PROJECT NO.: TCS/00512/09

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

YUNG SHUE WAN PORTION AREA
MONTHLY ENVIRONMENTAL MONITORING AND AUDIT
(EM&A) REPORT (NO.3) – NOVEMBER 2010

PREPARED FOR
LEADER CIVIL ENGINEERING CORPORATION LIMITED

Quality Index

Date	Reference No.	Prepared By	Approved By
13 December 2010	TCS00512/09/600/R0120v2	Nicola Hon Environmental Consultant	T.W. Tam Environmental Team Leader

Version	Date	Description
1	8 December 2010	First Submission
2	13 December 2010	Amended against IEC's comments on 10 December 2010

Scott Wilson CDM Joint Venture

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

Attention: Mr. C K Au

Your reference:

Our reference: 05117/6/16/345004

Date: 13 Dec 2010

BY FAX ONLY

Dear Sir

Contract No. DC/2009/13
Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan
Yung Shue Wan Portion Area
Monthly Environmental Monitoring and Audit (EM&A) Report No. 3 (Nov 2010)

We refer to the Monthly EM&A Monitoring Report No. 3 for November 2010 received under cover of the email from the Environmental Team, Action-United Environmental Services and Consulting (AUES), dated on 13 December 2010. We do not have further comment and have verified the captioned report.

Yours faithfully
SCOTT WILSON CDM JOINT VENTURE

Rodney Ip

ICWR/KKK/ecwc

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

EXECUTIVE SUMMARY

ES.01. This is the **3rd** monthly EM&A Report for Yung Shue Wan (hereinafter 'this Report') for the designated works under Environmental Permit No.EP-282/2007, covering a period from **1 to 30 November 2010** (hereinafter 'the Reporting Period').

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

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

Issues	Environmental Monitoring Parameters / Inspection	Occasions
Air Quality	1-hour TSP	30
	24-hour TSP	10
Construction Noise	Leq (30min) Daytime	5
Water Quality	Marine Water Sampling	0
Inspection / Audit	ET Regular Environmental Site Inspection	5

ES.03. According to the EM&A Manual of Yung Shue Wan, water quality monitoring should be carried out during the marine work commencement. Since the marine work of outfall construction has not yet commenced, no impact water quality monitoring was undertaken in this reporting month.

BREACH OF ACTION AND LIMIT (A/L) LEVELS

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

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

Note: NOE – Notification of Exceedance

ENVIRONMENTAL COMPLAINT

ES.05. No written or verbal complaint was recorded in this Reporting Month. The statistics of environmental complaint are summarized in the following table.

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
14 – 30 September 2010	0	0	NA
1 – 31 October 2010	0	0	NA
1 – 30 November 2010	0	0	NA

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES.06. No environmental summons or successful prosecutions were recorded in this Reporting Month. The statistics of environmental complaint are summarized in the following tables.

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
14 – 30 September 2010	0	0	NA
1 – 31 October 2010	0	0	NA
1 – 30 November 2010	0	0	NA

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
14 – 30 September 2010	0	0	NA
1 – 31 October 2010	0	0	NA
1 – 30 November 2010	0	0	NA

REPORTING CHANGE

ES.07. There are no reporting changes in this reporting month.

SITE INSPECTION BY EXTERNAL PARTIES

ES.08. No site inspection was undertaken by external parties i.e. EPD or AFCD within the Reporting Period.

FUTURE KEY ISSUES

ES.09. During dry and windy season, construction dust should be the key environmental issue during the coming months. The construction dust mitigation measures identified at the EM&A Manuel such as watering at haul road and covering of dusty material should be implemented and properly maintained.

ES.10. Nevertheless, the Contractor shall keep paying attention on the potential water impact as the construction site is adjacent to the coastline. Muddy water and other water quality pollutants via site surface water runoff into the sea body within Fish culture zone at Picnic Bay and the Secondary recreation contact subzone at Mo Tat Wan should be avoided. Therefore, mitigation measures for water quality should be fully implemented also.

ES.11. Construction of outfall marine works cannot be carried out until the baseline water quality monitoring completion and the related Action and Limit (A/L) levels have established.

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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 Kwn Wan* (the Project) by the Drainage Services Department (DSD) on 4 May 2010. The Project is part of an overall plan approved under a statutory EIA for Outlying Islands Sewerage Stage 1 Phase 2 Package J – Sok Kwu Wan Sewage Collection and Treatment (Register No. AEIAR-075/2003) and Disposal Facilities and Outlying Islands Sewerage Stage 1 Phase 1 Package C – Yung Shue Wan Sewage Treatment Works and Outfall (Register No. EIA-124/BC). The Environmental Permit No. EP-281/2007 and EP-282/2007 for the Project have been obtained by the DSD on 29 June 2007 for the relevant works. After July 2009, EP-281/2007/A stead EP-281/2007 is EP for Sok Kwu Wan relevant Works.

1.02 The Project involves construction of sewage treatment works at Sok Kwn 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 to implement the environmental monitoring and auditing works to fulfill the requirements as stipulated in the Environmental Monitoring and Audit (EM&A) Manuals.

1.04 Action-United Environmental Services and Consulting (AUES) has been commissioned by Leader as the ET to implement the relevant EM&A program. Organization chart of the Environmental Team for the Project is shown in ***Appendix B***. For ease of reporting, the proposed EM&A programme for baseline and impact monitoring is spilt to following two stand-alone parts:

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

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

1.05 According to the EM&A Manuals of Sok Kwu Wan and Yung Shue Wan, baseline water quality monitoring should be carried out for consecutive six months before the marine work commencement. Therefore, the baseline reports of Sok Kwu Wan and Yung Shue Wan are divided to two volumes i.e. the Volume 1 for air quality and noise monitoring; and the Volume II for water quality monitoring for separate submission.

1.06 This is the **3rd** monthly EM&A report for Yung Shue Portion Area which presenting the monitoring results and inspection findings in the reporting period from **1 to 30 November 2010**.

REPORT STRUCTURE

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

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

2 PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

PROJECT ORGANIZATION AND MANAGEMENT STRUCTURE

2.01 Organization structure and contact details of relevant parties with respect to on-site environmental management are shown in ***Appendix B***.

CONSTRUCTION PROGRESS

2.02 The master and three month rolling construction programs are enclosed in ***Appendix C*** and the major construction activities undertaken in this Reporting Month are listed below:-

- Excavation;
- Steel fixing;
- Concreting;
- Backfilling;
- Scaffolding erection;
- Soil nailing; and
- Land site investigation

SUMMARY OF ENVIRONMENTAL SUBMISSIONS

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

Table 2-1 Status of Environmental Licenses and Permits

Item	Description	License/Permit Status
1	Air pollution Control (Construction Dust)	Notified 19/5/2010 Case No: 317486
2	Chemical waste Producer Registration	Issued on 8/6/2010 WPN 5213-912-L2720-01
3	Water Pollution Control Ordinance	Issued on 22/9/2010 WT00007566-2010
4	Billing Account for Disposal of Construction Waste	Issued on 26 May 2010 A/C No: 7010815

2.04 The "Baseline/Impact Monitoring Methodology (TCS00512/10/600/R0011Ver.5)" was set out in accordance with the Yung Shue Wan Environmental Monitoring and Audit Manual. It was approved by the ER and agreed with the Independent Environmental Checker (IEC) and submitted to the EPD for endorsement.

2.05 Baseline Monitoring Report Volume 1 (TCS00512/10/600/R0061Ver.3) for Yung Shue Wan for the Project was issued by the ETL and verified by the IEC on 31 August 2010. The report was also submitted to the EPD for endorsement.

2.06 Baseline Monitoring Report Volume 2 of water quality for Sok Kwu Wan for the Project will be submitted to IEC verification and EPD endorsement upon the six months baseline marine water monitoring completion.

3 SUMMARY OF BASELINE MONITORING REQUIREMENTS

ENVIRONMENTAL ASPECT

3.01 The EM&A baseline monitoring program cover the following environmental issues:

- Air quality;
- Construction noise; 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 program are presented in the following sub-sections.

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

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

Environmental Issue	Parameters
Air Quality	• 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 (mg/L); • Dissolved Oxygen Saturation (%); • Turbidity (NTU); • pH unit; • Salinity (ppt); • Water depth (m); and • Temperature (ºC). ***Laboratory Analysis*** • Suspended Solids (mg/L)

MONITORING LOCATIONS

Air Quality

3.04 Two designated monitoring stations, AC02a located at Yung Shue Wan Refuse Transfer Station and AC04 located at residential area nearby Yung Shue Wan football pitch, were recommended in the *EM&A Manual Section 2.5*. In order to identify and seek for the access of the air monitoring locations designated in the EM&A Manual, site visit was conducted by Leader and ET.

3.05 At the site visit, all designated monitoring locations were identified however the premises for high volume sampler installation were objected by the owner or the residents of nearby. So, an alternative air monitoring locations were proposed in accordance with the criteria set out in *EM&A manual Section 2.5.2 and 2.5.3*. The proposed alternative air monitoring stations was accepted by the ER and IEC, and EPD endorsed. Details of renewed air monitoring stations are described in ***Table 3-2***. The graphical of air monitoring stations is shown in ***Appendix D*****.**

Table 3-2 Location of Air Quality Monitoring Station

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

Construction Noise

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

Table 3-3 Location of Construction Noise Monitoring Station

Sensitive Receiver	Location
NC05	Roof of North Lamma Clinic

Marine Water Quality

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

Table 3-4 Location of Marine Water Quality Monitoring Station

Station	Description	Coordinates	
		Easting	Northing
WY1	Coral colonies on seawall at STW site	829 170	809 550
WY2	Coral colonies at Shek kok Tsui	829 000	810 400
WY3	Coral colonies at O Tsai (headland N at SW ferry pier)	829 200	809 850
CY1 (flood)	Control Station	828 400	810 800
CY2 (ebb)	Control Station	828 000	808 800

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

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

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

Duration: Throughout the construction period.

Marine Water Quality Monitoring

Parameters:	Duplicate in-situ measurements: water depth, temperature, Dissolved Oxygen, pH, turbidity and salinity; HOKLAS-accredited laboratory analysis: Suspended Solids
Frequency:	Three days a week, at mid ebb and mid flood tides. The interval between 2 sets of monitoring will be more than 36 hours.
Sampling Depth	(i.) Three depths: 1m below water surface, 1m above sea bottom and at mid-depth when the water depth exceeds 6m. (ii.) If the water depth is between 3m and 6m, two depths: 1m below water surface and 1m above sea bottom. (iii.) If the water depth is less than 3m, 1 sample at mid-depth is taken
Duration:	During the course of marine works

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 arrange 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 SS 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 Dissolved Oxygen 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 program in the Reporting Month 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 program.

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

DETERMINATION OF ACTION/LIMIT (A/L) LEVELS

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

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

Monitoring Station	Action Level (μg /m^3)		Limit Level (μg/m^3)	
	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP
AC02b	288	161	500	260
AC04c	290	176	500	260

Table 3-6 Action and Limit Levels for Construction Noise

Recommended Action & Limit Levels of Construction Noise		
Monitoring Location	Action Level	Limit Level
	0700-1900 hours on normal weekdays	
NC05	When one or more documented complaints are received	75 dB(A)

*Note: * Reduces to 70dB(A) for schools and 65dB(A) during the school examination periods.*

3.29 Since water quality baseline monitoring still not yet completed, the Action/Limit Levels will be provided in due course.

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

Result

4.02 In this reporting period, 5 air quality monitoring days were performed at the designated locations AC02b and AC04c. The results for 24-hour and 1-hour TSP monitoring are tabulated in ***Tables 4-1 and 4-2***. The 24-hour TSP monitoring data are shown in ***Appendix G*** and the graphical plots are shown in ***Appendix H***.

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

Date	24-hour TSP (μg/m^3)	1-hour TSP (μg/m^3)				
		Date	Start Time	1st hour measured	2nd hour measured	3rd hour measured
2-Nov-10	121	4-Nov-10	13:51	48	79	58
8-Nov-10	83	10-Nov-10	14:25	73	81	70
13-Nov-10	92	16-Nov-10	10:09	146	138	153
19-Nov-10	93	22-Nov-10	14:23	71	68	75
25-Nov-10	113	27-Nov-10	10:45	73	81	72
Average (Range)	**100 (83 – 121)**	Average (Range)		**86 (48– 153)**		

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

Date	24-hour TSP (μg/m^3)	1-hour TSP (μg/m^3)				
		Date	Start Time	1st hour measured	2nd hour measured	3rd hour measured
2-Nov-10	132	4-Nov-10	13:39	51	84	62
8-Nov-10	106	10-Nov-10	14:18	77	69	63
13-Nov-10	69	16-Nov-10	10:07	126	131	144
19-Nov-10	141	22-Nov-10	14:18	68	65	71
25-Nov-10	143	27-Nov-10	10:50	71	85	74
Average (Range)	**118 (69 – 143)**	Average (Range)		**83 (51 – 144)**		

Remark: Bold and underlined indicted Action Level exceedance

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

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

5 IMPACT MONITORING RESULTS – CONSTRUCTION NOISE

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

Result

5.02 In this report period, 5 construction noise monitoring events were undertaken at designated location AC05. The results for Leq30min are tabulated in ***Tables 5-1***. The construction noise monitoring data sheets are shown in ***Appendix G*** and the graphical plots are shown in ***Appendix H***.

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

Date	Start Time	End Time	1st set Leq5	2nd set Leq5	3rd set Leq5	4th set Leq5	5th set Leq5	6th set Leq5	Leq30	Corrected Leq30
4-Nov-10	14:45	15:15	58.7	60.7	54.3	56.1	57.8	57.1	57.9	60.9
10-Nov-10	14:42	15:12	57.0	57.6	57.7	56.6	58.5	55.0	57.2	60.2
16-Nov-10	10:18	10:48	56.4	57.1	56.2	58.1	56.9	56.8	57.0	60.0
22-Nov-10	15:03	15:33	53.4	62.9	59.7	61.4	59.2	59.3	60.1	63.1
27-Nov-10	11:31	12:01	62.4	59.1	57.6	59.6	55.6	57.2	59.1	62.1
Limit Level			-							**75 dB(A)**

5.03 It was noted that no noise complaint (which is an Action Level exceedance) was received. In view of the results shown in ***Tables 5-1,*** all the values are well below 75dB(A), therefore, no Action or Limit Level exceedance was triggered during this reporting month.

6 IMPACT MONITORING RESULTS – WATER QULAITY

6.01 Due to marine water quality baseline monitoring still not yet completed, no marine works was commenced in the Project at Yung Shue Wan. No impact water quality monitoring was undertaken in this reporting month and no results are presented accordingly in this section.

7 WASTE MANAGEMENT

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

Records of Waste Quantities

7.02 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.

7.03 The quantities of waste for disposal in this Reporting Period are summarized in ***Table 7-1*** and ***7-2*** and the Monthly Summary Waste Flow Table is shown in ***Appendix J***. Whenever possible, materials were reused on-site as far as practicable

Table 7-1 Summary of Quantities of Inert C&D Materials

Type of Waste	Quantity	Disposal Location
C&D Materials (Inert) ('000m^3)	0.003	Tuen Mun Area 38
Reused in this Contract (Inert) ('000m^3)	0.362	-
Reused in other Projects (Inert) ('000m^3)	0	-
Disposal as Public Fill (Inert) ('000m^3)	0.095	Tuen Mun Area 38

Table 7-2 Summary of Quantities of C&D Wastes

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

7.04 There was no site effluent discharged but the estimated volume of surface runoff was less than 50m^3 in this monthly period

8 SITE INSPECTION

8.01 According to the Environmental Monitoring and Audit Manual, the environmental site inspection should been formulation by ET Leader. Regular environmental site inspections had been carried out by the ET to confirm the environmental performance. In this reporting period, site inspection was carried out on **2, 9, 16, 23 and 30 November 2010** after the relevant land work commencement at Yung Shue Wan Portion Area on 14 September 2010. Besides, routine joint-site visit by IEC, RE, Leader and ET was carried out on **16 November 2010**.

8.02 The findings/ deficiencies that observed during the weekly site inspection are listed in ***Table 8-1*** and the relevant checklists are attached in **Appendix K**.

Table 8-1 Site Observations

Date	Findings / Deficiencies	Follow-Up Status
2 November 2010	• No environmental issue was observed during the site inspection.	Nil.
9 November 2010	• No environmental issue was observed during the site inspection.	Nil.
16 November 2010	• The capacity of the de-silting tanks should be improved. The Contractor was advised to provide sufficient numbers of de-silting tank for wastewater treatment in order to improve the quality of the discharge water.	The de-silting facility shall be further improved.
23 November 2010	• The de-silting tanks should be improved. The Contractor was advised to provide more filter sheet within the tank for wastewater treatment in order to improve the quality of the discharge water.	The de-silting facility was found to be improved.
30 November 2010	• No environmental issue was observed during the site inspection.	Nil.

9 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

9.01 No environmental complaint, summons and prosecution was received in this reporting period. The statistical summary table of environmental complaint is presented in ***Tables 9-1, 9-2*** and ***9-3***.

Table 9-1 Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
14 – 30 Sep 2010	0	0	NA
1 – 31 Oct 2010	0	0	NA
1 – 30 Nov 2010	0	0	NA

Table 9-2 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
14 – 30 Sep 2010	0	0	NA
1 – 31 Oct 2010	0	0	NA
1 – 30 Nov 2010	0	0	NA

Table 9-3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
14 – 30 Sep 2010	0	0	NA
1 – 31 Oct 2010	0	0	NA
1 – 30 Nov 2010	0	0	NA

10 IMPLEMENTATION STATUS OF MITIGATION MEASURES

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

Dust Mitigation Measure

10.02 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

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

(a) Use of quiet equipment for the construction activities of the Pumping Stations and sewer alignment;

(b) Use of temporary noise barrier around the site boundary of Pumping Station P1a;

(c) Use of kick ripper (saw and lift) method to replace the breaker for pavement removal during sewer alignment construction;

(d) Restriction on the number of plant during sewer alignment construction;

(e) Use of noise screening structures in the form of acoustic shed or movable barrier wherever practicable and feasible in areas with sufficient clearance and headroom during the construction of sewer alignment;

(f) Adoption of manual working method wherever practicable and feasible in areas where the worksites of the proposed sewer alignment are located less than 20m from the residential noise sensitive receivers and less than 30m from the temple and the public library; and

(g) Implementation of the following good site practices**:**

- Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.
- Mobile plant, if any, should be sited as far away from NSRs as possible.
- Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.
- Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.
- Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.

