JOB NO.: TCS00371/07

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DRAINAGE SERVICES DEPARTMENT
CONTRACT NO. DC/2006/02

YUEN LONG, KAM TIN, NGAU TAM MEI AND TIN SHUI WAI DRAINAGE IMPROVEMENTS, STAGE 1, PHASE 2B – CHEUNG CHUN SAN TSUEN AND KAM TSIN WAI

KT15 - MONTHLY EM&A REPORT FOR NOVEMBER 2009 (NO. 29)

PREPARED FOR

CHIT CHEUNG CONSTRUCTION COMPANY LIMITED

Quality Index

Date	Reference No.	Prepared By	Certified By
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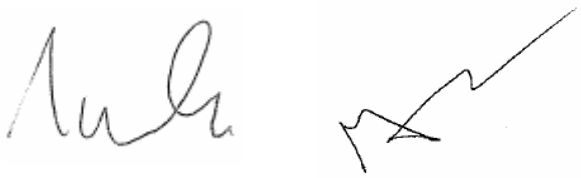

Environmental Consultant Environmental Team Leader

Ver. No.	Date	Remarks
1	9 December 2009	First Submission
2	12 December 2009	Amended against IEC's comments on 11 Dec 09
3	15 December 2009	Amended against IEC's comments on 14 Dec 09
4	17 December 2009	Amended against IEC's comments on 15 Dec 09

EXECUTIVE SUMMARY

ES01. Chit Cheung Construction Company Limited (CCC) has been awarded the Drainage Services Department (DSD) Contract *No. DC/2006/02 Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai Drainage Improvements, Stage 1, Phase 2B – Cheung Chun San Tsuen and Kam Tsin Wai* (the Project) on 3 April 2007. According to the contract specification requirements, an Environmental Monitoring & Audit (EM&A) program has to be implemented by an Environmental Team (ET) throughout the contract period.

ES02. Under the Project Profile for Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai, Drainage Improvement Stage 1 Phase 2B – Kam Tin Secondary Drainage Channels KT14 & KT15 (Ref.: 382047/E/PP/Issue 5), KT14 & KT15 were defined as Designated Projects and governed by an Environmental Permit (EP-231/2005/A).

ES03. Action-United Environmental Services and Consulting (AUES) has been commissioned by CCC to be the ET to implement the EM&A program in accordance with the requirements as stated in the Environmental Permit and EM&A Manual for Secondary Channels KT14 & KT15 (August 2005). This Contract (DC/2006/02) covers KT15 only; and KT14 will be carried out under another contract.

ES04. This Monthly EM&A Report for **November 2009 (No. 29)** presents the EM&A results for the period from **26 October** to **25 November 2009** (the Reporting Period).

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES05. The monitored results of air quality, construction noise and water quality were in full compliance with the environmental quality criteria except for ecology as shown below.

Monitoring	Parameters	Action Level	Limit Level
Air Quality	1-hour TSP	-	-
	24-hour TSP	-	-
Noise	Leq (30min) Daytime	-	-
Stream Water	Dissolve Oxygen (DO)	-	-
	Turbidity (NTU)	-	-
	pH	-	-
	Suspended Solids (SS)	-	-
	Ammonia Nitrogen	-	-
	Zinc	-	-
Ecology	Number of species of wetland birds	-	25 November 2009
	Total number of wetland birds	-	-

COMPLAINTS LOG

ES06. No environmental complaint was received in this Reporting Period (26 October – 25 November 2009)

NOTIFICATIONS OF ANY SUMMONS AND SUCCESSFUL PROSECUTIONS

ES07. There was no environmental summons or successful prosecution recorded in this Reporting Period (**26 October – 25 November 2009**).

REPORTING CHANGES

ES08. There are no changes to be reported in this Reporting Period.

FUTURE KEY ISSUES

ES09. Construction activities to be undertaken in **November 2009** include tree protection and tree transplanting works, carrying out joined survey, utilities companies liaison, hydroseeding and

planting tree. Potential environmental impacts for this project generally include air quality, noise, ecology, surface runoff and construction waste. The contractor shall properly implement the required environmental mitigation measures as per the Implementation Schedule in the EM&A manual to ensure no significant adverse environmental impact may arise from the construction works.

EM&A ACTIVITIES IN THE REPORTING PERIOD

ES10. A summary of the monitoring activities in this Reporting Period is listed below:

- 1-hour TSP Monitoring **15** Events
- 24-hour TSP Monitoring **6** Events
- Noise Monitoring **5** Events
- Stream Water Quality **20** Events
- Ecology **1** Event
- Site Inspection Audit **4** Times

AIR QUALITY

ES11. No 1-hour and 24-hour TSP monitoring results that triggered the Action or Limit Level was recorded in this Reporting Period.

CONSTRUCTION NOISE

ES12. No construction noise complaint (an Action Level exceedance) was received and no construction noise monitoring result that exceeded the Limit Level was recorded in this Reporting Period.

STREAM WATER QUALITY

ES13. No stream water quality monitoring result that triggered the Action or Limit Level was recorded in this reporting period.

ECOLOGY

ES14. One (1) individual from one (1) wetland bird species with abundance from the baseline was observed during the survey on 25 November 2009 and a total of forty-four (44) individuals of birds from eighteen (18) species were recorded. The species number of wetland dependent bird triggered the Limit Level. However, no intrusion of construction activities into the wetland areas and no discharge to the adjacent wetlands were found on 25 November 2009 during the site audit. Investigation report revealed that the major construction works being carried out during the exceedance day were only erection of formwork, steel fixing, tree planting and concreting. Those activities would not cause excessive disturbance to the adjacent wetlands. Therefore, it is concluded that the exceedance was not caused by work under the project.

SUMMARY OF MONITORING EXCEEDANCES

ES15. A summary of monitoring exceedances during the Reporting Period for air quality, construction noise, stream water quality and ecology are presented in the following table:-

Issues	Parameters	Work-Related Exceedance %	Investigation & Corrective Actions
Air Quality	1-hour TSP	0	Not Required for 0% Project Related
	24-hour TSP	0	Not Required for 0% Project Related
Noise	Leq (30min) Daytime	0	Not Required for 0% Project Related
Stream Water	Dissolve Oxygen (DO)	0	Not Required for 0% Project Related
	Turbidity (NTU)	0	Not Required for 0% Project Related
	pH	0	Not Required for 0% Project Related

	Suspended Solids (SS)	0	Not Required for 0% Project Related
	Ammonia Nitrogen	0	Not Required for 0% Project Related
	Zinc	0	Not Required for 0% Project Related
Ecology	Decrease in the total number of species or individuals of wetland dependent bird from baseline	0	Not Required for 0% Project Related Exceedance

Note: According to the Project Profile: Secondary Channels KT14 & KT15 Attachment 4 EM&A Manual Section 7.5.1 (b), fauna monitoring is only required to be undertaken in wet seasons (April to July) on a monthly basis.

SITE INSPECTION BY EXTERNAL PARTIES

ES16. No site visit or inspection was carried out by the Environmental Protection Department in this Reporting Period.

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LIST OF APPENDICES

1.0 INTRODUCTION

1.01 Chit Cheung Construction Company Limited (CCC) has been awarded the Drainage Services Department (DSD) Contract *No. DC/2006/02 Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai Drainage Improvements, Stage 1, Phase 2B – Cheung Chun San Tsuen and Kam Tsin Wai* (the Project) on 3 April 2007. According to the contract specification requirements the Project should implement an Environmental Monitoring & Audit (EM&A) program by an Environmental Team (ET) throughout the construction period in accordance with the requirements as stated in the project particular specification, Environmental Permit (EP-231/2005/A) and EM&A Manual for KT15. Location plan of the project site is presented in **Appendix A** and the construction program is presented in **Appendix B**.

1.02 The works to be executed at the proposed Channel KT15 mainly comprise the following:

- Construction of about 0.8 km secondary drainage channels;
- Construction of DSD maintenances access;
- Provisioning and re-provisioning of pedestrian crossings;
- Associated ancillary works; and
- Construction of temporary vehicular access in Portion 5A1 of the site for vehicular access from Kam Sheung Road to Lot Nos. 398RP, 395 in DD106 which are adjacent to the site.

1.03 Action-United Environmental Services and Consulting (AUES) has been commissioned by CCC to be the ET for implementation of the EM&A program in accordance with the requirements as set out in the contract particular specification, Environmental Permit (EP-231/2005/A), EM&A Manual for KT15 and the Environment Impact Assessment Ordinance (EIAO).

1.04 This report presents the results of the project EM&A program for **November 2009** during the period from **26 October** to **25 November 2009** (the Reporting Period).

REPORT STRUCTURE

1.05 The EM&A report is structured into the following sections:

Section 1 INTRODUCTION
Section 2 PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS
Section 3 SUMMARY OF MONITORING REQUIREMENTS
Section 4 IMPACT MONITORING METHODOLOGY
Section 5 IMPACT MONITORING RESULTS
Section 6 WASTE MANAGEMENT
Section 7 SITE INSPECTION
Section 8 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE
Section 9 IMPLEMENTATION STATUS OF MITIGATION MEASURES
Section 10 IMPACT FORECAST
Section 11 CONCLUSIONS

2.0 PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

PROJECT ORGANIZATION AND MANAGEMENT STRUCTURE

2.01 The organization chart and lines of communication with respect to the on-site environmental management and monitoring program are shown in **Appendix C**.

CONSTRUCTION PROGRESS

2.02 The major construction activities undertaken in this Reporting Period are listed below:-

- Planting tree;
- Hydroseeding;
- Carrying out joined survey;
- Tree protection and tree transplanting works
- Utilities companies liaison;
- Backfilling behind completed structure;

SUMMARY OF ENVIRONMENTAL SUBMISSIONS

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

Table 2-1 Status of Environmental Licenses and Permits

Items	Item Description	License/Permit Status
1	Environmental Permit (EP-231/2005/A)	-
2	Air Pollution Control (Construction Dust)	Notified EPD on 9 July 2007
3	Chemical Waste Producer Registration WPN:5296-519-C3430-01 (Portion 8, Ma Fung Ling Road, Tong Yan San Tsuen, Yuen Long)	Registration on 20 April 2007
4	Chemical Waste Producer Registration WPN:5113-533-C3434-09 (Kam Tsin Wai, Kam Tin, Yuen Long)	Registration on 20 April 2007
5	Chemical Waste Producer Registration WPN:5213-424-C3431-01 (Portion 7, Birthing Area, Hoi Wan Road, Tuen Mun)	Registration on 20 April 2007
6	Water Pollution Control Ordinance (Discharge License) License No.: 1U450/1	Updated on 20 June 2009
7	Billing Account for Disposal of Construction Waste (Account Number: 7005311)	Valid on 7 May 2007

3.0 SUMMARY OF IMPACT MONITORING REQUIREMENTS

3.01 The environmental monitoring and audit requirements are set out in the EM&A Manual. Air quality, construction noise, stream water quality and ecology have been identified to be the key environmental issues during the construction phase of this project.

3.02 A summary of the EM&A requirements for air quality, construction noise, stream water quality and ecology monitoring are shown in **Table 3-1.** The designated stations of the air quality, construction noise, stream water quality and ecology monitoring are shown in **Appendix D**.

Table 3-1 Summary of EM&A Requirements

Environmental Issues	Monitoring Parameters		Monitoring Stations
Air Quality	1-hour and 24-hour TSP		A10
Construction Noise	$Leq_{(30min)}$ during normal working hours		N10a*
	Supplementary data of L_{10} and L_{90} for reference		
Stream Water Quality	In Situ Measurement	• Dissolved Oxygen Concentration (mg/L);	W9A & W9B
		• Dissolved Oxygen Saturation (% Sat);	
		• Turbidity (NTU);	
		• pH;	
		• Salinity (%); Water Depth (m) and	
		• Temperature (^oC);	
	Laboratory Analysis	• Suspended Solids (mg/L);	
		• Ammonia Nitrogen (mg/L); and	
		• Zinc (μg/L).	
Ecology	Monthly monitoring of construction activities adjacent to the wetland areas to identify any intrusions of construction activities into the wetland areas; Monthly monitoring of wetland areas themselves to check that there is no adverse impact on the wetlands as a consequence of changes to the water table that are attributable to the project, if any; Photographic records at six-month intervals; and Monthly surveys of fauna in the wetland areas during the wet season (April to July inclusive) for reptiles, amphibians, dragonflies, and butterflies, and throughout the year for birds.		

*Note: * The ambient noise condition within the victim area without significant change. Due to accessibility problems, noise monitoring will be undertaken at N10a. Once access is available, the impact noise monitoring will be undertaken at N10.*

3.03 Air monitoring is carried out once every six days for 24-hour TSP and 3 times every six days for 1-hour TSP at one designated monitoring station A10.

3.04 Noise monitoring is conducted once per week at one designated monitoring location (N10a). Measurements of $Leq_{(30min)}$ shall be taken between 0700 and 1900 hours with supplementary L_{10} and L_{90} data collected for reference.

3.05 Stream water quality monitoring is conducted at two locations (W9A and W9B) twice per week. Dissolved Oxygen (DO), pH and turbidity (NTU) are measured in-situ; water depth, temperature and salinity are collected for relevant data. Suspended solids (SS), ammonia nitrogen and zinc are determined in a HOKLAS accredited laboratory.

3.06 Ecological monitoring is conducted in the seasonal wetland area as shown in the Project Profile of KT15 (Figure ATT 4-7.2). Monthly monitoring was conducted by means of walk through survey, along the boundary and within the wetland areas in KT15. Any adverse impacts to the habitat, intrusions of construction activities into the wetland areas, and adverse changes in the wetlands were checked and reported if any. Photographic records of

vegetation within the monitoring area on the fixed photo record points selected during the baseline survey are made every six months. The photos from the construction phase ecological monitoring will be compared with those taken during the baseline which is used as the baseline conditions. Bird survey should be conducted monthly throughout the year and other faunal groups (reptiles, amphibians, dragonflies and butterflies) are conducted monthly in wet season (April to July inclusive) only.

3.07 A summary of the Action/Limit (A/L) Levels for air quality, construction noise, stream water quality and ecology monitoring are shown in **Tables 3-2, 3-3, 3-4** & **3-5.**

Table 3-2 Action and Limit Levels for Air Quality Monitoring

Monitoring Station	Action Level (μg/m^3)		Limit Level (μg/m^3)	
	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP
A10	> 307	> 165	> 500	> 260

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

Time Period	Action Level in dB(A)	Limit Level in dB(A)
0700-1900 hours on normal weekdays	When one or more documented complaints are received	> 75* dB(A)

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

Table 3-4 Action and Limit Levels for Stream Water Quality Monitoring

Dissolved Oxygen (mg/L)	W9A (Upstream)#	W9B (Downstream)
Action Level	NA	< 0.3
Limit Level	NA	< 0.2
Turbidity (NTU)		
Action Level	NA	> 73.5*
Limit Level	NA	> 78.2**
pH		
Action Level	NA	> 7.0*
Limit Level	NA	> 7.1**
Suspended Solids (mg/L)		
Action Level	NA	> 148*
Limit Level	NA	> 159**
Ammonia Nitrogen (mg/L)		
Action Level	NA	> 30.91*
Limit Level	NA	> 32.20**
Zinc (μg/L)		
Action Level	NA	> 242*
Limit Level	NA	> 252**

Notes: # Act as Control Station for Stream Water Quality Monitoring.
** Alternative Action Level is 120% of upstream control station of same day.*
*** Alternative Limit Level is 130% of upstream control station of same day.*

Table 3-5 Action and Limit Levels for Ecology Monitoring

Parameters	Action Level	Limit Level
Fauna: decrease in the total number of wetland dependant species or individuals of the surveyed faunal groups from baseline	20 – 40% of individuals and species	> 40% of individuals and species

3.08 The Event/Action Plan of air quality, construction noise, stream water quality and ecological monitoring has been implemented for this project. Details of the Event/Action Plan are presented in **Appendix E**.

4.0 IMPACT MONITORING METHDOLOGY

MONITORING LOCATIONS

4.01 The 1-hour and 24-hour TSP monitoring was carried out at one designated station A10. Impact construction noise monitoring was undertaken at the designated location N10a. Stream water quality monitoring was undertaken at two designated locations (W9A & W9B). The ecological monitoring was conducted within the wetland area in according to the EM&A Manual of KT15. The descriptions of monitoring stations are presented in **Tables 4-1;** and locations are shown in **Appendix D**.

Table 4-1 Location of Air Quality, Construction Noise & Stream Water Quality Monitoring Station/Locations

Air Quality Station	
A10	Village House in Tin Sam San Tsuen
Construction Noise Location	
N10 *	Village House in Tin Sam San Tsuen
N10a	Village House in Tin Sam San Tsuen
Water Quality Locations	
W9A #	Tin Sam San Tsuen
W9B	Tin Sam San Tsuen

Notes: * *The noise ambient condition within the victim area without significant change. Due to the accessibility, noise monitoring will undertake at N10a. Once the access is available, the impact noise monitoring will undertake at N10*

\# *Act as control station in impact monitoring*

4.02 The meteorological data during the Reporting Period was extracted from the Lau Fau Shan Station of the Hong Kong Observatory.

MONITORING FREQUENCY AND PERIOD

1-HOUR TSP MONITORING

4.03 The 1-hour TSP monitoring was conducted in designated station A10 in according to the EM&A Manual three times every 6 days. A total of **15** monitoring events were carried out in this Reporting Period.

24-HOUR TSP MONITORING

4.04 The 24-hour TSP monitoring was conducted at station A10 once every six days. A total of **6** monitoring events were carried out in this Reporting Period.

NOISE MONITORING

4.05 Impact noise monitoring was undertaken at location N10a once per week. A total of **5** monitoring events were carried out in this Reporting Period.

STREAM WATER QUALITY MONITORING

4.06 The stream water quality monitoring was undertaken at two locations W9A & W9B twice per week. A total of **20** monitoring events were carried out in this Reporting Period.

ECOLOGY MONITORING

4.07 Bird survey should be conducted in monthly throughout the year and other faunal groups (reptiles, amphibians, dragonflies and butterflies) are conducted monthly in wet season (April to July inclusive) in the seasonal wetland area. Photographic records of vegetation within the monitoring area should be made at six monthly intervals. One event of monthly monitoring by means of walk through survey, along the boundary and within the wetland areas in KT15 was undertaken on **25 November 2009** this month.

MONITORING EQUIPMENT

4.08 Monitoring equipment used by the ET in EM&A program is presented in **Table 4-2**.

Table 4-2 Monitoring Equipment Used in EM&A Program

Parameters	Equipment	Monitoring Equipment
1-hour TSP	Portable dust meter	Sibata LD-3 Laser Dust Meter or TSI DuskTrak Model 8520
24-hour TSP	High Volume Sampler	Grasby Anderson GMWS 2310 HVS
	Calibration Kit	TISCH Model TE-5025A
Leq30min	Integrating Sound Level Meter	Cesva SC-20c Sound Level Meter
	Calibrator	Cesva CB-5 Acoustical Calibrator
	Portable Wind Speed Indicator	Testo Anemometer
Water Depth	Water Depth Detector	Eagle Sonar
Temperature	Thermometer & DO Meter	YSI 550A or YSI 55/12FT
DO	Thermometer & DO Meter	YSI 550A or YSI 55/12FT
pH	pH Meter	Hanna HI 98128 or 98107 or Extech Instruments, ExStik™ Model pH110
Turbidity	Turbidimeter	Hach 2100P
Salinity	Salinometer	ATAGO refractometer
-	Water Sampler	Teflon bailer / bucket
-	Sample Container	High density polythene bottles (provided by laboratory)
-	Storage Container	'Willow' 33-litter plastic cool box

24-HOUR TSP MONITORING

4.09 The 24-hour TSP monitoring was carried out by a High Volume Sampler (HVS) in compliance with the USEPA Standards Title 40, Code of Federal Regulations Chapter 1 (Part 50) specifications. The HVS employed complied with the PS specifications including.

- Power supply of 220v/50 hz for 24-hour continuous operation;
- 0.6-1.7 m^3/min (20-60 SCFM) adjustable flow rate;
- A 7-day mechanical timer for 24-hour operation;
- An elapsed time indicator with ±2 minutes accuracy for 24-hour operation;
- Minimum exposed area of 63 in^2;
- Flow control accuracy of ±2.5% deviation over 24-hour operation;
- An anodized aluminum shelter to protect the filter and sampler;
- A motor speed-voltage control to control mass flow rate with accuracy of ±2.5% deviation over 24-hour sampling period;
- Provision of a flow recorder for continuous monitoring;
- Provision of a peaked roof inlet;
- Incorporation with a manometer; and
- An 8"x10" stainless steel filter holder to hold, seal and easy to change the filter paper.

4.10 The filter papers used in 24-hour TSP monitoring were of size 8"x10" and provided by a local HOKLAS-accredited laboratory, ALS Techichem Pty (HK) Limited (HOKLAS No. 66). The filters papers after measurements were returned to the laboratory for the required treatment and analysis.

1-HOUR TSP MONITORING

4.11 Measurement of 1-hour TSP monitoring was taken by TSI DuskTrak Model 8520. That is a portable and battery-operated laser photometer capable of performing real time 1-hour TSP measurements. A comparison test with HVS was carried out prior to baseline monitoring in compliance with the EM&A requirements and a conversion factor for direct reading of the dust meter has been established.

WIND DATA MONITORING

4.12 The meteorological data during the Reporting Period was extracted from the Lau Fau Shan Station of the Hong Kong Observatory.

NOISE MONITORING

4.13 Noise measurements were taken in terms of the A-weighted equivalent sound pressure level (L_{eq}) measured in decibels (dB). Supplementary statistical results such as L_{10} and L_{90} were also obtained for reference.

4.14 Hand-held sound level meters and associated acoustical calibrators in compliance with the International Electrotechnical Commission (IEC) Publication 651:1979 (Type 1) and 804:1985 (Type 1) specifications were used for taking the impact noise measurements.

4.15 Windshield was fitted in all measurements. All noise measurements were made with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (L_{eq}).

4.16 No noise measurement was carried out in the presence of fog, rain, wind with a steady speed exceeding 5 m/s or wind with gusts exceeding 10m/s.

STREAM WATER QUALITY MONITORING

Water Depth

4.17 Water quality monitoring will be conducted at the middle of the water columns (Mid-Depth) if the depths of the water columns at the sampling locations are less than 3 meters during monitoring. Or else, monitoring will be performed at two depths, at 1 meter from surface and bottom respectively when the water depth is less than 6m.

4.18 Water depths will be determined prior to measurement and sampling at W9A and W9B, using a portable battery operated depth detector, brand named 'Eagle Sonar', if the depths exceed 3 meter. For the depths well below 1 meter, an appropriate steel ruler or rope with appropriate weight will be used for the depth estimation.

Water Temperature

4.19 Although the DO Meter automatically compensates ambient water temperature to a standard temperature of 20^{o}C for ease of comparison of the data under the changing reality, the temperature readings of the DO Meter will be recorded in the field data sheets.

Dissolved Oxygen (DO)

4.20 A portable YSI 550A DO Meter will be used for in-situ DO measurement. The DO meter is capable of measuring DO in the range of 0 - 20 mg/L and 0 - 200 % saturation and checked against water saturated ambient air on each monitoring day prior to monitoring.

4.21 Although the DO Meter automatically compensates ambient water temperature to a standard temperature of 20^{o}C for ease of comparison of the data under the changing reality, the temperature readings of the DO Meter will be recorded in the field data sheets.

pH

4.22 A portable Extech / Hanna pH Meter will be used for in-situ pH measurement. The pH meter is capable of measuring pH in the range of 0 – 14 and readable to 0.1. Standard buffer solutions of at least pH7 and pH10 shall be used for calibration of the instrument before and after use.

Turbidity (NTU)

4.23 A portable Hach 2100p turbidity meter will be used for in-situ turbidity measurement. The turbidity meter is capable of measuring turbidity in the range of 0 – 1000 NTU.

