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.36) – JULY 2013

PREPARED FOR
LEADER CIVIL ENGINEERING CORPORATION LIMITED

Quality Index

Date	Reference No.	Prepared By	Approved By
13 August 2013	TCS00512/09/600/R0673v2	Nicola Hon Environmental Consultant	T.W. Tam Environmental Team Leader

Version	Date	Description
1	9 August 2013	First Submission
2	13 August 2013	Amended against IEC's comments on 12 August 2013

URS CDM Joint Venture

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

Your reference:

Our reference: 05117/6/16/415601

Date: 15 Aug 2013

BY FAX

Attention: Ms Jacky C M Wong

Dear Madam

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. 36 (July 2013)

We refer to the Monthly EM&A Monitoring Report No. 36 for July 2013 received under cover of the email from the Environmental Team, Action-United Environmental Services and Consulting (AUES), dated on 15 Aug 2013. We have no comment and have verified the captioned report.

Yours faithfully
URS CDM JOINT VENTURE

Rodney Ip
Independent Environmental Checker

ICWR/DCYO/lykl

Encl

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

EXECUTIVE SUMMARY

ES.01. This is the **36th** 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 June to 25 July 2013** (hereinafter 'the Reporting Period').

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

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

Issues	Environmental Monitoring Parameters / Inspection	Occasions
Air Quality	1-hour TSP	54
	24-hour TSP	15
Construction Noise	$L_{eq(30min)}$ Daytime	24
Water Quality	Marine Water Sampling	13
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

SITE INSPECTION BY EXTERNAL PARTIES

ES.05. In this Reporting Period, weekly joint site inspection by RE, the Contractor and ET was carried out on **2, 9, 15 and 23 July 2013**. All the observation has been rectified in the set time frame.

ENVIRONMENTAL COMPLAINT, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES.06. No written or verbal environmental complaint, summons or successful prosecutions were recorded in this Reporting Period.

REPORTING CHANGE

ES.07. No reporting change was made in this 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. Muddy water and other water quality pollutants via site surface water runoff into the sea body within Fish Culture Zone (FCZ) 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.

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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 stead EP-281/2007 is EP for Sok Kwu Wan relevant works.

1.02 The Project involves construction of sewage treatment works at Sok Kwu Wan and Yung She Wan with a capacity of 1,430m^3/day and 2,850m^3/day respectively to provide secondary treatment, construction of 2 pumping stations at Sok Kwu Wan and 1 pumping station at Yung Shue Wan, construction of submarine outfall from the coastline and lying of underground sewerage pipeline. The site layout plan for the captioned work under the Project is showing in ***Appendix A.***

1.03 According to the Particular Specification (PS) and ***Appendix 25*** of the Project, Leader should establish an Environmental Team (ET) to implement the environmental monitoring and auditing works to fulfill the requirements as stipulated in the 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 spilt to following two stand-alone parts:

(a) Proposed EM&A Programme for Baseline and Impact Monitoring – Sok Kwu Wan (under EP No. 281/2007/A varied on 23 September 2009)

(b) Proposed EM&A Programme for Baseline and Impact Monitoring – Yung Shue Wan (under EP No. 282/2007)

1.05 According to the EM&A 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 **36th** monthly EM&A Report – Sok Kwu Wan Portion Area presenting the monitoring results and inspection findings for the Reporting Period from **26 June to 25 July 2013**.

REPORT STRUCTURE

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

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 SKWSTW: Concreting, Steel Fixing, Formwork Erection, Formwork Removal, Backfilling,
- Construction of SKW PS1 & PS2: E&M works installation

SUMMARY OF ENVIRONMENTAL SUBMISSIONS

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

Table 2-1 Status of Environmental Licenses and Permits

Item	Description	License/Permit Status
1	Air Pollution Control (Construction Dust) Regulation	Notified 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-RS0419-13 Valid from: 22 April 2013 Until: 30 September 2013

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	• 1-hour TSP Monitoring by Real-Time Portable Dust Meter; and • 24-hour TSP Monitoring by High Volume Air Sampler.
Noise	• Leq (30min) during normal working hours; and • Leq (15min) during Restricted Hours.
Marine Water Quality	***In-situ Measurements*** • Dissolved Oxygen Concentration (DO) (mg/L); • Dissolved Oxygen Saturation (%); • Turbidity (NTU); • pH unit; • Salinity (ppt); • Water depth (m); and • Temperature (^{o}C). ***Laboratory Analysis*** • Suspended Solids (SS) (mg/L)

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-ordnance 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-1 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 26th of the last month and the end

day, the 25th 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 ($\mu g/m^3$)		Limit Level ($\mu g/m^3$)	
	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 $L_{eq(30min)}$ during normal hours from 0700 to 1900 hours on normal weekdays, reduced to 70 dB(A) of $L_{eq(30min)}$ 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, **54** 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 (μg/m³)	1-hour TSP (μg/m³)				
		Date	Start Time	1st hour measured	2nd hour measured	3rd hour measured
28-Jun-13	7	26-Jun-13	10:13	97	96	81
4-Jul-13	21	2-Jul-13	13:18	253	262	247
10-Jul-13	12	8-Jul-13	9:10	62	78	64
16-Jul-13	9	13-Jul-13	11:47	59	53	64
22-Jul-13	11	19-Jul-13	13:26	42	45	44
		25-Jul-13	11:55	33	30	36
Average (Range)	**12 (7 – 21)**	Average (Range)		**91 (42 – 262)**		

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

Date	24-hour TSP (μg/m³)	1-hour TSP (μg/m³)				
		Date	Start Time	1st hour measured	2nd hour measured	3rd hour measured
28-Jun-13	12	26-Jun-13	13:06	91	102	84
4-Jul-13	5	2-Jul-13	15:22	174	188	179
10-Jul-13	8	8-Jul-13	11:15	53	46	59
16-Jul-13	11	13-Jul-13	13:50	56	61	66
22-Jul-13	27	19-Jul-13	15:30	37	40	33
		25-Jul-13	14:00	38	41	44
Average (Range)	**13 (5 – 27)**	Average (Range)		**77 (33 – 188)**		

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

Date	24-hour TSP (μg/m³)	1-hour TSP (μg/m³)				
		Date	Start Time	1st hour measured	2nd hour measured	3rd hour measured
28-Jun-13	42	26-Jun-13	9:17	82	96	78
4-Jul-13	26	2-Jul-13	11:06	87	74	92
10-Jul-13	6	8-Jul-13	14:40	87	93	85
16-Jul-13	15	13-Jul-13	9:30	77	82	75
22-Jul-13	16	19-Jul-13	11:13	62	58	63
		25-Jul-13	9:40	66	69	60
Average (Range)	**21 (6 – 42)**	Average (Range)		**77 (58– 93)**		

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 **24** construction noise monitoring events were undertaken at designated locations. 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	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30
26-Jun-13	11:24	11:54	49.5	50.5	48.7	53.1	50.3	52.6	51.1
2-Jul-13	13:22	13:52	68.4	62.9	65.7	68.9	68.7	71.3	68.4
8-Jul-13	9:16	9:46	52.5	47.8	55.6	52.7	50.9	50.9	52.4
13-Jul-13	13:09	13:39	51.4	50.9	53.6	48.7	50.9	47.8	51.0
19-Jul-13	13:30	14:00	55.0	52.1	55.9	57.7	55.8	49.5	55.1
25-Jul-13	15:39	16:09	52.3	51.4	61.0	50.6	51.1	59.1	56.4
Limit Level in dB(A)			-						**75**

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

Date	Start Time	End time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30
26-Jun-13	10:48	11:18	60.5	60.7	60.3	60.9	61.4	61.5	60.9
2-Jul-13	14:04	14:34	58.1	56.6	53.3	52.4	53.3	54.2	55.2
8-Jul-13	10:03	10:33	59.0	58.8	65.3	54.1	62.0	52.7	60.7
13-Jul-13	11:03	11:33	59.1	56.4	58.6	59.0	60.9	65.9	61.2
19-Jul-13	14:10	14:40	58.3	57.2	66.8	59.2	65.9	57.7	62.7
25-Jul-13	11:03	11:33	62.1	61.9	63.0	63.8	62.1	60.3	62.3
Limit Level in dB(A)			-						**75**

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

Date	Start Time	End time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30	Corrected* Leq30
26-Jun-13	13:59	14:29	63.5	63.4	64.8	62.7	60.5	60.9	62.9	65.9
2-Jul-13	14:40	15:10	56.2	54.7	57.5	57.3	56.9	59.2	57.2	60.2
8-Jul-13	10:45	11:15	56.8	59.9	66.8	65.0	63.1	58.1	63.0	66.0
13-Jul-13	10:27	10:57	59.6	59.3	58.3	60.3	58.9	58.5	59.2	62.2
19-Jul-13	14:51	15:21	60.6	67.4	59.3	58.8	58.0	60.7	62.2	65.2
25-Jul-13	10:22	10:52	65.6	69.9	58.6	65.9	60.0	61.7	65.3	68.3
Limit Level in dB(A)			-							**75**

* 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	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30
26-Jun-13	13:17	13:47	45.8	47.4	45.3	52.1	45.0	47.4	48.0
2-Jul-13	11:12	11:42	49.6	48.3	50.6	52.2	58.1	53.9	53.5
8-Jul-13	11:20	11:50	51.7	58.6	53.5	52.9	57.4	53.3	55.3
13-Jul-13	9:50	10:20	51.7	51.5	50.9	48.8	47.4	48.2	50.1
19-Jul-13	11:26	11:56	55.4	55.0	54.4	55.4	55.3	54.1	55.0
25-Jul-13	9:45	10:15	64.9	60.0	62.8	59.3	56.5	55.9	61.1
Limit Level in dB(A)			-						**75**

5.03 It was noted that no noise complaint (which is an Action Level exceedance) was received. In view of the results shown in ***Tables 5-1***, ***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 QULAITY

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, **13** 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 **24.51 to 34.57** ppt, and pH value was within **7.37 to 8.49.**

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
26-Jun-13	6.64	6.82	7.08	6.82	7.39	6.11	NA	6.12	6.31	6.12	6.55	5.61
28-Jun-13	8.60	8.37	8.75	6.01	9.97	7.53	NA	7.84	8.01	7.07	8.64	6.25
2-Jul-13	9.51	9.61	9.15	8.96	8.46	9.30	NA	7.95	7.42	8.41	7.12	7.45
4-Jul-13	7.94	7.98	8.33	6.96	7.80	7.14	NA	5.86	6.90	5.47	7.28	5.51
6-Jul-13	6.14	6.61	7.94	9.14	7.34	6.52	NA	5.42	5.71	7.72	5.85	4.81
9-Jul-13	7.91	10.09	9.97	9.64	10.15	8.37	NA	6.87	5.86	6.43	6.76	5.93
11-Jul-13	8.33	8.37	8.38	8.44	8.79	8.23	NA	8.28	8.24	8.26	8.54	8.45
13-Jul-13	7.71	7.22	7.38	7.77	7.62	7.30	NA	5.14	6.09	5.98	6.42	5.63
16-Jul-13	7.97	8.06	8.13	7.93	8.66	6.95	NA	5.98	6.83	5.39	7.29	4.96
18-Jul-13	7.26	7.32	7.33	7.03	6.51	7.24	NA	4.05	6.56	5.45	6.80	5.21
20-Jul-13	5.70	5.87	5.50	6.74	5.09	6.84	NA	5.48	5.09	6.41	4.76	6.17
23-Jul-13	7.44	6.64	7.54	7.18	7.69	7.59	NA	6.50	6.32	6.89	6.45	6.73
25-Jul-13	8.68	8.19	7.81	8.99	7.57	8.68	NA	8.04	7.55	8.64	6.87	8.36

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
26-Jun-13	1.05	1.52	0.95	1.52	0.58	0.82	1.40	1.27	0.87	0.80	1.30	1.80
28-Jun-13	0.35	0.57	0.80	0.48	1.02	0.90	1.50	1.23	1.17	0.80	1.90	1.57
2-Jul-13	0.85	1.45	1.53	1.42	0.57	1.53	0.80	1.43	1.77	1.83	2.00	2.07
4-Jul-13	1.30	0.73	0.97	0.90	1.05	0.85	3.20	2.67	2.80	2.67	3.20	3.37
6-Jul-13	0.85	0.73	1.28	1.07	0.72	1.17	1.60	2.80	3.37	2.37	3.80	3.53
9-Jul-13	0.85	1.80	1.65	1.05	1.87	1.07	1.40	1.50	1.67	1.47	2.00	2.03
11-Jul-13	1.45	0.73	1.20	0.80	1.32	0.58	2.90	2.93	1.37	1.70	1.63	1.70
13-Jul-13	0.50	0.88	0.38	0.60	0.35	1.02	2.20	2.80	3.23	2.47	4.27	3.43
16-Jul-13	0.45	0.52	0.60	0.20	0.67	1.10	2.40	3.10	2.57	2.23	2.93	2.87
18-Jul-13	0.65	1.23	0.82	0.70	1.05	0.70	2.40	1.90	2.30	1.80	2.87	1.97
20-Jul-13	0.45	0.47	1.30	0.93	1.03	0.45	1.30	1.60	1.30	1.30	1.87	1.13
23-Jul-13	1.80	0.93	1.98	0.80	2.48	0.73	3.90	3.33	3.67	4.10	3.73	5.63
25-Jul-13	0.10	0.67	2.15	0.17	1.95	0.33	2.20	2.77	3.37	3.30	3.47	3.30

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

Sampling date	Dissolved Oxygen conc. of Depth Ave. of Surf. and Mid Layer (mg/L)						Dissolved Oxygen conc. of Depth Ave. of Bottom Layer (mg/L)					
	W1	W2	W3	C1	C2	C3	W1	W2	W3	C1	C2	C3
26-Jun-13	7.59	7.63	8.08	7.84	9.28	7.63	NA	7.28	7.44	7.13	8.30	6.77
28-Jun-13	9.27	9.84	8.28	9.49	8.51	8.99	NA	8.33	7.14	8.19	7.34	6.76
2-Jul-13	9.17	8.68	8.59	8.88	8.60	8.70	NA	6.81	7.38	6.90	7.50	7.27
4-Jul-13	8.95	7.92	9.26	8.19	9.02	8.58	NA	5.01	6.82	5.29	6.05	5.49
6-Jul-13	8.89	6.66	7.12	9.27	5.93	7.73	NA	5.06	5.67	5.93	6.31	6.42
9-Jul-13	6.73	7.04	8.97	7.32	6.17	8.87	NA	5.39	7.07	6.17	6.05	5.53
11-Jul-13	8.22	8.21	8.26	8.37	8.25	8.34	NA	8.20	8.16	8.25	8.24	8.26
13-Jul-13	7.88	7.35	7.91	7.47	6.27	7.46	NA	5.50	5.67	6.27	6.88	5.10
16-Jul-13	6.58	7.45	7.68	6.32	5.24	6.27	NA	5.09	4.42	5.24	4.53	4.16
18-Jul-13	6.47	7.15	6.80	7.14	5.07	7.24	NA	5.54	4.61	5.07	5.21	5.31
20-Jul-13	6.59	6.66	6.90	6.28	5.73	5.95	NA	5.84	6.27	5.73	5.84	5.54
23-Jul-13	6.93	7.30	7.39	6.67	5.93	5.83	NA	6.81	6.48	5.93	6.56	5.50
25-Jul-13	7.43	7.32	7.92	7.96	7.12	6.95	NA	7.17	7.82	7.12	8.92	6.65

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
26-Jun-13	1.25	1.38	0.95	1.03	0.90	1.50	1.50	0.87	1.93	0.87	1.30	2.00
28-Jun-13	0.65	0.58	0.90	0.73	1.20	1.30	1.30	1.07	1.63	1.67	1.37	1.67
2-Jul-13	1.00	0.57	1.17	1.55	1.50	1.17	2.00	2.90	1.13	2.53	2.60	1.60
4-Jul-13	0.70	1.02	0.88	1.23	1.82	0.85	1.70	3.33	2.40	3.33	3.03	3.33
6-Jul-13	0.60	1.23	1.15	0.62	0.65	1.02	2.20	4.37	1.97	2.13	4.33	2.97
9-Jul-13	0.30	0.87	0.78	1.08	0.83	1.28	2.00	1.20	2.63	1.47	1.23	1.77
11-Jul-13	0.30	1.57	0.93	1.03	0.75	1.07	1.40	1.23	2.30	1.47	1.50	1.47
13-Jul-13	1.60	1.00	1.03	4.37	1.12	0.77	2.20	3.23	3.53	2.63	3.57	4.47
16-Jul-13	0.80	0.68	0.53	0.88	0.38	1.05	1.60	2.07	2.70	1.77	2.07	3.07
18-Jul-13	0.65	1.23	1.02	0.65	1.33	0.70	1.90	1.67	2.37	1.90	1.77	2.07
20-Jul-13	1.65	1.13	0.55	0.60	0.87	1.17	1.70	1.47	1.60	1.43	1.80	2.03
23-Jul-13	0.80	1.73	2.62	1.40	3.98	1.42	3.80	4.37	5.67	2.67	3.47	3.00
25-Jul-13	2.15	2.38	2.65	1.57	2.47	1.62	5.80	2.90	2.47	3.13	3.30	3.30

Table 6-5 Summarized Exceedances of Marine Water Quality

Station	DO (Ave of Surf. & mid-depth)		DO (Ave. of Bottom Layer)		Turbidity (Depth Ave.)		SS (Depth Ave)		Total Exceedance	
	Action	Limit	Action	Limit	Action	Limit	Action	Limit	Action	Limit
Mid-Ebb										
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
Mid-Flood										
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 **29 June and 15 July 2013**. 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.

7.03 In April 2012, CT_1A and CT_7A were damaged by the fell broken tree trunk due to tree decayed by white ants. Therefore, only 5 no. of additional *Celtis Timorensis*, namely CT_2A, CT_3A, CT4A, CT_5A and CT_6A were inspected since May 2012. Furthermore, during tree inspection on 30 July, CT4A was disappeared after typhoon No.10 on 24 July and it was certified as dead. Eventually, 4 no. of additional *Celtis Timorensis*, namely CT_2A, CT_3A, CT_5A and CT_6A were inspected in the remaining period.

7.04 The tree inspection report for this Reporting Period is presented in ***Appendix M***.

8 WASTE MANAGEMENT

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

Records of Waste Quantities

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

- Construction & Demolition (C&D) Material;
- Chemical Waste;
- General Refuse; and
- Excavated Soil

8.03 The quantities of waste for disposal in this Reporting Period are summarized in ***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^3)	0.012	-
Reused in the Contract (Inert) ('000m^3)	0	-
Reused in other Projects (Inert) ('000m^3)	0	-
Disposal as Public Fill (Inert) ('000m^3)	0	-

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)	33.52	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^3 in this monthly period.

9 SITE INSPECTION

9.01 According to the Environmental Monitoring and Audit Manual, the environmental site inspection should been formulated by ET Leader. Regular environmental site inspections had been carried out by the ET to confirm the environmental performance. In this Reporting Period, weekly joint site inspection by RE, the Contractor and ET was carried out on **2, 9, 15 and 23 July 2013**.

9.02 The findings/ deficiencies that observed during the weekly site inspection are listed in ***Table 9-1*** and the relevant checklists are attached in ***Appendix K***.

Table 9-1 Site Observations

Date	Findings / Deficiencies	Follow-Up Status
2 July 2013	• No adverse environmental impacts were observed. The silt curtain was broken again during typhoon. Repair is required.	Broken slit curtain was repaired on 15 July 2013.
9 July 2013	• No adverse environmental impacts were observed.	N.A.
15 July 2013	• No adverse environmental impacts were observed.	N.A.
23 July 2013	• No adverse environmental impacts were observed. However, the sedimentation tank at both ends of Portion G was required to regularly clear the excessively accumulated sediment.	The sedimentation tank at both ends of Portion G were cleared on 30 July 2013.

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 - December 2012	0	1 (Nov 2011)	NA
January - June 2013	0	1 (Nov 2011)	NA
July 2013	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 - December 2012	0	0	NA
January - June 2013	0	0	NA
July 2013	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 - December 2012	0	0	NA
January - June 2013	0	0	NA
July 2013	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^3/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	• Drainage channels were provided to convey run-off into the treatment facilities; and • Drainage systems were regularly and adequately maintained.
Air Quality	• Cover all excavated or stockpile of dusty material by impervious sheeting or sprayed with water to maintain the entire surface wet; • Public roads around the site entrance/exit had been kept clean and free from dust; and • Tarpaulin covering of any dusty materials on a vehicle leaving the site.

Issues	Environmental Mitigation Measures
Noise	• Good site practices to limit noise emissions at the sources; • Use of quite plant and working methods; • Use of site hoarding or other mass materials as noise barrier to screen noise at ground level of NSRs; and • To minimize plant number use at the worksite.
Waste and Chemical Management	• Excavated material should be reused on site as far as possible to minimize off-site disposal. Scrap metals or abandoned equipment should be recycled if possible; • Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner; • The Contractor should adopt a trip ticket system for the disposal of C&D materials to any designed public filling facility and/or landfill; and • Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.
General	• The site was generally kept tidy and clean.

12 IMPACT FORECAST

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

Water Quality

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

Air Quality

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

Noise

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

Waste and Chemical Management

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

13 CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

13.01 This is the **36th** monthly EM&A Report covering the construction period from **26 June to 25 July 2013**.

13.02 In this Reporting Period, no 1-hour and 24-hour TSP results were found to be triggered the Action or Limit Level

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 joint site inspection by RE, the Contractor and ET was carried out on **2, 9, 15 and 23 July 2013**. All the observation has been rectified in the set time frame. The environmental performance of the Project was therefore considered as satisfactory.

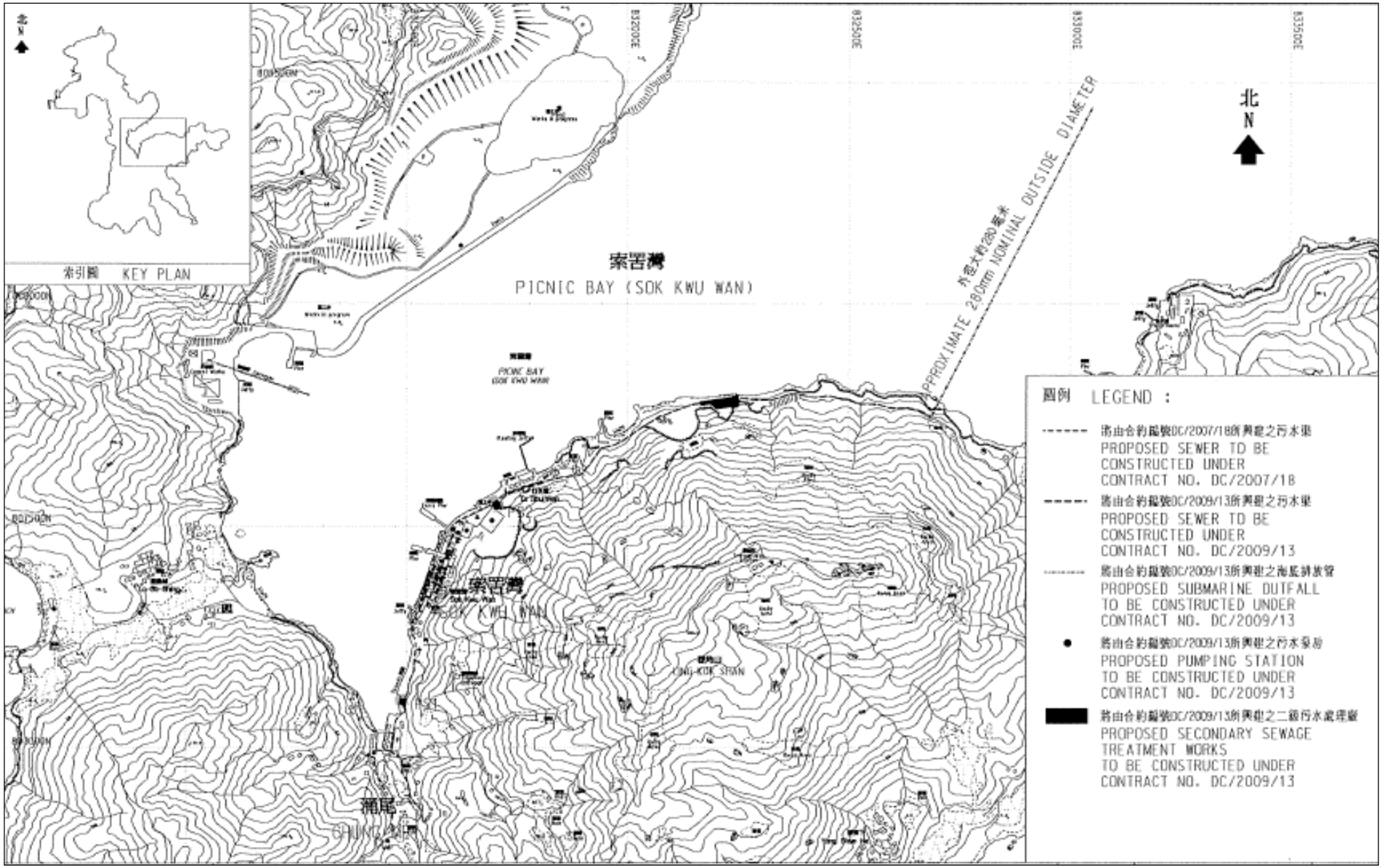
RECOMMENDATIONS

13.07 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.

13.08 Muddy water and other water quality pollutants via site surface water runoff into the sea body within Fish Culture Zone (FCZ) 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.

Appendix A

Site Layout Plan – Sok Kwu Wan Portion Area


索引圖 KEY PLAN
索罟灣
PICNIC BAY (SOK KWU WAN)
PICNIC BAY SOK KWU WAN
SOK KWU WAN
CHUNG KOK SHAN
涌尾
CHUNG MEI
APPROXIMATE 280m NOMINAL OUTSIDE DIAMETER
北
N
圖例 LEGEND :
將由合約編號DC/2007/18所興建之污水渠
PROPOSED SEWER TO BE CONSTRUCTED UNDER CONTRACT NO. DC/2007/18
將由合約編號DC/2009/13所興建之污水渠
PROPOSED SEWER TO BE CONSTRUCTED UNDER CONTRACT NO. DC/2009/13
將由合約編號DC/2009/13所興建之海底排放管
PROPOSED SUBMARINE OUTFALL TO BE CONSTRUCTED UNDER CONTRACT NO. DC/2009/13
將由合約編號DC/2009/13所興建之污水泵房
PROPOSED PUMPING STATION TO BE CONSTRUCTED UNDER CONTRACT NO. DC/2009/13
將由合約編號DC/2009/13所興建之二級污水處理廠
PROPOSED SECONDARY SEWAGE TREATMENT WORKS TO BE CONSTRUCTED UNDER CONTRACT NO. DC/2009/13

Appendix B

Organization Structure and Contact Details of Relevant Parties

Contact Details of Key Personnel

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

Legend:

DSD (Employer) – Drainage Services Department

CDM (Engineer) –URS Hong Kong Limited CDM Joint Venture

Leader (Main Contractor) – Leader Civil Engineering Corporation Limited

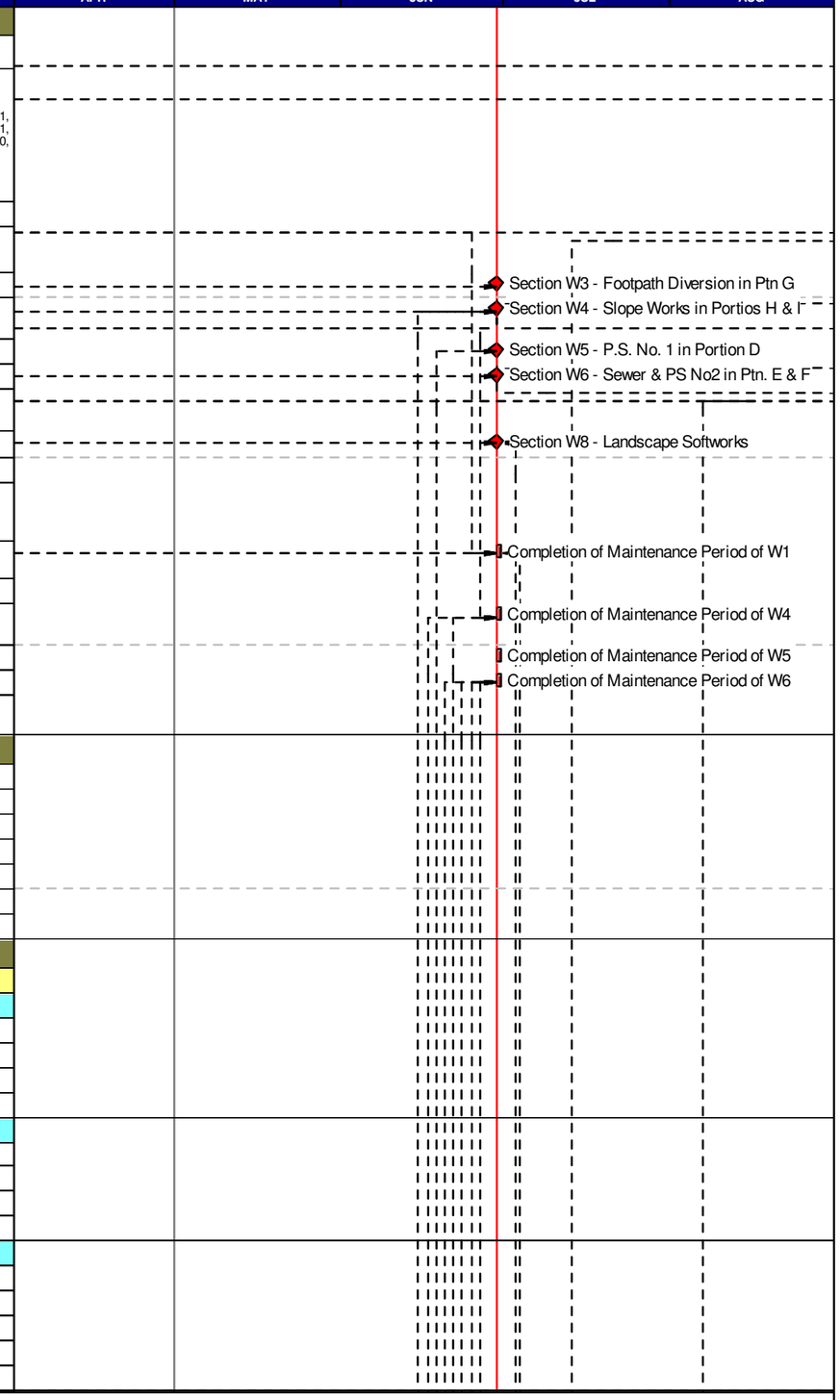
URS (IEC) – URS Hong Kong Limited

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

Appendix C

A Master and Three Months Rolling Construction Programme

Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors
Project Key Date									
Receive Letter of Acceptance	0	100		05/05/10 A		05/05/10 A			KD0125
Project Commencement Date	0	100		17/05/10 A		17/05/10 A			E&M0010, E&M0070, E&M1001, E&M2001, KD0125, PRE0020, PRE0040, PRE0050, PRE0060, PRE0090, PRE0100, PRE0130, SKW0250, SKW0588, SKW0651, SKW0881, SKW1131, SKW1481, SKW1591, SKW1611, YSW0020, YSW0050, YSW0075, YSW0180, YSW0200, YSW0220, YSW0240, YSW02401, YSW0412, YSW0422
Section W1 - Slope Works in Portion A & C	0	100		14/10/11 A		14/10/11 A		YSW0100, YSW0110, YSW0140,	KD0125, KD0130, YSW01755
Section W2 - YSW STW & Submarine Outfall (1370d)	0	0		16/06/14 *		16/06/14 *	0 *	E&M0700, YSW0400, YSW0800, YSW0925, YSW16704, YSW1700	KD0125, KD0132
Section W3 - Footpath Diversion in Ptn G	0	0		29/06/13 *		24/03/11 *	-828d *	SKW0481	KD0125
Section W4 - Slope Works in Portios H & I	0	0		29/06/13 *		27/03/12 *	-459d *	SKW05938, SKW059416	KD0125, KD0135, SKW05941
Section W5 - P.S. No. 1 in Portion D	0	0		29/06/13 *		10/02/12 *	-505d *	SKW0741	KD0125
Section W6 - Sewer & PS No2 in Ptn. E & F	0	0		29/06/13 *		10/02/12 *	-505d *	SKW0971	KD0125
Section W7 - SKW STW, RM & Sm. Outfall	0	0		07/10/14 *		07/10/14 *	0 *	E&M3360, SKW1221, SKW1291, SKW1431, SKW1441, SKW1521,	KD0125, KD0165, SKW0491
Section W8 - Landscape Softworks	0	0		29/06/13 *		05/04/13 *	-85d *	SKW1611, SKW1621	
Section W9 - Establishment Works	0	0		03/04/14 *		03/04/14 *	0 *	SKW1631	KD0125
Project Completion	0	0		12/09/15 *		12/09/15 *	0 *	KD0010, KD0020, KD0030, KD0040, KD0050, KD0060, KD0070, KD0080, KD0090, KD0110, SKW0541	
Completion of Maintenance Period of W1	1	0	30/06/13	30/06/13 *	13/10/12	13/10/12 *	-260d	KD0030, YSW01755, YSW01805, YSW01810	
Completion of Maintenance Period of W2	1	0	15/06/15	15/06/15 *	15/06/15	15/06/15 *	0	E&M0730, KD0040	
Completion of Maintenance Period of W4	1	0	30/06/13	30/06/13 *	27/03/13	27/03/13 *	-95d	KD0060, SKW05947, SKW1581	
Completion of Maintenance Period of W5	1	0	30/06/13	30/06/13 *	10/02/13	10/02/13 *	-140d		
Completion of Maintenance Period of W6	1	0	30/06/13	30/06/13 *	10/02/13	10/02/13 *	-140d	E&M2130, E&M2180, SKW0961,	
Completion of Maintenance period of W7	1	0	06/10/15	06/10/15 *	06/10/15	06/10/15 *	0 *	KD0090, SKW0595, SKW05972, SKW0861	
Preliminary (Civil)									
Pre-condition Survey	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A		KD0020	
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	
Taking over the Secondary Engineer's Site Accomm	75	100	17/05/10 A	30/07/10 A	17/05/10 A	30/07/10 A		KD0020	
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	
Working Group Meeting for Outfall Construction	120	100	17/05/10 A	13/09/10 A	17/05/10 A	13/09/10 A		KD0020	SKW1151
Application & Consent of XP from HyD (Mo Tat Rd)	120	100	17/05/10 A	13/09/10 A	17/05/10 A	13/09/10 A		KD0020	SKW1491, SKW1501
Setup Web-site for EM&A Reporting	90	100	17/05/10 A	14/08/10 A	17/05/10 A	14/08/10 A		KD0020	
Preliminary (E&M)									
Technical Submission									
Process Design of SKWSTW & YSWSTW									
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
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
Revision and Resubmission	125	100	15/07/10 A	16/11/10 A	15/07/10 A	16/11/10 A		E&M0020	E&M0080
Approval from the Engineer	14	100	17/11/10 A	30/11/10 A	17/11/10 A	30/11/10 A		E&M0030	E&M0295
Hydraulic Design									
Submission	21	100	15/07/10 A	04/08/10 A	15/07/10 A	04/08/10 A		E&M0010, E&M0020	E&M0050, E&M0101, E&M0240, E&M0260,
Vetting and Comment by ER	14	100	05/08/10 A	18/08/10 A	05/08/10 A	18/08/10 A		E&M0040	E&M0060
Revision and Resubmission	97	100	19/08/10 A	10/10/10 A	19/08/10 A	10/10/10 A		E&M0050	E&M0430
Approval from the Engineer	7	100	24/11/10 A	30/11/10 A	24/11/10 A	30/11/10 A		E&M0060	E&M0295
Equipment Submission & Approval									
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
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
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
Submission of Equipment	90	100	05/08/10 A	30/11/11 A	05/08/10 A	30/11/11 A		E&M0040	E&M0102
Vetting and Comment by ER	60	100	03/11/10 A	30/11/11 A	03/11/10 A	30/11/11 A		E&M0101	E&M0103



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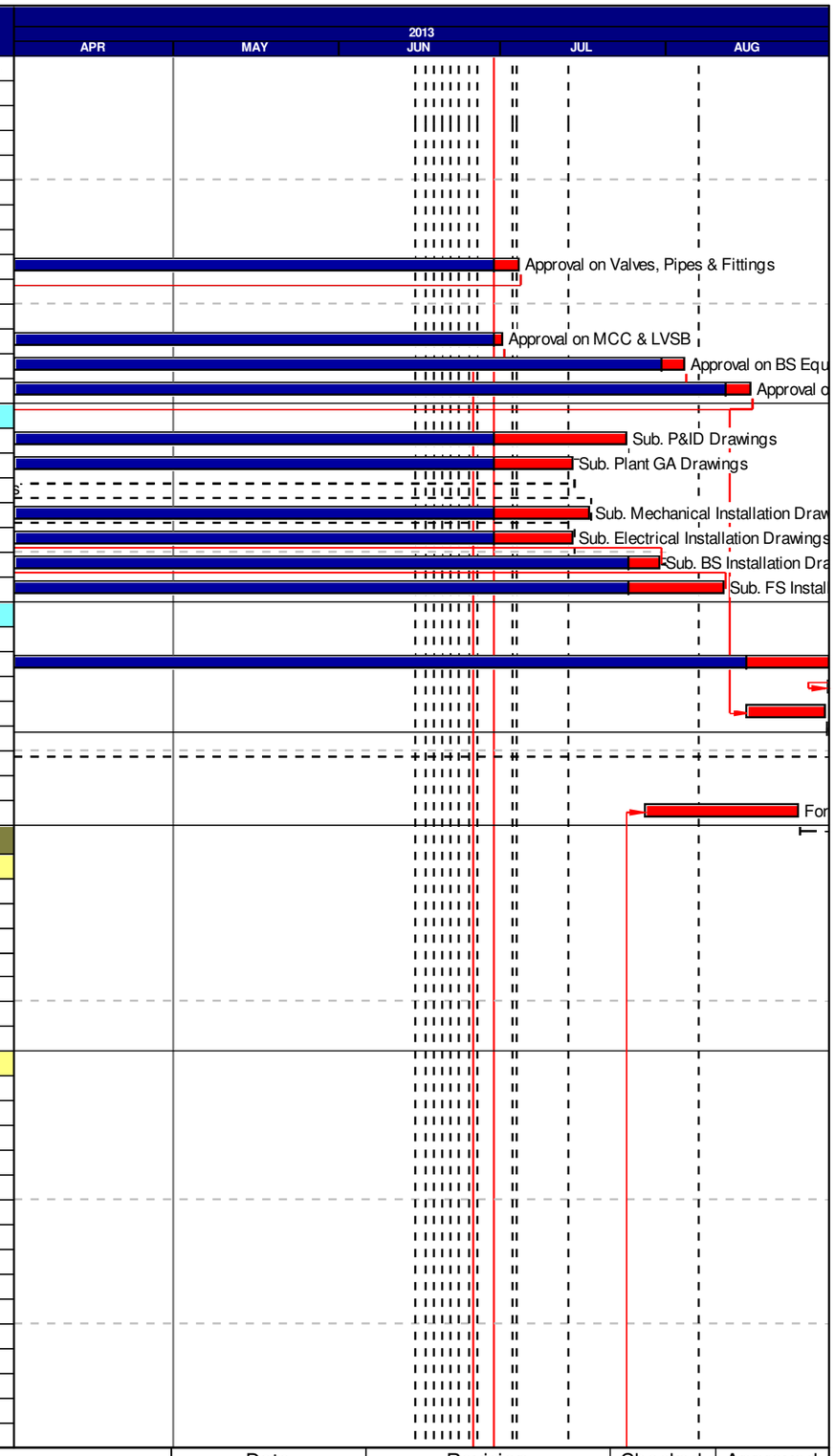
Summary bar
Progress point
Critical point
Summary point
Start milestone point
Finish milestone point