Water Quality Mitigation Measure

10.04 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.

10.05 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

10.06 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

10.07 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

10.08 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

10.09 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).

10.10 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.

10.11 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

10.12 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.

10.13 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.

10.14 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

10.15 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

10.16 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.

10.17 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

10.18 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.

10.19 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

10.20 The following general good practice measures should be adopted to mitigate ecological impacts during marine works (including dredging and HOD);

- Excess material from vessel loading should be cleaned from the decks and exposed fittings before vessels are moved to the backfilling location;
- Dredging should cause no foam, oil, grease, scum, litter or other objectionable matter to be present on the water;
- Adequate freeboard should be maintained to ensure that decks are not washed by wave action;
- All pie leakages should be repaired promptly and plant Should not be operated with leaking pipes; and

- All banges and other vessels should maintain adequate clearance between vessels and the seabed at all stats of the tide and reduce operational speeds to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.

10.21 In the event of exceedances of ecological action or limit level, the Contractor will be required to revise his operations as a further mitigation measure. Revisions to the operation method may include (but not be limited to):

- Reduction in dredging rate'
- Restriction of dredging in particular areas to specific periods in the tidal cycle

10.22 Should repeated non0compliances with limit level(s) occur the Contractor shall modify his working method until he is able to achieve the required compliances with the limit levels to the satisfaction of the IC(E)

Fisheries Mitigation Measure

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

Landscape & Visual Mitigation Measure

10.24 Mitigation measures recommended in the EIA Report for landscape and visual impacts during the construction stage are summarised below.

- Screening of site construction works by use of hoarding that is appropriate to its site context;
- Retaining existing trees and minimising damage to vegetation where possible by close co-ordination and on site alignment adjusted of rising main and gravity sewer pipelines. Tree protective measures should be implemented to ensure trees identified as to be retained are satisfactorily protected during the construction phase;
- Careful and efficient transplanting of affected trees (1 no.) to temporary or final transplant location (the proposed tree to be transported is a semi-mature *Macaranga tanarius* and is located at the proposed Pumping Station P2 location);
- Short excavation and immediate backfilling of sections upon completion of works to reduce active site area;
- Conservation of top-soil for reuse.
- Night-time light source from marine fleets should be directed away from the residential units

10.25 The implementation schedule of mitigation measures is presented in ***Appendix L***.

10.26 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 Month are summarized in ***Table 10-1***.

Table 10-1 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.

11 IMPACT FORECAST

11.01 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.

12 CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

12.01 This is the **3rd** Monthly EM&A Report covering the construction period from **1 to 30 November 2010** (the Reporting Period).

12.02 No 1-hour TSP and 24-TSP monitoring result was found to be triggered the Action or Limit Level in this Reporting Period.

12.03 No noise complaint (an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in this reporting month.

12.04 No impact water quality monitoring was undertaken in this reporting month and baseline monitoring is in progress.

12.05 No documented complaint, notification of summons or successful prosecution was received.

12.06 In this reporting period, site inspection was carried out on **2, 9, 16, 23 and 30 November 2010** after the relevant land work commencement at Yung Shue Wan Portion Area on 14 September 2010. Besides, routine joint-site visit by IEC, RE, Leader and ET was carried out on **16 November 2010**. All the observation has been rectified during the next week site inspection. The environmental performance of the Project was therefore considered as satisfactory.

RECOMMENDATIONS

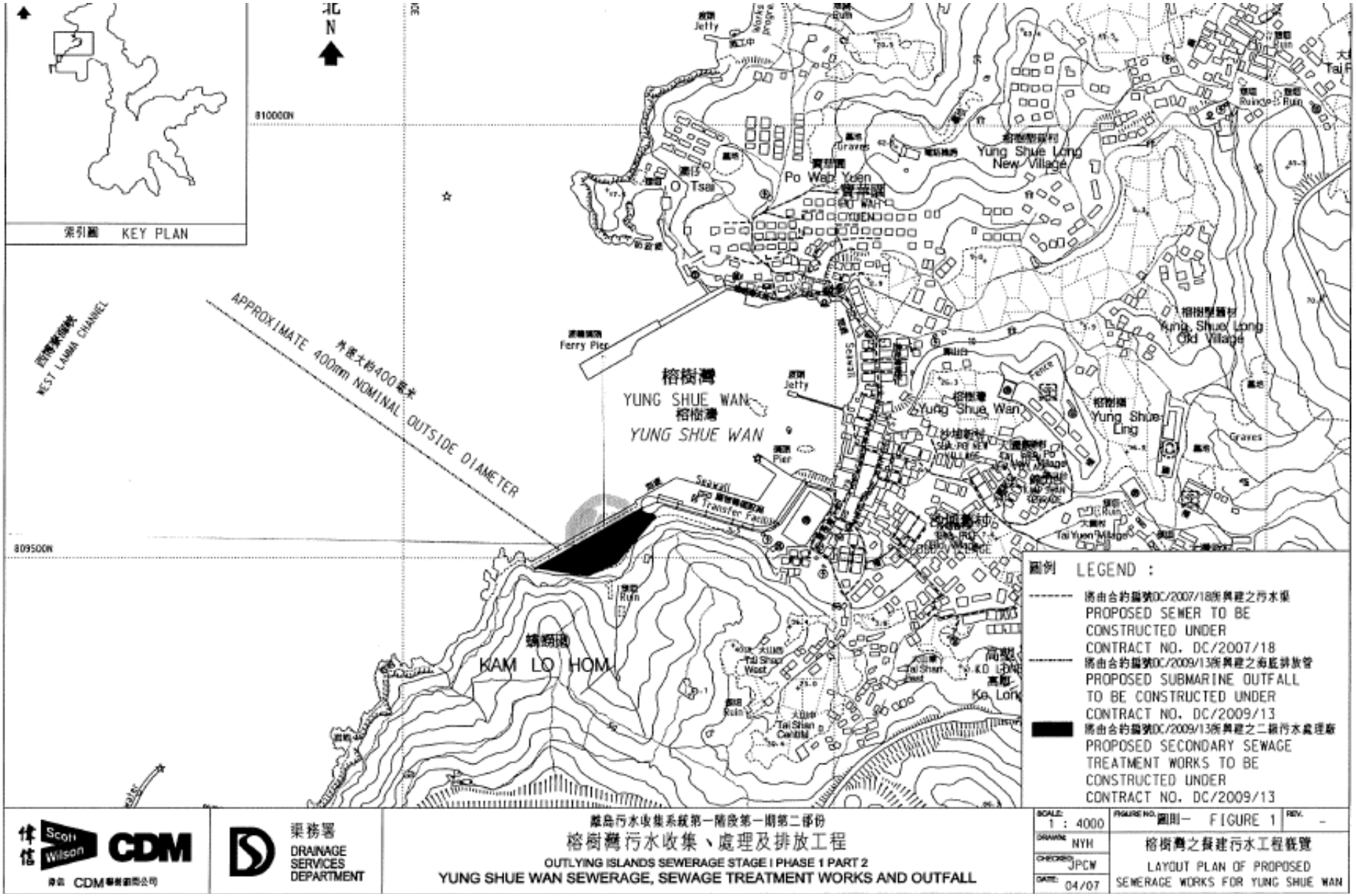
12.07 During dry and windy season, construction dust should be the key environmental issue during the coming months. The construction dust mitigation measures identified at the EM&A Manuel such as watering at haul road and covering of dusty material should be implemented and properly maintained.

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

12.09 Construction of outfall marine works cannot be carried out until the baseline water quality monitoring completion and the related Action and Limit (A/L) levels have established.

Appendix A

Site Layout Plan – Yung Shue Wan Portion Area


KEY PLAN
APPROXIMATE 400mm NOMINAL OUTSIDE DIAMETER
WEST LAMMA CHANNEL
YUNG SHUE WAN
KAM LO HOM
Ferry Pier
Jetty
Seawall
Transfer Facility
Yung Shue Long New Village
Yung Shue Long Old Village
Yung Shue Wan
Yung Shue Ling
Graves
LEGEND :
PROPOSED SEWER TO BE CONSTRUCTED UNDER CONTRACT NO. DC/2007/18
PROPOSED SUBMARINE OUTFALL TO BE CONSTRUCTED UNDER CONTRACT NO. DC/2009/13
PROPOSED SECONDARY SEWAGE TREATMENT WORKS TO BE CONSTRUCTED UNDER CONTRACT NO. DC/2009/13
Scott Wilson
CDM
DRAINAGE SERVICES DEPARTMENT
離島污水收集系統第一階段第一期第二部份
榕樹灣污水收集、處理及排放工程
OUTLYING ISLANDS SEWERAGE STAGE I PHASE 1 PART 2
YUNG SHUE WAN SEWERAGE, SEWAGE TREATMENT WORKS AND OUTFALL
SCALE: 1 : 4000
DRAWN: NYH
CHECKED: JPCW
DATE: 04/07
FIGURE NO. 圖則一 FIGURE 1
REV. -
榕樹灣之污水工程概覽
LAYOUT PLAN OF PROPOSED SEWERAGE WORKS FOR YUNG SHUE WAN

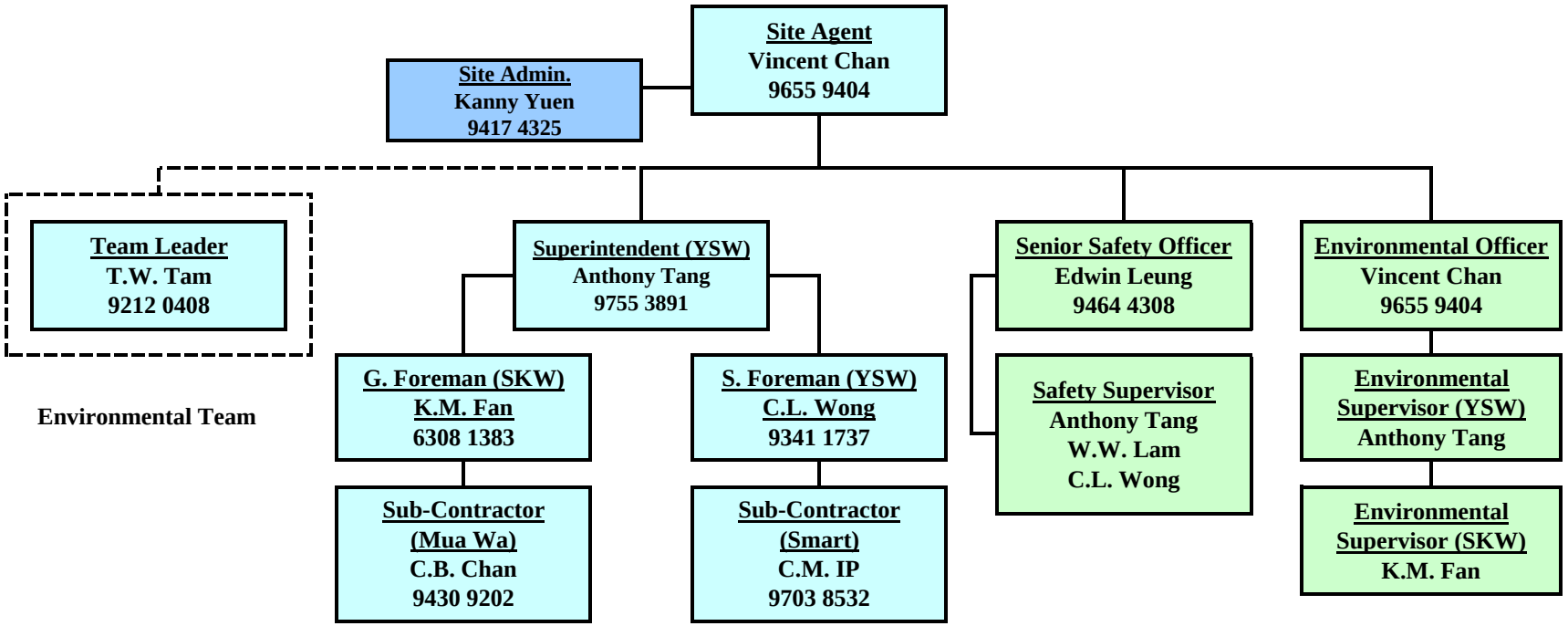
Appendix B

Organization Structure and Contact Details of Relevant Parties

Leader Civil Engineering Corporation LTD

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

Organization Structure for Environmental Management (EMP Rev. 1.00)



Updated on 01/07/2010
Printed on 13/10/2010

Contact Details of Key Personnel

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

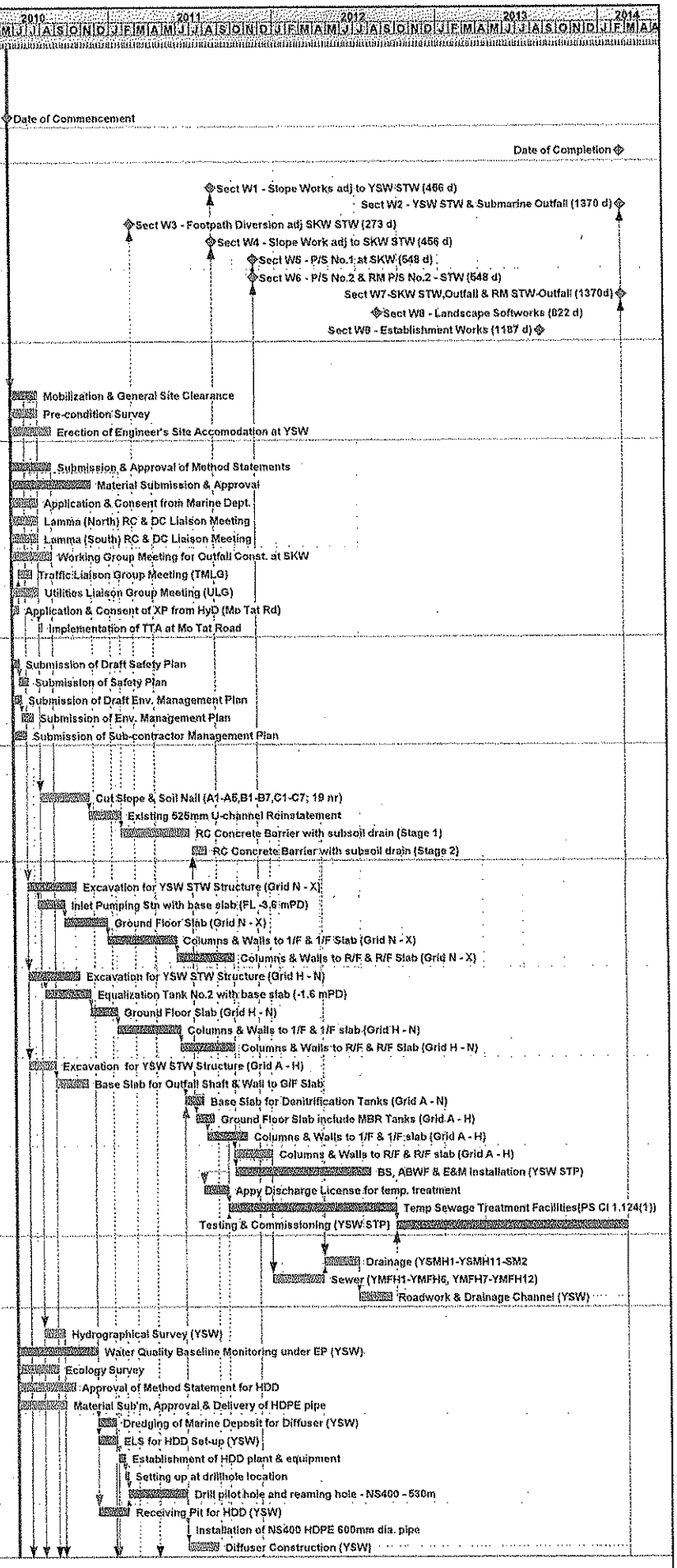
Legend:

DSD (Employer) – Drainage Services Department
CDM (Engineer) – Scott Wilson CDM Joint Venture
Leader (Main Contractor) – Leader Civil Engineering Corporation Limited
Scott Wilson (IEC) – Scott Wilson Limited
AUES (ET) – Action-United Environmental Services & Consulting

