

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.Q11 (February to April 2013)

PREPARED FOR

LEADER CIVIL ENGINEERING CORPORATION

LIMITED

Quality Index	Reference No.	Prepared By	Certified By
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Version	Date	Description
1	30 May 2013	First submission
2	18 June 2013	Amended against IEC's comments on 4 June 2013

URS CDM Joint Venture

Chief Engineer/Harbour Area Treatment

Scheme

Drainage Services Department

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Hong Kong

Your reference:

Our reference:

05117/6/16/414018

Date:

18 June 2013

BY FAX ONLY

Attention: Ms. Jacky C M Wong

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. Q11 (February to April 2013)

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 18 June 2013. We have no comment and have verified the captioned report.

Yours faithfully

URS CDM JOINT VENTURE

Rodney Ip

Independent Environmental Checker

ICWR/SYSL/ecwc

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(Attn: Mr Vincent Chan)

(Attn: Mr T.W. Tam) (Attn: Mr Ian Jones)

(Attn: Mr Mark Sin)



EXECUTIVE SUMMARY

ES.01 This is the 11th 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 January to 25 April 2013 (hereinafter 'the Reporting Period').

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

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

Issues	Environmental Monitoring Parameters / Inspection	Occasions
Air Quality	1-hour TSP	144
Air Quality	24-hour TSP	42
Construction Noise	$L_{eq(30min)}$ Daytime	64
Water Quality	Marine Water Sampling	35
Inspection / Audit	ET Regular Environmental Site Inspection	12

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	Monitoring	Action Lim		Event & Action		
Issues	Parameters Parameters	Level	Level	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		
	DO	0	0	0		
Water Quality	Turbidity	0	0	0		
	SS	0	0	0		

Note: NOE – Notification of Exceedance

ES.04 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.

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

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

REPORTING CHANGE

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

FUTURE KEY ISSUES

During wet season, muddy water and other water quality pollutants via site surface water runoff ES.07 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.

Contract No. DC/2009/13 – Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan Sok Kwu Wan Portion Area

11th Quarterly EM&A Summary Report (February to April 2013)



ES.08 Muddy water and other water quality pollutants via site surface water runoff into the sea body within Fish Culture Zone (FCZ) at Picnic Bay and the secondary recreation contact subzone at Mo Tat Wan is the key issue of the Project. Mitigation measures for water quality should be properly maintained to prevent any muddy or sandy runoff from the loose soil surface overflow on the site boundary.



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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 stead EP-281/2007 is EP for Sok Kwu Wan relevant Works.
- 1.02 The Project involves construction of sewage treatment works at Sok Kwu Wan and Yung 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 lying of underground sewerage pipeline. The site layout plan for the captioned work under the Project is showing in *Appendix A*.
- 1.03 According to the Particular Specification (PS) and *Appendix 25* of the Project, Leader should establish an Environmental Team to implement the environmental monitoring and auditing works to fulfill the requirements as stipulated in the Environmental Monitoring and Audit (EM&A) Manuals. 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 spilt to following two stand-alone parts:
 - (a) Proposed EM&A Programme for Baseline and Impact Monitoring Sok Kwu Wan (under EP No. 281/2007/A varied on 23 September 2009)
 - (b) Proposed EM&A Programme for Baseline and Impact Monitoring Yung Shue Wan (under EP No. 282/2007)
- 1.05 This is the 11th Quarterly EM&A Summary Report for Sok Kwu Wan Portion Area presenting the monitoring results and inspection findings for the reporting period from 26 January to 25 April 2013.

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:-

February, March and April 2013

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

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-RS1112-12
		Valid from: 30 Oct 2012
		Until: 29 Mar 2013
6	Construction Noise Permit#	Permit no. GW-RS0419-13
		Valid from: 22 April 2013
		Until: 30 September 2013

No CNP covered the period from 30 Mar to 21 Apr and no construction work was conducted during Restrict Hour in that period.



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	1-hour TSP Monitoring by Real-Time Portable Dust Meter; and
All Quality	• 24-hour TSP Monitoring by High Volume Air Sampler.
Noise	L _{eq(30min)} during normal working hours; and
Noise	L _{eq(15min)} during Restricted Hours.
	In-situ Measurements
	Dissolved Oxygen Concentration (DO) (mg/L);
	Dissolved Oxygen Saturation (%);
	• Turbidity (NTU);
Marine Water Quality	pH unit;
Warme Water Quanty	Salinity (ppt);
	Water depth (m); and
	• Temperature (°C).
	Laboratory Analysis
	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-ordnance of marine water quality monitoring stations is described in *Table 3-4* and the graphical is shown in *Appendix D* and would be performed for EM&A programme.

Table 3-4 Location of Marine Water Quality Monitoring Station

Station	Description	Co-ordnance		
Station	Description	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

<u>Parameters</u>: 1-hour TSP and 24-hour TSP.

<u>Frequency</u>: Once in every six days for 24-hour TSP and three times in every six days for

1-hour TSP.

<u>Duration</u>: Throughout the construction period.

Noise Monitoring

<u>Parameters</u>: $L_{eq(30min)}$ & $L_{eq(5min)}$, 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)

<u>Frequency</u>: 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,

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pH, turbidity and salinity;

HOKLAS-accredited laboratory analysis: Suspended Solids

Three days a week, at mid ebb and mid flood tides. The interval between 2 Frequency:

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

During the course of marine works **Duration:**

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 Le	vel (μg/m³)	Limit Level (µg/m³)		
Within the Station	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	Action Level	Limit Level		
Location	0700-1900 hours on normal weekdays			
NM1 NM2 RNM3 NM4	When one or more documented complaints are received	75 dB(A) of $L_{\rm eq(30min)}$ during normal hours from 0700 to 1900 hours on normal weekdays, reduced to 70 dB(A) of $L_{\rm eq(30min)}$ for schools and 65 dB(A) during school examination periods		

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

Parameter	Performance	Im	Impact Station			
r ar ameter	Criteria	W1	W2	W3		
DO Concentration (Surface and Middle)	Action Level	5.39	4.64	4.71		
(mg/L)	Limit Level	5.29	4.56	4.54		
DO Concentration (Bottom)	Action Level	N/A	3.60	3.37		
(mg/L)	Limit Level	N/A	3.06	3.18		
Turbidity (Depth-Average)	Action Level	4.39	4.84	6.48		
(NTU)	Limit Level	6.06	5.99	6.71		
Suspended Solids (Depth-Average)	Action Level	12.41	9.24	10.79		
(mg/L)	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 **42** 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*.

Station	1-h	our TSP (µg/	\mathbf{m}^3)	24-hour TSP (μg/m ³)			
Station	Max	Min	Mean	Max	Min	Mean	
AM1	107	33	58	96	5	50	
Record Date	27-Feb-13	27-Mar-13	48 events	26-Feb-13	25-Apr-13	15 events	
AM2	95	31	58	138	7	52	
Record Date	30-Jan-13 & 27-Feb-13	11-Mar-13	48 events	21-Mar-13	25-Apr-13	15 events	
AM3	166	53	110	99	32	59	
Record Date	10-Apr-13	15-Feb-13	48 events	26-Feb-13	2-Feb-13	12 events	

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

- 4.03 In this Reporting Period, power failure of HVS was occurred at all monitoring locations (AM1 to AM3) on 2 April 2013 after heavy rainstorm in late March 2012. The notification of power failure was issued by ET as require the Leader to rectify. The power supplies at AM1 and AM2 have been rectified before next monitoring event. For AM3, serious power storage was happened for successive weeks and the power was finally rectified on 25 April 2013.
- 4.04 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

4.05 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))					
Station	Max	Min				
NM1	58.7	46.8				
Record Date	21-Mar-13	15-Mar-13				
NM2	64.2	51.2				
Record Date	27-Feb-13	19-Apr-13				
RNM3	69.2	55.0				
Record Date	21-Mar-13	19-Apr-13				
NM4	63.3	48.4				



Record Date	27-Mar-13	5-Feb-13

4.3 RESULTS OF MARINE WATER QUALITY OF MONITORING

- 4.06 In this Reporting Period, 35 monitoring days have been carried out at the designated locations.
- 4.07 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	С3
Average	7.33	7.32	7.15	7.31	7.15	7.27
Min	5.43	5.37	4.92	4.53	5.04	3.47
Max	9.41	9.27	8.44	9.50	9.04	9.47

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

Station	W1	W2	W3	C1	C1 C2	
Average	NA	7.20	7.04	7.14	6.95	7.12
Min	NA	5.13	4.79	4.40	4.61	3.54
Max	NA	9.04	8.65	9.35	8.74	9.42

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

Station	W1	W2	W3	C 1	C1 C2	
Average	1.16	1.17	1.23	1.17	1.21	1.24
Min	0.55	0.60	0.46	0.61	0.55	0.67
Max	2.79	2.55	2.81	2.37	2.17	2.41

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

Station	W1	W2	W3	C1	C1 C2	
Average	2.61	2.57	2.42	2.67	2.72	2.93
Min	0.50	0.57	0.67	0.73	0.50	0.77
Max	10.40	8.37	6.43	7.00	6.93	14.63

4.08 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	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	l-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	0	0	0	0	0	0	0	0	0	0	

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Station	(Ave of Surf. & mid-depth) Action Limit		DO (A Bottom		Turb (Depth		S: (Depth	_	Total Exceedance		
			Action	Limit	Action	Limit	Action	Limit	Action	Limit	
Exceedance											

4.09 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

- 4.10 According to Clause 3.7 and Figure 4 in the Environmental Permit No. EP-281/2007/A, a total of 12 numbers *Celtis Timorensis* (uncommon species) in Chung Mei at Sok Kwu Wan, are identified to require labeling, fencing and protection. Out of these, four numbers located in the Pumping Station No.1 area are required to be transplanted in advance of pumping station construction and the transplantation proposal has been submitted to EPD previously.
- 4.11 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.
- 4.12 Regular inspection of the transplanted tree was carried out by the landscaping sub-Contractor (Melofield Nursery and Landscape Contractor Limited) on 30 January 2013 and 15, 28 February and 15, 30 March and 15 April 2013. The copies of the inspection reports were attached in relevant Monthly EM&A Report (February 2013, March 2013 and April 2013).



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

Two of Wests		Quantity	Disposal Location	
Type of Waste	Feb 13	Mar 13	Apr 13	Disposai Location
C&D Materials (Inert) ('000m ³)	0	0.003	0	-
Reused in the Contract (Inert) ('000m³)	0	0	0	-
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 Weste		Quantity	Dignosal Logotian	
Type of Waste	Feb 13	Mar 13	Apr 13	Disposal Location
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)	6.530	4.920	32.20	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

- According to the Final Report Environmental Monitoring and Audit Manual [2095/13.3], the environmental site inspection should been formulation by ET Leader. Regular environmental site inspections had been carried out by the ET to confirm the environmental performance. In this Reporting Period, routine joint site inspections by RE, Leader and ET were carried out on 29 January and 5, 19, 26 February and 5, 12, 19, 26 March 2013 and 2, 9, 16 and 23 April 2013.
- 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
29 January 2013	Scattered of construction waste was observed, the Contractor should improve the housekeeping of the site.	The construction waste was cleared on 5 February 2013.
5 February 2013	• Construction waste was observed stockpiled near Portion of the construction site. Regular removal from the site to avoid excessive accumulation is reminded, or covering with tarpaulin sheeting is required.	The stockpile was confirmed to be outside of the construction boundary. No action was taken.
19 February 2013	• 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.
26 February 2013	• 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.	N.A.
5 March 2013	• 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.	N.A.
12 March 2013	• 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.	N.A.
19 March 2013	• Stagnant water was observed in the sedimentation tank at Portion K. Mosquito control measures are reminded to avoid mosquito breeding in warm condition.	Stagnant water was removed on 26 Mar 2013



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26 March 2013	No adverse environmental impacts were observed during site inspection. However, full implementation of the required environmental mitigation measures is reminded.	N.A.
2 April 2013	No adverse environmental impacts were observed during site inspection. However, full implementation of the required environmental mitigation measures is reminded.	N.A.
9 April 2013		Rectified on 16 April 2013.
16 April 2013	No adverse environmental impacts were observed during site inspection. However, full implementation of the required environmental mitigation measures, in particularly construction dust suppression measures during dusty activities under dry and wind conditions and water quality measures during heavy rains, is reminded.	N.A.
23 April 2013	-	To be followed.



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

Denouting Davied	Environmental Complaint Statistics								
Reporting Period	Frequency	Cumulative	Complaint Nature						
27 July 2010 – 25 January 2013	1 (Nov 2011)	1 (Nov 2011)	Marine water quality						
February 2013	0	1	NA						
March 2012	0	1	NA						
April 2013	0	1	NA						

Table 7-2 Statistical Summary of Environmental Summons

Depositing Devied	Environmental Summons Statistics									
Reporting Period	Frequency	Cumulative	Complaint Nature							
27 July 2010 – 25 January 2013	0	0	NA							
February 2013	0	0	NA							
March 2012	0	0	NA							
April 2013	0	0	NA							

Table 7-3 Statistical Summary of Environmental Prosecution

Danauting Danied	Environmental Prosecution Statistics									
Reporting Period	Frequency	Cumulative	Complaint Nature							
27 July 2010 – 25 January 2013	0	0	NA							
February 2013	0	0	NA							
March 2012	0	0	NA							
April 2013	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:
 - (a) Stockpiles of imported material kept on site should be contained within hoardings, dampened and / or covered during dry and windy weather;
 - (b) Material stockpiled alongside trenches should be covered with tarpaulins whenever works are close to village houses;
 - (c) Water sprays should be used during the delivery and handling of cement, sands, aggregates and the like.
 - (d) Any vehicle used for moving sands, aggregates and construction waste shall have properly fitting side and tail boards. Materials should not be loaded to a level higher than the side and tail boards, and should be covered by a clean tarpaulin.

Noise Mitigation Measure

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

Water Quality Mitigation Measure

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

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- 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:



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- 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	• Drainage channels were provided to convey run-off into the treatment facilities;
Quality	and
	Drainage systems were regularly and adequately maintained.
Air Quality	• Cover all excavated or stockpile of dusty material by impervious sheeting or
	sprayed with water to maintain the entire surface wet;
	• Public roads around the site entrance/exit had been kept clean and free from dust;
	and
	Tarpaulin covering of any dusty materials on a vehicle leaving the site.
Noise	 Good site practices to limit noise emissions at the sources;
	Use of quite plant and working methods;
	• Use of site hoarding or other mass materials as noise barrier to screen noise at
	ground level of NSRs; and
	To minimize plant number use at the worksite.
Waste and	• Excavated material should be reused on site as far as possible to minimize off-site
Chemical	disposal. Scrap metals or abandoned equipment should be recycled if possible;
Management	• Waste arising should be kept to a minimum and be handled, transported and
	disposed of in a suitable mainler,
	• The Contractor should adopt a trip ticket system for the disposal of C&D
	materials to any designed public filling facility and/or landfill; and
	• Chemical waste shall be handled in accordance with the Code of Practice on the
	Packaging, Handling and Storage of Chemical Wastes.
General	The site was generally kept tidy and clean.



