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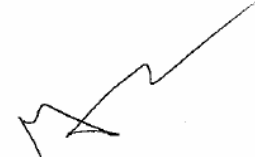
**YUEN LONG, KAM TIN, NGAU TAM MEI AND TIN SHUI  
WAI DRAINAGE IMPROVEMENTS, STAGE 1, PHASE  
2B – CHEUNG CHUN SAN TSUEN AND KAM TSIN WAI**

**KT15 Quarterly EM&A Summary Report –  
26 December to 25 March 2009**

**PREPARED FOR**

**CHIT CHEUNG CONSTRUCTION COMPANY LIMITED**

**Quality Index**

<b>Date</b>	<b>Reference No.</b>	<b>Prepared By</b>	<b>Certified By</b>
29 May 2009	TCS00371/07/600/R1306v3		
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1	25 May 2009	First Submission
2	27 May 2009	Amended against IEC's comment that received on 25 May 2009
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## 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* (hereinafter “the Project”) on 3 April 2007. According to the contract specification requirements, an Environmental Monitoring & Audit (EM&A) program is to be implemented by an Independent Environmental Team (ET) throughout the major construction 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 the *Environmental Permit (EP-231/2005/A)*.
- ES03. Action-United Environmental Services and Consulting (AUES) has been commissioned by CCC as an Independent Environmental Team (ET) to implement the EM&A program in compliance with the requirements as stated in the Environmental Permit and the *Environmental Monitoring & Audit Manual (EM&A Manual) for Secondary Channels KT14 & KT15* (August 2005). This contract (DC/2006/02) only covers KT15; and KT14 will be carried out under another contract.
- ES04. This is the 7<sup>th</sup> Quarterly Environmental Monitoring & Audit (EM&A) Summary Report for **January to March 2009** containing the monitoring results and audit findings for the period from **26 December 2008 to 25 March 2009** (this quarter).

### BREACH OF ACTION AND LIMIT (A/L) LEVELS

- ES05. Monitored data exceedances in this quarter are summarised in following table.

Monitoring	Parameters	Action Level	Limit Level
Air Quality	1-hour TSP	nil	nil
	24-hour TSP	nil	nil
Noise	Leq (30min) Daytime	nil	nil
Stream Water	Dissolve Oxygen (DO)	nil	nil
	Turbidity (NTU)	nil	nil
	pH	nil	nil
	Suspended Solids (SS)	nil	nil
	Ammonia Nitrogen	nil	nil
Ecology	Zinc	nil	nil
	Number of species of wetland birds	nil	18 Jan 09, 24 Feb 09, 24 Mar 09
	Total number of wetland birds	nil	18 Jan 09, 24 Mar 09

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

### COMPLAINTS LOG

- ES06. No environmental complaint was received in this quarter.

### NOTIFICATIONS OF ANY SUMMONS AND SUCCESSFUL PROSECUTIONS

- ES07. There was no environmental summons or successful prosecution was recorded in this quarter.

**REPORTING CHANGES**

ES08. There are no changes in reporting made in this quarter.

**CONSTRUCTION ACTIVITIES IN THE REPORTING QUARTER**

ES09. Construction activities in the quarter are listed in the following table:-

Reporting Period	Construction Activities
26 December 2008 – 25 January 2009	<ul style="list-style-type: none"> <li>• Construction and excavation works;</li> <li>• Dumping activities;</li> <li>• Sheet pile driving;</li> <li>• Tree protection and tree transplanting works;</li> <li>• Utilities companies liaison;</li> <li>• Carrying out joined survey; and</li> <li>• Gabion Installation.</li> </ul>
26 January 2009 – 25 February 2009	
26 February 2009– 25 March 2009	

ES10. 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.

**EM&A ACTIVITIES IN THE REPORTING QUARTER**

ES11. A summary of the monitoring activities in this quarter is listed below:

- 1-hour TSP Monitoring 48 Events
- 24-hour TSP Monitoring 15 Events
- Noise Monitoring 15 Events
- Stream Water Quality 50 Events
- Ecology (Fauna) 3 Events
- Site Inspection Audit 13 Times

**AIR QUALITY**

ES12. No Action or Limit Level exceedance of 1-hour or 24-hour TSP was recorded in this quarter.

**CONSTRUCTION NOISE**

ES13. No exceedance in construction noise measurements was recorded and no construction noise complaint was received in this quarter.

**STREAM WATER QUALITY**

ES14. No stream water quality monitoring result that triggered the Action or Limit Level was recorded in this period.

**ECOLOGY**

ES15. No faunal monitoring was conducted during the reporting quarter. Non-compliance with the ecological criteria was found during the quarter (18 January, 24 February and 24 March 2009). No intrusions of construction activities into the wetland areas or adverse impact were observed. Based on the findings in the pervious monthly monitoring, the non-compliance in wetland dependent bird was not caused by the project.

**SUMMARY OF MONITORING EXCEEDANCES**

ES16. A summary of monitoring exceedances in this quarter for air quality, noise, stream water quality and ecology monitoring are presented below:

<b>Env. Quality</b>	<b>Parameters</b>	<b>Work-Related Exceedance %</b>	<b>Investigation &amp; Corrective Actions</b>
Air Quality	1-hour TSP	0	Not Required for 0% Exceedance
	24-hour TSP	0	Not Required for 0% Exceedance
Noise	Leq (30min) Daytime	0	Not Required for 0% Exceedance
Stream Water	Dissolve Oxygen (DO)	0	Not Required for 0% Exceedance
	Suspended Solids (SS)	0	Not Required for 0% Exceedance
	Turbidity (NTU)	0	Not Required for 0% Exceedance
	pH	0	Not Required for 0% Exceedance
	Ammonia Nitrogen	0	Not Required for 0% Exceedance
	Zinc	0	Not Required for 0% Exceedance
Ecology	Decrease in the total number of species or individuals of wetland dependent bird from baseline	0	Not Required for 0% Exceedance
	Decrease in the total number of species or individuals of wetland faunal from baseline	NA	NA

**SITE INSPECTION BY EXTERNAL PARTIES**

ES17. There are two environmental site inspections conducted by EPD respectively, a site visit at Portion 7 on 30 December 2008, and water sampling was performed at the outlet of the stream of Bay 1 on 27 February 2009 and no comment was received from EPD.

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## 1.0 INTRODUCTION

- 1.01 Chit Cheung Construction Company Limited (CCC) has been awarded the 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* (hereinafter “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 Independent 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 Channel KT15. The location of the project site is presented in [Appendix A](#) and the construction program is presented in the pervious monthly EM&A reports.
- 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 as an Independent Environmental Team (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 Channel KT15 and the Environment Impact Assessment Ordinance (EIAO).
- 1.04 This report summaries the monitoring results and inspection findings for the quarter **January to March 2009** during the period from **26 December 2008 to 25 March 2009** under the EM&A program.

### REPORT STRUCTURE

- 1.05 This Quarterly EM&A Summary Report is structured into the following sections:

<b>SECTION 1</b>	<b>INTRODUCTION</b>
<b>SECTION 2</b>	<b>PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS</b>
<b>SECTION 3</b>	<b>SUMMARY OF MONITORING REQUIREMENTS</b>
<b>SECTION 4</b>	<b>IMPACT MONITORING METHODOLOGY</b>
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<b>SECTION 7</b>	<b>SITE INSPECTION</b>
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<b>SECTION 9</b>	<b>IMPLEMENTATION STATUS OF MITIGATION MEASURES</b>
<b>SECTION 10</b>	<b>CONCLUSIONS</b>

## 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 B](#).

### CONSTRUCTION PROGRESS

- 2.02 The major construction activities undertaken in this quarter were summaries in [Table 2-1](#).

**Table 2-1 Major Construction Activities**

Reporting Period	Construction Activities
26 December 2008 – 25 January 2009	<ul style="list-style-type: none"> <li>• Construction and excavation works;</li> <li>• Dumping activities;</li> <li>• Sheet pile driving;</li> <li>• Tree protection and tree transplanting works;</li> <li>• Utilities companies liaison;</li> <li>• Carrying out joined survey; and</li> <li>• Gabion Installation.</li> </ul>
25 January 2009 – 25 February 2009	
25 February 2009 – 25 March 2009	

### SUMMARY OF ENVIRONMENTAL SUBMISSIONS

- 2.03 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project in this quarter are presented in [Table 2-2](#).

**Table 2-2 Status of Environmental Licenses and Permits**

Items	Item Description	License/Permits 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	Obtained on 20 July 2007
7	Billing Account for Disposal of Construction Waste (Account Number : 7005311)	Valid on 7 May 2007
8	Type 1 (Open Sea Disposal) Marine Dumping Permit (EP/MD/09-027) (valid from 13 Oct 2008 to 12 Apr 2009)	Return to EPD on 20 Jan 2009
9	Type 2 (Confined Sea Disposal) Marine Dumping Permit (EP/MD/09-040) (valid from 29 Dec 2008 to 28 Jan 2009)	Return to EPD on 20 Jan 2009

### 3.0 SUMMARY OF IMPACT MONITORING REQUIREMENTS

- 3.01 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 the 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 station of the air quality, construction noise, stream water quality locations and ecology monitoring area are shown in **Appendix C**.

