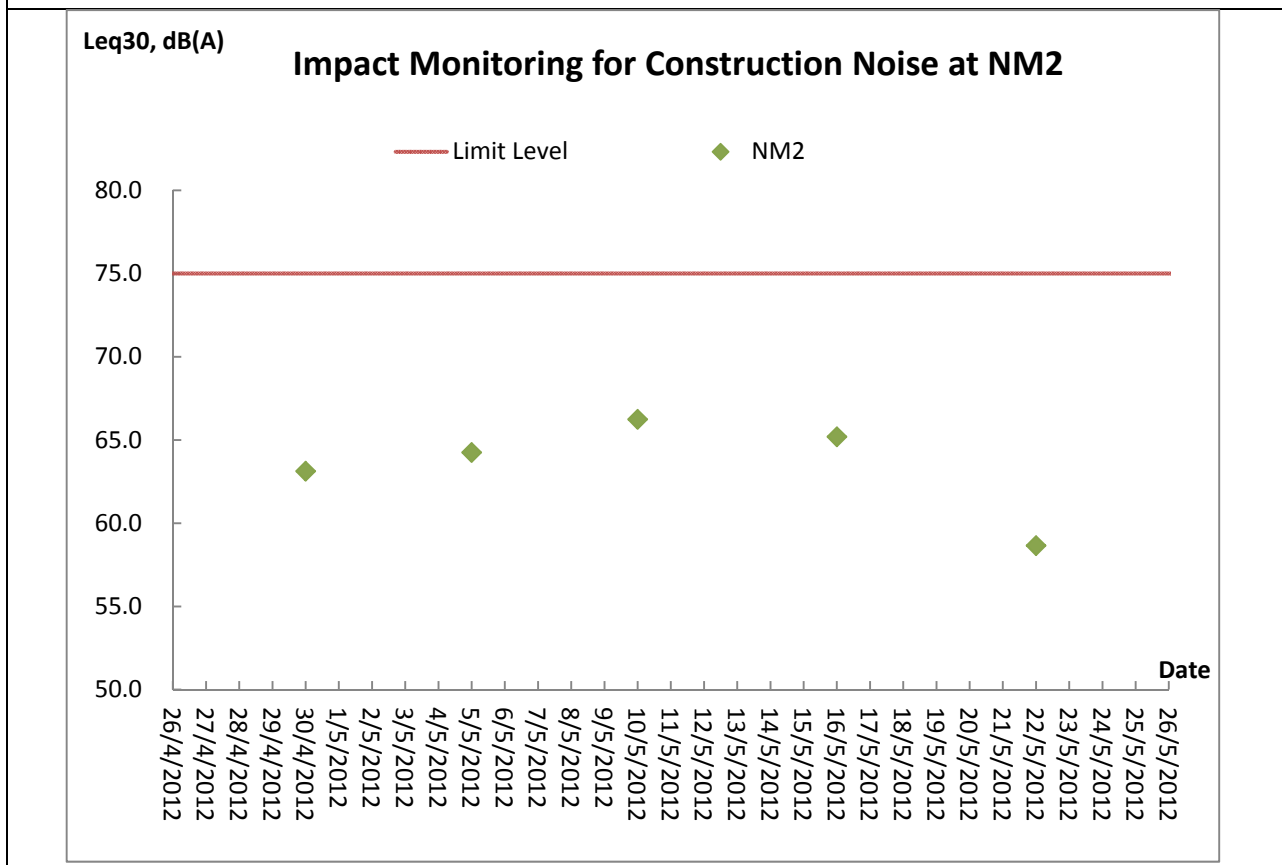
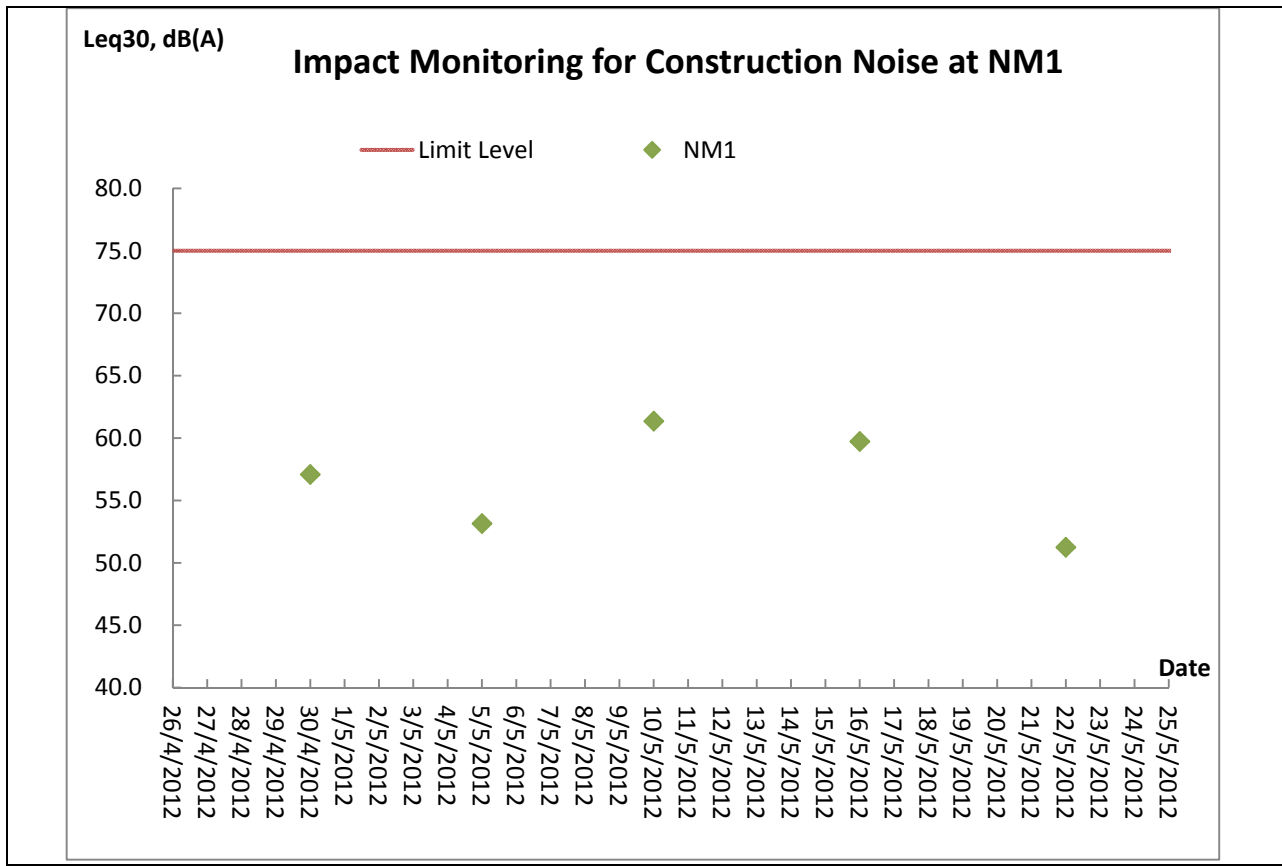
### Air Quality Monitoring – 1 hour TSP Monitoring

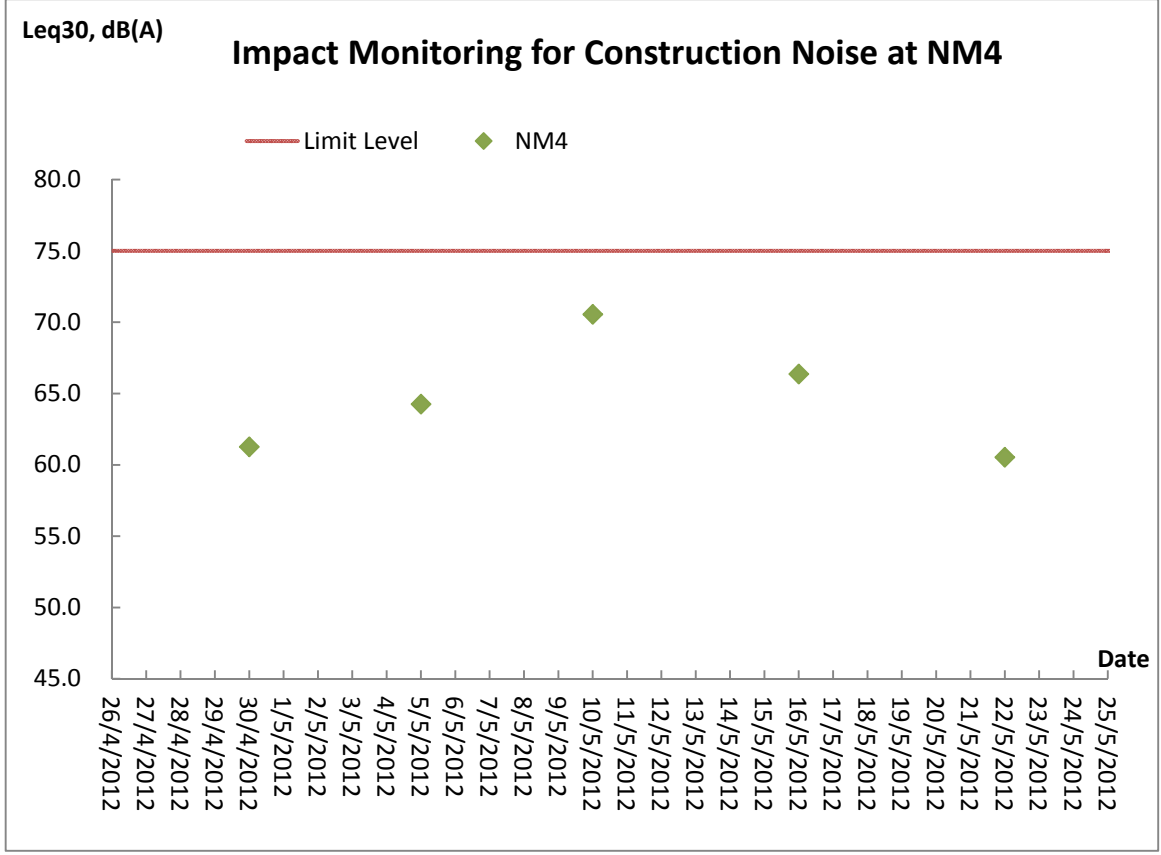
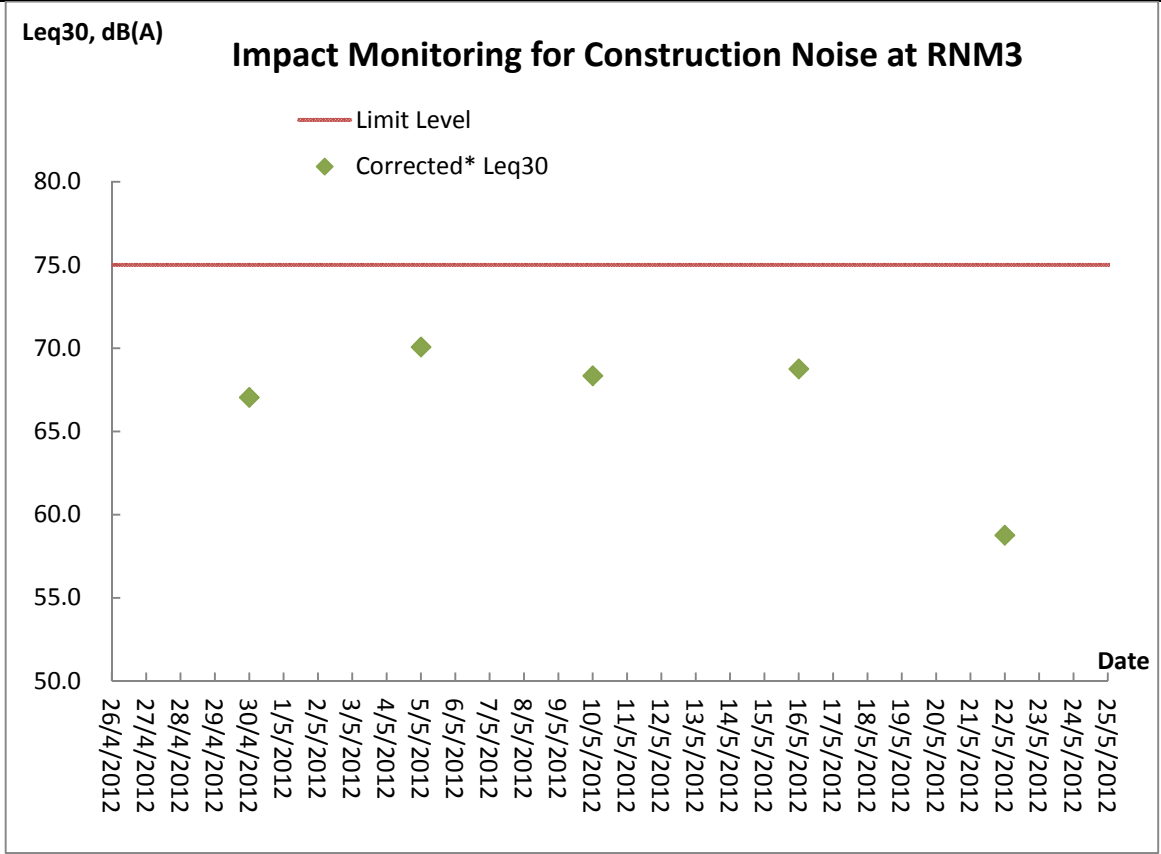