9 CONCLUSIONS AND RECOMMENTATIONS

9.1 CONCLUSIONS

- 9.01 This is the 11th Quarterly EM&A Summary Report for Sok Kwu Wan Portion Area under the Project covering the construction period from 26 January to 25 April 2013.
- 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 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**

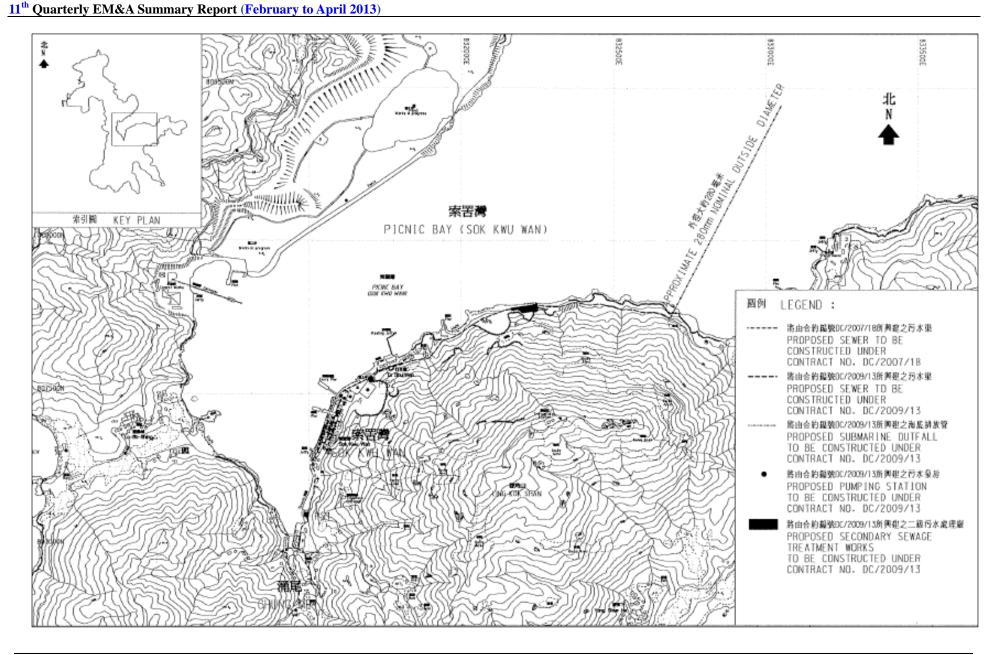
- 9.08 During wet season, muddy water and other water quality pollutants via site surface water runoff into the sea body within Fish culture zone at Picnic Bay and the Secondary recreation contact subzone at Mo Tat Wan is the key issue of the Project. Mitigation measures for water quality should be properly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



Appendix A

Site Layout Plan – Sok Kwu Wan Portion Area







Appendix B

Organization Structure and Contact Details of Relevant Parties



Contact Details of Key Personnel

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

Legend:

DSD (Employer) – Drainage Services Department

CDM (Engineer) – 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		Original	Percent	Early	Early	Late	Late	Total								
ID	Description		Complete	Start	Finish	Start	Finish	Float	Predecessors	Successors	JAN	FEB	2013 MAR	APR		MAY
Project Key I	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, PRE0130, SKW0250, SKW0588, SKW0651, SKW0881, SKW1131, SKW1481, SKW1591, SKW1611, YSW0020, YSW0050, YSW0075, YSW0180, YSW0200, YSW02401, YSW02401, YSW0412, YSW0422						
KD0030	Section W1 - Slope Works in Portion A & C	0	100		14/10/11 A		14/10/11 A		YSW0100, YSW0110, YSW0140,	KD0125, KD0130, YSW01755						
KD0040	Section W2 - YSW STW & Submarine Outfall (1370d)	0	0		16/06/14 *		16/06/14 *	0 *	E&M0700, YSW0400, YSW0800, YSW0870, YSW0925, YSW16704, YSW1700	KD0125, KD0132	· !		==== !	:======	=====:	=====
KD0050	Section W3 - Footpath Diversion in Ptn G	0	0		30/01/13 *		24/03/11 *	-678d *	SKW0481	KD0125	 _ =	Section W3 - Foot	oath Diversio	n in Ptn G	<u> </u>	
KD0060	Section W4 - Slope Works in Portios H & I	0	0		30/01/13 *		27/03/12 *	-309d *	SKW05938, SKW059416	KD0125, KD0135, SKW05941	· - - 	Section W4 - Slop	e Works in Po	ortios H & I = = = =	====:	
KD0070	Section W5 - P.S. No. 1 in Portion D	0			30/01/13 *		10/02/12 *	-355d *	SKW0741	KD0125	ـِ ا أ	Section W5 - P.S.	— — — — — No. 1 in Porti	on D	7	
KD0080	Section W6 - Sewer & PS No2 in Ptn. E & F	0	0		30/01/13 *		10/02/12 *	-355d *	SKW0971	KD0125		Section W6 - Sewe	1 1			
KD0090	Section W7 - SKW STW, RM & Sm. Outfall	0	0		07/10/14 *		07/10/14 *	0 *	E&M3360, SKW1221, SKW1291,	KD0125, KD0165, SKW0491			= = = = = = =	======	=====	=====
									SKW1431, SKW1441, SKW1521,							
KD0100	Section W8 - Landscape Softworks	0	0		05/04/13 *		05/04/13 *		SKW1611, SKW1621				+ †	Section	W8 - Landscar	pe Softworks
KD0110	Section W9 - Establishment Works	0	0		03/04/14 *	<u> </u>	03/04/14 *		SKW1631	KD0125	1.11		i i i	ļ.	<u> </u>	
KD0125	Project Completion		0		12/09/15 *		12/09/15 *	0 *	KD0010, KD0020, KD0030, KD0040, KD0050, KD0060, KD0070, KD0080, KD0090, KD0110, SKW0541					1		
KD0130	Completion of Maintenance Period of W1	1	0	31/01/13	31/01/13 *	13/10/12	13/10/12 *	-110d	KD0030, YSW01755, YSW01805, YSW01810		 	-Completion of Mair	ntenance Peri	od of W1		
KD0132	Completion of Maintenance Period of W2	1	0	15/06/15	15/06/15 *	15/06/15	15/06/15 *	0	E&M0730, KD0040		<u> </u>		1 1 1	į	į	
KD0135	Completion of Maintenance Period of W4	1	Ŭ	27/03/13	27/03/13 *	27/03/13	27/03/13 *	0	KD0060, SKW05947, SKW1581		lii	1		Completion of	Maintenance P	eriod of W4
	<u> </u>		Ĭ									 	1 1	ii		
KD0145	Completion of Maintenance Period of W5	1	0	10/02/13	10/02/13 *	10/02/13	10/02/13 *	0			111			ce Period of W5	<u> </u>	
KD0155	Completion of Maintenance Period of W6	1	0	10/02/13	10/02/13 *	10/02/13	10/02/13 *		E&M2130, E&M2180, SKW0961,		111	ן וון וון Completion	of Maintenand	ce Period of W6		
KD0165	Completion of Maintenance period of W7	1	0	06/10/15	06/10/15 *	06/10/15	06/10/15 *	0 ^	KD0090, SKW0595, SKW05972, SKW0861		111	iξii				
Preliminary (Civil)										iii	1111		ii i	<u> </u>	
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			1 81 1		11 1		
PRE0050	Taking over the Secondary Engineer's Site Accomm	75	100	17/05/10 A	30/07/10 A	17/05/10 A	30/07/10 A		KD0020		11.1	1 11 1	i i	ii i	<u> </u>	
PRE0060	Application of Consent from Marine Department	60	100		1	17/05/10 A			KD0020		11.1					
PRE0090	Working Group Meeting for Outfall Construction	120		17/05/10 A					KD0020	SKW1151				11		
PRE0100 PRE0130	Application & Consent of XP from HyD (Mo Tat Rd) Setup Web-site for EM&A Reporting	120 90	100	17/05/10 A 17/05/10 A	13/09/10 A				KD0020 KD0020	SKW1491, SKW1501	111	11111	1 1	II I	j	
	<u> </u>	90	100	17/05/10 A	14/08/10 A	17/05/10 A	14/08/10 A		KD0020			1 81 1	 		++-	
Preliminary (•											1 81 1				
	n of SKWSTW & YSWSTW										11.1	1 1	i i	ii i	<u> </u>	
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		24/06/10 A			14/07/10 A		E&M0010	E&M0030, E&M0040		1 81 1		11 1		
E&M0030	Revision and Resubmission	125		15/07/10 A	16/11/10 A	15/07/10 A	16/11/10 A		E&M0020	E&M0080	11.1	1 1	i i	ii i	j	
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					<u> </u>	
Hydraulic Desi											11.1	1 11 1		11 1		
E&M0040	Submission	21		15/07/10 A			04/08/10 A		E&M0010, E&M0020	E&M0050, E&M0101, E&M0240, E&M0260,	11.1	1.1111			j	
E&M0050	Vetting and Comment by ER	14		05/08/10 A			18/08/10 A		E&M0040	E&M0060		1 81 1	1 1	11 1		
E&M0060	Revision and Resubmission	97		19/08/10 A			10/10/10 A		E&M0050	E&M0430	111	11111	i i	ii i	!	
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	111	1	i i	11 1	-	
Equipment Sub E&M0070	omission & Approval Submission of Membrane Module	50	100	17/05/10 A	05/07/10 4	17/05/10 ^	05/07/10 A	1	KD0020	E&M0090		1 81 1				
E&M0090	Vetting and Comment by ER	14		06/07/10 A			19/07/10 A		E&M0070	E&M0100	11.1	1 1	i i	ii i		
E&M0100	Revision and Resubmission	14		20/07/10 A			24/02/11 A		E&M0090	E&M0160	11.1					
E&M0101	Submission of Equipment	90		05/08/10 A	30/11/11 A				E&M0040	E&M0102	11.1	1 81 1		!! ! !! !		
E&M0102	Vetting and Comment by ER	60		03/11/10 A					E&M0101	E&M0103		iiii		ii i	_i_	
Finish date 28 Data date 31	Early bar 1/0/16 1/01/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02/13 1/02) ction of S	Contract Sewage 1	No. DO	ering Corp. Ltd. C/2009/13 ent Works at YSW & S (Feb 2013 - Apr 2013)	KW		31/01/13	Re	Revision vision 0	Checked RH	d Approved VC
c Primavera Svst	Ctart milestone naint				3-11101	1101111	ig r rugra		(100 2010 - Api 2013)							+
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Activity ID	Description			Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors			2013			
E&M0103	Revision and Resubmission	60	100 01/			01/02/11 A	30/11/11 A	Tiout	E&M0102	E&M0110, E&M0120, E&M0130, E&M0140,	JAN	FEB	MAR	A	PR	MAY
E&M0110	Approval on Coarse Screens	30		/05/11 A	25/05/11 A	25/05/11 A	25/05/11 A		E&M0103	E&M0390	- iii i i		i i	i i	i	
E&M0120	Approval on Fine Screens	30	100	/09/11 A	12/09/11 A	12/09/11 A	12/09/11 A		E&M0103	E&M0400, E&M3060	- !!! !!		1 1	! !	l I	
E&M0130	Approval on Pumps	30	1001	/06/11 A	23/06/11 A	23/06/11 A	23/06/11 A		E&M0103	E&M0410, E&M3070	- !!! !!			! !	ļ.	
E&M0140	Approval on Submersible Mixers	30	100	/03/11 A	23/03/11 A	23/03/11 A	23/03/11 A		E&M0103	E&M0420, E&M3080	- iii ii		iii	; ;	i	
E&M0150	Approval on Grit Removal Equipment	30	100	/10/11 A	10/10/11 A	10/10/11 A	10/10/11 A		E&M0103	E&M0380, E&M3030	+		- +!	<u>+</u> <u>-</u> -	!	
E&M0160	Approval on MBR Membrane Modules (M.M.)	105	100	/08/10 A	24/02/11 A	03/08/10 A	24/02/11 A		E&M0100	E&M0360, E&M0370, E&M3010	-		1 1	1 1		
E&M0170	1 ''	30	100		<u> </u>				E&M0103	E&M0440, E&M3090	- 111 11		-	1	1	
	Approval on Sludge Dewatering Equipment		100	/09/11 A	01/09/11 A	01/09/11 A	01/09/11 A	174		E&M0450, E&M3100	111 11		-	I I	!	
E&M0180	Approval on Valves, Pipes & Fittings	30	00	/11/11 A	04/02/13	19/11/11 A	20/02/13	170	E&M0103		111 11	Approval on Valves	I I	1 -	i	
E&M0190	Approval on Penstocks	30	100	/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	/06/11 A	08/03/12 A	21/06/11 A	08/03/12 A		E&M0103	E&M0470, E&M3130	111 111	1.1	1 1	i i	i	
E&M0210	Approval on MCC & LVSB	30		/11/11 A	01/02/13	19/11/11 A	03/06/11		E&M0103	E&M0480, E&M3140	A	opproval on MCC & I		1	. !	
E&M0220	Approval on BS Equipment	30	1 001	/11/11 A	07/03/13	30/11/11 A	02/11/11		E&M0103, E&M0280	E&M0490, E&M3150	1111 111	<u> </u>	Approval	on BS Equipme	nt ¦	
E&M0230	Approval on FS Equipment	30	85 30/	/11/11 A	19/03/13	30/11/11 A	15/08/11	-582d	E&M0103, E&M0290	E&M0295, E&M0320, E&M0500, E&M3160				pproval on FS E	quipment	
Drawings Sub	omission & Approval											 []	<u> </u>	1 1	i	
E&M0235	Sub. P&ID Drawings	100			24/02/13	24/06/10 A	24/07/11	-582d	E&M0010	E&M0250		Sub.	P&ID Drawi	ings _I	1	
E&M0240	Sub. Plant GA Drawings	45	68 04/	/08/10 A	14/02/13	04/08/10 A	24/07/11	-571d	E&M0040	E&M0250, E&M0280, E&M0290		Sub. Plant G			l l	
E&M0250	Sub. Builder's Works Requirements Drawings	15	100 04/	/08/10 A	31/01/13 A	04/08/10 A	31/01/13 A		E&M0235, E&M0240, E&M0260,	E&M0280, E&M0290	Su	ub. Builder's Works	Requireme	nts Drawings	i	
E&M0260	Sub. Mechanical Installation Drawings	60	70 27/	/09/10 A	17/02/13	27/09/10 A	24/07/11	-575d	E&M0040	E&M0250	HI	Sub. Mech	nanical Insta	allation Drawing	s !	
E&M0270	Sub. Electrical Installation Drawings	60		/09/10 A	14/02/13	27/09/10 A	24/07/11	-572d	E&M0040	E&M0250, E&M0280		Sub. Electric	al Installati	on Drawings	i	
E&M0280	Sub. BS Installation Drawings	120	· · · · · · · · · · · · · · · · · · ·		02/03/13	27/09/10 A	28/10/11	-491d	E&M0240, E&M0250, E&M0270	E&M0220		S	ub. BS Insta	allation Drawing	i	†
E&M0290	Sub. FS Installation Drawings	120			14/03/13	13/11/11 A	11/08/11	-582d	E&M0240, E&M0250	E&M0230		11 1		FS Installation		
Statutory Subn		1	00 10		1,	1	1				11.1	11 1	1 1	1 1	I	
E&M0295	Preparation of Submission to HEC	39	100 01/	/11/11 A	30/11/11 A	Ι 01/11/11 Δ	30/11/11 A		E&M0080, E&M0230, E&M0430	E&M0300	- !!!			!!!	!	
	Application & Approval from HEC				<u> </u>	01/11/11 A		1574	E&M0295	E&M0305	111 11		<u> </u>	I I	I ntion & Λην	rough from HEC
E&M0300	1	150			03/04/13		28/10/12			E&M0680	1111 111		<u> </u>			proval from HEC
E&M0305	Provision of Cables to the STWs	180	<u> </u>	/04/13	30/09/13	29/10/12	26/04/13		E&M0300		- :: ::					
E&M0320	Form 314 Submission to FSD	14	<u> </u>	/03/13	02/04/13	13/04/13	26/04/13	25d	E&M0230	E&M0325, E&M0670	iii ii		; -	1 1 1	1	sion to FSD
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			<u> </u>			[
E&M0330	Form 501 Submission to FSD (YSW)	28	0 12/	/12/14	09/01/15	14/11/13	11/12/13		E&M0500	E&M0700			- +	+		T
E&M0340	Form 501 Submission to FSD (SKW)	28	0 06/	/09/13	04/10/13	11/06/14	08/07/14	278d	E&M3160	E&M3360	111 11	11 1		I I	1	
E&M0350	Form 501 Submission to FSD (PS1 & PS2)	28	0 28/	/02/13	28/03/13	14/11/12	11/12/12	-107d	E&M2016	E&M11800, E&M2180				Form 501 9	Submission	to FSD (PS1 & PS
Yung Shue \	Wan										111 11	· ·	i	 - - - - - 		
Preliminary													!!!	! !	!	
YSW0020	Approval of Environmental Team	I 16	100 17	/05/10 A	01/06/10 A	17/05/10 A	01/06/10 A I		KD0020	YSW00201, YSW0030, YSW00351,			; ;	; ;	i	
YSW00201	Change Baseline Monitoring Location (Air&Noise)	59					30/07/10 A		YSW0020	YSW0030	- 111 11		1 1	1	1	
YSW0030	Baseline monitoring (Air & Noise)	23			22/08/10 A				YSW0020, YSW00201	YSW0035				! !	l I	
YSW0035	Baseline Monitoring Report Submission (A & N)	16			07/09/10 A				YSW0030	YSW0120, YSW01545, YSW0500,	- iii iii		i i	i i	i	
							1		YSW0020		- !! ! !		1 !	! !	!	
YSW00351	Submission & Approval for Monitoring Method (W)	58	100		29/07/10 A					YSW0040	 		- ¦ ¦	¦ ¦ -		
YSW0040	Baseline monitoring (Water)	155		/07/10 A	31/12/10 A				YSW0020, YSW00351	YSW0350				I I	1	
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	111 11		1 1	! !		
Section W 1 - S	Slope W orks in Portion A & C										iii iii		i i	i i	i	
YSW0075	Mobilization	30	100 17/		15/06/10 A	17/05/10 A	15/06/10 A		KD0020	YSW0080, YSW0100			1 1	! !	I .	
YSW0080	Site Clearance	30	100		15/07/10 A	16/06/10 A	15/07/10 A		YSW0075	YSW0085, YSW0090, YSW0120] " ;				l I	
YSW0085	Initial Survey	14	100 02/		15/07/10 A	02/07/10 A	15/07/10 A		YSW0080	YSW0120		11 1	i i	i i	i	
YSW0090	Verify the Rock Boulder required Stablization Wk	249		/07/10 A	21/03/11 A	16/07/10 A	21/03/11 A		YSW0080	YSW0100, YSW0110	1 !!!!!!		1 1	1 1	l i	
YSW0100	Removal of Rock Boulder	257	100 20/		<u> </u>	20/09/10 A	03/06/11 A		YSW0075, YSW0090	KD0030						
YSW0110	Stablizing work for rock boulder	35		/07/11 A		16/07/11 A	19/08/11 A		YSW0090	KD0030	† no - n	п г	- Ţi	Ţ r -	<u>i</u>	†
YSW0120	Cut the slope to design profile	2	100 24/		<u> </u>	24/09/10 A	25/09/10 A		YSW0035, YSW0080, YSW0085	YSW0131, YSW0155, YSW0170			1 1		l I	
YSW0131	Mobilization of Plant and Material of Soil Nails	14	 	/09/10 A /09/10 A	25/09/10 A	<u> </u>	25/09/10 A		YSW0120	YSW0132			i i	i i	i	
l I————		14	.00		27/09/10 A				YSW0131	YSW0133			1 !	1 1	!	
YSW0132	Erect Scaffold and Working Platform	2	100 26/				27/09/10 A								i	
YSW0133	Setting out and Verify Locations of Soil Nails	45	100 28/		<u>!</u>	28/09/10 A	11/11/10 A		YSW0132	YSW0134	+ u u	LI	_ <u>+</u> i	ı i	I	ļ
YSW0134	Drilling and Soil Nails Installation	43	100 19/		30/11/10 A	<u> </u>	30/11/10 A		YSW0133	YSW0135	- :: ::		1 !	! !	 	
YSW0135	Construction of Nail Heads	12	1001		<u>!</u>	01/12/10 A	12/12/10 A		YSW0134	YSW0136] " ;;		i i	i i	i	
	Mesh Installation on Cut Slope	3	100 13/		15/12/10 A	13/12/10 A	15/12/10 A		YSW0135	YSW01361	<u> </u>		1 !	! !	I :	
YSW0136			100 16/	/12/10 A	12/04/11 A	16/12/10 A	12/04/11 A		YSW0136	YSW0140] " ;		-	1 1	I I	
YSW0136 YSW01361	Verify alignment of access & channels on slope	118	1001						YSW01361	KD0030	1 iii iii		: :		:	
l I——————	_	118 182		/04/11 A	11/10/11 A	13/04/11 A	11/10/11 A				1 1	• • • • • • • • • • • • • • • • • • • •				
YSW01361 YSW0140	Verify alignment of access & channels on slope			/04/11 A	11/10/11 A	13/04/11 A	11/10/11 A					Date	' '	Revision	1	Checked Approve
YSW01361 YSW0140 Start date 09 Finish date 20	Verify alignment of access & channels on slope Construct U-channels & Step Channel on Cut Slope 5/05/10 Early bar Progress bar			/04/11 A	11/10/11 A	l	<u> </u>	ainee	ering Corp. Ltd.				Revi	Revision sion 0		Checked Approve
YSW01361 YSW0140 Start date 0: Finish date 2: Data date 3:	Verify alignment of access & channels on slope Construct U-channels & Step Channel on Cut Slope 5/05/10 Early bar Progress bar Critical bar Summary bar			/04/11 A	11/10/11 A	Leade	r Civil En		ering Corp. Ltd. 2/2009/13			Date	Revi			
YSW01361 YSW0140 Start date 0: Finish date 2: Data date 3 Run date 0:	Verify alignment of access & channels on slope Construct U-channels & Step Channel on Cut Slope 5/05/10 Early bar Progress bar Critical bar Critical bar Summary bar Progress point					Leade (r Civil En Contract N	lo. DO	2/2009/13		,	Date	Revi			
YSW01361 YSW0140 Start date 0: Finish date 2: Data date 3:	Verify alignment of access & channels on slope Construct U-channels & Step Channel on Cut Slope 5/05/10 Early bar Progress bar Critical bar Summary bar Progress point Critical point				Construc	Leade (ction of S	r Civil En Contract N Sewage Ti	lo. DO	c/2009/13 ent Works at YSW & S			Date	Revi			
YSW01361 YSW0140 Start date 0: Finish date 2: Data date 3 Run date 0:	Verify alignment of access & channels on slope Construct U-channels & Step Channel on Cut Slope 5/05/10 Early bar Progress bar Critical bar Summary bar Progress point Critical point Summary point				Construc	Leade (ction of S	r Civil En Contract N Sewage Ti	lo. DO	2/2009/13			Date	Revi			