Appendix C

A Master and Three Months Rolling Construction Programs

Activity ID	Orig Dur	Total Float	Early Start	Late Start	Early Finish	Late Finish
General						
Key Dates						
Date of Commencement						
KD0090	0	0	17/05/10*	17/05/10*		
Date of Completion						
KD0100	0	0			15/02/14*	15/02/14*
Section Completion						
KD0010	0	0			15/08/11*	15/08/11*
KD0020	0	0			14/02/14*	14/02/14*
KD0030	0	0			13/02/11*	13/02/11*
KD0040	0	0			15/08/11*	15/08/11*
KD0050	0	0			15/11/11*	15/11/11*
KD0060	0	0			15/11/11*	15/11/11*
KD0070	0	0			14/02/14*	14/02/14*
KD0080	0	0			15/08/12*	15/08/12*
KD0090	0	0			15/08/13*	15/08/13*
Preliminaries						
General						
PREL0010	60	0	17/05/10	17/05/10	15/07/10	15/07/10
PREL0020	60	27	17/05/10	13/08/10	15/07/10	11/08/10
PREL0030	90	30	17/05/10	16/06/10	14/08/10	13/09/10*
Submission & Meetings						
PREL0040	91	0	17/05/10	17/05/10	15/08/10	15/08/10
PREL0050	180	0	17/05/10	17/05/10	12/11/10	12/11/10
PREL0060	60	91	17/05/10	16/08/10	15/07/10	14/10/10
PREL0070	60	61	17/05/10	17/07/10	15/07/10	14/09/10
PREL0080	60	24	17/05/10	10/06/10	15/07/10	08/08/10
PREL0090	90	146	17/05/10	10/10/10	14/08/10	07/01/11
PREL0100	30	40	31/05/10	10/07/10	29/06/10	08/08/10
PREL0110	60	27	17/05/10	13/06/10	15/07/10	11/08/10
PREL0170	14	40	17/05/10	26/06/10	30/05/10	08/07/10
PREL0180	6	20	16/07/10	09/08/10	22/07/10	14/08/10
Quality, Safety & Environmental Management						
PREL0120	14	0	17/05/10	17/05/10	30/05/10*	30/05/10*
PREL0130	21	0	31/05/10	31/05/10	20/06/10	20/06/10*
PREL0140	21	0	17/05/10	17/05/10	06/06/10*	06/06/10*
PREL0150	24	0	07/06/10	07/06/10	30/06/10	30/06/10*
PREL0160	30	0	17/05/10	17/05/10	15/06/10	15/06/10*
Yung Shue Wan						
Geotechnical Works						
YSWGW0010	90	52	16/07/10	15/09/10	01/11/10	04/01/11
YSWGW0020	60	52	02/11/10	05/01/11	13/01/11	18/03/11
YSWGW0030	120	52	14/01/11	19/03/11	14/06/11	15/08/11
YSWGW0040	30	24	23/06/11	17/07/11	22/07/11	15/08/11
YSW Sewage Treatment Plant						
YSWSTW0010	90	0	17/06/10	17/06/10	02/10/10	02/10/10
YSWSTW0011	60	0	09/07/10	09/07/10	06/09/10	06/09/10
YSWSTW0012	96	0	07/09/10	07/09/10	11/12/10	11/12/10
YSWSTW0013	156	0	12/12/10	12/12/10	16/05/11	16/05/11
YSWSTW0014	126	0	17/05/11	17/05/11	21/09/11	21/09/11
YSWSTW0020	96	0	17/06/10	17/06/10	09/10/10	09/10/10
YSWSTW0021	102	0	23/07/10	23/07/10	01/11/10	01/11/10
YSWSTW0022	60	0	02/11/10	02/11/10	31/12/10	31/12/10
YSWSTW0023	144	0	01/01/11	01/01/11	24/05/11	24/05/11
YSWSTW0024	120	0	25/05/11	25/05/11	21/09/11	21/09/11
YSWSTW0030	60	17	17/06/10	04/07/10	15/08/10	01/09/10
YSWSTW0031	72	17	16/08/10	02/09/10	26/10/10	12/11/10
YSWSTW0032	40	0	03/06/11	03/06/11	12/07/11	12/07/11
YSWSTW0033	40	0	27/06/11	27/06/11	05/08/11	05/08/11
YSWSTW0034	90	0	21/07/11	21/07/11	18/10/11	18/10/11
YSWSTW0035	66	15	19/09/11	04/10/11	13/12/11	28/12/11
YSWSTW0040	240	0	22/09/11	22/09/11	16/07/12	16/07/12
YSWSTW0050	48	0	13/07/11	13/07/11	06/09/11	06/09/11
YSWSTW0060	302	0	07/09/11*	07/09/11	12/09/12	12/09/12
YSWSTW0070	420	0	13/09/12	13/09/12	14/02/14	14/02/14
External Works						
YSWEW0010	60	11	05/04/12	21/04/12	19/06/12	04/07/12
YSWEW0020	90	11	14/12/11	29/12/11	03/04/12	20/04/12
YSWEW0030	60	11	20/06/12	05/07/12	30/08/12	12/09/12
Submarine Outfall						
YSWSUB0000	45	142	16/07/10	05/12/10	29/08/10	18/01/11
YSWSUB0001	180	0	17/05/10	17/05/10	12/11/10	12/11/10
YSWSUB0002	90	90	17/05/10	15/08/10	14/08/10	12/11/10
YSWSUB0010	106	79	17/05/10	20/08/10	20/09/10	24/12/10
YSWSUB0020	90	89	17/05/10	01/09/10	01/09/10	17/12/10
YSWSUB0030	35	0	13/11/10	13/11/10	23/12/10	23/12/10
YSWSUB0040	36	0	13/11/10	13/11/10	24/12/10	24/12/10
YSWSUB0041	12	0	28/12/10	28/12/10	11/01/11	11/01/11
YSWSUB0042	6	0	12/01/11	12/01/11	18/01/11	18/01/11
YSWSUB0043	104	0	19/01/11	19/01/11	30/05/11	30/05/11
YSWSUB0044	54	0	13/11/10	13/11/10	18/01/11	18/01/11
YSWSUB0045	3	0	31/05/11	31/05/11	02/06/11	02/06/11
YSWSUB0050	54	26	03/06/11	06/07/11	06/08/11	06/09/11



Start Date	17/05/10
Finish Date	15/02/14
Data Date	17/05/10
Run Date	17/05/10 11:49

Early Bar
Progress Bar
Critical Activity

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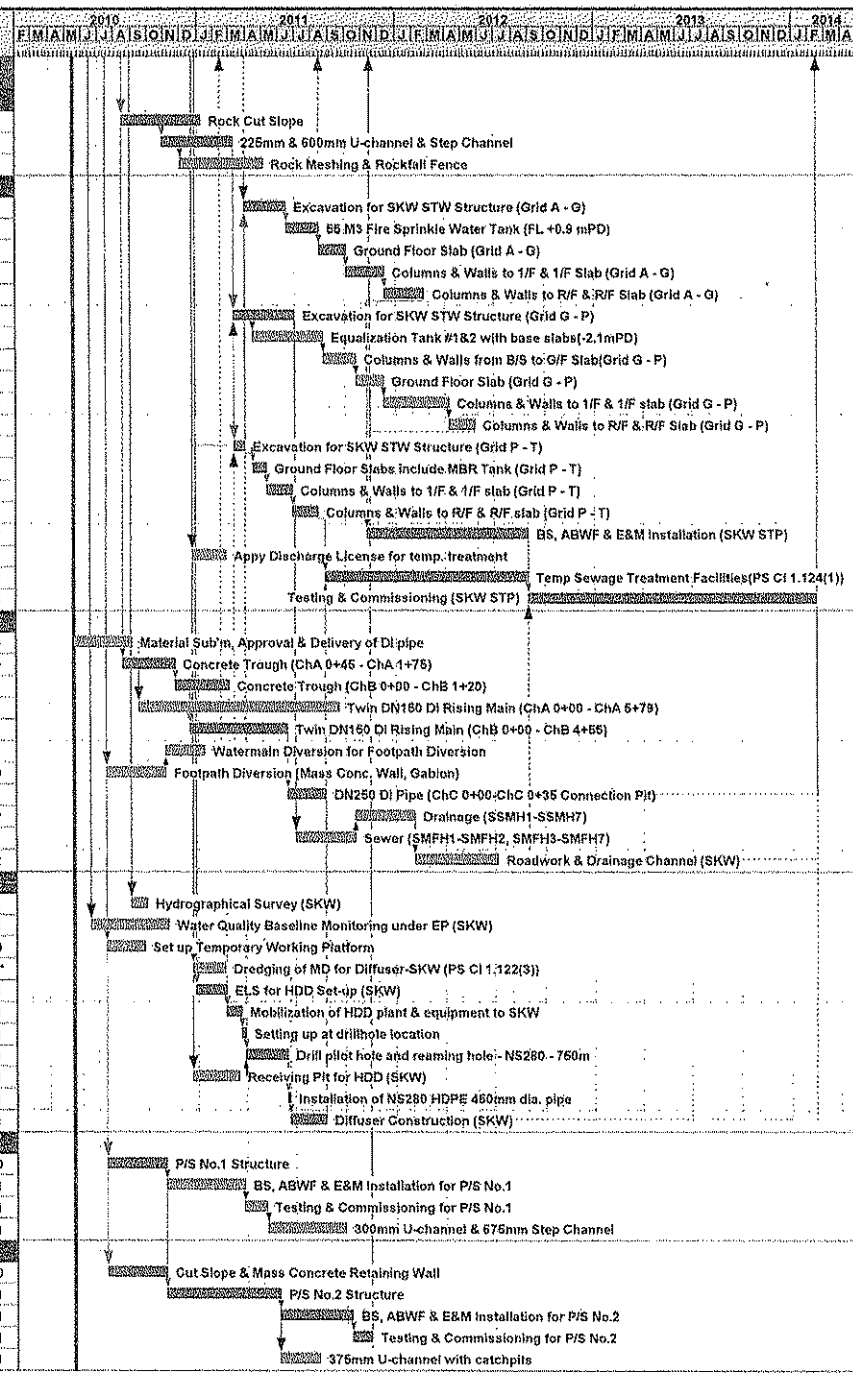
S1W0 Sheet 1 of 2

Leader Civil Engineering Corp. Ltd.
Contract No. DC/2009/13
Construction of Sewage Treatment Works at YSW & S
Works Programme (Rev.0)

Date	Revision	Checked	Approved
17/05/10	0 (Initial Submission)	STL	VC

Activity ID	Orig Dur	Total Float	Early Start	Late Start	Early Finish	Late Finish
SoK Kwu Wan						
Geotechnical Works						
SKWGW0010	120	0	16/08/10	16/08/10	08/01/11	08/01/11
SKWGW0020	108	0	28/10/10	28/10/10	09/03/11	09/03/11
SKWGW0030	120	66	02/12/10	19/03/11	03/05/11	15/08/11
SKW Sewage Treatment Plant						
SKWSTW0010	60	0	31/03/11	31/03/11	16/06/11	16/06/11
SKWSTW0011	60	0	17/06/11	17/06/11	15/08/11	15/08/11
SKWSTW0012	48	0	16/08/11	16/08/11	02/10/11	02/10/11
SKWSTW0013	72	0	03/10/11	03/10/11	13/12/11	13/12/11
SKWSTW0014	72	0	14/12/11	14/12/11	23/02/12	23/02/12
SKWSTW0020	90	0	10/03/11	10/03/11	30/06/11	30/06/11
SKWSTW0021	130	41	15/04/11	26/05/11	22/08/11	02/10/11
SKWSTW0022	60	41	23/08/11	03/10/11	21/10/11	01/12/11
SKWSTW0023	50	41	22/10/11	02/12/11	10/12/11	20/01/12
SKWSTW0024	120	41	11/12/11	21/01/12	08/04/12	19/05/12
SKWSTW0025	48	41	09/04/12	20/05/12	26/05/12	06/07/12
SKWSTW0030	18	0	10/03/11	10/03/11	30/03/11	30/03/11
SKWSTW0031	24	0	15/04/11	15/04/11	08/05/11	08/05/11
SKWSTW0032	48	0	09/05/11	09/05/11	25/06/11	25/06/11
SKWSTW0033	48	0	26/06/11	26/06/11	12/08/11	12/08/11
SKWSTW0040	240	0	10/11/11	10/11/11	31/08/12	31/08/12
SKWSTW0050	48	148	23/12/10	29/06/11	23/02/11	24/08/11
SKWSTW0060	303	0	25/08/11*	25/08/11	31/08/12	31/08/12
SKWSTW0070	430	0	01/09/12	01/09/12	14/02/14	14/02/14
External Works						
SKWEW0000	90	57	17/05/10	26/07/10	01/09/10	10/11/10
SKWEW0010	80	0	16/08/10	16/08/10	19/11/10	19/11/10
SKWEW0020	80	0	20/11/10	20/11/10	28/02/11	28/02/11
SKWEW0030	300	48	13/09/10	11/11/10	17/09/11	15/11/11
SKWEW0040	180	0	18/12/10	18/12/10	15/06/11	15/06/11
SKWEW0050	60	23	02/11/10	29/11/10	13/01/11	12/02/11
SKWEW0060	90	23	16/07/10	12/08/10	01/11/10	27/11/10
SKWEW0070	59	0	16/06/11	16/06/11	24/08/11	24/08/11
SKWEW0080	90	49	19/10/11	15/12/11	03/02/12	05/04/12
SKWEW0090	90	49	02/07/11	29/08/11	18/10/11	14/12/11
SKWEW0100	120	49	04/02/12	10/04/12	05/07/12	31/08/12
Submarine Outfall						
SKWSUB0000	30	148	30/08/10	25/01/11	28/09/10	23/02/11
SKWSUB0001	144	144	16/06/10	07/11/10	06/11/10	30/03/11
SKWSUB0010	60	76	16/07/10	15/10/10	24/09/10	24/12/10
SKWSUB0020	45	10	24/12/10*	08/01/11	21/02/11	04/03/11*
SKWSUB0030	46	0	28/12/10	28/12/10	23/02/11	23/02/11
SKWSUB0031	24	0	24/02/11	24/02/11	23/03/11	23/03/11
SKWSUB0032	6	0	24/03/11	24/03/11	30/03/11	30/03/11
SKWSUB0033	60	0	31/03/11	31/03/11	16/06/11	16/06/11
SKWSUB0034	67	10	24/12/10	08/01/11	18/03/11	30/03/11
SKWSUB0035	4	0	17/06/11	17/06/11	21/06/11	21/06/11
SKWSUB0040	54	0	22/06/11	22/06/11	24/08/11	24/08/11
Pumping Station No.1						
SKWPS10010	90	0	16/07/10	16/07/10	01/11/10	01/11/10
SKWPS10020	120	38	02/11/10	16/12/10	28/03/11	18/05/11
SKWPS10030	30	38	29/03/11	19/05/11	07/05/11	23/06/11
SKWPS10040	120	38	09/05/11	24/06/11	29/09/11	15/11/11
Pumping Station No.2						
SKWPS20010	90	0	16/07/10	16/07/10	01/11/10	01/11/10
SKWPS20020	170	0	02/11/10	02/11/10	01/06/11	01/06/11
SKWPS20030	108	0	02/06/11	02/06/11	11/10/11	11/10/11
SKWPS20040	30	0	12/10/11	12/10/11	15/11/11	15/11/11
SKWPS20050	60	78	02/06/11	03/09/11	12/08/11	15/11/11



Start Date	17/05/10
Finish Date	15/02/14
Data Date	17/05/10
Run Date	17/05/10 11:49

Early Bar
Progress Bar
Critical Activity

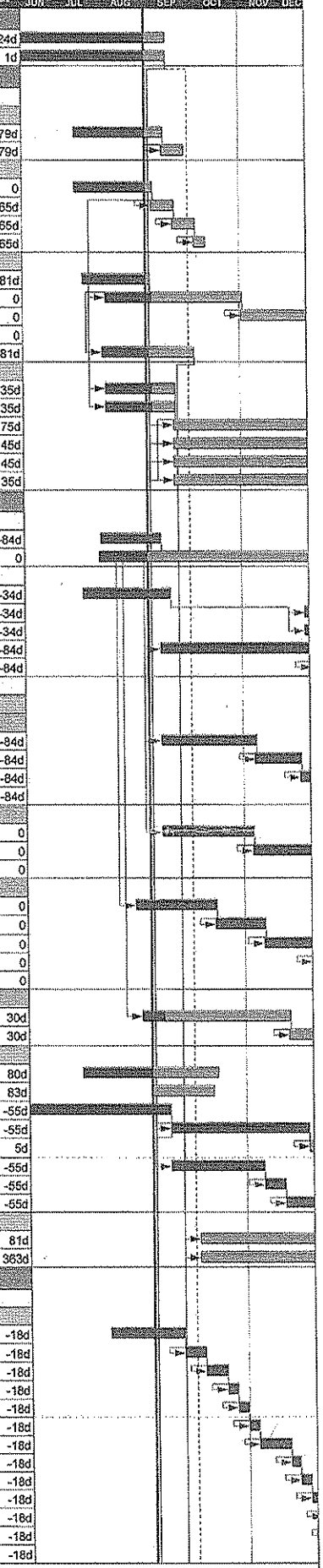
?Primavera Systems, Inc.

STW0 Sheet 2 of 2

Leader Civil Engineering Corp. Ltd.
Contract No. DC/2009/13
Construction of Sewage Treatment Works at YSW & S
Works Programme (Rev.0)

