



THE GOVERNMENT OF THE HONG KONG  
SPECIAL ADMINISTRATIVE REGION  
TERRITORY DEVELOPMENT DEPARTMENT  
HK ISLAND & ISLANDS DEVELOPMENT OFFICE

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Agreement No. CE 7/99

Northern Access Road for Cyberport Development  
Design and Construction

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## MONTHLY ENVIRONMENTAL MONITORING AND AUDIT REPORT NO. 35

March 2004

Document No. R/2146/134/1 Issue 1



**Babtie Asia**

with sub-consultants

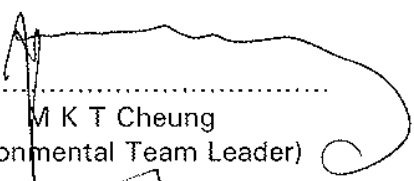
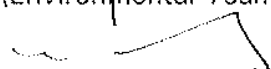
Urbis Ltd

Wilbur Smith Associates Ltd

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MONTHLY ENVIRONMENTAL MONITORING AND AUDIT REPORT NO. 35

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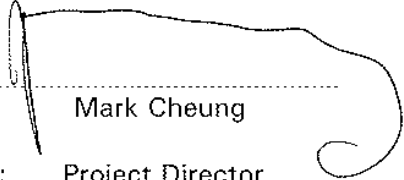
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**Monthly Environmental Monitoring and Audit Report No. 35**

**EXECUTIVE SUMMARY**

This is the thirtieth-fifth Monthly Environmental Monitoring and Audit (EM&A) Report for the project of Northern Access Road for Cyberport Development. The contract entitled 'Contract No. HK10/2000, Northern Access Road for Cyberport Development at Telegraph Bay' was awarded to China Harbour Engineering Company (Group) on 31 October 2000 and the commencement date of construction was on 27 March 2001.

This report mainly presents the EM&A works undertaken for the project from 27 January 2004 to 26 February 2004.

**Noise Level**

24 hour continuous noise monitoring was carried out during the reporting period.

No noise level exceedance was recorded at both stations. Despite this, a semi-enclosure was erected along the proposed electric substation at Sha Wan Drive to mitigate the noise impact.

**Air Quality**

One 24-hour TSP and three 1-hour TSP were taken in every six-days for monitoring.

No non-compliance was recorded at both stations. However two numbers of construction plant causing dark smoke on both 17 and 24 February 2004 were recorded. ET has instructed the Contractor to rectify the problem immediately.

**Others**

No notification of summons successful prosecutions and complaints were received.

**Future Key Issues**

Future construction activities, such as rock dowels installation works, construction of Retained Earth Wall Retaining Wall No. 2, Bridge No. 2, and electric substation would be closely monitored to ensure the adverse effects on air quality and noise levels are minimized.

## 1. ENVIRONMENTAL STATUS

### 1.1 Construction Programme

The contract consists of the construction of bridge foundations, bridge substructure, bridge deck, electric substation, retaining walls and cascade, demolition works, earthworks, roadwork, drainage works, watermains laying works and landscaping works.

The updated master construction programme is shown in Figure 1.1.

### 1.2 Project Organization and Management Structure

An environmental team (ET) has been established to carry out monitoring and audit and environmental management. In addition, an Independent Environmental Checker (IC(E)) has been employed to verify the overall environmental performance of the Project, including the implementation of environmental mitigation measures, submissions relating to environmental monitoring and auditing, and any other submissions required under the Environmental Permit.

The project organization chart of EM&A works is shown in figure 1.2 and the management structure of contractor is shown in figure 1.3.

### 1.3 Summary of Work Progress from 27 January 2004 to 26 February 2004

The major construction activities undertaken in the reporting month were as follows:-

#### 1.3.1 Preliminaries

- Traffic diversion at Sha Wan Drive
- A temporary footway has been formed along the crest line.