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

Date	Revision	Checked	Approved
30/05/13	Revision 0	RH	VC

Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors
Revision and Resubmission	60	100	01/02/11 A	30/11/11 A	01/02/11 A	30/11/11 A		E&M0102	E&M0110, E&M0120, E&M0130, E&M0140,
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
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
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
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
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
Approval on MBR Membrane Modules (M.M.)	105	100	03/08/10 A	24/02/11 A	03/08/10 A	24/02/11 A		E&M0100	E&M0360, E&M0370, E&M3010
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
Approval on Valves, Pipes & Fittings	30	85	19/11/11 A	04/07/13	19/11/11 A	10/05/13	-55d	E&M0103	E&M0450, E&M3100
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
Approval on Instrumentation	30	100	21/06/11 A	08/03/12 A	21/06/11 A	08/03/12 A		E&M0103	E&M0470, E&M3130
Approval on MCC & LVSB	30	95	19/11/11 A	01/07/13	19/11/11 A	26/08/11	-675d	E&M0103	E&M0480, E&M3140
Approval on BS Equipment	30	85	30/11/11 A	04/08/13	30/11/11 A	03/05/12	-458d	E&M0103, E&M0280	E&M0490, E&M3150
Approval on FS Equipment	30	85	30/11/11 A	16/08/13	30/11/11 A	24/08/11	-723d	E&M0103, E&M0290	E&M0295, E&M0320, E&M0500, E&M3160
Drawings Submission & Approval									
Sub. P&ID Drawings	100	75	24/06/10 A	24/07/13	24/06/10 A	01/08/11	-723d	E&M0010	E&M0250
Sub. Plant GA Drawings	45	68	04/08/10 A	14/07/13	04/08/10 A	01/08/11	-712d	E&M0040	E&M0250, E&M0280, E&M0290
Sub. Builder's Works Requirements Drawings	15	100	04/08/10 A	31/01/13 A	04/08/10 A	31/01/13 A		E&M0235, E&M0240, E&M0260,	E&M0280, E&M0290
Sub. Mechanical Installation Drawings	60	70	27/09/10 A	17/07/13	27/09/10 A	01/08/11	-716d	E&M0040	E&M0250
Sub. Electrical Installation Drawings	60	75	27/09/10 A	14/07/13	27/09/10 A	01/08/11	-713d	E&M0040	E&M0250, E&M0280
Sub. BS Installation Drawings	120	95	27/09/10 A	30/07/13	27/09/10 A	29/04/12	-458d	E&M0240, E&M0250, E&M0270	E&M0220
Sub. FS Installation Drawings	120	85	13/11/11 A	11/08/13	13/11/11 A	19/08/11	-723d	E&M0240, E&M0250	E&M0230
Statutory Submission									
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
Application & Approval from HEC	150	90	01/11/11 A	31/08/13	01/11/11 A	06/11/12	-298d	E&M0295	E&M0305
Provision of Cables to the STWs	180	0	31/08/13	27/02/14	06/11/12	05/05/13	-298d	E&M0300	E&M0680
Form 314 Submission to FSD	14	0	16/08/13	30/08/13	21/04/13	05/05/13	-117d	E&M0230	E&M0325, E&M0670
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
Form 501 Submission to FSD (YSW)	28	0	11/05/15	08/06/15	14/11/13	11/12/13	-544d	E&M0500	E&M0700
Form 501 Submission to FSD (SKW)	28	0	03/02/14	03/03/14	11/06/14	08/07/14	128d	E&M3160	E&M3360
Form 501 Submission to FSD (PS1 & PS2)	28	0	28/07/13	25/08/13	14/11/12	11/12/12	-257d	E&M2016	E&M11800, E&M2180
Yung Shue Wan									
Preliminary									
Approval of Environmental Team	16	100	17/05/10 A	01/06/10 A	17/05/10 A	01/06/10 A		KD0020	YSW00201, YSW0030, YSW00351,
Change Baseline Monitoring Location (Air&Noise)	59	100	02/06/10 A	30/07/10 A	02/06/10 A	30/07/10 A		YSW0020	YSW0030
Baseline monitoring (Air & Noise)	23	100	31/07/10 A	22/08/10 A	31/07/10 A	22/08/10 A		YSW0020, YSW00201	YSW0035
Baseline Monitoring Report Submission (A & N)	16	100	23/08/10 A	07/09/10 A	23/08/10 A	07/09/10 A		YSW0030	YSW0120, YSW01545, YSW0500,
Submission & Approval for Monitoring Method (W)	58	100	02/06/10 A	29/07/10 A	02/06/10 A	29/07/10 A		YSW0020	YSW0040
Baseline monitoring (Water)	155	100	30/07/10 A	31/12/10 A	30/07/10 A	31/12/10 A		YSW0020, YSW00351	YSW0350
Erect Hoarding and Fencing	60	100	19/05/10 A	17/07/10 A	19/05/10 A	17/07/10 A		KD0020	YSW0155
Section W1 - Slope Works in Portion A & C									
Mobilization	30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A		KD0020	YSW0080, YSW0100
Site Clearance	30	100	16/06/10 A	15/07/10 A	16/06/10 A	15/07/10 A		YSW0075	YSW0085, YSW0090, YSW0120
Initial Survey	14	100	02/07/10 A	15/07/10 A	02/07/10 A	15/07/10 A		YSW0080	YSW0120
Verify the Rock Boulder required Stablization Wk	249	100	16/07/10 A	21/03/11 A	16/07/10 A	21/03/11 A		YSW0080	YSW0100, YSW0110
Removal of Rock Boulder	257	100	20/09/10 A	03/06/11 A	20/09/10 A	03/06/11 A		YSW0075, YSW0090	KD0030
Stablizing work for rock boulder	35	100	16/07/11 A	19/08/11 A	16/07/11 A	19/08/11 A		YSW0090	KD0030
Cut the slope to design profile	2	100	24/09/10 A	25/09/10 A	24/09/10 A	25/09/10 A		YSW0035, YSW0080, YSW0085	YSW0131, YSW0155, YSW0170
Mobilization of Plant and Material of Soil Nails	14	100	12/09/10 A	25/09/10 A	12/09/10 A	25/09/10 A		YSW0120	YSW0132
Erect Scaffold and Working Platform	2	100	26/09/10 A	27/09/10 A	26/09/10 A	27/09/10 A		YSW0131	YSW0133
Setting out and Verify Locations of Soil Nails	45	100	28/09/10 A	11/11/10 A	28/09/10 A	11/11/10 A		YSW0132	YSW0134
Drilling and Soil Nails Installation	43	100	19/10/10 A	30/11/10 A	19/10/10 A	30/11/10 A		YSW0133	YSW0135
Construction of Nail Heads	12	100	01/12/10 A	12/12/10 A	01/12/10 A	12/12/10 A		YSW0134	YSW0136
Mesh Installation on Cut Slope	3	100	13/12/10 A	15/12/10 A	13/12/10 A	15/12/10 A		YSW0135	YSW01361
Verify alignment of access & channels on slope	118	100	16/12/10 A	12/04/11 A	16/12/10 A	12/04/11 A		YSW0136	YSW0140
Construct U-channels & Step Channel on Cut Slope	182	100	13/04/11 A	11/10/11 A	13/04/11 A	11/10/11 A		YSW01361	KD0030



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Finish date	06/04/17
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Critical bar
Summary bar
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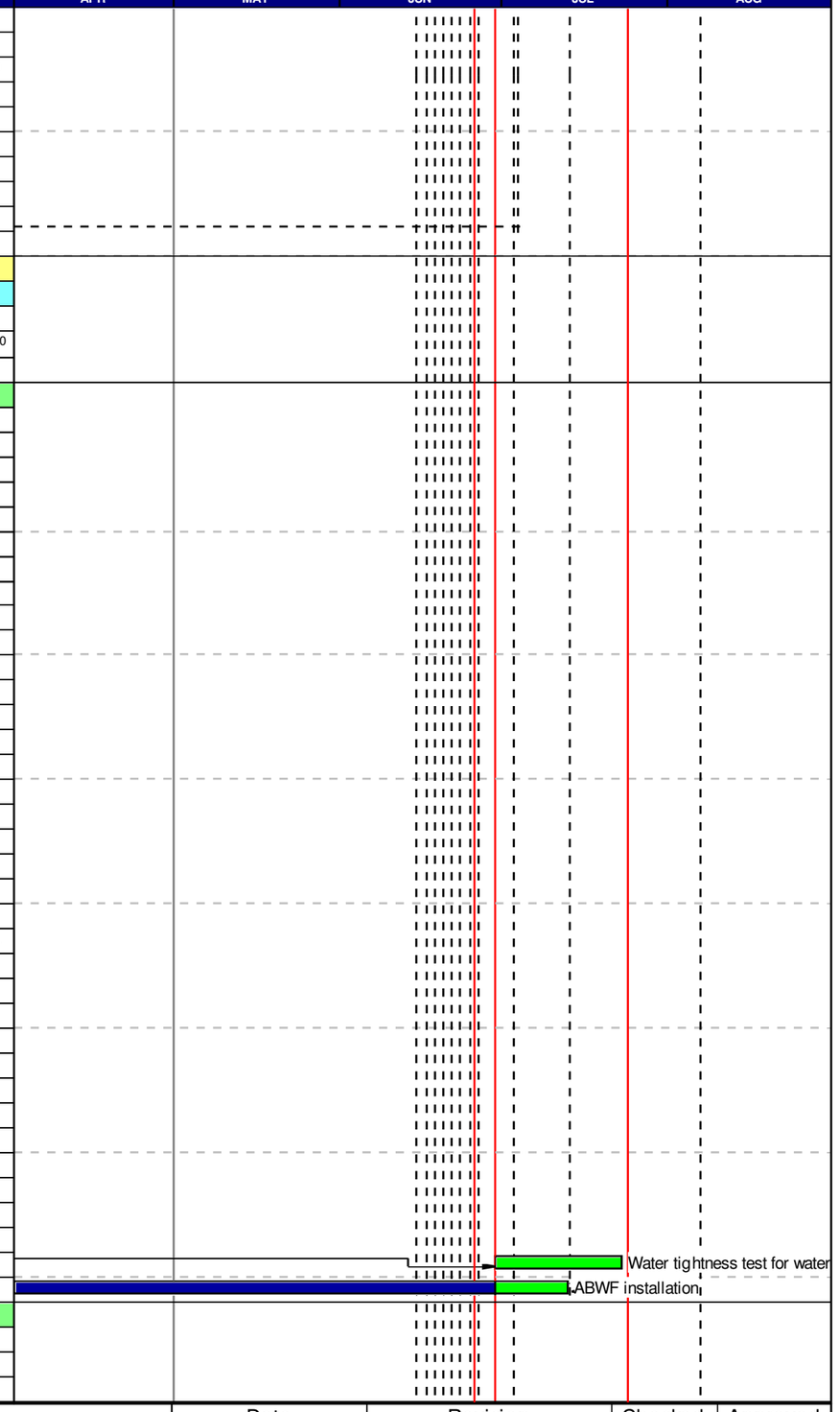
Start milestone point
Finish milestone point

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

Date	Revision	Checked	Approved
30/05/13	Revision 0	RH	VC

Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors
Removal of Ex U-Channel where clash with B. Wall	151	100	10/05/11 A	07/10/11 A	10/05/11 A	07/10/11 A		YSW01545	YSW01750
Temporary Diversion of Drainage	244	100	08/09/10 A	09/05/11 A	08/09/10 A	09/05/11 A		YSW0035	YSW0153
RC Barrier Wall Bay 1-13 (below Ground Level)	256	100	26/09/10 A	08/06/11 A	26/09/10 A	08/06/11 A		YSW0050, YSW0120	KD0030, YSW0170, YSW0175, YSW01750
RC Barrier Wall Bay 1-13 (above Ground Level)	125	100	09/06/11 A	11/10/11 A	09/06/11 A	11/10/11 A		YSW0120, YSW0155	KD0030
Construct U-channels and Catchpits (Phase 1)	76	100	09/06/11 A	23/08/11 A	09/06/11 A	23/08/11 A		YSW0155	KD0030
Construction of subsoil drain (phase 1)	7	100	12/10/11 A	08/02/12 A	12/10/11 A	08/02/12 A		YSW0153, YSW0155	KD0030
Construct subsoil drain (phase 2)	14	100	06/12/12 A	31/12/12 A	06/12/12 A	31/12/12 A		KD0030, YSW01800	KD0130
RC Barrier Wall Bay 14 (below & above Ground)	87	100	03/09/12 A	28/11/12 A	03/09/12 A	28/11/12 A		YSW0760	YSW01755, YSW01810
Hydroseeding	14	100	02/03/13 A	02/03/13 A	02/03/13 A	02/03/13 A		YSW01810	KD0130
Construct U-channels and Catchpits (Phase 2)	30	100	29/11/12 A	22/12/12 A	29/11/12 A	22/12/12 A		YSW01800	KD0130, YSW01805
Section W 2 - YSW STW & Submarine Outfall									
Civil & Structural Work									
Mobilization	30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A		KD0020	YSW0422
Site Clearance	30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A		KD0020, YSW0412	YSW0432, YSW0500, YSW0610, YSW0650
Initial Survey	14	100	02/06/10 A	15/06/10 A	02/06/10 A	15/06/10 A		YSW0422	YSW0510
YSW STW - GL H - T									
ELS & Excavation for Inlet Pumping Station	105	100	08/09/10 A	21/12/10 A	08/09/10 A	21/12/10 A		YSW0035, YSW0422	YSW0510
Sub-structure construction (Inlet Pumping Stn)	129	100	22/12/10 A	29/04/11 A	22/12/10 A	29/04/11 A		YSW0432, YSW0500	YSW0520
Backfill & Remove ELS (Inlet Pumping Stn)	40	100	30/04/11 A	08/06/11 A	30/04/11 A	08/06/11 A		YSW0510	YSW05701
ELS & Excavation for Equalization Tank	159	100	01/01/11 A	08/06/11 A	01/01/11 A	08/06/11 A		YSW0660	YSW0540, YSW05701
Sub-structure construction (Equalization Tank)	112	100	09/06/11 A	28/09/11 A	09/06/11 A	28/09/11 A		YSW0530	YSW0550, YSW05901
Backfilling & Remove ELS (Equalization Tank)	20	100	29/09/11 A	18/10/11 A	29/09/11 A	18/10/11 A		YSW0540	YSW05901
ELS & Excavation for Grit Chambers	28	100	09/06/11 A	06/07/11 A	09/06/11 A	06/07/11 A		YSW0520, YSW0530	YSW05711, YSW05731
Construct sub-structure for Grit Chambers	106	100	07/07/11 A	20/10/11 A	07/07/11 A	20/10/11 A		YSW05701	YSW05721, YSW05911
Backfill & Remove ELS for Grit Chambers	12	100	21/10/11 A	01/11/11 A	21/10/11 A	01/11/11 A		YSW05711	YSW05911
ELS & Excavation for Grease Separators (GS)	34	100	07/07/11 A	09/08/11 A	07/07/11 A	09/08/11 A		YSW05701	YSW05741
Construct sub-structure for Grease Separators	52	100	10/08/11 A	30/09/11 A	10/08/11 A	30/09/11 A		YSW05731	YSW05751
Install Dia.400 Puddles in Grease Separators	27	100	01/10/11 A	27/10/11 A	01/10/11 A	27/10/11 A		YSW05741	YSW05752
Construct sub-structure for GS (above puddles)	48	100	28/10/11 A	14/12/11 A	28/10/11 A	14/12/11 A		YSW05751	YSW05761
Backfill & remove ELS for Grease Separators	10	100	15/12/11 A	24/12/11 A	15/12/11 A	24/12/11 A		YSW05752	YSW0580, YSW05921
Excavate to Formation for Deodorizer Room	10	100	25/12/11 A	03/01/12 A	25/12/11 A	03/01/12 A		YSW05761	YSW05801, YSW05922
Excavate to formation - Grid J-N/5-7	40	100	04/01/12 A	12/02/12 A	04/01/12 A	12/02/12 A		YSW0580	YSW05802, YSW05923
Excavate to formation - Grid GA-H/5-7	10	100	13/02/12 A	22/02/12 A	13/02/12 A	22/02/12 A		YSW05801	YSW05924
G/F to 1/F Construction Grid GA-K/1-5	90	100	29/09/11 A	27/12/11 A	29/09/11 A	27/12/11 A		YSW0540, YSW0550	YSW06001
G/F to 1/F Construction Grid N-S/1-5	80	100	21/10/11 A	08/01/12 A	21/10/11 A	08/01/12 A		YSW05711, YSW05721	YSW06011, YSW06035
G/F to 1/F Construction Grid K-N/1-5	45	100	25/12/11 A	07/02/12 A	25/12/11 A	07/02/12 A		YSW05761	YSW06021
G/F to 1/F Construction for Deodorizer Room	80	100	04/01/12 A	23/03/12 A	04/01/12 A	23/03/12 A		YSW0580	YSW06022
G/F to 1/F Construction for Grid J-N/5-7	60	100	13/02/12 A	12/04/12 A	13/02/12 A	12/04/12 A		YSW05801	E&M0530, E&M0540, E&M0550, E&M0560,
G/F to 1/F Construction for Grid GA-H/5-7	50	100	28/05/12 A	16/07/12 A	28/05/12 A	16/07/12 A		YSW05802, YSW06023	YSW06034
1/F to Roof Constuction for Grid GA-K/1-5	87	100	28/12/11 A	23/03/12 A	28/12/11 A	23/03/12 A		YSW05901	YSW0800
1/F to Roof Constuction for Grid N-S/1-5	75	100	09/01/12 A	23/03/12 A	09/01/12 A	23/03/12 A		YSW05911	YSW0800
1/F to Roof Constuction for Grid K-N/1-5	44	100	08/02/12 A	22/03/12 A	08/02/12 A	22/03/12 A		YSW05921	YSW07201
1/F to Roof Constuction for Deodorizer Room	60	100	24/03/12 A	22/05/12 A	24/03/12 A	22/05/12 A		YSW05922	YSW0800
1/F to Roof Constuction for Grid J-N/5-7	45	100	13/04/12 A	27/05/12 A	13/04/12 A	27/05/12 A		YSW05923	E&M0580, YSW05924
1/F to Roof Constuction for Grid GA-H/5-7	28	100	27/07/12 A	13/08/12 A	27/07/12 A	13/08/12 A		YSW05924	YSW0800
Construct buffle walls in Grease Separators	90	100	18/04/12 A	16/07/12 A	18/04/12 A	16/07/12 A		YSW05911	YSW07204
Water tightness test for Inlet Pumping Station	60	100	23/03/12 A	21/05/12 A	23/03/12 A	21/05/12 A		YSW06021	YSW07202, YSW0800
Water tightness test for Equalization Tanks	42	100	22/05/12 A	02/07/12 A	22/05/12 A	02/07/12 A		YSW07201	E&M0600, YSW07203, YSW0800
Water tightness test for Grit Chambers	42	100	17/09/12 A	29/09/12 A	17/09/12 A	29/09/12 A		YSW07202	YSW07204, YSW0800
Water tightness test for Grease Separators	32	100	03/10/12 A	31/10/12 A	03/10/12 A	31/10/12 A		YSW06035, YSW07203	E&M0570, YSW07205, YSW0800
Water tightness test for water channels	21	0	30/06/13	23/07/13	07/06/14	30/06/14	342d	YSW07204	YSW0800
ABWF installation	271	95	03/07/12 A	13/07/13	03/07/12 A	16/06/14	339d	YSW06001, YSW06011, YSW06022,	KD0040
YSW STW - GL T - X									
Excavate to formation	10	100	08/09/10 A	17/09/10 A	08/09/10 A	17/09/10 A		YSW0035, YSW0422	YSW0620
Base slab construction	248	100	18/09/10 A	23/05/11 A	18/09/10 A	23/05/11 A		YSW0610	YSW0630
G/F to 1/F construction	205	100	24/05/11 A	14/12/11 A	24/05/11 A	14/12/11 A		YSW0620	YSW0640



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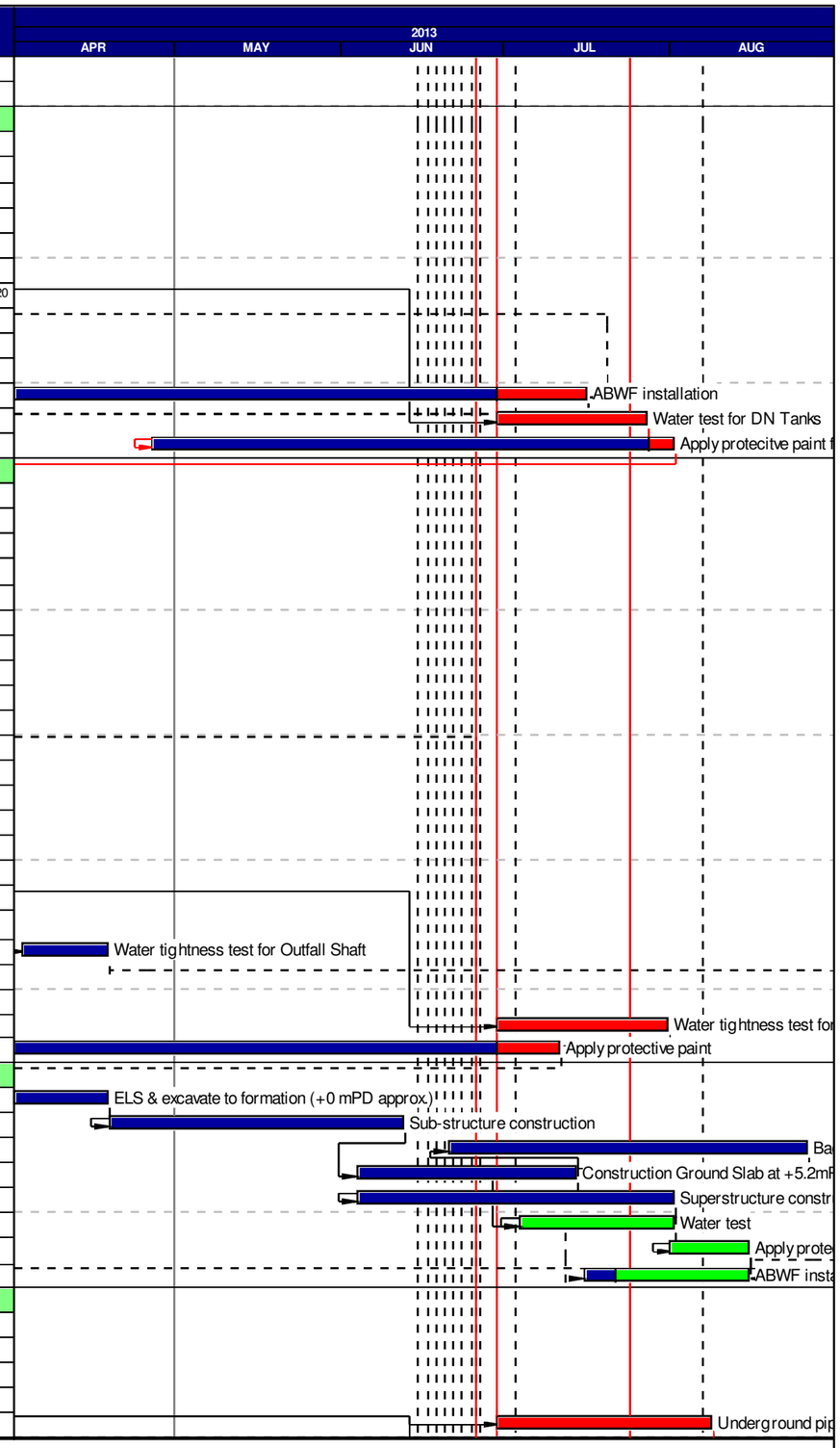
Leader Civil Engineering Corp. Ltd.
Contract No. DC/2009/13
Construction of Sewage Treatment Works at YSW & SKW
3-month Rolling Programme (July 2013 - Sep 2013

Date	Revision	Checked	Approved
30/05/13	Revision 0	RH	VC

Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors
1/F to Roof Construction	64	100	15/12/11 A	16/02/12 A	15/12/11 A	16/02/12 A		YSW0630	YSW0810
ABWF installation	80	100	28/12/11 A	16/03/12 A	28/12/11 A	16/03/12 A		YSW0640	E&M0610, E&M0620, E&M0630, E&M0640
YSW STW - GL F - H & DN Tanks									
ELS & Excavation for DN Tanks	37	100	08/09/10 A	14/10/10 A	08/09/10 A	14/10/10 A		YSW0035, YSW0422	YSW0660
Sub-struction construction (DN Tanks)	78	100	15/10/10 A	31/12/10 A	15/10/10 A	31/12/10 A		YSW0650	YSW0530, YSW0670
Backfill & Remove ELS (DN Tanks)	70	100	01/01/11 A	11/03/11 A	01/01/11 A	11/03/11 A		YSW0660	YSW0680
Base slab construction (SD1, SD2 & MBR4)	17	100	12/03/11 A	28/03/11 A	12/03/11 A	28/03/11 A		YSW0670	YSW0690
Construct Superstructure SD1, SD2 & MBR4	82	100	29/03/11 A	18/06/11 A	29/03/11 A	18/06/11 A		YSW0680	YSW0710, YSW0820
Construct Superstructure of DN Tanks	28	100	15/05/12 A	11/06/12 A	15/05/12 A	11/06/12 A		YSW0735	YSW0830
Water test for MBR 4	47	100	01/10/12 A	16/11/12 A	01/10/12 A	16/11/12 A		YSW0710	E&M0510, E&M0640, YSW07055, YSW0820
Water test for SD1 & SD2	54	100	17/11/12 A	10/01/13 A	17/11/12 A	10/01/13 A		YSW0705, YSW07105	E&M0610
Apply protective paint for MBR 4	7	100	24/09/12 A	30/09/12 A	24/09/12 A	30/09/12 A		YSW0690	YSW0705, YSW07105
Apply protective paint for SD1 & SD2	7	100	01/10/12 A	07/10/12 A	01/10/12 A	07/10/12 A		YSW0710	YSW07055
ABWF installation	34	50	15/01/13 A	16/07/13	15/01/13 A	17/01/13	-180d	YSW0690, YSW0705	E&M0630, E&M0640
Water test for DN Tanks	28	0	30/06/13	27/07/13	21/02/13	20/03/13	-129d	YSW06901	YSW0850
Apply protecitve paint for DN Tanks	6	25	27/04/13 A	01/08/13	27/04/13 A	25/03/13	-129d	YSW0830	E&M0610
YSW STW - GL A - F									
Completion of HDD	0	100	21/01/12 A		21/01/12 A			YSW03601, YSW03605	YSW0732
Excavate for MBR 2 & 3	20	100	21/01/12 A	09/02/12 A	21/01/12 A	09/02/12 A		YSW0730	YSW0733
Construct basement of MBR 2 & 3	20	100	10/02/12 A	29/02/12 A	10/02/12 A	29/02/12 A		YSW0732	YSW0735, YSW0740
Construct superstructure of MBR 2	75	100	01/03/12 A	14/05/12 A	01/03/12 A	14/05/12 A		YSW0733	YSW06901, YSW0736, YSW08302,
Construct superstructure of MBR 3	100	100	15/05/12 A	14/05/12 A	15/05/12 A	14/05/12 A		YSW0735	YSW08302, YSW08305
ELS & excavate for Outfall Shaft	75	100	01/03/12 A	14/05/12 A	01/03/12 A	14/05/12 A		YSW0733	YSW0750
Construct basement of Outfall Shaft	19	100	15/05/12 A	02/06/12 A	15/05/12 A	02/06/12 A		YSW0740	YSW07501
Connect additional flange to HDPE pipe (VO 042)	5	100	03/06/12 A	07/06/12 A	03/06/12 A	07/06/12 A		YSW0750	YSW07502
Construct sub-structure of Outfall Shaft	16	100	08/06/12 A	23/06/12 A	08/06/12 A	23/06/12 A		YSW07501	YSW0760
Backfill & remove ELS (outfall shaft)	8	100	24/06/12 A	01/07/12 A	24/06/12 A	01/07/12 A		YSW07502	YSW01800, YSW07601, YSW07603,
Construct superstructure for Outfall Shaft	30	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		YSW0760	YSW08301, YSW08305
ELS & excavate for FSH Water Supply Tank	25	100	01/06/12 A	25/06/12 A	01/06/12 A	25/06/12 A		YSW0760	YSW07604
Construct substructure for FSH Water Supply Tank	24	100	26/06/12 A	19/07/12 A	26/06/12 A	19/07/12 A		YSW07603	YSW07605
Backfill & remove ELS for FSH Water Supply Tank	12	100	20/07/12 A	31/07/12 A	20/07/12 A	31/07/12 A		YSW07604	YSW07607
Construct basement of MBR 1 & Workshop	24	100	01/08/12 A	24/08/12 A	01/08/12 A	24/08/12 A		YSW07605	YSW07608, YSW07609
Construct superstructure for FSH Water Supply Tk	37	100	25/08/12 A	30/09/12 A	25/08/12 A	30/09/12 A		YSW07607	YSW08304, YSW08305
Construct superstructure for MBR 1	37	100	25/08/12 A	30/09/12 A	25/08/12 A	30/09/12 A		YSW07607	YSW07610, YSW08303, YSW1470
Construct Workshop, FSSH Pump Rm, PW Pump Rm	31	100	03/10/12 A	31/10/12 A	03/10/12 A	31/10/12 A		YSW07609	YSW0840, YSW16606, YSW16607,
Water tightness test for Outfall Shaft	42	100	03/04/13 A	18/04/13 A	03/04/13 A	18/04/13 A		YSW0380, YSW07601	E&M0690
Water tightness test for MBR 2 & 3	95	100	03/07/12 A	05/10/12 A	03/07/12 A	05/10/12 A		YSW0735, YSW0736	E&M0520, E&M0590, E&M0605, E&M0650
Water tightness test for MBR 1	19	100	30/11/12 A	18/12/12 A	30/11/12 A	18/12/12 A		YSW07609	E&M0520
Water tightness test for FSH Water Supply Tank	32	0	30/06/13	31/07/13	21/02/13	25/03/13	-129d	YSW07608	E&M0610
Apply protective paint	120	90	02/10/12 A	11/07/13	02/10/12 A	25/03/13	-109d	YSW0735, YSW0736, YSW07601,	E&M0610
Fire Hose Reel / Sprinkler Pump Rm									
ELS & excavate to formation (+0 mPD approx.)	40	100	25/02/13 A	18/04/13 A	25/02/13 A	18/04/13 A		YSW07610, YSW16606	YSW0860
Sub-structure construction	40	100	19/04/13 A	12/06/13 A	19/04/13 A	12/06/13 A		YSW0840	YSW0890
Backfill & remove ELS	35	100	21/06/13 A	26/08/13 A	21/06/13 A	26/08/13 A		YSW0890	YSW0910
Construction Ground Slab at +5.2mPD	40	100	04/06/13 A	14/07/13 A	04/06/13 A	14/07/13 A		YSW0860	YSW0880, YSW0900
Superstructure construction upto +9.2mPD	35	100	04/06/13 A	01/08/13 A	04/06/13 A	01/08/13 A		YSW0890	YSW0910, YSW0925
Water test	28	0	04/07/13	01/08/13	03/08/13	31/08/13	30d	YSW0880, YSW0900	YSW0915
Apply protective paint	14	0	01/08/13	15/08/13	31/08/13	14/09/13	30d	YSW0910	E&M0640, YSW0925
ABWF installation	30	20	16/07/13 A	15/08/13	16/07/13 A	16/06/14	306d	YSW0900, YSW0915	KD0040
Emergency Storage Tank									
ELS & excavate to formation (-1.5mPD Approx.)	16	100	17/09/12 A	02/10/12 A	17/09/12 A	02/10/12 A		YSW07609	YSW1480
Sub-structure construction	14	100	03/10/12 A	16/10/12 A	03/10/12 A	16/10/12 A		YSW1470	YSW1490
Backfill & extract sheetpile	3	100	17/10/12 A	19/10/12 A	17/10/12 A	19/10/12 A		YSW1480	YSW1500
Superstructure construction upto +10.5mPD	41	100	20/10/12 A	29/11/12 A	20/10/12 A	29/11/12 A		YSW1490	YSW1530, YSW1536
Underground pipeline works	40	0	30/06/13	08/08/13	22/04/13	01/06/13	-68d	YSW1500	E&M0690, YSW1680



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c Primavera Systems, Inc.	

Early bar
Progress bar
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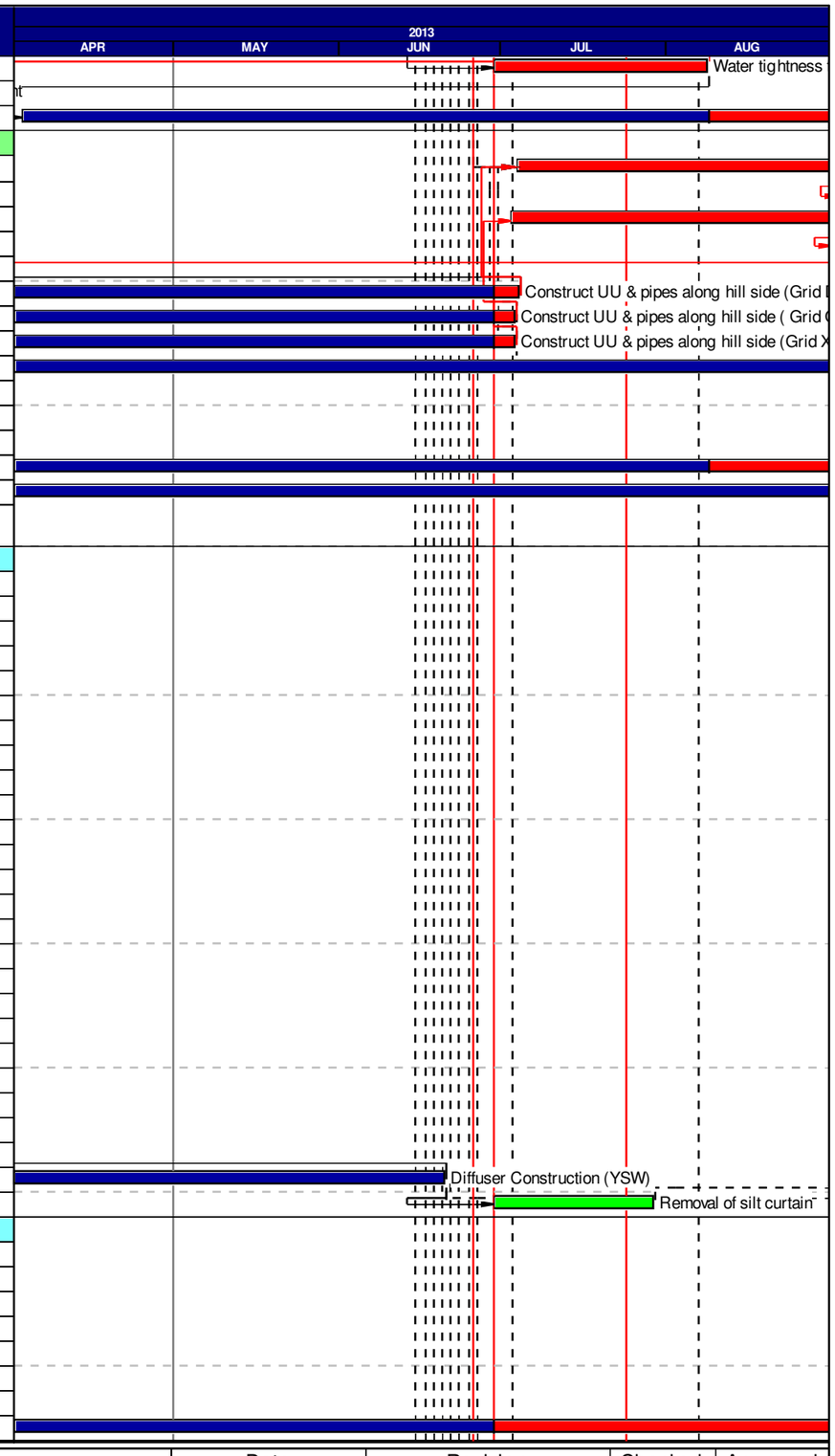
Start milestone point
Finish milestone point

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

Date	Revision	Checked	Approved
30/05/13	Revision 0	RH	VC

Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors
Water tightness test	40	0	30/06/13	08/08/13	27/03/13	06/05/13	-94d	YSW1500	YSW1538
Apply protective paint	30	100	04/03/13 A	05/03/13 A	04/03/13 A	05/03/13 A		YSW1536	YSW1540
ABWF installation	40	35	03/04/13 A	03/09/13	03/04/13 A	01/06/13	-94d	YSW1538	E&M0690
Road, Drain, Cable Draw Pits & Ducting									
ELS & excavate 6m deep sewer (FM1 - YFMH13)	60	0	04/07/13	02/09/13	20/01/13	21/03/13	-165d	YSW0760, YSW16606, YSW16607,	YSW16602
Lay pipe & backfill 6m deep sewer (FM1 - YFMH13)	45	0	02/09/13	17/10/13	21/03/13	05/05/13	-165d	YSW16601	E&M0680, YSW1700
Construct UU & pipes along sea side (Grid Q-X)	60	0	03/07/13	01/09/13	24/03/13	22/05/13	-102d	YSW16607, YSW16608	YSW16604, YSW16703
Construct UU & pipes along sea side (Grid XA-D)	60	0	01/09/13	31/10/13	23/05/13	21/07/13	-102d	YSW16603	YSW16605, YSW16701
Construct UU & pipes along sea side (Grid D-Q)	60	0	31/10/13	30/12/13	22/07/13	19/09/13	-102d	YSW16604	YSW16702, YSW1700
Construct UU & pipes along hill side (Grid D-Q)	90	95	10/10/12 A	04/07/13	10/10/12 A	20/01/13	-165d	YSW07610	YSW0840, YSW16601
Construct UU & pipes along hill side (Grid Q-X)	72	95	20/08/12 A	03/07/13	20/08/12 A	20/01/13	-164d	YSW07610	YSW16601, YSW16603
Construct UU & pipes along hill side (Grid XA-D)	72	95	30/11/12 A	03/07/13	30/11/12 A	20/01/13	-164d	YSW07610	YSW16601, YSW16603, YSW1690
Construct Boundary Wall (Grid XA-D)	80	90	10/01/13 A	08/11/13	10/01/13 A	19/09/13	-50d	YSW16604	YSW16702
Construct Boundary Wall (Grid D-Q)	80	0	30/12/13	20/03/14	20/09/13	08/12/13	-102d	YSW16605, YSW16701	YSW16703
Construct Boundary Wall (Grid Q-X)	80	0	20/03/14	08/06/14	09/12/13	26/02/14	-102d	YSW16603, YSW16702	YSW16704, YSW1700
ABWF installation for Boundary Wall	240	0	30/12/13	27/08/14	20/10/13	16/06/14	-72d	YSW16703	KD0040
Fire Hydrant & pipeline installation	120	40	26/01/13 A	19/10/13	26/01/13 A	14/10/13	-5d	YSW1530	YSW1690, YSW1700
Construction of Road Kerbs, Downpipes, U-channel	180	25	02/01/13 A	03/03/14	02/01/13 A	26/02/14	-5d	YSW16608, YSW1680	YSW1700
Road Paving	110	0	08/06/14	26/09/14	27/02/14	16/06/14	-102d	YSW16602, YSW16605, YSW16703, YSW1680, YSW1690	KD0040
Submarine Outfall									
Coordination of HEC	53	100	17/05/10 A	08/07/10 A	17/05/10 A	08/07/10 A		KD0020	YSW0350
Submission and Approval of Ecologist	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A		KD0020	YSW0210
Ecology Survey	211	100	16/07/10 A	11/02/11 A	16/07/10 A	11/02/11 A		YSW0200	YSW0350
Submission and Approval of In. Hydro Survey	103	100	17/05/10 A	27/08/10 A	17/05/10 A	27/08/10 A		KD0020	YSW0230
Hydrogrophical Survey (YSW)	157	100	28/08/10 A	31/01/11 A	28/08/10 A	31/01/11 A		YSW0220	YSW0350
Material Submission, Approval of HDPE pipe	319	100	17/05/10 A	31/03/11 A	17/05/10 A	31/03/11 A		KD0020	YSW0360
Clarify Coordinate of Point Y (Reply of RFI 010)	83	100	28/06/10 A	18/09/10 A	28/06/10 A	18/09/10 A		KD0020	YSW0250
Submit and Approval of Method Statement for HDD	188	100	19/09/10 A	25/03/11 A	19/09/10 A	25/03/11 A		YSW02401	YSW0260, YSW0270, YSW0340
Submission of HDD Method Statement to HEC	14	100	26/03/11 A	08/04/11 A	26/03/11 A	08/04/11 A		YSW0250	YSW0340
Additional G.I. Boreholes (YSW)	123	100	19/09/10 A	19/01/11 A	19/09/10 A	19/01/11 A		YSW0250	YSW0280, YSW0290
Submission of propose alignment	44	100	20/01/11 A	04/03/11 A	20/01/11 A	04/03/11 A		YSW0270	YSW0310, YSW0340
Submission of Marine Notice	69	100	20/01/11 A	29/03/11 A	20/01/11 A	29/03/11 A		YSW0270	YSW0350
Construction of Entry Pit and Preparation Work	27	100	05/03/11 A	31/03/11 A	05/03/11 A	31/03/11 A		YSW0280	YSW0320
Prepare of HDD Drill Rig Set-up (YSW)	28	100	01/04/11 A	28/04/11 A	01/04/11 A	28/04/11 A		YSW0310	YSW0330, YSW0350
Establishment of HDD plant & equipment	6	100	09/04/11 A	14/04/11 A	09/04/11 A	14/04/11 A		YSW0320	YSW0340
Setting up at drillhole location	14	100	15/04/11 A	28/04/11 A	15/04/11 A	28/04/11 A		YSW0250, YSW0260, YSW0280,	YSW0350
Drill pilot hole and reaming hole - NS400 - 530m	229	100	29/04/11 A	13/12/11 A	29/04/11 A	13/12/11 A		YSW0040, YSW0180, YSW0210,	YSW0360
Installation of NS400 HDPE 530m	17	100	14/12/11 A	30/12/11 A	14/12/11 A	30/12/11 A		YSW0240, YSW0350	SKW1181, YSW03601, YSW03620,
Demobilization of HDD plant & equipment	7	100	31/12/11 A	06/01/12 A	31/12/11 A	06/01/12 A		YSW0360	YSW03605, YSW03641, YSW0730
Remove Entry pit of HDD	14	100	07/01/12 A	20/01/12 A	07/01/12 A	20/01/12 A		YSW03601	YSW0730
Removal of Receiving Pit	14	100	31/12/11 A	13/01/12 A	31/12/11 A	13/01/12 A		YSW0360	YSW0365
Prepare backfilling material under VO 046A	120	100	07/01/12 A	05/05/12 A	07/01/12 A	05/05/12 A		YSW03601	YSW0365
Set up of Silt Curtain as per EP	2	100	23/11/12 A	24/11/12 A	23/11/12 A	24/11/12 A		SKW1431, YSW03620, YSW03641	YSW0370
Dredging of Marine Deposit for Diffuser (YSW)	5	100	24/11/12 A	29/11/12 A	24/11/12 A	29/11/12 A		YSW0360, YSW0365	YSW0380
Diffuser Construction (YSW)	60	100	30/11/12 A	20/06/13 A	30/11/12 A	20/06/13 A		YSW0370	E&M0690, YSW0400, YSW08301
Removal of silt curtain	30	0	30/06/13	29/07/13	18/05/14	16/06/14	322d	YSW0380	KD0040
E&M Works - YSW STW									
Delivery of MBR Memb. Mod. (MBR Tk 4)	118	100	24/02/11 A	21/06/11 A	24/02/11 A	21/06/11 A		E&M0160	E&M0510
Delivery of MBR Membrane Modules - 2nd Shipment	236	100	24/02/11 A	17/10/11 A	24/02/11 A	17/10/11 A		E&M0160	E&M0520
Delivery of Grit Removal Equipment	81	100	10/10/11 A	29/12/11 A	10/10/11 A	29/12/11 A		E&M0150	E&M0530
Delivery of Coarse Screens	129	100	06/09/11 A	12/01/12 A	06/09/11 A	12/01/12 A		E&M0110	E&M0540
Delivery of Fine Screens	80	100	12/09/11 A	30/11/11 A	12/09/11 A	30/11/11 A		E&M0120	E&M0550
Delivery of Pumps	75	100	23/06/11 A	05/09/11 A	23/06/11 A	05/09/11 A		E&M0130	E&M0560
Delivery of Submersible Mixers	230	100	26/02/11 A	26/02/11 A	26/02/11 A	26/02/11 A		E&M0140	E&M0570
Delivery of Sludge Dewatering Equipment	558	70	31/08/11 A	14/12/13	31/08/11 A	12/08/13	-124d	E&M0170	E&M0580



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3-month Rolling Programme (July 2013 - Sep 2013

