Drainage Service Department

Monthly Environmental Monitoring & Auditing report for

Contract No.DC/2006/11 Drainage Improvement in Southern Lantau

Aug 2009

Environmental Pioneers & Solutions Limited

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EXECUTIVE SUMMARY

This is the thirteenth monthly Environmental Monitoring and Audit (EM&A) report for "Drainage Improvement in Southern Lantau Investigation". The environmental permit number is "EP-237/2005/A". The report concludes the impact monitoring for the activities undertaken during the period of 1st August 2009 to 31st August 2009. The major activities in this reporting month include excavation for pipe trench at Ling Tsui Tau, construction of box culverts, retaining wall at Pak Ngan Heung (PNH), construction of retaining wall at Tai Tei Tong (TTT) River and construction of gabion walls as well as retaining wall at Luk Tei Tong (LTT) River.

Noise, water quality and ecological monitoring were performed. Results obtained were checked against the previously established Action / Limit (A/L) levels. Additionally, the implementation status of environmental mitigation measures, event/ action plan and environmental complaint handling procedures were inspected during weekly site environmental audit.

In general, waste management was satisfactory during the reporting month.

Impact monitoring for construction noise was conducted in the reporting period. No exceedance of A/L level was reported.

Furthermore, impact monitoring for water quality was conducted. Total 88 non-compliance events of water quality criteria were recorded in this reporting period. Except the natural fluctuation and influence of adverse weather exceedances were mainly caused by site water discharge due to poor site conditions and influence of rainstorm.

During ecological monitoring survey, no White-shouldered Starling was recorded breeding in the watch tower. And there was no sign of disturbance from the Project to the watch tower, though the breeding season of White-shouldered Starling in this year has begun. The watch tower may not be suitable for birds as nesting habitat. In addition, no disturbance on the flora and fauna in the river channels were observed during the ecological monitoring. Non-compliance event regarding improper site water discharge was recorded in this reporting month. Contractor was seriously reminded to implement proper mitigation measures and remedial actions as to minimize water quality impacts due to construction works.

There was no complaint, notification of any summons and successful prosecutions against the project received during the reporting period.

Key construction activity in the coming month will be construction of box culvert and retaining wall at PNH, gabion walls at TTT River and retaining walls, gabion blocks as well as box culvert at LTT River. It is expected that noise, air and water quality impacts will be resulted from the works. With reference to the EM&A manual and mitigation measure report, mitigation measures are proposed to be taken, if necessary.

The ET will continue to implement the environmental monitoring & audit programme in accordance with the EM&A Manual and Environmental Permit requirement.

1. Introduction

This is the thirteenth monthly Environmental Monitoring and Audit (EM&A) Report for "Drainage Improvement in Southern Lantau Investigation" project (Environmental Permit No. EP-237/2005/A)

2. **Project Information**

2.1 Construction program

The "Drainage Improvement in Southern Lantau Investigation" project will be completed by January 2011. The project comprises the following:

- Construction of approximately 80m long gabion with natural bed in Pak Ngan Heung River, approximately 180m of three cells 3m x 2m box culvert and approximately 100m of rectangular channel at Pak Ngan Heung River;
- Construction of approximately 250m of 0.75m wide U-Channel at Ling Tsui Tau Village in Mui Wo;
- Construction of bypass channel of about 350m and 240m long of gabion channels at Luk Tei Tong River respectively; and
- Widening three existing bottlenecks with gabion lined at Tai Tei Tong River

Appendix A shows the construction program and location plan of the project.

2.2 Project Organization

The Main Contractor, Yick Hing Construction Company Limited, has commissioned Environmental Pioneers & Solutions Limited and Ecosystems Limited as the Environmental Team, which comprises the environmental team leader, the ecologists and the environmental technicians to undertake the environmental monitoring and audit work for this project.

The environmental management structure and is shown in Fig 2.2.1.

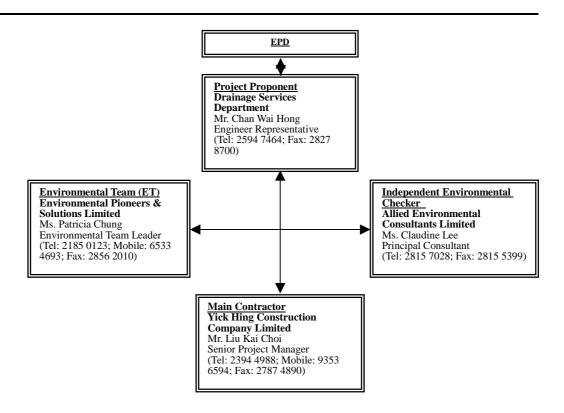


Figure. 2.2.1 Environmental Management structure for the project

2.3 Key Personal Contact information chart

Detailed contact of key persons involved in environmental aspect of the project is shown in Appendix B.

3. Construction Stage

3.1 Construction Activities in the reporting month

Major activities in the reporting month included the followings:

- 1. Construction of box culverts BC5 to 8 at PNH;
- 2. Construction of retaining wall D at PNH River;
- 3. Construction of box culvert A at LTT
- 4. Construction of gabion wall at bottleneck B of TTT River;
- 5. Construction of pipe trench along Ling Tsui Tau;
- 6. Construction of gabion wall (near Yuen's Compound) at LTT River; and
- 7. Construction of retaining wall J (near Yuen's Compound) at LTT River.

3.2 Construction Activities for the coming month

Key Construction works in the coming month will include:

- 1. Finishing works for box culverts BC5 to 8 at PNH;
- 2. Construction of retaining wall D at PNH River;
- 3. Construction of box culvert A at LTT;
- 4. Construction of gabion blocks at bottleneck B of TTT River;
- 5. Construction of pipe trench along Ling Tsui Tau;
- 6. Construction of gabion wall (near mangrove area) along LTT River; and
- 7. Construction of retaining wall J (near Yuen's Compound) at LTT River.

3.3 Environmental Status

Appendix A shows the drawing of the project area.

Locations of the monitoring and control stations with environmental sensitive receivers are presented in Section 4.3, 5.3 and 6.3 for noise, water and ecological monitoring respectively.

4. Noise Monitoring

4.1 Monitoring Parameters and Methodology

The construction noise level was measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). $L_{eq (30minutes)}$ was used as the monitoring parameter for the impact monitoring in the time period between 0700 to 1900 hours on normal weekdays. For all other time period, $L_{eq (5minutes)}$ was employed for comparison with the Noise Control Ordinance (NCO) criteria.

Noise measurement results obtained from each monitoring location were recorded in the Construction Noise Monitoring Data Sheet (Appendix E) immediately after the measurement. As supplementary information for data auditing, statistical results L_{10} and L_{90} were also be recorded for reference.

In case of non-compliance with the construction noise criteria, more frequent monitoring, as specified in the Action plan in Table 4.5.2, shall be carried out. This additional monitoring shall be carried out until the recorded noise levels are rectified or proved to be irrelevant to the construction activities.

4.2 Monitoring Equipment

The sound level meters and calibrators comply with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications as referred to in the Technical Memorandum (TM) to the Noise Control Ordinance was deployed as monitoring equipment for noise measurement.

Noise measurement was not be made in the presence of fog, rain, wind with a steady speed exceeding 5ms⁻¹ or wind with gust exceeding 10ms⁻¹. Thus wind speed was checked by the portable wind speed indicator capable of measuring the wind speed in m/s. Table 4.2.1 summarizes the equipment list for noise monitoring

Equipment	Manufacturer & Model No.	Precision Grade	Qty				
Integrated sound level meter	ACO Japan, model 6224	IEC 651 Type 1 IEC 804 Type 1	1				
Windscreen	Microtech gefell model W2	N/A	1				
Acoustical calibrator	Castle GA 607	IEC 942 Type 1	1				
Wind speed indicator	Kestrel K1000	N/A	1				
Remarks: Calibration details for the sound level meter is given in Appendix C for reference							

Table 4.2.1 Equipment List for Noise Monitoring

4.3 Monitoring Locations

According to the Baseline Monitoring Report issued in May 2008 for the captioned project, four locations where are alternative from the locations proposed in EM&A manual, were designated for baseline noise monitoring. For the data validation, impact noise monitoring was undertaken in the same locations during the construction phase of the project. The proposed monitoring locations are summarized in Table 4.3.1. Figure 4.3.1 shows the Noise Monitoring Locations

Noise measurement in each monitoring locations were taken at a point 1m from the exterior of the selected premises and at a height with no disturbance to the dweller and least obstructed view.

Identification No.	Noise Monitoring Locations
N1	No. 73, Village House, Ling Tsui Tau Tsuen (ground level)
N2	No. 31, Village House, Ling Tsui Tau Tsuen (ground level)
N3	Fence wall outside No. 5 village house adjacent to Luk Tei Tong River Outlet (ground level)
N4	No. 23, Village House, Tai Tei Tong River (ground level)

Table 4.3.1 Noise Monitoring Locations during Construction Phase

In accordance with the requirements in the EM&A manual, weekly impact monitoring was conducted. For the time period between 0700 and 1900 hours on normal weekdays, and noise parameter of $L_{eq~(30minutes)}$ was measured. As if the construction works were carried out during restricted period (ie. 1900-2300, 2300-0700 of next day and Sundays / general holiday), impact monitoring that comprises 3 consecutive $L_{eq~(5minutes)}$ would be carried out.

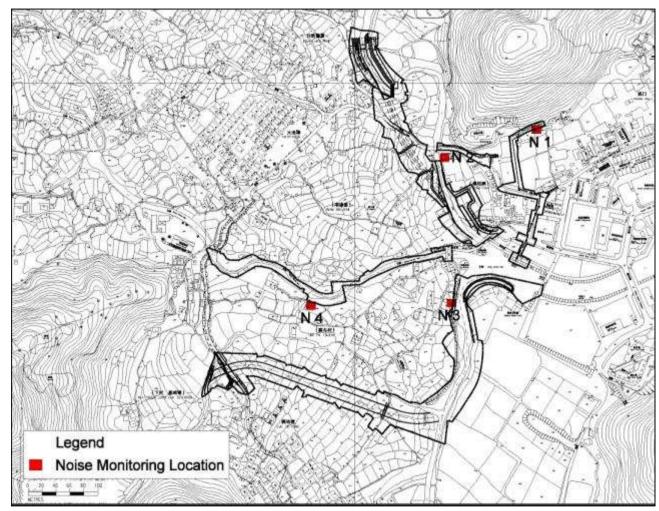


Figure 4.3.1 Impact noise monitoring locations

4.4 Monitoring Results and Interpretation

Relevant details of the noise monitoring results are presented in Table 4.4.1. The results, ranged between 47.4 dB (A) and 66.4 dB (A), were within the limit levels and therefore, no exceedance was found.

Table 4.4.1 Noise Monitoring Results for the reporting month										
Location	Parameter	Date	Time	L _{Aeq} dB(A)	Limit dB(A)	Exceedance	Weather			
N1	Leq 30mins	3/08/09	15:00	47.4	75	Ν	Sunny			
N1	Leq 30mins	10/08/09	13:35	48.7	75	Ν	Sunny			
N1	Leq 30mins	17/08/09	14:40	48.7	75	Ν	Sunny			
N1	L _{eq 30mins}	24/08/09	14:45	48.7	75	Ν	Sunny			
N1	L _{eq 30mins}	31/08/09	14:50	49.3	75	N	Sunny			
N2	Leq 30mins	3/08/09	14:20	66.4	75	N	Sunny			
N2	L _{eq 30mins}	10/08/09	13:00	64.1	75	N	Sunny			
N2	L _{eq 30mins}	17/08/09	15:15	56.9	75	Ν	Sunny			
N2	Leq 30mins	24/08/09	14:10	60.1	75	Ν	Sunny			
N2	Leq 30mins	31/08/09	14:15	58.1	75	N	Sunny			
N3*	L _{eq 30mins}	3/08/09	13:05	64.3	75	N	Sunny			
N3*	Leq 30mins	10/08/09	10:50	54.4	75	N	Sunny			
N3*	Leq 30mins	17/08/09	14:05	57	75	N	Sunny			
N3*	L _{eq 30mins}	24/08/09	13:00	57.6	75	Ν	Sunny			
N3*	Leq 30mins	31/08/09	13:05	59.4	75	Ν	Sunny			
N4	Leq 30mins	3/08/09	13:40	56.9	75	N	Sunny			
N4	L _{eq 30mins}	10/08/09	11:25	56.0	75	N	Sunny			
N4	Leq 30mins	17/08/09	13:30	50.6	75	Ν	Sunny			
N4	Leq 30mins	24/08/09	13:35	55.3	75	Ν	Sunny			
N4	Leq 30mins	31/08/09	13:40	57.2	75	Ν	Sunny			

Table 4.4.1 Noise monitoring results

Remarks: Raw datasheet for noise monitoring are attached in Appendix E for reference.

Remark*: The equivalent noise level of N3 is corrected by +3 dB from the raw data result due to the fact that free field measurement was carried out in the location.

4.5 Action and Limit level for Construction noise

The Action and Limit (A/L) levels for construction noise are defined in Table 4.5.1. Should non-compliance of the criteria occur, action in accordance with the Action Plan in Table 4.5.2 should be carried out.

There was no recorded exceedance in the reporting month.

Table 4.5.1 Action and Limit Levels for Construction noise								
Time PeriodAction LevelLimit								
0700 – 1900 hours on normal weekdays								
	ied out during restricted hours, the ued by the Noise Control Authorit	1						

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

Table 4.5.2 Event / Action Plan for Construction Noise

4.6 Noise Mitigation Measures

The following mitigation measures were observed from the weekly site inspection in the reporting month:

- Use of quiet powered mechanical equipment (PME)
- Implementation of the following good site practices:
 - Only well-maintained and regularly serviced plant should be operated on site;
 - Silencers or mufflers on construction equipment;
 - Mobile plant, if any, should be sited as far from noise sensitive receivers as possible; and
 - 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.

5. Water Monitoring

5.1 Water Quality Monitoring Parameters and methodology

Turbidity in Nephelometric Turbidity Unit (NTU), Dissolved Oxygen (DO) in mg/L and Suspended Solids (SS) in mg/L are required to measure in this project. Turbidity, DO was measured in-situ while water samples were delivered to Accredited HOKLAS Laboratory for analysis of SS.

Other relevant data such as monitoring location, time, water depth, temperature, salinity, weather conditions and any other special phenomena and work underway at the construction site were recorded during sampling.

According to the requirement of the EM&A manual, two consecutive measurements for parameters of DO concentration, DO saturation and Turbidity are required to be taken at each monitoring location. When the difference in value between the first and second reading of DO or Turbidity is more than 25%, the reading would be discarded and further reading would be taken.

5.2 Monitoring Equipment

Turbidity, DO, Salinity, pH and temperature was measured by an instrument complied with the following requirements:

The instrument is a portable as well as weatherproof multimeter complete with cable and uses a DC power source. It is capable of measuring:

- A turbidity between 0-800NTU;
- A dissolved Oxygen level in the range of 0-20mg/L and 0-200% saturation;
- A temperature of 0-50°C;
- Salinity in the range of 0-40ppt;
- pH in the range of 0-14.

Suspended solid was determined by the water samples collected from the monitoring locations for further analysis in accredited HOKLAS laboratory. Water samples were contained by polythene bottles, packed in ice (cooled in 4°C without frozen) and delivered to the laboratory for analysis as soon as possible after collection. Duplicate samples from each independent sampling event were undertaken during impact monitoring.

Detailed calibration records of the multimeter were shown in Appendix C for reference.

5.3 Monitoring Locations

Seven locations included a control station in upstream of each stream/ river, a monitoring station at the end of each stream/ river of the works area and a monitoring station at Silver River were proposed for the impact water quality monitoring. Water samples were collected at mid-depth of each proposed monitoring stations for measurements and sample collection. The Location Plan is shown in Figure 5.3.1 for reference.

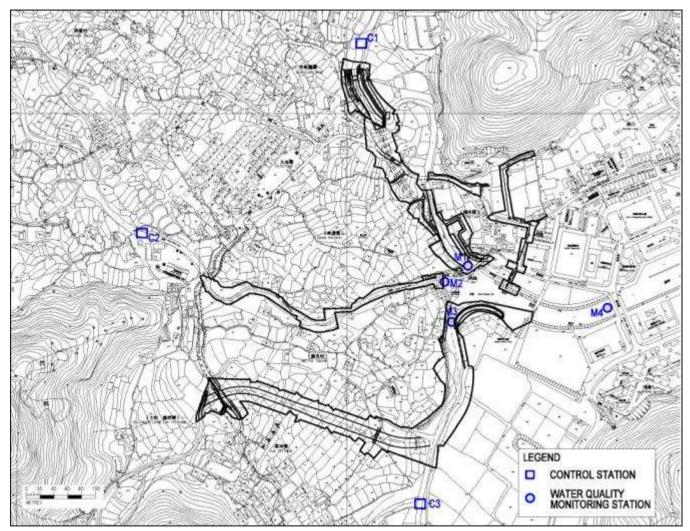


Figure 5.3.1 Water Quality Monitoring Locations

5.4 Monitoring Frequency

Impact water quality monitoring was undertaken three days per week and at ebb tides during the course of the construction river works. Upon the completion of the construction works, the monitoring exercises at the designated monitoring stations will be continued for four weeks in the same manner as the impact monitoring.

5.5 Monitoring Results and Interpretation

Water quality monitoring was carried out twelve times during May. Detailed on-site measurements and laboratory analysis reports including QA/QC results are shown in Appendix F1 and F2 respectively, while Table 5.5.1 presents consolidated results throughout the reporting month.

Exceedance events on parameters of turbidity, suspended solids and dissolved oxygen were recorded in this reporting period according to the established level. Findings from the investigations showed that the total 88 exceedance events were mainly caused by:

- 1.) Direct discharge of site water without sufficient treatment;
- 2.) Surface run-off from site due to insufficient protective measures (e.g.: bunds and barriers); and
- 3.) Disturbance of sediments and run-off due to adverse rainy weather.

Detailed information of the exceedance events and action taken were presented in Section 7.

		M1			M2			МЗ			M4		
	MIN	MAX	Ave	MIN	MAX	Ave	MIN	MAX	Ave	MIN	MAX	Ave	
Turbidity (NTU)	1.7	27.8	8.2	0.0	131.4	26.9	2.0	14.9	7.0	2.7	99.6	18.4	
DO (mg/l)	6.3	8.0	7.0	6.0	8.2	6.7	6.0	9.1	6.8	5.9	8.4	6.7	
Suspended Solid (mg/l)		19.5	7.1	1.3	125.0	23.3	5.2	15.2	8.0	5.7	91.6	15.9	

Table 5.5.1 Water quality monitoring results in Aug 2009

	C1			C2					
	MIN	MAX	Ave	MIN	MAX	Ave	MIN	MAX	Ave
Turbidity (NTU)	0.0	19.1	2.8	0.0	9.3	0.9	1.2	12.2	5.5
DO (mg/l)	6.2	7.6	6.7	6.3	8.2	6.9	4.7	8.5	6.2
Suspended Solid (mg/l)	1.0	9.1	2.1	1.0	13.2	1.9	2.8	13.6	5.4

* Remarks: Detection limit for Turbidity, DO and SS are 1 NTU, 0.1 mg/L and 1 mg/L respectively.

5.6 Action and limit level for Water Quality

Based on the criteria stipulated in EM&A manual Section 4.8 and baseline water quality monitoring data obtained, the A/L levels are shown in Table 5.6.1 and Table 5.6.2. If the water quality monitoring results at any impact stations exceeded the criteria, the actions in accordance with the Event and Action Plan in Table 5.6.3 should be taken.

Parameters	Action	Limit
DO in mg/L (mid-depth)	- 5%-ile of baseline data	- 4mg/L
SS in mg/L (mid-depth)	 95%-ile of baseline data; or 120% of control station's SS on the same day of measurement 	 99%-ile of baseline; or 130% of control station's SS on the same day of measurement
Turbidity in NTU (mid-depth)	 95%-ile of baseline data; or 120% of control station's turbidity on the same day of measurement 	 99%-ile of baseline; or 130% of control station's turbidity on the same day of measurement

Table 5.6.1 Water quality criteria for monitoring

Table 5.6.2 Action and Limit Levels established according to baselin	e data
--	--------

	Monitoring locations									
D	M1		M2		Μ	[3	M4			
Parameters	Action	Limit	Action	Limit	Action	Limit	Action	Limit		
	Level	Level	Level	Level	Level	Level	Level	Level		
Turbidity (NTU)	15.2	16.9	5.3	6.5	16.8	26.0	16.2	18.0		
DO (mg/L)	5.7	4.0	6.2	4.0	5.9	4.0	5.9	4.0		
SS (mg/L)	12.2	12.8	3.1	4.2	12.4	17.7	13.9	15.2		

Remarks:

For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits

For SS and turbidity, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

		AC	TION	
EVENT	ET	IC(E)	ER	Contractor
Action Level being exceed by one sampling day	 Repeat in situ measurement to confirm findings; Identify reasons for non-compliance and source(s) of impact; Inform IC(E) and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IC(E) and Contractor; Repeat measurement on next day of exceedance. 	 and Contractor on the mitigation measures; 2. Review proposals in mitigation measures submitted by Contractor and advise the ER accordingly; 	 IC(E) on the proposed mitigation measures; 2. make agreement on the mitigation measures to be implemented; 3. Assess the effectiveness of the implemented mitigation measures. 	 confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods;
Action level being exceed by more than two consecutive sampling days	 Repeat in situ measurement to confirm findings; Identify reasons for non-compliance and source(s) of impact; Inform IC(E) and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IC(E) and Contractor; Ensure mitigation measures are implemented; prepare to increase the monitoring frequency to daily Repeat measurement on next day of exceedance 	 Discuss with ET and Contractor on the mitigation measures; Review proposals in mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures. 	 IC(E) on the proposed mitigation measures; 2. make agreement on the mitigation measures to be implemented; 3. Assess the effectiveness of the implemented mitigation measures. 	 confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods;
Limit level being exceeded by one sampling day	 Repeat in situ measurement to confirm findings; Identify reasons for non-compliance and source(s) of impact; Inform IC(E) and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IC(E) and Contractor; Ensure mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Limit Level 	 and Contractor on the mitigation measures; 2. Review proposals in mitigation measures submitted by Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures. 	 IC(E) on the proposed mitigation measures; 2. make agreement on the mitigation measures to be implemented; 3. Assess the effectiveness of the implemented mitigation measures. 	 confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods;

Table 5.6.3 Event and action Plan for Water Quality

5.7 Water Quality Mitigation Measures

Construction Run-off and Drainage

The site practices outlined in ProPECC PN 1/94 'Construction Site Drainage" should be followed as far as practicable during both construction and operation phase of the drainage improvement works in order to minimize surface runoff and the chance of erosion, and also to retain and reduce any suspended solids prior to discharge.

As recommended in the final EM&A manual, attention would be paid especially construction run-off and drainage, general construction activities, sewage discharged from construction workforce and river channel excavation works.

Contractor was recommended to provide sufficient water treatment facilities for accumulated site water and excavation activities carried out nearby river channel. Earth bunds should be provided to the construction site in / next to the river channel to form an enclosed, dry environment to minimize water quality impact.

5.8 Water Monitoring Schedule for the Next reporting period

Water monitoring in the next reporting period is scheduled for 2, 3, 7, 9, 11, 14, 16, 18, 21, 23, 24, 28, 29 and 30 September.

6. Ecology Monitoring

6.1 Ecological Monitoring Parameters

According to the Final EM&A Manual, a specific ecological monitoring programme of the improved section of PNH and LTT Rivers is recommended. The monitoring parameters required to measure in this project and survey methodology are described below:

(1) Avifauna species and abundance: Birds will be surveyed quantitatively using transect count method. Birds within the river channel and on the riverbank will be identified and their abundance will be recorded.

(2) Aquatic macroinvertebrate community species composition and abundance: Survey on aquatic fauna will focus on determination of the diversity and abundance of stream aquatic communities. Sampling methods, such as active searching, direct observation, netting, and kick sampling, will be determined according to the site conditions during field survey.

(3) Fish community species composition and abundance: Sampling methods, such as active searching, direct observation, and hand netting, will be determined according to the site conditions during field survey.

(4) Adult odonate community species composition and abundance: Adult dragonfly will be surveyed quantitatively using transect count method. Adult dragonflies within the river channel and on the riverbank will be identified and their abundance will be recorded. Species requiring close examination will be netted.

(5) Aquatic, emergent and riparian vegetation community species composition and abundance: The area will be walked through. Plant species composition and their relative abundance will be recorded.

(6) Surveys of White-shouldered Starling Sturnus sinensis will be conducted at the disused watchtowers next to LTT river. Breeding of the White-shouldered Starlings will be determined by checking signs of attempt to breed or sign of breeding which include carrying nesting materials, to-and-fro movement of adults carrying food, presence of recently fledged juveniles, etc. The number of breeding pairs and the site observation will be recorded whenever possible. Water Quality Monitoring along LTT and PNH River as well as LTT bypass channel was carried out. Water quality monitoring will include Turbidity in Nephelometric Turbidity Unit (NTU), Dissolved Oxygen (DO) in mg/L and Suspended Solids (SS) in mg/L are required to measure in this project. Moreover, additional water monitoring parameters will be taken for the purposes of ecological monitoring of water quality in this project. The added information will include: BOD, Ammonia, Nitrate and Phosphate concentrations. Turbidity, DO, pH and water flow will be measured in-situ while water samples will be delivered to Accredited HOKLAS Laboratory accredited laboratory and the analyses followed the standard methods according to APHA Standard Methods for the Examination of Water and Wastewater, 20th Edition, or equivalent for analysis of SS, BOD, Ammonia, Nitrate and Phosphate concentrations.

Other relevant data such as monitoring location, time, water depth, temperature, salinity, weather conditions and any other special phenomena and work underway at the construction site will be recorded during sampling.

According to the requirement of the EM&A manual, two consecutive measurements for parameters of DO concentration, DO saturation and Turbidity are required to be taken at each monitoring. When the difference in value between the first and second reading of DO or Turbidity is more than 25%, the reading will be discarded and further reading will be taken.

6.2 Monitoring Equipment and Methodology

Turbidity, DO, Salinity, pH and Temperature will be measured by a instrument complied with the following requirements:

The instrument is a portable as well as weatherproof multimeter complete with cable and uses a DC power source. It is capable of measuring:

- A turbidity between 0-800NTU;
- A dissolved Oxygen level in the range of 0-20mg/L and 0-200% saturation;
- A temperature of 0-50°C;
- Salinity in the range of 0-40ppt;
- pH in the range of 0-14.

Suspended solid was determined by the water samples collected from the

monitoring locations for further analysis in accredited HOKLAS laboratory. Water samples were contained by polythene bottles, packed in ice (cooled in 4°C without frozen) and delivered to the laboratory for analysis as soon as possible after collection. Duplicate samples from each independent sampling event were undertaken during impact monitoring.

6.3 Monitoring Locations

According to the Final EM&A Manual, the improved section of the river channels will be divided into 50m long sections, and ecological survey will be carried out in each of the 50m sections. A total of nine sections will be divided for the two rivers which include:

- Two sections for existing upstream of PNH river (i.e. the proposed 80m long trapezoidal channel)

- Two sections for existing downstream of PNH river (i.e. the proposed 100m long rectangular channel)

- Five sections for existing Luk Tei Tong River (i.e. the proposed 240m long trapezoidal channel)

The disused watchtowers are located at the confluence of the three rivers and next to LTT river.

The Location Plan for ecological is shown in Figure 6.1 for reference.

The improved sections of the river channels require to carrying out water quality monitoring for the ecological purpose. The sampling points for impact monitoring was undertaken in the same place as the baseline monitoring proposed, where include:

- Three points for existing of PNH river
- Three points for existing of Luk Tei Tong River

The Location Plan for ecological water monitoring is shown in Figure 6.2 for reference.

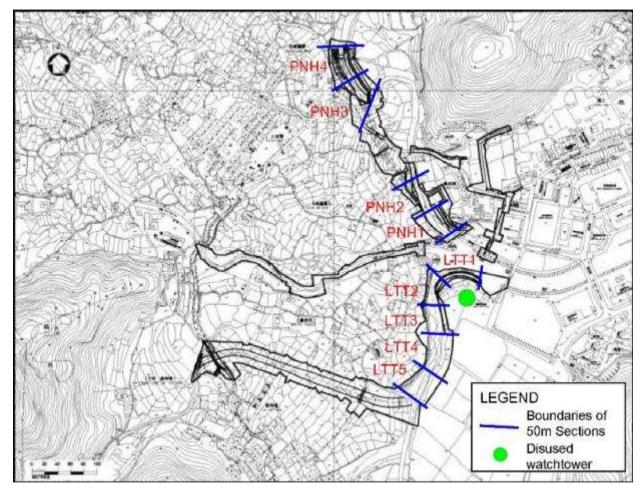


Figure 6.1 Ecological Monitoring Locations

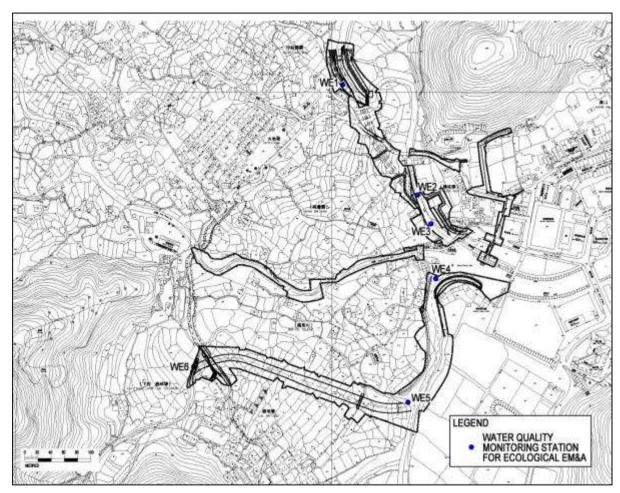


Figure 6.2 Ecological Water Quality monitoring locations

6.4 Monitoring Frequency

As proposed, ecological impact monitoring was carried out once for each monitoring location in the reporting month.

6.5 Monitoring results

Pak Ngan Heung Stream N and S sections

Vegetation

Surveys were conducted on 21 August 2009. The north section of Pak Ngan Heung Stream was fairly modified. Part of the west bank was lined with rock gabion bank and occupied by village houses and abandoned agricultural field. The stream channel was wider than the downstream section, but the stream bank was still fairly narrow and steep in gradient. Compared to the south section, the north section was relatively shaded due to presence of more trees with larger canopy.

The walk through survey recorded a total of 69 species, including 19 trees, 13 shrub, 19 herb and 7 grass species (Appendix D1). 53 of the species recorded are natives, while 16 were exotics. The quantitative sampling recorded 27 species at the north section. Large native (e.g. *Celtis sinensis, Cleistocalyx operculata, Ficus hispida*) and exotic trees (*Acacia confusa*) dominated the transects. Other species recorded include common and typical native pioneer forest and streamside tree species and ruderal species. No species of conservation interest was recorded.

	Relative % cover				
Species	PNH3	PNH4			
Acacia confusa		12.18			
Acorus graminifolia		0.82			
Alocasia macrorrhiza		0.87			
Aporosa dioica		0.70			
Bamboo	14.59				
Celtis sinensis	30.90	19.44			
Christella parasitica	0.34	0.59			
Cleistocalyx operculata	28.84				
Embelia ribes		0.70			
Ficus hispida	0.51	21.90			
Hibiscus rosa-sinensis		0.82			
Litsea glutinosa		12.65			
Macaranga tanarius		8.67			
Mallotus paniculatus	13.73				
Merremia sp.	0.17				
Microstegium ciliatum	0.34	2.81			
Mikania micrantha	1.37	8.43			
Neyraudia reynaudiana		1.83			
Phyllanthus urinaria		0.77			
Pilea microphylla		0.14			
Psychotria asiatica		1.34			
Pueraria phaseoloides		1.36			
Sageretia thea		3.05			
Sporobolus fertilis		0.94			
Syngonium sp.	0.45				
Syzygium jambos	7.38				
Wedelia triloba	1.37				
Total Relative % Cover*	100.0	100.0			
Total Transect Length (m)	13	34			

Table 6.5.1Relative percentage cover of vegetation recorded at PakNgan Heung (N) Section

*Total Cover rounded up to one decimal place to avoid round-off error.

The south section of Pak Ngan Heung Stream was highly modified. Both

banks were lined with rock gabions and were occupied by village houses immediately beyond the channel. The stream channel was lack of riparian zone and vegetation. A total of 11 species recorded, 9 of which were native and 4 were exotic. It was composed of isolated individuals of mangrove (*Acrostichum aureum*), backshore species (*Clerodendrum inerme*) and native (*Celtis sinensis, Ficus microcarpa*) (Appendix D2). No species of conservation interest was recorded. During the monitoring it was observed that site clearance for construction work on the eastern bank at Section PNH1 has started, while the western bank was still intact.

Terrestrial Fauna

Surveys were conducted on 14 August 2009.

A total of two species of birds were recorded in the proposed work area of the Pak Ngan Heung River (Table 6.5.2). Both are common in Hong Kong.

Common names	Latin names	PNH	PNH	PNH	PNH	Commonness
		1	2	3	4	& distribution
Chinese Bulbul	Pycnonotus		1		2	CW
	sinensis					
Magpie Robin	Copsychus		1		1	CW
	saularis					

Table 6.5.2Avifauna in Pak Ngan Heung

CW = common and widespread

Five species of dragonfly was recorded in the proposed work area of the Pak Ngan Heung River (Table 6.5.3). All are common and widespread in Hong Kong.

Common names	Latin names	PNH	PNH	PNH	PNH	Commonness
		1	2	3	4	& distribution
Orange-tailed	Ceriagrion			2	2	А
Sprite	auranticum					
Yellow Featherlegs	Copera marginipes			2	2	А
Wandering Glider	Pantala flavescens	15	5		3	А
Indigo Dropwing	Trithemis festiva			1	1	А

Table 6.5.3Dragonfly in Pak Ngan Heung River

Crimson Dropwing	Trithemis aurora	1	1	А

A = abundant

Aquatic fauna and fish

10 species of fish and 4 crustacean were recorded in the 4 sections at PNH. All are common and widespread in Hong Kong. Though Predaceous Chub was observed, the another one fish species of conservation concern reported in the EIA report, i.e. Flagtail *Kuhlia marginata*, was not recorded in PNH during the present monthly monitoring survey.

 Table 6.5.4
 Aquatic Invertebrates and fish in Pak Ngan Heung

Common names	Scientific names	PNH 1	PNH 2	PNH3	PNH4
Invertebrates					
Atyid shrimp	Caridina elongata				+
	Macrobrachium				
Palaemond shrimp	hainanensis			++	
Crab	Varuna litterata	+		+	
Mitten Crab	Eriocheir japonica			+	
Fish					
Mosquito fish	Gamusia affinis				+
Goby	Rhinogobius duospilus				+
Barcheek Goby	Rhinogobius giurinus		+		
Swordtail	Xiphophorus hellerii				+
	Puntius				
Six-banded Barb	semifasciolatus				+
Unidentified Cichlid					
fish					
Tilapia		+	++	+	
Predaceous Chub	Parazacco spilurus			++	
Jarbua Terapon	Terapon jarbua	++			
Common Silver-biddy	Gerres oyena	+			
Mullet	Mugil cephalus	+	+++		
Broken-band	Liniparhomaloptera				
Hillstream Loach	disparis				

+ = Occasional, less than 5 individuals were found; ++ = Common, 5 - 20

individuals were found; +++ = Abundant, more than 20 individuals were found.

Luk Tei Tong Stream Section

Vegetation

Surveys were conducted on 21 August 2009. The Luk Tei Tong Stream Section was highly modified. Vegetation only established on isolated muddy patches at the estuary and remaining semi-natural banks of Section 1 and Section 2. Vegetation on the eastern stream bank from the second half of Section 3 to Section 5 were largely cleared while the western bank was still lined with rock gabions or concrete. The whole section appeared to be subject to tidal influence, as mangrove associated or backshore species were recorded along the whole channel.