Activity ID	Description	Original Ouration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	IAN		FFD		2013 MAR		ARR	MAY
YSW0153	Removal of Ex U-Channel where clash with B. Wall	151		10/05/11 A	07/10/11 A	10/05/11 A	07/10/11 A		YSW01545	YSW01750	JAN		FEB	1	MAR I II		APR	MAY
YSW01545	Temporary Diversion of Drainage	244		08/09/10 A	09/05/11 A		09/05/11 A	1	YSW0035	YSW0153	† i	ii iii		i	1 11	1	i	
YSW0155	RC Barrier Wall Bay 1-13 (below Ground Level)	256		26/09/10 A			08/06/11 A	İ	YSW0050, YSW0120	KD0030, YSW0170, YSW0175, YSW01750	1 :		1		1 11		I I	
YSW0170	RC Barrier Wall Bay 1-13 (above Ground Level)	125		09/06/11 A	11/10/11 A		11/10/11 A	İ	YSW0120, YSW0155	KD0030	1 :	! ! 	1		1 11	!	l I	
YSW0175	Construct U-channels and Catchpits (Phase 1)	76		09/06/11 A	23/08/11 A	09/06/11 A	23/08/11 A		YSW0155	KD0030	† i	11 11	I	i	i ii	i	i	
YSW01750	Construction of subsoil drain (phase 1)	7			08/02/12 A	12/10/11 A	08/02/12 A		YSW0153, YSW0155	KD0030		- -			1 11			+
YSW01755	Construct subsoil drain (phase 2)	14		06/12/12 A	31/12/12 A	06/12/12 A	31/12/12 A		KD0030, YSW01800	KD0130	Construct subsc			i i	1 11	i i	1	
YSW01800	RC Barrier Wall Bay 14 (below & above Ground)	87		03/09/12 A	28/11/12 A	03/09/12 A	28/11/12 A		YSW0760	YSW01755, YSW01810	4 (below & above				1 11		l I	
YSW01805	Hydroseeding	14		31/01/13	13/02/13	29/09/12	12/10/12	-124d	YSW01810	KD0130				seeding	1 !!		1	
YSW01810	Construct U-channels and Catchpits (Phase 2)	30	100	29/11/12 A	22/12/12 A	29/11/12 A	22/12/12 A		YSW01800	KD0130, YSW01805	ruct U-channels			se 2)	1 11		 	
Section W 2 - Y	SW STW & Submarine Outfall						<u> </u>			•				<u> </u>	T 11			1
Civil & Structu	al Work													;	1 11		1	
YSW0412	Mobilization	30	100	17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A		KD0020	YSW0422				!	! !!		1	
YSW0422	Site Clearance	30		17/05/10 A	15/06/10 A	17/05/10 A	15/06/10 A		KD0020, YSW0412	YSW0432, YSW0500, YSW0610, YSW0650	1			;	1 11		1	
YSW0432	Initial Survey	14	100	02/06/10 A	15/06/10 A	02/06/10 A	15/06/10 A		YSW0422	YSW0510	†			!	! !!		I .	
YSW STW -	GLH - T		100									 	•	+ +	 		<u> </u>	
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	1			!	1 11	. !	!	
YSW0510	Sub-structure construction (Inlet Pumping Stn)	129			29/04/11 A	22/12/10 A	29/04/11 A		YSW0432, YSW0500	YSW0520	1			;	; ;;		1	
YSW0520	Backfill & Remove ELS (Inlet Pumping Stn)	40			08/06/11 A	30/04/11 A	08/06/11 A		YSW0510	YSW05701	1			!	! !!		!	
YSW0530	ELS & Excavation for Equalization Tank	159			08/06/11 A	01/01/11 A	08/06/11 A		YSW0660	YSW0540, YSW05701	1			;	: ::		1	
YSW0540	Sub-structure construction (Equalization Tank)	112			28/09/11 A	09/06/11 A	28/09/11 A		YSW0530	YSW0550, YSW05901	1			!	! !!	1	I .	
YSW0550	Backfilling & Remove ELS (Equalization Tank)	20		29/09/11 A	18/10/11 A	29/09/11 A	18/10/11 A		YSW0540	YSW05901		U - UI.		<u> </u> -	† ii			<u> </u>
YSW05701	ELS & Excavation for Grit Chambers	28			06/07/11 A	09/06/11 A	06/07/11 A		YSW0520, YSW0530	YSW05711, YSW05731	1			!	! !!	1	I .	
YSW05711	Construct sub-structure for Grit Chambers	106			20/10/11 A	07/07/11 A	20/10/11 A		YSW05701	YSW05721, YSW05911	1			;	1 11		1	
YSW05721	Backfill & Remove ELS for Grit Chambers	12			01/11/11 A	21/10/11 A	01/11/11 A		YSW05711	YSW05911	1			!	! !!	1	I .	
YSW05731	ELS & Excavation for Grease Separators (GS)	34			09/08/11 A	07/07/11 A	09/08/11 A		YSW05701	YSW05741	1			;	: ::		1	
YSW05741	Construct sub-structure for Grease Separators	52			30/09/11 A	10/08/11 A	30/09/11 A		YSW05731	YSW05751					T!!	<u>-</u>		†
YSW05751	Install Dia.400 Puddles in Grease Separators	27			27/10/11 A		27/10/11 A		YSW05741	YSW05752	1			;	1 11	I	1	
YSW05752	Construct sub-structure for GS (above puddles)	48		28/10/11 A	14/12/11 A	28/10/11 A	14/12/11 A		YSW05751	YSW05761	1			!	1 11		!	
YSW05761	Backfill & remove ELS for Grease Separators	10			24/12/11 A	15/12/11 A	24/12/11 A		YSW05752	YSW0580, YSW05921	1			;	1 11	I	1	
YSW0580	Excavate to Formation for Deodorizer Room	10			03/01/12 A	25/12/11 A	03/01/12 A		YSW05761	YSW05801, YSW05922	1			!	1 11		1	
YSW05801	Excavate to formation - Grid J-N/5-7	40		04/01/12 A	12/02/12 A	04/01/12 A	12/02/12 A		YSW0580	YSW05802, YSW05923		U - U I.		<u> </u> -	† ii	i		<u> </u>
YSW05802	Excavate to formation - Grid GA-H/5-7	10		13/02/12 A	22/02/12 A	13/02/12 A	22/02/12 A		YSW05801	YSW05924	1			!	! !!	1	I .	
YSW05901	G/F to 1/F Construction Grid GA-K/1-5	90	100	00/00/44 4	27/12/11 A	29/09/11 A	27/12/11 A		YSW0540, YSW0550	YSW06001	†			;		I	1	
YSW05911	G/F to 1/F Construction Grid N-S/1-5	80			08/01/12 A	21/10/11 A	08/01/12 A		YSW05711, YSW05721	YSW06011, YSW06035	†		!	!	! !!	1	I .	
YSW05921	G/F to 1/F Construction Grid K-N/1-5	45			07/02/12 A	25/12/11 A	07/02/12 A		YSW05761	YSW06021	†		! !	;		I	1	
YSW05922	G/F to 1/F Construction for Deodorizer Room	80			23/03/12 A	04/01/12 A	23/03/12 A		YSW0580	YSW06022					T!!	<u>-</u>	· <u>-</u>	<u> </u>
YSW05923	G/F to 1/F Construction for Grid J-N/5-7	60			12/04/12 A	13/02/12 A	12/04/12 A		YSW05801	E&M0530, E&M0540, E&M0550, E&M0560,	1			;	; ;;	i	i	
YSW05924	G/F to 1/F Construction for Grid GA-H/5-7	50		28/05/12 A	16/07/12 A	28/05/12 A	16/07/12 A		YSW05802, YSW06023	YSW06034	†			!	! !!	1	I.	
YSW06001	1/F to Roof Constuction for Grid GA-K/1-5	87			23/03/12 A		23/03/12 A		YSW05901	YSW0800	1				1 11		1	
YSW06011	1/F to Roof Constuction for Grid N-S/1-5	75			23/03/12 A		23/03/12 A		YSW05911	YSW0800	1			1 !	! !!		!	
YSW06021	1/F to Roof Constuction for Grid K-N/1-5	44					22/03/12 A		YSW05921	YSW07201	†	U - U I.		-	† ii		· 	†
YSW06022	1/F to Roof Constuction for Deodorizer Room	60			22/05/12 A		22/05/12 A		YSW05922	YSW0800	1			! !	1 11		1	
YSW06023	1/F to Roof Constuction for Grid J-N/5-7	45			27/05/12 A		27/05/12 A		YSW05923	E&M0580, YSW05924	1				1 11		1	
YSW06034	1/F to Roof Constuction for Grid GA-H/5-7	28		27/07/12 A			13/08/12 A		YSW05924	YSW0800	1			1 !	1 11	. !	1	
YSW06035	Construct buffle walls in Grease Separators	90		18/04/12 A	16/07/12 A		16/07/12 A		YSW05911	YSW07204	1				1 11		ı I	
YSW07201	Water tightness test for Inlet Pumping Station	60			21/05/12 A		21/05/12 A		YSW06021	YSW07202, YSW0800	†			1 <u>-</u>	T = = = 11	<u>-</u>	· <u>-</u> !	İ
YSW07202	Water tightness test for Equalization Tanks	42				22/05/12 A			YSW07201	E&M0600, YSW07203, YSW0800	1				1 11		i I	
YSW07203	Water tightness test for Grit Chambers	42			29/09/12 A	17/09/12 A	!		YSW07202	YSW07204, YSW0800	1			1 !	1 11		!	
YSW07204	Water tightness test for Grease Separators	32				03/10/12 A	!		YSW06035, YSW07203	E&M0570, YSW07205, YSW0800	rs				1 11	I	i I	
YSW07205	Water tightness test for water channels	21			20/02/13	10/06/14	30/06/14	495d	YSW07204	YSW0800	ከ 	 	v	Vater tigh	ntness test	for water ch	annels ¦	
YSW0800	ABWF installation	271	•		04/03/13	03/07/12 A	<u> </u>	<u> </u>	YSW06001, YSW06011, YSW06022,	KD0040	1	미니다			BWF instal		'	†
YSW STW -										<u> </u>	 	 		 	1 11	1		
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	11				; ;;	İ	i	
YSW0620	Base slab construction	248		18/09/10 A					YSW0610	YSW0630	11				1 11	. !	1	
	1		100				<u> </u>			1	1.1	<u>. 11 1 1 1 1 1 1 1 1 1</u>						1
Start date 05	/05/10 Early bar												D	ate		Revision		Checked Approved

Start date 05/05/10 Early bar
Finish date 28/10/16 Progress bar
Critical bar
Summary bar
Run date 05/02/13 Progress point
Progress point
Critical point
Summary point
Summary 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 (Feb 2013 - Apr 2013)

