



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
Quarterly Environmental Monitoring and Audit
(EM&A) Summary Report No. Q2
(December 2010 to February 2011)**

PREPARED FOR
**LEADER CIVIL ENGINEERING CORPORATION
LIMITED**

Quality Index Date	Reference No.	Prepared By	Certified By
31 March 2011	TCS00512/09/600/R0192v2	 Nicola Hon Environmental Consultant	 T.W. Tam Environmental Team Leader

Version	Date	Description
1	16 March 2011	First submission
2	31 March 2011	Amended against IEC's comments on 30 March 2011

Scott Wilson CDM Joint Venture

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Your reference:

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Date: 1 April 2011

BY FAX ONLY

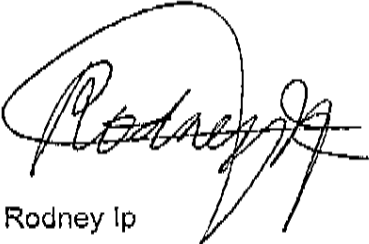
Attention: Mr. C K Au

Dear Sirs,

**Contract No. DC/2009/13
Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan
Yung Shue Wan Portion Area
Quarterly EM&A Summary Report No.Q2 (December 2010 to February 2011)**

We refer to the Environmental Permit (EP-282/2007) and the email from the environmental team, Action-United Environmental Services and Consulting (AUES) with the revised report for the captioned project, dated 31 Mar 2011. 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 The Leader Civil Engineering Corporation Limited (Leader) has been awarded the *Contract DC/2009/13 - Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan* (the Project) by the Drainage Services Department (DSD) on 4 May 2010.

ES.02 This is the 2nd Quarterly EM&A summary report for Yung Shue Wan under the Project, covering the construction period from **1 December 2010 to 28 February 2011**.

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

ES.03 Environmental monitoring activities under the EM&A program in this Reporting Period are summarized in the following table.

Issues	Environmental Monitoring Parameters / Inspection	Occasions
Air Quality	1-hour TSP	90
	24-hour TSP	28
Construction Noise	Leq (30min) Daytime	15
Water Quality	Marine Water Sampling	0
Inspection / Audit	ET Regular Environmental Site Inspection	12

BREACH OF ACTION AND LIMIT (A/L) LEVELS

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

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

ENVIRONMENTAL COMPLAINT

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

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
1 - 31 December 2010	0	0	NA
1 - 31 January 2011	0	0	NA
1 - 28 February 2011	0	0	NA

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

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

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
1 - 31 December 2010	0	0	NA
1 - 31 January 2011	0	0	NA
1 - 28 February 2011	0	0	NA

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
1 - 31 December 2010	0	0	NA
1 - 31 January 2011	0	0	NA
1 - 28 February 2011	0	0	NA

REPORTING CHANGE

ES.07 There are no reporting changes in this Reporting Period.

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 Construction dust would be the key environmental issue during dry and windy season. The construction dust mitigation measures identified at the EM&A Manual such as watering at haul road and covering of dusty material should be implemented and properly maintained.

ES.10 In addition, attention shall also put on the 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. Mitigation measures for water quality should be properly maintained to prevent any muddy or sandy runoff from the loose soil surface overflow to the site boundary.

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1 INTRODUCTION

1.1 PROJECT BACKGROUND

- 1.01 The Leader Civil Engineering Corporation Limited (Leader) has been awarded the *Contract DC/2009/13 - Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan* (the Project) by the Drainage Services Department (DSD) on 4 May 2010. The Project is part of an overall plan approved under a statutory EIA for Outlying Islands Sewerage Stage 1 Phase 2 Package J – Sok Kwu Wan Sewage Collection and Treatment (Register No. AEIAR-075/2003) and Disposal Facilities and Outlying Islands Sewerage Stage 1 Phase 1 Package C – Yung Shue Wan Sewage Treatment Works and Outfall (Register No. EIA-124/BC). The Environmental Permit No. EP-281/2007 and EP-282/2007 for the Project have been obtained by the DSD on 29 June 2007 for the relevant works. After July 2009, EP-281/2007/A instead EP-281/2007 is EP for Sok Kwu Wan relevant Works.
- 1.02 The Project involves construction of sewage treatment works at Sok Kwu Wan and Yung She Wan with a capacity of 1,430m³/day and 2,850m³/day to provide secondary treatment. The majority of works include construction of pumping stations, construction of submarine outfall from the coastline and laying of underground sewerage pipeline. The site layout plan for the captioned work under the Project is showing in *Annex 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 *Annex B*. For ease of reporting, the proposed EM&A programme for baseline and impact monitoring is split to two copies:
- (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 commencement of the marine work. 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 2nd Quarterly EM&A Summary report for Yung Shue Wan Portion Area presenting the monitoring results and inspection findings for the Reporting Period from **1 December 2010 to 28 February 2011**.

1.2 REPORT STRUCTURE

The Quarterly Environmental Monitoring and Audit (EM&A) Summary Report is structured by following sections:-

SECTION 1	INTRODUCTION
SECTION 2	PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS
SECTION 3	SUMMARY OF MONITORING REQUIREMENTS
SECTION 4	IMPACT MONITORING RESULTS
SECTION 5	WASTE MANAGEMENT
SECTION 6	SITE INSPECTION
SECTION 7	ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE
SECTION 8	IMPLEMENTATION STATUS OF MITIGATION MEASURES
SECTION 9	CONCLUSIONS AND RECOMMENTATIONS

2 PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

2.1 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 [Annex B](#).

2.2 CONSTRUCTION PROGRESS

2.02 The master and three month rolling construction programs are enclosed in [Annex C](#) and the major construction activities undertaken in this quarter are listed below:-

Reporting Period	Major Construction Activities
December 2010	<ul style="list-style-type: none"> • Excavation; • Steel fixing; • Rebar bending & fixing; • Sheetpiling; • Erection of formwork; • Concreting; • Backfilling; • Erection of falsework; • Marine site investigation
January 2011	<ul style="list-style-type: none"> • Excavation; • Steel fixing; • Rebar bending & fixing; • Sheetpiling; • Erection of formwork; • Concreting; • Backfilling; • Erection of falsework; • Marine site investigation
February 2011	<ul style="list-style-type: none"> • Excavation; • Rebar bending & fixing; • Sheetpiling; • Erection of formwork; • Concreting; • Relocation of batching plant

2.3 SUMMARY OF ENVIRONMENTAL SUBMISSIONS

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

Table 2-1 Status of Environmental Licenses and Permits

Item	Description	License/Permit Status
1	Air pollution Control (Construction Dust)	Notified 19/5/2010 Case No: 317486
2	Chemical waste Producer Registration	Issued on 8/6/2010 WPN 5213-912-L2720-01
3	Water Pollution Control Ordinance	Issued on 22/9/2010 WT00007566-2010
4	Billing Account for Disposal of Construction Waste	Issued on 26 May 2010 A/C No: 7010815
5	Construction Noise Permit (no. GW-RS1141-10)	Issued on 29 December 2010 Valid to 28 May 2011
6	Construction Noise Permit (no. GW-RS0084-11)	Issued on 1 Feb 2011 Valid from 21 Feb 2011 until 20 Aug 2011

3 SUMMARY OF MONITORING REQUIREMENTS

3.1 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 EM&A Requirements

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

3.2 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. Therefore, 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 renewal air monitoring stations are described in **Table 3-2**. The graphical of air monitoring stations is shown in **Annex D**.

Table 3-2 Locations 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 *Annex D*.

Table 3-3 Location of Construction Noise Monitoring Station

Sensitive Receiver	Location
NC05	Roof of North Lamma Clinic

Marine Water Quality

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

Table 3-4 Locations 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

3.3 MONITORING FREQUENCY AND PERIOD

- 3.08 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

- 3.09 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.

3.4 MONITORING EQUIPMENT

Air Quality Monitoring

- 3.10 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

- 3.11 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

- 3.12 **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.
- 3.13 **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.
- 3.14 **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.