The walk through survey recorded a total of 28 species, including 10 tree, 6 shrub, 5 grass species (Appendix D3). 22 of the species recorded are natives, while 6 were exotics. The quantitative sampling recorded 5 species at Sections 2. Section 2 was dominated by *Terminalia catappa* and *Wollastonia biflora*. No quantitative survey was carried out on Section 3 and 4 due to vegetation clearance on stream banks as part of the site clearance works under the project. Vegetation clearance also started on part of Section 2 under the project, resulting in reduced number of species recorded during quantitative sampling.

Due to the patchiness of streamside vegetation, the quantitative data should be interpreted with cautions and used as a reference only.

Table 6.5.5Relative percentage cover of vegetation recorded at Luk Tei Tong
Stream Section

	Relative % cover
Species	LLT2
Acanthus ilicifoius	7.50
Fimbristylis sp.	9.38
Premna serratifolia	6.88
Terminalia catappa	51.25
Wollastonia biflora	25.00
Total*	100.0

*Total Cover rounded up to one decimal place to avoid round-off error.

Terrestrial Fauna

The proposed work area of Luk Tei Tong River was divided into 5 sections. All recorded avifauna and dragonfly species are common in Hong Kong

Surveys were conducted on 14 August 2009.

A total of seven species of birds were recorded in these sections (Table 6.5.6). All these species are common and widely distributed in Hong Kong.

LTT LTT LTT LTT **Common names** Latin names LTT Commonness 5 1 2 3 4 & distribution White-throated 1 Halcyon smyrnensis CW Kingfisher Spotted Dove 1 CW *Streptopelia* chinensis Chinese Bulbul 1 Pycnonotus sinensis CW Yellow-bellied Prinia Prinia flaviventris 1 CW Japanese White-eye Zosterops japonica 1 CW Long-tailed Shrike Lanius schach 1 CW

Table 6.5.6Avifauna in Luk Tei Tong River

Black-necked	Sturnus nigricollis			5	CW
Starling					

CW = common and widespread,

Four species of dragonfly were recorded in the Luk Tei Tong River (Table 6.5.7). All are common and widespread in Hong Kong.

Table 0.5.7 Dragonity in Dax fer fong River								
Common names	Latin names	LTT	LTT	LTT	LTT	LTT	Commonness	
		1	2	3	4	5	& distribution	
Green Skimmer	Orthetrum sabina	2				1	С	
Wandering Glider	Pantala flaviventris		15				А	
Variegated Flutterer	Rhyothemis variegata				1		С	
Crimson Dropwing	Trithemis aurora				1		А	

Table 6.5.7Dragonfly in Luk Tei Tong River

A = abundant, C = common

Aquatic invertebrates and fish

6 species of fish, 3 species of crustacean and 3 species of mollusks were recorded in the 5 sections at LTT. All are common and widespread in Hong Kong. The two fish species of conservation concern reported in the EIA report, i.e. Flagtail *Kuhlia marginata* and Predaceous Chub *Parazacco spilurus* were not recorded in LTT during the present monitoring as well as the baseline monitoring survey. As parts of the original stream banks have been being modified for the new gabion walls (such as Section LLT3), the species number and abundance of aquatic fauna in these parts had decreased in previous monitoring. But the diversity and abundance of aquatic fauna might progressively resume as more aquatic fauna were observed in these areas in the present monitoring survey.

Table 6.5.8Aquatic invertebrates and fish in Luk Tei Tong RiverCommon namesScientific namesLTT1LTT2LTT3LTT4LTT5

Common names	Scientific names	LTT1	LTT2	LTT3	LTT4	LTT5			
Invertebrates									
Mangrove clam	Geloina erosa								
Rock oyster	Saccostrea cuculata		++						

Γ	Ι			-	1	
	Melanoides					
Snail	tuberculata					
Snail	<i>Terebralia</i> sp.					
Snail	<i>Nerita</i> sp.		+			
Snail	Littoraria articulata		+			
Crab	Varuna litterata					
Fiddler crab	Uca lactea			++		
Fiddler crab	Uca arcuata			+		
Fiddler crab	Uca crassipes					
Crab	Perisesarma bidens		++	+		
Mangrove mud crab	Scylla paramamosain					
Mitten crab	Eriocheir japonica					
Fish						
	Periophthalmus		+	+		
Common mudskipper	cantonensis					
Tilapia		++	+			
Jarbua terapon	Terapon jarbua		+			
Mullet	Mugil cephalus	++	++	++		
Common Silver-biddy	Gerres oyena		+	+		
Barcheek Goby	Rhinogobius giurinus				+	

+ = Occasional, less than 5 individuals were found; ++ = Common, 5 – 20 individuals were found; +++ = Abundant, more than 20 individuals were found.

Disused Watchtowers

Surveys were conducted on 14 August 2009.

There was no sign (e.g., adults carrying food or nesting materials) of use of the watchtower as nesting habitat by White-shouldered Starling. This species was not observed during the August 2009 monitoring. No bird of other species was observed entering the watchtower.

Most birds in Hong Kong breed between March and July. No sign of nesting of White-shouldered Starling in the disused watchtower was observed during this period.

Since the monitoring surveys commenced in August 2008, no bird was observed entering the watchtower. It seems the birds do not prefer the watchtower as roosting or nesting habitat.

Ecological Water Quality Monitoring (EWQM)

EWQM was conducted on 05 August 2009. Monitoring results are summarized in Table 6.9. Detailed on-site measurements and laboratory report are presented in Appendix D4 and D5.

Table 6.10 shows the baseline results of Ecological Water Quality Monitoring, from the information given in Baseline Monitoring Report.

To review the results in Table 6.9 in general, the measured results were found similar with past months.

Parameters	Limit of detection	WE1	WE2	WE3	WE4	WE5	WE6
Suspended Solid (mg/l)	1	3.65	7.75	9.05	15.15	14.25	1.75
Nitrogen (Ammonia) (mg/l)	0.01	0.02	0.20	0.16	0.24	0.40	0.02
Nitrogen (Nitrate) (mg/l)	0.01	0.20	0.23	0.18	0.29	0.38	0.20
Phosphorous (mg/l)	0.01	0.06	0.11	0.09	0.12	0.20	0.02
BOD₅ (mg/l)	1	1.00	2.00	2.00	2.00	1.00	2.00
DO (mg/l)	0.01	7.35	7.65	7.41	6.11	6.17	7.76
Turbidity (NTU)	0.1	4.70	7.30	11.80	10.40	9.50	0.00
Temperature (oC)	0.1	26.7	26.5	27.0	27.1	26.8	26.4
рН	0.01	7.10	7.60	6.70	6.90	7.10	6.20
Salinity (ppt)	0.1	0.1	0.3	0.3	2.2	0.5	0
Conductivity (ms/m)	0.1	23.8	71.1	78.6	416.0	266.0	3.9
Water Flow (m/s)	N/A	0.1	0.1	0.2	0.1	0.3	0.2

Table 6.9 Summarized Ecological water quality monitoring results (05 Aug 2009)

Table 6.10 Baseline Results of Ecological water quality monitoring

Parameters	WE1	WE2	WE3	WE4	WE5	WE6
Suspended Solid (mg/l)	1.0	2.0	3.0	3.0	<1	<1
Nitrogen (Ammonia) (mg/l)	0.07	0.12	0.11	0.23	0.03	0.02
Nitrogen (Nitrate) (mg/l)	0.12	0.13	0.13	0.31	0.04	0.05
Phosphorous (mg/l)	0.04	0.06	0.06	0.09	0.06	0.05
BOD₅ (mg/l)	<2	<2	<2	<2	<2	<2
DO (mg/l)	6.58	6.82	6.37	7.61	6.87	5.70
Turbidity (NTU)	4.44	5.12	5.93	6.96	4.65	2.73
РН	6.4	7.1	7.0	6.8	6.6	6.1
Salinity (ppt)	<0.1	0.1	0.3	7.6	0.1	<0.1

6.6 Action and Limit level for Monitoring of White-shouldered Starlings A simple Event and Action Plan is shown in Table 6.6.1. Should the Event occur, action in accordance with the Action Plan should be carried out.

There was no recorded event in the reporting month.

EVENT	ACTION	
	ET Leader	Contractor
Identification of	1. Increase frequency of	1. Check all construction
disturbance to breeding	monitoring to twice	actions and working
White-shouldered	weekly	methods
Starlings	2. Notify Site Engineer	2. Submit proposals for
		remedial action to prevent
		abandonment of the
		breeding site.
	3. Review construction	3. Implement remedial
	activities of previous	action.
	week.	
	4. Identify any changes in	4. Liaise with ET
	construction activities in	regarding effectiveness of
	previous week	remedial actions.
	5. Discuss remedial	
	actions with Site Engineer	

Table 6.6.1 Event / Action Plan for Monitoring of White-shouldered Starlings

6.7 Ecological monitoring Schedule

The next ecological surveys are scheduled on 11th, and 15th September, while ecological water quality monitoring is scheduled on 3rd September.

7. Action taken in Event of Exceedence

If the measurements (Noise, Water, Ecology) exceed the action / limit level, exceedance details will be reported and follow-up actions will be taken by relevant parties involved.

During the reporting period there was no exceedance for noise, ecological measurements recorded; therefore no actions were taken.

Total 88 non-compliance events of water quality limits (Dissolved Oxygen, Turbidity and Suspended Solids) were recorded in this reporting period according to the established level. ET has arranged site investigations for the exceedance events. Findings from the inspection showed causes were substantially attributable to:

- Direct discharge of site water without sufficient treatment;
- Surface run-off from site due to insufficient protective measures (e.g.: bunds and barriers); and
- Disturbance of sediments and run-off due to adverse rainy weather.

The summary of non-compliance is listed in Table 7.1 for reference.

Among the 88 events of non-compliance recorded in this reporting month, 40 of them were believed to be caused by improper site practice carried out by the contractor. Additional monitoring was carried out in the next day (unless cancelled due to heavy rainstorm) if exceedance of limit level was occurred.

Base on the nature of deficiencies observed, contractor was urged to carry out necessary mitigation measures so as to minimize the disturbance of water quality to minimal level. Site water seepage to the river channel due to overflow and ineffective protection measures were the major cause of exceedance observed. Contractor was advised to rectify bunds and barriers provided to prevent site water directly entering the stream courses. Contractor took the advice and implement corrective actions however, follow up actions provided were found not effective and further improvement was recommended. De-silting tanks were then provided in the late of August. ET will further check the effectiveness of the de-silting tank and contractor was reminded to ensure site water treated fulfilled with the requirements from the applied effluent discharge licenses for discharge.

In accordance with the relevant contractual documents and environmental permits, Contractor was reminded to implement necessary mitigation measures before commencement of construction activities. Contractor was also advised again to be cautious on the conditions of sites as well as mitigation measures provided. Site practices should be reviewed and mitigation measures should be enhanced if water quality was still affected by works. Follow up actions should be taken immediately as to minimize deterioration of water quality as far as practicable.

Date	Location	Parameter	Level of exceedance	Main cause of exceedance		
	M1	Turbidity, S.S.	Limit Level			
03/08/09	M2	S.S.	Limit Level	M1, M2 & M3 – No particular observations		
	M3	Turbidity, S.S.	Action Level			
	M1	Turbidity, S.S.	Limit Level			
05/08/00	M2	Turbidity, S.S	Limit Level	Disturbance due to adverge reinvuvestker		
05/08/09	M3	S.S.	Action Level	Disturbance due to adverse rainy weather		
	M4	Turbidity, S.S.	Limit Level, Action Level			
	M1	Turbidity, S.S.				
07/08/09	M2	S.S.	Limit Level	M1, M2 & M3 – No particular observations		
	M3	S.S.				
	M1	Turbidity, S.S.	Limit Level	M1.9.M2 No portioular choor rations		
10/08/09	MO	Turbidity, S.S.	Limit Level, Action Level	M1 & M3 – No particular observations		
10/08/09 M2		& D.O.	for D.O.	M2 - Site run-off due to defective protection measures at site bottlened		
	M3	S.S.	Limit Level	and retaining wall H of TTT River		
11/09/00	MO	<u> </u>	LimitLoval	Site run-off due to defective protection measures at site bottleneck B and		
11/08/09	M2	S.S	Limit Level	retaining wall H of TTT River		
	M1	Turbidity C C	Limit Level	M1 - Direct discharge of site water from retaining wall D without proper		
	IVI I	Turbidity, S.S	Limit Level	treatment		
12/08/09	M2	Turbidity, S.S	Limit Level	M2 - Site run-off due to defective protection measures at site bottleneck B		
12/00/09	IVIZ	Turbluity, 5.5		and retaining wall H of TTT River		
	M4	Turbidity, S.S	Limit Level	M3 - Water quality was affected by muddy water generated from upper		
	1014	Turbluity, 5.5		stream area (PNH and TTT River)		
	M1	Turbidity, S.S.	Limit Level	M1 - Direct discharge of site water from retaining wall D without proper		
	IVI I	rubiany, 0.0.		treatment		
	M2	Turbidity SS	Limit Level, Action Level	M2 - Site run-off due to defective protection measures at site bottleneck B		
13/08/09		Turbluity, 0.0	Limit Level, Action Level	and retaining wall H of TTT River		
	M3	S.S.	Limit Level	M3 – No particular observations		
M4		Turbidity	Limit Level	M4 - Water quality was affected by muddy water generated from upper		
	1014			stream area (PNH and TTT River)		
14/08/09	M1	Turbidity, S.S.	Limit Level	M1 & M2 – No particular observations		
1-1/00/00	M2	Turbidity, S.S. Limit Level				

Table 7.1 Summary of Non-compliance for Water Quality

	M1	Turbidity, S.S.	Limit Level	M1 - No particular observations		
	1011	-		M2 - Site run-off due to defective protection measures at site bottleneck B		
	M2	-				
17/00/00		& D.O.	for D.O.	and retaining wall H of TTT River		
17/08/09	M3	S.S.	Limit Level	M3 – No particular observation		
	M4	Turbidity	Limit Level	M4 - Water quality was affected by muddy water generated from upper		
				stream area of TTT River		
	M2		-	M2 - Site run-off due to defective protection measures at site bottleneck B		
18/08/09		& D.O.	for D.O.	and retaining wall H of TTT River		
	M4	Turbidity, S.S	Limit Level	M4 - Water quality was affected by muddy water generated from upper		
		· a.o.a.,, c.c		stream area of TTT River		
	M1	Turbidity, S.S.	Limit Level	M1 & M3 – No particular observations		
19/08/09	M2	Turbidity, S.S.	Limit Level, Action Level	M2 - Site run-off due to defective protection measures at site bottleneck B		
19/08/09 M2 M3		& D.O.	for D.O.	and retaining wall H of TTT River		
		S.S.	Limit Level			
		Turbidity, S.S.	Limit Level, Action Level	Site run-off due to defective protection measures at site bottleneck B and		
20/08/09	M2	& D.O.	for D.O.	retaining wall H of TTT River		
	• • •	T 11 11 0 0				
	M1	Turbidity, S.S.	Limit Level	M1 – No particular observations		
21/08/09	M2	-		M2 - Site run-off due to defective protection measures at site bottleneck B		
		& D.O.	for D.O.	and retaining wall H of TTT River		
	M1	Turbidity, S.S.	Limit Level	M1 & M3 – No particular observations		
24/08/09	M2	Turbidity, S.S.	Limit Level, Action Level	M2 - Site run-off due to defective protection measures at site bottleneck B		
		& D.O.	for D.O.	and retaining wall H of TTT River		
	М3	Turbidity, S.S.	Limit Level, Action Level			
	M1	Turbidity, S.S.				
25/08/09	M2	S.S.	Limit Level	M1, M2 & M3 – No particular observations		
	M3	Turbidity, S.S.				
	M1	Turbidity, S.S.				
26/08/09	M2	Turbidity, S.S.	Limit Level	M1, M2 & M3 – No particular observations		
	М3	S.S.				
	M1			M1 – No particular observations		
				M2 - Site run-off due to defective protection measures at site bottleneck B		
31/08/09	M2 Turbidity, S.S.		Limit Level	and retaining wall H of TTT River		
	140			M3 - Site run-off due to ineffective mitigation measures at LTT gabion		
	M3			wall site (near Yuen's Compound)		

8. Construction waste disposal

It is the contractor's responsibility to ensure that all wastes produced during the construction phase for the drainage improvement works are handled, stored and disposed of in accordance with good waste management practices and EPD's regulation and requirement. Waste materials generated during construction activities, such as construction and demolition (C&D) material, chemical wastes and general refuse, are recommended to be audited at regular intervals to ensure that proper storage, transportation and disposal practices are being implemented.

Contractor has completed the registration of Waste Producer under the Waste Disposal (Chemical Waste)(General) Regulation. The Waste Producer Number, WPN 5213-950-Y2443-03 was assigned by EPD on 12 Aug 2008. The Contractor would be responsible for the implementation of any mitigation measure to minimize waste or redress problems arising from the waste materials.

Construction waste disposal records provided by Contractor was still outstanding in this reporting month. Table 8.1 is a summary of figures of the construction wastes disposal updated to July 2009.

	Amount of Construction Waste disposed				
Month	inert Waste Non-inert Waste Chemical Waste				
	(to Public Fill)	(to Landfill)	(to treatment plant)		
1 st to 31 st July	4191.30 (ton)	Nil	Nil		
Total (from June	17589.96 (ton)	65.23 (ton)	0		
08 to July 09)					

9. Status of Permits and Licenses obtained

Table 9.1 is the updated status of environmental related permits/ license obtained for the construction activities

Description	License / Permit No.#	Date of Issue	Date of Expiry	Remarks
Environmental Permit	EP-237/2005/A	05 Mar 2008		Issued
Registration of C&D Waste Producer	7006521			Issued
Chemical Waste Producer	5213-950-Y2443-03	12 Aug 2008		Issued
Construction Noise Permit	N/A	N/A	N/A	N/A
Effluent Discharge License	EP890/W2/XG032 EP890/W2/XG033 EP890/W2/XG034 EP890/W2/XG035 EP890/W2/XG036 EP890/W2/XG037 EP890/W2/XG038 EP890/W2/XG039 EP890/W2/XG040 EP890/W2/XG041	23 Oct 2008	31 Oct 2013	Issued

Table 9.1 Status of Permits and Licenses Obtained

The contractor implemented various environmental mitigation measures as recommended in the Environmental Permit and Final Mitigation Measures Report. The implemented schedule is presented in Appendix H.

10. Complaint Log

There was no formal complaint received during the reporting month.

Table 10.1 Summary of Formal Complaints received					
Noise Water Ecology Cultural Others					
August 2009	0	0	0	0	0
Total	0	0	0	0	0

11. Site Environmental Audits

11.1 Site Inspection

With an intention to ensure that appropriate environmental protection and pollution control mitigation measures are properly implemented, regular environmental site inspections have been scheduled.

Within the reporting month, site inspections were conducted on 7, 17, 21 and 28 August 2009.

A detailed checklist of each site inspection together with comments, relevant photos and maps have been filed and kept. A summary of observation and follow-up action is shown in Table 11.1

		11.1 Summary of site ins		
Date	Observations	Advice from ET	Action taken	Closing Date
21 May 09	Vehicle was found washing at the	Contractor was advised to assign	Status is not cleared that no	Ongoing
	entrance of temporary access at	a proper wheel washing area with	wheel washing facility was	
	behind of Yuen's compound,	proper water collection facilities,	provided.	
	where without proper water	to avoid site runoff entering the		
	collection facility.	mangrove area.		
04, 11, 19 &	U-channel next to the site area	Contractor was advised to	U-channel was poorly covered	Ongoing
26 June 09	BC5 at PNH was not covered.	provide proper coverings to	with geo-textile materials and	
	Soil and construction debris was	protect the U-channel from the	plastic board prior to the	
	found entered the U-channel.	contamination of construction	inspection on 19 June. Further	
		materials	improvement was required and to	
			be follow up	
02 July & 17	Stagnant water was found in the	Contractor was recommended to	Filled with sand as absorbent for	28 Aug 09
Aug 09	drip pan of the power generator	regularly provide stagnant water	oil spillage and stagnant water	
	located at PNH construction site	removal and mosquito control	prevention	
		measures on sites as part of site		
		cleaning practices		
02 July 09	Accumulated site water in the	Although actions were taken	Further enhancement to seal up	21 Aug 09
	box culvert construction site at	previously to block the seepage	the outlet was implemented prior	
	PNH, was found seeped into the	from the outlet connected with	to the site inspection on 21 Aug	
	nearby PNH River and hence	the site. Contractor was advised		
	caused water pollution	to review the condition of the		
		outlet and make sure those was		
		properly sealed		
02, 10, 22,	Site water from the box culvert	Contractor was recommended	The practice was ceased as	21 Aug 09
July 09	construction site at PNH was	again to provide effective	advised prior to the site	
	found diverted to a brushwood	de-silting facilities for site water	inspection on 21 Aug	
	area nearby	treatment prior to discharging in		
		accordance with the applied		
		water discharge license		
10, 16, 22,	Damaged water hoses were	Contractor was advised to	The water hoses were placed	7 August 09
27 July 09	observed used for diverting site	replace the damaged hose and	underground inside haul access	
-	water from retaining wall J	re-locate the hoses away from	to prevent site water leakage to	
		the river channel in case of site	the stream course	
		water leakage		

	Table	11.1 Summary of site ins	pection	
Date	Observations	Advice from ET	Action taken	Closing Date
16, 22 & 27 July and 7, 28 Aug	Open stockpiles of earth materials were observed tipped at PNH BC2 site	Contractor was advised to control size of the stockpiles and provide tarpaulin coverings to prevent	Although tarpaulin coverings were provided stockpiles were not entirely covered.	Ongoing
09		erosion	Improvement was required	
22 July and 7 Aug 09	Soil run-off and erosion due to excavation activities at	Contractor was advised to provide geo-textile coverings to	Geo-textile coverings were provided to the soil surface of	28 Aug 09
	Bottleneck B at TTT River was observed	the bare soil surface of the bunds and haul access. Contractor was also recommended to review and rectify the site condition, bunds as well as barriers provided as to minimize water quality impact due to site works	bunds and haul access that exposed to the river water.	
07, 17, 21 & 28 Aug 09	A chemical drum without drip tray was observed at the PNH construction site	Contractor was recommended to provide drip tray for all chemical drums on site. Idling drums should be re-located into designated chemical storage cabinet	Still outstanding until the end of the reporting month. To be follow up	Ongoing
21 Aug 09		Contractor was urged to implement improvement works to the concerned works area to minimize water quality impact	Rectification to the defective concrete bunds and its coverings were implemented as advised prior to the site inspection on 28 Aug	28 Aug 09
21 Aug 09	Site water was found discharged to the PNH stream course from a channel lined with geo-textile in retaining wall D	Although site water was observed to be clear contractor was advised to provide a proper de-silting facilities for site water treatment, and treated site water should be discharged to a designated discharge point in accordance with the applied discharge license.	De-silting tank was provided for site water treatment before discharging to the channel	28 Aug 09
28 Aug 09	(Non-compliance event) Site water from LTT was found diverted to de-silting tank and	Such practice is not allowed and contractor was required for immediate rectification.	To be followed in the next reporting month	Ongoing

	Table	11.1 Summary of site ins	pection	
Date	Observations	Advice from ET	Action taken	Closing Date
	discharge to mangrove area	Contractor was also reminded to		
	during inspection	instruct their frontline staff for		
		proper site water discharge in		
		accordance with the applied		
		effluent discharge license and		
		relevant ordinance.		
28 Aug 09	Idling de-silting tank provided in	Contractor was recommended to	To be followed in the next	Ongoing
	retaining wall D at PNH was	provide regular cleaning and	reporting month	
	accumulated with muddy water,	maintenance in order to maintain		
	suspected that the tank was not	the effectiveness of the tank for		
	in effective condition	site water treatment.		
28 Aug 09	Earth surface was exposed with	Contractor was advised to	To be followed in the next	Ongoing
	river water seeped into site	implement proper mitigation	reporting month	
	retaining wall H from concrete	measures to prevent soil erosion		
	bunds	and water quality impact form the		
		concerned site.		

11.2 Compliance with legal and Contractual requirement

ET leader has reviewed the progress and programme of the works to check any relevant environmental laws has not violated.

Non-compliance events regarding site run-off and poor quality of effluent discharge from sites were recorded in this reporting month. As such, Contractor was urged to implement corrective actions include rectification of bunds formed by concrete blocks at retaining wall H, as to prevent further seepage of site water.

Muddy water generated on sites was mostly treated by soak-away in site ground. Site water was not effectively treated and overflowed to the river channel and area outside site boundaries. De-silting tanks were provided at the late of August for site water treatment. However, the effectiveness of the de-silting tanks was concerned and contractor was reminded to provide regular maintenance and cleaning to the tanks. Soak-away by site ground should be prevented as far as practicable to avoid flooding to the nearby area due to silt saturation.

11.3 Environmental Complaint and follow up actions

During this reporting period, there was no documented complaint received. Therefore, follow up actions for the environmental complaint is not required.

Further to the environmental concerns raised by green group during May 2009, Ecologist of ET has conducted a monthly survey to mangrove area at the east of Luk Tei Tong River. Details of findings refer to Appendix K.

Bottleneck at Tai Tei Tong River (located at the downstream of Mui Wo School) was remained half-done that follow up actions were ceased as reported by contractor.

12. Future key issues

Key construction activity in the coming month will include construction of retaining walls at PNH River and TTT River, gabion wall at LTT River, as well as box culvert at PNH River and LTT. It is expected that several impacts on environmental aspects will be generated on-site. With reference to the EM&A manual, mitigation measure report as well as the environmental permit, proper mitigation measures are proposed to be taken, if necessary.

Contractor was seriously advised to provide proper measures to mitigate water quality impacts to the river channels due to construction works. River based construction sites should be well enclosed by bunds in dry condition, as to prevent surface run-off and site water seepage to the stream. Surface of earth bunds should be covered with tarpaulin to prevent soil erosion.

Underground water and site water may be accumulated on site. Contractor is recommended to treat the accumulated site water by proper silt removal facilities before discharging to the designated discharge point; also reuse of site water should be considered. Channel, trench and manholes should be sealed to prevent site water entering public drainage and causing water quality impact.

Contractor was reminded that all vehicles should be washed before leaving sites. Site entrances should be regularly cleaned to prevent soil and construction debris deposited to the public access. Grey water generated from vehicles and/or site washing should be collected and treated before discharge.

Contractor was reminded to be cautious on erosion and surface run-off from the stockpiles of earth materials and exposed earth surfaces. Coverings with

tarpaulin and/or geo-textile materials should be provided to minimize the concerned impacts.

Dust impact may be resulted by boulder movement, breaking and installation works of gabion blocks, contractor is reminded to provide regular watering to the dusty static site area and stockpile. Meanwhile, size and height of stockpiles should be controlled as such erosion issue could be minimized.

13. Conclusions

In this reporting month, construction of retaining walls at PNH River and LTT River, box culvert at PNH and LTT, as well as gabion wall at TTT River were being carried out.

Regular site meetings and inspection audits led by the seniors for discussing site environmental matters were held among Project Proponent, Contractor and the ET on weekly basis. Also monthly site meeting and inspection audits with the above parties and IEC were carried out at the mid of the reporting month.

For noise level monitoring, all results were within the established A/L limits.

For water quality monitoring, total 88 non-compliance events of water quality criteria were recorded in this reporting month. Except natural fluctuation and influence of adverse weather exceedances were mainly caused by site water discharge due to poor site conditions and influence of rainstorm. As such contractor was urged to review their site condition, working method and implementation status of mitigation measures as to prevent further water quality impact. Although follow up actions has been taken as reported by the Contractor, ongoing improvement works were required further to the outcome of the inspections and follow up investigations.

During ecological monitoring survey, no White-shouldered Starling was recorded breeding in the watch tower. There was no sign of disturbance from the Project to the watch tower. The breeding season of White-shouldered Starling in this year has begun. However, the absence of nesting of White-shouldered Starling in the watch tower did not seem to be related to construction works in Luk Tei Tong River. A bird species nests in village house should be to certain extent disturbance tolerant.

No bird was observed entering the watchtower since the monitoring surveys commenced in August 2008. Also, no breeding was recorded in the baseline survey in September 2007. It appears that the birds do not prefer to roost or nest in the watch tower.

Also, there were not any notifications of summons recorded during the reporting period. Furthermore, there were not any formal prosecution and complaints recorded. Non-compliance events regarding site water seepage and direct discharge of site water were recorded in this reporting month. Contractor was urged to rectify the discrepancies as soon as possible to stop further deterioration of water quality.

Site water control was the major concern in this reporting month. Contractor was recommended to provide proper de-silting facilities for site water treatment; conditions of the earth bunds provided should be rectified to prevent surface run-off and soil erosion due to site works. Corrective actions to the identified defects should be implemented as soon as possible to minimize deterioration of water quality.

ET has reminded the contractor to provide environmental pollution control measures wherever necessary; and to keep a good environmental management at site practice.

The ET will continue to implement the environmental monitoring & audit programme in accordance with the EM&A Manual and Environmental Permit requirement.

Appendix A

Construction Programmer and Location plan

Act ID	Description	Orig Dur	Rem Dur	Early Start	Early Finish	% Predecessors	2008 2009 2010 2011 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB
0000	DRAINAGE IMPROVEMENT WORK IN S LANTAU	534 *	534 * (06AUG2009	21JAN2011	0	
0001	Section Commencement	11		07JAN2008 A	17JAN2008 A	100	Section Commencement
0010	Preliminaries	534 *		06AUG2009	21JAN2011	0	Preli
0020	Engineer's Accommodation	80			26MAR2008 A	100	Brginser's Accommodation
0030	Contactor's Accommodation	55 40		07JAN2008 A 07JAN2008 A	01MAR2008 A	100	
0040	Engineer's Accommodation (Secondary) Record Survey & Site Investigation	180			15FEB2008 A 04JUL2008 A	100	Engineer's Accommodation (Secondary)
0060	Recruitment of Environment Team	80			26MAR2008 A	100	Recruitment of Environment Team
0070	Establish Base line monitoring for EP	30			25APR2008 A	100 0060	Establish Base line monitoring for EP
0080	Monitoring for Environmental Permit	1001			21JAN2011	47 0070	
0100	Temporary Traffic Management Schemes	180	0 0	7JAN2008 A	04JUL2008 A	100	And
0110	Construction Proposals and Submissions	80	0 0	7JAN2008 A	26MAR2008 A	100	Construction Proposals and Submissions
0120	Permits Application & Approval	180		The Property of the American Statement of the Ame	04JUL2008 A	100	Participation and the second provide the second sec
0130	Liaison Works with Others (Initial)	220		07JAN2008 A	13AUG2008 A	100	Liaison Works with Others (Initia)
0140	Temporary Noise Barrier (Fabrication)	60			120CT2008 A	100 0130	► Harving Temporary Noise Barrier (Fabrication)
1000	Works at Ling Tsui Tau &TTT River (D2&D3, D4)	510		8JAN2008 A	10JUN2009 A	100 0001	Works at Ling Tsui Tau &TTT River (D2&D3, D4)
1010	Drainage Channel at Ling Tsui Tau (D2&D3)	510		8JAN2008 A	10JUN2009 A	100 0001	Drainage Channel at Ling Tsui Tau (D2&D3)
1020 1030	Sub. & app. from AMO by Archaeologist Covered U-Channel	268		07JAN2008 A	30SEP2008 A	100 1000	Sub. & app. from AMO by Archaeologist
1030	600 & Covered 750 U-Channel (D3)	120			28JAN2009 A	100 1020 100 1030	Covered U-Channel
1032	Covered 300 U-Channel (D2)	30		25FEB2009 A	26MAR2009 A	100 1030	Covered 300 U-Channel (D2)
1040	Concrete Pipe Drainage at Ling Tsui Tau (D3)	0		2APR2009 A		100	Covered Sob C-Chainer (D2)
1040	CP1.3 to MH1.4 (2 x DN600)	14			05MAY2009 A	100 1040	Conceller Pipe Drainage at Ling Tsui rau (D3)
1042	MH1.4 to MH1 (2 x DN 600)	14		6MAY2009 A	19MAY2009 A	100 1041	→ ■ MH1.4 to MH1 (2 x DN 600)
1043	MH1 to MH2 (2 x DN 600)	21	0 2	20MAY2009 A	09JUN2009 A	100 1042	→ ■■■ MH1 to MH2 (2 × DN 600)
1044	MH2 to MH3 (2 x DN 600)	75	18 1	0JUN2009 A	23AUG2009	76 1043	► HH2 to MH3 (2 × DN 600)
1045	MH3 to MH4 (2 x DN 600)	21	21 2	1AUG2009 *	10SEP2009	0 1044	→ ■ MH3 to MH4 (2 × DN 600)
1046	MH4 to MH5 (2 x DN 600)	14		1SEP2009	24SEP2009	0 1045	〒→■MH4 to MH5 (2 x DN 600)
1047	MH5 to MH6 (2 x DN 600)	14		25SEP2009	08OCT2009	0 1046	→ 篇 MH5 to MH6 (2 × DN 600)
1048	MH6 to MH7 (2 x DN 600)	14		90CT2009	22OCT2009	0 1047	→ ■MH6 to MH7 (2 × DN 600)
1049	MH7 to MH8 (2 x DN 750)	80		9JUN2009 A	16SEP2009	48	MH7 to MH8 (2 x DN 750)
1050 1100	MH8 to Outlet Structure Gabion Channel at Tai Tei Tong River (D4)	21 510		3OCT2009 8JAN2008 A	12NOV2009 10JUN2009 A	0 1048, 1049 100 0001	uii → manu MH8 to Outlet Structure
1110	Preparation Work for Gabion Channel	409		The second s	01MAR2009 A	100 0001	Fremention Work for Gabion Channel at Tai Tei Tong River (D4)
1120	Bottleneck A widening excavation (LHS)	10		2MAR2009 A	11MAR2009 A	100 1110	Preparation Work for Gabion Chamber ■ Bottleneck A widening excavation (LHS)
1121	Bottleneck A type 6 gabion (LHS)	20		The second s	31MAR2009 A	100 1120	H ■ Bottleneck A type 6 gabion (LHS)
1122	Bottleneck A widening excavation (RHS)	10		1APR2009 A	10APR2009 A	100 1121	Stateried iv type o gabler (cho)
1123	Bottleneck A type 6 gabion (RHS) & river bed	20	0 1	1APR2009 A	30APR2009 A	100 1122	→ ■ Bottleneck A type 6 gabion (RHS) & river bed
1130	Approval of temp access from bottleneck A to B	60	0 3	1MAR2009 A	29MAY2009 A	100	Approval of temp access from bottleneck A to B
1131	Forming of access form bottleneck A to B	12	0 3	0MAY2009 A	10JUN2009 A	100 1130	Forming of access form bottleneck A to B
1132	Bottleneck B widening excavation (North Side)	85	29 1	1JUN2009 A	03SEP2009	66 1131	Patricks Buildenck B widening excavation (North Side)
1133	Bottleneck B type 6 gabion (South Side)	25	25 0	4SEP2009	28SEP2009	0 1132	Bottleneck B type 6 gabion (South Side)
1134	Bottleneck B widening excavation (RHS)	14		9SEP2009	12OCT2009	0 1133	Source B widening excavation (RHS)
1135	Bottleneck B type 6 gabion (RHS) & river bed	14		A REPORT OF A DESCRIPTION	26OCT2009	0 1134	🐂 🛲 Bottleneck B type 6 gabion (RHS) & river bed
1140	Reinforced Concrete Retaining Wall [H]	0		1APR2009 A	070550000	100	Reinforced Concrete Retaining Wall [H]
	R C Retaining Wall H	180 0			27SEP2009	71 1140	A Drainage Works for Changels & Bataining Wall
1150 1151	Drainage Works for Channels & Retaining Wall U-Channel and Catchpit for Widened Bottle Neck A	15		7JAN2008 A 7OCT2009	10NOV2009	0 1123, 1135	w ⊔rainage works for Channels & Retaining Wall,
1152	U-Channel and Catchpit for Widened Bottle Neck A	15			10NOV2009	0 1123, 1135	http://www.u-Channel and Catchpit for Widened Bottle Neck A
1152	U-Channel and Catchpit for Retaining Wall H	20		8SEP2009	170CT2009	0 1135	
	Soft & Hard Landscaping Works	20		80CT2009		0 1123, 1153	U-Channel and Catchpit for Retaining Wall H
1170	Hard Landscaping & Paving Works	50			06DEC2009	0 1153	Hard Landscaping Works
	Soft Landscaping (Planting) Works	50		And the second	06DEC2009	0 1153	Soft Landscaping (Planting) Works
1200	Phase 2 sewerage works at TTT river	60		1SEP2009 *	30OCT2009	0	Phase 2 sewerage works at TTT river
	Submission and approval MS by DSD & EPD	90			29JUL2009 A	100	Submission and approval MS by DSD & EPD
	Excavation 1st half trench at TTT river	20			20SEP2009	0 1210	► → ■ Excavation 1st half trench at TTT river
	Pipe laying and backfilling 1st half trench	5			25SEP2009	0 1220	Pipe laying and backfilling 1st half trench
	Excavation 2nd half trench at TTT river	20	20 2	6SEP2009	15OCT2009	0 1230	Excavation 2nd half trench at TTT river
Start o							Early bar
Finish	-1-1- 0041100000						Drainage Improvement Work in South Lantau Dragress bar
Data o Run d		ction Co	. Ltd.				and Construction of Mui Wo Village Sewerage Phase 1
	number 1A						Master Programme (Rev.9b)
	imavera Systems, Inc.						
							Finish milestone point