**Air Quality Monitoring – 24 hour TSP Monitoring**

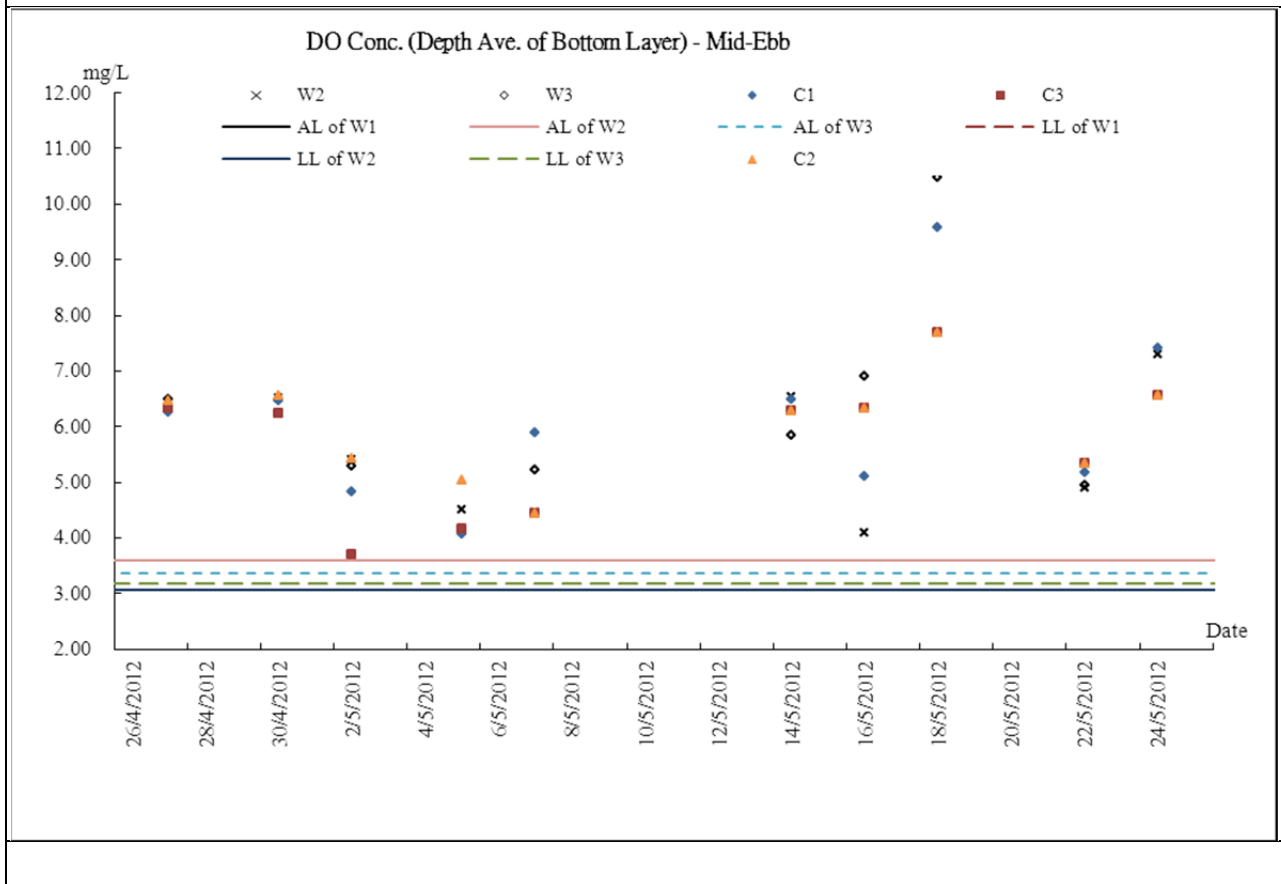
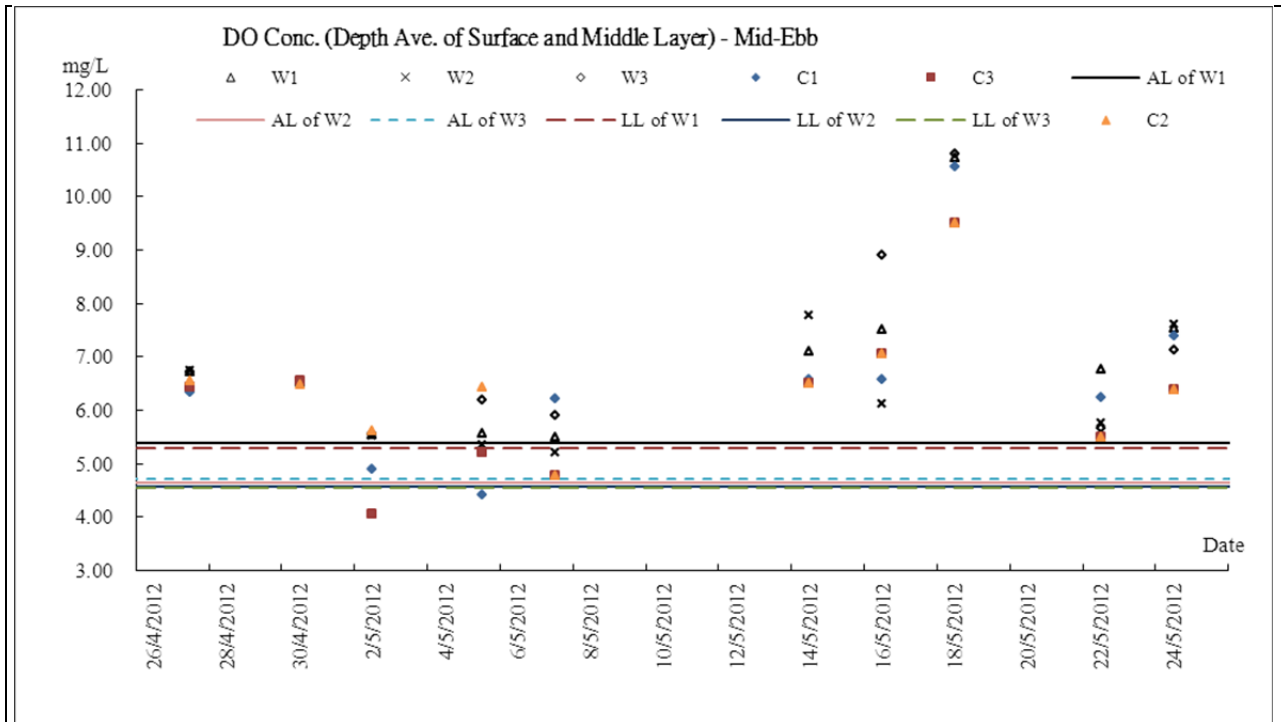