- 3.15 **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.
- 3.16 **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.
- 3.17 **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.
- 3.18 **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).
- 3.19 **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.
- 3.20 **Suspended Solids Analysis** – Analysis of suspended solids shall be carried out in a HOKLAS or other international accredited laboratory.

3.5 EQUIPMENT CALIBRATION

- 3.21 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.
- 3.22 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.
- 3.23 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.
- 3.24 The Water Quality Monitoring equipment such as Dissolved Oxygen meter, pH Meter, Turbidity Measuring Instrument and Salinometer, are calibrated by HOKLAS accredited laboratory of three month intervals.
- 3.25 All updated calibration certificates of the monitoring equipment used for the impact monitoring program in the relevant Monthly EM&A Report.

3.6 METEOROLOGICAL INFORMATION

- 3.26 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.

3.7 DATA MANAGEMENT AND DATA QA/QC CONTROL

- 3.27 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.

- 3.28 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.

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

- 3.29 According to the Yung Shue Wan Environmental Monitoring and Audit Manual, the air quality, construction noise were established, 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 ($\mu\text{g}/\text{m}^3$)		Limit Level ($\mu\text{g}/\text{m}^3$)	
	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP
AC02b	288	161	500	260
AC04c	290	176	500	260

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

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)

- 3.30 Due to water quality baseline monitoring still not yet completed, the Action/Limit Levels will be provided in due course.

4 IMPACT MONITORING RESULTS

4.01 The environmental monitoring results will be compared against the Action and Limit Levels established based on the baseline monitoring results and statutory criteria. In case the measured data exceed the environmental quality criteria, remedial actions will be triggered according to the Event and Action Plan. In the Reporting Period, the graphical plots of the trends of monitored parameter over the past four months are presented in *Annex E*.

4.1 RESULTS OF AIR QUALITY MONITORING

4.02 The monitoring results of air quality monitoring at the identified locations during the Reporting Period are summarized in *Tables 4-1*. In this quarterly period, a total of **90** events of 1-hour TSP and **28** successful events of 24-hour TSP measurements were performed.

4.01 The 1-hour 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.

4.02 Power failure of High Volume Sampler (HVS) at Location AC02b was occurred on 18 and 30 December 2010. As investigated by the ET and Contractor, the power failure incidents were due to the disconnection of power source for the HVS by others. Two monitoring data at Location AC02b were absent in this reporting month due to the power failure incident. There were no making up of the lost samples as it was noticed right before the next 24-hour TSP monitoring event. As discussed in the last SSEMC, notification of power failure would be inform all relevant parties once unsuccessful monitoring occurs in the future. In order to avoid any non-compliance of the monitoring works requirements in the EM&A Manual in the future, remedial actions for the unsuccessful monitoring works due to power failure incident or other reasons would be undertaken:- 1) Notify the Contractor, RE and IEC immediately once unsuccessful monitoring works of the HVS occurs; 2) Identify the problem and fix; 3) Redo the monitoring works immediately once the problem resolved.

4.03 To avoid missing data in the subsequent monitoring event, we did inform the Contractor to ensure the power provision for the HVS. In addition, a warning sign will be posted to remind the power source cannot be unplugged which affect the monitoring works of the Project.

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

Monitoring Location	1-hour TSP ($\mu\text{g}/\text{m}^3$)			24-hour TSP ($\mu\text{g}/\text{m}^3$)		
	Max	Min	Mean	Max	Min	Mean
AC02b	260	69	114	154	26	83
Record Date	20-Jan-11	8-Jan-11	45 events	12-Jan-11	19-Feb-11	13 events
AC04c	278	66	114	174	37	126
Record Date	20-Jan-11	22-Feb-11	45 events	12-Jan-11	19-Feb-11	15 events

4.2 RESULTS OF CONSTRUCTION NOISE MONITORING

4.03 Summary of construction noise monitoring at the identified locations during the Reporting Period are summarized in *Table 4-2* below. In this reporting quarter, a total of **13** events of construction noise measurement were conducted while no documented construction complaint was received and all the construction noise results were below the Limit level. No NOE or corrective action was recommended for this parameter.

Table 4-2 Summary of Construction Noise Monitoring Results

Station	Leq, 30min (dB((A))	
	Max	Min
NC05	66.4	57.2
Record Date	8 Jan 11	10 Feb 11

4.3 RESULTS OF MARINE WATER QUALITY OF MONITORING

4.04 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 Period and no results are presented in this section.

5 WASTE MANAGEMENT

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

5.1 RECORDS OF WASTE QUANTITIES

5.02 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.

5.03 The quantities of waste for disposal in this Reporting Period are summarized in *Table 5-1* and *5-2* and the Monthly Summary Waste Flow Table is shown in *Annex G*. Whenever possible, materials were reused on-site as far as practicable.

Table 5-1 Summary of Quantities of Inert C&D Materials

Type of Waste	Quantity			Disposal Location
	Dec 10	Jan 11	Feb 11	
C&D Materials (Inert) ('000m ³)	0.001	0.003	0	Tuen Mun Area 38
Reused in this Contract (Inert) ('000m ³)	0.126	0.120	0	-
Reused in other Projects (Inert) ('000m ³)	0	0	0	-
Disposal as Public Fill (Inert) ('000m ³)	0.654	0.865	0.377	Tuen Mun Area 38

Table 5-2 Summary of Quantities of C&D Wastes

Type of Waste	Quantity			Disposal Location
	Dec 10	Jan 11	Feb 11	
Recycled Metal (kg)	0	0	0	-
Recycled Paper / Cardboard Packing (kg)	0	0	0	-
Recycled Plastic (kg)	0	0	0	-
Chemical Wastes (kg)	0	0	0	
General Refuses (tonne)	0	0	0	Yung Shue Wan RTS

5.04 There was no site effluent discharged but the estimated volume of surface runoff was less than 50m³ in this reporting quarter.

6 SITE INSPECTION

- 6.01 According to the Final Report Environmental Monitoring and Audit Manual, the environmental site inspection should be formulated by ET Leader. Regular environmental site inspections had been carried out by the ET to confirm the environmental performance. In this Reporting Period, site inspection was carried out on **7, 14, 21, 28 December 2010, 4, 11, 18, 25 January 2011** and **1, 9, 14 and 22 February 2011**. Besides, routine joint-site visit by IEC, RE, Leader and ET was carried out on **14 December 2010, 11 January 2011** and **22 February 2010**.
- 6.02 Observations for the site inspections and monthly audit within this Reporting Period are summarized in *Table 6-1*.

Table 6-1 Site Observations

Date	Findings / Deficiencies	Follow-Up Status
7 December 2010	<ul style="list-style-type: none"> The filter sheets in the sedimentation tank should be kept cleaning regularly to maintain their function. The Contractor should remove the mud and runoff water to keep the site access clear. 	The deficiencies were improved during site inspection on 14 December 2010.
14 December 2010	<ul style="list-style-type: none"> No environmental issue was observed during the site inspection. 	Nil.
21 December 2010	<ul style="list-style-type: none"> No environmental issue was observed during the site inspection. 	Nil.
28 December 2010	<ul style="list-style-type: none"> Stagnant water was observed underneath the de-silting tanks, the Contractor should remove the water immediately. Leaking of the water pipe was observed, the Contractor should replace it as soon as possible to avoid accumulation of stagnant water. 	<p>The stagnant water was found to be removed on 29 December 2010.</p> <p>The worn water pipe was found to be replaced by new one on 30 December 2010</p>
4 January 2011	<ul style="list-style-type: none"> No environmental issue was observed during the site inspection. 	N.A
11 January 2011	<ul style="list-style-type: none"> No environmental issue was observed during the site inspection. 	N.A
18 January 2011	<ul style="list-style-type: none"> Water sprinkling should be applied on the concrete plant material to minimize dust nuisance. 	Sprinkling was applied immediately.
25 January 2011	<ul style="list-style-type: none"> No environmental issue was observed during the site inspection. 	N.A
1 February 2011	<ul style="list-style-type: none"> Dry road and mud tail was observed, the Contractor should provide watering on site more frequently. 	Washing out was carried out immediately.
9 February 2011	<ul style="list-style-type: none"> The filter sheets should be replaced to maintain the desilting function in the sedimentation tank. 	Filter sheets were replaced on the same day.
14 February 2011	<ul style="list-style-type: none"> No environmental issue was observed during the site inspection. 	N.A
22 February 2011	<ul style="list-style-type: none"> No environmental issue was observed during the site inspection. 	N.A

7 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

7.1 ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

7.01 No environmental complaint, summons and prosecution was received in this Reporting Period. The statistical summary table of environmental complaint is presented in [Tables 7-1, 7-2](#) and [7-3](#).