Salinity

4.24 A portable salinometer capable of measuring salinity in percentage (g/L) will be used for in-situ measure the salinity of stream water at each monitoring location.

Water Sampler

4.25 Water samples will be collected by the ET using a water sampler and 'PE' (Poly-Ethylene) sampling bottles provided by the laboratory. The water sampler will be rinsed before collection with the sample to be taken. Kahlsico Water Sampler will be used for sampling. One liter or 1000mL water sample will be collected from each depth for SS determination. The samples collected are stored in a cool box maintained at 4^{o}C and delivered to ALS upon completion of the sampling by end of each sampling day. Sampling in the stream with shallow water condition, plastic bucket will be used for sample collection.

Sample Container

4.26 Water samples will be contained in screw-cap PE (Poly-Ethylene) bottles, which will be provided and pretreated immediately prior to sampling according to HOKLAS quality requirements by ALS. The sampling bottles will be rinsed with the water to be contained. Water sample is then transferred from the sampler to the sample bottles to 95% bottle capacity to allow possible volume changes during delivery and storage.

Sample Storage

4.27 A 'Willow' 33-litter plastic cool box packed with ice will be used to preserve the collected water samples prior to arrival at the laboratory for SS determination. The water temperature of the cool box will be maintained at a temperature as close to 4^{o}C as possible without being frozen. Samples collected will be delivered to the laboratory upon collection.

4.28 DO, water temperature, turbidity (NTU), pH, salinity and water depth were measured in-situ whereas SS, Ammonia Nitrogen and Zinc were determined in a HOKLAS accredited laboratory (ALS).

ECOLOGY MONITORING

Study Area

4.29 The study area for the ecological monitoring programme for KT15 covers the seasonal wetland area as shown in Project Profile of KT15 Figures ATT 4-7.2.

Survey Method

4.30 Monthly monitoring was conducted by means of walk through survey, along the boundary and within the wetland areas in KT15. Any adverse impacts to the habitat, intrusions of construction activities into the wetland areas, and adverse changes in the wetlands were checked and reported if any.

4.31 Photographic records on the fixed photo record points selected during the baseline survey are made every six months. The photos from the construction phase ecological monitoring will be compared with those taken during the baseline which is used as the baseline conditions.

4.32 Bird monitoring was conducted in the study areas monthly for KT15. Survey areas in KT15 was the seasonal wetland area covered same as the Project Profile of KT15 Figures ATT 4-7.2.

4.33 Fauna monitoring is conducted only during the wet season (April to July inclusive for KT15) in the same survey areas for bird monitoring. For KT15, the survey frequency is monthly, and the surveys cover reptiles, amphibians, dragonflies and butterflies.

Equipment

4.34 Standard portable field survey equipment was used for ecological monitoring, including 1) Binoculars of 10 x 40 magnifications; 2) Digital camera; 3) Notebook; and/or 4) Butterfly net (when it is necessary to confirm identities of butterflies and dragonflies).

EQUIPMENT CALIBRATION

4.35 Initial calibration of the HVS was performed upon installation and thereafter at bi-monthly intervals in accordance with the manufacturer's instruction using the NIST-certified standard calibrator. The calibration data are properly documented and the records are maintained by ET for future reference.

4.36 The 1-hour TSP meter was calibrated by the supplier prior to purchase. Zero response of the equipment is checked before and after each monitoring event. A comparison test was carried out with a HVS. A conversion factor (K) of 4.0 was generated in accordance with the equipment manufacturer's instruction. The meter counts in minutes multiplied by the conversion factor will generate the equivalent dust concentration by HVS.

4.37 The sound level meters are calibrated using an acoustical calibrator prior to and after measurements. The meters are regularly calibrated in accordance with the manufacturer's instructions. Prior to and following each noise measurement, the accuracy of the sound level meter was checked using an acoustical calibrator generating a known sound pressure level at a known frequency. Measurements are considered valid only if the calibration levels before and after the noise measurement agree to within 1.0 dB.

4.38 All in-situ stream water quality monitoring instruments are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at 3 monthly intervals throughout all monitoring stages.

4.39 The calibration certificates of the monitoring equipment used during the impact monitoring program are attached in **Appendix F**.

ANALYTICAL LABORATORY

4.40 Our ET has commissioned a local HOKLAS-accredited laboratory, ALS Technichem (HK) Pty Ltd (HOKLAS No. 66) to provide analytical services for this project. ALS carried out sample and analysis control in accordance with the HOKLAS QA/QC requirements. The specified testing services provided by ALS as shown in **Table 4-3**.

Table 4-3 Analytical Method applied to Water Quality Samples

Determinant	Standard Method	Detection Limit
Suspended Solids	ALS Method EA025	2 mg/L
Ammonia Nitrogen	ALS Method EK055A	0.01 mg/L
Zinc	ALS Method EG020	10 µg/L

4.41 The analysis of suspended solids, ammonia nitrogen and zinc concentrations were follow the APHA Standard Methods for the Examination of Water and Wastewater 19ed 2540D. ALS Environmental has comprehensive quality assurance and quality control programs and has attained HOKLAS accreditation for a range of environmental testing. For QA/QC procedures, one duplicate sample for every batch of samples was analyses as required by the HOKLAS. The QA/QC results are presented in **Appendix H**.

DATA MANAGEMENT AND DATA QA/QC CONTROL

4.42 The impact monitoring data are handled by the ET's systematic data recording and management, which complies with in-house Quality Management System. Standard Field Data Sheets (FDS) are used in the impact monitoring program.

4.43 The monitoring data recorded in the equipment e.g. 1-hour TSP meters and noise meters are downloaded directly from the equipment at the end of each monitoring day. The downloaded monitoring data are input into a computerized database properly maintained by the ET. The laboratory results are input directly into the computerized database and QA/QC checked by personnel other than those who input the data.

4.44 For monitoring activities require laboratory analysis, the local laboratory follows the QA/QC requirements as set out under the HOKLAS scheme for all laboratory testing.

5.0 IMPACT MONITORING RESULTS

5.01 The impact monitoring was carried out by the ET in compliance with the project specific EM&A Manual. The impact monitoring schedules are shown in **Appendix G** and the monitoring results are presented in the following sub-sections.

AIR QUALITY

5.02 The 1-hour and 24-hour TSP impact monitoring data are summarized in **Tables 5-1** and **5-2**. Graphical plots of the past four month monitoring results are shown in **Appendix H**.

Table 5-1 Summary of 1-hour TSP Monitoring Results at A10

Monitoring Date	Start Time	1st Result (μg/m³)	2nd Result (μg/m³)	3rd Result (μg/m³)	Action Level (μg/m³)	Limit Level (μg/m³)
28-Oct-09	9:26	164	189	175	> 307	> 500
3-Nov-09	9:27	87	102	90	> 307	> 500
9-Nov-09	9:21	73	88	83	> 307	> 500
14-Nov-09	9:29	82	105	90	> 307	> 500
20-Nov-09	9:28	70	89	74	> 307	> 500

Notes: Bold and italic means exceeded the Action Level.
Bold and underline means exceeded the Limit Level.

Table 5-2 Summary of 24-hour TSP Monitoring Results at A10

Monitoring Date	Monitoring Results (μg/m³)	Action Level (μg/m³)	Limit Level (μg/m³)
27-Oct-09	84	> 165	> 260
2-Nov-09	155	> 165	> 260
7-Nov-09	164	> 165	> 260
13-Nov-09	14	> 165	> 260
19-Nov-09	68	> 165	> 260
25-Nov-09	38	> 165	> 260

Notes: Bold and italic means exceeded the Action Level.
Bold and underline means exceeded the Limit Level.

5.03 No 1-hour and 24-hour TSP monitoring results that triggered the Action or Limit Level was recorded in this Reporting Period.

5.04 The meteorological data during the monitoring period are summarized in **Appendix I**.

CONSTRUCTION NOISE

5.05 The impact construction noise monitoring results are summarized in **Table 5-3**. Graphical plots of the past four month monitoring results are shown in **Appendix H**.

Table 5-3 Summary of Noise Monitoring Results at N10a

Date	Start Time	1st Leq5	2nd Leq5	3rd Leq5	4th Leq5	5th Leq5	6th Leq5	Leq30
28-Oct-09	9:37	48.1	47.5	46.0	47.9	45.9	43.5	46.7
3-Nov-09	9:38	44.4	44.1	43.4	44.3	44.8	45.9	44.6
9-Nov-09	9:33	43.7	44.5	44.9	44.1	45.3	44.7	44.6
14-Nov-09	9:37	51.6	47.3	48.9	48.9	47.9	45.4	48.7
20-Nov-09	9:35	49.4	48.1	48.8	47.8	48.3	47.1	48.3
Limit Level		-						**> 75 dB(A)**

5.06 No construction noise complaint (Action Level) was received and all measured noise levels were below the Limit Level in this Reporting Period.

STREAM WATER QUALITY

5.07 No stream water quality monitoring result trigger the Action or Limit Level was recorded in this reporting period. The impact monitoring schedules are shown in Appendix G.

5.08 The stream water quality monitoring results are summarized in **Table 5-4** and graphical plots are presented in **Appendix H**.

Table 5-4 Summary of Stream Water Quality Results at W9A & W9B

Monitoring Date	DO in mg/L		Turbidity (NTU)		pH		SS in mg/L		Ammonia nitrogen (mg/L)		Zinc (μg/L)	
	W9A#	W9B	W9A#	W9B	W9A#	W9B	W9A#	W9B	W9A#	W9B	W9A#	W9B
27-Oct-09	4.1	3.3	7.1	7.6	7.4	6.9	46.0	11	0.2	0.2	27.0	16
29-Oct-09	4.6	3.5	8.0	7.6	7.5	6.6	102.0	18	0.3	0.2	82.0	16
2-Nov-09	4.2	4.7	6.7	7.1	7.4	6.7	9.0	17	0.2	0.2	13.0	15
4-Nov-09	3.9	4.2	8.1	7.2	7.8	6.9	4.0	2	0.0	0.0	23.0	<10
9-Nov-09	3.6	4.0	6.9	7.1	7.4	6.7	12.0	7	1.8	0.2	15.0	14
11-Nov-09	3.3	4.5	5.3	5.9	7.3	6.8	6.0	4	0.1	0.0	15.0	10
16-Nov-09	3.4	3.9	5.9	5.3	7.5	6.8	10.0	5	0.3	0.3	26.0	24
18-Nov-09	3.7	4.1	7.1	5.5	7.3	6.9	7.0	24	0.4	0.6	19.0	61
23-Nov-09	3.6	4.3	4.8	5.3	7.5	6.7	12.0	8	0.4	0.4	19.0	18
25-Nov-09	3.9	4.6	4.4	5.9	7.4	7.0	3.0	3	0.4	0.4	16.0	15
Action Level	-	< 0.3*	-	> 73.5*	-	> 7.0*	-	> 148*	-	> 30.91*	-	> 242*
Limit Level	-	< 0.2**	-	> 78.2**	-	> 7.1**	-	> 159**	-	> 32.20**	-	> 252**

Notes: # *Act as Control Station for the Impact Water Quality Monitoring.*
Bold and italic is exceed the Action Level.
Bold and underline is exceed the Limit Level
* *Alternative Action Level is 120% of upstream control station of same day.*
** *Alternative Limit Level is 130% of upstream control station of same day.*

ECOLOGY

5.09 Forty-four (44) individuals of birds from eighteen (18) species were recorded during the survey on 25 November 2009. Among the birds recorded, one (1) individual from one wetland bird species with abundance from the baseline (i.e. Chinese Pond Heron) was recorded. Compared with the average abundance of 1.2 individuals from 2 species of wetland dependent birds recorded during the baseline study, the species number of wetland dependent bird recorded triggered the Limit Level for the monitoring requirements for ecology i.e. decrease in the number of species or individuals > 40% from the baseline.

5.10 No intrusion of construction activities into the wetland areas and no discharge to the adjacent wetlands were found during the site audit on 25 November 2009. Investigation report revealed that the major construction works being carried out during the exceedance day were only erection of formwork, steel fixing, tree planting and concreting. Those activities would not cause excessive disturbance to the adjacent wetlands. Therefore, it is concluded that the exceedance was not caused by work under the project.

5.11 Photographic records of vegetation within the monitoring area are scheduled in six-month intervals, the last photographic records were taken in June 2009, and therefore it is not required in the present reporting month.

5.12 Ecology Impact Monitoring Results are presented in **Tables 5-5**.

Table 5-5 Summary of Ecology Impact Monitoring Surveys Bird Survey

Scientific Name	Common Name	Abundance reported in the project profile	Abundance recorded in the present survey (25 November 09)
Birds			
Bubulcus ibis	**Cattle Egret**	**0.4**	
Ardeola bacchus	**Chinese Pond Heron**	**0.8**	**1**
Amaurornis phoenicurus	White-breasted Waterhen	Recorded only	1
Streptopelia chinensis	Spotted Dove	Recorded only	4
Hirundo rustica	Barn Swallow	Recorded only	
Motacilla alba	White Wagtail	Recorded only	3
Pycnonotus jocosus	Red-whiskered Bulbul	Recorded only	4
Pycnonotus sinesis	Chinese Bulbul	Recorded only	1
Lanius schach	Long-tailed Shrike	Recorded only	2
Copsychus saularis	Oriental Magpie Robin	Recorded only	3
Orthotomus sutorius	Common Tailorbird	Recorded only	2
Lonchura striata	White-rumped Munia	Recorded only	
Passer montanus	Eurasian Tree Sparrow	Recorded only	7
Sturnus nigricollis	Black-collared Starling	Recorded only	1
Acridotheres cristatellus	Crested Myna	Recorded only	2
Prinia flaviventris	Yellow-bellied Prinia	\	1
Garrulax perspicillatus	Masked Laughingthrush	\	3
Zosterops japonica	Japanese White Eye	\	3
Lonchura punctulata	Scaly-breasted Munia	\	3
Anthus hodgsoni	Olive-backed Pipit	\	2
Parus major	Great Tit	\	1
Species Number		**15 spp. recorded, (only 2 species of wetland birds with abundance)**	**18 spp. (1 sp. from the wetland birds with abundance in the baseline)**
Individual Number		**1.2 (from the 2 species of wetland birds with abundance)**	**44 (1 from the wetland birds with abundance in the baseline)**

*Note: * Wetland dependent species recorded with abundance during the baseline study with the names bolded*

6.0 WASTE MANAGEMENT

6.01 The waste management was implemented by an on-site Environmental Officer or Environmental Supervisor from time to time.

RECORDS OF WASTE QUANTITIES

6.02 All types of waste arising from the construction work are classified into the following:

- Construction & Demolition (C&D) Material;
- Chemical Waste;
- General Refuse; and
- Excavated Soil.

6.03 The quantities of waste for disposal in this Reporting Period are summarized in **Tables 6-1** and **6-2.** Whenever possible, materials were reused on-site as far as practicable.

Table 6-1 Summary of Quantities of Inert C&D Materials

Type of Waste	Quantity	Disposal Location
Broken Concrete (Inert) (m^3)	0	Public Filling
Reused in this Contract (Inert) (m^3)	0	N/A
Reused in other Projects (Inert) (m^3)	0	N/A
Disposal as Public Fill (Inert) (m^3)	0	Tuen Mun Area 38

Table 6-2 Summary of Quantities of C&D Wastes

Type of Waste	Quantity	Disposal Location
Recycled Metal (kg)	0	NA
Recycled Paper / Cardboard Packing (kg)	0	NA
Recycled Plastic (kg)	0	NA
Chemical Wastes (kg)	0	License Collector
General Refuses (m^3)	56	NENT Landfill

6.04 The quantities of excavation soil for marine disposal in this Reporting Period are summarized in **Table 6-3**.

Table 6-3 Summary of Excavated Soil for Marine Disposal

Type of Waste	Location	Date	Total	Disposal Location
Type 1 Materials (m^3)	-	-	-	East Sha Chau (Pitch 4a & 4b)
Type 2 Materials (m^3)	-	-	-	East Sha Chau (Pitch 4c)

7.0 SITE INSPECTION

7.01 According to Section 9.1.2 of the EM&A Manual, the environmental weekly site inspection should be formulated by the ET Leader. The ET had carried out the environmental weekly site inspection on **29 October, 4, 11 and 17 November 2009** with the representatives of the Engineer and the Contractor to evaluate the site environmental performance in this Reporting Period. The IEC monthly site audit was conducted on **17 November 2009** by IEC's representative with the Engineer's, the Contractor's and ET's representatives. No non-compliance but **two** observations was noted.

7.02 Findings of the site inspection and environmental audit are summarized below –

Table 7-1 Summary of Findings of Site Inspection and Environmental Audit

Date	Findings / Deficiencies	Follow-Up Status
29 Oct 2009	C&D waste scattered on site was observed at Ch. 667, housekeeping should be improve to keep the site clean and tidy.	During the site inspection on 4 Nov 2009, housekeeping at Ch. 667 has been improved.
4 Nov 2009	No adverse environmental impact was observed during site inspection.	No follow-up was necessary.
11 Nov 2009	Loose sand was observed at Ch-600, the Contractor is reminded to cover it up with tarpaulin sheet or remove away from site immediately.	During the site inspection on 17 Nov 2009, the loose sand at Ch-600 was found to be removed.
17 Nov 2009	No adverse environmental impact was observed during site inspection.	No follow-up was necessary.

7.03 The ET weekly site inspection and IEC monthly site audit checklists are shown in **Appendix J**. In general, the construction area of KT15 was kept clean and tidy.

7.04 No site visit or inspection carried out by Environmental Protection Department took place in this Reporting Period.

8.0 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

8.01 No environmental complaint, summons and prosecution was received in this Reporting Period. Statistical summaries environmental complaint, summon and prosecution are presented in **Tables 8-1**, **8-2** and **8-3**.

Table 8-1 Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
July – December 2007	0	0	NA
January – December 2008	0	0	NA
January –October 2009	0	0	NA
November 2009	0	0	NA

Table 8-2 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Nature
July – December 2007	0	0	NA
January – December 2008	0	0	NA
January –October 2009	0	0	NA
November 2009	0	0	NA

Table 8-3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Nature
July – December 2007	0	0	NA
January – December 2008	0	0	NA
January –October 2009	0	0	NA
November 2009	0	0	NA

9.0 IMPLEMENTATION STATUS OF MITIGATION MEASURES

9.01 CCC has been implementing the required environmental mitigation measures according to the EM&A Manual of KT15 - Mitigation Measures Implementation Schedule.

9.02 A summary of environmental mitigation measures generally implemented by CCC in this Reporting Period is presented as follows;

Water Quality

- Wastewater were appropriately treated by treatment facilities;
- Drainage channels were provided to convey run-off into the treatment facilities;
- Drainage systems were regularly and adequately maintained.

Air Quality

- Vehicles were clear of mud and debris before leaving the site;
- Site vehicles were limited to 8 km/hr;
- Public roads around the site entrance/exit had been kept clean and free from dust;
- Dust suppression measures were properly provided to reduce dust emission from stockpile.

Noise

- Works and equipment were located to minimize noise nuisance from the nearest sensitive receiver;
- Idle equipments were either turned off or throttled down;
- Powered Mechanical Equipments were covered or shielded by appropriate acoustic materials if practicable.

Waste and Chemical Management

- Wastes were properly segregated into inert and non-inert in appropriate containers/areas;
- Excavated materials were reused where practicable.
- A chemical waste storage area had been provided on site;

General

- The site was generally kept tidy and clean.

10.0 IMPACT FORECAST

KEY ISSUES FOR THE COMING MONTH

10.01 Key issues to be considered in the coming month include:

- Implementation of dust suppression measures at all times;
- Potential wastewater quality impact due to surface runoff;
- Potential fugitive dust quality impact from the dry/loose/exposure soil surface/dusty material;
- Disposal of empty engine oil containers within site area;
- Ensure dust suppression measures are implemented properly;
- Sediment catch-pits and silt removal facilities should be regularly maintained;
- Management of chemical wastes;
- Discharge of site effluent to the nearby wetland, stockpiling or disposal of materials and any dredging or construction activity at nearby wetland are prohibited;
- Follow-up of improvement on general waste management issues; and
- Implementation of construction noise preventative control measures.

10.02 The tentative 3-month rolling program is presented in **Appendix B**.

11.0 CONCLUSION

11.01 The EM&A program in **November 2009** was undertaken in compliance with the EM&A Manual for KT15. A summary of environmental compliance of air, noise, stream water quality and ecology in this Reporting Period are presented in **Table 11-1**.

Table 11-1 Summary of the Exceedances for Impact Monitoring

Issues	Parameters	Work-Related Exceedance %	Investigation & Corrective Actions
Air Quality	1-hour TSP	0	Not required as not due to project
	24-hour TSP	0	Not required as not due to project
Noise	Leq (30min) Daytime	0	Not required as not due to project
Stream Water	Dissolve Oxygen (DO)	0	Not required as not due to project
	Turbidity (NTU)	0	Not required as not due to project
	pH	0	Not required as not due to project
	Suspended Solids (SS)	0	Not required as not due to project
	Ammonia Nitrogen	0	Not required as not due to project
	Zinc	0	Not required as not due to project
Ecology	Decrease in the total number of species or individuals of wetland dependent bird from baseline	0	Not required as not due to project

Note: According to the EM&A Manual S7.5.1(b), fauna monitoring is only undertaken during wet seasons (April to July)

11.02 No 1-hour and 24-hour TSP monitoring results that triggered the Action or Limit Level was recorded in this Reporting Period.

11.03 No construction noise complaint (an Action Level exceedance) was received and no monitoring noise level above the Limit Level was recorded in this Reporting Period.

11.04 No water quality monitoring results exceedances were recorded in this Reporting Period.

11.05 One (1) individual from one (1) wetland bird species with abundance from the baseline was observed during the survey on 25 November 2009 and a total of forty-four (44) individuals of birds from eighteen (18) species were recorded. The species number of wetland dependent bird triggered the Limit Level. However, no intrusion of construction activities into the wetland areas and no discharge to the adjacent wetlands were found on 25 November 2009 during the site audit. Investigation report revealed that the major construction works being carried out during the exceedance day were only erection of formwork, steel fixing, tree planting and concreting. Those activities would not cause excessive disturbance to the adjacent wetlands. Therefore, it is concluded that the exceedance was not caused by work under the project.

11.06 No environmental complaint, summons or prosecution was received in this Reporting Period.

11.07 The ET environmental weekly site inspections were conducted on **29 October, 4, 11 and 17 November 2009.** Although no non-compliance was found, totally **two** observations were recorded. The Contractor has been reminded to improve the observed deficiency. Details of the observations were as follows:-

- C&D waste scattered on site was observed at Ch. 667, housekeeping should be improve to keep the site clean and tidy.