Date	Revision	Checked	Approved
17/05/10	0 (Initial Submission)	SIL	VC

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float
Preliminary (Civil)								
PRE0090	Working Group Meeting for Outfall Construction	120	89	17/05/10 A	13/09/10	17/05/10 A	14/01/11	124d
PRE0100	Application & Consent of XP from HyD (Mo Tat Rd)	120	89	17/05/10 A	13/09/10	17/05/10 A	13/09/10	1d
Preliminary (E&M)								
Technical Submission								
Process Design of SKWSTW & YSWSTW								
E&M0030	Revision and Resubmission	28	60	15/07/10 A	11/09/10	15/07/10 A	16/06/11	279d
E&M0080	Approval from the Engineer	14	0	11/09/10	25/09/10	17/06/11	30/06/11	279d
Hydraulic Design								
E&M0040	Submission	21	80	15/07/10 A	04/09/10	15/07/10 A	04/09/10	0
E&M0050	Vetting and Comment by ER	14	0	04/09/10	18/09/10	27/05/11	09/06/11	265d
E&M0060	Revision and Resubmission	14	0	18/09/10	02/10/10	10/06/11	23/06/11	265d
E&M0430	Approval from the Engineer	7	0	02/10/10	09/10/10	24/06/11	30/06/11	265d
Equipment Submission & Approval								
E&M0100	Revision and Resubmission	14	86	20/07/10 A	02/09/10	20/07/10 A	22/11/10	81d
E&M0101	Submission of Equipment	90	34	04/08/10 A	02/11/10	04/08/10 A	02/11/10	0
E&M0102	Vetting and Comment by ER	60	0	02/11/10	01/01/11	03/11/10	01/01/11	0
E&M0103	Revision and Resubmission	60	0	01/01/11	02/03/11	02/01/11	02/03/11	0
E&M0160	Approval on MBR Membrane Modules (M.M.)	60	51	02/08/10 A	01/10/10	02/08/10 A	21/12/10	81d
Drawings Submission & Approval								
E&M0240	Sub. Plant GA Drawings	45	68	04/08/10 A	18/09/10	04/08/10 A	31/01/11	135d
E&M0250	Sub. Civil Works Requirements Drawings	45	68	04/08/10 A	18/09/10	04/08/10 A	31/01/11	135d
E&M0260	Sub. Mechanical Installation Drawings	90	0	18/09/10	17/12/10	13/03/11	10/06/11	175d
E&M0270	Sub. Electrical Installation Drawings	120	0	18/09/10	16/01/11	11/02/11	10/06/11	145d
E&M0280	Sub. BS Installation Drawings	120	0	18/09/10	16/01/11	11/02/11	10/06/11	145d
E&M0290	Sub. FS Installation Drawings	120	0	18/09/10	16/01/11	01/02/11	31/05/11	135d
Yung Shue Wan								
Preliminary								
YSW0030	Baseline monitoring (Air & Noise)	14	40	31/07/10 A	08/09/10	31/07/10 A	15/06/10	-84d
YSW0040	Baseline monitoring (Water)	183	33	30/07/10 A	31/12/10	30/07/10 A	31/12/10	0
Section W1 - Slope Works in Portion A & C								
YSW0090	Verify the Rock Boulder required Stabilization Wk	30	53	19/07/10 A	14/09/10	19/07/10 A	10/08/10	-34d
YSW0100	Removal of Rock Boulder	280	0	13/12/10	19/09/11	09/11/10	15/08/11	-34d
YSW0110	Stablizing work for rock boulder	280	0	13/12/10	19/09/11	09/11/10	15/08/11	-34d
YSW0120	Cut the slope to design profile	100	0	08/09/10	17/12/10	16/06/10	23/09/10	-84d
YSW0130	Soil Nail installation (19Nr.)	120	0	17/12/10	16/04/11	24/09/10	21/01/11	-84d
Section W2 - YSW STW & Submarine Outfall								
Civil & Structural Work								
YSW STP - GL H - T								
YSW0500	ELS & Excavation for Inlet Pumping Station	62	0	08/09/10	09/11/10	16/06/10	16/08/10	-84d
YSW0510	Sub-structure construction (Inlet Pumping Stn)	30	0	09/11/10	09/12/10	17/08/10	15/09/10	-84d
YSW0520	Backfill & Remove ELS (Inlet Pumping Stn)	30	0	09/12/10	08/01/11	16/09/10	15/10/10	-84d
YSW0530	ELS & Excavation for Equalization Tank	40	0	08/01/11	17/02/11	16/10/10	24/11/10	-84d
YSW STP - GL T - X								
YSW0610	Excavate to formation	60	0	08/09/10	07/11/10	08/09/10	06/11/10	0
YSW0620	Base slab construction	60	0	07/11/10	06/01/11	07/11/10	05/01/11	0
YSW0630	G/F to 1/F construction	100	0	06/01/11	16/04/11	06/01/11	15/04/11	0
YSW STP - GL C - H & DN Tanks								
YSW0650	ELS & Excavation for DN Tanks	61	42	21/08/10 A	13/10/10	21/08/10 A	13/10/10	0
YSW0660	Sub-struction construction (DN Tanks)	32	0	13/10/10	14/11/10	13/10/10	14/11/10	0
YSW0670	Backfill & Remove ELS (DN Tanks)	32	0	14/11/10	16/12/10	14/11/10	16/12/10	0
YSW0680	Base slab construction	30	0	16/12/10	15/01/11	16/12/10	15/01/11	0
YSW0690	Superstructure construction upto +10.5mPD	60	0	15/01/11	16/03/11	15/01/11	16/03/11	0
Road, Drain, Cable Draw Pits & Ducting								
YSW0152	Temporary Diversion of Drainage	92	10	25/08/10 A	30/11/10	25/08/10 A	29/12/10	30d
YSW0153	Removal of Ex U-Channel where clash with B. Wall	50	0	30/11/10	19/01/11	30/12/10	17/02/11	30d
Submarine Outfall								
YSW0210	Ecology Survey	90	52	16/07/10 A	13/10/10	16/07/10 A	31/12/10	80d
YSW0230	Hydrographical Survey (YSW)	45	10	31/08/10 A	10/10/10	31/08/10 A	31/12/10	83d
YSW0240	Material Submission, Approval of HDPE pipe	60	80	17/05/10 A	11/09/10	17/05/10 A	18/07/10	-55d
YSW0250	Submit and Approval of Method Statement for HDD	92	0	12/09/10	12/12/10	19/07/10	18/10/10	-55d
YSW0260	Submission of HDD Method Statement to HEC	14	0	13/12/10	26/12/10	18/12/10	31/12/10	5d
YSW0270	Additional G.I. Boreholes (YSW)	62	0	12/09/10	12/11/10	19/07/10	18/09/10	-55d
YSW0280	Submission of propose alignment to the Eng	14	0	13/11/10	26/11/10	19/09/10	02/10/10	-55d
YSW0290	Submission of Marine Notice	60	0	27/11/10	25/01/11	03/10/10	01/12/10	-55d
E&M Works - YSW STP								
E&M0360	Delivery of MBR Memb. Mod. (MBR Tk 4)	150	0	01/10/10	28/02/11	21/12/10	20/05/11	81d
E&M0370	Delivery of MBR Membrane Modules - 2nd Shipment	150	0	01/10/10	28/02/11	29/09/11	25/02/12	363d
Sok Kwu Wan								
Section W3 - Footpath Diversion in Portion G								
Civil & Geotechnical Works								
SKW0251	Drill & Install Dowel Bar for Bay 1 & 3	21	5	02/08/10 A	19/09/10	02/08/10 A	01/09/10	-18d
SKW0301	Erect Formwork, mesh & weephole for Bay 1 & 3	14	0	20/09/10	03/10/10	02/09/10	15/09/10	-18d
SKW0311	Concreting for Bay 1 & 3	14	0	04/10/10	17/10/10	16/09/10	29/09/10	-18d
SKW0321	Drilling & Install Dowel Bar for Bay 2 & 5	7	0	18/10/10	24/10/10	30/09/10	06/10/10	-18d
SKW0331	Erect Formwork, mesh & weephole for Bay 2 & 5	7	0	25/10/10	31/10/10	07/10/10	13/10/10	-18d
SKW0341	Concreting for Bay 2 & 5	7	0	01/11/10	07/11/10	14/10/10	20/10/10	-18d
SKW0351	Excavation to formation for Bay 6 to 9	21	0	08/11/10	26/11/10	21/10/10	10/11/10	-18d
SKW0361	Drill & install dowel Bar for Bay 4 & 7	6	0	29/11/10	04/12/10	11/11/10	16/11/10	-18d
SKW0371	Erect formwork, mesh & weephole for Bay 4 & 7	7	0	05/12/10	11/12/10	17/11/10	23/11/10	-18d
SKW0381	Concreting for Bay 4 & 7	7	0	12/12/10	18/12/10	24/11/10	30/11/10	-18d
SKW0391	Drill & install dowel Bar for Bay 6 & 9	3	0	19/12/10	21/12/10	01/12/10	03/12/10	-18d
SKW0401	Erect formwork, mesh & weephole for Bay 6 & 9	7	0	22/12/10	28/12/10	04/12/10	10/12/10	-18d
SKW0411	Concreting for Bay 6 & 9	7	0	29/12/10	04/01/11	11/12/10	17/12/10	-18d



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Run date	13/09/10
Page number	1A
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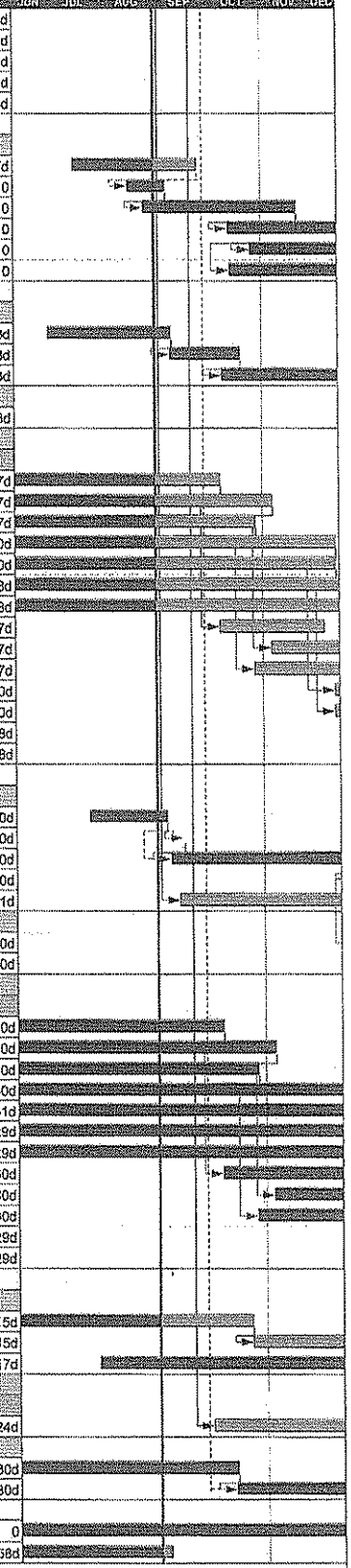
Early bar
Progress bar
Critical bar
Summary bar
Progress point
Critical point
Summary point
Start milestone point
Finish milestone point

Leader Civil Engineering Corp. Ltd.
Contract No. DC/2009/13 (2010 Aug)
Construction of Sewage Treatment Works at YSW & SKW
3-month Rolling Programme (August 2010)

Date	Revision	Checked	Approved
31/08/10	Revision 0	StL	VC

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float
SKW0421	Drill & install dowel Bar for Bay 8	1	0	05/01/11	05/01/11	18/12/10	18/12/10	-18d
SKW0431	Erect formwork, mesh & weephole for Bay 8	4	0	06/01/11	09/01/11	19/12/10	22/12/10	-18d
SKW0441	Concreting for Bay 8	4	0	10/01/11	13/01/11	23/12/10	26/12/10	-18d
SKW0461	Excavation for no fine concrete Bay (1-9)	3	0	14/01/11	16/01/11	27/12/10	29/12/10	-18d
SKW0471	Concreting for no-fine concrete	7	0	17/01/11	23/01/11	30/12/10	05/01/11	-18d
Section W4 - Slope Works in Portions H & I								
Geotechnical Works								
SKW0590	Site Clearance for Slope	100	75	15/07/10 A	24/09/10	15/07/10 A	01/10/10	7d
SKW0591	Initial Survey for Slope	28	75	16/08/10 A	06/09/10	16/08/10 A	06/09/10	0
SKW0592	Temporary Rockfall fence at ex. Footpath	80	5	25/08/10 A	21/11/10	25/08/10 A	21/11/10	0
SKW0593	Cut Slope	200	0	13/10/10	30/04/11	13/10/10	30/04/11	0
SKW0594	Road & Drains Works	248	0	26/10/10	30/06/11	26/10/10	30/06/11	0
SKW0595	Rock Meshing & Rockfall Fence	260	0	14/10/10	30/06/11	14/10/10	30/06/11	0
Section W5 - P.S. No. 1 in Portion D								
Civil & Geotechnical Works								
SKW0681	Excavate to lower the working platform to +3mPD	49	80	30/06/10 A	09/09/10	30/06/10 A	17/08/10	-23d
SKW0691	ELS to +2.2mPD	40	0	09/09/10	19/10/10	18/08/10	26/09/10	-23d
SKW0721	Excavate to formation	92	0	09/10/10	09/01/11	17/09/10	17/12/10	-23d
Structural Works								
SKW0741	Base Slab (BSD2 & BSD3)	15	0	09/01/11	24/01/11	18/12/10	01/01/11	-23d
E&M Works (PS1)								
Submission & Delivery								
E&M1001	Submission of Pumps	113	67	17/05/10 A	07/10/10	17/05/10 A	02/03/11	147d
E&M1002	Submission of Gen-Set	143	53	17/05/10 A	06/11/10	17/05/10 A	02/03/11	117d
E&M1003	Submission of DeO System	133	57	17/05/10 A	27/10/10	17/05/10 A	02/03/11	127d
E&M1004	Submission of LV SB & MCC	180	42	17/05/10 A	13/12/10	17/05/10 A	02/03/11	80d
E&M1005	Submission of Instrumentation	180	42	17/05/10 A	13/12/10	17/05/10 A	02/03/11	80d
E&M1006	Submission of FS System	213	36	17/05/10 A	14/01/11	17/05/10 A	02/03/11	48d
E&M1007	Submission of BS System	213	36	17/05/10 A	14/01/11	17/05/10 A	02/03/11	48d
E&M1011	Delivery of Pumps	60	0	07/10/10	06/12/10	03/03/11	01/05/11	147d
E&M1012	Delivery of Gen-Set	60	0	06/11/10	05/01/11	03/03/11	01/05/11	117d
E&M1013	Delivery of DeO System	60	0	27/10/10	26/12/10	03/03/11	01/05/11	127d
E&M1014	Delivery of LV SB & MCC	60	0	13/12/10	11/02/11	03/03/11	01/05/11	80d
E&M1015	Delivery of Instrumentation	60	0	13/12/10	11/02/11	03/03/11	01/05/11	80d
E&M1016	Delivery of FS Equipment	60	0	14/01/11	15/03/11	03/03/11	01/05/11	48d
E&M1017	Delivery of BS Equipment	60	0	14/01/11	15/03/11	03/03/11	01/05/11	48d
Section W6 - Sewer and PS No.2 in Portions E&H								
Civil & Geotechnical Works								
SKW0921	Cut Slope & U-Channel	14	60	23/07/10 A	05/09/10	23/07/10 A	16/08/10	-20d
SKW0931	Hoarding & Fencing	14	80	15/09/10 A	08/09/10	15/09/10 A	19/08/10	-20d
SKW0951	Excavate to formation	108	0	06/09/10	23/12/10	20/08/10	03/12/10	-20d
SKW0961	Mass Conc. Retaining Wall	257	0	23/12/10	06/09/11	04/03/11	15/11/11	70d
SKW1491	Concrete Trough (ChA0+45 - ChA1+75)	180	0	13/09/10	12/03/11	14/09/10	12/03/11	1d
Structural Works								
SKW0971	Base Slab to -3.2mPD	14	0	23/12/10	06/01/11	04/12/10	17/12/10	-20d
SKW0981	Basement Beam (BBB-1,BBC-1,BBD-1)	14	0	06/01/11	20/01/11	18/12/10	31/12/10	-20d
E&M Works (PS2)								
Submission & Delivery								
E&M2001	Submission of Pumps	113	67	17/05/10 A	07/10/10	17/05/10 A	06/09/10	-30d
E&M2002	Submission of Gen-Set	143	53	17/05/10 A	06/11/10	17/05/10 A	06/10/10	-30d
E&M2003	Submission of DeO System	133	57	17/05/10 A	27/10/10	17/05/10 A	26/09/10	-30d
E&M2004	Submission of LV SB & MCC	271	28	17/05/10 A	14/03/11	17/05/10 A	11/02/11	-30d
E&M2005	Submission of Instrumentation	243	31	17/05/10 A	14/02/11	17/05/10 A	14/01/11	-31d
E&M2006	Submission of FS System	213	36	17/05/10 A	14/01/11	17/05/10 A	15/12/10	-29d
E&M2007	Submission of BS System	213	36	17/05/10 A	14/01/11	17/05/10 A	15/12/10	-29d
E&M2011	Delivery of Pumps	282	0	07/10/10	16/07/11	07/09/10	15/06/11	-30d
E&M2012	Delivery of Gen-Set	252	0	06/11/10	16/07/11	07/10/10	15/06/11	-30d
E&M2013	Delivery of DeO System	262	0	27/10/10	16/07/11	27/09/10	15/06/11	-30d
E&M2016	Delivery of FS Equipment	120	0	14/01/11	14/05/11	16/12/10	14/04/11	-29d
E&M2017	Delivery of BS Equipment	120	0	14/01/11	14/05/11	16/12/10	14/04/11	-29d
Section W7 - SKW STW,Sewer and Submarine Outfall								
Submarine Outfall								
SKW1130	Approval of IHS Consultant	180	70	17/05/10 A	23/10/10	17/05/10 A	07/10/12	715d
SKW1131	Hydrographical Survey (SKW)	300	0	24/10/10	19/08/11	08/10/12	03/08/13	715d
SKW1141	Water Quality Baseline Monitoring under EP (SKW)	183	16	27/07/10 A	31/01/11	27/07/10 A	14/01/11	-17d
SKW STW								
Submission & Delivery (E&M)								
E&M3010	Delivery of MBR M.M. - 1st shipment for Temp STP	150	0	01/10/10	28/02/11	21/08/11	17/01/12	324d
Rising Main								
SKW1481	Subm, Approval & Delivery of DI pipes	120	63	17/05/10 A	14/10/10	17/05/10 A	13/09/10	-30d
SKW1501	Concrete Trough (ChB0+00 - ChB1+20)	300	0	14/10/10	10/08/11	14/09/10	10/07/11	-30d
Section W8 - Landscape Softworks in All Portions								
SKW1611	Preservation & Protection of Trees	822	9	17/05/10 A	16/09/12	17/05/10 A	16/09/12	0
SKW1621	Transplantation at SKW	60	90	07/06/10 A	05/09/10	07/06/10 A	14/02/14	1258d



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Data date	31/08/10
Run date	13/09/10
Page number	2A
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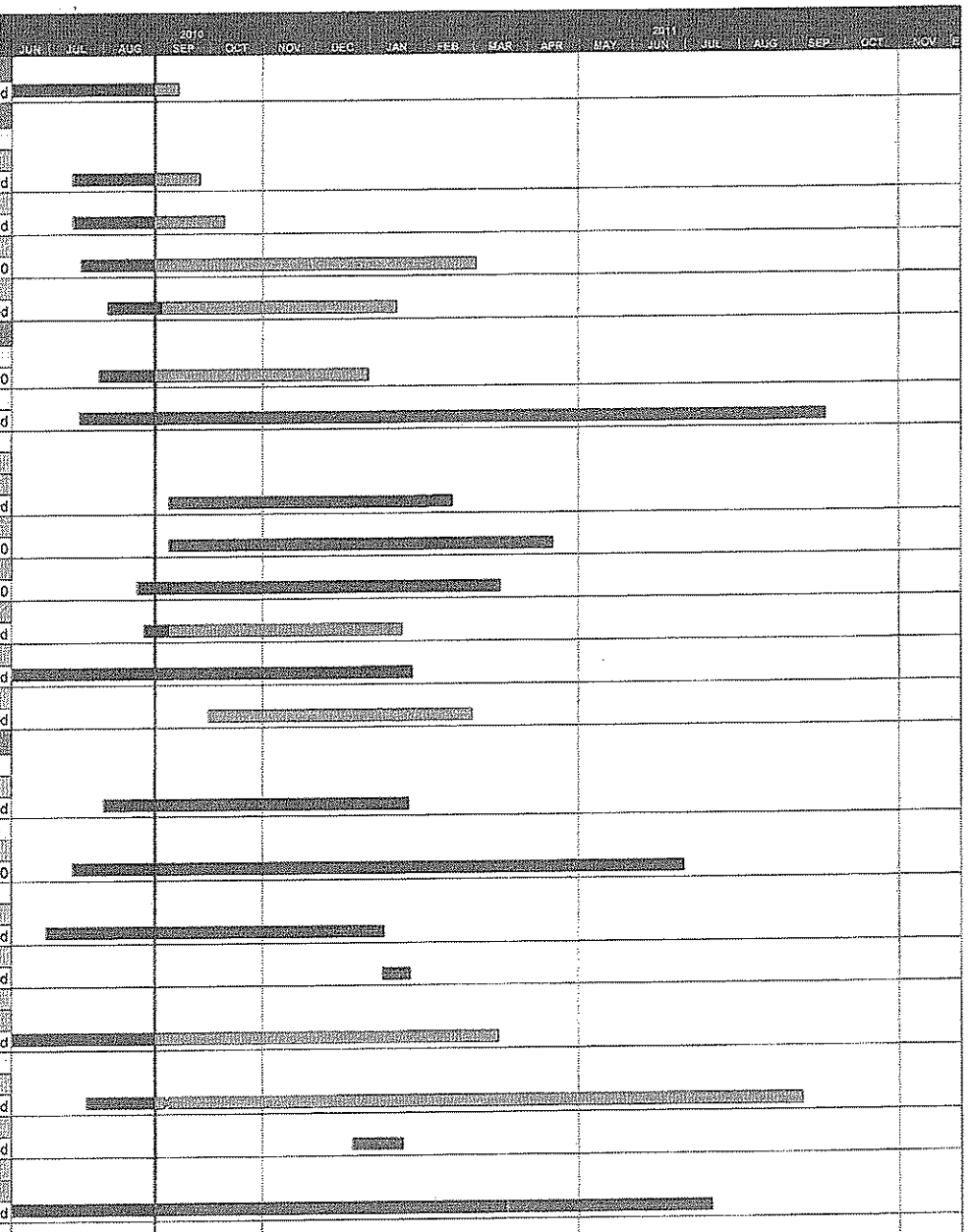
Early bar
Progress bar
Critical bar
Summary bar
Progress point
Critical point
Summary point
Start milestone point
Finish milestone point