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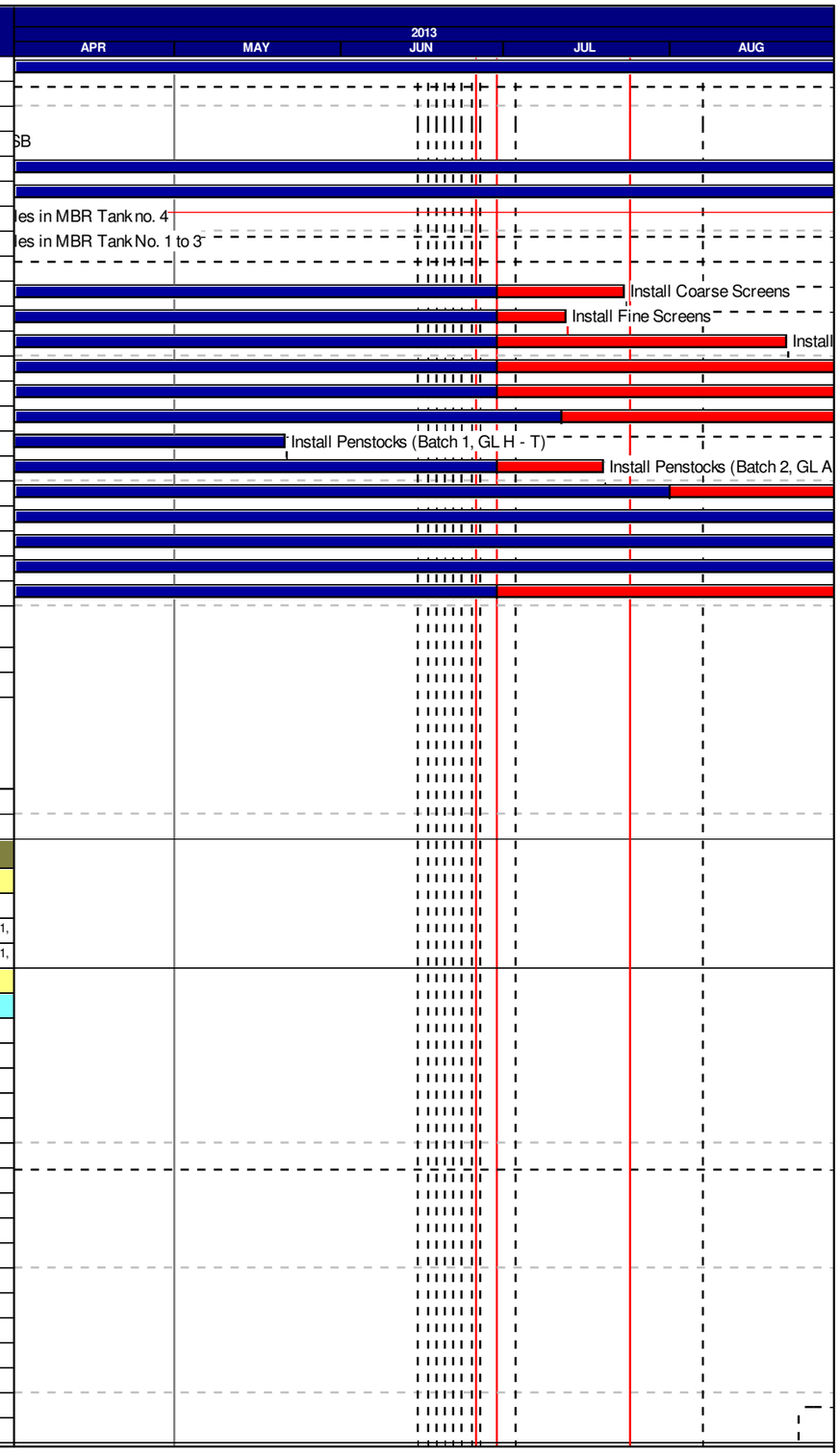
Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors
Delivery of Valves, Pipes & Fittings	560	90	30/08/11 A	26/01/14	30/08/11 A	02/12/13	-55d	E&M0180	E&M0590
Delivery of Penstocks	135	100	12/08/11 A	24/12/11 A	12/08/11 A	24/12/11 A		E&M0190	E&M0600, E&M0605
Delivery of Instruments	232	100	03/11/11 A	21/06/11 A	03/11/11 A	21/06/11 A		E&M0200	E&M0610
Delivery of MCC LVSB	90	100	03/12/12 A	04/03/13 A	03/12/12 A	04/03/13 A		E&M0210	E&M0620
Delivery of BS Equipment	446	65	10/12/11 A	17/09/14	10/12/11 A	16/06/13	-458d	E&M0220	E&M0630
Delivery FS Equipment	507	25	11/12/11 A	11/05/15	11/12/11 A	18/05/13	-723d	E&M0230	E&M0330, E&M0640
Install Membrane Modules in MBR Tank no. 4	89	100	03/11/12 A	28/02/13 A	03/11/12 A	28/02/13 A		E&M0360, YSW0705	E&M0690
Install Membrane Modules in MBR Tank No. 1 to 3	57	100	03/12/12 A	28/02/13 A	03/12/12 A	28/02/13 A		E&M0370, YSW08302, YSW08303	E&M0690
Install Grit Removal Equipment	122	100	01/06/12 A	30/09/12 A	01/06/12 A	30/09/12 A		E&M0380, YSW05923	E&M0590, E&M0660
Install Coarse Screens	240	90	23/04/12 A	23/07/13	23/04/12 A	26/04/13	-89d	E&M0390, YSW05923	E&M0660
Install Fine Screens	122	90	01/06/12 A	12/07/13	01/06/12 A	06/04/13	-97d	E&M0400, YSW05923	E&M0590, E&M0660
Install Pumps	355	85	23/04/12 A	22/08/13	23/04/12 A	26/04/13	-118d	E&M0410, YSW05923	E&M0660
Install Submersible Mixers	163	50	15/01/13 A	19/09/13	15/01/13 A	26/04/13	-146d	E&M0420, YSW07204	E&M0660, E&M0690
Install Sludge Dewatering Equipment	361	40	29/05/12 A	01/02/14	29/05/12 A	02/06/13	-244d	E&M0440, YSW06023	E&M0690
Install Valves, Pipes & Fittings	232	75	15/01/13 A	08/09/13	15/01/13 A	03/06/13	-97d	E&M0450, E&M0530, E&M0550,	E&M0650, E&M0690
Install Penstocks (Batch 1, GL H - T)	213	100	23/04/12 A	21/05/13 A	23/04/12 A	21/05/13 A		E&M0460, YSW07202	E&M0690
Install Penstocks (Batch 2, GL A - F)	131	85	02/01/13 A	19/07/13	02/01/13 A	01/06/13	-48d	E&M0460, YSW08302	E&M0690
Install Instruments	74	5	02/01/13 A	10/10/13	02/01/13 A	03/06/13	-129d	E&M0470, YSW07055, YSW0810,	E&M0690
Install SAT, MCC & LVSB	8	100	02/01/13 A	02/01/15 A	02/01/13 A	02/01/15 A		E&M0480, YSW0810	E&M0660, E&M0680
Install BS Equipment	180	55	02/01/13 A	08/10/14	02/01/13 A	07/07/13	-458d	E&M0490, YSW0810, YSW0820	E&M0690
Install FS Equipment	180	5	02/01/13 A	30/06/15	02/01/13 A	07/07/13	-723d	E&M0500, YSW0705, YSW0810,	E&M0690
Hydraulic Tests of Pipeworks	153	40	02/01/13 A	29/09/13	02/01/13 A	08/06/13	-113d	E&M0590, YSW08302	E&M0690
Cabling Works	15	30	04/02/15 A	12/03/15	04/02/15 A	06/05/13	-675d	E&M0530, E&M0540, E&M0550, E&M0560, E&M0570, E&M0620	E&M0670
Insulation Tests of Cables and Cable Termination	26	0	13/03/15	07/04/15	06/05/13	01/06/13	-675d	E&M0320, E&M0325, E&M0660,	E&M0690
Energization	1	0	02/03/15 *	03/03/15	05/05/13	06/05/13	-666d	E&M0305, E&M0325, E&M0620,	E&M0670
Functional and Performance Tests of Equipment	35	25	25/03/15 A	20/06/15	25/03/15 A	27/06/13 *	-723d	E&M0510, E&M0520, E&M0570, E&M0580, E&M0590, E&M0600, E&M0605, E&M0610, E&M0630, E&M0640, E&M0650, E&M0670, YSW0380, YSW08301, YSW1530, YSW1540	E&M0700
T&C Period	137	0	21/06/15	04/11/15	12/12/13	27/04/14	-556d	E&M0330, E&M0690	E&M0730, KD0040
Trial Operation Period	413	0	05/11/15	06/04/17	28/04/14	14/06/15	-556d	E&M0700	KD0132
Sok Kwu Wan									
Preliminary									
Approval of Environmental Team	16	100	17/05/10 A	01/06/10 A	17/05/10 A	01/06/10 A		KD0020	SKW0260
Baseline monitoring (Air & Noise)	14	100	02/06/10 A	15/06/10 A	02/06/10 A	15/06/10 A		SKW0250	SKW0242, SKW0265, SKW0592, SKW0681,
Baseline Monitoring Submission (A & N)	14	100	16/06/10 A	08/07/10 A	16/06/10 A	08/07/10 A		SKW0260	SKW0242, SKW0592, SKW0681, SKW0921,
Section W3 - Footpath Diversion in Portion G									
Civil & Geotechnical Works									
Site Clearance	21	100	17/05/10 A	06/06/10 A	17/05/10 A	06/06/10 A			SKW0241
Initial Survey	9	100	07/06/10 A	15/06/10 A	07/06/10 A	15/06/10 A		SKW0240	SKW0242
Retaining Wall Bay 0-10 (Incl. VO. 001A)	177	100	30/06/10 A	23/12/10 A	30/06/10 A	23/12/10 A		SKW0241, SKW0260, SKW0265	SKW0461
Utilities Laying and Diversion	70	100	24/12/10 A	03/03/11 A	24/12/10 A	03/03/11 A		SKW0242	SKW0471
Concreting for Pavement	7	100	04/03/11 A	10/03/11 A	04/03/11 A	10/03/11 A		SKW0461	SKW0481
Footpath Diversion - Stage 1	14	100	11/03/11 A	24/03/11 A	11/03/11 A	24/03/11 A		SKW0471	KD0050, SKW04811, SKW0491
Excavate for FP transition at CH0-35 &CH130-141	37	100	25/03/11 A	30/04/11 A	25/03/11 A	30/04/11 A		SKW0481	SKW04821
Construction of Drainage outfall near bay 10	3	100	01/05/11 A	03/05/11 A	01/05/11 A	03/05/11 A		SKW04811	SKW04831
Cable diversion by HEC	26	100	04/05/11 A	29/05/11 A	04/05/11 A	29/05/11 A		SKW04821	SKW04841
Diversion of Ducting and Drawpit by PCCW	12	100	20/05/11 A	31/05/11 A	20/05/11 A	31/05/11 A		SKW04831	SKW04851
Soil backfilling behind FP retaining wall	14	100	01/06/11 A	14/06/11 A	01/06/11 A	14/06/11 A		SKW04841	SKW04861
Concreting for footpath pavement	7	100	15/06/11 A	21/06/11 A	15/06/11 A	21/06/11 A		SKW04851	SKW04871
Relocation of Temp Safety Fence at SKW STW A-G	57	100	22/06/11 A	17/08/11 A	22/06/11 A	17/08/11 A		SKW04861	SKW04881
Disposal of excavation material at A-G SKW STW	138	100	18/08/11 A	02/01/12 A	18/08/11 A	02/01/12 A		SKW04871	SKW04885
Footpath Diversion - Stage 2	7	100	03/01/12 A	09/01/12 A	03/01/12 A	09/01/12 A		SKW04881	SKW1261
Removal of Haul Road after SKW STW	7	0	08/10/14	14/10/14	29/05/15	04/06/15	233d	KD0090, SKW0481, SKW1401	SKW0501
Concreting for no-fine concrete	14	0	08/10/14	21/10/14	29/05/15	11/06/15	233d	SKW0491	SKW0511



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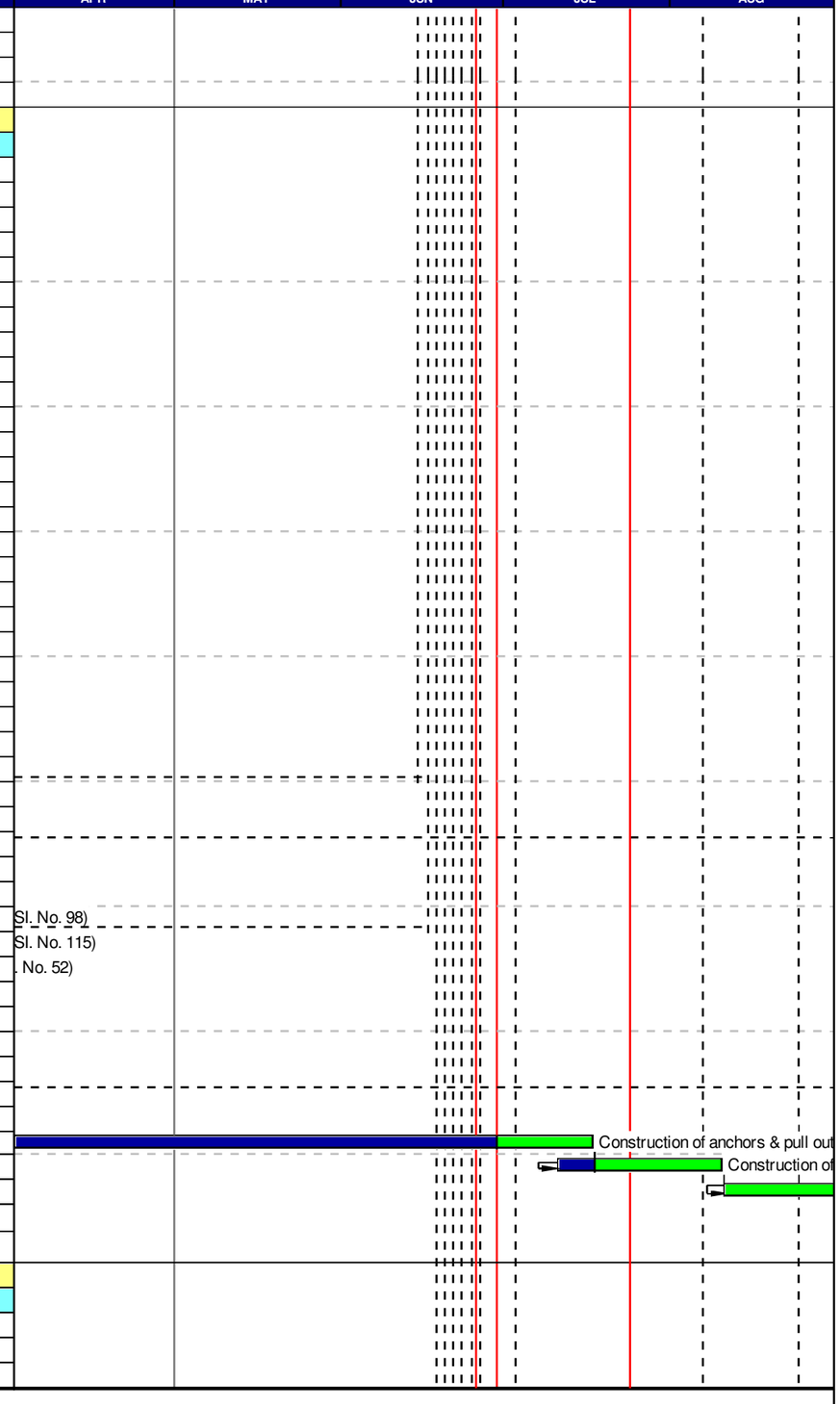
Wall Tie & Stone Facing	14	0	22/10/14	04/11/14	12/06/15	25/06/15	233d	SKW0501	SKW0521
Gabion Wall & Geotextile	30	0	05/11/14	04/12/14	26/06/15	25/07/15	233d	SKW0511	SKW0531
Installation of Flower Pot	7	0	05/12/14	11/12/14	26/07/15	01/08/15	233d	SKW0521	SKW0541
Completion of Outstanding Works	42	0	12/12/14	22/01/15	02/08/15	12/09/15	233d	SKW0531	KD0125
Section W 4 - Slope W orks in Portions H & I									
Geotechnical Works									
Construct scaffolding access	30	100	15/06/10 A	14/07/10 A	15/06/10 A	14/07/10 A		KD0020	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
Initial Survey for Slope	28	100	21/09/10 A	18/10/10 A	21/09/10 A	18/10/10 A		SKW0590	SKW0592
Temporary Rockfall fence at ex. Footpath	43	100	31/08/10 A	12/10/10 A	31/08/10 A	12/10/10 A		SKW0260, SKW0265, SKW0591	SKW05931
Construction of Haul Road (To +30mPD)	50	100	03/09/10 A	22/10/10 A	03/09/10 A	22/10/10 A		SKW0592	SKW05932
Construction of Haul Road (To +42.5mPD)	68	100	23/10/10 A	29/12/10 A	23/10/10 A	29/12/10 A		SKW05931	SKW059322
Removal of Boulders (IBG 1 - 119, SI No. 11B)	121	100	03/11/10 A	03/03/11 A	03/11/10 A	03/03/11 A			SKW059411
Add. Site Invest. Works (VO. No. 9,12 &16)	174	100	11/01/11 A	03/07/11 A	11/01/11 A	03/07/11 A		SKW05932	SKW059341
Revised Profile at West Slope (+56 to +42.5mPD)	1	100	17/03/11 A	17/03/11 A	17/03/11 A	17/03/11 A			SKW059324
Construction of Haul Road (+42.5 to +56mPD)	12	100	18/03/11 A	29/03/11 A	18/03/11 A	29/03/11 A		SKW059323	SKW059325
Removal of Boulders (IBG 120-139, SI No. 11C)	17	100	30/03/11 A	15/04/11 A	30/03/11 A	15/04/11 A		SKW059324	SKW05933
West Slope Cutting (+56mPD to +42.5mPD)	2	100	16/04/11 A	17/04/11 A	16/04/11 A	17/04/11 A		SKW059325	SKW059331
Removal of Boulders (IBG 140-189, SI No. 11D)	45	100	18/04/11 A	01/06/11 A	18/04/11 A	01/06/11 A		SKW05933	SKW05934
West Slope Cutting (+42.5mPD to +35mPD)	32	100	02/06/11 A	03/07/11 A	02/06/11 A	03/07/11 A		SKW059331	SKW059341
Revised Profile at West Slope (+20 to +4.8mPD)	1	100	04/07/11 A	04/07/11 A	04/07/11 A	04/07/11 A		SKW059322, SKW05934	SKW05935
West Slope Cutting (+35mPD to +27.5mPD)	83	100	08/07/11 A	28/09/11 A	08/07/11 A	28/09/11 A		SKW059341	SKW05936
West Slope Cutting (+27.5mPD to +20mPD)	61	100	29/09/11 A	28/11/11 A	29/09/11 A	28/11/11 A		SKW05935	SKW05937
West Slope Cutting (+20mPD to +12.5mPD)	39	100	29/11/11 A	06/01/12 A	29/11/11 A	06/01/12 A		SKW05936	SKW05938
West Slope Cutting (+12.5mPD to +4.8mPD)	90	100	07/01/12 A	27/03/12 A	07/01/12 A	27/03/12 A		SKW05937	KD0060, SKW1261, SKW1311, SKW1371
Slope Stormwater Drainage	300	100	28/03/12 A	25/05/12 A	28/03/12 A	25/05/12 A		KD0060	SKW05942
East Slope Cutting (+50mPD to +42.5mPD)	72	100	04/03/11 A	14/05/11 A	04/03/11 A	14/05/11 A		SKW059321	SKW059412
East Slope Cutting (+42.5mPD to +35mPD)	82	100	15/05/11 A	04/08/11 A	15/05/11 A	04/08/11 A		SKW059411	SKW059413
East Slope Cutting (+35mPD to +27.5mPD)	55	100	05/08/11 A	28/09/11 A	05/08/11 A	28/09/11 A		SKW059412	SKW059414
East Slope Cutting (+27.5mPD to +20mPD)	61	100	29/09/11 A	28/11/11 A	29/09/11 A	28/11/11 A		SKW059413	SKW059415
East Slope Cutting (+20mPD to +12.5mPD)	39	100	29/11/11 A	06/01/12 A	29/11/11 A	06/01/12 A		SKW059414	SKW059416
East Slope Cutting (+12.5mPD to +4.8mPD)	81	100	07/01/12 A	27/03/12 A	07/01/12 A	27/03/12 A		SKW059415	KD0060, SKW1311, SKW1371
Slope Miscellaneous Works	61	100	26/05/12 A	31/07/12 A	26/05/12 A	31/07/12 A		SKW05941	SKW05943, SKW0595
Buttress & surface Protection (SI No. 31)	60	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		SKW05942	SKW05944
Slope Treatment (SI. No. 36)	60	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		SKW05943	SKW05945
Rock Slope Treatment (SI. No. 68)	60	100	01/08/12 A	30/09/12 A	01/08/12 A	30/09/12 A		SKW05944	SKW05946
Rock Slope Treatment (SI. No. 98)	60	100	10/09/12 A	28/02/13 A	10/09/12 A	28/02/13 A		SKW05945	SKW05947
Rock Slope Treatment (SI. No. 115)	60	100	01/11/12 A	28/02/13 A	01/11/12 A	28/02/13 A		SKW05946	KD0135
Soil Nailing Works (VO. No. 52)	300	100	10/02/12 A	28/02/13 A	10/02/12 A	28/02/13 A			SKW05963
Rock Meshing	60	0	07/02/14	07/04/14	07/08/15	05/10/15	546d	SKW05942, SKW05972	KD0165
Determine Alignment & Foundation Design of RFB	120	100	10/02/12 A	08/06/12 A	10/02/12 A	08/06/12 A		SKW05948	SKW059631, SKW05964, SKW05965
GEO Approval of Foundation Design	70	100	09/06/12 A	31/07/12 A	09/06/12 A	31/07/12 A		SKW05963	SKW05968
Fabrication & Shipping of RFB Material	180	100	09/06/12 A	30/11/12 A	09/06/12 A	30/11/12 A		SKW05963	SKW05972
Site clearance & Formation of access	62	100	09/06/12 A	31/07/12 A	09/06/12 A	31/07/12 A		SKW05963	SKW05967
Plant mobilization	14	100	02/01/13 A	15/01/13 A	02/01/13 A	15/01/13 A		SKW05965	SKW05968
Construction of anchors & pull out test	180	90	16/01/13 A	17/07/13	16/01/13 A	14/01/15	546d	SKW059631, SKW05967	SKW05969
Construction of Foundation	120	80	11/07/13 A	10/08/13	11/07/13 A	07/02/15	546d	SKW05968	SKW05970
Proof Load Test	60	0	11/08/13	09/10/13	08/02/15	08/04/15	546d	SKW05969	SKW05971
Transportation of Material (To the slope crest)	30	0	10/10/13	08/11/13	09/04/15	08/05/15	546d	SKW05970	SKW05972
Installation of Flexible barrier	90	0	09/11/13	06/02/14	09/05/15	06/08/15	546d	SKW05964, SKW05971	KD0165, SKW0595
Section W 5 - P.S. No. 1 in Portion D									
Civil & Geotechnical Works									
Site Clearance	7	100	17/05/10 A	23/05/10 A	17/05/10 A	23/05/10 A		KD0020	SKW0652
Initial Survey	7	100	24/05/10 A	30/05/10 A	24/05/10 A	30/05/10 A		SKW0651	SKW0661, SKW0681
Transplantation for uncommon vegatation	30	100	31/05/10 A	29/06/10 A	31/05/10 A	29/06/10 A		SKW0652	SKW0681



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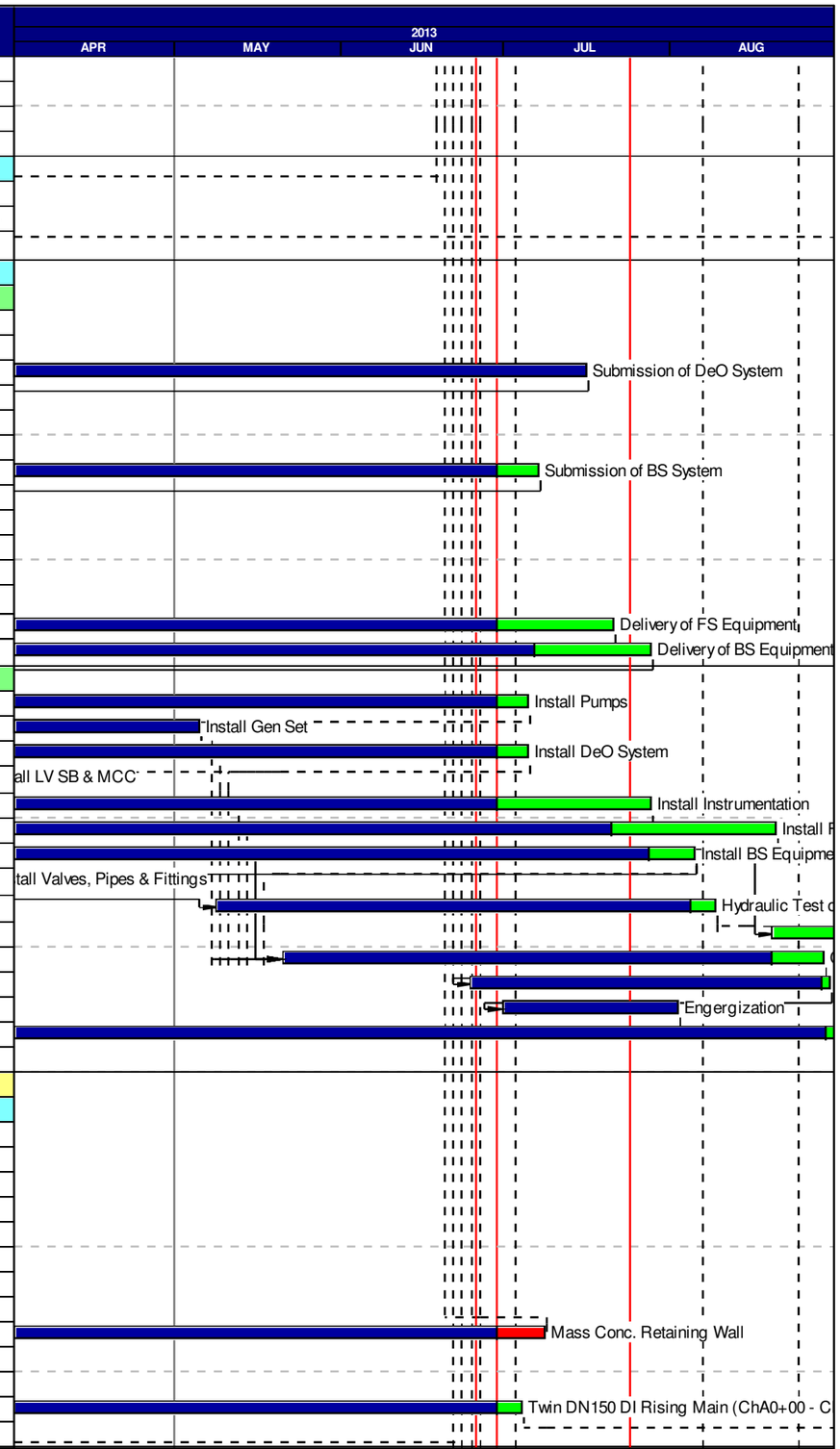
Early bar
Progress bar
Critical bar
Summary bar
Progress point
Critical point
Summary point
Start milestone point
Finish milestone point

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

Date	Revision	Checked	Approved
30/05/13	Revision 0	RH	VC

Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors
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
ELS to +2.2mPD	40	100	18/08/10 A	26/09/10 A	18/08/10 A	26/09/10 A		SKW0681	SKW0721
Excavate to formation	270	100	17/09/10 A	13/06/11 A	17/09/10 A	13/06/11 A		SKW0691	SKW0741
Construction of Manholes (VO. No. 21A)	107	80	28/10/13 A	16/12/13	28/10/13 A	08/07/14	204d	E&M11800	E&M3360
Structural Works									
RC Works for Structure	240	100	14/06/11 A	08/02/12 A	14/06/11 A	08/02/12 A		SKW0721	KD0070, SKW0841
ABWF works	60	100	09/02/12 A	08/04/12 A	09/02/12 A	08/04/12 A		SKW0741	E&M1101, E&M1102, E&M1103, E&M1104,
300mm U-channel & 675mm Step Channel	30	0	25/11/13	25/12/13	06/09/15	05/10/15	649d	E&M11800, SKW0841	KD0165
E&M Works (PS1)									
Submission & Delivery									
Submission of Pumps	198	100	17/05/10 A	24/02/11 A	17/05/10 A	24/02/11 A		KD0020	E&M1011
Submission of Gen-Set	198	100	17/05/10 A	24/02/11 A	17/05/10 A	24/02/11 A			E&M1012
Submission of DeO System	198	100	17/05/10 A	16/07/13 A	17/05/10 A	16/07/13 A			E&M1013
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
Submission of Instrumentation	243	100	17/05/10 A	12/03/12 A	17/05/10 A	12/03/12 A			E&M1015
Submission of FS System	243	100	17/05/10 A	30/09/12 A	17/05/10 A	30/09/12 A			E&M1016
Submission of BS System	243	97	17/05/10 A	07/07/13	17/05/10 A	10/02/14	219d		E&M1017
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
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
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
Delivery of LV SB & MCC	150	100	01/06/12 A	31/07/12 A	01/06/12 A	31/07/12 A		E&M1004	E&M1104
Delivery of Instrumentation	90	100	01/11/11 A	03/11/11 A	01/11/11 A	03/11/11 A		E&M1005	E&M1105
Delivery of FS Equipment	107	80	01/12/11 A	21/07/13	01/12/11 A	10/02/14	204d	E&M1006	E&M1106
Delivery of BS Equipment	107	80	15/11/11 A	28/07/13	15/11/11 A	04/03/14	219d	E&M1007	E&M1107
Installation, T&C									
Install Pumps	55	90	02/10/12 A	05/07/13	02/10/12 A	12/03/14	250d	E&M1011, SKW0841	E&M1110, E&M1140
Install Gen Set	55	100	02/10/12 A	05/05/13 A	02/10/12 A	05/05/13 A		E&M1012, SKW0841	E&M1110, E&M1140
Install DeO System	55	90	03/12/12 A	05/07/13	03/12/12 A	12/03/14	250d	E&M1013, SKW0841	E&M1110, E&M1140
Install LV SB & MCC	55	100	02/01/13 A	26/03/13 A	02/01/13 A	26/03/13 A		E&M1014, SKW0841	E&M1140
Install Instrumentation	55	48	01/11/12 A	28/07/13	01/11/12 A	12/03/14	227d	E&M1015, SKW0841	E&M1140
Install FS Equipment	55	45	02/10/12 A	20/08/13	02/10/12 A	12/03/14	204d	E&M1016, SKW0841	E&M1130, E&M1140
Install BS Equipment	55	85	02/10/12 A	05/08/13	02/10/12 A	12/03/14	219d	E&M1017, SKW0841	E&M1110, E&M1140
Install Valves, Pipes & Fittings	46	100	02/01/13 A	27/03/13 A	02/01/13 A	27/03/13 A		E&M1101, E&M1102, E&M1103,	E&M1120
Hydraulic Test of Pipeworks	7	50	09/05/13 A	09/08/13	09/05/13 A	18/04/14	252d	E&M1110	E&M11800
Form 501 Submission to FSD	28	0	20/08/13	17/09/13	21/03/14	18/04/14	213d	E&M1106	E&M11800
Cabling Works	43	80	21/05/13 A	29/08/13	21/05/13 A	21/03/14	204d	E&M1101, E&M1102, E&M1103,	E&M1150
Insulation Tests of Cables and Cable Termination	7	80	25/06/13 A	30/08/13	25/06/13 A	22/03/14	204d	E&M1140	E&M1160
Engergization	3	100	01/07/13 A	02/08/13 A	01/07/13 A	02/08/13 A		E&M1150	E&M1170
Functional and Performance Tests of Equipment	30	10	02/01/13 A	26/09/13	02/01/13 A	18/04/14	204d	E&M1160	E&M11800
Commissioning Test	60	0	26/09/13	25/11/13	18/04/14	17/06/14	204d	E&M0350, E&M1120, E&M1130,	SKW0722, SKW0861
Section W 6 - Sewer and PS No.2 in Portions E&H									
Civil & Geotechnical Works									
Site Clearance	7	100	17/05/10 A	23/05/10 A	17/05/10 A	23/05/10 A		KD0020	SKW0891
Plant mobilization	7	100	17/05/10 A	23/05/10 A	17/05/10 A	23/05/10 A		SKW0881	SKW0892
Initial Survey	30	100	24/05/10 A	22/06/10 A	24/05/10 A	22/06/10 A		SKW0891	SKW0901
Tree Transplantation	90	100	23/06/10 A	20/09/10 A	23/06/10 A	20/09/10 A		SKW0892	SKW0921
Cut Slope & U-Channel	14	100	21/09/10 A	04/10/10 A	21/09/10 A	04/10/10 A		SKW0260, SKW0265, SKW0901	SKW0931, SKW0951
Hoarding & Fencing	14	100	05/10/10 A	18/10/10 A	05/10/10 A	18/10/10 A		SKW0921	SKW0950, SKW0951
Removal of Rock Boulders before ELS	66	100	19/10/10 A	23/12/10 A	19/10/10 A	23/12/10 A		SKW0931	SKW0951
ELS & Excavate to formation	169	100	24/12/10 A	10/06/11 A	24/12/10 A	10/06/11 A		SKW0921, SKW0931, SKW0950	SKW0971
Mass Conc. Retaining Wall	90	90	16/01/13 A	08/07/13	16/01/13 A	09/02/13	-149d	SKW1081	KD0155
LCS (ChA0+45 to 1+75) VO.7	90	100	24/03/12 A	21/06/12 A	24/03/12 A	21/06/12 A		PRE0100, SKW1021	SKW15111
Twin DN150 DI Rising Main (ChA1+75 - ChA5+79)	180	100	22/06/12 A	30/11/12 A	22/06/12 A	30/11/12 A		SKW1491	SKW1531
Twin DN150 DI Rising Main (ChA0+00 - ChA0+45)	30	85	01/02/13 A	04/07/13	01/02/13 A	08/07/14	370d	SKW1581	E&M3360
Extent village sewers S163.1 & S164.1	34	100	30/11/12 A	10/01/13 A	30/11/12 A	10/01/13 A		SKW15111	SKW1581



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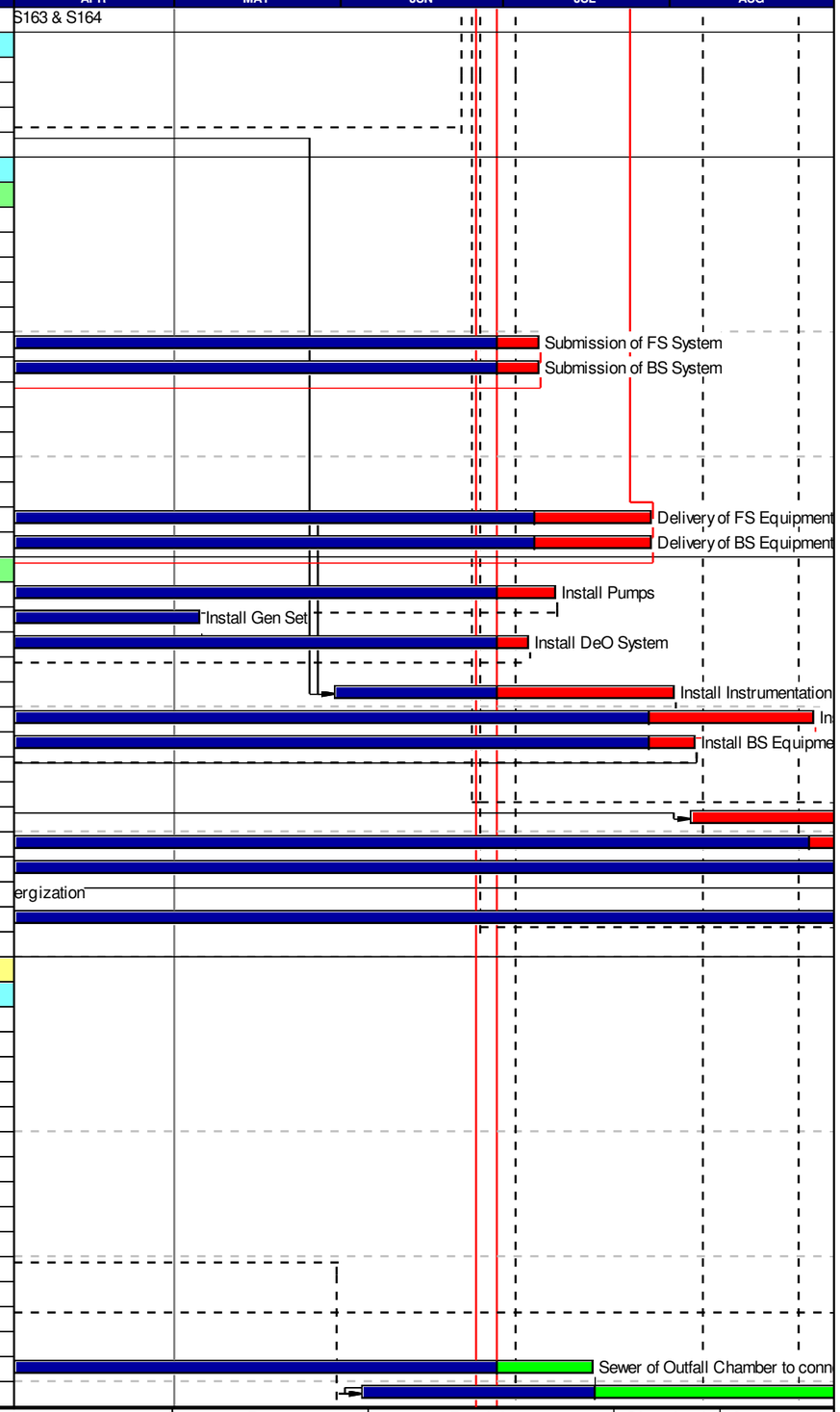
Early bar
Progress bar
Critical bar
Summary bar
Progress point
Critical point
Summary point
Start milestone point
Finish milestone point

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

Date	Revision	Checked	Approved
30/05/13	Revision 0	RH	VC

Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors
Construct Manhole no. S163 & S164	34	100	11/01/13 A	28/02/13 A	11/01/13 A	28/02/13 A		SKW1531	KD0135, SKW15112
Structural Works									
Structural Works (Phase 1)	245	100	11/06/11 A	10/02/12 A	11/06/11 A	10/02/12 A		SKW0951	KD0080, SKW1021
Structural Works (Phase 2)	42	100	11/02/12 A	23/03/12 A	11/02/12 A	23/03/12 A		SKW0971	SKW1061, SKW1081, SKW1491
ABWF Works	90	100	24/03/12 A	21/06/12 A	24/03/12 A	21/06/12 A		SKW1021	E&M2101, E&M2102, E&M2103, E&M2104,
375mm U-channel/catchpits/outfall	30	100	22/06/12 A	31/01/13 A	22/06/12 A	31/01/13 A		SKW1021, SKW1061	KD0155, SKW0961
E&M Works (PS2)									
Submission & Delivery									
Submission of Pumps	198	100	17/05/10 A	24/02/11 A	17/05/10 A	24/02/11 A		KD0020	E&M2011
Submission of Gen-Set	198	100	17/05/10 A	24/02/11 A	17/05/10 A	24/02/11 A			E&M2012
Submission of DeO System	198	100	17/05/10 A	11/07/11 A	17/05/10 A	11/07/11 A			E&M2013
Submission of LV SB & MCC	271	100	17/05/10 A	30/06/12 A	17/05/10 A	30/06/12 A			E&M2014
Submission of Instrumentation	243	100	17/05/10 A	30/06/12 A	17/05/10 A	30/06/12 A			E&M2015
Submission of FS System	243	97	17/05/10 A	07/07/13	17/05/10 A	12/09/12	-297d		E&M2016
Submission of BS System	243	97	17/05/10 A	07/07/13	17/05/10 A	04/10/12	-275d		E&M2017
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
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
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
Delivery of LV SB & MCC	150	100	29/02/12 A	31/07/12 A	29/02/12 A	31/07/12 A		E&M2004	E&M2104
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
Delivery of FS Equipment	107	80	01/12/11 A	28/07/13	01/12/11 A	04/10/12	-297d	E&M2006	E&M0350, E&M2106
Delivery of BS Equipment	107	80	15/01/11 A	28/07/13	15/01/11 A	26/10/12	-275d	E&M2007	E&M2107
Installation, T&C									
Install Pumps	55	80	02/10/12 A	10/07/13	02/10/12 A	12/01/13	-179d	E&M2011, SKW1061	E&M2110
Install Gen Set	55	100	01/09/12 A	05/05/13 A	01/09/12 A	05/05/13 A		E&M2012, SKW1061	E&M2110
Install DeO System	55	90	03/12/12 A	05/07/13	03/12/12 A	12/01/13	-174d	E&M2013, SKW1061	E&M2110
Install LV SB & MCC	55	100	02/01/13 A	31/01/13 A	02/01/13 A	31/01/13 A		E&M2014, SKW1061	E&M2140
Install Instrumentation	55	40	31/05/13 A	01/08/13	31/05/13 A	03/11/12	-271d	E&M2015, SKW1061	E&M2140
Install FS Equipment	55	45	02/10/12 A	27/08/13	02/10/12 A	03/11/12	-297d	E&M2016, SKW1061	E&M2140
Install BS Equipment	55	85	01/09/12 A	05/08/13	01/09/12 A	03/11/12	-275d	E&M2017, SKW1061	E&M2110, E&M2140
Install Valves, Pipes & Fittings	46	100	02/01/13 A	31/01/13 A	02/01/13 A	31/01/13 A		E&M2101, E&M2102, E&M2103,	E&M2120
Hydraulic Test of Pipeworks	7	100	02/01/13 A	31/01/13 A	02/01/13 A	31/01/13 A		E&M2110	E&M2130
Form 501 Submission to FSD	28	0	05/08/13	02/09/13	13/01/13	09/02/13	-205d	E&M2120	KD0155
Cabling Works	43	80	01/02/13 A	05/09/13	01/02/13 A	12/11/12	-297d	E&M2104, E&M2105, E&M2106,	E&M2150
Insulation Tests of Cables and Cable Termination	7	60	01/02/13 A	08/09/13	01/02/13 A	14/11/12	-297d	E&M2140	E&M2160
Engergization	3	100	01/02/13 A	25/03/13 A	01/02/13 A	25/03/13 A		E&M2150	E&M2170
Functional and Performance Tests of Equipment	30	10	15/01/13 A	05/10/13	15/01/13 A	11/12/12	-297d	E&M2160	E&M2180
Commissioning Test	60	0	05/10/13	04/12/13	12/12/12	09/02/13	-297d	E&M0350, E&M2170	KD0155
Section W7 - SKW STW ,Sewer and Submarine Outfall									
Submarine Outfall									
Approval of IHS Consultant	180	100	17/05/10 A	27/08/10 A	17/05/10 A	27/08/10 A			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
Baseline Monitoring (Water)	213	100	27/07/10 A	31/12/10 A	27/07/10 A	31/12/10 A		SKW0260, SKW0265	SKW1151
Set up Temporary Working Platform	90	100	15/06/11 A	30/09/11 A	15/06/11 A	30/09/11 A		PRE0090, SKW1141	SKW1171
ELS for HDD Set-up (SKW)	90	100	01/09/11 A	30/09/11 A	01/09/11 A	30/09/11 A		SKW1151	SKW1181
Mobilization of HDD plant & equipment to SKW	8	100	06/01/12 A	07/01/12 A	06/01/12 A	07/01/12 A		SKW1171, YSW0360	SKW1191
Setting up at drillhole location	7	100	09/01/12 A	14/01/12 A	09/01/12 A	14/01/12 A		SKW1181	SKW1201
Drill pilot hole and reaming hole - NS280 - 750m	33	100	16/01/12 A	16/02/12 A	16/01/12 A	16/02/12 A		SKW1191	SKW1211
Receiving Pit for HDD (SKW)	13	100	16/01/12 A	29/02/12 A	16/01/12 A	29/02/12 A		SKW1201	SKW1221
Installaiton of NS280 HDPE 450mm dia. pipe	61	100	31/03/12 A	30/04/12 A	31/03/12 A	30/04/12 A		SKW1211	KD0090, SKW1231, SKW1441
Removal of Receiving Platform	50	100	01/05/12 A	19/06/12 A	01/05/12 A	19/06/12 A		SKW1131, SKW1221	SKW1241
Dredging of MD for Diffuser (PS CL 1.122(3))	16	100	20/06/12 A	05/07/12 A	20/06/12 A	05/07/12 A		SKW1231	E&M3359, SKW1251
Diffuser Construction	77	100	01/09/12 A	16/11/12 A	01/09/12 A	16/11/12 A		SKW1241	SKW1431
Removal of silt curtain	1	100	17/11/12 A	17/11/12 A	17/11/12 A	17/11/12 A		SKW1251	KD0090, SKW1440, YSW0365
Sewer of Outfall Chamber to connection pit VO37A	90	80	31/12/12 A	17/07/13	31/12/12 A	11/04/14	268d	SKW1431	SKW1441
Sewer of Connection Pit to Outfall VO45	177	70	05/06/13 A	09/09/13	05/06/13 A	03/06/14	268d	SKW1221, SKW1440	E&M3359, KD0090