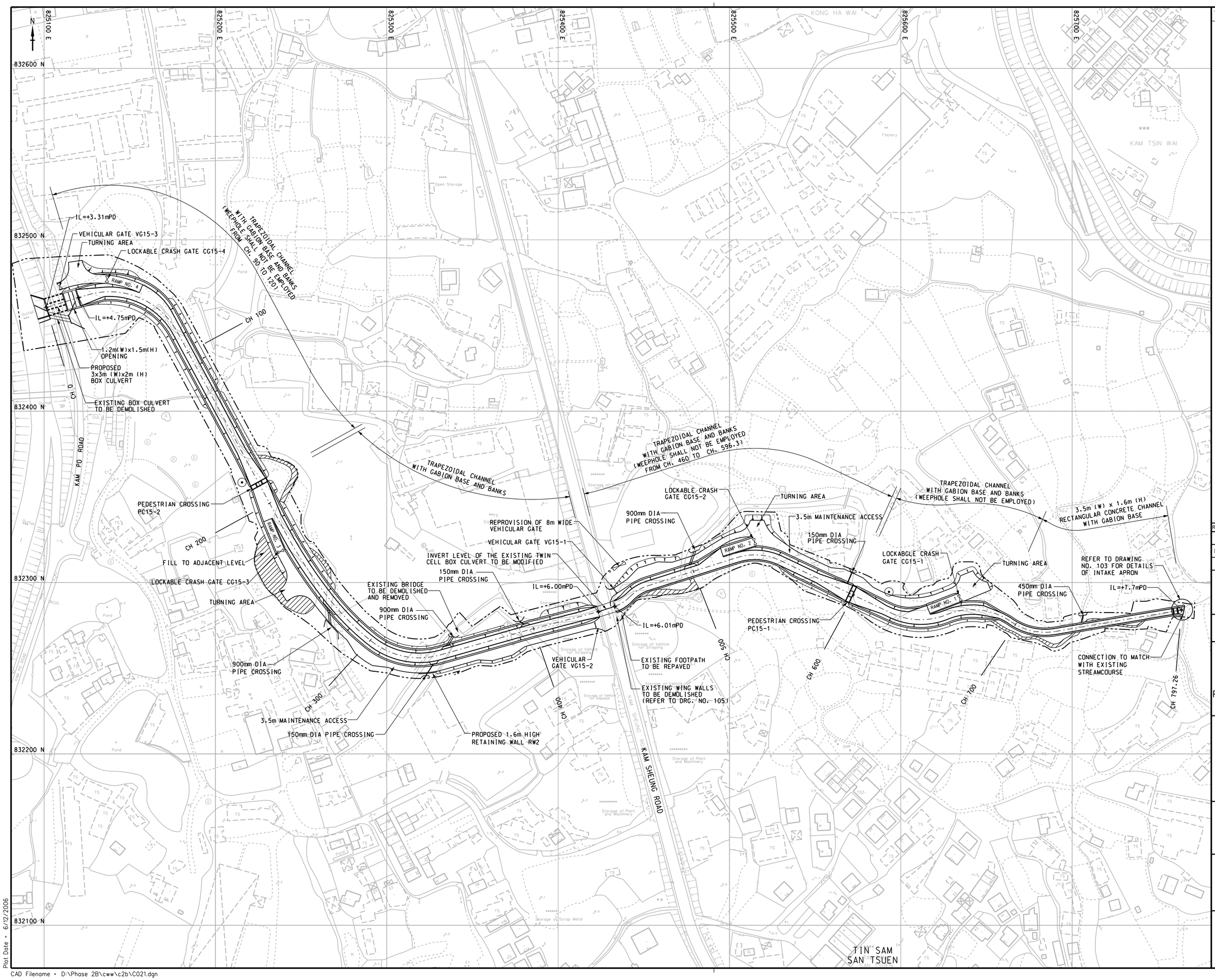
- Loose sand was observed at Ch-600, the Contractor is reminded to cover it up with tarpaulin sheet or remove away from site immediately.

11.08 No site visit or inspection carried out by Environmental Protection Department took place in this Reporting Period.

11.09 The ET will continue to implement the EM&A program and audit the implementation of the environmental mitigation measures.

APPENDIX A

PROJECT SITE LAYOUT



NOTES :

1. REFER TO DRAWING NO. 020 FOR NOTES AND LEGENDS.

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Verified
Initial	SFL	KIL	MK	KIL
Date	12/05	12/05	12/05	12/05

Approved

CONTRACT NO. DC/2006/02

Contract title

YUEN LONG, KAM TIN, NGAU TAM MEI AND TIN SHUI WAI DRAINAGE IMPROVEMENTS, STAGE 1, PHASE 2B – CHEUNG CHUN SAN TSUEN AND KAM TSIN WAI

Drawing title

CHANNEL KT15
GENERAL LAYOUT PLAN

Drawing no.	Scale
021	1:1000 A1 1:2000 A3

香港特別行政區政府渠務署
THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION
DRAINAGE SERVICES DEPARTMENT

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Plot Date = 6/12/2006

CAD Filename = D:\Phase 2B\cww\c2b\C021.dgn

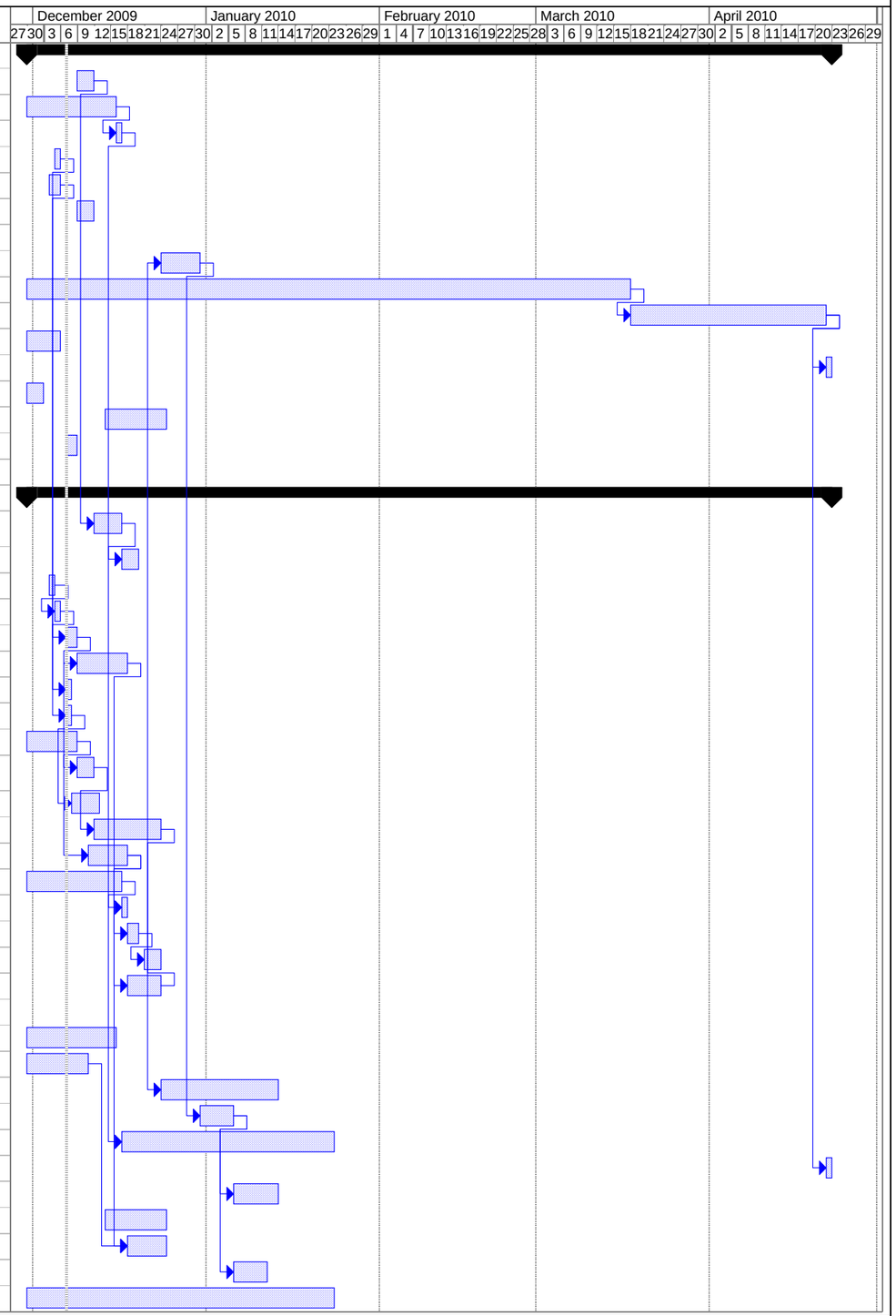
APPENDIX B

THREE-MONTH CONSTRUCTION PROGRAM

DSD Contract No. DC/2006/02
Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai
Drainage Improvements, Stage 1, Phase 2B -
Cheung Chun San Tsuen and Kam Tsin Wai

Chit Cheung Construction Co. Ltd.

ID	Task Name	Duration	Start	Finish	Predecessors	Successors	Resource Names
1	**Remaining Works In Channel KT15**	**121 days**	**Mon 30/11/09**	**Thu 22/4/10**			
2	Installation of Vehicular Gate 2 nos	3 days	Wed 9/12/09	Fri 11/12/09		19	Workers[300%]
3	fabricate and delivery of catcpit cover and U-channel cover	14 days	Mon 30/11/09	Tue 15/12/09		4	
4	Installation of covers to catchpits	1 day	Wed 16/12/09	Wed 16/12/09	3	20	
5	Installation of Safety Chain at Box Culvert	1 day	Sat 5/12/09	Sat 5/12/09		25	Workers[200%]
6	Installation of Survey Markers and Chainage Marker Plates	2 days	Fri 4/12/09	Sat 5/12/09		26	Workers[200%]
7	Perparation Works for DSD Inspection	3 days	Wed 9/12/09	Fri 11/12/09			Workers[200%]
8							
9	Granolithic Paving at PC15-1 and PC15-2	4 days	Thu 24/12/09	Wed 30/12/09	36	41	Workers[300%]
10	Construction Works by CLP	90 days	Mon 30/11/09	Wed 17/3/10		11	
11	Hard Paving the maintenance Access near Kam Sheung Road	30 days	Thu 18/3/10	Wed 21/4/10	10	13,43	
12	Installation of Chain Link Fencing	6 days	Mon 30/11/09	Sat 5/12/09			Workers[300%]
13	Road Marking	1 day	Thu 22/4/10	Thu 22/4/10	11		
14	Joint Sealant to road slab	3 days	Mon 30/11/09	Wed 2/12/09			Workers[200%]
15	Planting remaining new trees	10 days	Mon 14/12/09	Thu 24/12/09			
16	Hydroseeding	2 days	Mon 7/12/09	Tue 8/12/09			
17							
18	**Remaining Works In Channel KT2**	**121 days**	**Mon 30/11/09**	**Thu 22/4/10**			
19	Installation of Vehicular Gate 2 nos and Lockable Crash Gate 2 nos	4 days	Sat 12/12/09	Wed 16/12/09	2	42	Workers[300%]
20	Installation of covers to catchpits	3 days	Thu 17/12/09	Sat 19/12/09	4		Workers[200%]
21	construction of U-channel CP2-1A.1, 10m	1 day	Fri 4/12/09	Fri 4/12/09		22	Workers[400%]
22	construction of U-channel CP2-6.2, 15m	1 day	Sat 5/12/09	Sat 5/12/09	21	23	Workers[400%]
23	construction of U-channel CP2-9.1, 15m	2 days	Mon 7/12/09	Tue 8/12/09	22	24	Workers[400%]
24	construction of U-channel CP2-11A.1, 80m	8 days	Wed 9/12/09	Thu 17/12/09	23	46,31SS+2 days	Workers[400%]
25	installation of safety chain at box culvert	1 day	Mon 7/12/09	Mon 7/12/09	5		Workers[200%]
26	installation of survey markers and chainage marker plates	1 day	Mon 7/12/09	Mon 7/12/09	6	29	Workers[200%]
27	installation of tubular amenity railings	8 days	Mon 30/11/09	Tue 8/12/09		28	Workers[200%]
28	installation of remaining type II railing at Channel and Refuse Collection Point	3 days	Wed 9/12/09	Fri 11/12/09	27	30	Workers[200%]
29	installation of flooding warning signs	5 days	Tue 8/12/09	Sat 12/12/09	26		Workers[200%]
30	Providing spot weld to the installed type II railing	10 days	Sat 12/12/09	Wed 23/12/09	28	40	Workers[200%]
31	Desilting Channel	6 days	Fri 11/12/09	Thu 17/12/09	24SS+2 days	36,34	Workers[500%]
32	Clear Drainage Pipe for CCTV Inspection	15 days	Mon 30/11/09	Wed 16/12/09		33	Workers[400%]
33	submission of CCTV Report	1 day	Thu 17/12/09	Thu 17/12/09	32		
34	exposing sealed weepholes at chanenl base slab	2 days	Fri 18/12/09	Sat 19/12/09	31	35	Workers[200%]
35	Removal of Temporary Flapvalve	3 days	Mon 21/12/09	Wed 23/12/09	34		Workers[300%]
36	Prepararion Works for DSD Inspection	5 days	Fri 18/12/09	Wed 23/12/09	31	9	Workers[300%]
37							
38	Clearing AFCD' s Pond	14 days	Mon 30/11/09	Tue 15/12/09			Workers[300%]
39	Triming Slope from Ch1000 to CH800	10 days	Mon 30/11/09	Thu 10/12/09		46	Workers[200%]
40	installation of remaining type II railing from Ch800 to Ch1250	15 days	Thu 24/12/09	Wed 13/1/10	30		Workers[200%]
41	construct pavement at all crossing	4 days	Thu 31/12/09	Tue 5/1/10	9	44,47	Workers[400%]
42	installation of chain link fence	30 days	Thu 17/12/09	Sat 23/1/10	19		Workers[300%]
43	Road marking	1 day	Thu 22/4/10	Thu 22/4/10	11		
44	Joint Sealant	7 days	Wed 6/1/10	Wed 13/1/10	41		Workers[200%]
45	Planting remaining new trees	10 days	Mon 14/12/09	Thu 24/12/09			
46	hydroseeding	6 days	Fri 18/12/09	Thu 24/12/09	24,39		
47	Construct remaining Pedestrian near VC2-1	5 days	Wed 6/1/10	Mon 11/1/10	41		Workers[400%]
48	Housekeeping	45 days	Mon 30/11/09	Sat 23/1/10			Workers[300%]



Program for Remaining Works at Channel KT2 and KT15 (Rev.B)
Date: Mon 7/12/09

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

APPENDIX C

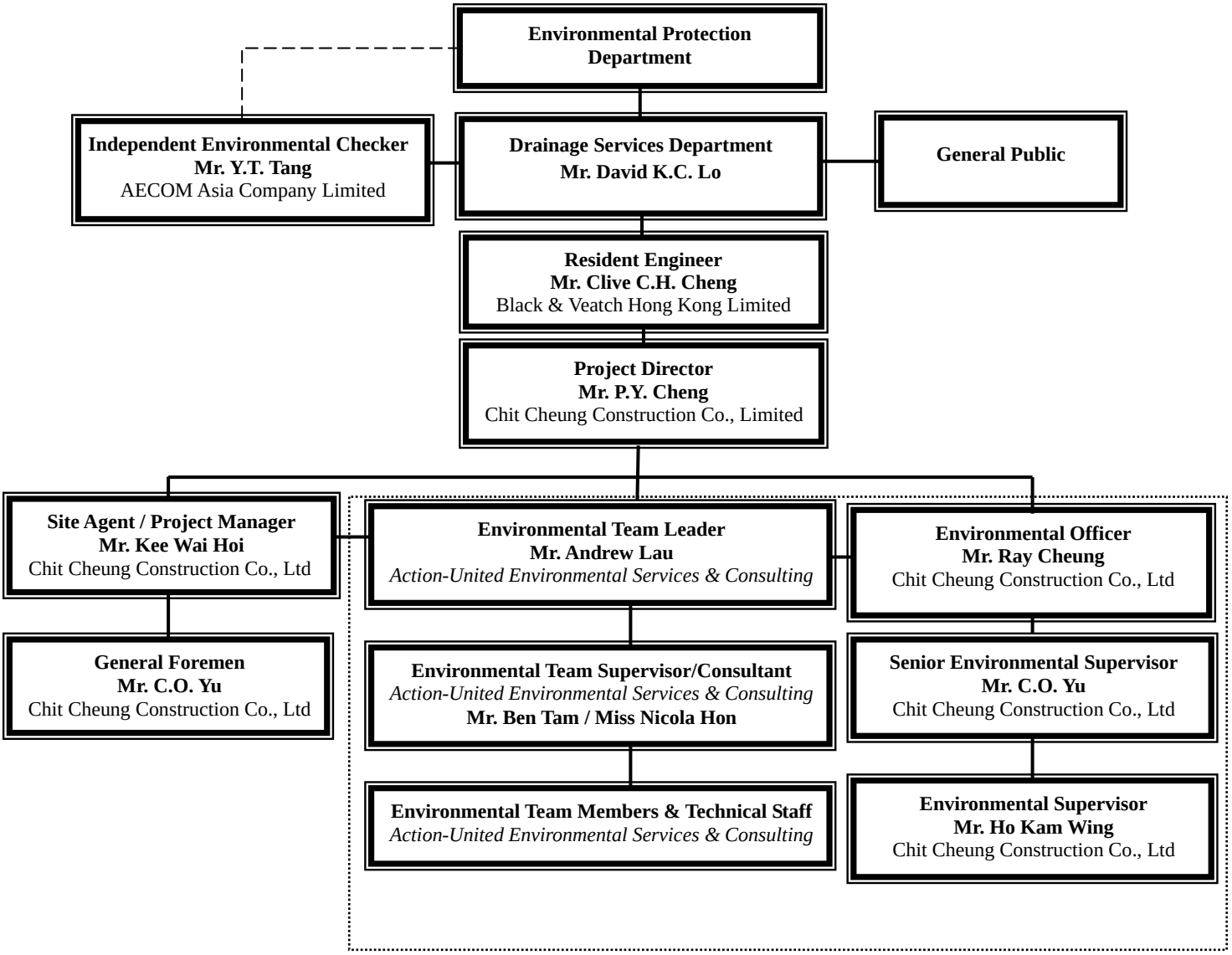
ENVIRONMENTAL ORGANIZATION STRUCTURE

Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
DSD	Employer	Mr. David K.C. LO	2594-7254	2827-8526
B&V	Engineer	Mr. Kelvin N.F. LAU	2601-1000	2601-3988
B&V	Engineer's Representative	Mr. Clive C.H. CHENG	2478-9161	2478-9396
AECOM	Independent Environmental Checker	Mr. Y.T. Tang	3105-8537	2891-0305
CCC	Project Director	Mr. P.Y. CHENG	9023-4821	2403-1162
CCC	Project Manager	Mr. K.W. Hoi	6603-9711	2479-1365
CCC	Site Agent	Mr. K.W. Hoi	6603-9711	2479-1365
CCC	Site Engineer	Mr. Jimmy CHAN	9234-8632	2479-1365
CCC	Environmental Officer	Mr. Ray Cheung	6103-7404	2479-1365
CCC	Senior Environmental Supervisor	Mr. C. O. Yu	9026-9501	2479-1365
CCC	Environmental Supervisor	Mr. K W Ho	9016-0592	2479-1365
CCC	Safety Officer	Mr. C.C Yu	6086-4658	2479-1365
AUES	Environmental Team Leader	Mr. Andrew Lau	2959-6059	2959-6079
AUES	Ecologist	Mr. Vincent Lai	9406-9784	2959-6079

Legend:
DSD (Employer) - Drainage Services Department
B&V (Engineer) - Black & Veatch Hong Kong Limited
CCC (Contractor) - Chit Cheung Construction Company Limited
AECOM (IEC) - AECOM Asia Company Limited
AUES (ET) - Action-United Environmental Services & Consulting

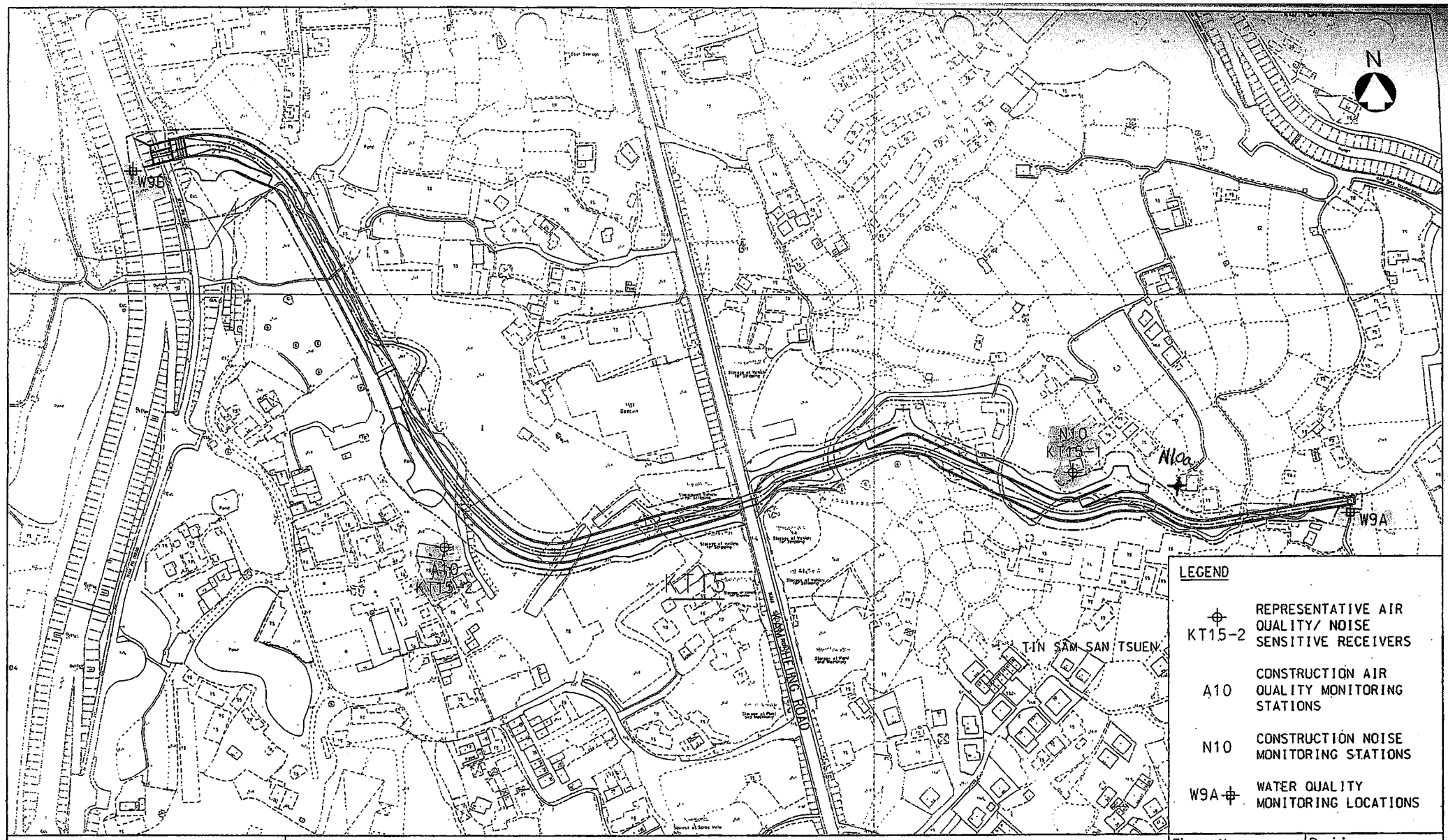
Environmental Organization Structure



Contractor's Environmental Team (CET)