Leader Civil Engineering Corp. Ltd.
Contract No. DC/2009/13 (2010 Aug)
Construction of Sewage Treatment Works at YSW & SKW
3-month Rolling Programme (August 2010)

Date	Revision	Checked	Approved
31/08/10	Revision 0	StL	VC

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float
+Preliminary (Civil)								
		119	89	17/05/10 A	13/09/10	17/05/10 A	14/01/11	124d
Preliminary (E&M)								
Technical Submission								
+Process Design of SKW STW & YSW STW								
		72	40	15/07/10 A	25/09/10	15/07/10 A	30/06/11	279d
+Hydraulic Design								
		86	30	15/07/10 A	09/10/10	15/07/10 A	30/06/11	265d
+Equipment Submission & Approval								
		226	26	20/07/10 A	02/03/11	20/07/10 A	02/03/11	0
+Drawings Submission & Approval								
		161	11	04/08/10 A	16/01/11	04/08/10 A	10/06/11	145d
Yung Shue Wan								
+Preliminary								
		155	34	30/07/10 A	31/12/10	30/07/10 A	31/12/10	0
+Section W1 - Slope Works in Portion A & C								
		427	2	19/07/10 A	19/09/11	16/06/10 A	15/08/11	-34d
Section W2 - YSW STW & Submarine Outfall								
Civil & Structural Work								
+YSW STP - GL H - T								
		162	0	08/09/10	17/02/11	16/06/10	24/11/10	-84d
+YSW STP - GL T - X								
		220	0	08/09/10	16/04/11	08/09/10	15/04/11	0
+YSW STP - GL E - H & DN Tanks								
		199	12	21/08/10 A	16/03/11	21/08/10 A	16/03/11	0
+Road, Drain, Cable Draw Pits & Ducting								
		139	6	25/08/10 A	19/01/11	25/08/10 A	17/02/11	30d
+Submarine Outfall								
		254	23	17/05/10 A	25/01/11	17/05/10 A	31/12/10	-25d
+E&M Works - YSW STP								
		150	0	01/10/10	28/02/11	21/12/10	25/02/12	363d
Sok Kwu Wan								
Section W3 - Footpath Diversion in Portion G								
+Civil & Geotechnical Works								
		175	1	02/08/10 A	23/01/11	02/08/10 A	05/01/11	-18d
Section W4 - Slope Works in Portions H & I								
+Geotechnical Works								
		351	11	15/07/10 A	30/06/11	15/07/10 A	30/06/11	0
Section W5 - P.S. No. 1 in Portion D								
+Civil & Geotechnical Works								
		194	22	30/06/10 A	09/01/11	30/06/10 A	17/12/10	-23d
+Structural Works								
		15	0	09/01/11	24/01/11	18/12/10	01/01/11	-23d
E&M Works (PS1)								
+Submission & Delivery								
		302	33	17/05/10 A	15/03/11	17/05/10 A	01/05/11	48d
Section W6 - Sewer and PS No.2 in Portions E&H								
+Civil & Geotechnical Works								
		411	3	23/07/10 A	06/09/11	23/07/10 A	15/11/11	70d
+Structural Works								
		28	0	23/12/10	20/01/11	04/12/10	31/12/10	-20d
E&M Works (PS2)								
+Submission & Delivery								
		425	23	17/05/10 A	16/07/11	17/05/10 A	15/06/11	-30d
Section W7 - SKW STW,Sewer and Submarine Outfall								



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Run date	13/09/10
Page number	1A
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Summary bar
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Summary point
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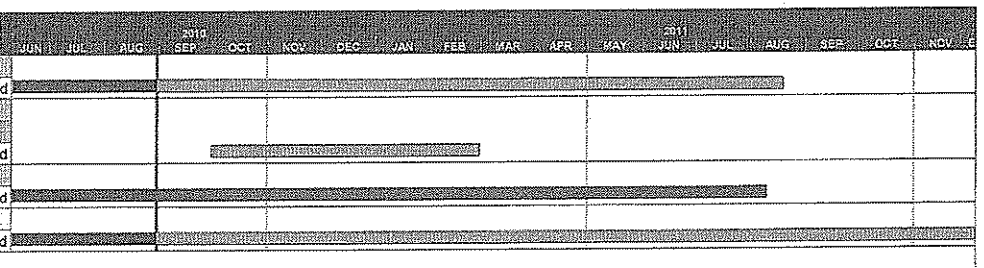
Finish milestone point

Leader Civil Engineering Corp. Ltd.
Contract No. DC/2009/13 (2010 Aug)
Construction of Sewage Treatment Works at YSW & SKW
3-month Rolling Programme (August 2010)
(Outline)

Date	Revision	Checked	Approved
31/08/10	Revision 0	StL	VC

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float
+Submarine Outfall								
		460	23	17/05/10 A	19/08/11	17/05/10 A	03/08/13	715d
SKW STW								
+Submission & Delivery (E&M)								
		150	0	01/10/10	28/02/11	21/08/11	17/01/12	324d
+Rising Main								
		450	18	17/05/10 A	10/08/11	17/05/10 A	10/07/11	-30d
+Section W8 - Landscape Softworks in All Portions								
		854	15	17/05/10 A	16/09/12	17/05/10 A	14/02/14	516d



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Run date	13/09/10
Page number	2A
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Critical point
Summary point
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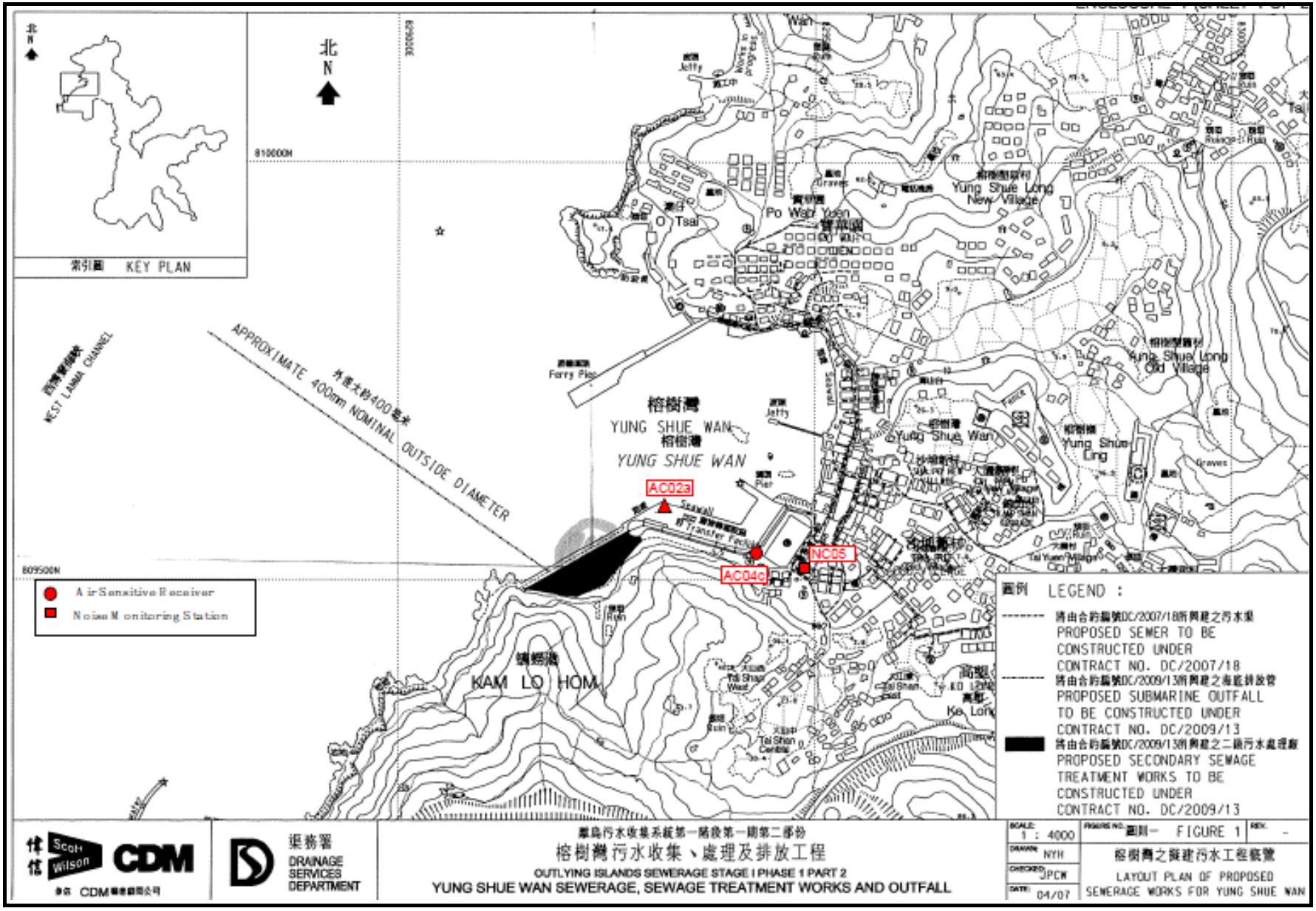
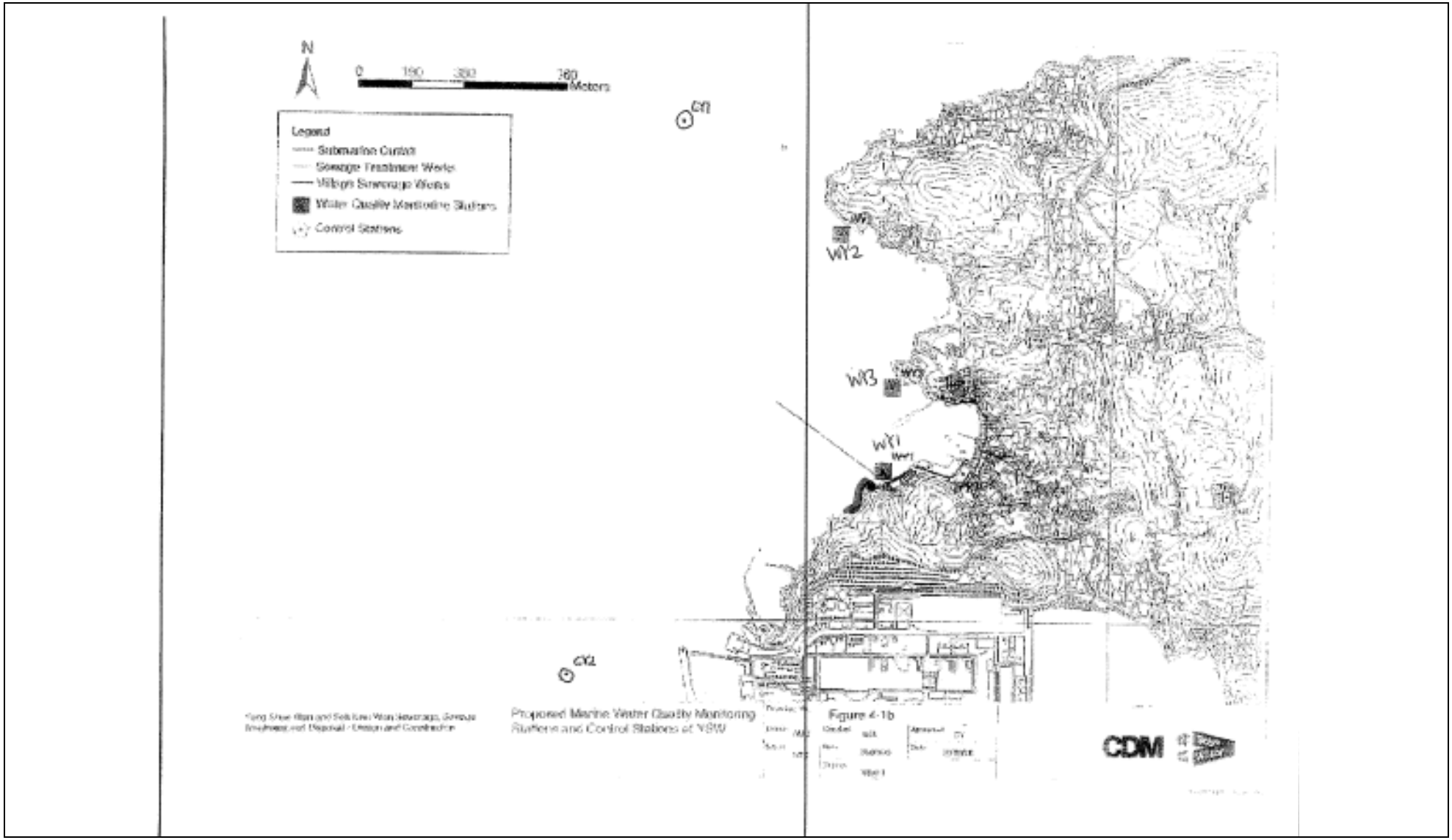
Leader Civil Engineering Corp. Ltd.
Contract No. DC/2009/13 (2010 Aug)
Construction of Sewage Treatment Works at YSW & SKW
3-month Rolling Programme (August 2010)
(Outline)

Date	Revision	Checked	Approved
31/08/10	Revision 0	StL	VC

Appendix D

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


索引圖 KEY PLAN
北 N
APPROXIMATE 400mm NOMINAL OUTSIDE DIAMETER
榕樹灣 YUNG SHUE WAN
YUNG SHUE WAN
KAM LO HOM
AC02a
AC04c
NC05
Air Sensitive Receiver
Noise Monitoring Station
圖例 LEGEND :
PROPOSED SEWER TO BE CONSTRUCTED UNDER CONTRACT NO. DC/2007/18
PROPOSED SUBMARINE OUTFALL TO BE CONSTRUCTED UNDER CONTRACT NO. DC/2009/13
PROPOSED SECONDARY SEWAGE TREATMENT WORKS TO BE CONSTRUCTED UNDER CONTRACT NO. DC/2009/13
DRAINAGE SERVICES DEPARTMENT
離島污水收集系統第一階段第一期第二部份
榕樹灣污水收集、處理及排放工程
OUTLYING ISLANDS SEWERAGE STAGE I PHASE 1 PART 2
YUNG SHUE WAN SEWERAGE, SEWAGE TREATMENT WORKS AND OUTFALL
SCALE: 1 : 4000
FIGURE 1
榕樹灣之擬建污水工程總覽
LAYOUT PLAN OF PROPOSED SEWERAGE WORKS FOR YUNG SHUE WAN


N
0
190
380
760
Meters
Legend
Submarine Outfall
Sewage Treatment Works
Village Sewerage Works
Water Quality Monitoring Stations
Control Stations
CR1
CR2
WY2
WY3
WY1
Proposed Marine Water Quality Monitoring Stations and Control Stations at YSW
Figure 4-1b
CDM

Appendix E

Monitoring Equipments Calibration Certificate

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : YSW Playground
Location ID : AC04c

Date of Calibration: 2-Oct-10
Next Calibration Date: 2-Dec-10
Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1011.7	Corrected Pressure (mm Hg)	758.775
Temperature (°C)	28.4	Temperature (K)	301

CALIBRATION ORIFICE

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

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.1	5.1	10.2	1.587	60	59.28	Slope = 34.3291
13	4.1	4.1	8.2	1.423	55	54.34	Intercept = 5.0539
10	3.4	3.4	6.8	1.296	50	49.40	Corr. coeff. = 0.9996
7	2.4	2.4	4.8	1.089	43	42.48	
5	1.5	1.5	3	0.862	35	34.58	

Calculations :

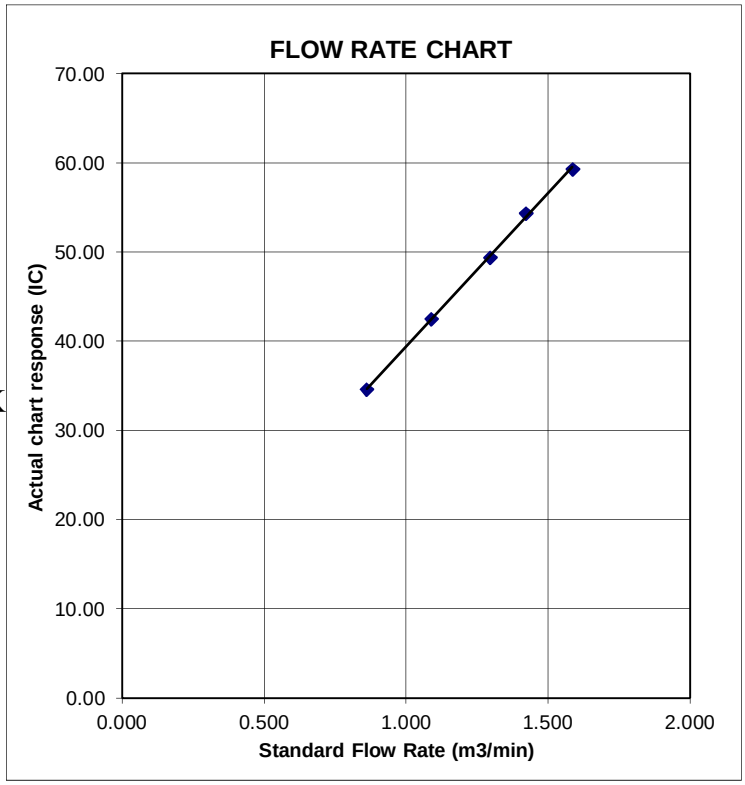
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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 : YSW RE Offices
Location ID : AC02b