Table 7-1 Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
1 - 31 December 2010	0	0	NA
1 - 31 January 2011	0	0	NA
1 - 28 February 2011	0	0	NA

Table 7-2 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
1 - 31 December 2010	0	0	NA
1 - 31 January 2011	0	0	NA
1 - 28 February 2011	0	0	NA

Table 7-3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
1 - 31 December 2010	0	0	NA
1 - 31 January 2011	0	0	NA
1 - 28 February 2011	0	0	NA

8 IMPLEMENTATION STATUS OF MITIGATION MEASURES

8.01 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

8.02 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

8.03 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

8.04 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.

8.05 During the dredging works, the Contractor should be responsible for the design and implementation of the following mitigation measures.

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

Construction Run-off and Drainage

8.06 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

- 8.07 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

- 8.08 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

- 8.09 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).
- 8.10 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.
- 8.11 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

- 8.12 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.
- 8.13 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.

- 8.14 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

- 8.15 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

- 8.16 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.
- 8.17 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

- 8.18 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.
- 8.19 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

- 8.20 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 pipe leakages should be repaired promptly and plant should not be operated with leaking pipes; and
 - All barges and other vessels should maintain adequate clearance between vessels and the seabed at all states of the tide and reduce operational speeds to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.
- 8.21 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
- 8.22 Should repeated non-compliances with limit level(s) occur the Contractor shall modify his working method until he is able to achieve the required compliances with the limit levels to the satisfaction of the IC(E)

Fisheries Mitigation Measure

- 8.23 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

- 8.24 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
- 8.25 The implementation schedule of mitigation measures is presented in [Appendix L](#).
- 8.26 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 8-1 Environmental Mitigation Measures

Issues	Environmental Mitigation Measures
Water Quality	<ul style="list-style-type: none"> • Drainage channels were provided to convey run-off into the treatment facilities; and • Drainage systems were regularly and adequately maintained.
Air Quality	<ul style="list-style-type: none"> • Cover all excavated or stockpile of dusty material by impervious sheeting or sprayed with water to maintain the entire surface wet; • Public roads around the site entrance/exit had been kept clean and free from dust; and • Tarpaulin covering of any dusty materials on a vehicle leaving the site.
Noise	<ul style="list-style-type: none"> • Good site practices to limit noise emissions at the sources; • Use of quiet plant and working methods; • Use of site hoarding or other mass materials as noise barrier to screen noise at ground level of NSRs; and • To minimize plant number use at the worksite.
Waste and Chemical Management	<ul style="list-style-type: none"> • Excavated material should be reused on site as far as possible to minimize off-site disposal. Scrap metals or abandoned equipment should be recycled if possible; • Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner; • The Contractor should adopt a trip ticket system for the disposal of C&D materials to any designed public filling facility and/or landfill; and • Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.
General	<ul style="list-style-type: none"> • The site was generally kept tidy and clean.

9 CONCLUSIONS AND RECOMMENTATIONS

9.1 CONCLUSIONS

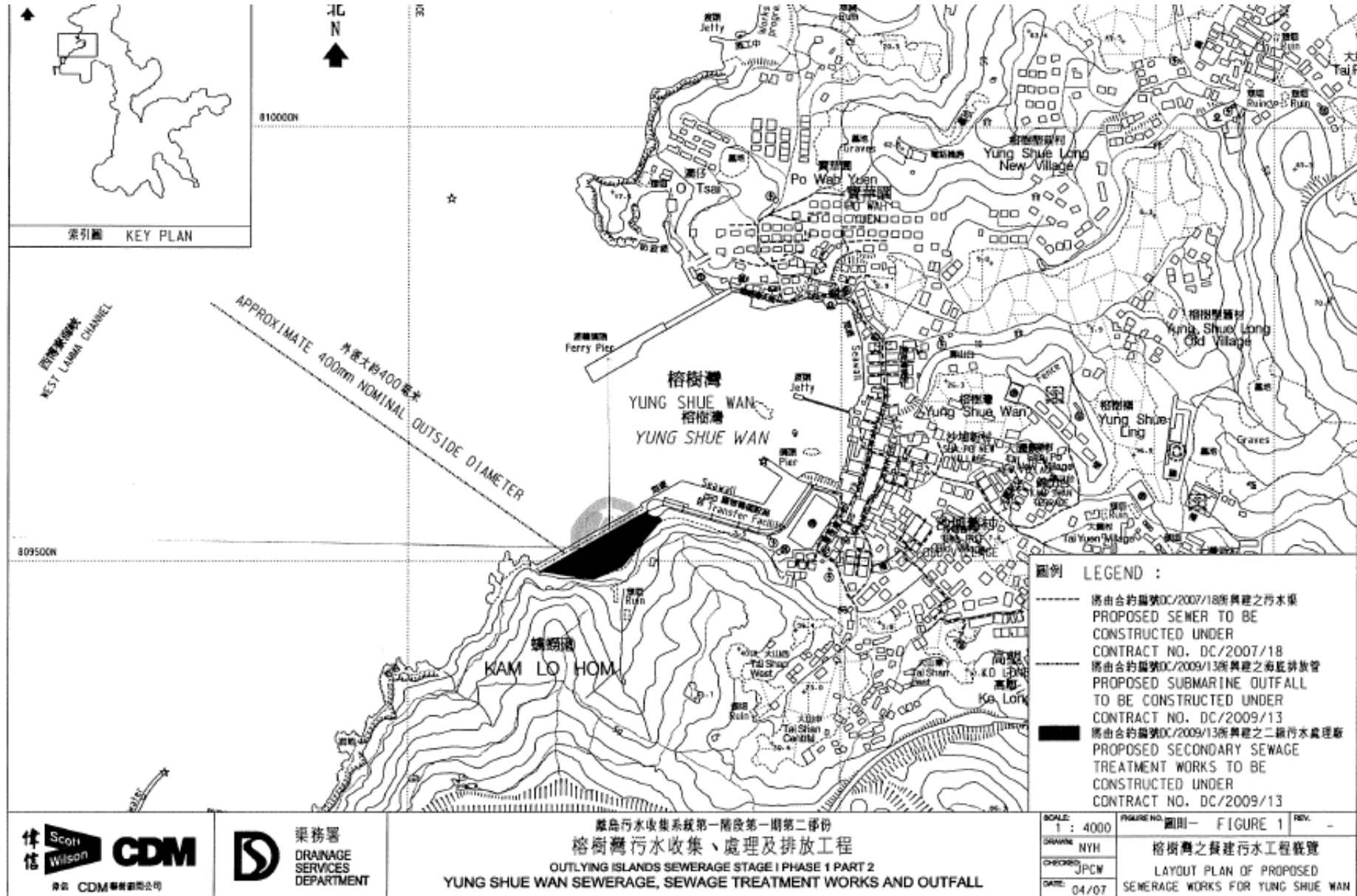
- 9.01 This is the 2nd Quarterly EM&A summary report for Yung Shue Wan under the Project covering the construction period from **1 December 2010 to 28 February 2011**.
- 9.02 No noise complaint (an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in this reporting quarter. No NOE or the associated corrective actions were therefore issued.
- 9.03 In this reporting quarter, no monitoring result of 1-hour and 24-hour TSP was found to be triggered the Action or Limit Level.
- 9.04 No impact water quality monitoring was undertaken in this reporting quarter.
- 9.05 No documented complaint, notification of summons or successful prosecution was received.
- 9.06 **12** events of site inspection were carried out by ET in this Reporting Quarter and no non-compliance was observed during the inspection. In general, all the observation has been rectified during the next week site inspection. The environmental performance of the Project was therefore considered as satisfactory.
- 9.07 No site inspection was undertaken by external parties i.e. EPD or AFCD within the Reporting Period.