APPENDIX D

LOCATIONS OF DESIGNATED MONITORING STATION/LOCATIONS/AREA



YUEN LONG, KAM TIN,
NGAU TAM MEI AND TIN SHUI WAI
DRAINAGE IMPROVEMENT, STAGE1, PHASE 2B

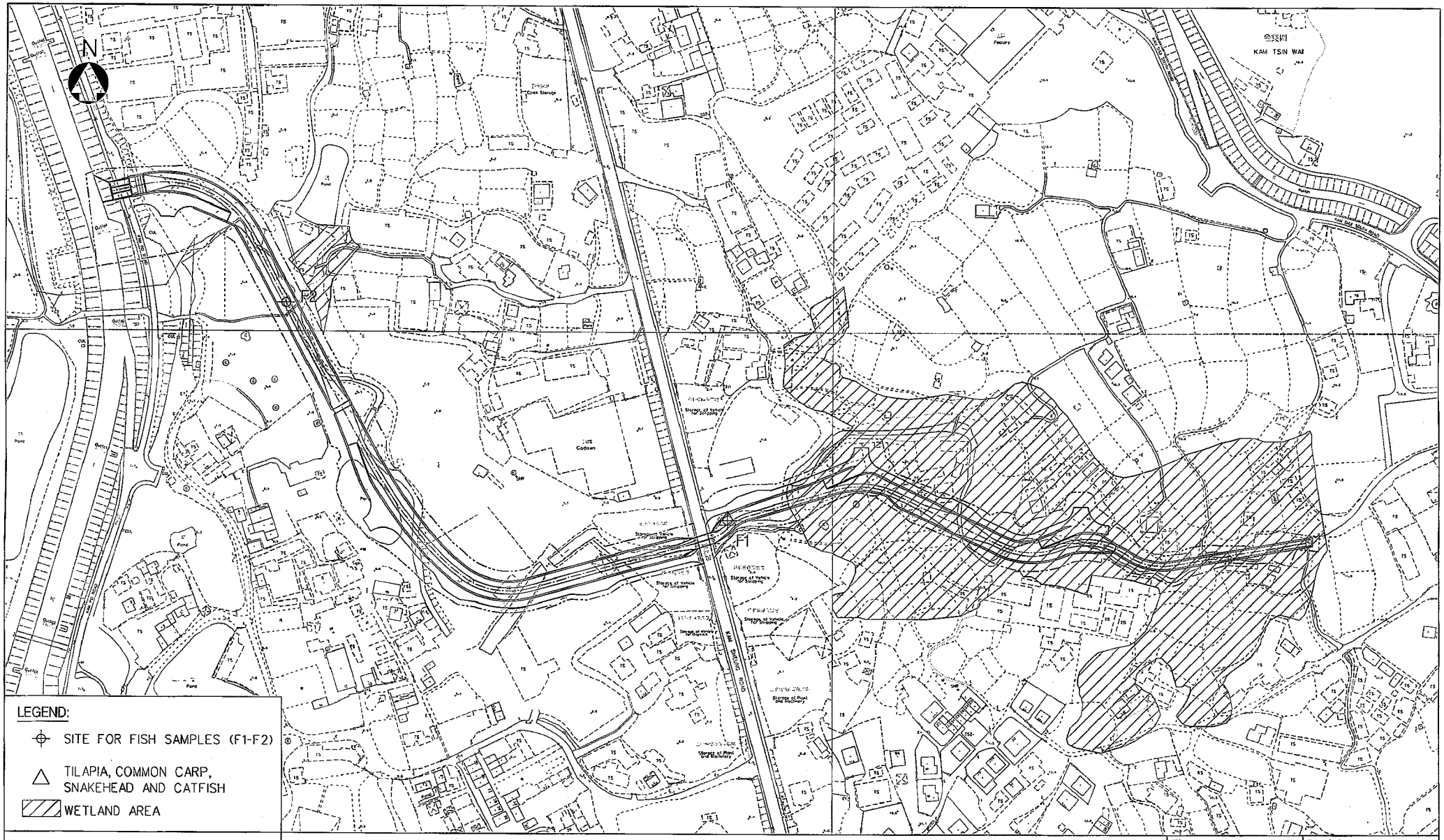
BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Title :

CONSTRUCTION PHASE AIR QUALITY/NOISE/WATER QUALITY MONITORING LOCATIONS AT KT15

Figure No. ATT4-4.3	Revision -
Reference -	File Name 3820470201-137.DGN
Prepared WYC	Checked MC
Date DEC. 2002	Scale 1 : 2000

...\env study\3820470201-137.dgn Aug. 24, 2005 09:01:07



LEGEND:

- ⊕ SITE FOR FISH SAMPLES (F1-F2)
- △ TILAPIA, COMMON CARP, SNAKEHEAD AND CATFISH
- WETLAND AREA

YUEN LONG, KAM TIN,
NGAU TAM MEI AND TIN SHUI WAI
DRAINAGE IMPROVEMENT, STAGE1, PHASE 2B

BLACK & VEATCH HONG KONG LIMITED
博威工程顧問有限公司

Title :

ECOLOGICAL MONITORING AREA KT15

Figure No.	Revision
3.3	0
Reference	File Name
-	3820470201-114.DGN
Prepared	Checked
AEC	WYC
Date	Scale
MAR. 2003	1 : 2000

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APPENDIX E

EVENT/ACTION PLAN FOR AIR QUALITY, CONSTRUCTION NOISE, STREAM WATER QUALITY AND ECOLOGY

Event/Action Plan for Air Quality

EVENT	ACTION			
	ET	IEC	Engineer	Contractor
ACTION LEVEL				
1. Exeedance for one sample	1. Identify source 2. Inform IEC and Engineer 3. Repeat measurement to confirm finding 4. Increase monitoring frequency to daily	1. Check monitoring data submitted by ET 2. Check Contractor's working method	Notify Contractor	1. Rectify any unacceptable practice 2. Amend working methods if appropriate
2. Exeedance for two or more consecutive samples	1. Identify source 2. Inform IEC and Engineer 3. Repeat measurements to confirm findings 4. Increase monitoring frequency to daily 5. Discuss with IEC and Contractor on remedial actions required 6. If exceedance continues, arrange meeting with IEC and Engineer 7. 7. If exceedance stops, cease additional monitoring	1. Check monitoring data submitted by ET 2. Check Contractor's working method 3. Discuss with ET and Contractor on possible remedial measures 4. Advice Engineer on the effectiveness of the proposed remedial measures 5. Supervise implementation of remedial measures	1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Ensure remedial measures properly implemented	1. Submit proposals for remedial actions to IEC within 3 working days of notification 2. Implement the agreed proposals 3. Amend proposal if appropriate
LIMIT LEVEL				
1. Exeedance for one sample	1. Identify source 2. Inform Engineer and EPD 3. Repeat measurement to confirm finding 4. Increase monitoring frequency to daily 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and Engineer informed of the results	1. Check monitoring data submitted by ET 2. Check Contractor's working method 3. Discuss with ET and Contractor on possible remedial measures 4. Advice Engineer on the effectiveness of the proposed remedial measures 5. Supervise implementation of remedial measures	1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Ensure remedial measures properly implemented	1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to IEC within 3 working days of notification 3. Implement the agreed proposals 4. Amend proposal if appropriate
2. Exceedance for two or more consecutive samples	1. Notify IEC, Engineer and EPD 2. Identify source 3. Repeat measurement to confirm findings 4. Increase monitoring frequency to daily 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented. 6. Arrange meeting with IEC and Engineer to discuss the remedial actions to be taken 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and Engineer informed of the results 8. If exceedance stops, cease additional monitoring	1. Discuss amongst Engineer, ET and Contractor on potential remedial actions 2. Review Contractor's remedial actions whether necessary to assure their effectiveness and advice the Engineer accordingly 3. Supervise implementation of remedial measures	1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented 4. Discuss amongst Environmental Team Leader and the Contractor potential remedial actions 5. Ensure remedial measures properly implemented 6. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated	1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to IEC within 3 working days of notification 3. Implement the agreed proposals 4. Resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the Engineer until the exceedance is abated

Event/Action Plan for Construction Noise

EVENT	ACTION			
	ET Leader	IEC	Engineer	Contractor
ACTION LEVEL	1. Notify Contractor and Engineer 2. Carry out investigation 3. Report the results of investigation to the IEC and Contractor 4. Discuss with the Contractor and formulate remedial measures 5. Increase monitoring frequency to check mitigation effectiveness	1. Review the analysed results submitted by ET 2. Review the proposed remedial measures by the Contractor and advice the Engineer accordingly 3. Supervise implementation of remedial measures	1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures properly implemented	1. Submit noise mitigation proposals for remedial actions to IEC 2. Implement the agreed proposals
LIMIT LEVEL	1. Notify IEC, Engineer, EPD and Contractor 2. Identify source 3. Repeat measurement to confirm findings 4. Increase monitoring frequency 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 6. Inform IEC, Engineer and EPD the causes & actions taken for the exceedances 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and Engineer informed of the results 8. If exceedance stops, cease additional monitoring	1. Discuss amongst Engineer, ET and Contractor on potential remedial actions 2. Review Contractor's remedial actions whether necessary to assure their effectiveness and advice the Engineer accordingly 3. Supervise implementation of remedial measures	1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures properly implemented 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated	1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to IEC within 3 working days of notification 3. Implement the agreed proposals 4. Resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the Engineer until the exceedance is abated

Event and Action Plan for Stream Water Quality

Event	ET Leader	IEC	Engineer	Contractor
ACTION LEVEL (being exceeded by one sampling day)	1. Repeat in-situ measurement to confirm findings 2. Identify source(s) of impact 3. Inform IEC and Contractor 4. Check monitoring data, all plant, equipment and Contractor's working methods 5. Discuss mitigation measures IEC and Contractor 6. Repeat measurement on next day of exceedance	1. Discuss with ET and Contractor on the mitigation measures 2. Review proposals on mitigation measures submitted by Contractor and advice Engineer accordingly 3. Assess the effectiveness of the implemented mitigation measures	1. Discuss with IEC on the proposed mitigation measures 2. Make agreement on the mitigation measures to be implemented	1. Inform Engineer and confirm notification of the non-compliance in writing 2. Rectify unacceptable practice 3. Check all plant and equipment 4. Consider changes of working methods 5. Discuss with ET and Contractor and propose mitigation measures to IEC and Engineer 6. Implement the agreed mitigation measures
ACTION LEVEL (being exceeded by more than one sampling day)	1. Repeat in-situ measurement to confirm findings 2. Identify source(s) of impact 3. Inform IEC, Contractor and EPD 4. Check monitoring data, all plant, equipment and Contractor's working methods 5. Discuss mitigation measures IEC, Engineer and Contractor 6. Repeat measurement on next day of exceedance 7. Ensure mitigation measures are implemented 8. Prepare to increase the monitoring frequency to daily 9. Repeat measurement on next day of exceedance	1. Discuss with ET and Contractor on the mitigation measures 2. Review proposals on mitigation measures submitted by Contractor and advice Engineer accordingly 3. Assess the effectiveness of the implemented mitigation measures	1. Discuss with IEC on the proposed mitigation measures 2. Make agreement on the mitigation measures to be implemented 3. Assess the effectiveness of the implemented mitigation measures	1. Inform Engineer and confirm notification of the non-compliance in writing 2. Rectify unacceptable practice 3. Check all plant and equipment 4. Consider changes of working methods 5. Discuss with ET and IEC and propose mitigation measures to IEC and Engineer within 3 working days 6. Implement the agreed mitigation measures
LIMIT LEVEL (being exceeded by one sampling days)	1. Repeat in-situ measurement to confirm findings 2. Identify source(s) of impact 3. Inform IEC, Contractor and EPD 4. Check monitoring data, all plant, equipment and Contractor's working methods 5. Discuss mitigation measures IEC, Engineer and Contractor 6. Ensure mitigation measures are implemented 7. Increase the monitoring frequency to daily until no exceedance of Limit level	1. Discuss with ET and Contractor on the mitigation measures 2. Review proposals on mitigation measures submitted by Contractor and advice Engineer accordingly 3. Assess the effectiveness of the implemented mitigation measures	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures 2. Request Contractor to critically review the working methods 3. Make agreement on the mitigation measures to be implemented 4. Assess the effectiveness of the implemented mitigation measures	1. Inform Engineer and confirm notification of the non-compliance in writing 2. Rectify unacceptable practice 3. Check all plant and equipment 4. Consider changes of working methods 5. Discuss with ET, IEC and Engineer and propose mitigation measures to IEC and Engineer within 3 working days 6. Implement the agreed mitigation measures
LIMIT LEVEL (being exceeded by more than one sampling days)	1. Repeat in-situ measurement to confirm findings; 2. Identify source(s) of impact; 3. Inform Contractor, Engineer, IEC and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, Engineer and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit level	1. Discuss with ET and Contractor on the mitigation measures 2. Review proposals on mitigation measures submitted by Contractor and advice Engineer accordingly 3. Assess the effectiveness of the implemented mitigation measures	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures 2. Request Contractor to critically review the working methods 3. Make agreement on the mitigation measures to be implemented 4. Assess the effectiveness of the implemented mitigation measures 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until daily until no exceedance of Limit level	1. Inform Engineer and confirm notification of the non-compliance in writing 2. Rectify unacceptable practice 3. Check all plant and equipment 4. Consider changes of working methods 5. Discuss with ET, IEC and Engineer and propose mitigation measures to IEC and Engineer within 3 working days Propose mitigation measures to Engineer within 3 working days 6. Implement the agreed mitigation measures; 7. As directed by Engineer, to slow down or to stop all or part of the construction activities

Event/Action Plan for Ecology

Event	ET Leader	IEC	Engineer	Contractor
Fauna The total number of species or individuals of the surveyed wetland dependent faunal groups is reduced by 20-40% from baseline	• Notify IEC and Contractor; • Check the position and state of the current works to identify the causes; • Discuss mitigation measures with IEC and Contractor	• Discuss with ET and Contractor on the mitigation measures • Review proposals on mitigation measures submitted by Contractor and advice Engineer accordingly • Assess the effectiveness of the implemented mitigation measures	• Discuss with IEC on the proposed mitigation measures; • Reach agreement on the mitigation measures to be implemented	• Inform Engineer and confirm notification of the non-compliance in writing • Take immediate action to avoid further exceedances; • Check all plant and equipment and working methods, especially noise emanating ones • Discuss with ET and IEC and propose mitigation measures to IEC and Engineer • Implement the agreed mitigation measures

APPENDIX F

EQUIPMENT CALIBRATION CERTIFICATES

Equipment Calibration List for Construction of Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai Drainage Improvements, Stage 1, Phase 2B – Cheung Chun San Tsuen and Kam Tsin Wai Project

Items	Aspect	Description of Equipment	Date of Calibration	Date of Next Calibration
1*	Air	Graseby Andersen GMWS2310 High Volume Sampler	8 Sep 09 9 Nov 09	8 Nov 09 9 Jan 10
2		Calibration Kit TISCH Model TE-5025A – Orifcs ID 1612 and Rootsmeter S/N 9833620	2 June 2009	2 June 2010
3		TSI DuskTrak Model 8520 (21060)	18 Jun 09	18 Jun 10
4		TSI DuskTrak Model 8520 (23080)	18 Jun 09	18 Jun 10
5	Noise	Cesva CB-5 Acoustical Calibrator (Serial No. 030934)	28 Apr 09	28 Apr 10
6		Cesva SC-20c Sound Level Meter (Serial No. T212509)	28 Apr 09	28 Apr 10
7	Water	YSI 550A (Serial No. 05F2063AZ)	17 Oct 09	17 Jan 10
8		Hanna HI98107 (Serial No. S411364)	21 Oct 09	21 Jan 10
9*		Turbidimeter HACH 2100p (Serial No. 08070C031408)	27 Oct 09	27 Jan 10
10		Hand refractometer ATAGO (Serial No. 289468)	21 Oct 09	21 Jan 10

*Note: * Calibration certificates will only be provided if monitoring equipment is re-calibrated or new.*

CERTIFICATE OF ANALYSIS

Batch: HK0922029
Date of Issue: 29/10/2009
Client: ACTION UNITED ENVIRO SERVICES
Client Reference: DC_2007_08 - DRAINAGE IMPROVEMENT WORKS AT TAI PO TIN, PING CHE, MAN UK PIN AND LIN MA HANG

Calibration of Turbidity System

Item : Portable Turbidimeter

Model No. : HACH 2100P

Serial No. : 08070C031408

Equipment No. : 3054010

Calibration Method : This meter was calibrated in accordance with standard method APHA (19th Ed.) 2130B

Date of Calibration : 27 October, 2009

Testing Results :

Expected Reading	Recording Reading
0.00 NTU	0.07 NTU
4.00 NTU	3.73 NTU
16.0 NTU	15.7 NTU
80.0 NTU	76.1 NTU
160 NTU	153 NTU
Allowing Deviation	±10%

Mr Chan Kwok Fai, Godfrey
Laboratory Manager - Hong Kong

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Tin Sam San Tsuen
Location ID : A10

Date of Calibration: 9-Nov-09
Next Calibration Date: 9-Jan-10
Technician: Mr. Ben Tam

CONDITIONS

Sea Level Pressure (hPa)	1009.6	Corrected Pressure (mm Hg)	757.2
Temperature (^{o}C)	25.6	Temperature (K)	299

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.01546
Model->	TE-5025A	Qstd Intercept ->	-0.02851
Serial # ->	9833620		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	4.6	4.6	9.2	1.515	50	49.81	Slope = 47.7162
13	3.7	3.7	7.4	1.360	41	40.84	Intercept = -23.2023
10	2.6	2.6	5.2	1.142	31	30.88	Corr. coeff. = 0.9988
7	1.8	1.8	3.6	0.953	23	22.91	
5	1.2	1.2	2.4	0.781	14	13.95	

Calculations :

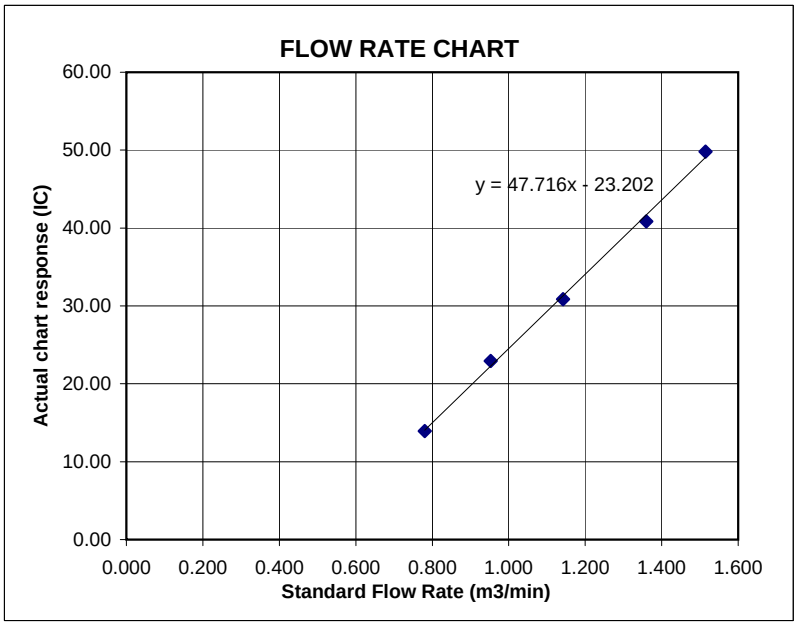
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



APPENDIX G

IMPACT MONITORING SCHEDULES

Impact Monitoring Schedules in this Reporting Period

Date		Air Quality		Noise Leq 30min	Water Quality	Ecology Surveys
		1-hour TSP	24-hour TSP			
Mon	26-Oct-09					
Tue	27-Oct-09		■		■	
Wed	28-Oct-09	■		■		
Thu	29-Oct-09				■	
Fri	30-Oct-09					
Sat	31-Oct-09					
Sun	1-Nov-09					
Mon	2-Nov-09		■		■	
Tue	3-Nov-09	■		■		
Wed	4-Nov-09				■	
Thu	5-Nov-09					
Fri	6-Nov-09					
Sat	7-Nov-09		■			
Sun	8-Nov-09					
Mon	9-Nov-09	■		■	■	
Tue	10-Nov-09					
Wed	11-Nov-09				■	
Thu	12-Nov-09					
Fri	13-Nov-09		■			
Sat	14-Nov-09	■		■		
Sun	15-Nov-09					
Mon	16-Nov-09				■	
Tue	17-Nov-09					
Wed	18-Nov-09				■	
Thu	19-Nov-09		■			
Fri	20-Nov-09	■		■		
Sat	21-Nov-09					
Sun	22-Nov-09					
Mon	23-Nov-09				■	
Tue	24-Nov-09					
Wed	25-Nov-09		■		■	■

■	Monitoring Day
	Sunday or Public Holiday

Impact Monitoring Schedules in the Next Reporting Period

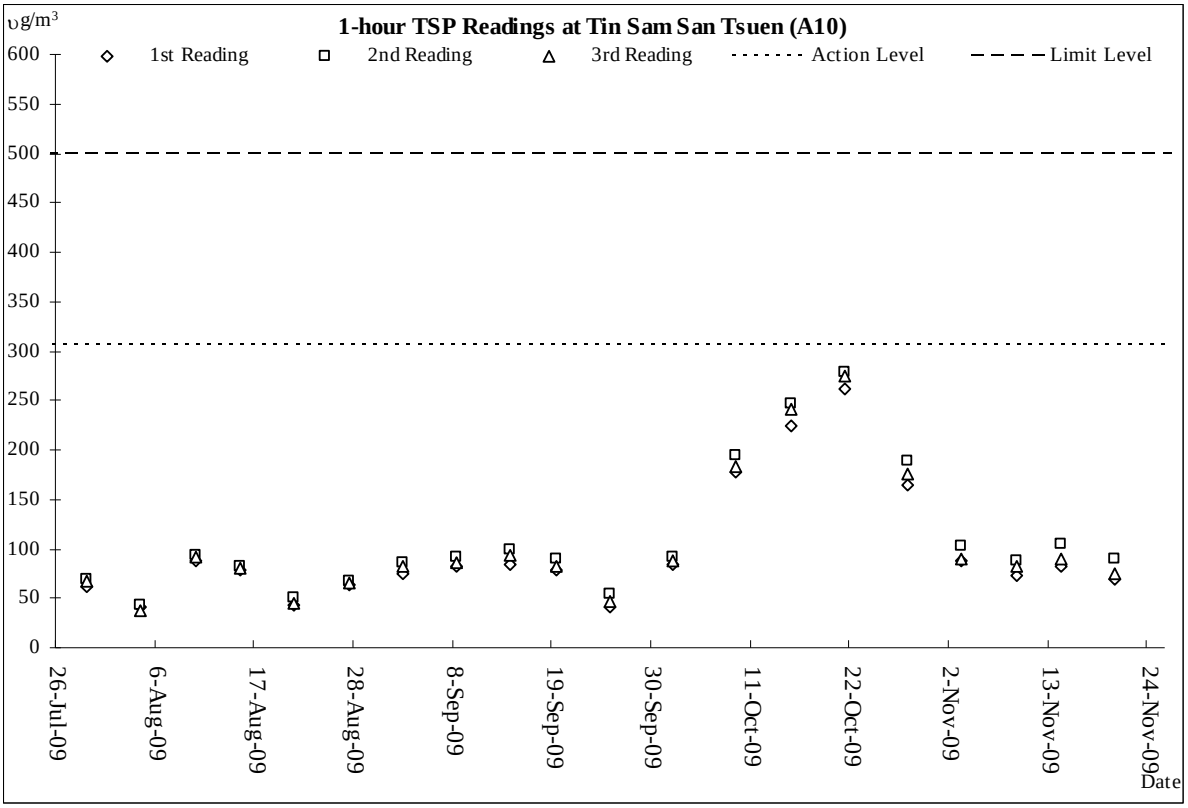
Date		Air Quality		Noise Leq 30min	Water Quality	Ecology Surveys
		1-hour TSP	24-hour TSP			
Thu	26-Nov-09	■		■		
Fri	27-Nov-09					
Sat	28-Nov-09					
Sun	29-Nov-09					
Mon	30-Nov-09				■	
Tue	1-Dec-09		■			
Wed	2-Dec-09	■		■	■	
Thu	3-Dec-09					
Fri	4-Dec-09					
Sat	5-Dec-09					
Sun	6-Dec-09					
Mon	7-Dec-09		■		■	
Tue	8-Dec-09	■		■		
Wed	9-Dec-09				■	
Thu	10-Dec-09					
Fri	11-Dec-09					
Sat	12-Dec-09		■			
Sun	13-Dec-09					
Mon	14-Dec-09	■		■	■	
Tue	15-Dec-09					
Wed	16-Dec-09				■	
Thu	17-Dec-09					
Fri	18-Dec-09		■			
Sat	19-Dec-09					■
Sun	20-Dec-09					
Mon	21-Dec-09	■		■	■	
Tue	22-Dec-09					
Wed	23-Dec-09				■	
Thu	24-Dec-09		■			
Fri	25-Dec-09					
Sat	26-Dec-09					
Sun	27-Dec-09					
Mon	28-Dec-09	■		■	■	
Tue	29-Dec-09					
Wed	30-Dec-09		■		■	
Thu	31-Dec-09					