Act	Description	Orig	Rem	Early Start	Early Finish	% Predecessors	2008 2010 2011 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB
ID 1250	Pipe laying and backfilling 2nd half trench	Dur 5	Dur	160CT2009	200CT2009	0 1240	►§ Pipe laying and backfilling 2nd half trench
1250	Connection to existing manholes	4		210CT2009	240CT2009	0 1250	► Connection to existing manholes
1200	Site clearance and reinstatement of river	5		25OCT2009	29OCT2009	0 1260	⇒ #Site clearance and reinstatement of river
2000	Works at D6, D7 & D8 (HTST, LUT & CShST)	614	48	18JAN2008 A	22SEP2009	92 0001	🗜 🕶
2100	Drainage Works at Pui O - Ham Tin San Tsuen (D6)	614	48	18JAN2008 A	22SEP2009	92 0001	→ Drainage Works at Pui O - Ham Tin San Tsuen (D6)
2110	Preparation works	430		18JAN2008 A	22MAR2009 A	100 0001	Preparation works
2111	Sheet piling for flood protection wall	120		23MAR2009 A	20JUL2009 A	100 2110	→ The second se
2112	Set up cover dam for excavation of FPW	90		23MAR2009 A	20JUN2009 A	100 2110	Set up cover dam for excavation of FPW
2113	excavation and shoring for bay 1 FPW	50 30	survey a service real county was an	21JUN2009 A 10AUG2009	09AUG2009 08SEP2009	92 2112 0 2113	excavation and shoring for bay 1 FPW
2114	Concreting mass concrete wall bay 1 FPW	20		09SEP2009	28SEP2009	0 2113	► • • • • • • • • • • • • • • • • • • •
2115 2116	excavation and shoring for bay 2 FPW Concreting mass concrete wall bay 2 FPW	15		29SEP2009	13OCT2009	0 2115	Concreting mass concrete wall bay 2 FPW
2117	excavation and shoring for bay 3 FPW	20		140CT2009	02NOV2009	0 2116	► 📾 excavation and shoring for bay 3 FPW
2118	Concreting mass concrete wall bay 3 FPW	15	5 15	03NOV2009	17NOV2009	0 2117	🖙 🗰 Concreting mass concrete wall bay 3 FPW
2120	Associated Railing & Paving Works	60	60	29SEP2009 *	27NOV2009	0 2113, 2118	Image: Associated Railing & Paving Works
2130	Associated Granite Paving (vertical)	60	60	29SEP2009	27NOV2009	0 2113, 2118	-► ====================================
2200	Drainage Works at Pui O - Lo Uk Tsuen (D7)	614		18JAN2008 A	22SEP2009	92 0001	Prainage Works at Pui O - Lo Uk Tsuen (D7)
2210	Permit Application and Approval	400		18JAN2008 A	20FEB2009 A	100 0001	Extension of the second s
2211	Mobilization of plant and equipment	5 15		21FEB2009 A 26FEB2009 A	25FEB2009 A 12MAR2009 A	100 2210 100 2211	Mobilization of plant and equipment
2212 2213	Trial holes excavation Reinstatement of trial hole	13		13MAR2009 A	17MAR2009 A	100 2211	► Reinstatement of trial hole
2213	Issuing VO no.8 (Twin DI pipe crossing CP A & B)	1		06APR2009 A	06APR2009 A	100 2212	Issuing VO no.8 (Twin DI pipe crossing CP A & B)
2223	Mobilization of plant and equipment	10		07APR2009 A	16APR2009 A	100 2220	F ■ Mobilization of plant and equipment
2224	Pipe layer at crossing CP A to MH6	65	5 0	17APR2009 A	20JUN2009 A	100 2223	Pipe layer at crossing CP A to MH6
2225	Reinstatement of carriageway at CP A	7	7 O	21JUN2009 A	27JUN2009 A	100 2224	► Reinstatement of carriageway at CP A
2226	Excavation of crossing at CP B to MH7	70		17APR2009 A	25JUN2009 A	100 2223	Excertising Excertisin of crossing at CP B to MH7
2227	Reinstatement of carriageway at CP B	7		26JUN2009 A	02JUL2009 A	100 2226	
2230	Pre-cast Concrete Pipeline and Manhole	0		03JUL2009 A	450072000	100 2225, 2227	Pre-cast Concrete Pipeline and Manhole
2231 2232	MH6 to MH7 MH7 to MH8	105		03JUL2009 A 16OCT2009	15OCT2009 14DEC2009	32 2230 0 2231	► STANDARD MH7 to MH8
2232	MH8 to MH9	45		15DEC2009	28JAN2010	0 2232	L+ management MH8 to MH9
2234	MH9 to MH10	31		29JAN2010	28FEB2010	0 2233	→ MH9 to MH10
2235	MH10 to Outlet B	21		01MAR2010	21MAR2010	0 2234	
2236	Connection to existing catchpit A & B	7	7 7	17MAR2010	23MAR2010	0 2235	Genection to existing catchpit A & B
2240	Reinstatement of South Lantau Road	170	170	16OCT2009	03APR2010	0 2231, 2236	► Reinstatement of South Lantau Road
2300	Drainage Works at Cheung Sha Sheung Tsuen (D8)	614		18JAN2008 A	22SEP2009	92 0001	► Drainage Works at Cheung Sha Sheung Tsuen (D8)
2310	Permit Application and Approval	353		18JAN2008 A	04JAN2009 A	100 0001	Permit Application and Approval. ▲ Mobilization of plant and equipment
2311	Mobilization of plant and equipment	35		05JAN2009 A 18APR2009 A	09JAN2009 A 22MAY2009 A	100 2310 100 2311	DSD request a quotation for re-lining
2312 2313	DSD request a quotation for re-lining Approval of re-lining	60		23MAY2009 A	21JUL2009 A	100 2312	→ memorane Approval of re-lining
2313	Material ordering	75		22JUL2009 A	04OCT2009	20 2313	Haterial ordering
2315	MHS2 - MHS1	3	3 3	05OCT2009	07OCT2009	0 2314	₩HS2 - MHS1
2316	MHS1 - MHS0	3	3 3	08OCT2009	10OCT2009	0 2315	■ MHS1 - MHS0
2317	MHS0 - Outlet	3		11OCT2009	13OCT2009	0 2316	C+ IMHS0 - Outlet
2340	Site clearance	5		14OCT2009	18OCT2009	0 2317	Site clearance Box Culvert & Gabion Wall at PN
3000	Box Culvert & Gabion Wall at PNH River (D1)	926		18JAN2008 A	31JUL2010 31OCT2008 A	61 0001 100 0001	Preparation of Works & Frogs Capture
3010	Preparation of Works & Frogs Capture	288		18JAN2008 A 18JAN2008 A	28AUG2008 A	100 0001	
3020 3030	EVA application Erection of Control Gate of EVA	224		29AUG2008 A	22SEP2008 A	100 3020	Erection of Control Gate of EVA
3040	Maintenance of EVA	876		29AUG2008 A	21JAN2011	39 3020	
3100	Pak Ngan Heung River Box Culvert	C		29AUG2008 A		100 3020	Pak Ngan Heung River Box Culvert
3110	Construction of Wheel Washing Bays	30			27SEP2008 A	100 3100	L→ and Construction of Wheel Washing Bays
3111	RC Box Culvert (3mx3mx2,25m) Bay 10	35			01NOV2008 A	100 3110	The second RC Box Culvert (3mx3mx2,25m) Bay 10
3112	RC Box Culvert (3mx3mx2,25m) Bay 9	35			24NOV2008 A	100 3111	RC Box Culvert (3mx3mx2,25m) Bay 9
3113	RC Box Culvert (3mx3mx2,25m) Bay 2	35		13NOV2008 A	17DEC2008 A	100 3112	, Teresta RC Box Culvert (SintXintz.2011) Bay 2
3114	RC Box Culvert (3mx3mx2,25m) Bay 3	35		06DEC2008 A	09JAN2009 A	100 3113	La Contract PC Ray Culvert (20x20x2 25m) Ray 11
3115	RC Box Culvert (3mx3mx2,25m) Bay 11	45		29DEC2008 A 31JAN2009 A	11FEB2009 A 16MAR2009 A	100 3114 100 3115	
3116	RC Box Culvert (3mx3mx2,25m) Bay 12	45			30APR2009 A	100 3115	(Approval of tree felling at Mui Wo
3117 Stort	Approval of tree felling at Mui Wo date 07JAN2008		0	00AL 112003 A	A		Early bar
	date 07JAN2008 h date 21JAN2011						Drainage Improvement Work in South Lantau Progress bar
And and a state of the second second second	date 06AUG2009 Yick Hing Constru	ction C	bt Lo:				and Construction of Mui Wo Village Sewerage Phase 1
Run	Tick Thing Consta	00010					—— Summary bar
	e number 2A						Master Programme (Rev.9b)
c F	Primavera Systems, Inc.						Finish milestone point

Act ID	Description	Orig Dur	Rem Dur	Early Start	Early Finish	%	Predecessors	2008 Sors JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN	2011 JAN FEB
3118	RC Box Culvert (3mx3mx2,25m) Bay 13	55	0	01MAY2009 A	24JUN2009 A	100	3117	Financial RC Box Culvert (3mx3mx2.25m) Bay 13	
3119	Approval of tree tranplant at bay 7 & 8	41	0	01MAY2009 A	10JUN2009 A	100		Approval of tree tranplant at bay 7 & 8	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
3120	RC Box Culvert (3mx3mx2,25m) Bay 8	40	0	11JUN2009 A	20JUL2009 A	100	3119	► ■ ■ ■ ■ ■ RC Box Culvert (3mx3mx2,25m) Bay 8	
3121	RC Box Culvert (3mx3mx2,25m) Bay 7	40	19	16JUL2009 A	24AUG2009	53	3120	RC Box Culvert (3mx3mx2,25m) Bay 7	001003
3122	Awaiting divertion of UU at bay 4, 5 & 6	70	0	01MAY2009 A	09JUL2009 A	100		Awaiting divertion of UU at bay 4, 5 & 6	
3123	RC Box Culvert (3mx3mx2,25m) Bay 4	40	13	10JUL2009 A	18AUG2009	68	3122	RC Box Culvert (3mx3mx2,25m) Bay 4	
3124	RC Box Culvert (3mx3mx2,25m) Bay 5	40	40	14AUG2009	22SEP2009	0	3123	RC Box Culvert (3mx3mx2.25m) Bay 5	
3125	RC Box Culvert (3mx3mx2,25m) Bay 6	35	35	18SEP2009	22OCT2009	0	3124	RC Box Culvert (3mx3mx2,25m) Bay 6	
3130	Backfill and Reinstatement EVA	20		23OCT2009	11NOV2009		3125	► Backfill and Reinstatement EVA	
3140	Backfilling for RC Box Culvert	385			21NOV2009		3111, 3125		
3150	PNHR Box Culvert Inlet & Outlet Structure	0		01NOV2009 *		0			1 8 1 8 1 8 1 8 1 1 8 1 8 1 8 1 8 1 9 1 8 1 8 1 8 1 8 1 9
3160	RC Box Culvert Outlet Structure (Bay 14)	50		01NOV2009	20DEC2009		3150	RC Box Culvert Outlet Structure (Bay 14)	
3170	RC Box Culvert Inlet Structure (Bay 1-Partly)	50		11NOV2009	30DEC2009	0	3150	★ RC Retaining Walls at PNH River (D1)	на стат По теат
3300	RC Retaining Walls at PNH River (D1)	0		01OCT2009 * 15NOV2009			3510	→ RC Retaining Walls at FMI River (CF)	, , , , , , , , , , , , , , , , , , , ,
3310	RC Retaining Wall A Retaining Wall A - Bay 1	20		15NOV2009	04DEC2009		3310	→ To recalling wan A	1 1 1 1 1 1 1 1 1 1
3311	Retaining Wall A - Bay 3	15		25NOV2009	09DEC2009		3311	Retaining Wall A - Bay 3	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
3312 3313	Retaining Wall A - Bay 2	15		30NOV2009	14DEC2009		3312	→ Retaining Wall A - Bay 2	1 8 1 1 1 8 8 1 1 1 1 1 1 1 1 1 1 1 1 . 1 1 1 1 1 1 1
3313	Retaining Wall A - Bay 2 Retaining Wall A - Bay 4	15		05DEC2009	19DEC2009		3313	Retaining Wall A - Bay 4	
3315	Gabion block at retaining wall A	5		20DEC2009	24DEC2009		3314	← ■Gabion block at retaining wall A	1 1 1 1 1 1 1 1 1 1 1
3320	RC Retaining Wall B	0		31DEC2009			3170, 3315		
3321	Retaining Wall B - Bay 1	20		31DEC2009	19JAN2010		3320	► mining Wall B - Bay 1	
3322	Retaining Wall B - Bay 2	15		10JAN2010	24JAN2010	0	3321	Retaining Wall B - Bay 2	
3323	Retaining Wall B - Bay 3	15	15	15JAN2010	29JAN2010		3322	Retaining Wall B - Bay 3	11111111
3324	Retaining Wall B - Bay 4	15	15	20JAN2010	03FEB2010	0	3323	► 🛲 Retaining Wall B - Bay 4	, , , , , , , , , , , , , , , , , , ,
3325	Retaining Wall B - Bay 5	15	15	25JAN2010	08FEB2010	0	3324	➡■ Retaining Wall B - Bay 5	
3326	Retaining Wall B - Bay 6	15	15	30JAN2010	13FEB2010	0	3325	🕞 🥅 Retaining Wall B - Bay 6	
3327	Gabion block at retaining wall B	5	5	14FEB2010	18FEB2010	0	3326	Sabion block at retaining wall B	
3330	RC Retaining Wall C	0	0	01NOV2009 *		0			2 F F F F F F F F F
3331	Retaining Wall C - Bay 1	30	30	01NOV2009	30NOV2009	0	3330	Retaining Wall C - Bay 1	
3332	Retaining Wall C - Bay 2	30	30	01DEC2009	30DEC2009		3331	S + mini Retaining Wall C - Bay 2	
3333	Retaining Wall C - Bay 3	30		31DEC2009	29JAN2010		3332	Retaining Wall C - Bay 3.	
3334	Gabion block at retaining wall C	7		30JAN2010	05FEB2010		3333	⇒≋Gabion block at retaining wall C	
3340	RC Retaining Wall D	0		01AUG2009 A		100		≪RC Retaining Wall D	
3341	Retaining Wall D - Bay 1	30		01NOV2009 *	30NOV2009		3344		
3342	Retaining Wall D - Bay 2	21		01DEC2009	21DEC2009		3341	► 🗰 Retaining Wall D - Bay 3	
3343	Retaining Wall D - Bay 3	21		01AUG2009 A	21AUG2009 05SEP2009		3340 3343	Retaining Wall D - Bay 4	
3344 3345	Retaining Wall D - Bay 4 Gabion block at retaining wall D	7		22DEC2009	28DEC2009		3342	-→■Gabion block at retaining wall D	
3350	RC Retaining Wall E	0		01NOV2009 *	200202000	0		→ RC Retaining Wall E	
3351	Retaining Wall E - Bay 1	30		01NOV2009	30NOV2009		3350	Retaining Wall E - Bay 1	*******
3352	Retaining Wall E - Bay 2	30		01DEC2009	30DEC2009		3351	Retaining Wall E - Bay 2	
3360	RC Maintanence Ramp	0		06SEP2009			3344		
3361	Ramp bay 1	20	20	06SEP2009	25SEP2009	0	3360	Ramp bay 1	00000
3362	Ramp bay 2	20		26SEP2009	15OCT2009	0	3361	Ramp bay 2	4 4 9 8 1 1 1 1 1 9 8 9 8 8 8 8 9 9 9 9 8 9 8 1 8 1 8 1 9
3363	Ramp bay 3	30	30	16OCT2009	14NOV2009	0	3362	En Ramp bay 3	******
3368	Gabion block at maint. ramp	10	10	15NOV2009	24NOV2009	0	3363	► ■ Gabion block at maint. ramp	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
3369	Turning Bay & Maintenance Access	70		26SEP2009	04DEC2009		3361	Turning Bay & Maintenance Access	
3370	Retaining Wall F	0		05DEC2009			3369	Retaining Wall F	
3371	Retaining Wall F - Bay 1	30	4	05DEC2009	03JAN2010		3370	Retaining Wall F - Bay 1	
3372	Retaining Wall F - Bay 2	30		30DEC2009	28JAN2010	CARD AND PROPERTY AND ADDRESS.	3371	Retaining Wall F - Bay 2	11111111
3373	Retaining Wall F - Bay 3	25		24JAN2010	17FEB2010		3372		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
3374	Gabion block at retaining wall F	7		18FEB2010	24FEB2010		3373		
3380	RC Retaining Wall G	0		27MAR2010			3421		
3381	Retaining Wall G - Bay 1	30		27MAR2010	25APR2010		3380		
3382	Retaining Wall G - Bay 2	30		11APR2010	10MAY2010		3381 3382	Retaining Wall G - Bay 3	
3383	Retaining Wall G - Bay 3	30		26APR2010 11MAY2010	25MAY2010 09JUN2010		3382	Retaining Wall G - Bay 4	
3384	Retaining Wall G - Bay 4	30	30	110/412010	0000112010				and a standard sector to the standard sector to the standard sector of the standard sector of the standard sector se

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Act ID	Description	Orig	Rem	Early	Early	% Predece	2008 2009 2010 2011 Sors JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB
3385	Retaining Wall G - Bay 5	Dur	Dur	Start	Finish		THE AND THE AN
		30		26MAY2010	24JUN2010	0 3384	
3386 3400	Gabion block at retaining wall G Alternative Mass Retaining Walls 1& 2	10		25JUN2010	04JUL2010	0 3385	► Cabion block at retaining wall G
3400	RW1	45		22DEC2009 22DEC2009	045500040	0 3342	Alternative Mass Retaining Walls 1& 2
3411	Skin Wall for RW1	45	CONTRACTOR AND A CONTRACT	05FEB2010	04FEB2010 19FEB2010	0 3400	
3412	Gabion block at RW1	7		20FEB2010	26FEB2010	0 3410	> ₩iii Skin Wall for RW1
3420	RW2	35		05FEB2010	11MAR2010	0 3411	► Sabion block at RW1
3421	Skin Wall for RW2	15		12MAR2010	26MAR2010	0 3352, 34	
3422	Gabion block at RW2	7		27MAR2010	02APR2010	0 3420	
3500	Gabion Wall (Type 2, 3, 4 & 5) at PNH River	0		010CT2009 *	02/11/12010	0	⊨⊠Gabion block at RW2
3510	Gabion Wall (opposite to RW-A & B)	45		01OCT2009	14NOV2009	0 3500	Gabion Wall (Type 2, 3, 4 & 5) at PNH River
3530	Fish Ladder and Diversion Dam	50		14FEB2010	04APR2010	0 3326	Gabion Wall (opposite to RW-A & B)
3600	Drainage Works Provision to New PNHR Channel	0		10JUN2010	0.0.0.0	0 3385	Fish Ladder and Diversion Dam
3610	Pre-cast Pipe Drains	50		10JUN2010	29JUL2010	0 3600	Prainage Works Provision to New PNHR
3620	Concrete U-Channels	50		10JUN2010	29JUL2010	0 3600	→ and Pre-cast Pipe Drains
3630	Catchpits	50	50	10JUN2010	29JUL2010	0 3600	► Internet Concrete U-Channels
4000	Luk Tei Tong Bypass Channel and River (D5)	926	360	18JAN2008 A	31JUL2010	61 0001	- Catchpits
4010	Preparation Work	288	0	18JAN2008 A	310CT2008 A	100 0001	Subsection Work
4020	No Excavation Period (1)	214	0*	01APR2008 A	310CT2008 A	100	And the second
4100	Luk Tei Tong By-pass Channel	0	0	01NOV2008 A		100 4020	Luk Tei Tong By-pass Channel
4101	General Site Clearance	20	0	01NOV2008 A	20NOV2008 A	100 4100	Concrat Site Clearance
4102	Mobilization of Plant and Equipment	15	0	21NOV2008 A	05DEC2008 A	100 4101	Mobilization of Plant and Equipment
4103	Preparation Work of Gabion Block Mesh	61	0	01NOV2008 A	31DEC2008 A	100 4100	+ statutes Preparation Work of Gabion Block Mesh
4110	LTT By-pass Channel (CH0+50 to Ch2+60)	0	0	01JAN2009 A		100 4103	└┯♥ LTT By-pass Channel (CH0+50 to Ch2+60)
4111	LTT BPC CH2A 2+60 to CH2A 2+00	30		01JAN2009 A	30JAN2009 A	100 4110	LTT BPC CH2A 2+60 to CH2A 2+00
4112	LTT BPC CH2A 2+00 to CH2A 1+50	30	0	21JAN2009 A	19FEB2009 A	100 4111	The LT BPC CH2A 2+00 to CH2A 1+50
4113	LTT BPC CH2A 1+50 to CH2A 1+00	30	0	10FEB2009 A	11MAR2009 A	100 4112	
4114	LTT BPC CH2A 1+00 to CH2A 0+50	30			31MAR2009 A	100 4113	TT BPC CH2A 1+00 to CH2A 0+50
4200	No Excavation Period (2)	214	87 *	01APR2009 A	31OCT2009	59 4110	No Excavation Period (2)
4210	LTT By-pass Channel (CH2A 2+60 to Ch2A 3+30)	0		01NOV2009		0 4200	LTT By-pass Channel (CH2A 2+60 to Ch2A 3+30)
4211	LTT BPC CH2A 2+60 to CH2A 3+00	30	30	01NOV2009	30NOV2009	0 4210	LTT BPC CH2A 2+60 to CH2A 3+00
4212	LTT BPC CH2A 3+00 to CH2A 3+30	50	50	21NOV2009	09JAN2010	0 4211	► HTT BPC CH2A 3+00 to CH2A 3+30
4220	LTT By-pass Channel (CH2A 0+50 to Ch2A 0+00)	0	0	01NOV2009		0 4200	LTT By-pass Channel (CH2A 0+50 to Ch2A 0+00)
4221	LTT BPC CH2A 0+50 to CH2A 0+00	50	50	01NOV2009	20DEC2009	0 4220	LTT BPC CH2A 0+50 to CH2A 0+00
4230	LTT Rectangular Channel A	90	90	21DEC2009	20MAR2010	0 4221	LTT Rectangular Channel A
4240	Box Culvert - A	75	46	08JUL2009 A	20SEP2009	39	Box Culvert - A
4241	Reprovision of EVA & Footpath at BC-A	10	10	21SEP2009	30SEP2009	0 4240	Reprovision of EVA & Footpath at BC-A
4250	Box Culvert - B	60	0	31JAN2009 A	31MAR2009 A	100 4111	P Box Culver - B
4260	Reprovision of EVA & Footpath at BC-B	180	53	01APR2009 A	27SEP2009	71 4250	Reprovision of EVA & Footpath at BC-B
4300	LTT River Channel & Sea Wall	0	0	01NOV2009		0 4200	LTT River Channel & Sea Wall
4310	LTT RC (CH2B 0+00 to CH2B 1+50) East Side	0	0	01NOV2009		0 4300	► LTT RC (CH28 0+00 to CH28 1+50) East Side
4311	LTT RC (CH2B 0+00 to CH2B 0+50) ES	31		01NOV2009	01DEC2009	0 4310	LTT RC (CH2B 0+00 to CH2B 0+50) ES
4312	LTT RC (CH2B 0+50 to CH2B 1+00) ES	25		22NOV2009	16DEC2009	0 4311	H → LTT RC (CH2B 0+50 to CH2B 1+00) ES
4313	LTT RC (CH2B 1+00 to CH2B 1+50) ES	25		07DEC2009	31DEC2009	0 4312	LTT RC (CH2B 1+00 to CH2B 1+50) ES
4314	LTT RC (CH2B 2+00 to CH2B 0+00) West Side	0		20JAN2010		0 4313, 442	LTT RC (CH2B 2+00 to CH2B 0+00) West Side
4315	LTT RC (CH2B 2+00 to CH2B 1+50) WS	30		20JAN2010	18FEB2010	0 4314	LTL RC (CH22 2+00 to CH22 1+50) WS
4316	LTT RC (CH2B 1+50 to CH2B 1+00) WS	25		19FEB2010	15MAR2010	0 4315	LTT RC (CH2B 1+50 to CH2B 1+50) WS
4317 4318	No works between Apr & Oct 2010	214		01APR2010 *	31OCT2010	0	A second s
ACCOUNT 1000 ACCOUNTS	LTT RC (CH2B 1+00 to CH2B 0+50) WS	30		01NOV2010	30NOV2010	0 4317	LTT RC (CH:
	LTT RC (CH2B 0+50 to CH2B 0+00) WS LTT Sea Wall (CH2B 2+00 to CH2B3+00)	16		01DEC2010	16DEC2010	0 4318	► TT Sog Wall (CLUP 2400 to CLUP2 100)
		75		01NOV2009	141410010	0 4300	
	LTT SW (CH2B 3+00 to CH2B2+50) LTT SW (CH2B 2+00 to CH2B2+50)	75 75		01NOV2009 15JAN2010	14JAN2010 30MAR2010	0 4320	LTTSW (CH2B 3+00 to CH2B2+50)
	Coping Concret Wall	75 50		15JAN2010 31MAR2010		0 4321	L11 SW (CH2B 2+00 to CH2B2+50)
and the second s	Drainage & Railing	88	Contraction of the Contraction of the	24APR2010	19MAY2010	0 4322 0 4323	Coping Concret Wall
	RC Retaining Wall J at LTT River (D5)	88		24APR2010 01JUN2009 A	20JUL2010	100	
·····	Retaining Wall J - Bay 1	30			30JUN2009 A	100 4340	
	Retaining Wall J - Bay 2	21		and the second sec	21JUL2009 A	100 4340	G⊫ sasa Retaining Wall J - Bay 1
		21	•		2.0002003 A	.00 7341	Retaining Wal J - Bay 2

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			Start	Finish		
Retaining Wall J - Bay 3	21		22JUL2009 A	11AUG2009	71 4342	Retaining Wall J - Bay 3
Retaining Wall J - Bay 4	21	21	12AUG2009	01SEP2009	0 4343	Retaining Wall J - Bay 4
Retaining Wall J - Bay 5	21	21	02SEP2009	22SEP2009	0 4344	→ mar Retaining Wall J - Bay 5
Retaining Wall J - Bay 6	25	25	23SEP2009	17OCT2009	0 4345	► mm Retaining Wal J - Bay 6
Retaining Wall J - Bay 7	25	25	18OCT2009	11NOV2009	0 4346	► ■ Retaining Wal J - Bay 7
	149	149	01NOV2009 *	29MAR2010	0	Phase 2 sewer at LTT River (Section A)
	80	80	01NOV2009 *	19JAN2010	0	
	12	12	01NOV2009 *	12NOV2009	0	■ Sewers J139a.1
	12	12	13NOV2009	24NOV2009	0 4421	⊢itti Sewers J140a.1
	12	12	25NOV2009	06DEC2009	0 4422	► 關 Sewers J141a.1
	12	12	07DEC2009	18DEC2009	0 4423	► Sewers J142a.1
	12	12	19DEC2009	30DEC2009	0 4424	F⊨≣Sewers J143a.1
				11JAN2010	0 4425	Fim Sewers J144a.1
	8			19JAN2010	0 4427	Fin Sewers J146a.1
						Section A Sewers (144.1, B135.1 & B136.1)
						► Sewers 144.1
						Fmi Sewers B136.1
						Reinstatement of gabion block
						Mini-bored Pile Wall C at LTT River
				000002000		→ Mini-bored Pile Wall C (RC Retaining Wall);
				4 410 (2000		── MP-C bay 1
		1				► MP-C bay 2
MP-C bay 2						► MP-C bay 3
MP-C bay 3						► MP-C bay 4
MP-C bay 4						₩P-C bay 5
MP-C bay 5						→ Skin Wall for PPW - C
Skin Wall for PPW - C						Remain We
Remain Works within PNH & LTT River (D1&D5)	1010	444	18JAN2008 A	23OCT2010	56 0001	
Approval of use of EVA	0	0	29AUG2008 A		100 3020	Approval of use of EVA
No exca period (1) at Confluence of PNH,TTT<T	214	0	01APR2008 A	310CT2008 A	100	No exca period (1) at Confluence of PNH,TTT<T
Works within Section 3 (A) at PNH River	151	0	01NOV2008 A	31MAR2009 A	100 4820	The second
Works within Section 3 (B) at LTT River	151	0	01NOV2008 A	31MAR2009 A	100 4820	Works within Section 3 (B) at LTT River
	214	87	01APR2009 A	31OCT2009	59	No exca period (2) at Confluence of PNH,TTT<T
	151	151	01NOV2009	31MAR2010	0 4850	Works within Section 3 (B) at LTT River
	214	214	01APR2010	31OCT2010	0 4860	No exca p
	50	50	01JUN2010	20JUL2010	0 3385	Remaining Drainage Works
			01JUN2010	20JUL2010	0 3385	Remaining Drainage Works
					0 4910	Remain Road & Paving
					0 4920	► material Remain Road & Pa
						Remain Soft La
						Works within Portions S1 of the Site (Chung Hau)
				and the second sec		► security construction definite Construction Proposals and Submissions
						── UPVC Sewer (DN160-400) (New works)
						→ proceeding and a second sec
Applocation and Approval of XP				02NOV2008 A		
uPVC Sewer (DN225>400) (On-line Replace)						→■ Preparation works for sewers.
Preparation works for sewers		+				MH EB13 - MH EB18
MH EB13 - MH EB18						MH EB13- MH EB25
MH EB18 - MH EB25						MH EB11 - MH EB13,
MH EB11 - MH EB13				26JAN2010		
MH EB25 - MH EB26	50	50	27JAN2010	17MAR2010	0 5044	
MH EB26 - MH EB31 - EB8	145	5 145	29OCT2009	22MAR2010	0 5042	MIC C2/2 - MIC E03 - C00
	863	3 297	18JAN2008 A	29MAY2010	66 0001	
			18JAN2008 A	27MAY2008 A	100 0001	Prepartion for works (Minor Portion)
			28MAY2008 A	12JAN2009 A	100 6010	
			13JAN2009 A	30AUG2009	89 6020	uPVC Sewer (DN160-400) M/H C45 - M/H C131
				06MAY2010	0 6030	
Sewerage at TWT (S3A & 3B)	638		18JAN2008 A	search and share on a broad state of the second state of the secon	89 0001	► Sewerage at TWT (S3A & 3B)
	Phase 2 sewer at LTT River (Section A) Section A Sewers (J139a.1 - J146a.1) Sewers J139a.1 Sewers J140a.1 Sewers J141a.1 Sewers J142a.1 Sewers B135.1 Sewers B135.1 Sewers B136.1 Reinstatement of gabion block Mini-bored Pile Wall C at LTT River Mini-bored Pile Wall C (RC Retaining Wall) MP-C bay 1 MP-C bay 2 MP-C bay 3 MP-C bay 3 MP-C bay 4 MP-C bay 5 Skin Wall for PPW - C Remain Works within PNH & LTT River (D1&D5) Approval of use of EVA No exca period (1) at Confluence of PNH,TTT<T Works within Section 3 (B) at LTT River No exca period (2) at Confluence of PNH,TTT<T Works within Section 3 (B) at LTT River No exca period (3) at Confluence of PNH,TTT<T Works within Section 3 (B) at LTT River No exca period (3) at Confluence of PNH,TTT<T Remaining Drainage Works for (3A) Embankment Remain Road & Paving Works for (3A) Embankment Remain Road & Paving Works for (4) Embankment Remain R	Phase 2 sewer at LT River (Section A) 149 Section A Sewers (J139a.1 - J146a.1) 80 Sewers J140a.1 12 Sewers J140a.1 12 Sewers J141a.1 12 Sewers J142a.1 12 Sewers J144a.1 10 Sewers B135.1 100 Sewers B136.1 100 Reinstatement of gabion block 200 Mini-bored Pile Wall C at LTT River 600 Mini-bored Pile Wall C (RC Retaining Wall) 0 MP-C bay 1 144 MP-C bay 2 14 MP-C bay 3 14 MP-C bay 4 14 MP-C bay 5 14 Skin Wall for PPW - C 24 Remain Works within PNH & LTT River (D18D5) 1010 Approval of use of EVA 0 No exca period (2) at Confluence of PNH,TTT<T 214 Works within Section 3 (B) at LTT River 151	Notang Yuang	Notaming 1rbs of year 149 149 149 01NOV2009 * Section A Sewers (J139a.1 - J146a.1) 80 80 01NOV2009 * Sewers J140a.1 12 12 12 01NOV2009 * Sewers J140a.1 12 12 12 01NOV2009 * Sewers J141a.1 12 12 12 0NOV2009 Sewers J142a.1 12 12 19DEC2009 Sewers J144a.1 12 12 19DEC2009 Sewers J144a.1 8 12,JAN2010 Sewers 1444.1 10 10 20JAN2010 Sewers B135.1 10 10 20JAN2010 Sewers B135.1 10 10 30JAN2010 Sewers B135.1 10 10 30JAN2010 Sewers B136.1 10 10 30JAN2010 Reinstatement of gabion block 20 0 GPEE2010 Mini-bored Pile Wall C at LTT River 66 60 1NOV2009 * MP-C bay 1 14 14 120NO2009 MP-C bay 1 14 14 120NO2009	Nummy Trans Quark 149 149 149 01NOV2009 29MAR2010 Section A Sewers (J139a 1 - J146a.1) 80 80 01NOV2009 13UAV2010 Sewers J140a 1 12 12 10NOV2009 13UAV2009 24NOV2009 Sewers J141a 1 12 12 13NOV2009 24NOV2009 Sewers J142a Sewers J142a 1 12 12 15DEC2009 30DEC2009 Sewers J144a 12 12 15DEC2009 30DEC2009 Sewers J144a 12 12 13DAV2010 13JAN2010 Sewers J144a 12 14 14DEC2009 30DEC2009 Sewers J144a 16 10 20AN2010 29JAN2010 Sewers J144a 16 10 10 20AN2010 29JAN2010 Sewers J135.1 10 10 20AN2010 29JAN2010 Sewers J144a 14 14 14NOV2009 14	Number Numbr Numbr

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Drainage Improvement Work in South Lantau and Construction of Mui Wo Village Sewerage Phase 1



Master Programme (Rev.9b)