Start date	05/05/10
Finish date	06/04/17
Data date	30/06/13
Run date	18/07/13
Page number	9A
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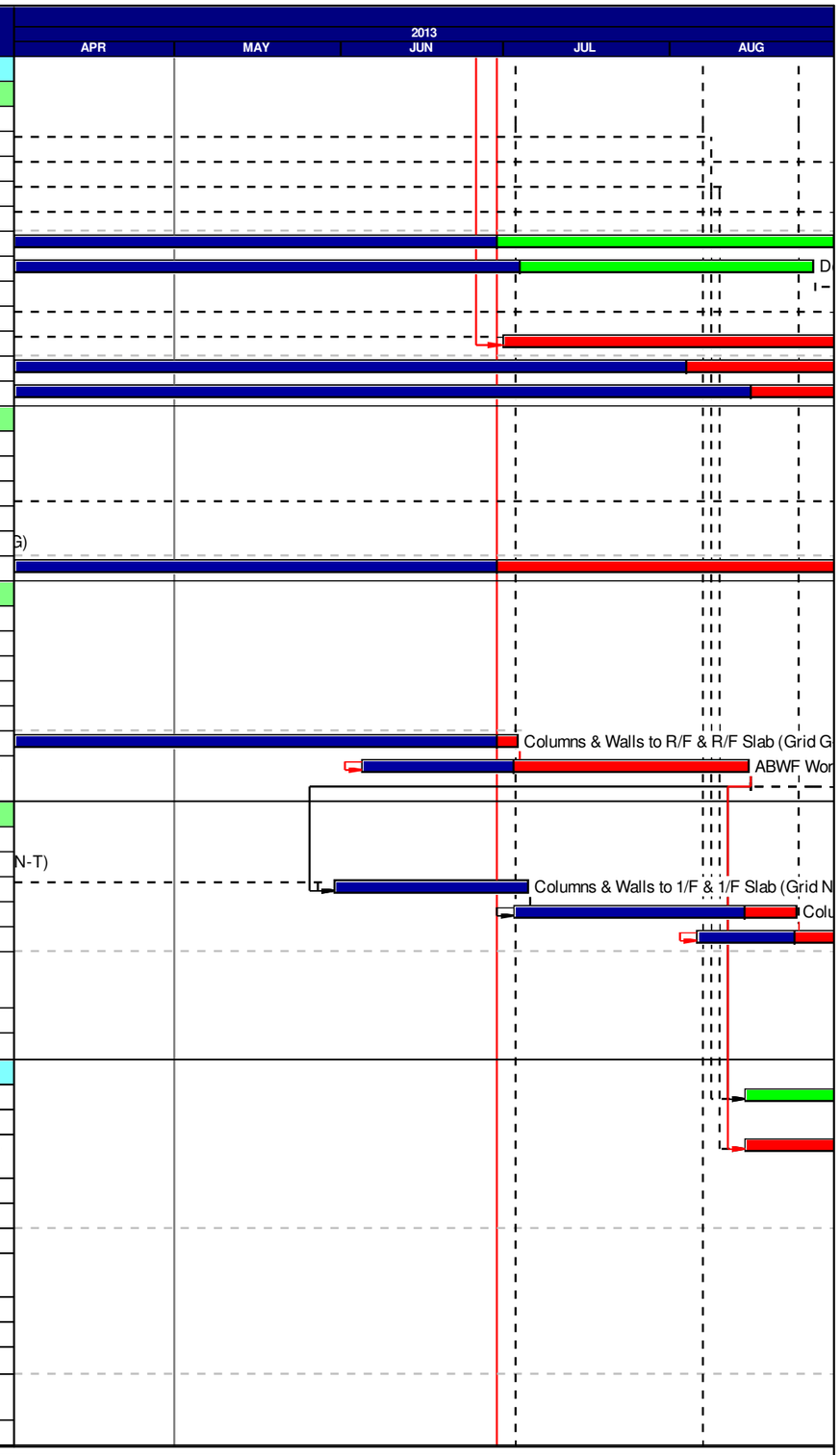
Early bar
Progress bar
Critical bar
Summary bar
Progress point
Critical point
Summary point
Start milestone point
Finish milestone point

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

Date	Revision	Checked	Approved
30/05/13	Revision 0	RH	VC

Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors
SKW STW									
Submission & Delivery (E&M)									
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
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
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
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
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
Delivery of Sludge Dewatering Equipment	210	70	01/09/11 A	31/08/13	01/09/11 A	11/01/14	133d	E&M0170	E&M3240
Delivery of Valves, Pipes & Fittings	180	70	30/08/11 A	27/08/13	30/08/11 A	19/11/13	85d	E&M0180	E&M3250
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
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
Delivery of MCC LVSB	180	0	01/07/13	28/12/13	07/04/13	03/10/13	-86d	E&M0210	E&M3261
Delivery of BS Equipment	180	8	03/07/12 A	17/01/14	03/07/12 A	04/12/13	-43d	E&M0220	E&M3291
Delivery of FS Equipment	180	5	30/06/12 A	03/02/14	30/06/12 A	23/12/13	-42d	E&M0230	E&M0340, E&M3300
Construction of Grid A-G									
Excavate for SKW STW Structure (Grid A -G)	164	100	28/03/12 A	31/08/12 A	28/03/12 A	31/08/12 A		SKW04885, SKW05938	SKW1271, SKW1371
55 M3 Fire Sprinkle Water Tank (FL +0.9 mPD)	36	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		SKW1261	SKW1281
Ground Floor Slab (Grid A-G)	46	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		SKW1271	SKW1291
Columns & Walls to 1/F & 1/F Slab (Grid A-G)	50	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		SKW1281	KD0090, SKW1301
Columns & Walls to R/F & R/F Slab (Grid A-G)	50	100	01/09/12 A	31/01/13 A	01/09/12 A	31/01/13 A		SKW1291	E&M3261, E&M3291, E&M3311, SKW1411
ABWF Works	105	30	01/02/13 A	11/09/13	01/02/13 A	19/06/13	-84d	SKW1301	E&M3261, E&M3291, E&M3311, SKW1551
Construction of Grid G-N									
Excavate for SKW STW Structure (Grid G-N)	90	100	28/03/12 A	25/06/12 A	28/03/12 A	25/06/12 A		SKW05938, SKW059416	SKW1321, SKW1371
Equalization Tank no.1 & 2 with base slabs (-2.1	42	100	26/06/12 A	30/09/12 A	26/06/12 A	30/09/12 A		SKW1311	SKW1331
Columns & Walls from B/S to G/F Slab (Grid G-N)	35	100	01/09/12 A	30/09/12 A	01/09/12 A	30/09/12 A		SKW1321	SKW1341
Ground Floor Slab (Grid G-N)	35	100	01/09/12 A	17/12/12 A	01/09/12 A	17/12/12 A		SKW1331	SKW1351
Columns & Walls to 1/F & 1/F Slab (Grid G-N)	28	100	01/11/12 A	15/01/13 A	01/11/12 A	15/01/13 A		SKW1341	SKW1361
Columns & Walls to R/F & R/F Slab (Grid G-N)	35	90	01/11/12 A	03/07/13	01/11/12 A	08/03/13	-117d	SKW1351	SKW1451
ABWF Works	54	20	05/06/13 A	15/08/13	05/06/13 A	21/04/13	-117d	SKW1361	E&M3170, E&M3190, E&M3210, E&M3291, E&M3300, SKW1391, SKW1551
Construction of Grid N-T									
Excavate for SKW STW Structure (Grid N-T)	97	100	03/07/12 A	25/01/13 A	03/07/12 A	25/01/13 A		SKW05938, SKW059416, SKW1261,	SKW1381
Ground Floor Slabs include MBR Tank (Grid N-T)	58	100	02/10/12 A	31/01/13 A	02/10/12 A	31/01/13 A		SKW1371	SKW1391
Columns & Walls to 1/F & 1/F Slab (Grid N-T)	35	100	31/05/13 A	05/07/13 A	31/05/13 A	05/07/13 A		SKW1381, SKW1451	SKW1401
Columns & Walls to R/F & R/F Slab (Grid N-T)	35	75	03/07/13 A	24/08/13	03/07/13 A	29/04/13	-117d	SKW1391	E&M3240, SKW0491, SKW1421
ABWF Works	60	15	06/08/13 A	14/10/13	06/08/13 A	19/06/13	-117d	SKW1401	E&M3240, SKW1551
Drainage (SSMH1-SSMH7)	35	0	14/10/13	18/11/13	20/06/13	24/07/13	-117d	SKW1411, SKW1421, SKW1451	SKW1561
Sewer (SMFH1-SMFH2, SMFH3-SMFH7)	220	0	18/11/13	26/06/14	25/07/13	01/03/14	-117d	SKW1551	SKW1571
Roadwork & Drainage Channel (SKW)	220	0	26/06/14	01/02/15	02/03/14	07/10/14	-117d	SKW1561	KD0090
SKW STW - E&M Works									
Install Membrane Modules in MBR Tank No. 1 to 2	100	0	15/08/13	23/11/13	07/01/14	16/04/14	144d	E&M3010, SKW1451	E&M3311
Install Grit Removal Equipment	60	0	14/10/13	13/12/13	21/09/13	19/11/13	-24d	E&M3030, E&M3210, SKW1451	E&M3250, E&M3320
Install Fine Screens	60	0	15/08/13	14/10/13	24/05/13	22/07/13	-84d	E&M3060, SKW1451	E&M3190, E&M3220, E&M3250, E&M3260, E&M3320
Install Pumps	75	0	14/10/13	28/12/13	23/07/13	05/10/13	-84d	E&M3070, E&M3210	E&M3230, E&M3250, E&M3260, E&M3320
Install Submersible Mixers	45	0	28/12/13	11/02/14	06/10/13	19/11/13	-84d	E&M3080, E&M3220	E&M3250, E&M3260, E&M3311, E&M3320
Install Sludge Dewatering Equipment	74	0	14/10/13	27/12/13	12/01/14	26/03/14	90d	E&M3090, SKW1401, SKW1421	E&M3320
Install Valves, Pipes & Fittings	75	0	11/02/14	27/04/14	20/11/13	02/02/14	-84d	E&M3100, E&M3190, E&M3210, E&M3220, E&M3230	E&M3270, E&M3291, E&M3300, E&M3310
Install Penstocks	135	0	11/02/14	26/06/14	03/12/13	16/04/14	-71d	E&M3110, E&M3210, E&M3220,	E&M3311
Install SAT of MCC & LVSB	174	0	28/12/13	20/06/14	04/10/13	26/03/14	-86d	E&M3140, SKW1301, SKW1411	E&M3311, E&M3320
Install instruments	60	0	27/04/14	26/06/14	16/02/14	16/04/14	-71d	E&M3130, E&M3250	E&M3311
Install BS Equipment	180	0	26/02/14	25/08/14	05/12/13	02/06/14	-84d	E&M3150, E&M3250, SKW1301, SKW1411, SKW1451	E&M3331, E&M3359
Install FS Equipment	161	0	26/02/14	06/08/14	24/12/13	02/06/14	-65d	E&M3160, E&M3250, SKW1451	E&M3331, E&M3359



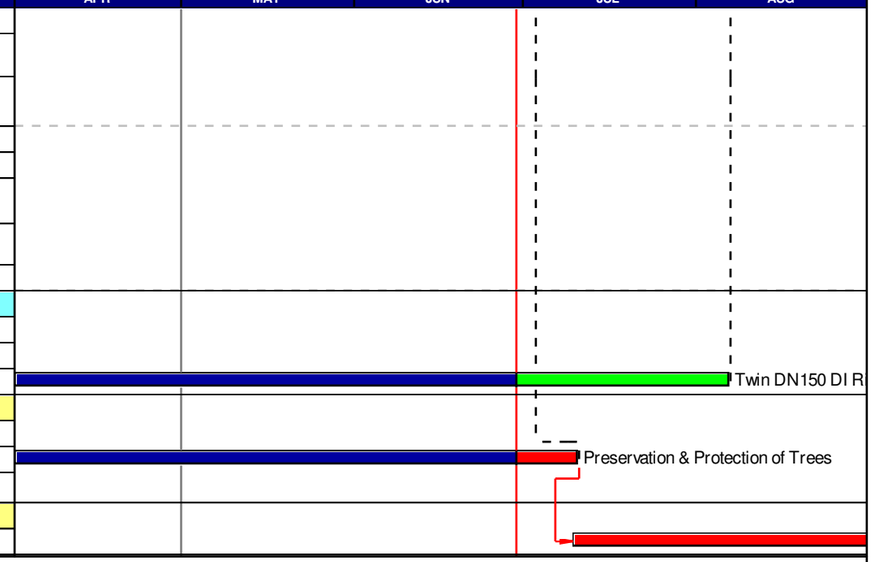
Start date	05/05/10
Finish date	06/04/17
Data date	30/06/13
Run date	18/07/13
Page number	10A
c Primavera Systems, Inc.	

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

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

Date	Revision	Checked	Approved
30/05/13	Revision 0	RH	VC

Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors
Hydraulic Tests of Pipeworks	90	0	27/04/14	26/07/14	06/03/14	03/06/14	-53d	E&M3250	E&M3359
Cabling Works	47	0	26/06/14	12/08/14	17/04/14	02/06/14	-71d	E&M3170, E&M3230, E&M3260, E&M3261, E&M3270, SKW1301,	E&M3331, E&M3359
Cabling Works for Dewatering Equipment	47	0	20/06/14	06/08/14	27/03/14	12/05/14	-86d	E&M3190, E&M3210, E&M3220, E&M3230, E&M3240, E&M3261	E&M3321
Insulation Tests of Cables and Cable Termination	21	0	06/08/14	27/08/14	13/05/14	02/06/14	-86d	E&M3320	E&M3331
Energization	1	0	27/08/14	28/08/14	03/06/14	03/06/14	-86d	E&M3291, E&M3300, E&M3311,	E&M3359
Functional and Performance Tests of Equipment	35	0	28/08/14	02/10/14	04/06/14	08/07/14	-86d	E&M3291, E&M3300, E&M3310, E&M3311, E&M3331, SKW1241,	E&M3360
T&C Period	91	0	02/10/14	01/01/15	09/07/14	07/10/14	-86d	E&M0340, E&M3359, SKW0722, SKW15112	E&M3370, KD0090
Trial Operation Period	456	0	01/01/15	01/04/16	23/09/15	06/04/17	265d	E&M3360	
Rising Main									
Subm, Approval & Delivery of DI pipes	120	100	17/05/10 A	13/09/10 A	17/05/10 A	13/09/10 A		KD0020	SKW1501
LCS (ChB0+00 - ChB1+20)	300	100	14/09/10 A	10/07/11 A	14/09/10 A	10/07/11 A		PRE0100, SKW1481	SKW1521
Twin DN150 DI Rising Main (ChB0+00 - ChA4+55)	250	85	11/07/11 A	06/08/13	11/07/11 A	07/10/14	428d	SKW1501	KD0090
Section W 8 - Landscape Softworks in All Portions									
Tree Survey	21	100	17/05/10 A	06/06/10 A	17/05/10 A	06/06/10 A		KD0020	SKW1621
Preservation & Protection of Trees	1053	99	17/05/10 A	10/07/13	17/05/10 A	03/04/13	-98d	KD0020	KD0100, SKW1631
Transplantation at SKW	90	100	07/06/10 A	04/09/10 A	07/06/10 A	04/09/10 A		SKW1591	KD0100
Section W 9 - Establishment W orks in All Portions									
Section W9 - Establishment Works	365	0	10/07/13	10/07/14	04/04/13	03/04/14	-98d	SKW1611	KD0110



Start date	05/05/10
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c Primavera Systems, Inc.	

Early bar
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Progress point
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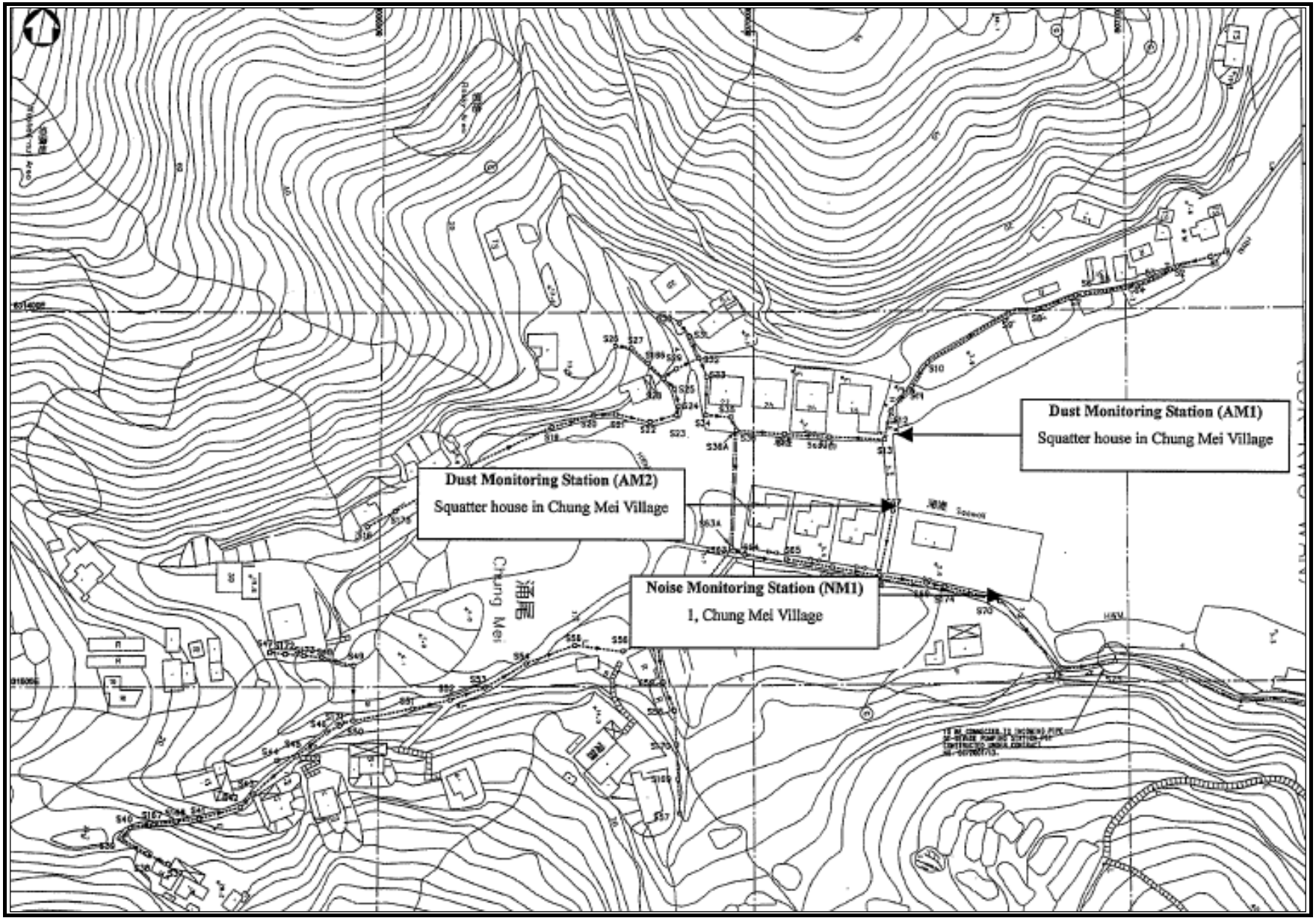
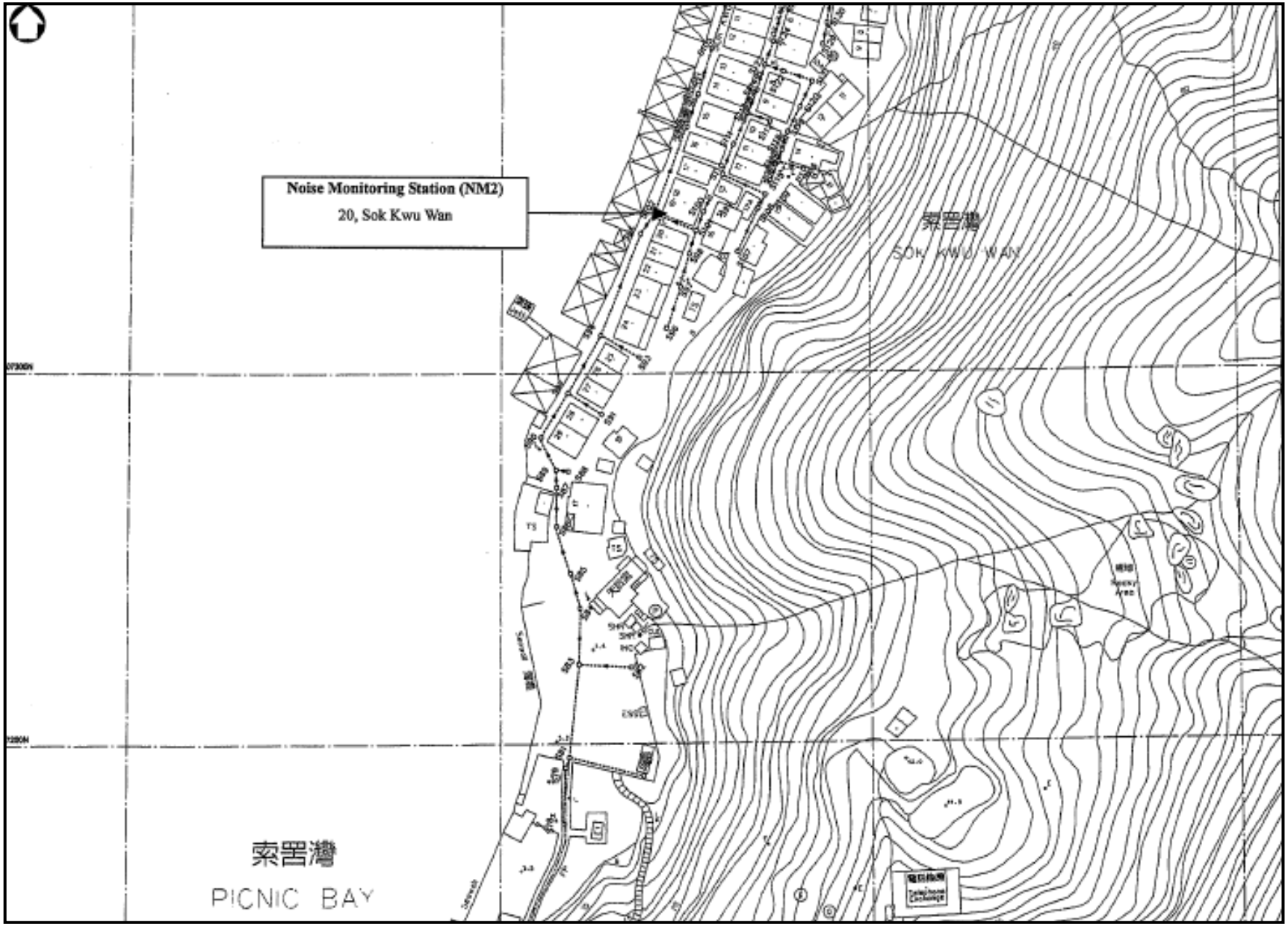
Leader Civil Engineering Corp. Ltd.
Contract No. DC/2009/13
Construction of Sewage Treatment Works at YSW & SKW
3-month Rolling Programme (July 2013 - Sep 2013

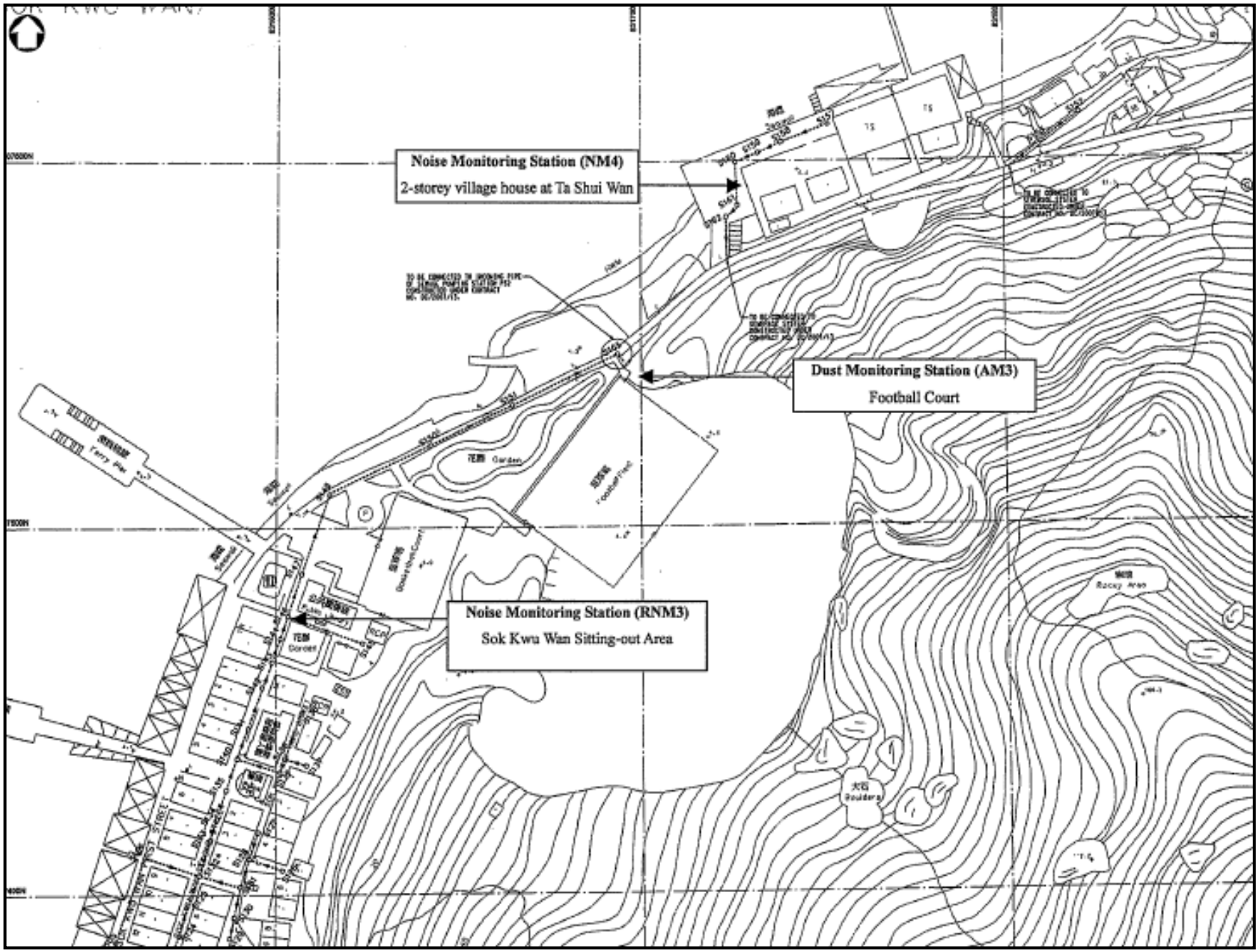
Date	Revision	Checked	Approved
30/05/13	Revision 0	RH	VC

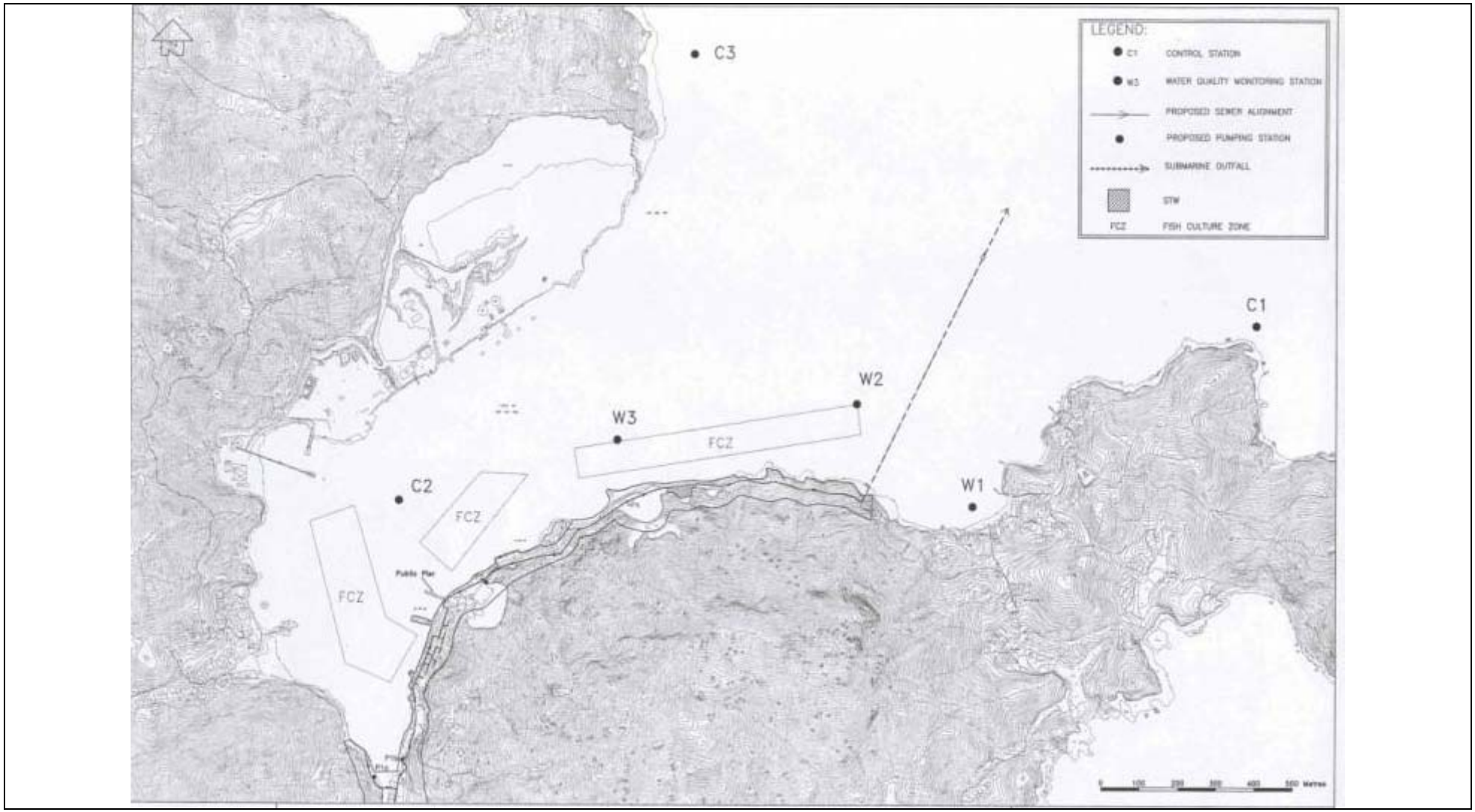
Appendix D

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


Dust Monitoring Station (AM1)
Squatter house in Chung Mei Village
Dust Monitoring Station (AM2)
Squatter house in Chung Mei Village
Noise Monitoring Station (NM1)
1, Chung Mei Village
Chung Mei
涌尾


Noise Monitoring Station (NM2)
20, Sok Kwu Wan
索罟灣
SOK KWU WAN
索罟灣
PICNIC BAY


Noise Monitoring Station (NM4)
2-storey village house at Ta Shui Wan
Dust Monitoring Station (AM3)
Football Court
Noise Monitoring Station (RNM3)
Sok Kwu Wan Sitting-out Area


LEGEND:
CONTROL STATION
WATER QUALITY MONITORING STATION
PROPOSED SEWER ALIGNMENT
PROPOSED PUMPING STATION
SUBMARINE OUTFALL
STW
FCZ
FISH CULTURE ZONE
C3
C1
W2
W3
FCZ
C2
W1
FCZ
FCZ
Public Pier

Appendix E

Monitoring Equipments Calibration Certificate

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Squatter house in Chung Mei Village	Date of Calibration: 26-Jun-13
Location ID : AM1	Next Calibration Date: 26-Aug-13
	Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1004.8	Corrected Pressure (mm Hg)	753.6
Temperature (ºC)	26.2	Temperature (K)	299

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.11662
Model->	5025A	Qstd Intercept ->	-0.1714
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.2	5.2	10.4	1.595	53	52.56	Slope = 24.7901
13	4	4	8	1.409	48	47.61	Intercept = 12.5346
10	2.9	2.9	5.8	1.212	42	41.66	Corr. coeff. = 0.9975
7	1.7	1.7	3.4	0.947	36	35.70	
5	0.9	0.9	1.8	0.711	31	30.75	

Calculations :

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

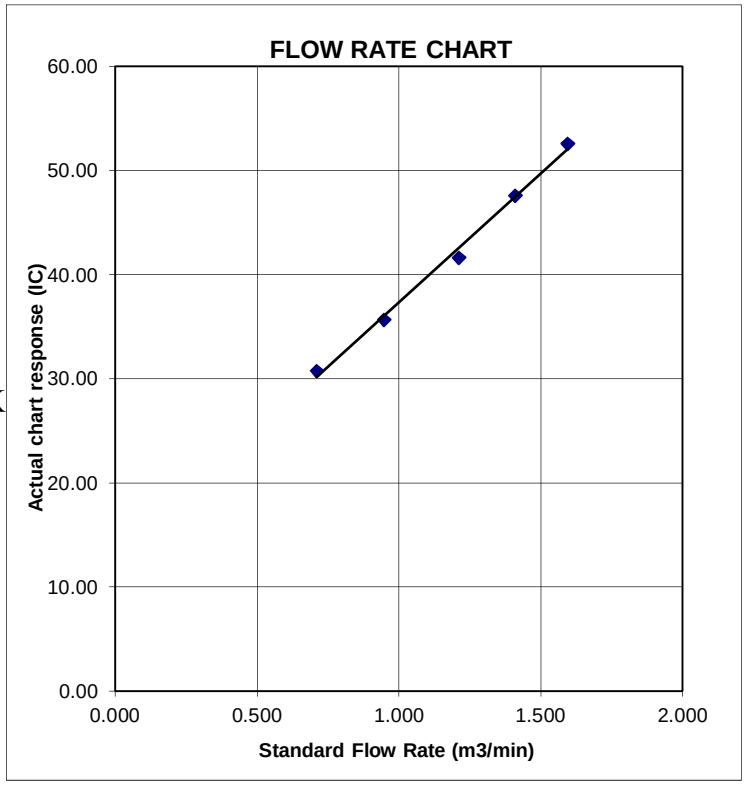
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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

For subsequent calculation of sampler flow:

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

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



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Squatter house in Chung Mei Village	Date of Calibration: 26-Jun-13
Location ID : AM2	Next Calibration Date: 26-Aug-13
	Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1004.8	Corrected Pressure (mm Hg)	753.6
Temperature (ºC)	26.2	Temperature (K)	299

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.11662
Model->	5025A	Qstd Intercept ->	-0.1714
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.9	5.9	11.8	1.694	59	58.52	Slope = 28.2119
13	4.2	4.2	8.4	1.442	52	51.57	Intercept = 10.4796
10	3.1	3.1	6.2	1.250	45	44.63	Corr. coeff. = 0.9984
7	1.6	1.6	3.2	0.921	37	36.70	
5	0.9	0.9	1.8	0.711	31	30.75	

Calculations :

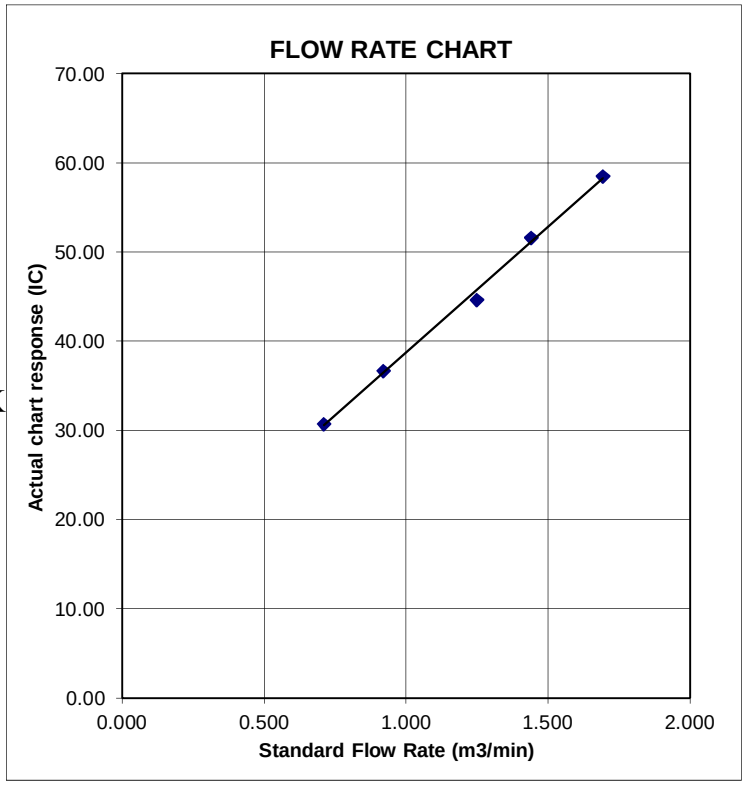
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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

For subsequent calculation of sampler flow:

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

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



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Football court
Location ID : AM3

Date of Calibration: 26-Jun-13
Next Calibration Date: 26-Aug-13
Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1004.8	Corrected Pressure (mm Hg)	753.6
Temperature (ºC)	26.2	Temperature (K)	299

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.11662
Model->	5025A	Qstd Intercept ->	-0.1714
Serial # ->	1941		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.3	5.3	10.6	1.610	49	48.60	Slope = 29.8641
13	4	4	8	1.409	42	41.66	Intercept = 0.1738
10	2.7	2.7	5.4	1.172	36	35.70	Corr. coeff. = 0.9984
7	1.7	1.7	3.4	0.947	28	27.77	
5	1.0	1.0	2	0.745	23	22.81	

Calculations :

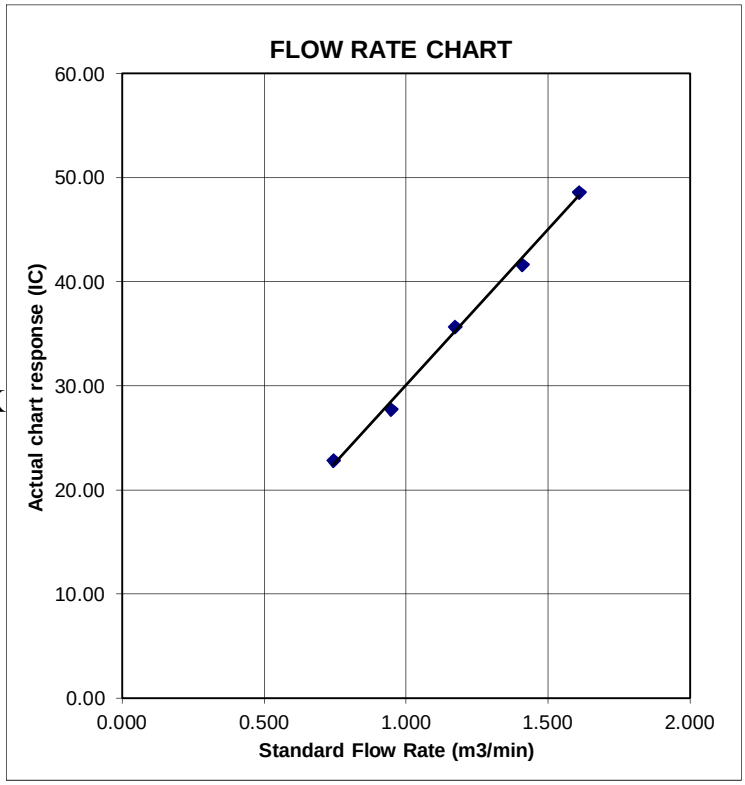
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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

For subsequent calculation of sampler flow:

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

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



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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - Apr 09, 2013 Rootsmeter S/N 0438320 Ta (K) - 296
Operator Tisch Orifice I.D. - 1941 Pa (mm) - 751.84

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.4710	3.3	2.00
2	NA	NA	1.00	1.0370	6.4	4.00
3	NA	NA	1.00	0.9270	7.9	5.00
4	NA	NA	1.00	0.8840	8.8	5.50
5	NA	NA	1.00	0.7300	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9916	0.6741	1.4113		0.9956	0.6768	0.8874
0.9874	0.9521	1.9959		0.9914	0.9560	1.2549
0.9854	1.0630	2.2315		0.9894	1.0673	1.4030
0.9843	1.1134	2.3405		0.9883	1.1180	1.4715
0.9790	1.3410	2.8227		0.9829	1.3465	1.7747
Qstd slope (m) =		2.11662		Qa slope (m) =		1.32539
intercept (b) =		-0.01714		intercept (b) =		-0.01078
coefficient (r) =		0.99999		coefficient (r) =		0.99999
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

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

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

For subsequent flow rate calculations:

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

AUES

Equipment Calibration Record

Equipment Calibrated:

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

Standard Equipment:

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

Equipment Calibration Results:

Calibration Date: 6-Aug-12

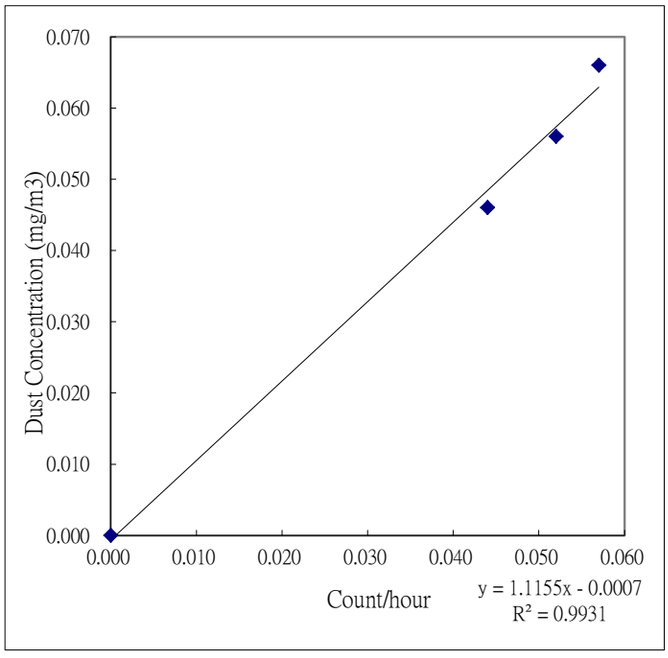
Hour	Time	Temp ℃	RH %	Dust Concentration in mg/m^3	
				(Standard Equipment)	(Calibrated Equipment)
1	9:00 ~ 10:00	29.8	84	0.052	0.056
1	10:05 ~ 11:05	30.2	84	0.057	0.066
1	11:10 ~ 12:10	30.9	84	0.044	0.046

Sensitivity Adjustment Zero Calibration (Before Calibration) 0 (mg/m^3)

Sensitivity Adjustment Zero Calibration (After Calibration) 0 (mg/m^3)

Linear Regression of Y or X

Slope:	**1.1155**
Correlation Coefficient	**0.9931**



Operator : Ray Cheung Signature : Date : 8/8/2012

QC Reviewer Ben Tam Signature : Date : 8/8/2012

AUES

Equipment Calibration Record

Equipment Calibrated:

Type:	Dust Trak Model 8520
Manufacturer:	TSI
Serial No.	23079
Equipment Ref:	EQ064

Standard Equipment:

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

Equipment Calibration Results:

Calibration Date: 6-Aug-12

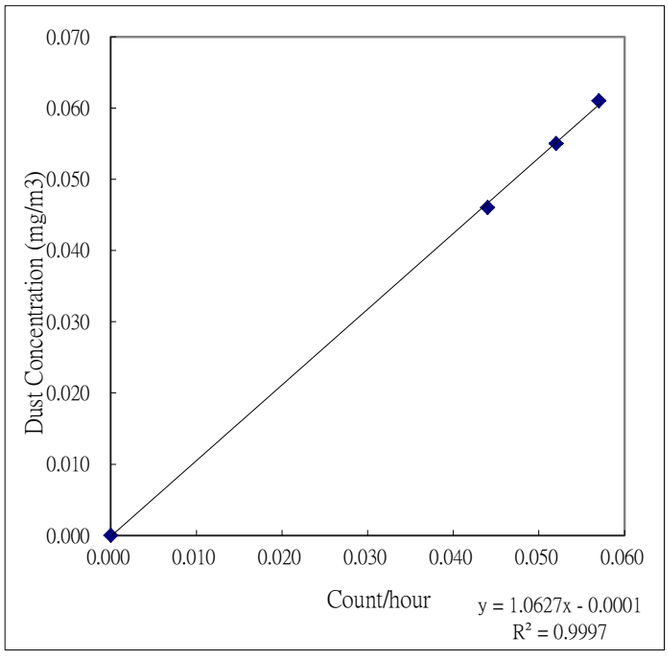
Hour	Time	Temp ℃	RH %	Dust Concentration in mg/m^3	
				(Standard Equipment)	(Calibrated Equipment)
1	9:00 ~ 10:00	29.8	84	0.052	0.055
1	10:05 ~ 11:05	30.2	84	0.057	0.061
1	11:10 ~ 12:10	30.9	84	0.044	0.046

Sensitivity Adjustment Zero Calibration (Before Calibration) 0 (mg/m^3)

Sensitivity Adjustment Zero Calibration (After Calibration) 0 (mg/m^3)

Linear Regression of Y or X

Slope:	**1.0627**
Correlation Coefficient	**0.9997**



Operator : Ray Cheung Signature : Date : 8/8/2012

QC Reviewer Ben Tam Signature : Date : 8/8/2012

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. : C132568
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0878)

Description / 儀器名稱 : Integrating Sound Level Meter (EQ006)
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 2238
Serial No. / 編號 : 2285762
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
Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 27 April 2013

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
- Agilent Technologies, USA
- Fluke Everett Service Center, USA
- Rohde & Schwarz Laboratory, Germany

Tested By 測試 : H C Chan

Certified By 核證 : K C Lee

Date of Issue 簽發日期 : 30 April 2013

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 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
Tel/電話: 2927 2606 Fax/傳真: 2744 8986 E-mail/電郵: catlab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C132568
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 laboratory acoustic calibrator was performed before the test from 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	C130019
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 Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L_{AFP}	A	F	94.00	1	93.6

6.1.1.2 After Self-calibration

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

6.1.2 Linearity

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

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

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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. : C132568
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)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L_{AFP}	A	F	94.00	1	94.0	Ref.
	L_{ASP}		S			94.0	± 0.1
	L_{AIP}		I			94.1	± 0.1

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L_{AFP}	A	F	106.0	Continuous	106.0	Ref.
	L_{AFMax}				200 ms	104.9	-1.0 ± 1.0
	L_{ASP}		S		Continuous	106.0	Ref.
	L_{ASMax}				500 ms	101.9	-4.1 ± 1.0

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L_{AFP}	A	F	94.00	31.5 Hz	55.1	-39.4 ± 1.5
					63 Hz	67.9	-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	95.2	+1.2 ± 1.0
					4 kHz	95.0	+1.0 ± 1.0
					8 kHz	92.9	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.8	-4.3 (+3.0 ; -6.0)

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Certificate of Calibration
校正證書

Certificate No. : C132568
證書編號

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L_{CFP}	C	F	94.00	31.5 Hz	91.4	-3.0 ± 1.5
					63 Hz	93.3	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	94.0	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.0
					4 kHz	93.2	-0.8 ± 1.0
					8 kHz	90.9	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.8	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
30 - 110	L_{Aeq}	A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5
						$1/10^2$		90	89.8	± 0.5
			60 sec.			$1/10^3$		80	79.4	± 1.0
			5 min.			$1/10^4$		70	69.2	± 1.0

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

- Uncertainties of Applied Value :

94 dB :	31.5 Hz - 125 Hz	: ± 0.35 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.

