

LEADER – WAI KEE (C&T) JOINT VENTURE

**REMAINING ENGINEERING
INFRASTRUCTURE WORKS FOR
PAK SHEK KOK DEVELOPMENT
PACKAGE 2A
(CONTRACT NO.: TP 37/03)
MONTHLY EM&A REPORT
(JULY 2006)**

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EXECUTIVE SUMMARY

This monthly EM&A report (No.15) has been prepared to document the impact monitoring works conducted for the Contract of the Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 2A (Contract No: TP 37/03) during the reporting period from 01 to 31 July 2006.

Construction Progress

The major construction works in this reporting month were as below:

- § Drainage works (Excavation, pipe laying and breaking) at Section 1 & 2;
- § Construction of column and wall at Voided Abutment, RE Wall and pile cap at North Abutment, and Retaining wall No.1;
- § Construction of MLS Subway pump ramp and barrel;
- § Construction of foundation slab for Toilet No.2;
- § Drainage work, landscape softworks, finishing works and installation of precast concrete planter units and concreting of insitu concrete planter at Section 7 and 8 (promenade) of the Works;
- § Footpath construction, desilting and CCTV inspection of the completed drainage works at Section 5 (Road L4) of the Works;
- § Installation additional valves and connection for water mains at the cycle track, pavement construction and fencing erection at Section 6 of the Works;
- § Installation of lighting footing and duct, finishing the landscape structure at the proposed Landscape Node P1, P2 & P3;
- § Construction of in-situ mass concrete coping at the proposed Landscape Node P1, P2 & P3;
- § Construction of bus bays at Section 10 of the Works;
- § Setting back of existing stockpile mound adjacent to the proposed cycle track at Housing Site 4;
- § Filling of soil mix at planter; and
- § Further in-situ concreting of section above +2.5mPD at the proposed Public Landing Steps.

Environmental Monitoring Progress

The summary of the monitoring activities in this monitoring month is listed below:

- Noise Monitoring (Day-time): 4 Occasion at 4 designated locations
- 24-hour TSP Monitoring: 5 Occasions at 3 designated locations
- 1-hour TSP Monitoring: 12 Occasions at 3 designated locations
- Weekly-site inspection: 4 Occasions

Noise Monitoring

No exceedances of Action and Limit levels for noise monitoring were recorded in the reporting month.

Air Monitoring

No exceedances of Action and Limit levels were recorded for 24-hr and 1-hr TSP monitoring in the reporting month.

Wastewater Monitoring

During this reporting month, wastewater monitoring was carried out at Pak Shek Kok Workshop Area Adjacent to Site Office on 13 July 2006. One wastewater sample was collected from the discharge point during the monitoring. The result of suspended solids content of the wastewater sample was complied the discharge limit of the Discharge Licence. The next wastewater monitoring should be at October 2006.

Site Inspection

Environmental site inspections conducted in this reporting month are presented as follows:

<u>Concerned Parties</u>	<u>Dates of Audit / Inspection</u>
Weekly site inspection (ET)	08, 13, 21, 29
Monthly site inspection (IEC/LWKJV/RE)	21

The observations were raised during this reporting month. The site inspection findings are presented as follows:

Item	Aspects	Findings	Action(s) taken by LWKJV	ET Verification
1	Air	Stockpiles at SA3 were found covered improperly during the weekly site inspections on 08/07/06 and 13/07/06.	LWKJV replied to hydro-seed the stockpiles as soon as possible.	Since the stockpiles were found to be hydro-seeded during the subsequent weekly site inspection (21/07/06), no further verification was required to be taken by ET.
2	Air	Silt and sand track was observed on the public road between SA1 and SA3 during weekly site inspection on 21/07/06.	LWKJV replied to clean up the road immediately.	During the subsequent weekly site inspection, no silt and sand track was observed and hence no further verification was required.
3	Air	Stockpiles at SA1 were found without cover during weekly site inspections on 21/07/06 and 29/07/06.	LWKJV replied to cover the stockpiles with tarpaulin sheets to avoid dust generation.	Since the finding was still noted during the last inspection of this reporting month, it will be verified during the first weekly site inspection of the coming month.
4	Water	Follow up action to the finding of previous month, damaged part of silt curtain at Node 2 was found to have repaired during weekly site inspection on 21/07/06.	Since the finding was improved, no further action was required to be taken by LWKJV.	Since the finding was improved, no further ET verification was required.
5	Water	Storm water was found to be accumulated at Node 1 and SA1 during weekly site inspection on 08/07/06.	LWKJV replied to provide temporary ditches to drain the accumulated storm water out.	During the subsequent weekly site inspection on 13/07/06, no storm water was found at Node 1 and SA1. Hence, no further verification was required.
6	Water	Wastewater was found directly discharged to u-channel during weekly site inspection on 29/07/06.	LWKJV replied to divert the wastewater to sedimentation tank before discharge.	Since the finding was observed at the last inspection of this reporting month, it will be verified during the first weekly site inspection of the coming month.
7	Water	Manhole at SA3 was found full of silt and mud during weekly site inspection on 13/07/06.	LWKJV replied to clean up the silt and mud inside the manhole immediately.	During the subsequent weekly site inspection on 21/07/06, no silt and mud was found inside the manhole. Since the finding was improved, no further verification was required.
8	Water	Stagnant water was accumulated at Workshop during weekly site inspection on 29/07/06.	LWKJV replied to provide temporary ditches to drain the accumulated storm water out.	Since the finding was observed at the last inspection of this reporting month, it will be verified during the first weekly site inspection of the coming month.
9	Water	Muddy water was observed at cycle track near Ma Liu Shui site entrance during weekly site inspection on 29/07/06.	LWKJV replied to clean up the muddy water immediately.	Since the finding was observed at the last inspection of this reporting month, it will be verified during the first weekly site inspection of the coming month.
10	Chemical	A 200L chemical container was found at SA3 without drip tray during weekly site inspection on 21/07/06.	LWKJV replied to relocate the chemical container to an appropriate chemical storage area.	During the subsequent weekly site inspection on 29/07/06, the chemical container was removed.
11	Chemical	Follow up action to the finding of previous month, an appropriate chemical storage area was provided at Workshop during weekly site inspection on 27/07/06.	Since the finding was improved, no further action was taken by LWKJV.	Since the finding was improved, no further verification was required to be taken by ET.
12	Site Practice	Valid CNP was recommended to be post on the notice board of site office during weekly site inspection on 21/07/06.	LWKJV replied to post the valid CNP immediately.	Since the valid CNP was found post during weekly site inspection on 29/07/06, the finding was improved and no further verification was required.

Waste Management

According to weekly site inspection, ET found that the Contractor followed the recommended procedures stipulated in the Waste Management Plan (WMP) on handling and disposal of wastes. 3000m³ inert C&D materials, 50kg metals, 100kg paper/cardboard packaging, 10kg plastic and 48370kg general refuse were generated in this reporting month. All inert C&D materials were reused in the Contract and other wastes were handling under the instruction and procedure stated in the WMP in this reporting month.

Environmental Complaints

No environmental complaints were received in this monitoring month.

Notification of summons and successful prosecutions

No notification of summons and prosecutions with respect to environmental issues were registered in this reporting month.

Future Key Issues

Base on the site inspections and forecast of engineering works in the coming month, key issues to be considered are as follows:

- Noise and air quality impact due to construction works;
- Maintain wheel washing facilities properly;
- Cleanup the access road regularly;
- Watering, hydro-seeding or covering all stockpiles with tarpaulin to avoid wind and water erosion;
- Diverting the silty runoff to sedimentation trap or sedimentation tanks;
- Use and maintenance of silt curtain properly during marine works;
- Maintain good site practice and waste management to minimize environmental impacts at the site;
- Follow-up improvements on waste management issues.

1.0 INTRODUCTION

Leader – Wai Kee (C&T) Joint Venture (LWKJV) appointed Environmental Team (ET) of ETS-Testconsult Limited (ETL) to undertake the Environmental Monitoring and Audit (EM&A) for Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 2A (Contract No.: TP 37/03).

