



PROJECT No.: TCS/00512/09

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

**SOK KWU WAN PORTION AREA
Quarterly Environmental Monitoring and Audit
(EM&A) Summary Report No. Q9
(August to October 2012)**

PREPARED FOR
**LEADER CIVIL ENGINEERING CORPORATION
LIMITED**

Quality Index Date	Reference No.	Prepared By	Certified By
14 December 2012	TCS00512/09/600/R0570v2		
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Version	Date	Description
1	20 November 2012	First submission
2	14 December 2012	Amended against IEC's comments on 13 December 2012

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Date: 17 December 2012

BY FAX ONLY

Attention: Mr Kenley C K Kwok

Dear Sirs,

Contract No. DC/2009/13
Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan
Sok Kwu Wan Portion Area
Quarterly EM&A Summary Report No. Q9 (August to October 2012)

We refer to the Environmental Permit (EP-281/2007/A) and the email from the Environmental Team, Action-United Environmental Services and Consulting (AUES), with the revised report for the captioned project, dated 14 December 2012. We have no comment and have verified the captioned report.

Yours faithfully
SCOTT WILSON CDM JOINT VENTURE



Rodney Ip
Independent Environmental Checker

ICWR/SYSL

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

EXECUTIVE SUMMARY

ES.01 This is the 9th Quarterly Environmental Monitoring and Audit (EM&A) Summary Report for Sok Kwu Wan (hereinafter ‘this Report’) for the designated works under the Environmental Permit [EP-281/2007/A], covering the construction period from 26 July to 25 October 2012 (hereinafter ‘the Reporting Period’).

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

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

Issues	Environmental Monitoring Parameters / Inspection	Occasions
Air Quality	1-hour TSP	144
	24-hour TSP	45
Construction Noise	L _{eq(30min)} Daytime	64
Water Quality	Marine Water Sampling	38#
Inspection / Audit	ET Regular Environmental Site Inspection	12

Marine water monitoring on 17 August 2012 was cancelled due to the inclement weather and the influence of Tropical Cyclone Warning No.3.

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES.03 No exceedance of air quality, construction noise and marine water 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		
				NOE Issued	Investigation	Corrective Actions
Air Quality	1-hour TSP	0	0	0	--	--
	24-hour TSP	0	0	0	--	--
Construction Noise	L _{eq(30min)} Daytime	0	0	0	--	--
Water Quality	DO	0	0	0	--	--
	Turbidity	0	0	0	--	--
	SS	0	0	0	--	--

Note: NOE – Notification of Exceedance

ENVIRONMENTAL COMPLAINT

ES.04 No written or verbal environmental complaint was recorded in this Reporting Period. The statistics of environmental complaint are summarized in the following table.

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
August 2012	0	1	NA
September 2012	0	1	NA
October 2012	0	1	NA

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES.05 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
August 2012	0	0	NA
September 2012	0	0	NA

October 2012	0	0	NA
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Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
August 2012	0	0	NA
September 2012	0	0	NA
October 2012	0	0	NA

REPORTING CHANGE

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

SITE INSPECTION BY EXTERNAL PARTIES

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

FUTURE KEY ISSUES

ES.08 During wet season, muddy water and other water quality pollutants via site surface water runoff into the sea body within Fish culture zone at Picnic Bay and the Secondary recreation contact subzone at Mo Tat Wan is the key issue of the Project. Mitigation measures for water quality should be properly maintained to prevent any muddy or sandy runoff from the loose soil surface overflow on the site boundary.

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

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1 INTRODUCTION

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 (EP) No. EP-281/2007 and EP-282/2007 for the Project have been obtained by the DSD on 29 June 2007 for the relevant works. After July 2009, EP-281/2007/A instead EP-281/2007 is EP for Sok Kwu Wan relevant Works.
- 1.02 The Project involves construction of sewage treatment works at Sok Kwu Wan and Yung Shue Wan with a capacity of 1,430m³/day and 2,850m³/day respectively to provide secondary treatment, construction of 2 pumping stations at Sok Kwu Wan and 1 pumping station at Yung Shue Wan, construction of submarine outfall from the coastline and laying of underground sewerage pipeline. The site layout plan for the captioned work under the Project is showing in [Appendix A](#).
- 1.03 According to the Particular Specification (PS) and [Appendix 25](#) of the Project, Leader should establish an Environmental Team to implement the environmental monitoring and auditing works to fulfill the requirements as stipulated in the Environmental Monitoring and Audit (EM&A) Manuals. This EM&A Manual is referred to the Appendix B of the Review Report on EIA Study – Sok Kwu Wan (Final) in January 2007 (Agreement No. CE 20/2005(DS)).
- 1.04 Action-United Environmental Services and Consulting (AUES) has been commissioned by Leader as the ET to implement the relevant EM&A 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 split to following two stand-alone parts:
- (a) Proposed EM&A Programme for Baseline and Impact Monitoring – Sok Kwu Wan (under EP No. 281/2007/A varied on 23 September 2009)
 - (b) Proposed EM&A Programme for Baseline and Impact Monitoring – Yung Shue Wan (under EP No. 282/2007)
- 1.05 This is the 9th Quarterly EM&A Summary Report for Sok Kwu Wan Portion Area presenting the monitoring results and inspection findings for the reporting period from **26 July to 25 October 2012**.

1.2 REPORT STRUCTURE

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

SECTION 1	INTRODUCTION
SECTION 2	SUMMARY OF IMPACT ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS
SECTION 3	MONITORING RESULTS AND BREACHES OF ENVIRONMENTAL QUALITY CRITERIA
SECTION 4	NON-COMPLIANCE, COMPLAINTS, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS
SECTION 5	CONCLUSION

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 [Appendix B](#).

2.2 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 quarter are listed below:-

August and September 2012

- Construction of PS1: metalworks installation, E&M Works installation, painting.
- Construction of PS2: metalworks installation, E&M Works installation, painting.
- Construction of SKWSTW: excavation, soil compaction, concreting, steel fixing, formwork erection, formwork removal, backfilling, scaffolding erection, dismantling scaffolding.
- Backfilling of Foam Concrete, Installation of Diffuser Cap.

October 2012

- Construction of PS1: metalworks installation, E&M Works installation and stone cladding installation
- Construction of PS2: metalworks installation, E&M Works installation and stone cladding installation
- Construction of SKWSTW: soil compaction, concreting, steel fixing, formwork erection, formwork removal, backfilling, scaffolding erection, dismantling scaffolding.
- Outfall: Installation of Diffuser Cap and backfilling of foam concrete.

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 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) Regulation	Notified EPD on 19 May 2010 Ref.: 317486
2	Chemical Waste Producer Registration	Issued on 8/6/2010 WPN 5213-912-L2720-01
3	Water Pollution Control Ordinance	Approved on 29/9/2010 Valid to: 30/09/2015 Licence no.: WT00007567-2010
4	Billing Account for Disposal of Construction Waste	Issued on 26 May 2010 A/C No: 7010815
5	Construction Noise Permit	Permit no. GW-RS0284-12 Valid from: 26 Mar 2012 Until: 25 Sep 2012
6#	Construction Noise Permit#	Permit no. GW-RS1112-12 Valid from: 30 Oct 2012 Until: 29 Mar 2013

No CNP is covered during 26 Sep to 29 Oct 2012.

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 programme are presented in the following sub-sections.
- 3.03 A summary monitoring parameters for the air quality, noise and marine water monitoring is presented in *Table 3-1*:

Table 3-1 Summary of the Air and Noise monitoring parameters 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"> • $L_{eq(30min)}$ during normal working hours; and • $L_{eq(15min)}$ during Restricted Hours.
Marine Water Quality	<p><i>In-situ Measurements</i></p> <ul style="list-style-type: none"> • Dissolved Oxygen Concentration (DO) (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 (SS) (mg/L)

3.2 MONITORING LOCATIONS

Air Quality

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

Table 3-2 Location of Air Quality Monitoring Station

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

Construction Noise

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

and graphical is shown in [Appendix D](#).

Table 3-3 Location of Construction Noise Monitoring Station

Sensitive Receiver	Location
NM1	1, Chung Mei Village
NM2	20, Sok Kwu Wan
RNM3	Sok Kwu Wan Sitting-out Area
NM4	2-storey village house at Ta Shui Wan

Water Quality

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

Table 3-4 Location of Marine Water Quality Monitoring Station

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

3.3 MONITORING FREQUENCY AND PERIOD

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

Air Quality Monitoring

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

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

Duration: Throughout the construction period.

Noise Monitoring

Parameters: $L_{eq(30min)}$ & $L_{eq(5min)}$, L10 and L90.

$L_{eq(15min)}$ & $L_{eq(5min)}$, 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.

3.4 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.

3.5 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 relevant Monthly EM&A Report.

3.6 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) which near the Project site. The meteorological information in this Reporting Period is presented in Appendix F.

3.7 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, sound level meter and

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

3.8 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 and marine water quality were set up, namely Action and Limit levels are listed in *Tables 3-5* and *3-7* 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	24-hour	1-hour	24-hour
AM1	343	173	500	260
AM2	331	175	500	260
AM3	353	191	500	260

Table 3-6 Action and Limit Levels for Construction Noise

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

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

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

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 three months are presented in [Appendix E](#).

4.1 RESULTS OF AIR QUALITY MONITORING

4.02 In this Reporting Period, a total of 144 events of 1-hour TSP and 45 events of 24-hour TSP measurements were conducted at designated Location AM1, AM2 and AM3. Results of air quality monitoring at the identified locations during the Reporting Period are summarized in [Tables 4-1](#).

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

Station	1-hour TSP ($\mu\text{g}/\text{m}^3$)			24-hour TSP ($\mu\text{g}/\text{m}^3$)		
	Max	Min	Mean	Max	Min	Mean
AM1	138	34	85	91	21	54
Record Date	23-Aug-12	14-Sep-12	48 events	10-Oct-12	8-Sep-12	15 events
AM2	149	32	79	107	20	57
Record Date	23-Aug-12	10-Sep-12	48 events	10-Oct-12	14-Sep-12	15 events
AM3	221	91	142	125	22	74
Record Date	7-Aug-12	14-Sep-12 & 10-Sep-12	48 events	4-Aug-12	14-Sep-12	15 events

4.03 1-hour and 24-hour TSP results fluctuated well below the Action Level during the Reporting Period. No NOE was issued and therefore no corrective measures are required.

4.2 RESULTS OF CONSTRUCTION NOISE MONITORING

4.04 Summary of construction noise monitoring at the identified locations during the Reporting Period are summarized in [Table 4-2](#) below. In this Reporting Period, a total of 64 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
NM1	58.4	47.0
Record Date	23-Aug-12	10-Sep-12
NM2	68.4	56.0
Record Date	13-Aug-12	14-Sep-12
RNM3	69.9	60.4
Record Date	4-Sep-12	17-Aug-12
NM4	66.1	51.8
Record Date	10-Oct-12	26-Jul-12

4.3 RESULTS OF MARINE WATER QUALITY OF MONITORING

4.05 In this Reporting Period, 38 monitoring days have been carried out at the designated locations. One event of scheduled monitoring on 17 August was cancelled due to the inclement weather

and the influence of Tropical Cyclone Warning No.3.

- 4.06 The statistical analysis result for the parameters of DO, turbidity and suspended solids in this reporting quarter are shown in *Tables 4-3 to 4-6*.

Table 4-3 Statistic of Monitoring Result for DO concentration (mg/L) (Surface & Mid-layers)

Station	W1	W2	W3	C1	C2	C3
Average	7.05	7.00	6.91	6.91	6.97	6.35
Min	5.41	4.73	4.72	4.29	4.20	3.87
Max	10.26	9.99	10.50	10.85	9.80	10.01

Table 4-4 Statistic of Monitoring Result for DO concentration (mg/L) (Bottom layers)

Station	W1	W2	W3	C1	C2	C3
Average	NA	5.56	5.31	5.32	5.39	5.17
Min	NA	3.62	3.43	3.12	3.05	3.17
Max	NA	8.46	8.41	8.09	8.94	6.86

Table 4-5 Statistic of Monitoring Result for Turbidity (NTU)

Station	W1	W2	W3	C1	C2	C3
Average	1.18	1.33	1.31	1.41	1.33	1.46
Min	0.64	0.71	0.49	0.96	0.91	1.01
Max	1.95	1.74	1.96	2.12	1.77	2.28

Table 4-6 Statistic of Monitoring Result for Suspended Solids (mg/L)

Station	W1	W2	W3	C1	C2	C3
Average	4.63	4.33	4.58	4.59	4.39	4.73
Min	0.90	0.97	1.83	1.13	1.87	1.20
Max	11.00	8.93	8.43	10.27	9.87	15.70

- 4.07 A summary of exceedances for the three parameters: dissolved oxygen (DO), turbidity and suspended solids are shown in *Table 4-7*.

Table 4-7 Summary of Exceedances in Marine Water Quality

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

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

4.4 ECOLOGICAL MONITORING

- 4.09 According to Clause 3.7 and Figure 4 in the Environmental Permit No. EP-281/2007/A, a total of 12 numbers *Celtis Timorensis* (uncommon species) in Chung Mei at Sok Kwu Wan, are identified to require labeling, fencing and protection. Out of these, four numbers located in the Pumping Station No.1 area are required to be transplanted in advance of pumping station construction and the transplanted proposal has been submitted to EPD previously.
- 4.10 Since the health condition of CT7 to CT10 are poor, as a contingency measure in case that CT7 to CT10 can no longer be recovered, additional 7 no. of *Celtis Timorensis* were planted adjacent to the under-monitoring *Celtis Timorensis* CT7 to CT10 on 30 April 2011. In April 2012, CT_1A and CT_7A were damaged by the fell broken tree trunk due to tree decayed by white ants. Therefore, only 5 no. of additional *Celtis Timorensis*, namely CT_2A, CT_3A, CT4A, CT_5A and CT_6A were inspected since May 2012. Furthermore, during tree inspection on 30 July, CT4A was disappeared after typhoon No.10 on 24 July and it was certified as dead. Eventually, 4 no. of additional *Celtis Timorensis*, namely CT_2A, CT_3A, CT_5A and CT_6A were inspected in the remaining period.
- 4.11 Regular inspection of the transplanted tree was carried out by the landscaping sub-Contractor (Melofield Nursery and Landscape Contractor Limited) on **30 July, 15, 31 August and 15, 29 September and 15 October 2012**. The copies of the inspection reports were attached in relevant Monthly EM&A Report (**August 2012, September 2012 and October 2012**).

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 *Appendix 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
	Aug 12	Sep 12	Oct 12	
C&D Materials (Inert) ('000m ³)	0	0	0	-
Reused in the Contract (Inert) ('000m ³)	0.999	0.744	0	DC/2009/13
Reused in other Projects (Inert) ('000m ³)	0	0	0	-
Disposal as Public Fill (Inert) ('000m ³)	0	0	0	-

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

Type of Waste	Quantity			Disposal Location
	Aug 12	Sep 12	Oct 12	
Metal (kg)	0	0	0	-
Paper / Cardboard Packing (kg)	0	0	0	-
Plastic (kg)	0	0	0	-
Chemical Wastes (kg)	0	0	0	-
General Refuses (tonne)	3.75	3.80	3.47	Outlying Islands Transfer Facilities (Sok Kwu Wan)

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 [2095/13.3], 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, routine joint site inspections by RE, Leader and ET were carried out on **31 July, 8, 14, 21 and 28 August, 4, 11, 18 and 25 September 2012 and 5, 9 and 16 October 2012.**
- 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
31 July 2012	<ul style="list-style-type: none"> The sedimentation tank is needed to be cleaned up to restore desilting capacity. 	Rectified on 7 August 2012.
7 August 2012	<ul style="list-style-type: none"> Drip tray should be provided for oil containers. (Portion H) The duct should be diverted to the first compartment in order to improve desilting capacity. (Portion G) 	Rectified on 14 August 2012.
14 August 2012	<ul style="list-style-type: none"> No environmental issue was observed during site inspection. However, full implementation of the required mitigation measures is reminded, particularly watering during dusty construction activities under dry and windy conditions. 	No required for reminder.
21 August 2012	<ul style="list-style-type: none"> Stagnant water was observed inside the drip tray that under the generator, the Contractor should clean it regularly to avoid overflow of water. 	Rectified on 28 August 2012.
28 August 2012	<ul style="list-style-type: none"> No environmental issue was observed during site inspection. Construction dust suppression measures are reminded during dusty activities under dry and windy conditions. 	No required for reminder.
4 September 2012	<ul style="list-style-type: none"> No environmental issue was observed during site inspection. 	No required for reminder.
11 September 2012	<ul style="list-style-type: none"> Oil drums were observed within the site. Drip trays are required or removal of the oil drums to a storage area is reminded to prevent contamination of soil and water. Removal of sediment from the sedimentation tank is observed. Maintenance of regular clearance of the accumulated sediment is reminded to avoid overflow of the sediment to the sea. 	Rectified on 18 September 2012.
18 September 2012	<ul style="list-style-type: none"> No environmental issue was observed during site inspection. However, full implementation of the required mitigation measures is reminded. 	No required for reminder.
25 September 2012	<ul style="list-style-type: none"> No environmental issue was observed during site inspection. 	No required for reminder.

	<ul style="list-style-type: none"> • However, full implementation of the required mitigation measures is reminded. 	
5 October 2012	<ul style="list-style-type: none"> • No adverse environmental impacts were observed during site inspection. However, full implementation of the required environmental mitigation measures is reminded. 	N.A.
9 October 2012	<ul style="list-style-type: none"> • No adverse environmental impacts were observed during site inspection. However, full implementation of the required environmental mitigation measures, particularly construction dust suppression measures during dusty activities under dry and wind conditions, is reminded. 	Not required for general reminders.
16 October 2012	<ul style="list-style-type: none"> • No adverse environmental impacts were observed during site inspection. However, full implementation of the required environmental mitigation measures, particularly construction dust suppression measures during dusty activities under dry and wind conditions, is reminded. 	Not required for general reminders.

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
27 July 2010 – 25 July 2012	1 (Nov 2011)	1 (Nov 2011)	Marine water quality
August 2012	0	1	NA
September 2012	0	1	NA
October 2012	0	1	NA

Table 7-2 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
27 July 2010 – 25 July 2012	0	0	NA
August 2012	0	0	NA
September 2012	0	0	NA
October 2012	0	0	NA

Table 7-3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
27 July 2010 – 25 July 2012	0	0	NA
August 2012	0	0	NA
September 2012	0	0	NA
October 2012	0	0	NA

8 IMPLEMENTATION STATUS OF MITIGATION MEASURES

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

Noise Mitigation Measure

- 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:
- Use of quiet equipment for the construction activities of the Pumping Stations and sewer alignment;
 - Use of temporary noise barrier around the site boundary of Pumping Station P1a;
 - Use of kick ripper (saw and lift) method to replace the breaker for pavement removal during sewer alignment construction;
 - Restriction on the number of plant during sewer alignment construction;
 - 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;
 - 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
 - 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

Terrestrial Ecology

- 8.20 The uncommon tree species should be labelled and probably fenced to avoid direct or indirect disturbance during construction. Works areas should avoid woodland habitats, in particular where these trees are located.
- 8.21 Construction and maintenance of site runoff control measures would be required at all work sites

during construction. These should include barriers to direct runoff to sand/silt removal facilities (sand/silt/traps and/or sediment basins); minimisation of earthworks during rainy season (May to September); and coverage of sand/fill piles and exposed earth during storms.

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

Intertidal and Subtidal Ecology

- 8.23 Construction and maintenance of site runoff control measures would be required at all work sites during construction. These should include barriers to direct runoff to sand/silt removal facilities (sand/silt/traps and/or sediment basins); use of silt curtains along coastline; minimisation of earthworks during rainy season (May to September); and coverage of sand/fill piles and exposed earth during storms.
- 8.24 To reduce impacts of sediment resuspension upon nearby habitats and organisms during dredging, all dredging should be done using a closed-grab dredger, and silt curtains should be deployed around the dredger during all dredging activity

Fisheries Mitigation Measure

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

Landscape & Visual Mitigation Measure

- 8.26 Mitigation measures recommended in the EIA Report for landscape and visual impacts during the construction stage are summarised below.
- Screening of site construction works by use of hoarding that is appropriate to its site context;
 - Retaining existing trees and minimising damage to vegetation where possible by close co-ordination and on site alignment adjusted of rising main and gravity sewer pipelines. Tree protective measures should be implemented to ensure trees identified as to be retained are satisfactorily protected during the construction phase;
 - Careful and efficient transplanting of affected trees (1 no.) to temporary or final transplant location (the proposed tree to be transported is a semi-mature *Macaranga tanarius* and is located at the proposed Pumping Station P2 location);
 - Short excavation and immediate backfilling of sections upon completion of works to reduce active site area;
 - Conservation of top-soil for reuse.
 - Night-time light source from marine fleets should be directed away from the residential units
- 8.27 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 8-1](#).

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 9th Quarterly EM&A Summary Report for Sok Kwu Wan Portion Area under the Project covering the construction period from **26 July to 25 October 2012**.
- 9.02 No 1-hour and 24-hour TSP results were found to be triggered the Action or Limit Level in this Reporting Period.
- 9.03 No noise complaint (which is an Action Level exceedance) was received and no construction noise measurement results that exceeded the Limit Level were recorded in this Reporting Period. No NOE or the associated corrective actions were therefore issued.
- 9.04 Marine water monitoring on 17 August 2012 was cancelled due to the inclement weather and the influence of Tropical Cyclone Warning No.3. Besides, the monitoring result demonstrated no exceedance of Action or Limit Level of marine water quality monitoring in this Reporting Period.
- 9.05 No notification of summons or successful prosecution was received in this Reporting Period.
- 9.06 **12** events of site inspection were carried out by ET in this Reporting Period 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. Environmental Protection Department (EPD) or Agriculture, Fisheries and Conservation Department (AFCD) within the Reporting Period.