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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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

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. : C132228
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC13-0878)

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

TEST CONDITIONS / 測試條件

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

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 15 April 2013

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 : K C Lee

Certified By 核證 : K M Wu

Date of Issue 簽發日期 : 16 April 2013

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 – 校正及檢測實驗所
c/o 香港新界屯門興安里一號青山灣機樓四樓
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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. : C132228
證書編號

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

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

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C123541
CL281	Multifunction Acoustic Calibrator	DC110233
TST150A	Measuring Amplifier	C120886

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

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

5.2 Frequency Accuracy

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

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

Note :
The values given in this 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.

Sun Creation Engineering Limited – Calibration & Testing Laboratory
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ALS Technichem (HK) Pty Ltd

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR BEN TAM	**WORK ORDER:**	HK1309651
CLIENT:	ACTION UNITED ENVIRO SERVICES	**LABORATORY:**	HONG KONG
ADDRESS:	RM A 20/F., GOLDEN KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T., HONG KONG	**DATE RECEIVED:**	11/04/2013
		DATE OF ISSUE:	17/04/2013
PROJECT:	--		

COMMENTS

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

Scope of Test:	Dissolved Oxygen, Turbidity, pH, Salinity and Temperature
Equipment Type:	SONDE
Brand Name:	YSI
Model No.:	YSI 6820 / 650MDS
Serial No.:	02J0912/02K0788 AA
Equipment No.:	--
Date of Calibration:	16 April, 2013

NOTES

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

ISSUING LABORATORY: HONG KONG

Address

ALS Technichem (HK) Pty Ltd

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1-3 Wing Yip Street
Kwai Chung
HONG KONG

Phone: 852-2610 1044
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Email: hongkong@alsglobal.com

Mr. Fung Lim Chee, Richard
General Manager,
Greater China & Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1309651
Date of Issue: 17/04/2013
Client: ACTION UNITED ENVIRO SERVICES

Equipment Type: SONDE
Brand Name: YSI
Model No.: YSI 6820 / 650MDS
Serial No.: 02J0912/02K0788 AA
Equipment No.: --
Date of Calibration: 16 April, 2013 Date of next Calibration: 16 July, 2013

Parameters:

Dissolved Oxygen

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

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
5.51	7.86	2.35
8.65	8.66	0.01
	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	3.98	-0.02
7.0	6.92	-0.08
10.0	9.97	-0.03
	Tolerance Limit (±pH unit)	0.20

Salinity

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

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.08	--
10	10.83	8.3
20	21.15	5.7
30	32.28	7.6
	Tolerance Limit (±%)	10.0

Temperature

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

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
12.0	11.40	-0.6
23.0	22.54	-0.5
42.5	42.68	0.2
	Tolerance Limit (±°C)	2.0

Turbidity

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

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	-0.2	--
40	42.6	6.5
80	78.0	-2.5
400	435.5	8.9
800	782.9	-2.1
	Tolerance Limit (±%)	10.0

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

Mr. Fung Lim Chee, Richard
General Manager - Greater China & Hong Kong

ALS Technichem (HK) Pty Ltd
ALS Environmental

ALS Technichem (HK) Pty Ltd

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR BEN TAM	**WORK ORDER:**	HK1318874
CLIENT:	ACTION UNITED ENVIRO SERVICES	**LABORATORY:**	HONG KONG
ADDRESS:	RM A 20/F., GOLDEN KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T., HONG KONG	**DATE RECEIVED:**	12/07/2013
		DATE OF ISSUE:	17/07/2013
PROJECT:	--		

COMMENTS

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

Scope of Test:	Dissolved Oxygen, pH, Turbidity, Salinity and Temperature
Equipment Type:	Sonde Environmental Monitoring System
Brand Name:	YSI
Model No.:	6820 / 650MDS
Serial No.:	02J0912/02K0788 AA
Equipment No.:	--
Date of Calibration:	12 July, 2013

NOTES

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

ISSUING LABORATORY: HONG KONG

Address

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Mr. Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1318874
Date of Issue: 17/07/2013
Client: ACTION UNITED ENVIRO SERVICES

Equipment Type: Sonde Environmental Monitoring System
Brand Name: YSI
Model No.: 6820 / 650MDS
Serial No.: 02J0912/02K0788 AA
Equipment No.: --
Date of Calibration: 12 July, 2013 Date of next Calibration: 12 October, 2013

Parameters:

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

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
3.24	3.34	0.10
5.11	5.18	0.07
7.72	7.70	-0.02
	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	3.95	-0.05
7.0	6.98	-0.02
10.0	9.93	-0.07
	Tolerance Limit (±pH unit)	0.20

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

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0	--
10	9.66	-3.4
20	19.66	-1.7
30	29.27	-2.4
	Tolerance Limit (±%)	10.0

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

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
9.5	9.38	-0.1
25.5	24.32	-1.2
40.0	39.13	-0.9
	Tolerance Limit (±°C)	2.0

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

Mr. Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1318874
Date of Issue: 17/07/2013
Client: ACTION UNITED ENVIRO SERVICES

Equipment Type: Sonde Environmental Monitoring System
Brand Name: YSI
Model No.: 6820 / 650MDS
Serial No.: 02J0912/02K0788 AA
Equipment No.: --
Date of Calibration: 12 July, 2013 Date of next Calibration: 12 October, 2013

Parameters:

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

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.2	--
4	4.2	5.0
40	40.6	1.5
80	81.5	1.9
400	410.9	2.7
800	792.8	-0.9
	Tolerance Limit (±%)	10.0

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

Mr. Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

Appendix F

Event/Action Plan

Air Quality

EVENT	ACTION			
	ET	IC(E)	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IC(E) and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IC(E) and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IC(E) and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IC(E) and ER; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial to ER within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.
LIMIT LEVEL				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IC(E) within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	1. Notify IC(E), ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IC(E) and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IC(E), agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IC(E) within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Construction Noise

EVENT	ACTION			
	ET	**IC(E)**	**ER**	**CONTRACTOR**
Action Level	1. Notify IC(E) and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IC(E), ER and Contractor; 4. Discuss with the Contractor and formulate remedial measures; 5. Increase monitoring frequency to check mitigation effectiveness	1. Review the analysed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IC(E); 2. Implement noise mitigation proposals.
Limit Level	1. Identify source; 2. Inform IC(E), ER, EPD and Contractor; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IC(E), ER and EPD the causes and actions taken for the exceedances; 7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analysed noise problem; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IC(E) within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Water Quality

EVENT	ACTION			
	ET	IC(E)	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sampling day	1. Repeat in-situ measurement on the next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform ICE, Contractor, ER, EPD and AFCD; and 4. Check monitoring data, all plant, equipment and Contractor's working methods.	1. Check monitoring data submitted by ET and Contractor's working methods	1. Confirm receipt of notification of non-compliance in writing; and 2. Notify Contractor	1. Information the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; and 3. Amend working methods if appropriate
2. Exceedance for two or more consecutive sampling days	1. Same as the above; 2. Inform ICE, Contractor, ER, EPD and AFCD; 3. Discuss mitigation measures with IC(E), RE and Contractor; 4. Ensure well implementation of mitigation measures; and 5. Increase the monitoring frequency to daily until no exceedance of Action Level	1. Same as the above; 2. Discuss with ET and Contractor on possible remedial actions; 3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly; and 4. Supervise the implementation of mitigation measures.	1. Discuss with IC(E) on the proposed mitigation measures; 2. Ensure well implementation of mitigation measures; and 3. Assess the effectiveness of the implemented mitigation measures	1. Same as the above; 2. Check all plant and equipment and consider changes of working methods; 3. Submit proposal of additional mitigation measures to ER within 3 working days of notification and discuss with ET, IC(E), and ER; and 4. Implement the agreed mitigation measures
LIMIT LEVEL				
1. Exceedance for one sampling day	1. Repeat in-situ measurement on the next day of exceedance to confirm findings; 2. Identify source(s) of impact; 3. Inform ICE, Contractor, ER, EPD and AFCD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; and 5. Discuss mitigation measures with IC(E), RE and Contractor	1. Check monitoring data submitted by ET and Contractor's working method 2. Discuss with ER and Contractor on possible remedial actions; and 3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly	1. Confirm receipt of notification failure in writing; and 2. Discuss with IC(E), ET and 3. Contractor on the proposed mitigation measures; and 4. Request Contractor to review the working methods	1. Inform the ER and confirm notification of the failure in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment and consider changes of working methods; and 4. Submit proposal of mitigation measures to ER within 3 working days of notification and discuss with ET and ER
2. Exceedance for two or more consecutive sampling days	1. Same as the above; 2. Ensure mitigation measures are implemented; and 3. Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days	1. Same as the above; and 2. Supervise the Implementation of mitigation measures	1. Same as the above; 2. Ensure well implementation of mitigation measures 3. Make agreement on the mitigation measures to be implemented; and 4. Consider and instruct, if necessary, the Contractor to stow down or to stop all or part of the construction activities until no exceedance of limit level	1. Same as the above; 2. Take immediate action to avoid further exceedance; 3. Implement the agreed mitigation measures; 4. Resubmit proposals of mitigation measures if problem still not under control; and 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.

Appendix G

Monitoring Data Sheet

24-hour TSP Monitoring Data Sheet

Air Qualtiy 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^3)
		INITIAL	FINAL	ACTUAL (min)	MIN	MAX	AVG		AVG PRESS (hPa)	FLOW RATE (m3/min)	AIR VOLUME (std m3)				
24-hour TSP Monitoring Results - AM1															
28-Jun-13	204730	13654.2	13678.19	1439.40	28	32	30.0	28.5	1006	0.69	998	3.6698	3.6767	0.0069	7
4-Jul-13	25641	13678.19	13702.18	1439.40	28	32	30.0	28.7	1006.4	0.69	997	3.5484	3.569	0.0206	21
10-Jul-13	25645	13702.18	13726.17	1439.40	28	32	30.0	29	1005.7	0.69	996	3.5521	3.5645	0.0124	12
16-Jul-13	25649	13726.17	13750.16	1439.40	28	32	30.0	28.9	1005.9	0.69	996	3.5702	3.5793	0.0091	9
22-Jul-13	25795	13750.16	13774.15	1439.40	28	32	30.0	28.8	1006.3	0.69	997	3.6199	3.6313	0.0114	11
24-hour TSP Monitoring Results - AM2															
28-Jun-13	204732	12157.29	12181.28	1439.40	28	32	30.0	28.5	1006	0.68	982	3.6656	3.6777	0.0121	12
4-Jul-13	25640	12181.28	12205.27	1439.40	24	26	25.0	28.7	1006.9	0.51	729	3.5544	3.5584	0.0040	5
10-Jul-13	25646	12205.27	12229.26	1439.40	24	26	25.0	29	1005.7	0.51	728	3.5523	3.558	0.0057	8
16-Jul-13	25650	12229.26	12253.25	1439.40	28	32	30.0	28.9	1005.9	0.68	980	3.5767	3.5878	0.0111	11
22-Jul-13	25796	12253.25	12277.24	1439.40	28	32	30.0	28.8	1006.3	0.68	981	3.6216	3.6477	0.0261	27
24-hour TSP Monitoring Results - AM3															
28-Jun-13	204731	7627.23	7651.22	1439.4	29	33	31	28.5	1006	1.02	1472	3.6608	3.7233	0.0625	42
4-Jul-13	25639	7651.22	7675.21	1439.4	28	30	29	28.7	1006.4	0.96	1376	3.5477	3.584	0.0363	26
10-Jul-13	25644	7675.21	7699.2	1439.4	28	30	29	29	1005.7	0.96	1375	3.5536	3.562	0.0084	6
16-Jul-13	25651	7699.2	7723.19	1439.4	29	31	30	28.9	1005.9	0.99	1423	3.5729	3.5949	0.0220	15
22-Jul-13	25797	7723.19	7747.18	1439.4	29	31	30	28.8	1006.3	0.99	1423	3.6237	3.6462	0.0225	16

Marine Water Quality Monitoring Data Sheet

Contract No. DC/2009/13

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

AUES

Sok Kwu Wan

Date 26-Jun-13

Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
2013/6/26 14:39	W1	ME	832953	807746	2.7	1.350	27.54	6.63	98.4	1.1	28.24	8.05	1.4
						1.350	27.45	6.64	98.5	1.0	28.53	8.06	
2013/6/26 14:10	W2	ME	832654	807971	12.8	1.000	27.68	7.04	104.4	2.4	27.83	8.02	1.3
						1.000	27.66	7.04	104.4	1.1	27.84	8.03	
						6.400	27.39	6.59	98.1	1.7	29.20	8.07	1.2
						6.400	27.37	6.60	98.1	1.1	29.24	8.06	
						11.800	26.69	6.08	90.8	2.2	31.82	8.07	1.3
						11.800	26.71	6.15	91.8	0.6	31.80	8.06	
2013/6/26 13:52	W3	ME	832031	807870	12.9	1.000	27.62	7.52	111.4	2.1	27.59	8.02	0.7
						1.000	27.61	7.35	108.8	1.5	27.60	8.01	
						6.450	27.28	6.72	100.2	0.6	30.04	8.07	0.9
						6.450	27.27	6.72	100.2	0.7	29.98	8.07	
						11.900	27.02	6.30	94.4	0.2	31.46	8.07	1.0
						11.900	26.94	6.32	94.5	0.6	31.51	8.07	
2013/6/26 14:26	C1	ME	833714	808186	15.6	1.000	27.68	7.04	104.4	2.4	27.83	8.02	0.7
						1.000	27.66	7.04	104.4	1.1	27.84	8.03	
						7.800	27.39	6.59	98.1	1.7	29.20	8.07	0.8
						7.800	27.37	6.60	98.1	1.1	29.24	8.06	
						14.600	26.69	6.08	90.8	2.2	31.82	8.07	0.9
						14.600	26.71	6.15	91.8	0.6	31.80	8.06	
2013/6/26 13:37	C2	ME	831443	807729	10.8	1.000	27.62	7.92	117.2	1.1	27.62	8.02	1.2
						1.000	27.62	7.92	117.2	1.0	27.57	8.02	
						6.500	27.26	6.96	103.9	0.4	30.28	8.08	1.4
						6.500	27.25	6.74	100.6	0.3	30.15	8.07	
						12.000	27.17	6.58	98.5	0.4	31.14	8.09	1.3
						12.000	27.11	6.52	97.6	0.3	31.18	8.09	
2013/6/26 15:00	C3	ME	832208	808881	13	1.000	27.69	6.37	94.3	2.4	27.36	8.02	1.3
						1.000	27.58	6.42	95.0	1.2	27.66	8.03	
						5.400	27.30	5.94	88.7	0.5	30.16	8.09	1.2
						5.400	27.21	5.69	85.1	0.3	30.55	8.10	
						9.800	26.74	5.45	81.6	0.4	32.22	8.11	2.9
						9.800	26.68	5.76	86.1	0.1	32.31	8.09	
2013/6/26 8:50	W1	MF	832973	807756	2.1	1.050	27.55	7.49	111.1	1.6	28.11	8.01	1.5
						1.050	27.58	7.68	113.9	0.9	28.00	8.01	
2013/6/26 8:35	W2	MF	832651	807991	11.7	1.000	27.50	7.85	116.3	1.3	28.31	8.02	0.6
						1.000	27.46	7.85	116.4	1.2	28.32	8.03	
						5.850	27.35	7.43	110.9	2.0	29.88	8.06	0.9
						5.850	27.38	7.38	110.2	0.6	29.84	8.05	
						10.700	27.12	7.27	109.0	1.1	31.35	8.06	1.1
						10.700	27.05	7.28	109.1	2.1	31.40	8.06	
2013/6/26 8:21	W3	MF	832027	807904	12.1	1.000	27.52	8.28	122.9	1.2	28.36	8.02	1.6
						1.000	27.54	8.45	125.3	1.5	28.28	8.01	
						6.050	27.32	7.80	116.4	0.8	30.02	8.06	2.1
						6.050	27.30	7.80	116.5	0.6	30.05	8.07	
						11.100	27.05	7.42	111.2	0.9	31.49	8.06	2.1
						11.100	27.07	7.45	111.6	0.7	31.47	8.07	
2013/6/26 9:06	C1	MF	833681	808191	13.8	1.000	27.58	8.05	119.2	1.1	27.78	8.02	0.5
						1.000	27.62	8.04	119.1	1.2	27.72	8.01	
						6.900	27.30	7.77	116.2	0.4	30.27	8.06	1.1
						6.900	27.25	7.50	112.1	0.4	30.48	8.07	
						12.800	26.94	7.21	108.1	3.0	31.84	8.07	1.0
						12.800	26.93	7.05	105.6	0.1	31.86	8.07	
2013/6/26 8:09	C2	MF	831469	807762	10.1	1.000	27.41	9.84	146.2	1.2	28.93	8.03	1.1
						1.000	27.41	9.83	146.2	1.4	29.09	8.04	
						5.050	27.38	8.82	131.8	1.1	30.03	8.06	1.0
						5.050	27.33	8.61	128.6	0.6	30.07	8.06	
						9.100	27.11	8.40	125.8	0.7	31.26	8.08	1.8
						9.100	27.24	8.20	122.8	0.4	30.73	8.07	
2013/6/26 9:23	C3	MF	832204	808864	15	1.000	27.56	8.44	125.0	1.5	27.91	8.04	1.8
						1.000	27.54	8.14	120.5	4.4	27.96	8.05	
						7.500	27.20	6.97	104.2	0.6	30.48	8.10	2.2
						7.500	27.22	6.96	103.9	1.3	30.42	8.08	
						14.000	26.97	6.77	101.4	0.6	31.62	8.08	2.0
						14.000	26.73	6.77	101.1	0.6	31.80	8.06	

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

AUES

Sok Kwu Wan

Date 28-Jun-13

Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
2013/6/28 16:51	W1	ME	832955	807716	2.2	1.100	27.79	8.60	126.4	0.3	25.83	8.02	1.5
						1.100	27.84	8.59	126.4	0.4	25.87	8.03	
2013/6/28 16:31	W2	ME	832692	807994	12.1	1.000	27.80	8.66	127.3	1.0	25.81	8.02	1.1
						1.000	27.78	8.67	127.4	0.4	25.87	8.03	
						6.050	27.26	8.08	119.3	0.2	28.29	8.06	1.3
						6.050	27.35	8.06	119.2	0.5	28.26	8.05	
						11.100	26.66	7.83	116.3	1.0	31.06	8.06	1.3
						11.100	26.62	7.84	116.4	0.3	31.18	8.08	
2013/6/28 16:16	W3	ME	832036	807864	11.6	1.000	27.67	6.85	100.6	0.5	25.90	8.03	1.1
						1.000	27.69	10.62	155.9	0.4	25.88	8.03	
						5.800	27.41	9.17	135.7	0.8	28.18	8.06	1.1
						5.800	27.35	8.36	123.7	0.2	28.26	8.06	
						10.600	26.59	8.42	124.9	1.3	30.89	8.05	1.3
						10.600	26.67	7.60	112.4	1.6	30.43	8.04	
2013/6/28 17:15	C1	ME	833702	808199	14.5	1.000	27.75	4.62	67.9	0.3	25.88	8.04	0.8
						1.000	27.79	4.62	67.9	0.2	25.88	8.03	
						7.250	27.24	7.48	110.6	0.4	28.56	8.05	0.8
						7.250	27.24	7.30	108.0	0.6	28.62	8.06	
						13.500	26.47	7.27	108.0	0.7	31.66	8.05	0.8
						13.500	26.31	6.86	101.7	0.7	31.68	8.06	
2013/6/28 16:00	C2	ME	831490	807759	9.1	1.000	27.71	10.64	156.1	0.6	25.77	8.06	1.8
						1.000	27.73	10.46	153.5	0.4	25.73	8.06	
						4.550	27.35	9.39	138.7	1.2	28.10	8.08	1.7
						4.550	27.33	9.40	138.7	1.6	27.99	8.07	
						8.100	27.11	8.92	132.0	0.9	29.21	8.07	2.2
						8.100	27.10	8.35	123.7	1.4	29.22	8.07	
2013/6/28 17:41	C3	ME	832209	808876	15.1	1.000	27.84	7.87	115.7	0.7	25.76	8.03	1.8
						1.000	27.85	7.87	115.7	0.3	25.74	8.04	
						7.550	27.26	7.09	104.9	1.5	28.67	8.06	1.1
						7.550	27.23	7.28	107.7	1.6	28.74	8.05	
						14.100	26.20	6.38	94.4	0.9	31.80	8.05	1.8
						14.100	26.24	6.11	90.5	0.4	31.83	8.05	
2013/6/28 9:25	W1	MF	832961	807770	2.5	1.250	27.75	9.26	135.1	0.8	24.77	7.96	1.3
						1.250	27.61	9.28	135.4	0.5	24.95	7.96	
2013/6/28 9:34	W2	MF	832694	807947	10.9	1.000	27.73	11.08	161.8	0.4	24.86	7.98	1.0
						1.000	27.68	11.09	161.9	0.4	24.90	7.99	
						5.450	27.62	8.33	122.0	0.7	25.80	7.96	1.2
						5.450	27.66	8.86	129.8	0.4	25.72	7.96	
						9.900	27.59	8.87	129.9	0.9	25.84	7.96	1.0
						9.900	27.14	7.79	115.4	0.7	29.28	7.95	
2013/6/28 9:53	W3	MF	832064	807906	11.4	1.000	27.76	5.72	83.6	0.2	24.84	8.00	1.2
						1.000	27.76	10.02	146.4	0.6	24.83	8.00	
						5.700	27.63	8.74	128.1	0.9	25.89	8.00	1.6
						5.700	27.67	8.64	126.8	0.8	25.86	8.00	
						10.400	25.87	7.13	105.0	1.6	31.84	7.99	2.1
						10.400	25.84	7.14	105.0	1.3	31.86	7.98	
2013/6/28 9:15	C1	MF	833709	808166	13.1	1.000	27.70	10.32	150.1	0.8	24.16	7.95	1.8
						1.000	27.77	10.30	149.9	0.5	24.14	7.95	
						6.550	27.45	8.66	126.7	0.7	26.11	7.94	1.7
						6.550	27.37	8.67	126.8	0.2	26.17	7.95	
						12.100	26.94	8.44	124.6	1.0	29.07	7.94	1.5
						12.100	26.74	7.94	117.5	1.2	30.17	7.93	
2013/6/28 10:03	C2	MF	831436	807738	9.3	1.000	27.77	8.92	130.6	0.2	25.25	7.98	1.4
						1.000	27.83	8.58	125.7	0.9	25.10	7.98	
						4.650	27.70	8.27	121.4	1.4	25.76	7.97	1.4
						4.650	27.71	8.27	121.4	1.6	25.75	7.97	
						8.300	27.62	7.34	108.3	1.8	27.05	7.91	1.3
						8.300	27.50	7.33	107.9	1.3	27.04	7.93	
2013/6/28 8:48	C3	MF	832249	808885	15.4	1.000	27.59	10.21	148.2	1.4	24.15	7.80	1.7
						1.000	27.60	10.12	147.1	1.4	24.35	7.80	
						7.700	26.77	8.11	119.5	0.9	29.34	7.91	1.5
						7.700	26.86	7.53	110.8	0.7	28.69	7.91	
						14.400	26.20	6.76	99.6	1.0	30.98	7.89	1.8
						14.400	26.18	6.75	99.3	2.4	30.98	7.89	

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

AUES

Sok Kwu Wan

Date 2-Jul-13

Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
2013/7/2 8:51	W1	ME	832957	807738	2.6	1.300	28.15	9.70	144.5	0.8	26.17	8.21	0.8
						1.300	28.16	9.32	142.1	0.9	26.16	8.21	
2013/7/2 9:00	W2	ME	832685	807979	12.2	1.000	28.04	10.07	149.0	1.1	26.35	8.18	1.3
						1.000	28.10	9.80	145.1	1.5	26.33	8.16	
						6.100	27.66	9.45	139.4	0.6	26.91	8.08	1.2
						6.100	27.56	9.10	134.2	0.6	27.09	8.08	
						11.200	26.50	7.90	115.8	2.4	29.32	7.84	1.8
						11.200	26.51	7.99	117.1	2.5	29.32	7.83	
2013/7/2 9:15	W3	ME	832054	807899	12.1	1.000	28.41	9.29	137.7	0.2	25.51	8.37	0.9
						1.000	28.49	9.83	145.9	0.0	25.50	8.36	
						6.050	27.91	8.93	132.1	0.4	26.63	8.20	1.9
						6.050	27.88	8.54	126.4	0.6	26.63	8.20	
						11.100	27.07	7.48	110.2	3.9	28.32	8.03	2.5
						11.100	27.10	7.35	108.6	4.1	28.85	7.96	
2013/7/2 8:35	C1	ME	833716	808199	14.3	1.000	28.21	9.31	137.9	0.8	25.90	8.26	1.3
						1.000	28.14	9.45	139.8	0.7	25.95	8.28	
						7.150	27.90	8.59	126.6	0.5	26.14	8.25	1.1
						7.150	27.89	8.50	125.4	0.8	26.15	8.25	
						13.300	26.19	8.20	119.9	3.2	29.80	7.93	3.1
						13.300	26.40	8.62	126.2	2.5	29.24	7.96	
2013/7/2 9:25	C2	ME	831443	807736	10.3	1.000	28.64	8.66	128.9	0.3	25.61	8.31	0.7
						1.000	28.62	9.24	137.5	0.1	25.60	8.31	
						5.150	28.07	8.10	119.9	1.0	26.37	8.25	1.2
						5.150	28.06	7.83	115.9	1.3	26.39	8.25	
						9.300	27.70	7.20	106.6	0.4	27.39	8.14	4.1
						9.300	27.70	7.03	104.0	0.3	27.39	8.14	
2013/7/2 8:19	C3	ME	832229	808874	14.6	1.000	28.11	9.90	146.2	0.9	25.73	8.20	1.1
						1.000	28.13	9.65	142.6	0.6	25.75	8.19	
						7.300	27.69	9.06	133.4	1.4	26.30	8.11	2.0
						7.300	27.76	8.58	126.4	1.1	26.25	8.11	
						13.600	25.87	7.94	115.8	2.9	30.32	7.85	3.1
						13.600	25.79	6.96	101.4	2.3	30.35	7.85	
2013/7/2 14:34	W1	MF	832953	807740	2.4	1.200	28.74	9.07	135.6	0.9	26.03	8.16	2.0
						1.200	28.66	9.27	138.5	1.1	26.08	8.18	
2013/7/2 14:18	W2	MF	832677	807972	12.5	1.000	28.68	8.71	130.1	0.7	26.04	8.16	1.8
						1.000	28.66	9.01	134.6	0.5	26.06	8.16	
						6.250	27.51	8.82	130.1	0.1	27.14	7.99	3.3
						6.250	27.47	8.19	120.6	0.3	27.06	7.99	
						11.500	25.87	7.14	104.3	1.0	30.51	7.75	3.6
						11.500	25.88	6.47	94.6	0.8	30.51	7.74	
2013/7/2 14:05	W3	MF	832049	807900	12	1.000	29.11	9.24	138.8	0.7	25.73	8.12	0.8
						1.000	29.03	9.28	139.2	0.9	25.76	8.14	
						6.000	28.07	8.06	119.7	0.2	26.69	7.92	1.4
						6.000	27.99	7.78	115.2	0.4	26.75	7.89	
						11.000	26.40	7.36	107.5	2.5	29.76	7.60	1.2
						11.000	26.32	7.40	108.6	2.3	30.08	7.60	
2013/7/2 14:50	C1	MF	833694	808187	14.6	1.000	28.52	10.50	156.2	0.6	25.86	8.25	2.0
						1.000	28.54	10.39	154.7	1.0	25.87	8.25	
						7.300	26.79	7.25	106.0	0.9	28.00	7.98	2.2
						7.300	27.21	7.37	107.6	0.5	27.78	8.01	
						13.600	25.84	6.82	100.4	2.9	30.45	7.83	3.4
						13.600	25.85	6.97	101.7	3.4	30.50	7.84	
2013/7/2 13:51	C2	MF	831458	807755	10	1.000	29.59	9.41	142.3	0.5	25.56	7.68	2.3
						1.000	29.57	9.15	138.3	0.4	25.58	7.66	
						5.000	28.14	8.17	121.3	0.5	26.62	7.45	2.5
						5.000	28.15	7.69	114.2	0.3	26.60	7.44	
						9.000	26.54	7.74	113.7	3.6	29.50	7.01	3.0
						9.000	26.54	7.25	106.5	3.7	29.56	7.00	
2013/7/2 15:11	C3	MF	832231	808849	15	1.000	28.49	8.62	128.3	1.0	25.94	8.24	1.2
						1.000	28.49	8.97	133.5	0.7	25.93	8.25	
						7.500	27.20	8.84	130.1	1.0	27.72	8.05	1.8
						7.500	27.20	8.35	122.8	1.5	27.72	8.05	
						14.000	25.95	7.38	107.7	1.4	30.24	7.86	1.8
						14.000	25.89	7.16	104.5	1.4	30.26	7.86	

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

AUES

Sok Kwu Wan

Date 4-Jul-13

Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
2013/7/4 10:21	W1	ME	832957	807728	2.4	1.200	28.59	7.92	118.1	1.5	25.93	8.14	3.2
						1.200	28.64	7.95	118.8	1.1	26.13	8.12	
2013/7/4 10:33	W2	ME	832674	808002	12.5	1.000	28.61	8.23	123.0	0.9	26.35	8.11	2.8
						1.000	28.60	7.93	118.4	1.0	26.33	8.12	
						6.250	28.13	8.19	122.3	0.8	27.61	8.08	2.4
						6.250	28.11	7.57	112.9	1.0	27.61	8.06	
						11.500	26.46	6.04	90.1	0.2	32.27	7.92	2.8
						11.500	26.28	5.68	84.3	0.5	31.99	7.91	
2013/7/4 10:45	W3	ME	832051	807879	12.1	1.000	28.74	8.73	130.5	1.3	26.00	8.10	2.2
						1.000	28.82	8.60	128.8	1.2	26.16	8.10	
						6.050	28.28	8.08	120.6	0.6	27.04	8.05	2.7
						6.050	28.19	7.90	117.7	0.8	27.18	8.05	
						11.100	26.28	7.53	111.8	1.0	32.16	7.89	3.5
						11.100	26.23	6.27	93.0	0.9	32.20	7.88	
2013/7/4 10:07	C1	ME	833719	808191	14.5	1.000	28.52	7.07	88.4	1.2	26.44	8.08	1.3
						1.000	28.46	7.33	105.3	1.3	26.04	8.08	
						7.250	28.35	7.15	109.3	0.9	26.76	8.08	2.8
						7.250	28.33	6.29	106.7	1.1	26.87	8.10	
						13.500	25.21	5.92	92.8	0.4	34.29	7.83	3.9
						13.500	25.30	5.01	74.0	0.5	34.25	7.83	
2013/7/4 11:00	C2	ME	831452	807751	10.6	1.000	28.75	8.02	120.2	1.0	26.36	8.10	3.2
						1.000	28.61	8.24	123.3	1.2	26.50	8.10	
						5.300	28.28	7.41	110.6	0.6	27.09	8.06	3.0
						5.300	28.27	7.51	112.0	0.8	26.98	8.07	
						9.600	27.51	7.58	113.4	1.4	29.76	7.94	3.4
						9.600	27.21	6.97	104.1	1.3	30.36	7.94	
2013/7/4 9:48	C3	ME	832241	808873	14.6	1.000	28.52	7.33	109.3	1.1	26.29	8.10	1.6
						1.000	28.44	6.98	104.1	1.2	26.39	8.12	
						7.300	28.32	7.23	107.6	1.2	26.58	8.11	1.4
						7.300	28.32	7.03	104.7	0.8	26.58	8.09	
						13.600	25.42	6.37	93.8	0.3	33.43	7.83	7.1
						13.600	25.63	4.65	68.6	0.5	32.90	7.84	
2013/7/4 16:55	W1	MF	832961	807758	2.7	1.350	28.70	9.24	136.8	0.6	24.44	8.11	1.7
						1.350	28.64	8.66	128.3	0.8	24.57	8.09	
2013/7/4 16:43	W2	MF	832675	807963	13.5	1.000	28.92	7.86	117.7	1.0	25.90	7.94	2.6
						1.000	28.93	8.56	128.2	1.2	25.89	7.93	
						6.750	27.96	8.12	121.3	0.8	28.15	7.86	3.6
						6.750	28.17	7.14	106.9	0.9	28.03	7.87	
						12.500	25.13	5.21	76.6	1.0	33.93	7.61	3.8
						12.500	25.26	4.80	70.7	1.2	33.77	7.62	
2013/7/4 16:29	W3	MF	832055	807906	13.2	1.000	29.00	9.54	142.9	1.2	25.61	7.96	1.2
						1.000	28.91	9.54	142.7	1.3	25.67	7.95	
						6.600	28.17	9.63	144.0	0.1	27.84	7.86	2.8
						6.600	28.36	8.33	124.7	0.0	27.41	7.87	
						12.200	25.31	7.43	109.4	1.2	33.62	7.60	3.2
						12.200	25.33	6.21	91.4	1.5	33.58	7.58	
2013/7/4 17:12	C1	MF	833731	808185	15.3	1.000	28.95	9.32	137.3	0.4	22.73	8.13	2.1
						1.000	28.95	9.44	139.3	0.5	22.97	8.15	
						7.650	27.25	7.06	104.8	1.4	29.21	7.97	4.1
						7.650	27.29	6.95	103.3	1.1	29.20	7.96	
						14.300	24.53	5.39	78.6	2.1	34.19	7.78	3.8
						14.300	24.31	5.18	75.3	1.9	34.48	7.81	
2013/7/4 16:17	C2	MF	831486	807724	11.2	1.000	28.77	9.19	136.8	1.2	25.30	7.85	2.4
						1.000	28.80	9.21	137.2	0.9	25.33	7.79	
						5.600	28.36	9.02	134.6	1.0	26.88	7.72	3.2
						5.600	28.34	8.64	128.8	0.8	26.72	7.73	
						10.200	27.13	6.24	93.5	3.8	31.19	7.52	3.5
						10.200	27.09	5.86	87.7	3.2	31.26	7.51	
2013/7/4 17:30	C3	MF	832241	808854	16.1	1.000	28.95	8.65	127.8	0.6	23.26	8.13	2.4
						1.000	28.99	8.73	129.1	0.5	23.29	8.14	
						8.050	27.12	8.82	131.6	0.8	30.50	7.98	2.5
						8.050	26.52	8.10	119.8	1.0	30.83	7.96	
						15.100	24.24	5.77	83.9	1.0	34.62	7.81	5.1
						15.100	24.18	5.20	75.6	1.2	34.67	7.80	