**Table 3-1 Summary of EM&A Requirements**

Environmental Aspect	Monitoring Parameters		Monitoring Stations
Air Quality	1-hour and 24-hour TSP		A10
Construction Noise	Leq <sub>(30min)</sub> during normal working hours		N10a*
	Supplementary data of L <sub>10</sub> and L <sub>90</sub> for reference.		
Stream Water Quality	In Situ Measurement	• Dissolved Oxygen Concentration (mg/L);	W9A & W9B
		• Dissolved Oxygen Saturation (% Sat);	
		• Turbidity (NTU);	
Laboratory Analysis	• pH;		
	• Salinity (%); Water Depth (m) and		
	• Temperature (°C).		
Ecology	Laboratory Analysis	• Suspended Solids (mg/L);	
		• Ammonia Nitrogen (mg/L); and	
		• Zinc (µg/L).	
Ecology	<ul style="list-style-type: none"> <li>• Monthly monitoring of construction activities adjacent to the wetland areas to identify any intrusions of construction activities into the wetland areas;</li> <li>• 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;</li> <li>• Photographic records at six-month intervals; and</li> <li>• 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.</li> </ul>		

Note: \* 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.

- 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<sub>(30min)</sub> shall be taken between 0700 and 1900 hours with supplementary L<sub>10</sub> and L<sub>90</sub> data collected for reference.
- 3.05 Stream water quality monitoring is conducted were undertaken at two location W9A & W9B twice per week. Dissolved Oxygen (DO), pH, Turbidity (NTU) was measured in-situ; water depth, temperature and salinity were collected for relevant data. Suspended solids (SS), ammonia nitrogen and zinc were determined in a HOKLAS accredited laboratory.
- 3.06 Ecological monitoring is conducted in the seasonal wetland area as shown in the Project Profile of Channel KT15 (Figure ATT 4-7.2). Bird survey should be conducted in monthly and other faunal groups (reptiles, amphibians, dragonflies and butterflies) are conducted in wet season (April to July inclusive).



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

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

Monitoring Station	Action Level ( $\mu\text{g}/\text{m}^3$ )		Limit Level ( $\mu\text{g}/\text{m}^3$ )	
	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP
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 hrs 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) <sup>#</sup>	W9B (Downstream)
Action Level	NA	< 0.3
Limit Level	NA	< 0.2
Turbidity (NTU)	W9A (Upstream) <sup>#</sup>	W9B (Downstream)
Action Level	NA	> 73.5*
Limit Level	NA	> 78.2**
pH	W9A (Upstream) <sup>#</sup>	W9B (Downstream)
Action Level	NA	> 7.0*
Limit Level	NA	> 7.1**
Suspended Solids (mg/L)	W9A (Upstream) <sup>#</sup>	W9B (Downstream)
Action Level	NA	> 148*
Limit Level	NA	> 159**
Ammonia Nitrogen (mg/L)	W9A (Upstream) <sup>#</sup>	W9B (Downstream)
Action Level	NA	> 30.91*
Limit Level	NA	> 32.20**
Zinc ( $\mu\text{g}/\text{L}$ )	W9A (Upstream) <sup>#</sup>	W9B (Downstream)
Action Level	NA	> 242*
Limit Level	NA	> 252**

Notes: <sup>#</sup> Act as Control Station for the Impact Water Quality Monitoring.

\* Alternative Action Level of the Turbidity, pH, Suspended Solid, Ammonia Nitrogen and Zinc are 120% of upstream control station of same day.

\*\* Alternative Limit Level of the Turbidity, pH, Suspended Solid, Ammonia Nitrogen and Zinc are 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 dependent bird species or individuals of the wetland dependent bird species from baseline	20 – 40% of individuals and species	> 40% of individuals and species

## 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 ecology 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 [Appendix C](#).

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

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

Note: \* 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 quarter were obtained from the Lau Fau Shan Station of the Hong Kong Observatory (HKO).

### 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 **48** monitoring events were carried out in this quarter.

#### 24-HOUR TSP MONITORING

- 4.04 The 24-hour TSP monitoring was conducted at station A10 once every six days. A total of **15** monitoring events were carried out in this quarter.

#### NOISE MONITORING

- 4.05 Impact noise monitoring was undertaken at one location N10a once per week. A total of **15** monitoring events were carried out in this quarter.

#### STREAM WATER QUALITY MONITORING

- 4.06 The stream water quality monitoring was undertaken at two locations W9A & W9B two times per week and a total of **50** monitoring events were carried out.

#### ECOLOGY MONITORING

- 4.07 Bird survey should be conducted in monthly and other faunal groups (reptiles, amphibians, dragonflies and butterflies) are conducted in wet season (April to July inclusive) in the seasonal wetland area. Based on the EM&A Manual requirements, three monitoring and checking of construction activities adjacent to the wetland areas was undertaken on **18 January, 24 February and 24 March 2009**.

## 5.0 IMPACT MONITORING RESULTS

5.01 The impact EM&A program was carried out by the ET in compliance with the project specific EM&A Manual in this quarter. The impact monitoring schedules were presented in pervious Monthly EM&A Reports (**January 2009, February 2009 and March 2009**). All the impact monitoring was undertaken in according to the monitoring schedule. Details of the monitoring results are present in the pervious Monthly EM&A Reports (**January 2009, February 2009 and March 2009**).

### AIR QUALITY

5.02 No 1-hour/24-hour TSP Action or Limit Level exceedance was recorded in this quarter. Details of the impact air quality monitoring data were present in the pervious Monthly EM&A Reports (**January 2009, February 2009 and March 2009**). Graphical plots of the 1-hour and 24-hour TSP monitoring results are shown in **Appendix D**.

5.03 The meteorological data of this quarter are summarized in **Appendix E**.

### CONSTRUCTION NOISE

5.04 No construction noise exceedance (Action/Limit Level) was recorded in this quarter. Details of the impact noise monitoring data were present in the pervious Monthly EM&A Reports (**January 2009, February 2009 and March 2009**). Graphical plots of the monitoring data are presented in **Appendix D**.

### STREAM WATER QUALITY

5.05 No water quality Action or Limit Level exceedance was recorded in this quarter. Details of the monitoring results were present in the pervious Monthly EM&A Reports (**January 2009, February 2009 and March 2009**) and graphical plots for each parameter are presented in **Appendix D**.

### ECOLOGY

5.06 Exceedances in ecology were recorded in this quarter. Details of the monitoring results were presented in the pervious Monthly EM&A Reports (**January 2009, February 2009 and March 2009**) and a summary of the exceedance is presented in **Table 5-1**. From the EM&A Manual Section 7.5.1(b), fauna survey is required during wet season (i.e. April to July) and thus no fauna monitoring was undertaken in this period.

**Table 5-1 Summary of Exceedances in Ecology Impact Monitoring**

Month	Taxa	Parameters	Action Level	Limit Level	Exceedance
January 2009	Bird	Species no.	-	Breach	Limit Level
		Individual no.	-	Breach	Limit Level
February 2009	Bird	Species no.	-	Breach	Limit Level
		Individual no.	-	-	-
March 2009	Bird	Species no.	-	Breach	Limit Level
		Individual no.	-	Breach	Limit Level

5.07 Photographic records are scheduled in six-month intervals; the last photographic records were taken in December 2008 and the next photographic records will be scheduled in June 2009.

## 6.0 WASTE MANAGEMENT

6.01 The waste management was implemented by an Environmental Officer or Environmental Supervisor employed by the Contractor.

### 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 Total quantities of waste for disposal in this quarter were summarized in **Tables 6-1 and 6-2**. Whenever possible, materials were reused on-site as far as practicable. The quantities of excavation soil for marine disposal in this quarter are summarized in **Table 6-3**.

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

Type of Waste	January 2009	February 2009	March 2009
Broken Concrete (Inert) (m <sup>3</sup> )	0	0	0
Reused in this Contract (Inert) (m <sup>3</sup> )	0	0	0
Reused in other Projects (Inert) (m <sup>3</sup> )	0	0	0
Disposal as Public Fill (Inert) (m <sup>3</sup> )	0	0	0

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

Type of Waste	January 2009	February 2009	March 2009
Recycled Metal (kg)	0	0	0
Recycled Paper/Cardboard Packing (kg)	0	0	0
Recycled Plastic (kg)	0	0	0
Chemical Wastes (kg)	0	0	0
General Refuses (kg)	0	0	0

**Table 6-3 Summary of Excavated Soil for Marine Disposal**

Type of Waste	January 2009	February 2009	March 2009
Type 1 Materials (m <sup>3</sup> )	0	0	0
Type 2 Materials (m <sup>3</sup> )	265.5	0	0

## 7.0 SITE INSPECTION

7.01 According to the EM&A Manual Section 9.1.2, the environmental site inspection should be formulated by the Environmental Team Leader. The inspection dates of ET's weekly environmental site inspection and IEC monthly site audit were summaries in the **Table 7-1**.

**Table 7-1 Date of Environmental Weekly Site Inspection and Monthly Audit**

Date of Inspection/Audit	Involved Parties
2 January 2009	ER, CCC and ET
9 January 2009	ER, CCC and ET
16 January 2009*	ER, IEC, CCC and ET
21 January 2009	ER, CCC and ET
29 January 2009	ER, CCC and ET
4 February 2009	ER, CCC and ET
12 February 2009	ER, CCC and ET
18 February 2009*	ER, IEC, CCC and ET
24 February 2009	ER, CCC and ET
5 March 2009	ER, CCC and ET
12 March 2009	ER, CCC and ET
20 March 2009*	ER, IEC, CCC and ET
24 March 2009	ER, CCC and ET

Note: \*Monthly IEC site audit.