In accordance with the Section 10 of Environmental Permit to Construct and Operate a Designate Project (EP-108/2001/AEP-108/2001), EM&A programme as set out in the EM&A Manual is required to be implemented. In accordance with the EM&A manual, environmental monitoring of air quality and noise is required for the Project. The EM&A requirement for each parameter are described in details in subsequent sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event-Action Plans;
- Environmental mitigation measures, as recommended in the project EIA study report;
- Environmental requirements in contract documents.

This monthly EM&A report summarizes the impact monitoring results and audit findings of the EM&A program during the reporting period from 01 to 31 July 2006.

2.0 PROJECT INFORMATION

2.1 Background

Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 2A (Contract No.: TP 37/03) was planned and designed by the Civil Engineering and Development Department (CEDD).

As the main Contractor of the captioned project: contracted by, LWKJV will follow the environmental monitoring recommendation stated at the EM&A Manual that was prepared with reference to the EIA Study for Feasibility Study on the Pak Shek Kok Development Area (PSKDA) Environmental Monitoring and Audit Manual under Agreement No. CE 90/96.

2.2 Site Description

Generally, the construction site is located at Pak Shek Kok development area. Surrounding the construction site, there are two air sensitive receivers: HKIB Staff Accommodation and Cheung Shue Tan Village and three noise sensitive receivers: HKIB Staff Accommodation, CUHK Residence No.10 and Cheung Shue Tan Village.

Figure 1 and 2 show the noise and air monitoring locations of this project.

2.3 Construction Programme

Details of construction programme are shown in Appendix F.

2.4 Project Organization and Management Structure

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

2.5 Contact Details of Key Personnel

The key personnel contact names and telephone numbers, and construction programme are shown in table 2.1.

Table 2.1 Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel. No.	Fax No.
CEDD	Mr. M. S. Lam	Employer	2158 5630	2693 2918
Hyder	Mr. Herman Fong	Engineer	2603 6638	2603 7883
LWJV	Mr. T. T. Wong	Project Manager	2442 1123	2442 9733
Hyder	Ir. Coleman Ng	Independent Environmental Checker	2911 2233	2805 5028
ETL	Mr. C.L. Lau	Environmental Team Leader	2946 7791	2695 3944

3.0 CONSTRUCTION PROGRESS IN THIS REPORTING MONTH

The site area of this project is shown in Appendix G.

A summary of the major construction activities undertaken in this monitoring month is shown in Table 3.1. The implementation of corresponding mitigation measures is summarized in Table 3.2.

Table 3.1 Major Construction Activities in this reporting month

Major Construction Activity	Location
Drainage works (Excavation, pipe lying and breaking)	Section 1 & 2
Construction of column and wall	Voided Abutment, RE Wall and pile cap at North Abutment, and Retaining wall No.1
Construction of MLS Subway pump ramp and barrel	SA3
Construction of foundation slab for Toilet No.2	Toilet No.2 at Public Plaza
Drainage work, landscape softworks, finishing works and installation of precast concrete planter units and concreting of insitu concrete planter	Section 7 & 8 (Promenade)
Footpath construction, desilting and CCTV inspection of the completed drainage works	Section 5 (Road L4)
Installation additional valves for watermains	Cycle track at Section 6
Installation of lighting footing and duct, finishing the landscape structure	Proposed Landscape Node P1, P2 & P3
Construction of mass concrete coping	Proposed Landscape Node P1, P2 & P3
Construction of bus bays	Section 10 of the Works
Setting back of existing stockpile mound adjacent to the proposed cycle track	Housing Site 4
Filling of soil mix at planter	Node 1
Further in-situ concreting of section above +2.5mPD	Proposed Public Landing Steps

Table 3.2 Implementation of Environmental Mitigation Measures

General construction works	<ul style="list-style-type: none"> • Effective water sprays used on the site at potential dust emission sources such as haul roads and unpaved areas; • The heights from which fill materials are dropped should be controlled to a practical height to minimize the fugitive dust arising from unloading; • Minimize of exposed soil areas to reduce the potential for increased siltation and contamination of run-off; • Water, hydro-seed or cover the open stockpile and exposed loose soil areas by using clean tarpaulin sheets; • Provide proper and efficient drainage facilities (e.g. wheel washing facilities) and sedimentation system to ensure that site runoff should be treated before discharged to drains; • Remove the sand/rubbish accumulated in the drain/channel regularly; • Use and maintenance of silt curtain properly during marine works; • Provide good site practice (e.g. selection of quieter plant and working methods and reduction in number of plant operating in critical areas close to NSRs) to limit noise
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	<p><i>emissions at source;</i></p> <ul style="list-style-type: none">• <i>Remove the construction waste accumulated inside or outside the site regularly.</i>
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4.0 AIR QUALITY MONITORING

4.1 Monitoring Requirement

1-hour and 24-hour TSP monitoring were required to be conducted to monitor the air quality, at designated monitoring locations:

- HKIB Staff Accommodation (on ground floor near the entrance facing south-east);
- Cheung Shue Tan Village (near the outer building, temple) for 1-hr TSP monitoring;
- Cheung Shue Tan Village (in front of Man Kee Store) for 24-hr TSP monitoring;
- Near Wen Chih Tang at the CUHK.

4.2 Monitoring Equipment

Continuous 24-hour TSP air quality monitoring was performed using a GMWS2310 High Volume Air Sampler (HVS) located at each of the designated monitoring station. One portable dust meter was used to carry out the 1-hour TSP monitoring. Table 4.1 summarizes the equipment used in the air quality monitoring programme. A copy of the calibration certificates for the HVS and portable dust meter are attached in Appendix B1.

Table 4.1 Air Quality Monitoring Equipment

<i>Equipment</i>	<i>Model and Make</i>
<i>HVS</i>	<i>Greasby GMWS2310</i>
<i>Calibrator</i>	<i>Tisch TE-5025A</i>
<i>1-hour TSP Dust Meter</i>	<i>TSI Model 8520 Dust Trak™ Aerosol Monitor</i>

4.3 Monitoring Parameters, Frequency and Duration

Table 4.2 summarizes the monitoring parameters, monitoring duration and frequencies of air quality monitoring.

Table 4.2 Monitoring parameters, duration, frequencies of impact air quality monitoring

<i>Parameter</i>	<i>Duration</i>	<i>Frequency</i>
<i>24-hr TSP</i>	<i>24 hr (0000-2400)</i>	<i>Once every six days</i>
<i>1-hr TSP</i>	<i>1 hr (0700-1900)</i>	<i>Three times every six days</i>

4.4 Monitoring Locations and Schedule

Table 4.3 tabulates the air quality monitoring locations of this project.

Table 4.3 Air quality monitoring locations

<i>Monitoring stations</i>	<i>Locations</i>
<i>AM1</i>	<i>HKIB Staff Accommodation (on ground floor near the entrance facing south-east) for 1-hr TSP monitoring</i>
<i>AM3</i>	<i>Cheung Shue Tan Village (near the outer building, temple) for 1-hr TSP monitoring</i>
<i>AM3A</i>	<i>Cheung Shue Tan (in front of Man Kee Store) for 24-hr TSP monitoring</i>
<i>AM5</i>	<i>Near Wen Chih Tang at the CUHK</i>

The air quality monitoring schedule for 24-hr and 1-hr TSP monitoring at designated monitoring locations is summarized in table 4.4.