9.2 RECOMMENDATIONS

- 9.08 During wet season, muddy water and other water quality pollutants via site surface water runoff into the sea body within Fish culture zone at Picnic Bay and the Secondary recreation contact subzone at Mo Tat Wan is the key issue of the Project. Mitigation measures for water quality should be properly maintained to prevent any muddy or sandy runoff from the loose soil surface overflow on the site boundary.
- 9.09 Moreover, special attention should be also paid on the dust mitigation measures to avoid fugitive dust emissions from loose soil surface or haul road. Mitigation measures implemented for control the surface runoff including wheel wash facilities, covering of the loose soil surface or stockpile with tarpaulin sheet, etc., should fully implement.

Appendix A

Site Layout Plan – Sok Kwu Wan Portion Area

Appendix B

Organization Structure and Contact Details of Relevant Parties

Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
DSD	Employer	Mr Kenley C K Kwok	-	-
SCJV	Engineer's Representative	Mr. Neil Wong	2982 0240	2982 4129
SCJV	Resident Engineer	Mr. Alfred Cheung	2982 0240	2982 4129
Scott Wilson	Independent Environmental Checker	Mr. Rodney Ip	2410 3750	2428 9922
Leader	Project Manager	Mr. Vincent Chan	2982 1750	2982 1163
Leader	Construction Manager	Mr. K. Y. So	2982 1750	2982 1163
Leader	Assistant Construction Manager	Mr. Ron Hung	2982 1750	2982 1163
Leader	Environmental Officer	Mr. William Wong	2982 8652	2982 8650
Leader	Sub-Agent	Mr. Burgess Yip	2982 1750	2982 1163
Leader	Safety Officer	Mr. Edwin Leung	2982 1750	2982 1163
AUES	Environmental Team Leader	Mr. T. W. Tam	2959 6059	2959 6079
AUES	Senior Environmental Consultant	Mr. F.N. Wong	2959 6059	2959 6079
AUES	Environmental Consultant	Ms. Nicola Hon	2959 6059	2959 6079
AUES	Team Supervisor	Mr. Ben Tam	2959 6059	2959 6079

Legend:

DSD (Employer) – Drainage Services Department

CDM (Engineer) – 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

Master and Three Months Rolling Construction Programs

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

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

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

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

Activity ID	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	2010	2011	2012	2013	2014	2015	2016	2017	2018		
SKW0241	9	07/06/10	15/06/10	07/06/10	15/06/10	0	Initial Survey										
SKW0242	57	16/06/10	11/08/10	16/06/10	11/08/10	0	Excavation to formation for Bay 1 to 5										
SKW0251	21	12/08/10	01/09/10	12/08/10	01/09/10	0	Drill & install Dowel Bar for Bay 1 & 3										
SKW0301	14	02/09/10	15/09/10	02/09/10	15/09/10	0	Erect Formwork, mesh & weephole for Bay 1 & 3										
SKW0311	14	16/09/10	29/09/10	16/09/10	29/09/10	0	Concreting for Bay 1 & 3										
SKW0321	7	30/09/10	06/10/10	30/09/10	06/10/10	0	Drilling & install Dowel Bar for Bay 2 & 5										
SKW0331	7	07/10/10	13/10/10	07/10/10	13/10/10	0	Erect Formwork, mesh & weephole for Bay 2 & 5										
SKW0341	7	14/10/10	20/10/10	14/10/10	20/10/10	0	Concreting for Bay 2 & 5										
SKW0351	21	21/10/10	10/11/10	21/10/10	10/11/10	0	Excavation to formation for Bay 6 to 9										
SKW0361	6	11/11/10	16/11/10	11/11/10	16/11/10	0	Drill & install dowel Bar for Bay 4 & 7										
SKW0371	7	17/11/10	23/11/10	17/11/10	23/11/10	0	Erect formwork, mesh & weephole for Bay 4 & 7										
SKW0381	7	24/11/10	30/11/10	24/11/10	30/11/10	0	Concreting for Bay 4 & 7										
SKW0391	3	01/12/10	03/12/10	01/12/10	03/12/10	0	Drill & install dowel Bar for Bay 6 & 9										
SKW0401	7	04/12/10	10/12/10	04/12/10	10/12/10	0	Erect formwork, mesh & weephole for Bay 6 & 9										
SKW0411	7	11/12/10	17/12/10	11/12/10	17/12/10	0	Concreting for Bay 6 & 9										
SKW0421	1	18/12/10	18/12/10	18/12/10	18/12/10	0	Drill & install dowel Bar for Bay 8										
SKW0431	4	19/12/10	22/12/10	19/12/10	22/12/10	0	Erect formwork, mesh & weephole for Bay 8										
SKW0441	4	23/12/10	26/12/10	23/12/10	26/12/10	0	Concreting for Bay 8										
SKW0461	3	27/12/10	29/12/10	27/12/10	29/12/10	0	Excavation for no fine concrete Bay (1-9)										
SKW0471	7	30/12/10	05/01/11	30/12/10	05/01/11	0	Concreting for no-fine concrete										
SKW0481	14	06/01/11	19/01/11	06/01/11	19/01/11	0	Installation of Wall tie & stone facing										
SKW0491	7	06/01/11	12/01/11	06/01/11	12/01/11	0	Construction of Gabion Wall										
SKW0501	3	06/01/11	08/01/11	06/01/11	08/01/11	0	Place Geotextile										
SKW0511	7	09/01/11	15/01/11	09/01/11	15/01/11	0	Backfill behind the retaining wall to approx. +4										
SKW0521	14	16/01/11	29/01/11	16/01/11	29/01/11	0	Utilities Laying and diversion										
SKW0531	7	30/01/11	05/02/11	30/01/11	05/02/11	0	Concreting for Pavement										
SKW0541	7	06/02/11	12/02/11	06/02/11	12/02/11	0	Installation of Flower Pot										
SKW0551	1	13/02/11	13/02/11	13/02/11	13/02/11	0	Permanent Footpath Diversion										
Section W4 - Slope Works in Portions H & I																	
Geotechnical Works																	
SKW0588	30	15/06/10	14/07/10	15/06/10	14/07/10	0	Construct scaffolding access										
SKW0590	100	15/07/10	22/10/10	15/07/10	22/10/10	0	Site Clearance for Slope										
SKW0591	28	21/09/10	18/10/10	21/09/10	18/10/10	0	Initial Survey for Slope										
SKW0592	80	19/10/10	06/01/11	19/10/10	06/01/11	0	Temporary Rockfall fence at ex. Footpath										
SKW0593	200	28/11/10	15/06/11	28/11/10	15/06/11	0	Cut Slope										
SKW0594	248	11/12/10	15/08/11	11/12/10	15/08/11	0	Road & Drains Works										
SKW0595	260	29/11/10	15/08/11	29/11/10	15/08/11	0	Rock Meshing & Rockfall Fence										
Section W5 - P.S. No. 1 in Portion D																	
Civil & Geotechnical Works																	
SKW0651	7	17/05/10	23/05/10	17/05/10	23/05/10	0	Site Clearance										
SKW0652	7	24/05/10	30/05/10	24/05/10	30/05/10	0	Initial Survey										
SKW0661	30	31/05/10	29/06/10	31/05/10	29/06/10	0	Transplantation for uncommon vegetation										
SKW0681	49	30/06/10	17/08/10	30/06/10	17/08/10	0	Excavate to lower the working platform to +3mPD										
SKW0691	40	18/08/10	26/09/10	18/08/10	26/09/10	0	ELS to +2.2mPD										
SKW0721	92	17/09/10	17/12/10	17/09/10	17/12/10	0	Excavate to formation										
Structural Works																	
SKW0741	15	18/12/10	01/01/11	18/12/10	01/01/11	0	Base Slab (BSD2 & BSD3)										
SKW0751	14	01/01/11	14/01/11	01/01/11	14/01/11	0	Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) Approx.										
SKW0761	14	14/01/11	27/01/11	14/01/11	27/01/11	0	Base Slab (BSD1) to +3.98										
SKW0771	14	27/01/11	09/02/11	27/01/11	09/02/11	0	Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) to +6.3										
SKW0781	14	09/02/11	22/02/11	09/02/11	22/02/11	0	Base Slab (GSB1-3, GSC1-5, GSD1-2)										
SKW0791	14	22/02/11	07/03/11	22/02/11	07/03/11	0	Base Slab (GSE1 & GSF1)										
SKW0801	14	07/03/11	20/03/11	07/03/11	20/03/11	0	Wall & Column (CE1-3, CF1-3)										
SKW0811	14	21/03/11	03/04/11	21/03/11	03/04/11	0	Ground Beam (GB1-1.2 GB2-1.2 GB3-1, GBA-1, GBB1-4)										
SKW0821	14	04/04/11	17/04/11	04/04/11	17/04/11	0	Wall & Column (CA1-3, CB1-3, CC1-3, CD1-2) to +10.										
SKW0831	14	18/04/11	01/05/11	18/04/11	01/05/11	0	Roof Beams & Parapet										
SKW0841	45	18/04/11	01/06/11	18/04/11	01/06/11	0	ABWF installation										
SKW0861	168	02/05/11	16/10/11	01/06/11	15/11/11	30d	300mm U-channel & 675mm Step Channel										
E&M Works (PS1)																	
Submission & Delivery																	
E&M1001	113	17/05/10	06/09/10	10/11/10	02/03/11	177d	Submission of Pumps										
E&M1002	143	17/05/10	06/10/10	11/10/10	02/03/11	147d	Submission of Gen-Set										
E&M1003	133	17/05/10	26/09/10	21/10/10	02/03/11	157d	Submission of DeO System										
E&M1004	180	17/05/10	12/11/10	04/09/10	02/03/11	110d	Submission of LV SB & MCC										
E&M1005	180	17/05/10	12/11/10	04/09/10	02/03/11	110d	Submission of Instrumentation										
E&M1006	213	17/05/10	15/12/10	02/08/10	02/03/11	77d	Submission of FS System										
E&M1007	213	17/05/10	15/12/10	02/08/10	02/03/11	77d	Submission of BS System										
E&M1011	60	07/09/10	05/11/10	03/03/11	01/05/11	177d	Delivery of Pumps										
E&M1012	60	07/10/10	05/12/10	03/03/11	01/05/11	147d	Delivery of Gen-Set										
E&M1013	60	27/09/10	25/11/10	03/03/11	01/05/11	157d	Delivery of DeO System										
E&M1014	60	13/11/10	11/01/11	03/03/11	01/05/11	110d	Delivery of LV SB & MCC										
E&M1015	60	13/11/10	11/01/11	03/03/11	01/05/11	110d	Delivery of Instrumentation										
E&M1016	60	16/12/10	13/02/11	03/03/11	01/05/11	77d	Delivery of FS Equipment										
E&M1017	60	16/12/10	13/02/11	03/03/11	01/05/11	77d	Delivery of BS Equipment										
Installation, T&C																	
E&M1101	55	02/05/11	25/06/11	02/05/11	25/06/11	0	Install Pumps										
E&M1102	55	02/05/11	25/06/11	02/05/11	25/06/11	0	Install Gen Set										
E&M1103	55	02/05/11	25/06/11	02/05/11	25/06/11	0	Install DeO System										
E&M1104	55	02/05/11	25/06/11	02/05/11	25/06/11	0	Install LV SB & MCC										
E&M1105	55	02/05/11	25/06/11	02/05/11	25/06/11	0	Install Instrumentation										
E&M1106	55	02/05/11	25/06/11	02/05/11	25/06/11	0	Install FS Equipment										
E&M1107	55	02/05/11	25/06/11	02/05/11	25/06/11	0	Install BS Equipment										
E&M1110	46	26/06/11	10/08/11	27/08/11	11/10/11	62d	Install Valves, Pipes & Fittings										

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

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

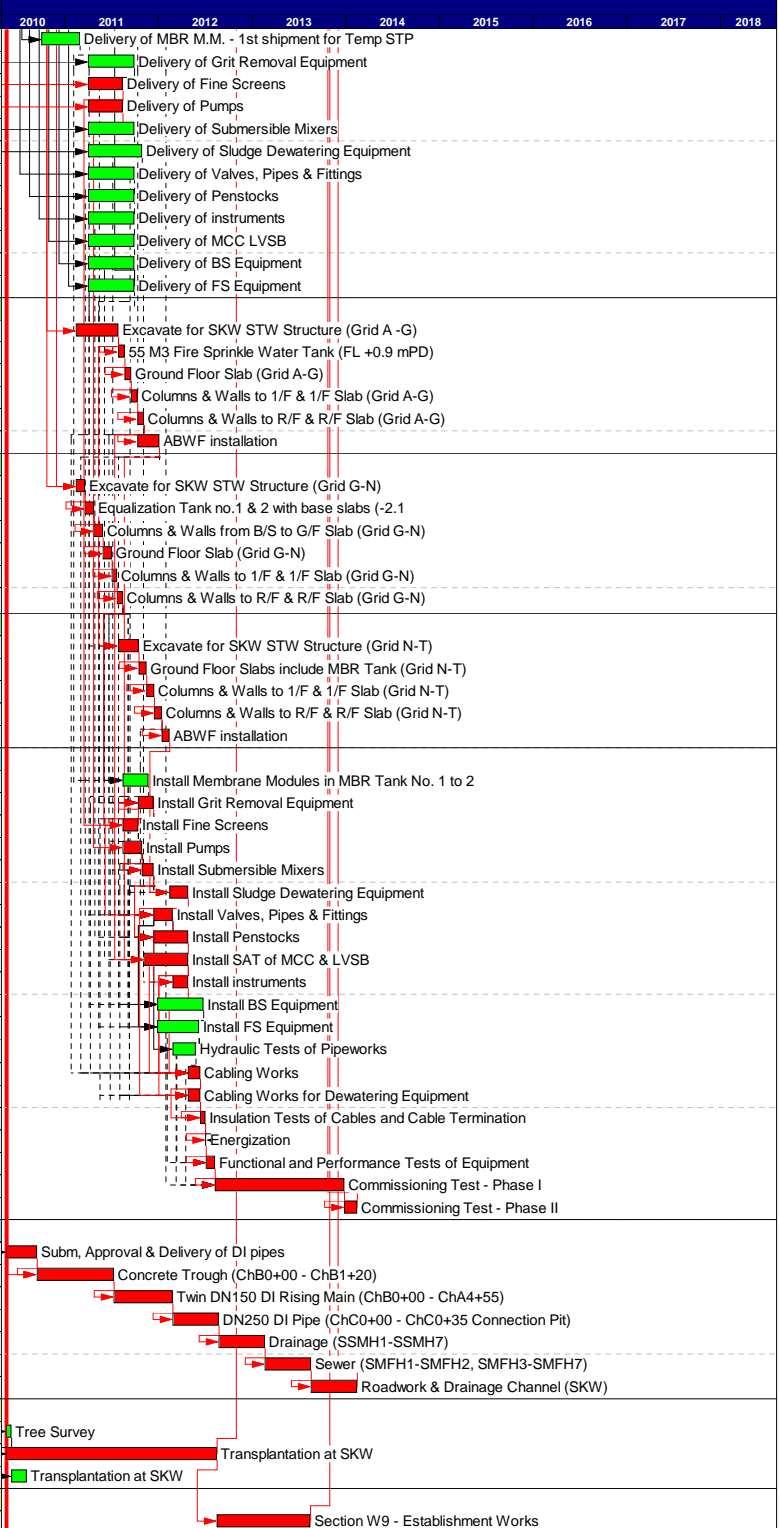
Activity ID	Original Duration	Early Start	Early Finish	Late Start	Late Finish	Total Float	2010	2011	2012	2013	2014	2015	2016	2017	2018	
E&M1120	7	11/08/11	17/08/11	12/10/11	18/10/11	62d										
E&M1130	28	18/08/11	14/09/11	19/10/11	15/11/11	62d										
E&M1140	43	26/06/11	07/08/11	26/06/11	07/08/11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

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

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

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

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



Start date	05/05/10	■ Early bar
Finish date	14/02/14	■ Progress bar
Data date	17/05/10	■ Critical bar
Run date	11/08/10	▬ Summary bar
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		◆ Summary point
		◆ Start milestone point
		◆ Finish milestone point

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

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

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012				
											JUN	JUL	AUG	SEP	OCT
Project Key Date															
KD0010	Receive Letter of Acceptance	0	100		05/05/10 A		05/05/10 A			KD0125					
KD0020	Project Commencement Date	0	100		17/05/10 A		17/05/10 A			E&M0010, E&M0070, E&M1001, E&M2001, KD0125, PRE0020, PRE0040, PRE0050, PRE0060, PRE0090, PRE0100, PRE0130, SKW0250, SKW0588, SKW0651, SKW0881, SKW1131, SKW1481, SKW1591, SKW1611, YSW0020,					
KD0030	Section W1 - Slope Works in Portion A & C	0	100		14/10/11 A		14/10/11 A		YSW0100, YSW0110, YSW0140,	KD0125, KD0130					
KD0050	Section W3 - Footpath Diversion in Ptn G	0	100		24/03/11 A		24/03/11 A		SKW0481	KD0125					
KD0060	Section W4 - Slope Works in Portion H & I	0	100		27/03/12 A		27/03/12 A		SKW05938, SKW059416	KD0125, KD0135, SKW05941					
KD0070	Section W5 - P.S. No. 1 in Portion D	0	100		10/02/12 A		10/02/12 A		SKW0741	KD0125					
KD0080	Section W6 - Sewer & PS No2 in Ptn. E & F	0	100		10/02/12 A		10/02/12 A		SKW0971	KD0125					
KD0115	Start Operate Temp Sewage Treatment in Port. A&H	0	0		01/12/12		01/12/12	0	E&M0510	KD0125					
KD0130	Completion of Maintenance Period of W1	1	0	13/10/12	13/10/12 *	13/10/12	13/10/12 *	0	KD0030, YSW01755, YSW01805,						
+Preliminary (Civil)															
		120	100	17/05/10 A	13/09/10 A	17/05/10 A	13/09/10 A			KD0020					
Preliminary (E&M)															
Technical Submission															
+Process Design of SKWSTW & YSWSTW															
		198	100	17/05/10 A	30/11/10 A	17/05/10 A	30/11/10 A								
+Hydraulic Design															
		139	100	15/07/10 A	30/11/10 A	15/07/10 A	30/11/10 A								
+Equipment Submission & Approval															
		831	97	17/05/10 A	24/08/12	17/05/10 A	15/04/13	234d							
+Drawings Submission & Approval															
		795	81	24/06/10 A	27/08/12	24/06/10 A	11/03/13	196d							
+Statutory Submission															
		468	44	01/11/11 A	07/03/13	01/11/11 A	12/10/13	219d							
Yung Shue Wan															
+Preliminary															
		229	100	17/05/10 A	31/12/10 A	17/05/10 A	31/12/10 A								
+Section W1 - Slope Works in Portion A & C															
		866	94	17/05/10 A	28/09/12	17/05/10 A	13/10/12	15d							
Section W2 - YSW STW & Submarine Outfall															
+Civil & Structural Work															
		1017	72	17/05/10 A	27/02/13	17/05/10 A	14/08/13	169d							
+Submarine Outfall															
		836	98	17/05/10 A	26/12/12	17/05/10 A	31/07/13	217d							
+E&M Works - YSW STW															
		958	63	24/02/11 A	09/10/13	24/02/11 A	13/10/13	5d							
Sok Kwu Wan															
+Preliminary															
		44	0	31/07/12	12/09/12	21/05/12	04/07/12	-71d							
Section W3 - Footpath Diversion in Portion G															
+Civil & Geotechnical Works															
		603	100	17/05/10 A	09/01/12 A	17/05/10 A	09/01/12 A								
Section W4 - Slope Works in Portion H & I															
+Geotechnical Works															
		973	81	15/06/10 A	11/02/13	15/06/10 A	14/04/15	792d							
Section W5 - P.S. No. 1 in Portion D															
+Civil & Geotechnical Works															
		393	100	17/05/10 A	13/06/11 A	17/05/10 A	13/06/11 A								
+Structural Works															
		300	100	14/06/11 A	08/04/12 A	14/06/11 A	08/04/12 A								
E&M Works (PS1)															
+Submission & Delivery															
		894	94	17/05/10 A	26/10/12	17/05/10 A	23/07/13	270d							
+Installation, T&C															
		123	0	13/09/12	14/01/13	23/07/13	01/12/13	322d							
Section W6 - Sewer and PS No.2 in Portion E&H															
+Civil & Geotechnical Works															
		930	73	17/05/10 A	14/01/13	17/05/10 A	20/02/13	37d							
+Structural Works															
		431	96	11/06/11 A	27/09/12	11/06/11 A	11/11/12	45d							
E&M Works (PS2)															
+Submission & Delivery															
		894	94	17/05/10 A	26/10/12	17/05/10 A	31/07/12	-92d							
+Installation, T&C															

Start date	05/05/10	Early bar
Finish date	22/11/15	Progress bar
Data date	31/07/12	Critical bar
Run date	22/08/12	Summary bar
Page number	1A	Progress point
		Critical point
		Summary point
		Start milestone point
		Finish milestone point

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

(Marked on 31 July 2012)

Date	Revision	Checked	Approved
31/07/12	Revision 0	RH	VC

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012				
											JUN	JUL	AUG	SEP	OCT
		123	0	13/09/12	14/01/13	27/07/12	05/01/13	-8d							
Section W7 - SKW STW, Sewer and Submarine Outfall															
+Submarine Outfall															
		971	88	17/05/10 A	24/02/13	17/05/10 A	24/10/13	242d							
SKW STW															
+Submission & Delivery (E&M)															
		719	65	24/02/11 A	11/02/13	24/02/11 A	27/11/13	289d							
+Construction of Grid A-G															
		281	60	28/03/12 A	16/02/13	28/03/12 A	27/05/13	101d							
+Construction of Grid G-N															
		229	49	28/03/12 A	25/12/12	28/03/12 A	15/10/12	-71d							
+Construction of Grid N-T															
		131	27	03/07/12 A	20/01/13	03/07/12 A	27/01/13	8d							
+Rising Main															
		856	93	17/05/10 A	18/09/12	17/05/10 A	12/09/14	724d							
+Section W8 - Landscape Softworks in All Portions															
		847	96	17/05/10 A	10/09/12	17/05/10 A	08/03/13	180d							
+Section W9 - Establishment Works in All Portions															
		365	0	10/09/12	10/09/13	12/03/13	11/03/14	183d							