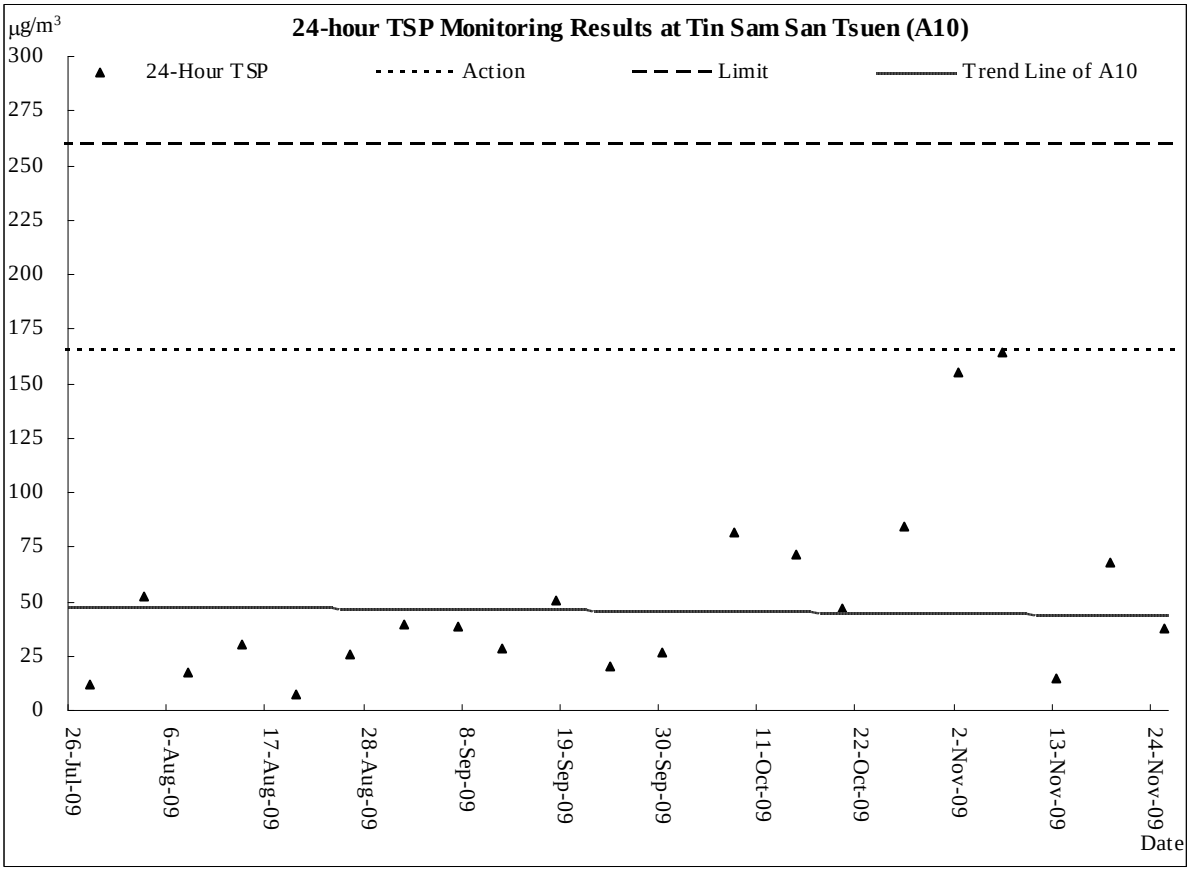
■	Monitoring Day
	Sunday or Public Holiday

APPENDIX H

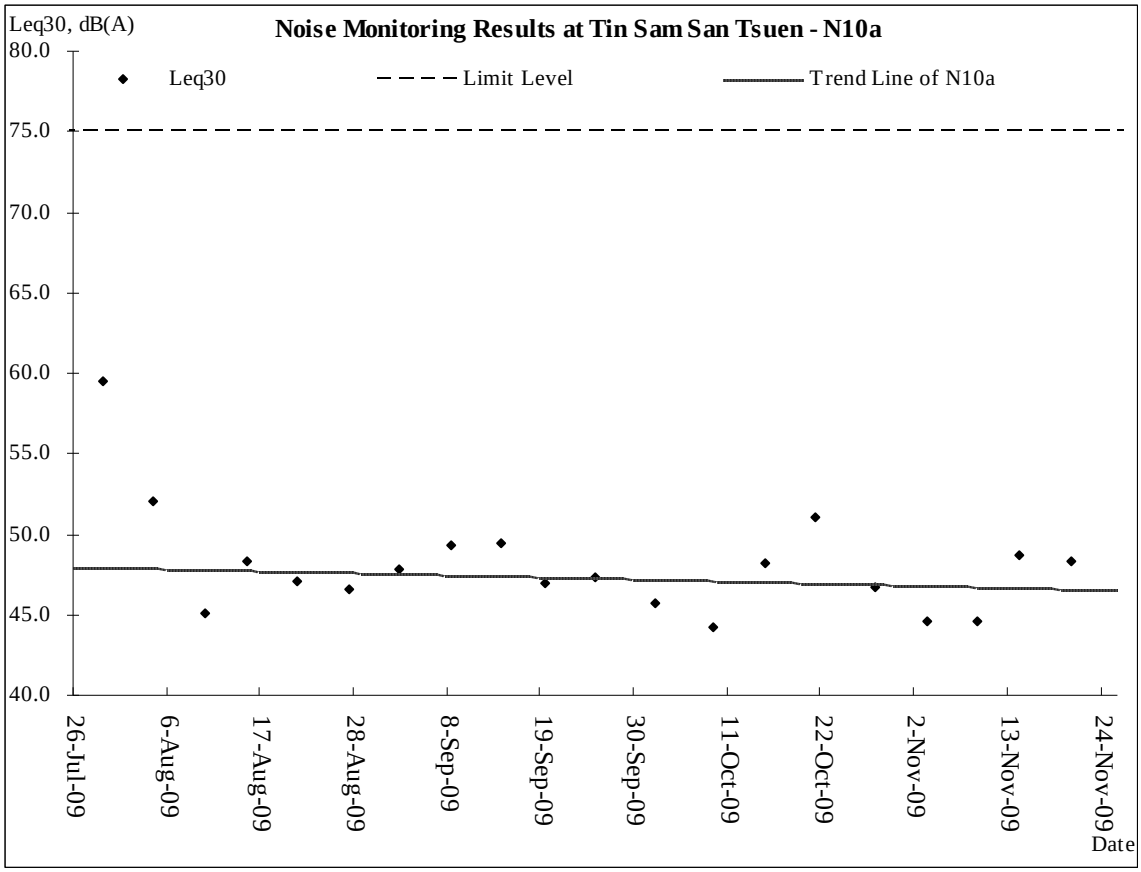
GRAPHICAL PLOTS OF AIR QUALITY, CONSTRUCTION NOISE AND STREAM WATER QUALITY MONITORING RESULTS

AIR QUALITY

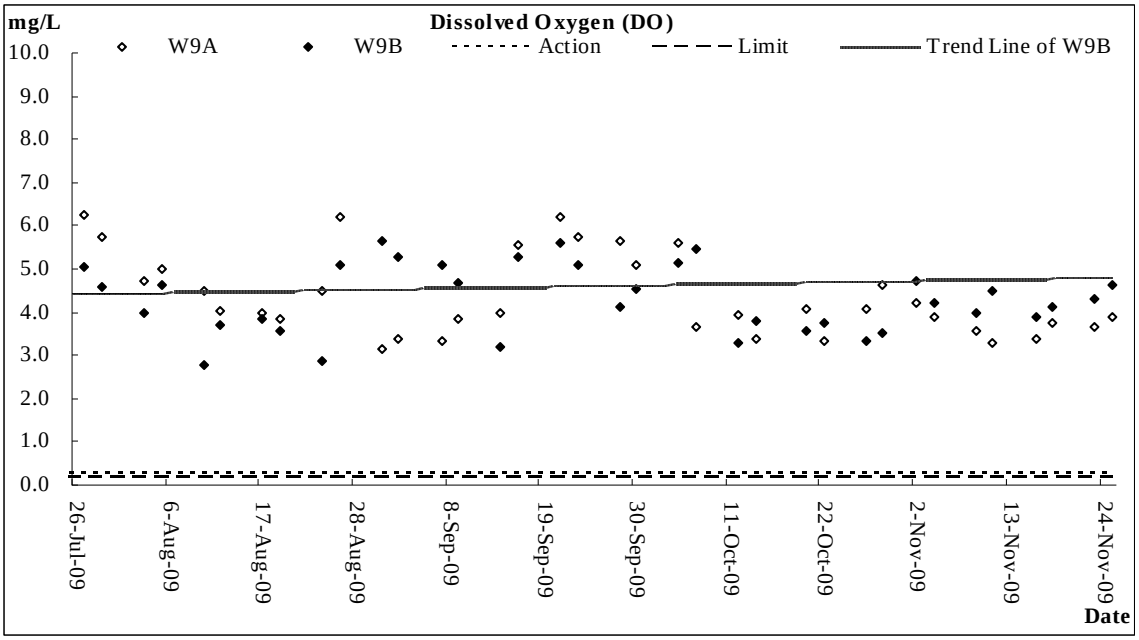

1-hour TSP Readings at Tin Sam San Tsuen (A10)
υg/m³
1st Reading
2nd Reading
3rd Reading
Action Level
Limit Level
600
550
500
450
400
350
300
250
200
150
100
50
0
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Date

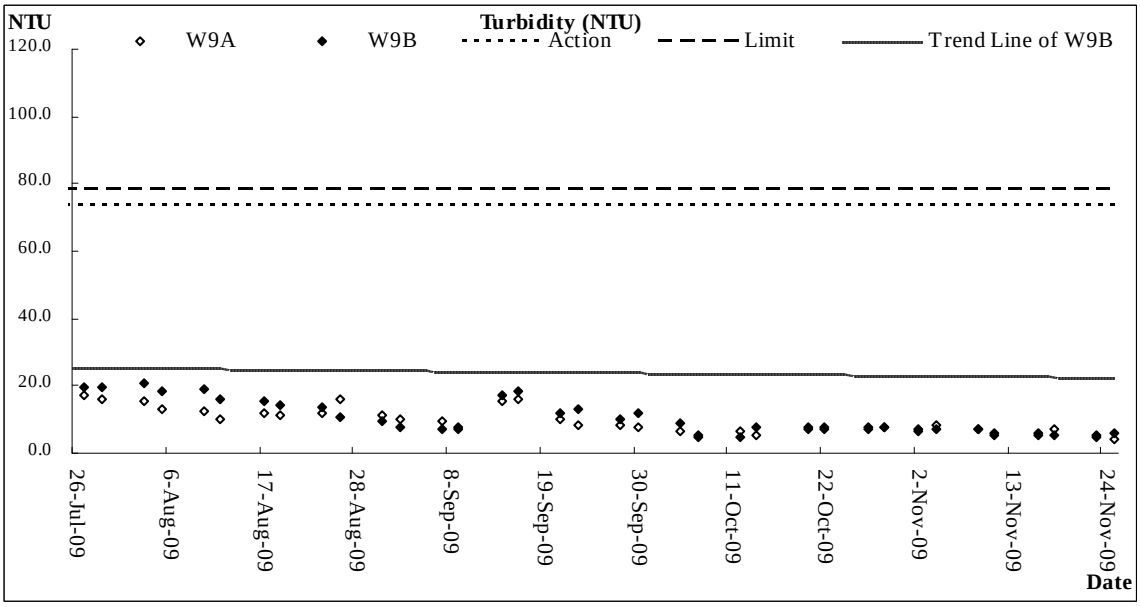

24-hour TSP Monitoring Results at Tin Sam San Tsuen (A10)
μg/m³
24-Hour TSP
Action
Limit
Trend Line of A10
300
275
250
225
200
175
150
125
100
75
50
25
0
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Date

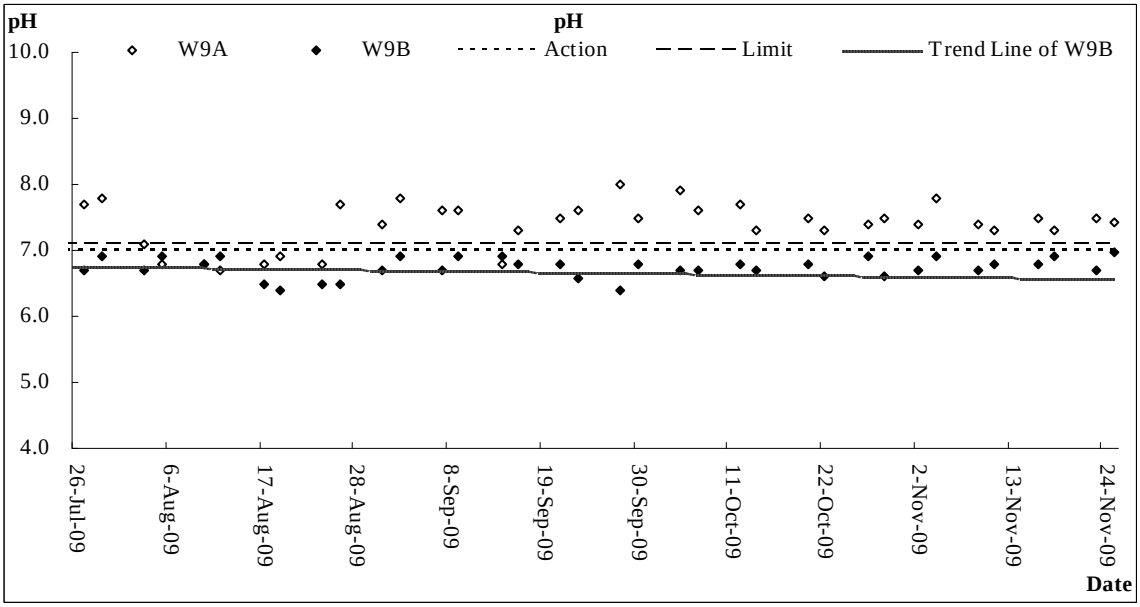
CONSTRUCTION NOISE

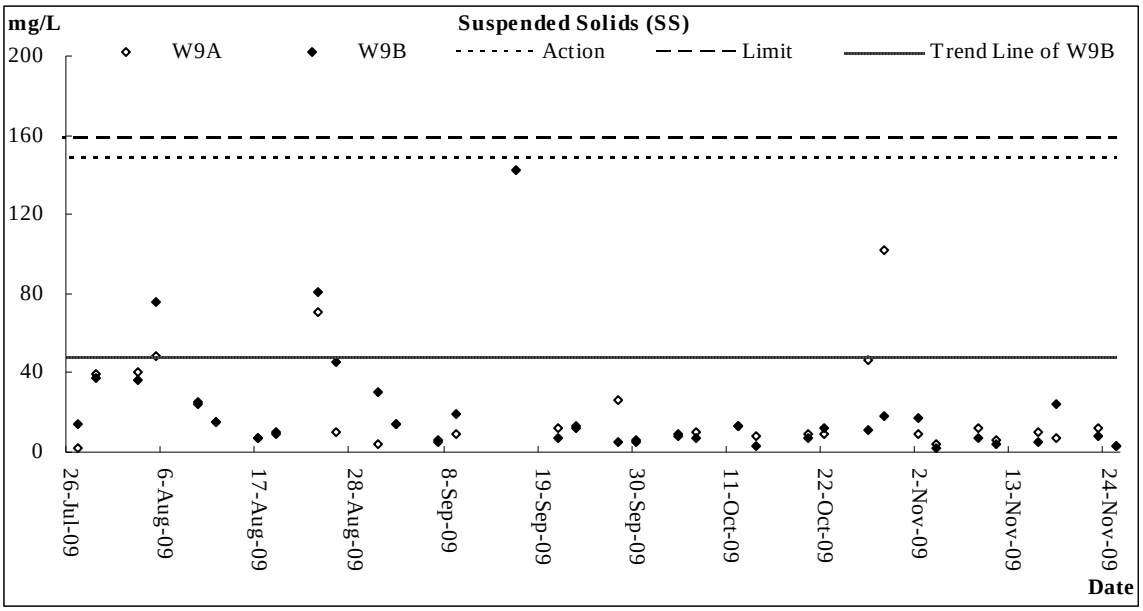


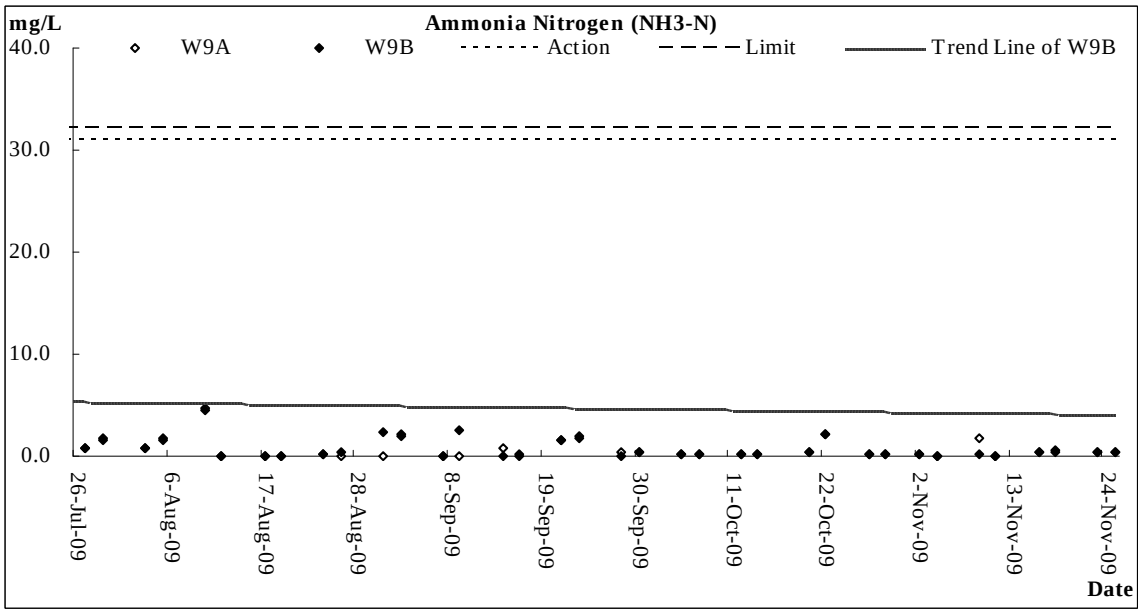
STREAM WATER QUALITY

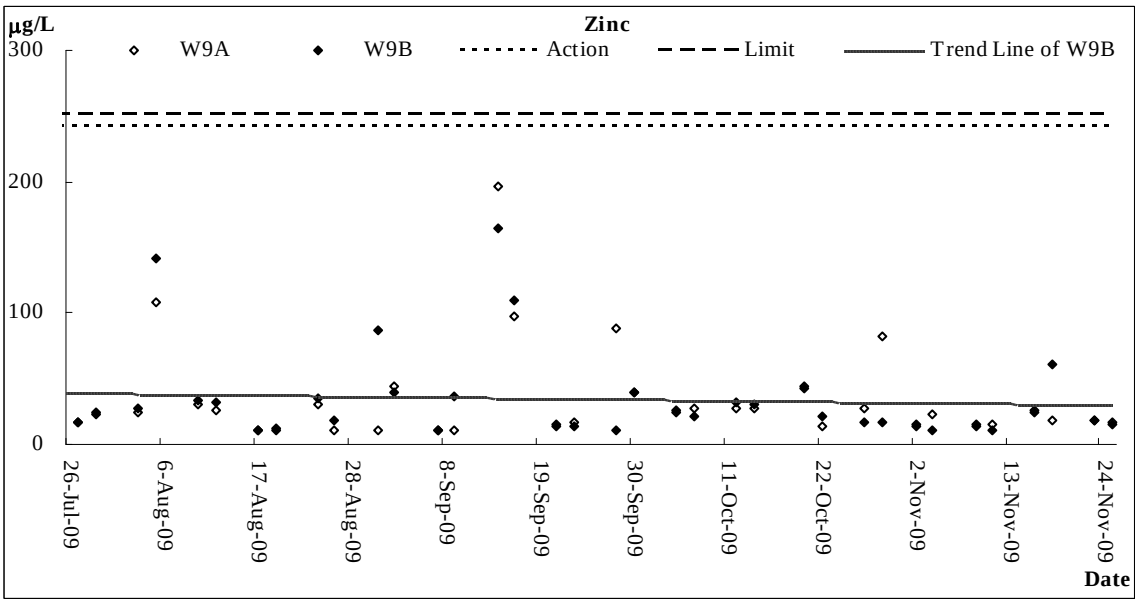







mg/L
Suspended Solids (SS)
W9A
W9B
Action
Limit
Trend Line of W9B
200
160
120
80
40
0
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Date


mg/L
Ammonia Nitrogen (NH3-N)
W9A
W9B
Action
Limit
Trend Line of W9B
40.0
30.0
20.0
10.0
0.0
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Date


µg/L
Zinc
W9A
W9B
Action
Limit
Trend Line of W9B
300
200
100
0
26-Jul-09
6-Aug-09
17-Aug-09
28-Aug-09
8-Sep-09
19-Sep-09
30-Sep-09
11-Oct-09
22-Oct-09
2-Nov-09
13-Nov-09
24-Nov-09
Date

Date		27-Oct-09																		
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DOS (%)**		**Turbidity (NTU)**		**Salinity**		**pH**		**SS**	**NH3-N**	**Zinc**
W9A	14:55	0.10	23.8	23.8	4.11	4.07	53.1	52.7	7.2	7.1	0	0.0	7.40	7.40	46.0	0.2	27.0
			23.8		4.03		52.2		7.0		0		7.40				
W9B	15:10	0.20	24.0	24.0	3.35	3.33	40.6	40.2	7.6	7.6	0	0.0	6.90	6.90	11.0	0.2	16.0
			24.0		3.3		39.7		7.6		0		6.90				

Date		29-Oct-09																		
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DOS (%)**		**Turbidity (NTU)**		**Salinity**		**pH**		**SS**	**NH3-N**	**Zinc**
W9A	12:25	0.10	23.4	23.4	4.65	4.61	58.7	58.1	8.1	8.0	0	0.0	7.50	7.50	102.0	0.3	82.0
			23.4		4.57		57.5		7.9		0		7.50				
W9B	12:35	0.10	23.5	23.5	3.57	3.50	43.6	43.1	7.6	7.6	0	0.0	6.60	6.60	18.0	0.2	16.0
			23.5		3.43		42.5		7.5		0		6.60				

Date		2-Nov-09																		
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DOS (%)**		**Turbidity (NTU)**		**Salinity**		**pH**		**SS**	**NH3-N**	**Zinc**
W9A	13:15	0.10	22.2	22.2	4.23	4.20	52.6	51.7	6.7	6.7	0	0.0	7.40	7.40	9.0	0.2	13.0
			22.2		4.16		50.8		6.6		0		7.40				
W9B	13:25	0.10	22.0	22.0	4.76	4.72	59.4	58.8	7.1	7.1	0	0.0	6.70	6.70	17.0	0.2	15.0
			22.0		4.67		58.2		7.0		0		6.70				

Date		4-Nov-09																		
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DOS (%)**		**Turbidity (NTU)**		**Salinity**		**pH**		**SS**	**NH3-N**	**Zinc**
W9A	12:25	0.10	24.5	24.5	3.94	3.90	48.9	48.4	8.2	8.1	0	0.0	7.80	7.80	4.0	0.0	23.0
			24.5		3.86		47.8		8.0		0		7.80				
W9B	12:35	0.10	24.3	24.3	4.24	4.21	54.2	53.6	7.2	7.2	0	0.0	6.90	6.90	2.0	0.0	<10
			24.3		4.18		52.9		7.1		0		6.90				