9.2 RECOMMENDATIONS

- 9.08 During dry season, construction dust has become a key environmental issue in this Reporting Period. It was reminded that construction dust suppression measures should be fully implemented, as necessary.
- 9.09 In addition, attention shall also put on the 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. Mitigation measures for water quality should be properly maintained to prevent any muddy or sandy runoff from the loose soil surface overflow to the site boundary.

Annex A

Site Layout Plan – Yung Shue Wan Portion Area



Annex B

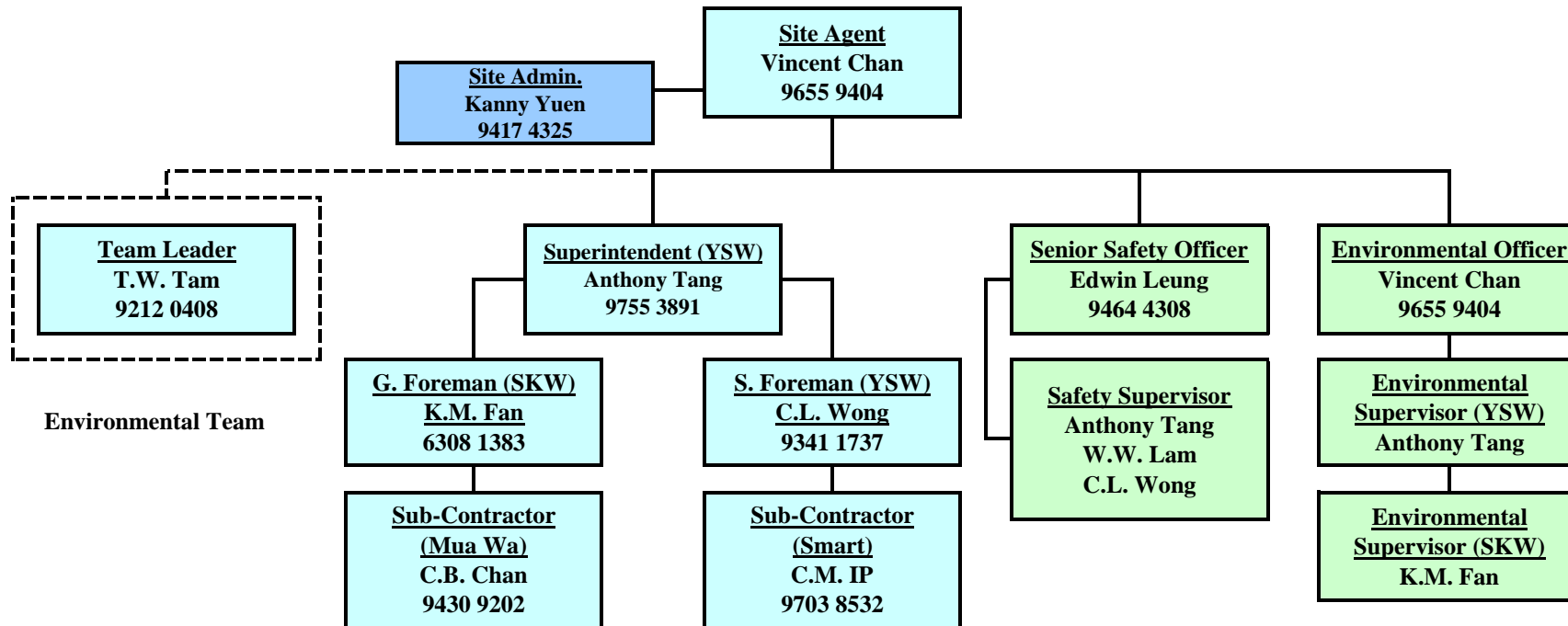
Organization Structure and Contact Details of Relevant Parties

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)



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	Mr. Toby Ng	2982 0240	2982 4129
SCJV	Resident Engineer	Mr. Alfred Cheung	2982 0240	2982 4129
Scott Wilson	Independent Environmental Checker	Mr. Rodney Ip	2410 3750	2428 9922
Leader	Project Manager	Mr. Wilfred So	2982 1750	2982 1803
Leader	Site Agent/ Environmental Officer	Mr. Vincent Chan	2982 1750	2982 1803
Leader	Safety Officer	Mr. Edwin Leung	2982 1750	2982 1803
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

Annex C

Master and Three Months Rolling Construction Programs

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	2010												
										JUN	JUL	AUG	SEP	OCT	NOV	DEC					
Preliminary (C&I)																					
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	278d													
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	85	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	31/10/10	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	136d													
Young Site Work																					
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	Stabilizing 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 (18Nr.)	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 - GLH - T																					
YSW0500	ELS & Excavation for Inlet Pumping Station	62	0	08/09/10	09/11/10	16/08/10	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 - GLT - X																					
YSW0610	Excavate to formation	60	0	08/09/10	07/11/10	08/09/10	08/11/10	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 - 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-structure 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 Drape Fits & 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													
YSW0220	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													
SKW Kwa Irtan																					
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 & weep-hole 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 & weep-hole 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 & weep-hole 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 & weep-hole 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													

Start date	05/05/10	Early bar	
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Data date	31/08/10	Critical bar	
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		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)

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

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	2010							
									JUN	JUL	AUG	SEP	OCT	NOV	DEC	
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								
SKW0694	Road & Drains Works	248	0	26/10/10	30/06/11	26/10/10	30/06/11	0								
SKW0695	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	28/12/10	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	106	0	08/09/10	23/12/10	03/08/10	03/12/10	-20d								
SKW0961	Mass Conc. Retaining Wall	257	0	23/12/10	05/09/11	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	08/09/10	-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								

Start date	05/05/10		Early bar
Finish date	10/05/14		Progress bar
Data date	31/08/10		Critical bar
Run date	13/09/10		Summary bar
Page number	2A		Progress point
			Critical point
			Summary point
			Start milestone 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)

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

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Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Uplift	WIP	ACG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Preliminary (E&H)																											
Technical Submission																											
	Process Design of SKW STW & YSW STW	72	40	15/07/10 A	23/09/10	15/07/10 A	30/09/11	2794																			
	Hydraulic Design	86	30	15/07/10 A	09/10/10	15/07/10 A	30/09/11	2654																			
	Equipment Submission & Approval	226	28	20/07/10 A	02/03/11	20/07/10 A	02/03/11	0																			
	Drawings Submission & Approval	161	11	04/08/10 A	18/07/11	04/08/10 A	10/09/11	1453																			
Utility Structures																											
	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	19/07/10 A	15/09/11	-340																			
Section W2 - YSW STW & Submarine Outfall																											
Civil & Structural Works																											
	YSW STW - Q1-H-1	162	0	09/09/10	17/02/11	16/09/10	24/11/10	-846																			
	YSW STW - Q1-F-X	220	0	03/09/10	16/04/11	09/09/10	15/04/11	0																			
	YSW STW - Q1-F-H & DN Tanks	199	12	10/09/10 A	18/03/11	21/09/10 A	16/03/11	0																			
	Reed Drain, Cable Drains & Ducting	139	6	24/09/10 A	19/07/11	25/09/10 A	17/02/11	304																			
	Submarine Outfall	254	23	17/05/10 A	25/01/11	17/05/10 A	31/12/10	-254																			
	E&M Works - YSW STW	150	0	01/10/10	28/02/11	21/12/10	23/02/12	353																			
SKW (KW) Outfall																											
Section W3 - Footpath Diversion in Portion G																											
	Civil & Geotechnical Works	179	1	02/08/10 A	23/01/11	02/08/10 A	05/01/11	-184																			
Section W4 - Slope Works in Portions H & I																											
Geotechnical Works																											
	Section W5 - P.S. No. 1 in Portion D	351	11	15/07/10 A	30/08/11	15/07/10 A	30/08/11	0																			
	Civil & Geotechnical Works	194	22	30/09/10 A	09/01/11	30/09/10 A	17/12/10	-234																			
	Structural Works	15	0	09/01/11	24/01/11	18/12/10	01/01/11	-234																			
	E&M Works (PS1)	302	33	17/05/10 A	15/03/11	17/05/10 A	01/05/11	483																			
	Substation & Delivery	411	3	23/07/10 A	09/09/11	23/07/10 A	15/11/11	704																			
Section W6 - Sewer and PS No.2 in Portions E&H																											
	Civil & Geotechnical Works	28	0	23/12/10	20/01/11	04/12/10	31/12/10	-204																			
	Structural Works	425	23	17/05/10 A	16/07/11	17/05/10 A	15/09/11	-303																			
Section W7 - SKW STW, Sewer and Submarine Outfall																											
Geotechnical Works																											
	E&M Works (PS2)	425	23	17/05/10 A	16/07/11	17/05/10 A	15/09/11	-303																			
	Substation & Delivery	425	23	17/05/10 A	16/07/11	17/05/10 A	15/09/11	-303																			