Date	Revision	Checked	Approved
1/01/13	Revision 0	RH	S

Activity ID	Description	Original	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors		550		2013 IAR	APR	MA	v
YSW0630	G/F to 1/F construction	205		24/05/11 A	14/12/11 A	24/05/11 A	14/12/11 A		YSW0620	YSW0640	JAN	FEB	IVI	An II	AFN	WA	ı
YSW0640	1/F to Roof Construction	64		15/12/11 A	16/02/12 A	15/12/11 A	16/02/12 A		YSW0630	YSW0810	† ıı <mark> </mark>	11.1	i	ii	i i		
YSW0810	ABWF installation	80	100	28/12/11 A		28/12/11 A	16/03/12 A		YSW0640	E&M0610, E&M0620, E&M0630, E&M0640	11 !!!!	111	1	11	1 1		
YSW STW - 0	GLF-H&DN Tanks		100				<u> </u>				 	 					
YSW0650	ELS & Excavation for DN Tanks	37	100	08/09/10 A	14/10/10 A	08/09/10 A	14/10/10 A	l	YSW0035, YSW0422	YSW0660	1 1 1	11.1	i	11	i i		
YSW0660	Sub-struction construction (DN Tanks)	78			31/12/10 A	15/10/10 A	31/12/10 A		YSW0650	YSW0530, YSW0670	11 11		I	11	1 1		
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	† ıı <u> </u> ı	111	i	ii	i i		
YSW0680	Base slab construction (SD1, SD2 & MBR4)	17			28/03/11 A	12/03/11 A	28/03/11 A		YSW0670	YSW0690	11 11		1	11	1 1		
YSW0690	Construct Superstructure SD1, SD2 & MBR4	82	100	29/03/11 A	18/06/11 A	29/03/11 A	18/06/11 A		YSW0680	YSW0710, YSW0820	11	 	i	ii	i i		
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	H—————————————————————————————————————		+-	!+			
YSW0705	Water test for MBR 4	47	100	01/10/12 A	16/11/12 A	01/10/12 A	16/11/12 A		YSW0710	E&M0510, E&M0640, YSW07055, YSW0820	 		i	ii	i i		
YSW07055	Water test for SD1 & SD2	54	100	17/11/12 A	10/01/13 A	17/11/12 A	10/01/13 A		YSW0705, YSW07105	E&M0610	Water test for S	lii :D1 & SD2 = =	!	11	1 1		
YSW0710	Apply protective paint for MBR 4	7	100	24/09/12 A	30/09/12 A	24/09/12 A	30/09/12 A		YSW0690	YSW0705, YSW07105	- III I	111	! ;	H	; ;		
YSW07105	Apply protective paint for SD1 & SD2	7		01/10/12 A	07/10/12 A	01/10/12 A	07/10/12 A		YSW0710	YSW07055	-	!!	-	11	1 1		
 	ABWF installation	/ /	.00					404	YSW0690, YSW0705	E&M0630, E&M0640	+ <u> </u> !	<u> </u>	_ ı ı ⊒- ABWFins	tollotion	-		
YSW0820	<u>.</u>	34	!	15/01/13 A	27/02/13	15/01/13 A	08/01/13	<u> </u>		YSW0850		[1]		1.1	I I		
YSW0830	Water test for DN Tanks	28	<u> </u>	07/02/13	06/03/13	10/02/13	10/03/13		YSW06901	<u> </u>				r test for DN T	•	Taula	
YSW0850	Apply protecitve paint for DN Tanks	6	0 0	07/03/13	12/03/13	10/03/13	16/03/13	4d	YSW0830	E&M0610	11		A	pply protecitve	paint for DN	l anks	
YSW STW - (<u>, , , , , , , , , , , , , , , , , , , </u>	1			·		<u>, </u>	1	1	.	111 7 111		11	1 1		
YSW0730	Completion of HDD	0		21/01/12 A		21/01/12 A			YSW03601, YSW03605	YSW0732	11 11	;;;	i	H	-		
YSW0732	Excavate for MBR 2 & 3	20				21/01/12 A	09/02/12 A	<u> </u>	YSW0730	YSW0733		111	1	11	1 1		
YSW0733	Construct basement of MBR 2 & 3	20	100 1	10/02/12 A	29/02/12 A	10/02/12 A	29/02/12 A		YSW0732	YSW0735, YSW0740	11 11			- 11	; ;		
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,	11	11.1	1	1.1	1 1		
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, YSW08305	11 11	III II I			_	L	
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	11 11	1111	i	11	i i		
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	11 11		I	11	1 1		
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	11 11	111	i	ii	ii		
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	11 11	!!!	!		1 1		
YSW0760	Backfill & remove ELS (outfall shaft)	8	100 2	24/06/12 A	01/07/12 A	24/06/12 A	01/07/12 A		YSW07502	YSW01800, YSW07601, YSW07603,	11		i	- ;;	1 1		
YSW07601	Construct superstructure for Outfall Shaft	30		03/07/12 A	31/07/12 A	03/07/12 A	31/07/12 A		YSW0760	YSW08301, YSW08305	11 11	ит – – – –	T -	_I T			
YSW07603	ELS & excavate for FSH Water Supply Tank	25		01/06/12 A	25/06/12 A	01/06/12 A	25/06/12 A		YSW0760	YSW07604	╄┨╾╺╶╸╸╶╎╣ <mark>┥</mark> ┟		. I	11	1 1		
YSW07604	Construct substructure for FSH Water Supply Tank	24		26/06/12 A	19/07/12 A	26/06/12 A	19/07/12 A		YSW07603	YSW07605	† '' <mark> </mark>	111 1	i	ii	i i		
YSW07605	Backfill & remove ELS for FSH Water Supply Tank	12		20/07/12 A	31/07/12 A	20/07/12 A	31/07/12 A		YSW07604	YSW07607	1	111 1	1	11	1 1		
YSW07607	Construct basement of MBR 1 & Workshop	24	100	01/08/12 A	24/08/12 A	01/08/12 A	24/08/12 A		YSW07605	YSW07608, YSW07609		iii i	i	ii	ii		
YSW07608	Construct superstructure for FSH Water Supply Tk	37		25/08/12 A	30/09/12 A	25/08/12 A	30/09/12 A		YSW07607	YSW08304, YSW08305	 	- -	+-	!+			
YSW07609	1 11 11 11 11 11 11 11 11 11 11 11 11 1	37			30/09/12 A		30/09/12 A		YSW07607	YSW07610, YSW08303, YSW1470	11	iii i	i	H	-		
	·	31			31/10/12 A		31/10/12 A		YSW07609	YSW0840, YSW16606, YSW16607,	II W Pump Rm III II	!!! !	1	11	1 1		
YSW08301	Water tightness test for Outfall Shaft	42			09/04/13	12/04/13	23/05/13	111	YSW0380, YSW07601	E&M0690	 	114 1	!	11	Water tie	htness test for C	Juffall Ck
	1	95	<u> </u>		05/10/12 A	03/07/12 A	05/10/12 A	1 440	YSW0735, YSW0736	E&M0520, E&M0590, E&M0605, E&M0650	┧ : <mark> </mark>	99	ļ.	11	VValer lig		
		<u> </u>							YSW07609	E&M0520	htness test for MBR 1		 -		-		
YSW08303	Water tightness test for MBR 1	19			18/12/12 A	30/11/12 A	18/12/12 A	101	YSW07608	E&M0610	Intriess test for MBA 1	1111	I N/otes t	1.1	I I	u CommissTamis	
YSW08304	Water tightness test for FSH Water Supply Tank	32	<u> </u>		03/03/13	12/02/13	16/03/13					II.	vvater t	ightness test fo		r Suppry Lank	
YSW08305	Apply protective paint	120			22/03/13	02/10/12 A	16/03/13		YSW0735, YSW0736, YSW07601,	E&M0610, YSW0870	-	ı III	ı	Apply pro	tective paint		
YSW0870	ABWF installation	30	0 2	22/03/13	21/04/13	18/05/14	16/06/14	422d	YSW08305	KD0040	11 11		ļ.			ABWF installatio	'n
	eel / Sprinkler Pump Rm	<u> </u>											<u> </u>		i,		
YSW0840	ELS & excavate to formation (+0 mPD approx.)	40			20/03/13	17/01/13	25/02/13		YSW07610, YSW16606	YSW0860	J 1 1 1 1 1 1 1 1 1	Hie	:	ELS & exc	avate to form	ation (+0 mPD a	
YSW0860	Sub-structure construction	40	<u> </u>		29/04/13	26/02/13	06/04/13		YSW0840	YSW0880	11 11				1	Sub-structu	ure cons
YSW0880	Backfill & remove ELS	35			03/06/13	07/04/13	11/05/13	!	YSW0860	YSW0890			Ī	11	!		
YSW0890	Construction Ground Slab at +5.2mPD	40	0 (04/06/13	13/07/13	12/05/13	20/06/13	-23d	YSW0880	YSW0900	11 11		I I	11	I I		
YSW0900	Superstructure construction upto +8.2mPD	35	0 1	14/07/13	17/08/13	21/06/13	25/07/13	-23d	YSW0890	YSW0910, YSW0925] r				_ [[
YSW0910	Water test	28	0 1	18/08/13	14/09/13	26/07/13	22/08/13	-23d		YSW0915	11 11	111	Ī	IT	1 '		
YSW0915	Apply protective paint	14	0 1	15/09/13	28/09/13	23/08/13	05/09/13	-23d	YSW0910	E&M0640, YSW0925	i ii i	iii	i	ii	i		
YSW0925	ABWF installation	30	0 3	30/08/13	28/09/13	18/05/14	16/06/14	261d	YSW0900, YSW0915	KD0040	1├:	!!+ +	+-	+			
Emergency S	Storage Tank		<u></u>					•		<u></u>			+	11	i		
YSW1470	ELS & excavate to formation (-1.5mPD Approx.)	16	100 1	17/09/12 A	02/10/12 A	17/09/12 A	02/10/12 A		YSW07609	YSW1480	<mark> </mark>	III	I.	11	!		
YSW1480	Sub-structure construction	14			16/10/12 A		16/10/12 A	i	YSW1470	YSW1490	† ¦ ::		I I	11	I I		
YSW1490	Backfill & extract sheetpile	3			19/10/12 A		19/10/12 A	 	YSW1480	YSW1500	- 1 1 1 1 1 1 1 1 1	III	i	11	1		
YSW1500	Superstructure construction upto +10.5mPD	41			29/11/12 A			<u> </u>	YSW1490	YSW1530, YSW1536			 	11	l I		
	5/05/10 Early bar	41	100 4	-0/10/12 A	20/11/12 A	20/10/12 A	20/11/12 A				10.011FD	Da	<u>'</u>	Revis	· sion	Checked A	Approved
	3/10/16 Progress bar					l pada	r Civil E	naina	ering Corp. Ltd.			31/01/13		Revision 0	,,,,,,,		√C
	I/01/13 Critical bar								2/2009/13					- 2: - ::•		 	
	Summary bar Divide Summary bar Progress point				Canatan					ZW							
Page number 4A	Critical point								ent Works at YSW & S	N VV							
o Delmanica C	Summary point Start milestone point				s-mor	ılıı Kollin	y Progra	ıııme	(Feb 2013 - Apr 2013)								
c Primavera Syst	ICITID, ITIC. Einich milostone point																

Activity	Description Surgice Complete Charle Finish Charle Finish Float Predecessors Successors														013	
ID VSW1530		Juration	Complete		Finish	Start	Finish	Float			JAN		FEB	MA	AR APR	MAY
YSW1530	Underground pipeline works	40	'] C	31/01/13	11/03/13	14/04/13	23/05/13	<u> </u>	YSW1500 YSW1500	E&M0690, YSW1680 YSW1538	— ¦]	T		Ur	nderground pipeline works	= = = = = = = =
YSW1536 YSW1538	Water tightness test	30	! '	31/01/13	11/03/13	03/02/13	14/03/13	<u> </u>	YSW1536	YSW1538 YSW1540	: `	<u> </u>		L L	ater tightness test	tective naint
YSW1538 YSW1540	Apply protective paint ABWF installation	40		12/03/13	20/05/13	15/03/13	23/05/13		YSW1538	F&M0690	⊣ !			T-	'' <u>'</u>	tective paint
		40	'] (11/04/13	20/05/13	14/04/13	23/03/13		13W1330	Lawooo	111			l I		ABW
YSW16601	Cable Draw Pits & Ducting ELS & excavate 6m deep sewer (FM1 - YFMH13)	l 60	1 .	09/02/13	09/04/13	12/01/13	12/03/13	l -384	YSW0760, YSW16606, YSW16607,	YSW16602	- - !			ı	FI S & eye	 avate 6m deep sewer (F
<u> </u>	i i i		<u> </u>	1		ļ	<u> </u>				⊣ ¦		<u>, </u>	i	II C	avate officeep sewer (1
YSW16602	Lay pipe & backfill 6m deep sewer (FM1 - YFMH13)	45		10/04/13	24/05/13	13/03/13	26/04/13		YSW16601 YSW16607, YSW16608	E&M0680, YSW1700 YSW16604, YSW16703	— 1		' <u> </u>	ı	II Construct	La
YSW16603	Construct UU & pipes along sea side (Grid Q-X)	60		07/02/13	08/04/13	24/03/13	22/05/13		YSW16603	YSW16605, YSW16701	i		Ī.	ı	11	JU & pipes along sea s
YSW16604	Construct UU & pipes along sea side (Grid XA-D)	60	· · · · · · · · ·	08/04/13	07/06/13	23/05/13	21/07/13		YSW16604	YSW16702, YSW1700		1		l I	 	
YSW16605 YSW16606	Construct UU & pipes along sea side (Grid D-Q)	90	· · · · · · · · ·	07/06/13 10/10/12 A	08/02/13	10/10/12 A	11/01/13		YSW07610	YSW0840, YSW16601	<u> </u>			 	long hill side (Grid D. O)	
YSW16607	Construct UU & pipes along hill side (Grid D-Q) Construct UU & pipes along hill side (Grid Q-X)	72	00	20/08/12 A	07/02/13	20/08/12 A	11/01/13		YSW07610	YSW16601, YSW16603	<u> </u>	1 7		•	long hill side (Grid D-Q) ong hill side (Grid Q-X)	
YSW16608	Construct UU & pipes along hill side (Grid XA-D)	72		30/11/12 A	07/02/13	30/11/12 A	11/01/13		YSW07610	YSW16601, YSW16603, YSW1690		تند اب	11	••	ong hill side (Grid XA-D)	
YSW16701	Construct Boundary Wall (Grid XA-D)	80		10/01/13 A	15/06/13	10/01/13 A	19/09/13		YSW16604	YSW16702		1 111	Ooristruct	II	ong tilli side (dita xxx b)	
YSW16702	Construct Boundary Wall (Grid D-Q)	80		06/08/13	25/10/13	20/09/13	08/12/13		YSW16605, YSW16701	YSW16703	11	1 111		I	11 1	
YSW16703	Construct Boundary Wall (Grid Q-X)	80		25/10/13	13/01/14	09/12/13	26/02/14		YSW16603, YSW16702	YSW16704, YSW1700						
YSW16704	ABWF installation for Boundary Wall	240		06/08/13	03/04/14	20/10/13	16/06/14		YSW16703	KD0040	 ı	u 1111	L	i	ii i	
YSW1680	Fire Hydrant & pipeline installation	120	<u> </u>	26/01/13 A	27/06/13	26/01/13 A	08/09/13		YSW1530	YSW1690, YSW1700	⊣¦	1 111	1	l l	II I	
YSW1690	Construction of Road Kerbs, Downpipes, U-channel	180		02/01/13 A	15/12/13	02/01/13 A	26/02/14		YSW16608, YSW1680	YSW1700		سللت	1	<u> </u>	П	
YSW1700	Road Paving	110		13/01/14	03/05/14	27/02/14	16/06/14		YSW16602, YSW16605, YSW16703,	KD0040	─ ∏;		İ	'	II I	
									YSW1680, YSW1690	<u> </u>	1	ш	I	l l	<u> </u>	
Submarine Out											li —			1	11 I ——————————————————————————————————	
YSW0180	Coordination of HEC	53	•	17/05/10 A	08/07/10 A	<u> </u>			KD0020	YSW0350				!	11 1	
YSW0200	Submission and Approval of Ecologist	60	100	17/05/10 A	15/07/10 A	<u> </u>	15/07/10 A		KD0020	YSW0210	;			! I	11 1	
YSW0210	Ecology Survey	211	100	16/07/10 A	11/02/11 A	1	11/02/11 A		YSW0200	YSW0350	_ :			!	11 1	
YSW0220	Submission and Approval of In. Hydro Survey	103	100	1	27/08/10 A	17/05/10 A	27/08/10 A		KD0020	YSW0230	i			i	11 1	
YSW0230	Hydrogrophical Survey (YSW)	157		<u> </u>	31/01/11 A	<u> </u>	31/01/11 A		YSW0220	YSW0350	<u> </u>			I	II	
YSW0240	Material Submission, Approval of HDPE pipe	319	100	1	31/03/11 A	1	31/03/11 A		KD0020	YSW0360	i	u 1111	L	i	ii i	
YSW02401	Clarify Coordinate of Point Y (Reply of RFI 010)	83	100	1	18/09/10 A	28/06/10 A	18/09/10 A		KD0020	YSW0250	⊣ ¦			!	11 1	
YSW0250	Submit and Approval of Method Statement for HDD	188			25/03/11 A	19/09/10 A	25/03/11 A		YSW02401	YSW0260, YSW0270, YSW0340	_ i	u 1111	L	i	ii i	
YSW0260	Submission of HDD Method Statement to HEC	14	100	1	08/04/11 A	1	08/04/11 A		YSW0250	YSW0340	⊣ ¦			!	11 1	
YSW0270	Additional G.I. Boreholes (YSW)	123	100	1	19/01/11 A	19/09/10 A	19/01/11 A	1	YSW0250	YSW0280, YSW0290	i	u _ u ı	1	i	ii i	
YSW0280	Submission of propose alignment	44	100		04/03/11 A	<u> </u>	04/03/11 A	1	YSW0270	YSW0310, YSW0340	 ¦			!		
YSW0290	Submission of Marine Notice	69			29/03/11 A	<u> </u>	29/03/11 A	1	YSW0270	YSW0350	i	u 1111	L	i	ii i	
YSW0310	Construction of Entry Pit and Preparation Work	27	100			05/03/11 A			YSW0280	YSW0320	- ¦			!		
YSW0320	Prepare of HDD Drill Rig Set-up (YSW)	28		01/04/11 A	!	01/04/11 A	<u> </u>		YSW0310	YSW0330, YSW0350	_ i	u 1111	I	ì	ii i	
YSW0330	Establishment of HDD plant & equipment	6	100		!	09/04/11 A	14/04/11 A		YSW0320	YSW0340				'-		
YSW0340	Setting up at drillhole location	14	100				<u> </u>		YSW0250, YSW0260, YSW0280,	YSW0350	⊣ !	u 1111	L	ļ	11 1	
YSW0350	Drill pilot hole and reaming hole - NS400 - 530m	229			!	29/04/11 A	13/12/11 A		YSW0040, YSW0180, YSW0210,	YSW0360	⊣ ¦					
YSW0360	Installation of NS400 HDPE 530m	17	.1	1		1	30/12/11 A		YSW0240, YSW0350	SKW1181, YSW03601, YSW03620,	⊣ !	u 1111	I .	ļ	11 1	
YSW03601	Demobilization of HDD plant & equipment	/	100			1	06/01/12 A		YSW0360 YSW03601	YSW03605, YSW03641, YSW0730 YSW0730	⊣ ¦				11 I 11 I	
YSW03605	Remove Entry pit of HDD	14	100		!	1	<u> </u>		YSW03601 YSW0360	YSW0/30 YSW0365		u _ u ı	1			
YSW03620	Removal of Receiving Pit Prepare backfilling material under VO 046A	_!	100		!	31/12/11 A 07/01/12 A	13/01/12 A		YSW03601	YSW0365	 i				11 1	
YSW03641 YSW0365	Set up of Silt Curtain as per EP	120	1		!	1	ļ.		SKW1431, YSW03620, YSW03641	YSW0370	I i ber EP			!	11 1	
YSW0365 YSW0370	Dredging of Marine Deposit for Diffuser (YSW)	2	100	1	!		ļ .		YSW0360, YSW0365	YSW0370 YSW0380	i				11 1	
YSW0370 YSW0380	Diffuser Construction (YSW)	60	100	1	29/11/12 A 26/02/13	30/11/12 A	11/04/13		YSW0370	E&M0690, YSW0400, YSW08301	eposit for Diffus	GI (19/	(1)	h Diffusor Co	nstruction (YSW)	
YSW0400	Removal of silt curtain	30		27/02/13	28/03/13	18/05/14	16/06/14		YSW0380	KD0040	г	пΙ		Dilluser CO		_ = = = = = = = =
<u> </u>	/SW STW	1 30	<u>′I</u> (1 -1/02/13	120/03/13	10/03/14	1 10/00/14	4450	1 . 3.1. 3000	1.555.5	 	<u> </u>	•		Removal of sill cur	tui I
E&M Works - ` E&M0360	Delivery of MBR Memb. Mod. (MBR Tk 4)	118	100	24/02/11 A	21/06/11 ^	24/02/11 A	21/06/11 4	T	E&M0160	E&M0510	- i	u 1111	I	i	ii	
E&M0370	Delivery of MBR Membrane Modules - 2nd Shipment	236		24/02/11 A	!	1			E&M0160	E&M0520	- ;				11 I	
E&M0380	Delivery of Wish Membrane Woodles - 2nd Snipment	81							E&M0150	E&M0530	⊣ i	u 1111	L	i	ii i	
E&M0390	Delivery of Coarse Screens	129	100	1	1	06/09/11 A	12/01/12 A		E&M0110	E&M0540	- ;				11 I	
E&M0400	Delivery of Coalse Screens Delivery of Fine Screens	80		1	!	1	30/11/11 A		E&M0120	E&M0550	⊣li	u 1111	L	i	ii i	
E&M0410	Delivery of Pumps	75	100	1					E&M0130	E&M0560	 			<u>1</u>	II L	
E&M0420	Delivery of Yumps Delivery of Submersible Mixers	230	100	'!	!	26/02/11 A			E&M0140	E&M0570	⊣li	u 1111	L	i	ii i	
	· · · · · · · · · · · · · · · · · · ·		100	1 -0,02,117		1 - 5, 5 E, 11 A	1-5,52,117		l		111	шПп			Destates:	Observation
	//05/10					اممط	, Civil E	neira	wing Corn I to				31/01/13	ate	Revision Revision 0	Checked Approved RH VC
	/01/13 Critical bar								ering Corp. Ltd.				01/01/10		TOTIOIOITO	
Run date 05	/02/13 Progress point				Constr				C/2009/13	V\N						
Page number 5A	Critical point								ent Works at YSW & S	TN V V						
o Primovero C	Summary point Start milestone point				J-mo	ıılıı KOIIIN	iy Progra	amme	(Feb 2013 - Apr 2013)							
c Primavera Sys	ems, Inc.															