Construction Noise Monitoring

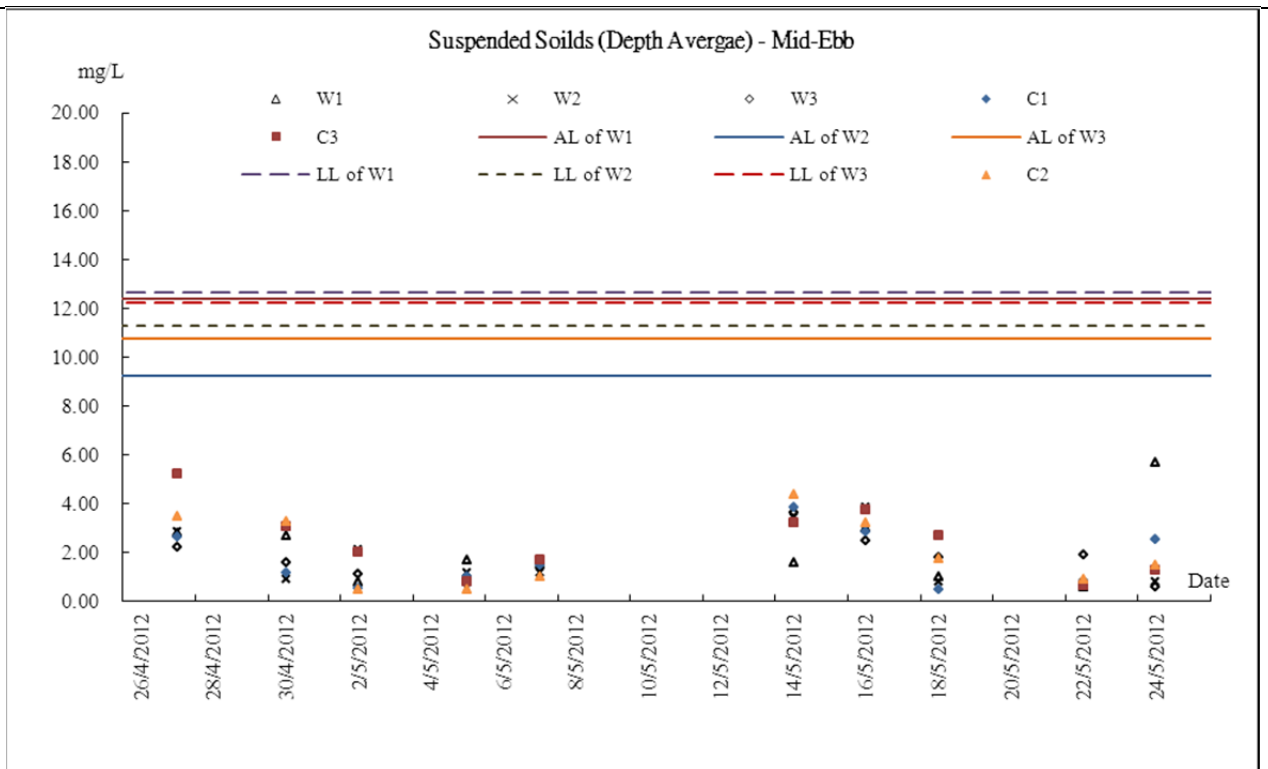
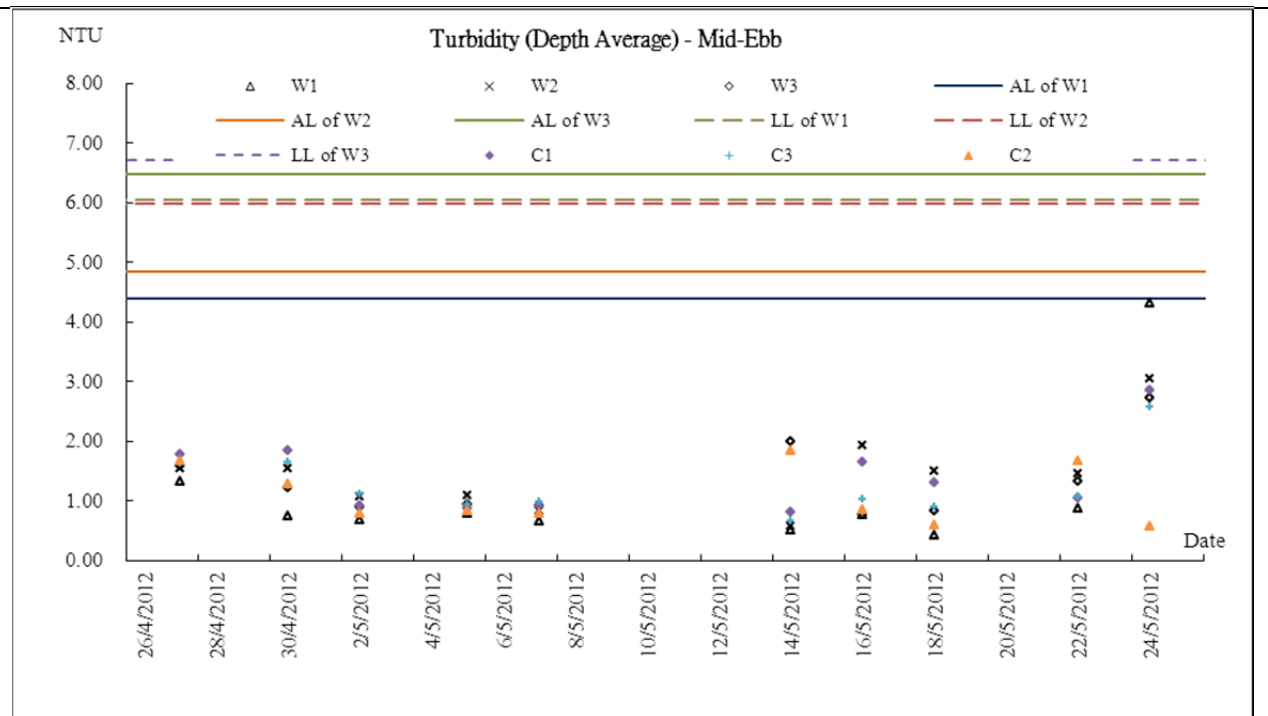




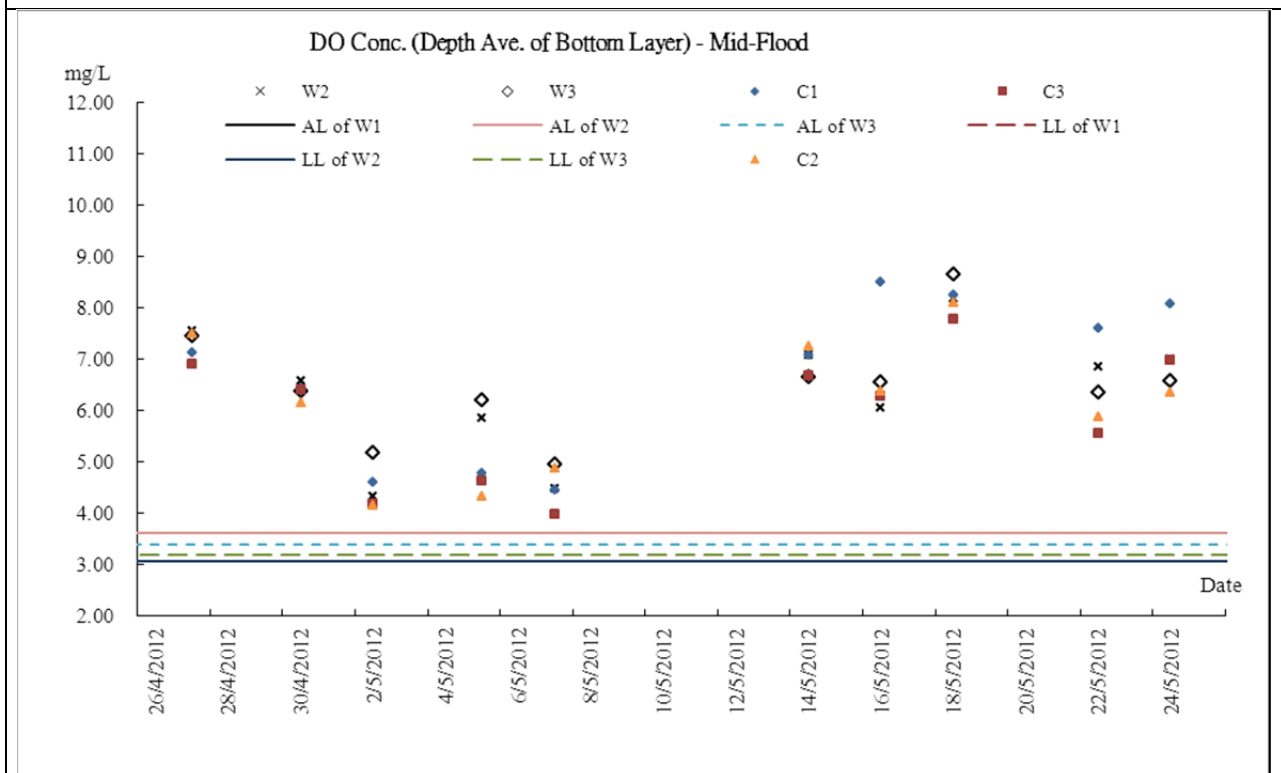
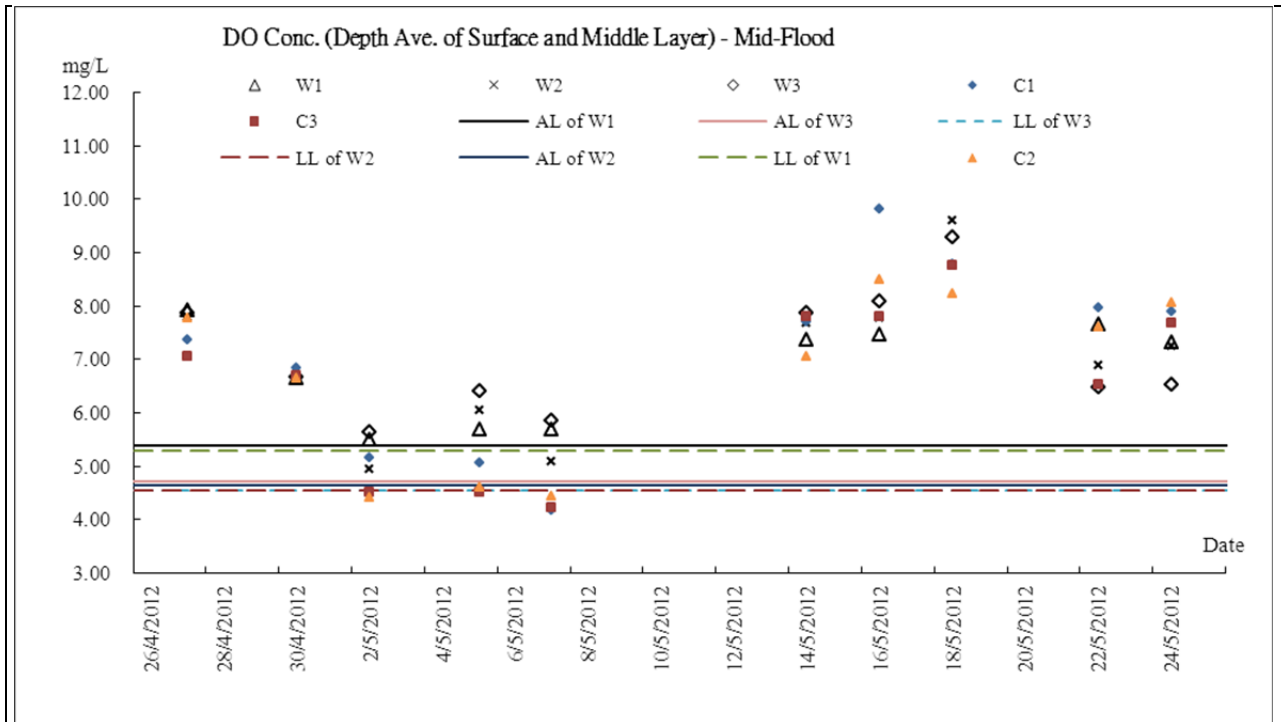
Marine Water Quality Monitoring - Mid-Ebb Tide