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

AUES

Sok Kwu Wan

Date 6-Jul-13

Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
2013/7/6 11:29	W1	ME	832956	807718	2.3	1.150	28.51	6.25	94.0	0.8	27.79	8.09	1.6
						1.150	28.52	6.03	90.8	0.9	27.94	8.08	
2013/7/6 11:14	W2	ME	832654	807977	12.5	1.000	28.52	7.15	107.5	1.0	27.81	8.10	1.3
						1.000	28.50	6.81	102.5	0.9	27.83	8.10	
						6.250	28.12	6.14	92.7	0.8	29.55	8.08	3.8
						6.250	28.10	6.32	95.3	1.1	29.54	8.07	
						11.500	27.00	5.55	83.1	0.2	31.37	8.00	3.3
						11.500	27.33	5.29	79.7	0.4	31.49	8.02	
2013/7/6 10:56	W3	ME	832058	807884	12.1	1.000	29.01	8.19	122.9	0.9	25.98	8.16	3.2
						1.000	28.95	8.20	123.1	0.7	26.10	8.15	
						6.050	28.60	8.04	121.4	0.8	28.29	8.10	3.6
						6.050	28.66	7.34	111.0	0.9	28.45	8.12	
						11.100	26.46	6.03	90.4	2.3	33.26	7.93	3.3
						11.100	26.14	5.38	80.2	2.1	33.33	7.91	
2013/7/6 11:47	C1	ME	833711	808195	14.4	1.000	28.85	10.14	115.7	0.9	26.60	8.10	1.7
						1.000	28.75	10.17	115.8	0.8	26.07	8.11	
						7.200	28.45	8.49	153.8	1.0	29.56	8.10	2.5
						7.200	28.53	7.74	154.4	1.0	29.40	8.10	
						13.400	25.57	7.70	125.8	1.1	33.99	7.86	2.9
						13.400	25.56	7.74	114.7	1.6	33.98	7.85	
2013/7/6 10:41	C2	ME	831459	807762	9.8	1.000	29.04	7.28	109.6	0.8	26.32	8.10	2.6
						1.000	28.99	7.15	107.5	0.8	26.40	8.10	
						4.900	28.67	7.67	115.3	0.9	27.36	8.12	3.9
						4.900	28.67	7.26	109.1	0.7	27.21	8.08	
						8.800	28.30	5.85	88.0	0.5	28.53	8.00	4.9
						8.800	28.22	5.85	88.0	0.6	28.79	8.01	
2013/7/6 12:06	C3	ME	832237	808848	14.6	1.000	28.80	6.60	99.1	0.8	26.63	8.08	2.5
						1.000	28.81	6.22	93.4	0.4	26.62	8.09	
						7.300	28.52	6.85	103.6	1.0	28.61	8.08	1.9
						7.300	28.64	6.40	96.9	1.1	28.65	8.10	
						13.600	25.74	5.06	75.1	1.8	33.75	7.87	6.2
						13.600	25.69	4.56	67.5	1.9	33.38	7.88	
2013/7/6 17:23	W1	MF	832972	807741	2.8	1.400	29.03	9.06	136.6	0.7	26.73	8.10	2.2
						1.400	28.92	8.71	131.3	0.5	27.06	8.09	
2013/7/6 17:07	W2	MF	832659	807996	13.7	1.000	28.99	6.98	105.3	1.2	26.90	8.07	4.0
						1.000	28.99	6.79	102.5	0.9	26.92	8.08	
						6.850	28.41	6.60	100.2	0.6	29.78	8.05	3.8
						6.850	28.35	6.28	95.1	0.4	29.69	8.06	
						12.700	26.64	5.18	77.8	2.2	33.17	7.91	5.3
						12.700	26.68	4.93	74.1	2.1	33.11	7.89	
2013/7/6 16:51	W3	MF	832040	807875	13.4	1.000	29.04	7.18	108.4	0.7	26.93	8.08	1.8
						1.000	28.96	7.32	110.4	1.0	26.96	8.06	
						6.700	28.38	7.15	108.6	0.8	30.01	8.03	1.8
						6.700	28.37	6.81	103.5	0.6	29.96	8.03	
						12.400	26.59	5.99	90.0	1.7	33.29	7.90	2.3
						12.400	26.63	5.34	80.2	2.1	33.25	7.88	
2013/7/6 17:41	C1	MF	833724	808183	15.5	1.000	29.06	9.32	140.4	0.5	26.56	8.12	2.2
						1.000	29.05	9.11	137.4	0.8	26.58	8.12	
						7.750	28.68	9.95	150.7	0.4	28.70	8.09	2.4
						7.750	28.66	8.68	132.0	0.1	29.37	8.09	
						14.500	26.03	5.89	87.7	1.1	33.40	7.90	1.8
						14.500	26.11	5.96	88.8	0.8	33.34	7.90	
2013/7/6 16:35	C2	MF	831489	807741	11.2	1.000	28.99	8.13	122.5	0.6	26.81	8.09	3.3
						1.000	29.01	7.48	112.8	0.5	26.81	8.08	
						5.600	28.29	7.77	117.5	0.5	29.35	8.04	3.9
						5.600	28.35	7.40	111.9	0.4	29.26	8.02	
						10.200	27.74	6.38	96.8	0.7	31.80	7.99	5.8
						10.200	27.36	6.23	94.4	1.2	32.61	7.95	
2013/7/6 18:00	C3	MF	832229	808876	16	1.000	29.06	8.90	125.3	0.9	26.66	8.12	1.5
						1.000	29.04	8.49	123.1	1.1	26.71	8.11	
						8.000	28.42	6.64	102.2	1.7	30.52	8.05	2.8
						8.000	28.44	6.89	103.6	2.2	30.70	8.05	
						15.000	25.74	6.44	95.5	0.2	33.53	7.91	4.6
						15.000	25.65	6.40	94.7	0.0	33.57	7.90	

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

AUES

Sok Kwu Wan

Date 9-Jul-13

Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
2013/7/9 13:56	W1	ME	832974	807728	2.6	1.300	28.43	7.60	112.2	0.9	24.69	8.21	1.4
						1.300	28.44	8.21	121.1	0.8	24.68	8.21	
2013/7/9 13:42	W2	ME	832657	807977	12.8	1.000	28.46	10.54	155.6	0.8	24.63	8.22	1.3
						1.000	28.37	10.62	156.6	1.0	24.69	8.22	
						6.400	27.49	9.84	144.7	1.0	26.84	8.12	1.3
						6.400	27.58	9.35	137.7	1.1	26.81	8.13	
						11.800	25.04	7.33	107.3	3.4	33.38	7.89	1.9
						11.800	24.99	6.41	93.8	3.5	33.48	7.89	
2013/7/9 13:29	W3	ME	832048	807900	12.6	1.000	28.73	10.59	156.8	0.8	24.43	8.22	1.5
						1.000	28.72	10.47	155.1	0.9	24.44	8.21	
						6.300	27.86	9.74	144.1	0.7	26.68	8.08	1.6
						6.300	27.80	9.07	134.0	0.6	26.77	8.07	
						11.600	24.31	5.92	85.9	3.2	33.84	7.82	1.9
						11.600	24.34	5.79	83.9	3.7	33.82	7.79	
2013/7/9 14:11	C1	ME	833711	808158	13.8	1.000	28.43	10.50	154.9	0.6	24.66	8.24	1.2
						1.000	28.52	10.70	158.1	0.5	24.60	8.25	
						6.900	27.25	8.92	131.5	1.0	27.95	8.07	1.6
						6.900	27.27	8.44	124.5	1.1	27.91	8.09	
						12.800	24.91	6.78	99.0	1.8	33.29	7.88	1.6
						12.800	25.08	6.08	89.0	1.3	33.16	7.89	
2013/7/9 13:16	C2	ME	831454	807749	10.1	1.000	28.99	9.73	144.6	1.0	24.18	8.00	1.4
						1.000	29.00	10.55	156.8	1.1	24.24	8.02	
						5.050	28.62	10.35	153.3	0.6	24.83	7.99	1.4
						5.050	28.64	9.95	147.5	0.9	24.89	8.00	
						9.100	25.87	6.93	101.9	4.1	31.52	7.76	3.2
						9.100	26.06	6.59	97.0	3.5	31.34	7.78	
2013/7/9 14:28	C3	ME	832207	808889	14.3	1.000	28.42	9.05	133.7	0.7	24.74	8.27	1.2
						1.000	28.43	8.85	130.7	0.5	24.73	8.26	
						7.150	27.08	8.20	121.2	1.0	28.87	8.07	2.2
						7.150	27.13	7.37	108.9	1.2	28.73	8.07	
						13.300	24.52	6.17	89.8	1.4	33.81	7.90	2.7
						13.300	24.46	5.68	82.6	1.6	33.87	7.90	
2013/7/9 17:11	W1	MF	832977	807718	2.8	1.400	27.60	6.72	98.5	0.4	25.98	8.15	2.0
						1.400	27.65	6.74	98.9	0.2	25.96	8.15	
2013/7/9 16:58	W2	MF	832649	808001	13	1.000	27.74	7.21	105.9	0.7	25.80	8.17	1.2
						1.000	27.70	7.47	109.7	0.5	25.85	8.15	
						6.500	27.10	6.96	101.7	0.3	26.74	8.08	1.2
						6.500	27.20	6.50	95.0	0.2	26.64	8.08	
						12.000	26.07	5.57	81.8	2.0	30.76	7.94	1.2
						12.000	26.06	5.20	76.3	1.5	30.78	7.95	
2013/7/9 16:42	W3	MF	832033	807869	12.8	1.000	27.78	9.46	138.9	0.7	25.69	8.18	2.5
						1.000	27.73	9.30	136.5	0.9	25.78	8.18	
						6.400	27.18	8.91	130.2	0.3	26.66	8.07	2.5
						6.400	27.18	8.20	119.8	0.6	26.69	8.06	
						11.800	27.25	7.87	115.1	0.9	26.54	8.07	2.9
						11.800	26.20	6.27	92.2	1.3	30.73	7.94	
2013/7/9 17:29	C1	MF	833722	808164	14.7	1.000	27.71	7.99	117.1	0.8	25.62	8.18	1.5
						1.000	27.69	7.90	115.8	0.9	25.65	8.16	
						7.350	27.52	6.69	98.2	1.0	26.07	8.14	1.6
						7.350	27.49	6.69	97.9	1.1	26.07	8.14	
						13.700	27.49	6.53	95.7	0.5	26.06	8.13	1.3
						13.700	25.95	5.81	85.7	2.2	31.84	7.97	
2013/7/9 16:28	C2	MF	831439	807765	10.4	1.000	27.92	9.27	135.1	0.3	25.36	8.19	1.2
						1.000	26.98	9.33	136.4	0.6	27.37	8.04	
						5.200	27.07	8.52	124.6	0.0	27.09	8.05	1.3
						5.200	27.07	8.52	124.6	0.3	27.09		
						9.400	26.16	6.08	89.2	1.7	30.43	7.95	1.2
						9.400	26.15	6.01	88.4	2.1	30.80	7.95	
2013/7/9 17:49	C3	MF	832239	80888	15.1	1.000	27.70	8.75	128.2	0.2	25.64	8.16	1.1
						1.000	27.71	9.77	142.9	0.3	25.64	8.17	
						7.550	27.18	8.16	119.1	0.7	26.39	8.11	2.0
						7.550	27.42	8.79	128.6	0.5	26.13	8.13	
						14.100	26.05	6.40	94.5	2.9	31.75	7.95	2.2
						14.100	26.09	4.66	68.8	3.1	31.69	7.94	

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

AUES

Sok Kwu Wan

Date 11-Jul-13

Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
2013/7/11 14:27	W1	ME	832949	807759	2.5	1.250	28.50	8.31	113.0	1.6	32.68	8.05	2.9
						1.250	28.60	8.34	115.8	1.3	30.86	8.05	
2013/7/11 14:13	W2	ME	832665	807990	12.7	1.000	28.90	8.38	116.3	1.6	34.46	8.05	2.8
						1.000	28.90	8.38	116.1	1.3	34.31	8.04	
						6.350	27.80	8.39	107.5	0.1	29.99	7.95	2.0
						6.350	27.70	8.34	102.5	0.0	29.99	7.94	
						11.700	27.20	8.28	87.3	0.8	31.02	7.71	4.0
						11.700	27.10	8.28	83.0	0.6	31.09	7.71	
2013/7/11 14:02	W3	ME	832049	807875	12.5	1.000	28.90	8.41	121.0	2.2	32.82	8.06	1.3
						1.000	28.90	8.41	119.9	2.8	32.83	8.06	
						6.250	27.60	8.36	101.9	1.1	30.34	7.96	1.0
						6.250	27.50	8.33	97.3	0.6	30.39	7.97	
						11.500	25.70	8.24	72.4	0.1	30.80	7.72	1.8
						11.500	25.20	8.23	65.3	0.4	30.86	7.76	
2013/7/11 14:42	C1	ME	833726	808195	14.1	1.000	28.10	8.58	112.8	1.5	31.32	8.03	1.6
						1.000	28.10	8.53	113.6	1.3	29.43	8.03	
						7.050	26.20	8.32	76.3	0.2	29.14	8.02	1.8
						7.050	26.10	8.31	69.6	0.3	28.96	8.01	
						13.100	25.40	8.21	59.9	0.9	28.97	7.70	1.7
						13.100	5.70	8.30	178.5	0.6	30.97	7.69	
2013/7/11 13:50	C2	ME	831483	807729	10.2	1.000	29.20	8.95	120.8	2.7	35.39	8.05	1.9
						1.000	29.10	8.84	123.2	2.6	35.39	8.05	
						5.100	28.10	8.72	127.6	0.7	30.34	8.01	1.4
						5.100	28.00	8.65	121.3	1.0	30.31	8.01	
						9.200	27.90	8.60	112.1	0.5	30.94	7.90	1.6
						9.200	27.50	8.47	100.3	0.4	30.84	7.90	
2013/7/11 15:01	C3	ME	832244	808875	14.6	1.000	27.70	8.09	103.3	0.9	30.93	8.01	2.1
						1.000	27.70	8.07	103.2	0.8	34.86	7.99	
						7.300	28.10	8.40	118.4	0.7	31.59	8.00	1.2
						7.300	28.30	8.34	112.2	0.7	28.87	8.00	
						13.600	27.80	8.38	106.6	0.3	28.85	7.67	1.8
						13.600	27.70	8.52	105.2	0.1	30.15	7.68	
2013/7/11 9:02	W1	MF	832955	807751	2.7	1.350	28.80	8.22	92.0	0.6	36.02	8.17	1.4
						1.350	28.80	8.22	91.5	0.0	31.70	8.17	
2013/7/11 8:53	W2	MF	832685	807964	13.2	1.000	28.60	8.26	85.0	3.9	31.72	8.20	1.2
						1.000	28.60	8.24	86.3	3.8	31.72	8.19	
						6.600	26.80	8.18	74.3	0.0	32.27	8.12	1.2
						6.600	26.40	8.17	62.8	0.0	32.14	8.11	
						12.200	25.40	8.23	53.9	1.1	36.11	7.94	1.3
						12.200	25.30	8.17	53.2	0.6	36.02	7.94	
2013/7/11 8:40	W3	MF	832036	807870	13.1	1.000	28.50	8.30	87.4	0.4	32.07	8.17	1.3
						1.000	28.50	8.27	88.4	0.5	32.02	8.20	
						6.550	27.50	8.25	83.4	0.7	35.06	8.14	2.4
						6.550	27.40	8.23	81.6	0.9	35.23	8.13	
						12.100	26.60	8.15	68.3	1.3	36.59	7.97	3.2
						12.100	26.30	8.16	64.2	1.8	36.46	7.97	
11/7/2013 .9:16	C1	MF	833717	808188	14.8	1.000	28.90	8.46	118.9	0.5	31.72	8.21	1.8
						1.000	28.90	8.46	120.0	0.7	31.74	8.21	
						7.400	26.30	8.28	66.9	1.0	31.73	8.16	1.4
						7.400	26.30	8.28	64.8	1.2	34.91	8.15	
						13.800	25.70	8.28	58.8	1.3	34.66	7.94	1.2
						13.800	25.50	8.21	58.0	1.5	35.68	7.93	
2013/7/11 8:26	C2	MF	831439	807751	10.8	1.000	28.80	8.41	97.9	0.0	32.52	8.27	1.7
						1.000	28.80	8.38	95.7	0.4	32.62	8.26	
						5.400	26.20	8.26	65.5	0.7	34.65	8.19	1.6
						5.400	26.00	8.23	62.2	0.9	34.66	8.19	
						9.800	25.40	8.26	55.3	1.1	36.14	8.07	1.2
						9.800	25.20	8.21	51.0	1.4	36.12	8.06	
2013/7/11 9:34	C3	MF	832212	808890	15.2	1.000	28.90	8.38	111.5	1.4	35.68	8.15	1.4
						1.000	28.80	8.40	115.5	1.0	31.54	8.14	
						7.600	26.60	8.30	80.8	0.4	31.55	8.10	1.7
						7.600	26.40	8.27	71.5	0.6	33.39	8.09	
						14.200	25.40	8.26	57.3	1.2	33.11	7.90	1.3
						14.200	25.30	8.25	53.9	1.8	35.39	7.91	

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

AUES

Sok Kwu Wan

Date 13-Jul-13

Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
2013/7/13 15:11	W1	ME	832981	807743	2.6	1.300	27.00	7.70	96.7	0.6	27.17	8.24	2.2
						1.300	27.00	7.72	96.9	0.4	27.25	8.24	
2013/7/13 14:59	W2	ME	832659	807992	12.5	1.000	26.90	8.02	100.5	0.7	28.05	8.34	3.1
						1.000	27.00	7.93	99.4	0.9	28.03	8.25	
						6.250	26.20	6.91	85.4	0.4	28.40	8.20	2.7
						6.250	26.10	6.03	74.4	0.2	28.51	8.19	
						11.500	25.10	5.14	62.4	1.7	32.49	8.23	2.6
						11.500	25.10	5.14	62.3	1.4	32.49	8.20	
2013/7/13 14:44	W3	ME	832056	807885	12.1	1.000	27.00	7.65	96.0	0.1	28.50	8.22	2.4
						1.000	27.00	7.60	95.4	0.1	28.48	8.22	
						6.050	26.60	7.23	90.1	0.6	28.16	8.26	2.9
						6.050	26.50	7.02	87.3	0.7	28.20	8.24	
						11.100	25.70	6.32	77.4	0.3	28.29	8.20	4.4
						11.100	25.20	5.85	71.0	0.5	28.28	8.17	
2013/7/13 15:27	C1	ME	833730	808156	14.6	1.000	27.00	7.95	99.7	0.4	30.14	8.29	2.0
						1.000	27.00	7.94	99.7	0.4	30.20	8.28	
						7.300	26.90	7.68	96.1	0.6	32.54	8.22	3.0
						7.300	26.80	7.52	94.0	0.5	32.47	8.24	
						13.600	25.70	6.38	78.3	0.9	28.05	8.18	2.4
						13.600	25.20	5.58	67.8	0.8	28.04	8.16	
2013/7/13 14:31	C2	ME	831459	807725	10.2	1.000	27.00	7.75	97.2	0.3	28.53	8.34	2.2
						1.000	27.00	7.69	96.5	0.1	28.54	8.30	
						5.100	27.00	7.62	95.5	0.7	28.68	8.30	4.4
						5.100	27.00	7.42	93.1	0.6	28.65	8.30	
						9.200	25.70	6.74	82.6	0.2	28.36	8.14	6.2
						9.200	25.00	6.10	73.9	0.2	28.37	8.12	
2013/7/13 15:46	C3	ME	832234	808849	14.9	1.000	27.00	7.70	96.7	1.2	31.28	8.24	3.5
						1.000	27.00	7.62	95.7	1.4	31.27	8.25	
						7.450	26.60	7.06	88.0	0.6	28.24	8.21	3.4
						7.450	26.50	6.81	84.7	0.5	28.22	8.21	
						13.900	25.50	6.05	74.0	1.1	30.17	8.18	3.4
						13.900	25.00	5.21	63.0	1.3	30.19	8.14	
2013/7/13 8:50	W1	MF	832954	807735	2.4	1.200	26.50	7.80	97.0	1.7	29.88	8.57	2.2
						1.200	26.70	7.95	99.2	1.5	29.93	8.40	
2013/7/13 8:35	W2	MF	832666	807962	12.2	1.000	26.90	7.98	99.9	0.9	28.24	8.33	3.8
						1.000	26.90	7.99	100.0	0.9	28.22	8.31	
						6.100	26.20	6.89	85.2	1.5	30.17	8.19	2.6
						6.100	26.20	6.52	80.6	1.6	30.19	8.13	
						11.200	25.70	5.78	70.9	0.3	28.07	8.12	3.3
						11.200	25.20	5.22	63.4	0.8	28.07	8.10	
2013/7/13 8:22	W3	MF	832022	807895	11.8	1.000	26.90	8.10	101.4	0.1	28.05	8.37	2.1
						1.000	26.90	8.11	101.6	0.1	28.04	8.35	
						5.900	26.50	8.02	99.7	1.6	28.70	8.24	3.1
						5.900	26.40	7.42	92.1	1.7	28.84	8.22	
						10.800	25.40	5.95	72.4	1.3	31.28	8.19	5.4
						10.800	25.20	5.39	65.4	1.4	31.27	8.14	
2013/7/13 9:06	C1	MF	833718	808177	14.1	1.000	26.70	8.04	100.3	0.8	29.49	8.31	2.3
						1.000	26.80	8.07	101.0	0.6	29.51	8.31	
						7.050	26.50	6.94	86.2	1.6	30.91	8.21	2.8
						7.050	26.40	6.81	84.6	2.1	30.50	8.21	
						13.100	26.00	6.41	79.1	19.0	33.86	8.24	2.8
						13.100	26.00	6.12	75.4	2.1	34.12	8.21	
2013/7/13 8:10	C2	MF	831482	807749	9.6	1.000	26.90	6.31	79.1	0.6	27.17	7.75	4.0
						1.000	26.90	6.30	79.0	0.7	27.25	7.86	
						4.800	26.60	7.08	88.1	1.3	30.14	8.26	3.4
						4.800	26.40	7.00	86.9	1.0	30.20	8.06	
						8.600	26.10	6.83	84.3	1.4	32.54	8.22	3.3
						8.600	25.60	6.92	84.7	1.7	32.47	8.23	
2013/7/13 9:23	C3	MF	832230	808871	14.3	1.000	26.90	7.85	98.3	0.5	29.34	8.31	3.8
						1.000	26.90	7.84	98.1	0.8	29.39	8.26	
						7.150	26.40	7.16	88.9	0.5	30.51	8.18	4.5
						7.150	26.40	6.98	86.6	0.8	30.36	8.21	
						13.300	25.00	5.24	63.4	0.9	33.72	8.12	5.1
						13.300	24.50	4.96	59.5	1.1	33.72	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

AUES

Sok Kwu Wan

Date 16-Jul-13

Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
2013/7/16 17:14	W1	ME	832954	807738	2.5	1.250	27.10	7.87	99.0	0.3	31.40	8.28	2.4
						1.250	27.10	8.07	101.5	0.6	31.63	8.29	
2013/7/16 17:04	W2	ME	832683	807966	13.1	1.000	27.20	8.60	108.3	0.6	31.25	8.34	2.2
						1.000	27.20	8.65	108.9	0.5	31.74	8.34	
						6.050	26.60	7.57	94.4	0.9	31.71	8.28	3.6
						6.050	26.60	7.40	92.2	0.7	30.43	8.27	
						12.100	25.10	6.06	73.5	0.3	30.63	8.16	3.5
						12.100	25.00	5.90	71.4	0.1	31.39	8.16	
2013/7/16 16:49	W3	ME	832047	807890	12.9	1.000	27.10	7.87	99.0	0.3	31.40	8.28	2.6
						1.000	27.20	8.13	102.4	0.7	32.06	8.33	
						6.450	26.90	8.52	106.7	0.9	31.99	8.31	2.5
						6.450	26.80	8.00	100.0	0.4	30.96	8.28	
						11.900	26.00	7.12	87.7	0.7	30.96	8.21	2.6
						11.900	25.50	6.54	79.9	0.6	31.25	8.18	
2013/7/16 17:31	C1	ME	833713	808149	14.3	1.000	27.00	8.23	103.3	0.4	31.62	8.39	2.3
						1.000	27.00	8.25	103.6	0.2	30.53	8.38	
						7.150	26.70	7.67	95.8	0.3	30.56	8.29	2.3
						7.150	26.70	7.57	94.6	0.0	30.31	8.29	
						13.300	25.20	5.49	66.7	0.2	30.31	8.17	2.1
						13.300	25.20	5.29	64.3	0.1	31.27	8.16	
2013/7/16 16:34	C2	ME	831438	807729	10.2	1.000	27.20	8.60	108.3	0.9	31.27	8.48	2.6
						1.000	27.20	8.65	108.9	0.7	31.27	8.47	
						5.100	27.10	8.74	109.8	0.8	31.29	8.36	2.6
						5.100	27.00	8.66	108.7	0.5	31.67	8.36	
						9.200	26.20	7.66	94.8	0.7	31.79	8.24	3.6
						9.200	26.10	6.91	85.2	0.4	32.05	8.21	
2013/7/16 17:49	C3	ME	832209	808847	15.1	1.000	26.90	7.96	99.8	1.5	31.29	8.29	3.0
						1.000	26.90	7.95	99.5	1.7	31.45	8.29	
						7.550	26.00	5.98	73.7	0.9	31.37	8.19	2.6
						7.550	26.00	5.90	72.8	0.5	30.31	8.18	
						14.100	24.90	5.02	60.6	1.2	30.32	8.13	3.0
						14.100	24.90	4.90	59.2	0.8	31.31	8.13	
2013/7/16 11:55	W1	MF	832957	807751	2.2	1.100	27.10	6.60	83.0	0.7	30.16	8.10	1.6
						1.100	27.10	6.56	82.5	0.9	30.18	8.12	
2013/7/16 12:07	W2	MF	832664	808006	12	1.000	27.20	8.51	107.2	0.6	30.23	8.40	1.9
						1.000	27.20	8.53	107.5	0.4	30.25	8.40	
						6.000	26.70	6.52	81.4	0.9	30.85	8.25	2.4
						6.000	26.70	6.24	77.8	1.0	30.78	8.24	
						11.000	25.50	5.40	65.9	0.4	30.91	8.17	1.9
						11.000	25.30	4.78	58.1	0.8	30.87	8.15	
2013/7/16 12:21	W3	MF	832060	807899	11.8	1.000	27.20	7.41	93.2	0.9	30.43	8.28	2.8
						1.000	27.20	8.68	109.3	0.7	30.36	8.32	
						5.900	26.60	7.50	93.6	0.3	30.96	8.25	2.4
						5.900	26.60	7.14	89.0	0.2	30.81	8.24	
						10.800	25.50	4.54	55.4	0.5	31.06	8.13	2.9
						10.800	25.50	4.29	52.4	0.6	31.06	8.13	
2013/7/16 11:39	C1	MF	833727	808199	13.9	1.000	27.20	6.61	83.2	0.5	30.62	8.22	1.7
						1.000	27.20	6.66	83.8	0.6	30.05	8.22	
						6.950	26.30	6.24	77.3	0.8	30.04	8.16	1.6
						6.950	26.20	5.75	71.1	0.7	30.52	8.14	
						12.900	26.20	5.52	68.3	1.2	30.52	8.13	2.0
						12.900	25.60	4.96	60.7	1.5	30.73	8.09	
2013/7/16 12:39	C2	MF	831451	807729	9.6	1.000	27.10	8.46	106.3	0.7	30.42	8.32	1.9
						1.000	27.10	8.38	105.3	0.7	30.36	8.32	
						4.800	26.80	6.80	85.1	0.2	30.80	8.25	2.1
						4.800	26.80	6.64	83.1	0.0	30.80	8.24	
						8.600	25.30	4.65	56.6	0.3	31.13	8.12	2.2
						8.600	25.30	4.41	53.7	0.4	31.13	8.11	
2013/7/16 11:22	C3	MF	832206	808890	14.1	1.000	27.10	6.91	86.8	1.2	29.82	8.24	2.1
						1.000	27.10	6.74	84.8	1.0	29.85	8.23	
						7.050	26.20	6.23	77.1	0.6	30.33	8.24	3.1
						7.050	25.80	5.18	63.5	0.8	30.36	8.16	
						13.100	25.00	4.29	51.9	1.2	30.69	8.21	4.0
						13.100	24.90	4.02	48.5	1.5	30.61	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

AUES

Sok Kwu Wan

Date 18-Jul-13

Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
2013/7/18 8:50	W1	ME	832954	807748	2.1	1.050	26.77	7.19	105.5	0.6	28.65	8.05	2.4
						1.050	26.78	7.32	107.5	0.7	28.63	8.05	
2013/7/18 9:02	W2	ME	832660	807978	11.6	1.000	26.81	7.44	109.1	0.9	28.44	8.05	1.7
						1.000	26.78	7.49	109.8	1.0	28.48	8.04	
						5.800	26.21	7.25	105.9	0.4	29.34	7.95	2.1
						5.800	26.15	7.09	103.4	0.7	29.49	7.94	
						10.600	24.05	4.17	60.0	2.1	33.18	7.71	1.9
						10.600	24.20	3.92	56.5	2.3	33.10	7.71	
2016/7/18 9:17	W3	ME	832056	807872	11.4	1.000	26.91	7.58	111.4	0.5	28.51	8.06	2.4
						1.000	26.94	7.62	112.0	0.5	28.49	8.06	
						5.700	26.57	7.17	104.1	0.8	27.29	7.96	2.2
						5.700	26.60	6.96	102.0	0.6	28.90	7.97	
						10.400	24.98	6.77	97.5	1.2	30.55	7.72	2.3
						10.400	25.03	6.35	92.2	1.3	31.80	7.76	
2013/7/18 8:34	C1	ME	833716	808163	13.3	1.000	26.92	6.50	95.4	0.7	28.06	8.03	1.6
						1.000	26.91	6.92	101.6	0.5	28.11	8.03	
						6.650	26.89	7.33	107.6	0.4	28.23	8.02	1.6
						6.650	26.83	7.36	107.9	0.8	28.30	8.01	
						12.300	23.85	6.02	86.4	0.7	33.62	7.70	2.2
						12.300	23.86	4.88	70.1	1.1	33.57	7.69	
2016/7/18 9:32	C2	ME	831454	807752	9.2	1.000	26.92	5.23	77.0	1.0	28.53	8.05	2.3
						1.000	26.94	6.25	92.0	0.8	28.56	8.05	
						4.600	26.67	7.30	107.1	0.5	28.94	8.01	3.3
						4.600	26.71	7.26	106.6	0.6	28.88	8.01	
						8.200	26.29	7.03	102.9	1.6	29.64	7.90	3.0
						8.200	26.27	6.56	96.0	1.8	29.63	7.90	
2013/7/18 8:15	C3	ME	832242	808875	13.8	1.000	27.01	6.71	98.4	0.5	27.81	8.01	1.8
						1.000	26.94	7.21	105.7	0.7	27.92	7.99	
						6.900	26.97	7.52	110.4	0.8	28.10	8.00	1.8
						6.900	26.92	7.50	110.0	1.0	28.09	8.00	
						12.800	23.83	5.73	82.1	0.5	33.26	7.67	2.3
						12.800	23.86	4.68	67.1	0.7	33.27	7.68	
2013/7/18 15:18	W1	MF	832976	807716	2.4	1.200	27.28	6.04	89.4	0.6	28.69	8.16	1.9
						1.200	27.27	6.90	102.2	0.7	28.70	8.16	
2013/7/18 15:03	W2	MF	832657	807981	12.3	1.000	27.21	6.30	93.2	1.4	28.66	8.15	1.7
						1.000	27.25	7.08	104.8	1.6	28.64	8.17	
						6.150	25.81	8.09	118.5	1.1	31.30	7.90	1.9
						6.150	25.78	7.13	104.5	1.3	31.32	7.90	
						11.300	25.77	6.26	91.7	1.2	31.32	7.90	1.4
						113.000	24.75	4.81	70.1	0.8	33.26	7.76	
2013/7/18 14:48	W3	MF	832051	807899	11.8	1.000	27.21	6.18	91.4	1.0	28.76	8.11	2.4
						1.000	27.20	7.04	104.2	0.7	28.79	8.11	
						5.900	26.49	7.60	111.0	0.0	28.58	7.91	2.2
						5.900	26.50	6.39	93.9	0.3	29.74	7.93	
						10.800	24.72	4.95	72.1	2.0	33.38	7.73	2.5
						10.800	24.66	4.26	62.0	2.1	33.47	7.72	
2013/7/18 15:34	C1	MF	833723	808197	13.9	1.000	27.17	6.83	100.9	0.7	28.66	8.17	1.8
						1.000	27.18	7.44	109.9	0.9	28.66	8.17	
						6.950	25.52	7.88	115.1	0.6	31.70	7.85	2.0
						6.950	25.64	6.39	93.5	0.5	31.41	7.86	
						12.900	25.73	5.88	86.1	0.7	31.20	7.87	1.9
						12.900	24.38	4.25	61.1	0.5	32.01	7.73	
2013/7/18 14:35	C2	MF	831479	807738	10.1	1.000	27.21	6.46	95.5	0.7	28.65	8.05	1.6
						1.000	27.21	6.55	96.9	0.9	28.65	8.02	
						5.050	27.02	6.60	97.5	0.5	29.04	7.97	1.8
						5.050	26.85	6.45	94.5	0.7	28.17	7.95	
						9.100	24.99	5.71	83.2	2.4	32.70	7.69	1.9
						9.100	25.01	4.71	68.6	2.8	32.65	7.71	
2013/6/18 15:53	C3	MF	832238	808873	14.5	1.000	27.22	7.10	105.0	0.7	28.64	8.16	1.8
						1.000	27.15	6.64	98.1	0.9	28.71	8.14	
						7.250	27.14	7.35	108.6	0.5	28.72	8.14	1.8
						7.250	25.15	7.87	114.9	0.6	32.46	7.79	
						13.500	25.10	6.40	93.4	0.6	32.51	7.78	2.6
						13.500	24.25	4.21	61.0	0.9	33.88	7.73	

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

AUES

Sok Kwu Wan

Date 20-Jul-13

Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
2013/7/20 10:34	W1	ME	832961	807720	2.4	1.200	26.76	5.70	84.3	0.5	30.04	7.90	1.3
						1.200	26.78	5.70	84.3	0.4	30.02	7.91	
2013/7/20 10:41	W2	ME	832644	807974	12.3	1.000	26.75	5.81	85.9	0.5	30.05	7.91	1.0
						1.000	26.73	6.08	89.9	0.8	30.05	7.89	
						6.150	26.40	5.82	85.8	0.4	30.56	7.85	2.0
						6.150	26.36	5.78	84.3	0.6	28.85	7.86	
						11.300	26.44	5.52	81.5	0.2	30.67	7.85	1.8
						11.600	26.29	5.43	80.0	0.3	30.88	7.84	
20/7/213 10:55	W3	ME	832055	807903	11.9	1.000	27.28	5.40	80.3	0.6	29.44	7.88	1.0
						1.000	27.25	5.67	84.3	0.6	29.47	7.87	
						5.950	26.54	5.51	81.5	0.0	30.57	7.83	0.8
						5.950	26.54	5.40	79.8	0.4	30.57	7.83	
						10.900	25.94	5.09	74.8	3.8	31.25	7.75	2.1
						10.900	26.05	5.08	74.7	2.4	31.16	7.75	
2013/7/20 10:17	C1	ME	833725	808194	13.9	1.000	27.04	6.82	101.1	1.7	29.65	7.89	1.1
						1.000	27.04	6.82	101.1	1.7	29.64	7.88	
						6.950	26.81	6.65	98.4	0.4	30.04	7.89	1.1
						6.950	26.77	6.65	98.4	0.3	30.03	7.88	
						12.900	26.47	6.47	95.5	0.6	30.50	7.84	1.7
						12.900	26.45	6.35	93.6	0.9	30.24	7.84	
2013/7/20 11:06	C2	ME	831478	807758	10.1	1.000	27.23	5.19	76.9	0.2	29.06	7.83	1.1
						1.000	27.23	5.19	76.9	0.3	29.06	7.83	
						5.050	26.69	5.07	75.0	0.8	30.13	7.84	2.3
						5.050	26.59	4.92	72.7	0.7	30.37	7.86	
						9.100	26.14	4.76	70.1	2.1	30.99	7.78	2.2
						9.100	26.14	4.76	69.5	2.1	30.98	7.77	
2013/7/20 9:59	C3	ME	832231	808883	14.3	1.000	27.13	7.11	105.4	0.3	29.30	7.87	0.8
						1.000	27.00	7.12	105.4	0.5	29.36	7.84	
						7.150	26.73	6.64	97.8	0.7	29.52	7.83	1.3
						7.150	26.72	6.49	95.9	0.8	29.92	7.83	
						13.300	26.53	6.21	91.6	0.1	30.25	7.81	1.3
						13.300	26.49	6.12	90.2	0.3	30.28	7.80	
2013/7/20 16:49	W1	MF	832978	807728	2.6	1.300	27.07	6.49	96.6	1.6	30.15	7.95	1.7
						1.300	26.96	6.69	98.4	1.7	28.56	7.93	
2013/7/20 16:35	W2	MF	832647	807977	12.7	1.000	27.08	7.08	105.2	1.2	29.82	7.92	0.8
						1.000	26.99	6.90	101.4	1.3	28.24	7.93	
						6.350	26.71	6.41	95.0	0.8	30.46	7.95	0.6
						6.350	26.68	6.26	92.7	0.9	30.44	7.92	
						11.700	26.42	5.84	86.3	1.6	30.67	7.88	3.0
						11.700	26.39	5.84	86.3	1.0	30.89	7.87	
2013/7/20 16:19	W3	MF	832050	807876	12.3	1.000	27.27	7.08	105.1	0.2	29.13	7.87	1.5
						1.000	27.29	7.08	105.1	0.3	29.13	7.88	
						6.150	26.68	6.95	102.9	0.3	30.45	7.89	1.7
						6.150	26.57	6.50	96.0	0.4	30.25	7.88	
						11.300	26.26	6.30	93.0	1.2	31.02	7.86	1.6
						11.300	26.19	6.24	91.1	0.9	29.38	7.86	
2013/7/20 17:04	C1	MF	833727	808180	14.4	1.000	27.00	6.68	99.3	0.5	30.23	7.94	1.4
						1.000	27.05	6.49	96.5	0.6	30.18	7.97	
						7.200	26.67	6.13	90.7	0.3	30.55	7.92	1.3
						7.200	26.65	5.82	86.2	0.5	30.49	7.91	
						13.400	26.32	5.76	85.0	1.0	30.97	7.86	1.6
						13.400	26.30	5.70	84.1	0.7	31.00	7.87	
2013/7/20 16:09	C2	MF	831484	807726	10.4	1.000	27.22	8.08	119.9	0.6	29.27	7.89	1.4
						1.000	27.22	7.85	116.6	0.3	29.44	7.89	
						5.200	26.61	7.34	108.5	0.4	30.40	7.88	1.8
						5.200	26.70	6.57	97.2	0.0	30.29	7.88	
						9.400	26.17	5.90	86.1	1.6	29.38	7.85	2.2
						9.400	26.08	5.78	84.2	2.3	29.46	7.82	
2013/7/20 17:24	C3	MF	832248	808846	14.9	1.000	27.07	6.19	92.1	0.8	30.17	7.95	2.2
						1.000	27.02	6.28	93.4	0.9	30.24	7.94	
						7.950	26.63	5.69	84.2	1.2	30.59	7.91	1.9
						7.950	26.63	5.64	83.5	1.6	30.58	7.91	
						13.900	26.32	5.56	82.0	1.4	31.03	7.88	2.0
						13.900	26.23	5.51	81.2	1.1	31.11	7.87	

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

AUES

Sok Kwu Wan

Date 23-Jul-13

Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
2013/7/23 11:47	W1	ME	832978	807741	2.2	1.100	26.58	7.57	113.0	1.6	32.31	7.90	3.9
						1.100	26.63	7.31	109.4	2.0	32.55	7.89	
2013/7/23 11:58	W2	ME	832652	807969	12.1	1.000	26.56	6.71	100.4	1.0	32.58	7.87	3.1
						1.000	26.58	6.67	99.7	0.9	32.57	7.87	
						6.050	26.47	6.62	99.0	1.0	32.74	7.87	3.7
						6.050	26.53	6.54	97.8	0.5	32.77	7.88	
						11.100	26.22	6.54	97.5	0.7	32.93	7.84	3.2
						11.100	26.18	6.46	96.1	1.5	32.96	7.84	
2013/7/23 12:11	W3	ME	832049	807886	12	1.000	27.15	7.63	115.0	0.9	32.18	7.91	3.5
						1.000	27.15	7.58	114.2	0.5	32.18	7.91	
						6.000	26.99	7.52	113.2	1.3	32.59	7.89	4.1
						6.000	26.99	7.43	111.9	0.6	32.62	7.90	
						11.000	25.61	6.53	96.6	4.2	33.55	7.79	3.4
						11.000	25.55	6.10	90.1	4.4	33.59	7.79	
2013/7/23 11:30	C1	ME	833694	808195	13.9	1.000	27.40	6.90	104.2	0.3	31.84	7.90	2.9
						1.000	27.39	7.22	109.1	0.5	31.84	7.90	
						6.950	27.04	7.36	110.7	0.0	32.35	7.92	2.1
						6.950	26.94	7.24	108.6	0.3	32.05	7.92	
						12.900	26.28	7.10	105.6	1.5	32.66	7.83	7.3
						12.900	26.27	6.67	99.3	2.2	32.69	7.83	
2013/7/23 12:21	C2	ME	831454	807739	10.2	1.000	27.74	7.88	119.7	0.3	31.73	7.94	2.4
						1.000	27.73	7.99	121.2	0.1	31.74	7.92	
						5.100	26.79	7.78	116.9	1.3	32.62	7.90	4.8
						5.000	26.76	7.12	106.9	1.4	32.61	7.87	
						9.200	26.13	6.64	98.9	6.2	33.25	7.82	4.0
						9.200	26.05	6.25	92.9	5.6	32.93	7.83	
2013/7/23 11:13	C3	ME	832238	808870	14.7	1.000	27.38	7.74	116.8	0.1	31.68	7.88	5.1
						1.000	27.45	7.76	117.1	0.1	31.67	7.91	
						7.350	26.88	7.44	111.7	0.7	32.33	7.89	5.4
						7.350	26.89	7.40	111.1	1.4	32.33	7.89	
						13.700	26.30	7.18	106.9	0.9	32.55	7.83	6.4
						13.700	26.24	6.28	93.4	1.2	32.59	7.82	
2013/7/23 17:47	W1	MF	832954	807738	2.6	1.300	26.97	6.86	102.8	0.6	31.77	7.86	3.8
						1.300	26.99	7.00	105.0	1.0	31.76	7.85	
2013/7/23 17:32	W2	MF	832659	807992	13.1	1.000	27.00	7.55	113.3	1.6	31.80	7.87	4.5
						1.000	26.95	7.42	111.0	1.1	31.46	7.88	
						6.550	26.93	7.21	108.0	1.4	31.88	7.86	4.2
						6.550	26.93	7.02	105.2	0.8	31.88	7.86	
						12.100	26.48	6.89	103.1	2.4	32.86	7.84	4.4
						12.100	26.43	6.72	100.4	3.1	32.96	7.84	
2013/7/23 17:19	W3	MF	832033	807876	12.4	1.000	27.05	7.51	112.6	0.7	31.66	7.83	3.6
						1.000	27.03	7.40	110.9	1.3	31.68	7.83	
						6.200	27.22	7.22	108.9	0.6	32.18	7.87	3.8
						6.200	27.22	7.44	112.2	0.7	32.17	7.86	
						11.400	26.67	6.54	98.0	5.8	32.49	7.83	9.6
						11.400	26.66	6.41	96.2	6.6	32.92	7.82	
2013/7/23 18:04	C1	MF	833723	808156	14.4	1.000	26.62	7.01	103.7	0.8	30.60	7.83	2.2
						1.000	26.67	6.76	100.3	0.8	30.90	7.82	
						7.200	26.81	6.45	96.2	2.3	31.54	7.87	2.8
						7.200	26.87	6.46	96.8	1.6	31.89	7.87	
						13.400	26.71	5.95	89.0	1.1	32.16	7.86	3.0
						13.400	26.74	5.90	88.3	1.8	32.13	7.87	
2013/7/23 17:07	C2	MF	831450	807738	10.8	1.000	27.98	8.89	135.5	0.4	31.80	7.92	3.4
						1.000	27.93	9.42	143.5	0.6	31.83	7.92	
						5.400	27.31	9.92	150.0	0.6	32.34	7.77	3.8
						5.400	26.93	9.10	136.9	0.6	32.60	7.76	
						9.800	26.32	6.80	101.7	10.6	33.27	7.69	3.2
						9.800	26.39	6.32	94.6	11.1	33.21	7.72	
2013/7/23 18:25	C3	MF	832212	808890	15.1	1.000	26.63	5.87	86.9	0.8	30.72	7.81	3.1
						1.000	26.66	6.01	89.1	0.8	30.68	7.81	
						7.550	26.69	5.77	86.1	1.4	31.94	7.84	2.5
						7.550	26.66	5.68	84.6	1.9	31.55	7.86	
						14.100	26.64	5.54	82.6	1.7	31.84	7.87	3.4
						14.100	26.64	5.45	81.2	1.9	31.84	7.87	