Activity ID	D Description Ouration Con						Total Predecessors				2013 MAR	APR	MAY
E&M0440	Delivery of Sludge Dewatering Equipment	558 55	31/08/11 A	09/10/13	31/08/11 A	10/06/13	-121d E&M0170	E&M0580	JAN	FEB			
E&M0450	Delivery of Valves, Pipes & Fittings	560 90	30/08/11 A	29/08/13	30/08/11 A	14/09/13	17d E&M0180	E&M0590					
E&M0460	Delivery of Penstocks		12/08/11 A	24/12/11 A	12/08/11 A	24/12/11 A	E&M0190	E&M0600, E&M0605	1 : , :: - :	¦;;;;	;;		·
E&M0470	Delivery of Instruments		03/11/11 A	21/06/11 A	03/11/11 A	21/06/11 A	E&M0200	E&M0610	HH:HH	HH +			
E&M0480	Delivery of MCC LVSB		03/12/12 A	05/12/14	03/12/12 A	05/04/13	-609d E&M0210	E&M0620					
E&M0490	Delivery of BS Equipment	1	10/12/11 A	18/08/14	10/12/11 A	14/04/13	-491d E&M0220	E&M0630			II I		
E&M0500	Delivery FS Equipment		11/12/11 A	12/12/14	11/12/11 A	09/05/13	-582d E&M0230	E&M0330, E&M0640					
E&M0510	Install Membrane Modules in MBR Tank no. 4		03/11/12 A	26/02/13	03/11/12 A	23/05/13	86d E&M0360, YSW0705	E&M0690		Install N	1 lembrane Modules in I	MBR Tank no. 4	
E&M0520	Install Membrane Modules in MBR Tank No. 1 to 3		03/12/12 A	28/02/13	03/12/12 A	23/05/13	85d E&M0370, YSW08302, YSW08303	E&M0690	-	+	Membrane Modules in	1	3= = = = =
E&M0530	Install Grit Removal Equipment	1											
E&M0540	Install Coarse Screens		23/04/12 A	23/02/13	23/04/12 A	12/04/13	48d E&M0390, YSW05923	E&M0660			arse Screens		
E&M0550	Install Fine Screens				<u> </u>		-37d E&M0400, YSW05923	E&M0590, E&M0660	11111	IIII j	ne Screens		
	Install Fine Screens 122 80 01/06/12 A 24/02/13 01/06/12 A 17/01/13 -37d E&M0400, YSW05923 E&M0590, E&M0660 Install Pumps 355 60 23/04/12 A 21/06/13 23/04/12 A 12/04/13 -70d E&M0410, YSW05923 E&M0660									ilistan i	ile oci eeris		
E&M0560	<u>'</u>			<u> </u>	<u> </u>				- - <u></u>	HH +	II F	· _ ·	
E&M0570	Install Submersible Mixers		15/01/13 A	22/04/13	15/01/13 A	12/04/13	-10d E&M0420, YSW07204	E&M0660, E&M0690	<u> </u>			Install Subme	ersible Mixer
E&M0580	Install Sludge Dewatering Equipment	+ ·	29/05/12 A	28/10/13	29/05/12 A	24/05/13	-157d E&M0440, YSW06023	E&M0690	1 11111		11 1		
E&M0590	Install Valves, Pipes & Fittings		15/01/13 A	02/07/13	15/01/13 A	25/05/13	-37d E&M0450, E&M0530, E&M0550,	E&M0650, E&M0690		1			
E&M0600	Install Penstocks (Batch 1, GL H - T)		23/04/12 A	21/02/13	23/04/12 A	23/05/13	92d E&M0460, YSW07202	E&M0690		Install Pens	stocks (Batch 1, GL H	T)	
E&M0605	Install Penstocks (Batch 2, GL A - F)	131 60	02/01/13 A	24/03/13	02/01/13 A	23/05/13	61d E&M0460, YSW08302	E&M0690			Install Penst	ocks (Batch 2, GL A	- F) ⁻
E&M0610	Install Instruments	74 5	02/01/13 A	31/05/13	02/01/13 A	25/05/13	-6d E&M0470, YSW07055, YSW0810,	E&M0690	111				
E&M0620	Install SAT, MCC & LVSB	8 10	02/01/13 A	12/12/14	02/01/13 A	12/04/13	-609d E&M0480, YSW0810	E&M0660, E&M0680				<u> </u>	
E&M0630	Install BS Equipment	180 25	02/01/13 A	01/11/14	02/01/13 A	28/06/13	-491d E&M0490, YSW0810, YSW0820	E&M0690	111				
E&M0640	Install FS Equipment	180 5	02/01/13 A	31/01/15	02/01/13 A	28/06/13	-582d E&M0500, YSW0705, YSW0810,	E&M0690					
E&M0650	Hydraulic Tests of Pipeworks	153 20	02/01/13 A	06/06/13	02/01/13 A	30/05/13	-7d E&M0590, YSW08302	E&M0690					
E&M0660	Cabling Works	15 0	12/12/14	27/12/14	13/04/13	27/04/13	-609d E&M0530, E&M0540, E&M0550, E&M0560, E&M0570, E&M0620	E&M0670		HH +			
		Ĭ					E&M0560, E&M0570, E&M0620		11 1	1111 1	ii i		
E&M0670	Insulation Tests of Cables and Cable Termination	26 0	27/12/14	22/01/15	28/04/13	23/05/13	-609d E&M0320, E&M0325, E&M0660,	E&M0690	1		11 1		
E&M0680	Energization	1 0	12/12/14 *	13/12/14	27/04/13	27/04/13	-595d E&M0305, E&M0325, E&M0620,	E&M0670	1	iiii i	ii i		
E&M0690	Functional and Performance Tests of Equipment	35 0	22/01/15	26/02/15	24/05/13	27/06/13 *	-609d E&M0510, E&M0520, E&M0570, E&M0580, E&M0590, E&M0600, E&M0605, E&M0610, E&M0630.	E&M0700	11 1				
							E&M0640, E&M0650, E&M0670, YSW0380, YSW08301, YSW1530, YSW1540		11 1	1111	ii i		
									1	1111	11 1		
E&M0700	T&C Period	<u> </u>	26/02/15	13/07/15	12/12/13	27/04/14	-442d E&M0330, E&M0690	E&M0730, KD0040		IIII ПП Т	II		
E&M0730	Trial Operation Period	413 0	13/07/15	28/10/16	28/04/14	14/06/15	-442d E&M0700	KD0132	ii i	iiii	<u>ii i</u>		
Sok Kwu Wai	n										11 1		
Preliminary										iiii i	ii i		
SKW0250	Approval of Environmental Team	16 100	17/05/10 A	01/06/10 A	17/05/10 A	01/06/10 A	KD0020	SKW0260	1 '11 '	1111	!		
SKW0260	Baseline monitoring (Air & Noise)	14 100	02/06/10 A	15/06/10 A	02/06/10 A	15/06/10 A	SKW0250	SKW0242, SKW0265, SKW0592, SKW0681,	11				
SKW0265	Baseline Monitoring Submission (A & N)	14 100	16/06/10 A	08/07/10 A	16/06/10 A	08/07/10 A	SKW0260	SKW0242, SKW0592, SKW0681, SKW0921,		1111 1	11 1		
Section W3 - Fo	potpath Diversion in Portion G			<u> </u>		<u> </u>	1	•		 	11 1		
Civil & Geotech	•								14	1111 1	ii i		
SKW0240	Site Clearance	21 100	17/05/10 A	06/06/10 A	17/05/10 A	06/06/10 A	I I	SKW0241		1111	11 1		
SKW0241	Initial Survey		07/06/10 A	15/06/10 A				SKW0242			ii i		
SKW0242	Retaining Wall Bay 0-10 (Incl. VO. 001A)		30/06/10 A		30/06/10 A		SKW0241, SKW0260, SKW0265	SKW0461		!	11 1		
SKW0461	Utilities Laying and Diversion		24/12/10 A		24/12/10 A		SKW0242	SKW0471			11 1		
SKW0461	Concreting for Pavement		04/03/11 A		04/03/11 A	1	SKW0461	SKW0481		1111 1	i i		
	<u>-</u>		11/03/11 A				SKW0461	KD0050, SKW04811, SKW0491					
SKW0481	Footpath Diversion - Stage 1				11/03/11 A 25/03/11 A	1	SKW04/1	SKW04821	├ ╶╴╴╴╴╴┡╢┥╵	HH <mark> +</mark>	i+		
SKW04811	Excavate for FP transition at CH0-35 &CH130-141		25/03/11 A		1					1111	11 1		
SKW04821	Construction of Drainage outfall near bay 10		01/05/11 A		01/05/11 A		SKW04811	SKW04831			- ::		
SKW04831	Cable diversion by HEC		04/05/11 A		04/05/11 A		SKW04821	SKW04841		1111 1	11 1		
SKW04841	Diversion of Ducting and Drawpit by PCCW		20/05/11 A		20/05/11 A		SKW04831	SKW04851		IIII I HH + +	I + F		
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	1	iiii i	ii i		
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		1111	11 1		
SKW04871	Relocation of Temp Safety Fence at SKW STW A-G		22/06/11 A	17/08/11 A	22/06/11 A	17/08/11 A	SKW04861	SKW04881			11 1		
SKW04881	Disposal of excavation material at A-G SKW STW		18/08/11 A		18/08/11 A	02/01/12 A	SKW04871	SKW04885		1111 1	i i		
SKW04885	Footpath Diversion - Stage 2		03/01/12 A		03/01/12 A	!	SKW04881	SKW1261			11 1		
SKW0491	Removal of Haul Road after SKW STW		08/10/14	14/10/14		04/06/15	233d KD0090, SKW0481, SKW1401	SKW0501					
		1 1	1	1	1 = 2. 20. 10	1 = :: 30; 70	1 1 · · · · · · · · · · · · · · · ·	l	1 11				
	(05/10 Early bar									Date	Revision		Approved
	/10/16 Progress bar Critical bar						ngineering Corp. Ltd.			31/01/13	Revision 0	RH	VC
	01/13 Summary bar						No. DC/2009/13						
Page number 6A				Constru	ction of S	Sewage T	reatment Works at YSW & Sk	CW			+		+
. 49 5 114111501 0/1	Summary point						mme (Feb 2013 - Apr 2013)						
c Primavera Syste	c Primavera Systems, Inc.												