Date	9-Nov-09																				
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DOS (%)**		**Turbidity (NTU)**		**Salinity**		**pH**		**SS**	**NH3-N**	**Zinc**
W9A	14:05	0.10	25.2	25.2	3.59	3.57	42.9	42.6	6.9	6.9	0	0.0	7.40	7.40	12.0	1.8	15.0
			25.2		3.54		42.3		6.9		0		7.40				
W9B	14:15	0.10	25.6	25.6	4.02	3.98	48.5	47.9	7.1	7.1	0	0.0	6.70	6.70	7.0	0.2	14.0
			25.6		3.94		47.3		7.0		0		6.70				

Date	11-Nov-09																				
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DOS (%)**		**Turbidity (NTU)**		**Salinity**		**pH**		**SS**	**NH3-N**	**Zinc**
W9A	14:10	0.10	22.5	22.5	3.32	3.30	40.5	40.2	5.3	5.3	0	0.0	7.30	7.30	6.0	0.1	15.0
			22.5		3.27		39.8		5.3		0		7.30				
W9B	14:25	0.10	22.8	22.8	4.52	4.51	56.2	55.8	5.9	5.9	0	0.0	6.80	6.80	4.0	0.0	10.0
			22.8		4.49		55.3		5.8		0		6.80				

Date	16-Nov-09																				
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DOS (%)**		**Turbidity (NTU)**		**Salinity**		**pH**		**SS**	**NH3-N**	**Zinc**
W9A	13:55	0.10	16.5	16.5	3.42	3.40	43.2	42.8	5.9	5.9	0	0.0	7.50	7.50	10.0	0.3	26.0
			16.5		3.37		42.4		5.8		0		7.50				
W9B	14:10	0.10	16.9	16.9	3.94	3.91	50.2	49.9	5.3	5.3	0	0.0	6.80	6.80	5.0	0.3	24.0
			16.9		3.88		49.6		5.3		0		6.80				

Date	18-Nov-09																				
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DOS (%)**		**Turbidity (NTU)**		**Salinity**		**pH**		**SS**	**NH3-N**	**Zinc**
W9A	14:35	0.10	16.7	16.7	3.76	3.73	48.6	48.2	7.1	7.1	0	0.0	7.30	7.30	7.0	0.4	19.0
			16.7		3.7		47.8		7.0		0		7.30				
W9B	14:20	0.10	16.3	16.3	4.16	4.14	55.3	54.8	5.5	5.5	0	0.0	6.90	6.90	24.0	0.6	61.0
			16.3		4.11		54.2		5.4		0		6.90				

Date		23-Nov-09																	
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DOS (%)**		**Turbidity (NTU)**		**Salinity**		**pH**		**SS**	**NH3-N**	**Zinc**
W9A	14:50	0.10	21.4	21.4	3.67	3.64	45.3	45.0	4.9	4.8	0	0.0	7.50	7.50	12.0	0.4	19.0
			21.4		3.61		44.7		4.7		0		7.50				
W9B	15:10	0.10	21.2	21.2	4.33	4.30	53.2	52.9	5.2	5.3	0	0.0	6.69	6.69	8.0	0.4	18.0
			21.2		4.26		52.5		5.3		0		6.69				

Date		25-Nov-09																	
Location	**Time**	**Depth (m)**	**Temp (oC)**		**DO (mg/L)**		**DOS (%)**		**Turbidity (NTU)**		**Salinity**		**pH**		**SS**	**NH3-N**	**Zinc**
W9A	15:15	0.10	20.9	20.9	3.94	3.91	49.6	49.2	4.4	4.4	0	0.0	7.42	7.42	3.0	0.4	16.0
			20.9		3.87		48.7		4.3		0		7.42				
W9B	15:35	0.10	20.5	20.5	4.66	4.63	57.2	57.0	5.9	5.9	0	0.0	6.97	6.97	3.0	0.4	15.0
			20.5		4.59		56.7		5.8		0		6.97				

APPENDIX I

METEOROLOGICAL DATA IN THE REPORTING PERIOD

Meteorological Data Extracted from Hong Kong Observatory in the Reporting Period

Date		Weather		Lau Fau Shan Weather Station			
			Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
Mon	26-Oct-09	Holiday	0.0	24.9	9.8	74	150
Tue	27-Oct-09	Fine/Moderate/Fresh	0.0	24.7	14.4	66	100
Wed	28-Oct-09	Fine/Moderate/Fresh	0.0	24.7	10.1	66	90
Thu	29-Oct-09	Fine/Dry/Moderate	0.0	24.9	9.8	69	80
Fri	30-Oct-09	Fine/Haze/Moderate	0.0	24.6	8.5	72	100
Sat	31-Oct-09	Fine/Dry/Moderate	0.0	25	10.2	70	80
Sun	1-Nov-09	Fine/Dry/Strong	0.0	26.1	16.0	63	40
Mon	2-Nov-09	Dry/Fine/Cloudy/Moderate	0.0	22.6	28.3	40	40
Tue	3-Nov-09	Dry/Cloudy/Moderate	0.0	17.2	17.7	39	40
Wed	4-Nov-09	Fine/Dry/Moderate/Fresh	0.0	19.6	9.5	46	80
Thu	5-Nov-09	Cloudy/Moderate	0.0	21.7	8.7#	61	080#
Fri	6-Nov-09	Fine/Cloudy/ Sunny Intervals/Moderate	0.0	23.2	7.8	80	140
Sat	7-Nov-09	Cloudy/Sunny Intervals/Moderate	0.0	25.3	8.9	75	80
Sun	8-Nov-09	Cloudy/Showers/Moderate	0.0	24.7	7.1	84	90
Mon	9-Nov-09	Cloudy/Showers/Moderate/Light	0.0	25.7	8.2	81	160
Tue	10-Nov-09	Fine/Cloudy/Light	0.0	25.5	11.1	82	160
Wed	11-Nov-09	Cloudy/Rain/Moderate/Fresh	0.0	26.5	18.0	74	140
Thu	12-Nov-09	Cloudy/Rain/Moderate/Fresh	13.5	24.8	17.0	84	140
Fri	13-Nov-09	Sunny/Fresh/Strong	1.5	16.6	26.2	79	360
Sat	14-Nov-09	Dry/Sunny Intervals/Cloudy/Moderate	0.0	14.3	13.1	74	50
Sun	15-Nov-09	Cloudy/Rain	1.0	16.1	9.0	83	70
Mon	16-Nov-09	Cloudy/Rain/Moderate/Fresh	10.5	13.9	20.1	90	10
Tue	17-Nov-09	Cloudy/Dry/Sunny Interval/Fresh	0.0	10.7	29.8	67	10
Wed	18-Nov-09	Cloudy/Cold/Dry/Moderate/Fresh	0.0	10.1	17.4	66	10
Thu	19-Nov-09	Cloudy/Cool/Moderate/Fresh	0.0	13.1	16.9	62	10
Fri	20-Nov-09	Fine/Dry/Cloudy/Fresh/strong	0.0	13.6	21.2	57	10
Sat	21-Nov-09	Cloudy/Dry/Sunny Intervals/Fresh/Strong	0.0	13.3	17.0	51	10
Sun	22-Nov-09	Fine/Haze/Light/Moderate	0.0	14.6	10.3	53	10
Mon	23-Nov-09	FineHazy/Light/Moderate	0.0	17	11.0	58	90
Tue	24-Nov-09	Fine/Hazy/Light/Moderate	0.0	18.7	8.2	74	150
Wed	25-Nov-09	Sunny/Cloudy/Moderate/Fresh	0.0	19.4	9.8	82	90

missing (less than 24 hourly observations a day)
Rainfall measured in increment of 0.5 mm. Amount of < 0.5 mm cannot be detected

APPENDIX J

ENVIRONMENTAL TEAM SITE INSPECTION CHECKLISTS

Environmental Site Inspection Checklist for KT15

AUES

Project:	**Contract No.: DC/2006/02 Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai Drainage Improvements, Stage 1, Phase 2B – Cheung Chun San Tsuen and Kam Tsin Wai**	**Inspected by**	
		RE/RE's representative:	K. P. Cheung
Inspection		**IEC/IEC's representative:**	
Date:	29 October 2009	**ETL/ ET's representative:**	Ben Tam
Time:	10:00	**Contractor's representative:**	Ray Cheung
		Checklist No.	KT15-291009

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

Weather:	☑ Sunny	☐ Fine	☐ Cloudy	☐ Rainy
Temperature:	26 ^{0}C			
Humidity:	☐ High	☐ Moderate	☑ Low	
Wind:	☐ Strong	☐ Breeze	☑ Light	☐ Calm

PART B: SITE AUDIT

		Not Obs.	Yes	No	Follow up	N/A	Photo/ Remarks
Section 1: Water Quality							
1.01	Is an effluent discharge license obtained for the Project?	☐	☑	☐	☐	☐	
1.02	Is the effluent discharged in accordance with the discharge licence?	☐	☑	☐	☐	☐	
1.03	Is the discharge of turbid water avoided?	☐	☑	☐	☐	☐	
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	☐	☑	☐	☐	☐	
1.05	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	☐	☑	☐	☐	☐	
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	☐	☑	☐	☐	☐	
1.07	Is drainage system well maintained?	☐	☑	☐	☐	☐	
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	☐	☑	☐	☐	☐	
1.09	Are temporary exposed slopes properly covered?	☐	☑	☐	☐	☐	
1.10	Are earthworks final surfaces well compacted or protected?	☐	☐	☐	☐	☑	
1.11	Are manholes adequately covered or temporarily sealed?	☐	☑	☐	☐	☐	
1.12	Are there any procedures and equipment for rainstorm protection?	☐	☑	☐	☐	☐	
1.13	Are wheel washing facilities well maintained?	☐	☑	☐	☐	☐	
1.14	Is runoff from wheel washing facilities avoided?	☐	☑	☐	☐	☐	
1.15	Are there toilets provided on site?	☐	☑	☐	☐	☐	
1.16	Are toilets properly maintained?	☐	☑	☐	☐	☐	
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	☐	☐	☐	☐	☑	
1.18	Is the oil leakage or spillage avoided?	☐	☑	☐	☐	☐	
1.19	Are there any measures to prevent leaked oil from entering the drainage system?	☐	☑	☐	☐	☐	
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	☐	☐	☐	☐	☑	
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	☐	☐	☐	☐	☑	
1.22	Are the oil interceptors/grease traps maintained properly?	☐	☐	☐	☐	☑	

		Not Obs.	Yes	No	Follow up	N/A	Photo/ Remarks
1.23	Is used bentonite recycled where appropriate?	☐	☐	☐	☐	☑	
1.24	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	☐	☐	☐	☐	☑	
1.25	Any mitigation is implemented during de-watering of the stream within the proposed channel to avoid pollutants entering Kam Tin River?	☐	☐	☐	☐	☑	
1.26	Sediments at the dewatering of the streams should be dry before excavation.	☐	☐	☐	☐	☑	
1.27	Dam or barrier should be provided at the interaction of old and new channels to prevent concrete washing from the construction works flow into the exist channel.	☐	☐	☐	☐	☑	
1.28	License collector should be employed for handling the sewage of mobile toilet.	☐	☑	☐	☐	☐	
1.29	Prevent any stagnant water accumulated within the excavation trench or site working area.	☐	☑	☐	☐	☐	
Section 2: Air Quality							
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?	☐	☑	☐	☐	☐	
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?	☐	☑	☐	☐	☐	
2.03	Are the excavated materials sprayed with water during handling?	☐	☑	☐	☐	☐	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?	☐	☑	☐	☐	☐	
2.05	Is the exposed earth properly treated within six months after the last construction activities?	☐	☐	☐	☐	☑	
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	☐	☑	☐	☐	☐	
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	☐	☐	☐	☐	☑	
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?	☐	☑	☐	☐	☐	
2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?	☐	☐	☐	☐	☑	
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?	☐	☑	☐	☐	☐	
2.11	Is dark smoke emission from plant/equipment avoided?	☐	☑	☐	☐	☐	
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	☐	☐	☐	☐	☑	
2.13	Are site vehicles travelling within the speed limit not more than 20km/hour?	☐	☑	☐	☐	☐	
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	☐	☑	☐	☐	☐	
2.15	Is open burning avoided?	☐	☑	☐	☐	☐	
2.16	Excavated odourous materials shall be transported away from site immediately if possible?	☐	☐	☐	☐	☑	
2.17	If on-site stockpiling cannot be avoided, it should covered properly at all time and shortest duration storage on-site as possible?	☐	☑	☐	☐	☐	
2.18	All vehicle exhaust are directed vertically upwards or directed away from the ground?	☐	☐	☐	☐	☑	
2.19	Any materials dropped on sealed roads are clean up immediately to prevent dust emission?	☐	☐	☐	☐	☑	
Section 3: Noise							
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers (Level 3 mitigation measures)?	☐	☑	☐	☐	☐	
3.02	Is silenced equipment adopted?	☐	☑	☐	☐	☐	
3.03	Is idle equipment turned off or throttled down (Level 3 mitigation measures)?	☐	☑	☐	☐	☐	
3.04	Are all plant and equipment well maintained and in good condition (Level 3 mitigation measures)?	☐	☑	☐	☐	☐	

		Not Obs.	Yes	No	Follow up	N/A	Photo/ Remarks
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers (Level 3 mitigation measures)?	☐	☐	☐	☐	☑	
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	☐	☐	☐	☐	☑	
3.07	Are air compressors fitted with valid noise emission labels during operation?	☐	☐	☐	☐	☑	
3.08	Are flaps and panels of mechanical equipment closed during operation?	☐	☐	☐	☐	☑	
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	☐	☐	☐	☐	☑	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	☐	☐	☐	☐	☑	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	☐	☐	☐	☐	☑	
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	☐	☐	☐	☐	☑	
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	☐	☐	☐	☐	☑	
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	☐	☐	☐	☐	☑	
3.15	Noisy equipment and activities should be placed as far from close-proximity sensitive receivers (Level 3 mitigation measures)?	☐	☑	☐	☐	☐	
3.16	Prolonged operation of noisy equipment close to dwelling is avoided (Level 3 mitigation measures)?	☐	☑	☐	☐	☐	
3.17	Noisy plant or processes is replaced by quieter alternatives as possible (Level 3 mitigation measures)?	☐	☐	☐	☐	☑	
3.18	Noisy activities had been scheduled to minimise exposure of nearby sensitive receivers to high levels of construction noise (Level 3 mitigation measures)?	☐	☐	☐	☐	☑	
3.19	Equipments emit sound strongly in one direction should oriented away to the nearby NSRs as possible (Level 3 mitigation measures)?	☐	☐	☐	☐	☑	
3.20	Stationary equipment should be located within the channels as far as practicable (Level 3 mitigation measures)?	☐	☐	☐	☐	☑	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	☐	☑	☐	☐	☐	
4.02	Are receptacles available for general refuse collection?	☐	☑	☐	☐	☐	
4.03	Is general refuse sorting or recycling implemented?	☐	☑	☐	☐	☐	
4.04	Is general refuse disposed of properly and regularly?	☐	☑	☐	☐	☐	
4.05	Is the Contractor registered as a chemical waste producer?	☐	☑	☐	☐	☐	
4.06	Are the chemical waste containers properly labelled?	☐	☑	☐	☐	☐	
4.07	Are the chemical wastes stored in proper storage areas?	☐	☑	☐	☐	☐	
4.08	Is the chemical waste storage area properly labelled?	☐	☑	☐	☐	☐	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	☐	☑	☐	☐	☐	
4.10	Are incompatible chemical wastes stored in different areas?	☐	☑	☐	☐	☐	
4.11	Are the chemical wastes disposed of by licensed collectors?	☐	☑	☐	☐	☐	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	☐	☑	☐	☐	☐	
4.13	Are chemical/fuel storage areas bunded?	☐	☑	☐	☐	☐	

		Not Obs.	Yes	No	Follow up	N/A	Photo/ Remarks
4.14	Are designated areas identified for storage and sorting of construction wastes?	☐	☑	☐	☐	☐	
4.15	Are construction wastes sorted (inert and non-inert) on site?	☐	☑	☐	☐	☐	
4.16	Are construction wastes reused?	☐	☑	☐	☐	☐	
4.17	Are construction wastes disposed of properly?	☐	☐	☐	☑	☐	Remark 1
4.18	Are site hoardings and signboards made of durable materials instead of timber?	☐	☑	☐	☐	☐	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	☐	☑	☐	☐	☐	
4.20	Are appropriate procedures followed if contaminated material exists?	☐	☐	☐	☐	☑	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	☐	☑	☐	☐	☐	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	☐	☑	☐	☐	☐	
4.23	Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	☐	☑	☐	☐	☐	
Section 5: Landscape & Visual							
5.01	Are retained and transplanted trees in health condition?	☐	☑	☐	☐	☐	
5.02	Are retained and transplanted trees properly protected?	☐	☑	☐	☐	☐	
5.03	Are surgery works carried out for the damaged trees?	☐	☐	☐	☐	☑	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	☐	☑	☐	☐	☐	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	☐	☑	☐	☐	☐	
Section 6: Ecology							
6.01	CH300-1100 the channelisation should be conducted with gabion banks and gabion bottom lining, to allow for the reestablishment of riparian and stream ecosystems?	☐	☑	☐	☐	☐	
6.02	Vehicle access is restricted to the section west and east of the channel, and only footpath access is permitted at chainage 500-800 (KT2).	☐	☑	☐	☐	☐	
6.03	Works in the marsh and other disturbances to this area is avoided?	☐	☑	☐	☐	☐	
6.04	Prevent site effluent/runoff discharge to the marsh at KT15?	☐	☑	☐	☐	☐	
6.05	Stockpiling or disposal of materials, and any dredging or construction activities at the marsh at KT15 are prohibited?	☐	☑	☐	☐	☐	
6.06	Mimimise the need to remove vegetation including trees. If tree felling is necessary, tree felling permit should be apply before any felling activities.	☐	☑	☐	☐	☐	
Section7: Others							
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	☐	☐	☐	☐	☑	

Remarks

Follow-Up of Last Site Inspection (23 October 2009):

Nil

Finding of Site Inspection on 29 October 2009:

1. C&D waste scattered on site was observed at Ch.667, housekeeping should be improve to keep the site clean and tidy.

RE's representative	*IEC's representative*	*ET's representative*	*Contractor's representative*
(KP CHEUNG)	( )	(Ben Tam)	(T.Y. Chang)

Environmental Site Inspection Checklist for KT15

AUES

Project:	**Contract No.: DC/2006/02 Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai Drainage Improvements, Stage 1, Phase 2B – Cheung Chun San Tsuen and Kam Tsin Wai**	**Inspected by**	
		RE/RE's representative:	K. P. Cheung
Inspection		**IEC/IEC's representative:**	
Date:	4 November 2009	**ETL/ ET's representative:**	Nicola Hon
Time:	10:00	**Contractor's representative:**	Ray Cheung
		Checklist No.	KT15-041109

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

Weather:	☐ Sunny	☑ Fine	☐ Cloudy	☐ Rainy
Temperature:	19.2 ^{0}C			
Humidity:	☐ High	☐ Moderate	☑ Low	
Wind:	☐ Strong	☐ Breeze	☑ Light	☐ Calm

PART B: SITE AUDIT

		Not Obs.	Yes	No	Follow up	N/A	Photo/ Remarks
Section 1: Water Quality							
1.01	Is an effluent discharge license obtained for the Project?	☐	☑	☐	☐	☐	
1.02	Is the effluent discharged in accordance with the discharge licence?	☐	☑	☐	☐	☐	
1.03	Is the discharge of turbid water avoided?	☐	☑	☐	☐	☐	
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	☐	☑	☐	☐	☐	
1.05	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	☐	☑	☐	☐	☐	
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	☐	☑	☐	☐	☐	
1.07	Is drainage system well maintained?	☐	☑	☐	☐	☐	
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	☐	☑	☐	☐	☐	
1.09	Are temporary exposed slopes properly covered?	☐	☑	☐	☐	☐	
1.10	Are earthworks final surfaces well compacted or protected?	☐	☐	☐	☐	☑	
1.11	Are manholes adequately covered or temporarily sealed?	☐	☑	☐	☐	☐	
1.12	Are there any procedures and equipment for rainstorm protection?	☐	☑	☐	☐	☐	
1.13	Are wheel washing facilities well maintained?	☐	☑	☐	☐	☐	
1.14	Is runoff from wheel washing facilities avoided?	☐	☑	☐	☐	☐	
1.15	Are there toilets provided on site?	☐	☑	☐	☐	☐	
1.16	Are toilets properly maintained?	☐	☑	☐	☐	☐	
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	☐	☐	☐	☐	☑	
1.18	Is the oil leakage or spillage avoided?	☐	☑	☐	☐	☐	
1.19	Are there any measures to prevent leaked oil from entering the drainage system?	☐	☑	☐	☐	☐	
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	☐	☐	☐	☐	☑	
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	☐	☐	☐	☐	☑	
1.22	Are the oil interceptors/grease traps maintained properly?	☐	☐	☐	☐	☑	

		Not Obs.	Yes	No	Follow up	N/A	Photo/ Remarks
1.23	Is used bentonite recycled where appropriate?	☐	☐	☐	☐	☑	
1.24	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	☐	☐	☐	☐	☑	
1.25	Any mitigation is implemented during de-watering of the stream within the proposed channel to avoid pollutants entering Kam Tin River?	☐	☐	☐	☐	☑	
1.26	Sediments at the dewatering of the streams should be dry before excavation.	☐	☐	☐	☐	☑	
1.27	Dam or barrier should be provided at the interaction of old and new channels to prevent concrete washing from the construction works flow into the exist channel.	☐	☐	☐	☐	☑	
1.28	License collector should be employed for handling the sewage of mobile toilet.	☐	☑	☐	☐	☐	
1.29	Prevent any stagnant water accumulated within the excavation trench or site working area.	☐	☑	☐	☐	☐	
Section 2: Air Quality							
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?	☐	☑	☐	☐	☐	
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?	☐	☑	☐	☐	☐	
2.03	Are the excavated materials sprayed with water during handling?	☐	☑	☐	☐	☐	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?	☐	☑	☐	☐	☐	
2.05	Is the exposed earth properly treated within six months after the last construction activities?	☐	☐	☐	☐	☑	
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	☐	☑	☐	☐	☐	
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	☐	☐	☐	☐	☑	
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?	☐	☑	☐	☐	☐	
2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?	☐	☐	☐	☐	☑	
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?	☐	☑	☐	☐	☐	
2.11	Is dark smoke emission from plant/equipment avoided?	☐	☑	☐	☐	☐	
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	☐	☐	☐	☐	☑	
2.13	Are site vehicles travelling within the speed limit not more than 20km/hour?	☐	☑	☐	☐	☐	
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	☐	☑	☐	☐	☐	
2.15	Is open burning avoided?	☐	☑	☐	☐	☐	
2.16	Excavated odourous materials shall be transported away from site immediately if possible?	☐	☐	☐	☐	☑	
2.17	If on-site stockpiling cannot be avoided, it should covered properly at all time and shortest duration storage on-site as possible?	☐	☑	☐	☐	☐	
2.18	All vehicle exhaust are directed vertically upwards or directed away from the ground?	☐	☐	☐	☐	☑	
2.19	Any materials dropped on sealed roads are clean up immediately to prevent dust emission?	☐	☐	☐	☐	☑	
Section 3: Noise							
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers (Level 3 mitigation measures)?	☐	☑	☐	☐	☐	
3.02	Is silenced equipment adopted?	☐	☑	☐	☐	☐	
3.03	Is idle equipment turned off or throttled down (Level 3 mitigation measures)?	☐	☑	☐	☐	☐	
3.04	Are all plant and equipment well maintained and in good condition (Level 3 mitigation measures)?	☐	☑	☐	☐	☐	