Start date	05/05/10		Early bar
Finish date	22/11/15		Progress bar
Data date	31/07/12		Critical bar
Run date	22/08/12		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
Construction of Sewage Treatment Works at YSW & SKW
3-month Rolling Programme (Aug 2012 - Oct 2012)

(Marked on 31 July 2012)

Date	Revision	Checked	Approved
31/07/12	Revision 0	RH	VC

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012				
											JUN	JUL	AUG	SEP	OCT
Project Key Date															
KD0010	Receive Letter of Acceptance	0	100		05/05/10 A		05/05/10 A			KD0125					
KD0020	Project Commencement Date	0	100		17/05/10 A		17/05/10 A			E&M0010, E&M0070, E&M1001, E&M2001, KD0125, PRE0020, PRE0040, PRE0050, PRE0060, PRE0090, PRE0100, PRE0130, SKW0250, SKW0588, SKW0651, SKW0881, SKW1131, SKW1481, SKW1591, SKW1611, YSW0020,					
KD0030	Section W1 - Slope Works in Portion A & C	0	100		14/10/11 A		14/10/11 A		YSW0100, YSW0110, YSW0140,	KD0125, KD0130					
KD0050	Section W3 - Footpath Diversion in Ptn G	0	100		24/03/11 A		24/03/11 A		SKW0481	KD0125					
KD0060	Section W4 - Slope Works in Portion H & I	0	100		27/03/12 A		27/03/12 A		SKW05938, SKW059416	KD0125, KD0135, SKW05941					
KD0070	Section W5 - P.S. No. 1 in Portion D	0	100		10/02/12 A		10/02/12 A		SKW0741	KD0125					
KD0080	Section W6 - Sewer & PS No2 in Ptn. E & F	0	100		10/02/12 A		10/02/12 A		SKW0971	KD0125					
KD0115	Start Operate Temp Sewage Treatment in Port. A&H	0	0		01/12/12		01/12/12	0	E&M0510	KD0125					
KD0130	Completion of Maintenance Period of W1	1	0	13/10/12	13/10/12 *	13/10/12	13/10/12 *	0	KD0030, YSW01755, YSW01805,						
Preliminary (Civil)															
PRE0020	Pre-condition Survey	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A		KD0020						
PRE0040	Erection of Engineer's Site Accommodation at YSW	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A		KD0020						
PRE0050	Taking over the Secondary Engineer's Site Accom	75	100	17/05/10 A	30/07/10 A	17/05/10 A	30/07/10 A		KD0020						
PRE0060	Application of Consent from Marine Department	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A		KD0020						
PRE0090	Working Group Meeting for Outfall Construction	120	100	17/05/10 A	13/09/10 A	17/05/10 A	13/09/10 A		KD0020	SKW1151					
PRE0100	Application & Consent of XP from HyD (Mo Tat Rd)	120	100	17/05/10 A	13/09/10 A	17/05/10 A	13/09/10 A		KD0020	SKW1491, SKW1501					
PRE0130	Setup Web-site for EM&A Reporting	90	100	17/05/10 A	14/08/10 A	17/05/10 A	14/08/10 A		KD0020						
Preliminary (E&M)															
Technical Submission															
Process Design of SKWSTW & YSWSTW															
E&M0010	Submission	38	100	17/05/10 A	23/06/10 A	17/05/10 A	23/06/10 A		KD0020	E&M0020, E&M0040, E&M0235					
E&M0020	Vetting and Comment by ER	21	100	24/06/10 A	14/07/10 A	24/06/10 A	14/07/10 A		E&M0010	E&M0030, E&M0040					
E&M0030	Revision and Resubmission	125	100	15/07/10 A	16/11/10 A	15/07/10 A	16/11/10 A		E&M0020	E&M0080					
E&M0080	Approval from the Engineer	14	100	17/11/10 A	30/11/10 A	17/11/10 A	30/11/10 A		E&M0030	E&M0295					
Hydraulic Design															
E&M0040	Submission	21	100	15/07/10 A	04/08/10 A	15/07/10 A	04/08/10 A		E&M0010, E&M0020	E&M0050, E&M0101, E&M0240,					
E&M0050	Vetting and Comment by ER	14	100	05/08/10 A	18/08/10 A	05/08/10 A	18/08/10 A		E&M0040	E&M0060					
E&M0060	Revision and Resubmission	97	100	19/08/10 A	10/11/10 A	19/08/10 A	10/11/10 A		E&M0050	E&M0430					
E&M0430	Approval from the Engineer	7	100	24/11/10 A	30/11/10 A	24/11/10 A	30/11/10 A		E&M0060	E&M0295					
Equipment Submission & Approval															
E&M0070	Submission of Membrane Module	50	100	17/05/10 A	05/07/10 A	17/05/10 A	05/07/10 A		KD0020	E&M0090					
E&M0090	Vetting and Comment by ER	14	100	06/07/10 A	19/07/10 A	06/07/10 A	19/07/10 A		E&M0070	E&M0100					
E&M0100	Revision and Resubmission	14	100	20/07/10 A	24/02/11 A	20/07/10 A	24/02/11 A		E&M0090	E&M0160					
E&M0101	Submission of Equipment	90	100	05/08/10 A	30/11/11 A	05/08/10 A	30/11/11 A		E&M0040	E&M0102					
E&M0102	Vetting and Comment by ER	60	100	03/11/10 A	30/11/11 A	03/11/10 A	30/11/11 A		E&M0101	E&M0103					
E&M0103	Revision and Resubmission	60	100	01/02/11 A	30/11/11 A	01/02/11 A	30/11/11 A		E&M0102	E&M0110, E&M0120, E&M0130,					
E&M0110	Approval on Coarse Screens	30	100	25/05/11 A	25/05/11 A	25/05/11 A	25/05/11 A		E&M0103	E&M0390					
E&M0120	Approval on Fine Screens	30	100	12/09/11 A	12/09/11 A	12/09/11 A	12/09/11 A		E&M0103	E&M0400, E&M3060					
E&M0130	Approval on Pumps	30	100	23/06/11 A	23/06/11 A	23/06/11 A	23/06/11 A		E&M0103	E&M0410, E&M3070					
E&M0140	Approval on Submersible Mixers	30	100	23/03/11 A	23/03/11 A	23/03/11 A	23/03/11 A		E&M0103	E&M0420, E&M3080					
E&M0150	Approval on Grit Removal Equipment	30	100	10/10/11 A	10/10/11 A	10/10/11 A	10/10/11 A		E&M0103	E&M0380, E&M3030					
E&M0160	Approval on MBR Membrane Modules (M.M.)	105	100	03/08/10 A	24/02/11 A	03/08/10 A	24/02/11 A		E&M0100	E&M0360, E&M0370, E&M3010					
E&M0170	Approval on Sludge Dewatering Equipment	30	100	01/09/11 A	01/09/11 A	01/09/11 A	01/09/11 A		E&M0103	E&M0440, E&M3090					
E&M0180	Approval on Valves, Pipes & Fittings	30	85	19/11/11 A	04/08/12	19/11/11 A	15/04/13	25d	E&M0103	E&M0450, E&M3100					
E&M0190	Approval on Penstocks	30	100	15/11/11 A	15/11/11 A	15/11/11 A	15/11/11 A		E&M0103	E&M0460, E&M3110					
E&M0200	Approval on Instrumentation	30	100	21/06/11 A	08/03/12 A	21/06/11 A	08/03/12 A		E&M0103	E&M0470, E&M3130					
E&M0210	Approval on MCC & LVSB	30	95	19/11/11 A	01/08/12	19/11/11 A	10/07/12	-22d	E&M0103	E&M0480, E&M3140					
E&M0220	Approval on BS Equipment	30	78	30/11/11 A	12/08/12	30/11/11 A	21/01/13	162d	E&M0103, E&M0280	E&M0490, E&M3150					
E&M0230	Approval on FS Equipment	30	78	30/11/11 A	24/08/12	30/11/11 A	18/02/13	178d	E&M0103, E&M0290	E&M0295, E&M0320, E&M0500,					
Drawings Submission & Approval															
E&M0235	Sub. P&ID Drawings	100	75	24/06/10 A	24/08/12	24/06/10 A	09/03/13	196d	E&M0010	E&M0250					
E&M0240	Sub. Plant GA Drawings	45	68	04/08/10 A	14/08/12	04/08/10 A	09/03/13	207d	E&M0040	E&M0250, E&M0280, E&M0290					
E&M0250	Sub. Builder's Works Requirements Drawings	15	85	04/08/10 A	27/08/12	04/08/10 A	11/03/13	196d	E&M0235, E&M0240, E&M0260,	E&M0280, E&M0290					
E&M0260	Sub. Mechanical Installation Drawings	60	70	27/09/10 A	17/08/12	27/09/10 A	09/03/13	203d	E&M0040	E&M0250					
E&M0270	Sub. Electrical Installation Drawings	60	75	27/09/10 A	14/08/12	27/09/10 A	09/03/13	206d	E&M0040	E&M0250, E&M0280					
E&M0280	Sub. BS Installation Drawings	120	95	27/09/10 A	05/08/12	27/09/10 A	15/01/13	162d	E&M0240, E&M0250, E&M0270	E&M0220					
E&M0290	Sub. FS Installation Drawings	120	85	13/11/10 A	17/08/12	13/11/10 A	12/02/13	178d	E&M0240, E&M0250	E&M0230					
Statutory Submission															
E&M0295	Preparation of Submission to HEC	39	100	01/11/11 A	30/11/11 A	01/11/11 A	30/11/11 A		E&M0080, E&M0230, E&M0430	E&M0300					
E&M0300	Application & Approval from HEC	150	90	01/11/11 A	08/09/12	01/11/11 A	15/04/13	219d	E&M0295	E&M0305					
E&M0305	Provision of Cables to the STWs	180	0	08/09/12	07/03/13	16/04/13	12/10/13	219d	E&M0300	E&M0680					
E&M0320	Form 314 Submission to FSD	14	0	24/08/12	07/09/12	08/08/13	21/08/13	348d	E&M0230	E&M0325, E&M0670					
E&M0325	Submission to WSD	14	100	01/11/11 A	29/02/12 A	01/11/11 A	29/02/12 A		E&M0320	E&M0670, E&M0680					

Start date	05/05/10	■ Early bar
Finish date	22/11/15	■ Progress bar
Data date	31/07/12	■ Critical bar
Run date	22/08/12	■ Summary bar
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		▼ Critical point
		◆ Summary point
		◆ Start milestone point
		◆ Finish milestone point
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Leader Civil Engineering Corp. Ltd.
Contract No. DC/2009/13
Construction of Sewage Treatment Works at YSW & SKW
3-month Rolling Programme (Aug 2012 - Oct 2012)

(Marked on 31 July 2012)

Date	Revision	Checked	Approved
31/07/12	Revision 0	RH	VC

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012						
											JUN	JUL	AUG	SEP	OCT	NOV	
E&M0350	Form 501 Submission to FSD (PS1 & PS2)	28	0	26/10/12	23/11/12	14/11/12	11/12/12	19d	E&M2016	E&M11800, E&M2180							
Yung Shue Wan																	
Preliminary																	
YSW0020	Approval of Environmental Team	16	100	17/05/10 A	01/06/10 A	17/05/10 A	01/06/10 A		KD0020	YSW00201, YSW0030, YSW00351,							
YSW00201	Change Baseline Monitoring Location (Air&Noise)	59	100	02/06/10 A	30/07/10 A	02/06/10 A	30/07/10 A		YSW0020	YSW0030							
YSW0030	Baseline monitoring (Air & Noise)	23	100	31/07/10 A	22/08/10 A	31/07/10 A	22/08/10 A		YSW0020, YSW00201	YSW0035							
YSW0035	Baseline Monitoring Report Submission (A & N)	16	100	23/08/10 A	07/09/10 A	23/08/10 A	07/09/10 A		YSW0030	YSW0120, YSW01545, YSW0500,							
YSW00351	Submission & Approval for Monitoring Method (W)	58	100	02/06/10 A	29/07/10 A	02/06/10 A	29/07/10 A		YSW0020	YSW0040							
YSW0040	Baseline monitoring (Water)	155	100	30/07/10 A	31/12/10 A	30/07/10 A	31/12/10 A		YSW0020, YSW00351	YSW0350							
YSW0050	Erect Hoarding and Fencing	60	100	19/05/10 A	17/07/10 A	19/05/10 A	17/07/10 A		KD0020	YSW0155							
Section W1 - Slope Works in Portion A & C																	
YSW0075	Mobilization	30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A		KD0020	YSW0080, YSW0100							
YSW0080	Site Clearance	30	100	16/06/10 A	15/07/10 A	16/06/10 A	15/07/10 A		YSW0075	YSW0085, YSW0090, YSW0120							
YSW0085	Initial Survey	14	100	02/07/10 A	15/07/10 A	02/07/10 A	15/07/10 A		YSW0080	YSW0120							
YSW0090	Verify the Rock Boulder required Stabilization Wk	249	100	16/07/10 A	21/03/11 A	16/07/10 A	21/03/11 A		YSW0080	YSW0100, YSW0110							
YSW0100	Removal of Rock Boulder	257	100	20/09/10 A	03/06/11 A	20/09/10 A	03/06/11 A		YSW0075, YSW0090	KD0030							
YSW0110	Stabilizing work for rock boulder	35	100	16/07/11 A	19/08/11 A	16/07/11 A	19/08/11 A		YSW0090	KD0030							
YSW0120	Cut the slope to design profile	2	100	24/09/10 A	25/09/10 A	24/09/10 A	25/09/10 A		YSW0035, YSW0080, YSW0085	YSW0131, YSW0155, YSW0170							
YSW0131	Mobilization of Plant and Material of Soil Nails	14	100	12/09/10 A	25/09/10 A	12/09/10 A	25/09/10 A		YSW0120	YSW0132							
YSW0132	Erect Scaffold and Working Platform	2	100	26/09/10 A	27/09/10 A	26/09/10 A	27/09/10 A		YSW0131	YSW0133							
YSW0133	Setting out and Verify Locations of Soil Nails	45	100	28/09/10 A	11/11/10 A	28/09/10 A	11/11/10 A		YSW0132	YSW0134							
YSW0134	Drilling and Soil Nails Installation	43	100	19/10/10 A	30/11/10 A	19/10/10 A	30/11/10 A		YSW0133	YSW0135							
YSW0135	Construction of Nail Heads	12	100	01/12/10 A	12/12/10 A	01/12/10 A	12/12/10 A		YSW0134	YSW0136							
YSW0136	Mesh Installation on Cut Slope	3	100	13/12/10 A	15/12/10 A	13/12/10 A	15/12/10 A		YSW0135	YSW01361							
YSW01361	Verify alignment of access & channels on slope	118	100	16/12/10 A	12/04/11 A	16/12/10 A	12/04/11 A		YSW0136	YSW0140							
YSW0140	Construct U-channels & Step Channel on Cut Slope	182	100	13/04/11 A	11/10/11 A	13/04/11 A	11/10/11 A		YSW01361	KD0030							
YSW0153	Removal of Ex U-Channel where clash with B. Wall	151	100	10/05/11 A	07/10/11 A	10/05/11 A	07/10/11 A		YSW01545	YSW01750							
YSW01545	Temporary Diversion of Drainage	244	100	08/09/10 A	09/05/11 A	08/09/10 A	09/05/11 A		YSW0035	YSW0153							
YSW0155	RC Barrier Wall Bay 1-13 (below Ground Level)	256	100	26/09/10 A	08/06/11 A	26/09/10 A	08/06/11 A		YSW0050, YSW0120	KD0030, YSW0170, YSW0175							
YSW0170	RC Barrier Wall Bay 1-13 (above Ground Level)	125	100	09/06/11 A	11/10/11 A	09/06/11 A	11/10/11 A		YSW0120, YSW0155	KD0030, YSW01750							
YSW0175	Construct U-channels and Catchpits (Phase 1)	76	100	09/06/11 A	23/08/11 A	09/06/11 A	23/08/11 A		YSW0155	KD0030							
YSW01750	Construction of subsoil drain (phase 1)	120	100	12/10/11 A	08/02/12 A	12/10/11 A	08/02/12 A		YSW0153, YSW0170	YSW01755							
YSW01755	Construct subsoil drain (phase 2)	60	0	08/07/12 A	28/09/12 A	08/07/12 A	28/09/12 A	14d	YSW01750	KD0130							
YSW01800	RC Barrier Wall Bay 14 (below & above Ground)	30	0	31/07/12	29/08/12	15/08/12	13/09/12	15d	YSW0760	YSW01805, YSW01810							
YSW01805	Hydroseeding	14	0	30/08/12	12/09/12	29/09/12	12/10/12	30d	YSW01800	KD0130							
YSW01810	Construct U-channels and Catchpits (Phase 2)	30	0	30/08/12	28/09/12	14/09/12	13/10/12	15d	YSW01800	KD0130							
Section W2 - YSW STW & Submarine Outfall																	
Civil & Structural Work																	
YSW0412	Mobilization	30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A		KD0020	YSW0422							
YSW0422	Site Clearance	30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A		KD0020, YSW0412	YSW0432, YSW0500, YSW0610,							
YSW0432	Initial Survey	14	100	02/06/10 A	15/06/10 A	02/06/10 A	15/06/10 A		YSW0422	YSW0510							
YSW STW - GL H - T																	
YSW0500	ELS & Excavation for Inlet Pumping Station	105	100	08/09/10 A	21/12/10 A	08/09/10 A	21/12/10 A		YSW0035, YSW0422	YSW0510							
YSW0510	Sub-structure construction (Inlet Pumping Stn)	129	100	22/12/10 A	29/04/11 A	22/12/10 A	29/04/11 A		YSW0432, YSW0500	YSW0520							
YSW0520	Backfill & Remove ELS (Inlet Pumping Stn)	40	100	30/04/11 A	08/06/11 A	30/04/11 A	08/06/11 A		YSW0510	YSW05701							
YSW0530	ELS & Excavation for Equalization Tank	159	100	01/01/11 A	08/06/11 A	01/01/11 A	08/06/11 A		YSW0660	YSW0540, YSW05701							
YSW0540	Sub-structure construction (Equalization Tank)	112	100	09/06/11 A	28/09/11 A	09/06/11 A	28/09/11 A		YSW0530	YSW0550, YSW05901							
YSW0550	Backfilling & Remove ELS (Equalization Tank)	20	100	29/09/11 A	18/10/11 A	29/09/11 A	18/10/11 A		YSW0540	YSW05901							
YSW05701	ELS & Excavation for Grit Chambers	28	100	09/06/11 A	06/07/11 A	09/06/11 A	06/07/11 A		YSW0520, YSW0530	YSW05711, YSW05731							
YSW05711	Construct sub-structure for Grit Chambers	106	100	07/07/11 A	20/10/11 A	07/07/11 A	20/10/11 A		YSW05701	YSW05721, YSW05911							
YSW05721	Backfill & Remove ELS for Grit Chambers	12	100	21/10/11 A	01/11/11 A	21/10/11 A	01/11/11 A		YSW05711	YSW05911							
YSW05731	ELS & Excavation for Grease Separators (GS)	34	100	07/07/11 A	09/08/11 A	07/07/11 A	09/08/11 A		YSW05701	YSW05741							
YSW05741	Construct sub-structure for Grease Separators	52	100	10/08/11 A	30/09/11 A	10/08/11 A	30/09/11 A		YSW05731	YSW05751							
YSW05751	Install Dia.400 Puddles in Grease Separators	27	100	01/10/11 A	27/10/11 A	01/10/11 A	27/10/11 A		YSW05741	YSW05752							
YSW05752	Construct sub-structure for GS (above puddles)	48	100	28/10/11 A	14/12/11 A	28/10/11 A	14/12/11 A		YSW05751	YSW05761							
YSW05761	Backfill & remove ELS for Grease Separators	10	100	15/12/11 A	24/12/11 A	15/12/11 A	24/12/11 A		YSW05752	YSW0580, YSW05921							
YSW0580	Excavate to Formation for Deodorizer Room	10	100	25/12/11 A	03/01/12 A	25/12/11 A	03/01/12 A		YSW05761	YSW05801, YSW05922							
YSW05801	Excavate to formation - Grid J-N5-7	40	100	04/01/12 A	12/02/12 A	04/01/12 A	12/02/12 A		YSW0580	YSW05802, YSW05923							
YSW05802	Excavate to formation - Grid GA-H5-7	10	100	13/02/12 A	22/02/12 A	13/02/12 A	22/02/12 A		YSW05801	YSW05924							
YSW05901	G/F to 1/F Construction Grid GA-K1-5	90	100	29/09/11 A	27/12/11 A	29/09/11 A	27/12/11 A		YSW0540, YSW0550	YSW06001							
YSW05911	G/F to 1/F Construction Grid N-S1-5	80	100	21/10/11 A	08/01/12 A	21/10/11 A	08/01/12 A		YSW05711, YSW05721	YSW06011, YSW06035							
YSW05921	G/F to 1/F Construction Grid K-N1-5	45	100	25/12/11 A	07/02/12 A	25/12/11 A	07/02/12 A		YSW05761	YSW06021							
YSW05922	G/F to 1/F Construction for Deodorizer Room	80	100	04/01/12 A	23/03/12 A	04/01/12 A	23/03/12 A		YSW0580	YSW06022							
YSW05923	G/F to 1/F Construction for Grid J-N5-7	60	100	13/02/12 A	12/04/12 A	13/02/12 A	12/04/12 A		YSW05801	YSW06023							
YSW05924	G/F to 1/F Construction for Grid GA-H5-7	60	100	28/05/12 A	16/07/12 A	28/05/12 A	16/07/12 A		YSW05802, YSW06023	YSW06034							
YSW06001	1/F to Roof Construction for Grid GA-K1-5	87	100	28/12/11 A	23/03/12 A	28/12/11 A	23/03/12 A		YSW05901	YSW0800							
YSW06011	1/F to Roof Construction for Grid N-S1-5	75	100	09/01/12 A	23/03/12 A	09/01/12 A	23/03/12 A		YSW05911	YSW0800							
YSW06021	1/F to Roof Construction for Grid K-N1-5	44	100	08/02/12 A	22/03/12 A	08/02/12 A	22/03/12 A		YSW05921	YSW07201							
YSW06022	1/F to Roof Construction for Deodorizer Room	60	100	24/03/12 A	22/05/12 A	24/03/12 A	22/05/12 A		YSW05922	YSW0800							
YSW06023	1/F to Roof Construction for Grid J-N5-7	45	100	13/04/12 A	27/05/12 A	13/04/12 A	27/05/12 A		YSW05923	YSW05924							