7.02 During the weekly site inspection or monthly auditing, there have no non-compliance but **17** observations were recorded in this quarter. The weekly ET site inspection and monthly IEC site audit checklists were present in the pervious Monthly EM&A Reports (**January 2009, February 2009 and March 2009**).

## 8.0 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

### ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

- 8.01 No environmental complaint, summons and prosecution was received in this quarter. The statistical summary table of environmental complaint is presented in [Tables 8-1, 8-2 and 8-3](#).

**Table 8-1 Statistical Summary of Environmental Complaints**

Reporting Period	Environmental Complaints Statistics		
	Frequency	Cumulative	Complaint Nature
26 December 08 – 25 January 2009	0	0	NA
26 January– 25 February 2009	0	0	NA
26 February– 25 March 2009	0	0	NA

**Table 8-2 Statistical Summary of Environmental Summons**

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Nature
26 December 08 – 25 January 2009	0	0	NA
26 January– 25 February 2009	0	0	NA
26 February– 25 March 2009	0	0	NA

**Table 8-3 Statistical Summary of Environmental Prosecution**

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Nature
26 December 08 – 25 January 2009	0	0	NA
26 January– 25 February 2009	0	0	NA
26 February– 25 March 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 quarter 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 cleaned of mud and debris before leaving the site;
- Site vehicles were limited to within 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 minimise noise nuisance from the nearest sensitive receiver;
- Idle equipments were either turned off or throttled down;
- Some of the 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 CONCLUSION

10.01 The EM&A program in this quarter (26 December – 25 March 2009) were undertaken in compliance with the EM&A Manual for Channel KT15. A summary of environmental compliance of air, noise, stream water quality and ecology in this quarter are presented in Table 10-1.

**Table 10-1 Summary of the Exceedances for Impact Monitoring**

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

10.02 No 1-hour or 24-hour TSP exceedance of the Action/Limit Level was recorded in this quarter.

10.03 All measured daytime construction noise levels were below the Limit Level and no complaint was received in this quarter.

10.04 No water quality monitoring results exceeded the Action/Limit Level was recorded in this quarter.

10.05 No faunal monitoring was conducted during the reporting quarter. Non-compliance with the ecological criteria was found during the quarter (18 January, 24 February and 24 March 2009). No intrusions of construction activities into the wetland areas or adverse impact were observed. Based on the findings in the pervious monthly monitoring, the non-compliance in wetland dependent bird was not caused by the project.

10.06 No environmental complaint, summons or prosecution was received in this quarter.

### RECOMMENDATIONS

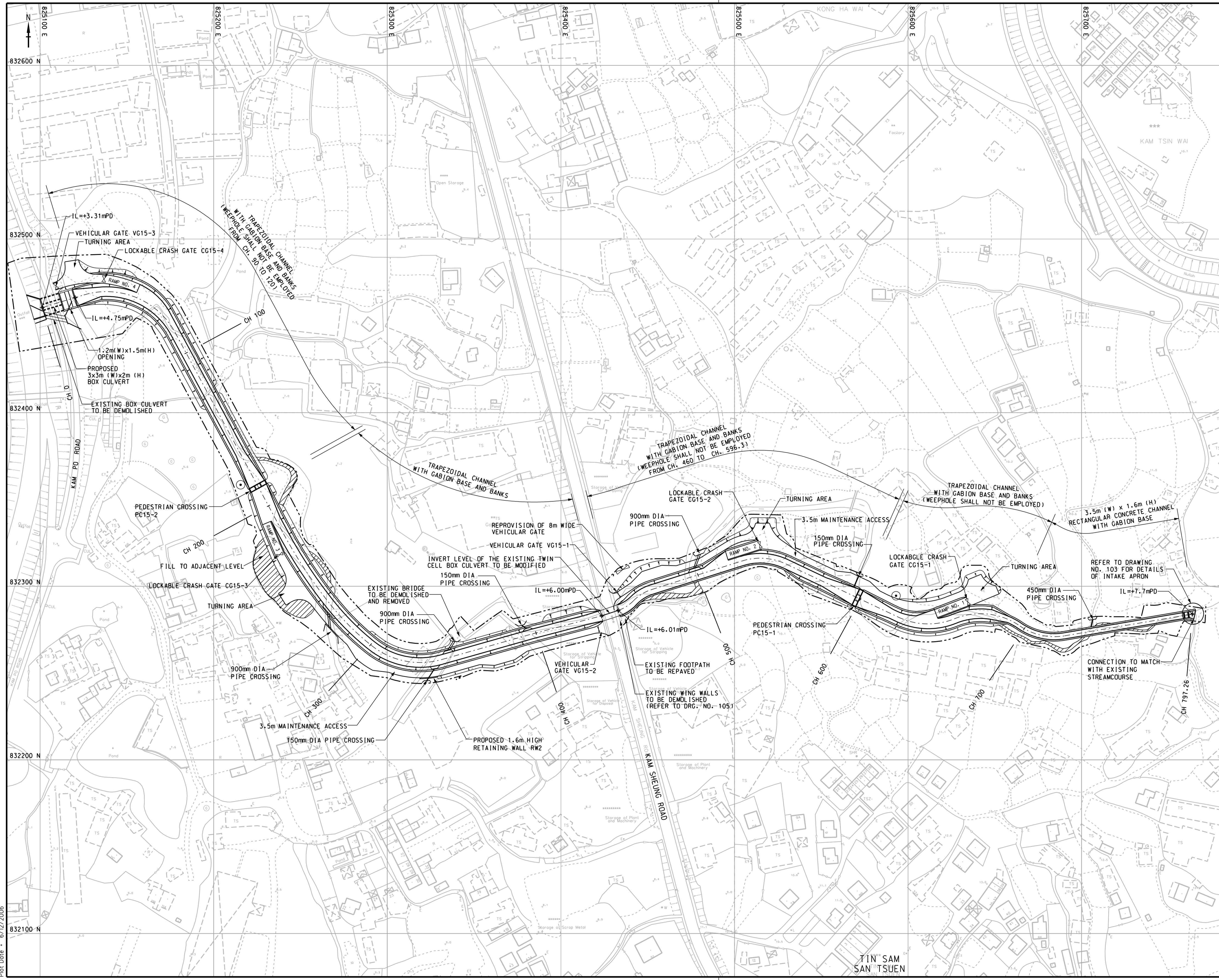
10.07 Based on the weekly ET site inspection and monthly IEC site audit, no non-compliance but 17 observations were recorded in this quarter. Details of the observations were present in the pervious Monthly EM&A Reports (January 2009, February 2009 and March 2009). In general, the environmental performance of proposed channel KT15 was acceptable.

10.08 The ET will continue to implement the EM&A program and audit the effective mitigation measures implement by the Contractor.



## **Appendix A**

### **Project Site Layout**



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

Revision	Date	Description	Initial	
Initial	Designed	Checked	Drawn	Verified
Date	12/05	12/05	12/05	12/05

CONTRACT NO. DG200602

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

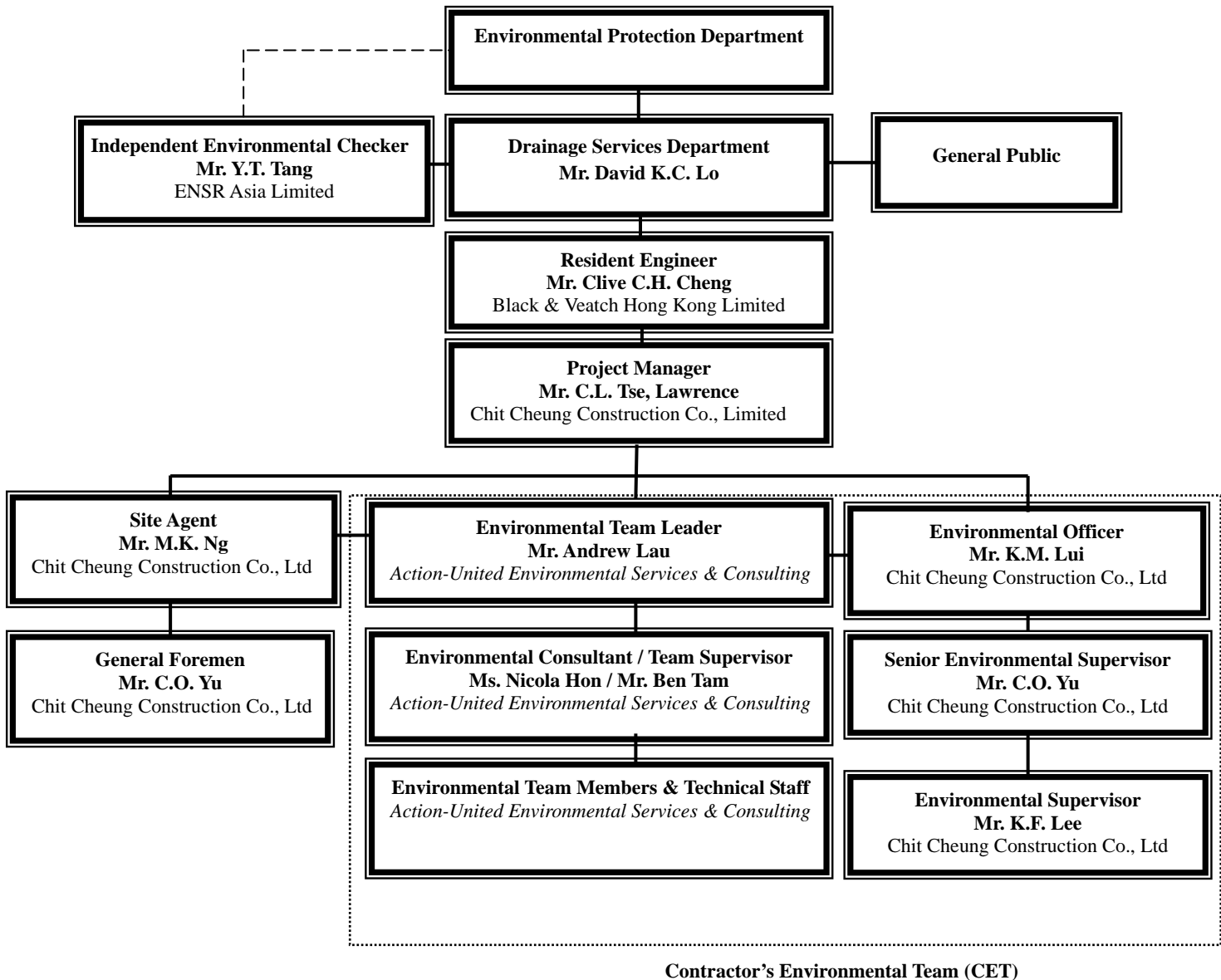
BLACK & VEATCH HONG KONG LIMITED  
 博威工程顧問有限公司