Table 4.4 Monitoring Schedule for the air quality monitoring stations

Air quality monitoring stations	Location	Monitoring Period						
		24-hr TSP				1-hr TSP		
		Start		Finish		Date	Start	Finish
		Date	Time	Date	Time			
AM1	HKIB Staff Accommodation	---				04/07/06	10:45	11:45
						06/07/06	10:15	11:15
						08/06/06	10:00	11:00
						11/07/06	09:30	10:30
						13/07/06	08:30	09:30
						15/07/06	09:15	10:15
						18/07/06	09:00	10:00
						20/07/06	09:30	10:30
						22/07/06	11:00	12:00
						25/07/06	09:20	10:20
						27/07/06	08:40	09:40
29/07/06	09:40	10:40						
AM3	Cheung Shue Tan Village (Near the outer building, temple)	---				04/07/06	13:06	14:06
						06/07/06	13:00	14:00
						08/06/06	13:00	14:00
						11/07/06	10:55	11:55
						13/07/06	14:15	15:15
						15/07/06	14:00	15:00
						18/07/06	10:20	11:20
						20/07/06	13:00	14:00
						22/07/06	13:00	14:00
						25/07/06	15:10	16:10
						27/07/06	13:30	14:30
29/07/06	13:30	14:30						
AM5	Near Wen Chih Tang at the CUHK	---				04/07/06	14:28	15:28
						06/07/06	16:00	17:00
						08/06/06	14:20	15:20
						11/07/06	18:00	19:00
						13/07/06	13:00	14:00
						15/07/06	15:20	16:20
						18/07/06	15:00	16:00
						20/07/06	14:30	15:30
						22/07/06	14:20	15:20
						25/07/06	17:06	18:06
						27/07/06	14:50	15:50
29/07/06	15:30	16:30						
AM1	HKIB Staff Accommodation	04/07/06	10:55	05/07/06	10:53	---		
		10/07/06	14:30	11/07/06	14:30			
		15/07/06	09:20	16/07/06	08:22			
		21/07/06	14:00	22/07/06	13:09			
		27/07/06	08:45	28/07/06	08:40			
AM3A	Cheung Shue Tan (in front of Man Kee Store)	04/07/06	13:15	05/07/06	13:52	---		
		10/07/06	15:05	11/07/06	15:05			
		15/07/06	14:06	16/07/06	14:19			
		21/07/06	14:20	22/07/06	14:27			
		27/07/06	13:36	28/07/06	14:01			
AM5	Near Wen Chih Tang at the CUHK	04/07/06	14:38	05/07/06	14:48	---		
		10/07/06	14:45	11/07/06	14:45			
		15/07/06	16:25	16/07/06	16:54			
		21/07/06	14:40	22/07/06	14:56			
		27/07/06	14:55	28/07/06	14:59			

4.5 Monitoring Methodology

4.5.1 24-hour TSP Monitoring

Instrumentation

High volume sampler, as HVS, (Greasby GMWS2310) complete with appropriate sampling inlets are employed for 24-hour TSP. The sampler is composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

Installation

The installation of HVS refers to the requirement stated in EM&A Manual.

Operation/Analytical Procedures

Operating/analytical procedures for the operation of HVS are as below:

Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between $0.6\text{m}^3/\text{min}$ and $1.7\text{m}^3/\text{min}$.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.

- For TSP sampling, fiberglass filters (GA-55) were used.
- The power supply was checked to ensure the sampler worked properly.
- On sampling, the sampler was operated 5 minutes to establish thermal equilibrium before placing any filter media at designated air monitoring station.
- The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
- The filter was aligned on the screen so that the gasket formed an air-tight seal on the outer edges of the filter. Then the filter holder frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- The programmable timer will be set for a sampling period of 24 hours. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number.).
- After sampling, the filter was transferred from the filter holder of the HVS to a sealed plastic bag and sent to the laboratory for weighting. The elapsed time was also recorded.
- Before weighting, all filters were equilibrated in a desiccator for 24 hour with the temperature of $25^\circ\text{C} \pm 3^\circ\text{C}$ and the relative humidity (RH) $<50\% \pm 5\%$.

Maintenance & Calibration

- The HVS and their accessories should be maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
- HVS should be calibrated at bi-monthly intervals.

4.5.2 1-hour TSP Monitoring

Measuring Procedures

The measuring procedures of the 1-hr dust meter are in accordance with the Manufacturer's instruction Manual as follows:

- Set POWER to ON, check the battery indicator to ensure whether the power supply is enough to conduct the TSP monitoring;
- Calibrate the dust meter by zero check;
- Set the TIME CONSTANT of the dust meter;
- Press SAMPLE to start the TSP monitoring;

- Record the maximum, minimum and average reading directly from the dust meter by press STATISTICS when monitoring complete.

Maintenance & Calibration

- 1-hr dust meter should be checked at 3-month intervals and calibrated at 1-year intervals throughout all stages of impact air quality monitoring.

4.5.3 Wind Data Monitoring

Wind data (wind speed and wind direction) were directly extracted from Sha Tin Station (located at Sha Tin Race Course) of Hong Kong Observatory. All wind data during this reporting month are shown in Appendix D.

4.6 Action and Limit Levels

Action and Limit levels for 24-hr TSP and 1-hr TSP derived as illustrated in Table 4.5.

Table 4.5 Action and Limit Levels for 24-hr TSP and 1-hr TSP

Monitoring Location	24-hr TSP ($\mu\text{g}/\text{m}^3$)		1-hr TSP ($\mu\text{g}/\text{m}^3$)	
	Action Level	Limit Level	Action Level	Limit Level
AM1	164 *	260 *	325 *	500 *
AM3	---	---	306 **	500 **
AM3A	183 **	260 **	---	---
AM5	174	260	329	500

* = Reference to the information contained in the Baseline Monitoring Report submitted under the "Advance Engineering Infrastructure Works for Pak Shek Kok Development – Southern Access Road and Sewage Pumping Station No.3.

** = Reference to the information contained in the Baseline Monitoring Report submitted under the "Remaining Engineering Infrastructure Works for Pak Shek Kok Development Package 1 – Contract No. TP 35/02.

4.7 Event-Action Plans

Please refer to Appendix E for details.

4.8 Results

4.8.1 24-hour TSP Monitoring

All monitoring data of 24-hour TSP monitoring is provided in Appendix B2. Graphical presentation of 24-hour TSP monitoring results for the reporting month is shown in Appendix B3.

No exceedances of Action and Limit Level of 24-hour TSP monitoring results were recorded during the reporting month.

4.8.2 1-hour TSP Monitoring

1-hour TSP monitoring was carried out at monitoring stations, AM1 and AM3 in the reporting month. All monitoring data of 1-hour TSP monitoring is provided in Appendix B2. Graphical presentation of 1-hour TSP monitoring results for the reporting month is shown in Appendix B3.

No exceedances of Action and Limit Level of 1-hour TSP monitoring results were recorded during the reporting month.

5.0 Noise Monitoring

5.1 Monitoring Requirements

As the requirement in EM&A Manual, noise monitoring was conducted at designated monitoring locations:

- HKIB Staff Accommodation (on ground floor near the entrance facing south-east);
- Cheung Shue Tan Village (near the outer building, temple);
- CUHK Residence No.10;
- Near Wen Chih Tang at the CUHK.

5.2 Monitoring Equipment

Integrating Sound Level Meters were used for noise monitoring. They were Type 1 sound level meters capable of giving a continuous readout of the noise level reading including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (L_x). They comply with International Electro technical Commission Publications 651:1979 (Type1) and 804:1985 (Type1), and speed in m/s was used to monitor the wind speed.

Table 5.1 summarized noise monitoring equipment model being used. A copy of the calibration certificates for noise meters and calibrator are attached in Appendix C1.

Table 5.1 Noise Monitoring Equipment

<i>Equipment</i>	<i>Model</i>
<i>Integrating Sound Level Meter</i>	<i>Rion NL-31 Sound Level Meter</i>
<i>Calibrator</i>	<i>Rion NL-73 Sound Level Calibrator</i>
<i>Portable Wind Speed Indicator</i>	<i>TSI Model 8340-M Air Velocity Meter</i>

5.3 Monitoring Parameters, duration and Frequency

Noise monitoring for the A-weighted levels L_{eq} , L_{10} and L_{90} were recorded. The following guide on the regular monitoring frequency for each monitoring station on a per week basis when noise generating activities are underway:

- One set of measurements between 0700-1900 hours on normal weekdays (6 consecutive $L_{eq(5-min)}$);
- One set of measurements between 1900-2300 hours (3 consecutive $L_{eq(5-min)}$)*;
- One set of measurements between 2300-0700 hours of next day (3 consecutive $L_{eq(5-min)}$)*;
- One set of measurements between 0700-1900 hours on holidays (3 consecutive $L_{eq(5-min)}$)*.

(*): Noise monitoring to be conducted only when there is construction work.

Duration, frequencies and parameters of noise measurement are presented in Table 5.2.