Start date	05/05/10	Early bar
Finish date	22/11/15	Progress bar
Data date	31/07/12	Critical bar
Run date	22/08/12	Summary bar
Page number	2A	Progress point
		Critical point
		Summary point
		Start milestone point
		Finish milestone point

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

(Marked on 31 July 2012)

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012										
											JUN	JUL	AUG	SEP	OCT	NOV					
YSW06034	1/F to Roof Construction for Grid GA-H/5-7	45	95	27/07/12 A	02/08/12	27/07/12 A	14/12/12	134d	YSW05924	YSW0800											
YSW06035	Construct baffle walls in Grease Separators	118	100	18/04/12 A	16/07/12 A	18/04/12 A	16/07/12 A		YSW05911	YSW07204											
YSW07201	Water tightness test for Inlet Pumping Station	60	100	23/03/12 A	21/05/12 A	23/03/12 A	21/05/12 A		YSW06021	YSW07202, YSW0800											
YSW07202	Water tightness test for Equalization Tanks	42	100	22/05/12 A	02/07/12 A	22/05/12 A	02/07/12 A		YSW07201	YSW07203, YSW0800											
YSW07203	Water tightness test for Grit Chambers	42	0	31/07/12	10/09/12	06/10/12	17/11/12	68d	YSW07202	YSW07204, YSW0800											
YSW07204	Water tightness test for Grease Separators	42	0	11/09/12	22/10/12	17/11/12	29/12/12	68d	YSW06035, YSW07203	YSW07205, YSW0800											
YSW07205	Water tightness test for water channels	21	0	23/10/12	12/11/12	29/12/12	19/01/13	68d	YSW07204	YSW0800											
YSW0800	ABWF installation	271	22	03/07/12 A	27/02/13	03/07/12 A	24/01/13	-33d	YSW06001, YSW06011, YSW06022,	E&M0530, E&M0540, E&M0550,											
YSW STW - GL T - X																					
YSW0610	Excavate to formation	10	100	08/09/10 A	17/09/10 A	08/09/10 A	17/09/10 A		YSW0035, YSW0422	YSW0620											
YSW0620	Base slab construction	248	100	18/09/10 A	23/05/11 A	18/09/10 A	23/05/11 A		YSW0610	YSW0630											
YSW0630	G/F to 1/F construction	205	100	24/05/11 A	14/12/11 A	24/05/11 A	14/12/11 A		YSW0620	YSW0640											
YSW0640	1/F to Roof Construction	64	100	15/12/11 A	16/02/12 A	15/12/11 A	16/02/12 A		YSW0630	YSW0810											
YSW0810	ABWF installation	80	100	28/12/11 A	16/03/12 A	28/12/11 A	16/03/12 A		YSW0640	E&M0610, E&M0620, E&M0630,											
YSW STW - GL F - H & DN Tanks																					
YSW0650	ELS & Excavation for DN Tanks	37	100	08/09/10 A	14/10/10 A	08/09/10 A	14/10/10 A		YSW0035, YSW0422	YSW0660											
YSW0660	Sub-structure construction (DN Tanks)	78	100	15/10/10 A	31/12/10 A	15/10/10 A	31/12/10 A		YSW0650	YSW0530, YSW0670											
YSW0670	Backfill & Remove ELS (DN Tanks)	70	100	01/01/11 A	11/03/11 A	01/01/11 A	11/03/11 A		YSW0660	YSW0680											
YSW0680	Base slab construction (SD1, SD2 & MBR4)	17	100	12/03/11 A	28/03/11 A	12/03/11 A	28/03/11 A		YSW0670	YSW0690											
YSW0690	Construct Superstructure SD1, SD2 & MBR4	82	100	29/03/11 A	18/06/11 A	29/03/11 A	18/06/11 A		YSW0680	YSW0705, YSW0820											
YSW06901	Construct Superstructure of DN Tanks	28	100	15/05/12 A	11/06/12 A	15/05/12 A	11/06/12 A		YSW0735	YSW0830											
YSW0705	Water test for MBR 4, SD 1&2	14	0	31/07/12	13/08/12	31/07/12	13/08/12	0	YSW0690	E&M0510, E&M0630, E&M0640,											
YSW0710	Apply protective paint for MBR 4, SD 1&2	20	0	14/08/12	02/09/12	14/08/12	02/09/12	0	YSW0705	YSW0820											
YSW0820	ABWF installation	34	0	31/07/12	02/09/12	31/07/12	02/09/12	0	YSW0690, YSW0710	E&M0510, E&M0630, E&M0640											
YSW0830	Water test for DN Tanks	28	0	31/07/12	27/08/12	12/07/13	08/08/13	346d	YSW06901	YSW0850											
YSW0850	Apply protective paint for DN Tanks	6	0	28/08/12	02/09/12	09/08/13	14/08/13	346d	YSW0830	E&M0610											
YSW STW - GL A - F																					
YSW0730	Completion of HDD	0	100	21/01/12 A		21/01/12 A			YSW03601, YSW03605	YSW0732											
YSW0732	Excavate for MBR 2 & 3	20	100	21/01/12 A	09/02/12 A	21/01/12 A	09/02/12 A		YSW0730	YSW0733											
YSW0733	Construct basement of MBR 2 & 3	20	100	10/02/12 A	29/02/12 A	10/02/12 A	29/02/12 A		YSW0732	YSW0735, YSW0740											
YSW0735	Construct superstructure of MBR 2	75	100	01/03/12 A	14/05/12 A	01/03/12 A	14/05/12 A		YSW0733	YSW06901, YSW0736, YSW08302											
YSW0736	Construct superstructure of MBR 3	100	100	15/05/12 A	14/05/12 A	15/05/12 A	14/05/12 A		YSW0735	YSW08302											
YSW0740	ELS & excavate for Outfall Shaft	75	100	01/03/12 A	14/05/12 A	01/03/12 A	14/05/12 A		YSW0733	YSW0750											
YSW0750	Construct basement of Outfall Shaft	19	100	15/05/12 A	02/06/12 A	15/05/12 A	02/06/12 A		YSW0740	YSW07501											
YSW07501	Connect additional flange to HDPE pipe (VO 042)	5	100	03/06/12 A	07/06/12 A	03/06/12 A	07/06/12 A		YSW0750	YSW07502											
YSW07502	Construct sub-structure of Outfall Shaft	16	100	08/06/12 A	23/06/12 A	08/06/12 A	23/06/12 A		YSW07501	YSW0760											
YSW0760	Backfill & remove ELS (outfall shaft)	8	100	24/06/12 A	01/07/12 A	24/06/12 A	01/07/12 A		YSW07502	YSW01800, YSW07601, YSW07603, YSW1470, YSW16601, YSW16606											
YSW07601	Construct superstructure for Outfall Shaft	80	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		YSW0760	YSW08301											
YSW07603	ELS & excavate for FSH Water Supply Tank	21	100	01/06/12 A	25/06/12 A	01/06/12 A	25/06/12 A		YSW0760	YSW07604											
YSW07604	Construct substructure for FSH Water Supply Tank	23	100	26/06/12 A	19/07/12 A	26/06/12 A	19/07/12 A		YSW07603	YSW07605											
YSW07605	Backfill & remove ELS for FSH Water Supply Tank	21	100	20/07/12 A	31/07/12 A	20/07/12 A	31/07/12 A		YSW07604	YSW07607											
YSW07607	Construct basement of MBR 1 & Workshop	28	0	01/08/12 A	27/08/12	01/08/12 A	02/10/12	36d	YSW07605	YSW07608											
YSW07608	Construct superstructure for FSH Water Supply Tk	28	0	28/08/12	24/09/12	03/10/12	30/10/12	36d	YSW07607	YSW07609, YSW08304											
YSW07609	Construct superstructure for MBR 1	28	0	25/09/12	22/10/12	31/10/12	27/11/12	36d	YSW07608	YSW07610, YSW08303											
YSW07610	Construct Workshop, FSSH Pump Rm, PW Pump Rm	28	0	23/10/12	19/11/12	28/11/12	25/12/12	36d	YSW07609	YSW0840											
YSW08301	Water tightness test for Outfall Shaft	42	0	31/07/12	10/09/12	20/09/12	31/10/12	51d	YSW07601	YSW08305											
YSW08302	Water tightness test for MBR 2 & 3	49	50	03/07/12 A	24/08/12	03/07/12 A	10/10/12	48d	YSW0735, YSW0736	YSW08305											
YSW08303	Water tightness test for MBR 1	14	0	23/10/12	05/11/12	28/11/12	11/12/12	36d	YSW07609	YSW08305											
YSW08304	Water tightness test for FSH Water Supply Tank	32	0	25/09/12	26/10/12	31/10/12	01/12/12	36d	YSW07608	YSW08305											
YSW08305	Apply protective paint	82	0	05/09/12	25/11/12	11/10/12	31/12/12	36d	YSW08301, YSW08302, YSW08303, YSW08304	E&M0520, E&M0590, E&M0605, YSW0870											
YSW0870	ABWF installation	30	0	26/11/12	25/12/12	07/05/13	05/06/13	162d	YSW08305	E&M0630, E&M0640, E&M0650											
Fire Hose Reel / Sprinkler Pump Rm																					
YSW0840	ELS & excavate to formation (+0 mPD approx.)	30	0	20/11/12	19/12/12	26/12/12	24/01/13	36d	YSW07610	YSW0860											
Emergency Storage Tank																					
YSW1470	ELS & excavate to formation (-1.5mPD Approx.)	30	0	31/07/12	29/08/12	01/10/12	30/10/12	62d	YSW0760	YSW1480											
YSW1480	Sub-structure construction	40	0	30/08/12	08/10/12	31/10/12	09/12/12	62d	YSW1470	YSW1490											
YSW1490	Backfill & extract sheetpile	30	0	09/10/12	07/11/12	10/12/12	08/01/13	62d	YSW1480	YSW1500											
YSW1500	Superstructure construction upto +10.5mPD	40	0	08/11/12	17/12/12	09/01/13	17/02/13	62d	YSW1490	YSW1530, YSW1536											
YSW1530	Underground pipeline works	40	0	18/12/12	26/01/13	18/02/13	29/03/13	62d	YSW1500	E&M0690, YSW1680											
YSW1536	Water tightness test	40	0	18/12/12	26/01/13	26/06/13	04/08/13	190d	YSW1500	YSW1538											
Road, Drain, Cable Draw Pits & Ducting																					
YSW16601	Construct 6m deep sewer YFM5-YFM6 (Grid Q-X)	60	0	31/07/12	28/09/12	16/10/12	14/12/12	77d	YSW0760	YSW16602											
YSW16602	Connect 6m deep sewer to existing manhole FM1	45	0	29/09/12	12/11/12	15/12/12	28/01/13	77d	YSW16601	YSW16603											
YSW16603	Construct UU & pipes along sea side (Grid Q-X)	60	0	13/11/12	11/01/13	29/03/13	29/03/13	77d	YSW16602	YSW16604, YSW16703											
YSW16606	Construct UU & pipes along hill side (Grid D-Q)	60	0	31/07/12	28/09/12	29/01/13	29/03/13	182d	YSW0760	YSW16607											
YSW16607	Construct UU & pipes along hill side (Grid Q-X)	60	0	29/09/12	27/11/12	30/03/13	28/05/13	182d	YSW16606	YSW16608											
YSW16608	Construct UU & pipes along hill side (Grid XA-D)	60	0	28/11/12	26/01/13	29/05/13	27/07/13	182d	YSW16607	YSW1690											
Submarine Outfall																					

Start date	05/05/10	Early bar
Finish date	22/11/15	Progress bar
Data date	31/07/12	Critical bar
Run date	22/08/12	Summary bar
Page number	3A	Progress point
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		Summary point
		Start milestone point
		Finish milestone point

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

(Marked on 31 July 2012)

Date	Revision	Checked	Approved
31/07/12	Revision 0	RH	VC

Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012						
											JUN	JUL	AUG	SEP	OCT	NOV	
YSW0180	Coordination of HEC	53	100	17/05/10 A	08/07/10 A	17/05/10 A	08/07/10 A		KD0020	YSW0350							
YSW0200	Submission and Approval of Ecologist	60	100	17/05/10 A	15/07/10 A	17/05/10 A	15/07/10 A		KD0020	YSW0210							
YSW0210	Ecology Survey	211	100	16/07/10 A	11/02/11 A	16/07/10 A	11/02/11 A		YSW0200	YSW0350							
YSW0220	Submission and Approval of In. Hydro Survey	103	100	17/05/10 A	27/08/10 A	17/05/10 A	27/08/10 A		KD0020	YSW0230							
YSW0230	Hydrographical Survey (YSW)	157	100	28/08/10 A	31/01/11 A	28/08/10 A	31/01/11 A		YSW0220	YSW0350							
YSW0240	Material Submission, Approval of HDPE pipe	319	100	17/05/10 A	31/03/11 A	17/05/10 A	31/03/11 A		KD0020	YSW0360							
YSW02401	Clarify Coordinate of Point Y (Reply of RFI 010)	83	100	28/06/10 A	18/09/10 A	28/06/10 A	18/09/10 A		KD0020	YSW0250							
YSW0250	Submit and Approval of Method Statement for HDD	188	100	19/09/10 A	25/03/11 A	19/09/10 A	25/03/11 A		YSW02401	YSW0260, YSW0270, YSW0340							
YSW0260	Submission of HDD Method Statement to HEC	14	100	26/03/11 A	08/04/11 A	26/03/11 A	08/04/11 A		YSW0250	YSW0340							
YSW0270	Additional G.I. Boreholes (YSW)	123	100	19/09/10 A	19/01/11 A	19/09/10 A	19/01/11 A		YSW0250	YSW0280, YSW0290							
YSW0280	Submission of propose alignment	44	100	20/01/11 A	04/03/11 A	20/01/11 A	04/03/11 A		YSW0270	YSW0310, YSW0340							
YSW0290	Submission of Marine Notice	69	100	20/01/11 A	29/03/11 A	20/01/11 A	29/03/11 A		YSW0270	YSW0350							
YSW0310	Construction of Entry Pit and Preparation Work	27	100	05/03/11 A	31/03/11 A	05/03/11 A	31/03/11 A		YSW0280	YSW0320							
YSW0320	Prepare of HDD Drill Rig Set-up (YSW)	28	100	01/04/11 A	28/04/11 A	01/04/11 A	28/04/11 A		YSW0310	YSW0330, YSW0350							
YSW0330	Establishment of HDD plant & equipment	6	100	09/04/11 A	14/04/11 A	09/04/11 A	14/04/11 A		YSW0320	YSW0340							
YSW0340	Setting up at drillhole location	14	100	15/04/11 A	28/04/11 A	15/04/11 A	28/04/11 A		YSW0250, YSW0260, YSW0280,	YSW0350							
YSW0350	Drill pilot hole and reaming hole - NS400 - 530m	229	100	29/04/11 A	13/12/11 A	29/04/11 A	13/12/11 A		YSW0040, YSW0180, YSW0210,	YSW0360							
YSW0360	Installation of NS400 HDPE 530m	17	100	14/12/11 A	30/12/11 A	14/12/11 A	30/12/11 A		YSW0240, YSW0350	SKW1181, YSW03601, YSW03620,							
YSW03601	Demobilization of HDD plant & equipment	7	100	31/12/11 A	06/01/12 A	31/12/11 A	06/01/12 A		YSW0360	YSW03605, YSW03641, YSW0730							
YSW03605	Remove Entry pit of HDD	14	100	07/01/12 A	20/01/12 A	07/01/12 A	20/01/12 A		YSW03601	YSW0730							
YSW03620	Removal of Receiving Pit	14	100	31/12/11 A	13/01/12 A	31/12/11 A	13/01/12 A		YSW0360	YSW0365							
YSW03641	Prepare backfilling material under VO 046A	120	100	07/01/12 A	05/05/12 A	07/01/12 A	05/05/12 A		YSW03601	YSW0365							
YSW0365	Set up of Silt Curtain as per EP	30	0	27/11/12	26/12/12	02/07/13	31/07/13	217d	SKW1431, YSW03620, YSW03641	YSW0370							
E&M Works - YSW STW																	
E&M0360	Delivery of MBR Memb. Mod. (MBR Tk 4)	137	100	24/02/11 A	21/06/11 A	24/02/11 A	21/06/11 A		E&M0160	E&M0510							
E&M0370	Delivery of MBR Membrane Modules - 2nd Shipment	150	100	24/02/11 A	17/10/11 A	24/02/11 A	17/10/11 A		E&M0160	E&M0520							
E&M0380	Delivery of Grit Removal Equipment	180	100	10/10/11 A	29/12/11 A	10/10/11 A	29/12/11 A		E&M0150	E&M0530							
E&M0390	Delivery of Coarse Screens	162	100	06/09/11 A	12/01/12 A	06/09/11 A	12/01/12 A		E&M0110	E&M0540							
E&M0400	Delivery of Fine Screens	180	100	12/09/11 A	30/11/11 A	12/09/11 A	30/11/11 A		E&M0120	E&M0550							
E&M0410	Delivery of Pumps	162	100	23/06/11 A	05/09/11 A	23/06/11 A	05/09/11 A		E&M0130	E&M0560							
E&M0420	Delivery of Submersible Mixers	162	100	26/02/11 A	17/11/11 A	26/02/11 A	17/11/11 A		E&M0140	E&M0570							
E&M0440	Delivery of Sludge Dewatering Equipment	180	50	01/09/11 A	28/10/12	01/09/11 A	03/03/13	126d	E&M0170	E&M0580							
E&M0450	Delivery of Valves, Pipes & Fittings	180	90	30/08/11 A	22/08/12	30/08/11 A	03/05/13	255d	E&M0180	E&M0590, E&M0605							
E&M0460	Delivery of Penstocks	180	100	12/08/11 A	24/12/11 A	12/08/11 A	24/12/11 A		E&M0190	E&M0600							
E&M0470	Delivery of Instruments	180	100	03/11/11 A	21/06/11 A	03/11/11 A	21/06/11 A		E&M0200	E&M0610							
E&M0480	Delivery of MCC LVSB	177	0	01/08/12	25/01/13	11/07/12	03/01/13	-22d	E&M0210	E&M0620							
E&M0490	Delivery of BS Equipment	180	25	11/12/11 A	25/12/12	11/12/11 A	05/06/13	162d	E&M0220	E&M0630							
E&M0500	Delivery FS Equipment	180	25	11/12/11 A	06/01/13	11/12/11 A	03/07/13	178d	E&M0230	E&M0630, E&M0640							
E&M0510	Install Membrane Modules in MBR Tank no. 4	90	0	03/09/12	01/12/12	03/09/12	01/12/12	0	E&M0360, YSW0705, YSW0820	KD0115							
E&M0520	Install Membrane Modules in MBR Tank No. 1 to 3	130	0	19/11/12	28/03/13	25/12/12	03/05/13	36d	E&M0370, YSW08305	E&M0590, E&M0690							
E&M0530	Install Grit Removal Equipment	60	65	01/06/12 A	27/03/13	01/06/12 A	03/05/13	37d	E&M0380, E&M0540, YSW0800	E&M0590, E&M0660							
E&M0540	Install Coarse Screens	75	90	23/04/12 A	06/03/13	23/04/12 A	19/03/13	13d	E&M0390, YSW0800	E&M0530, E&M0550, E&M0570, E&M0590, E&M0660							
E&M0550	Install Fine Screens	60	80	01/06/12 A	18/03/13	01/06/12 A	03/05/13	46d	E&M0400, E&M0540, YSW0800	E&M0590, E&M0660							
E&M0560	Install Pumps	90	40	23/04/12 A	22/04/13	23/04/12 A	19/03/13	-33d	E&M0410, YSW0800	E&M0570, E&M0590, E&M0660							
E&M0580	Install Sludge Dewatering Equipment	280	20	29/05/12 A	09/10/13	29/05/12 A	13/10/13	5d	E&M0440, YSW0800	E&M0690							
E&M0600	Install Penstocks (Batch 1, GL H - T)	180	50	23/04/12 A	28/05/13	23/04/12 A	13/10/13	139d	E&M0460, YSW0800	E&M0690							
E&M0605	Install Penstocks (Batch 2, GL A - F)	120	0	26/11/12	25/03/13	16/06/13	13/10/13	202d	E&M0450, YSW08305	E&M0690							
Sok Kwu Wan																	
Preliminary																	
SKW0250	Approval of Environmental Team	16	0	31/07/12	15/08/12	21/05/12	06/06/12	-71d	KD0020	SKW0260							
SKW0260	Baseline monitoring (Air & Noise)	14	0	16/08/12	29/08/12	06/06/12	20/06/12	-71d	SKW0250	SKW0242, SKW0265, SKW0592, SKW0681, SKW0921, SKW1141							
SKW0265	Baseline Monitoring Submission (A & N)	14	0	30/08/12	12/09/12	20/06/12	04/07/12	-71d	SKW0260	SKW0242, SKW0592, SKW0681, SKW0921, SKW1141							
Section W3 - Footpath Diversion in Portion G																	
Civil & Geotechnical Works																	
SKW0240	Site Clearance	21	100	17/05/10 A	06/06/10 A	17/05/10 A	06/06/10 A			SKW0241							
SKW0241	Initial Survey	9	100	07/06/10 A	15/06/10 A	07/06/10 A	15/06/10 A		SKW0240	SKW0242							
SKW0242	Retaining Wall Bay 0-10 (Incl. VO. 001A)	177	100	30/06/10 A	23/12/10 A	30/06/10 A	23/12/10 A		SKW0241, SKW0260, SKW0265	SKW0461							
SKW0461	Utilities Laying and Diversion	70	100	24/12/10 A	03/03/11 A	24/12/10 A	03/03/11 A		SKW0242	SKW0471							
SKW0471	Concreting for Pavement	7	100	04/03/11 A	10/03/11 A	04/03/11 A	10/03/11 A		SKW0461	SKW0481							
SKW0481	Footpath Diversion - Stage 1	14	100	11/03/11 A	24/03/11 A	11/03/11 A	24/03/11 A		SKW0471	KD0050, SKW04811, SKW0491							
SKW04811	Excavate for FP transition at CH0-35 & CH130-141	37	100	25/03/11 A	30/04/11 A	25/03/11 A	30/04/11 A		SKW0481	SKW04821							
SKW04821	Construction of Drainage outfall near bay 10	3	100	01/05/11 A	03/05/11 A	01/05/11 A	03/05/11 A		SKW04811	SKW04831							
SKW04831	Cable diversion by HEC	26	100	04/05/11 A	29/05/11 A	04/05/11 A	29/05/11 A		SKW04821	SKW04841							
SKW04841	Diversion of Ducting and Draw pit by PCCW	12	100	20/05/11 A	31/05/11 A	20/05/11 A	31/05/11 A		SKW04831	SKW04851							
SKW04851	Soil backfilling behind FP retaining wall	14	100	01/06/11 A	14/06/11 A	01/06/11 A	14/06/11 A		SKW04841	SKW04861							
SKW04861	Concreting for footpath pavement	7	100	15/06/11 A	21/06/11 A	15/06/11 A	21/06/11 A		SKW04851	SKW04871							
SKW04871	Relocation of Temp Safety Fence at SKW STW A-G	57	100	22/06/11 A	17/08/11 A	22/06/11 A	17/08/11 A		SKW04861	SKW04881							