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

AUES

Sok Kwu Wan

Date 25-Jul-13

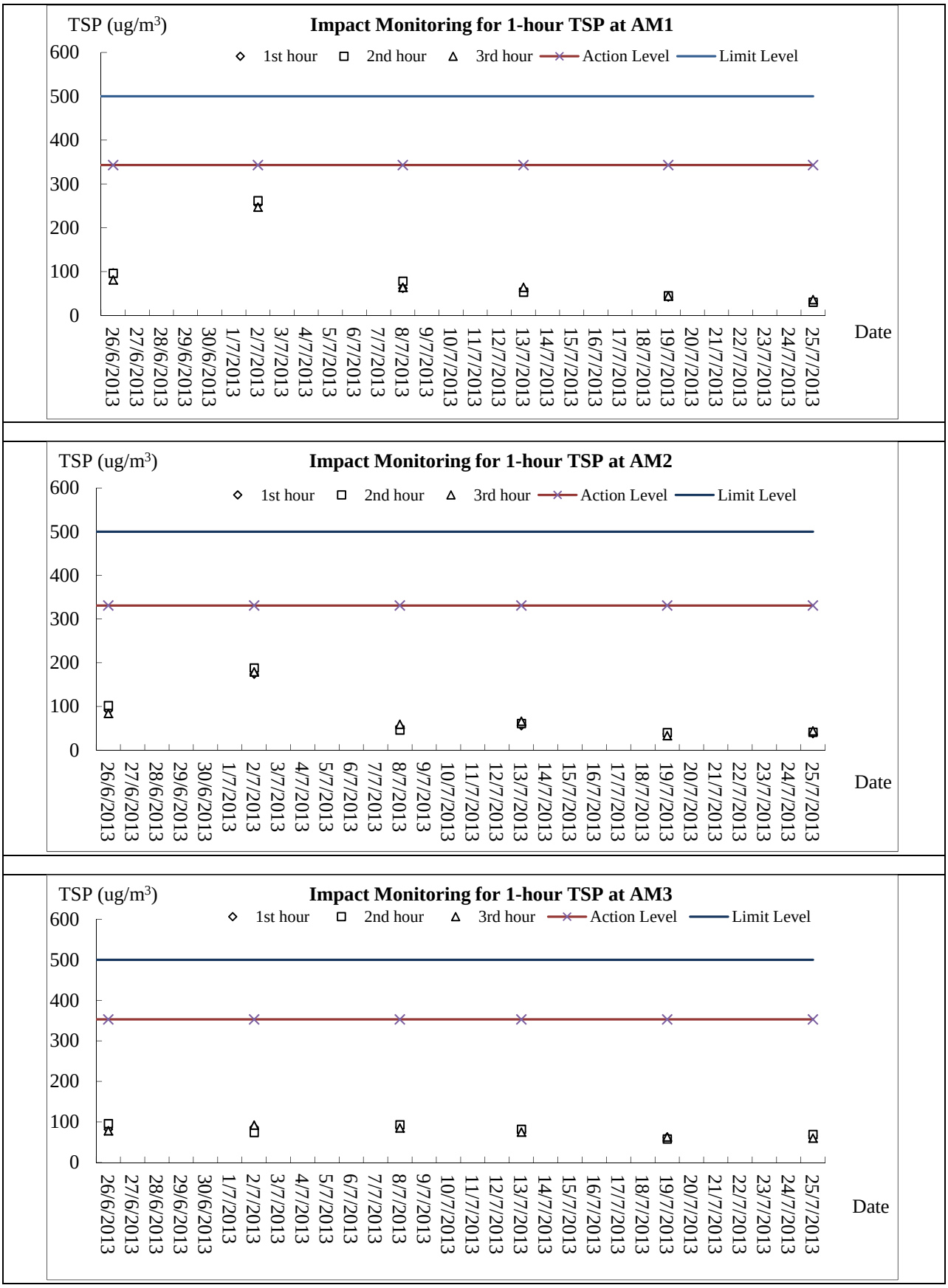
Date / Time	Location	Tide*	Co-ordinates		Water Depth	Sampling Depth	Temp	DO Conc	DO Saturation	Turbidity	Salinity	pH	SS
			East	North	m	m	℃	mg/L	%	NTU	ppt	unit	mg/l
2013/7/25 14:24	W1	ME	832959	807731	2.5	1.250	26.84	8.75	130.8	0.1	31.66	7.92	2.2
						1.250	26.88	8.61	128.7	0.1	31.63	7.92	
2013/7/25 14:08	W2	ME	832658	807964	12.7	1.000	26.88	8.31	124.3	0.6	31.64	7.91	2.9
						1.000	26.88	8.21	122.8	0.4	31.63	7.92	
						6.350	27.01	8.12	122.1	0.5	32.11	7.95	2.6
						6.350	26.99	8.10	121.7	0.3	32.09	7.95	
						11.700	26.97	8.09	121.6	1.4	32.30	7.95	2.8
						11.700	26.92	7.98	119.9	0.8	32.31	7.95	
2013/7/25 13:52	W3	ME	832061	807878	12.3	1.000	26.73	8.17	121.4	0.4	31.06	7.85	2.4
						1.000	26.75	7.92	117.9	0.6	31.06	7.86	
						6.150	26.85	7.58	113.5	1.9	31.93	7.94	3.6
						6.150	26.89	7.58	113.6	1.8	31.91	7.93	
						11.300	26.86	7.55	113.1	4.4	32.02	7.94	4.1
						11.300	26.86	7.54	113.0	3.8	32.02	7.94	
2013/7/25 14:40	C1	ME	833694	808166	13.9	1.000	26.95	8.97	134.2	0.0	31.52	7.92	3.1
						1.000	26.85	8.98	134.2	0.1	31.59	7.90	
						6.950	27.01	9.05	135.7	0.3	31.74	7.93	3.6
						6.950	26.96	8.96	134.2	0.0	31.73	7.92	
						12.900	26.85	8.65	129.5	0.5	31.96	7.93	3.2
						12.900	26.84	8.63	129.2	0.1	31.97	7.93	
2013/7/25 13:38	C2	ME	831458	807744	10.7	1.000	26.68	8.17	121.0	0.3	30.57	7.85	3.4
						1.000	26.67	7.75	114.8	0.2	30.63	7.85	
						5.350	26.78	7.26	108.2	0.6	31.41	7.87	3.0
						5.350	26.78	7.10	105.8	0.7	31.40	7.87	
						9.700	26.88	6.86	103.0	5.1	32.58	7.93	4.0
						9.700	26.85	6.87	103.3	4.8	32.62	7.93	
2013/7/25 15:00	C3	ME	832222	808166	14.3	1.000	26.96	8.94	133.6	0.1	31.43	7.88	2.9
						1.000	26.90	8.81	131.6	0.2	31.48	7.87	
						7.150	26.94	8.47	126.9	0.1	31.66	7.91	2.8
						7.150	26.96	8.52	127.6	0.1	31.68	7.90	
						13.300	26.82	8.82	131.8	0.8	31.80	7.90	4.2
						13.300	26.82	7.90	118.1	0.7	31.80	7.90	
2013/7/25 8:48	W1	MF	832971	807744	2.8	1.400	26.93	7.72	115.2	1.5	31.15	7.93	5.8
						1.400	26.92	7.14	106.5	2.8	31.07	7.92	
2013/7/25 9:00	W2	MF	832665	808005	13.4	1.000	26.84	7.23	107.5	2.1	30.88	7.88	3.2
						1.000	26.84	7.47	111.1	2.0	30.88	7.90	
						6.700	27.04	7.29	109.5	1.9	31.90	7.94	3.0
						6.700	26.99	7.28	109.3	2.4	31.90	7.94	
						12.400	27.13	7.17	108.0	3.2	32.17	7.96	2.5
						12.400	27.19	7.17	108.1	2.7	32.10	7.97	
2013/7/25 9:13	W3	MF	832037	807899	13.1	1.000	26.80	7.78	115.7	2.5	30.83	7.88	3.0
						1.000	26.80	8.09	120.2	2.6	30.83	7.88	
						6.550	26.96	7.91	118.5	2.0	31.65	7.92	2.4
						6.550	26.97	7.91	118.4	2.9	31.65	7.92	
						12.100	27.04	7.85	118.1	3.0	32.25	7.94	2.0
						12.100	27.02	7.79	117.1	2.9	32.23	7.94	
2013/7/25 8:31	C1	MF	833719	808179	14.3	1.000	26.81	8.37	124.1	1.3	30.47	7.90	3.7
						1.000	26.80	8.20	121.7	0.8	30.53	7.90	
						7.150	26.84	7.75	115.7	1.4	31.62	7.92	2.5
						7.150	26.79	7.51	112.1	1.6	31.65	7.92	
						13.300	26.73	7.17	107.4	2.6	32.46	7.93	3.2
						13.300	26.71	7.07	105.9	1.7	32.48	7.93	
2013/7/25 9:26	C2	MF	831483	807734	11.2	1.000	26.84	9.52	142.3	3.1	30.41	7.84	2.0
						1.000	26.80	9.84	146.0	3.3	30.53	7.83	
						5.600	27.00	9.20	137.5	1.9	31.26	7.90	3.6
						5.600	26.92	9.10	136.0	1.3	31.33	7.89	
						10.200	26.85	9.03	135.4	2.5	32.18	7.91	4.3
						10.200	26.91	8.81	132.0	2.7	31.94	7.90	
2013/7/25 8:14	C3	MF	832201	808876	14.8	1.000	26.79	6.91	102.6	0.8	30.47	7.90	2.6
						1.000	26.80	7.01	104.0	0.9	30.46	7.90	
						7.400	26.88	7.02	105.0	1.2	31.69	7.92	3.5
						7.400	26.85	6.86	102.6	1.6	31.69	7.92	
						13.800	26.82	6.71	100.7	2.5	32.44	7.92	3.8
						13.800	26.83	6.59	99.0	2.7	32.43	7.93	

MF- Mid Flood Tide
ME- Mid Ebb tide

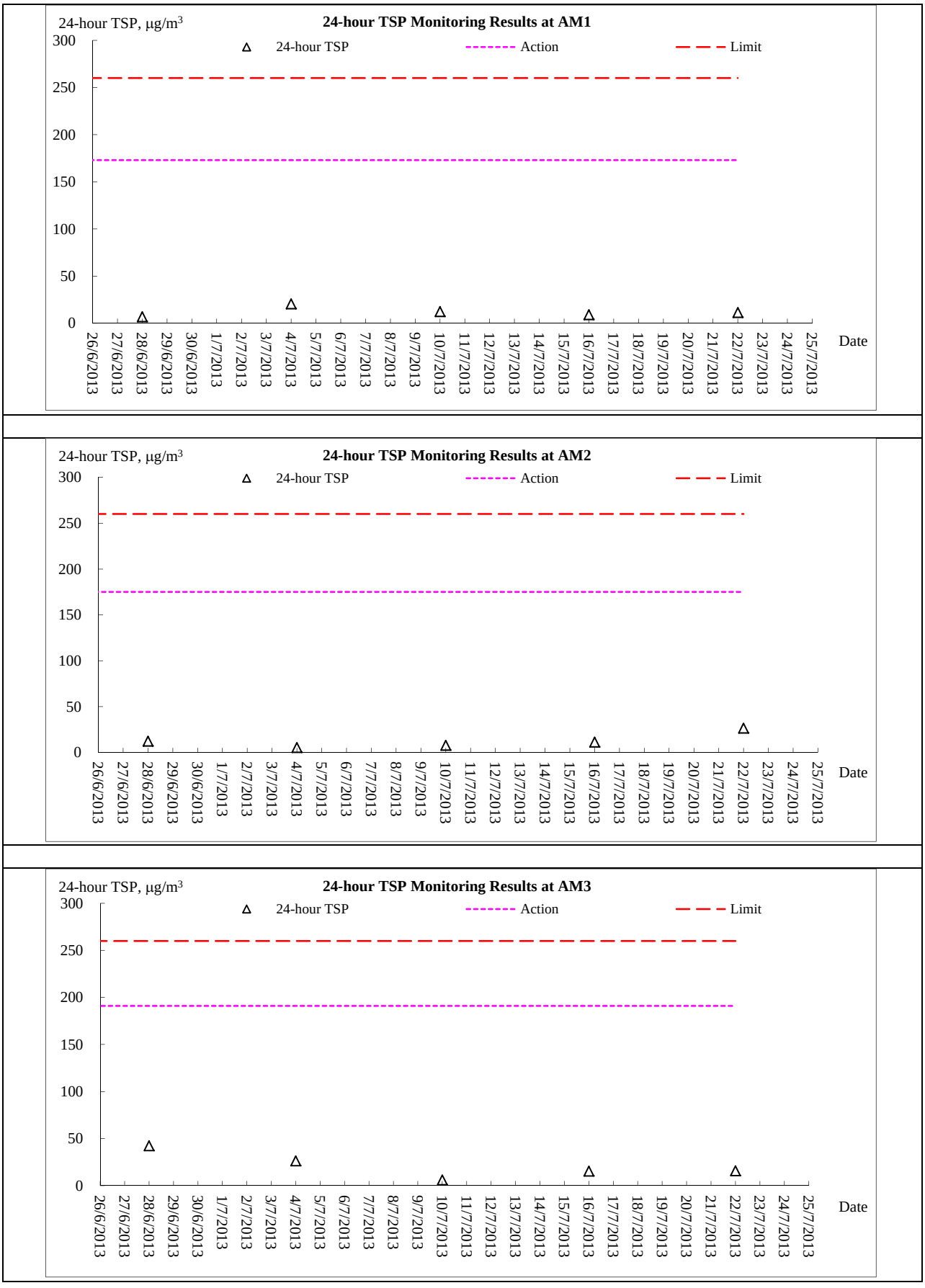
Appendix H

Graphical Plots of Monitoring Results

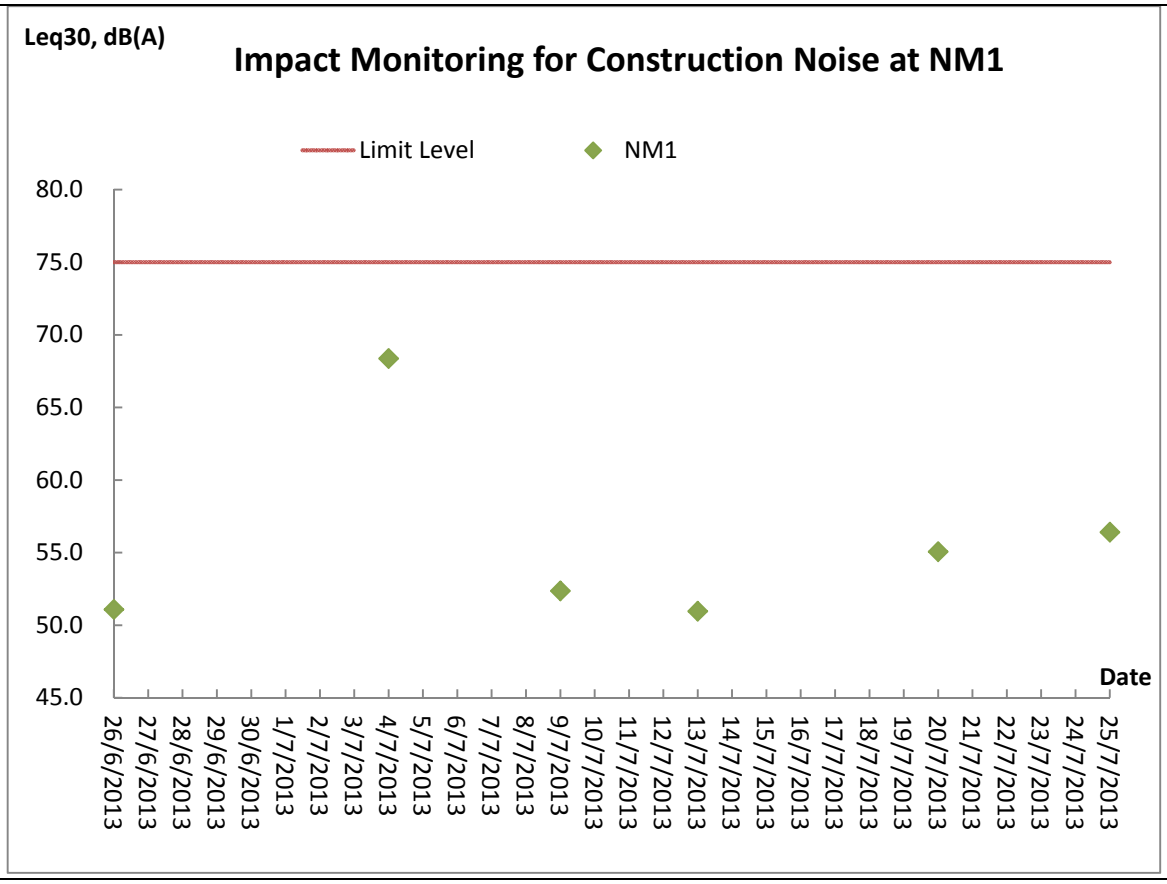
Air Quality Monitoring – 1 hour TSP Monitoring

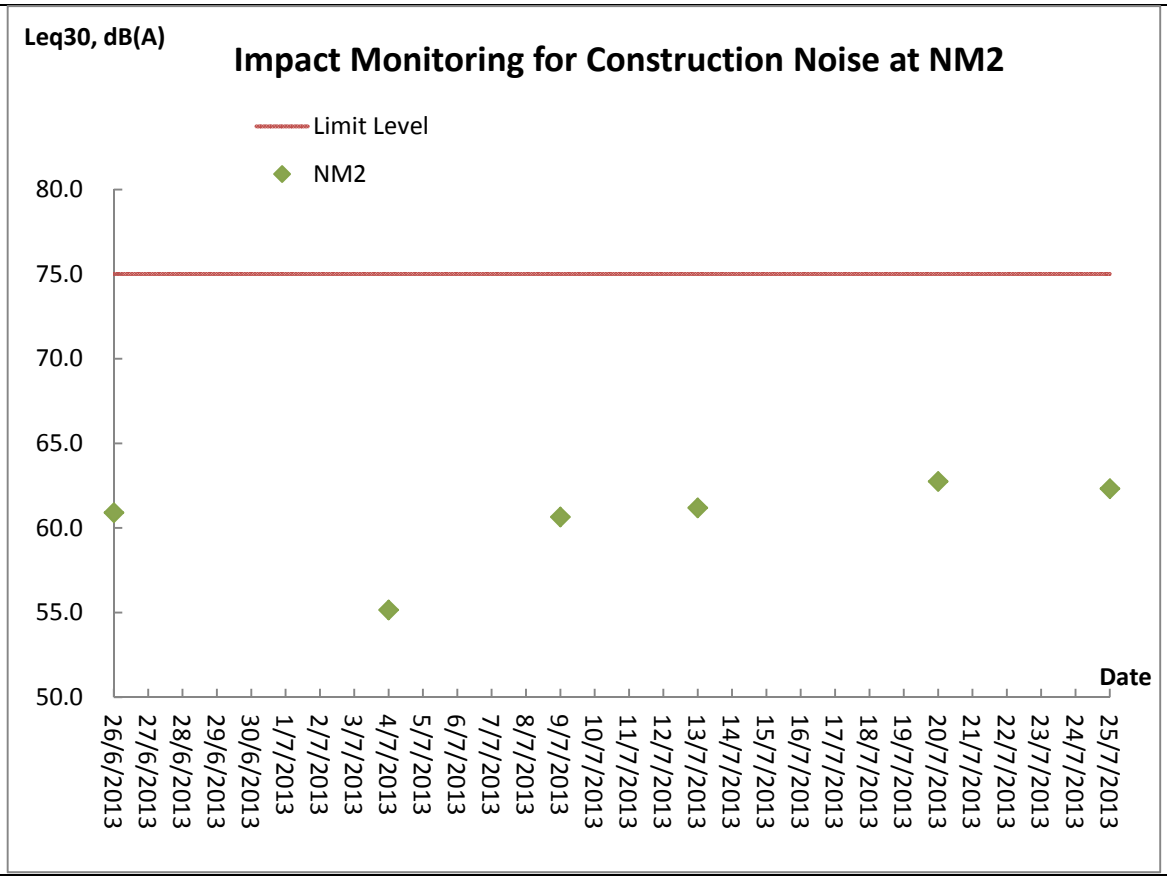


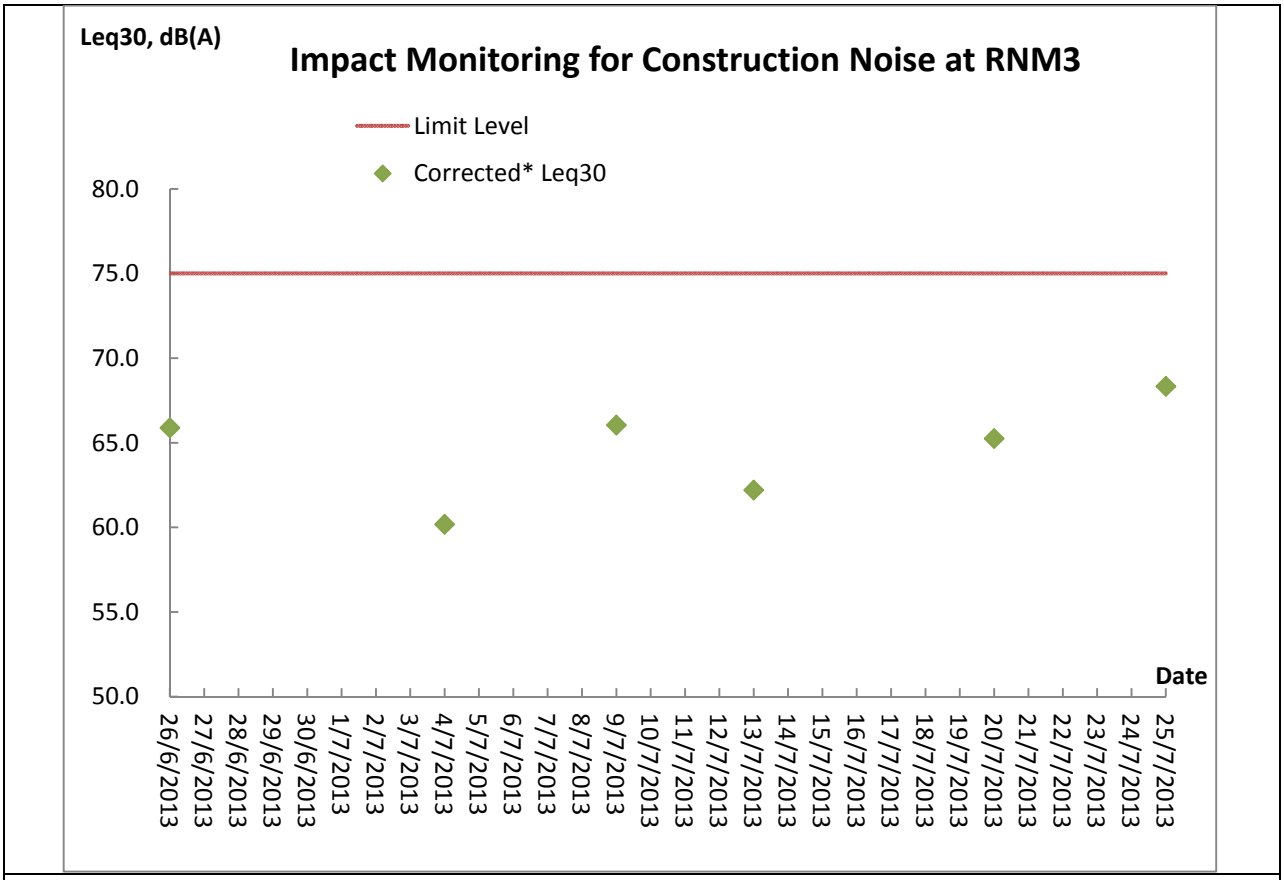
Air Quality Monitoring – 24 hour TSP Monitoring

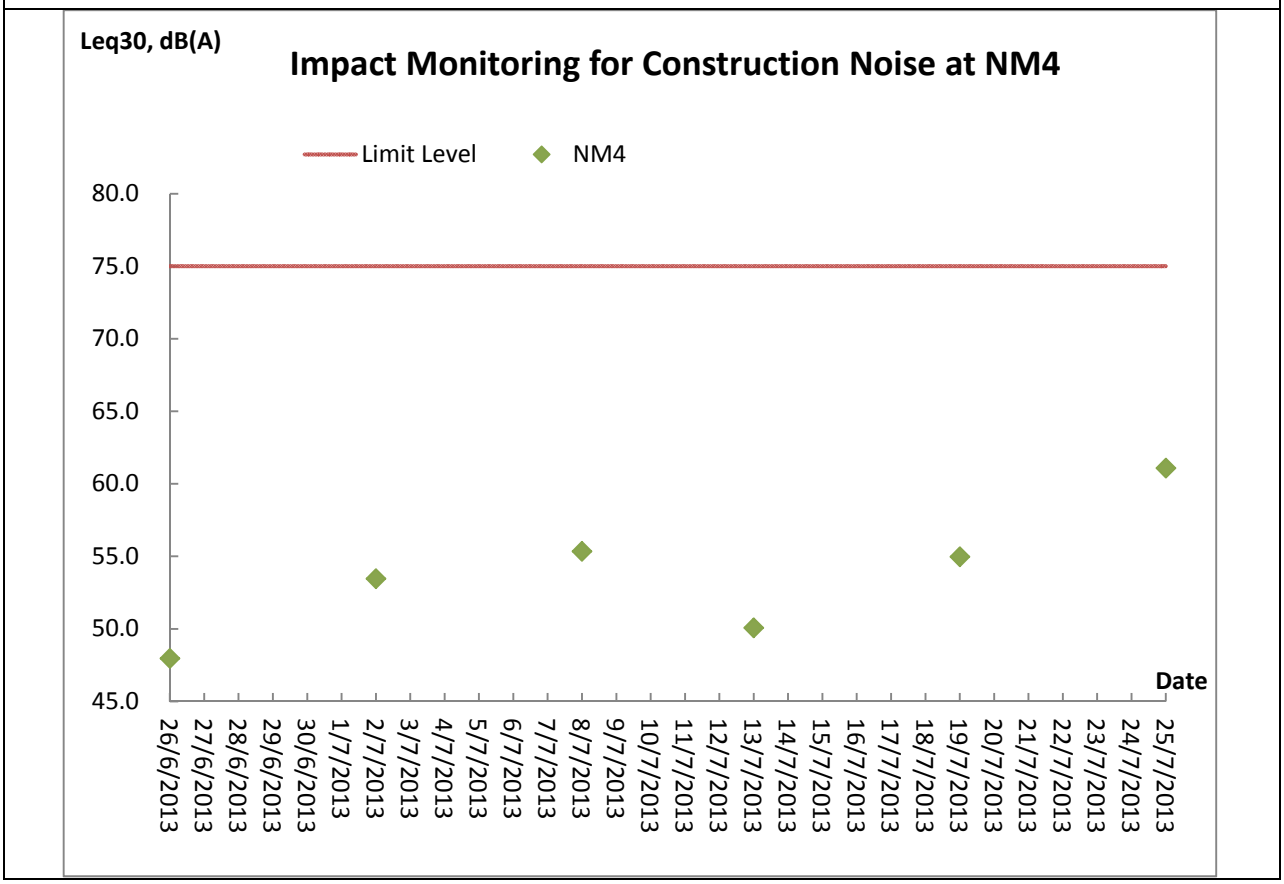


Construction Noise Monitoring

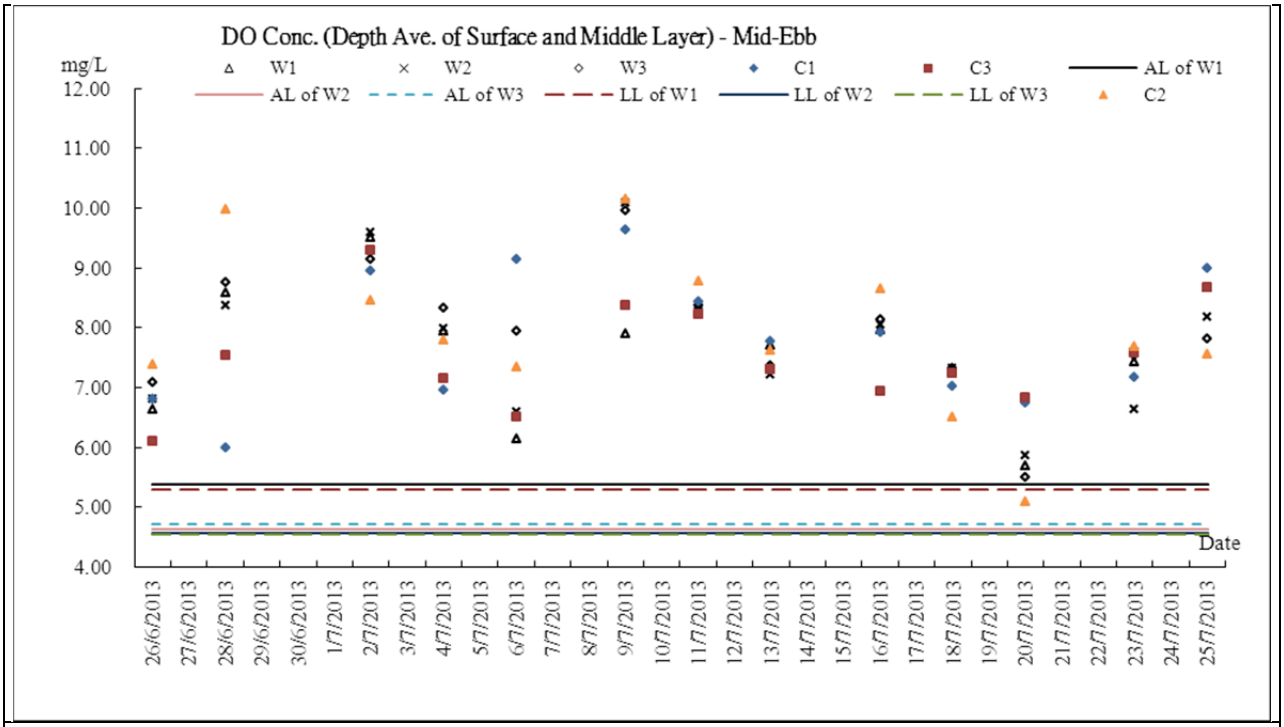


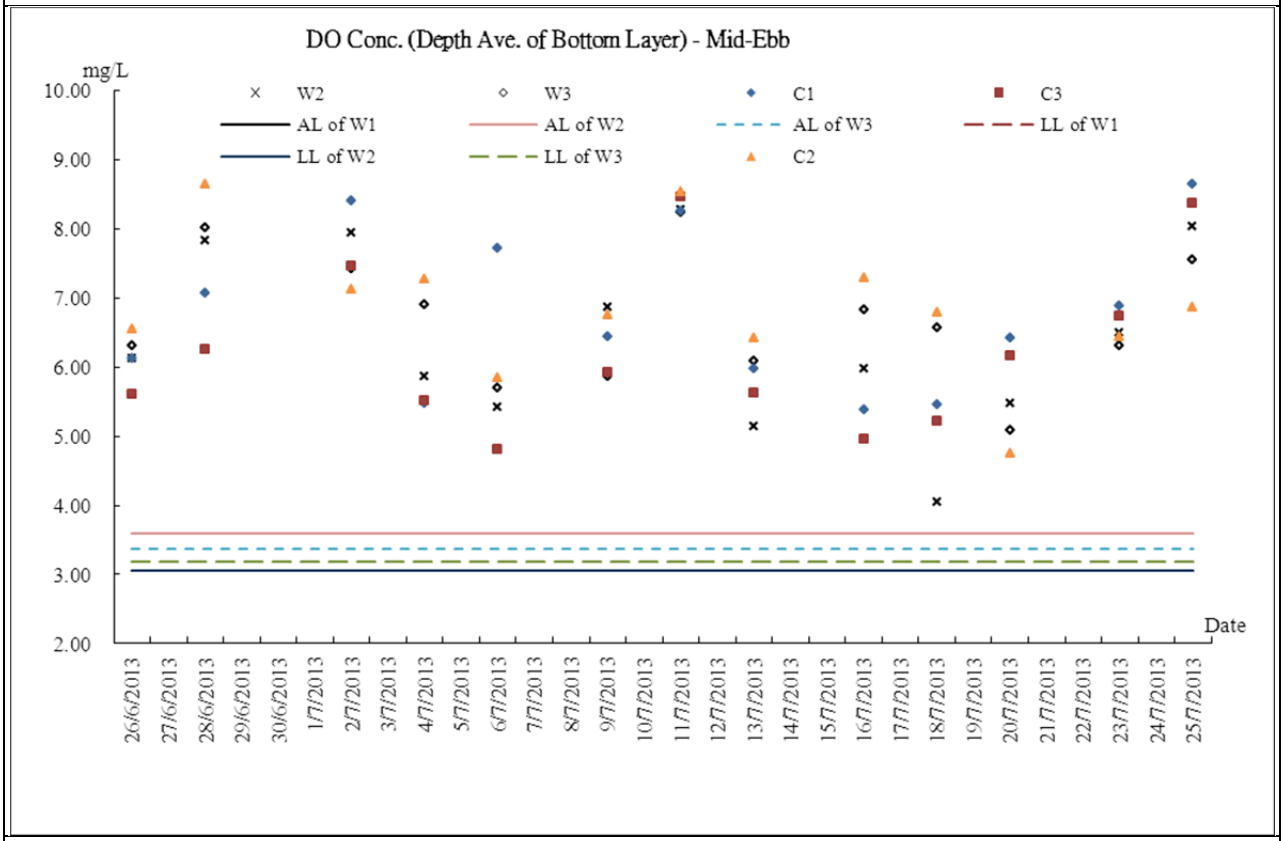


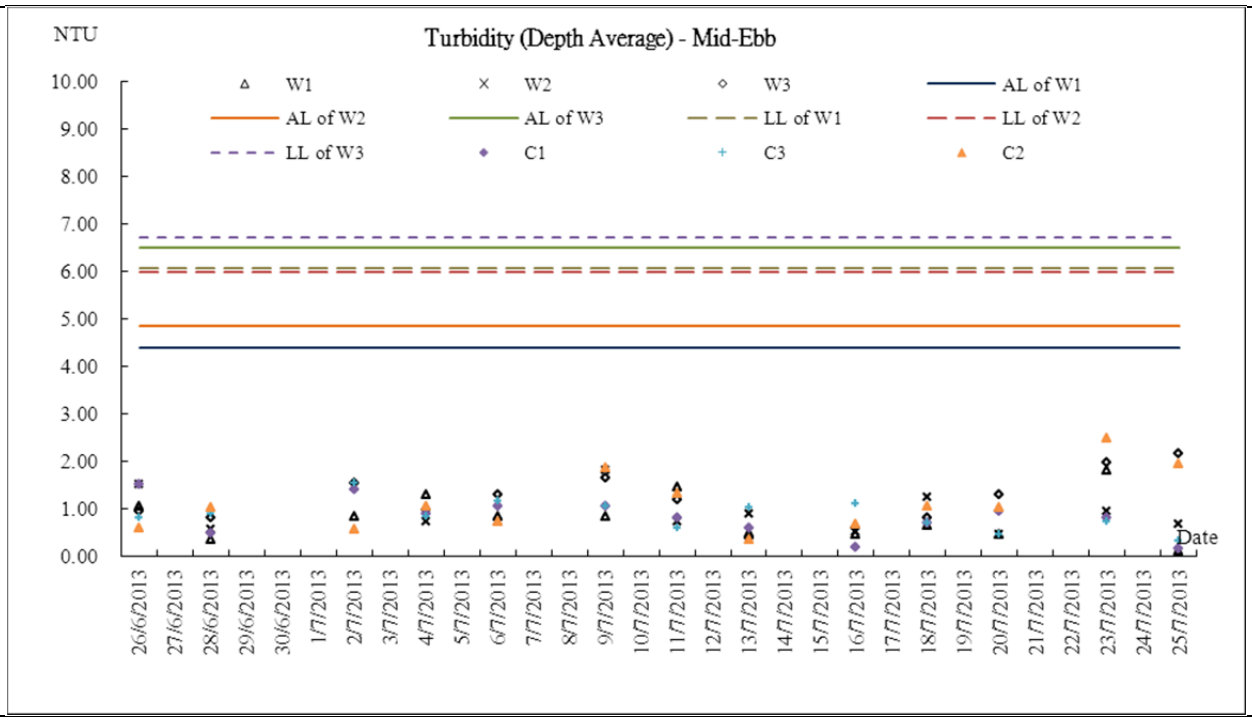

Leq30, dB(A)
Impact Monitoring for Construction Noise at RNM3
Limit Level
Corrected* Leq30
80.0
75.0
70.0
65.0
60.0
55.0
50.0
Date
26/6/2013
27/6/2013
28/6/2013
29/6/2013
30/6/2013
1/7/2013
2/7/2013
3/7/2013
4/7/2013
5/7/2013
6/7/2013
7/7/2013
8/7/2013
9/7/2013
10/7/2013
11/7/2013
12/7/2013
13/7/2013
14/7/2013
15/7/2013
16/7/2013
17/7/2013
18/7/2013
19/7/2013
20/7/2013
21/7/2013
22/7/2013
23/7/2013
24/7/2013
25/7/2013


Leq30, dB(A)
Impact Monitoring for Construction Noise at NM4
Limit Level
NM4
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
Date
26/6/2013
27/6/2013
28/6/2013
29/6/2013
30/6/2013
1/7/2013
2/7/2013
3/7/2013
4/7/2013
5/7/2013
6/7/2013
7/7/2013
8/7/2013
9/7/2013
10/7/2013
11/7/2013
12/7/2013
13/7/2013
14/7/2013
15/7/2013
16/7/2013
17/7/2013
18/7/2013
19/7/2013
20/7/2013
21/7/2013
22/7/2013
23/7/2013
24/7/2013
25/7/2013