Date of Calibration: 2-Oct-10
Next Calibration Date: 2-Dec-10
Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1011.7	Corrected Pressure (mm Hg)	758.775
Temperature (ºC)	28.4	Temperature (K)	301

CALIBRATION ORIFICE

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

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.1	5.1	10.2	1.587	60	59.28	Slope = 32.2997
13	4.2	4.2	8.4	1.440	53	52.36	Intercept = 6.6619
10	3.5	3.5	7	1.315	49	48.41	Corr. coeff. = 0.9939
7	2.2	2.2	4.4	1.043	40	39.52	
5	1.4	1.4	2.8	0.833	35	34.58	

Calculations :

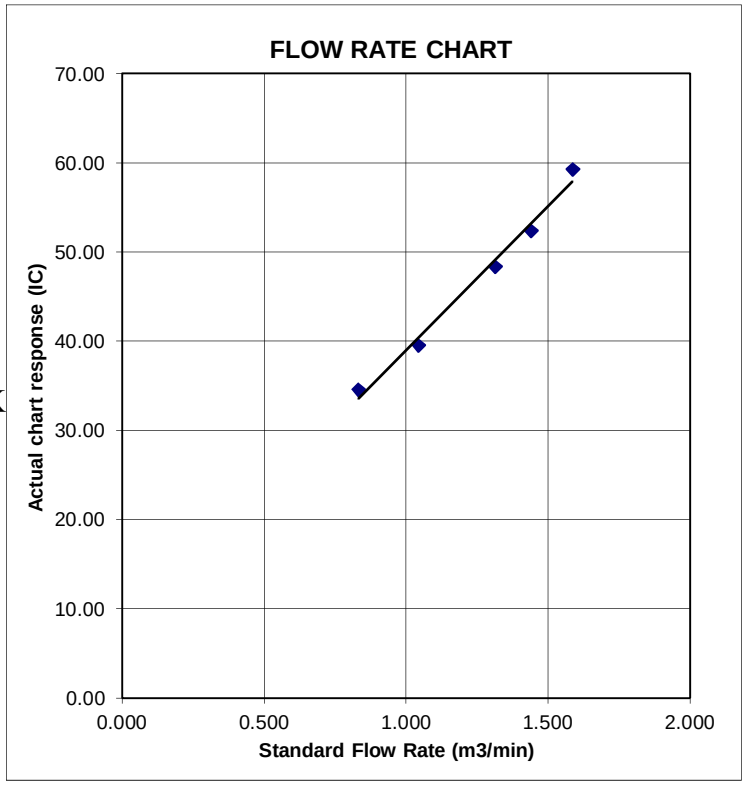
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

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 - Jun 02, 2010 Rootsmeter S/N 9833620 Ta (K) - 297
Operator Tisch Orifice I.D. - 1483 Pa (mm) - 746.76

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	1.3990	3.2	2.00
2	NA	NA	1.00	0.9820	6.4	4.00
3	NA	NA	1.00	0.8770	7.9	5.00
4	NA	NA	1.00	0.8350	8.8	5.50
5	NA	NA	1.00	0.6910	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9816	0.7017	1.4042		0.9957	0.7117	0.8919
0.9775	0.9954	1.9858		0.9914	1.0096	1.2613
0.9754	1.1122	2.2202		0.9893	1.1281	1.4102
0.9742	1.1668	2.3286		0.9882	1.1835	1.4790
0.9689	1.4023	2.8084		0.9828	1.4223	1.7837
Qstd slope (m) =		2.00279		Qa slope (m) =		1.25411
intercept (b) =		-0.00494		intercept (b) =		-0.00314
coefficient (r) =		0.99994		coefficient (r) =		0.99994
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}

TISCH ENVIROMENTAL, INC.
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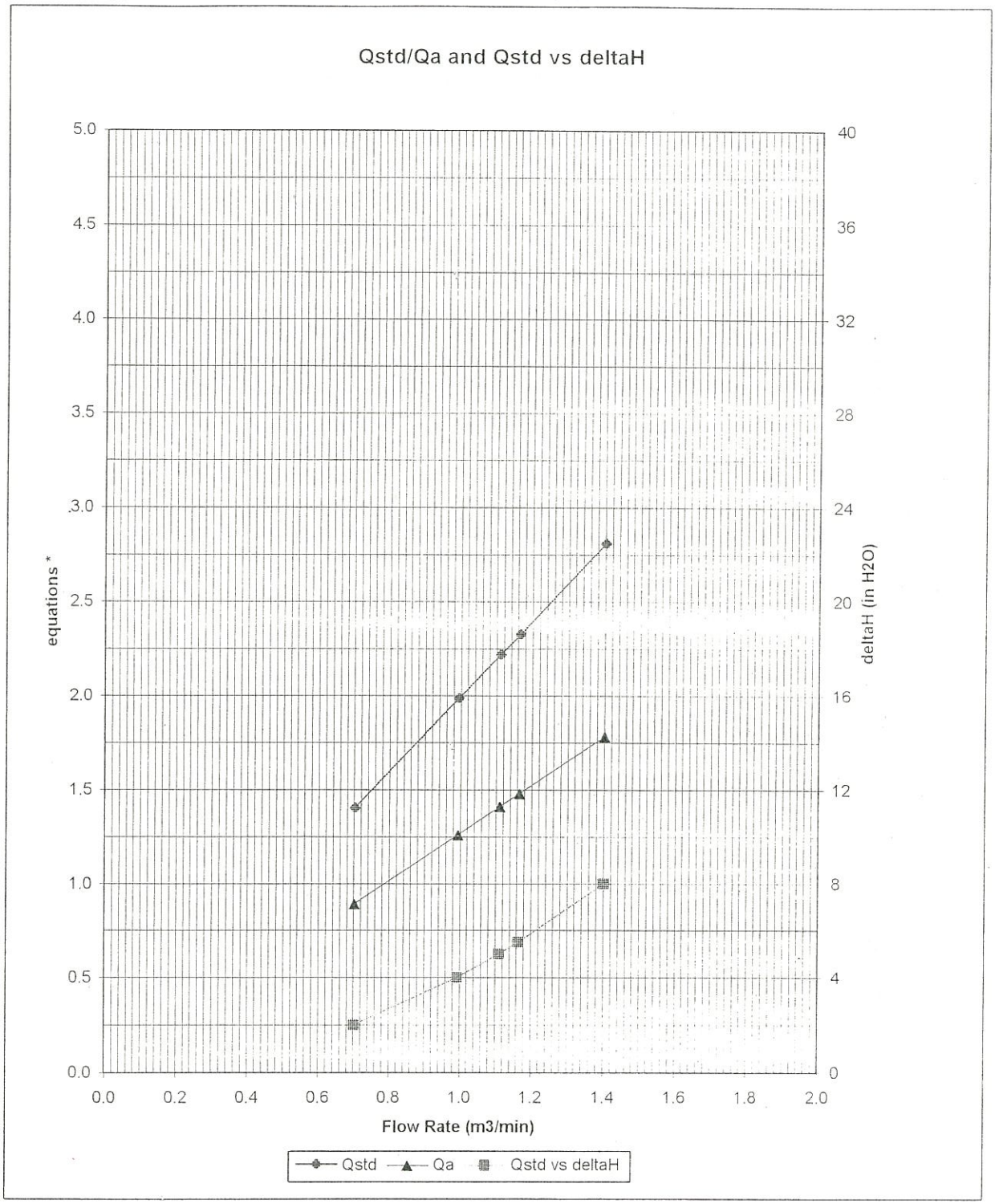
WWW.TISCH-ENV.COM

AIR POLLUTION MONITORING EQUIPMENT



* y-axis equations:

Qstd series: $\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$

Qa series: $\sqrt{(\Delta H\ (Ta\ /\ Pa))}$

#1483

CERTIFICATE OF CALIBRATION AND TESTING

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

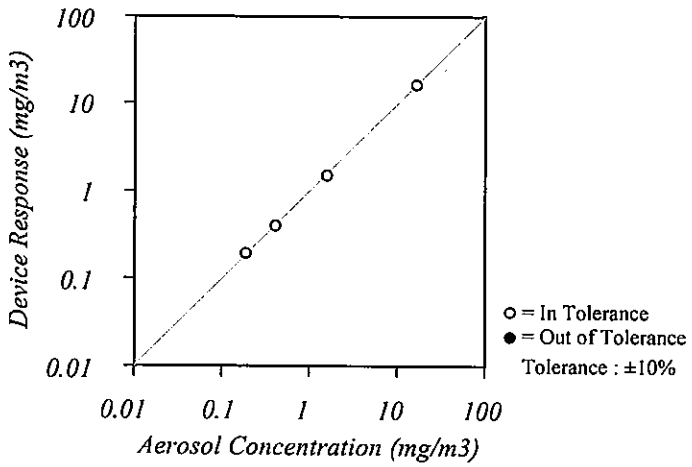
Environment Condition		
Temperature	73.2 (22.9)	°F (°C)
Relative Humidity	38	%RH
Barometric Pressure	29.08 (984.8)	inHg (hPa)

Model	AM510
Serial Number	11008060

☒ As Left ☐ As Found

☒ In Tolerance ☐ Out of Tolerance

Concentration Linearity Plot



System ID: DTII01-01

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

Measurement Variable	System ID	Last Cal.	Cal. Due
Photometer	E003433	05-17-10	11-17-10
DC Voltage(Keithley)	E002859	01-05-10	01-05-11
Barometric Pressure	E003733	12-26-09	12-26-10
Humidity	E002873	02-23-10	02-23-11

Measurement Variable	System ID	Last Cal.	Cal. Due
Flow and temperature	E003434	04-21-10	04-21-11
Microbalance	E003403	01-07-10	01-07-11
Temperature	E002873	02-23-10	02-23-11
Pressure	E003440	08-26-09	08-26-10

Kao Vang
Calibrated

☑ Final Function Check

August 17, 2010
Date

CERTIFICATE OF CALIBRATION AND TESTING

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

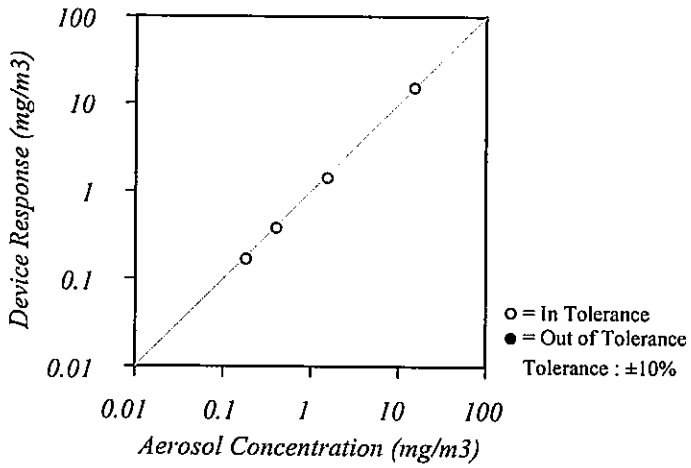
Environment Condition		
Temperature	74.8 (23.8)	°F (°C)
Relative Humidity	38	%RH
Barometric Pressure	28.96 (980.7)	inHg (hPa)

Model	**AM510**
Serial Number	**11008017**

☒ As Left ☐ As Found

☒ In Tolerance ☐ Out of Tolerance

Concentration Linearity Plot



System ID: DTII01-01

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

Measurement Variable	System ID	Last Cal.	Cal. Due
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Barometric Pressure	E003733	12-26-09	12-26-10
Humidity	E002873	02-23-10	02-23-11

Measurement Variable	System ID	Last Cal.	Cal. Due
Flow and temperature	E003434	04-21-10	04-21-11
Microbalance	E003403	01-07-10	01-07-11
Temperature	E002873	02-23-10	02-23-11
Pressure	E003440	08-26-09	08-26-10

Sona H.
Calibrated

☒ Final Function Check

August 6, 2010
Date

輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C102350

Certificate of Calibration

This is to certify that the equipment

Description : Integrating Sound Level Meter (EQ008)

Manufacturer : Bruel & Kjaer

Model No. : 2238

Serial No. : 2285690

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C102350.

The equipment is supplied by

Co. Name : Action-United Environmental Services and Consulting

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

Date of Issue : 30 April 2010

Certified by : K C Lee

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

輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C102350

Calibration Report

ITEM TESTED

DESCRIPTION : Integrating Sound Level Meter (EQ008)
MANUFACTURER : Bruel & Kjaer
MODEL NO. : 2238
SERIAL NO. : 2285690

TEST CONDITIONS

AMBIENT TEMPERATURE : (23 ± 2)°C RELATIVE HUMIDITY : (55 ± 20)%
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 29 April 2010 ***JOB NO.*** : IC10-0951

TEST RESULTS

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

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies, USA
- Fluke Everett Service Center, USA
- Rohde & Schwarz Laboratory, Germany

Tested by : L L Cheung *Date : 30 April 2010*

Report No. : C102350

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration using the laboratory acoustic calibrator was performed before the test 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	C100067
CL281	Multifunction Acoustic Calibrator	DC090052

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	94.1

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.

Report No. : C102350

Calibration Report

6.2 Time Weighting

6.2.1 Continuous Signal

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

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L_{AFP}	A	F	106.0	Continuous	106.0	Ref.
	L_{AFMax}				200 ms	105.0	-1.0 ± 1.0
	L_{ASP}		S		Continuous	106.0	Ref.
	L_{ASMax}				500 ms	102.0	-4.1 ± 1.0

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L_{AFP}	A	F	94.00	31.5 Hz	54.7	-39.4 ± 1.5
					63 Hz	67.8	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	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)

Report No. : C102350

Calibration Report

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L_{CFP}	C	F	94.00	31.5 Hz	91.1	-3.0 ± 1.5
					63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	93.9	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	91.0	-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)	Mode	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	99.9	± 0.5
						$1/10^2$		90	89.6	± 0.5
			60 sec.			$1/10^3$		80	79.7	± 1.0
			5 min.			$1/10^4$		70	69.7	± 1.0

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

- Uncertainties of Applied Value :

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

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

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

輝創工程有限公司

Sun Creation Engineering Limited Calibration and Testing Laboratory

Certificate No. : C102285

Certificate of Calibration

This is to certify that the equipment

Description : Acoustical Calibrator (EQ081)

Manufacturer : Bruel & Kjaer

Model No. : 4231

Serial No. : 2326408

has been calibrated for the specific items and ranges.
The results are shown in the Calibration Report No. C102285.

The equipment is supplied by

Co. Name : Action-United Environmental Services and Consulting

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

Date of Issue : 27 April 2010

Certified by : K C Lee

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

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

輝創工程有限公司
Sun Creation Engineering Limited Calibration and Testing Laboratory

Report No. : C102285

Calibration Report

ITEM TESTED

DESCRIPTION : Acoustical Calibrator (EQ081)
MANUFACTURER : Bruel & Kjaer
MODEL NO. : 4231
SERIAL NO. : 2326408

TEST CONDITIONS

AMBIENT TEMPERATURE : (23 ± 2)°C RELATIVE HUMIDITY : (55 ± 20)%
LINE VOLTAGE : ---

TEST SPECIFICATIONS

Calibration check

DATE OF TEST : 26 April 2010 ***JOB NO.*** : IC10-0951

TEST RESULTS

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

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Rohde & Schwarz Laboratory, Germany
- Fluke Precision Measurement Ltd., UK
- Fluke Everett Service Center, USA
- Agilent Technologies, USA

Tested by : *W L Lai* *Date : 27 April 2010*

Report No. : C102285

Calibration Report

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours before the commencement of the test.

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

3. Test equipment :

Equipment ID	Description	Certificate No.
TST150A	Measuring Amplifier	C101008
CL130	Universal Counter	C093122
CL281	Multifunction Acoustic Calibrator	DC090052

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

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

5.2 Frequency Accuracy

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

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

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

Appendix F

Event and 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.