Plot Date : 6/12/2006

## **Appendix B**

### **Environmental Organization Structure**

### Environmental Organization Structure



**Contact Details of Key Personnel**

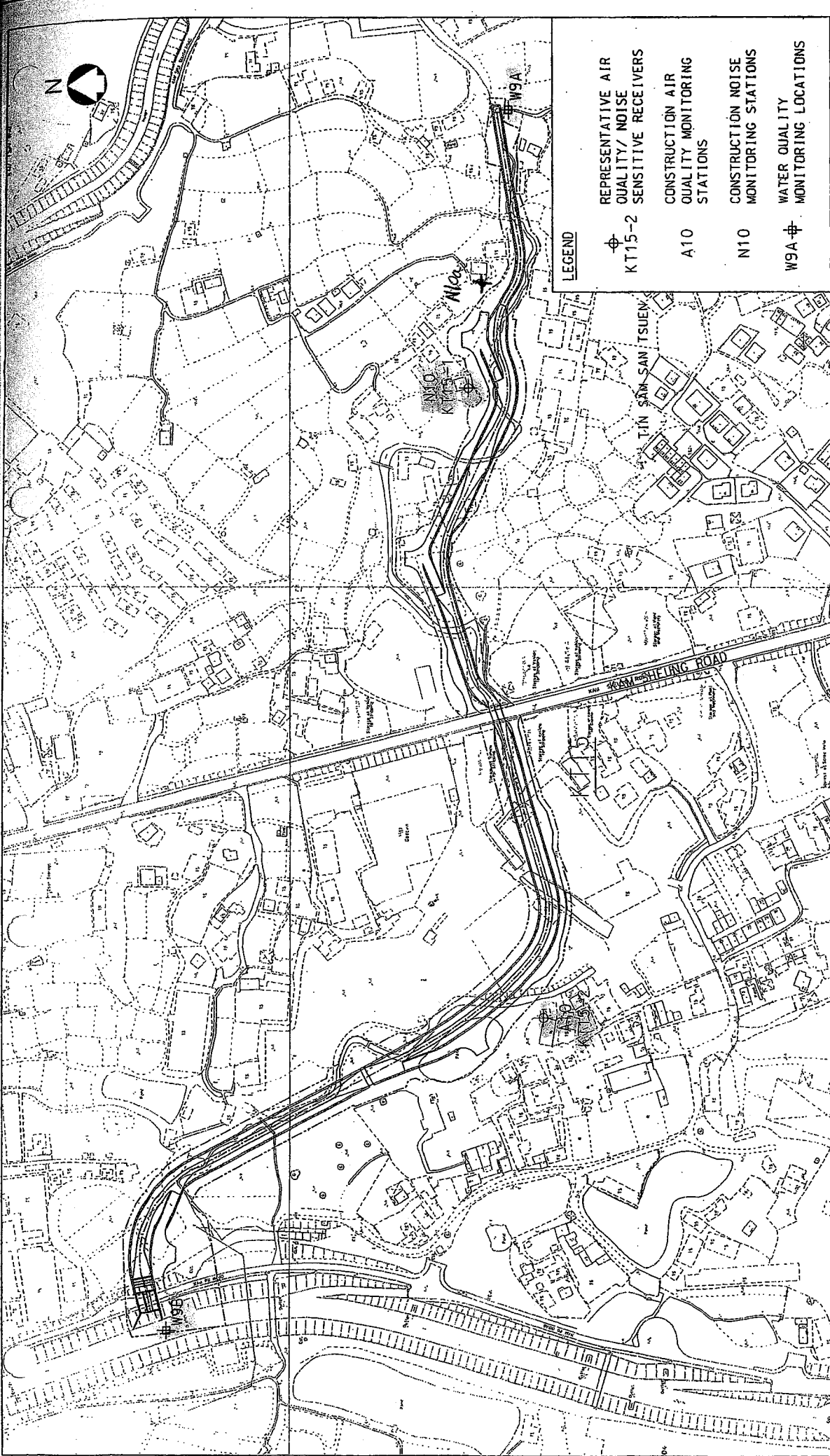
<b>Organization</b>	<b>Project Role</b>	<b>Name of Key Staff</b>	<b>Tel No.</b>	<b>Fax No.</b>
DSD	Employer	Mr. David K.C. LO	2594-7254	2827-8526
B&V	Engineer	Mr. Kelvin N.F. LAU	2601-1000	2601-3988
B&V	Engineer's Representative	Mr. Clive C.H. CHENG	2478-9161	2478-9396
ENSR	Independent Environmental Checker	Mr. Y.T. Tang	3105-8537	2891-0305
CCC	Project Director	Mr. P.Y. CHENG	9023-4821	2403-1162
CCC	Project Manager	Mr. Lawrence TSE	9752-0748	2479-1365
CCC	Site Agent	Mr. M.K. NG	6603-9711	2479-1365
CCC	Site Engineer	Mr. Jimmy CHAN	9234-8632	2479-1365
CCC	Environmental Officer	Mr. LUI Kam Man	9257-9111	2479-1365
CCC	Senior Environmental Supervisor	Mr. YU Chor-on	9026-9501	2479-1365
CCC	Environmental Supervisor	Ho Kam Wing	9016-0592	2479-1365
CCC	Safety Officer	Mr. SHEA Yan Keung	6086-4658	2479-1365
AUES	Environmental Team Leader	Mr. Andrew Lau	2959-6059	2959-6079
AUES	Environmental Team Supervisor	Mr. Ben Tam	2959-6059	2959-6079
AUES	Environmental Consultant	Ms. Nicola Hon	2959-6059	2959-6079
AUES	Ecologist	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.
ENSR (IEC)	-	ENSR Asia (HK) Ltd.
AUES (ET)	-	Action-United Environmental Services & Consulting

## **Appendix C**

### **Locations of Designated Monitoring Station/Locations/Area**



**LEGEND**


- ⊕ REPRESENTATIVE AIR QUALITY/ NOISE SENSITIVE RECEIVERS  
KT15-2
- ⊖ CONSTRUCTION AIR QUALITY MONITORING STATIONS  
A10
- ⊓ CONSTRUCTION NOISE MONITORING STATIONS  
N10
- ⊕ WATER QUALITY MONITORING LOCATIONS  
W9A

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

Title :