Table 5.2 Duration, Frequencies and Parameters of Noise Monitoring

<i>Time period</i>	<i>Duration/min</i>	<i>Parameters</i>	<i>Frequency</i>
<i>Day-time: 0700-1900 hrs on normal weekday</i>	30	L_{eq} , L_{10} , L_{90}	Once per week
<i>Evening-time: 1900-2300 hrs</i>	15	L_{eq} , L_{10} , L_{90}	Once per week
<i>Night-time: 2300-0700 hrs of next day</i>	15	L_{eq} , L_{10} , L_{90}	Once per week
<i>Holiday: 0700-1900 hrs</i>	15	L_{eq} , L_{10} , L_{90}	Once per week

5.4 Monitoring Locations and Period

In this reporting month, there were four noise monitoring locations: HKIB Staff Accommodation, Cheung Shue Tan Village, CUHK Residence No.10 and Near Wen Chih Tang at the CUHK. The location of the monitoring stations are described in Table 5.3 and depicted in Figure 1.

Table 5.3 Noise Monitoring Locations

Noise Monitoring station	Location
NM1	HKIB Staff Accommodation (on ground floor near the entrance facing south-east)
NM2	CUHK Residence No.10
NM3	Cheung Shue Tan Village (near the outer building, a temple)
NM8	Near Wen Chih Tang at the CUHK

The noise-monitoring programme of monitoring locations (Day-time, Evening-time, Holiday and Night-time) is summarized in Table 5.4.

Table 5.4 Monitoring Periods for noise monitoring stations

Monitoring stations	Monitoring Period							
	Day-time		Evening-time		Holiday		Night-time	
NM1	04/07/06	10:50	---	---	---	---	---	---
	11/07/06	13:10	---	---	---	---	---	---
	18/07/06	09:02	---	---	---	---	---	---
	25/07/06	09:25	---	---	---	---	---	---
NM2	04/07/06	17:38	---	---	---	---	---	---
	11/07/06	16:10	---	---	---	---	---	---
	18/07/06	16:15	---	---	---	---	---	---
	25/07/06	18:30	---	---	---	---	---	---
NM3	04/07/06	13:11	---	---	---	---	---	---
	11/07/06	17:15	---	---	---	---	---	---
	18/07/06	10:22	---	---	---	---	---	---
	25/07/06	15:15	---	---	---	---	---	---
NM8	04/07/06	14:33	---	---	---	---	---	---
	11/07/06	18:15	---	---	---	---	---	---
	18/07/06	15:02	---	---	---	---	---	---
	25/07/06	17:25	---	---	---	---	---	---

5.5 Monitoring Procedures and Calibration Details

Operation/Analysis Procedures

- The Sound Level Meter was set on a tripod at a height of 1.2m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces.
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - Frequency weighting: A
 - Time weighting : Fast
 - Time measurement : 5 mins
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94 dB at 1000HZ. If the difference in the calibration level before and after measurement was more than 1dB(A), the measurement would be considered invalid and repeat measurement would be required after re-calibration or repair of the equipment.
- The wind speed was frequently checked with a portable wind meter.
- During the monitoring period, the Leq, L10 and L90 were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Free Field correction to the measurements should be made. Correction factor of +3dB(A) should be made to the free Field measurements.
- Noise monitoring would be cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind gusts exceeding 10m/s.

Maintenance and Calibration

- The microphone head of the sound level meter and calibrator is cleaned with soft cloth at quarterly intervals.
- The meter is sent to be supplier or HOKLAS laboratory to check and calibrated at yearly intervals.

5.6 Action and Limit Levels

The Action and Limit levels for noise levels derived as illustrated in Table 5.5.

Table 5.5 Action and Limit Levels for noise monitoring

Time Period	Time Period	Action	Limit
Normal hours	0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A) *
Holiday	0700-1900 hrs on holidays		70 dB(A) **
Evening-time	1900-2300 hrs on all other days		55 dB(A) **
Night-time	2300-0700 hrs of next day		

* = Reduce to 70 dB(A) for schools and 65 dB(A) during school examination periods.

** = Area Sensitivity Rating (ASR) C is selected from the "Technical Memorandum on Noise from Construction Work Other Than Percussive Piling".

5.7 Event-Action Plans

Please refer to the Appendix E for details.

5.8 Results

Only Day-time noise monitoring were carried out at monitoring stations in this reporting month. No Evening-time, Night-time and Holiday noise monitoring were required since no construction works were processed during the night-time period. All noise levels are provided in Appendix C2. Graphical presentation of the monitoring results for the reporting month is shown in Appendix C3.

No Day-time noise monitoring results at all monitoring stations exceeded the Action Level since no documented complaints on noise issue were received in this reporting month. Besides, no exceedances in Limit Level were recorded according to the results from Day-time noise monitoring.

6.0 WASTEWATER MONITORING

Effluent Discharge License of this Project is valid from 06 December 2004 (Discharge Licence No.: 3246-Part A and Part B).

During this reporting month, wastewater monitoring was carried out at Pak Shek Kok Workshop Area Adjacent to Site Office on 13 July 2006. One wastewater sample was collected from the discharge point during the monitoring. The result of suspended solids content of the wastewater sample was complied the discharge limit of the Discharge Licence. The test report was attached at Appendix I.

Since the Discharge Licence required carrying out wastewater monitoring at effluent discharge point quarterly, the next wastewater monitoring should be at October 2006.

7.0 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of environmental monitoring

No exceedances of Action and Limit Level of 24-hour and 1-hour TSP monitoring results were recorded during the reporting month.

No day-time noise level measured at all monitoring stations exceeded the Action and Limit Level in the reporting month. No evening-time, night-time and holiday noise monitoring were required since no construction works were processed during these periods.

During this reporting month, wastewater monitoring was carried out at Pak Shek Kok Workshop Area Adjacent to Site Office on 13 July 2006. One wastewater sample was collected from the discharge point during the monitoring. The result of suspended solids content of the wastewater sample was complied the discharge limit of the Discharge Licence.

7.2 Summary of Environmental Complaints

No environmental complaints were received in this monitoring month.

7.3 Summary of Notification of Summons and Prosecution

There was no notification of summons respect to environmental issues registered in this month.

8.0 SITE INSPECTION

Weekly site inspections were carried out by the ET in this reporting month (08, 13, 21 and 29 July 2006). Monthly joint site inspection at 21 July 2006 was carried out by Engineer's Representative, IEC and LWKJV. The implementation status of the mitigation measures on site inspections in this reporting month is presented in Appendix H.

8.1 Summary of the site inspection findings and Action(s) taken by LWKJV and ET

Summaries of the site inspection findings in this reporting month are shown in Table 8.1.

Table 8.1 The summary of the site inspection findings and Action(s) taken by LWKJV and ET

Item	Aspects	Findings	Action(s) taken by LWKJV	ET Verification
1	Air	Stockpiles at SA3 were found covered improperly during the weekly site inspections on 08/07/06 and 13/07/06.	LWKJV replied to hydro-seed the stockpiles as soon as possible.	Since the stockpiles were found to be hydro-seeded during the subsequent weekly site inspection (21/07/06), no further verification was required to be taken by ET.
2	Air	Silt and sand track was observed on the public road between SA1 and SA3 during weekly site inspection on 21/07/06.	LWKJV replied to clean up the road immediately.	During the subsequent weekly site inspection, no silt and sand track was observed and hence no further verification was required.
3	Air	Stockpiles at SA1 were found without cover during weekly site inspections on 21/07/06 and 29/07/06.	LWKJV replied to cover the stockpiles with tarpaulin sheets to avoid dust generation.	Since the finding was still noted during the last inspection of this reporting month, it will be verified during the first weekly site inspection of the coming month.
4	Water	Follow up action to the finding of previous month, damaged part of silt curtain at Node 2 was found to have repaired during weekly site inspection on 21/07/06.	Since the finding was improved, no further action was required to be taken by LWKJV.	Since the finding was improved, no further ET verification was required.
5	Water	Storm water was found to be accumulated at Node 1 and SA1 during weekly site inspection on 08/07/06.	LWKJV replied to provide temporary ditches to drain the accumulated storm water out.	During the subsequent weekly site inspection on 13/07/06, no storm water was found at Node 1 and SA1. Hence, no further verification was required.
6	Water	Wastewater was found directly discharged to u-channel during weekly site inspection on 29/07/06.	LWKJV replied to divert the wastewater to sedimentation tank before discharge.	Since the finding was observed at the last inspection of this reporting month, it will be verified during the first weekly site inspection of the coming month.