Marine Water Quality Monitoring - Mid-Ebb Tide






Turbidity (Depth Average) - Mid-Ebb
NTU
W1
W2
W3
AL of W1
AL of W2
AL of W3
LL of W1
LL of W2
LL of W3
C1
C3
C2
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
Date
26/6/2013
27/6/2013
28/6/2013
29/6/2013
30/6/2013
1/7/2013
2/7/2013
3/7/2013
4/7/2013
5/7/2013
6/7/2013
7/7/2013
8/7/2013
9/7/2013
10/7/2013
11/7/2013
12/7/2013
13/7/2013
14/7/2013
15/7/2013
16/7/2013
17/7/2013
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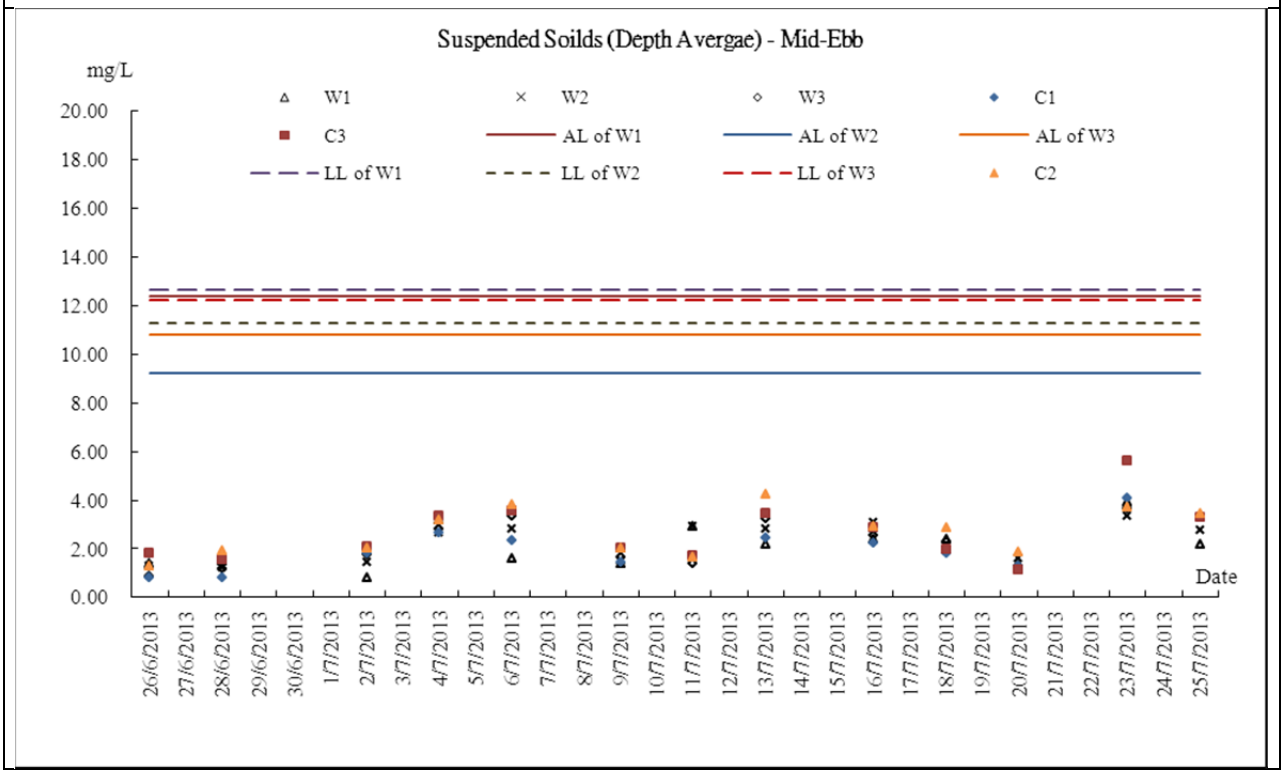
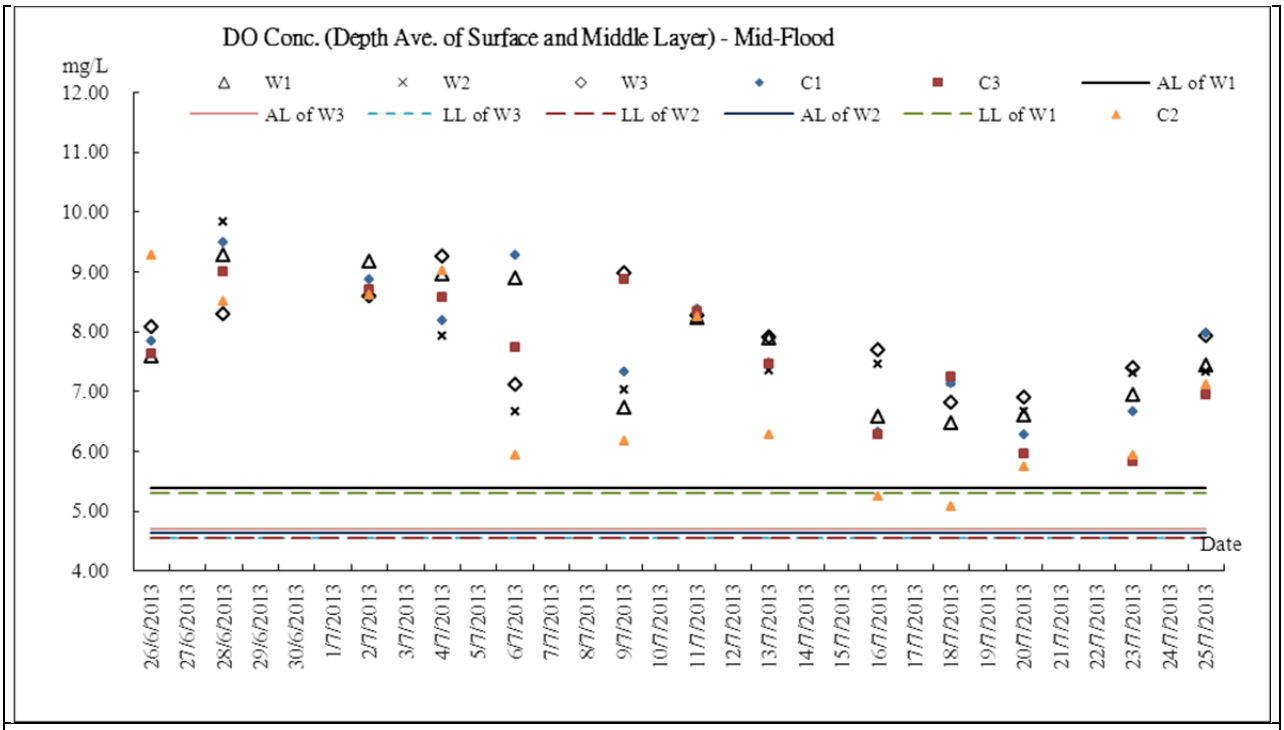
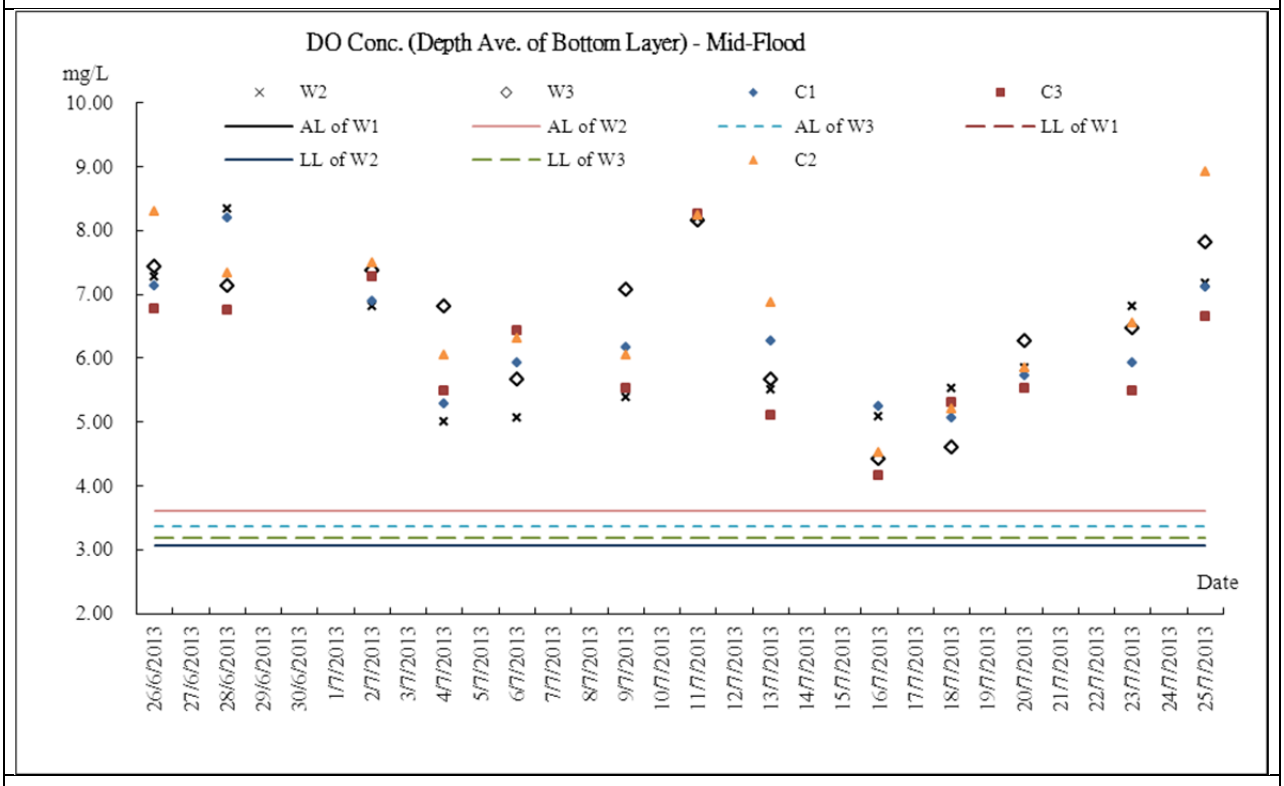
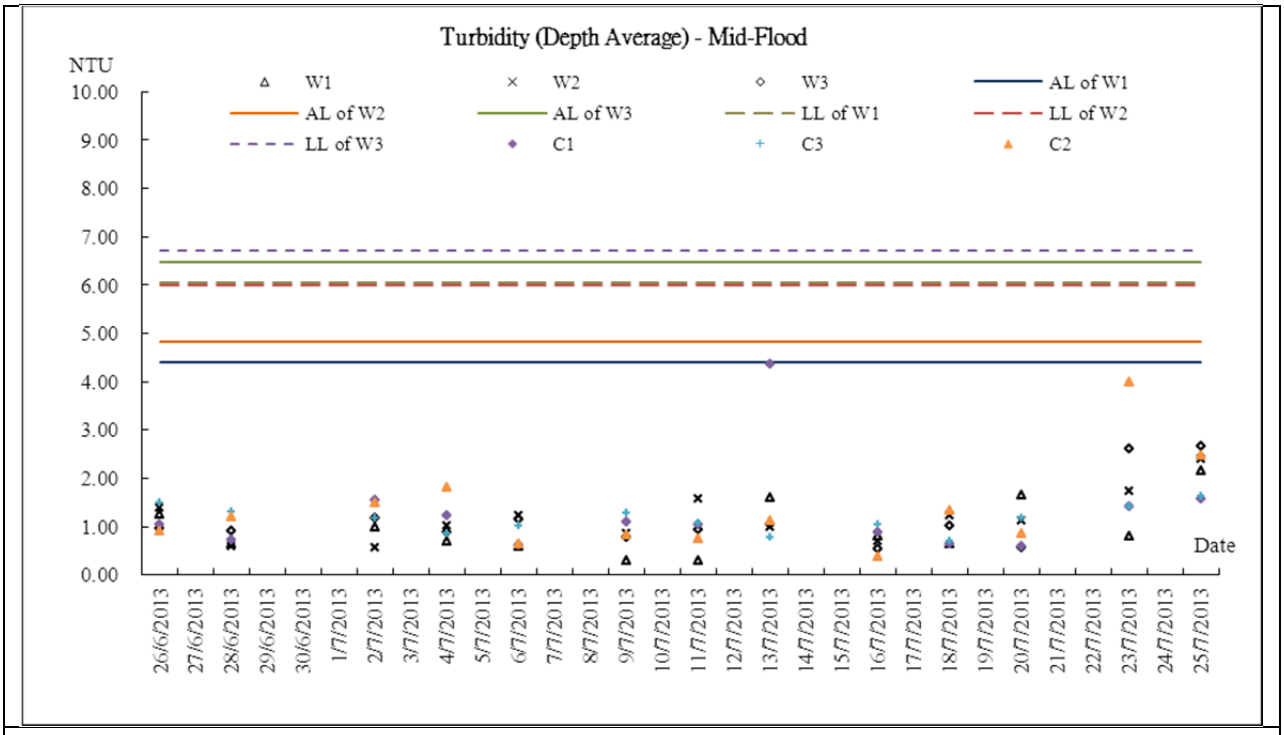
22/7/2013
23/7/2013
24/7/2013
25/7/2013

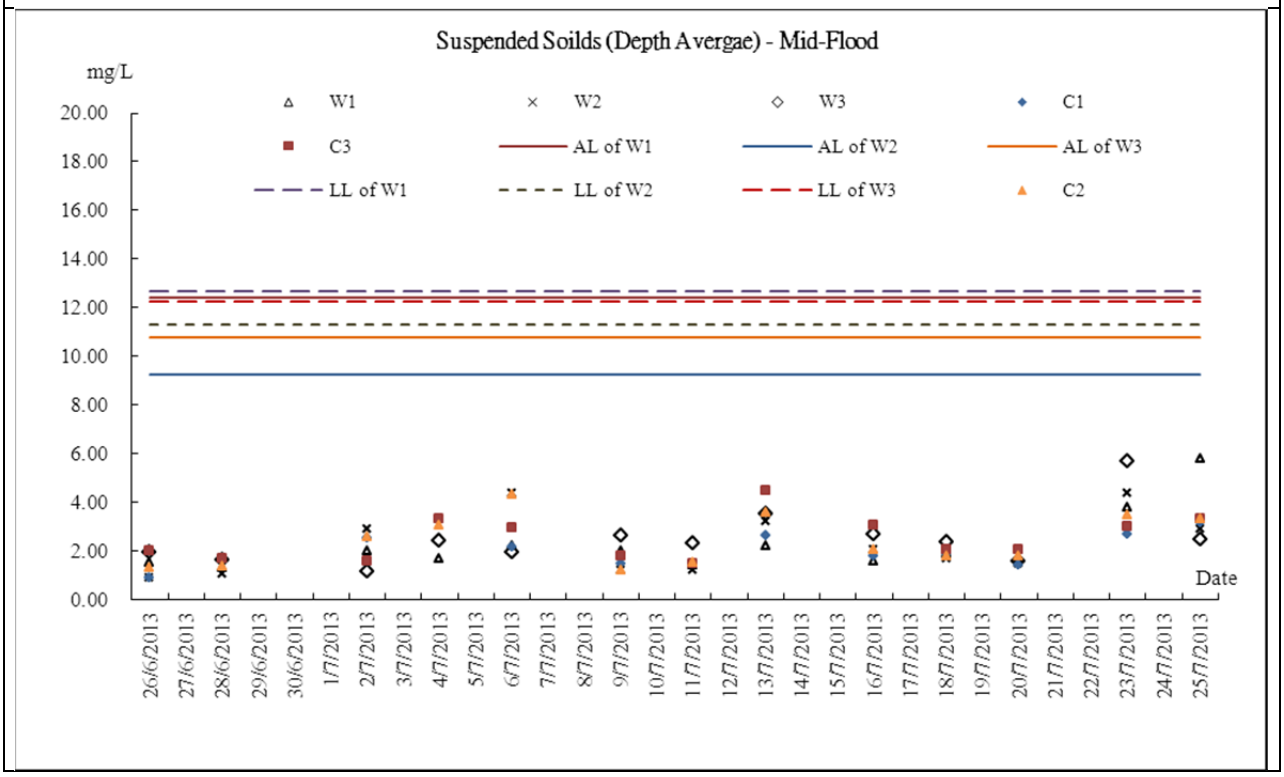

Suspended Soilds (Depth Avergae) - Mid-Ebb
mg/L
W1
W2
W3
C1
C3
AL of W1
AL of W2
AL of W3
LL of W1
LL of W2
LL of W3
C2
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Date
26/6/2013
27/6/2013
28/6/2013
29/6/2013
30/6/2013
1/7/2013
2/7/2013
3/7/2013
4/7/2013
5/7/2013
6/7/2013
7/7/2013
8/7/2013
9/7/2013
10/7/2013
11/7/2013
12/7/2013
13/7/2013
14/7/2013
15/7/2013
16/7/2013
17/7/2013
18/7/2013
19/7/2013
20/7/2013
21/7/2013
22/7/2013
23/7/2013
24/7/2013
25/7/2013

Marine Water Quality Monitoring - Mid-Flood Tide






Turbidity (Depth Average) - Mid-Flood
NTU
W1
W2
W3
AL of W1
AL of W2
AL of W3
LL of W1
LL of W2
LL of W3
C1
C3
C2
Date


Suspended Soilds (Depth Avergae) - Mid-Flood
mg/L
W1
W2
W3
C1
C3
AL of W1
AL of W2
AL of W3
LL of W1
LL of W2
LL of W3
C2
Date

Appendix I

Meteorological Information

Meteorological Data Extracted from HKO during the Reporting Period

Date		Weather
26-Jun-13	Wed	Hot, isolated showers, moderate to fresh southwesterly winds
27-Jun-13	Thu	Hot, isolated showers, moderate to fresh southwesterly winds
28-Jun-13	Fri	Hot, isolated showers, moderate to fresh southwesterly winds
29-Jun-13	Sat	Fine, hot, moderate to fresh southeasterly winds
30-Jun-13	Sun	Fine, hot, moderate to fresh southeasterly winds
1-Jul-13	Mon	Cloudy, a few showers, moderate to fresh northeasterly winds.
2-Jul-13	Tue	Cloudy, rain, moderate to fresh easterly winds, strong offshore and on high ground.
3-Jul-13	Wed	Cloudy, rain, moderate to fresh easterly winds, strong offshore and on high ground.
4-Jul-13	Thu	Hot, sunny periods , a few showers, moderate east to southeasterly winds
5-Jul-13	Fri	Hot, sunny periods , a few showers, moderate east to southeasterly winds
6-Jul-13	Sat	Hot, sunny periods, isolated showers, Moderate southeasterly winds.
7-Jul-13	Sun	Hot, sunny periods, isolated showers, Moderate southeasterly winds.
8-Jul-13	Mon	Hot, sunny periods , a few showers, moderate east to southeasterly winds
9-Jul-13	Tue	Hot, sunny periods , a few showers, moderate east to southeasterly winds
10-Jul-13	Wed	Hot, sunny periods, isolated showers, Moderate southeasterly winds.
11-Jul-13	Thu	Cloudy, rain, Moderate to fresh southerly winds.
12-Jul-13	Fri	Cloudy, rain, Moderate to fresh southerly winds.
13-Jul-13	Sat	Fine, very hot. Light to moderate southerly winds.
14-Jul-13	Sun	Hot, sunny periods, Moderate south winds.
15-Jul-13	Mon	Cloudy, scattered showers, thunderstorms, Moderate southeasterly winds.
16-Jul-13	Tue	Cloudy, scattered showers, thunderstorms, Moderate east to southeasterly winds.
17-Jul-13	Wed	Rain, cloudy, a few showers, thunderstorms, Moderate northeasterly winds.
18-Jul-13	Thu	Cloudy, a few showers, thunderstorms, Moderate northeasterly winds.
19-Jul-13	Fri	Cloudy, squally showers, thunderstorms, Moderate easterly winds.
20-Jul-13	Sat	Cloudy, a few showers, Moderate east to southeasterly winds.
21-Jul-13	Sun	Cloudy, a few showers, Moderate east to southeasterly winds.
22-Jul-13	Mon	Hot, sunny periods, Moderate east to southeasterly winds.
23-Jul-13	Tue	Cloudy, a few showers, thunderstorms, Moderate east to southeasterly winds.
24-Jul-13	Wed	Cloudy, showers, squally thunderstorms, Moderate to fresh southeasterly winds.
25-Jul-13	Thu	Cloudy, rain, squally thunderstorms. Moderate south to southeasterly winds.

Appendix J

Monthly Summary Waste Flow Table

Name of Department: ~~ArchSD/CEDD/DSD/EMSD/HyD/WSD~~ **Contract No.:** DC/2009/13

Monthly Summary Waste Flow Table for July 2013

Month	Actual Quantities of Inert C&D Materials Generated Monthly												Actual Quantities of C&D Wastes Generated Monthly									
	Total Quantity Generated (a) = (c)+(d)+(e)		Hard Rock and Large Broken Concrete (b)		Reused in the Contract (c)		Reused in other Projects (d)		Disposed as Public Fill (e)		Imported Fill (f)		Metals		Paper/ cardboard packaging		Plastics		Chemical Waste		Others, e.g. rubbish	
	(in '000m^3)		(in '000m^3)		(in '000m^3)		(in '000m^3)		(in '000m^3)		(in '000m^3)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in tonne)	
	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW
2013	13.341	50.328	0.160	0.410	0.740	2.802	0.000	0.000	12.601	47.526	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	400.410	103.440
Jan	0.332	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.332	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.040	9.840
Feb	0.082	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.082	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.530	6.530
Mar	0.056	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.056	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.430	4.920
Apr	0.425	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.425	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.800	32.200
May	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.790	4.650
Jun	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.430	48.240
Sub-total	14.236	50.328	0.160	0.417	0.740	2.802	0.000	0.000	13.497	47.526	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	443.430	209.820
Jul	0.871	0.000	0.000	0.012	0.000	0.000	0.000	0.000	0.871	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.550	33.520
Aug																						
Sep																						
Oct																						
Nov																						
Dec																						
Total	15.108	50.328	0.160	0.429	0.740	2.802	0.000	0.000	14.368	47.526	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	451.980	243.340
	65.436		0.589		3.542		0.000		61.894		0.000		0.000		0.000		0.000		0.000		695.320	

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

YSW: Yung Shue Wan

SKW: Sok Kwu Wan

Appendix K

Weekly Site Inspection Checklist

Environmental Team – Weekly Site Inspection and Audit Checklist – Sok Kwu Wan

AUES

Project:	TCS/00512/09	**Inspected by**	**Checklist No.** TCS512B-2 July 2013
	Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan	**ETL/ ET's Representative**	Mr. F. N. Wong
		RE's Representative	Mr. Alfred Cheung/ Joseph Ng
		Contractor's Representative	Mr. M. K. Leung
		IEC's Representative	
Date:	2 July 2013	**Time:**	11:00

PART A: **GENERAL INFORMATION**

Environmental Permit No.

☑ EP- 281/2007A

Weather: ☐ Sunny ☐ Fine ☑ Cloudy ☐ Rainy

Temperature: 29 °C

Humidity: ☑ High ☐ Moderate ☐ Low

Wind: ☑ Strong ☐ Breeze ☐ Light ☐ Calm

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

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

Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	☐	☐	☐	☐	☑	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	☐	☐	☐	☐	☑	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	☐	☐	☐	☐	☑	
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	☐	☐	☐	☐	☑	
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)	☐	☐	☐	☐	☑	
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	☐	☐	☐	☐	☑	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	☐	☑	☐	☐	☐	
4.02	Are receptacles available for general refuse collection?	☐	☑	☐	☐	☐	
4.03	Is general refuse sorting or recycling implemented?	☐	☑	☐	☐	☐	
4.04	Is general refuse disposed of properly and regularly?	☐	☑	☐	☐	☐	
4.05	Is the Contractor registered as a chemical waste producer?	☐	☐	☐	☐	☑	
4.06	Are the chemical waste containers and storage area properly labelled?	☐	☐	☐	☐	☑	
4.07	Are the chemical wastes stored in proper storage areas?	☐	☐	☐	☐	☑	
4.08	Is the chemical container or equipment provided with drip tray?	☐	☐	☐	☐	☑	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	☐	☐	☐	☐	☑	
4.10	Are incompatible chemical wastes stored in different areas?	☐	☐	☐	☐	☑	
4.11	Are the chemical wastes disposed of by licensed collectors?	☐	☐	☐	☐	☑	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	☐	☐	☐	☐	☑	
4.13	Are chemical/fuel storage areas bounded?	☐	☐	☐	☐	☑	
4.14	Are designated areas identified for storage and sorting of construction wastes?	☐	☐	☐	☐	☑	
4.15	Are construction wastes sorted (inert and non-inert) on site?	☐	☑	☐	☐	☐	
4.16	Are construction wastes reused?	☐	☑	☐	☐	☐	
4.17	Are construction wastes disposed of properly?	☐	☑	☐	☐	☐	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	☐	☑	☐	☐	☐	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	☐	☑	☐	☐	☐	
4.20	Are appropriate procedures followed if contaminated material exists?	☐	☐	☐	☐	☑	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	☐	☐	☐	☐	☑	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	☐	☑	☐	☐	☐	
4.23	Contaminated sediments will be managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	☐	☐	☐	☐	☑	
Section 5: Landscape & Visual							
5.01	Are retained and transplanted trees in health condition?	☐	☐	☐	☐	☑	

Note:	Not Obs.: Not Observed; Yes: Compliance; No: Non-Compliance; Follow Up: Observations requiring follow-Up actions N/A: Not Applicable	Not Obs.	Yes	No	Follow Up	N/A	Photo/ Remarks
5.02	Are retained and transplanted trees properly protected?	☐	☐	☐	☑	☐	
5.03	Are surgery works carried out for the damaged trees?	☑	☐	☐	☐	☐	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	☐	☑	☐	☐	☐	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	☐	☐	☐	☐	☑	
Section 6: Others							
6.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	☐	☐	☐	☐	☑	

(Sok Kwu Wan)

Remarks:

Findings of Site Inspection: (2 July 2013)

1. No adverse environmental impacts were observed.

2. The silt curtain was broken again during typhoon. Repair is required.

Follow up (02 July 2013 **)**

1. Not required.

2. To be followed up on 9 Jul 2013

IEC's representative	*RE's representative*	*ET's representative*	*EO's representative*	*Contractor's representative*
( )	(Alfred Cheung/ Joseph Ng) 02/July/2013	(Wong F N) 02 July 2013	(Mr. M. K. Leung)	(Vincent Chan)

Environmental Team – Weekly Site Inspection and Audit Checklist – Sok Kwu Wan

AUES

Project:	TCS/00512/09 *DC-2009-13: Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan*	**Inspected by**	**Checklist No.** TCS512B-9 July 2013
		ETL/ ET's Representative	Mr. F. N. Wong
		RE's Representative	Mr. Alfred Cheung/ Joseph Ng (C W Yau)
		Contractor's Representative	Mr. M. K. Leung
		IEC's Representative	
Date:	9 July 2013	**Time:**	10:00

PART A: **GENERAL INFORMATION**

Environmental Permit No.

☑ EP- 281/2007A

Weather:	☐ Sunny	☑ Fine	☐ Cloudy	☐ Rainy
Temperature:	29 °C			
Humidity:	☐ High	☑ Moderate	☐ Low	
Wind:	☐ Strong	☑ Breeze	☐ Light	☐ Calm

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

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

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

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

(Sok Kwu Wan)

Remarks:

Findings of Site Inspection: (9 July 2013)

No adverse environmental impacts were observed.

Follow up (2 July 2013

Fixing of silt curtain gaps is on going along the sea beside Portion 1t.

IEC's representative	RE's representative	ET's representative	EO's representative	Contractor's representative
	C W Yuen 9 Jul 2013	F W Wong 09 July 2013	M. K. Leung	Vincent Chan

Environmental Team – Weekly Site Inspection and Audit Checklist – Sok Kwu Wan

AUES

Project: TCS/00512/09
DC-2009-13: Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan

Inspected by
Checklist No. TCS512B-15 July 2013
ETL/ ET's Representative: Mr. F. N. Wong
RE's Representative: Mr. Alfred Cheung/ Joseph Ng
Contractor's Representative: Mr. M. K. Leung
IEC's Representative:

Date: 15 July 2013
Time:

PART A: GENERAL INFORMATION

Environmental Permit No.
☑ EP- 281/2007A

Weather: ☐ Sunny ☑ Fine ☐ Cloudy ☐ Rainy
Temperature: 30 °C
Humidity: ☐ High ☑ Moderate ☐ Low
Wind: ☐ Strong ☑ Breeze ☐ Light ☐ Calm

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

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

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

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

(Sok Kwu Wan)

Remarks:

Findings of Site Inspection: (15 July 2013)

No adverse environmental impacts were observed.

Follow up (15 Jul 2013 **)**

. Not required

IEC's representative	*RE's representative*	*ET's representative*	*EO's representative*	*Contractor's representative*
	Joseph	[signature]	[signature]	
( )	(Alfred Cheung/ Joseph Ng)	(Wong F N) 15 Jul 2013	(Mr. M. K. Leung)	( )
	Joseph NG RE/ow.			

Project:	TCS/00512/09 *DC-2009-13: Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan*	Inspected by	Checklist No. TCS512B-23- July 2013
		ETL/ ET's Representative	Mr. F. N. Wong
		RE's Representative	Mr. Alfred Cheung/ Joseph Ng
		Contractor's Representative	Mr. M. K. Leung
		IEC's Representative	
Date:	23 July 2013	Time:	

PART A: GENERAL INFORMATION

Environmental Permit No.

☑ EP- 281/2007A

Weather: ☐ Sunny ☐ Fine ☑ Cloudy ☐ Rainy

Temperature: 29 °C

Humidity: ☑ High ☐ Moderate ☐ Low

Wind: ☑ Strong ☐ Breeze ☐ Light ☐ Calm

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

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

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

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

(Sok Kwu Wan)

Remarks:

Findings of Site Inspection: (23 July 2013)

No adverse environmental impacts were observed.

However, the sedimentation tank at both ends of Portion G was required to regularly clear the excessively accumulated sediment.

Follow up (23 Jul 2013)

Not required.

IEC's representative	*RE's representative*	*ET's representative*	*EO's representative*	*Contractor's representative*
( )	(Alfred Cheung/ Joseph Ng)	(Wong F N)	(Mr. M.K. Leung)	( )
	Joseph NG RSOW.	23 Jul 2013		

Appendix L

Implementation Schedule of Mitigation Measures

Implementation Schedule of Air Quality Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation & Guidelines
					D	C	O	
Construction Phase								
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: • Stockpiles of imported material kept on site should be contained within hoardings, dampened and / or covered during dry and windy weather; • Material stockpiled alongside trenches should be covered with tarpaulins whenever works are close to village houses; • Water sprays should be used during the delivery and handling of cement, sands, aggregates and the like. • Any vehicle used for moving sands, aggregates and construction waste should have properly fitting side and tail boards. Materials should not be loaded to a level higher than the side and tail boards, and should be covered by a clean tarpaulin.	Work site / during construction	All contractors		√		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	
Construction Phase								
4.41-4.43	3.19	• Use of quiet PME for the construction of the pumping stations • Use of temporary noise barrier during the construction of Pumping Station P1a	Work site /during the construction of Pumping Stations	Contractor		√		EIAO-TM, NCO
4.44 – 4.49	3.19	Implementation of following measures during the sewer construction: • Use of quiet PME or method; • Restriction on the number plant (1 item for each type of plant); and • Good Site Practices ➢ Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program. ➢ Mobile plant, if any, should be sited as far away from NSRs as possible. ➢ Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum. ➢ Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. ➢ Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	Work site /during the construction of Sewer.	Contractor		√		

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	• Use of noise screening structures such as acoustic shed and barrier wherever practicable and feasible in areas with sufficient clearance and headroom. • 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. • 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.	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

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** D=Design, C=Construction, O=Operation
N/A Not applicable

Implementation Schedule of Water Quality Control Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location (duration /completion of measures)	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines
					D	C	O	
Construction Phase								
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: • dredging should be undertaken using closed grab dredgers with a maximum total production rate of 55m^3/hr; • deployment of 2-layer silt curtains with the first layer enclosing the grab and the second layer at around 50m from the dredging area while dredging works are in progress; • dredging operation should be undertaken during ebb tide only; • all vessels should be sized such that adequate clearance (i.e. minimum clearance of 0.6m) is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; • all pipe leakages should be repaired promptly and plant should not be operated with leaking pipes; • excess material should be cleaned from the decks and exposed fittings of barges before the vessel is moved; • adequate freeboard (i.e. minimum of 200mm) should be maintained on barges to ensure that decks are not washed by wave action; • all barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material; • loading of barges should be controlled to prevent splashing of dredged material to the surrounding water, and barges should not be filled to a level which will cause the overflow of materials or polluted water during loading or transportation; and	Marine works site and at the identified water sensitive receivers/ During construction	Contractor		√		

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location (duration /completion of measures)	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines
					D	C	O	
		• the decks of all vessels should be kept tidy and free of oil or other substances that might be accidentally or otherwise washed overboard.						
5.79	4.37	<u>Construction Run-off and Drainage</u> Implementation of the following site practices outlined in ProPECC PN 1/94 for "Construction Site Drainage" • Provision of perimeter channels to intercept storm-runoff from outside the site. These should be constructed in advance of site formation works and earthworks. • Works programmes should be designed to minimize works areas at any one time, thus minimizing exposed soil areas and reducing the potential for increased siltation and runoff. • Sand / silt removal facilities such as sand traps, silt traps and sediment basins should be provided to remove the sand / silt particles from run-off. These facilities should be properly and regularly maintained. These facilities should be carefully planned to ensure that they would be installed at appropriate locations to capture all surface water generated on site. • Careful programming of the works to minimise soil excavation works during rainy seasons. • Exposed soil surface should be protected by paving or hydroseeding as soon as possible to reduce the potential of soil erosion. • Trench excavation should be avoided in the wet season, and if necessary, these should be excavated and backfilled in short sections. • Open stockpiles of construction materials on site should be covered with tarpaulin or similar fabric	Construction works sites	Contractor		√		ProPECC PN 1/94
5.80	4.38	<u>General Construction Activities</u> 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	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	Wastewater Arising from Workforce Portable toilets should be provided by the Contractors, where necessary, to handle sewage from the workforce. The Contractor should also be responsible for waste disposal and maintenance practices.	Construction works sites	Contractor		√		
5.96	Section 4	Water quality monitoring	Designated water monitoring locations/ throughout construction period	Contractor		√		EM&A Manual

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** 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: • Bottom opening of barges should be fitted with tight fitting seals to prevent leakage of material. Excess material should be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved. • Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels should be equipped with automatic self monitoring devices as specified by the DEP.	Marine works site and at the identified sensitive receivers	Contractor		√		

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** D=Design, C=Construction, O=Operation
N/A Not applicable

Implementation Schedule of Solid Waste Management Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
Construction Phase								
7.14	6.4	Good site practices • Nomination of an approved person, such as a site manager, to be responsible for implementation of good site practices, arranging for collection and effective disposal to an appropriate facility, of all wastes generated at the site • Training (proper waste management and chemical handling procedure) should be provided for site staffs • Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers. • Provision of sufficient waste disposal points and regular collection for disposal. • Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Facility. • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. • Maintain records of the quantities of wastes generated, recycled and disposed.	Work sites/During construction	Contractor		√		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: • 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	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; • 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.						
7.18	6.7	General Site Wastes • A collection area for construction site waste should be provided where waste can be stored prior to removal from site • An enclosed and covered area for the collection of the waste is recommended to reduce 'wind blow' of light material	Work sites/During construction	Contractor		√		Public Health and Municipal Services Ordinance (Cap. 132)
7.19-7.20	6.8 – 6.9	Chemical Wastes • After use, chemical waste should be handled according to the Code of Practice on the Package, Labelling and Storage of Chemical Wastes • Any unused chemicals or those with remaining functional capacity should be recycled • Waste should be properly stored on site within suitably designed containers and should be collected by an approved licensed waste collectors for disposal at the Chemical Waste Treatment Facility or other licenced facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation under the Waste Disposal Ordance.	Work sites/During construction	Contractor		√		Waste Disposal (Chemical Waste) (General) Regulation, Code of Practice on the Packaging Labelling and Storage of Chemical Wastes

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
		• Any service shop and minor maintenance facilities should be located on hard standing within a bunded area, and sumps and oil interceptors should be provided. • Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should be undertaken within the designated areas equipped control these discharges						
7.21-7.22	6.10 – 6.11	<u>Construction and Demolition Material</u> • The C&D waste should be separated on-site into three categories: ➢ public fill, the inert portion of the C&D material (e.g. concrete and rubble), which should be re-used on-site or disposed of at a public filling area; ➢ C&D waste for re-use and / or recycling, the non-inert portion of the C&D material, (e.g. steel and other metals, woods, glass and plastic); ➢ C&D waste which cannot be re-used and / or recycled (e.g. wood, glass and plastic) • Where possible, inert material should be re-used on-site • Where practicable, steel and other metals should be separated for re-use and/or recycling prior to disposal of C&D material	During all construction phases	Contractors		√		WBTC No. 4/98, 5/98, 21/2002, 25/99, 12/2000

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

Implementation Schedule of Ecological Impact Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages			Relevant Legislation & Guidelines
					D	C	O	
Construction Phase								
8.157	7.2	Terrestrial Ecology • Labeling and fencing of the uncommon tree species • Avoidance of use of woodland habitats as Works Area, in particular where trees are located	Work sites / during construction phase	Contractor		√		
8.159 – 8.160	7.3	Subtidal Ecology Use of HDD technique Dredging • Use of closed-grab dredger • Deploy silt curtains during dredging.	Marine works site / during dredging works	Contractor		√		
8.161	7.4	Site runoff • Construction and maintenance of sand / silt removal facilities • Silt curtains • Timing of earthworks • Coverage of sand / fill piles during storms. • Barriers along the landward side of Pumping Station P2 site boundary (to prevent site runoff from entering area with Romer's Tree Frog)	All work sites / during construction phase	Contractor		√		

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** 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	
Construction Phase								
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 *Macaranga tanarius* 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

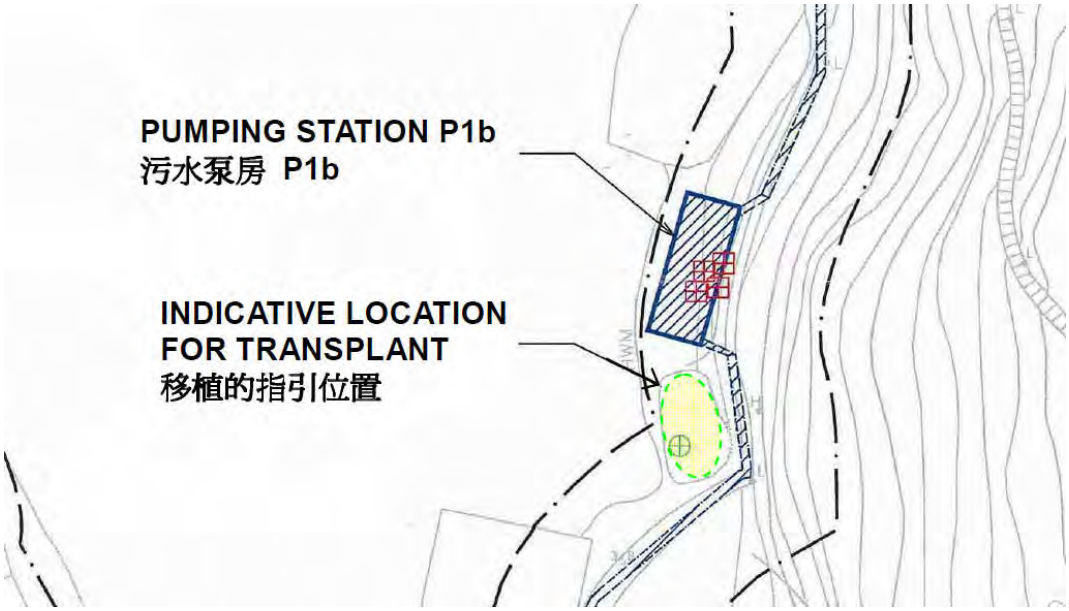
Sok Kwu Wan

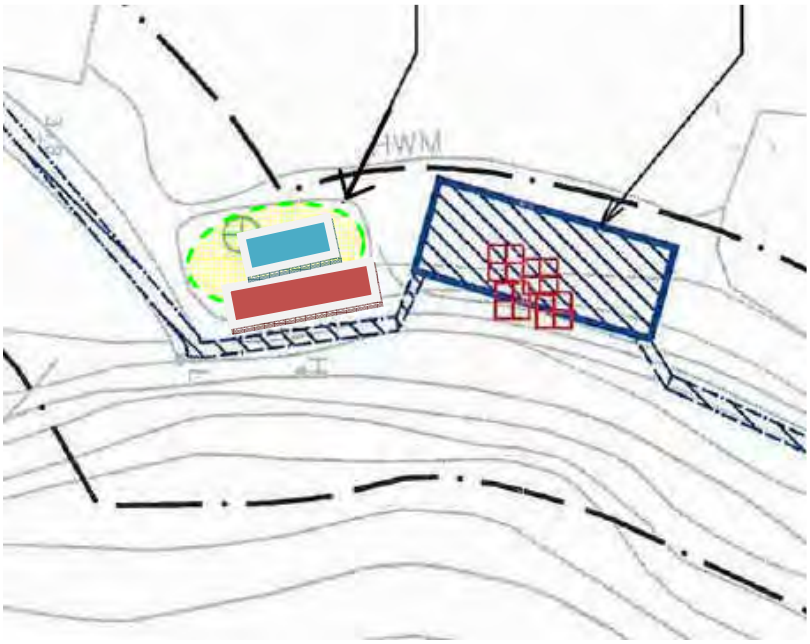
Tree Inspection Report for *Celtis timorensis*

Inspection Date : 29-06-2013

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





North

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	29 June 2013, 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 *Celtis timorensis* under Tree Protection Zone 2	CT_2A, CT_3A, CT_5A & CT_6A

3. Proposed Inspection Schedule

Month	Actual / proposed Inspection Date
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 and 31 May 2012
June 2012	15 and 30 June 2012
July 2012	16 and 30 July 2012
August 2012	15 and 31 August 2012
September 2012	15 and 29 September 2012
October 2012	15 and 31 October 2012
November 2012	15 and 30 November 2012
December 2012	15 and 30 December 2012
January 2013	15 and 30 January 2013
February 2013	15 and 28 February 2013
March 2013	15 and 30 March 2013
April 2013	15 and 30 April 2013
May 2013	15 and 31 May 2013
June 2013	15 and 29 June 2013

4. Summary of Inspection Result

Tree No	Speciation	Health Status
CT_2A	***Celtis timorensis***	**Poor**
CT_3A	***Celtis timorensis***	**Poor**
CT_5A	***Celtis timorensis***	**Good**
CT_6A	***Celtis timorensis***	**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

Current Status: 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: 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: Significant improvement in health. The plant was healthy. Some leaves were damaged by insect.**

Tree ID: CT_6A

	**Current Status: Good** **Justification: Significant improvement in health. The plant was healthy.**

Overall Condition

In the Tree Protection Zone 2, The health of 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 CT2A, CT3A were in poor condition, compensatory of additional Celtis timorensis is proposed and will be carried out in the coming warm weather season for better growing.

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Contract No. DC/2009/13

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

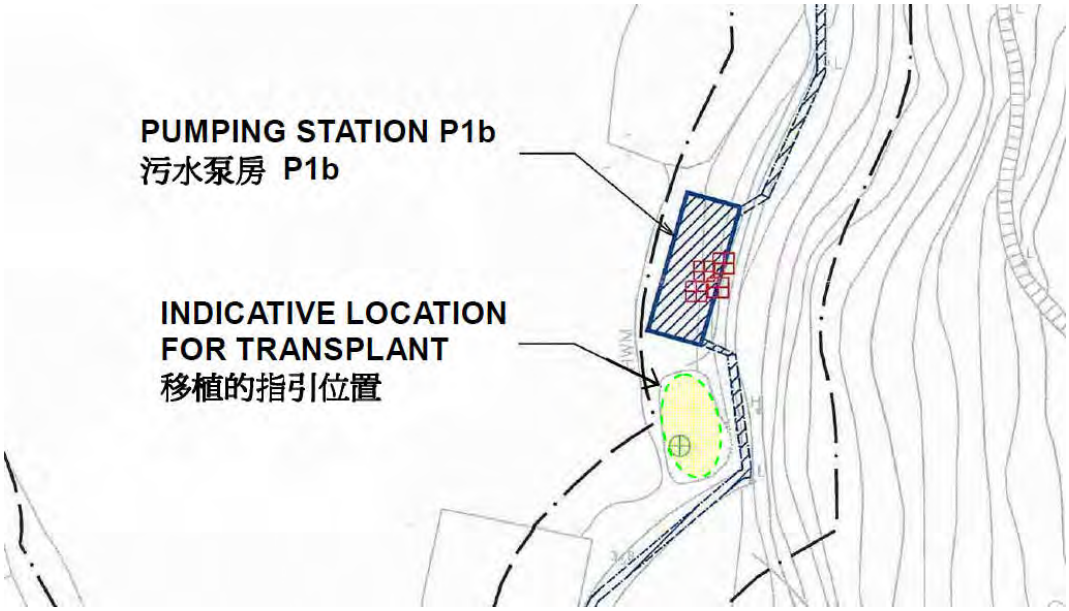
Sok Kwu Wan

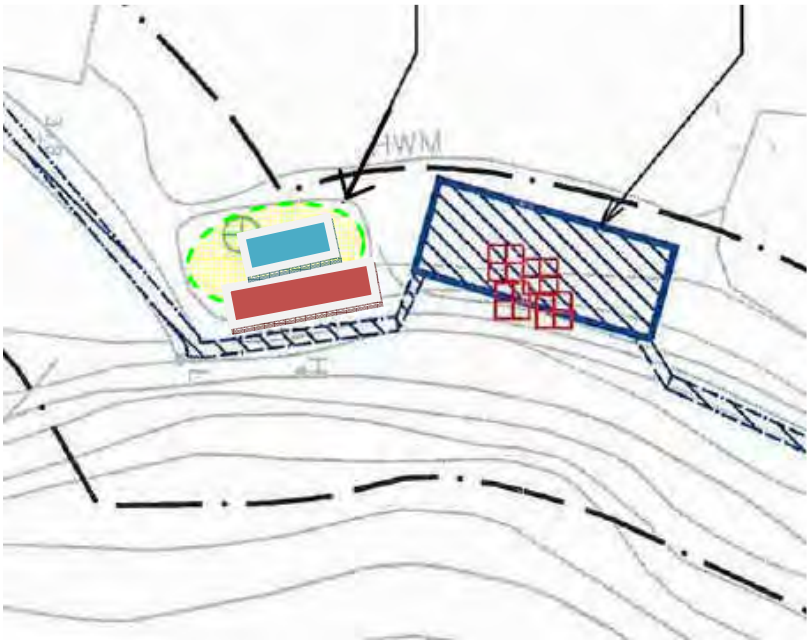
Tree Inspection Report for *Celtis timorensis*

Inspection Date : 15-07-2013

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





North

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	15 July 2013, 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 *Celtis timorensis* under Tree Protection Zone 2	CT_2A, CT_3A, CT_5A & CT_6A

3. Proposed Inspection Schedule

Month	Actual / proposed Inspection Date
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 and 31 May 2012
June 2012	15 and 30 June 2012
July 2012	16 and 30 July 2012
August 2012	15 and 31 August 2012
September 2012	15 and 29 September 2012
October 2012	15 and 31 October 2012
November 2012	15 and 30 November 2012
December 2012	15 and 30 December 2012
January 2013	15 and 30 January 2013
February 2013	15 and 28 February 2013
March 2013	15 and 30 March 2013
April 2013	15 and 30 April 2013
May 2013	15 and 30 May 2013
June 2013	15 and 29 June 2013

July 2013	15 July 2013

4. Summary of Inspection Result

Tree No	Speciation	Health Status
CT_2A	***Celtis timorensis***	**Poor**
CT_3A	***Celtis timorensis***	**Poor**
CT_5A	***Celtis timorensis***	**Good**
CT_6A	***Celtis timorensis***	**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

Current Status: 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: 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: Significant improvement in health. The plant was healthy. Some leaves were damaged by insect.**

Tree ID: CT_6A

	**Current Status: Good** **Justification: Significant improvement in health. The plant was healthy.**

Overall Condition

In the Tree Protection Zone 2, The health of 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 CT2A, CT3A were in poor condition, compensatory of additional Celtis timorensis is proposed and will be carried out in the coming warm weather season for better growing.