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

YUEN LONG, KAM TIN,  
NGAU TAM MEI AND TIN SHUI WAI  
DRAINAGE IMPROVEMENT, STAGE 1, PHASE 2B



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

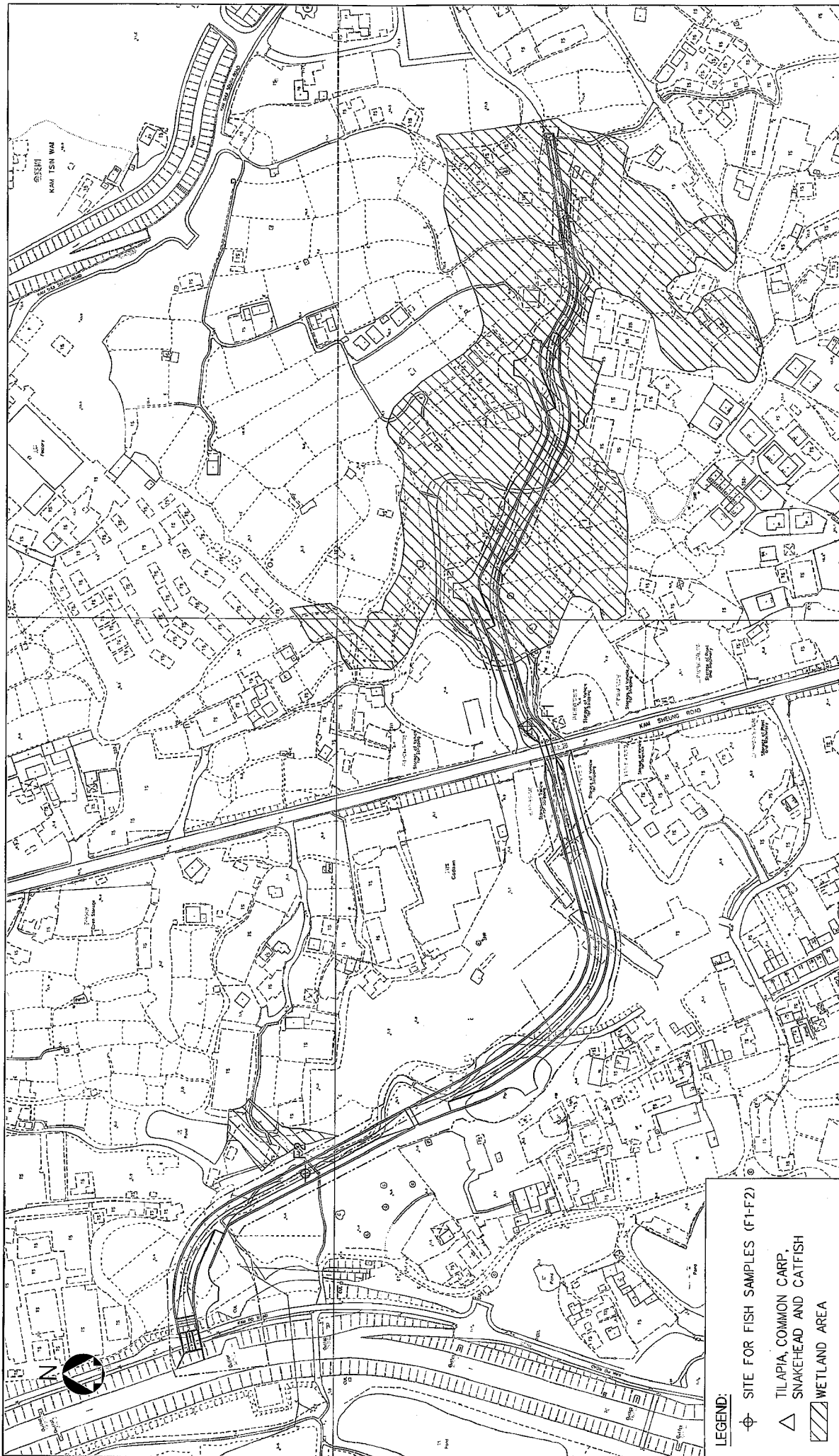



Figure No.	3.3	Revision	0
Reference		File Name	3820470201-114.DGN
Prepared	AEC	Checked	WYC
Date	MAR. 2003	Scale	1 : 2000

Title :

**ECOLOGICAL MONITORING AREA KT15**

- 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

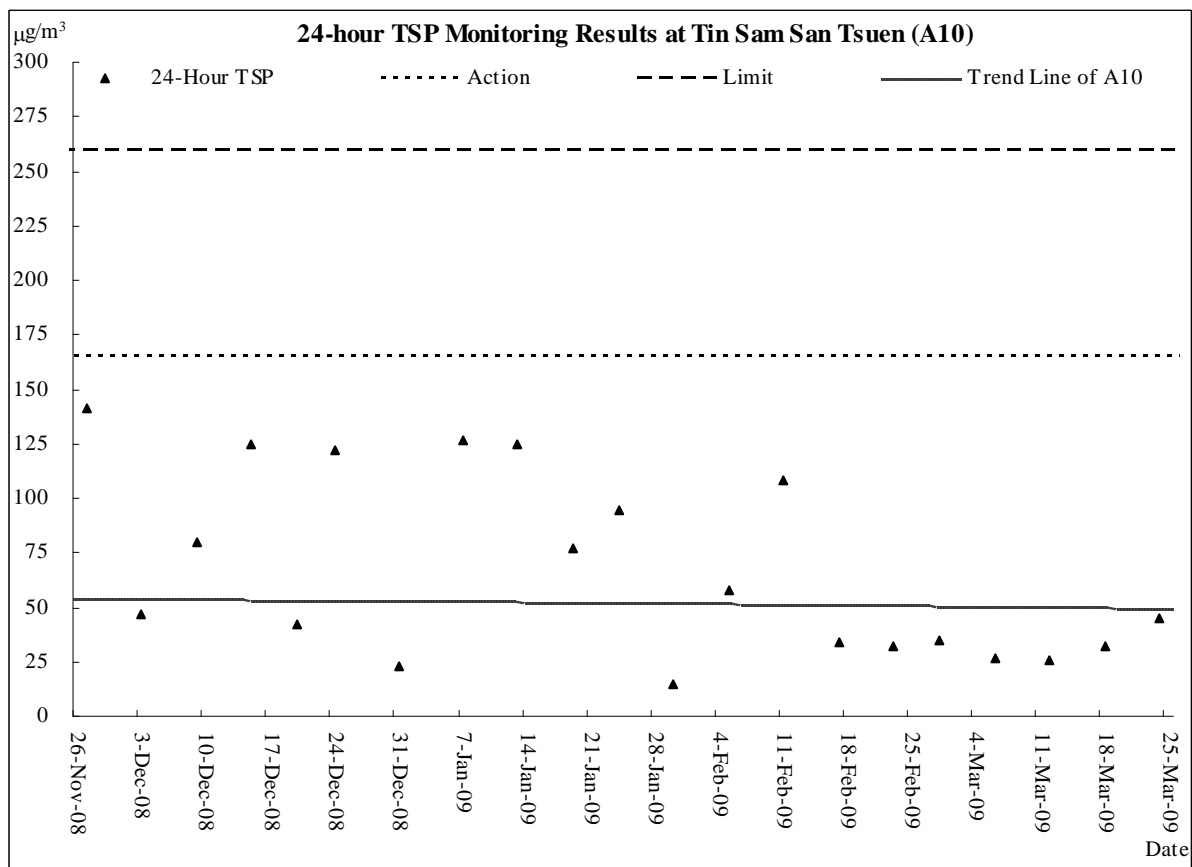
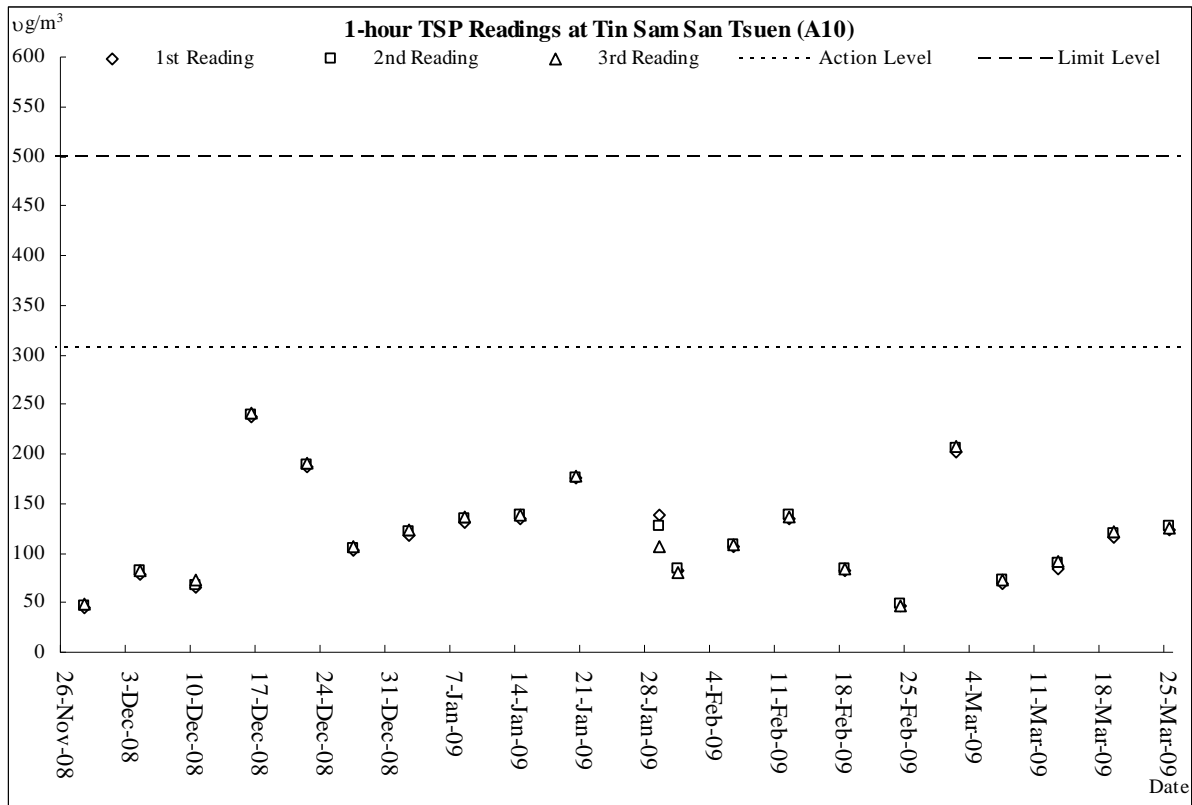
 **BLACK & VEATCH HONG KONG LIMITED**  
 博威工程顧問有限公司