Item	Aspects	Findings	Action(s) taken by LWKJV	ET Verification
7	Water	Manhole at SA3 was found full of silt and mud during weekly site inspection on 13/07/06.	LWKJV replied to clean up the silt and mud inside the manhole immediately.	During the subsequent weekly site inspection on 21/07/06, no silt and mud was found inside the manhole. Since the finding was improved, no further verification was required.
8	Water	Stagnant water was accumulated at Workshop during weekly site inspection on 29/07/06.	LWKJV replied to provide temporary ditches to drain the accumulated storm water out.	Since the finding was observed at the last inspection of this reporting month, it will be verified during the first weekly site inspection of the coming month.
9	Water	Muddy water was observed at cycle track near Ma Liu Shui site entrance during weekly site inspection on 29/07/06.	LWKJV replied to clean up the muddy water immediately.	Since the finding was observed at the last inspection of this reporting month, it will be verified during the first weekly site inspection of the coming month.
10	Chemical	A 200L chemical container was found at SA3 without drip tray during weekly site inspection on 21/07/06.	LWKJV replied to relocate the chemical container to an appropriate chemical storage area.	During the subsequent weekly site inspection on 29/07/06, the chemical container was removed.
11	Chemical	Follow up action to the finding of previous month, an appropriate chemical storage area was provided at Workshop during weekly site inspection on 27/07/06.	Since the finding was improved, no further action was taken by LWKJV.	Since the finding was improved, no further verification was required to be taken by ET.
12	Site Practice	Valid CNP was recommended to be post on the notice board of site office during weekly site inspection on 21/07/06.	LWKJV replied to post the valid CNP immediately.	Since the valid CNP was found post during weekly site inspection on 29/07/06, the finding was improved and no further verification was required.

8.2 Status of Environmental Licensing and Permitting

All permits/licenses valid in this reporting month are summarized in Table 8.2.

Table 8.2 Summary of environmental licensing and permit status

Description	Permit No.	Valid Period		Section
		From	To	
Construction Noise Permit for the Construction Works of the Project at Pak Shek Kok Development Package 2A, Tai Po	GW-RN0006-06	26/01/06	25/07/06	<p><u>Group A</u> Two Poker, vibratory, hand-held (CNP170) Two Concrete lorry mixer (CNP044) One Excavator, tracked (CNP081)</p> <p><u>Group B</u> One Dump Truck (CNP067) One Excavator, tracked (CNP081)</p> <p><u>Group C</u> One Asphalt Paver (CNP004) One Roller, Vibratory (CNP186) One Road Roller (CNP185) One Dump Truck (CNP067)</p> <p><u>Group D</u> One Dump Truck (CNP067) One Excavator, tracked (CNP081) One Crane, mobile (diesel) (CNP048) One Lorry with crane</p>
Construction Noise Permit for Reclamation area of Science Park Phase 2 & 3, Pak Shek Kok, N.T.	GW-RN0305-06	17/06/06	16/12/06	<p><u>Group A</u> Two Derrick Barge (CNP061) One Tug Boat (CNP221) One Generator, standard (CNP101)</p> <p><u>Group B</u> Two Excavator, tracked (CNP081) Two Dump truck (CNP067) One Generator, standard (CNP101)</p>

Description	Permit No.	Valid Period		Section
		From	To	
Construction Noise Permit for the use of Powered Mechanical Equipment for the Purpose of carrying out Construction Work other than Percussive Piling and/or the carrying out of prescribed Construction Work	GW-RN0240-06	30/05/06	29/12/06	<p><u>Group A</u> Two Poker, vibrator, hand-held (CNP170) Two Concrete pump, lorry mounted (CNP047) Two Concrete lorry mixer (CNP044)</p> <p><u>Group B</u> One Dump Truck (CNP067) One Excavator, tracked (CNP081) One Roller, vibratory</p> <p><u>Group C</u> One Asphalt Paver (CNP004) One Roller, Vibratory (CNP186) One Road Roller (CNP185) One Dump Truck (CNP067)</p> <p><u>Group D</u> One Dump Truck (CNP067) One Excavator, tracked (CNP081) One Crane, mobile (diesel) (CNP048) One Lorry with crane</p>
Construction Noise Permit for the Construction Works of the Project at Pak Shek Kok Development Package 2A, Tai Po	GW-RN0388-06	27/07/06	26/01/07	<p><u>Group A</u> Two Poker, vibratory, hand-held (CNP170) Two Concrete lorry mixer (CNP044) One Excavator, tracked (CNP081)</p> <p><u>Group B</u> One Dump Truck (CNP067) One Excavator, tracked (CNP081)</p> <p><u>Group C</u> One Asphalt Paver (CNP004) One Roller, Vibratory (CNP186) One Road Roller (CNP185) One Dump Truck (CNP067)</p> <p><u>Group D</u> One Dump Truck (CNP067) One Excavator, tracked (CNP081) One Crane, mobile (diesel) (CNP048) One Lorry with crane</p>
Construction Noise Permit for the use of Powered Mechanical Equipment for the Purpose of carrying out Construction Work other than Percussive Piling and/or the carrying out of prescribed Construction Work	GW-RN0307-06	21/06/06	20/12/06	<p><u>Group A</u> One Derrick Barge (CNP061) Four Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne One Excavator, tracked (CNP081) One Generator, standard (CNP101)</p> <p><u>Group B</u> One Derrick Barge (CNP061) One Tug Boat (CNP221) One Generator, standard (CNP101)</p>
Construction Noise Permit for Ma Liu Shui Bridge at Sui Cheung Street adjacent to Ma Liu Shui	GW-RN0347-06	26/06/06	08/07/06	<p>One Crane, mobile (diesel) (CNP048) Two Lorry with crane Two welding set</p>
Wastewater Discharge License	3246 – Part A	06/12/04	05/12/09	Discharge of trade Effluent, surface run-off and all other wastewater arising from the construction site and sedimentation tank to Coastal water or communal drain for the carriage of surface drainage water.
Wastewater Discharge License	3246 – Part B	06/12/04	05/12/09	Discharge of trade Effluent, surface run-off and all other wastewater arising from the construction site and on-site aerobic waste water treatment system to soak-away pit.
Chemical Waste Producer	5113-729-LL1113-01	24/09/04	---	Spent lubricating oil, spent battery parts containing heavy metals

8.3 Recommendations on site inspection findings in Site Inspections of this month

Based on the site inspection findings, the recommendations are as below:

- All stockpiles should be covered with clean tarpaulin sheets, spraying with water or hydro-seeding to avoid wind and water erosion;
- The heights from which fill materials are dropped should be controlled to a practical height to minimize the fugitive dust arising from unloading;
- Minimize of exposed soil areas to reduce the potential for increased siltation and contamination of run-off;
- Checking and maintaining all the site machines to prevent dust emission;
- Providing briefing to the concerned site staff on remedial actions, such as handling method of chemicals and chemical waste;
- Use and maintenance of silt curtain properly during marine works;
- Provide good site practice (e.g. selection of quieter plant and working methods and reduction in number of plant operating in critical areas close to NSRs) to limit noise emissions at source;
- Maintain good waste management at the site.

9.0 WASTE MANAGEMENT

9.1 Waste Management Audit

Waste management audit was carried out by the ET on a weekly basis. The implementation status of the mitigation measures on waste management in this reporting month is presented in Appendix H.

9.2 Records of Waste Quantities

All type of wastes arising from the construction work are classified into the following:

- General refuses;
- Chemical waste;
- Construction & demolition (C&D) material.

The quantities of waste for disposal in this month are summarized in Table 9.1.

Table 9.1 Summary of Quantities of Waste for Disposal in this reporting month

Type of Waste		Quantity	Disposal Location	Cumulative Quantity
Inert C&D Materials	Total Quantity Generated (m ³)	3000	Reused in the Contract	113365
	Broken Concrete (m ³)	0	N/A	865
	Reused in the Contract (m ³)	3000	N/A	112500
	Reused in other Projects (m ³)	0	N/A	0
	Disposal as Public Fill (m ³)	0	N/A	0
C&D Waste	Metals (1000kg)	0.050	N/A	37.565
	Paper/Cardboard Packaging (1000kg)	0.100	N/A	1.136
	Plastics (1000kg)	0.010	N/A	0.043
	Chemical Waste (1000kg)	0.000	N/A	3.000
	Other, e.g. General Refuse (1000kg)	48.37	SENT	246.98

10.0 IMPLEMENTATION STATUS

10.1 Implementation Status of Environmental Mitigation Measures

LWKJV has been implementing the required environmental mitigation measures according to the Mitigation Protection Measures stated in Implementation Schedule of the EM&A Manual. The implementation status of the environmental mitigation measures in this reporting month is presented in Appendix H.