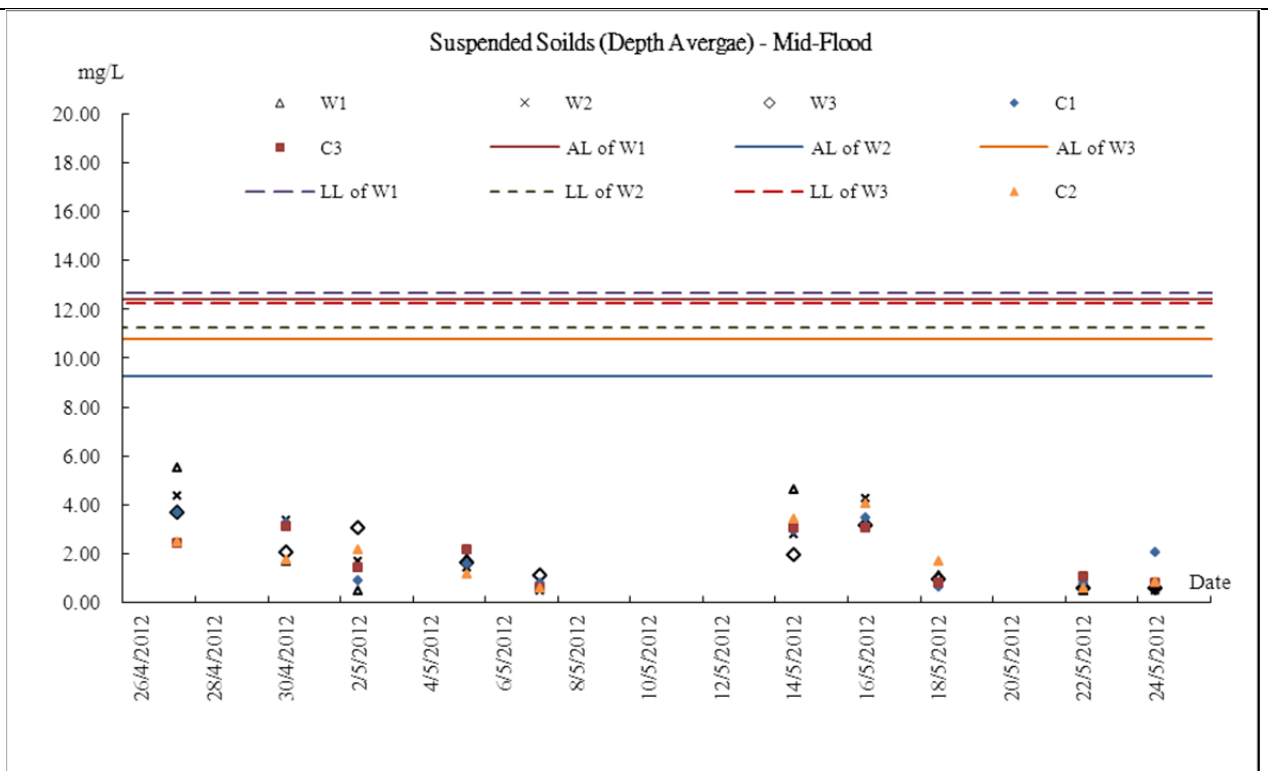
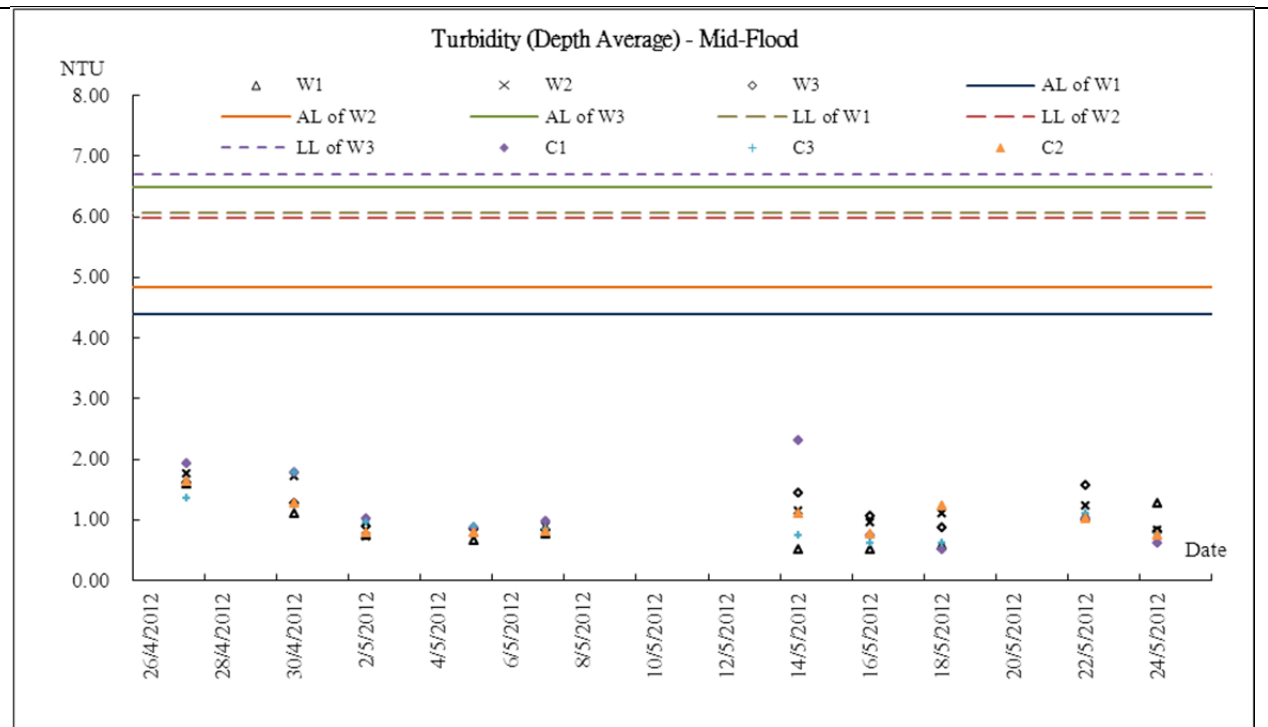






Marine Water Quality Monitoring - Mid-Flood Tide





# **Appendix I**

## **Meteorological Information**

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

Date		Weather
26-Apr-12	Thu	Sunny periods.
27-Apr-12	Fri	Cloudy with occasional rain.
28-Apr-12	Sat	Holiday
29-Apr-12	Sun	Sunny periods.
30-Apr-12	Mon	Moderate to fresh southeasterly winds.
1-May-12	Tue	Holiday
2-May-12	Wed	Mainly fine and hot.
3-May-12	Thu	Sunny intervals with a few showers.
4-May-12	Fri	Moderate east to southeasterly winds.
5-May-12	Sat	Light to moderate southwesterly winds.
6-May-12	Sun	Mainly fine and hot.
7-May-12	Mon	Moderate east to southeasterly winds.
8-May-12	Tue	Mainly fine and hot.
9-May-12	Wed	Sunny intervals with a few showers.
10-May-12	Thu	Moderate southerly winds.
11-May-12	Fri	Moderate east to southeasterly winds.
12-May-12	Sat	Light to moderate easterly winds.
13-May-12	Sun	Isolated thunderstorms
14-May-12	Mon	Moderate southerly winds.
15-May-12	Tue	Sunny intervals tomorrow with a few thunderstorms.
16-May-12	Wed	Cloudy with showers.
17-May-12	Thu	Cloudy with scattered showers and a few isolated thunderstorms.
18-May-12	Fri	Cloudy with occasional rain and a few squally thunderstorms.
19-May-12	Sat	Mainly fine.
20-May-12	Sun	Fresh easterly winds
21-May-12	Mon	occasionally strong offshore and on high ground
22-May-12	Tue	Moderate to fresh easterly winds.
23-May-12	Wed	Moderate east to southeasterly winds.
24-May-12	Thu	Moderate southerly winds.
25-May-12	Fri	Mainly fine.