Act		Oria	Rem	Early	Early			2008	2009	2010	2011
ID	Description	Dur	Dur	Start	Finish	%	Predecessors	JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC	JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC	JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV	DEC JAN FEB
7010	Preparation for works (Minor Portion)	131	0	18JAN2008 A	27MAY2008 A	100	0001	Preparation for works (Minor Portio	n)		
	Non-working Period at TWT Beach (1)	196	0.*	01APR2008 A	130CT2008 A	100			Period at TWT Beach (1)		
	uPVC Sewer (DN160-400) M/H A16 - M/H A34	465	30	28MAY2008 A	04SEP2009	04	7010		<u> </u>	60-400) M/H A16 - M/H A34	
		50							a na bana na kana kana kana kana kana k	50-400) M/H AT6 - M/H A34	
	uPVC Sewer (DN160-400) M/H A15 - M/H A13			+	02DEC2008 A		7020		C Sewer (DN160-400) M/H A15 - M/H A13		
7050	uPVC Sewer (DN160-400) M/H A11 - M/H A7	50	0	03DEC2008 A	21JAN2009 A	100	7040		uPVC Sewer (DN160-400) M/H A11 - M/H A7		111111111111
7060	uPVC Sewer (DN160-400) M/H A1 - M/H A3	65	0	22JAN2009 A	27MAR2009 A	100	7050		PVC Sewer (DN160-400) M/H A1 - M/H A3		
8000	Sewerage works at PNH (S4)	772	206	18JAN2008 A	27FEB2010	73	0001			Sewerage works at PNH (S4)	
8010	Preparation of works	168	0	07JAN2008 A	22JUN2008 A	100		Preparation of works			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
8020	uPVC Sewer (DN160-400) M/H ED2 -D28 - D118	320	0	23JUN2008 A	08MAY2009 A	100	8010		Weine Weine UPVC Sewer (DN160-400) M/H ED2 -I	028 - D118	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
8030	uPVC Sewer (DN160-400) M/H D1 - D27	280	191	09MAY2009 A	12FEB2010	32	8020	1360763763763163763763763763763763763763763763		uPVC Sewer (DN160-400) M/H D1 - D27	
9000	Preservation & Protection of Exist Trees	534 *	534 *	06AUG2009	21JAN2011	0	0001				Pres
9010	Preparton for works	100	0	07JAN2008 A	15APR2008 A	100	1	Preparton for works			1 6 1 6 1 6 1 6 1 6 1 6 9 6 1 6 1 6 1 6
9020	Protection & Transplanting Works	1011	534	16APR2008 A	21JAN2011	47	9010				Proti

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Drainage Improvement Work in South Lantau and Construction of Mui Wo Village Sewerage Phase 1

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

nct Description	Orig Dur	Rem Dur	Early Start	Early Finish	% Predecessors	2008 2009 2010 3 JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
00 DRAINAGE IMPROVEMENT WORK IN S LANTAU	534 *			21JAN2011	0	
0 Preliminaries	534 *			21JAN2011	0	
30 Monitoring for Environmental Permit	1001			21JAN2011	47 0070	
4 MH2 to MH3 (2 x DN 600)	75			23AUG2009	76 1043	••••••••••••••••••••••••••••••••••••••
5 MH3 to MH4 (2 x DN 600)	21	21 21	IAUG2009 *	10SEP2009	0 1044	► 🛲 MH3 to MH4 (2 x DN 600)
6 MH4 to MH5 (2 x DN 600)	14	14 11	ISEP2009	24SEP2009	0 1045	► MH4 to MH5 (2 × DN 600)
7 MH5 to MH6 (2 x DN 600)	14		5SEP2009	08OCT2009	0 1046	→ ■■ MH5 to MH6 (2 × DN 600)
3 MH6 to MH7 (2 x DN 600)	14	14 09	OCT2009	22OCT2009	0 1047	H■ MH6 to MH7 (2 × DN 600)
MH7 to MH8 (2 x DN 750)	80		JUN2009 A	16SEP2009	48	MH47 to MH8 (2 x DN 750)
MH8 to Outlet Structure	21	21 23	3OCT2009	12NOV2009	0 1048, 1049	¹¹ → mmMH8 to Outlet Structure
2 Bottleneck B widening excavation (North Side)	85	29 11	IJUN2009 A	03SEP2009	66 1131	Bottleneck B widening excavation (North Side)
Bottleneck B type 6 gabion (South Side)	25	25 04	SEP2009	28SEP2009	0 1132	₩ ■ Bottleneck B type 6 gabion (South Side)
Bottleneck B widening excavation (RHS)	14	14 29	SEP2009	12OCT2009	0 1133	Bottleneck B widening excavation (RHS)
Bottleneck B type 6 gabion (RHS) & river bed	14	14 13	3OCT2009	26OCT2009	0 1134	■ Bottleneck B type 6 gabion (RHS) & river bed
R C Retaining Wall H	180		APR2009 A	27SEP2009	71 1140	R C Retaining Wall H
U-Channel and Catchpit for Widened Bottle Neck A	15		OCT2009	10NOV2009	0 1123, 1135	
U-Channel and Catchpit for Widened Bottle Neck B	15		OCT2009	10NOV2009	0 1125, 1135	→ → ■ U-Channel and Catchpit for Widened Bottle Neck A
	20			170CT2009		
	20		SEP2009	170012009	0 1141	U-Channel and Catchpit for Retaining Wall H
Soft & Hard Landscaping Works Hard Landscaping & Paving Works			BOCT2009	06050000	0 1123, 1153	Soft & Hard Landscaping Works
	50 50		3OCT2009	06DEC2009	0 1153	Hard Landscaping & Paving Works
			BOCT2009	06DEC2009	0 1153	→ Interest Soft Landscaping (Planting) Works
Phase 2 sewerage works at TTT river	60		SEP2009 *	30OCT2009	0	Phase 2 sewerage works at TTT river
Excavation 1st half trench at TTT river Pipe laying and backfilling 1st half trench	20		SEP2009 *	20SEP2009	0 1210	texes and the second se
Pipe laying and backfilling 1st half trench	5		SEP2009	25SEP2009	0 1220	h⊫⊈ Pipe laying and backfilling 1st half trench
Excavation 2nd half trench at TTT river	20		SEP2009	15OCT2009	0 1230	► ■ Excavation 2nd half trench at TTT river
Pipe laying and backfilling 2nd half trench	5		SOCT2009	20OCT2009	0 1240	► ≋ Pipe laying and backfilling 2nd half trench
Connection to existing manholes	4			24OCT2009	0 1250	Connection to existing manholes
Site clearance and reinstatement of river	5			29OCT2009	0 1260	Site clearance and reinstatement of river
Works at D6, D7 & D8 (HTST, LUT & CShST)	614			22SEP2009	92 0001	Works at D6, D7 & D8 (HTST, LUT & CShST)
Drainage Works at Pui O - Ham Tin San Tsuen (D6)	614			22SEP2009	92 0001	Prinage Works at Pui O - Ham Tin San Tsuen (D6)
excavation and shoring for bay 1 FPW	50			09AUG2009	92 2112	excavation and shoring for bay 1 FPW
Concreting mass concrete wall bay 1 FPW	30			08SEP2009	0 2113	Concreting mass concrete wall bay 1 FPW
excavation and shoring for bay 2 FPW	20			28SEP2009	0 2114	excavation and shoring for bay 2 FPW
Concreting mass concrete wall bay 2 FPW	15		SEP2009	13OCT2009	0 2115	► ME Concreting mass concrete wall bay 2 FPW
excavation and shoring for bay 3 FPW	20			02NOV2009	0 2116	
Associated Railing & Paving Works	60	60 29		27NOV2009	0 2113, 2118	Associated Railing & Paving Works
Associated Granite Paving (vertical)	60	60 29	SEP2009	27NOV2009	0 2113, 2118	Associated Granite Paving (vertical)
Drainage Works at Pui O - Lo Uk Tsuen (D7)	614	48 18	3JAN2008 A	22SEP2009	92 0001	Drainage Works at Pui O - Lo Uk Tsuen (D7)
MH6 to MH7	105	71 03	JUL2009 A	15OCT2009	32 2230	MH6 to MH7
MH7 to MH8	60	60 16	OCT2009	14DEC2009	0 2231	HT to MH8
Reinstatement of South Lantau Road	170	170 16	OCT2009	03APR2010	0 2231, 2236	► Management and Reinstatement of South Lantau Road
Drainage Works at Cheung Sha Sheung Tsuen (D8)	614	48 18	JAN2008 A	22SEP2009	92 0001	Drainage Works at Cheung Sha Sheung Tsuen (D8).
Material ordering	75			04OCT2009	20 2313	Material ordering
MHS2 - MHS1	3			07OCT2009	0 2314	™≓(MHS2- MHS1
MHS2 - MHS1 MHS1 - MHS0	3		OCT2009	10OCT2009	0 2315	-
MHS0 - Outlet	3		OCT2009	13OCT2009	0 2316	S⇒IMHS0 - Outlet
Site clearance	5		OCT2009	18OCT2009	0 2317	
Box Culvert & Gabion Wall at PNH River (D1)	926			31JUL2010	61 0001	Box Culvert & Gabion Wa
Maintenance of EVA	876			21JAN2011	39 3020	
RC Box Culvert (3mx3mx2,25m) Bay 7	40			24AUG2009	53 3120	C Box Culvert (3mx3mx2,25m) Bay 7
RC Box Culvert (3mx3mx2,25m) Bay 4	40			18AUG2009	68 3122	RC Box Culvert (3mx3mx2 25m) Bay 4
RC Box Culvert (3mx3mx2,25m) Bay 5	40			22SEP2009	0 3123	RC Box Culvert (3mx3mx2.25m) Bay 5
RC Box Culvert (3mx3mx2,25m) Bay 6	35			220CT2009	0 3124	Provide the second seco
	20			11NOV2009	0 3124	Backfill and Reinstatement EVA
Backfill and Reinstatement EVA					72 3111, 3125	
Backfilling for RC Box Culvert	385			21NOV2009		
RC Retaining Walls at PNH River (D1)	0		OCT2009 *	04441000000	0	
Retaining Wall D - Bay 3	21	16 01	AUG2009 A		24 3340	
Retaining Wall D - Bay 4	15	1	AUG2009	05SEP2009	0 3343	► 爾 Retaining Wall D - Bay 4

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Drainage Improvement Work in South Lantau and Construction of Mui Wo Village Sewerage Phase 1 Early bar Progress bar Critical bar Summary bar Start milestone point Finish milestone point

3-Month Rolling Programme (Rev.9b)

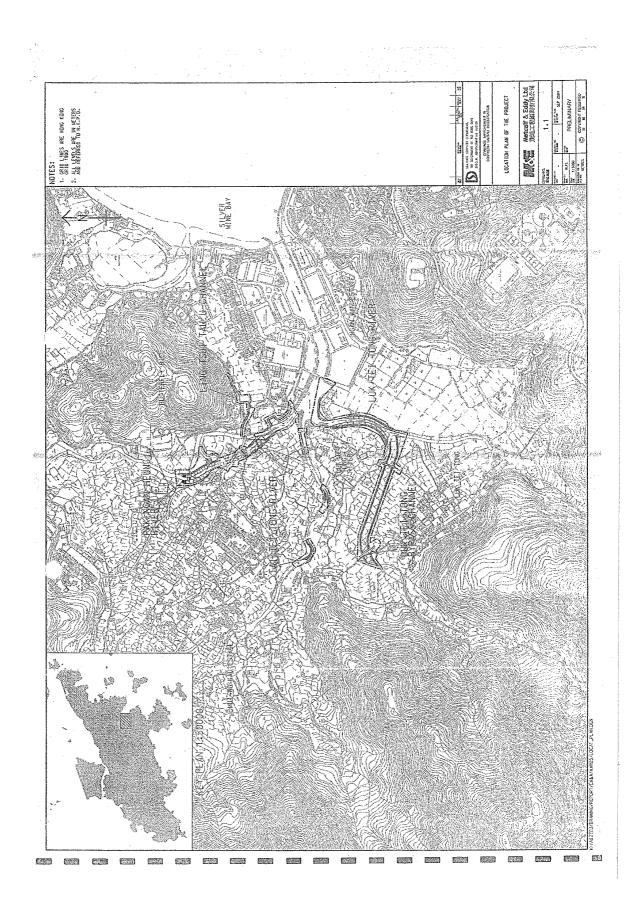
Act		Orig	Rem	Early	Early			2008		2009		2010	2011
ID	Description	Dur	Dur	Start	Finish	% Predecessors	JAN FEB MAR APR MAY	JUN JUL AUG SEP	OCT NOV DEC JAN FEB MAR APR M	MAY JUN JUL /	AUG SEP OCT NOV DE	C JAN FEB MAR APR MAY JUN JUL	AUG SEP OCT NOV DEC JAN FE
3360	RC Maintanence Ramp	0	0	06SEP2009		0 3344		 			RC Maintanence	e Ramp	
3361	Ramp bay 1	20	20	06SEP2009	25SEP2009	0 3360					Ramp bay 1		
3362	Ramp bay 2	20	20	26SEP2009	15OCT2009	0 3361					► 🛲 Ramp bay	2	
3363	Ramp bay 3	30	30	16OCT2009	14NOV2009	0 3362	3 1 1 2 1 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	$\begin{smallmatrix} & 1 & 4 & 3 & 1 & 2 & 3 & 4 & 3 & 4 & 3 & 4 & 3 & 4 & 4 & 4$		1 8 1 4 1 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Ram	bay 3	
3369	Turning Bay & Maintenance Access	70	70	26SEP2009	04DEC2009	0 3361				1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 1 8 8 1 8 1	÷	Irning Bay & Maintenance Access	* * * * * * * * * * * * * * * * * * *
3500	Gabion Wall (Type 2, 3, 4 & 5) at PNH River	0	0	01OCT2009 *		0					🕸 Gabion Wa	(Type 2, 3, 4 & 5) at PNH River	1 1
3510	Gabion Wall (opposite to RW-A & B)	45	45	01OCT2009	14NOV2009	0 3500					🕨 🗰 Gabi	on Wall (opposite to RW-A & B)	
4000	Luk Tei Tong Bypass Channel and River (D5)	926	360	18JAN2008 A	31JUL2010	61 0001							Luk Tei Tong Bypass Channel a
4200	No Excavation Period (2)	214	87 *	01APR2009 A	31OCT2009	59 4110				┿┿┿┿┿┿┿┿┿┿	No Exc	avation Period (2)	(1947))))))))))))))))))))))))))))))))))))
4240	Box Culvert - A	75	46	08JUL2009 A	20SEP2009	39					Box Culvert	A	1 1
4241	Reprovision of EVA & Footpath at BC-A	10	10	21SEP2009	30SEP2009	0 4240					Reprovision	of EVA & Footpath at BC-A	
4260	Reprovision of EVA & Footpath at BC-B	180	53	01APR2009 A	27SEP2009	71 4250					Reprovision	of EVA & Footpath at BC-B	
4343	Retaining Wall J - Bay 3	21	6	22JUL2009 A	11AUG2009	71 4342					Retaining Wall J - Ba	y 3 Internet of the test of the test	0100103101010100100101
4344	Retaining Wall J - Bay 4	21	21	12AUG2009	01SEP2009	0 4343					Retaining Wall J	Bay 4	I I
4345	Retaining Wall J - Bay 5	21	21	02SEP2009	22SEP2009	0 4344					Retaining Wa	I J - Bay 5	
4346	Retaining Wall J - Bay 6	25	25	23SEP2009	17OCT2009	0 4345					► Retaining	Wall J - Bay 6	
4347	Retaining Wall J - Bay 7	25	25	18OCT2009	11NOV2009	0 4346		$\begin{array}{c} 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 $		1 / 1 / 1 / 1 / 1 / 1 / 1 / 1 / 1 / 1 /	🕨 🕨 Retai	ning Wall J - Bay 7	
4800	Remain Works within PNH & LTT River (D1&D5)	1010	444	18JAN2008 A	23OCT2010	56 0001				1 POT POT POT		ιστροτροτροτοστοστροτη	Remain Works wit
4850	No exca period (2) at Confluence of PNH,TTT<T	214	87	01APR2009 A	31OCT2009	59					No exc	a period (2) at Confluence of PNH,T	TT<T
5000	Works within Portions S1 of the Site (Chung Hau)	748	182	18JAN2008 A	03FEB2010	76 0001		****				Works within Portions S1 of	
5042	MH EB13 - MH EB18	350		13NOV2008 A	28OCT2009	76 5041					MH EB1	3 - MH EB18	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
5043	MH EB18 - MH EB25	145	145	29OCT2009	22MAR2010	0 5042						MH EB18 - MH EB2	5
5044	MH EB11 - MH EB13	90		29OCT2009	26JAN2010	0 5042						MH EB11 - MH EB13	
5046	MH EB26 - MH EB31 - EB8	145		29OCT2009	22MAR2010	0 5042	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	111111111111111111111 1111111111111111		************		MH EB26 - MH EB3	1 - EB8
6000	Sewerage Works at TTT (S2A & 2B)	863		18JAN2008 A	29MAY2010	66 0001						Sewerag	e Works at TTT (S2A & 2B)
6030	uPVC Sewer (DN160-400) M/H C85 - M/H C131	230		13JAN2009 A	30AUG2009	89 6020					uPVC Sewer (DN	160-400) M/H C85 - M/H C131	
6040	uPVC Sewer (DN160-400) M/H C1 - M/H C47	249		31AUG2009	06MAY2010	0 6030	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					uPVC Sewer	(DN160-400) M/H C1 - M/H C47
7000	Sewerage at TWT (S3A & 3B)	638		18JAN2008 A	16OCT2009	89 0001					Sewerage	at TWT (S3A & 3B)	
7030	uPVC Sewer (DN160-400) M/H A16 - M/H A34	465		28MAY2008 A	04SEP2009	94 7010				* * * * * * * * * * * * * *	uPVC Sewer (D)	1160-400) M/H A16 - M/H A34	************************
8000	Sewerage works at PNH (S4)	772		18JAN2008 A	27FEB2010	73 0001						Sewerage works at PNH	(S4)
8030	uPVC Sewer (DN160-400) M/H D1 - D27	280		09MAY2009 A	12FEB2010	32 8020				1		uPVC Sewer (DN160-400)	M/H D1 - D27
9000	Preservation & Protection of Exist Trees	534 *		06AUG2009	21JAN2011	0 0001							Pre
9020	Protection & Transplanting Works	1011	534	16APR2008 A	21JAN2011	47 9010							Pro

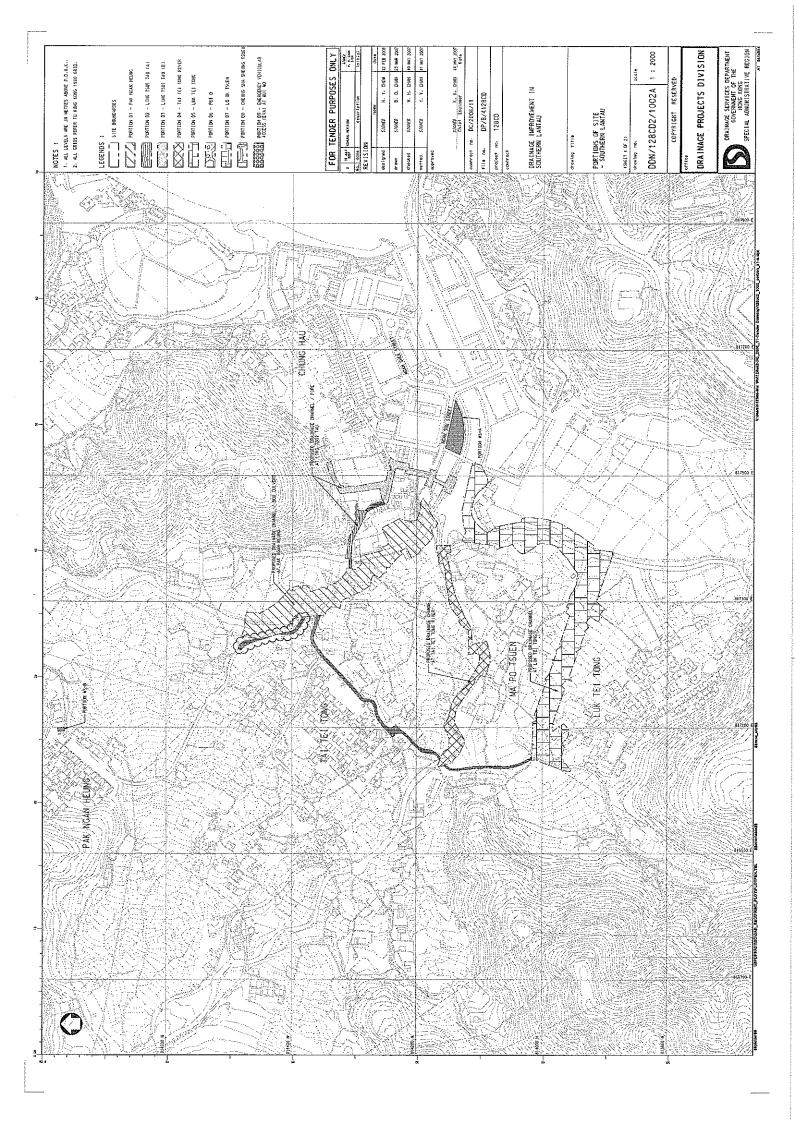
Start date07JAN2008Finish date21JAN2011Data date06AUG2009Run date15AUG2009Page number2Ac Primavera Systems, Inc.

Drainage Improvement Work in South Lantau and Construction of Mui Wo Village Sewerage Phase 1

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





Organization Name	Role	Title	Name	Telephone	Fax Number
Drainage Service Department	Project Proponent	Engineering Representative	Mr. Chan Wai Hong	2594 7464	2827 8700
Allied Environmental Consultants Limited	Independent Environmental Checker (IEC)	Principal Consultant	Ms. Claudine Lee	2815 7028	2815 5399
Yick-Hing Construction Company Limited	Main Contractor	Senior Project Manager	Mr. Liu Kai Choi	2394 4988	2787 4890
Environmental Pioneers & Solutions Limited	Environmental Team (ET)	Environmental	Ms. Patricia Chung	2185 0123	2856 2010

Appendix B Key Personal Contact information chart

Appendix C

Calibration Certificates for Measuring Equipments

Inspection Certificate

Standard Sensor Module for Hand-held Water Quality Meter Model WQC-24

Serial No.

640274

	81 %					
Temp.&Humidity 25 °C	81 %					Judgement
1. Outside view and Shap Criterion : No						Good
2. Equivalent value indica	tion test; Indica	tion when equi	valent value is ir	npressed to inp	but	Good
2.1 pH input test 2.1.1 Linearity test	hin +0.05nH og	ainst standard	value			Good
<u> </u>		4.00	7.00	10.00	14.00	
Indicated Value[pH]	0.00	4.00	7.00	10.00	14.00	
2.1.2 Repeatability test Criterion : Witl Standard Value[pH]	hin ±0.05pH ag	ainst average v 14	/alue			Good
	1 st time	2 nd time	3 rd time			
Indicated Value[pH]	14.00	14.00	14.00			
2.1.3 Input resistance to Criterion : Diff Input Value Indicated Value[pH]						<u>Good</u>
2.2 ORP input test						
2.2.1 Linearity test Criterion : Witl	hin ±5mV agair	nst standard va	lue			<u>Good</u>
=	-2000	ist standard va -1000	lue 0	1000	2000	<u>Good</u>
Criterion : Wit				1000 <i>999</i>	2000 2000	<u>Good</u>
Criterion : Wit Standard Value[mV] Indicated Value[mV]	-2000 - <i>2002</i>	-1000 - <i>1001</i>	0 0 ue 3 rd time			<u>Good</u> <u>Good</u>
Standard Value[mV] Indicated Value[mV] 2.2.2 Repeatability test Criterion : Witl Standard Value[mV]	-2000 -2002 hin ±5mV agair 1 st time 2000	-1000 -1001 hst average val 2000 2 nd time 2001	0 0 ue 3 rd time 2001			
Criterion : With Standard Value[mV] Indicated Value[mV] 2.2.2 Repeatability test Criterion : With Standard Value[mV] Indicated Value[mV] 2.3 Dissolved oxgen in 2.3.1 Linearity test Criterion : With	$ \begin{array}{r} -2000 \\ -2002 \\ \hline \\ 1^{st} time \\ 2000 \\ \hline \\ 1^{st} time \\ 2^{st} time \\$	-1000 -1001 nst average val 2000 2 nd time 2001	0 0 3 rd time 2001	999	2000	<u>Good</u>
Criterion : Witl Standard Value[mV] Indicated Value[mV] 2.2.2 Repeatability test Criterion : Witl Standard Value[mV] Indicated Value[mV] 2.3 Dissolved oxgen in 2.3.1 Linearity test Criterion : Witl Standard Value[mg/L] Indicated Value[mg/L] 2.3.2 Repeatability test Criterion : Witl	$ \begin{array}{c c} -2000 \\ -2002 \\ \hline hin \pm 5mV again \\ 1^{st} time \\ 2000 \\ \hline put test \\ \hline hin \pm 0.1mg/L a \\ 0.00 \\ 0.00 \\ \hline \end{array} $	-1000 -1001 hst average val 2000 2 nd time 2001 gainst standar 4.06 4.06	0 0 3 rd time 2001 d value 8.11 8.12	<i>999</i> 12.17	2000	<u>Good</u> 19.46
Criterion : Witl Standard Value[mV] Indicated Value[mV] 2.2.2 Repeatability test Criterion : Witl Standard Value[mV] Indicated Value[mV] 2.3 Dissolved oxgen in 2.3.1 Linearity test Criterion : Witl Standard Value[mg/L] Indicated Value[mg/L] 2.3.2 Repeatability test	$ \begin{array}{c c} -2000 \\ \hline -2002 \\ \hline hin \pm 5mV agair \\ \hline 1^{st} time \\ \hline 2000 \\ \hline nput test \\ hin \pm 0.1mg/L a \\ \hline 0.00 \\ \hline 0.00 \\ \hline hin \pm 0.1mg/L a \\ \hline \end{array} $	-1000 -1001 hst average val 2000 2 nd time 2001 gainst standar 4.06 4.06 4.06	0 0 3 rd time 2001 d value 8.11 8.12 value	<i>999</i> 12.17	2000	<u>Good</u> <u>Good</u> <u>19.46</u> <i>19.52</i>
Criterion : Witl Standard Value[mV] Indicated Value[mV] 2.2.2 Repeatability test Criterion : Witl Standard Value[mV] Indicated Value[mV] 2.3 Dissolved oxgen in 2.3.1 Linearity test Criterion : Witl Standard Value[mg/L] Indicated Value[mg/L] 2.3.2 Repeatability test Criterion : Witl	$ \begin{array}{c c} -2000 \\ -2002 \\ \hline hin \pm 5mV again \\ 1^{st} time \\ 2000 \\ \hline put test \\ \hline hin \pm 0.1mg/L a \\ 0.00 \\ 0.00 \\ \hline \end{array} $	-1000 -1001 hst average val 2000 2 nd time 2001 gainst standar 4.06 4.06	0 0 3 rd time 2001 d value 8.11 8.12	<i>999</i> 12.17	2000	<u>Good</u> <u>Good</u> <u>19.46</u> <i>19.52</i>

2.4 Electric conductivity input test

2.4.1 Linearity test

Criterion :	Within \pm 1%F.S. against standard value				
LOW range	Standard Value[mS/m]	0	50.0	100.0	
LOw range	Indicated Value[mS/m]	0.0	50.1	100.0	
MID renze	Standard Value[S/m]	0.500	1.000		
MID range	Indicated Value[S/m]	0.500	1.000		
	standard Value[S/m]	5.00	10.00		
HI range	Indicated Value[S/m]	5.07	10.00		

2.4.2 Repeatability test

Criterion	:	Within \pm 1%F.S. against average values of the two sets	ue

Standard Value[S/m]	10			
Indicated Value[S/m]	1 st time	2 nd time	3 rd time	
Indicated Value[3/m]	10.00	10.00	10.00	

2.5 Temparature input test

2.5.1 Linearity test

┝

Criterion : $\pm 0.5^{\circ}$ C against standard value; (Ambient 5~45°C); (Others $\pm 0.8^{\circ}$ C)					
Standard Value[℃]	-5.0	15.0	25.0	35.0	55.0
Indicated Value[°C]	-5.00	15.00	25.00	35.00	55.00

2.5.2 Repeatability test

Criterion : Within ±0.25°C against average value

Standard Value[°C]	55				
Indicated Value[°C]	1 st time	2 nd time	3 rd time		
Indicated Value[C]	55.00	55.00	55.00		

2.6 Turbidity input test

2.6.1 Sensitivity test

Criterion : (Raw value before calibration) Light OFF: 0±50 Light ON: 600~1200

Input	Zero	Span
Status	Light OFF	Light ON
Indication	0	800

2.6.2 Repeatability test

Criterion : Within \pm 3%F.S. against average value

Indicated Value	1 st time	2 nd time	_ 3 rd time
	800	800	800

3. RS232C test: Action test with test program Criterion : No abnormality

4. Analog output test: Action test with test program Criterion : Within 8mV for both Zero and Span

DKK-TOA CORPORATION

Good

Good

<u>Good</u>

Good

Good

Good

Good

Good



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D094

CERTIFICATE OF CALIBRATION

Certificate No.:	09CA0102 01-01		Page	1	of	2
Item tested						
Description: Manufacturer: Type/Model No.: Serial/Equipment No.: Adaptors used:	Sound Level Meter ACO, Japan 6224 060166 -	r (Type I) .	_			
Item submitted by	· · · · · · · · · · · · · · · · · · ·		<u> </u>			
Customer Name: Address of Customer: Request No.: Date of request:		ncrete Engineering (H oad, Hung Hom, Kow				
Date of test:	02-01-2009				,	
Reference equipment (used in the calibr	ation	<u>.</u>			
Description: Multi function sound calibrator Signal generator Signal generator	Model: B&K 4226 DS 360 DS 360	Serial No. 2288444 33873 61227	Expiry Date: 11-01-2009 12-06-2009 18-07-2009		Traceat Cigisme CEPREI CEPREI	
Ambient conditions						
Temperature: Relative humidity: Air pressure:	23 ± 2 °C 55 ± 15 % 1010 ± 15 hPa					
Test specifications	· ····································		<u></u>			······

- 1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
- The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of <u>+20%</u>.
- The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

02-01-2009

Test results

Approved Signatory:

(

This is to certify that the Sound Level Meter conforms to BS 7580; Part 1: 1997 for the conditions under which the test was performed.

Date:

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

To

Huang-Jian Mirt/Feng Jun Qi

Còmpany Chop:

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

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Form No.CARP152-1/Issue 1/Rev.C/01/02/2007

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CERTIFICATE OF CALIBRATION (Continuation Page)

D094

Certificate No.:	09CA0102 01-01	Page	2	of	2	

1, Electrical Tests

The electrical tests were performed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Uncertanity (dB) / Coverage Factor
Self-generated noise	A	Pass	0.3
_	С	Pass	1.0 2.1
	Lin	Pass	1.5 2.2
Linearity range for Leq	At reference range, Step 5 dB at 4 kHz	Pass	0.3
	Reference SPL on all other ranges	Pass	0.3
	2 dB below upper limit of each range	Pass	0.3
	2 dB above lower limit of each range	Pass	0.3
Linearity range for SPL	At reference range, Step 5 dB at 4 kHz	Pass	0.3
Frequency weightings	Α	Pass	0.3
	С	Pass	0.3
	Lin	Pass	0.3
Time weightings	Single Burst Fast	Pass	0.3
	Single Burst Slow	Pass	0.3
Peak response	Single 100µs rectangular pulse	N/A	N/A
R.M.S. accuracy	Crest factor of 3	Pass	0.3
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3
	Repeated at frequency of 100 Hz	Pass	0.3
Time averaging	1 ms burst duty factor 1/10 ³ at 4kHz	Pass	0.3
	1 ms burst duty factor 1/10 ⁴ at 4kHz	Pass	0.3
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4
Overload indication	SPL	Pass	0,3
	Leq	Pass	0.4

2, Acoustic tests

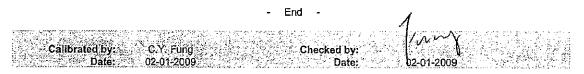
The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

<u>Test:</u>	Subtest	Status	Uncertanity (dB) / Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3
	Weighting A at 8000 Hz	Pass	0.5

3, Response to associated sound calibrator

 $\left(\cdot \right)$

The uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95 %. A coverage factor of 2 is assumed unless explicitly stated.



The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

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CERTIFICATE OF CALIBRATION

	CERTIFIC		IBRATION	2095
Certificate No.:	09CA0102 01-02		Page:	1 of 2
Item tested	<u> </u>			
Description: Manufacturer: Type/Model No.: Serial/Equipment No.: Adaptors used:	Acoustical Calibrat Castle Group Ltd. GA607 039543	lor (Class 1)		
Item submitted by				Nafas-HM17
Curstomer: Address of Customer: Request No.: Date of request:		ncrete Engineering (H.) oad, Hung Hom, Kowlo		
Date of test:	02-01-2009	1. — 1 - 1 - 10 - 10 - 10 - 10 - 10 - 10 -		
Reference equipment	used in the calib	ration		
Description: Lab standard microphone Preamplifier Measuring amplifier Signal generator Digital multi-meter Audio analyzer Universal counter	Model: B&K 4180 B&K 2673 B&K 2610 DS 360 34401A 8903B 53132A	Serial No. 2412857 2239857 2346941 61227 US36087050 GB41300350 MY40003662	Expiry Date: 29-06-2009 02-12-2009 03-12-2009 18-07-2009 03-12-2009 27-11-2009 11-07-2009	Traceable to: SCL CEPREI CEPREI CEPREI CIGISMEC CEPREI CEPREI
Ambient conditions	<u> </u>			
Temperature: Relative humidity: Air pressure:	22 ± 1 °C 55 ± 10 % 1010 ± 15 hPa			
 and the lab calibratic The calibrator was te The results are roun 	on procedure SMTP00 ested with its axis verti- ded to the nearest 0.0	4-CA-156. cal facing downwards a 1 dB and 0 1 Hz and ba	at the specific frequency	ed in IEC 60942 1997 Annex using insert voltage techniqu or variations from a reference tt is insensitive to pressure
Test results				
Details of the performed mea Approved Signatory: Hu Comments: The results repo	- Ja- ang Jian MinuFeng Jun Qi	Date: 02-01-2	009 Company Ch	

carry no implication regarding the long-term stability of the instrument.

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Form No.CARP156-1/Issue 1/Rev.D/01/03/2007

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09CA0102 01-02

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2

Page:



CERTIFICATE OF CALIBRATION

(Continuation Page)

of

2095

2

1, Measured Sound Pressure Level

Certificate No.:

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

			 Output level in dB re 20 µPa
Frequency	Output Sound Pressure	Measured Output	Estimated
Shown	Level Setting	Sound Pressure Level	Uncertainty
Hz	dB	dB	dB
1000	94.00	94.30	0.1

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz	STF = 0.002 dB
Estimated uncertainty	0.005 dB

3, **Actual Output Frequency**

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz	Actual Frequency = 1000.0 Hz	
Estimated uncertainty	0.1 Hz	Coverage factor k = 2.2

4, **Total Noise and Distortion**

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz	TND = 2.1%
Estimated uncertainty	0.7%

The uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95 %. A coverage factor of 2 is assumed unless explicitly stated.