Air Quality

The Contractor was reminded to water or cover all the stockpiles by using clean tarpaulin sheets. The Contractor was also reminded to cleanup the access road regularly to avoid dust emission and provide effective wheel washing facilities.

Noise

All mitigation measures stated in Appendix H were implemented properly in this reporting month.

Water Quality

The Contractor was reminded to provide more effort to implement mitigation measures, such as diverting site runoff to suitable treatment processes before discharge, sedimentation system and drainage facilities.

Waste Management

LWKJV has been implementing most mitigation measures on waste management.

10.2 Implementation Status of Event and Action Plan

There were no exceedances in air quality and noise monitoring parameters recorded in this monitoring month. No further mitigation measures were required.

10.3 Implementation Status of Environmental Complaint Handling

No complaints had been received during this monitoring month.

11.0 CONCLUSION

Impact monitoring of air quality and noise were carried out at designated locations in accordance with the EM&A Manual in this reporting month.

According to the summary of air and noise monitoring results, no exceedances of Action and Limit Level of 24-hour and 1-hour TSP monitoring results were recorded during the reporting month. Besides, No Day-time noise level measured at all monitoring stations exceeded the Action and Limit Level in the reporting month. No Evening-time, Night-time and Holiday noise monitoring were required since no construction works were processed during these periods.

During this reporting month, wastewater monitoring was carried out at Pak Shek Kok Workshop Area Adjacent to Site Office on 13 July 2006. One wastewater sample was collected from the discharge point during the monitoring. The result of suspended solids content of the wastewater sample was complied the discharge limit of the Discharge Licence.

According to the ET weekly site inspection and IEC monthly site audit carried out this month, it indicated that site practices of the LWKJV were generally undertaken in an environmentally acceptable manner and the overall site environmental performance was satisfactory.

12.0 FUTURE KEY ISSUES

12.1 Upcoming EM&A Schedule in coming two months

The Proposed EM&A program in coming two months are presented as following table:

Table 12.1 Upcoming EM&A Schedule in coming two months

Type of Monitoring	August 2006	September 2006
Noise Monitoring (Day-time)	01, 08, 15, 22, 29	05, 12, 19, 26
1-hour TSP	01, 03, 05, 08, 10, 12, 15, 17, 19, 22,24,26, 29, 31	02, 05, 07, 09, 12, 14, 16, 19, 21, 23, 26, 28, 30
24-hour TSP	02, 08, 14, 19, 25, 31	06, 12, 18, 23, 29
Site Inspection	03, 10, 17, 24, 31	07, 14, 21, 28

12.2 Upcoming construction works schedule in the coming months

The major construction works planned to be carried out in next two months and their possible impact is tabulated (Table 12.2) for reference.

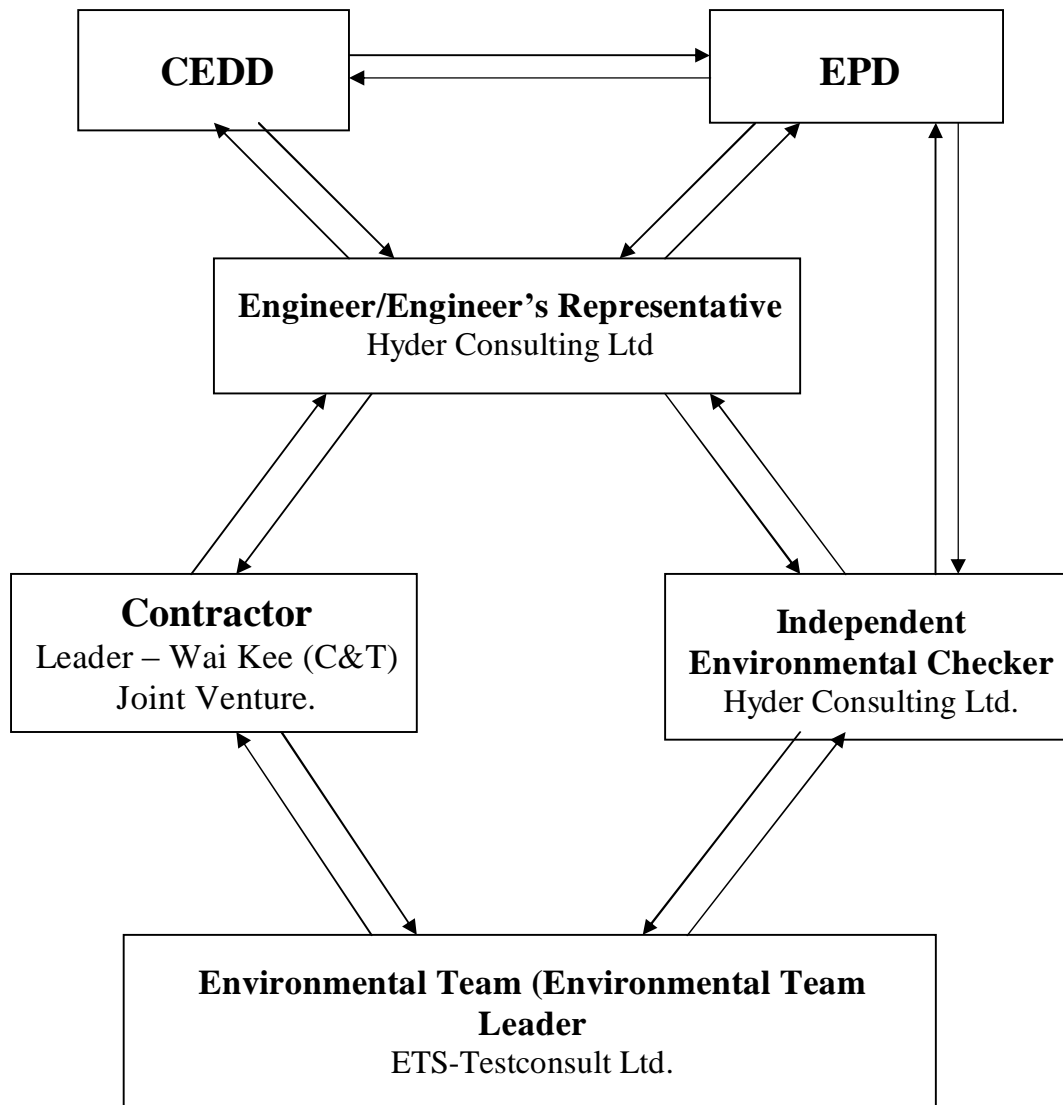
Table 12.2 Construction Plan in the coming months

Month	Works Planned to be Carried Out
Between August and September 2006	<ul style="list-style-type: none"> § Drainage Works (excavation, pipe lying and breaking) at Section 1 and 2 (Ma Liu Shui), 7 and 8 (Promenade) of the Works; § Installation of watermains at Section 1 of the Works; § Steel fixing and concreting of beam and wall at Voided Abutment, construction of RE wall and pile cap at North Abutment, and erection of formwork and falsework for deck construction for the Alternative Design of the proposed Ma Liu Shui Bridge; § Construction of Retaining Wall No.1; § Construction of pedestrian ramps and barrel of the proposed Ma Liu Shui Subway (Alternative Design); § Construction of wall and columns, and installation of sewerage and drainage system for Toilet No.2; § Paving of footpath at the proposed Road L4 under Section 5 of the Works; § Installation of additional valves and connection for watermains at the cycle track, pavement construction and fencing erection at Section 6 of the Works; § Installation of public light footing and duct along the proposed Promenade, construction of hard landscape structures, and CCTV inspection of the completed drainage pipes; § Hard landscaping works at Section 7 of the Works; § Construction of mass concrete coping at the proposed Landscape Node P1, P2 & P3; § Installation of precast concrete planter and parapet wall units along the proposed Promenade at Section 8 of the Works; § Construction of in-situ concreting of section above +2.5mPD and shelter foundation at the proposed Public Landing Steps; § Setting back of surcharge mound at Housing Site 4 as per VO/146; § Filling of soil mix at planter wall.