		Not Obs.	Yes	No	Follow up	N/A	Photo/ Remarks
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers (Level 3 mitigation measures)?	☐	☐	☐	☐	☑	
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	☐	☐	☐	☐	☑	
3.07	Are air compressors fitted with valid noise emission labels during operation?	☐	☐	☐	☐	☑	
3.08	Are flaps and panels of mechanical equipment closed during operation?	☐	☐	☐	☐	☑	
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	☐	☐	☐	☐	☑	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	☐	☐	☐	☐	☑	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	☐	☐	☐	☐	☑	
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	☐	☐	☐	☐	☑	
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	☐	☐	☐	☐	☑	
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	☐	☐	☐	☐	☑	
3.15	Noisy equipment and activities should be placed as far from close-proximity sensitive receivers (Level 3 mitigation measures)?	☐	☑	☐	☐	☐	
3.16	Prolonged operation of noisy equipment close to dwelling is avoided (Level 3 mitigation measures)?	☐	☑	☐	☐	☐	
3.17	Noisy plant or processes is replaced by quieter alternatives as possible (Level 3 mitigation measures)?	☐	☐	☐	☐	☑	
3.18	Noisy activities had been scheduled to minimise exposure of nearby sensitive receivers to high levels of construction noise (Level 3 mitigation measures)?	☐	☐	☐	☐	☑	
3.19	Equipments emit sound strongly in one direction should oriented away to the nearby NSRs as possible (Level 3 mitigation measures)?	☐	☐	☐	☐	☑	
3.20	Stationary equipment should be located within the channels as far as practicable (Level 3 mitigation measures)?	☐	☐	☐	☐	☑	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	☐	☑	☐	☐	☐	
4.02	Are receptacles available for general refuse collection?	☐	☑	☐	☐	☐	
4.03	Is general refuse sorting or recycling implemented?	☐	☑	☐	☐	☐	
4.04	Is general refuse disposed of properly and regularly?	☐	☑	☐	☐	☐	
4.05	Is the Contractor registered as a chemical waste producer?	☐	☑	☐	☐	☐	
4.06	Are the chemical waste containers properly labelled?	☐	☑	☐	☐	☐	
4.07	Are the chemical wastes stored in proper storage areas?	☐	☑	☐	☐	☐	
4.08	Is the chemical waste storage area properly labelled?	☐	☑	☐	☐	☐	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	☐	☑	☐	☐	☐	
4.10	Are incompatible chemical wastes stored in different areas?	☐	☑	☐	☐	☐	
4.11	Are the chemical wastes disposed of by licensed collectors?	☐	☑	☐	☐	☐	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	☐	☑	☐	☐	☐	
4.13	Are chemical/fuel storage areas bunded?	☐	☑	☐	☐	☐	

		Not Obs.	Yes	No	Follow up	N/A	Photo/ Remarks
4.14	Are designated areas identified for storage and sorting of construction wastes?	☐	☑	☐	☐	☐	
4.15	Are construction wastes sorted (inert and non-inert) on site?	☐	☑	☐	☐	☐	
4.16	Are construction wastes reused?	☐	☑	☐	☐	☐	
4.17	Are construction wastes disposed of properly?	☐	☑	☐	☐	☐	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	☐	☑	☐	☐	☐	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	☐	☑	☐	☐	☐	
4.20	Are appropriate procedures followed if contaminated material exists?	☐	☐	☐	☐	☑	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	☐	☑	☐	☐	☐	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	☐	☑	☐	☐	☐	
4.23	Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	☐	☑	☐	☐	☐	
Section 5: Landscape & Visual							
5.01	Are retained and transplanted trees in health condition?	☐	☑	☐	☐	☐	
5.02	Are retained and transplanted trees properly protected?	☐	☑	☐	☐	☐	
5.03	Are surgery works carried out for the damaged trees?	☐	☐	☐	☐	☑	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	☐	☑	☐	☐	☐	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	☐	☑	☐	☐	☐	
Section 6: Ecology							
6.01	CH300-1100 the channelisation should be conducted with gabion banks and gabion bottom lining, to allow for the reestablishment of riparian and stream ecosystems?	☐	☑	☐	☐	☐	
6.02	Vehicle access is restricted to the section west and east of the channel, and only footpath access is permitted at chainage 500-800 (KT2).	☐	☑	☐	☐	☐	
6.03	Works in the marsh and other disturbances to this area is avoided?	☐	☑	☐	☐	☐	
6.04	Prevent site effluent/runoff discharge to the marsh at KT15?	☐	☑	☐	☐	☐	
6.05	Stockpiling or disposal of materials, and any dredging or construction activities at the marsh at KT15 are prohibited?	☐	☑	☐	☐	☐	
6.06	Mimimise the need to remove vegetation including trees. If tree felling is necessary, tree felling permit should be apply before any felling activities.	☐	☑	☐	☐	☐	
Section7: Others							
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	☐	☐	☐	☐	☑	

Remarks

Follow-Up of Last Site Inspection (29 October 2009):

Housekeeping on site at Ch. 667 has been improved.

Finding of Site Inspection on 4 November 2009:

No adverse environmental impact was observed during site inspection.

RE's representative	*IEC's representative*	*ET's representative*	*Contractor's representative*
( )	( )	(Nicola Hon)	(T.Y. Cheung)

Environmental Site Inspection Checklist for KT15

AUES

Project:	**Contract No.: DC/2006/02 Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai Drainage Improvements, Stage 1, Phase 2B – Cheung Chun San Tsuen and Kam Tsin Wai**	**Inspected by**	
		RE/RE's representative:	K. P. Cheung
Inspection		**IEC/IEC's representative:**	
Date:	11 November 2009	**ETL/ ET's representative:**	Nicola Hon
Time:	10:00	**Contractor's representative:**	Ray Cheung
		Checklist No.	KT15-111109

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

Weather:	☐ Sunny	☐ Fine	☑ Cloudy	☐ Rainy
Temperature:	27.5 ^{0}C			
Humidity:	☐ High	☐ Moderate	☑ Low	
Wind:	☐ Strong	☑ Breeze	☐ Light	☐ Calm

PART B: SITE AUDIT

		Not Obs.	Yes	No	Follow up	N/A	Photo/ Remarks
Section 1: Water Quality							
1.01	Is an effluent discharge license obtained for the Project?	☐	☑	☐	☐	☐	
1.02	Is the effluent discharged in accordance with the discharge licence?	☐	☑	☐	☐	☐	
1.03	Is the discharge of turbid water avoided?	☐	☑	☐	☐	☐	
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	☐	☑	☐	☐	☐	
1.05	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	☐	☑	☐	☐	☐	
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	☐	☑	☐	☐	☐	
1.07	Is drainage system well maintained?	☐	☑	☐	☐	☐	
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	☐	☑	☐	☐	☐	
1.09	Are temporary exposed slopes properly covered?	☐	☑	☐	☐	☐	
1.10	Are earthworks final surfaces well compacted or protected?	☐	☐	☐	☐	☑	
1.11	Are manholes adequately covered or temporarily sealed?	☐	☑	☐	☐	☐	
1.12	Are there any procedures and equipment for rainstorm protection?	☐	☑	☐	☐	☐	
1.13	Are wheel washing facilities well maintained?	☐	☑	☐	☐	☐	
1.14	Is runoff from wheel washing facilities avoided?	☐	☑	☐	☐	☐	
1.15	Are there toilets provided on site?	☐	☑	☐	☐	☐	
1.16	Are toilets properly maintained?	☐	☑	☐	☐	☐	
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	☐	☐	☐	☐	☑	
1.18	Is the oil leakage or spillage avoided?	☐	☑	☐	☐	☐	
1.19	Are there any measures to prevent leaked oil from entering the drainage system?	☐	☑	☐	☐	☐	
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	☐	☐	☐	☐	☑	
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	☐	☐	☐	☐	☑	
1.22	Are the oil interceptors/grease traps maintained properly?	☐	☐	☐	☐	☑	

		Not Obs.	Yes	No	Follow up	N/A	Photo/ Remarks
1.23	Is used bentonite recycled where appropriate?	☐	☐	☐	☐	☑	
1.24	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	☐	☐	☐	☐	☑	
1.25	Any mitigation is implemented during de-watering of the stream within the proposed channel to avoid pollutants entering Kam Tin River?	☐	☐	☐	☐	☑	
1.26	Sediments at the dewatering of the streams should be dry before excavation.	☐	☐	☐	☐	☑	
1.27	Dam or barrier should be provided at the interaction of old and new channels to prevent concrete washing from the construction works flow into the exist channel.	☐	☐	☐	☐	☑	
1.28	License collector should be employed for handling the sewage of mobile toilet.	☐	☑	☐	☐	☐	
1.29	Prevent any stagnant water accumulated within the excavation trench or site working area.	☐	☑	☐	☐	☐	
Section 2: Air Quality							
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?	☐	☑	☐	☐	☐	
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?	☐	☑	☐	☐	☐	
2.03	Are the excavated materials sprayed with water during handling?	☐	☑	☐	☐	☐	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?	☐	☐	☑	☐	☐	Remark 1
2.05	Is the exposed earth properly treated within six months after the last construction activities?	☐	☐	☐	☐	☑	
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	☐	☑	☐	☐	☐	
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	☐	☐	☐	☐	☑	
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?	☐	☑	☐	☐	☐	
2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?	☐	☐	☐	☐	☑	
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?	☐	☑	☐	☐	☐	
2.11	Is dark smoke emission from plant/equipment avoided?	☐	☑	☐	☐	☐	
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	☐	☐	☐	☐	☑	
2.13	Are site vehicles travelling within the speed limit not more than 20km/hour?	☐	☑	☐	☐	☐	
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	☐	☑	☐	☐	☐	
2.15	Is open burning avoided?	☐	☑	☐	☐	☐	
2.16	Excavated odourous materials shall be transported away from site immediately if possible?	☐	☐	☐	☐	☑	
2.17	If on-site stockpiling cannot be avoided, it should covered properly at all time and shortest duration storage on-site as possible?	☐	☑	☐	☐	☐	
2.18	All vehicle exhaust are directed vertically upwards or directed away from the ground?	☐	☐	☐	☐	☑	
2.19	Any materials dropped on sealed roads are clean up immediately to prevent dust emission?	☐	☐	☐	☐	☑	
Section 3: Noise							
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers (Level 3 mitigation measures)?	☐	☑	☐	☐	☐	
3.02	Is silenced equipment adopted?	☐	☑	☐	☐	☐	
3.03	Is idle equipment turned off or throttled down (Level 3 mitigation measures)?	☐	☑	☐	☐	☐	
3.04	Are all plant and equipment well maintained and in good condition (Level 3 mitigation measures)?	☐	☑	☐	☐	☐	

		Not Obs.	Yes	No	Follow up	N/A	Photo/ Remarks
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers (Level 3 mitigation measures)?	☐	☐	☐	☐	☑	
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	☐	☐	☐	☐	☑	
3.07	Are air compressors fitted with valid noise emission labels during operation?	☐	☐	☐	☐	☑	
3.08	Are flaps and panels of mechanical equipment closed during operation?	☐	☐	☐	☐	☑	
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	☐	☐	☐	☐	☑	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	☐	☐	☐	☐	☑	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	☐	☐	☐	☐	☑	
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	☐	☐	☐	☐	☑	
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	☐	☐	☐	☐	☑	
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	☐	☐	☐	☐	☑	
3.15	Noisy equipment and activities should be placed as far from close-proximity sensitive receivers (Level 3 mitigation measures)?	☐	☑	☐	☐	☐	
3.16	Prolonged operation of noisy equipment close to dwelling is avoided (Level 3 mitigation measures)?	☐	☑	☐	☐	☐	
3.17	Noisy plant or processes is replaced by quieter alternatives as possible (Level 3 mitigation measures)?	☐	☐	☐	☐	☑	
3.18	Noisy activities had been scheduled to minimise exposure of nearby sensitive receivers to high levels of construction noise (Level 3 mitigation measures)?	☐	☐	☐	☐	☑	
3.19	Equipments emit sound strongly in one direction should oriented away to the nearby NSRs as possible (Level 3 mitigation measures)?	☐	☐	☐	☐	☑	
3.20	Stationary equipment should be located within the channels as far as practicable (Level 3 mitigation measures)?	☐	☐	☐	☐	☑	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	☐	☑	☐	☐	☐	
4.02	Are receptacles available for general refuse collection?	☐	☑	☐	☐	☐	
4.03	Is general refuse sorting or recycling implemented?	☐	☑	☐	☐	☐	
4.04	Is general refuse disposed of properly and regularly?	☐	☑	☐	☐	☐	
4.05	Is the Contractor registered as a chemical waste producer?	☐	☑	☐	☐	☐	
4.06	Are the chemical waste containers properly labelled?	☐	☑	☐	☐	☐	
4.07	Are the chemical wastes stored in proper storage areas?	☐	☑	☐	☐	☐	
4.08	Is the chemical waste storage area properly labelled?	☐	☑	☐	☐	☐	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	☐	☑	☐	☐	☐	
4.10	Are incompatible chemical wastes stored in different areas?	☐	☑	☐	☐	☐	
4.11	Are the chemical wastes disposed of by licensed collectors?	☐	☑	☐	☐	☐	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	☐	☑	☐	☐	☐	
4.13	Are chemical/fuel storage areas bunded?	☐	☑	☐	☐	☐	

		Not Obs.	Yes	No	Follow up	N/A	Photo/ Remarks
4.14	Are designated areas identified for storage and sorting of construction wastes?	☐	☑	☐	☐	☐	
4.15	Are construction wastes sorted (inert and non-inert) on site?	☐	☑	☐	☐	☐	
4.16	Are construction wastes reused?	☐	☑	☐	☐	☐	
4.17	Are construction wastes disposed of properly?	☐	☑	☐	☐	☐	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	☐	☑	☐	☐	☐	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	☐	☑	☐	☐	☐	
4.20	Are appropriate procedures followed if contaminated material exists?	☐	☐	☐	☐	☑	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	☐	☑	☐	☐	☐	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	☐	☑	☐	☐	☐	
4.23	Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	☐	☑	☐	☐	☐	
Section 5: Landscape & Visual							
5.01	Are retained and transplanted trees in health condition?	☐	☑	☐	☐	☐	
5.02	Are retained and transplanted trees properly protected?	☐	☑	☐	☐	☐	
5.03	Are surgery works carried out for the damaged trees?	☐	☐	☐	☐	☑	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	☐	☑	☐	☐	☐	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	☐	☑	☐	☐	☐	
Section 6: Ecology							
6.01	CH300-1100 the channelisation should be conducted with gabion banks and gabion bottom lining, to allow for the reestablishment of riparian and stream ecosystems?	☐	☑	☐	☐	☐	
6.02	Vehicle access is restricted to the section west and east of the channel, and only footpath access is permitted at chainage 500-800 (KT2).	☐	☑	☐	☐	☐	
6.03	Works in the marsh and other disturbances to this area is avoided?	☐	☑	☐	☐	☐	
6.04	Prevent site effluent/runoff discharge to the marsh at KT15?	☐	☑	☐	☐	☐	
6.05	Stockpiling or disposal of materials, and any dredging or construction activities at the marsh at KT15 are prohibited?	☐	☑	☐	☐	☐	
6.06	Mimimise the need to remove vegetation including trees. If tree felling is necessary, tree felling permit should be apply before any felling activities.	☐	☑	☐	☐	☐	
Section7: Others							
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	☐	☐	☐	☐	☑	

Remarks

Follow-Up of Last Site Inspection (4 November 2009):

No adverse environmental impact was observed during site inspection.

Finding of Site Inspection on 11 November 2009:

Remark 1. Loose sand was observed at Ch-600, the Contractor is reminded to cover it up with tarpaulin sheet or remove away from site immediately.

RE's representative	*IEC's representative*	*ET's representative*	*Contractor's representative*
( )	( )	(Nicola Hon)	( )

Environmental Site Inspection Checklist for KT15

AUES

Project:	**Contract No.: DC/2006/02 Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai Drainage Improvements, Stage 1, Phase 2B – Cheung Chun San Tsuen and Kam Tsin Wai**	**Inspected by**	
		RE/RE's representative:	K. P. Cheung
Inspection		**IEC/IEC's representative:**	Cyrus Lau
Date:	17 November 2009	**ETL/ ET's representative:**	Nicola Hon
Time:	03:00	**Contractor's representative:**	Ray Cheung
		Checklist No.	KT15-171109

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

Weather:	☐ Sunny	☑ Fine	☐ Cloudy	☐ Rainy
Temperature:	10.9 ^{0}C			
Humidity:	☐ High	☐ Moderate	☑ Low	
Wind:	☑ Strong	☐ Breeze	☐ Light	☐ Calm

PART B: SITE AUDIT

		Not Obs.	Yes	No	Follow up	N/A	Photo/ Remarks
Section 1: Water Quality							
1.01	Is an effluent discharge license obtained for the Project?	☐	☑	☐	☐	☐	
1.02	Is the effluent discharged in accordance with the discharge licence?	☐	☑	☐	☐	☐	
1.03	Is the discharge of turbid water avoided?	☐	☑	☐	☐	☐	
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	☐	☑	☐	☐	☐	
1.05	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	☐	☑	☐	☐	☐	
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	☐	☑	☐	☐	☐	
1.07	Is drainage system well maintained?	☐	☑	☐	☐	☐	
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	☐	☑	☐	☐	☐	
1.09	Are temporary exposed slopes properly covered?	☐	☑	☐	☐	☐	
1.10	Are earthworks final surfaces well compacted or protected?	☐	☐	☐	☐	☑	
1.11	Are manholes adequately covered or temporarily sealed?	☐	☑	☐	☐	☐	
1.12	Are there any procedures and equipment for rainstorm protection?	☐	☑	☐	☐	☐	
1.13	Are wheel washing facilities well maintained?	☐	☑	☐	☐	☐	
1.14	Is runoff from wheel washing facilities avoided?	☐	☑	☐	☐	☐	
1.15	Are there toilets provided on site?	☐	☑	☐	☐	☐	
1.16	Are toilets properly maintained?	☐	☑	☐	☐	☐	
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	☐	☐	☐	☐	☑	
1.18	Is the oil leakage or spillage avoided?	☐	☑	☐	☐	☐	
1.19	Are there any measures to prevent leaked oil from entering the drainage system?	☐	☑	☐	☐	☐	
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	☐	☐	☐	☐	☑	
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	☐	☐	☐	☐	☑	
1.22	Are the oil interceptors/grease traps maintained properly?	☐	☐	☐	☐	☑	

		Not Obs.	Yes	No	Follow up	N/A	Photo/ Remarks
1.23	Is used bentonite recycled where appropriate?	☐	☐	☐	☐	☑	
1.24	Concreting wastes water should be neutralized below the pH Action Levels before discharge.	☐	☐	☐	☐	☑	
1.25	Any mitigation is implemented during de-watering of the stream within the proposed channel to avoid pollutants entering Kam Tin River?	☐	☐	☐	☐	☑	
1.26	Sediments at the dewatering of the streams should be dry before excavation.	☐	☐	☐	☐	☑	
1.27	Dam or barrier should be provided at the interaction of old and new channels to prevent concrete washing from the construction works flow into the exist channel.	☐	☐	☐	☐	☑	
1.28	License collector should be employed for handling the sewage of mobile toilet.	☐	☑	☐	☐	☐	
1.29	Prevent any stagnant water accumulated within the excavation trench or site working area.	☐	☑	☐	☐	☐	
Section 2: Air Quality							
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?	☐	☑	☐	☐	☐	
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?	☐	☑	☐	☐	☐	
2.03	Are the excavated materials sprayed with water during handling?	☐	☑	☐	☐	☐	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?	☐	☑	☐	☐	☐	
2.05	Is the exposed earth properly treated within six months after the last construction activities?	☐	☐	☐	☐	☑	
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	☐	☑	☐	☐	☐	
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	☐	☐	☐	☐	☑	
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?	☐	☑	☐	☐	☐	
2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?	☐	☐	☐	☐	☑	
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?	☐	☑	☐	☐	☐	
2.11	Is dark smoke emission from plant/equipment avoided?	☐	☑	☐	☐	☐	
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	☐	☐	☐	☐	☑	
2.13	Are site vehicles travelling within the speed limit not more than 20km/hour?	☐	☑	☐	☐	☐	
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	☐	☑	☐	☐	☐	
2.15	Is open burning avoided?	☐	☑	☐	☐	☐	
2.16	Excavated odourous materials shall be transported away from site immediately if possible?	☐	☐	☐	☐	☑	
2.17	If on-site stockpiling cannot be avoided, it should covered properly at all time and shortest duration storage on-site as possible?	☐	☑	☐	☐	☐	
2.18	All vehicle exhaust are directed vertically upwards or directed away from the ground?	☐	☐	☐	☐	☑	
2.19	Any materials dropped on sealed roads are clean up immediately to prevent dust emission?	☐	☐	☐	☐	☑	
Section 3: Noise							
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers (Level 3 mitigation measures)?	☐	☑	☐	☐	☐	
3.02	Is silenced equipment adopted?	☐	☑	☐	☐	☐	
3.03	Is idle equipment turned off or throttled down (Level 3 mitigation measures)?	☐	☑	☐	☐	☐	
3.04	Are all plant and equipment well maintained and in good condition (Level 3 mitigation measures)?	☐	☑	☐	☐	☐	

		Not Obs.	Yes	No	Follow up	N/A	Photo/ Remarks
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers (Level 3 mitigation measures)?	☐	☐	☐	☐	☑	
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	☐	☐	☐	☐	☑	
3.07	Are air compressors fitted with valid noise emission labels during operation?	☐	☐	☐	☐	☑	
3.08	Are flaps and panels of mechanical equipment closed during operation?	☐	☐	☐	☐	☑	
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	☐	☐	☐	☐	☑	
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	☐	☐	☐	☐	☑	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	☐	☐	☐	☐	☑	
3.12	Use of quiet plant had been used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures).	☐	☐	☐	☐	☑	
3.13	Temporary/Moveable noise barrier or site hoarding are provide or erect at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments shield by the noise barrier which cannot visible from NSRs (Level 2 mitigation measure)	☐	☐	☐	☐	☑	
3.14	Temporary/Moveable noise barrier equal to or more than 3m height with 10kg/m2 are provide for noise mitigation measures (Level 2 mitigation measures).	☐	☐	☐	☐	☑	
3.15	Noisy equipment and activities should be placed as far from close-proximity sensitive receivers (Level 3 mitigation measures)?	☐	☑	☐	☐	☐	
3.16	Prolonged operation of noisy equipment close to dwelling is avoided (Level 3 mitigation measures)?	☐	☑	☐	☐	☐	
3.17	Noisy plant or processes is replaced by quieter alternatives as possible (Level 3 mitigation measures)?	☐	☐	☐	☐	☑	
3.18	Noisy activities had been scheduled to minimise exposure of nearby sensitive receivers to high levels of construction noise (Level 3 mitigation measures)?	☐	☐	☐	☐	☑	
3.19	Equipments emit sound strongly in one direction should oriented away to the nearby NSRs as possible (Level 3 mitigation measures)?	☐	☐	☐	☐	☑	
3.20	Stationary equipment should be located within the channels as far as practicable (Level 3 mitigation measures)?	☐	☐	☐	☐	☑	
Section 4: Waste/Chemical Management							
4.01	Waste Management Plan had been submit to Engineer for approval.	☐	☑	☐	☐	☐	
4.02	Are receptacles available for general refuse collection?	☐	☑	☐	☐	☐	
4.03	Is general refuse sorting or recycling implemented?	☐	☑	☐	☐	☐	
4.04	Is general refuse disposed of properly and regularly?	☐	☑	☐	☐	☐	
4.05	Is the Contractor registered as a chemical waste producer?	☐	☑	☐	☐	☐	
4.06	Are the chemical waste containers properly labelled?	☐	☑	☐	☐	☐	
4.07	Are the chemical wastes stored in proper storage areas?	☐	☑	☐	☐	☐	
4.08	Is the chemical waste storage area properly labelled?	☐	☑	☐	☐	☐	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	☐	☑	☐	☐	☐	
4.10	Are incompatible chemical wastes stored in different areas?	☐	☑	☐	☐	☐	
4.11	Are the chemical wastes disposed of by licensed collectors?	☐	☑	☐	☐	☐	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	☐	☑	☐	☐	☐	
4.13	Are chemical/fuel storage areas bunded?	☐	☑	☐	☐	☐	

		Not Obs.	Yes	No	Follow up	N/A	Photo/ Remarks
4.14	Are designated areas identified for storage and sorting of construction wastes?	☐	☑	☐	☐	☐	
4.15	Are construction wastes sorted (inert and non-inert) on site?	☐	☑	☐	☐	☐	
4.16	Are construction wastes reused?	☐	☑	☐	☐	☐	
4.17	Are construction wastes disposed of properly?	☐	☑	☐	☐	☐	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	☐	☑	☐	☐	☐	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	☐	☑	☐	☐	☐	
4.20	Are appropriate procedures followed if contaminated material exists?	☐	☐	☐	☐	☑	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	☐	☑	☐	☐	☐	
4.22	Site cleanliness and appropriate waste management training had provided for the site workers.	☐	☑	☐	☐	☐	
4.23	Contaminated sediments will managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002.	☐	☑	☐	☐	☐	
Section 5: Landscape & Visual							
5.01	Are retained and transplanted trees in health condition?	☐	☑	☐	☐	☐	
5.02	Are retained and transplanted trees properly protected?	☐	☑	☐	☐	☐	
5.03	Are surgery works carried out for the damaged trees?	☐	☐	☐	☐	☑	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	☐	☑	☐	☐	☐	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	☐	☑	☐	☐	☐	
Section 6: Ecology							
6.01	CH300-1100 the channelisation should be conducted with gabion banks and gabion bottom lining, to allow for the reestablishment of riparian and stream ecosystems?	☐	☑	☐	☐	☐	
6.02	Vehicle access is restricted to the section west and east of the channel, and only footpath access is permitted at chainage 500-800 (KT2).	☐	☑	☐	☐	☐	
6.03	Works in the marsh and other disturbances to this area is avoided?	☐	☑	☐	☐	☐	
6.04	Prevent site effluent/runoff discharge to the marsh at KT15?	☐	☑	☐	☐	☐	
6.05	Stockpiling or disposal of materials, and any dredging or construction activities at the marsh at KT15 are prohibited?	☐	☑	☐	☐	☐	
6.06	Mimimise the need to remove vegetation including trees. If tree felling is necessary, tree felling permit should be apply before any felling activities.	☐	☑	☐	☐	☐	
Section7: Others							
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	☐	☐	☐	☐	☑	

Remarks

Follow-Up of Last Site Inspection (11 November 2009):

The loose sand at Ch-600 was found to be removed.