· -	End -	1
Calibrated by: C.Y. Fung Date: 02-01-2009	Checked by: Date:	MM

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

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			Relative	Occur	rence
Species	Habit	Native	Abundance	PNH3	PNH4
Acacia confusa	tree	no	occasional		+
Achyranthes aspera	herb	yes	scarce		+
Acorus gramineus	herb	yes	scarce		+
Alangium chinensis	tree	yes	scarce		+
Alocasia macrorrhiza	herb	yes	occasional		+
Aporosa dioica	tree	yes	occasional	+	+
Ardisia crenata	shrub	yes	occasional	+	+
Bamboo	herb	-	scarce	+	
Bischofia javanica	herb	yes	scarce	+	
Bridelia tomentosa	tree	yes	scarce	+	+
Caryota mitis	tree	no	scarce		+
Celtis sinensis	tree	yes	occasional	+	+
Centotheca lappacea	grass	yes	scarce	+	+
Christella parasitica	fern	yes	occasional	+	+
Cleistocalyx operculata	tree	yes	occasional	+	+
Coccullus orbiculatus	climber	yes	scarce		+
Colocasia esculenta	herb	no	scarce	+	
Commelina sp.	herb	yes	scarce	+	+
Desmodium heterocarpon	herb	yes	scarce		+
Desmos chinensis	shrub	yes	occasional	+	
Dimocarpus longan	tree	no	occasional		+
Embelia ribes	climber	yes	scarce		+
Ficus hispida	tree	yes	common	+	+
Ficus superba	tree	yes	occasional		+
Garcinia oblongifolia	tree	yes	occasional		+
Glochidion puberum	shrub	yes	scarce	+	
Hedychium coronarium	herb	no	scarce		+
Hedyotis hedyotidea	climber	yes	scarce		+
Hibiscus rosa-sinensis	shrub	no	occasional		+
Liriope spicata	herb	yes	scarce		+
Litsea glutinosa	tree	yes	occasional	+	+
Litsea rotundifolia	shrub	yes	scarce	+	
Lophatherum gracile	grass	yes	scarce	+	
Lygodium japonicum	fern	yes	scarce	+	+

Appendix D1 Plant species recorded at Pak Ngan Heung River (N)

			Relative	Occur	rrence
Species	Habit	Native	Abundance	PNH3	PNH4
Macaranga tanarius	tree	yes	occasional	+	+
Maesa perlarius	shrub	yes	scarce	+	
Mallotus paniculatus	tree	yes	scarce	+	
Melastoma sanguineum	shrub	yes	scarce		+
Microcos paniculata	tree	yes	scarce	+	+
Microstegium ciliatum	grass	yes	common	+	+
Mikania micrantha	climber	no	common	+	+
Mimosa pudica	herb	yes	scarce	+	
Murraya paniculata	shrub	no	scarce	+	
Musa paradisiaca	tree	no	scarce	+	
Mussaenda erosa	shrub	yes	scarce	+	
Neyraudia reynaudiana	grass	yes	occasional	+	+
Panicum maximum	grass	no	common	+	+
Phyllanthus urinaria	herb	yes	scarce	+	+
Pilea microphylla	herb	no	occasional		+
Plantago major	herb	yes	scarce		+
Pogonatherum crinitum	grass	yes	scarce		+
Polygonum chinense	herb	yes	occasional	+	
Polygonum sp.	herb	yes	scarce	+	+
Psychotria asiatica	shrub	yes	common	+	+
Pteris ensiformis	fern	yes	scarce		+
Pueraria phaseoloides	climber	yes	occasional	+	+
Sageretia thea	climber	yes	occasional		+
Scoparia dulcis	herb	yes	scarce		+
Severinia buxifolia	shrub	yes	scarce		+
Solanum torvum	shrub	no	scarce		+
Sporobolus fertilis	grass	yes	scarce		+
Sterculia lanceolata	tree	yes	common	+	+
Syngonium podophyllum	climber	no	occasional	+	
Syzygium jambos	tree	no	common	+	+
Urena lobata	herb	yes	scarce		+
Uvaria microcarpa	shrub	yes	occasional	+	+
Vernonia cinera	herb	yes	scarce		+
Wedelia trilobata	climber	no	scarce	+	
Zanthoxylum avicennae	tree	yes	scarce		+

Appendix D2	Plant species recorded at Pak Ngan Heung River (S)	

			Relative	Occur	rrence
Species	Habit Native		Abundance	PNH1	PNH2
Acrostichum aureum	fern	yes	scarce	+	
Celtis sinensis	tree	yes	occasional	+	+
Clerodendrum inerme	shrub	yes	occasional	+	
Cocculus orbiculatus	climber	yes	scarce	+	
Ficus microcarpa	tree	yes	scarce		+
Ficus superba	tree	yes	occasional		+
Ipomoea cairica	climber	yes	occasional		+
Neyraudia reynaudiana	grass	yes	occasional	+	
Panicum maximum	grass	no	common	+	+
Sapium sebiferum	tree	yes	occasional		+
Wedelia triloba	climber	no	occasional	+	+

Appendix D3	Plant species recorded at	Luk Tei Tong River
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			Relative	Occurrence							
Species	Habit	Native	Abundance	LLT1	LLT2	LLT3	LLT4	LLT5			
Acanthus ilicifolius	shrub	yes	common	+	+		+				
Acrostichum aureum	fern	yes	scarce					+			
Aegiceras corniculatum	shrub	yes	scarce	+							
Bougainvillea spectabilis	climber	no	scarce	+							
Bridelia tomentosa	tree	yes	occasional	+							
Celtis sinensis	tree	yes	scarce	+	+						
Clerodendrum inerme	shrub	yes	abundant	+	+		+				
Cyperus malaccensis	sedge	yes	occasional		+						
Derris trilfoliata	climber	yes	occasional		+						
Excoecaria agallocha	shrub	yes	common	+	+						
Ficus superba	tree	yes	occasional	+							
Fimbristylis ferruginea	sedge	yes	occasional		+		+				
Hibiscus tiliaceus	tree	yes	abundant	+			+				
Kandelia obovata	tree	yes	common	+	+						
Lantana camara	shrub	no	scarce		+						
Leucaena leucocephala	tree	no	occasional	+							
Litsea glutinosa	tree	yes	scarce		+						
Neyraudia reynaudiana	grass	yes	occasional	+				+			
Panicum maximum	grass	no	common	+							
Paspalum paspaloides	grass	no	occasional								
Phragmites australis	grass	yes	occasional				+				
Premna serratifolia	tree	yes	scarce		+						
Saccharum arundinaceum	grass	yes	scarce	+							
Scolopia chinensis	tree	yes	scarce				+				
Terminalia catappa	tree	no	scarce		+						
Toxocarpus wightianus	climber	yes	scarce				+				
Wikstroemia indica	shrub	yes	scarce				+				
Wollastonia biflora	climber	yes	occasional		+						

Appendix D4

Ecological Water Monitoring Results (on-site measurements)

Ecological Water Quality Monitoring - Summary of On-site measurement results

Date of Sampling:	5/8/200	9		Wea	ther Co	ndition:	Rainy											
Monitoring Location		WE1			WE2			WE3			WE4			WE5			WE6	
Time (hhmm)		1215			1115			1150			1200			1250			1240	
Tide Mode		ebb			ebb			ebb			ebb			ebb			ebb	
River Condition		Normal			Normal			Muddy			Muddy			Normal			Norma	
Water Depth (m)		< 1.0			< 1.0			< 1.0			< 1.0			< 1.0			< 1.0	
pH value		7.06			7.57			6.73			6.86			7.13			6.19	
Temperature (oC)		26.7			26.5			27.0			27.1			26.8			26.4	
Salinity (ppt)		0.1			0.3			0.3			2.2			0.5			0.0	
Conductivity (ms/m)		23.8			71.1		78.6			416.0			266.0			3.9		
Water flow (m/s)		0.100			0.100			0.200		0.100			0.300			0.200		
Turbidity (NTU)	4.7	4.7	Average	7.3	7.3	Average 7.30	11.8	11.8	Average	10.4	10.4	Average	9.5	9.5	Average 9.50	0.0	0.0	Average 0.0
DO (mg/l)	7.35	7.35	Average 7.35	7.65	7.65	Average 7.65	7.41	7.41	Average 7.41	6.11	6.11	Average 6.11	6.17	6.17	Average 6.17	7.76	7.76	Average
DO Saturation (%)	92	92	Average 92	96	96	Average 96	93	93	Average 93	78	78	Average	77	77	Average 77	97	97	Average 97
Name Prepared By: Jimmy Cheng			Ţ	ature	<u>.</u>		ate 2009	-		emark or ervation:				•				

5/8/2009

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Appendix D5

Ecological Water Monitoring Results (lab report)



TEST SUMMARY ON ENVIRONMENTAL ANALYSIS OF WATER AND WASTEWATER

							Page 1 of 1
Report No.	;	GCC090800076			Date of Issue	:	15-08-2009
Client*	:	Environmental Pioneers &	Solutions Limited		Date Received	:	08-09-2008
Client Address*	:	8/F, Chaiwan Industrial Ce	ntre Building, 20	Lee Chung Street, Chaiwar	n, HK.		
		DSD Contract No. DC/200	6/11 - Drainage I	mprovement in Southern La	antau & Construct	ion	of
Project*	:	Mui Wo Village Sewerage	Phase 1				
Test Location	:	G/F, 20 Pak Kung Street	, Hung Hom, Kow	/loon.	Date Started	:	05-08-2009
W.O. No.*	:		Sample Type*	: River Water	Date Completed	:	06-08-2009
GCE Serial No.	:	WQM082009	GCE Reg. No.	: GCE 081096	Test Unit No.	:	CH 08258

Analysis Description T			est Method Uni			Quality Control Results							
						Methoo Blank		QC 500 m	ig/L C	C Duplicate	RF	°D%	Spike 25 mg/L
Suspended Solids	s (SS)	АРНА	20ed 25	540 D	mg/L	< 1.0		502		495	1	.4	26.6
·····			Acce	ptance	Criteria	<2.5 mg	g/L	475 ≤ C	ontrol L	imit ≤ 514	≤ :	±5%	$21 \le R \le 29$
	Sam	ple ID	WE1	-	VE1 Nicate	WE2	I	WE2 Duplicate	WE3	WE3 Duplicat	e		
TEST RESULTS	RESULTS Sampling Date/Time 05 Aug 2009 / 12:15 05 Aug 2009 / 11:15		09 / 11:15	05 A	ug 2009 / 11:	50							
	LOD	Units											
Suspended Solids (SS)	1	mg/L	3.5	3	3.8	7.9		7.6	9.3	8.8			
	Sam	ple ID	WE4	-	VE4 Nicate	WE5	[WE5 Duplicate	WE6	WE6 Duplicat	e		
		ampling ate/Time 05 Aug		5 Aug 2009 / 12:00		05 Aug 2009 / 12:50		05 Aug 2009 / 12:4		40			
	LOD	Units			**								
Suspended Solids (SS)	1	mg/L	15.0	1	5.3	14.2		14.3	1.6	1.9			

* : Information provided by client

Note : This laboratory has no responsibility on sampling and all the test results relate only to the sample tested as received.

Remarks : Location M1 & WE3 and Location M3 & WE4 are the same location.

----- End -----

Tested By	:	K.L FONG	Approved Signatory	:	List
			Name	:	GU CHIN
Checked By	:	GU CHIN	Post	:	Chemist

Form No.	;	WQM/R1	(01-09-2008)
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TEST REPORT ON ENVIRONMENTAL ANALYSIS OF WATER

Report No.	:	GCC090800181			Date of Issue	:	Page 1 of 1 31-08-2009
Client*	:	Environmental Pioneers &	& Solutions Limited		Order Received	: _	08-09-2008
Client Address*	:	8/F, Chaiwan Industrial C	Centre Building, 20 I	Lee Chung Street, Chaiwa	n, HK.		
		DSD Contract No. DC/20	06/11 - Drainage Ir	nprovement in Southern L	antau & Constructio	on (of
Project*	:	Mui Wo Village Sewerag	e Phase 1	·			
Test Location	:	G/F, 20 Pak Kung Stre	et, Hung Hom, Kow	loon.	Date Started	: _	05-08-2009
W.O. No.*	:		Contract No.*	:	Date Completed	: _	27-08-2009
GCE Serial No.	:	WQM082009	Sampling Date*	: 05-08-2009 / 12:15	Sample Type*	: _	River Water
GCE Reg. No.	:	GCE 081096	Test Unit No.	: CH 08258	Sample I.D.*	: _	WE1
Descripption	:	River Water			•		

DESCRIPTION	TEST REFERENCE (In-House Method based on)	TEST RESULT
Appearance	APHA 20ed 2110	
Odour	APHA 20ed 2150 B	Odour Characteristics :
	AFRA 2000 2150 B	Threshold Odour Number (TON) :
pH Value at temperature [] °C	APHA 20ed 4500-H ⁺ B	
Colour TCU	APHA 20ed 2120 B	
Turbidity NTU	APHA 20ed 2130 B	
Conductivity at 25°C	APHA 20ed 2510 B	
Salinity g/L	APHA 20ed 2520 B	
	APHA 20ed 4500-NH ₃ D	0.02
Nitrogen (Ammonia) mg/L	APHA 20ed 4500-NH ₃ E	
	APHA 18ed 4500-NH ₃ C	
Nitrogen (Nitrate) mg/L	APHA 20ed 4500-NO ₃ ⁻ E	0.20
Phosphorus mg/L	APHA 20ed 4500-P D	0.06
Biochemical Oxygen Demand (BOD ₅) mg/L	APHA 20ed 5210 B	1
Chemical Oxygen Demand (COD) mg/L	APHA 20ed 5220 D	
Total Suspended Solid mg/L	APHA 20ed 2540 D	

* : Information provided by client

Note : This laboratory has no responsibility on sampling and all the test results relate only to the sample tested as received.

Sample received on 05 August 2009.

REMARKS :	Sar	nple Location WE1.			
			End		
Tested By	: _	T.W. Lam, K.L. Fong	Certified By	:	2
			Name	:	Gu Chin
Checked By	:	Gu Chin	Post	:	Chemist

Form No. : EWA-D2/R (19-1-2009)



TEST REPORT ON ENVIRONMENTAL ANALYSIS OF WATER

							Page 1 of 1
Report No.	:	GCC090800199			Date of Issue	: 3	1-08-2009
Client*	:	Environmental Pioneers &	Solutions Limited		Order Received	: 08	3-09-2008
Client Address*	:	8/F, Chaiwan Industrial Ce	ntre Building, 20 L	ee Chung Street, Chaiwar	л, НК.		
		DSD Contract No. DC/200	6/11 - Drainage In	nprovement in Southern La	antau & Constructio	on of	
Project*	:	Mui Wo Village Sewerage	Phase 1				
Test Location	:	G/F, 20 Pak Kung Street	, Hung Hom, Kow	loon.	Date Started	: 0!	5-08-2009
W.O. No.*	:		Contract No.*	:	Date Completed	: 27	7-08-2009
GCE Serial No.	:	WQM082009	Sampling Date*	: 05-08-2009 / 12:15	Sample Type*	: Ri	ver Water
GCE Reg. No.	:	GCE 081096	Test Unit No.	: CH 08258	Sample I.D.*	: <u>W</u>	E1 Duplicate
Descripption	;	River Water					

DESCRIPTION	TEST REFERENCE (In-House Method based on)	TEST RESULT
Appearance	APHA 20ed 2110	
Odour	APHA 20ed 2150 B	Odour Characteristics :
	AFTIA 2060 2150 B	Threshold Odour Number (TON) :
pH Value at temperature [] °C	APHA 20ed 4500-H $^+$ B	
Colour TCU	APHA 20ed 2120 B	
Turbidity NTU	APHA 20ed 2130 B	
Conductivity at 25°C µS/cm	APHA 20ed 2510 B	
Salinity g/L	APHA 20ed 2520 B	
	APHA 20ed 4500-NH ₃ D	0.02
Nitrogen (Ammonia) mg/L	APHA 20ed 4500-NH ₃ E	
	APHA 18ed 4500-NH ₃ C	
Nitrogen (Nitrate) mg/L	APHA 20ed 4500-NO3 ⁻ E	0.19
Phosphorus mg/L	APHA 20ed 4500-P D	0.06
Biochemical Oxygen Demand (BOD ₅) mg/L	APHA 20ed 5210 B	1
Chemical Oxygen Demand (COD) mg/L	APHA 20ed 5220 D	~
Total Suspended Solid mg/L	APHA 20ed 2540 D	

* : Information provided by client

Note : This laboratory has no responsibility on sampling and all the test results relate only to the sample tested as received.

Sample received on 05 August 2009.

REMARKS :	Sample Lo	ocation WE1.			
		Enc			
Tested By	:	T.W. Lam, K.L. Fong	Certified By	:	Juli-
			Name	:	Gu Chin
Checked By	:	Gu Chin	Post	:	Chemist

Form No. : EWA-D2/R (19-1-2009)

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TEST REPORT ON ENVIRONMENTAL ANALYSIS OF WATER

							Page 1 of 1
Report No.	:	GCC090800204			Date of Issue	:	31-08-2009
Client*	:	Environmental Pioneers &	Solutions Limited		Order Received	:	08-09-2008
Client Address*	:	8/F, Chaiwan Industrial C	entre Building, 20 L	.ee Chung Street, Chaiwar	л, НК.		
		DSD Contract No. DC/20	06/11 - Drainage In	nprovement in Southern La	antau & Constructio	on	of
Project*	:	Mui Wo Village Sewerage	Phase 1				
Test Location	:	G/F, 20 Pak Kung Stree	t, Hung Hom, Kow	loon.	Date Started	:	05-08-2009
W.O. No.*	:		Contract No.*	:	Date Completed	:	27-08-2009
GCE Serial No.	:	WQM082009	Sampling Date*	: 05-08-2009 / 11:15	Sample Type*	:	River Water
GCE Reg. No.	:	GCE 081096	Test Unit No.	: CH 08258	Sample I.D.*	:	WE2
Descripption	:	River Water					

DESCRIPTION		TEST REFERENCE (In-House Method based on)	TEST RESULT
Appearance		APHA 20ed 2110	
Odour		APHA 20ed 2150 B	Odour Characteristics :
0000		AFRA 2000 2100 B	Threshold Odour Number (TON) :
pH Value at temperature [] °C	APHA 20ed 4500-H ⁺ B	
Colour	тси	APHA 20ed 2120 B	
Turbidity	NTU	APHA 20ed 2130 B	
Conductivity at 25°C μ	S/cm	APHA 20ed 2510 B	
Salinity	g/L	APHA 20ed 2520 B	
		APHA 20ed 4500-NH $_3$ D	0.19
Nitrogen (Ammonia)	mg/L	APHA 20ed 4500-NH ₃ E	
		APHA 18ed 4500-NH ₃ C	
Nitrogen (Nitrate)	mg/L	APHA 20ed 4500-NO ₃ ⁻ E	0.22
Phosphorus	mg/L	APHA 20ed 4500-P D	0.11
Biochemical Oxygen Demand (BOD ₅)	mg/L	APHA 20ed 5210 B	2
Chemical Oxygen Demand (COD)	mg/L	APHA 20ed 5220 D	
Total Suspended Solid	mg/L	APHA 20ed 2540 D	

* : Information provided by client

Note : This laboratory has no responsibility on sampling and all the test results relate only to the sample tested as received.

REMARKS :	Sa	mple Location WE2.				
			End			
Tested By	:	T.W. Lam, K.L. Fong	Certified By	:	<u></u>	
			Name	:	Gu Chin	
Checked By	:	Gu Chin	Post	:	Chemist	

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TEST REPORT ON ENVIRONMENTAL ANALYSIS OF WATER

Report No.	: GCC090800212		Page 1 of 1 Date of Issue : 31-08-2009			
Client*	: Environmental Pioneers &	Solutions Limited	Order Received : 08-09-2008			
Client Address*	: 8/F, Chaiwan Industrial C	entre Building, 20 Lee Chung Stre	et, Chaiwan, HK.			
	DSD Contract No. DC/20	06/11 - Drainage Improvement in	Southern Lantau & Construction of			
Project*	: Mui Wo Village Sewerage	e Phase 1				
Test Location	: G/F, 20 Pak Kung Stree	et, Hung Hom, Kowloon.	Date Started : 05-08-2009			
W.O. No.*	:	Contract No.* :	Date Completed : 27-08-2009			
GCE Serial No.	: WQM082009	Sampling Date* : 05-08-2009	9 / 11:15 Sample Type* : River Water			
GCE Reg. No.	: GCE 081096	Test Unit No. : CH 08258	Sample I.D.* : WE2 Duplicate			
Descripption	: River Water					
DESCRIPTION		TEST REFERENCE (In-House Method based on)	TEST RESULT			
Appearance		APHA 20ed 2110				
Odour			Odour Characteristics :			
		APHA 20ed 2150 B	Threshold Odour Number (TON) :			
pH Value at tem	nperature [] °C	APHA 20ed 4500-H ⁺ B				

pH value at temperature [10	APHA 2000 4500-H B	
Colour	тси	APHA 20ed 2120 B	
Turbidity	NTU	APHA 20ed 2130 B	
Conductivity at 25°C	μS/cm	APHA 20ed 2510 B	
Salinity	g/L	APHA 20ed 2520 B	
		APHA 20ed 4500-NH ₃ D	0.20
Nitrogen (Ammonia)	mg/L	APHA 20ed 4500-NH ₃ E	
		APHA 18ed 4500-NH ₃ C	**
Nitrogen (Nitrate)	mg/L	APHA 20ed 4500-NO ₃ ⁻ E	0.23
Phosphorus	mg/L	APHA 20ed 4500-P D	0.10
Biochemical Oxygen Demand (E	30D ₅) mg/L	APHA 20ed 5210 B	2
Chemical Oxygen Demand (CO	D) mg/l.	APHA 20ed 5220 D	
Total Suspended Solid	mg/L	APHA 20ed 2540 D	

* : Information provided by client

Note : This laboratory has no responsibility on sampling and all the test results relate only to the sample tested as received.

REMARKS :	Sample Loc	ation WE2.			
		Enc			
Tested By	:	T.W. Lam, K.L. Fong	Certified By	:	
			Name	:	Gu Chin
Checked By	:	Gu Chin	Post	:	Chemist

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TEST REPORT ON ENVIRONMENTAL ANALYSIS OF WATER

Report No. : GCC090800220		Page 1 of Date of Issue : 31-08-2009			
Client* : Environmental Pioneers & Client Address* : 8/F, Chaiwan Industrial C	Order Received : 0 <u>8-09-2008</u> eet, Chaiwan, HK.				
		Southern Lantau & Construction of			
Project* : Mui Wo Village Sewerage	e Phase 1				
Test Location : G/F, 20 Pak Kung Stree	et, Hung Hom, Kowloon.	Date Started : 05-08-2009			
W.O. No.* :	Contract No.* :	Date Completed : 27-08-2009			
GCE Serial No. : WQM082009	Sampling Date* : 05-08-2009	9 / 11:50 Sample Type* : River Water			
GCE Reg. No. : <u>GCE 081096</u>	Test Unit No. ; CH 08258	Sample I.D.* : WE3			
Descripption : River Water		· .			
DESCRIPTION	TEST REFERENCE (In-House Method based on)	TEST RESULT			
Appearance	APHA 20ed 2110				
		Odour Characteristics :			
Odour	APHA 20ed 2150 B	Threshold Odour Number (TON) :			
pH Value at temperature [] °C	APHA 20ed 4500-H ⁺ B				
Colour TCU	APHA 20ed 2120 B				
Turbidity NTU	APHA 20ed 2130 B	-			
Conductivity at 25°C	APHA 20ed 2510 B				
Salinity g/L	APHA 20ed 2520 B				
	APHA 20ed 4500-NH ₃ D	0.15			
Nitrogen (Ammonia) mg/L	APHA 20ed 4500-NH ₃ E				
	APHA 18ed 4500-NH ₃ C				
Nitrogen (Nitrate) mg/L	APHA 20ed 4500-NO ₃ [°] E	0.18			
Phosphorus mg/L	APHA 20ed 4500-P D	0.09			
Biochemical Oxygen Demand (BOD ₅) mg/L	APHA 20ed 5210 B	2			

* : Information provided by client

Chemical Oxygen Demand (COD)

Total Suspended Solid

Note : This laboratory has no responsibility on sampling and all the test results relate only to the sample tested as received.

APHA 20ed 5220 D

APHA 20ed 2540 D

Sample received on 05 August 2009.

mg/L

mg/L

REMARKS :	Sample Loc	ation WE3.			
		End			
Tested By		T.W. Lam, K.L. Fong	Certified By	:	Lasting and the second
			Name	: _	Gu Chin
Checked By	:	Gu Chin	Post	:	Chemist

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TEST REPORT ON ENVIRONMENTAL ANALYSIS OF WATER

							Page 1 of 1
Report No.	:	GCC090800238			Date of Issue	:	31-08-2009
Client*	:	Environmental Pioneers &	Solutions Limited		Order Received	:	08-09-2008
Client Address*	:	8/F, Chaiwan Industrial Ce	ntre Building, 20 L	ee Chung Street, Chaiwar	n, HK.		a - 100-107 - 10
		DSD Contract No. DC/200	6/11 - Drainage In	nprovement in Southern La	antau & Constructio	on	of
Project*	:	Mui Wo Village Sewerage	Phase 1				
Test Location	:	G/F, 20 Pak Kung Street	, Hung Hom, Kowi	loon.	Date Started	:	05-08-2009
W.O. No.*	:		Contract No.*		Date Completed	:	27-08-2009
GCE Serial No.	:	WQM082009	Sampling Date*	: 05-08-2009 / 11:50	Sample Type*	:	River Water
GCE Reg. No.	:	GCE 081096	Test Unit No.	: CH 08258	Sample I.D.*	:	WE3 Duplicate
Descripption	:	River Water					

DESCRIPTION	TEST REFERENCE (In-House Method based on)	TEST RESULT
Appearance	APHA 20ed 2110	
	APHA 20ed 2150 B	Odour Characteristics :
Odour	APPIA 2000 2150 B	Threshold Odour Number (TON) :
pH Value at temperature [] °C	APHA 20ed 4500-H ⁺ B	
Colour TCU	APHA 20ed 2120 B	
Turbidity NTU	APHA 20ed 2130 B	
Conductivity at 25°C µS/cm	APHA 20ed 2510 B	-
Salinity g/L	APHA 20ed 2520 B	-
	APHA 20ed 4500-NH ₃ D	0.16
Nitrogen (Ammonia) mg/L	APHA 20ed 4500-NH ₃ E	
	APHA 18ed 4500-NH ₃ C	
Nitrogen (Nitrate) mg/L	APHA 20ed 4500-NO3 ⁻ E	0.18
Phosphorus mg/L	APHA 20ed 4500-P D	0.09
Biochemical Oxygen Demand (BOD ₅) mg/L	APHA 20ed 5210 B	2
Chemical Oxygen Demand (COD) mg/L	APHA 20ed 5220 D	-
Total Suspended Solid mg/L	APHA 20ed 2540 D	

* : Information provided by client

Note : This laboratory has no responsibility on sampling and all the test results relate only to the sample tested as received.

REMARKS :	Sa	mple Location WE3.				
			End			
Tested By	:	T.W. Lam, K.L. Fong	Certified By	:	Last	
			Name	:	Gu Chin	
Checked By	:	Gu Chin	Post	:	Chemist	

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TEST REPORT ON ENVIRONMENTAL ANALYSIS OF WATER

							Page 1 of 1
Report No.	:	GCC090800246			Date of Issue	:	31-08-2009
Client*	:	Environmental Pioneers & Solutions Limited			Order Received	:	08-09-2008
Client Address*	:	8/F, Chaiwan Industrial Ce	ntre Building, 20 L	.ee Chung Street, Chaiwar	n, HK.		
		DSD Contract No. DC/200	6/11 - Drainage In	nprovement in Southern La	antau & Constructi	on	of
Project*	:	Mui Wo Village Sewerage	Phase 1				
Test Location	:	G/F, 20 Pak Kung Street	, Hung Hom, Kow	loon.	Date Started	:	05-08-2009
W.O. No.*	;		Contract No.*		Date Completed	:	27-08-2009
GCE Serial No.	:	WQM082009	Sampling Date*	: 05-08-2009 / 12:00	Sample Type*	:	River Water
GCE Reg. No.	:	GCE 081096	Test Unit No.	: CH 08258	Sample I.D.*	:	WE4
Descripption	:	River Water			×		

DESCRIPTION		TEST REFERENCE (In-House Method based on)	TEST RESULT
Appearance		APHA 20ed 2110	
0.1		APHA 20ed 2150 B	Odour Characteristics :
Odour		APRA 2000 2150 B	Threshold Odour Number (TON) :
pH Value at temperature []	°C	APHA 20ed 4500-H ⁺ B	
Colour T	rcυ	APHA 20ed 2120 B	
Turbidity N	ידע	APHA 20ed 2130 B	
Conductivity at 25°C µS/c	cm	APHA 20ed 2510 B	
Salinity	g/L	APHA 20ed 2520 B	
	and an other states	APHA 20ed 4500-NH ₃ D	0.23
Nitrogen (Ammonia) m	ng/L	APHA 20ed 4500-NH ₃ E	
	l	APHA 18ed 4500-NH ₃ C	
Nitrogen (Nitrate) m	ng/L	APHA 20ed 4500-NO3 ⁻ E	0.29
Phosphorus m	ng/L	APHA 20ed 4500-P D	0.12
Biochemical Oxygen Demand (BOD $_5$) m	ng/L	APHA 20ed 5210 B	2
Chemical Oxygen Demand (COD) m	ng/L	APHA 20ed 5220 D	
Total Suspended Solid m	ng/L	APHA 20ed 2540 D	

* : Information provided by client

Note : This laboratory has no responsibility on sampling and all the test results relate only to the sample tested as received.

REMARKS :	Sample I	location WE4.				
			End			
Tested By	:	T.W. Lam, K.L. Fong	Certified By	:		
		•	Name	:	Gu Chin	
Checked By	:	Gu Chin	Post	:	Chemist	u v

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TEST REPORT ON ENVIRONMENTAL ANALYSIS OF WATER

							Page 1 of 1	
Report No.	;	GCC090800254			Date of Issue	:	31-08-2009	

Client*	:	Environmental Pioneers & S	Solutions Limited		Order Received	:	08-09-2008	
Client Address*	ss* : 8/F, Chaiwan Industrial Centre Building, 20 Lee Chung Street, Chaiwan, HK.							
		DSD Contract No. DC/2006	6/11 - Drainage In	nprovement in Southern La	antau & Constructio	on	of	
Project*	:	Mui Wo Village Sewerage Phase 1						
Test Location	:	G/F, 20 Pak Kung Street,	Hung Hom, Kow	loon.	Date Started	:	05-08-2009	
W.O. No.*	:		Contract No.*	:	Date Completed	: _	27-08-2009	
GCE Serial No.	:	WQM082009	Sampling Date*	: 05-08-2009 / 12:00	Sample Type*	: _	River Water	
GCE Reg. No.	:	GCE 081096	Test Unit No.	: CH 08258	Sample I.D.*	: _	WE4 Duplicate	
Descripption	:	River Water			-			

DESCRIPTION	TEST REFERENCE (In-House Method based on)	TEST RESULT
Appearance	APHA 20ed 2110	
Odour	APHA 20ed 2150 B	Odour Characteristics :
Ododr	AFRA 2000 2150 B	Threshold Odour Number (TON) :
pH Value at temperature [] °C	APHA 20ed 4500-H ⁺ B	
Colour TCU	APHA 20ed 2120 B	
Turbidity NTU	APHA 20ed 2130 B	
Conductivity at 25°C µS/cm	APHA 20ed 2510 B	
Salinity g/L	APHA 20ed 2520 B	
	APHA 20ed 4500-NH $_3$ D	0.24
Nitrogen (Ammonia) mg/L	APHA 20ed 4500-NH ₃ E	
	APHA 18ed 4500-NH $_3$ C	
Nitrogen (Nitrate) mg/L.	APHA 20ed 4500-NO3 E	0.29
Phosphorus mg/L	APHA 20ed 4500-P D	0.12
Biochemical Oxygen Demand (BOD ₅) mg/L	APHA 20ed 5210 B	2
Chemical Oxygen Demand (COD) mg/L	APHA 20ed 5220 D	
Total Suspended Solid mg/L	APHA 20ed 2540 D	

* : Information provided by client

Note : This laboratory has no responsibility on sampling and all the test results relate only to the sample tested as received.

REMARKS :	Sample Location WE4.						
		End					
Tested By	:	T.W. Lam, K.L. Fong	Certified By	:	List		
			Name	;	Gu Chin		
Checked By	:	Gu Chin	Post	:	Chemist		

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TEST REPORT ON ENVIRONMENTAL ANALYSIS OF WATER

Report No.	:	GCC090800262			Date of Issue	:	Page 1 of 1 31-08-2009
Client*	:	Environmental Pioneers & S	Solutions Limited		Order Received	:	08-09-2008
Client Address*	:	8/F, Chaiwan Industrial Ce	ntre Building, 20 L	ee Chung Street, Chaiwar.	ı, HK.		
		DSD Contract No. DC/200	6/11 - Drainage In	nprovement in Southern La	antau & Constructi	on	of
Project*	:	Mui Wo Village Sewerage	Phase 1				
Test Location	:	G/F, 20 Pak Kung Street	, Hung Hom, Kow	loon.	Date Started	:	05-08-2009
W.O. No.*	:		Contract No.*	:	Date Completed	:	27-08-2009
GCE Serial No.	:	WQM082009	Sampling Date*	: 05-08-2009 / 12:50	Sample Type*	:	River Water
GCE Reg. No.	:	GCE 081096	Test Unit No.	: CH 08258	Sample I.D.*	:	WE5
Descripption	:	River Water					

DESCRIPTION	TEST REFERENCE (In-House Method based on)	TEST RESULT
Appearance	APHA 20ed 2110	-
		Odour Characteristics :
Odour	APHA 20ed 2150 B	Threshold Odour Number (TON) :
pH Value at temperature [] °C	APHA 20ed 4500-H ⁺ B	
Colour TCU	APHA 20ed 2120 B	
Turbidity NTU	APHA 20ed 2130 B	
Conductivity at 25°C µS/cm	APHA 20ed 2510 B	
Salinity g/L	APHA 20ed 2520 B	
	APHA 20ed 4500-NH ₃ D	0.40
Nitrogen (Ammonia) mg/L	APHA 20ed 4500-NH ₃ E	
	APHA 18ed 4500-NH ₃ C	
Nitrogen (Nitrate) mg/L	APHA 20ed 4500-NO ₃ ⁻ E	0.37
Phosphorus mg/L	APHA 20ed 4500-P D	0.2
Biochemical Oxygen Demand (BOD ₅) mg/L	APHA 20ed 5210 B	1
Chemical Oxygen Demand (COD) mg/L	APHA 20ed 5220 D	
Total Suspended Solid mg/L	APHA 20ed 2540 D	

* : Information provided by client

Note : This laboratory has no responsibility on sampling and all the test results relate only to the sample tested as received.

Sample	received	on 05	August	2009.
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REMARKS :	Sample Lo	cation WE5.			
		End			
Tested By	:	T.W. Lam, K.L. Fong	Certified By	:	Left-
			Name	:	Gu Chin
Checked By	:	Gu Chin	Post	:	Chemist

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TEST REPORT ON ENVIRONMENTAL ANALYSIS OF WATER

Report No.	:	GCC090800270			Date of Issue	:	Page 1 of 1 31-08-2009			
Client*	:	Environmental Pioneers &	& Solutions Limited		Order Received	:	08-09-2008			
Client Address*	:	8/F, Chaiwan Industrial (8/F, Chaiwan Industrial Centre Building, 20 Lee Chung Street, Chaiwan, HK.							
		DSD Contract No. DC/20	OSD Contract No. DC/2006/11 - Drainage Improvement in Southern Lantau & Construction of							
Project*	:	Mui Wo Village Sewerag	e Phase 1							
Test Location	:	G/F, 20 Pak Kung Stre	et, Hung Hom, Kow	loon.	Date Started	:	05-08-2009			
W.O. No.*	:		Contract No.*		Date Completed	:	27-08-2009			
GCE Serial No.	:	WQM082009	Sampling Date*	: 05-08-2009 / 12:50	Sample Type*	:	River Water			
GCE Reg. No.	:	GCE 081096	Test Unit No.	: CH 08258	Sample I.D.*	:	WE5 Duplicate			
Descripption	:	River Water								

DESCRIPTION	TEST REFERENCE (In-House Method based on)	TEST RESULT
Appearance	APHA 20ed 2110	
Odour	APHA 20ed 2150 B	Odour Characteristics :
ouour	AFHA 20ed 2150 B	Threshold Odour Number (TON) :
pH Value at temperature [] °C	APHA 20ed 4500-H ⁺ B	
Colour TCU	APHA 20ed 2120 B	
Turbidity NTU	APHA 20ed 2130 B	
Conductivity at 25°C µS/cm	APHA 20ed 2510 B	
Salinity g/L	APHA 20ed 2520 B	-
	APHA 20ed 4500-NH ₃ D	0.40
Nitrogen (Ammonia) mg/L	APHA 20ed 4500-NH ₃ E	
	APHA 18ed 4500-NH ₃ C	-
Nitrogen (Nitrate) mg/L	APHA 20ed 4500-NO3 E	0.38
Phosphorus mg/L	APHA 20ed 4500-P D	0.20
Biochemical Oxygen Demand (BOD ₅) mg/L	APHA 20ed 5210 B	1
Chemical Oxygen Demand (COD) mg/L	APHA 20ed 5220 D	
Total Suspended Solid mg/L	APHA 20ed 2540 D	

* : Information provided by client

Note : This laboratory has no responsibility on sampling and all the test results relate only to the sample tested as received.