**Appendix J**  
**Monthly Summary Waste Flow Table**



## Monthly Summary Waste Flow Table for May 2012

Month	Actual Quantities of Inert C&D Materials Generated Monthly												Actual Quantities of C&D Wastes Generated Monthly									
	Total Quantity Generated (a) = (c)+(d)+(e)		Hard Rock and Large Broken Concrete (b)		Reused in the Contract (c)		Reused in other Projects (d)		Disposed as Public Fill (e)		Imported Fill (f)		Metals		Paper/ cardboard packaging		Plastics		Chemical Waste		Others, e.g. rubbish	
	(in '000m <sup>3</sup> )		(in '000m <sup>3</sup> )		(in '000m <sup>3</sup> )		(in '000m <sup>3</sup> )		(in '000m <sup>3</sup> )		(in '000m <sup>3</sup> )		(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in tonne)	
	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW
<b>2011</b>	10.430	33.543	0.160	0.407	0.740	1.059	0.000	0.000	9.690	32.484	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	206.870	46.690
Jan	0.000	3.311	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.311	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.530	5.090
Feb	0.170	6.271	0.000	0.000	0.000	0.000	0.000	0.000	0.170	6.271	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.860	5.660
Mar	0.619	4.543	0.000	0.000	0.000	0.000	0.000	0.000	0.619	4.543	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.940	9.500
Apr	0.157	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.157	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.520	1.700
May	0.353	0.916	0.000	0.000	0.000	0.000	0.000	0.000	0.353	0.916	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.750	5.090
Jun																						
<b>Sub-total</b>	11.729	48.585	0.160	0.407	0.740	1.059	0.000	0.000	10.989	47.526	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	267.470	73.730
Jul																						
Aug																						
Sep																						
Oct																						
Nov																						
Dec																						
<b>Total</b>	11.729	48.585	0.160	0.407	0.740	1.059	0.000	0.000	10.989	47.526	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	267.470	73.730
	60.313		0.567		1.799		0.000		58.515		0.000		0.000		0.000		0.000		0.000		341.200	

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

YSW: Yung Shue Wan

SKW: Sok Kwu Wan

## **Appendix K**

### **Weekly Site Inspection Checklist**

Project: TCS/00512/09  
Construction of Sewage Treatment Works at  
Yung Shue Wan and Sok Kwu Wan  
 \_\_\_\_\_  
 \_\_\_\_\_  
 Date: 2 May 2012

Inspected by \_\_\_\_\_  
 ETL/ ET's Representative: Nick Hon  
 RE's Representative: Joseph Ng  
 Contractor's Representative: Edwin Cheng  
 IEC's Representative: \_\_\_\_\_  
 Time: 14:00 pm

Environmental Permit No.

**PART A: GENERAL INFORMATION**  
 Weather:  Sunny  Fine  Cloudy  Rainy  
 Temperature: 22.1 °C  
 Humidity:  High  Moderate  Low  
 Wind:  Strong  Breeze  Light  Calm

EP- 281/2007A

**Area Inspected**  
 1 Sok Kwu Wan

**PART B: SITE AUDIT**

<b>Note:</b>	<b>Not Obs.:</b> Not Observed; <b>Yes:</b> Compliance; <b>No:</b> Non-Compliance;	<b>Not Obs.</b>	<b>Yes</b>	<b>No</b>	<b>Follow Up</b>	<b>N/A</b>	<b>Photo/ Remarks</b>
	<b>Follow Up:</b> Observations requiring follow-Up actions <b>N/A:</b> Not Applicable						

**Section 1: Water Quality**

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

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

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

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<b>Section 5: Landscape &amp; Visual</b>							
5.01	Are retained and transplanted trees in health condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Refer to Monthly EM&A report - Appendix M - May 2012
5.02	Are retained and transplanted trees properly protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.03	Are surgery works carried out for the damaged trees?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Section 6: Others</b>							
6.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(Sok Kwu Wan)

Remarks:

Findings of Site Inspection: (2 May 2012); Follow up:

Mosquito control is reminded near PSI.

Not required for reminder.

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

IEC's representative	RE's representative	ET's representative	EO's representative	Contractor's representative
( )	Joseph (Joseph W.C.) R.S.W.	(Newton)	(H.S. Leung)	( )



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

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

Checklist No. TCS512B-080X 2012  
Nicobo Hun  
Joseph Ng  
Edwin Leung  
Selina Leung  
9:15am

Date: 8 May 2012

**PART A: GENERAL INFORMATION**

Weather:  Sunny  Fine  Cloudy  Rainy

Temperature: 29.3 °C

Humidity:  High  Moderate  Low

Wind:  Strong  Breeze  Light  Calm

Environmental Permit No.  
 EP- 281/2007A

Area Inspected  
 1 Sok Kwu Wan

**PART B: SITE AUDIT**

Note: Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable		Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
<b>Section 1: Water Quality</b>							
1.01	Is an effluent discharge license obtained for the Project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.02	Is the effluent discharged in accordance with the discharge licence?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.03	Is the discharge of turbid water avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.05	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.07	Is drainage system well maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.09	Are temporary exposed slopes properly covered?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.10	Are earthworks final surfaces well compacted or protected?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.11	Are manholes adequately covered or temporarily sealed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.12	Are there any procedures and equipment for rainstorm protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.13	Are wheel washing facilities well maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.14	Is runoff from wheel washing facilities avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.15	Are there toilets provided on site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.16	Are toilets properly maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.18	Is the oil leakage or spillage avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.19	Are there any measures to prevent leaked oil from entering the drainage system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.22	Are the oil interceptors/grease traps maintained properly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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

Note: Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable		Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
<b>Section 5: Landscape &amp; Visual</b>							
5.01	Are retained and transplanted trees in health condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Refer to Monthly EM&A report - Appendix M - <i>May 2012</i>
5.02	Are retained and transplanted trees properly protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.03	Are surgery works carried out for the damaged trees?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Section 6: Others</b>							
6.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(Sok Kwu Wan)

Remarks:

Findings of Site Inspection: ( *8 May 2012* ): Follow up:

*No environmental issue was observed during site inspection.*

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

<u>IEC's representative</u>	<u>RE's representative</u>	<u>ET's representative</u>	<u>EO's representative</u>	<u>Contractor's representative</u>
<i>Selina Leung</i>	<i>Joseph Ng</i>	<i>Nicola Hon</i>	<i>H.S. Leung</i>	
(Selina Leung)	(Joseph Ng) R20W	(Nicola Hon)	(H.S. Leung)	( )

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

Inspected by \_\_\_\_\_  
 ETL/ ET's Representative: \_\_\_\_\_  
 RE's Representative: \_\_\_\_\_  
 Contractor's Representative: \_\_\_\_\_  
 IEC's Representative: \_\_\_\_\_  
 Time: 2pm

Checklist No. TCS512B-  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Date: 15-8-2012

**PART A: GENERAL INFORMATION**

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

Environmental Permit No.  
 EP- 281/2007A

Area Inspected  
 1 Sok Kwu Wan

**PART B: SITE AUDIT**

<b>Note:</b> Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
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**Section 1: Water Quality**

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

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



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

<b>Note:</b> Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
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**Section 5: Landscape & Visual**

5.01 Are retained and transplanted trees in health condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Refer to Monthly EM&A report Appendix M <i>May 2012</i>
5.02 Are retained and transplanted trees properly protected?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.03 Are surgery works carried out for the damaged trees?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
5.04 Is damage to trees outside site boundary due to construction activities avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.05 Is the night-time lighting controlled to minimize glare to sensitive receivers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Section 6: Others**

6.01 Are relevant Environmental Permits posted at all vehicle site entrances/exits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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(Sok Kwu Wan)

Remarks:

Findings of Site Inspection: (15-5-2012): Follow up:

NO environmental issue  
is observed during inspection  
All Areas.

The screen mesh on overflow  
tank next to Bay 0 of R/W  
was found to be put on.

Joseph. Pagn

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

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

Joseph

Ray

H.S. Chung

Joseph

Ray Cheung

H.S. Chung

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

Inspected by \_\_\_\_\_  
 ETL/ ET's Representative: Nrui Hon  
 RE's Representative: Joseph Ng  
 Contractor's Representative: Edwin Leung  
 IEC's Representative: \_\_\_\_\_

Checklist No. TCS512B-226SDw2

Date: 22 May 2012

Time: 14:00 pm

**PART A:**

**GENERAL INFORMATION**

Environmental Permit No.

Weather:  Sunny  Fine  Cloudy  Rainy  
 Temperature: 27.0 °C  
 Humidity:  High  Moderate  Low  
 Wind:  Strong  Breeze  Light  Calm

EP- 281/2007A

Area Inspected  
 1 Sok Kwu Wan

**PART B:**

**SITE AUDIT**

Note:	Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
<b>Section 1: Water Quality</b>						
1.01 Is an effluent discharge license obtained for the Project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.02 Is the effluent discharged in accordance with the discharge licence?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.03 Is the discharge of turbid water avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.04 Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.05 Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.06 Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.07 Is drainage system well maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.08 As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.09 Are temporary exposed slopes properly covered?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.10 Are earthworks final surfaces well compacted or protected?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.11 Are manholes adequately covered or temporarily sealed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.12 Are there any procedures and equipment for rainstorm protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.13 Are wheel washing facilities well maintained?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.14 Is runoff from wheel washing facilities avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.15 Are there toilets provided on site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.16 Are toilets properly maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
1.17 Are the vehicle and plant servicing areas paved and located within roofed areas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.18 Is the oil leakage or spillage avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.19 Are there any measures to prevent leaked oil from entering the drainage system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.20 Are there any measures to collect spilt cement and concrete washings during concreting works?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.21 Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.22 Are the oil interceptors/grease traps maintained properly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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

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

Note: Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-up actions N/A: Not Applicable		Not Obs.	Yes	No	Follow Up	N/A	Photo/Remarks
<b>Section 5: Landscape &amp; Visual</b>							
5.01	Are retained and transplanted trees in health condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Refer to Monthly EM&A report - Appendix M <i>May 2012</i>
5.02	Are retained and transplanted trees properly protected?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.03	Are surgery works carried out for the damaged trees?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Section 6: Others</b>							
6.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

(Sok Kwu Wan)

Remarks:

Findings of Site Inspection: (*27 May 2012*): Follow up:

*No adverse environmental issues was observed during site inspection.*

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

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

( )      (*Joseph*)      (*Newton*)      (*H.S. Leung*)      ( )

( )      (*Joseph Ng*)      (*Newton*)      (*H.S. Leung*)      ( )

( )      (*RIOW*)      (*Newton*)      (*H.S. Leung*)      ( )