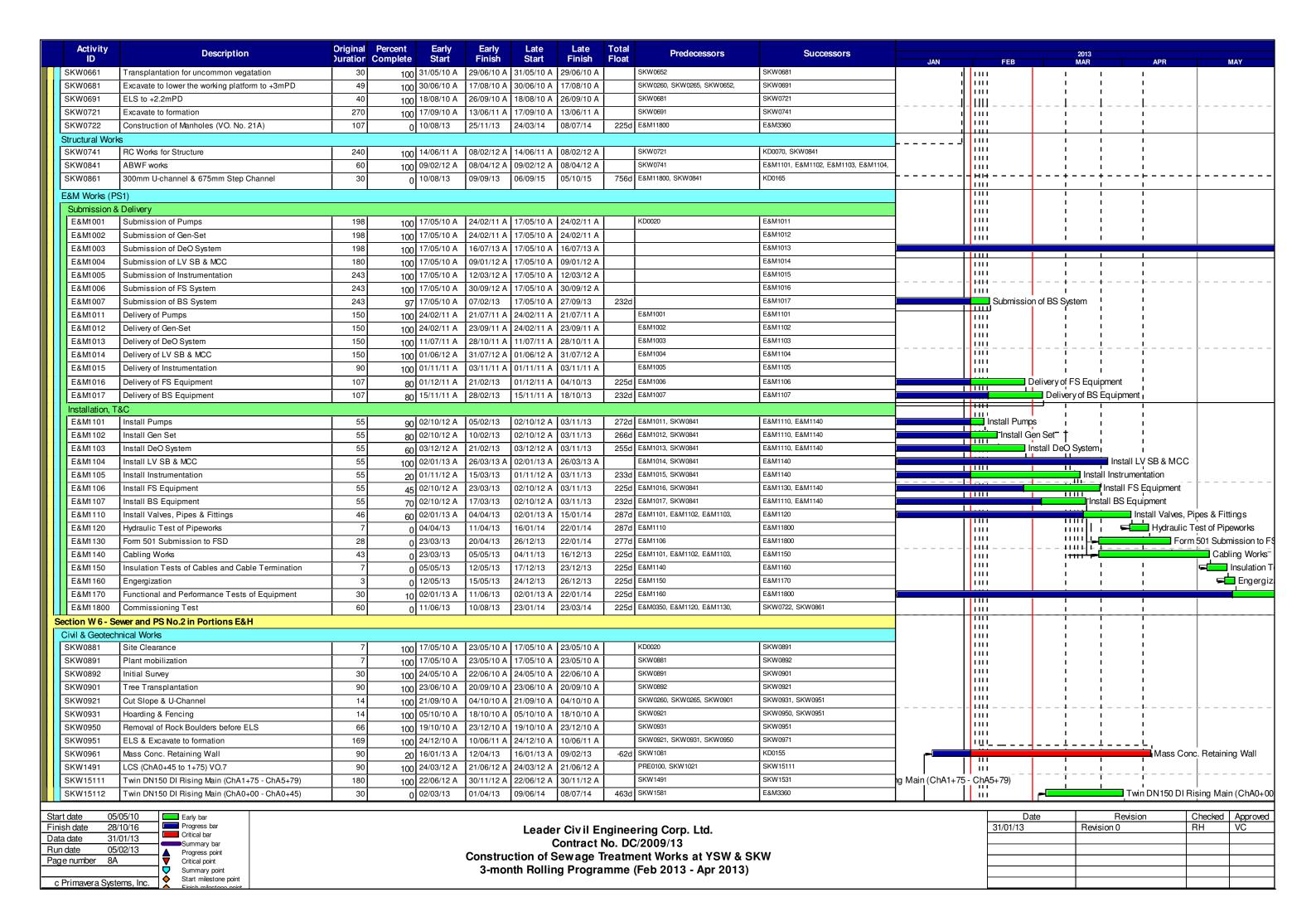
Activity ID	Description	_	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors					2013 MAR		400	MAY
SKW0501	Concreting for no-fine concrete	14	•	08/10/14	21/10/14	29/05/15	11/06/15		SKW0491	SKW0511	JAN	1 1111	FEB	<u> </u>	MAK II		APR	MAY
SKW0511	Wall Tie & Stone Facing	14	0	22/10/14	04/11/14	12/06/15	25/06/15		SKW0501		- ii	liiii		i	ii	i		ı
SKW0521	Gabion Wall & Geotextile	30	0	05/11/14	04/12/14	26/06/15	25/07/15		SKW0511		┤ !!			I I	11	1		ı
SKW0531	Installation of Flower Pot	7		05/12/14	11/12/14	26/07/15	01/08/15		SKW0521	SKW0541	┨ !!			ļ				ı
SKW0541	Completion of Outstanding Works	42	0	12/12/14	22/01/15	02/08/15	12/09/15		SKW0531	KD0125	+ii	700		i -	i i -	i -		
	lope W orks in Portions H & I		U) ,,		10-70-70	12,00,10					1111		I				
Geotechnical V	•										ii			i	ii	i		ı
SKW0588	Construct scaffolding access	30	100	15/06/10 A	14/07/10 A	15/06/10 A	I 14/07/10 A	<u> </u>	KD0020	SKW0590	- ::			I I	11	1		ı
SKW0590	Site Clearance for Slope	100		15/07/10 A	22/10/10 A	15/07/10 A	<u> </u>		SKW0588		- ii			i	ii	i		ı
SKW0591	Initial Survey for Slope	28		21/09/10 A	18/10/10 A	21/09/10 A	<u>!</u>		SKW0590		┤ !!			!	11	1		ı
SKW0592	Temporary Rockfall fence at ex. Footpath	43		31/08/10 A	12/10/10 A	31/08/10 A	!		SKW0260, SKW0265, SKW0591	SKW05931	- ii			i	ii	i		ı
SKW05931	Construction of Haul Road (To +30mPD)	50		03/09/10 A	22/10/10 A		<u>!</u>		SKW0592	SKW05932	- !!			I I	11	1		ı
SKW05932	Construction of Haul Road (To +42.5mPD)	68		23/10/10 A	29/12/10 A	23/10/10 A	ļ		SKW05931	SKW059322	 :	100		i -	;; -	 -		
SKW059321	Removal of Boulders (IBG 1 - 119, SI No. 11B)	121			03/03/11 A		<u> </u>			SKW059411	┨ !!	11111		!	11			ı
SKW059322	Add. Site Invest. Works (VO. No. 9,12 &16)	174		11/01/11 A	03/03/11 A		<u> </u>		SKW05932	SKW059341	- ;;	11111		i	H	i		ı
SKW059323	Revised Profile at West Slope (+56 to +42.5mPD)	1/4		17/03/11 A	17/03/11 A		<u> </u>		- C.K.T. 00002	SKW059324	-	11111		l	11	. !		ı
SKW059323 SKW059324	Construction of Haul Road (+42.5 to +56mPD)	12		18/03/11 A	29/03/11 A		<u> </u>		SKW059323	SKW059325	- ';				- ::	1		ı
SKW059324 SKW059325	Removal of Boulders (IBG 120-139, SI No. 11C)	17		30/03/11 A	15/04/11 A		<u> </u>		SKW059324	SKW05933	+	- 44		! -	!+-	<u>-</u>		
	West Slope Cutting (+56mPD to +42.5mPD)	1 1/		16/04/11 A	 		<u> </u>		SKW059325	SKW059331	- ';	11111			11			ı
SKW05933 SKW059331	Removal of Boulders (IBG 140-189, SI No. 11D)	45		1	17/04/11 A 01/06/11 A		01/06/11 A		SKW059325 SKW05933	SKW05934	- ii	11111		i	11	į		ı
	` ' '						03/07/11 A		SKW059331	SKW059341	- '.'			I I	11	1		ı
SKW05934	West Slope Cutting (+42.5mPD to +35mPD)	32		02/06/11 A	03/07/11 A		ļ		SKW059321, SKW05934	SKW05935	- ii	11111		i	11	i		ı
SKW059341	Revised Profile at West Slope (+20 to +4.8mPD)	1 00		04/07/11 A	04/07/11 A		<u> </u>		SKW059322, SKW05934	SKW05936	+	- 1111			¦¦ -	¦-		r ·
SKW05935	West Slope Cutting (+35mPD to +27.5mPD)	83		08/07/11 A	28/09/11 A		<u> </u>		SKW05935	<u> </u>	- ii	11111		i	11	i		ı
SKW05936	West Slope Cutting (+27.5mPD to +20mPD)	61		29/09/11 A	28/11/11 A	29/09/11 A	<u> </u>			SKW05937				l I	11	1		ı
SKW05937	West Slope Cutting (+20mPD to +12.5mPD)	39		29/11/11 A	06/01/12 A	29/11/11 A	<u> </u>		SKW05936	SKW05938	- ii	11111		i	ii	i		ı
SKW05938	West Slope Cutting (+12.5mPD to +4.8mPD)	90		07/01/12 A	27/03/12 A		<u> </u>		SKW05937	KD0060, SKW1261, SKW1311, SKW1371				l I	11	1		ı
SKW05941	Slope Stormwater Drainage	300		28/03/12 A	25/05/12 A		<u> </u>		KD0060	SKW05942	Дй	- 44		i-	ii -	i		
SKW059411	East Slope Cutting (+50mPD to +42.5mPD)	72		04/03/11 A	14/05/11 A		<u> </u>		SKW059321	SKW059412		11111		l I	11	1		ı
SKW059412	East Slope Cutting (+42.5mPD to +35mPD)	82		15/05/11 A	04/08/11 A		<u> </u>		SKW059411	SKW059413	- ii			i	ii	i		ı
SKW059413	East Slope Cutting (+35mPD to +27.5mPD)	55		05/08/11 A	28/09/11 A		28/09/11 A		SKW059412	SKW059414				l I	11	- 1		ı
SKW059414	East Slope Cutting (+27.5mPD to +20mPD)	61		1	28/11/11 A	29/09/11 A			SKW059413	SKW059415	- ii			i	ii	i		ı
SKW059415	East Slope Cutting (+20mPD to +12.5mPD)	39		29/11/11 A	06/01/12 A		ļ		SKW059414	SKW059416	╆====='¦			 -	-	 		
SKW059416	East Slope Cutting (+12.5mPD to +4.8mPD)	81		07/01/12 A	27/03/12 A	07/01/12 A			SKW059415	KD0060, SKW1311, SKW1371	⊣ i	11111		i	ii	i		ı
SKW05942	Slope Miscellaneous Works	61		26/05/12 A	31/07/12 A	26/05/12 A	1		SKW05941	SKW05943, SKW0595				 +-		⊢		
SKW05943	Buttress & surface Protection (SI No. 31)	60		' I	31/07/12 A				SKW05942	SKW05944	⊣ ;			i	ii	i		ı
SKW05944	Slope Treatment (SI. No. 36)	60		03/07/12 A					SKW05943	SKW05945				!	- 11	- !		ı
SKW05945	Rock Slope Treatment (SI. No. 68)	60			30/09/12 A	01/08/12 A		101	SKW05944	SKW05946		шш		. .	1.1	È		
SKW05946	Rock Slope Treatment (SI. No. 98)	60			08/02/13	10/09/12 A			SKW05945	SKW05947		I		e Treatment				ı
SKW05947	Rock Slope Treatment (SI. No. 115)	60			17/02/13	01/11/12 A			SKW05946	KD0135	_		I Roc	k Slope Trea				
SKW05948	Soil Nailing Works (VO. No. 52)	300			16/03/13		1	456d	CIVINOEDAD CIVINOEDAD	SKW05963		1111		·	SOII Na	alling Worl	ks (VO. No. 5 	∠) I
SKW0595	Rock Meshing	60	-	08/05/14	06/07/14	07/08/15	05/10/15	456d	SKW05942, SKW05972	KD0165	4 ;	11111		i	i	i		ı
SKW05963	Determine Alignment & Foundation Design of RFB	120			08/06/12 A		08/06/12 A		SKW05948	SKW059631, SKW05964, SKW05965	+	- 1111 1111		‡ -	‡ -	 -		
SKW059631	GEO Approval of Foundation Design	70			31/07/12 A	09/06/12 A			SKW05963	SKW05968		11		i	i	i		ı
SKW05964	Fabrication & Shipping of RFB Material	180				09/06/12 A	1		SKW05963	SKW05972	ng of RFB Materia			 +-	+ -	l ⊢		
SKW05965	Site clearance & Formation of access	62			31/07/12 A				SKW05963	SKW05967		֓֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֡֓֓֓֡֓֓֡֓	·	 -	_ _			
SKW05967	Plant mobilization	14			15/01/13 A	02/01/13 A			SKW05965	SKW05968	Plant m	obilizati •	on	!	<u>!</u>	!		
SKW05968	Construction of anchors & pull out test	180			11/07/13		1		SKW059631, SKW05967	SKW05969		- нн		+-	+ -	L		
SKW05969	Construction of Foundation	120		12/07/13	08/11/13	11/10/14	07/02/15		SKW05968	SKW05970	_ :			!	!	!		ı
SKW05970	Proof Load Test	60		09/11/13	07/01/14	08/02/15	08/04/15		SKW05969	SKW05971	_	1111				1		ı
SKW05971	Transportation of Material (To the slope crest)	30		08/01/14	06/02/14	09/04/15	08/05/15	I	SKW05970	SKW05972				I ·	I	!		ı
SKW05972	Installation of Flexible barrier	90	0	07/02/14	07/05/14	09/05/15	06/08/15	456d	SKW05964, SKW05971	KD0165, SKW0595	<u> </u>	1111			!	¦		<u>. </u>
Section W 5 - P.	S. No. 1 in Portion D										i	1111		İ	ı	i		
Civil & Geotech	nnical Works													l I	 	1		ı
SKW0651	Site Clearance	7		17/05/10 A					KD0020	SKW0652		11111		I :	Į.	ı		ı
SKW0652	Initial Survey	7	100	24/05/10 A	30/05/10 A	24/05/10 A	30/05/10 A		SKW0651	SKW0661, SKW0681	<u>]</u>	1111		I	!	!		<u>. </u>
		· ·																
	/05/10											Ţ	Da	ite	5	Revision		hecked Approv
	/10/16 Progress bar //01/12 Critical bar					Leade	r Civil E	nginee	ering Corp. Ltd.			F	31/01/13		Revision	n U	R	H VC

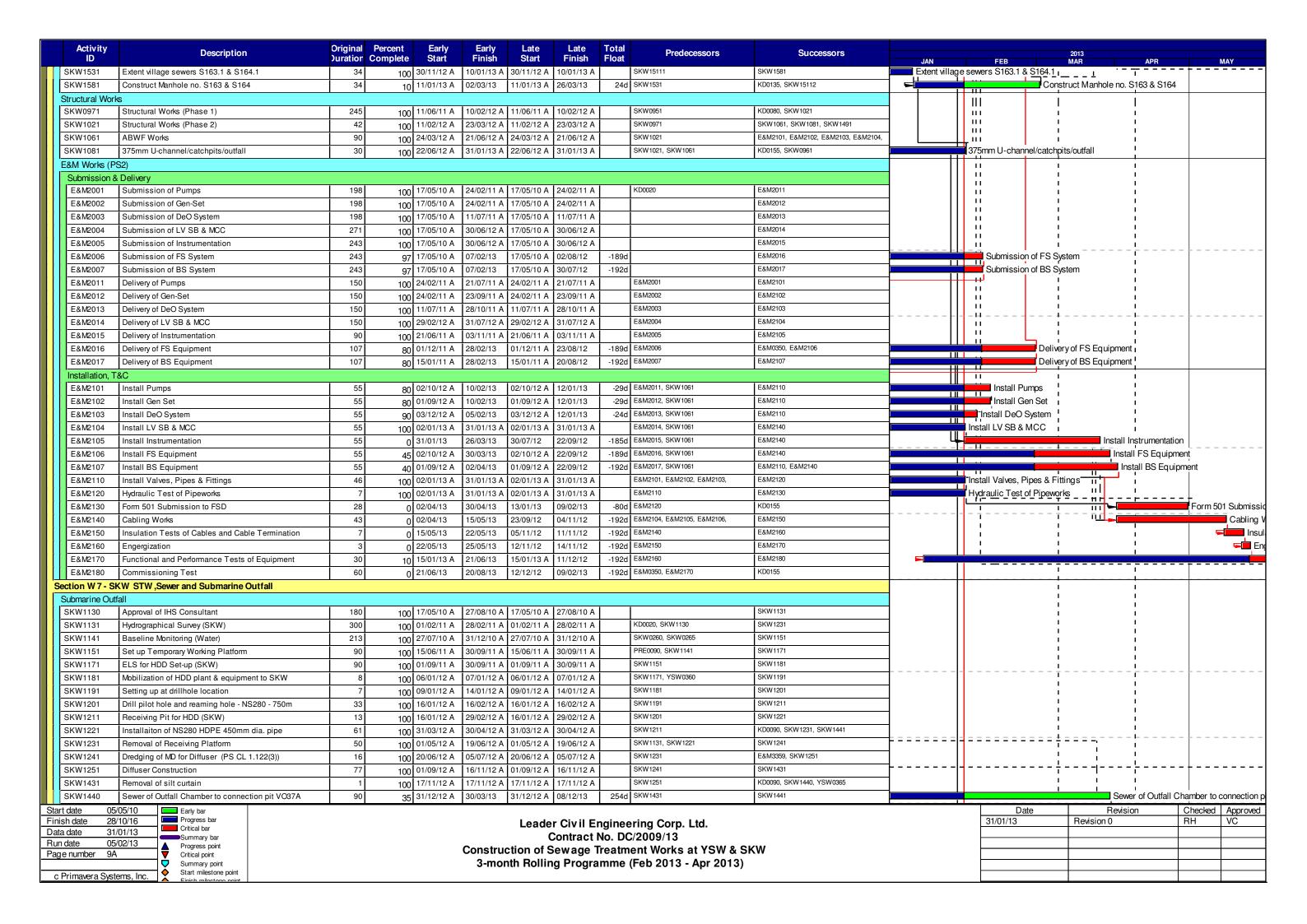
Start date 05/05/10
Finish date 28/10/16
Data date 31/01/13
Run date 05/02/13
Page number 7A

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

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

Date	Revision	Checked	Approved
1/01/13	Revision 0	RH	S





Activity ID	Description	Original Ouration	Percent Complete	Early Start	Early Finish	Late Start	Late Finish	Total Float	Predecessors	Successors	JAN	FEB	2013 MAR	APR	MAY	,
SKW1441	Sewer of Connection Pit to Outfall VO45	177	0	30/03/13	23/09/13	09/12/13	03/06/14	254d	SKW1221, SKW1440	E&M3359, KD0090			 =			
SKW STW													i i	l Į		
	& Delivery (E&M)	1 450		104/00/44 4	147/40/44 A	104/00/44 4	147/40/44 4	<u> </u>	I = 0.10100	LEOMOTO.			l			
E&M3010	Delivery of MBR M.M 1st shipment for Temp STP	150		24/02/11 A	17/10/11 A	24/02/11 A	17/10/11 A		E&M0160	E&M3170	<u> </u>		· · · · · · · · · · · · · · · · · · ·	I ⊢		
E&M3030	Delivery of Grit Removal Equipment	180	100		29/12/11 A	10/10/11 A	29/12/11 A		E&M0150	E&M3190	<u> </u>		_i			
E&M3060	Delivery of Fine Screens	136	100		30/11/11 A	12/09/11 A	30/11/11 A		E&M0120	E&M3210	-		· +	ı i ⊢⊢		
E&M3070	Delivery of Pumps	136	100		05/09/11 A	23/06/11 A	05/09/11 A		E&M0130	E&M3220	<u> </u>		_i	ili.		
E&M3080	Delivery of Submersible Mixers	180	100		17/11/11 A	26/07/11 A	17/11/11 A		E&M0140	E&M3230			_ !	<u> </u>	<u> </u>	S - 12
E&M3090	Delivery of Sludge Dewatering Equipment	210	50		15/05/13	01/09/11 A	11/01/14	<u> </u>	E&M0170	E&M3240	-		ı	1 11		Deliver
E&M3100	Delivery of Valves, Pipes & Fittings	180	50		05/05/13	30/08/11 A	19/11/13	199d	E&M0180	E&M3250	-		i	 I II	Delivery	⊭orva – – –
E&M3110	Delivery of Penstocks	, 100														
E&M3130	Delivery of instruments	180	100		03/11/11 A	21/06/11 A	03/11/11 A				<u> </u>		1	1 11		
E&M3140	Delivery of MCC LVSB	180	0	01/02/13	31/07/13	07/04/13	03/10/13		E&M0210	E&M3261			_+	<u> </u>	<u> </u>	
E&M3150	Delivery of BS Equipment	180	8	03/07/12 A	20/08/13	03/07/12 A	04/12/13	<u> </u>	E&M0220	E&M3291						
E&M3160	Delivery of FS Equipment	180	5	30/06/12 A	06/09/13	30/06/12 A	23/12/13	109d	E&M0230	E&M0340, E&M3300				 		
Construction						<u>, </u>			L					1 II 1 II		
SKW1261	Excavate for SKW STW Structure (Grid A -G)	164	100	28/03/12 A	 	28/03/12 A			SKW04885, SKW05938	SKW1271, SKW1371			i	iii		
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				1 11		
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		31/07/12 A	03/07/12 A	31/07/12 A	<u> </u>	SKW1281	KD0090, SKW1301				1 11		
SKW1301	Columns & Walls to R/F & R/F Slab (Grid A-G)	50	100	01/09/12 A	31/01/13 A	01/09/12 A	31/01/13 A		SKW1291	E&M3261, E&M3291, E&M3311, SKW1411		Columns & Walls to F	R/F_& R/F Slab (Grid A-	G)II	<u> </u>	
SKW1411	ABWF Works	105	0	31/01/13	15/05/13	07/03/13	19/06/13	35d	SKW1301	E&M3261, E&M3291, E&M3311, SKW1551					P	ABWF
Construction	of Grid G-N												1	 	-	
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			i	i ii		
SKW1321	Equalization Tank no.1 & 2 with base slabs (-2.1	42	100	26/06/12 A	30/09/12 A	26/06/12 A	30/09/12 A		SKW1311	SKW1331			1	1 11		
SKW1331	Columns & Walls from B/S to G/F Slab (Grid G-N)	35	100	01/09/12 A	30/09/12 A	01/09/12 A	30/09/12 A		SKW1321	SKW1341			i	iii		
SKW1341	Ground Floor Slab (Grid G-N)	35	100	01/09/12 A	17/12/12 A	01/09/12 A	17/12/12 A		SKW1331	SKW1351	loor Slab (Grid G-N)	I I	1 II 1 II		
SKW1351	Columns & Walls to 1/F & 1/F Slab (Grid G-N)	28	100	01/11/12 A	15/01/13 A	01/11/12 A	15/01/13 A		SKW1341	SKW1361	Columns	& Walls to 1/F $&$ 1/F $&$	lab (Grid G-N)	iii		
SKW1361	Columns & Walls to R/F & R/F Slab (Grid G-N)	35	25	01/11/12 A	26/02/13	01/11/12 A	17/12/12	-70d	SKW1351	SKW1451		Col	lumns & Walls to R/F &		G-N)	
SKW1451	ABWF Works	54	0	26/02/13	21/04/13	18/12/12	09/02/13	-70d	SKW1361	E&M3170, E&M3190, E&M3210, E&M3291, E&M3300, SKW1391, SKW1551			·	ABW	VF Works	
										E&W3300, SKW 1391, SKW 1331			!	! !! ┌─┴ -	+	
Construction	of Grid N-T					•							.	1 11		
SKW1371	Excavate for SKW STW Structure (Grid N-T)	97	100	03/07/12 A	25/01/13 A	03/07/12 A	25/01/13 A		SKW05938, SKW059416, SKW1261,	SKW1381	Exc	avate for SKW STW S		1 11		
SKW1381	Ground Floor Slabs include MBR Tank (Grid N-T)	58	100	02/10/12 A	31/01/13 A	02/10/12 A	31/01/13 A		SKW1371	SKW1391		Ground Floor Slabs i	nclude MBR Tank (Grid	IN-T)		
SKW1391	Columns & Walls to 1/F & 1/F Slab (Grid N-T)	35	0	21/04/13	26/05/13	10/02/13	16/03/13	-70d	SKW1381, SKW1451	SKW1401		·	- †	С П		
SKW1401	Columns & Walls to R/F & R/F Slab (Grid N-T)	35	0	26/05/13	30/06/13	17/03/13	20/04/13	-70d	SKW1391	E&M3240, SKW0491, SKW1421	=		1	1 11		
SKW1421	ABWF Works	60	0	30/06/13	29/08/13	21/04/13	19/06/13	-70d	SKW1401	E&M3240, SKW1551	=			i ii		
SKW1551	Drainage (SSMH1-SSMH7)	35	0	29/08/13	03/10/13	20/06/13	24/07/13		SKW1411, SKW1421, SKW1451	SKW1561			-+	- - - - - - - - - - - - -		
	,		0										i	i ii		
OKW4504	Comercial CMELIA CMELIO CMELIO CMELIZ)	000	_	00/40/40	14/05/44	05/07/40	04/00/44	70-1	SKW1551	SKW1571	_		1	1 !!		
SKW1561	Sewer (SMFH1-SMFH2, SMFH3-SMFH7)	220		03/10/13	11/05/14	25/07/13	01/03/14		SKW1561		-			1 11		
SKW1571	Roadwork & Drainage Channel (SKW)	220	0	11/05/14	17/12/14	02/03/14	07/10/14	-/0d	OKW 1001	KD0090			I	1 11		
SKW STW - E				l 04/64/1=	Loozaria	Loziarii	140/24/::	1	LEGMOND OKAMATA	L E 9 MOO14	•		<u> </u>			
E&M3170	Install Membrane Modules in MBR Tank No. 1 to 2	100		21/04/13	30/07/13	07/01/14	16/04/14		E&M3010, SKW1451	E&M3311	4		!	! ! =		
E&M3190	Install Grit Removal Equipment	60	·	20/06/13	19/08/13	21/09/13	19/11/13		E&M3030, E&M3210, SKW1451	E&M3250, E&M3320	4		 	: <u> </u>		
E&M3210	Install Fine Screens	60	0	21/04/13	20/06/13	24/05/13	22/07/13	33d	E&M3060, SKW1451	E&M3190, E&M3220, E&M3250, E&M3260, E&M3320			I.	 		
E&M3220	Install Pumps	75		20/06/13	03/09/13	23/07/13	05/10/13	334	E&M3070, E&M3210	E&M3230, E&M3250, E&M3260, E&M3320	-		<u> </u>	I I		
E&M3230	Install Submersible Mixers	45	0			06/10/13			E&M3080, E&M3220	E&M3250, E&M3260, E&M3311, E&M3320	-		i	I		
		45	0	03/09/13	18/10/13		19/11/13	<u> </u>			+			<u> </u>		
E&M3240	Install Sludge Dewatering Equipment	/4	0	29/08/13	11/11/13	12/01/14	26/03/14		E&M3090, SKW1401, SKW1421	E&M3320	-		i	i i		
E&M3250	Install Valves, Pipes & Fittings	75	0	18/10/13	01/01/14	20/11/13	02/02/14] 33d	E&M3100, E&M3190, E&M3210, E&M3220, E&M3230	E&M3270, E&M3291, E&M3300, E&M3310			!	1		
E&M3260	Install Penstocks	135	_	18/10/13	02/03/14	03/12/13	16/04/14	164	E&M3110, E&M3210, E&M3220,	E&M3311	1		;	i I		
E&M3261	Install SAT of MCC & LVSB	174		31/07/13	21/01/14	03/12/13	26/03/14	<u> </u>	E&M3140, SKW1301, SKW1411	E&M3311, E&M3320	-		!	1		
E&M3270	Install instruments	60			02/03/14	16/02/14	16/04/14	<u> </u>	E&M3130, E&M3250	E&M3311	-		!]]		
			+		- <u>+</u>	L										
E&M3291	Install BS Equipment	180	0	02/11/13	01/05/14	05/12/13	02/06/14	33d	E&M3150, E&M3250, SKW1301, SKW1411, SKW1451	E&M3331, E&M3359			1] 		
				<u> </u>	<u> </u>	<u> </u>		<u> </u>	<u> </u>	<u> </u>			<u> </u>	<u>.</u>		
	5/05/10 Early bar											Date	Revision		Checked Ap	pprove
	3/10/16 Progress bar Critical bar								ering Corp. Ltd.			31/01/13	Revision 0	F	RH VO	<u> </u>
	5/00/13 Summary bar								C/2009/13						\longrightarrow	
Run date 05/02/13 Page number 10A Progress point Critical point Critical point Critical point Critical point															-+	
Summary point 3-month Rolling Programme (Feb 2013 - Apr 2013)															$\overline{}$	
Primavera Syst	tems, Inc. Start milestone point															
												_				