REMARKS :	Sample l	ocation WE5.			
			End		
Tested By	:	T.W. Lam, K.L. Fong	Certified By	:	Life
			Name	:	Gu Chin
Checked By	:	Gu Chin	Post	:	Chemist

ę



TEST REPORT ON ENVIRONMENTAL ANALYSIS OF WATER

							Page 1 of 1		
Report No.	:	GCC090800288			Date of Issue	: 3	31-08-2009		
Client*	:	Environmental Pioneers &	Solutions Limited		Order Received	: (08-09-2008		
Client Address*	:	8/F, Chaiwan Industrial Ce	8/F, Chaiwan Industrial Centre Building, 20 Lee Chung Street, Chaiwan, HK.						
		DSD Contract No. DC/200	6/11 - Drainage In	nprovement in Southern La	intau & Constructio	on c	of		
Project*	:	Mui Wo Village Sewerage	Phase 1						
Test Location	:	G/F, 20 Pak Kung Street	, Hung Hom, Kow	loon.	Date Started	: 0)5-08-2009		
W.O. No.*	:	<u></u>	Contract No.*		Date Completed	: _2	27-08-2009		
GCE Serial No.	:	WQM082009	Sampling Date*	: 05-08-2009 / 12:40	Sample Type*	: _F	River Water		
GCE Reg. No.	:	GCE 081096	Test Unit No.	: CH 08258	Sample I.D.*	: _\	VE6		
Descripption	;	River Water							

DESCRIPTION		TEST REFERENCE (In-House Method based on)	TEST RESULT
Appearance		APHA 20ed 2110	
Odour		APHA 20ed 2150 B	Odour Characteristics :
		AFRA ZUEU ZIOU B	Threshold Odour Number (TON) :
pH Value at temperature [] °C	APHA 20ed 4500-H ⁺ B	
Colour	тси	APHA 20ed 2120 B	-
Turbidity	NTU	APHA 20ed 2130 B	-
Conductivity at 25°C µS/	/cm	APHA 20ed 2510 B	
Salinity	g/L	APHA 20ed 2520 B	
		APHA 20ed 4500-NH ₃ D	0.01
Nitrogen (Ammonia) r	ng/L	APHA 20ed 4500-NH ₃ E	
		APHA 18ed 4500-NH ₃ C	
Nitrogen (Nitrate)	ng/L	APHA 20ed 4500-NO3 ⁻ E	0.20
Phosphorus n	ng/L	APHA 20ed 4500-P D	0.02
Biochemical Oxygen Demand (BOD ₅) n	ng/L	APHA 20ed 5210 B	2
Chemical Oxygen Demand (COD) n	ng/L	APHA 20ed 5220 D	
Total Suspended Solid n	ng/L	APHA 20ed 2540 D	

* : Information provided by client

Note : This laboratory has no responsibility on sampling and all the test results relate only to the sample tested as received.

Sample received on 05 August 2009.

REMARKS :	Sample Location WE6.						
		End					
Tested By	:	T.W. Lam, K.L. Fong	Certified By	:	List		
			Name	:	Gu Chin		
Checked By	:	Gu Chin	Post	:	Chemist		

Form No. : EWA-D2/R (19-1-2009)

:



TEST REPORT ON ENVIRONMENTAL ANALYSIS OF WATER

							Page 1 of 1
Report No.	:	GCC090800296			Date of Issue	:	31-08-2009
=4							
Client*	:	Environmental Pioneers &	Solutions Limited		Order Received	:	08-09-2008
Client Address*	:	8/F, Chaiwan Industrial C	entre Building, 20 I	Lee Chung Street, Chaiwa	n, HK.		
		DSD Contract No. DC/20	06/11 - Drainage Ir	nprovement in Southern La	antau & Constructi	on	of
Project*	;	Mui Wo Village Sewerage Phase 1					
Test Location	:	G/F, 20 Pak Kung Stree	et, Hung Hom, Kow	loon.	Date Started	:	05-08-2009
W.O. No.*	:		Contract No.*	:	Date Completed	:	27-08-2009
GCE Serial No.	:	WQM082009	Sampling Date*	: 05-08-2009 / 12:40	Sample Type*	:	River Water
GCE Reg. No.	:	GCE 081096	Test Unit No.	: CH 08258	Sample I.D.*	:	WE6 Duplicate
Descripption	:	River Water					

DESCRIPTION		TEST REFERENCE (In-House Method based on)	TEST RESULT
Appearance		APHA 20ed 2110	
Odour		APHA 20ed 2150 B	Odour Characteristics :
		ATTIA 2000 2100 B	Threshold Odour Number (TON) :
pH Value at temperature [] °C	APHA 20ed 4500-H $^+$ B	
Colour	тси	APHA 20ed 2120 B	
Turbidity	ΝΤυ	APHA 20ed 2130 B	
Conductivity at 25°C	μS/cm	APHA 20ed 2510 B	
Salinity	g/L	APHA 20ed 2520 B	
		APHA 20ed 4500-NH ₃ D	0.02
Nitrogen (Ammonia)	mg/L	APHA 20ed 4500-NH ₃ E	
		APHA 18ed 4500-NH ₃ C	
Nitrogen (Nitrate)	mg/L	APHA 20ed 4500-NO3 ⁻ E	0.19
Phosphorus	mg/L	APHA 20ed 4500-P D	0.02
Biochemical Oxygen Demand (B	OD ₅) mg/L	APHA 20ed 5210 B	2
Chemical Oxygen Demand (COD)) mg/L	APHA 20ed 5220 D	
Total Suspended Solid	mg/L	APHA 20ed 2540 D	

* : Information provided by client

Note : This laboratory has no responsibility on sampling and all the test results relate only to the sample tested as received.

Sample received on 05 August 2009.

REMARKS :	Sample Loc	ation WE6.			
		End			
Tested By	•==vi.v/ska	T.W. Lam, K.L. Fong	Certified By	:	Lask
			Name	;	Gu Chin
Checked By		Gu Chin	Post	:	Chemist

Form No. : EWA-D2/R (19-1-2009)

Appendix E



大成環境科技拓展有限公司

Environmental Pioneers and Solutions Limited

Monitoring Location			N1	N2	
Description of Location			Façade	Façade	
Date of Monitoring			3/8/2	2009	
Measurement Start Time	е	(hhmm)	15:00	14:20	
Measurement Time Len	gth	(mins.)	30 r	mins	
Noise Meter Model/ Ider	ntificatio	n	ACO Japan,	model 6224	
Calibrator Model/ Identif	ication		Castle Gro	up, GA607	
Wind Speed	Wind Speed (m/s)		0.5	1.1	
	L90	(dB(A))	43.5	59.5	
Measurement Results	L10	(dB(A))	49.7	69.9	
	Leq	(dB(A))	47.4	66.4	
Weather condition:			Sunny		
Malor Construction Noise Sourse(s) During			no construction works are being carried out during measurement.	1. Excavator noise	
Other Noise Source(s) During Monitoring				1. Public noise	
Remarks					

	Name & Designation	<u>Signature</u>	Date:
Droporod by	limmu Chang	1	2/8/2000
Prepared by:	Jimmy Cheng	- X-	3/8/2009



Monitoring Location			N3	N4	
Description of Location			Freefield	Facede	
Date of Monitoring			3/8/2	2009	
Measurement Start Time	е	(hhmm)	13:05	13:40	
Measurement Time Len	gth	(mins.)	30 ו	mins	
Noise Meter Model/ Ider	ntificatio	n	ACO Japan,	, model 6224	
Calibrator Model/ Identif	ication		Castle Gro	oup, GA607	
Wind Speed (m/s)		1.3	0.8		
	L90	(dB(A))	52.3	48.2	
Measurement Results	L10	(dB(A))	61.8	58.3	
	Leq	(dB(A))	61.3	56.9	
Weather condition:			Sunny		
Major Construction Noise Sourse(s) During Monitoring			1. Excavator noise	no construction works are being carried out during measurement.	
Other Noise Source(s) During Monitoring			1. Public noise 2. Traffic noise (Bicycles)	1. Public noise	
Remarks					

	Name & Designation	<u>Signature</u>	Date:
Prepared by:	Jimmy Cheng	A	3/8/2009
		1	



大成環境科技拓展有限公司

Environmental Pioneers and Solutions Limited

Monitoring Location			N1	N2	
Description of Location			Façade	Façade	
Date of Monitoring			10/8/	/2009	
Measurement Start Time	e	(hhmm)	13:35	13:00	
Measurement Time Len	gth	(mins.)	30 r	mins	
Noise Meter Model/ Ider	ntificatio	n	ACO Japan,	model 6224	
Calibrator Model/ Identif	ication		Castle Gro	up, GA607	
Wind Speed	(r	n/s)	0.5	0.7	
	L90	(dB(A))	44.6	57.3	
Measurement Results	L10	(dB(A))	51.3	67.5	
	Leq	(dB(A))	48.7	64.1	
Weather condition:			Sunny		
Major Construction Noise Sourse(s) During Monitoring			no construction works are being carried out during measurement.	 Excavator noise Concrete curing noise Construction truck noise 	
Other Noise Source(s) During Monitoring				1. Public noise	
Remarks					

	Name & Designation	<u>Signature</u>	Date:
		1	
Prepared by:	Jimmy Cheng	- Ym	10/8/2009



Monitoring Location			N3	N4	
Description of Location			Freefield	Facede	
Date of Monitoring			10/8/	/2009	
Measurement Start Time	e	(hhmm)	10:50	11:25	
Measurement Time Len	gth	(mins.)	30 1	mins	
Noise Meter Model/ Ider	ntificatio	n	ACO Japan	model 6224	
Calibrator Model/ Identif	ication		Castle Gro	up, GA607	
Wind Speed	(r	n/s)	0.8	0.7	
	L90	(dB(A))	43.3	46.1	
Measurement Results	L10	(dB(A))	53.2	57.7	
	Leq	(dB(A))	51.4	56.0	
Weather condition:			Sunny		
Major Construction Noise Source(s) During			no construction works are being carried out during measurement.	no construction works are being carried out during measurement.	
Other Noise Source(s) During Monitoring			1. Public noise 2. Traffic noise (Bicycles)	1. Public noise	
Remarks					

	Name & Designation	<u>Signature</u>	Date:
Prepared by:	Jimmy Cheng		10/8/2009

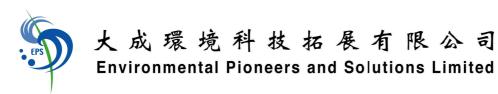


大成環境科技拓展有限公司

Environmental Pioneers and Solutions Limited

Monitoring Location		N1	N2		
Description of Location		Façade	Façade		
Date of Monitoring			17/8/	/2009	
Measurement Start Time	e	(hhmm)	14:40	15:15	
Measurement Time Len	gth	(mins.)	30 r	mins	
Noise Meter Model/ Ider	ntificatio	n	ACO Japan,	model 6224	
Calibrator Model/ Identif	ication		Castle Gro	up, GA607	
Wind Speed	(r	n/s)	0.5	1.3	
	L90	(dB(A))	44.2	52.8	
Measurement Results	L10	(dB(A))	51.2	59.6	
	Leq	(dB(A))	48.7	56.9	
Weather condition:			Sunny		
Major Construction Noise Sourse(s) During Monitoring			No construction works are being carried out during measurement.	 Excavtor noise Power generator noise Hammer noise 	
Other Noise Source(s) During Monitoring				1. Public noise	
Remarks					

	Name & Designation	Signature	Date:
Prepared by:	Jimmy Cheng	1	17/8/2009
r repared by.			



Monitoring Location		N3	N4		
Description of Location			Freefield	Facede	
Date of Monitoring			17/8/	/2009	
Measurement Start Time	e	(hhmm)	14:05	13:30	
Measurement Time Len	gth	(mins.)	30 ו	mins	
Noise Meter Model/ Ider	ntificatio	n	ACO Japan,	model 6224	
Calibrator Model/ Identif	ication		Castle Gro	up, GA607	
Wind Speed	(r	n/s)	0.9	0.7	
	L90	(dB(A))	44.1	46.7	
Measurement Results	L10	(dB(A))	56.6	53.1	
	Leq	(dB(A))	54.0	50.6	
Weather condition:			Sunny		
Major Construction Noise Sourse(s) During Monitoring			1. House keeping activities	1. Excavator noise	
Other Noise Source(s) During Monitoring			1. Public noise 2. Traffic noise (Bicycle)	1. Public noise	
Remarks					

	Name & Designation	<u>Signature</u>	Date:
Prepared by:	Jimmy Cheng	1	17/8/2009
Fiepaieu by.			17/0/2009



大成環境科技拓展有限公司

Environmental Pioneers and Solutions Limited

Monitoring Location		N1	N2		
Description of Location		Façade	Façade		
Date of Monitoring			24/8/	/2009	
Measurement Start Time	e	(hhmm)	14:45	14:10	
Measurement Time Len	gth	(mins.)	30 r	mins	
Noise Meter Model/ Ider	ntificatio	n	ACO Japan,	model 6224	
Calibrator Model/ Identif	ication		Castle Gro	up, GA607	
Wind Speed	(r	n/s)	0.7	1.1	
	L90	(dB(A))	45.3	55.5	
Measurement Results	L10	(dB(A))	51.2	62.2	
	Leq	(dB(A))	48.7	60.1	
Weather condition:			Sunny		
Major Construction Noise Sourse(s) During Monitoring			No construction works are being carried out during measurement.	 Excavator noise Power generator noise Hammer noise 	
Other Noise Source(s) During Monitoring				1. Public noise	
Remarks					

	Name & Designation	<u>Signature</u>	Date:
		1	
Prepared by:	Jimmy Cheng	- Ym	24/8/2009



Monitoring Location		N3	N4		
Description of Location		Freefield	Facede		
Date of Monitoring			24/8/	/2009	
Measurement Start Time	e	(hhmm)	13:00	13:35	
Measurement Time Len	gth	(mins.)	30 1	mins	
Noise Meter Model/ Ider	ntificatio	n	ACO Japan	model 6224	
Calibrator Model/ Identif	ication		Castle Gro	up, GA607	
Wind Speed	(r	n/s)	0.6	0.8	
	L90	(dB(A))	50.2	50.3	
Measurement Results	L10	(dB(A))	55.9	57.5	
	Leq	(dB(A))	54.6	55.3	
Weather condition:			Sunny		
Major Construction Noise Sourse(s) During Monitoring			No construction works are being carried out during measurement.	No construction works are being carried out during measurement.	
Other Noise Source(s) During Monitoring		1. Public noise 2. Traffic noise (Bicycle)	1. Public noise		
Remarks					

	Name & Designation	<u>Signature</u>	Date:
		1	
Prepared by:	Jimmy Cheng	Ym	24/8/2009
		/	



大成環境科技拓展有限公司

Environmental Pioneers and Solutions Limited

Monitoring Location		N1	N2		
Description of Location		Façade	Façade		
Date of Monitoring			31/8/	/2009	
Measurement Start Time	е	(hhmm)	14:50	14:15	
Measurement Time Len	gth	(mins.)	30 ו	mins	
Noise Meter Model/ Ider	ntificatio	n	ACO Japan	, model 6224	
Calibrator Model/ Identif	ication		Castle Gro	oup, GA607	
Wind Speed	(r	n/s)	0.6	0.8	
	L90	(dB(A))	45.6	51.3	
Measurement Results	L10	(dB(A))	51.1	56.7	
	Leq	(dB(A))	49.3	58.1	
Weather condition:			Sunny		
Major Construction Noise Sourse(s) During Monitoring			No construction works are being carried out during measurement.	No construction works are being carried out during measurement.	
Other Noise Source(s) During Monitoring				1. Public noise	
Remarks					

	Name & Designation	<u>Signature</u>	Date:
Dressed by	limmer Chang	1	24/0/2000
Prepared by:	Jimmy Cheng	Y~~	31/8/2009



Monitoring Location		N3	N4		
Description of Location	Description of Location		Freefield	Facede	
Date of Monitoring			31/8/	/2009	
Measurement Start Time	e ((hhmm)	13:05	13:40	
Measurement Time Len	gth	(mins.)	30 ו	mins	
Noise Meter Model/ Ider	ntificatio	n	ACO Japan	model 6224	
Calibrator Model/ Identif	ication		Castle Gro	up, GA607	
Wind Speed	(n	n/s)	0.9	0.8	
	L90	(dB(A))	48.6	50.1	
Measurement Results	L10	(dB(A))	58.7	58.4	
	Leq	(dB(A))	56.4	57.2	
Weather condition:			Sunny		
Major Construction Noise Sourse(s) During Monitoring			1. Excavator noise	No construction works are being carried out during measurement.	
Other Noise Source(s) During Monitoring			1. Public noise 2. Traffic noise (Bicycle)	1. Public noise	
Remarks					

	Name & Designation	<u>Signature</u>	Date:
Prepared by:	Jimmy Cheng	1	31/8/2009
Fiepaieu by.			51/0/2009

Appendix F1

Water Quality Monitoring Data Sheet

Water Quality Monitoring - Summary of On-site measurement results

Date of Sampling:	3/8/200	9		Sunny	/		-									-			-			
Monitoring Location	M1		M2			М3			M4			C1			C2			C3				
Time (hhmm)	1125			1120			1115			1135			1045			1055			1105			
Tide Mode	mid-ebb			mid-ebb			mid-ebb			mid-ebb				mid-ebb			mid-ebb			mid-ebb		
River Condition	normal			normal			normal			normal			normal			normal			normal			
Water Depth (m)	<1			< 1			< 1				1.2			< 1			< 1			< 1		
pH value	7.28			7.34			6.96				7.22		6.65			6.24			6.66			
Temperature (oC)	30.2			30.5			30.8				31.3		28.7			29.6			30.5			
Salinity (ppt)	3.4			2.4			8.4			7.1			0.0			0.0			0.5			
Turbidity (NTU)	4.5	4.5	Average	0.0	0.0	Average	5.8	5.8	Average	7.7	7.7	Average	0.0	0.0	Average	0.0	0.0	Average	4.7	4.7	Average	
			4.5			0.0			5.8			7.7			0.0			0.0			4.7	
DO (mg/l)	8.03	8.03	Average	7.34	7.34	Average	6.13	6.13	Average	6.97	6.97	Average	7.62	7.62	Average	8.01	8.01	Average	7.52	7.52	Average	
			8.03			7.34			6.13			6.97			7.62			8.01			7.52	
DO Saturation (%)	109	109	Average	99	99	Average 99	84	84	Average 84	97	97	Average 97	98	98	Average 98	106	106	Average	100	100	Average	

Name

Signature

Prepared By: Jimmy Cheng

Date

3/8/2009

remark or observation:

Water Quality Monitoring - Summary of On-site measurement results

Date of Sampling:	5/8/200	9		Rainy											1						
Monitoring Location	M1		M2		М3			M4			C1			C2			C3				
Time (hhmm)	1150			1140			1200			1130			1215			1225			1250		
Tide Mode	mid-ebb			mid-ebb			mid-ebb			mid-ebb			mid-ebb			mid-ebb			mid-ebb		
River Condition	normal			normal			normal			normal			normal			normal			normal		
Water Depth (m)	<1			< 1			< 1			1.5			< 1			< 1			< 1		
pH value	6.73			7.55			6.86				7.06	7.06			7.10		6.51			6.87	
Temperature (oC)	27.0			26.6			27.1				26.9		26.7			26.4			26.7		
Salinity (ppt)	0.3			0.2			2.2			3.0			0.1			0.0			0.5		
Turbidity (NTU)	11.8	11.8	Average 11.8	7.9	7.9	Average	10.4	10.4	Average	17.1	17.1	Average	4.5	4.5	Average 4.5	9.3	9.3	Average 9.3	7.8	7.8	Average 7.8
DO (mg/l)	7.41	7.41	Average	8.18	8.18	Average	6.11	6.11	Average	7.14	7.14	Average	7.33	7.33	4.5 Average	8.19	8.19	9.5 Average	6.03	6.03	Average
			7.41			8.18			6.11			7.14			7.33			8.19			6.03
DO Saturation (%)	93	93	Average	103	103	Average	78	78	Average	90	90	Average	92	92	Average	102	102	Average	74	74	Average
			93	103		78			90			92					102	7			

Name

Signature

The reading of turbidity of location M2 and M4 were

Prepared By: Jimmy Cheng

Date 5/8/2009

remark or observation: exceeded the action level due to rain remark or

Water Quality Monitoring - Summary of On-site measurement results

Date of Sampling:	7/82009)	1	Sunny	/													ī			
Monitoring Location	M1		М2		М3			M4			C1			C2			C3				
Time (hhmm)	1355			1400			1405			1345			1415			1425			1435		
Tide Mode	mid-ebb			mid-ebb			mid-ebb			mid-ebb				mid-ebb			mid-ebb			mid-ebb	
River Condition	normal			normal			normal			normal			normal			normal			normal		
Water Depth (m)	<1			< 1			< 1			1.2			< 1			< 1			< 1		
pH value	7.06			6.87			6.92				7.03		6.87			6.74			6.94		
Temperature (oC)	30.0			30.1			30.6				30.0		29.8			29.2			30.1		
Salinity (ppt)	0.8			0.2			3.0			4.0			0.0			0.0			0.2		
Turbidity (NTU)	1.7	1.7	Average	0.0	0.0	Average 0.0	3.8	3.8	Average 3.8	2.7	2.7	Average	0.0	0.0	Average 0.0	0.0	0.0	Average	3.2	3.2	Average
DO (mg/l)	6.96	6.96	Average 6.96	6.67	6.67	Average 6.67	6.04	6.04	Average 6.04	6.11	6.11	Average 6.11	6.69	6.69	Average 6.69	6.86	6.86	Average 6.86	4.86	4.86	Average 4.86
DO Saturation (%)	93	93	Average 93	88	88	Average 88	81	81	Average 81	81	81	Average 81	88	88	Average 88	90	90	Average 90	64	64	Average 64

Name

Prepared By: Jimmy Cheng

Signature

Date 7/82009

remark or observation:

Water Quality Monitoring - Summary of On-site measurement results

Date of Sampling:	10/8/20	09		Sunny	ý				ī												
Monitoring Location		M1			M2			М3			M4			C1			C2			C3	
Time (hhmm)		1515			1505			1455			1525			1425			1435			1445	
Tide Mode		mid-ebb)		mid-ebb			mid-ebb)		mid-ebb			mid-ebb)		mid-ebb)		mid-ebb)
River Condition		normal			Muddy			normal													
Water Depth (m)		<1			< 1			< 1			1.2			< 1			< 1			< 1	
pH value		7.07			6.94			7.01			7.39			6.63			6.84			6.97	
Temperature (oC)		29.7			31.0			31.7			31.4			30.1			30.2			30.3	
Salinity (ppt)		0.2			0.1			2.2			4.7			0.0			0.0			0.1	
Turbidity (NTU)	7.7	7.7	Average	110.8	110.8	Average	6.6	6.6	Average	12.2	12.2	Average	0.0	0.0	Average	0.0	0.0	Average	8.1	8.1	Average
			7.7			110.8			6.6			12.2			0.0			0.0			8.1
DO (mg/l)	6.57	6.57	Average	5.96	5.96	Average	6.59	6.59	Average	6.82	6.82	Average	6.26	6.26	Average	6.42	6.42	Average	5.23	5.23	Average
			6.57			5.96			6.59			6.82			6.26			6.42			5.23
DO Saturation (%)	87	87	Average	80	80	Average	90	90	Average	93	93	Average	83	83	Average	86	86	Average	70	70	Average
			87			80			90			93			83			86			70

Name

Signature

Muddy water is observed at location M2 due to the

Prepared By: Jimmy Cheng

10/8/2009

Date

remark or observation: construction activities being carried out in bottleneck B

of Tai Tei Tong river at the location M2

Water Quality Monitoring - Summary of On-site measurement results

Monitoring Location	N	11		M2		M3		M4		C1			C2		C3	
Time (hhmm)				1510									1500			
Tide Mode	mid	-ebb		mid-ebb		mid-ebb		mid-ebb		mid-ebb	1		mid-ebb)	mid-ebb)
River Condition	nor	mal		normal		normal		normal		normal			normal		normal	
Water Depth (m)	<	1		< 1		< 1		1.1		< 1			< 1		< 1	
pH value				6.99									6.82			
Temperature (oC)				28.4									27.7			
Salinity (ppt)				0.0									0.1			
Turbidity (NTU)		Average	2.1	2.1	Average		Average		Average		Average	0.7	0.7	Average		Average
		#DIV/0!			2.1		#DIV/0!		#DIV/0!		#DIV/0!			0.7		#DIV/0
DO (mg/l)		Average	6.68	6.68	Average		Average		Average		Average	6.43	6.43	Average		Average
		#DIV/0!			6.68		#DIV/0!		#DIV/0!		#DIV/0!			6.43		#DIV/0
DO Saturation (%)		Average	83	83	Average		Average		Average		Average	82	82	Average		Average
		#DIV/0!			83		#DIV/0!		#DIV/0!		#DIV/0!			82		#DIV/0

Name

Signature

Prepared By: Jimmy Cheng

Date

remark or observation:

Water Quality Monitoring - Summary of On-site measurement results

Monitoring Location		M1			M2			М3			M4			C1			C2			C3	
Time (hhmm)		1540			1550			1600			1530			1610			1620			1630	
Tide Mode		mid-ebb)		mid-ebb			mid-ebb)		mid-ebb			mid-ebb)		mid-ebb	,		mid-ebb)
River Condition		normal			normal			normal			normal			normal			normal			normal	
Water Depth (m)		<1			< 1			< 1			1.1			< 1			< 1			< 1	
pH value		6.98			6.83			6.86			7.05			6.64			6.73			6.83	
Temperature (oC)		26.3			264			26.6			26.5			26.4			26.2			26.6	
Salinity (ppt)		0.1			0.0			0.6			1.2			0.0			0.0			0.0	
Turbidity (NTU)	27.8	27.8	Average	131.4	131.4	Average	14.3	14.3	Average	99.6	99.6	Average	19.1	19.1	Average	3.4	3.4	Average	10.1	10.1	Average
			27.8			131.4			14.3			99.6			19.1			3.4			10.1
DO (mg/l)	6.32	6.32	Average	6.45	6.45	Average	6.03	6.03	Average	5.94	5.94	Average	6.22	6.22	Average	6.79	6.79	Average	4.66	4.66	Average
			6.32			6.45			6.03			5.94			6.22			6.79			4.66
DO Saturation (%)	78	78	Average	81	81	Average	75	75	Average	74	74	Average	77	77	Average	84	84	Average	57	57	Average
			78			81			75			74			77			84			57

Name

Signature

Muddy water is observed at location M1 due to the silted water leakage at box culvert and

Prepared By: Jimmy Cheng

12/8/2009

Date

remark or observation: M2 due to the construction works being carried out in the bottleneck B of Tai Tei Tong river,

so the silted water flow to location M4, the reading of turbidity of M4 exceeded limit level.

Water Quality Monitoring - Summary of On-site measurement results

Date of Sampling: 13/8/2009 Rainy Monitoring М2 М4 C2 Location M1 M3 C1 C3 1650 1640 1630 1705 1600 1610 1620 Time (hhmm) mid-ebb mid-ebb mid-ebb mid-ebb mid-ebb mid-ebb mid-ebb Tide Mode Muddy normal normal Muddy Muddy normal normal River Condition <1 < 1 < 1 1.1 < 1 < 1 < 1 Water Depth (m) 6.86 6.73 6.86 7.02 6.63 6.57 6.89 pH value 25.8 26.0 26.7 26.2 26.4 26.3 25.6 Temperature (oC) 0.0 0.0 0.5 0.0 0.0 0.0 0.0 Salinity (ppt) Average Average Average Average Average Average Average 22.7 13.7 Turbidity (NTU) 17.6 17.6 7.4 7.4 11.8 11.8 22.7 13.7 2.3 2.3 12.2 12.2 17.6 7.4 11.8 22.7 13.7 2.3 12.2 Average Average Average Average Average Average Average DO (mg/l) 6.49 6.71 6.71 6.07 6.07 6.56 6.56 6.43 6.43 6.78 6.78 4.74 6.49 4.74 6.49 6.71 6.07 6.56 6.43 6.78 4.74 Average Average Average Average Average Average Average DO Saturation (%) 81 81 83 83 75 75 82 82 79 79 83 83 60 60 81 83 75 82 79 83 60

Name

Signature

Muddy water is observed at location M1 due to the silted water leakage at box culvert and

Prepared By: Jimmy Cheng

13/8/2009

Date

remark or observation: M2 due to the construction works being carried out in the bottleneck B of Tai Tei Tong river,

so the silted water flow to location M4, the reading of turbidity of M4 exceeded limit level.

Water Quality Monitoring - Summary of On-site measurement results

Date of Sampling:	14/8/20	09		Sunny	ý		-													
Monitoring Location		M1			M2			М3			М4			C1			C2		C3	
Time (hhmm)		1640			1630						1650			1610			1620			
Tide Mode		mid-ebb)		mid-ebb			mid-ebb)		mid-ebb			mid-ebb			mid-ebb)	mid-ebb	1
River Condition		normal			normal			normal			normal			normal			normal		normal	
Water Depth (m)		<1			< 1			< 1			< 1			< 1			< 1		< 1	
pH value		6.89			6.71						6.98			6.63			6.78			
Temperature (oC)		27.5			26.9						27.5			26.1			26.3			
Salinity (ppt)		0.0			0.0						0.5			0.0			0.0			
Turbidity (NTU)	7.7	7.7	Average	3.8	3.8	Average			Average	9.1	9.1	Average	2.5	2.5	Average	0.3	0.3	Average		Average
			7.7			3.8			#DIV/0!			9.1			2.5			0.3		#DIV/0
DO (mg/l)	6.47	6.47	Average	6.63	6.63	Average			Average	6.54	6.54	Average	6.71	6.71	Average	6.67	6.67	Average		Average
			6.47			6.63			#DIV/0!			6.54			6.71			6.67		#DIV/C
DO Saturation (%)	82	82	Average	83	83	Average			Average	83	83	Average	83	83	Average	83	83	Average		Average
			82			83			#DIV/0!			83			83			83		#DIV/C

Name

Signature

Prepared By: Jimmy Cheng

14/8/2009

Date

remark or observation:

Water Quality Monitoring - Summary of On-site measurement results

Date of Sampling:	17/8/20	09		Sunny	/																
Monitoring Location		M1			M2			М3			M4			C1			C2			C3	
Time (hhmm)		1055			1100			1105			1045			1115			1125			1135	
Tide Mode		mid-ebt)		mid-ebb	,		mid-ebb)		mid-ebb)		mid-ebb)		mid-ebb)		mid-ebb)
River Condition		normal			Muddy			normal			Muddy			normal			normal			normal	
Water Depth (m)		<1			< 1			< 1			< 1			< 1			< 1			< 1	
pH value		7.11			6.83			6.99			7.38			6.75			6.81			6.88	
Temperature (oC)		27.3			28.5			29.2			28.7			27.3			28.0			28.6	
Salinity (ppt)		0.1			0.0			2.0			2.2			0.0			0.0			0.1	
Turbidity (NTU)	3.8	3.8	Average 3.8	19.5	19.5	Average	2.8	2.8	Average	20.9	20.9	Average	0.0	0.0	Average 0.0	0.0	0.0	Average	1.2	1.2	Average
DO (mg/l)	6.78	6.78	Average 6.78	6.11	6.11	Average	6.57	6.57	Average 6.57	6.38	6.38	Average 6.38	6.43	6.43	Average 6.43	6.45	6.45	Average 6.45	5.63	5.63	Average 5.63
DO Saturation (%)	86	86	Average 86	79	79	Average	86	86	Average 86	83	83	Average 83	81	81	Average 81	83	83	Average 83	73	73	Average 73

Name

Signature

Muddy water is observed at location M2 due to the construction remark or activities being carried out in bottleneck B of Tai Tei Tong

Prepared By: Jimmy Cheng

17/8/2009

Date

River and the muddy water flow to the lower location M4

Water Quality Monitoring - Summary of On-site measurement results

Date of Sampling: 1	8/8/2009		Sunny	y													
Monitoring Location	M	I		M2		М3			M4		C1			C2		C3	
Time (hhmm)				1220					1210					1230			
Tide Mode	mid-e	bb		mid-ebb		mid-ebb)		mid-ebb)	mid-ebb	•		mid-ebb)	mid-ebb)
River Condition	norm	nal		Muddy		normal			Muddy		normal			normal		normal	
Water Depth (m)	<1			< 1		< 1			1.1		< 1			< 1		< 1	
pH value				6.84					7.25					6.82			
Temperature (oC)				28.6					28.8					28.1			
Salinity (ppt)				0.3					3.2					0.0			
Turbidity (NTU)		Average	41.4.	41.4	Average		Average	23.4	23.4	Average		Average	0.0	0.0	Average		Average
		#DIV/0!			41.4		#DIV/0!			23.4		#DIV/0!			0.0		#DIV/0
DO (mg/l)		Average	6.07	6.07	Average		Average	6.10	6.10	Average		Average	6.71	6.71	Average		Average
		#DIV/0!			6.07		#DIV/0!			6.10		#DIV/0!			6.71		#DIV/0
DO Saturation (%)		Average	78	78	Average		Average	79	79	Average		Average	87	87	Average		Average
		#DIV/0!			78		#DIV/0!			79		#DIV/0!			87		#DIV/0

Name

Signature

Muddy water is observed at location M2 due to the construction observation: activities being carried out in bottleneck B of Tai Tei Tong

Prepared By: Jimmy Cheng

Date 18/8/2009

River and the muddy water flow to the lower location M4

Water Quality Monitoring - Summary of On-site measurement results

Date of Sampling:	19/8/20	09		Sunny	/																
Monitoring Location		M1			M2			М3			M4			C1			C2			C3	
Time (hhmm)		1145			150			1155			1135			1210			1220			1230	
Tide Mode		mid-ebb)		mid-ebb	,		mid-ebb)		mid-ebb			mid-ebb)		mid-ebb)		mid-ebb)
River Condition		normal			Muddy			normal													
Water Depth (m)		<1			< 1			< 1			< 1			< 1			< 1			< 1	
pH value		7.13			6.90			6.95			7.25			6.83			7.07			6.67	
Temperature (oC)		28.6			29.3			29.8			29.6			28.3			28.5			29.1	
Salinity (ppt)		2.0			0.9			5.1			6.0			0.0			0.0			1.1	
Turbidity (NTU)	2.8	2.8	Average	67.4	67.4	Average 67.4	2.7	2.7	Average	13.2	13.2	Average	0.0	0.0	Average	0.0	0.0	Average	3.2	3.2	Average 3.2
DO (mg/l)	6.69	6.69	Average 6.69	6.15	6.15	Average	6.11	6.11	Average 6.11	6.13	6.13	Average 6.13	6.37	6.37	Average 6.37	6.52	6.52	Average 6.52	5.26	5.26	Average 5.26
DO Saturation (%)	87	87	Average 87	81	81	Average 81	81	81	Average 81	81	81	Average 81	83	83	Average 83	84	84	Average	71	71	Average 71

Name

Signature

Date

19/8/2009

Muddy water is observed at location M2 due to the construction activities being carried out in bottleneck B of Tai Tei Tong River where is the upper of the locaion M2

Prepared By: Jimmy Cheng

Water Quality Monitoring - Summary of On-site measurement results

Date of Sampling: 2	0/8/2009	Sui	шу												
Monitoring Location	M1		M2		М3		M4		C1			C2		C3	
Time (hhmm)			1140									1155			
Tide Mode	mid-ebb		mid-eb	b	mid-ebb)	mid-ebb		mid-ebb)		mid-ebb)	mid-ebb)
River Condition	normal		Mudd	/	normal		normal		normal			normal		normal	
Water Depth (m)	<1		< 1		< 1		1.1		< 1			< 1		< 1	
pH value			7.31									7.29			
Temperature (oC)			29.5									29.1			
Salinity (ppt)			7.5									0.0			
Turbidity (NTU)	Ave	erage 30.	9 30.9	Average		Average		Average		Average	0.0	0.0	Average		Average
	#D	IV/0!		30.9		#DIV/0!		#DIV/0!		#DIV/0!			0.0		#DIV/0
DO (mg/l)	Ave	erage 6.0	3 6.03	Average		Average		Average		Average	6.46	6.46	Average		Average
	#D	IV/0!		6.03		#DIV/0!		#DIV/0!		#DIV/0!			6.46		#DIV/0
DO Saturation (%)	Ave	erage 79	79	Average		Average		Average		Average	85	85	Average		Average
	#D	IV/0!		79		#DIV/0!		#DIV/0!		#DIV/0!			85		#DIV/0

Name

Signature

Date

20/8/2009

Muddy water is observed at location M2 due to the construction activities being carried out in bottleneck B of Tai Tei Tong River where is the upper of the locaion M2

Prepared By: Jimmy Cheng

Water Quality Monitoring - Summary of On-site measurement results

Date of Sampling:	21/8/20	09		Sunny	/																
Monitoring Location		M1			M2			М3			M4			C1			C2			C3	
Time (hhmm)		1320			1330			1335			1305			1345			1355			1410	
Tide Mode		mid-ebb)		mid-ebb	1		mid-ebb)		mid-ebb	•		mid-ebb	1		mid-ebb)		mid-ebb)
River Condition		normal			normal			normal			normal			normal			normal			normal	
Water Depth (m)		<1			< 1			< 1			1.3			< 1			< 1			< 1	
pH value		7.31			7.04			6.97			7.34			7.12			7.11			6.85	
Temperature (oC)		29.9			31.1			30.9			30.5			29.6			30.2			32.1	
Salinity (ppt)		3.8			1.1			8.4			9.1			0.0			0.1			1.1	
Turbidity (NTU)	7.7	7.7	Average	6.8	6.8	Average	2.0	2.0	Average	8.9	8.9	Average	0.0	0.0	Average 0.0	0.0	0.0	Average	4.5	4.5	Average
DO (mg/l)	6.39	6.39	7.7 Average	6.01	6.01	6.8 Average	6.37	6.37	2.0 Average	6.13	6.13	8.9 Average	6.32	6.32	0.0 Average	6.26	6.26	0.0 Average	6.49	6.49	4.5 Average
			6.39			6.01			6.37			6.13			6.32			6.26			6.49
DO Saturation (%)	85	85	Average	81	81	Average	86	86	Average	80	80	Average	83	83	Average	84	84	Average	90	90	Average
			85			81			86			80			83			84			

Name

Signature

No construction works are being carried out in Tai Tei Tong observation: River during sampling. The high turbidity value at location

Prepared By: Jimmy Cheng

21/8/2009

Date

M2 is because of the poor water quality the day before.