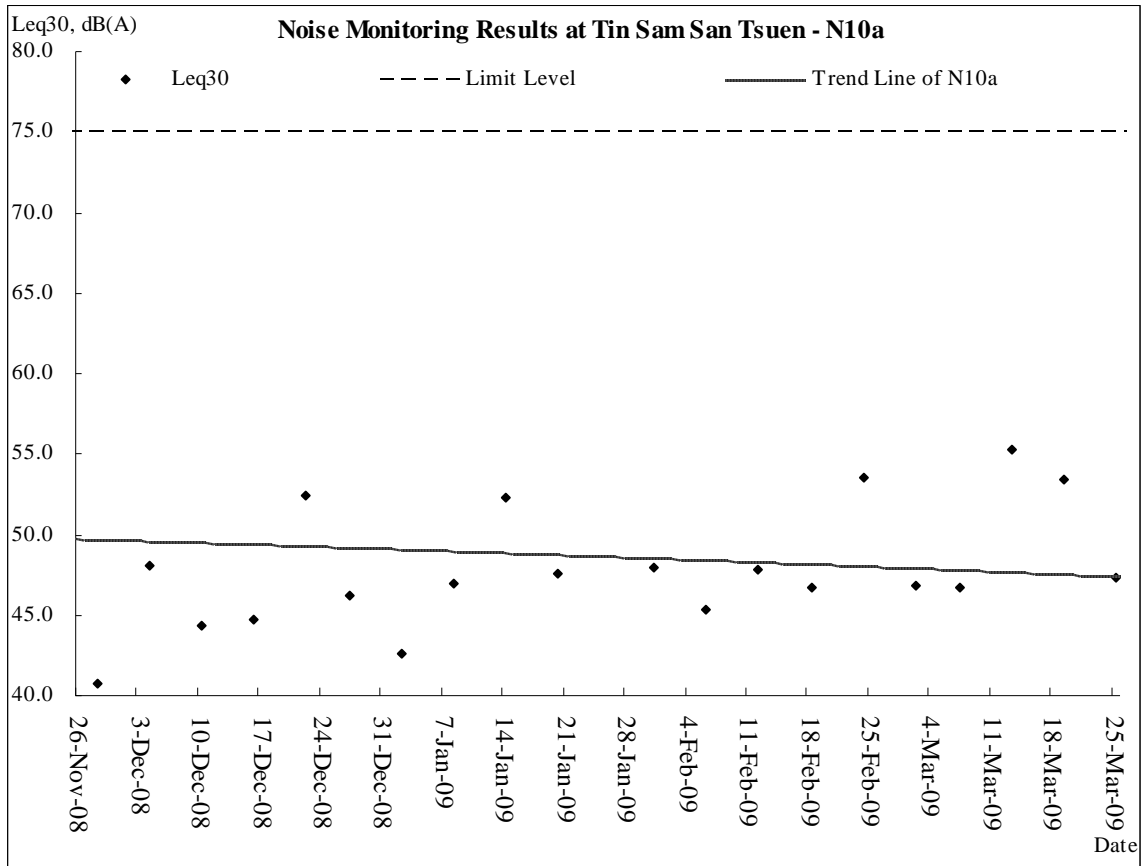
## **Appendix D**

# **Graphical Plots of Air Quality, Construction Noise & Stream Water Quality Monitoring**

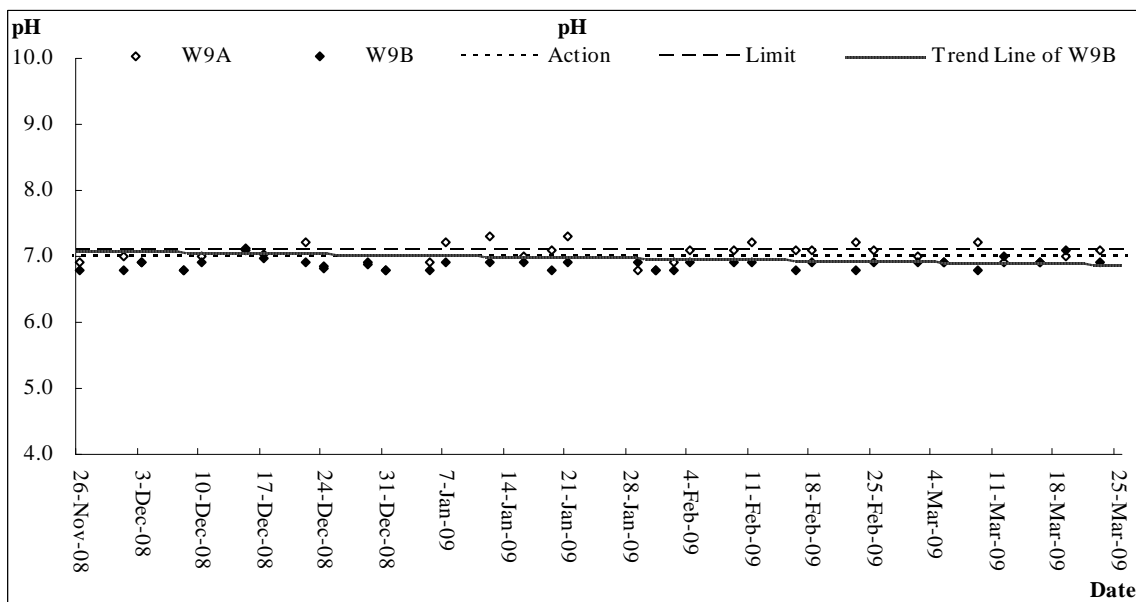
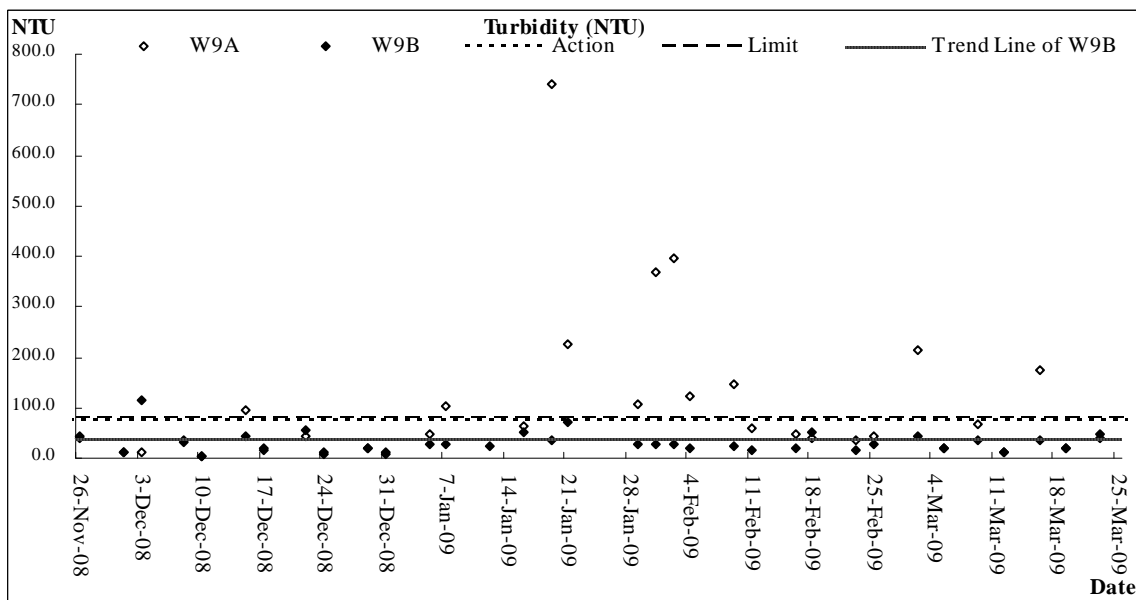
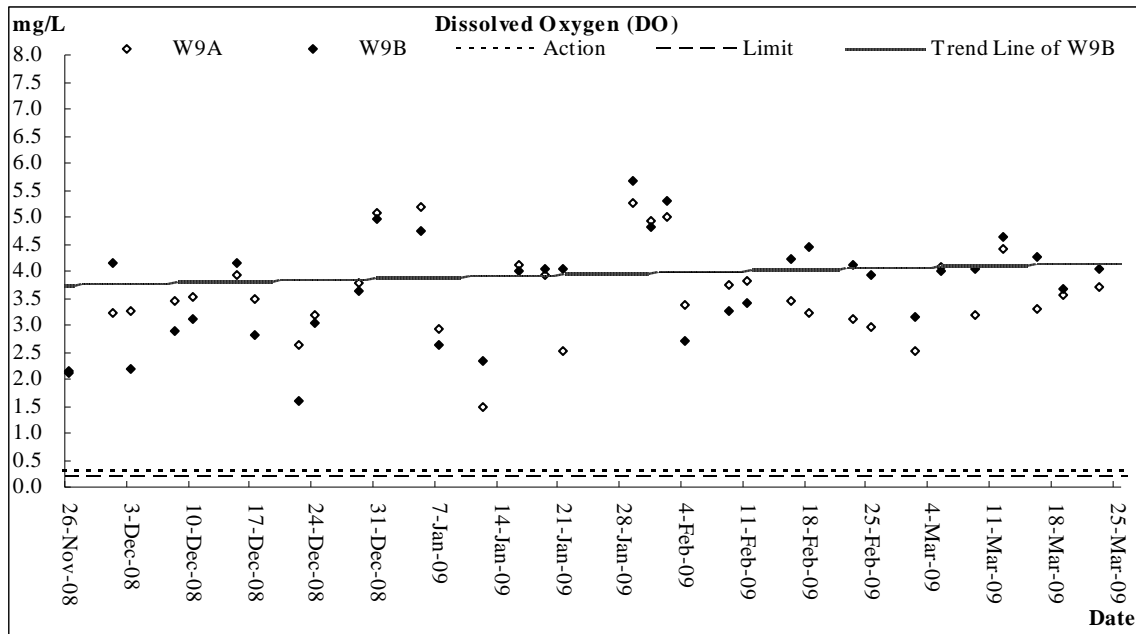
### Air Quality