Start date	05/05/10	Early bar
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Data date	31/07/12	Critical bar
Run date	22/08/12	Summary bar
Page number	4A	Progress point
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Leader Civil Engineering Corp. Ltd.
Contract No. DC/2009/13
Construction of Sewage Treatment Works at YSW & SKW
3-month Rolling Programme (Aug 2012 - Oct 2012)

(Marked on 31 July 2012)

Date	Revision	Checked	Approved
31/07/12	Revision 0	RH	VC

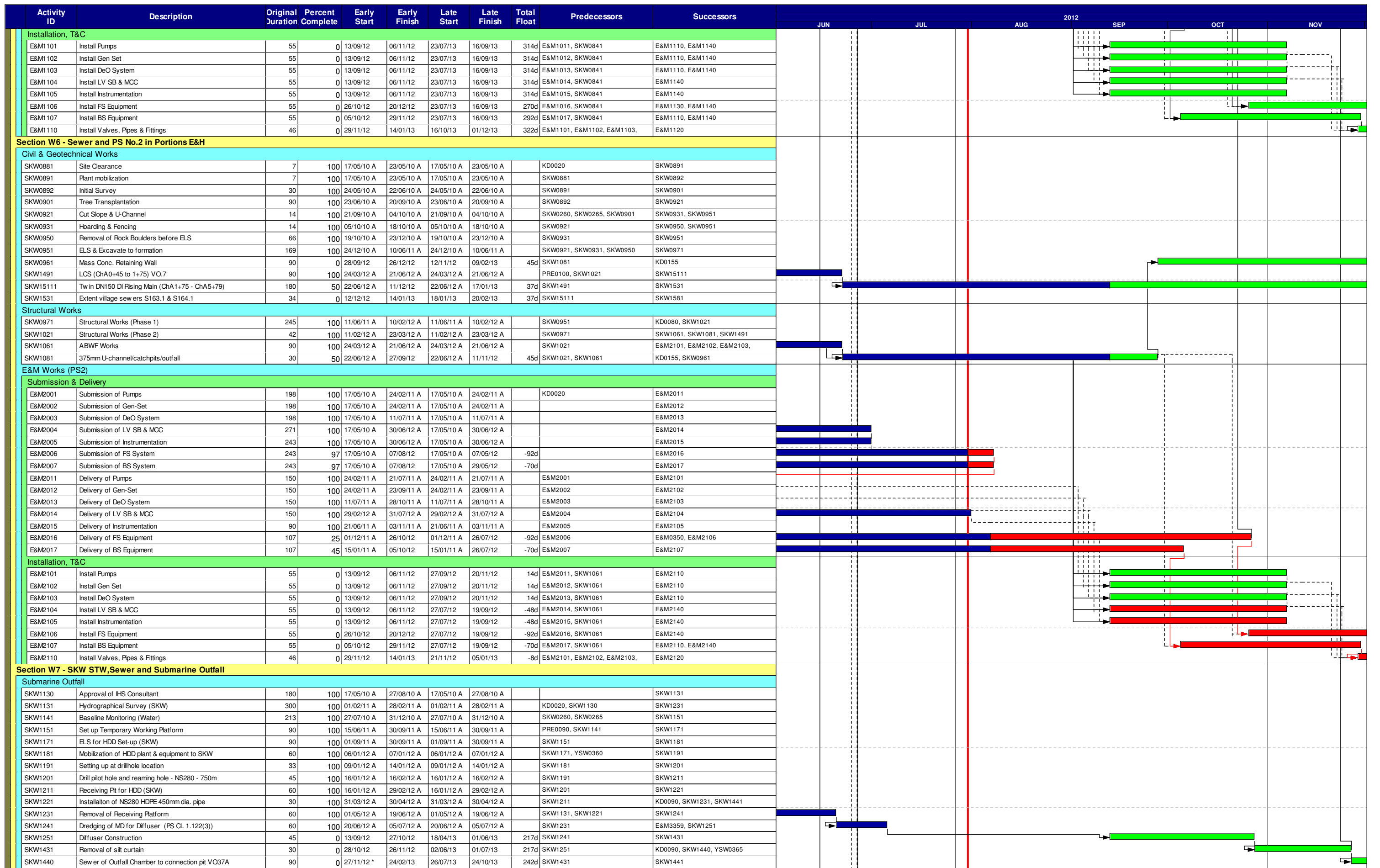
Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012					
											JUN	JUL	AUG	SEP	OCT	NOV
SKW04881	Disposal of excavation material at A-G SKW STW	138	100	18/08/11 A	02/01/12 A	18/08/11 A	02/01/12 A		SKW04871	SKW04885						
SKW04885	Footpath Diversion - Stage 2	7	100	03/01/12 A	09/01/12 A	03/01/12 A	09/01/12 A		SKW04881	SKW1261						
Section W4 - Slope Works in Portions H & I																
Geotechnical Works																
SKW0588	Construct scaffolding access	30	100	15/06/10 A	14/07/10 A	15/06/10 A	14/07/10 A		KD0020	SKW0590						
SKW0590	Site Clearance for Slope	100	100	15/07/10 A	22/10/10 A	15/07/10 A	22/10/10 A		SKW0588	SKW0591						
SKW0591	Initial Survey for Slope	28	100	21/09/10 A	18/10/10 A	21/09/10 A	18/10/10 A		SKW0590	SKW0592						
SKW0592	Temporary Rockfall fence at ex. Footpath	43	100	31/08/10 A	12/10/10 A	31/08/10 A	12/10/10 A		SKW0260, SKW0265, SKW0591	SKW05931						
SKW05931	Construction of Haul Road (To +30mPD)	50	100	03/09/10 A	22/10/10 A	03/09/10 A	22/10/10 A		SKW0592	SKW05932						
SKW05932	Construction of Haul Road (To +42.5mPD)	68	100	23/10/10 A	29/12/10 A	23/10/10 A	29/12/10 A		SKW05931	SKW059322						
SKW059321	Removal of Boulders (IBG 1 - 119, SI No. 11B)	121	100	03/11/10 A	03/03/11 A	03/11/10 A	03/03/11 A			SKW059411						
SKW059322	Add. Site Invest. Works (VO. No. 9, 12 & 16)	174	100	11/01/11 A	03/07/11 A	11/01/11 A	03/07/11 A		SKW05932	SKW059341						
SKW059323	Revised Profile at West Slope (+56 to +42.5mPD)	1	100	17/03/11 A	17/03/11 A	17/03/11 A	17/03/11 A			SKW059324						
SKW059324	Construction of Haul Road (+42.5 to +56mPD)	12	100	18/03/11 A	29/03/11 A	18/03/11 A	29/03/11 A		SKW059323	SKW059325						
SKW059325	Removal of Boulders (IBG 120-139, SI No. 11C)	17	100	30/03/11 A	15/04/11 A	30/03/11 A	15/04/11 A		SKW059324	SKW05933						
SKW05933	West Slope Cutting (+56mPD to +42.5mPD)	2	100	16/04/11 A	17/04/11 A	16/04/11 A	17/04/11 A		SKW059325	SKW059331						
SKW059331	Removal of Boulders (IBG 140-189, SI No. 11D)	45	100	18/04/11 A	01/06/11 A	18/04/11 A	01/06/11 A		SKW05933	SKW05934						
SKW05934	West Slope Cutting (+42.5mPD to +35mPD)	32	100	02/06/11 A	03/07/11 A	02/06/11 A	03/07/11 A		SKW059331	SKW059341						
SKW059341	Revised Profile at West Slope (+20 to +4.8mPD)	1	100	04/07/11 A	04/07/11 A	04/07/11 A	04/07/11 A		SKW059322, SKW05934	SKW05935						
SKW05935	West Slope Cutting (+35mPD to +27.5mPD)	83	100	08/07/11 A	28/09/11 A	08/07/11 A	28/09/11 A		SKW059341	SKW05936						
SKW05936	West Slope Cutting (+27.5mPD to +20mPD)	61	100	29/09/11 A	28/11/11 A	29/09/11 A	28/11/11 A		SKW05935	SKW05937						
SKW05937	West Slope Cutting (+20mPD to +12.5mPD)	39	100	29/11/11 A	06/01/12 A	29/11/11 A	06/01/12 A		SKW05936	SKW05938						
SKW05938	West Slope Cutting (+12.5mPD to +4.8mPD)	90	100	07/01/12 A	27/03/12 A	07/01/12 A	27/03/12 A		SKW05937	KD0060, SKW1261, SKW1311,						
SKW05941	Slope Stormwater Drainage	300	100	28/03/12 A	25/05/12 A	28/03/12 A	25/05/12 A		KD0060	SKW05942						
SKW059411	East Slope Cutting (+50mPD to +42.5mPD)	72	100	04/03/11 A	14/05/11 A	04/03/11 A	14/05/11 A		SKW059321	SKW059412						
SKW059412	East Slope Cutting (+42.5mPD to +35mPD)	82	100	15/05/11 A	04/08/11 A	15/05/11 A	04/08/11 A		SKW059411	SKW059413						
SKW059413	East Slope Cutting (+35mPD to +27.5mPD)	55	100	05/08/11 A	28/09/11 A	05/08/11 A	28/09/11 A		SKW059412	SKW059414						
SKW059414	East Slope Cutting (+27.5mPD to +20mPD)	61	100	29/09/11 A	28/11/11 A	29/09/11 A	28/11/11 A		SKW059413	SKW059415						
SKW059415	East Slope Cutting (+20mPD to +12.5mPD)	39	100	29/11/11 A	06/01/12 A	29/11/11 A	06/01/12 A		SKW059414	SKW059416						
SKW059416	East Slope Cutting (+12.5mPD to +4.8mPD)	81	100	07/01/12 A	27/03/12 A	07/01/12 A	27/03/12 A		SKW059415	KD0060, SKW1311, SKW1371						
SKW05942	Slope Miscellaneous Works	61	100	26/05/12 A	31/07/12 A	26/05/12 A	31/07/12 A		SKW05941	SKW05943, SKW0595						
SKW05943	Buttress & surface Protection (SI No. 31)	60	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		SKW05942	SKW05944						
SKW05944	Slope Treatment (SI No. 36)	60	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		SKW05943	SKW05945						
SKW05945	Rock Slope Treatment (SI No. 68)	60	0	13/09/12	11/11/12	26/10/12	24/12/12	43d	SKW05944	SKW05946						
SKW05946	Rock Slope Treatment (SI No. 98)	60	0	29/10/12	27/12/12	11/12/12	08/02/13	43d	SKW05945	SKW05947						
SKW05947	Rock Slope Treatment (SI No. 115)	60	0	14/12/12	11/02/13	26/01/13	26/03/13	43d	SKW05946	KD0135						
SKW05948	Soil Nailing Works (VO. No. 52)	300	60	10/02/12 A	27/11/12	10/02/12 A	04/07/14	584d		SKW05963						
SKW05963	Determine Alignment & Foundation Design of RFB	120	100	10/02/13 A	08/06/12 A	10/02/13 A	08/06/12 A		SKW05948	SKW059631, SKW05964, SKW05965						
SKW059631	GEO Approval of Foundation Design	70	100	09/06/12 A	31/07/12 A	09/06/12 A	31/07/12 A		SKW05963	SKW05968						
SKW05964	Fabrication & Shipping of RFB Material	180	60	09/06/12 A	10/10/12	09/06/12 A	14/04/15	916d	SKW05963	SKW05972						
SKW05965	Site clearance & Formation of access	62	100	09/06/12 A	31/07/12 A	09/06/12 A	31/07/12 A		SKW05963	SKW05967						
SKW05967	Plant mobilization	14	0	31/07/12	13/08/12	07/03/14	20/03/14	584d	SKW05965	SKW05968						
SKW05968	Construction of anchors & pull out test	180	0	14/08/12	09/02/13	21/03/14	16/09/14	584d	SKW059631, SKW05967	SKW05969						
Section W5 - P.S. No. 1 in Portion D																
Civil & Geotechnical Works																
SKW0651	Site Clearance	7	100	17/05/10 A	23/05/10 A	17/05/10 A	23/05/10 A		KD0020	SKW0652						
SKW0652	Initial Survey	7	100	24/05/10 A	30/05/10 A	24/05/10 A	30/05/10 A		SKW0651	SKW0661, SKW0681						
SKW0661	Transplantation for uncommon vegetation	30	100	31/05/10 A	29/06/10 A	31/05/10 A	29/06/10 A		SKW0652	SKW0681						
SKW0681	Excavate to low er the working platform to +3mPD	49	100	30/06/10 A	17/08/10 A	30/06/10 A	30/06/10 A		SKW0260, SKW0265, SKW0652,	SKW0691						
SKW0691	ELS to +2.2mPD	40	100	18/08/10 A	26/09/10 A	18/08/10 A	26/09/10 A		SKW0681	SKW0721						
SKW0721	Excavate to formation	270	100	17/09/10 A	13/06/11 A	17/09/10 A	13/06/11 A		SKW0691	SKW0741						
Structural Works																
SKW0741	RC Works for Structure	240	100	14/06/11 A	08/02/12 A	14/06/11 A	08/02/12 A		SKW0721	KD0070, SKW0841						
SKW0841	ABWF works	60	100	09/02/12 A	08/04/12 A	09/02/12 A	08/04/12 A		SKW0741	E&M1101, E&M1102, E&M1103,						
E&M Works (PS1)																
Submission & Delivery																
E&M1001	Submission of Pumps	198	100	17/05/10 A	24/02/11 A	17/05/10 A	24/02/11 A		KD0020	E&M1011						
E&M1002	Submission of Gen-Set	198	100	17/05/10 A	24/02/11 A	17/05/10 A	24/02/11 A			E&M1012						
E&M1003	Submission of DeO System	198	100	17/05/10 A	11/07/11 A	17/05/10 A	11/07/11 A			E&M1013						
E&M1004	Submission of LV SB & MCC	180	100	17/05/10 A	09/01/12 A	17/05/10 A	09/01/12 A			E&M1014						
E&M1005	Submission of Instrumentation	243	100	17/05/10 A	12/03/12 A	17/05/10 A	12/03/12 A			E&M1015						
E&M1006	Submission of FS System	243	97	17/05/10 A	07/08/12	17/05/10 A	04/05/13	270d		E&M1016						
E&M1007	Submission of BS System	243	97	17/05/10 A	07/08/12	17/05/10 A	25/05/13	292d		E&M1017						
E&M1011	Delivery of Pumps	150	100	24/02/11 A	21/07/11 A	24/02/11 A	21/07/11 A		E&M1001	E&M1101						
E&M1012	Delivery of Gen-Set	150	100	24/02/11 A	23/09/11 A	24/02/11 A	23/09/11 A		E&M1002	E&M1102						
E&M1013	Delivery of DeO System	150	100	11/07/11 A	28/10/11 A	11/07/11 A	28/10/11 A		E&M1003	E&M1103						
E&M1014	Delivery of LV SB & MCC	150	100	01/06/12 A	31/07/12 A	01/06/12 A	31/07/12 A		E&M1004	E&M1104						
E&M1015	Delivery of Instrumentation	90	100	01/11/11 A	03/11/11 A	01/11/11 A	03/11/11 A		E&M1005	E&M1105						
E&M1016	Delivery of FS Equipment	107	25	01/12/11 A	26/10/12	01/12/11 A	23/07/13	270d	E&M1006	E&M1106						
E&M1017	Delivery of BS Equipment	107	45	15/11/11 A	05/10/12	15/11/11 A	23/07/13	292d	E&M1007	E&M1107						

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Run date	22/08/12	■ Summary bar
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Leader Civil Engineering Corp. Ltd.
Contract No. DC/2009/13
Construction of Sewage Treatment Works at YSW & SKW
3-month Rolling Programme (Aug 2012 - Oct 2012)

(Marked on 31 July 2012)

Date	Revision	Checked	Approved
31/07/12	Revision 0	RH	VC



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Activity ID	Description	Original Duration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	2012					
											JUN	JUL	AUG	SEP	OCT	NOV
SKW STW																
Submission & Delivery (E&M)																
E&M3010	Delivery of MBR M.M. - 1st shipment for Temp STP	150	100	24/02/11 A	17/10/11 A	24/02/11 A	17/10/11 A		E&M0160	E&M3170						
E&M3030	Delivery of Grit Removal Equipment	180	100	10/10/11 A	29/12/11 A	10/10/11 A	29/12/11 A		E&M0150	E&M3190						
E&M3060	Delivery of Fine Screens	136	100	12/09/11 A	30/11/11 A	12/09/11 A	30/11/11 A		E&M0120	E&M3210						
E&M3070	Delivery of Pumps	136	100	23/06/11 A	05/09/11 A	23/06/11 A	05/09/11 A		E&M0130	E&M3220						
E&M3080	Delivery of Submersible Mixers	180	100	26/07/11 A	17/11/11 A	26/07/11 A	17/11/11 A		E&M0140	E&M3230						
E&M3090	Delivery of Sludge Dewatering Equipment	210	50	01/09/11 A	12/11/12	01/09/11 A	27/11/13	380d	E&M0170	E&M3240						
E&M3100	Delivery of Valves, Pipes & Fittings	180	50	30/08/11 A	02/11/12	30/08/11 A	05/10/13	337d	E&M0180	E&M3250						
E&M3110	Delivery of Penstocks	180	100	12/08/11 A	24/12/11 A	12/08/11 A	24/12/11 A		E&M0190	E&M3260						
E&M3130	Delivery of instruments	180	100	21/06/11 A	03/11/11 A	21/06/11 A	03/11/11 A		E&M0200	E&M3270						
E&M3140	Delivery of MCC LVSB	180	0	01/08/12	28/01/13	20/02/13	19/08/13	203d	E&M0210	E&M3261						
E&M3150	Delivery of BS Equipment	180	5	03/07/12 A	30/01/13	03/07/12 A	20/10/13	263d	E&M0220	E&M3291						
E&M3160	Delivery of FS Equipment	180	5	30/06/12 A	11/02/13	30/06/12 A	08/11/13	270d	E&M0230	E&M0340, E&M3300						
Construction of Grid A-G																
SKW1261	Excavate for SKW STW Structure (Grid A-G)	164	84	28/03/12 A	09/10/12	28/03/12 A	16/10/12	8d	SKW04885, SKW05938	SKW1271, SKW1371						
SKW1271	55 M3 Fire Sprinkle Water Tank (FL +0.9 mPD)	36	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		SKW1261	SKW1281						
SKW1281	Ground Floor Slab (Grid A-G)	46	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		SKW1271	SKW1291						
SKW1291	Columns & Walls to 1/F & 1/F Slab (Grid A-G)	50	100	03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		SKW1281	KD0090, SKW1301						
SKW1301	Columns & Walls to R/F & R/F Slab (Grid A-G)	50	0	09/10/12	28/11/12	18/01/13	08/03/13	101d	SKW1291	E&M3261, E&M3291, E&M3311,						
SKW1411	ABWF Works	105	0	03/11/12	16/02/13	12/02/13	27/05/13	101d	SKW1301	E&M3261, E&M3291, E&M3311,						
Construction of Grid G-N																
SKW1311	Excavate for SKW STW Structure (Grid G-N)	90	100	28/03/12 A	25/06/12 A	28/03/12 A	25/06/12 A		SKW05938, SKW059416	SKW1321, SKW1371						
SKW1321	Equalization Tank no.1 & 2 with base slabs (-2.1	42	20	26/06/12 A	16/10/12	26/06/12 A	06/08/12	-71d	SKW1311	SKW1331						
SKW1331	Columns & Walls from B/S to G/F Slab (Grid G-N)	35	0	16/10/12	20/11/12	07/08/12	10/09/12	-71d	SKW1321	SKW1341						
SKW1341	Ground Floor Slab (Grid G-N)	35	0	20/11/12	25/12/12	11/09/12	15/10/12	-71d	SKW1331	SKW1351						
Construction of Grid N-T																
SKW1371	Excavate for SKW STW Structure (Grid N-T)	97	40	03/07/12 A	06/12/12	03/07/12 A	13/12/12	8d	SKW05938, SKW059416, SKW1261,	SKW1381						
SKW1381	Ground Floor Slabs include MBR Tank (Grid N-T)	45	0	06/12/12	20/01/13	14/12/12	27/01/13	8d	SKW1371	SKW1391						
Rising Main																
SKW1481	Subm, Approval & Delivery of DI pipes	120	100	17/05/10 A	13/09/10 A	17/05/10 A	13/09/10 A		KD0020	SKW1501						
SKW1501	LCS (ChB0+00 - ChB1+20)	300	100	14/09/10 A	10/07/11 A	14/09/10 A	10/07/11 A		PRE0100, SKW1481	SKW1521						
SKW1521	Tw in DN150 DI Rising Main (ChB0+00 - ChA4+55)	250	80	11/07/11 A	18/09/12	11/07/11 A	12/09/14	724d	SKW1501	KD0090						
Section W8 - Landscape Softworks in All Portions																
SKW1591	Tree Survey	21	100	17/05/10 A	06/06/10 A	17/05/10 A	06/06/10 A		KD0020	SKW1621						
SKW1611	Preservation & Protection of Trees	822	95	17/05/10 A	10/09/12	17/05/10 A	08/03/13	180d	KD0020	KD0100, SKW1631						
SKW1621	Transplantation at SKW	90	100	07/06/10 A	04/09/10 A	07/06/10 A	04/09/10 A		SKW1591	KD0100						
Section W9 - Establishment Works in All Portions																
SKW1631	Section W9 - Establishment Works	365	0	10/09/12	10/09/13	12/03/13	11/03/14	183d	SKW1611	KD0110						