## **Appendix L**

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

### Implementation Schedule of Air Quality Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation & Guidelines
					D	C	O	
<b>Construction Phase</b>								
3.32	2.34	Installation of 2m high solid fences around the construction site of Pumping Station P2.	Work site / during construction	Contractor		√		
3.34	2.34	Adopting the following good site practices and follow the dust control requirements of the Air Pollution Control (Construction Dust) Regulation: <ul style="list-style-type: none"> <li>• Stockpiles of imported material kept on site should be contained within hoardings, dampened and / or covered during dry and windy weather;</li> <li>• Material stockpiled alongside trenches should be covered with tarpaulins whenever works are close to village houses;</li> <li>• Water sprays should be used during the delivery and handling of cement, sands, aggregates and the like.</li> <li>• Any vehicle used for moving sands, aggregates and construction waste should have properly fitting side and tail boards. Materials should not be loaded to a level higher than the side and tail boards, and should be covered by a clean tarpaulin.</li> </ul>	Work site / during construction	All contractors		√		EIAO-TM, APCO, Air Pollution Control (Construction Dust) Regulation
3.36	Section 2	1 hour and 24 hour dust monitoring and site audit	Designated air monitoring locations / throughout construction period	Contractor/ Environmental Team		√		EM&A Manual

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

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

N/A Not applicable

**Implementation Schedule of Noise Measures**

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location/Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
<b>Construction Phase</b>								
4.41-4.43	3.19	<ul style="list-style-type: none"> <li>• Use of quiet PME for the construction of the pumping stations</li> <li>• Use of temporary noise barrier during the construction of Pumping Station P1a</li> </ul>	Work site /during the construction of Pumping Stations	Contractor		√		EIAO-TM, NCO
4.44 – 4.49	3.19	<p>Implementation of following measures during the sewer construction:</p> <ul style="list-style-type: none"> <li>• Use of quiet PME or method;</li> <li>• Restriction on the number plant (1 item for each type of plant); and</li> <li>• Good Site Practices <ul style="list-style-type: none"> <li>➤ Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.</li> <li>➤ Mobile plant, if any, should be sited as far away from NSRs as possible.</li> <li>➤ Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.</li> <li>➤ Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.</li> <li>➤ Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.</li> </ul> </li> </ul>	Work site /during the construction of Sewer.	Contractor		√		

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location/Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
4.50 – 4.53	3.19	<ul style="list-style-type: none"> <li>Use of noise screening structures such as acoustic shed and barrier wherever practicable and feasible in areas with sufficient clearance and headroom.</li> <li>Adoption of manual working method wherever practicable and feasible in areas where the worksites of the proposed sewer alignment are located less than 20 m from the residential NSRs and less than 30 m from the temple (THT) and the public library.</li> <li>Use of PME for the construction of the section of sewer between the NSR and the Pumping Station P1a should not be allowed during the excavation work of Pumping Station P1a.</li> </ul>	Work site /during the construction of Sewer.	Contractor		√		
4.60	Section 35	Noise monitoring	Designated noise monitoring locations / throughout construction period	Contractor/ Environmental Team		√		EM&A Manual

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

**Implementation Schedule of Water Quality Control Measures**

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location (duration /completion of measures)	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines
					D	C	O	
<b>Construction Phase</b>								
5.77	4.35	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.  Silt curtains will be installed around the exit area of the pilot drill.	Marine works site / During construction of submarine outfall	Contractor		√		
5.73 – 5.78	4.36	Dredging Works  Implementation of following measures during the dredging works: <ul style="list-style-type: none"> <li>• dredging should be undertaken using closed grab dredgers with a maximum total production rate of 55m<sup>3</sup>/hr;</li> <li>• deployment of 2-layer silt curtains with the first layer enclosing the grab and the second layer at around 50m from the dredging area while dredging works are in progress;</li> <li>• dredging operation should be undertaken during ebb tide only;</li> <li>• all vessels should be sized such that adequate clearance (i.e. minimum clearance of 0.6m) is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;</li> <li>• all pipe leakages should be repaired promptly and plant should not be operated with leaking pipes;</li> <li>• excess material should be cleaned from the decks and exposed fittings of barges before the vessel is moved;</li> <li>• adequate freeboard (i.e. minimum of 200mm) should be maintained on barges to ensure that decks are not washed by wave action;</li> <li>• all barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material;</li> <li>• loading of barges should be controlled to prevent splashing of dredged material to the surrounding water, and barges should not be filled to a level which will cause the overflow of materials or polluted water during loading or transportation; and</li> </ul>	Marine works site and at the identified water sensitive receivers/ During construction	Contractor		√		

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location (duration /completion of measures)	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines
					D	C	O	
		<ul style="list-style-type: none"> <li>the decks of all vessels should be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard.</li> </ul>						
5.79	4.37	<p><u>Construction Run-off and Drainage</u></p> <p>Implementation of the following site practices outlined in ProPECC PN 1/94 for “Construction Site Drainage”</p> <ul style="list-style-type: none"> <li>Provision of perimeter channels to intercept storm-runoff from outside the site. These should be constructed in advance of site formation works and earthworks.</li> <li>Works programmes should be designed to minimize works areas at any one time, thus minimizing exposed soil areas and reducing the potential for increased siltation and runoff.</li> <li>Sand / silt removal facilities such as sand traps, silt traps and sediment basins should be provided to remove the sand / silt particles from run-off. These facilities should be properly and regularly maintained. These facilities should be carefully planned to ensure that they would be installed at appropriate locations to capture all surface water generated on site.</li> <li>Careful programming of the works to minimise soil excavation works during rainy seasons.</li> <li>Exposed soil surface should be protected by paving or hydroseeding as soon as possible to reduce the potential of soil erosion.</li> <li>Trench excavation should be avoided in the wet season, and if necessary, these should be excavated and backfilled in short sections.</li> <li>Open stockpiles of construction materials on site should be covered with tarpaulin or similar fabric</li> </ul>	Construction works sites	Contractor		√		ProPECC PN 1/94
5.80	4.38	<p><u>General Construction Activities</u></p> <p>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</p>	Construction works sites	Contractor		√		

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location (duration /completion of measures)	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines
					D	C	O	
		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.						
5.81	4.39	<u>Wastewater Arising from Workforce</u> Portable toilets should be provided by the Contractors, where necessary, to handle sewage from the workforce. The Contractor should also be responsible for waste disposal and maintenance practices.	Construction works sites	Contractor		√		
5.96	Section 4	Water quality monitoring	Designated water monitoring locations/ throughout construction period	Contractor		√		EM&A Manual

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

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

N/A Not applicable



**Implementation Schedule of Sediment Contamination Mitigation Measures**

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation & Guidelines
					D	C	O	
6.17	5.3	Follow the requirement and procedures for dredged mud disposal specified under the WBTC No. 34/2002.	Marine works site / during dredging works	Contractor		√		WBTC No. 34/2002
6.18	5.4	Implement appropriate dredging methods which have been incorporated into the recommended water quality mitigation measures.	Marine works site, during dredging works	Contractor		√		
6.19	5.5	During the transportation and disposal of the dredged sediment, the following measures should be taken: <ul style="list-style-type: none"> <li>• Bottom opening of barges should be fitted with tight fitting seals to prevent leakage of material. Excess material should be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved.</li> <li>• Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels should be equipped with automatic self monitoring devices as specified by the DEP.</li> </ul>	Marine works site and at the identified sensitive receivers	Contractor		√		

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

N/A Not applicable

### Implementation Schedule of Solid Waste Management Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
<b>Construction Phase</b>								
7.14	6.4	<u>Good site practices</u> <ul style="list-style-type: none"> <li>Nomination of an approved person, such as a site manager, to be responsible for implementation of good site practices, arranging for collection and effective disposal to an appropriate facility, of all wastes generated at the site</li> <li>Training (proper waste management and chemical handling procedure) should be provided for site staffs</li> <li>Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.</li> <li>Provision of sufficient waste disposal points and regular collection for disposal.</li> <li>Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Facility.</li> <li>Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.</li> <li>Maintain records of the quantities of wastes generated, recycled and disposed.</li> </ul>	Work sites/During construction	Contractor		√		Waste Disposal Ordinance (Cap.54)
7.15	6.5	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.	Work sites/During construction	Contractor		√		WBTC No. 21/2002
7.16	6.6	Recommendations to achieve waste reduction include: <ul style="list-style-type: none"> <li>segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;</li> <li>to encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to segregate this waste from other general refuse generated</li> </ul>	Work sites/During construction	Contractor		√		WBTC No. 4/98, 5/98

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
		by the work force; <ul style="list-style-type: none"> <li>any unused chemicals or those with remaining functional capacity should be recycled;</li> <li>use of reusable non-timber formwork to reduce the amount of C&amp;D material;</li> <li>prior to disposal of C&amp;D waste, it is recommended that wood, steel and other metals should be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill;</li> <li>proper storage and site practices to minimise the potential for damage or contamination of construction materials; and</li> <li>plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.</li> </ul>						
7.18	6.7	<u>General Site Wastes</u> <ul style="list-style-type: none"> <li>A collection area for construction site waste should be provided where waste can be stored prior to removal from site</li> <li>An enclosed and covered area for the collection of the waste is recommended to reduce 'wind blow' of light material</li> </ul>	Work sites/During construction	Contractor		√		Public Health and Municipal Services Ordinance (Cap. 132)
7.19-7.20	6.8 – 6.9	<u>Chemical Wastes</u> <ul style="list-style-type: none"> <li>After use, chemical waste should be handled according to the Code of Practice on the Package, Labelling and Storage of Chemical Wastes</li> <li>Any unused chemicals or those with remaining functional capacity should be recycled</li> <li>Waste should be properly stored on site within suitably designed containers and should be collected by an approved licensed waste collectors for disposal at the Chemical Waste Treatment Facility or other licenced facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation under the Waste Disposal Ordance.</li> </ul>	Work sites/During construction	Contractor		√		Waste Disposal (Chemical Waste) (General) Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Wastes

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
		<ul style="list-style-type: none"> <li>Any service shop and minor maintenance facilities should be located on hard standing within a bunded area, and sumps and oil interceptors should be provided.</li> <li>Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should be undertaken within the designated areas equipped control these discharges</li> </ul>						
7.21-7.22	6.10 – 6.11	<p><u>Construction and Demolition Material</u></p> <ul style="list-style-type: none"> <li>The C&amp;D waste should be separated on-site into three categories:                             <ul style="list-style-type: none"> <li>➤ public fill, the inert portion of the C&amp;D material (e.g. concrete and rubble), which should be re-used on-site or disposed of at a public filling area;</li> <li>➤ C&amp;D waste for re-use and / or recycling, the non-inert portion of the C&amp;D material, (e.g. steel and other metals, woods, glass and plastic);</li> <li>➤ C&amp;D waste which cannot be re-used and / or recycled (e.g. wood, glass and plastic)</li> </ul> </li> <li>Where possible, inert material should be re-used on-site</li> <li>Where practicable, steel and other metals should be separated for re-use and/or recycling prior to disposal of C&amp;D material</li> </ul>	During all construction phases	Contractors		√		WBTC No. 4/98, 5/98, 21/2002, 25/99, 12/2000