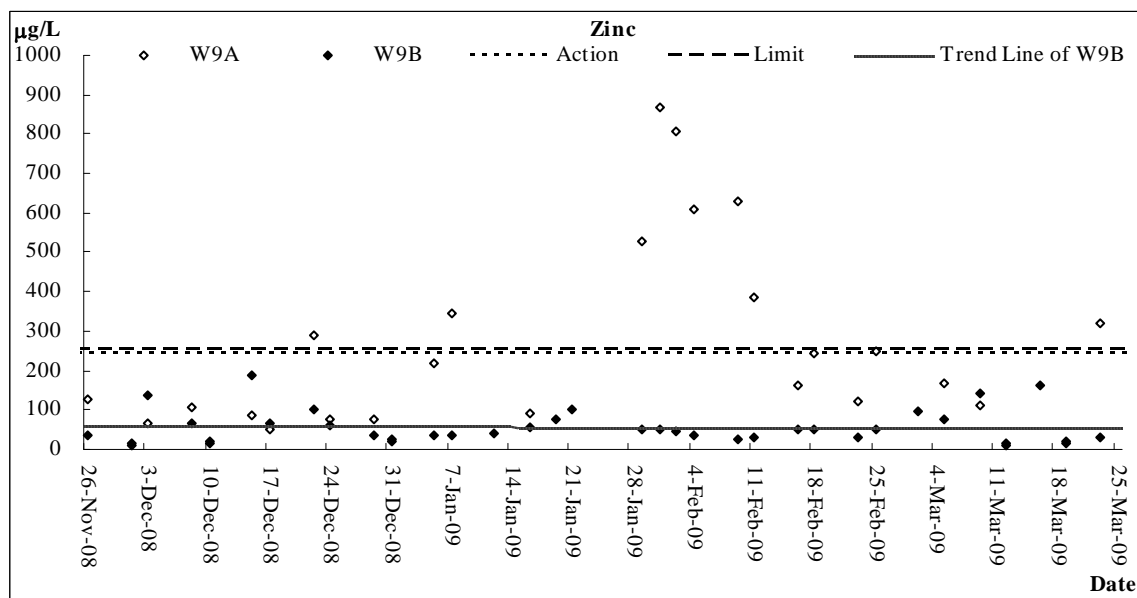
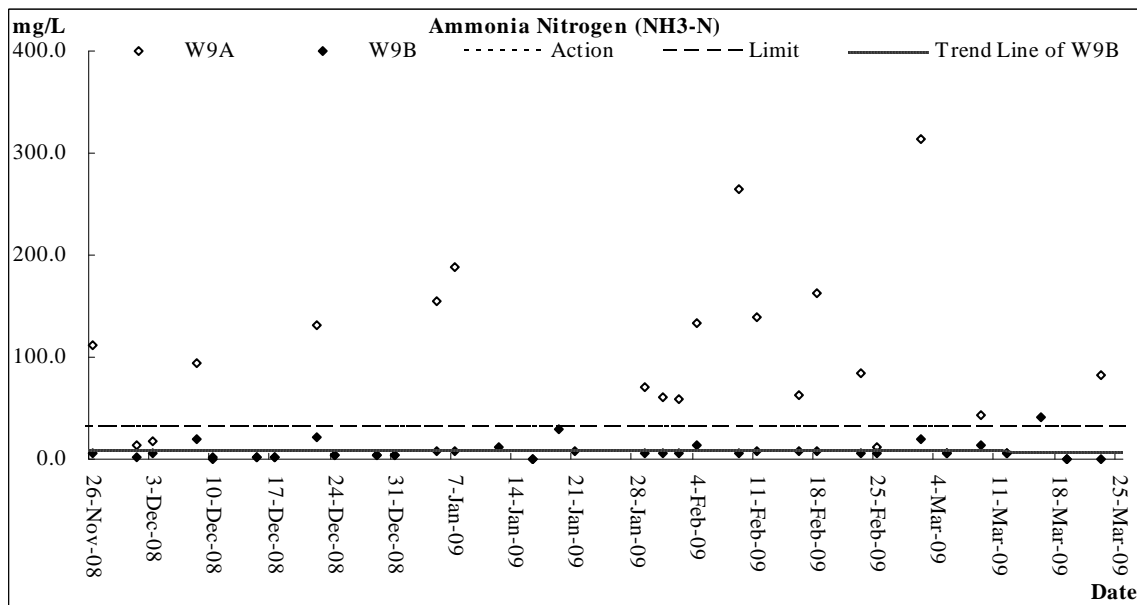
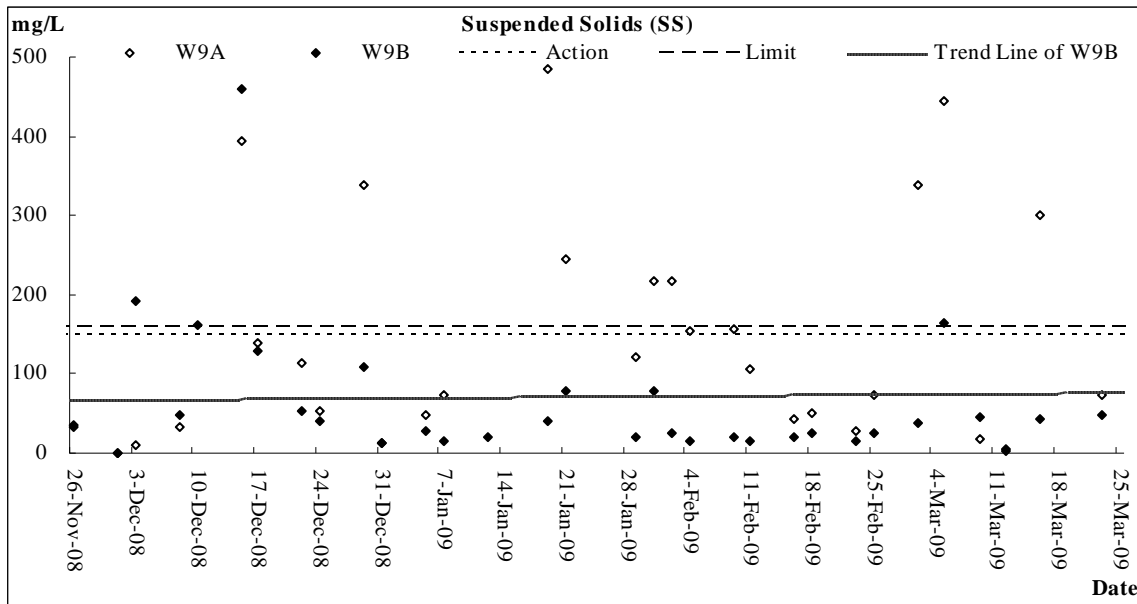


**Construction Noise**



### Stream Water Quality





## **Appendix E**

### **Meteorological Data**

**Meteorological Data Extracted from HKO in the Reporting Quarter**

Date	Weather	Lau Fau Shan Weather Station					
		Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction	
26-Dec-08	Fri	Holiday					
27-Dec-08	Sat	cloudy/rain/moderate/fresh	Trace	20	9	64	E/NE
28-Dec-08	Sun	cloudy/haze/moderate/fresh	0.1	19.4	8.2	81	N/NE
29-Dec-08	Mon	cloudy/haze/moderate/fresh	2	19.5	11.7	76	N/NE
30-Dec-08	Tue	cloudy/rain/cool/moderate/fresh	5.2	15.9	12.2	76	E/NE
31-Dec-08	Wed	rain/fine/moderate/fresh	1.1	13.9	19	72.5	NE
1-Jan-09	Thu	Holiday					
2-Jan-09	Fri	fine/dry/moderate	0	10.7	19	35.5	E/NE
3-Jan-09	Sat	fine/dry/cloudy/moderate/fresh	0	14.7	9	48.5	E/NE
4-Jan-09	Sun	fine/dry/moderate/fresh	Trace	18	13	50	E/NE
5-Jan-09	Mon	fine/dry/moderate/fresh	0	18	7.5	43.5	E/NE
6-Jan-09	Tue	fine/fresh/strong	0	19.3	10.5	66.7	E/SE
7-Jan-09	Wed	fine/dry/hazy/moderate/fresh	0	16.5	14.7	65	E/NE
8-Jan-09	Thu	fine/dry/moderate/fresh	0	13.8	17	57	NE
9-Jan-09	Fri	fine/dry/cold/fresh/strong	0	12.1	22.5	48.5	N/NE
10-Jan-09	Sat	fine/very dry/cold/fresh/strong	0	12.1	21.5	32.5	NE
11-Jan-09	Sun	fine/cold/very dry/moderate/fresh	0	11.6	9	Maintenance	E/SE
12-Jan-09	Mon	fine/very dry/cold/moderate/fresh	0	13.8	17.7	Maintenance	E/NE
13-Jan-09	Tue	fine/cold/very dry/moderate/fresh	0	12.5	18.7	28	E/NE
14-Jan-09	Wed	fine/dry/cold/moderate/fresh	0	11.8	16.5	25	E/NE
15-Jan-09	Thu	fine/very dry/cool/moderate	0	12.9	10.7	47.5	E/NE
16-Jan-09	Fri	fine/dry/cool/moderate	0	13.4	11.5	52.7	E/SE
17-Jan-09	Sat	fine/dry/cool/moderate	0	15.9	11	57.5	E/SE
18-Jan-09	Sun	fine/haze/moderate/fresh	0	17.7	8	63.5	W/SW
19-Jan-09	Mon	fine/haze/moderate/fresh	0	22	10	60.5	E/SE
20-Jan-09	Tue	sunny periods/cloudy/moderate/fresh	0	18.8	12.2	54.5	E
21-Jan-09	Wed	fine/hazy/light winds/moderate	0	21.7	9	63	E
22-Jan-09	Thu	fine/dry/hazy/moderate	0	18.5	12	66	W/SW
23-Jan-09	Fri	cloudy/dry/hazy/moderate/fresh	0	16.3	16	70	E/NE
24-Jan-09	Sat	cloudy/very dry/cold/fresh/strong	0	12.6	22.5	47	NE
25-Jan-09	Sun	cloudy/very dry/cold/fresh/strong	0	12.6	24	43.5	NE