Leader Civil Engineering Corp. Ltd.
 Contact 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
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Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float
*Submarine Outfall		480		23 17/05/10 A	19/08/11	17/05/10 A	03/08/13	7/64									
SKW SKW																	
+Substation & Delivery (E&M)		160		01/01/10/10	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 WB - Landscape Softworks in All Portions																	
		854		19 17/05/10 A	16/09/12	17/05/10 A	14/02/14	516d									

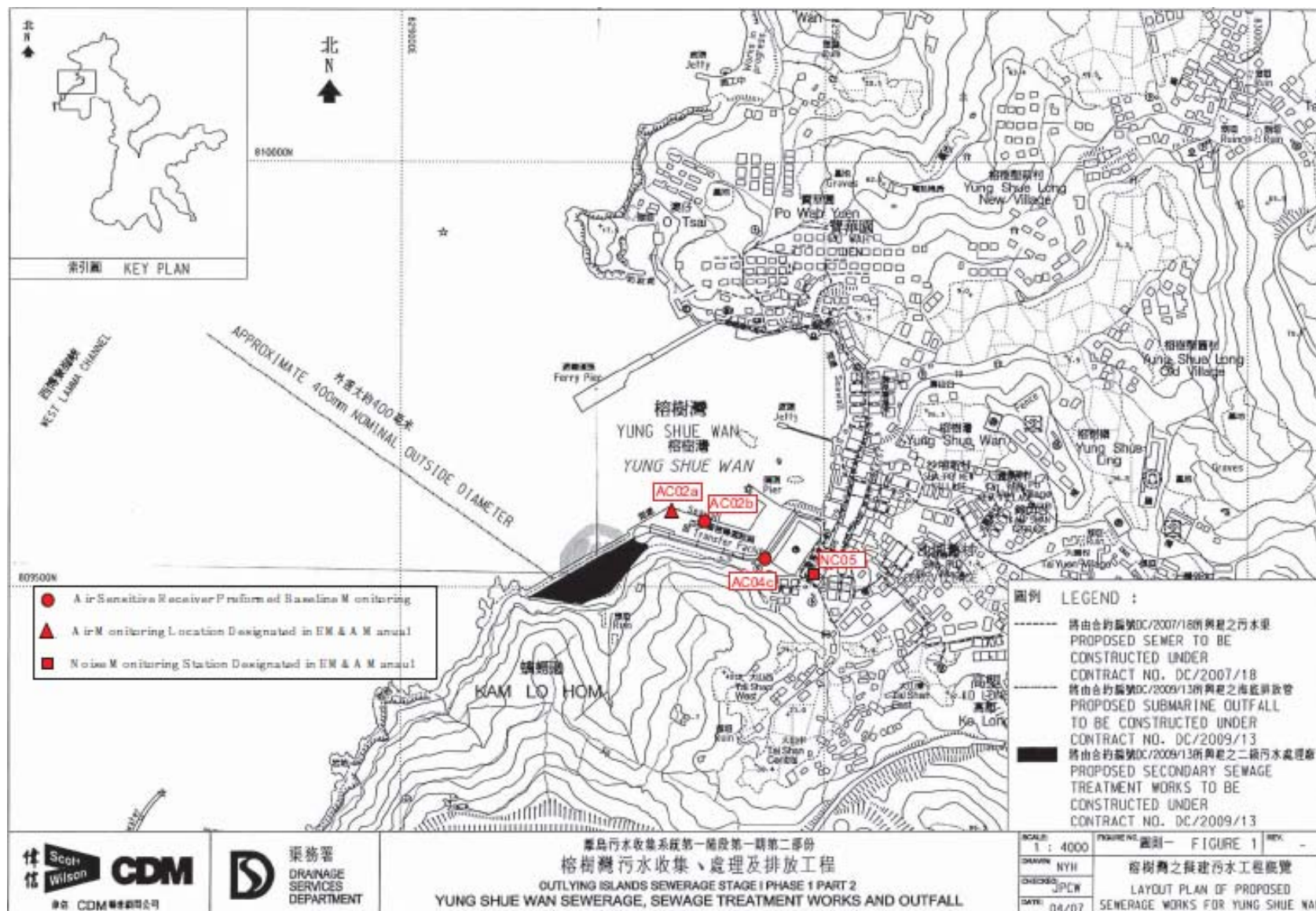
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Finish date	10/05/14	Critical bar
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Run date	13/08/10	Critical point
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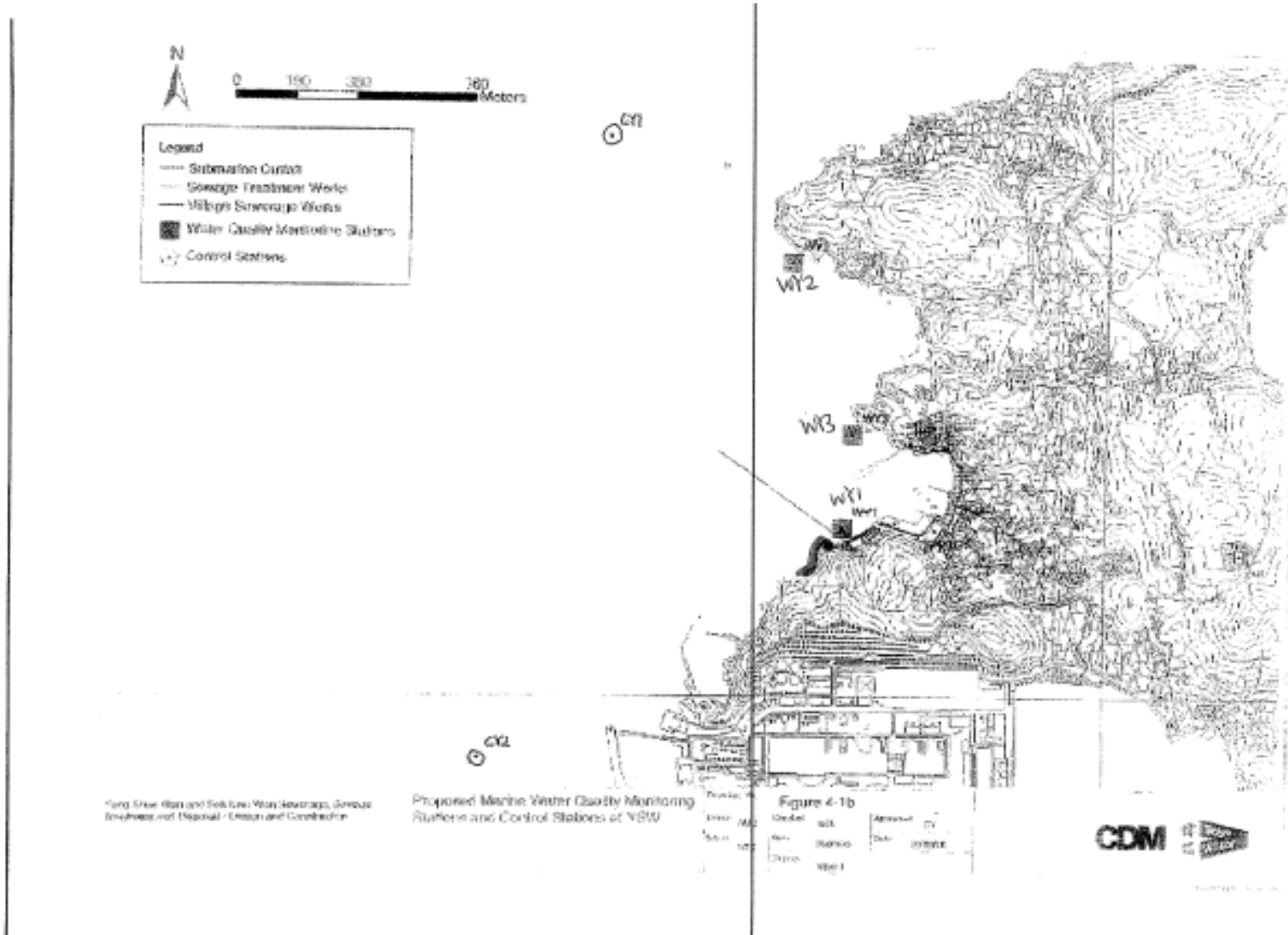
Leader Civil Engineering Corp. Ltd.
 Contract No. DC/2009/13 (2010 Aug)
 Construction of Sewage Treatment Works at YSW & SKW
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(Outline)