Appendix G

Monitoring Data Sheet

24-hour TSP Monitoring Results - AC04c

Date of Calibration: 2-Oct-10 Slope = 34.3291

Next Calibration Date: 2-Dec-10 Intercept = 5.0539

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)				
2-Nov-10	22676	5600.45	5624.38	1435.80	37	38	37.5	21.5	1019	0.95	1371	2.8215	3.0029	0.1814	132
8-Nov-10	22864	5624.38	5648.34	1437.60	37	38	37.5	22.5	1017.5	0.95	1369	2.796	2.9417	0.1457	106
13-Nov-10	22862	5648.34	5672.26	1435.20	36	37	36.5	22.4	1016.9	0.92	1324	2.7893	2.8813	0.0920	69
19-Nov-10	22830	5672.26	5696.14	1432.80	37	38	37.5	21.7	1015.6	0.95	1365	2.8062	2.9985	0.1923	141
25-Nov-10	22920	5696.14	5719.99	1431.00	34	35	34.5	20.2	1017.5	0.87	1242	2.7945	2.9726	0.1781	143

24-hour TSP Monitoring Results - AC02b

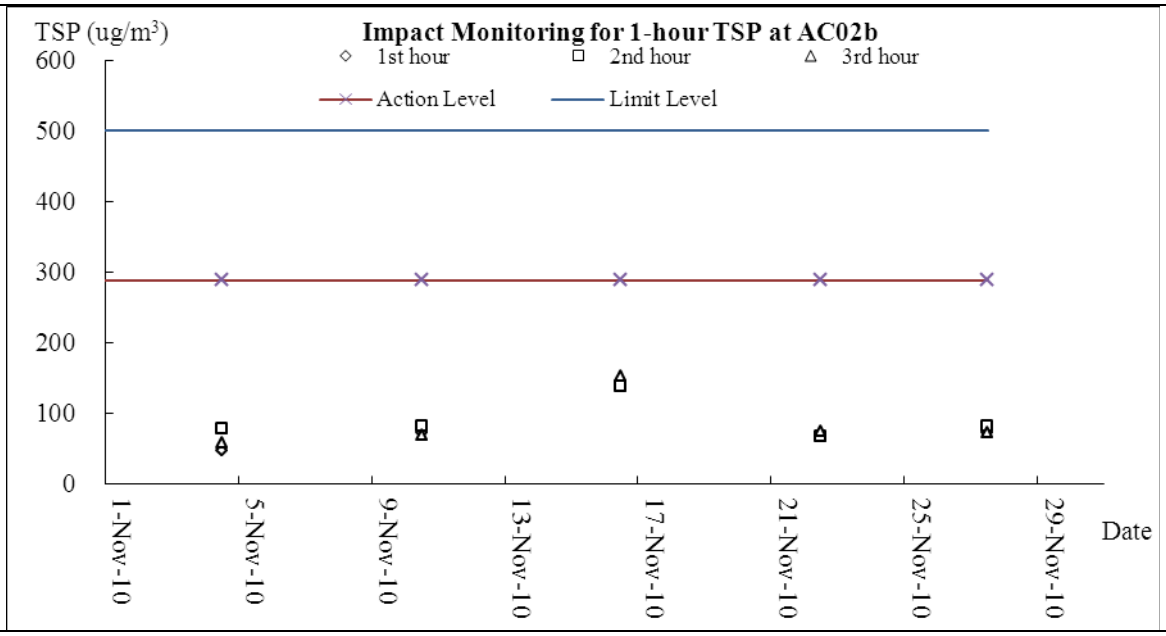
Date of Calibration: 2-Oct-10 Slope = 32.2997

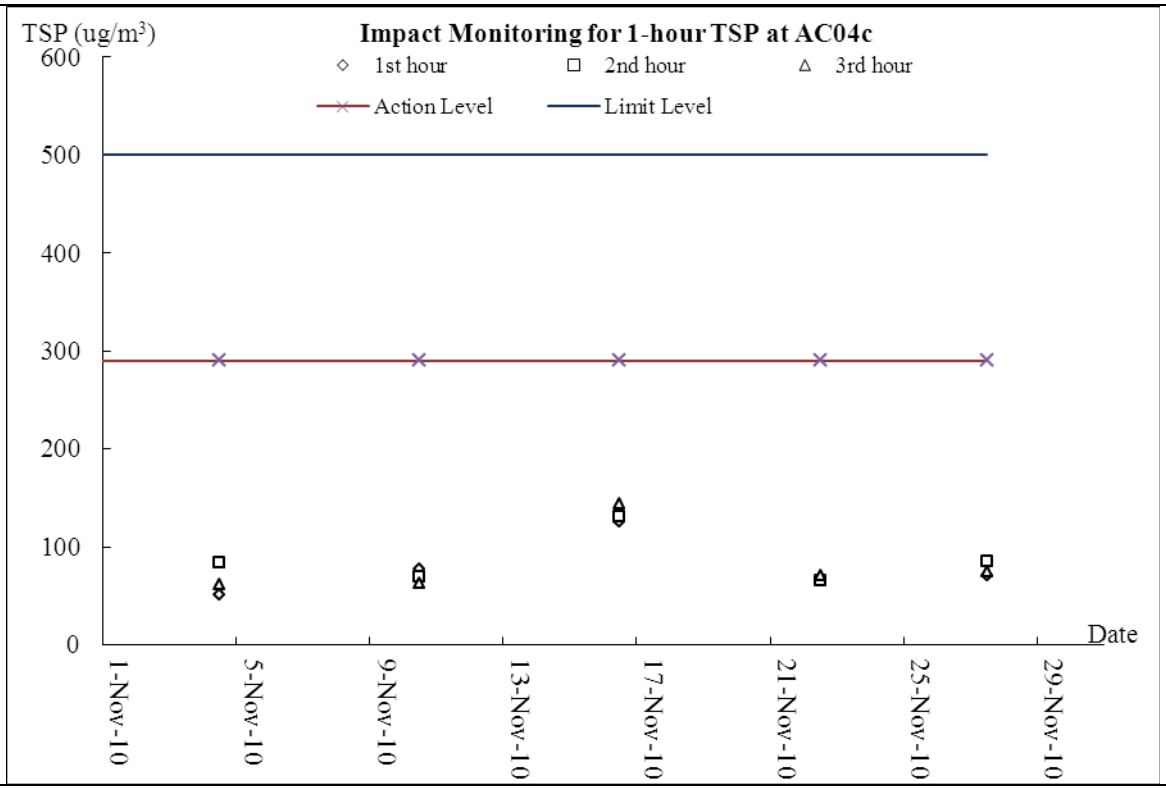
Next Calibration Date: 2-Dec-10 Intercept = 6.6619

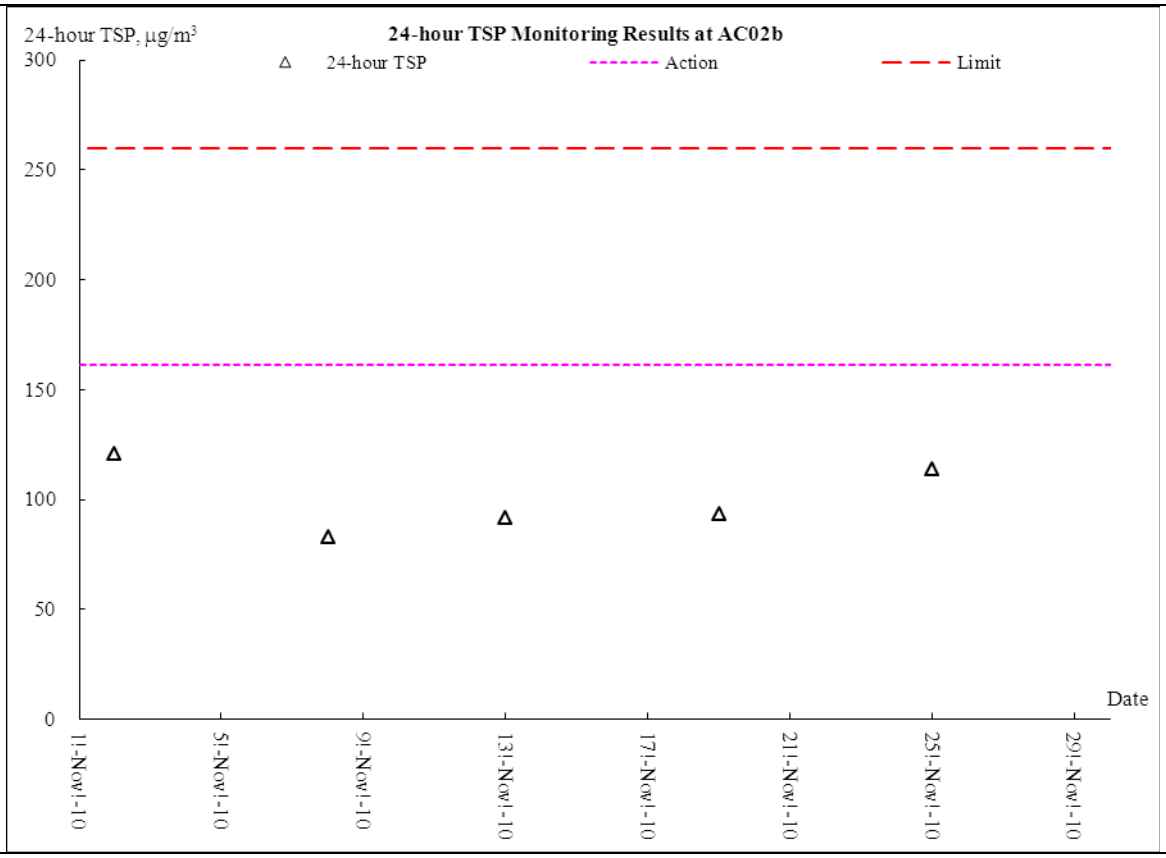
DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP (oC)	STANDARD			INITIAL FILTER WEIGHT (g)	FINAL FILTER WEIGHT (g)	WEIGHT DUST COLLECTED (g)	DUST 24-hour TSP IN AIR (ug/m^3)
		INITIAL	FINAL	ACTUAL (min)	MIN	MAX	AVG		AVG PRESS (hPa)	FLOW RATE (m3/min)	AIR VOLUME (std m3)				
2-Nov-10	22616	3069.27	3093.21	1436.40	39	40	39.5	21.5	1019	1.03	1476	2.8563	3.0346	0.1783	121
8-Nov-10	22863	3093.21	3117.18	1438.20	35	36	35.5	22.5	1017.5	0.90	1294	2.7858	2.8928	0.1070	83
13-Nov-10	22861	3117.18	3141.16	1438.80	35	36	35.5	22.4	1016.9	0.90	1294	2.7832	2.902	0.1188	92
19-Nov-10	22831	3141.16	3165.39	1453.80	36	37	36.5	21.7	1015.6	0.93	1354	2.8052	2.9315	0.1263	93
25-Nov-10	22922	3165.39	3189.38	1439.40	37	38	37.5	20.2	1017.5	0.97	1391	2.7825	2.9403	0.1578	113

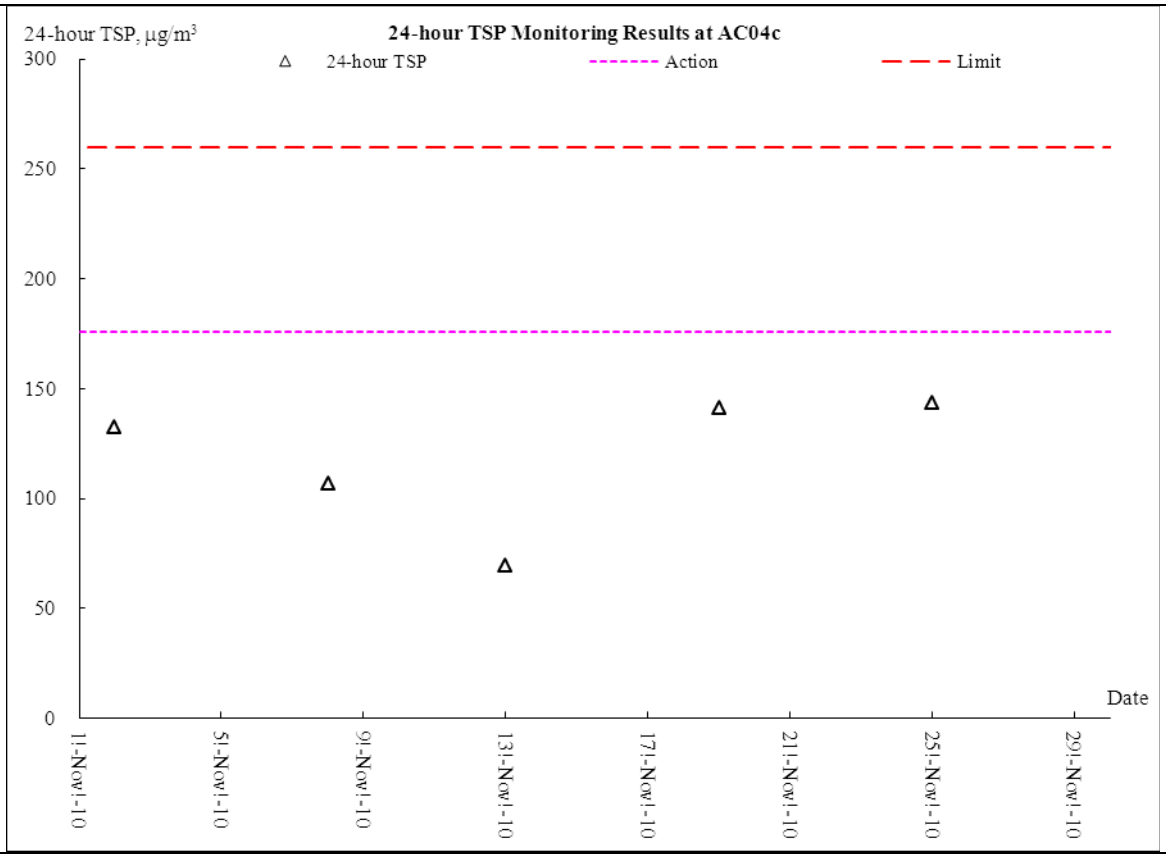
Appendix H

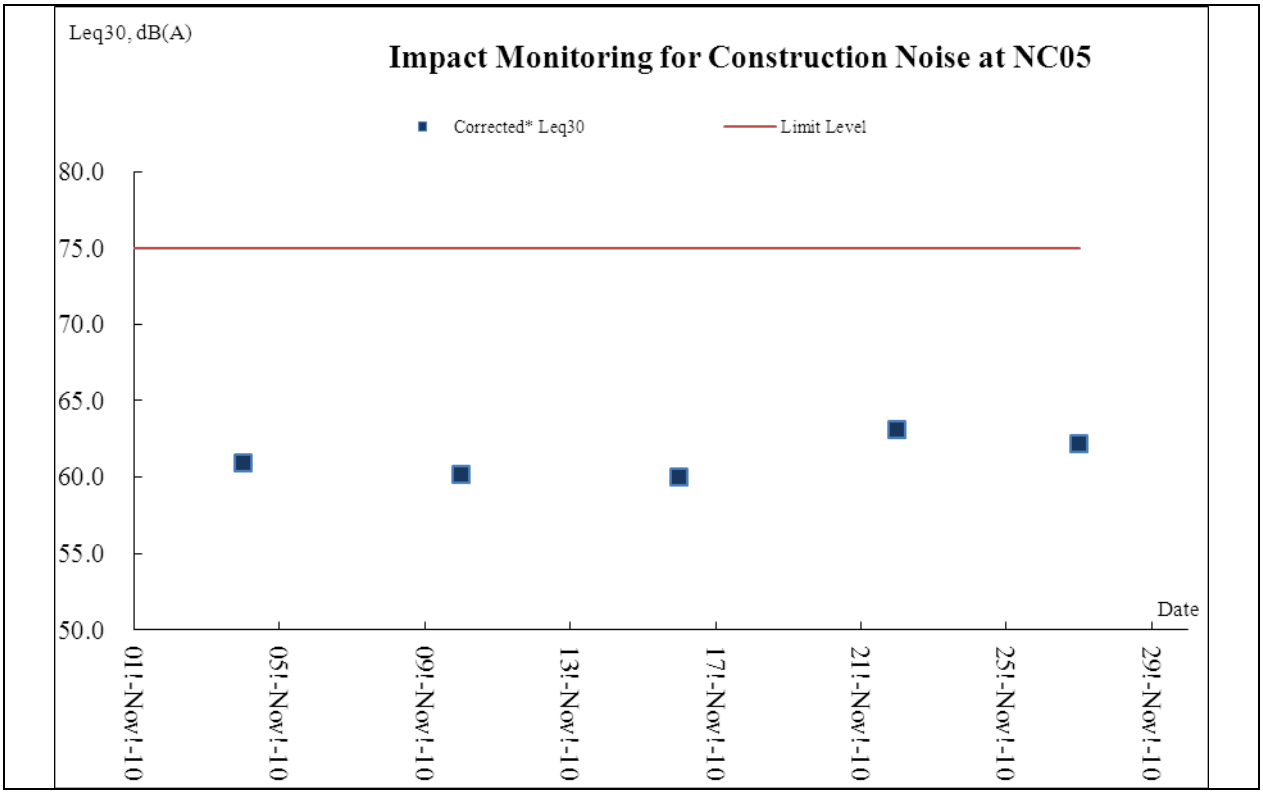
Graphical Plots of Monitoring Results


TSP (ug/m³)
Impact Monitoring for 1-hour TSP at AC02b
1st hour
2nd hour
3rd hour
Action Level
Limit Level
600
500
400
300
200
100
0
1-Nov-10
5-Nov-10
9-Nov-10
13-Nov-10
17-Nov-10
21-Nov-10
25-Nov-10
29-Nov-10
Date


TSP (ug/m³)
Impact Monitoring for 1-hour TSP at AC04c
1st hour
2nd hour
3rd hour
Action Level
Limit Level
600
500
400
300
200
100
0
1-Nov-10
5-Nov-10
9-Nov-10
13-Nov-10
17-Nov-10
21-Nov-10
25-Nov-10
29-Nov-10
Date


24-hour TSP, µg/m³
24-hour TSP Monitoring Results at AC02b
24-hour TSP
Action
Limit
300
250
200
150
100
50
0
Date
1-Nov-10
5-Nov-10
9-Nov-10
13-Nov-10
17-Nov-10
21-Nov-10
25-Nov-10
29-Nov-10


24-hour TSP, µg/m³
24-hour TSP Monitoring Results at AC04c
24-hour TSP
Action
Limit
300
250
200
150
100
50
0
Date
1-Nov-10
5-Nov-10
9-Nov-10
13-Nov-10
17-Nov-10
21-Nov-10
25-Nov-10
29-Nov-10


Leq30, dB(A)
Impact Monitoring for Construction Noise at NC05
Corrected* Leq30
Limit Level
80.0
75.0
70.0
65.0
60.0
55.0
50.0
Date
01-Nov-10
05-Nov-10
09-Nov-10
13-Nov-10
17-Nov-10
21-Nov-10
25-Nov-10
29-Nov-10