Activity	Description	Original		Early	Early	Late	Late	Total	Predecessors	Successors			2013		
ID	Bescription	Ouration	Complete S	Start	Finish	Start	Finish	Float	110000033013	000000000000000000000000000000000000000	JAN	FEB	MAR	APR	MAY
E&M3300	Install FS Equipment	161	0 02/1	11/13 1	12/04/14	24/12/13	02/06/14	52d	E&M3160, E&M3250, SKW1451	E&M3331, E&M3359			ı	ı	
E&M3310	Hydraulic Tests of Pipeworks	90	0 01/0	01/14	01/04/14	06/03/14	03/06/14	64d	E&M3250	E&M3359]		1	1	
E&M3311	Cabling Works	47	0 02/0	03/14 1	18/04/14	17/04/14	02/06/14	46d	E&M3170, E&M3230, E&M3260, E&M3261, E&M3270, SKW1301,	E&M3331, E&M3359			į	į	
E&M3320	Cabling Works for Dewatering Equipment	47	0 21/0)1/14	09/03/14	27/03/14	12/05/14	65d	E&M3190, E&M3210, E&M3220, E&M3230, E&M3240, E&M3261	E&M3321				<u> </u>	
E&M3321	Insulation Tests of Cables and Cable Termination	21	0 09/0	03/14	30/03/14	13/05/14	02/06/14	65d	E&M3320	E&M3331					
E&M3331	Energization	1	0 01/0	05/14	02/05/14	03/06/14	03/06/14	33d	E&M3291, E&M3300, E&M3311,	E&M3359			!	!	
E&M3359	Functional and Performance Tests of Equipment	35	0 02/0	05/14	06/06/14	04/06/14	08/07/14	33d	E&M3291, E&M3300, E&M3310, E&M3311, E&M3331, SKW1241,	E&M3360			i i	; ;	
E&M3360	T&C Period	91	0 06/0	06/14	05/09/14	09/07/14	07/10/14	33d	E&M0340, E&M3359, SKW0722, SKW15112	E&M3370, KD0090			1	1 1	
E&M3370	Trial Operation Period	456	0 05/0	09/14	05/12/15	31/05/15	28/10/16	269d	E&M3360				i	i	
Rising Main										•			<u>.</u>	!	
SKW1481	Subm, Approval & Delivery of DI pipes	120	100 17/0	05/10 A 1	13/09/10 A	17/05/10 A	13/09/10 A		KD0020	SKW1501			i	i	
SKW1501	LCS (ChB0+00 - ChB1+20)	300	100 14/0	09/10 A 1	10/07/11 A	14/09/10 A	10/07/11 A		PRE0100, SKW1481	SKW1521	1		!	1	
SKW1521	Twin DN150 DI Rising Main (ChB0+00 - ChA4+55)	250	85 11/0	07/11 A	09/03/13	11/07/11 A	07/10/14	578d	SKW1501	KD0090			Twin DN150	DI Rising Main (ChB	0+00 - ChA4+55)
Section W8-L	andscape Softworks in All Portions	•								•				!	
SKW1591	Tree Survey	21	100 17/0	05/10 A	06/06/10 A	17/05/10 A	06/06/10 A		KD0020	SKW1621	1	<u></u>		;	
SKW1611	Preservation & Protection of Trees	1053	99 17/0	05/10 A	10/02/13	17/05/10 A	03/04/13	53d	KD0020	KD0100, SKW1631		Preservation	n & Protection of Tr	ees	
SKW1621	Transplantation at SKW	90	100 07/0	06/10 A	04/09/10 A	07/06/10 A	04/09/10 A		SKW1591	KD0100]				
Section W9 - E	stablishment W orks in All Portions														
SKW1631	Section W9 - Establishment Works	365	0 10/0	02/13 1	10/02/14	04/04/13	03/04/14	53d	SKW1611	KD0110	1				

Start date	05/05/10		Early bar
Finish date	28/10/16		Progress bar
Data date	31/01/13	╚	Critical bar
Run date	05/02/13	$\overline{\mathbf{A}}$	Summary bar Progress point
Page number	11A	7₹	Critical point
		V	Summary point
c Primavera	Systems, Inc.	1 ♦	Start milestone point

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

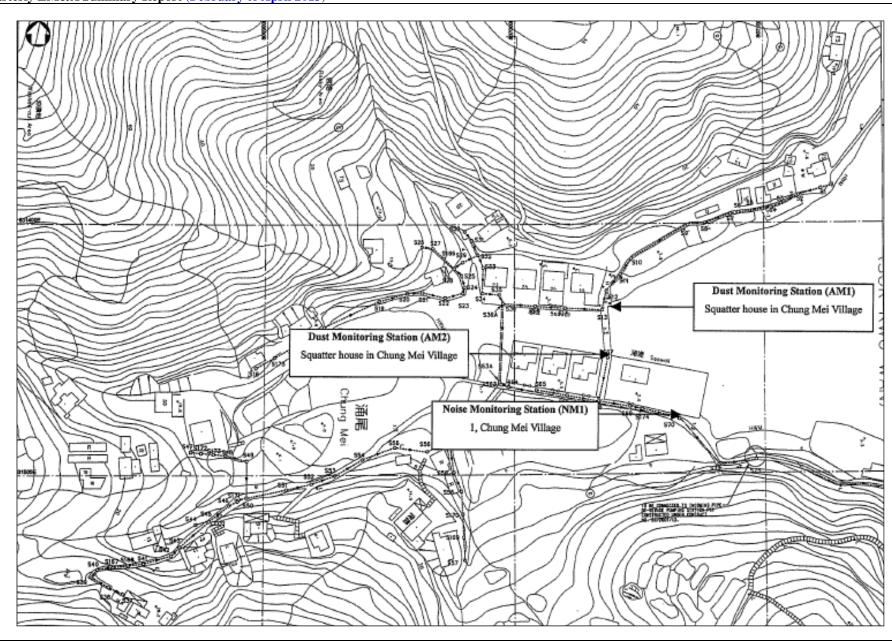
Date	Revision	Checked	Approved
31/01/13	Revision 0	RH	VC