Date	Revision	Checked	Approved
31/08/10	Revision 0	SIL	YC

Annex D

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



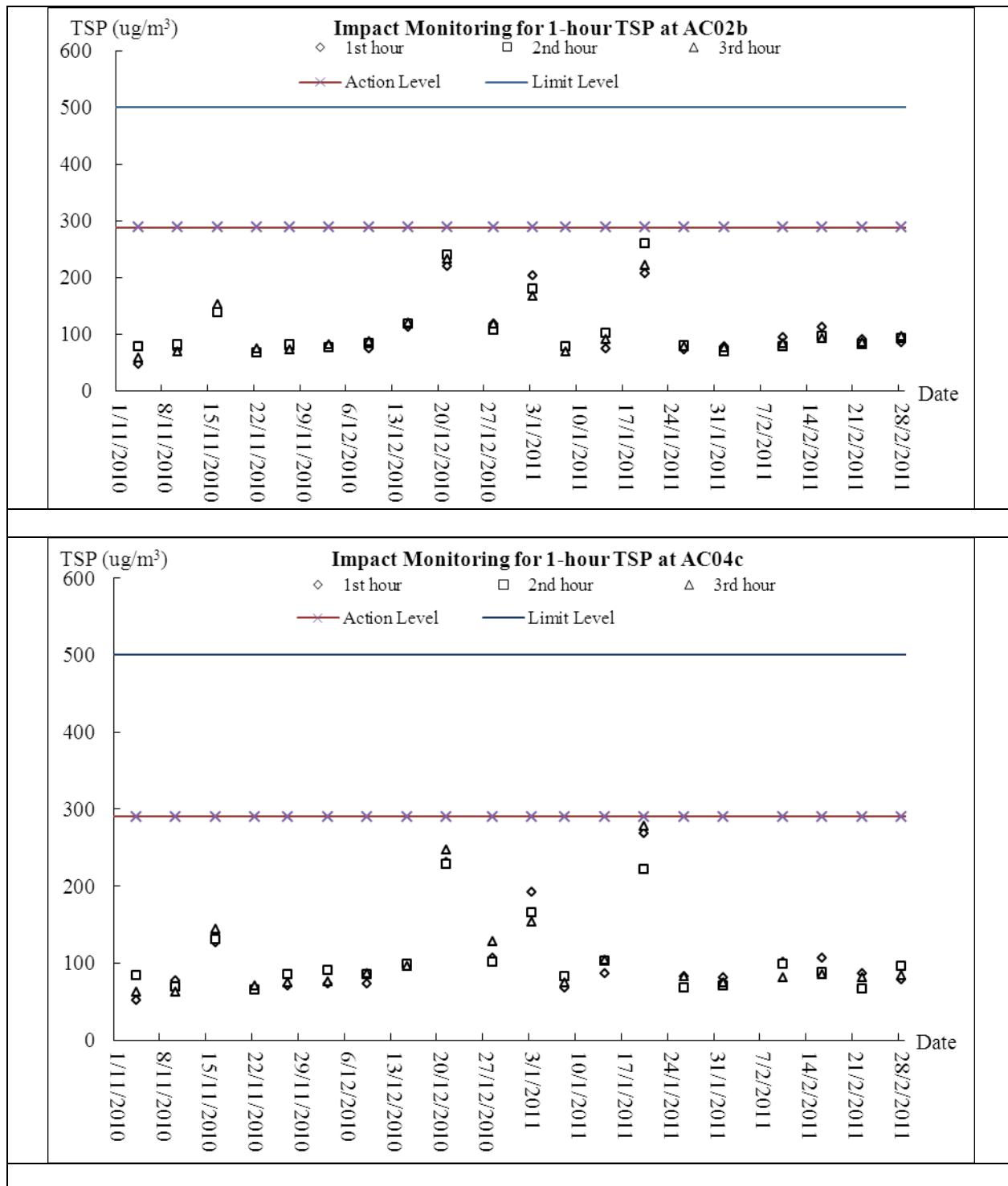


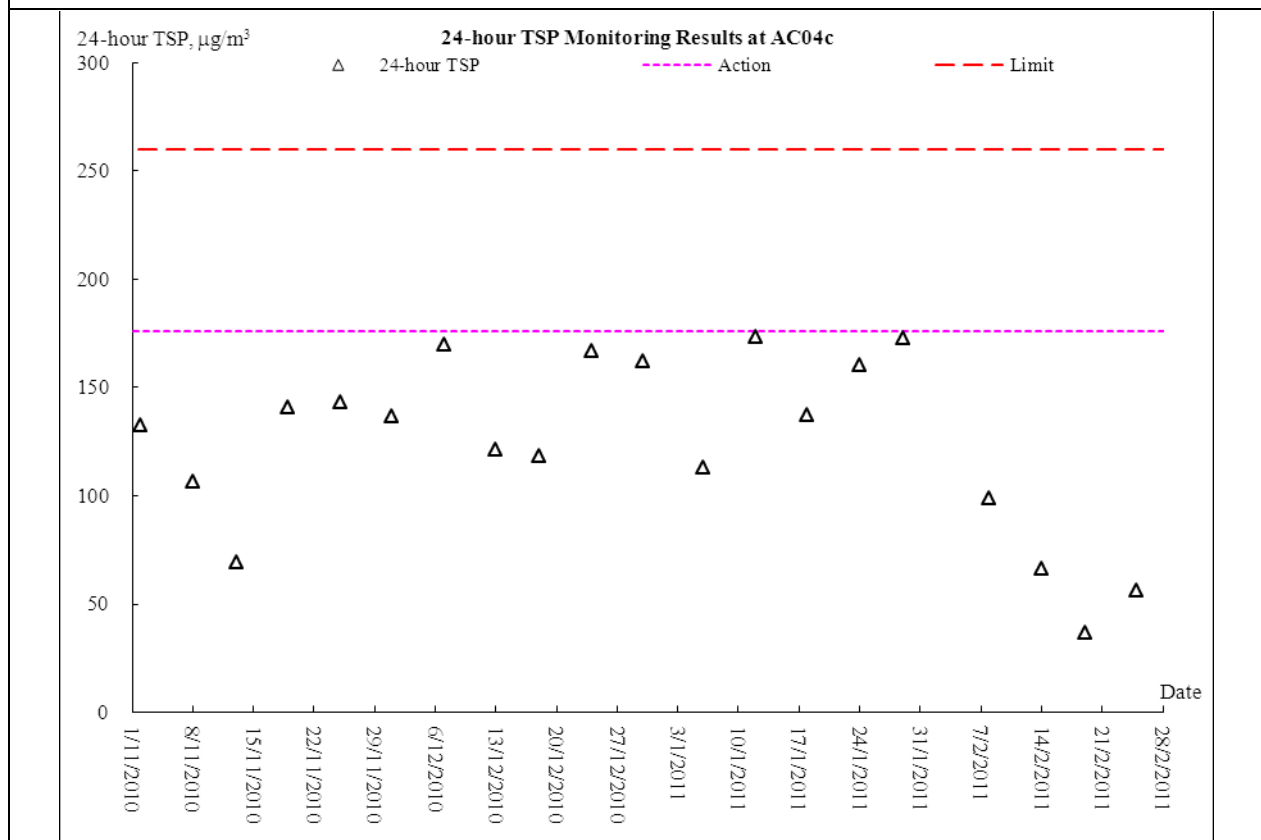