Water Quality Monitoring - Summary of On-site measurement results

Date of Sampling:	24/8/20	09		Sunny	ý																
Monitoring Location		M1			M2			М3			M4			C1			C2			C3	
Time (hhmm)		1555			1645			1655			1605			1615			1625			1635	
Tide Mode		mid-ebb)		mid-ebb	,		mid-ebb)		mid-ebb			mid-ebb)		mid-ebb)		mid-ebb)
River Condition		normal			normal			normal			normal			normal			normal			normal	
Water Depth (m)		<1			< 1			< 1			< 1			< 1			< 1			< 1	
pH value		7.52			7.03			6.81			7.70			7.10			6.97			6.96	
Temperature (oC)		29.3			30.6			30.0			30.9			29.4			29.2			29.5	
Salinity (ppt)		0.3			0.0			1.8			4.5			0.0			0.0			0.2	
Turbidity (NTU)	7.7	7.7	Average	20.7	20.7	Average	5.5	5.5	Average	9.5	9.5	Average	0.0	0.0	Average	0.0	0.0	Average	4.0	4.0	Average
			7.7			20.7			5.5			9.5			0.0			0.0			4.0
DO (mg/l)	6.45	6.45	Average 6.45	6.03	6.03	Average	6.46	6.46	Average 6.46	6.81	6.81	Average 6.81	6.34	6.34	Average 6.34	6.25	6.25	Average 6.25	6.03	6.03	Average 6.03
DO Saturation (%)	85	85	Average 85	81	81	Average 81	86	86	Average 86	92	92	Average 92	84	84	Average 84	82	82	Average 82	79	79	Average 79

Name

Signature

Muddy water is observed at location M2 due to the silted

Prepared By: Jimmy Cheng

Date 24/8/2009

remark or observation: water leakage at bottleneck B of Tai Tei Tong River

Water Quality Monitoring - Summary of On-site measurement results

Date of Sampling: 25/8/2009 Sunny Monitoring M2 C2 Location M1 М3 Μ4 C1 C3 1455 1500 1505 1445 1515 1525 1535 Time (hhmm) mid-ebb mid-ebb mid-ebb mid-ebb mid-ebb mid-ebb mid-ebb Tide Mode normal normal normal normal normal normal normal River Condition 1.3 <1 < 1 < 1 < 1 < 1 < 1 Water Depth (m) 7.41 7.33 7.76 7.70 7.01 6.97 7.16 pH value 29.3 30.5 29.9 30.6 31.1 31.0 29.3 Temperature (oC) 0.5 0.0 3.6 12.0 0.0 0.0 0.1 Salinity (ppt) Average Average Average Average Average Average Average Turbidity (NTU) 2.8 2.8 0.0 0.0 3.9 3.9 7.8 7.8 0.0 0.0 0.0 0.0 2.1 2.1 2.8 0.0 3.9 7.8 0.0 0.0 2.1 Average Average Average Average Average Average Average DO (mg/l) 7.97 7.96 7.96 8.87 8.87 6.84 7.41 7.49 7.49 8.45 7.97 6.84 7.41 8.45 7.97 7.96 8.87 6.84 7.41 7.49 8.45 Average Average Average Average Average Average Average DO Saturation (%) 106 106 107 107 120 120 92 92 97 97 99 99 113 113 106 107 120 92 97 99 113

Name

Prepared By: Jimmy Cheng

Signature

25/8/2009

Date

remark or observation:

Water Quality Monitoring - Summary of On-site measurement results

Date of Sampling: 26/8/2009 Sunny Monitoring M2 C2 Location M1 М3 Μ4 C1 C3 1520 1500 1510 1530 1540 1550 1600 Time (hhmm) mid-ebb mid-ebb mid-ebb mid-ebb mid-ebb mid-ebb mid-ebb Tide Mode normal normal normal normal normal normal normal River Condition 1.3 <1 < 1 < 1 < 1 < 1 < 1 Water Depth (m) 7.41 7.32 7.37 7.93 7.12 7.03 7.24 pH value 30.6 30.5 30.8 32.1 34.0 33.6 31.4 Temperature (oC) 0.2 0.0 0.8 4.3 0.0 0.0 0.1 Salinity (ppt) Average Average Average Average Average Average Average Turbidity (NTU) 4.3 4.3 3.1 3.1 6.7 6.7 8.7 8.7 0.0 0.0 0.0 0.0 6.3 6.3 4.3 3.1 6.7 8.7 0.0 0.0 6.3 Average Average Average Average Average Average Average DO (mg/l) 7.95 7.78 7.78 9.05 8.38 7.11 7.36 7.36 8.07 7.95 9.05 8.38 7.11 8.07 7.95 7.78 9.05 8.38 7.11 7.36 8.07 Average Average Average Average Average Average Average DO Saturation (%) 108 108 107 107 129 129 119 119 96 96 99 99 110 110 108 107 129 119 96 99 110

Name

Signature

Date

26/8/2009

remark or observation:

Prepared By: Jimmy Cheng

Water Quality Monitoring - Summary of On-site measurement results

Date of Sampling: 31/8/2009 Sunny Monitoring M2 C2 Location M1 М3 Μ4 C1 C3 1045 1055 1105 1125 1135 1145 1115 Time (hhmm) mid-ebb mid-ebb mid-ebb mid-ebb mid-ebb mid-ebb mid-ebb Tide Mode normal normal normal normal normal normal normal River Condition <1 < 1 < 1 < 1 < 1 < 1 < 1 Water Depth (m) 7.22 7.00 7.42 7.01 7.02 7.25 7.12 pH value 28.5 29.3 30.7 30.8 28.1 28.7 31.1 Temperature (oC) 1.0 0.2 2.8 4.4 0.0 0.0 0.2 Salinity (ppt) Average Average Average Average Average Average Average 12.5 3.9 Turbidity (NTU) 6.8 6.8 4.7 4.7 14.9 14.9 12.5 0.0 0.0 0.0 0.0 3.9 6.8 4.7 14.9 12.5 0.0 0.0 3.9 Average Average Average Average Average Average Average DO (mg/l) 7.46 7.72 7.72 7.60 7.67 7.67 7.24 7.58 7.58 7.27 7.46 7.60 7.24 7.27 7.46 7.72 7.60 7.67 7.24 7.58 7.27 Average Average Average Average Average Average Average DO Saturation (%) 97 97 101 101 102 102 104 104 93 93 98 98 95 95 97 101 102 104 93 98 95

Name

Signature

Date

31/8/2009

remark or observation:

Prepared By: Jimmy Cheng

Appendix F2

Water Quality Monitoring Lab report



							Page 1 of 1
Report No.	:	GCC090800050			Date of Issue	:	15-08-2009
Client*	:	Environmental Pioneers &	Solutions Limited		P.O. Received	:	08-09-2008
Client Address*	:	8/F, Chaiwan Industrial Co	entre Building, 20	Lee Chung Street, Chaiw	van, HK.		
		DSD Contract No. DC/200	06/11 - Drainage l	mprovement in Southern	Lantau & Constructi	ion	of
Project*	:	Mui Wo Village Sewerage	Phase 1				
Test Location	:	G/F, 20 Pak Kung Stree	t, Hung Hom, Kow	loon.	Date Started	:	03-08-2009
W.O. No.*	:		Sample Type*	: River Water	Date Completed	:	04-08-2009
GCE Serial No.	:	WQM082009	GCE Reg. No.	: GCE 081096	Test Unit No.	:	CH 08258

Analysis Descript	ion	Т	est Meth	od	Units			Quali	ity C	ontrol Result	;	
						Metho Blank	□ OC 500 m	ng/L	QC	Duplicate	RPD%	Spike 25 mg/L
Suspended Solids	s (SS)	APHA	20ed 2	540 D	mg/L	< 1.0	504			486	3.6	22.2
			Acc	eptance	Criteria	<2.5 m	g/L 475 ≤ C	Control	l Lim	it ≤ 514	≤±5%	21 ≤ R ≤ 29
	Sam	ple ID	C1	C1 D	uplicate	C2	C2 Duplicate	C	3	C3 Duplicate)	
TEST RESULTS		npling /Time	03 Auç	, 2009	/ 10:45	03 Aug	2009 / 10:55	03.	Aug	2009 / 11:05	5	
	LOD	Units										
Suspended Solids (SS)	1	mg/L	1.3		1.2	< 1.0	< 1.0	5.4	1	5.6		
	Sam	ple ID	M1	M1 D	uplicate	M2	M2 Duplicate	м	3	M3 Duplicat	e M4	M4 Duplicate
TEST RESULTS		npling /Time	03 Auç	j 2009	/ 11:25	03 Aug	2009 / 11:20	03	Aug	2009 / 11:1	6 03 A	ug 2009 / 11:35
	LOD	Units										
Suspended Solids (SS)	1	mg/L	6.4	6	5.7	1.7	1.9	6.7	7	6.8	9.1	9.5

* : Information provided by client

			End			
Tested By	:	K.L. FONG	Approved Signatory	:	halt	
			Name	:	GU CHIN	-
Checked By	:	GU CHIN	Post	:	Chemist	



							Page 1 of 1
Report No.	:	GCC090800068			Date of Issue	:	15-08-2009
Client*	:	Environmental Pioneers &	Solutions Limited		P.O. Received	:	08-09-2008
Client Address*	:	8/F, Chaiwan Industrial C	Centre Building, 20	Lee Chung Street, Chaiwa	an, HK.		
		DSD Contract No. DC/20	06/11 - Drainage I	mprovement in Southern	Lantau & Construct	ion	ı of
Project*	:	Mui Wo Village Sewerage	e Phase 1				
Test Location	:	G/F, 20 Pak Kung Stree	et, Hung Hom, Kov	vloon.	Date Started	:	05-08-2009
W.O. No.*	:		Sample Type*	: River Water	Date Completed	;	06-08-2009
GCE Serial No.	:	WQM082009	GCE Reg. No.	: GCE 081096	Test Unit No.	:	CH 08258

Analysis Descript	tion	Т	est Meth	od	Units				Qualit	ty C	ontrol Result	ts	
·						Metho Blank	- I (C 500 m	g/L	oc	Duplicate	RPD%	Spike 25 mg/L
Suspended Solid	s (SS)	APHA	20ed 2	540 D	mg/L	< 1.0		498			486	2.4	23.4
			Acc	eptance	Criteria	<2.5 m	g/L	475 ≤ C	ontrol	Lim	nit ≤ 514	≤ ±5%	21 ≤ R ≤ 29
	Sam	ple ID	C1	C1 D	uplicate	C2 C2 Duplica		Duplicate	C3		C3 Duplicat	te	
TEST RESULTS		npling /Time	05 Aug 2009 / 12:15			05 Aug	2009	/ 12:25	05 A	۹ug	2009 / 12:5	0	
	LOD	Units											
Suspended Solids (SS)	1	mg/L	2.9	\$	3.1	12.9		13.4	13.7	7	13.5	- 11 1111 mmm 01 111 m 1111111000 11 11	
	Sam	ple ID	M1	M1 D	uplicate	M2	M2	Duplicate	МЗ	1	M3 Duplica	te M4	M4 Duplicate
TEST RESULTS		npling /Time	05 Aug	, 2009	/ 11:50	05 Aug	2009	/ 11:40	05 A	۹ug	2009 / 12:0	0 05 A	ug 2009 / 11:30
	LOD	Units											
Suspended Solids (SS)	1	mg/L	9.3	ε	3.8	12.1		11.7	15.0	b	15.3	18.	1 18.7

* : Information provided by client

Note : This laboratory has no responsibility on sampling and all the test results relate only to the sample tested as received.

Remarks : Location M1 & WE3 and Location M3 & WE4 are the same location.

----- End -----

Tested By	:	K.L. FONG	Approved Signatory	:	Li
			Name	:	GU CHÍN
Checked By	:	GU CHIN	Post	;	Chemist

Form No. : WQM/R1 (01-09-2008)



								Page 1 of	I I
Report No.	:	GCC090800084				Date of Issue	:	15-08-2009	
Client*	:	Environmental Pioneers &	Solutions Limited			P.O. Received	:	08-09-2008	
Client Address*	:	8/F, Chaiwan Industrial C	entre Building, 20	Le	e Chung Street, Chaiw	an, HK.			
		DSD Contract No. DC/20	06/11 - Drainage I	mp	provement in Southern	Lantau & Construct	ion	of	
Project*	:	Mui Wo Village Sewerage	Phase 1						
Test Location	:	G/F, 20 Pak Kung Stree	t, Hung Hom, Kov	vlo	on.	Date Started	:	07-08-2009	
W.O. No.*	:		Sample Type*	:	River Water	Date Completed	:	08-08-2009	
GCE Serial No.	:	WQM082009	GCE Reg. No.	:	GCE 081096	Test Unit No.	:	CH 08258	

Analysis Descrip	tion	Т	est Metho	bd	Units	Quality Control Results								
						Metho Blank	° 10C	500 mg	g/L Q	C Duplicate	RPE	0%	Spike 25 mg/L	
Suspended Solid	s (SS)	APHA	20ed 28	540 D	mg/L	< 1.0)	492		490	0.4	4	23.9	
		-	Acce	ptance	Criteria	<2.5 mg/L 475 ≤ Co.		ontrol Li	mit ≤ 514	≤ ±	5%	$21 \le R \le 29$		
	Sam	ple ID	C1	C1 D	uplicate	C2	C2 Du	2 Duplicate		C3 C3 Duplica				
TEST RESULTS		ipling /Time	07 Aug 2009 / 14:15			07 Aug	2009 /	14:25	07 Auç	g 2009 / 14:	35			
	LOD Units					· · ·								
Suspended Solids (SS)	1	mg/L	1.6	1	1.4	1.6	1.	9	5.8	5.9				
	Sam	ple ID	M1	M1 D	uplicate	M2	M2 Du	plicate	М3	M3 Duplica	ate	M4	M4 Duplicate	
TEST RESULTS		pling /Time	07 Aug	2009 ,	/ 13:55	07 Aug	2009 /	14:00	07 Au	9 2009 / 14:	05 (07 Au	g 2009 / 13:45	
	LOD	Units												
Suspended Solids (SS)	1	mg/L	4.7	4	.5	2.8	8 2.7		9.1	9.2		6.1	6.4	

* : Information provided by client

			End		
Tested By	:	K.L. FONG	Approved Signatory	:	Lett
			Name	:	GU CHIN
Checked By	:	GU CHIN	Post	:	Chemist



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TEST REPORT ON ENVIRONMENTAL ANALYSIS OF WATER AND WASTEWATER

							Page I of I
Report No.	:	GCC090800084	*****		Date of Issue	:	18-08-2009
Client*	:	Environmental Pioneers	& Solutions Limited		P.O. Received	:	08-09-2008
Client Address*	:	8/F, Chaiwan Industrial	Centre Building, 20	Lee Chung Street, Chaiw	an, HK.		
		DSD Contract No. DC/2	006/11 - Drainage I	mprovement in Southern	Lantau & Construct	ion	of
Project*	:	Mui Wo Village Sewera	ge Phase 1				
Test Location	;	G/F, 20 Pak Kung Str	eet, Hung Hom, Kov	/loon.	Date Started	:	10-08-2009
W.O. No.*	:		_ Sample Type*	: River Water	Date Completed	:	11-08-2009
GCE Serial No.	:	WQM082009	GCE Reg. No.	: GCE 081096	Test Unit No.	:	CH 08258

Analysis Descript	tion	Т	est Meth	od	Units	Quality Control Results										
						Metho Blank		QC 500 m	g/L	QQ	C Duplicate	R	PD%	Spike 25 mg/L		
Suspended Solids	s (SS)	APH	A 20ed 25	540 D	mg/L	< 1.0)	502			507	-	1.0	24.7		
		ł	Acce	eptance	Criteria	<2.5 m	g/L	475 ≤ C	ontro	ol Lir	mit ≤ 514	≤	±5%	21 ≤ R ≤ 29		
- 100 - 24, 14, 14, 14, 14, 14, 14, 14, 14, 14, 1	Sam	ple ID	C1	C1 D	uplicate	C2	C2	Duplicate	С	3	C3 Duplica	ate				
TEST RESULTS		npling e/Time	10 Aug 2009 / 14:25			10 Aug	200	9 / 14:35	10	Auç	g 2009 / 14:	45				
	LOD	Units	1													
Suspended Solids (SS)	1	mg/L	< 1.0	<	1.0	< 1.0		< 1.0	5.:	3	5.0					
	Sample ID		M1	M1 D	uplicate	M2	M2	2 Duplicate	м	3	M3 Duplicate		M4	M4 Duplicate		
TEST RESULTS		npling /Time	10 Aug	2009 /	15:15	10 Aug	200	9 / 15:05	10	Aug) 2009 / 14:	55	10 Au	g 2009 / 15:25		
-	LOD	Units						y_1,					·			
Suspended Solids (SS)	1	mg/L	6.0	6	.3	95.0		97.0	9.(6	9.9		11.1	11.2		

* : Information provided by client

			End		
Tested By	:	K.L. FONG	Approved Signatory	:	Last
			Name	:	GU CHIN
Checked By	:	GU CHIN	Post	:	Chemist



							Page 1 of 1
Report No.	:	GCC090800092			Date of Issue	:	18-08-2009
Client*	:	Environmental Pioneers &	Solutions Limited		P.O. Received	:	08-09-2008
Client Address*	:	8/F, Chaiwan Industrial Co	entre Building, 20	Lee Chung Street, Chaiwar	n, HK.		
		DSD Contract No. DC/200	06/11 - Drainage li	mprovement in Southern La	antau & Constructi	ion	of
Project*	:	Mui Wo Village Sewerage	Phase 1				
Test Location	:	G/F, 20 Pak Kung Stree	t, Hung Hom, Kow	/loon.	Date Started	:	11-08-2009
W.O. No.*	:		Sample Type*	: River Water	Date Completed	:	13-08-2009
GCE Serial No.	:	WQM082009	GCE Reg. No.	: GCE 081096	Test Unit No.	:	CH 08258

					1								
Analysis Descrip	tion	Т	est Meth	od	Units				Quali	ty Control Rest	ults		
						Metho Blank		QC 500 m	g/L	QC Duplicate	RI	PD%	Spike 25 mg/L
Suspended Solid	s (SS)	APHA	A 20ed 2!	540 D	mg/L	< 1.0)	503		497	1	1.2	25.7
			Acce	eptance	Criteria	<2.5 m	< 2.5 mg/L 475 \leq Control Limit \leq 51			Limit ≤ 514	≤ :	±5%	$21 \le R \le 29$
	Sarr	nple ID	C1	C1 D	uplicate	C2	C2	2 Duplicate	СЗ	C3 Duplic	ate		
TEST RESULTS		npling e/Time					200	09 / 15:00					
	LOD	Units											
Suspended Solids (SS)	1	mg/L				< 1.0		< 1.0					······································
	Sam	iple ID	M1	M1 D	uplicate	M2	M2	2 Duplicate	MЗ	M3 Duplic	ate	M4	M4 Duplicate
TEST RESULTS		npling e/Time				11 Aug	200	09 / 15:10					
	LOD	Units								an L			
Suspended Solids (SS)	1	mg/L				3.9		4.4					
			1								Ì		

* : Information provided by client

			End		
Tested By	:	K.L. FONG	Approved Signatory	:	- de
			Name	:	GU CHIN
Checked By	:	GU CHIN	Post	:	Chemist



							Page 1 of 1
Report No.	:	GCC090800107			Date of Issue	:	18-08-2009
Client*	:	Environmental Pioneers &	Solutions Limited		P.O. Received	:	08-09-2008
Client Address*	:	8/F, Chaiwan Industrial C	entre Building, 20	Lee Chung Street, Chaiwa	n, HK.		
		DSD Contract No. DC/20	06/11 - Drainage I	mprovement in Southern L	antau & Construct	ion	of
Project*	:	Mui Wo Village Sewerage	Phase 1				
Test Location	:	G/F, 20 Pak Kung Stree	t, Hung Hom, Kow	/loon.	Date Started	:	12-08-2009
W.O. No.*	:		Sample Type*	: River Water	Date Completed	:	13-08-2009
GCE Serial No.	:	WQM082009	GCE Reg. No.	: GCE 081096	Test Unit No.	:	CH 08258

Analysis Descrip	tion	т	est Meth	od	Units				Quality	Control Resu	ults		
9873 b						Methoo Blank	-	QC 500 m	ıg/L C	C Duplicate	R	PD%	Spike 25 mg/L
Suspended Solid	s (SS)	APHA	A 20ed 2	540 D	mg/L	< 1.0)	503		497		1.2	25.7
			Acce	eptance	Criteria	<2.5 m	g/L	475 ≤ C	ontrol L	imit ≤ 514	<	±5%	$21 \le R \le 29$
	Sam	ple ID	C1	C1 D	uplicate	C2	C2	2 Duplicate	СЗ	C3 Duplica	ate		
TEST RESULTS		npling /Time	12 Aug 2009 / 16:10			12 Aug	200	9 / 16:20	12 Au	ug 2009 / 16:	30		
	LOD	Units	-										
Suspended Solids (SS)	1	mg/L	9.1	S	ə.0	1.4		1.7	4.8	4.5			
	Sam	ple ID	M1	M1 D	uplicate	M2	М2	2 Duplicate	МЗ	M3 Duplica	ate	M4	M4 Duplicate
TEST RESULTS		pling /Time	12 Aug	2009 ,	/ 15:40	12 Aug	200	9 / 15:50	12 Aı	ug 2009 / 16:	00	12 Au	g 2009 / 15:30
	LOD	Units											
Suspended Solids (SS)	1	mg/L	19.6	19	€.4	126.4		123.6	10.5	10.1		91.6	91.6

* : Information provided by client

			End		
Tested By	:	K.L. FONG	Approved Signatory	:	Loot
			Name	:	GU CHIN
Checked By	:	GU CHIN	Post	:	Chemist



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TEST REPORT ON ENVIRONMENTAL ANALYSIS OF WATER AND WASTEWATER

							Page I of I
Report No.	;	GCC090800115			Date of Issue	;	18-08-2009
Client*	:	Environmental Pioneers & S	Solutions Limited		P.O. Received	;	08-09-2008
Client Address*	:	8/F, Chaiwan Industrial Cer	ntre Building, 20	Lee Chung Street, Chaiwa	in, HK.		
		DSD Contract No. DC/2006	6/11 - Drainage I	mprovement in Southern L	antau & Construct	ior	of
Project*	:	Mui Wo Village Sewerage F	hase 1				
Test Location	:	G/F, 20 Pak Kung Street,	Hung Hom, Kow	/loon.	Date Started	:	13-08-2009
W.O. No.*	:		Sample Type*	: River Water	Date Completed	:	14-08-2009
GCE Serial No.	:	WQM082009	GCE Reg. No.	: GCE 081096	Test Unit No.	:	CH 08258

Analysis Descrip	tion	T	est Metho	bd	Units				Quality	Control Resu	lts		
						Metho Blank		QC 500 m	g/L Q	C Duplicate	RP	°D%	Spike 25 mg/L
Suspended Solid	s (SS)	APHA	1 20ed 28	540 D	mg/L	< 1.0	.0 496			504		1.6	25.3
1911 - La			Acce	ptance	Criteria	<2.5 m	g/L	475 ≤ C	ontrol L	imit ≤ 514	≤ :	±5%	21 ≤ R ≤ 29
	Sam	ple ID	C1	C1 D	uplicate	C2	C2	Duplicate	СЗ	C3 Duplica	ate		
TEST RESULTS		npling /Time	13 Aug 2009 / 16:00			13 Aug	200	9 / 16:10	13 Au	g 2009 / 16:	20		1
	LOD	Units											
Suspended Solids (SS)	1	mg/L	5.4	E	5.6	3.1		3.2	2.8	3.3			
	Sam	ple ID	M1	M1 D	uplicate	M2	М2	2 Duplicate	мз	M3 Duplica	ate	M4	M4 Duplicate
TEST RESULTS		npling /Time	13 Aug	2009 /	16:50	13 Aug	200	9 / 16:40	13 Au	g 2009 / 16:	30	13 Au	ig 2009 / 17:05
	LOD	Units											
Suspended Solids (SS)	1	mg/L	9.7	9	.7	3.8		3.6	6.6	6.9		13.6	13.3

* : Information provided by client

			End			
Tested By	:	K.L. FONG	Approved Signatory	:	Lest-	
			Name	:	GU CHIN	_
Checked By	:	GU CHIN	Post	:	Chemist	



								Page 1 of 1
Report No.	:	GCC090800123				Date of Issue	:	18-08-2009
Client*	:	Environmental Pioneers &	Solutions Limited			P.O. Received	:	08-09-2008
Client Address*	:	8/F, Chaiwan Industrial C	entre Building, 20	Le	e Chung Street, Chaiw	an, HK.		
		DSD Contract No. DC/20	06/11 - Drainage li	m	provement in Southern	Lantau & Construct	ion	of
Project*	:	Mui Wo Village Sewerage	Phase 1					
Test Location	:	G/F, 20 Pak Kung Stree	t, Hung Hom, Kow	vlc	on.	Date Started	:	14-08-2009
W.O. No.*	:		Sample Type*		: River Water	Date Completed	:	15-08-2009
GCE Serial No.	:	WQM082009	GCE Reg. No.		: GCE 081096	Test Unit No.	:	CH 08258

Analysis Descrip	tion	Т	est Metho	od	Units				Quali	ty Control Res	ults		
			/ 16 ⁹ mi			Metho Blank	. 1	QC 500 m	g/L	QC Duplicate	RP	D%	Spike 25 mg/L
Suspended Solid	s (SS)	APHA	20ed 28	540 D	mg/L	< 1.0		499		504	-1	.0	25.9
			Acce	eptance	Criteria	<2.5 m	g/L	475 ≤ Co	ontrol	Limit ≤ 514	≤ ±	:5%	$21 \le R \le 29$
	Sam	ple ID	C1	C1 D	uplicate	C2	C2	Duplicate	C3	C3 Duplic	ate		
TEST RESULTS		ipling /Time	14 Aug 2009 / 16:10			14 Aug	200	9 / 16:20				<u></u>	
	LOD	Units									-		
Suspended Solids (SS)	1	mg/L	< 1.0	<	1.0	< 1.0		< 1.0					
	Sam	ple ID	M1	M1 D	uplicate	M2	М2	Duplicate	Ma	M3 Duplic	ate	M4	M4 Duplicate
TEST RESULTS		pling /Time	14 Aug	2009 /	/ 16:40	14 Aug	200	9 / 16:30				14 Au	ıg 2009 / 16:50
	LOD	Units											the second se
Suspended Solids (SS)	1	mg/L	4.1	4	.5	1.3		1.3				5.5	5.9

* : Information provided by client

			End		
Tested By	:	K.L. FONG	Approved Signatory	:	
			Name	:	GU CHIN
Checked By	:	GU CHIN	Post	:	Chemist



							Page I of I
Report No.	:	GCC090800131			Date of Issue	:	24-08-2009
Client*	:	Environmental Pioneers &	Solutions Limited		P.O. Received	:	08-09-2008
Client Address*	:	8/F, Chaiwan Industrial C	entre Building, 20	Lee Chung Street, Chaiwa	an, HK.		
		DSD Contract No. DC/20	06/11 - Drainage I	mprovement in Southern L	antau & Construct.	ion	of
Project*	:	Mui Wo Village Sewerage	e Phase 1				
Test Location	:	G/F, 20 Pak Kung Stree	et, Hung Hom, Kov	vloon.	Date Started	:	17-08-2009
W.O. No.*	:		Sample Type*	: River Water	Date Completed	:	18-08-2009
GCE Serial No.	:	WQM082009	GCE Reg. No.	: GCE 081096	Test Unit No.	:	CH 08258

Analysis Descrip	tion	T	est Meth	od	Units				Quality	Control Resu	ilts		
	*					Metho Blank		QC 500 m	g/L Q	C Duplicate	RP	'D%	Spike 25 mg/L
Suspended Solid	s (SS)	APHA	20ed 2	ed 2540 D mg/L		< 1.0 487			490		.6	26.2	
			Acc	eptance	Criteria	<2.5 m	g/L	475 ≤ C	ontrol L	imit ≤ 514	≤ ±	±5%	$21 \le R \le 29$
	Sam	ple ID	C1	C1 D	uplicate	C2	C2	2 Duplicate	СЗ	C3 Duplica	ate		
TEST RESULTS		ipling /Time	17 Aug 2009 / 11:15		17 Aug	200	9 / 11:25	17 Au	g 2009 / 11:	35			
	LOD	Units											
Suspended Solids (SS)	1	mg/L	1.1	1	.3	< 1.0		< 1.0	3.6	3.3			
	Sam	ple ID	M1	M1 D	uplicate	M2	M2	2 Duplicate	M3	M3 Duplic	ate	M4	M4 Duplicate
TEST RESULTS		ipling /Time	17 Aug	, 2009 .	/ 10:55	17 Aug	200	9 / 11:00	17 Au	g 2009 / 11:	05	17 Au	g 2009 / 10:45
	LOD	Units											
Suspended Solids (SS)	1	៣g/L	2.9	2	.8	21.7		21.3	5.9	6.1		13.2	13.5

* : Information provided by client

			End			
Tested By	:	K.L. FONG	Approved Signatory	y :	Last.	
			Name	:	GU CHIN	
Checked By	:	GU CHIN	Post	:	Chemist	



							Page 1 of 1
Report No.	:	GCC090800149			Date of Issue	;	24-08-2009
Client*	:	Environmental Pioneers &	Solutions Limited		P.O. Received	:	08-09-2008
Client Address*	:	8/F, Chaiwan Industrial Ce	entre Building, 20	Lee Chung Street, Chaiwa	an, HK.		
		DSD Contract No. DC/200	06/11 - Drainage I	mprovement in Southern L	antau & Construct	ion	of
Project*	:	Mui Wo Village Sewerage	Phase 1	\$1.001111111111111111111111111111111111			
Test Location	:	G/F, 20 Pak Kung Street	., Hung Hom, Kow	/loon.	Date Started	:	18-08-2009
W.O. No.*	:		Sample Type*	: River Water	Date Completed	:	18-08-2009
GCE Serial No.	:	WQM082009	GCE Reg. No.	: GCE 081096	Test Unit No.	;	CH 08258

Analysis Descrip	tion	T	est Meth	bd	Units			Quali	ty Control Resu	ults				
nn, n,						Method Blank	QC 500 m	g/L	QC Duplicate	RPD%	Spike 25 mg/L			
Suspended Solid	s (SS)	АРНА	20ed 2	540 D	mg/L	< 1.0	487		490	-0.6	26.2			
			Acce	eptance	Criteria	<2.5 mg/	L 475 ≤ C	ontrol	Limit ≤ 514	≤ ±5%	21 ≤ R ≤ 29			
	Sam	pie ID	C1	C1 D	uplicate	C2	C2 Duplicate	Ca	C3 Duplic	ate				
TEST RESULTS		pling /Time		-		18 Aug 2	009 / 12:30				4			
	LOD	Units		* p* 1.*****************************										
Suspended Solids (SS)	1	mg/L	-		-	1.1	1.0	-						
	Sam	ple ID	M1	M1 D	uplicate	M2 1	M2 Duplicate	M	M3 Duplic	ate M4	M4 Duplicate			
TEST RESULTS		ipling /Time		-		18 Aug 2	009 / 12:10			18 A	ug 2009 / 12:20			
	LOD	Units												
Suspended Solids (SS)	1	mg/L	-		-	23.6	23.2	-	-	22.0	21.6			

* : Information provided by client

Note : This laboratory has no responsibility on sampling and all the test results relate only to the sample tested as received.