Appendix A

Organization Chart and Lines of Communication

Lines of Communication



Appendix B1

Calibration Certificates for Air Quality Monitoring Equipments

Appendix B2
Air Quality Monitoring Results

Summary of 24-hr TSP Monitoring Results

Monitoring Station : AM1
Location : HKIB Staff Accommodation

Start		Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m ³ /min.)		Average (m ³ /min.)	Filter Weight (g)		Conc. (µg/m ³)	Weather Condition
Date	Time	Date	Time	Initial	Final		Initial	Final		Initial	Final		
04/07/06	10:55	05/07/06	10:53	10245.99	10269.96	23.97	1.34	1.34	1.34	2.8955	2.9730	40	Cloudy
10/07/06	14:30	11/07/06	14:30	10269.96	10293.96	24.00	1.16	1.16	1.16	2.8933	2.9582	39	Cloudy
15/07/06	09:20	16/07/06	08:22	10293.96	10316.99	23.03	1.17	1.17	1.17	2.8119	2.8740	38	Rainy
21/07/06	14:00	22/07/06	13:09	10316.99	10340.14	23.15	1.17	1.17	1.17	2.9135	2.9649	32	Sunny
27/07/06	08:45	28/07/06	08:40	10340.14	10364.05	23.91	0.96	0.96	0.96	2.9068	2.9652	42	Rainy

Monitoring Station : AM3A
Location : Cheung Shue Tan (in front of Man Kee Store)

Start		Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m ³ /min.)		Average (m ³ /min.)	Filter Weight (g)		Conc. (µg/m ³)	Weather Condition
Date	Time	Date	Time	Initial	Final		Initial	Final		Initial	Final		
04/07/06	13:15	05/07/06	13:52	15611.99	15636.61	24.62	1.20	1.20	1.20	2.8978	2.9266	16	Cloudy
10/07/06	15:05	11/07/06	15:05	15636.61	15660.61	24.00	1.35	1.35	1.35	2.8657	2.9179	27	Cloudy
15/07/06	14:06	16/07/06	14:19	15660.61	15684.82	24.21	1.34	1.34	1.34	2.8967	2.9567	31	Rainy
21/07/06	14:20	22/07/06	14:27	15684.82	15708.94	24.12	1.34	1.34	1.34	2.9020	2.9400	20	Sunny
27/07/06	13:36	28/07/06	14:01	15708.94	15733.36	24.42	1.34	1.34	1.34	2.8993	2.9789	41	Rainy

Monitoring Station : AM5
Location : Near Wen Chin Tung at the CUHK

Start		Finish		Elapse Time		Sampling Time (hrs)	Flow Rate (m ³ /min.)		Average (m ³ /min.)	Filter Weight (g)		Conc. (µg/m ³)	Weather Condition
Date	Time	Date	Time	Initial	Final		Initial	Final		Initial	Final		
04/07/06	14:38	05/07/06	14:48	5638.22	5662.38	24.16	1.23	1.23	1.23	2.8934	2.9412	27	Cloudy
10/07/06	14:45	11/07/06	14:45	5662.38	5686.38	24.00	1.04	1.04	1.04	2.8809	2.9407	40	Cloudy
15/07/06	16:25	16/07/06	16:54	5686.38	5710.86	24.48	1.08	1.08	1.08	2.8842	2.9159	20	Rainy
21/07/06	14:40	22/07/06	14:56	5710.86	5735.13	24.27	1.08	1.08	1.08	2.9020	2.9474	29	Sunny
27/07/06	14:55	28/07/06	14:59	5735.13	5759.19	24.06	1.00	1.00	1.00	2.8949	2.9458	35	Rainy

Summary of 1-hr TSP Monitoring Results

Monitoring Station : AM1 (HKIB Staff Accommodation)

Date	Monitoring Period		1-hr TSP ($\mu\text{g}/\text{m}^3$)			Weather
	Start	Finish	Minimum	Maximum	Average	
04/07/06	10:45	11:45	82	344	153	Cloudy
06/07/06	10:15	11:15	90	387	155	Sunny
08/06/06	10:00	11:00	87	362	143	Cloudy
11/07/06	09:30	10:30	92	324	141	Rainy
13/07/06	08:30	09:30	97	453	217	Sunny
15/07/06	09:15	10:15	73	392	118	Rainy
18/07/06	09:00	10:00	105	403	230	Cloudy
20/07/06	09:30	10:30	82	377	153	Sunny
22/07/06	11:00	12:00	92	389	160	Sunny
25/07/06	09:20	10:20	106	417	168	Cloudy
27/07/06	08:40	09:40	85	347	119	Rainy
29/07/06	09:40	10:40	68	306	128	Rainy

Monitoring Station : AM3 – Cheung Shue Tan Village (near the outer building, a temple)

Date	Monitoring Period		1-hr TSP ($\mu\text{g}/\text{m}^3$)			Weather
	Start	Finish	Minimum	Maximum	Average	
04/07/06	13:06	14:06	75	316	117	Cloudy
06/07/06	13:00	14:00	71	356	120	Sunny
08/06/06	13:00	14:00	62	312	104	Cloudy
11/07/06	10:55	11:55	78	305	116	Rainy
13/07/06	14:15	15:15	65	492	169	Sunny
15/07/06	14:00	15:00	62	317	100	Rainy
18/07/06	10:20	11:20	64	327	113	Cloudy
20/07/06	13:00	14:00	76	396	111	Sunny
22/07/06	13:00	14:00	60	310	99	Sunny
25/07/06	15:10	16:10	91	364	135	Cloudy
27/07/06	13:30	14:30	63	306	99	Rainy
29/07/06	13:30	14:30	57	286	109	Rainy

Summary of 1-hr TSP Monitoring Results

Monitoring Station : AM5 – Near Wen Chih Tang at the CUHK

Date	Monitoring Period		1-hr TSP ($\mu\text{g}/\text{m}^3$)			Weather
	Start	Finish	Minimum	Maximum	Average	
04/07/06	14:28	15:28	88	358	157	Cloudy
06/07/06	16:00	17:00	86	396	150	Sunny
08/06/06	14:20	15:20	79	330	116	Cloudy
11/07/06	18:00	19:00	85	336	122	Rainy
13/07/06	13:00	14:00	82	388	193	Sunny
15/07/06	15:20	16:20	58	276	85	Rainy
18/07/06	15:00	16:00	70	359	122	Cloudy
20/07/06	14:30	15:30	79	381	133	Sunny
22/07/06	14:20	15:20	76	345	112	Sunny
25/07/06	17:06	18:06	99	399	154	Cloudy
27/07/06	14:50	15:50	70	327	106	Rainy
29/07/06	15:30	16:30	60	312	114	Rainy

Appendix B3

Graphical Plots of Air Quality Monitoring Data

Appendix C1

Calibration Certificates for Noise Monitoring Equipments

Appendix C2

Noise Monitoring Results

Day-time Noise Monitoring

Monitoring Location: NM1 (HKIB Staff Accommodation)

Date	Start Sampling Time (hh:mm)	Noise Level dB (A)			Wind Speed (m/s)	Weather Condition
		L _{eq(30min)}	L10	L90		
04/07/06	10:50	59.2	62.4	56.7	1.3	Cloudy
11/07/06	13:10	58.1	60.7	52.7	1.1	Cloudy
18/07/06	09:02	58.1	60.1	57.0	0.8	Cloudy
25/07/06	09:25	60.3	61.7	57.5	1.2	Cloudy

Monitoring Location: NM2 (CUHK Residence No.10)

Date	Start Sampling Time (hh:mm)	Noise Level dB (A)			Wind Speed (m/s)	Weather Condition
		L _{eq(30min)}	L10	L90		
04/07/06	17:38	57.8	61.2	55.3	1.0	Cloudy
11/07/06	16:10	57.9	60.1	52.7	0.9	Cloudy
18/07/06	16:15	56.2	58.5	55.2	1.0	Cloudy
25/07/06	18:30	57.9	59.7	53.8	1.4	Cloudy