Date	Weather	Lau Fau Shan Weather Station					
		Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction	
26-Jan-09	Mon	Holiday					
27-Jan-09	Tue	Holiday					
28-Jan-09	Wed	Holiday					
29-Jan-09	Thu	cloudy/haze/sunny intervals/moderate	0	14.9	12	72	W/SW
30-Jan-09	Fri	fine/dry/moderate/fresh	0	16.1	14.5	75.5	W/NW
31-Jan-09	Sat	fine/cloudy/moderate/fresh	0	17.4	18.5	58.5	E/NE
1-Feb-09	Sun	sunny periods/moderate/fresh	Trace	20.4	13.5	57.5	E
2-Feb-09	Mon	fine/moderate	0	20.5	10.5	58.7	E/NE
3-Feb-09	Tue	fine/haze/light winds	0	17.8	13	67.5	E/SE
4-Feb-09	Wed	sunny periods/cloudy/moderate/fresh	0	19.9	11.7	67.2	E/SE
5-Feb-09	Thu	fine/haze/moderate	0	18.3	13.2	68.7	E/NE
6-Feb-09	Fri	fine/moderate/fresh	0	19.5	11.2	73	E/SE
7-Feb-09	Sat	fine/haze/moderate	0	19.7	14.5	68	E/SE
8-Feb-09	Sun	fine/haze/moderate	0	22	10	61	E/SE
9-Feb-09	Mon	fine/moderate/haze	0	20.2	13.5	67.5	E/NE
10-Feb-09	Tue	fine/hazy/moderate/fresh	0	27.3	13.5	67	E/SE
11-Feb-09	Wed	fine/hazy/light winds	0	19.2	10.5	66	E/SE
12-Feb-09	Thu	fine/misty/moderate	0	22.2	15.5	70.5	S/SE
13-Feb-09	Fri	cloudy/warm/sunny intervals/moderate	0	23.9	15.5	68	S/SE
14-Feb-09	Sat	cloudy/rain/fog/moderate	Trace	24.5	16	79.5	S/SE
15-Feb-09	Sun	cloudy/rain/mist/strong	0.1	24.3	18	79	E/NE
16-Feb-09	Mon	Cloudy/rain/mist/fresh/strong	0.06	23.5	14.5	73.5	E
17-Feb-09	Tue	sunny periods/fresh/strong	Trace	20.2	15	68.5	E/NE
18-Feb-09	Wed	sunny periods/cloudy/moderate	Trace	21.5	10.5	63.5	E/NE
19-Feb-09	Thu	cloudy/ain/moderate	0.3	23	13	74.5	E/NE
20-Feb-09	Fri	cloudy/bright/moderate/fresh	Trace	20.9	19	73.5	E/NE
21-Feb-09	Sat	sunny intervals/rain/fresh/strong	Trace	22.6	12	64.5	E/SE
22-Feb-09	Sun	fog/sunny periods/moderate	Trace	24.6	26.5	67	S/SE
23-Feb-09	Mon	cloudy/fog/sunny periods/moderate	0	26	15	72.5	S/SE
24-Feb-09	Tue	cloudy/sunny periods/mist/moderate	Trace	26.7	17	71	S/SE
25-Feb-09	Wed	sunny periods/cloudy/fog/moderate	Trace	12	13.5	69.2	S/SE



Date	Weather	Lau Fau Shan Weather Station					
		Total Rainfall (mm)	Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction	
26-Feb-09	Thu	cloudy/foggy/drizzle/moderate/fresh	0.3	24.8	11.7	73.5	E/SE
27-Feb-09	Fri	cloudy/mist/moderate	Trace	24.1	15.5	72	E
28-Feb-09	Sat	cloudy/rain/moderate/fresh	Trace	22.6	12.7	73.7	E/NE
1-Mar-09	Sun	cloudy/rain/moderate/fresh	0.8	18.6	8.7	74.5	E/NE
2-Mar-09	Mo	cloudy/rain/moderate/fresh	Trace	18.1	10	80.5	E/NE
3-Mar-09	Tue	cloudy/sunny intervals/moderate	Trace	18.6	9.2	67	E/NE
4-Mar-09	Wed	cloudy/rain/mist/moderate/fresh	0.4	19.7	9.5	72.5	E/NE
5-Mar-09	Thu	foggy/rain/moderate/fresh	28.5	23.3	21.5	78	E/NE
6-Mar-09	Fri	cloudy/rain/squally	11.6	15.4	27	84.5	E/NE
7-Mar-09	Sat	cool/rain/moderate/fresh	0.2	12.9	17	85.7	N/NE
8-Mar-09	Sun	cloudy/moderate/sunny intervals	0.1	13.7	8.5	90	E/NE
9-Mar-09	Mo	sunny intervals/cloudy/moderate/warm	0.4	16.1	10.2	77.7	N/NE
10-Mar-09	Tue	cloudy/fresh/strong	0	19.2	10.5	67.7	E/SE
11-Mar-09	Wed	cloudy/sunny intervals/fresh/strong	Trace	22.4	11.5	69.5	E
12-Mar-09	Thu	cloudy/sunny intervals/misty/fresh/strong	Trace	23.2	19.5	71	E/SE
13-Mar-09	Fri	cloudy/rain/fog/light winds	Trace	19.1	19	75.5	E/NE
14-Mar-09	Sat	fine/dry/moderate/fresh	Trace	16.4	34	58.5	N/NE
15-Mar-09	Sun	fine/moderate	0	17.4	9	52	S/SE
16-Mar-09	Mo	fine/moderate	0	19.4	7.7	72	E/NE
17-Mar-09	Tue	fine/moderate	0	22.3	12	74.5	W/SW
18-Mar-09	Wed	fine/warm/cloudy/light winds	0	23	11.5	66.5	S/SE
19-Mar-09	Thu	mist/sunny periods/cloudy/light winds	0	22	14.5	80	S/SE
20-Mar-09	Fri	fog/sunny periods/cloudy/light winds	0	24.1	8.5	84.5	W/SW
21-Mar-09	Sat	cloudy/fog/rain/moderate/fresh	0.1	25.1	12.2	78.7	S/SE
22-Mar-09	Sun	fog/light winds/rain	Trace	26.4	15.2	78	SW
23-Mar-09	Mo	foggy/rain/moderate	Trace	26.7	9.7	80.7	S/SE
24-Mar-09	Tue	cloudy/rain/moderate/fresh	27.1	20.8	18	76.5	E/NE
25-Mar-09	Wed	cloudy/rain/squally	27.9	18.1	13	83.2	E/NE

## **Appendix F**

### **Response to Comments**

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 – Quarterly EM&A Summary Report for 26 December 2009 – 25 March 2009 (R1306 Version 3) submitted on 29 May 2009  
Response to IEC's comments [Received from e-mail on 27 May 2009]

Items	Section / Paragraph	Comments	Response to Comments
1	Cover Page	Please ensure the date of submission of the captioned report is correct.	Done.
2	ES16./Table 10-1	Please keep consistency of ES16 and Table 10-1 as the wording in the Ecology section are different in these two section.	Revised.
3	ES17	According the Monthly EM&A Report of January 2009, EPD's site inspection on 30 December 2008 should be at Portion 7.	Revised.
4	Section 10.05/ES15.	Please check and revise the wording. There are wetland dependent birds monitoring during the reporting quarter and non-compliances with the ecological criteria were recorded. However, the wetland faunal monitoring are absent during the reporting quarter.	Revised.

**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 – Quarterly EM&A Summary Report for 26 December 2009 – 25 March 2009 (R1306 Version 2) submitted on 27 May 2009  
 Response to IEC's comments [Received from e-mail on 25 May 2009]**

Items	Section / Paragraph	Comments	Response to Comments
1	Report Title	It is advised to add the exact date of reporting period of the captioned report for easy reference, i.e. (from 26 December 2008 to 25 March 2009).	Done.
2	TOC	Please include the page number and content title of the executive summary.	Done. The executive summary is incorporated before the content, therefore page number and content title is not included for executive summary.
3	ES16./Table 10-1	No work related exceedances should be recorded on total number of species or individuals of wetland dependent faunal from baseline. "N/A" should be provided for total number of species or individuals of wetland faunal from baseline as no monitoring is required for the reporting quarter.  Please keep consistency of ES16. and Table 10-1.	Revised.
4	ES17	According the Monthly EM&A Report of January and March 2009, there are two site inspections conducted by EPD on 30/12/2008 and 27/2/2009 respectively. Please check and revise it.	Revised.
5	Section 10.05	Please keep consistency of the text in Section 10.05 with ES15. No faunal monitoring was conducted during the reporting quarter.	Revised.
6	Section 10.07	There is a typo in the last sentence. It should be "acceptable" rather than "accepted".	Done.