Finding of Site Inspection on 17 November 2009:

No adverse environmental impact was observed during site inspection.

RE's representative	*IEC's representative*	*ET's representative*	*Contractor's representative*
(KP CHEUNG)	(Cyrus Law)	(Nicola Hon)	(T.Y. Chang)

Environmental Site Inspection Checklist for KT15

Project: Contract No.: DC/2006/02
Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai Drainage Improvements, Stage 1, Phase 2B – Cheung Chun San Tsuen and Kam Tsin Wai

Inspection Date: 17-11-2009

Time: 3:05

Inspected by

RE's representative: K.P. Cheung

IEC's representative: Cyrus Law

ET's representative: Nicola Hon

Contractor's representative: Roy Cheung

Checklist No.

PART A: GENERAL INFORMATION Environmental Permit No. EP-231/2005/A

Weather: ☐ Sunny ☑ Fine ☐ Cloudy ☐ Rainy

Temperature: 13 °C

Humidity: ☐ High ☐ Moderate ☑ Low

Wind: ☑ Strong ☐ Breeze ☐ Light ☐ Calm

PART B: SITE AUDIT

		Not Obs.	Yes	No	Follow up	N/A	Photo/ Remarks
Section 1: Water Quality							
1.01	Is an effluent discharge license obtained for the Project?	☐	☑	☐	☐	☐	
1.02	Is the effluent discharged in accordance with the discharge licence?	☐	☑	☐	☐	☐	
1.03	Is the discharge of turbid water avoided?	☐	☑	☐	☐	☐	
1.04	Are there proper desilting facilities in the drainage systems to reduce SS levels in effluent?	☐	☑	☐	☐	☐	
1.05	Are there channels, sandbags or bunds to direct surface run-off to sedimentation tanks?	☐	☑	☐	☐	☐	
1.06	Are there any perimeter channels provided at site boundaries to intercept storm runoff from crossing the site?	☐	☑	☐	☐	☐	
1.07	Is drainage system well maintained?	☐	☑	☐	☐	☐	
1.08	As excavation proceeds, are temporary access roads protected by crushed stone or gravel?	☐	☑	☐	☐	☐	
1.09	Are temporary exposed slopes properly covered?	☐	☑	☐	☐	☐	
1.10	Are earthworks final surfaces well compacted or protected?	☐	☑	☐	☐	☐	
1.11	Are manholes adequately covered or temporarily sealed?	☐	☑	☐	☐	☐	
1.12	Are there any procedures and equipment for rainstorm protection?	☐	☑	☐	☐	☐	
1.13	Are wheel washing facilities well maintained?	☐	☑	☐	☐	☐	
1.14	Is runoff from wheel washing facilities avoided?	☐	☑	☐	☐	☐	
1.15	Are there toilets provided on site?	☐	☑	☐	☐	☐	
1.16	Are toilets properly maintained?	☐	☑	☐	☐	☐	
1.17	Are the vehicle and plant servicing areas paved and located within roofed areas?	☑	☐	☐	☐	☐	
1.18	Is the oil leakage or spillage avoided?	☐	☑	☐	☐	☐	
1.19	Are there any measures to prevent leaked oil from entering the drainage system?	☐	☑	☐	☐	☐	
1.20	Are there any measures to collect spilt cement and concrete washings during concreting works?	☑	☐	☐	☐	☐	
1.21	Are there any oil interceptors/grease traps in the drainage systems for vehicle and plant servicing areas, canteen kitchen, etc?	☐	☐	☐	☐	☑	
1.22	Are the oil interceptors/grease traps maintained properly?	☐	☐	☐	☐	☑	

Environmental Site Inspection Checklist for KT15

		Not Obs.	Yes	No	Follow up	N/A	Photo/ Remarks
1.23	Is used bentonite recycled where appropriate?	☐	☐	☐	☐	☑	
1.24	Is designated settlement area for runoff / wheel wash water provided and located at the streambed with 1-2m deep, 12m long and around 50m^3 capacities for sedimentation?	☐	☐	☐	☐	☑	
1.25	Is excavation prohibited in the settlement area?	☐	☐	☐	☐	☑	
1.26	Is concreting wastes water neutralized below the pH Action Levels before discharge?	☑	☐	☐	☐	☐	
1.27	Are mobile toilets provided on site and located away from the KT15 stream course?	☐	☑	☐	☐	☐	
1.25	Is License collector employed for handling the sewage of mobile toilet?	☐	☑	☐	☐	☐	
Section 2: Air Quality							
2.01	Are there wheel washing facilities with high pressure jets provided at every vehicle exit point?	☐	☑	☐	☐	☐	
2.02	Are vehicles washed to remove any dusty materials from their bodies and wheels before leaving construction sites?	☐	☑	☐	☐	☐	
2.03	Are the excavated materials sprayed with water during handling?	☑	☐	☐	☐	☐	
2.04	Are stockpiles of dusty materials sprayed with water, covered or placed in sheltered areas?	☑	☐	☐	☐	☐	
2.05	Is the exposed earth properly treated within six months after the last construction activities?	☐	☑	☐	☐	☐	
2.06	Are the access roads sprayed with water to maintain the entire road surface wet or paved?	☐	☑	☐	☐	☐	
2.07	Is the surface where any drilling, cutting, polishing or breaking operation continuously sprayed with water?	☑	☐	☐	☐	☐	
2.08	Is the load on vehicles covered entirely by clean impervious sheeting?	☑	☐	☐	☐	☐	
2.09	Is the loading of materials to a level higher than the side and tail boards during transportation by vehicles avoided?	☑	☐	☐	☐	☐	
2.10	Is the road leading to the construction site within 30m of the vehicle entrance kept clear of dusty materials?	☐	☑	☐	☐	☐	
2.11	Is dark smoke emission from plant/equipment avoided?	☐	☑	☐	☐	☐	
2.12	Are de-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement?	☑	☐	☐	☐	☐	
2.13	Are site vehicles travelling within the speed limit not more than 15km/hour?	☐	☑	☐	☐	☐	
2.14	Are hoardings of not less than 2.4m high provided along the site boundary, which adjoins areas accessible to the public?	☐	☑	☐	☐	☐	
2.15	Is open burning avoided?	☐	☑	☐	☐	☐	
2.16	Are excavated materials from the stream removed form site on the same day and be stored in covered impermeable skips while awaiting removal from site?	☑	☐	☐	☐	☐	
Section 3: Noise							
3.01	Are noisy equipment and activities positioned as far as practicable from the sensitive receivers?	☐	☑	☐	☐	☐	
3.02	Is silenced equipment adopted?	☐	☑	☐	☐	☐	
3.03	Is idle equipment turned off or throttled down?	☐	☑	☐	☐	☐	
3.04	Are all plant and equipment well maintained and in good condition?	☐	☑	☐	☐	☐	
3.05	Are noise barriers or enclosures provided at areas where construction activities cause noise impact on sensitive receivers?	☑	☐	☐	☐	☐	
3.06	Are hand held breakers fitted with valid noise emission labels during operation?	☑	☐	☐	☐	☐	
3.07	Are air compressors fitted with valid noise emission labels during operation?	☑	☐	☐	☐	☐	
3.08	Are flaps and panels of mechanical equipment closed during operation?	☐	☑	☐	☐	☐	
3.09	Are Construction Noise Permit(s) applied for percussive piling works?	☐	☐	☐	☐	☑	

Environmental Site Inspection Checklist for KT15

		Not Obs.	Yes	No	Follow up	N/A	Photo/ Remarks
3.10	Are Construction Noise Permit(s) applied for general construction works during restricted hours?	☐	☐	☐	☐	☑	
3.11	Are valid Construction Noise Permit(s) posted at site entrances?	☐	☐	☐	☐	☑	
3.12	Is quiet plant used on site to minimise the construction noise impact to the surrounding residences/dwellings (Level 1 mitigation measures)?	☑	☐	☐	☐	☐	
3.13	Are temporary / moveable noise barrier or site hoarding provided or erected at the site boundary to minimise the noise impact of the closest NSRs or stationary equipments be shielded by the noise barrier which cannot be visible from NSRs (Level 2 mitigation measure)?	☑	☐	☐	☐	☐	
3.14	Are temporary / moveable noise barrier equal to or more than 3m height with 10kg/m^2 provided for noise mitigation measures (Level 2 mitigation measures)?	☑	☐	☐	☐	☐	
	Section 4: Waste/Chemical Management						
4.01	Is the Waste Management Plan submitted to Engineer for approval?	☐	☑	☐	☐	☐	
4.02	Are receptacles available for general refuse collection?	☐	☑	☐	☐	☐	
4.03	Is general refuse sorting or recycling implemented?	☐	☑	☐	☐	☐	
4.04	Is general refuse disposed of properly and regularly?	☐	☑	☐	☐	☐	
4.05	Is the Contractor registered as a chemical waste producer?	☐	☑	☐	☐	☐	
4.06	Are the chemical waste containers properly labelled?	☑	☐	☐	☐	☐	
4.07	Are the chemical wastes stored in proper storage areas?	☑	☐	☐	☐	☐	
4.08	Is the chemical waste storage area properly labelled?	☑	☐	☐	☐	☐	
4.09	Is the chemical waste storage area used for storage of chemical waste only?	☑	☐	☐	☐	☐	
4.10	Are incompatible chemical wastes stored in different areas?	☑	☐	☐	☐	☐	
4.11	Are the chemical wastes disposed of by licensed collectors?	☐	☑	☐	☐	☐	
4.12	Are trip tickets for chemical wastes disposal available for inspection?	☐	☑	☐	☐	☐	
4.13	Are chemical/fuel storage areas bunded?	☑	☐	☐	☐	☐	
4.14	Are designated areas identified for storage and sorting of construction wastes?	☐	☑	☐	☐	☐	
4.15	Are construction wastes sorted (inert and non-inert) on site?	☐	☑	☐	☐	☐	
4.16	Are construction wastes reused?	☐	☑	☐	☐	☐	
4.17	Are construction wastes disposed of properly?	☐	☑	☐	☐	☐	
4.18	Are site hoardings and signboards made of durable materials instead of timber?	☐	☑	☐	☐	☐	
4.19	Is trip ticket system implemented for the disposal of construction wastes and records available for inspection?	☐	☑	☐	☐	☐	
4.20	Are appropriate procedures followed if contaminated material exists?	☐	☑	☐	☐	☐	
4.21	Is relevant license/ permit for disposal of construction waste or excavated materials available for inspection?	☐	☑	☐	☐	☐	
4.22	Is site cleanliness and appropriate waste management training provided for the site workers?	☐	☑	☐	☐	☐	
4.23	Are contaminated sediments managed according to WBTC No.12/2000 and EWTB TC(W) No. 34/2002?	☐	☑	☐	☐	☐	
	Section 5: Landscape & Visual						
5.01	Are retained and transplanted trees in health condition?	☐	☑	☐	☐	☐	

Environmental Site Inspection Checklist for KT15

		Not Obs.	Yes	No	Follow up	N/A	Photo/ Remarks
5.02	Are retained and transplanted trees properly protected?	☐	☑	☐	☐	☐	
5.03	Are surgery works carried out for the damaged trees?	☑	☐	☐	☐	☐	
5.04	Is damage to trees outside site boundary due to construction activities avoided?	☐	☑	☐	☐	☐	
5.05	Is the night-time lighting controlled to minimize glare to sensitive receivers?	☑	☐	☐	☐	☐	
Section 6: Ecology							
6.01	Are gabion banks and base provided for channel linings and banks for typical sections of KT15?	☐	☑	☐	☐	☐	
6.02	Is site effluent/runoff discharge to the seasonal wetlands at KT15 prevented?	☐	☑	☐	☐	☐	
6.03	Are stockpiling or disposal of materials, and any dredging or construction activities at the seasonal wetlands at KT15 prohibited?	☐	☑	☐	☐	☐	
Section 7: Others							
7.01	Are relevant Environmental Permits posted at all vehicle site entrances/exits?	☐	☑	☐	☐	☐	

<Follow up observations>:

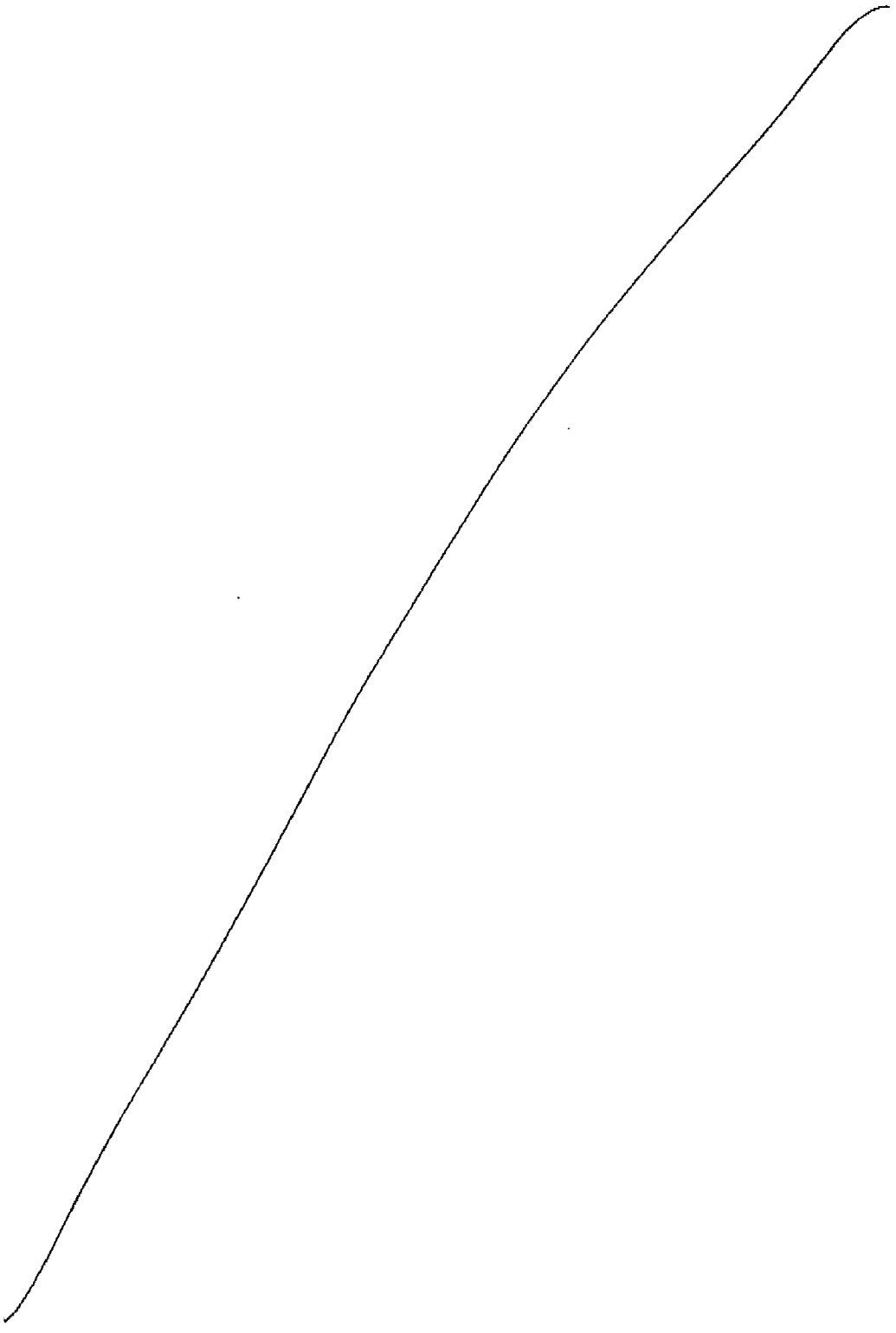
Nil.

<New observations>:

Nil.

Environmental Site Inspection Checklist for KT15

Remarks



RE's representative	*IEC's representative*	*ET's representative*	*Contractor's representative*
(Ep CHEUNG)	(Cyrus Law)	(Nicole Hon)	(T.Y. Cheung)

APPENDIX K

RESPONSE TO COMMENTS

DSD Contract No.: DC/2006/02

Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai Drainage Improvements, Stage 1, Phase 2B – Cheung Chun San Tsuen and Kam Tsin Wai
KT15 – Monthly EM&A Summary Report for November 2009 (R1565 Version 3)
Response to IEC's comments [Received from e-mail on 15 December 2009]

Items	Section / Paragraph	Comments	Response to Comments
1	Appendix G	One noise measurement should be required during the period from 21 to 24 Dec 2009 as the noise monitoring shall be conducted on weekly basis. Please check and revise the table.	Revised.
2	Appendix K RTC (Version 2) Item no. 2	The text "and the IR has been revised." is irrelevant. Please delete it. -	Noted and amended.

DSD Contract No.: DC/2006/02

Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai Drainage Improvements, Stage 1, Phase 2B – Cheung Chun San Tsuen and Kam Tsin Wai
KT15 – Monthly EM&A Summary Report for November 2009 (R1565 Version 2)
Response to IEC's comments [Received from e-mail on 14 December 2009]

Items	Section / Paragraph	Comments	Response to Comments
1	Table 5-3	Please keep consistency of data format of ammonia content recorded at W9A and W9B. The measured values of zinc at W9B on 4 Nov 2009 should be "<10", please check and revise the table.	Noted and amended.
2	Appendix C	Please keep the "Legend" format consistent.	Noted and amended.
3	Appendix G	One noise measurement should be required during the period from 21 to 24 Dec 2009. Please check and revise the table.	The next monitoring after 19th shall be proposed on 25th, as the monitoring event would not be carried out during public holiday, the monitoring shall be schedule on the next working day (28th).
4	Appendix H Zinc measurement results graph	"<10" should be recorded for zinc content measured on 4 Nov 2009 at W9B. Please check and revise the graph.	Updated.
5	Appendix J	In site inspection checklist on 29-Oct-09 finding section, it should be "observed at Ch.667…." In site inspection checklist on 4-Nov-09 follow-up section, it should be "Housekeeping on site at Ch. 667 had been improved.". In site inspection checklist on 17-Nov-09: Please include the signature of IEC's representative. Please incorporate IEC's site inspection checklist recorded on 17-Nov-2009.	Updated.

DSD Contract No.: DC/2006/02

Yuen Long, Kam Tin, Ngau Tam Mei and Tin Shui Wai Drainage Improvements, Stage 1, Phase 2B – Cheung Chun San Tsuen and Kam Tsin Wai
KT15 – Monthly EM&A Summary Report for November 2009 (R1565 Version 1)
Response to IEC's comments [Received from e-mail on 11 December 2009]

Items	Section / Paragraph	Comments	Response to Comments
1	ES11./Section11.02	It should be "Action or Limit Level was recorded.."	Noted and amended.
2	ES14./Section 5.10/Section 11.05	Please cross check with the investigation report of the captioned exceedance on the issue of major construction works being carried out during the exceedance day.	Noted and the IR has been revised.
3	Heading below Section 4.19	Please move the subheading "Dissolved Oxygen (DO)" to next page.	Done.
4	Table 5-2 / Appendix G	Please update the table as 24-Hour TSP monitoring shall be conducted on 31- October-2009.	Updated.
5	Table 5-3	Please update the table with provision of monitoring results recorded at W9B during the reporting period	Updated.
6	Table 6-2	Please clarify if recycled plastic is disposed of at NENT Landfill or not	Updated.
7	Table 7-1	For 29 October 2009 finding/deficiencies and follow-up status sections, please provide the exact location of the finding observed. For 11 November 2009 finding/deficiencies section, it should be "cover it up with.." Please check and update the table accordingly.	Updated.
8	Section 11.07	For item no.1, please provide the exact location of the finding observed. For item no. 2, it should be "cover it up with…" Please check and update the table accordingly.	Updated.
9	Appendix C	Please keep the "Legend" format consistent.	Done.
10	Appendix F	Please update the table with provision of calibration details of HVS from 25 October 2009 to 9 November 2009. The brand name of HVS shall be "Graseby Andersen". Please check and revise it. Please clarify if two pH meters were employed during the reporting period	Updated. Revised. Updated and one pH meter was employed.

Items	Section / Paragraph	Comments	Response to Comments
11	Appendix G	Please update the "impact monitoring schedule in next reporting period" as "27-Nov- 09" is repeated below "30-Nov-09". Please inform us the tentative day for 1-Hr TSP and noise monitoring during the period from 20-Dec-09 to 26-Dec-09.	Updated. Done.
12	Appendix H	Please provide the graphical plots for all stream water quality monitoring results recorded at W9B.	Done.
13	Appendix J	In site inspection checklist on 29-Oct-09 finding section, please provide the exact location of the finding observed. In site inspection checklist on 4-Nov-09 follow-up section, please provide the exact location of the finding observed. In site inspection checklist on 11-Nov-09 finding section, it should be "cover it up with..". In site inspection checklist on 17-Nov-09: Please delete out the photo in finding section as it is irrelevant. Please include the signature of IEC's representative. Please incorporate IEC's site inspection checklist recorded on 17-Nov-2009.	Done.