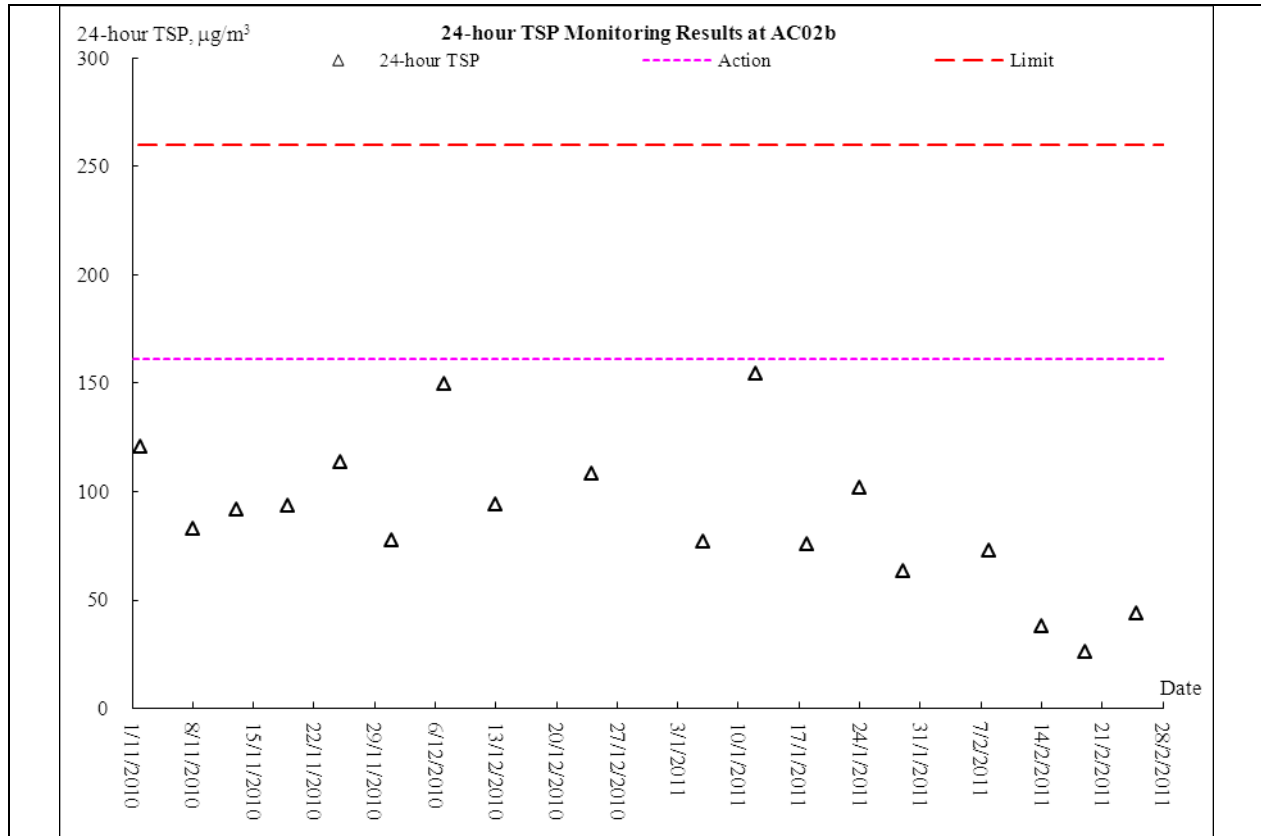
Annex E

Graphical Plots of Impact Monitoring

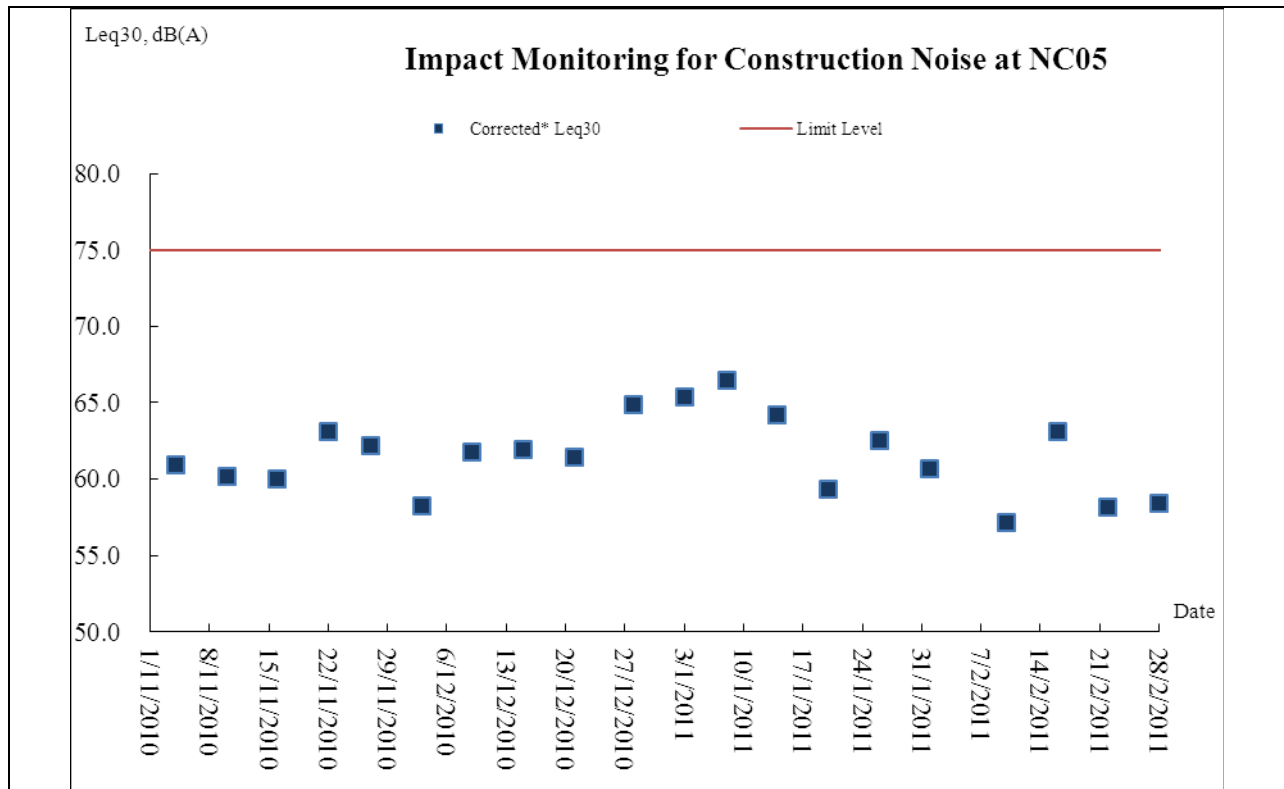
- 1. Air**
- 2. Noise**
- 3. Marine Water**