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

### Implementation Schedule of Ecological Impact Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages			Relevant Legislation & Guidelines
					D	C	O	
<b>Construction Phase</b>								
8.157	7.2	<u>Terrestrial Ecology</u> <ul style="list-style-type: none"> <li>Labeling and fencing of the uncommon tree species</li> <li>Avoidance of use of woodland habitats as Works Area, in particular where trees are located</li> </ul>	Work sites / during construction phase	Contractor		√		
8.159 – 8.160	7.3	<u>Subtidal Ecology</u> Use of HDD technique  Dredging <ul style="list-style-type: none"> <li>Use of closed-grab dredger</li> <li>Deploy silt curtains during dredging.</li> </ul>	Marine works site / during dredging works	Contractor		√		
8.161	7.4	Site runoff <ul style="list-style-type: none"> <li>Construction and maintenance of sand / silt removal facilities</li> <li>Silt curtains</li> <li>Timing of earthworks</li> <li>Coverage of sand / fill piles during storms.</li> <li>Barriers along the landward side of Pumping Station P2 site boundary (to prevent site runoff from entering area with Romer's Tree Frog)</li> </ul>	All work sites / during construction phase	Contractor		√		

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

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

N/A Not applicable

**Implementation Schedule of Fisheries Impact Measures**

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation & Guidelines
					D	C	O	
9.29	8.3	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
9.32	Section 8	Water quality monitoring (see Implementation Schedule for Water Quality Control Measures)	Designated monitoring locations / throughout construction period and 1 year following operation of the STW	Contractor and Environmental Team		√	√	EM&A Manual

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

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

N/A Not applicable

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

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
<b>Construction Phase</b>								
10.74	9.10	Retaining existing trees and minimizing damage to vegetation by close coordination and on site alignment adjusted of rising main and gravity sewer pipelines.	All sites	Contractor		√		WBTC No. 14/2002
		Careful and efficient transplanting of affected trees to temporary or final transplant location (the proposed tree to be transplanted is a semi-mature <i>Macaranga tanarius</i> and is located at the proposed Pumping Station P2 location).	All sites	Contractor		√		WBTC No. 14/2002
		Short excavation and immediate backfilling sections upon completion of works to reduce active site area.	All sites	Contractor		√		
		Screening of site construction works by use of hoarding that is appropriate to its site.	All sites	Contractor		√		WBTC No. 19/2001
		Conservation of topsoil for reuse.	All sites	Contractor		√		
		Night-time light source from marine fleets should be directed away from the residential units.	Outfall area.	Contractor		√		

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

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

N/A Not applicable



**Appendix M**  
**Tree Inspection Report**

經緯園藝有限公司

Melofield Nursery & Landscape Contractor Ltd

元朗下攸田村 125 號 125, Ha Yau Tin Tsuen, Yuen Long, N.T.

TEL: (852) 2572-0048 FAX: (822)2573-9099 E-mail: melofield@netvigator.com

Contract No. DC/2009/13

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

## Sok Kwu Wan

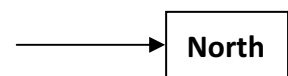
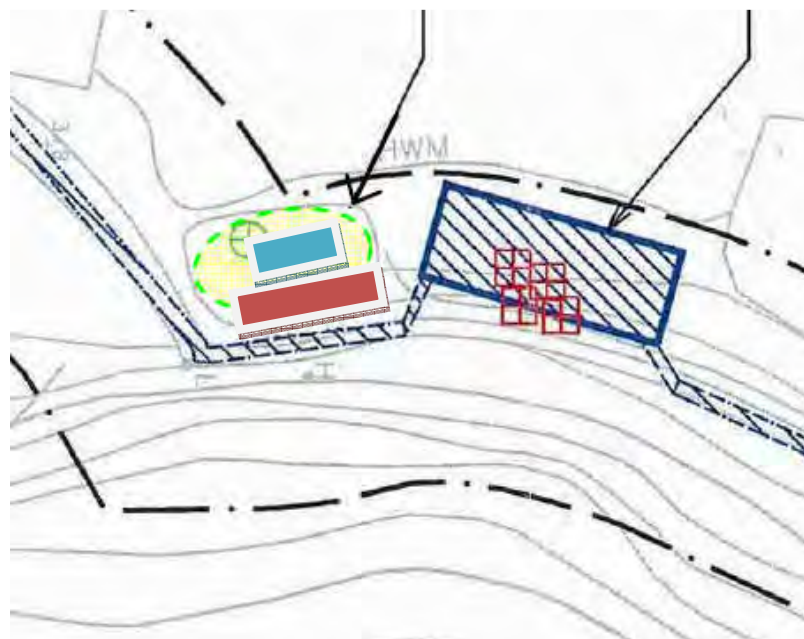
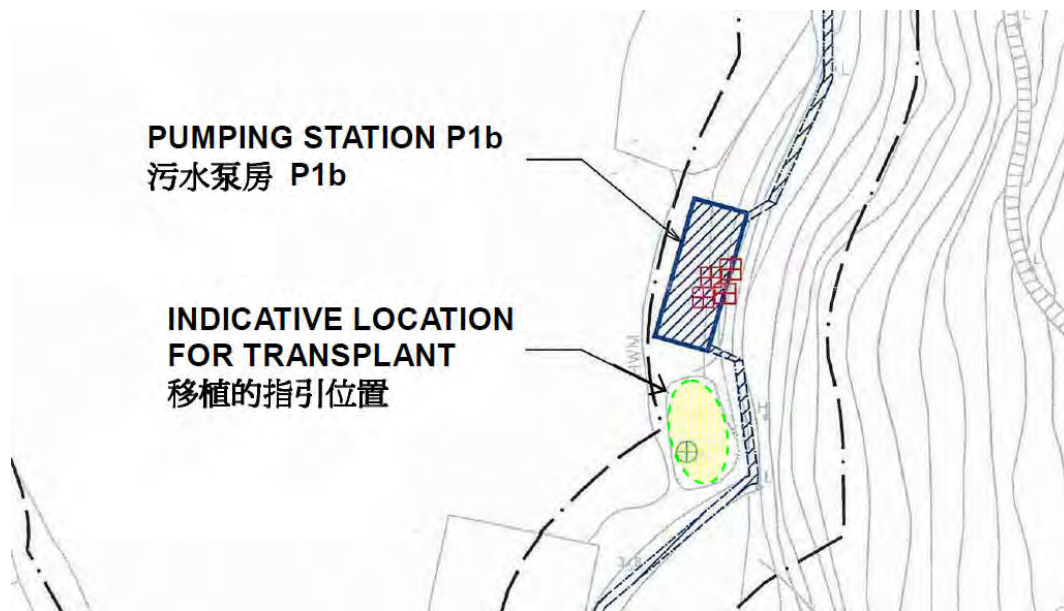
**Tree Inspection Report for *Celtis timorensis***

**Inspection Date : 30-04-2012**

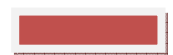


## 1. Introduction

According to the requirement in the Environmental Permit EP-281/2007/A, the uncommon tree species, *Celtis timorensis*, found in the pumping station P1b area as shown in figure below shall be properly transplanted to the area immediately south of the Pumping Station P1b before commencement of construction of the Pumping Station P1b



Tree Protection Zone - 1



Tree Protection Zone - 2

This Tree Inspection Report describes the bi weekly monitoring result of the *Celtis timorensis*, which were additionally planted as the compensation of previously transplanted *Celtis timorensis* CT7, CT8, CT9 & CT10.

## 2. Summary of Inspection

Date of Inspection	30 April 2012, around 15:30
Location	A soil ground adjacent to the Pumping Station P1b Chung Mei, at Sok Kwu Wan, Lamma Island.
Weather	Cloudy, the vegetations are located under the shade of existing tall trees.
The labeled <i>Celtis timorensis</i> under Tree Protection Zone 2	CT_1A, CT_2A, CT_3A, CT_4A, CT_5A, CT_6A & CT_7A,

## 3. Proposed Inspection Schedule

Month	Actual / proposed Inspection Date
July, 2011	14 and 25 July 2011
August, 2011	9 and 26 August 2011
September, 2011	5 and 23 September 2011
October, 2011	10 and 24 October 2011
November, 2011	8 November 2011
December, 2011	14 and 30 December 2011
January 2012	31 January 2012
February 2012	15 and 29 February 2012
March 2012	15 and 31 March 2012
April 2012	16 and 30 April 2012

## 4. Summary of Inspection Result

Tree No	Speciation	Health Status
CT_1A	<i>Celtis timorensis</i>	Very Poor
CT_2A	<i>Celtis timorensis</i>	Very Poor
CT_3A	<i>Celtis timorensis</i>	Very Poor
CT_4A	<i>Celtis timorensis</i>	Fair
CT_5A	<i>Celtis timorensis</i>	Good
CT_6A	<i>Celtis timorensis</i>	Good
CT_7A	<i>Celtis timorensis</i>	Very Poor

Inspection parameters or criteria

- Good      Leaves and stem grown very lush, additional or larger in size of leaves can be observed in each inspection
- Fair      Green leaves can be found. No major unhealthy condition of the plant is observed. The condition is stable.
- Poor      Fewer green leaves than usual are observed. No new leaf is grown and the condition keep stable. The bark is dry. The plant is weak.
- Very Poor      No new green leaf or bud can be observed. The bark is dry. The plant is weak.
- Death      The plant was death.

**5. Description of Inspection Results:**

During the Site Inspection on 30 Apr, it was found that 3 nos. of additionally planted *Celtis timorensis* were damaged by tree trunks unexpectedly fell down to the protection area. The trunks end was found attacked by white ants and decayed seriously.