Mon Monitoring Location: NM3 (Cheung Shue Tan Village)

Date	Start Sampling Time (hh:mm)	Noise Level dB (A)			Wind Speed (m/s)	Weather Condition
		L _{eq(30min)}	L10	L90		
04/07/06	13:11	57.1	59.8	54.8	0.9	Cloudy
11/07/06	17:15	53.3	56.3	51.6	1.0	Cloudy
18/07/06	10:22	52.3	54.2	48.9	0.8	Cloudy
25/07/06	15:15	55.3	57.2	49.2	1.0	Cloudy

Monitoring Location: NM8 (Near Wen Chih Tang at the CUHK)

Date	Start Sampling Time (hh:mm)	Noise Level dB (A)			Wind Speed (m/s)	Weather Condition
		L _{eq(30min)}	L10	L90		
04/07/06	14:33	61.3	63.9	59.0	1.2	Cloudy
11/07/06	18:15	61.3	63.0	56.0	1.3	Cloudy
18/07/06	15:02	56.4	58.8	55.5	1.1	Cloudy
25/07/06	17:25	60.4	61.8	55.3	1.6	Cloudy

Appendix C3

Graphical Plots of Noise Monitoring Data

Appendix D

Weather Condition

Weather Condition

Date	Rainfall (mm)	Max. Temp (°C)	Min. Temp. (°C)	Relative Humidity (%)	Wind Direction	Wind Speed (m/s)
01/07/06	2.9	31.1	27.1	87	E	<5
02/07/06	5.3	31.4	27.5	87	E	<5
03/07/06	6.3	31.4	27.7	86	SE	<5
04/07/06	14.8	31.8	27.0	84	S	<5
05/07/06	1.5	32.0	28.4	79	SW	<5
06/07/06	2.0	32.3	27.6	77	SW	<5
07/07/06	3.2	32.7	28.6	78	SW	<5
08/07/06	19.5	31.9	27.0	81	SW	<5
09/07/06	7.0	30.8	26.0	82	SW	<5
10/07/06	6.8	30.6	27.9	84	SW	<5
11/07/06	32.3	31.1	26.4	89	SW	<5
12/07/06	-	32.2	28.0	79	SW	<5
13/07/06	Trace	34.0	28.2	77	W	<5
14/07/06	0.2	32.2	28.8	80	W	<5
15/07/06	7.0	29.9	27.9	83	SW	<5
16/07/06	195.6	29.0	24.1	86	S	<5
17/07/06	5.3	31.4	27.6	82	S	<5
18/07/06	Trace	32.4	28.2	79	SE	<5
19/07/06	Trace	31.7	27.7	78	S	<5
20/07/06	-	31.9	27.4	76	SW	<5
21/07/06	-	32.6	27.7	74	SW	<5
22/07/06	-	31.7	28.1	81	SE	<5
23/07/06	Trace	32.2	28.2	81	E	<5
24/07/06	10.1	33.9	26.3	80	W	<5
25/07/06	-	33.9	29.2	73	W	<5
26/07/06	Trace	30.0	26.1	78	SW	<5
27/07/06	72.8	27.0	24.2	91	SW	<5
28/07/06	85.6	28.3	23.9	95	SE	<5
29/07/06	87.2	25.3	23.7	98	SE	<5
30/07/06	3.8	28.4	24.8	91	NE	<5
31/07/06	Trace	30.9	26.2	80	NE	<5

Remark: Data of wind speed and wind direction were extracted from Hong Kong Observatory (Shatin Station).



Appendix E

Event-Action Plans

Event / Action Plan for Air Quality

EVENT	ET Leader	IC(E)	ACTION	
			ER	CNTRACTOR
Action Level				
1. Exceedance of one sample	<ol style="list-style-type: none"> Identify source Inform IC(E) and ER Repeat measurement to confirm finding Increase monitoring frequency to daily 	<ol style="list-style-type: none"> Check monitoring data submitted by ET Check Contractor's working method. 	<ol style="list-style-type: none"> Notify Contractor 	<ol style="list-style-type: none"> Rectify any unacceptable practice Amend working methods if possible
2. Exceedance for two more consecutive samples	<ol style="list-style-type: none"> Identify source Inform IC(E) and ER Repeat measurement to confirm findings Increase monitoring frequency to daily Discuss with IC(E) and Contractor on remedial actions required If exceedance continuous, arrange meeting with IC(E) and ER If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> Checking monitoring data submitted by ET Check Contactor's working method Discuss with ET and Contractor on possible remedial measures Advise the ER on the effectiveness of the proposed remedial measures Supervisor implementation of remedial measures 	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing Notify Contractor Ensure remedial measures properly implemented 	<ol style="list-style-type: none"> Submit proposals for remedial action to IC(E) within 3 working days of notification Implement the agreed proposals Amend proposal if possible
Limit Level				
1. Exceedance of one sample	<ol style="list-style-type: none"> Identify source Inform ER and EPD Repeat measurement to confirm finding Increase monitoring frequency to daily Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results 	<ol style="list-style-type: none"> Check monitoring data submitted by ET Check Contractor's working method. Discuss with ET and Contractor on possible remedial measures Advise the ER on the effectiveness of the proposal remedial measures Supervisor implementation of remedial measures 	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing Notify Contractor Ensure remedial measures properly implemented 	<ol style="list-style-type: none"> Take immediate action to avoid further exceedance Submit proposal for remedial actions to IC(E) within 3 working days of notification Implement the agreed proposals Amend proposal if appropriate
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> Notify IC(E), ER, Contractor and EPD Identify source Repeat measurement to confirm findings Increase monitoring frequency to daily Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented Arrange meeting with IC(E) and ER to discuss the remedial actions to be taken Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER to discuss the remedial action to taken If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> Discuss amongst ER, ET, and Contractor on potential remedial actions Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly Supervise the implementation of remedial measures 	<ol style="list-style-type: none"> Confirm receipt of notification of failure in writing Notify Contractor In consultation with the IC(E), agreed with the Contractor on the remedial measures to be implemented Ensure remedial measures properly implemented If exceedance continues, consider what portion of this work is responsible and instruct the Contract to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> Take immediate action to avoid further exceedance Submit proposals for remedial actions to IC(E) within 3 working days of notification Implement the agreed proposals Resubmit proposals if possible still not under control Stop the relevant portion of works as determined by the ER until the exceedance if abated.

Event / Action Plan for Construction Noise

EVENT	ACTION			
	ET Leader	IC(E)	ER	CNOTRACTOR
Action Level	<ol style="list-style-type: none"> 1. Notify IC(E) and Contractor 2. Carry out investigation 3. Report the results of investigation to the IC(E) and Contractor 4. Discuss with the Contractor and formulate remedial measures 5. Increase monitoring frequency to check mitigation effectiveness 	<ol style="list-style-type: none"> 1. Review the analyzed results submitted by the ET 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly 3. Supervise the implementation of remedial measures 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analyzed noise problem 4. Ensure remedial measures are properly implemented 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposal to IC(E) 2. Implement noise mitigation proposals
Limit Level	<ol style="list-style-type: none"> 1. Notify IC(E), ER, 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 IC(E), ER and EPD the causes & action taken for the exceedances 7. Assess effectiveness of Contractor's remedial action and keep IC(E), EPD and ER informed to the results 8. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET and Contractor on the potential remedial actions 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advice the ER accordingly 3. Supervise the implementation of remedial measures 	<ol style="list-style-type: none"> 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 are 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 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to IC(E) 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 ER until the exceedance is abated

Appendix F

Construction Programme

Appendix G

Construction Site Area

Appendix H

**The Implementation Status
of
Mitigation Measures and Follow-up Actions during Weekly
Site Inspections**

Appendix I
IEC and RE Comments on Monthly EM&A Report
—
June 2006

IEC and RE Comments on Monthly Environmental Monitoring and Audit Report – June 2006

Item No.	Document Reference	Comment	ET Response
---	---	No RE and IEC comments were noticed.	No responses were required since no comments were noticed.

Appendix J

Wastewater Monitoring

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Test Reports of Wastewater Samples from Discharge Points

Figures