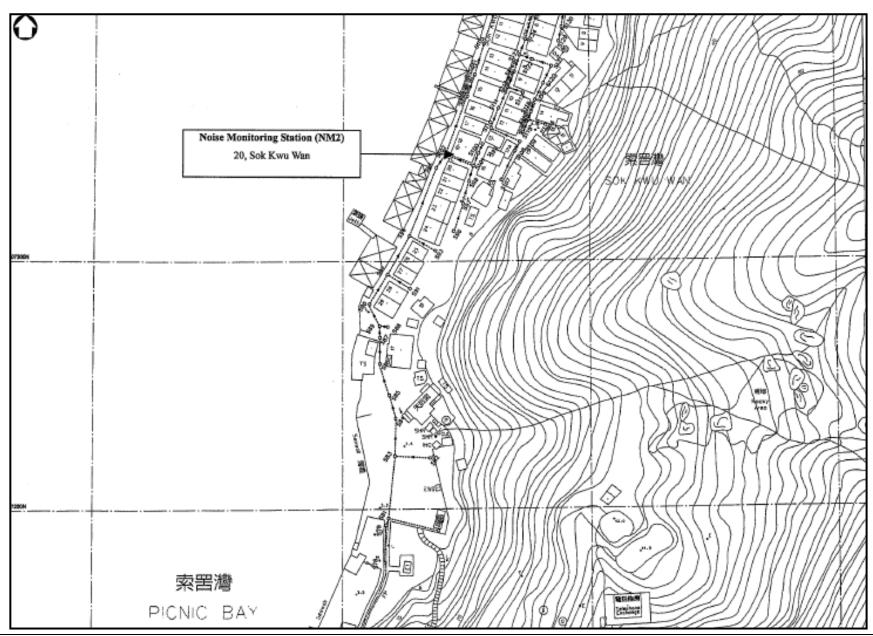
Appendix D

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

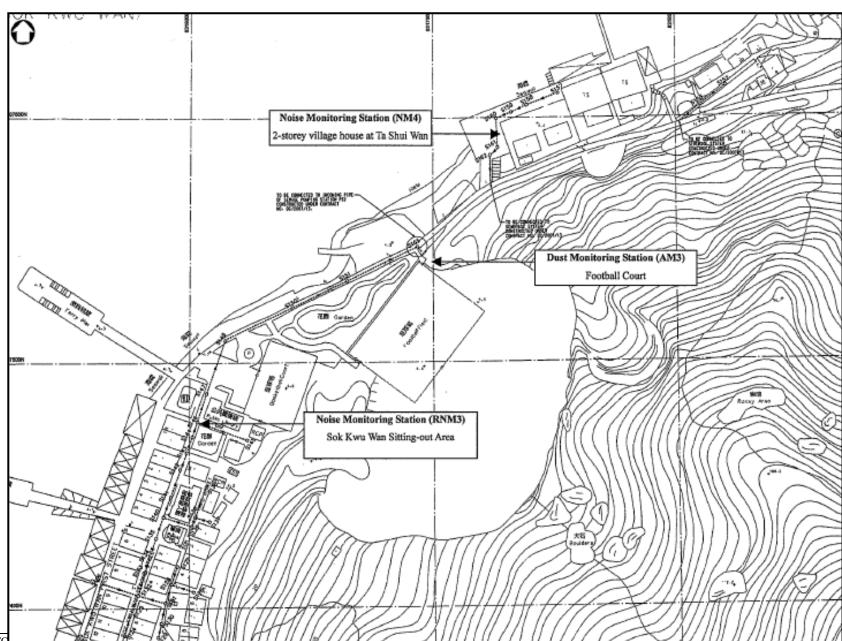








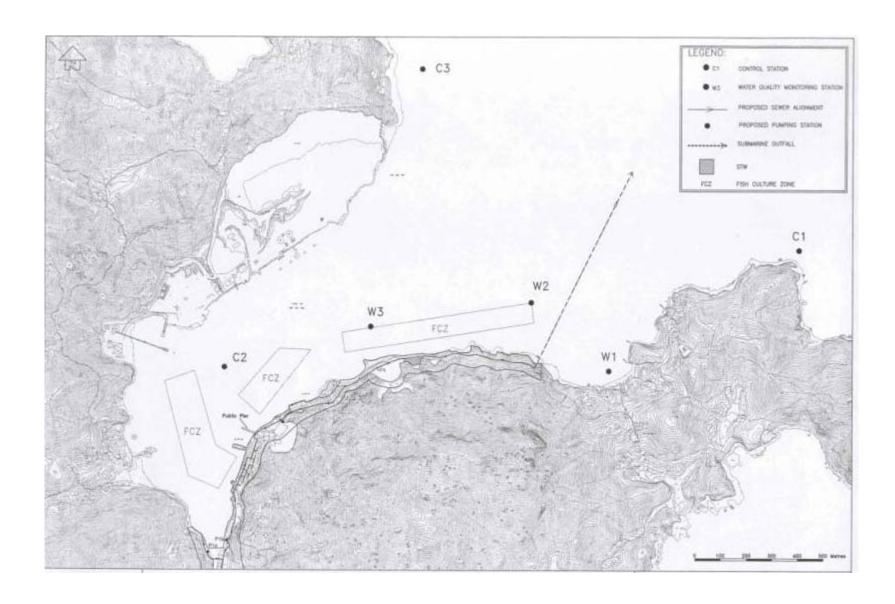




Z:\Jobs\2010\TC Appendix

Action-United Environmental Services and Consulting







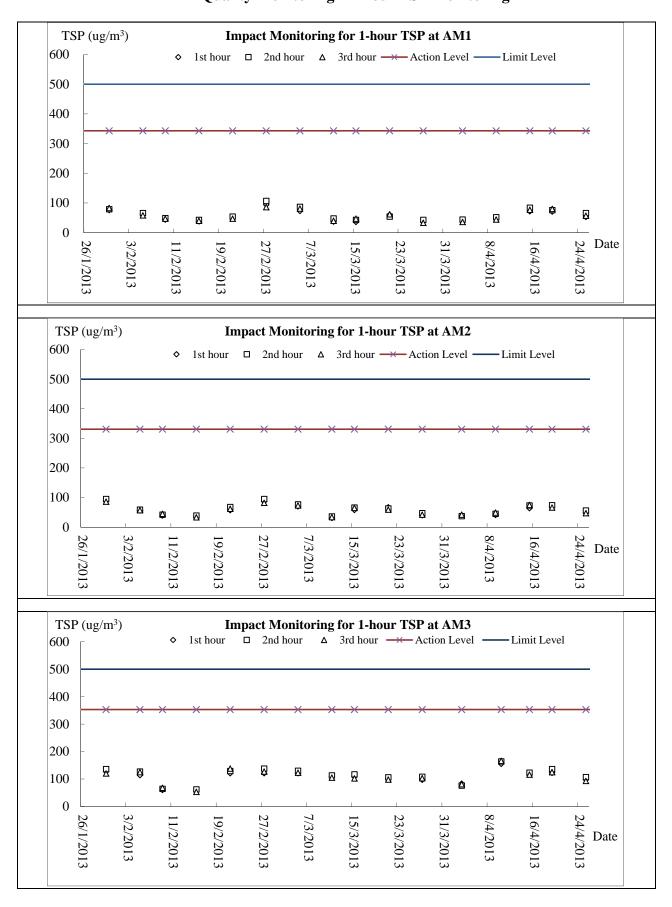
Appendix E

Graphical Plots of Impact Monitoring

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

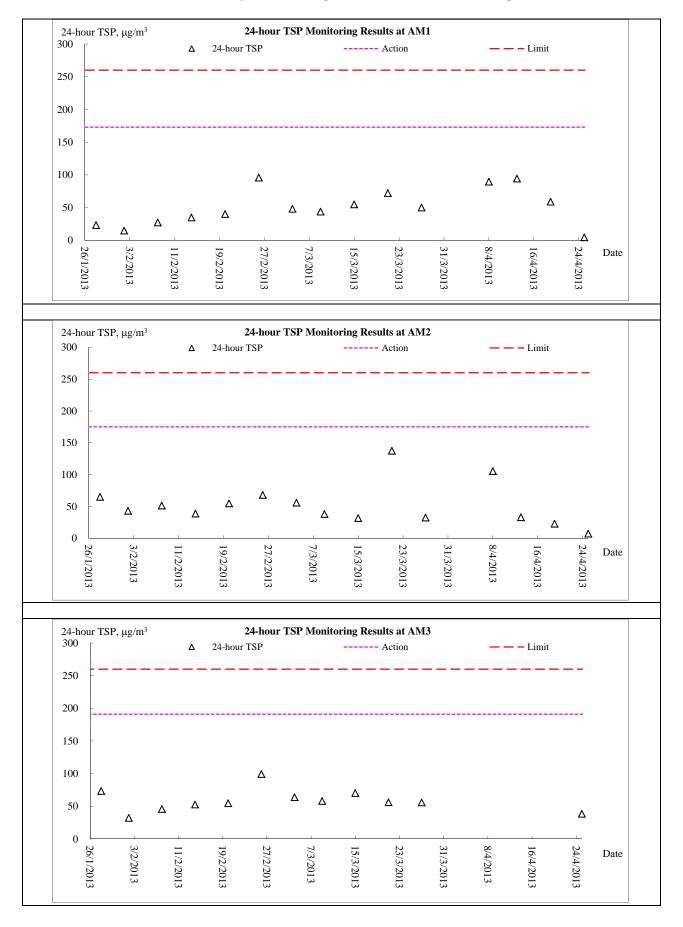


Air Quality Monitoring – 1 hour TSP Monitoring



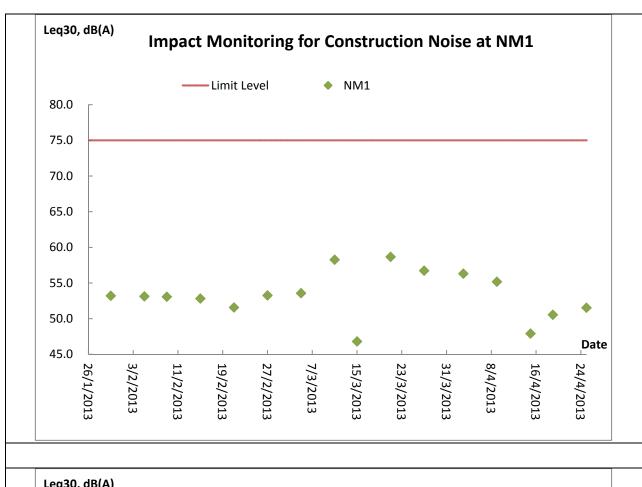


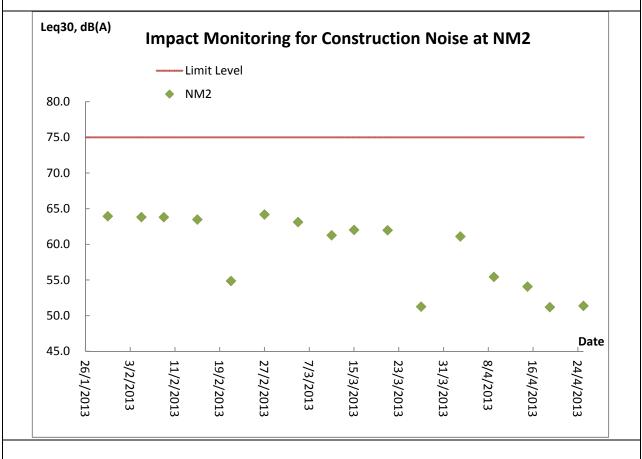
Air Quality Monitoring – 24 hour TSP Monitoring



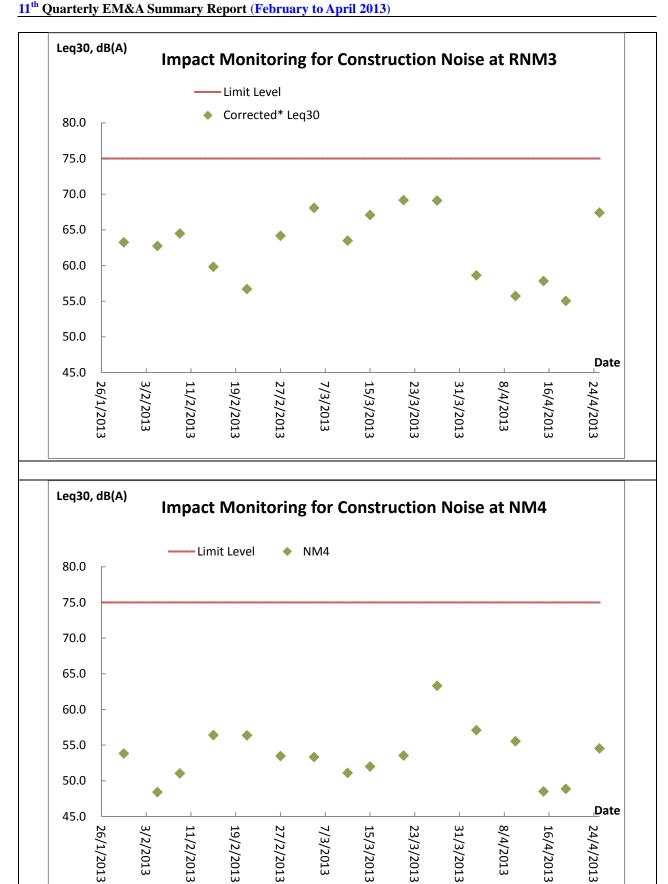


Construction Noise Monitoring



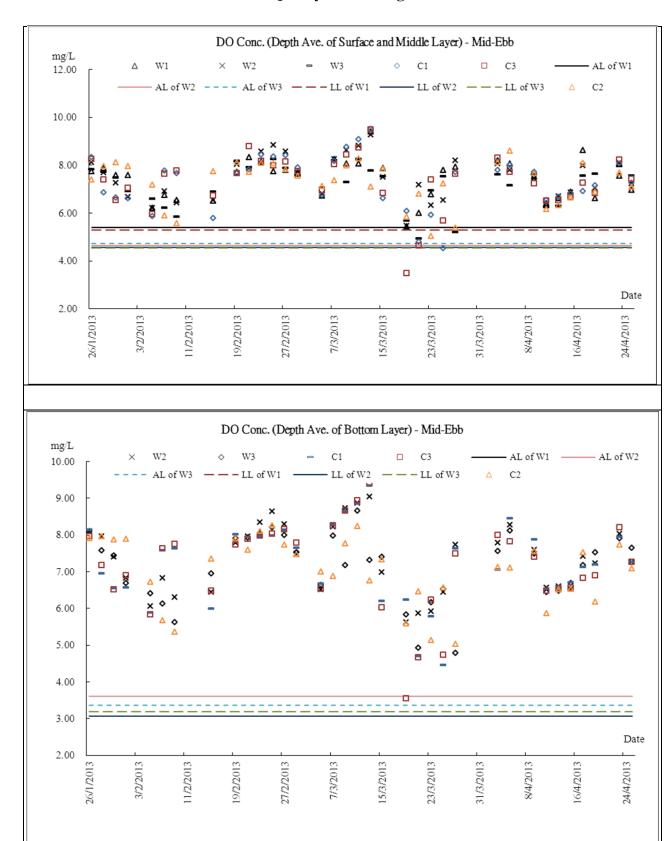






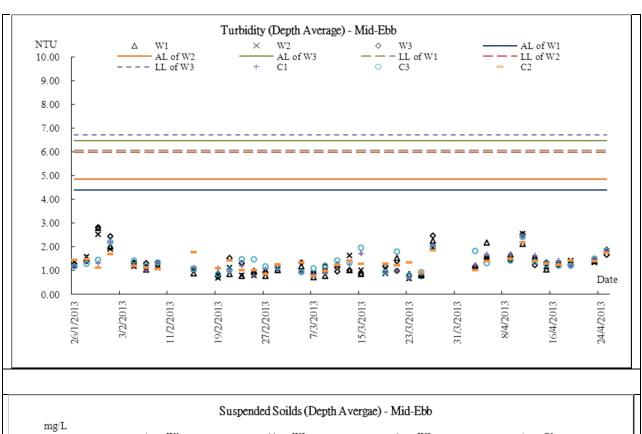


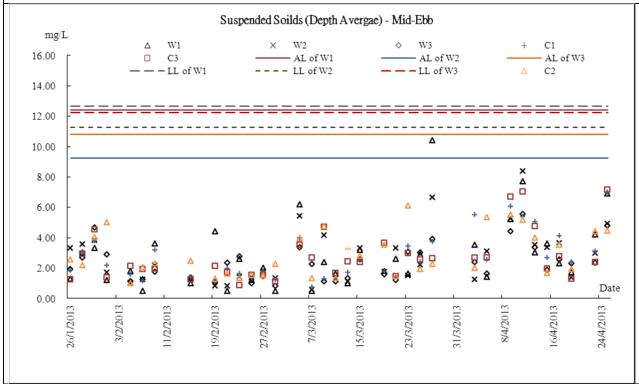
Marine Water Quality Monitoring - Mid-Ebb Tide





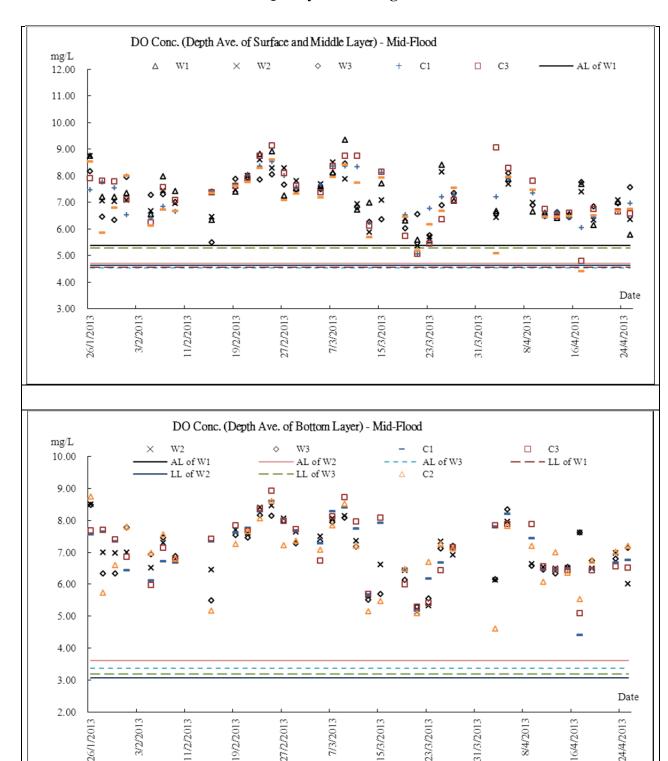
11th Quarterly EM&A Summary Report (February to April 2013)





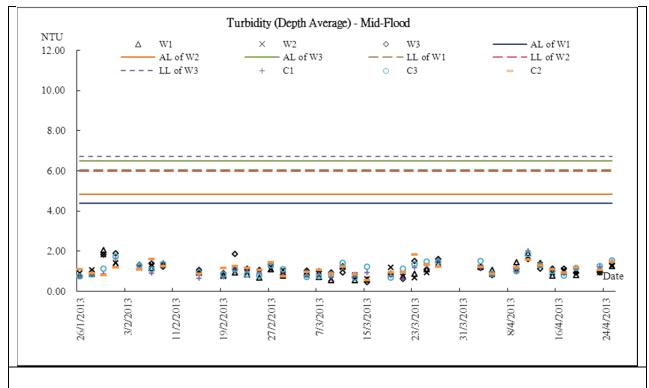


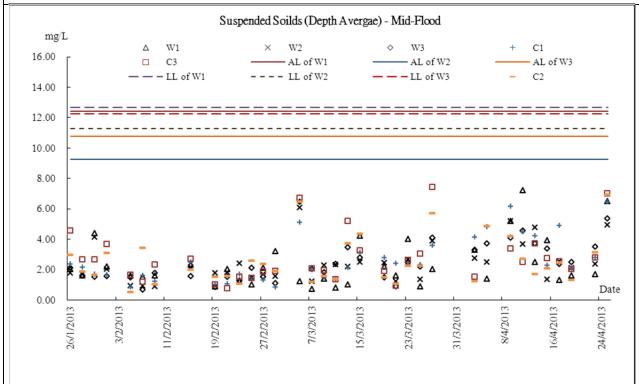
Marine Water Quality Monitoring - Mid-Flood Tide





11th Quarterly EM&A Summary Report (February to April 2013)







Appendix F

Meteorological Information

Contract No. DC/2009/13 – Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan Sok Kwu Wan Portion Area

11th Quarterly EM&A Summary Report (February to April 2013)



Weather Condition – February 2013

Under the influence of mild easterly airstreams during most part of the month, Hong Kong experienced unseasonably warm weather in February 2013. The monthly mean maximum temperature of 22.1 degrees and the mean temperature of 19.1 degrees were more than 2 degrees above normal and respectively the second and fourth highest on record for February. The monthly rainfall was only 1.5 millimetres, much below the normal figure of 54.4 millimetres and ranking the tenth lowest on record for February. The accumulated rainfall in the first two months of the year amounted to 4.9 millimetres, only about 6 percent of the normal figure of 79.1 millimetres for the same period.

Weather Condition – March 2012

With sunnier than usual weather and frequent visit of the warm maritime airstream, March 2013 was much warmer than usual. The mean temperature of 20.5 degrees for the month was 1.4 degrees above normal and the eighth warmest for March. Moreover, the monthly mean maximum temperature of 23.5 degrees was the fourth highest on record for March. Mainly due to the prolonged fine weather in the first half of the month, the total bright sunshine duration in March 2013 was 127.4 hours, about 40 percent above normal.

Weather Condition-April 2013

April 2013 was marked by gloomy and unstable weather which were mainly attributed to the frequent interchange of the cooler northeast monsoon and the humid maritime airstream over the south China coast in the month. The month was more thundery than usual with 8 thunderstorm days, about 4 days more than normal. The sun only shone for 53.6 hours in the month, about 53 percent of the normal total duration of bright sunshine. The total rainfall in the month was 253.8 millimetres, 79.1 millimetres above the normal amount. The accumulated rainfall since the beginning of the year was 389.2 millimetres, about 16 percent above the normal figure of 336.0 millimetres.

The details meteorological data for each successive day could be referred to the Monthly EM&A Report (February 2013, March 2013 and April 2013).



Appendix G

Monthly Summary Waste Flow Table

Monthly Summary Waste Flow Table for April 2013

			Actu	ıal Quant	Actual Quantities of Inert C&D Materials Generated Monthly													Actual Quantities of C&D Wastes Generated Monthly								
Month	Gene	Quantity erated +(d)+(e)	Hard Re Large I Cone (t	Broken crete	Reused Con	tract	Reused in other Projects (d)		Disposed as Public Fill (e)		Imported Fill (f)		Metals		Paper/ cardboard packaging		Plastics		Chemical Waste		Oth e.g. ru					
	(in '00	00m^3)	(in '00	00m ³)	(in '00	00m^3)	(in '00	00m ³)	(in '000m ³)		(in '00	00m ³)	(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in tonne)					
	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	YSW SKW		SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW	YSW	SKW				
2013	13.341	50.328	0.160	0.410	0.740	2.802	0.000	0.000	12.601	47.526	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	400.410	103.440				
Jan	0.332	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.332	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.040	9.840				
Feb	0.082	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.082	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.530	6.530				
Mar	0.056	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.056	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.430	4.920				
Apr	0.425	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.425	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.800	32.200				
May																										
Jun																										
<mark>Sub-total</mark>	14.236	50.328	0.160	0.417	0.740	2.802	0.000	0.000	13.497	47.526	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	431.210	156.930				
Jul																										
Aug																										
Sep																										
Oct																										
Nov																										
Dec																										
Total	14.236	50.328	0.160	0.417	0.740	2.802	0.000	0.000	13.497	47.526	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	431.210	156.930				
10001	64.5	564	0.5	77	3.5	42	0.0	00	61.023		0.000		0.000		0.000		0.000		0.000		588.140					

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

YSW: Yung Shue Wan SKW: Sok Kwu Wan