Air Quality





Construction Noise



Annex F

Meteorological Data of Reporting Month

Meteorological Data – December 2010

Date		Weather
1-Dec-10	Wed	Light to moderate northeasterly winds.
2-Dec-10	Thu	Mainly fine apart from some haze.
3-Dec-10	Fri	Fine and dry apart from some haze.
4-Dec-10	Sat	Light winds
5-Dec-10	Sun	Hazy with sunny periods.
6-Dec-10	Mon	Fresh northerly winds
7-Dec-10	Tue	Fine and very dry.
8-Dec-10	Wed	Moderate to fresh northerly winds
9-Dec-10	Thu	Mainly cloudy with mist.
10-Dec-10	Fri	Moderate northeasterly winds
11-Dec-10	Sat	There will be coastal fog.
12-Dec-10	Sun	Light to moderate northeasterly winds
13-Dec-10	Mon	Fresh easterly winds, strong over offshore waters.
14-Dec-10	Tue	Cloudy with a few rain patches later.
15-Dec-10	Wed	Cloudy with occasional rain.
16-Dec-10	Thu	Moderate to fresh northerly winds.
17-Dec-10	Fri	Fine and very dry.
18-Dec-10	Sat	Light winds
19-Dec-10	Sun	Fine and dry apart from some haze.
20-Dec-10	Mon	Fine and dry but hazy.
21-Dec-10	Tue	Fine but hazy. Light winds.
22-Dec-10	Wed	Fine and dry.
23-Dec-10	Thu	Mainly fine and dry apart from some haze.
24-Dec-10	Fri	Mainly fine and dry.
25-Dec-10	Sat	Holiday
26-Dec-10	Sun	Holiday
27-Dec-10	Mon	Holiday
28-Dec-10	Tue	Light to moderate northeasterly winds.
29-Dec-10	Wed	Fine and very dry.
30-Dec-10	Thu	Moderate to fresh northerly winds
31-Dec-10	Fri	Fine and very dry.

Meteorological Data – January 2011

Date		Weather
1-Jan-11	Sat	Holiday
2-Jan-11	Sun	Holiday
3-Jan-11	Mon	Moderate northeasterly winds
4-Jan-11	Tue	Mainly cloudy.
5-Jan-11	Wed	Cloudy at first
6-Jan-11	Thu	Moderate to fresh northerly winds.
7-Jan-11	Fri	sunny periods
8-Jan-11	Sat	Mainly fine apart from some haze.
9-Jan-11	Sun	Very cold and cloudy.
10-Jan-11	Mon	Fresh north to northeasterly winds.
11-Jan-11	Tue	Cold and cloudy.
12-Jan-11	Wed	Moderate north to northeasterly winds.
13-Jan-11	Thu	Mainly fine and dry.
14-Jan-11	Fri	Cold in the morning.
15-Jan-11	Sat	Moderate east to northeasterly winds.
16-Jan-11	Sun	It will be dry.
17-Jan-11	Mon	Moderate east to northeasterly winds, freshening later.
18-Jan-11	Tue	Mainly fine apart from some haze
19-Jan-11	Wed	Moderate east to northeasterly winds.
20-Jan-11	Thu	Fine and dry apart from some haze.
21-Jan-11	Fri	Moderate northeasterly winds
22-Jan-11	Sat	Rather cool in the morning.
23-Jan-11	Sun	Cold and cloudy.
24-Jan-11	Mon	Fresh north to northeasterly winds.
25-Jan-11	Tue	sunny periods
26-Jan-11	Wed	There will also be haze.
27-Jan-11	Thu	Moderate northerly winds, fresh offshore.
28-Jan-11	Fri	Mainly cloudy.
29-Jan-11	Sat	Mainly fine
30-Jan-11	Sun	Moderate northeasterly winds.
31-Jan-11	Mon	Dry with some haze.

Meteorological Data – February 2011

Date		Weather
1-Feb-11	Tue	Hazy
2-Feb-11	Wed	Mainly fine and dry
3-Feb-11	Thu	Holiday
4-Feb-11	Fri	Holiday
5-Feb-11	Sat	Holiday
6-Feb-11	Sun	Holiday
7-Feb-11	Mon	Mainly fine and dry. Moderate easterly winds.
8-Feb-11	Tue	Mainly fine and dry. Moderate easterly winds.
9-Feb-11	Wed	Some mist patches. Mainly fine.
10-Feb-11	Thu	Mainly fine but misty. Moderate easterly winds.
11-Feb-11	Fri	Moderate to fresh north to northeasterly winds.
12-Feb-11	Sat	Moderate to fresh north to northeasterly winds.
13-Feb-11	Sun	Cold and mainly cloudy with a few rain patches.
14-Feb-11	Mon	Cold and cloudy with a few rain patches.
15-Feb-11	Tue	Cloudy with mist.
16-Feb-11	Wed	Moderate northerly winds
17-Feb-11	Thu	Moderate to fresh easterly winds.
18-Feb-11	Fri	Cool with rain patches and mist.
19-Feb-11	Sat	Cool with mist
20-Feb-11	Sun	Cloudy with sunny intervals
21-Feb-11	Mon	Moderate easterly winds
22-Feb-11	Tue	Mainly cloudy and dry.
23-Feb-11	Wed	Moderate easterly winds.
24-Feb-11	Thu	Cloudy with light rain patches
25-Feb-11	Fri	Moderate easterly winds
26-Feb-11	Sat	fresh northeasterlies
27-Feb-11	Sun	Sunny intervals
28-Feb-11	Mon	coastal mist

Annex G

Monthly Summary Waste Flow Table

Monthly Summary Waste Flow Table for December 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	0.780	0.000	0.001	0.019	0.126	0.000	0.000	0.000	0.654	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.390
Total	4.5216	0.0303	0.0677	0.1043	0.488	0.000	0.000	0.000	4.0332	0.0303	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18.46
	4.552		0.172		0.488		0.000		4.063		0.000		0.000		0.000		0.000		0.000		18.46	

Remark: Assume 1.0 m³ 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

Monthly Summary Waste Flow Table for February 2011

Month	Actual Quantities of Inert C&D Materials Generated Monthly												Actual Quantities of C&D Wastes Generated Monthly										
	Total Quantity Generated (a) = (c)+(d)+(e)		Hard Rock and Large Broken Concrete (b)		Reused in the Contract (c)		Reused in other Projects (d)		Disposed as Public Fill (e)		Imported Fill (f)		Metals		Paper/ cardboard packaging		Plastics		Chemical Waste		Others, e.g. rubbish		
	(in '000m ³)		(in '000m ³)		(in '000m ³)		(in '000m ³)		(in '000m ³)		(in '000m ³)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in tonne)		
	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	
2010	4.522	0.030	0.068	0.104	0.488	0.000	0.000	0.000	0.000	4.033	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	18.460
Jan	0.985	3.110	0.003	0.013	0.120	0.484	0.000	2.626	0.865	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.240
Feb	0.377	0.000	0.000	0.043	0.000	0.000	0.000	0.000	0.377	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.350
Mar																							
Apr																							
May																							
Jun																							
Sub-total	5.8839	3.1403	0.0704	0.1603	0.6084	0.4840	0.0000	2.6260	5.2755	0.0303	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	21.0500
Jul																							
Aug																							
Sep																							
Oct																							
Nov																							
Dec																							
Total	5.8839	3.1403	0.0704	0.1603	0.608	0.484	0.000	2.626	5.2755	0.0303	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.05
	9.024		0.231		1.092		2.626		5.306		0.000		0.000		0.000		0.000		0.000		21.05		

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

YSW: Yung Shue Wan
SKW: Sok Kwu Wan