							Page 1 of 1
Report No.	:	GCC090800157			Date of Issue	:	24-08-2009
Client*	:	Environmental Pioneers &	Solutions Limited		P.O. Received	:	08-09-2008
Client Address*	:	8/F, Chaiwan Industrial C	entre Building, 20	Lee Chung Street, Chaiwa	in, HK.		
		DSD Contract No. DC/20	06/11 - Drainage I	mprovement in Southern L	antau & Construct.	ior	n of
Project*	:	Mui Wo Village Sewerage	Phase 1				
Test Location	:	G/F, 20 Pak Kung Stree	t, Hung Hom, Kov	vloon.	Date Started	:	19-08-2009
W.O. No.*	:		Sample Type*	: River Water	Date Completed	:	20-08-2009
GCE Serial No.	:	WQM082009	GCE Reg. No.	: GCE 081096	Test Unit No.	:	CH 08258

Analysis Descript	tion	T	est Metho	bd	Units				Qual	ity (Control Resu	lts		
						Methoo Blank		QC 500 m	g/L	QC	Duplicate	R	PD%	Spike 25 mg/L
Suspended Solids	s (SS)	APHA	20ed 25	540 D	mg/L	< 1.0	I	483			497	-:	2.9	25.3
		-	Acce	ptance	Criteria	<2.5 m	g/L	475 ≤ C	ontro	l Lir	nit ≤ 514	≤	±5%	$21 \le R \le 29$
	Sam	ple ID	C1	C1 D	uplicate	C2	C2	Duplicate	C	3	C3 Duplica	ate		
TEST RESULTS		pling /Time	19 Aug	2009	/ 12:10	19 Aug	2009	9 / 12:20	19	Aug	2009 / 12:	30		
	LOD	Units											·	******
Suspended Solids (SS)	1	mg/L	< 1.0	<	1.0	< 1.0		< 1.0	2.9	9	2.7			
	Sam	ple ID	M1	M1 D	uplicate	M2	М2	Duplicate	M	3	M3 Duplic	ate	M4	M4 Duplicate
TEST RESULTS		npling /Time	19 Aug	2009	/ 11:45	19 Aug	2009	9 / 11:50	19	Aug	2009 / 11:	55	19 At	ıg 2009 / 11:35
	LOD	Units												
Suspended Solids (SS)	1	mg/L	4.2	4	8	45.2		44.0	5.:	3	5.0		8.2	7.9

* : Information provided by client

Remarks :					
		En	id		
Tested By	: _	K.L. FONG	Approved Signatory	:	Lik
			Name	:	GU CHIN
Checked By	:	GU CHIN	Post	:	Chemist
Form No. : WQM/	'R1 (1	9-01-2009)			



						Page 1 (ot I
Report No.	:	GCC090800165			Date of Issue	: 24-08-2009	
Client*	:	Environmental Pioneers	& Solutions Limited		P.O. Received	: 08-09-2008	
Client Address*	:	8/F, Chaiwan Industrial	Centre Building, 20	Lee Chung Street, Chaiv	wan, HK.		
		DSD Contract No. DC/2	2006/11 - Drainage I	mprovement in Southerr	n Lantau & Construct	tion of	
Project*	:	Mui Wo Village Sewera	ge Phase 1	and a stand of the second s			
Test Location	:	G/F, 20 Pak Kung Str	eet, Hung Hom, Kow	/loon.	_ Date Started	: 20-08-2009	
W.O. No.*	:		Sample Type*	: River Water	Date Completed	: 20-08-2009	
GCE Serial No.	:	WQM082009	GCE Reg. No.	: GCE 081096	Test Unit No.	: CH 08258	

Analysis Descript	ion	Te	est Metho	od	Units				Qualit	y Control Res	trol Results						
						Metho Blank		QC 500 mg	g/L	C Duplicate	R	PD%	Spike 25 mg/L				
Suspended Solids	s (SS)	АРНА	20ed 25	540 D	mg/L	< 1.0)	483		497		497		497		2.9	25.3
			Acce	eptance	Criteria	<2.5 m	g/L	475 ≤ Co	ontrol	Limit ≤ 514	≤	±5%	21 ≤ R ≤ 29				
	Sam	ple ID	C1	C1 D	uplicate	C2	c2	2 Duplicate	C3	C3 Duplic	ate						
TEST RESULTS		npling /Time		-		20 Aug	200	09 / 11:55		-							
	LOD	Units															
Suspended Solids (SS)	1	mg/L	-		-	< 1.0		< 1.0	-	-							
	Sam	ple ID	M1	M1 D	uplicate	M2	M	2 Duplicate	MЗ	M3 Dupli	cate	M4	M4 Duplicate				
TEST RESULTS		npling :/Time		-		20 Aug	200	09 / 11:40		-			-				
	LOD	Units															
Suspended Solids (SS)	1	mg/L	-		-	32.2		32.8	-			-					

* : Information provided by client

Remarks :		End			
		Liiu			
Tested By	:	K.L. FONG	Approved Signatory	:	Lisk
			Name	:	GU CHIN
Checked By	:	GU CHIN	Post	:	Chemist
Form No. : WQM/	R1 (19-01-200	99)			



							Page I of I
Report No.	:	GCC090800173			Date of Issue	:	24-08-2009
Client*	:	Environmental Pioneers &	Solutions Limited	~	P.O. Received	:	08-09-2008
Client Address*	:	8/F, Chaiwan Industrial Ce	entre Building, 20	Lee Chung Street, Chaiwa	an, HK.		
		DSD Contract No. DC/200	06/11 - Drainage I	mprovement in Southern l	antau & Construct.	ior	of
Project*	:	Mui Wo Village Sewerage	Phase 1		1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.		
Test Location	:	G/F, 20 Pak Kung Stree	t, Hung Hom, Kow	/loon.	Date Started	:	21-08-2009
W.O. No.*	:		Sample Type*	: River Water	Date Completed	:	22-08-2009
GCE Serial No.	;	WQM082009	GCE Reg. No.	: GCE 081096	Test Unit No.	:	CH 08258

Analysis Descript	tion	Т	est Metho	bd	Units				Quali	ty (Control Resu	lts		
						Methor Blank		ጋር 500 m	g/L	QC	Duplicate	R	PD%	Spike 25 mg/L
Suspended Solids	s (SS)	АРНА	1 20ed 25	540 D	mg/L	< 1.0		504			489	:	3.0	26.5
· · · · · · · · · · · · · · · · · · ·			Acce	ptance	Criteria	<2.5 m	g/L	475 ≤ C	ontrol	Lir	nit ≤ 514	≤	±5%	21 ≤ R ≤ 29
	Sam	ple ID	C1	C1 D	uplicate	C2	C2	Duplicate	СЗ	3	C3 Duplica	ate		
TEST RESULTS		npling /Time	21 Aug	2009	/ 13:45	21 Aug	2009) / 13:55	21 /	Aug	2009 / 14:	10		,
	LOD	Units												
Suspended Solids (SS)	1	mg/L	< 1.0	<	1.0	< 1.0		< 1.0	5.6	3	5.2			
	Sam	ple ID	M1	M1 D	uplicate	M2	M2	Duplicate	M3	3	M3 Duplica	ate	M4	M4 Duplicate
TEST RESULTS		npling /Time	21 Aug	2009 .	/ 13:20	21 Aug	2009) / 13:30	21 /	Aug	2009 / 13:	35	21 Au	g 2009 / 13:05
	LOD	Units												
Suspended Solids (SS)	1	mg/L	9.0	9	1.4	8.6		8.7	5.4	ŀ	5.2		7.1	7.2

* : Information provided by client

			End		
ested By	:	K.L. FONG	Approved Signatory	:	Last.
			Name	:	GU CHIN
Checked By	:	GU CHIN	Post	:	Chemist



							Page 1 of 1
Report No.	:	GCC090800301			Date of Issue	:	01-09-2009
Client*	:	Environmental Pioneers 8	& Solutions Limited		P.O. Received	:	08-09-2008
Client Address*	:	8/F, Chaiwan Industrial (Centre Building, 20	Lee Chung Street, Chaiwa	an, HK.		
		DSD Contract No. DC/20	006/11 - Drainage li	mprovement in Southern l	antau & Construct	ior	n of
Project*	:	Mui Wo Village Sewerag	e Phase 1				
Test Location	:	G/F, 20 Pak Kung Stre	et, Hung Hom, Kow	/loon.	Date Started	:	24-08-2009
W.O. No.*	:		Sample Type*	: River Water	Date Completed	:	25-08-2009
GCE Serial No.	:	WQM082009	GCE Reg. No.	: GCE 081096	Test Unit No.	:	CH 08258

Analysis Descript	tion	Т	est Metho	d	Units		Quality Control Results									
						Metho Blank	-	QC 500 m	g/L Q	C Duplicate	RPI	D%	Spike 25 mg/L			
Suspended Solid	s (SS)	APHA	20ed 25	540 D	mg/L	< 1.0)	497		504	-1	.4	25.7			
			Acce	ptance	Criteria	<2.5 m	g/L	475 ≤ C	ontrol Li	mit ≤ 514	≤ ±	:5%	21 ≤ R ≤ 29			
	Sam	ple ID	C1	C1 D	uplicate	C2	C2	Duplicate	C3	C3 Duplica	ate					
TEST RESULTS		pling /Time	24 Aug	2009	/ 16:15	24 Aug	200	9 / 16:25	24 Au	g 2009 / 16:	35					
	LOD	Units														
Suspended Solids (SS)	1	mg/L	< 1.0	<	1.0	< 1.0		< 1.0	4.5	4.3						
	Sam	ple ID	M1	M1 D	uplicate	M2	M2	Duplicate	МЗ	M3 Duplic	ate	M4	M4 Duplicate			
TEST RESULTS		ipling /Time	24 Aug	2009	/ 15:55	24 Aug	200	9 / 16:45	24 Au	ıg 2009 / 16:	55	24 Au	ıg 2009 / 16:05			
	LOD	Units	-													
Suspended Solids (SS)	1	mg/L	6.5	e	5.8	10.3		10.0	5.4	5.8		8.5	8.8			

* : Information provided by client

			End		
Tested By	:	K.L. FONG	Approved Signatory	:	/~/L
			Name	:	GU CHIN
Checked By	:	GU CHIN	Post	:	Chemist



							Page 1 of 1
Report No.	:	GCC090800319			Date of Issue	:	01-09-2009
Client*	:	Environmental Pioneers &	Solutions Limited		P.O. Received	:	08-09-2008
Client Address*	· :	8/F, Chaiwan Industrial Ce	entre Building, 20	Lee Chung Street, Chaiwa	n, HK.		
		DSD Contract No. DC/200)6/11 - Drainage Ir	mprovement in Southern L	antau & Construct	ion	of
Project*	:	Mui Wo Village Sewerage	Phase 1				
Test Location	:	G/F, 20 Pak Kung Street	, Hung Hom, Kow	rloon.	Date Started	:	25-08-2009
W.O. No.*	:		Sample Type*	: River Water	Date Completed	:	26-08-2009
GCE Serial No.	:	WQM082009	GCE Reg. No.	: GCE 081096	Test Unit No.	:	CH 08258

Analysis Descrip	tion	Т	est Metho	bd	Units				Quality	Control Resu	its		
			- Andrew			Methoo Blank	-	QC 500 m	g/L Q	C Duplicate	RF	°D%	Spike 25 mg/L
Suspended Solid	s (SS)	АРНА	20ed 25	540 D	mg/L	< 1.0	,	496		505	-1	1.8	24.9
			Acce	ptance	Criteria	<2.5 m	g/L	475 ≤ C	ontrol Li	mit ≤ 514	≤ :	±5%	$21 \le R \le 29$
	Sam	ple ID	C1	C1 D	uplicate	C2	C2	2 Duplicate	СЗ	C3 Duplica	ate		
TEST RESULTS		pling /Time	25 Aug	2009 .	/ 15:15	25 Aug	200	9 / 15:25	25 Au	g 2009 / 15:	35		
	LOD	Units											
Suspended Solids (SS)	1	mg/L	< 1.0	<	1.0	< 1.0		< 1.0	4.2	3.9			
-	Sam	ple ID	M1	M1 D	uplicate	M2	M2	2 Duplicate	MЗ	M3 Duplic	ate	M4	M4 Duplicate
TEST RESULTS		ipling /Time	25 Aug	2009 .	14:55	25 Aug	200	9 / 15:00	25 Au	g 2009 / 15:	05	25 Au	g 2009 / 14:45
	LOD	Units											
Suspended Solids (SS)	1	mg/L	7.4	7	.7	2.2		2.3	5.7	5,6		6.0	5.7

* : Information provided by client

			End		
Tested By	:	K.L. FONG	Approved Signatory	:	/ h
	_		Name	:	GU CHIN
Checked By	:	GU CHIN	Post	:	Chemist



							Page I of I
Report No.	:	GCC090800327			Date of Issue	;	01-09-2009
Client*	:	Environmental Pioneers &	& Solutions Limited		P.O. Received	:	08-09-2008
Client Address*	:	8/F, Chaiwan Industrial C	Centre Building, 20	Lee Chung Street, Chaiwa	n, HK.		
		DSD Contract No. DC/20	06/11 - Drainage I	mprovement in Southern L	antau & Construct	ion	of
Project*	:	Mui Wo Village Sewerag	e Phase 1				
Test Location	:	G/F, 20 Pak Kung Stree	et, Hung Hom, Kow	/loon.	Date Started	:	26-08-2009
W.O. No.*	:		Sample Type*	: River Water	Date Completed	:	27-08-2009
GCE Serial No.	;	WQM082009	GCE Reg. No.	: GCE 081096	Test Unit No.	:	CH 08258

Analysis Description		Т	est Metho	bd	Units			Quality Control Results							
						Methoo Blank	. 1	QC 500 m	g/L (C Duplicate	R	PD%	Spike 25 mg/L		
Suspended Solids	s (SS)	АРНА	4 20ed 25	640 D	mg/L	< 1.0		503		496		1.4	26.3		
	,		Acceptance Criteria		Criteria	<2.5 mg/L 475 ≤ C		ontrol	imit ≤ 514	≤	±5%	$21 \le R \le 29$			
	Sam	ple ID	C1	C1 Di	uplicate	C2	C2	Duplicate	C3	C3 Duplic	ate				
TEST RESULTS		ipling /Time	26 Aug	2009 /	15:40	26 Aug :	200	9 / 15:50	26 A	ug 2009 / 16	:00		1		
	LOD	Units													
Suspended Solids (SS)	1	mg/L	< 1.0	<	1.0	< 1.0		< 1.0	4.7	4.8					
, , , , , , , , , , , , , , , , , , ,	Sam	ple ID	M1	M1 D	uplicate	M2	M2	Duplicate	М3	M3 Duplic	ate	M4	M4 Duplicate		
TEST RESULTS		ipling /Time	26 Aug	2009 /	15:20	26 Aug :	200	9 / 15:00	26 A	ug 2009 / 15	:10	26 Au	ig 2009 / 15:30		
·	LOD	Units													
Suspended Solids (SS)	1	mg/L	3.5	3	.8	2.2		2,4	6.2	6.5		5.9	6.1		

* : Information provided by client

			End			
Tested By	:	K.L. FONG	Approved Signatory	:	Jacoff	
			Name	:	GU CHIN	
Checked By	:	GU CHIN	Post	:	Chemist	



								Page 1 of 1
Report No.	:	GCC090800335				Date of Issue	:	01-09-2009
Client*	:	Environmental Pioneers &	Solutions Limited	I		P.O. Received	:	08-09-2008
Client Address*	;	8/F, Chaiwan Industrial C	entre Building, 20	Le	ee Chung Street, Chaiwa	n, HK.		
		DSD Contract No. DC/20	06/11 - Drainage I	lm	provement in Southern L	antau & Constructi	or	of
Project*	:	Mui Wo Village Sewerage	Phase 1					
Test Location	:	G/F, 20 Pak Kung Stree	t, Hung Hom, Kow	vlo	oon.	Date Started	:	31-08-2009
W.O. No.*	:	•••	Sample Type*		: River Water	Date Completed	:	01-09-2009
GCE Serial No.	:	WQM082009	GCE Reg. No.		: GCE 081096	Test Unit No.	:	CH 08258

Analysis Descript	tion	Т	est Meth	ođ	Units				Quality	/ Control Resu	llts		
						Metho Blank		QC 500 m	g/L C	ΩC Duplicate	R	PD%	Spike 25 mg/L
Suspended Solid	s (SS)	APHA	A 20ed 2	540 D	mg/L	< 1.0		499		504	-	1.0	26.1
			Acce	eptance	Criteria	<2.5 m	g/L	475 ≤ C	ontrol l	.imit ≤ 514	≤	±5%	21 ≤ R ≤ 29
********	Sam	ple ID	C1	C1 D	uplicate	C2	C2	Duplicate	СЗ	C3 Duplica	ate		
TEST RESULTS		npling e/Time	31 Aug	2009 ,	/ 11:25	31 Aug	200	9 / 11:35	31 A	31 Aug 2009 / 11:			
	LOD	Units											
Suspended Solids (SS)	1	mg/L	1.1	1	.4	< 1.0		< 1.0	7.2	7.4			
	Sam	pie ID	M1	M1 D	uplicate	M2	М2	Duplicate	M3	M3 Duplic	ate	M4	M4 Duplicate
TEST RESULTS		npling /Time	31 Aug	2009 /	/ 10:45	31 Aug	200	9 / 10:55	31 Ai	ug 2009 / 11:	05	31 Au	ig 2009 / 11:15
	LOD	Units											
Suspended Solids (SS)	1	mg/L	5.6	5	.5	4.6		4.4	12.8	12.5		12.0	12,1

* : Information provided by client

			End		
Tested By	:	K.L. FONG	Approved Signatory	:	Jon / -
			Name	:	GU CHIN
Checked By	:	GU CHIN	Post	:	Chemist

Appendix G Monitoring Schedule for Aug 2009

DC/2006/11 - DRAINAGE IMPROVEMENT IN SOUTHERN LANTAU

Master Schedule of EM&A works in August 2009

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						8/1
8/2	8/3	8/4	8/5	8/6	8/7	8/8
	WQM at:		WQM & EWQM at:		WQM at:	
	11:04		12:11		13:12	
	Noise monitoring				Site Inspection	
8/9	8/10	8/11	8/12	8/13	8/14	8/15
	WQM at: 14:41	additional WQM at: 15:10	WQM at: 15:44	WQM at: 16:30	additional WQM at: 16:30	
		Ecological Survey	10.11	10.00	Ecological Survey	
	Noise monitoring	U			Site Inspection	
8/16	8/17	8/18	8/19	8/20	8/21	8/22
	WQM at:		WQM at:		WQM at:	
	10:30	12:10	11:27	11:40	13:00	
					Ecological Survey	
	Noise monitoring				Site Inspection	
8/23	8/24			8/27	8/28	8/29
	WQM at: 14:55	WQM at: 15:32	WQM at: 16:12			
	Noise monitoring				Site Inspection	
8/30	8/31					
	WQM at:					
	11:00					
	Noice monitoring					
	Noise monitoring					

Noise Monitoring Locations: Total 4 Locations as N1, N2, N3 and N4

Water Quality Monitoring (WQM) Locations: Total 7 Locations as M1, M2, M3, M4, C1, C2 and C3

Ecological Water Quality Monitoring (EWQM) Locations: Total 6 Locations as WE1, WE2, WE3, WE4, WE5 and WE6

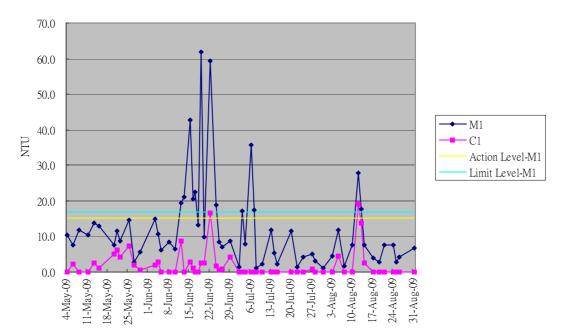
Environmental	Protection / Mitigation Measures	Implementation	Follow-up
Aspect		status	action
Air Quality	Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved road, with complete coverage.	Implemented	
	Use of frequent watering for particular dusty static construction areas and areas close to ASRs.	Implemented	-
	Tarpaulin covering of all dusty vehicle loads transported to and from and between site location;	*	-
	Establishment and use of vehicle wheel and body washing facilities at the exit points of the site.	Implemented	
	Routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs.	Implemented	-
Noiso	Use of quiet powered mechanical equipment (PME)	Implemented	-
Noise	Adoption of movable noise barriers and temporary noise barriers	Not applicable at this stage	-
	Application of good site practices mentioned in EM&A manual Clause 3.8.1	Implemented	-
Water Quality	Before commencing any site formation works, all sewer and drainage connections should be sealed to prevent debris, soil, sand etc. from entering public sewers/drains.	Deficiencies found in this reporting month	Ongoing
	Temporary ditches should be provided to facilitate run-off discharge into appropriate watercourses, via a silt retention pond. No site run-off should enter the freshwater marshes at Luk Tei Tong.	Implemented	
	Sand/ silt removal facilities such as sand traps, silt traps and sediment basins should be provided to remove sand/ silt particles from runoff to meet the requirements of the Technical Memorandum standard under the Water Pollution Control Ordinance.		
	Water pumped out from foundation excavations should be discharged into silt removal facilities.	Deficiencies found in this reporting month	Ongoing
	During rainstorms, exposed slope surface should be covered by a tarpaulin or the means.	Deficiencies found in this reporting month	Ongoing
	Exposed soil areas should be minimized to reduce potential for increased siltation and contamination of runoff.	Deficiencies found in this reporting month	Ongoing
	Exposed soil surfaces should be protected by paving or fill material as soon as possible to reduce potential of soil erosion.	Deficiencies found in this reporting month	Ongoing
	Open stockpiles of construction materials or construction wastes on-site of more than 50m ³ should be covered with tarpaulin or similar fabric during rainstorms.	Deficiencies found in this reporting month	Ongoing
	Oils and fuels should only be used and stored on designated areas which have pollution prevention facilities.	Implemented	-
	Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site.	Not applicable	-
	The excavation and widening works for the drainage improvements to the Pak Ngan Heung River, Tai Tei Tong River, Luk Tei Tong River and Luk Tei Tong By-pass Channel should be carried out in sections (approximately 300 –400	Implemented	-
	m in length) and in dry condition.		

Appendix H Implementation Status of environmental protection / mitigation measures

Environmental	Protection / Mitigation Measures	Implementation	Follow-up
Aspect		status	action
	Maintenance desilitng of the re-profiled river channels of the Pak Ngan Heung River, Tai Tei Tong River, Luk Tei tong River and Luk Tei Tong By-pass Channel, temporary barrier walls should be used to provide a dry zone for desilitng work.	Not applicable at this stage	-
Ecology	Existing natural habitats should be retained as far as practicable	Implemented	-
	Boundary of working areas should be identified to prevent loss of vegetation	Implemented	
	All existing trees / plant should be well protected within the site or transplanted properly	Implemented	-
	Turf removal from the Luk Tei Tong marsh due to the construction of Luk Tei Tong Bypass Channel shall be minimized	Implemented	
	Turf from the Luk Tei Tong marsh shall be properly removed, stored, maintained and reused for lining the riverbed of the Luk Tei Tong Bypass Channel	Implemented	
Chemical and	Chemical wastes should be properly stored in a proper store as per statutory requirements (i.e. on a hard standing, within an enclosed and locked area)	Implemented	-
Solid Waste	Chemical waste stores should be provided with fire precaution facilities (i.e. fire extinguisher, no smoking warning etc).	Implemented	-
	Chemical wastes should be properly stored in corrosion resistant containers placed inside the store and labelled with warning signs in English and Chinese.	Implemented	-
	Chemical wastes should be disposed of by licensed chemical waste collector with supporting delivery records.	Implemented	-
	All containers for fuel, diesel and fluid chemical (in use) and oil filled stationery plants located with proper drip pans.	this reporting month	Ongoing
	Construction wastes should be managed and disposed to the designated public fill and landfill areas in acceptable manner.	Implemented	-
	All waste disposals managed in a proper manner i.e. trip ticket system implementation.	Implemented	-

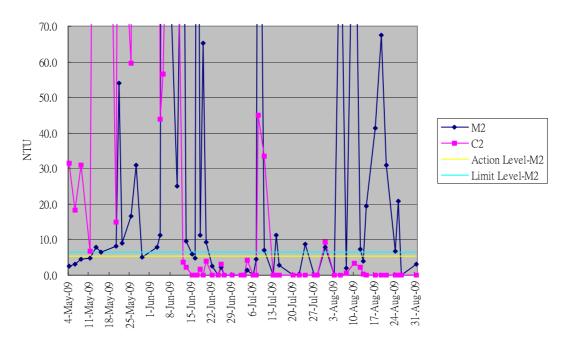
Appendix I

Graphical plot of water quality monitoring results (SS, DO, turbidity)

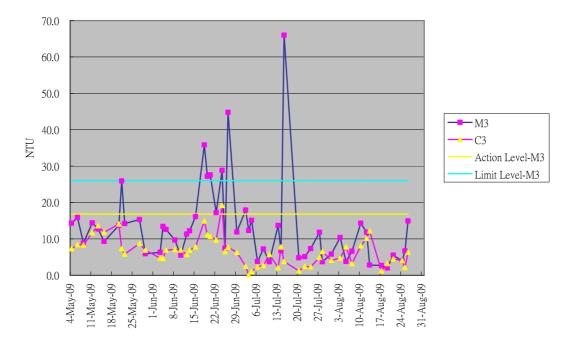


Graphical Plot of Turbidity Trend M1&C1 (May - Aug 09)

Graphical Plot of Turbidity Trend M2&C2 (May - Aug 09)

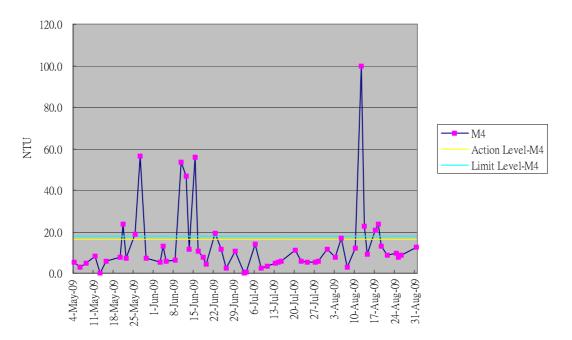


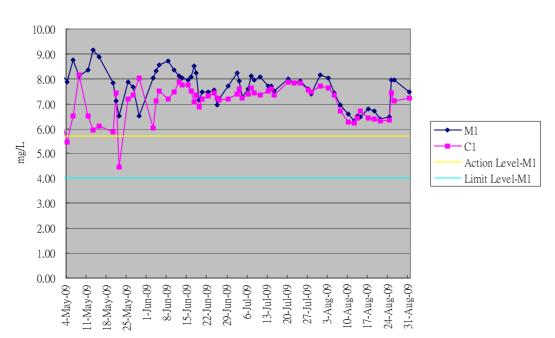
Remarks: The reading of M2 on 10th and 12th August 2009 is 110.8 and 131.4, M4 on 12th August 2009 is 99.6 which was over the range of the plot.



Graphical Plot of Turbidity Trend M3&C3 (May - Aug 09)

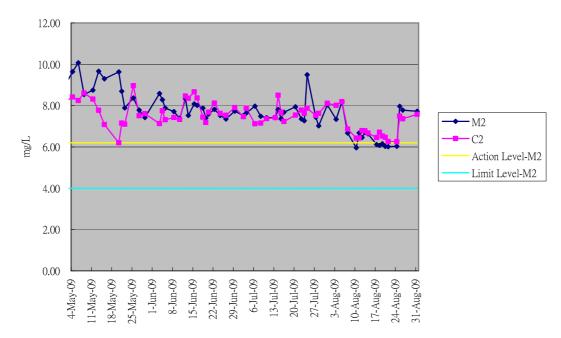
Graphical Plot of Turbidity Trend M4 (May - Aug 09)

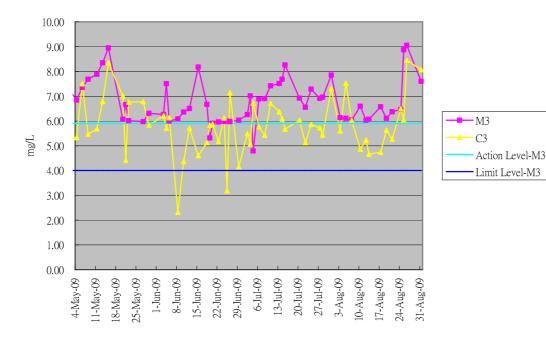




Graphical Plot of Dissolved Oxygen Trend M1&C1 (May - Aug 09)

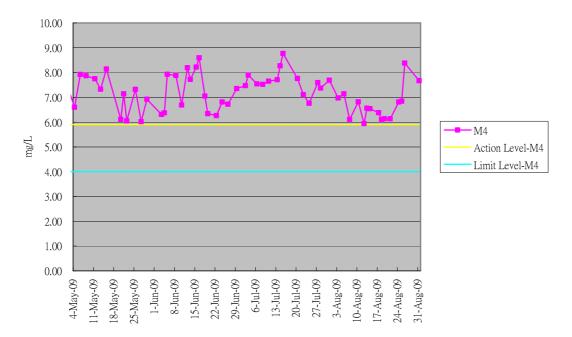
Graphical Plot of Dissolved Oxygen Trend M2&C2 (May - Aug 09)

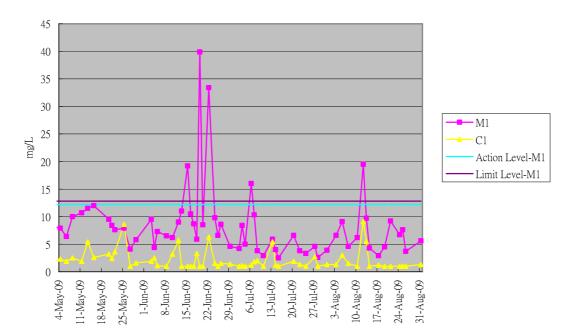




Graphical Plot of Dissolved Oxygen Trend M3&C3 (May - Aug 09)

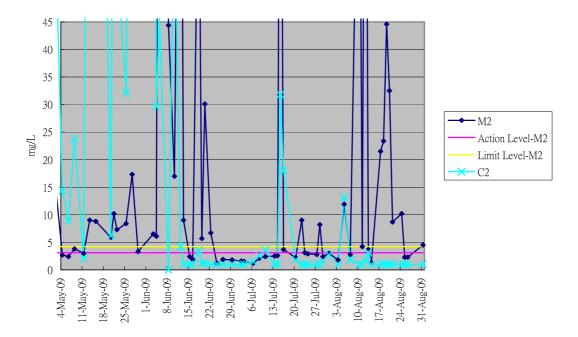
Graphical Plot of Dissolved Oxygen Trend M4 (May - Aug 09)



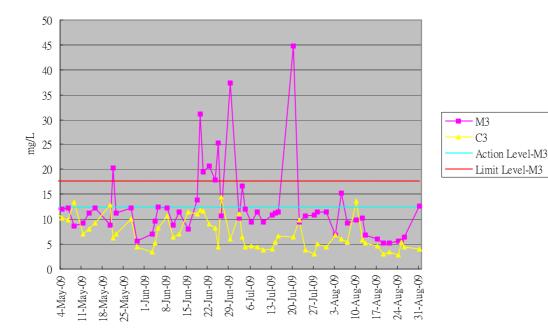


Graphical Plot of Suspended Soild M1&C1 (May - Aug 09)

Graphical Plot of Suspended Soild M2&C2 (May - Aug 09)

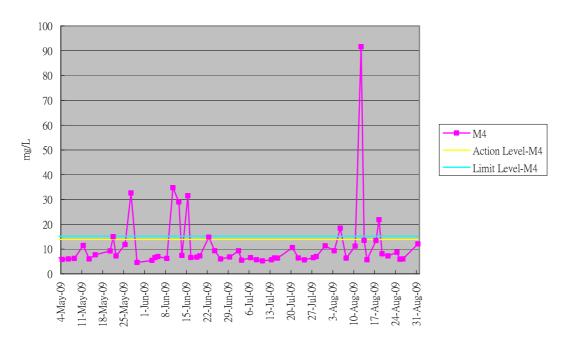


Remarks: The reading of M2 on 12th August 2009 is 12.5, M4 on 12th August 2009 is 91.6 which was over the range of the plot.



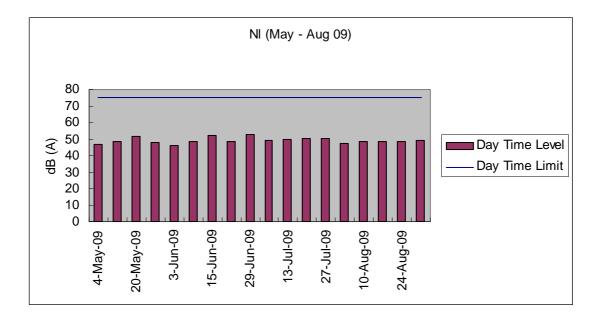
Graphical Plot of Suspended Soild M3&C3 (May - Aug 09)

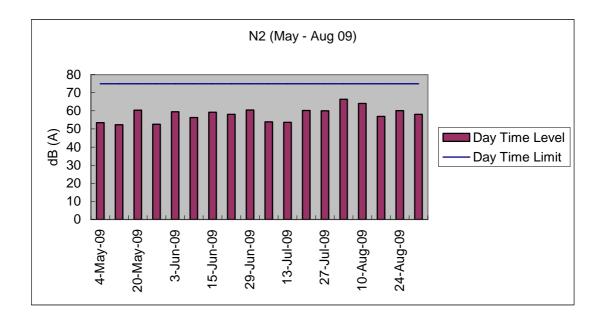
Graphical Plot of Suspended Soild M4 (May - Aug 09)

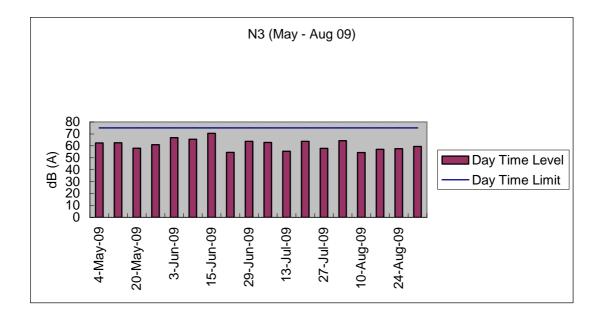


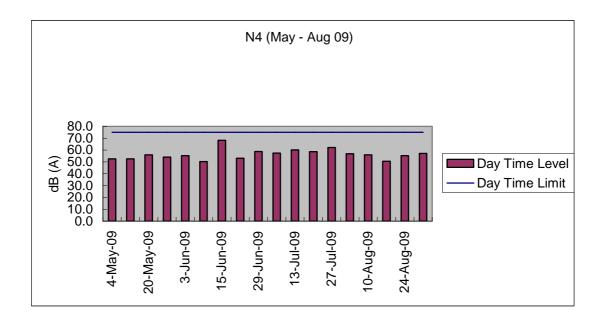
Appendix J

Graphical plot of noise monitoring results









Appendix K Ecological Survey Report for the mangrove area at Luk Tei Tong

Ecological Survey Report for the mangrove area at Luk Tei Tong

Background

In response to the concerns from green groups on the mangrove area to the east of Luk Tei Tong River, contractor took action to install pipes between Luk Tei Tong River and the mangrove area on 25 May 2009 as agreed on a meeting in mid May.

The inlet pipes from Luk Tei Tong River to the mangrove area consist of two sections. The first section is between the mangrove area wetland and the excavation area. The second section is between the excavation area and Luk Tei Tong River.

The inlet pipes would be constructed at a level of 1.7mPD so as to allow water to flow naturally from Luk Tei Tong River during high tide into the wetland.

Meanwhile river water would be pumped into the mangrove areas from the river at high tide. The tidal effects on the mangroves shall be maintained at all times throughout the remaining part of the river works.

A monitoring for the mangrove area was conducted, weekly for one month starting form 27 May 2009 after installation of the twin pipes. Thereafter, the monitoring will be monthly till the completion of gabion wall construction and the original water inlet is reinstated (tentatively by the end of August 2009).

The objectives of the ecological monitoring are to:

- to document the completion installation and proper operation of the temporary twin 400mm pipes
- to document the general health condition of the mangrove community at Luk Tei Tong
- to evaluate reinstatement of the natural tidal flow

Method

Field survey was conducted on 21 August 2009.

The survey was conducted during low tide period (around 3pm). Photos of the construction site, including the twin inlet pipes and the mangrove communities were taken for documentation. The condition of the pipe was checked, and the health

condition of the mangroves were observed and recorded.

Results

The installed inlet pipes were general in fair condition. However, it was noted that the end of both inlet pipes at Luk Tei Tong River was covered with plastic sheet (**Photo 1**). The Contractor was reminded to maintain the opening of the pipes clear, to make sure unrestricted tidal flow. During the survey the water level was below the pipe openings, and therefore no water flow between the mangroves and was observed.

The mangrove communities were more exposed during the current survey. Most of the dominant mangrove or mangrove associated species, including *Phragmites australis*(**Photos 2**), *Aegiceras corniculatum* (**Photos 3**) and *Acrostichum aureum* (**Photo 4**) were in fair conditions, while the latter two species had somewhat more yellowing and dry leaves, but no signs of mortality were observed. Mortality of a dominant mangrove associate, *Acanthus ilicifolius*, was stabilised (**Photo 5**). Mangrove fauna including mangrove crabs (**Photo 6**) and fishes were observed, and they appeared active during the survey period.

Conclusions and Recommendations

The plastic sheet on the Long Tei River side should be removed from the pipe endings to allow free tidal exchange.

It is anticipated that the gabion installation of this section of Luk Tei Tong River will be completed soon. It is recommended that the new box culvert should be reinstated to its original level. With all temporary bunds removed and the stream bed reinstated to its original condition, it is expected that original tidal exchange pattern could be restored.

The majority of the mangrove plants inside the concerned area were still in good conditions, but mortality of a dominant mangrove associate, *Acanthus ilicifolius*, was stabilised. With the reinstatement of the box culvert, it is expected that these mangrove associate plants would recover gradually after.

The next monthly mangrove monitoring would be conducted in September 2009.