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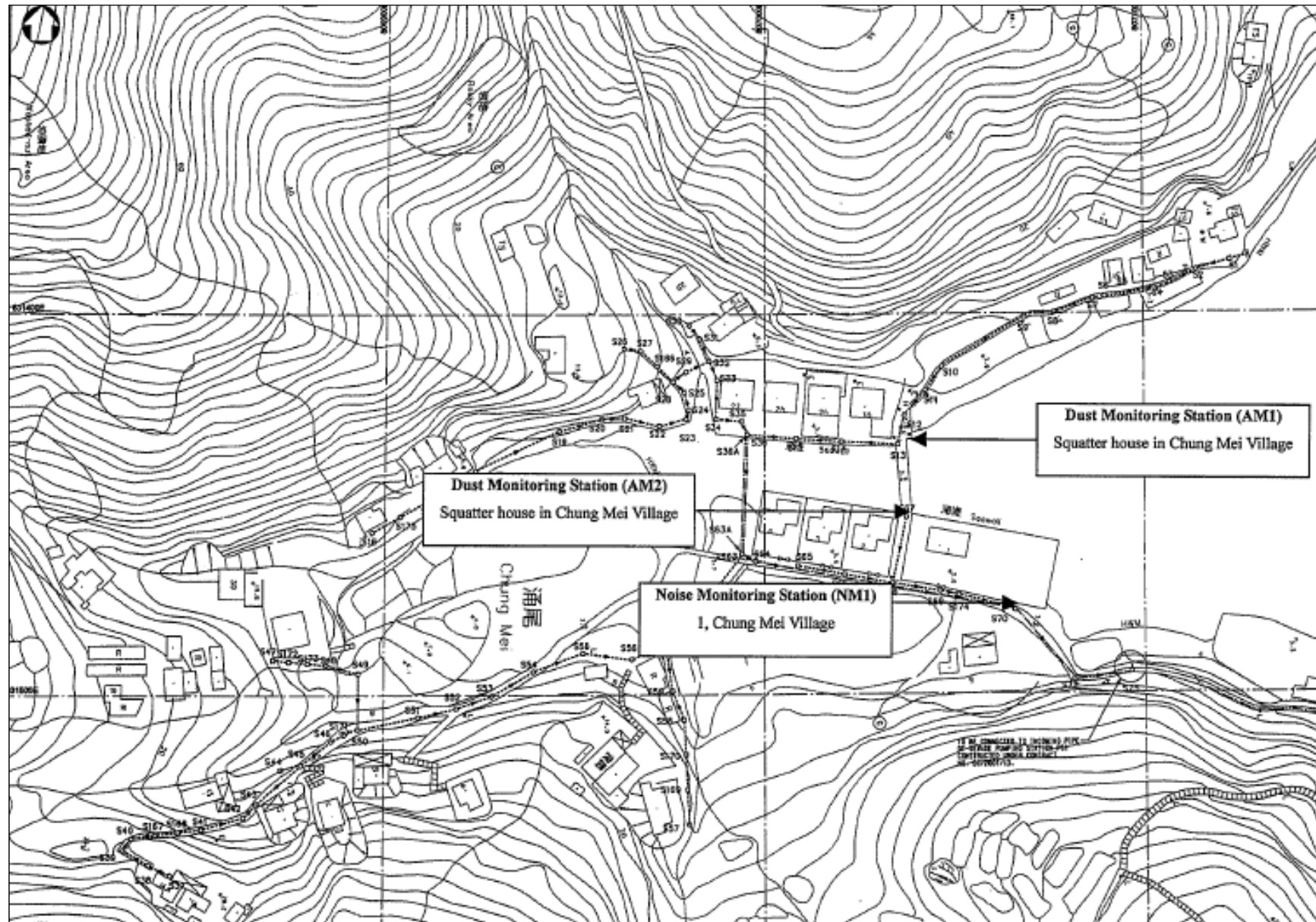
Leader Civil Engineering Corp. Ltd.
Contract No. DC/2009/13
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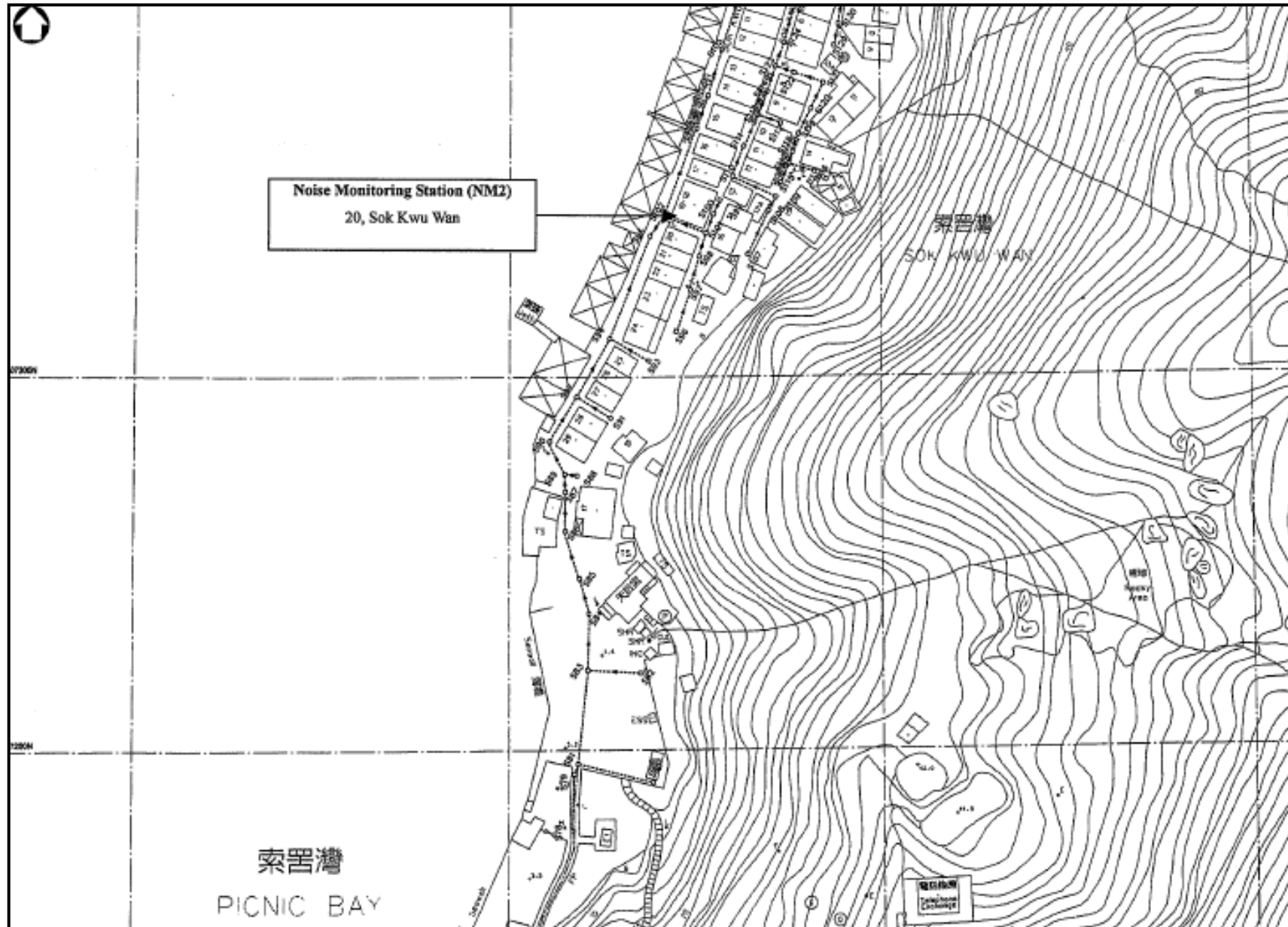
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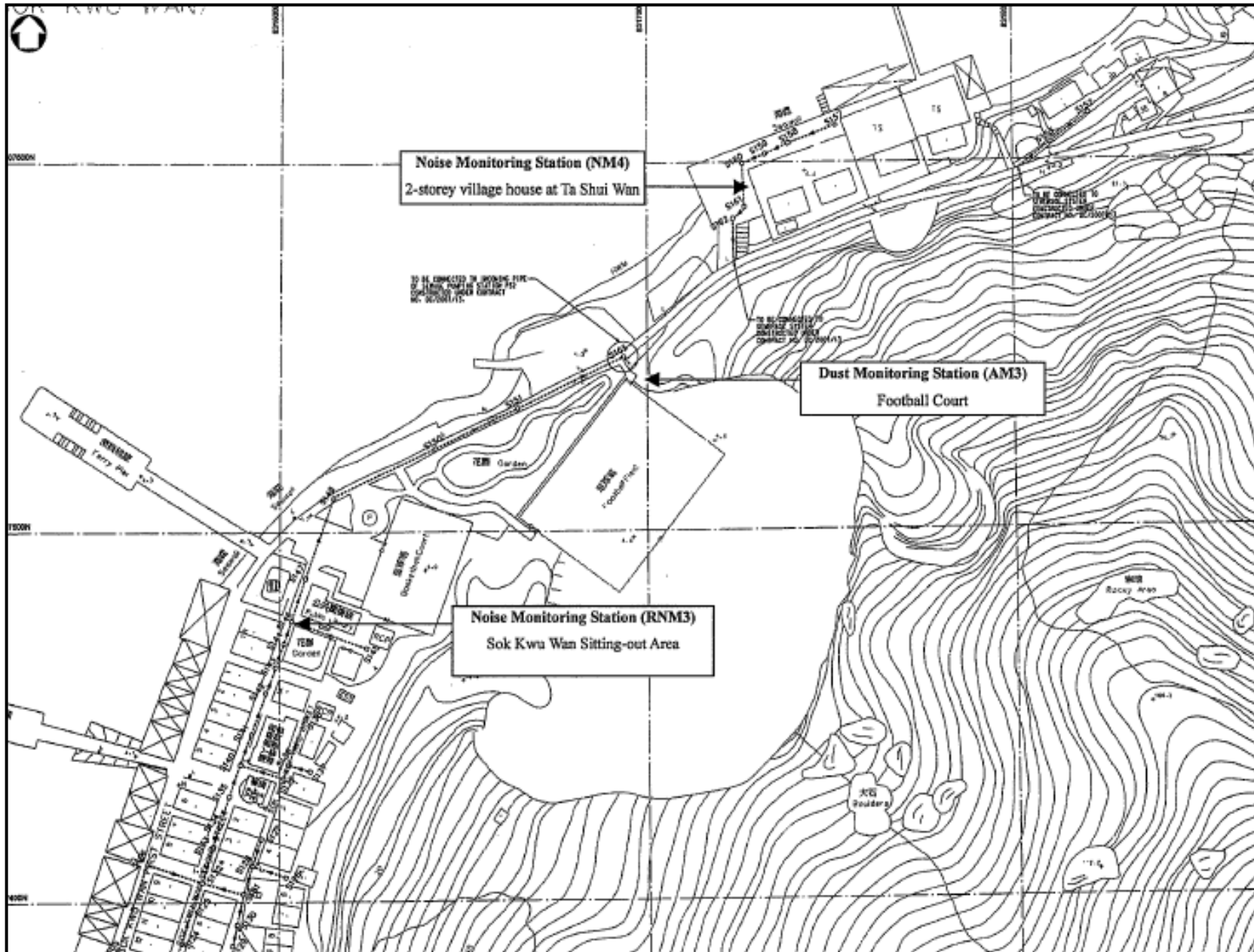
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31/07/12	Revision 0	RH	VC