Appendix I

Meteorological Information

Meteorological Data Extracted from HKO during the Reporting Period

Date		Weather
1-Nov-10	Mon	Fine and dry.
2-Nov-10	Tue	Moderate to fresh east to northeasterly winds.
3-Nov-10	Wed	Mainly fine and dry.
4-Nov-10	Thu	Cloudy with one or two light rain patches.
5-Nov-10	Fri	Overcast with rain. Visibility rather low.
6-Nov-10	Sat	Moderate north to northeasterly winds.
7-Nov-10	Sun	Fine and dry.
8-Nov-10	Mon	Moderate north to northeasterly winds.
9-Nov-10	Tue	Fine and dry.
10-Nov-10	Wed	Sunny periods. Visibility relatively low.
11-Nov-10	Thu	Mainly cloudy.
12-Nov-10	Fri	Moderate easterly winds, occasionally fresh
13-Nov-10	Sat	Sunny periods.
14-Nov-10	Sun	Moderate northeasterly winds.
15-Nov-10	Mon	Visibility relatively low.
16-Nov-10	Tue	Mainly fine.
17-Nov-10	Wed	Some haze.
18-Nov-10	Thu	Moderate east to northeasterly winds.
19-Nov-10	Fri	Mainly fine with some haze.
20-Nov-10	Sat	Moderate east to northeasterly winds.
21-Nov-10	Sun	Fine and dry
22-Nov-10	Mon	Moderate east to northeasterly winds
23-Nov-10	Tue	Mainly fine and dry in the afternoon.
24-Nov-10	Wed	Mainly fine.
25-Nov-10	Thu	Fine and dry apart from some haze.
26-Nov-10	Fri	Fine and dry.
27-Nov-10	Sat	Fine apart from some haze.
28-Nov-10	Sun	Moderate east to northeasterly winds.
29-Nov-10	Mon	Mainly fine but hazy.
30-Nov-10	Tue	Moderate northeasterly 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 November 2010

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
Jan	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	0.000	0.000
Feb	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	0.000	0.000
Mar	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	0.000	0.000
Apr	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	0.000	0.000
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	0.000	0.000
Jun	0.054	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.054	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.600
Sub-total	0.0539	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0539	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00	3.60
Jul	0.139	0.000	0.020	0.000	0.000	0.000	0.000	0.000	0.139	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.320
Aug	0.345	0.000	0.044	0.000	0.000	0.000	0.000	0.000	0.345	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.930
Sep	1.917	0.029	0.000	0.002	0.000	0.000	0.000	0.000	1.917	0.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.580
Oct	0.829	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.829	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nov	0.457	0.001	0.003	0.083	0.362	0.000	0.000	0.000	0.095	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.640
Dec																						
Total	3.7412	0.0303	0.0667	0.0854	0.362	0.000	0.000	0.000	3.3792	0.0303	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.07
	3.771		0.152		0.362		0.000		3.409		0.000		0.000		0.000		0.000		0.000		18.07	

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

Import fill materials, Assume type A & B, 1m3 = 1.45 tonne. Stockpile at YSW = 1440.2ton, SKW = 410.2ton. Delivery on Jul. & Dec. 08 and May 09

Excavated material from trench temporary stock at temporary platform at Chung Mei = approx. 59m3

YSW: Yung Shue Wan

SKW: Sok Kwu Wan

Appendix K

Weekly Site Inspection Checklist

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

Project:	**TCS/00512/09** ***Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan***	**Inspected by**	**Checklist No.** **TCS512A021110**
		ETL/ ET's Representative:	Ray Cheung
		RE's Representative:	C.C. Cheung
		Contractor's Representative:	Edwin Leung
		IEC's Representative:	
Date:	2 November 2010	**Time:**	11:00

PART A: **GENERAL INFORMATION** **Environmental Permit No.**

Weather: ☐ Sunny ☑ Fine ☐ Cloudy ☐ Rainy ☑ EP- 282/2007

Temperature: 24.7 ^{0}C

Humidity: ☐ High ☑ Moderate ☐ Low

Wind: ☐ Strong ☐ Breeze ☑ Light ☐ Calm

Area Inspected

1 Yung Shue Wan

PART B: **SITE AUDIT**

Note: **Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable		**Not Obs.**	**Yes**	**No**	**Follow Up**	**N/A**	**Photo/ Remarks**
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 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 remove form 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 properly labelled?	☐	☑	☐	☐	☐	
4.07	Are the chemical wastes stored in proper storage areas?	☐	☑	☐	☐	☐	
4.08	Is the chemical waste storage area properly labelled?	☐	☑	☐	☐	☐	
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 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 7: Others							
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	☐	☑	☐	☐	☐	
7.02	Are the warning sign or larvicidal oil record shown clearly at the construction site?	☐	☑	☐	☐	☐	

Remarks

Findings of Site Inspection (2 November 2010): **Follow up: Rectified on**

No environmental issue was observed during the site inspection.

IEC's representative	*RE's representative*	*ET's representative*	*EO's representative*	*Contractor's representative*
				
(N/A)	( )	(Ray Cheung)	( )	( )

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

Project:	**TCS/00512/09**	**Inspected by**	**Checklist No.** **TCS512A091110**
	Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan	**ETL/ ET's Representative:**	Ray Cheung
		RE's Representative:	C.C. Cheung
		Contractor's Representative:	Edwin Leung
		IEC's Representative:	
Date:	9 November 2010	**Time:**	11:00

PART A: **GENERAL INFORMATION**

Weather: ☐ Sunny ☑ Fine ☐ Cloudy ☐ Rainy

Temperature: 24.5 ^{0}C

Humidity: ☐ High ☑ Moderate ☐ Low

Wind: ☐ Strong ☐ Breeze ☑ Light ☐ Calm

Environmental Permit No.

☑ EP- 282/2007

Area Inspected

1 Yung Shue Wan

PART B: **SITE AUDIT**

Note: **Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable		**Not Obs.**	**Yes**	**No**	**Follow Up**	**N/A**	**Photo/ Remarks**
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 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 remove form 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 properly labelled?	☐	☑	☐	☐	☐	
4.07	Are the chemical wastes stored in proper storage areas?	☐	☑	☐	☐	☐	
4.08	Is the chemical waste storage area properly labelled?	☐	☑	☐	☐	☐	
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 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 7: Others							
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	☐	☑	☐	☐	☐	
7.02	Are the warning sign or larvicidal oil record shown clearly at the construction site?	☐	☑	☐	☐	☐	

Remarks

Findings of Site Inspection (9 November 2010): **Follow up: Rectified on**

IEC's representative	*RE's representative*	*ET's representative*	*EO's representative*	*Contractor's representative*
(N/A)	( )	(Ray Cheung)	( )	( )

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

Project:	**TCS/00512/09**	**Inspected by**	**Checklist No.** **TCS512A161110**
	Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan	**ETL/ ET's Representative:**	Nicola Hon
		RE's Representative:	C.C. Cheung
		Contractor's Representative:	Edwin Leung
		IEC's Representative:	K.K. Kwok
Date:	16 November 2010	**Time:**	11:30

PART A: **GENERAL INFORMATION**

Weather: ☐ Sunny ☑ Fine ☐ Cloudy ☐ Rainy

Temperature: 21.8 ^{0}C

Humidity: ☐ High ☑ Moderate ☐ Low

Wind: ☐ Strong ☐ Breeze ☑ Light ☐ Calm

Environmental Permit No.

☑ EP- 282/2007

Area Inspected

1 Yung Shue Wan

PART B: **SITE AUDIT**

Note: **Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable		**Not Obs.**	**Yes**	**No**	**Follow Up**	**N/A**	**Photo/ Remarks**
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 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 remove form 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 properly labelled?	☐	☑	☐	☐	☐	
4.07	Are the chemical wastes stored in proper storage areas?	☐	☑	☐	☐	☐	
4.08	Is the chemical waste storage area properly labelled?	☐	☑	☐	☐	☐	
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 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 7: Others							
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	☐	☑	☐	☐	☐	
7.02	Are the warning sign or larvicidal oil record shown clearly at the construction site?	☐	☑	☐	☐	☐	

Remarks

Findings of Site Inspection (16 November 2010):

1. The capacity of the de-silting tanks should be improved. The Contractor was advised to provide sufficient numbers of de-silting tank for wastewater treatment in order to improve the quality of the discharge water.

Follow up: Rectified on

The de-silting facility was found to be improved.

IEC's representative	*RE's representative*	*ET's representative*	*EO's representative*	*Contractor's representative*
(N/A)	( )	(Nicola Hon)	( )	( )

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

Project:	**TCS/00512/09**	**Inspected by**	**Checklist No.** **TCS512A231110**
	Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan	**ETL/ ET's Representative:**	Ray Cheung
		RE's Representative:	C.C. Cheung
		Contractor's Representative:	Edwin Leung
		IEC's Representative:	
Date:	23 November 2010	**Time:**	11:30

PART A: **GENERAL INFORMATION** **Environmental Permit No.**

Weather: ☐ Sunny ☑ Fine ☐ Cloudy ☐ Rainy ☑ EP- 282/2007

Temperature: 23.6 ^{0}C

Humidity: ☐ High ☑ Moderate ☐ Low

Wind: ☐ Strong ☐ Breeze ☑ Light ☐ Calm

Area Inspected

1 Yung Shue Wan

PART B: **SITE AUDIT**

Note: **Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable		**Not Obs.**	**Yes**	**No**	**Follow Up**	**N/A**	**Photo/ Remarks**
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?	☐	☐	☐	☑	☐	Remark 1
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 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 remove form 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 properly labelled?	☐	☑	☐	☐	☐	
4.07	Are the chemical wastes stored in proper storage areas?	☐	☑	☐	☐	☐	
4.08	Is the chemical waste storage area properly labelled?	☐	☑	☐	☐	☐	
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 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 7: Others							
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	☐	☑	☐	☐	☐	
7.02	Are the warning sign or larvicidal oil record shown clearly at the construction site?	☐	☑	☐	☐	☐	

Remarks

Findings of Site Inspection (23 November 2010):

Follow up: Rectified on

1. The de-silting tanks should be improved. The Contractor was advised to provide more filter sheet within the tank for wastewater treatment in order to improve the quality of the discharge water.

The de-silting facility was found to be improved.

IEC's representative	***RE's representative***	***ET's representative***	***EO's representative***	***Contractor's representative***
(N/A)	( )	(Ray Cheung)	( )	( )

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

Project:	**TCS/00512/09**	**Inspected by**	**Checklist No.** **TCS512A301110**
	Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan	**ETL/ ET's Representative:**	Ray Cheung
		RE's Representative:	C.C. Cheung
		Contractor's Representative:	Edwin Leung
		IEC's Representative:	
Date:	30 November 2010	**Time:**	11:00

PART A: **GENERAL INFORMATION**

Weather: ☐ Sunny ☑ Fine ☐ Cloudy ☐ Rainy

Temperature: 23.9 ^{0}C

Humidity: ☐ High ☑ Moderate ☐ Low

Wind: ☐ Strong ☐ Breeze ☑ Light ☐ Calm

Environmental Permit No.

☑ EP- 282/2007

Area Inspected

1 Yung Shue Wan

PART B: **SITE AUDIT**

Note: **Not Obs.**: Not Observed; **Yes**: Compliance; **No**: Non-Compliance; **Follow Up**: Observations requiring follow-Up actions **N/A**: Not Applicable		**Not Obs.**	**Yes**	**No**	**Follow Up**	**N/A**	**Photo/ Remarks**
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 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 remove form 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 properly labelled?	☐	☑	☐	☐	☐	
4.07	Are the chemical wastes stored in proper storage areas?	☐	☑	☐	☐	☐	
4.08	Is the chemical waste storage area properly labelled?	☐	☑	☐	☐	☐	
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 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 7: Others							
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	☐	☑	☐	☐	☐	
7.02	Are the warning sign or larvicidal oil record shown clearly at the construction site?	☐	☑	☐	☐	☐	

Remarks

Findings of Site Inspection (30 November 2010):

No environmental issue was observed during the site inspection.

Follow up: Rectified on

IEC's representative	*RE's representative*	*ET's representative*	*EO's representative*	*Contractor's representative*
				
(N/A)	( )	(Ray Cheung)	( )	( )

Appendix L

Implementation Schedule of Mitigation Measures

Implementation Schedule of Air Quality Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation & Guidelines
					D	C	O	
Construction Phase								
2.3.18	2.10.2	Adopting the following good site practices and follow the dust control requirements of the Air Pollution Control (Construction Dust) Regulation: • Stockpiles of imported material kept on site should be contained within hoardings, dampened and / or covered during dry and windy weather; • Material stockpiled alongside trenches should be covered with tarpaulins whenever works are close to village houses; • Water sprays should be used during the delivery and handling of cement, sands, aggregates and the like. • Any vehicle used for moving sands, aggregates and construction waste should have properly fitting side and tail boards. Materials should not be loaded to a level higher than the side and tail boards, and should be covered by a clean tarpaulin.	Work site / during construction	All contractors		√		TM- EIAO, APCO, Air Pollution Control (Construction Dust) Regulation
2.10.3	Section 2	1 hour and 24 hour dust monitoring and site audit	Designated air monitoring locations / throughout construction period	Contractor/ Environmental Team		√		EM&A Manual

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

Implementation Schedule of Noise Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location/Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
Construction Phase								
\2.4.16	3.8.2	Implementation of following measures during the sewer construction: • 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		√		EIAO-TM, NCO
2.10.5 to 2.10.9	Section 35	Noise monitoring	Designated noise monitoring locations / throughout construction period	Contractor/ Environmental Team		√		EM&A Manual

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

Implementation Schedule of Water Quality Control Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location (duration /completion of measures)	Implementation Agent	Implementation Stages**			Relevant Legislation and Guidelines
					D	C	O	
Construction Phase								
2.5.23	4.12.1	No-dig method using Horizontal Directional Drilling (HDD) would be used for the installation of main portion of outfall pipes	Marine works site / During construction of submarine outfall	Contractor		√		
4.5.38	4.12.3	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.						
2.5.39	4.12.4	Construction Run-off and Drainage 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
2.5.39	4.12.5	General Construction Activities • Debris and rubbish generated on-site should be collected, handled and disposed of properly to avoid entering the nearby	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	
		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.						
2.5.39	4.12.6	Wastewater Arising from Workforce Portable toilets should be provided by the Contractors, where necessary, to handle sewage from the workforce. The Contractor should also be responsible for waste disposal and maintenance practices.	Construction works sites	Contractor		√		
2.10.10	Section 4	Water quality monitoring	Designated water monitoring locations/ throughout construction period	Contractor		√		EM&A Manual

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

Implementation Schedule of Sediment Contamination Mitigation Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation & Guidelines
					D	C	O	
2.9.24	5.2.1	Carrying out Sediment Quality Investigation	Marine works site / prior to construction	DSD	√			WBTC No. 34/2002
2.9.23	5.2.1	Follow the requirement and procedures for dredged mud disposal specified under the WBTC No. 34/2002.	Marine works site / during dredging works	Contractor		√		WBTC No. 34/2002
2.9.23	5.2.2	Implement appropriate dredging methods which have been incorporated into the recommended water quality mitigation measures.	Marine works site, during dredging works	Contractor		√		
2.9.23	5.2.3	During the transportation and disposal of the dredged sediment, the following measures should be taken: • Bottom opening of barges should be fitted with tight fitting seals to prevent leakage of material. Excess material should be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessel is moved. • Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels should be equipped with automatic self monitoring devices as specified by the DEP.	Marine works site and at the identified sensitive receivers	Contractor		√		

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

Implementation Schedule of Solid Waste Management Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
Construction Phase								
2.9.14	6.6.2	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)
2.9.15	6.2.3	The Contractor will be required to open a billing account under the Construction Waste Disposal Charging Scheme, and to pay for disposal of all construction waste. The construction waste will be sent to a designated reception facility, which in this case will be YSW RTS, where drivers must present a valid chit for disposal of each load.	Work sites/During construction	Contractor		√		Waste disposal (Amendment) Ordinance 2004
2.9.16	6.2.4	Recommendations to achieve waste reduction include: • segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; • to encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to	Work sites/During construction	Contractor		√		WBTC No. 4/98, 5/98

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
		segregate this waste from other general refuse generated by the work force; • any unused chemicals or those with remaining functional capacity should be recycled; • use of reusable non-timber formwork to reduce the amount of C&D material; • prior to disposal of C&D waste, it is recommended that wood, steel and other metals should be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill; • proper storage and site practices to minimise the potential for damage or contamination of construction materials; and • plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.						
2.9.18	6.2.5	<u>General Site Wastes</u> • A collection area for construction site waste should be provided where waste can be stored prior to removal from site • An enclosed and covered area for the collection of the waste is recommended to reduce 'wind blow' of light material	Work sites/During construction	Contractor		√		Public Health and Municipal Services Ordinance (Cap. 132)
2.9.19	6.2.6 and 6.2.7	<u>Chemical Wastes</u> • 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						
2.9.21 and 2.9.22	6.2.8 and 6.2.9	<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								
2.10.11 and 2.10.12	7.2 and 7.3	Carry out monitoring of corals before, during and after marine works.	Work sites / during construction phase	Contractor		√		
2.6.45 to 2.6.48	7.6.1	Use horizontal directional drilling to avoid direct disturbance to corals	Marine works site / during dredging works	Contractor		√		
2.6.57 to 2.6.58	4.12.3	Deploying of 2-layer silt curtains with the first layer enclosing the grab an the second layer at around 50m from the dredging area while dredging works are in progress	All work sites / during construction phase	Contractor		√		
2.6.51	7.6.1	Fence off the slope stabilisation works area from surrounding shrubland and/ woodland, to prevent access to or disturbance of adjacent habitats. The works area should be as small as is possible, consistent with the requirements of the works.	STW/ During construction	Contractor		√		

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

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

N/A Not applicable

Implementation Schedule of Fisheries Impact Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages**			Relevant Legislation & Guidelines
					D	C	O	
2.5.37	4.12.4	Use of closed grab dredging and silt curtains around the immediate dredging area and low dredging rates as recommended in Water Quality of the EIA report	Marine works site, during dredging works	Contractor		√		TM on EIA Process

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

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

N/A Not applicable

Implementation Schedule of Landscape and Visual Impact Measures

EIA Ref	EM&A Ref	Environmental Protection Measures*	Location / Timing	Implementation Agent	Implementation Stages **			Relevant Legislation & Guidelines
					D	C	O	
Construction Phase								
2.8.37	9.2.2	Careful and efficient transplanting of affected trees to temporary or final transplant location (the proposed tree to be transplanted is a semi-mature *Macaranga tanarius* and is located at the proposed Pumping Station P2 location).	All sites	Contractor		√		WBTC No. 14/2002
2.8.37	9.2.2	Short excavation and immediate backfilling sections upon completion of works to reduce active site area.	All sites	Contractor		√		
2.8.37	9.2.2	Screening of site construction works by use of hoarding that is appropriate to its site.	All sites	Contractor		√		WBTC No. 19/2001
2.8.37	9.2.2	Conservation of topsoil for reuse.	All sites	Contractor		√		
2.8.30	9.2.2	Night-time light source from marine fleets should be directed away from the residential units.	Outfall area.	Contractor		√		

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

N/A Not applicable