**Tree ID: CT\_1A**



**Current Status: Death**

**Justification: The stem was snapped by a broken tree trunk. The plant was death.**

**Tree ID:CT\_2A**



**Current Status: Very Poor**

**Justification: Leaves were dry. The bark was also dry. No significant improvement in health. The plant was very weak.**



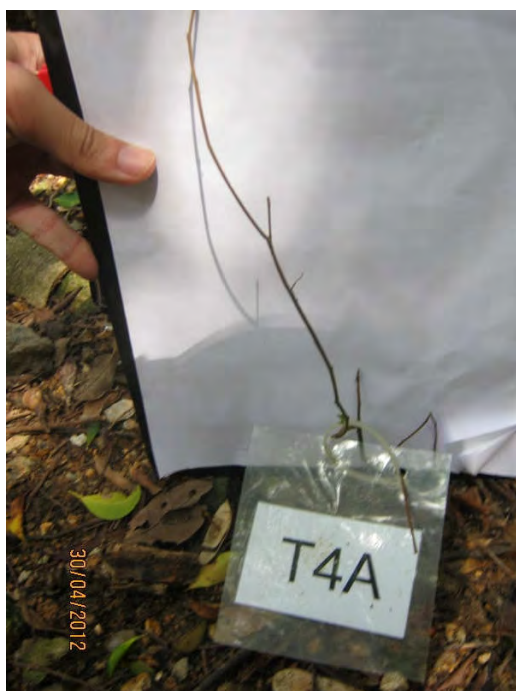
**Tree ID: CT\_3A**



**Current Status: Very Poor**

**Justification: The stem was damaged by a broken tree trunk. No significant improvement in health. The plant was weak.**

**Tree ID: CT\_4A**



**Current Status: Very Poor**

**Justification: Leaves were dry. The bark was also dry. No significant improvement in health. The plant was very weak.**



**Tree ID: CT\_5A**



**Current Status: Good**

**Justification: Green leaves were found growing. Significant improvement in health. The plant was healthy. Some leaves were damaged by insect.**

**Tree ID: CT\_6A**



**Current Status: Good**

**Justification: Green leaves were found growing. Significant improvement in health. The plant was healthy.**

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Contract No. DC/2009/13

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

## Sok Kwu Wan

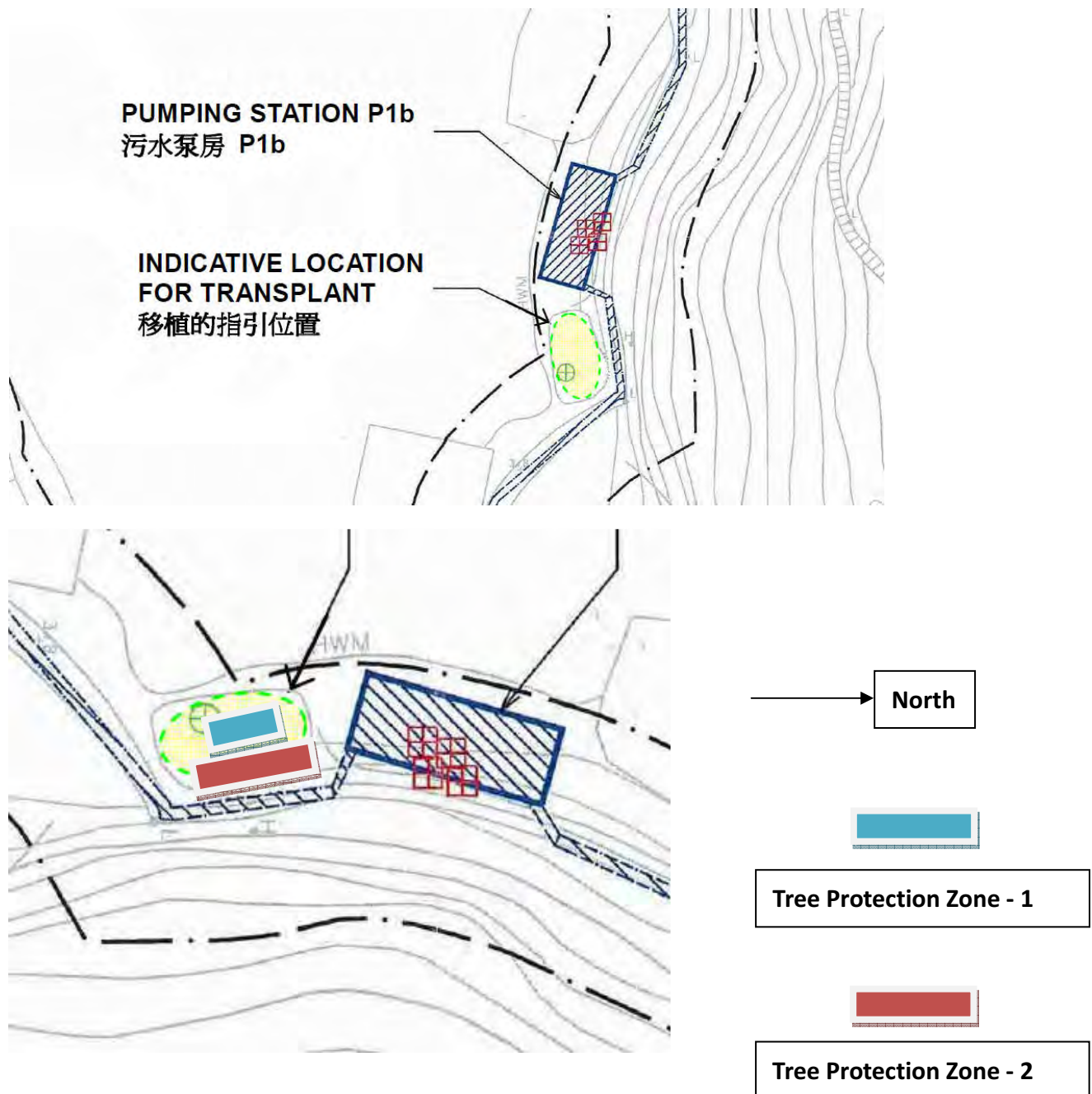
**Tree Inspection Report for *Celtis timorensis***

**Inspection Date : 15-05-2012**



## 1. Introduction

According to the requirement in the Environmental Permit EP-281/2007/A, the uncommon tree species, *Celtis timorensis*, found in the pumping station P1b area as shown in figure below shall be properly transplanted to the area immediately south of the Pumping Station P1b before commencement of construction of the Pumping Station P1b



This Tree Inspection Report describes the bi weekly monitoring result of the *Celtis timorensis*, which were additionally planted as the compensation of previously transplanted *Celtis timorensis* CT7, CT8, CT9 & CT10.

## 2. Summary of Inspection

Date of Inspection	15 May 2012, around 15:30
Location	A soil ground adjacent to the Pumping Station P1b Chung Mei, at Sok Kwu Wan, Lamma Island.
Weather	Cloudy, the vegetations are located under the shade of existing tall trees.
The labeled <i>Celtis timorensis</i> under Tree Protection Zone 2	CT_2A, CT_3A, CT_4A, CT_5A & CT_6A

## 3. Proposed Inspection Schedule

Month	Actual / proposed Inspection Date
July, 2011	14 and 25 July 2011
August, 2011	9 and 26 August 2011
September, 2011	5 and 23 September 2011
October, 2011	10 and 24 October 2011
November, 2011	8 November 2011
December, 2011	14 and 30 December 2011
January 2012	31 January 2012
February 2012	15 and 29 February 2012
March 2012	15 and 31 March 2012
April 2012	16 and 30 April 2012
May 2012	15 May 2012

## 4. Summary of Inspection Result

Tree No	Speciation	Health Status
CT_2A	<i>Celtis timorensis</i>	Fair
CT_3A	<i>Celtis timorensis</i>	Fair
CT_4A	<i>Celtis timorensis</i>	Very Poor
CT_5A	<i>Celtis timorensis</i>	Good
CT_6A	<i>Celtis timorensis</i>	Good

Inspection parameters or criteria

- Good      Leaves and stem grown very lush, additional or larger in size of leaves can be observed in each inspection
- Fair      Green leaves can be found. No major unhealthy condition of the plant is observed. The condition is stable.
- Poor      Fewer green leaves than usual are observed. No new leaf is grown and the condition keep stable. The bark is dry. The plant is weak.
- Very Poor      No new green leaf or bud can be observed. The bark is dry. The plant is weak.

**5. Description of Inspection Results:**

**Tree ID:CT\_2A**

	<p><b>Current Status: Fair</b></p> <p><b>Justification: New green leaves were found. Significant improvement in health. The plant was growing.</b></p>
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**Tree ID: CT\_3A**



**Current Status: Fair**

**Justification: New green leaves were found. Significant improvement in health. The plant was growing.**

**Tree ID: CT\_4A**



**Current Status: Very Poor**

**Justification: Leaves were dry. The bark was also dry. No significant improvement in health. The plant was very weak.**

**Tree ID: CT\_5A**



**Current Status: Good**

**Justification: Green leaves were found. Significant improvement in health. The plant was healthy. Some leaves were damaged by insect.**

**Tree ID: CT\_6A**



**Current Status: Good**

**Justification: Green leaves were found. Significant improvement in health. The plant was healthy.**




### **Overall Condition**

In the Tree Protection Zone 2, the condition of CT\_4A was generally poor. The health of CT\_2A ,CT\_3A,CT\_5A and CT\_6A were found satisfactory. Regular watering and weeding will be carried out during dry weather. They may better recover under this warm and rainy weather. Some newly grown green leaves were found eaten by insects. Remove any insect found on the plant physically to prevent the bud attacked by leaf-feeding insect. No pesticide should be used when the plants are weak.

Considering the condition of CT4A were in very poor condition, compensatory of additional *Celtis timorensis* is proposed and will be carried out in the coming warm weather season for better growing.

**Tree ID: CT\_7A**

	<p><b>Current Status: Death</b></p> <p><b>Justification: The stem was snapped by a broken tree trunk. The plant was death.</b></p>
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**Overall Condition**

In the Tree Protection Zone 2, the condition of CT\_1A, CT\_3A and CT\_7A were damaged by a fell tree trunk. The health of CT5A and CT6A were found satisfactory. Regular watering and weeding will be carried out during dry weather. They may better recover under this warm and rainy weather. Some newly grown green leaves were found eaten by insects. Remove any insect found on the plant physically to prevent the bud attacked by leaf-feeding insect. No pesticide should be used when the plants are weak.

Considering the condition of CT2A and CT4A were in very poor condition, compensatory of additional *Celtis timorensis* is proposed and will be carried out in the coming warm weather season for better growing.