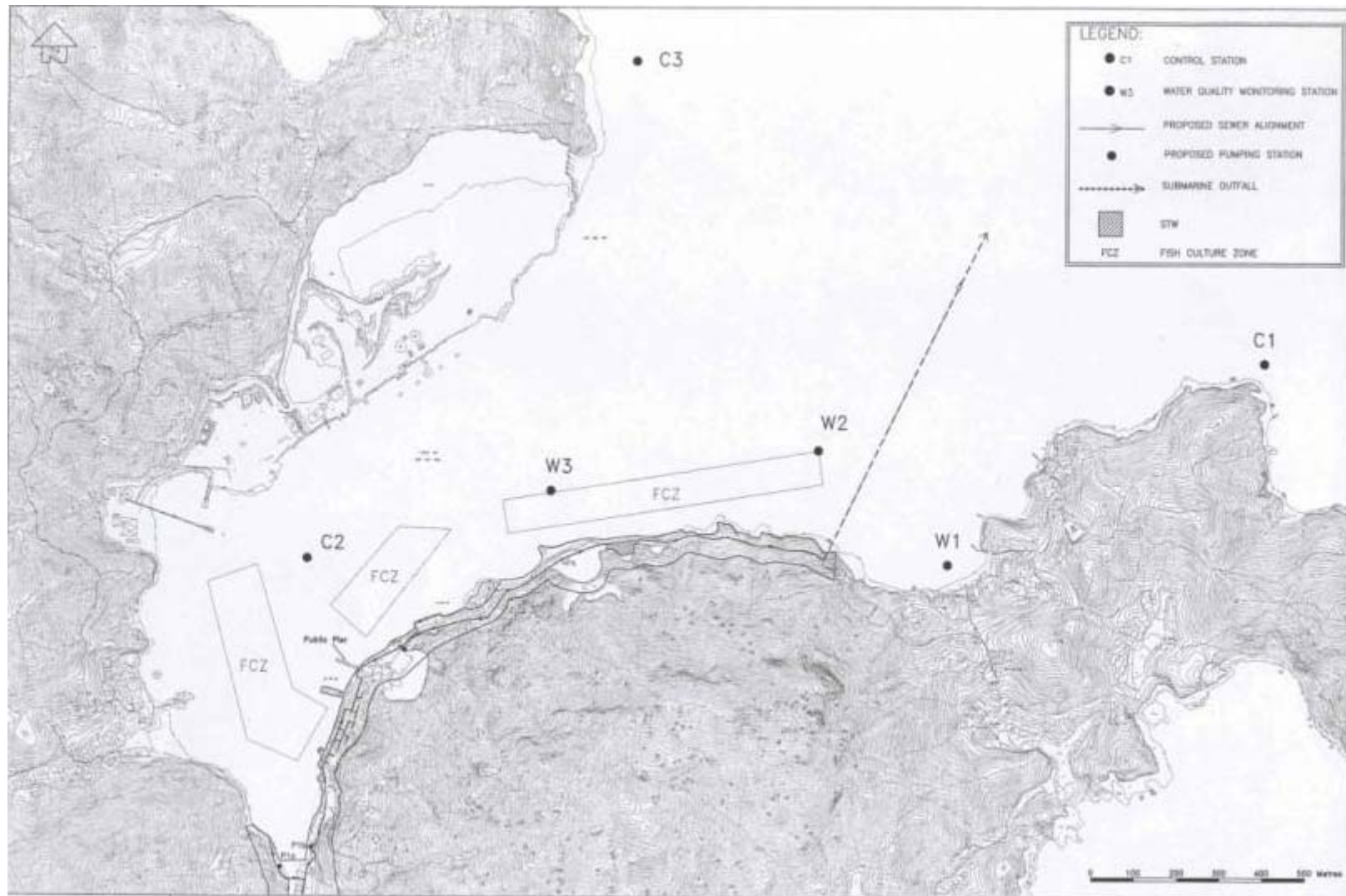
Appendix D

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







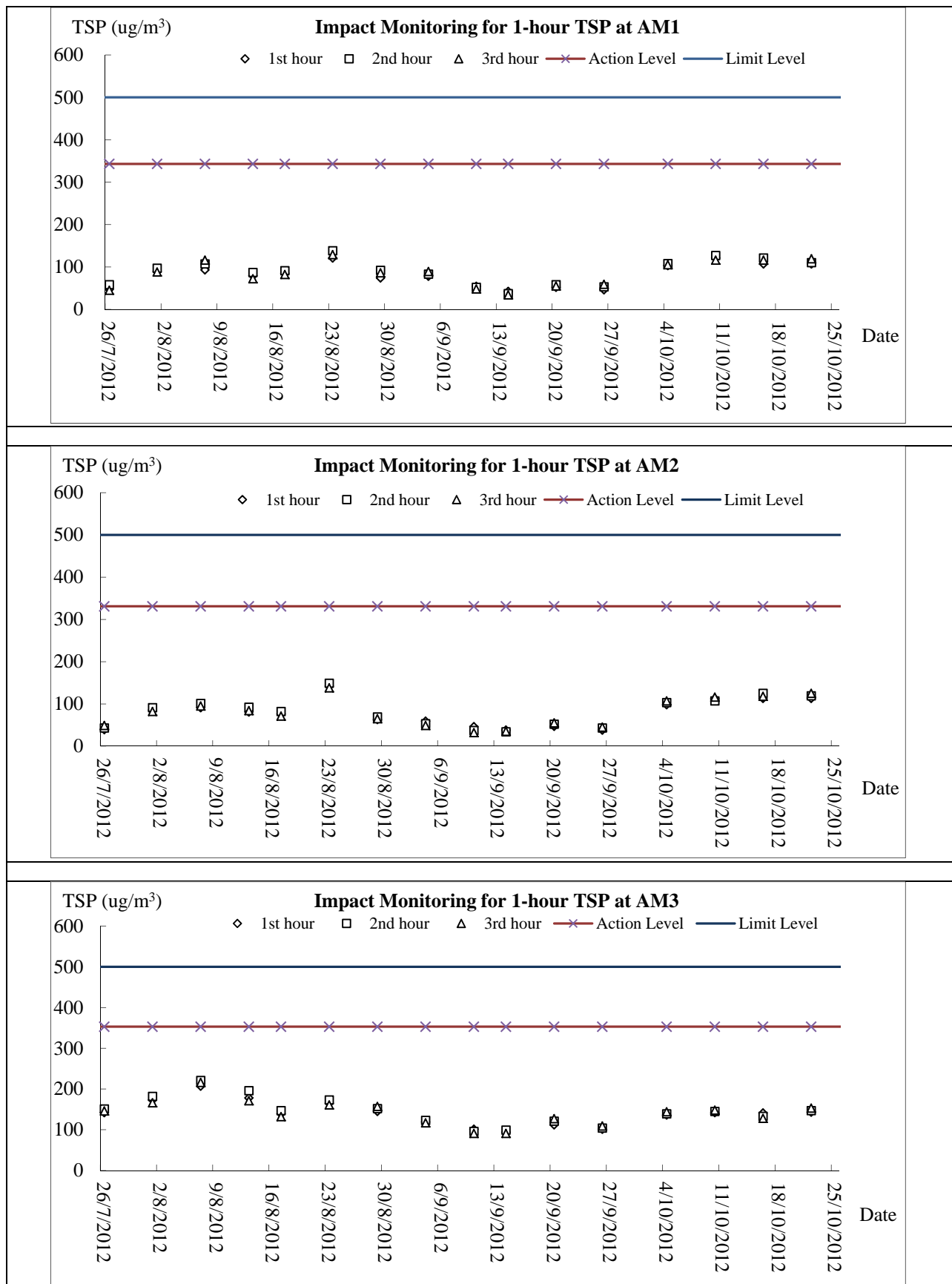


Appendix E

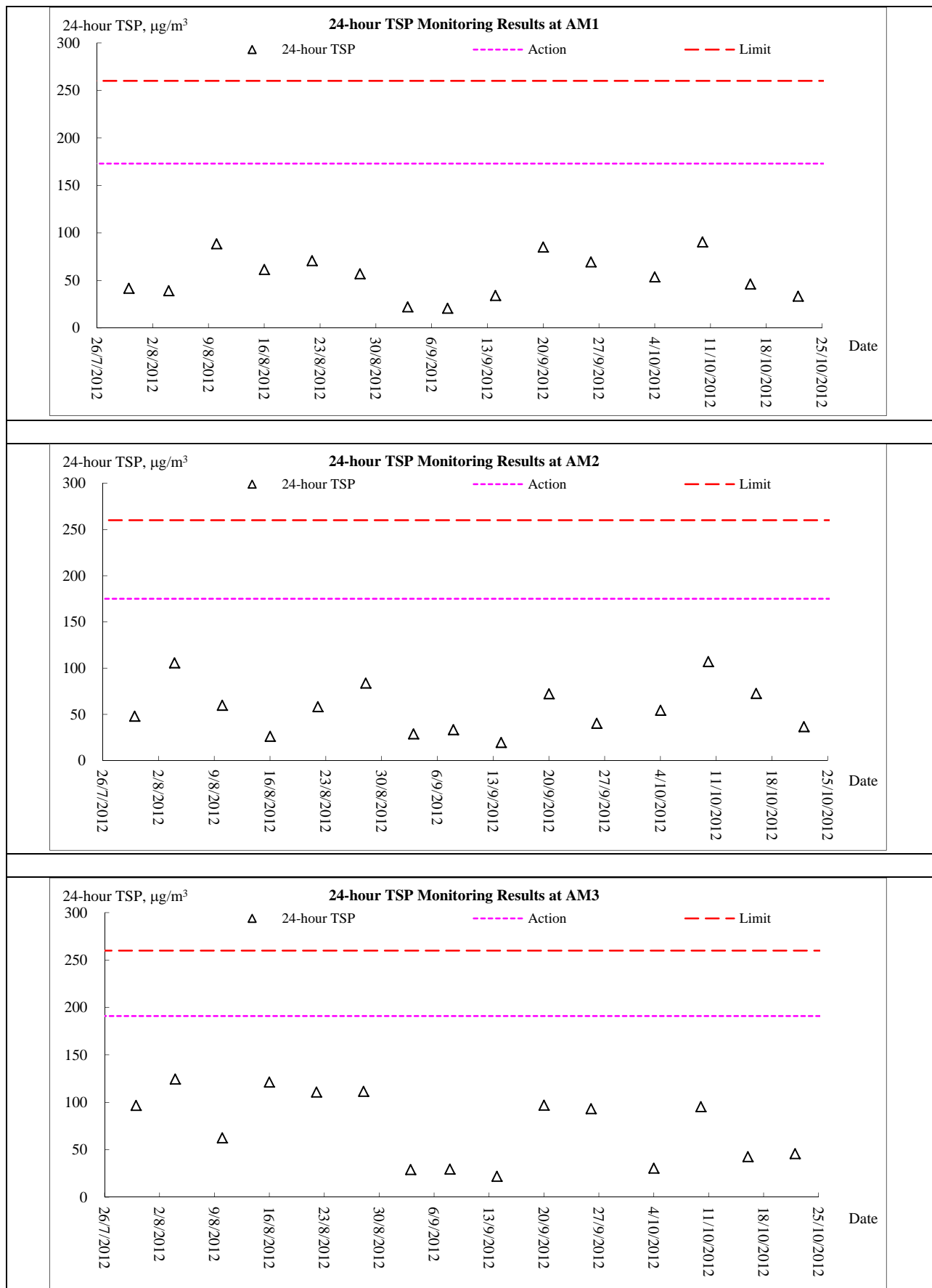
Graphical Plots of Impact Monitoring

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

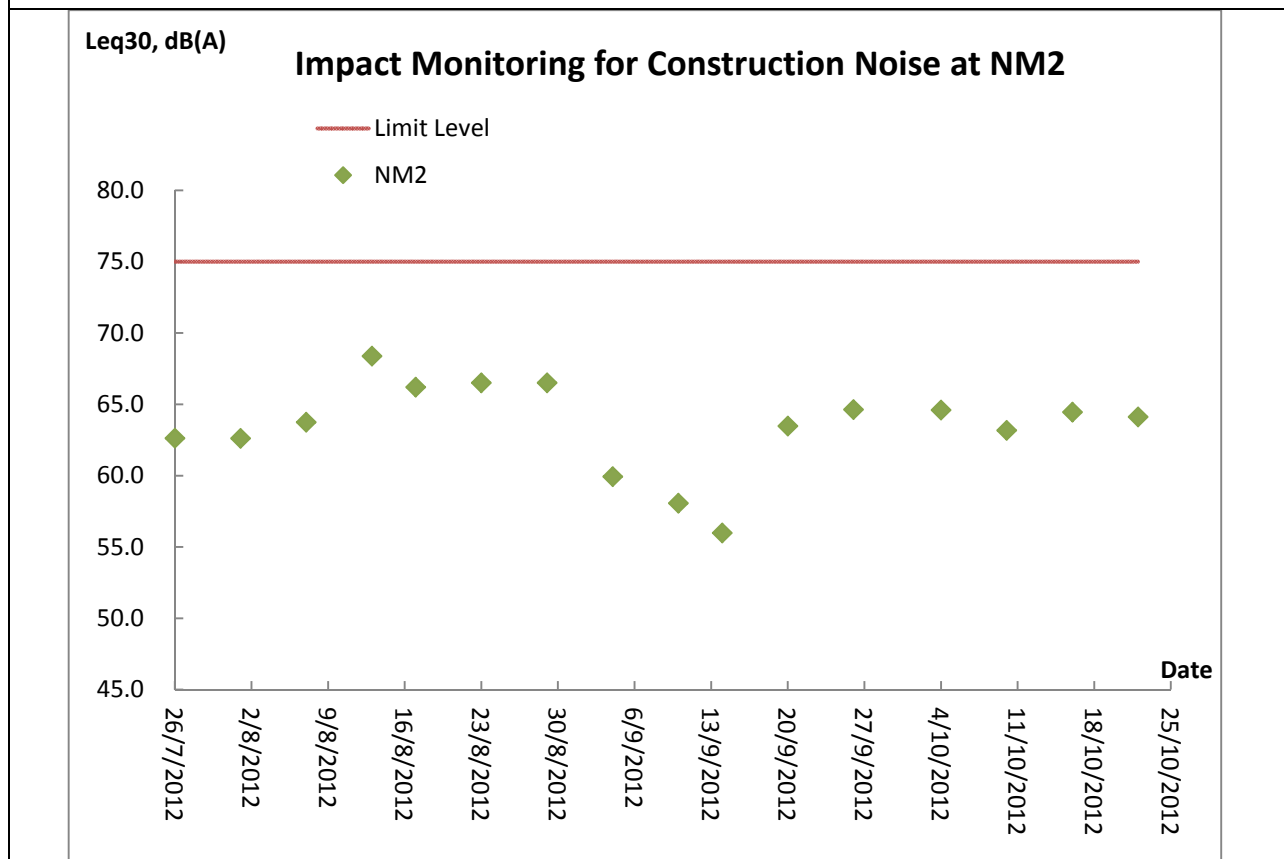
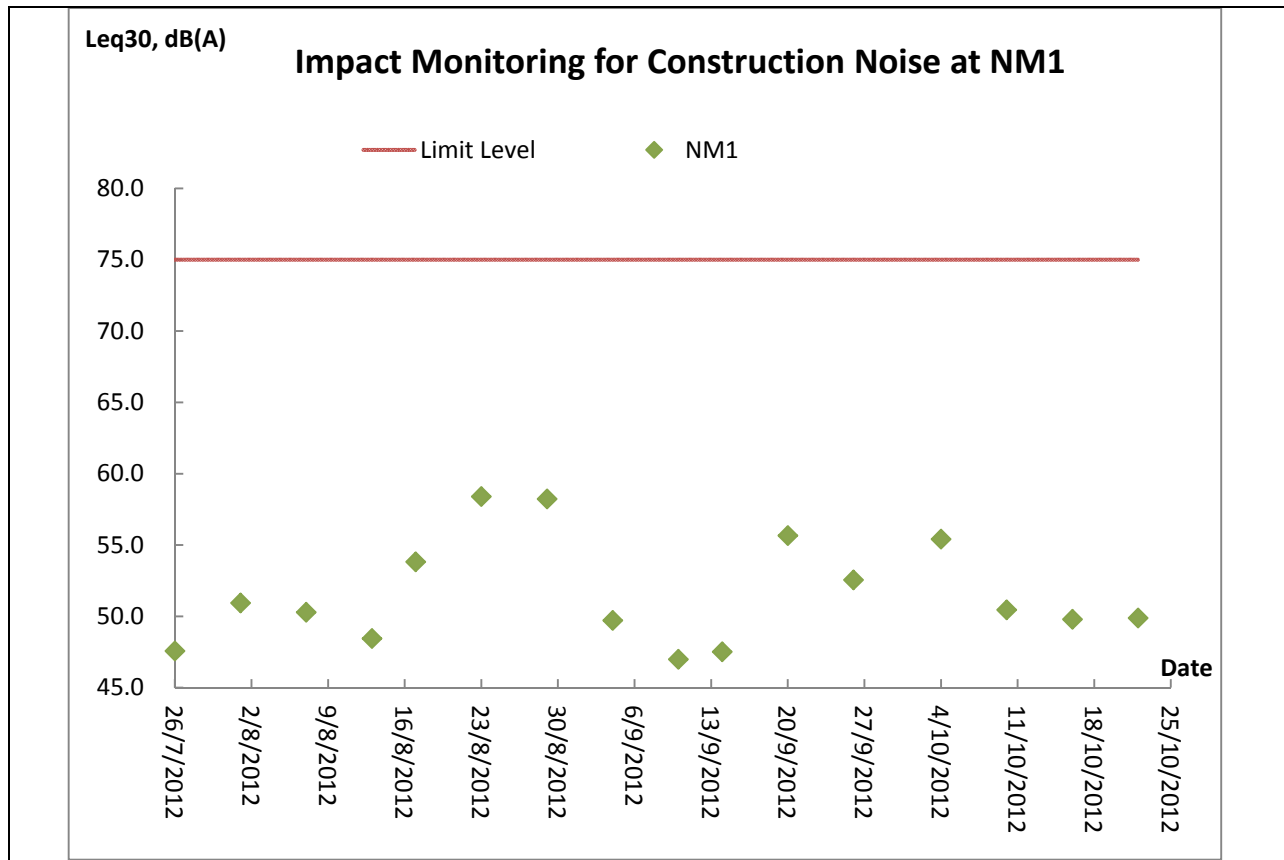
Air Quality Monitoring – 1 hour TSP Monitoring

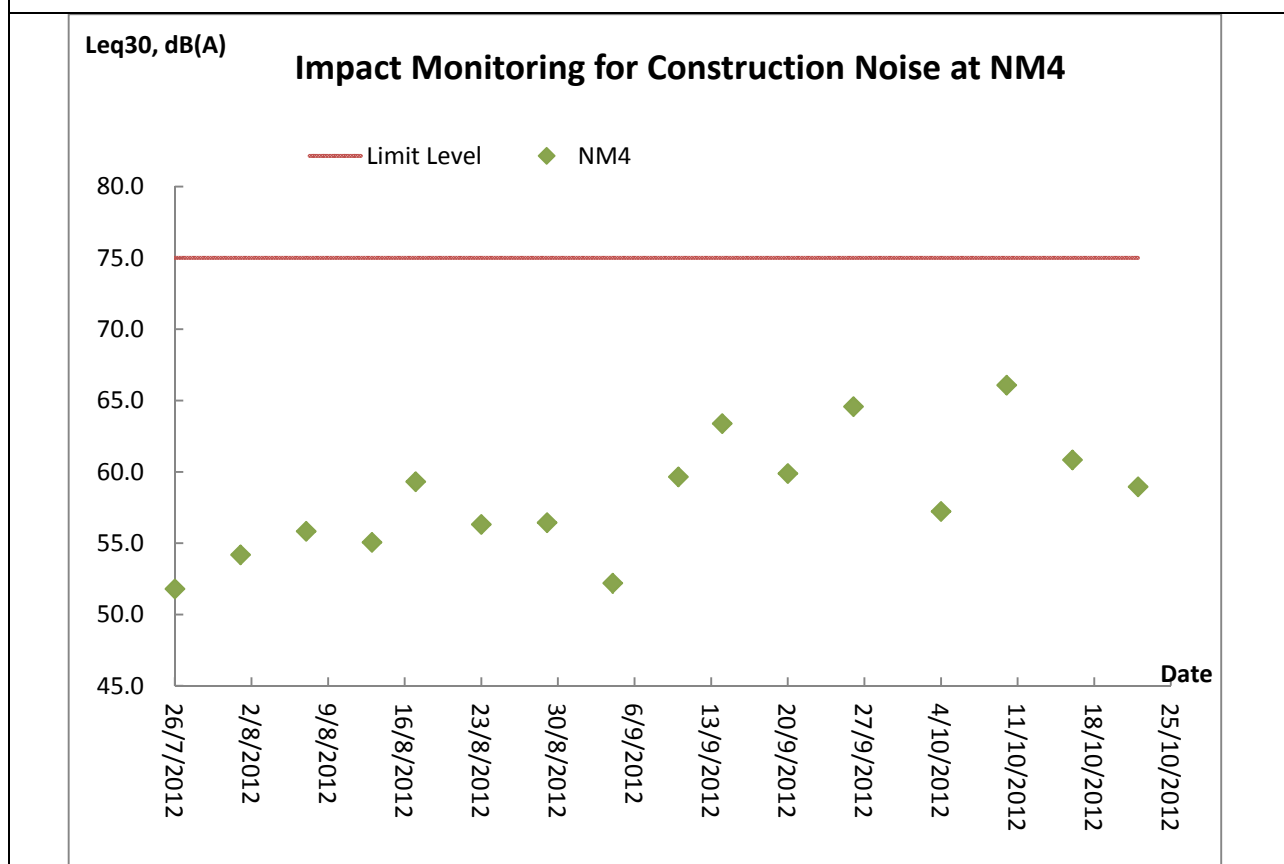
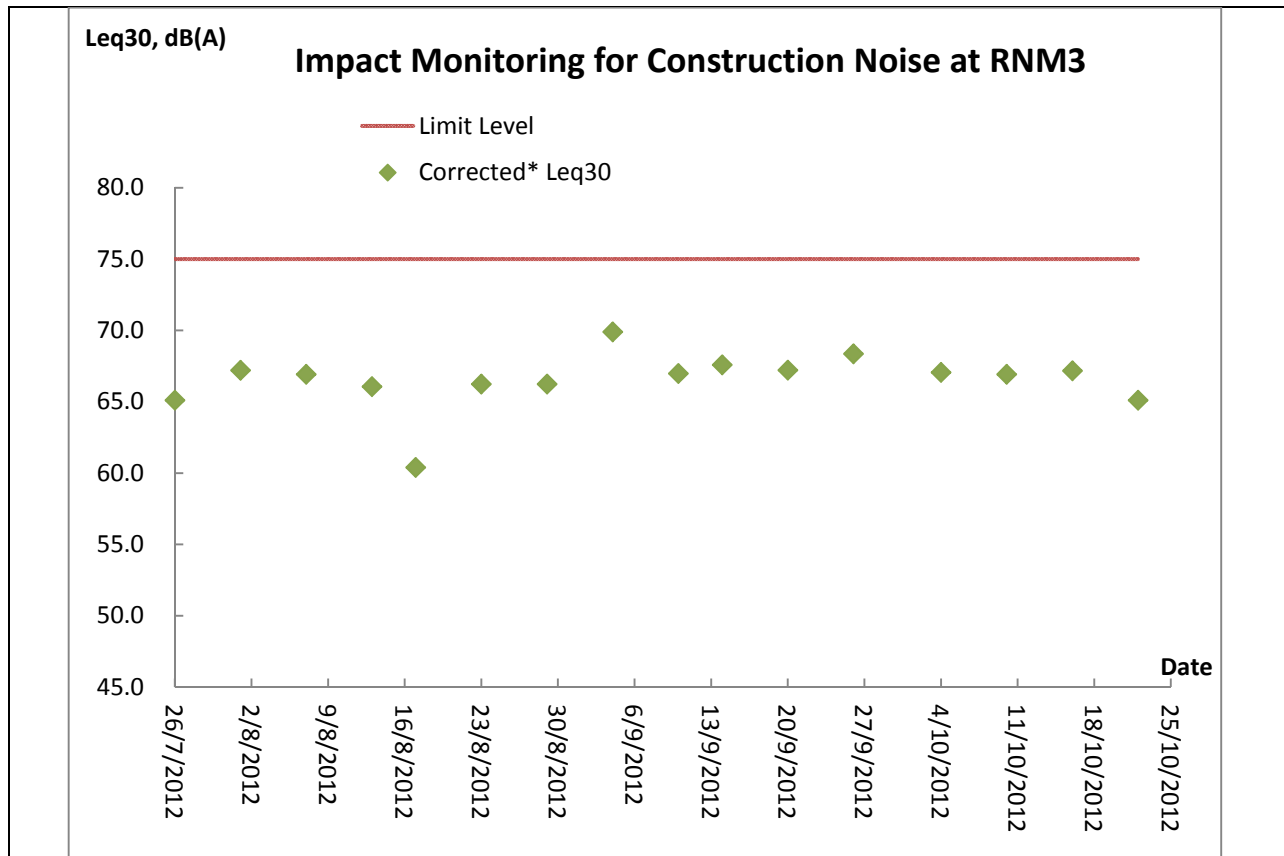


Air Quality Monitoring – 24 hour TSP Monitoring

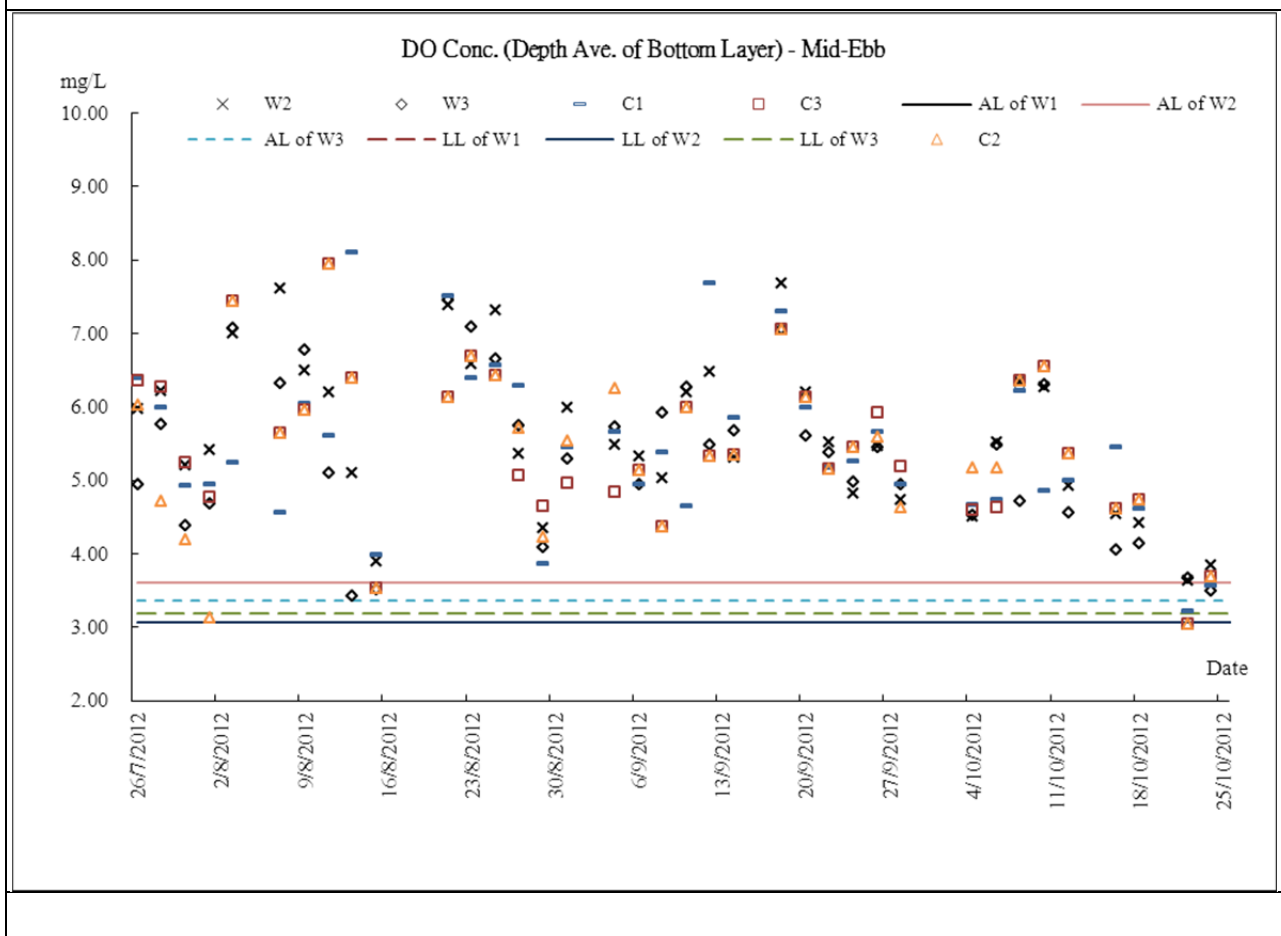
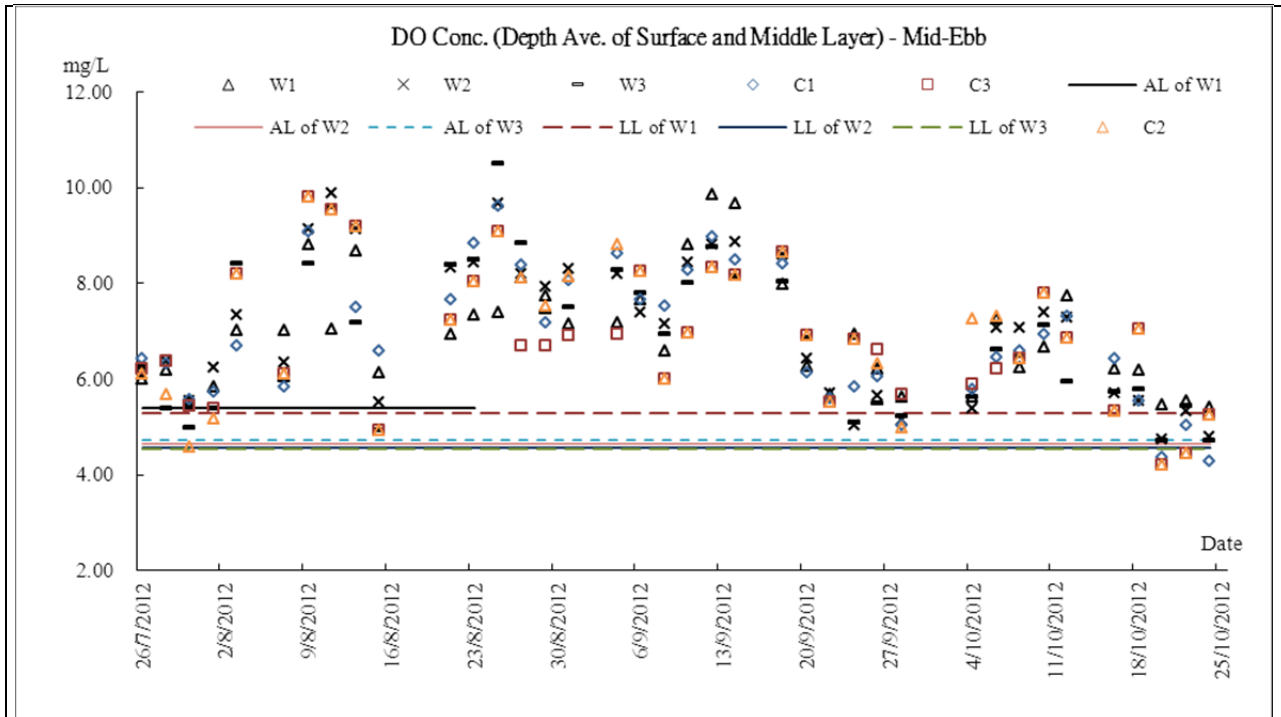


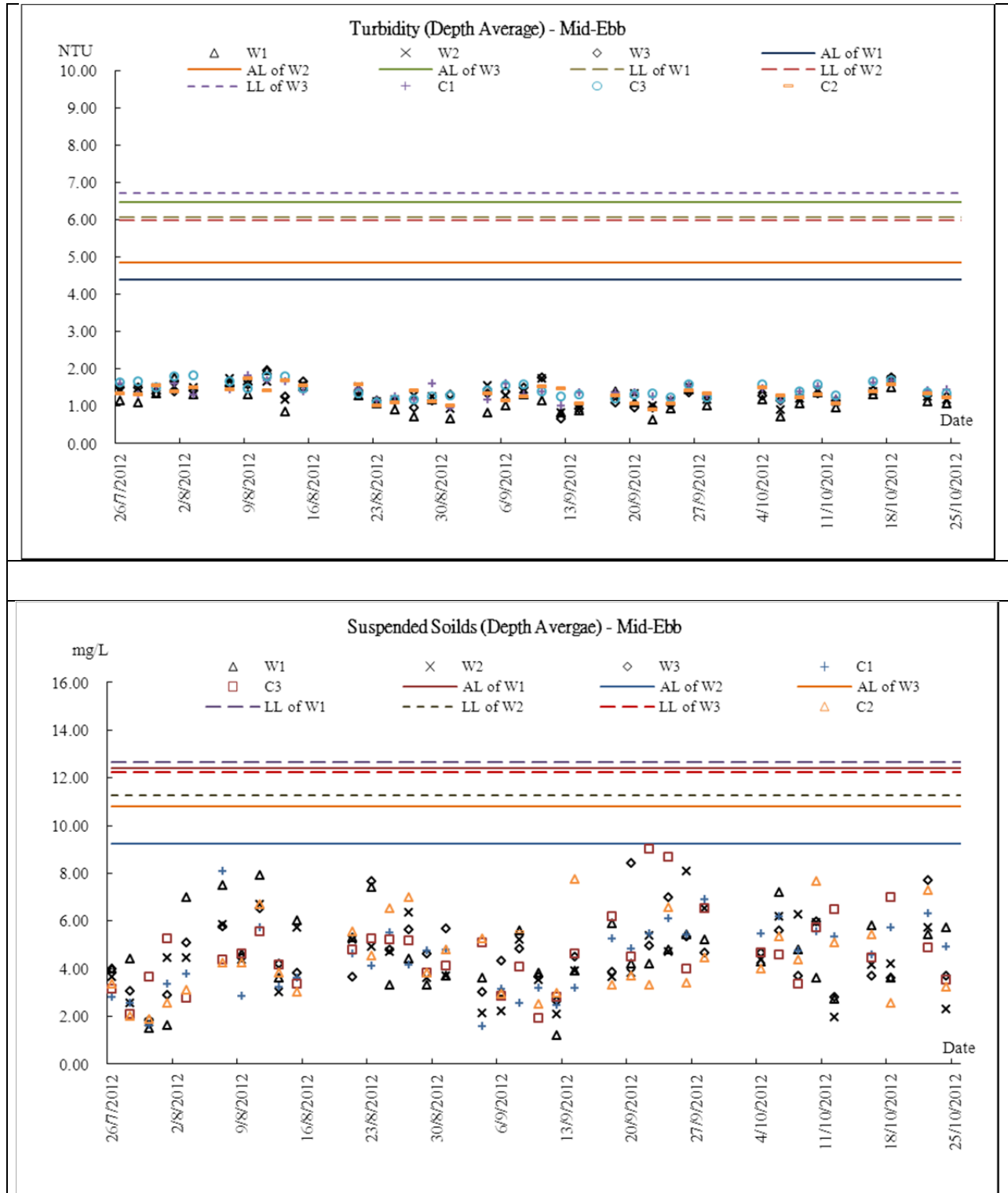
Construction Noise Monitoring



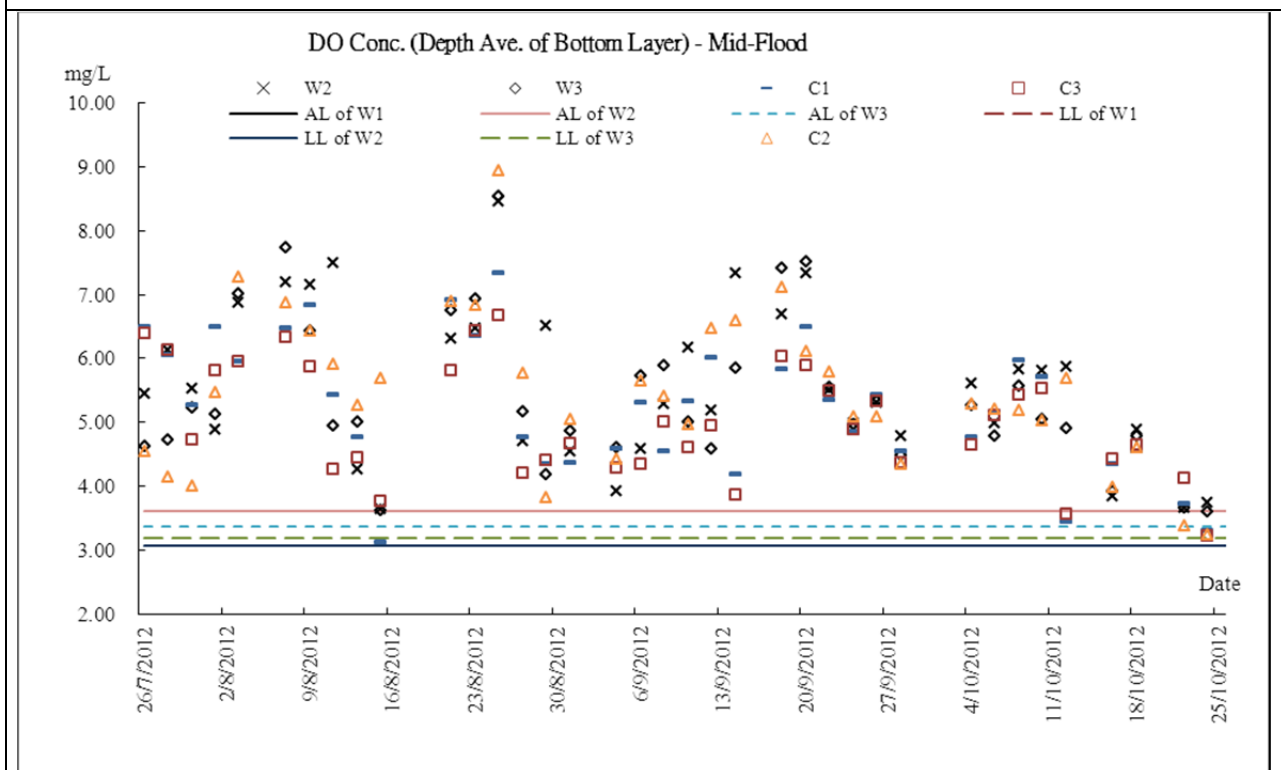
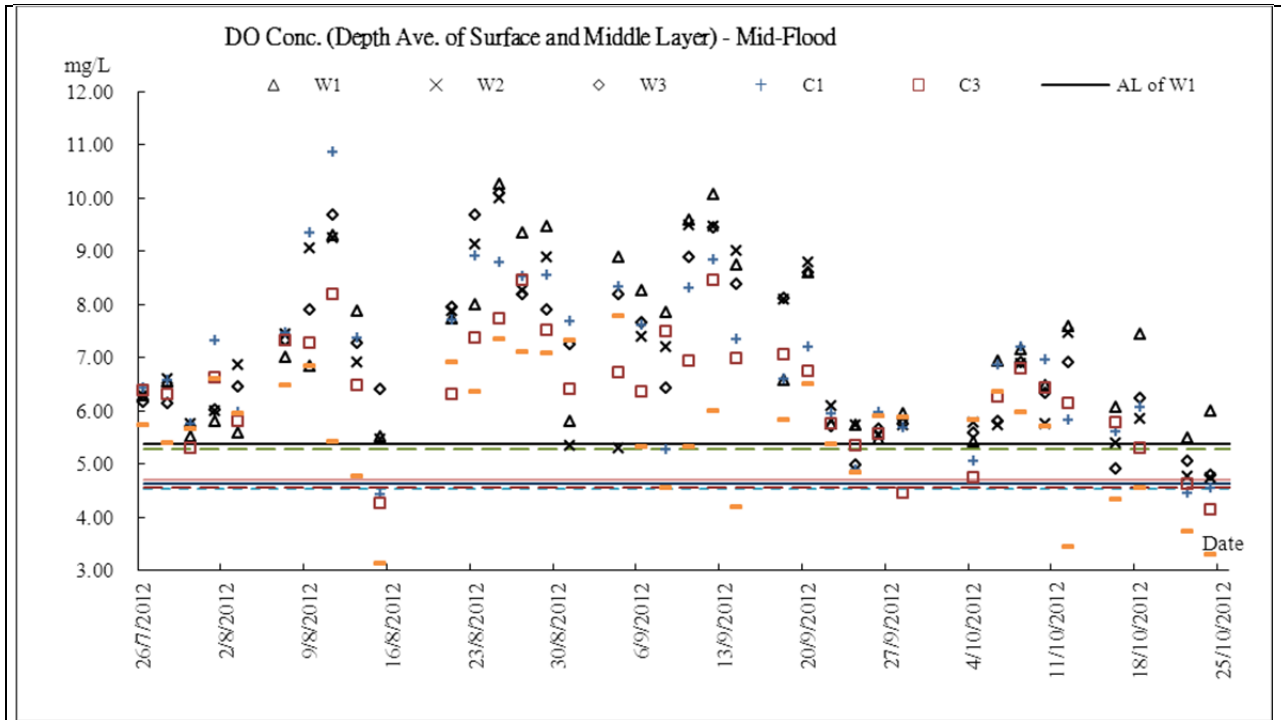


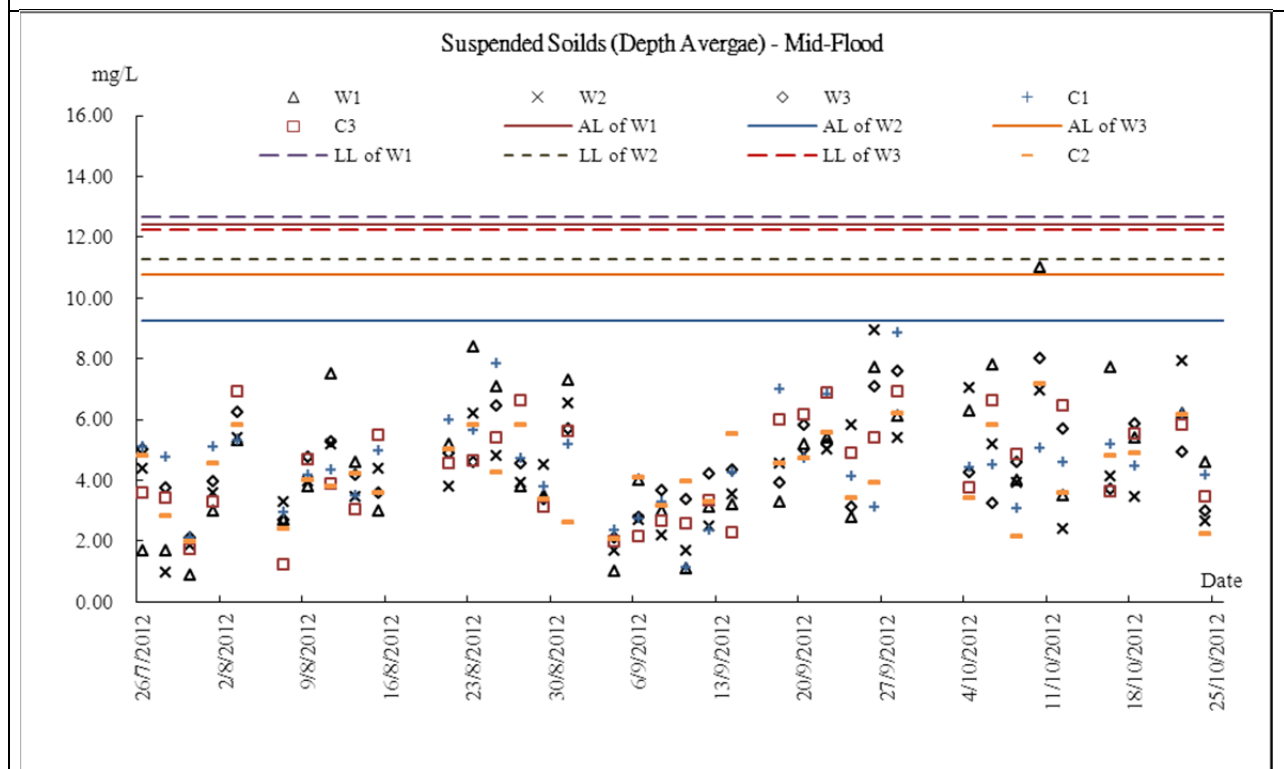
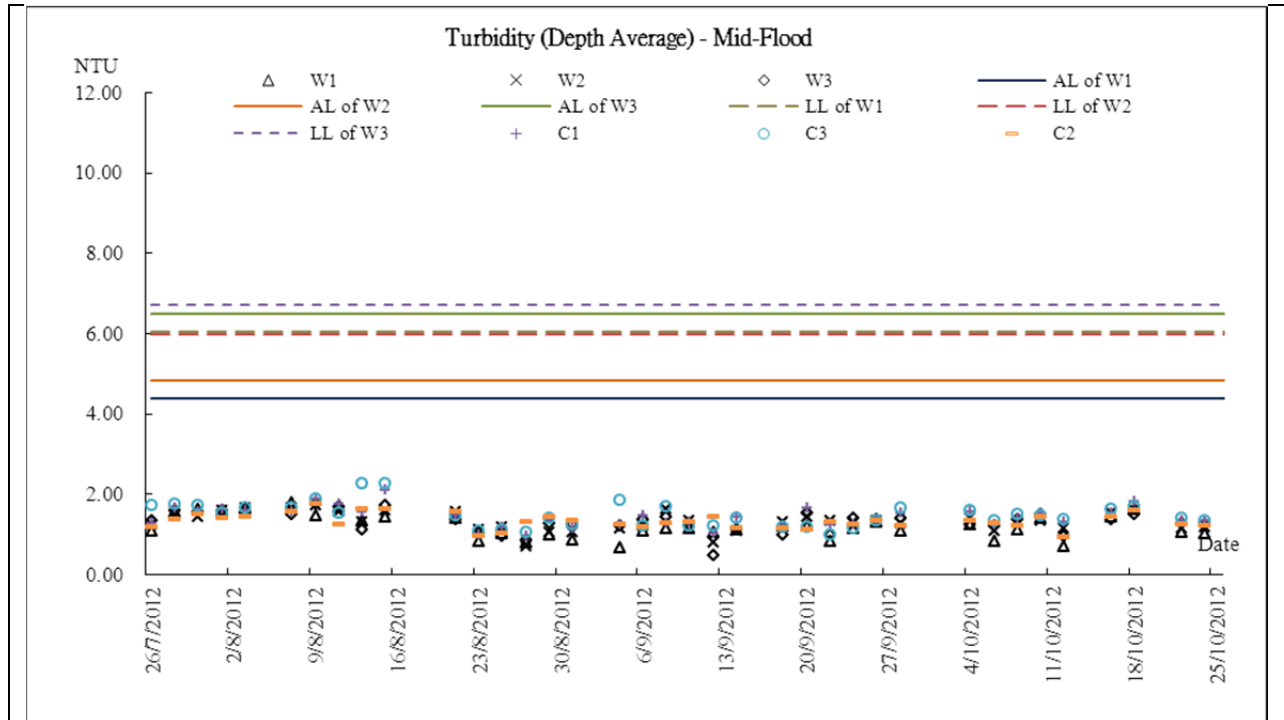
Marine Water Quality Monitoring - Mid-Ebb Tide





Marine Water Quality Monitoring - Mid-Flood Tide





Appendix F

Meteorological Information

Weather Condition – August 2012

August 2012 was one of the hottest Augusts on record which was mainly attributed to the prevalence of the continental subsiding airstream associated with tropical cyclones Saola, Kai-tak and Tembin. The monthly mean temperature rose to 29.5 degrees which was 0.9 degrees above normal, equaling the records set in 1990, 1998 and 2011. It was also the driest August since 1992. The monthly total rainfall was 149.8 millimetres, only about 35 percent of the normal figure of 432.2 millimetres. The accumulated rainfall since 1 January was 1545.4 millimetres, a deficit of 19 percent comparing to the normal figure of 1905.5 millimetres for the same period.

Weather Condition – September 2012

Due to the lack of passage of tropical cyclones and the prevalence of continental air masses part of the month, September 2012 in Hong Kong was drier than usual. The monthly total rainfall was 213.0 millimetres, about 35 percent below the normal figure of 327.6 millimetres. The accumulated rainfall since 1 January was 1758.4 millimetres, a deficit of 21 percent comparing to the normal figure of 2233.1 millimetres for the same period. The month was also warmer and sunnier than usual. The mean temperature of the month was 28.0 degrees, 0.3 degrees above the normal figure of 27.7 degrees. The monthly total duration of bright sunshine of 187.4 hours was about 9 percent above normal.

Weather Condition – October 2012

With the relatively dry northeast monsoon affecting southern China for most of the month, the weather of October 2012 was drier than usual. The monthly total rainfall of 46.4 millimetres was only about 46 percent of the normal figure of 100.9 millimetres. The accumulated rainfall since 1 January was 1804.8 millimetres, a deficit of 23 percent comparing to the normal figure of 2334.0 millimetres for the same period. The mean temperature of the month was 25.6 degrees, near the normal figure of 25.5 degrees.

The details meteorological data for each successive day could be referred to the Monthly EM&A Report (August, September and October 2012).

Appendix G

Monthly Summary Waste Flow Table

Monthly Summary Waste Flow Table for October 2012

Month	Actual Quantities of Inert C&D Materials Generated Monthly												Actual Quantities of C&D Wastes Generated Monthly									
	Total Quantity Generated (a) = (c)+(d)+(e)		Hard Rock and Large Broken Concrete (b)		Reused in the Contract (c)		Reused in other Projects (d)		Disposed as Public Fill (e)		Imported Fill (f)		Metals		Paper/ cardboard packaging		Plastics		Chemical Waste		Others, e.g. rubbish	
	(in '000m 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
2012	10.430	33.543	0.160	0.407	0.740	1.059	0.000	0.000	9.690	32.484	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	206.870	46.690
Jan	0.000	3.311	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.311	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	22.530	5.090
Feb	0.170	6.271	0.000	0.000	0.000	0.000	0.000	0.000	0.170	6.271	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.860	5.660
Mar	0.619	4.543	0.000	0.000	0.000	0.000	0.000	0.000	0.619	4.543	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.940	9.500
Apr	0.157	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.157	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.520	1.700
May	0.353	0.916	0.000	0.000	0.000	0.000	0.000	0.000	0.353	0.916	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	6.750	5.090
Jun	0.091	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.091	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	26.710	6.400
Sub-total	11.820	48.585	0.160	0.410	0.740	1.059	0.000	0.000	11.080	47.526	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	294.180	80.130
Jul	0.248	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.248	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.610	2.960
Aug	0.144	0.999	0.000	0.000	0.000	0.999	0.000	0.000	0.144	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	19.730	3.750
Sep	0.686	0.744	0.000	0.000	0.000	0.744	0.000	0.000	0.686	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	26.820	3.800
Oct	0.160	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.160	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.970	3.470
Nov																						
Dec																						
Total	13.058	50.328	0.160	0.410	0.740	2.802	0.000	0.000	12.318	47.526	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	365.310	94.110
	63.385		0.569		3.542		0.000		59.844		0.000		0.000		0.000		0.000		0.000		459.420	

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

YSW: Yung Shue Wan

SKW: Sok Kwu Wan