#### 1.3.2 Utility & Services

- Preparation and Implementation for the temporary diversion of storm and sewer.
- Construction of watermains near CH.500 is being undertaken.
- Construction of storm drain near Bridge 1 partially completed

#### 1.3.3 Construction Works

- Installation of precast panels for Reinforced Earth Wall is in progress.
- Construction of Bridge No. 1 was completed.
- Construction of cascade No. 2 (CH.400) and cascade No. 1 (CH.350) in progress.
- Construction of Bridge No. 2 is being undertaken.
- Construction of Bridge No. 3 was completed.
- Construction of Bridge No. 4 were completed.
- Road construction works at Sha Wan Drive is being undertaken.
- Construction of New Queen May Hospital Electric Substation.

Location of Cyberport Development in Telegraph Bay & Northern Access Road is shown in Figure 1.4, and the general layout plans of Northern Access Road are shown in Drawing Nos. T/2146/1003 & T/2146/1004.

Two monitoring stations, both for noise and air quality, are located in Pine Court & Magnolia Villa as shown in Figure 1.5 and 1.6 respectively. ASR-NA1 represents the location of air quality monitoring station in Pine Court while ASR-A1 represents the location of air quality monitoring station in Magnolia Villa. NSR-3 represents the location of noise monitoring station in Pine Court while NSR-9 represents the location of noise monitoring station in Magnolia Villa.

## 2. IMPLEMENTATION SCHEDULE OF ENVIRONMENTAL MITIGATION MEASURES

Implementation Schedule of Environmental Mitigation Measures is shown in Appendix A.

## 3. MONITORING RESULTS

### 3.1 Noise

#### 3.1.1 Monitoring Methodology

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

As supplementary information for data auditing, statistical results such as  $L_{10}$  and  $L_{90}$  were also obtained for reference.

#### 3.1.2 Monitoring Equipment

Integrating Sound Level Meter, Model No. B&K2238, complying with the requirement stated in Technical Memorandum (TM) issued under the Noise Control Ordinance (NCO), was used for measurement. The Sound Level Meter is calibrated by the laboratory annually. A Sound Level Calibrator, Model No. B&K 4231, is used to calibrate the meter.

Copies of calibration certificates conducted by Wellab Ltd. for the sound level meters used in Pine Court and Magnolia Villa are included in Appendix B.

#### 3.1.3 Noise Parameter

$L_{eq(30 \text{ min})}$  was measured to determine the noise impact for the time period between 0700 – 1900 hours on normal weekdays and  $L_{eq(5 \text{ min})}$  was taken at times other than normal weekdays.

$L_{10}$  and  $L_{90}$  were also recorded as supplementary information for reference.

The action and limit levels are shown in Appendix D.

Any breakdown and take down occasionally of the sound level meter at Pine Court and Magnolia Villa was tabulated in Appendix I. No breakdown of sound level meters happened during the reporting period.



Occasionally, when the noise meter at the stations stopped functioning, a hand-held noise meter was used to spot check the noise level.

### 3.1.4 Monitoring Locations

Locations of Monitoring Station are shown in Figure 1.5, the same locations as set up for the Baseline Monitoring. These are as follows : -

NSR-3        Pine Court  
NSR-9        Magnolia Villa

### 3.1.5 Noise Monitoring Results

No noise level exceedance was recorded at both stations. A semi-enclosure was erected along the proposed electric substation at Sha Wan Drive to mitigate the noise.

Noise was mainly generated by plant / equipment operation on site, road traffic and container vessels and motor boats crossing East Lamma Channel.

The graphical representation of noise level at day time are shown in Appendix E.

Noise Monitoring results from 27 January 2004 to 26 February 2004 are summarized in Table 3.1.

**Table 3.1        Results Summary of Noise Monitoring**

Time Period (Parameter )	Location	
	Pine Court	Magnolia
Day time : 0700 – 1900 hrs on normal weekday ( $L_{eq(30 \text{ min})}$ )	Maximum: 73.20 dB(A) Mean: 59.60 dB(A) Minimum: 44.80 dB(A)	Maximum: 74.60 dB(A) Mean: 67.42 dB(A) Minimum: 63.10 dB(A)
Evening-time : 0700-2300 hrs on holiday and 1900 – 2300 hrs on all other days ( $L_{eq(5 \text{ min})}$ )	Maximum: 71.10 dB(A) Mean: 52.73 dB(A) Minimum: 39.90 dB(A)	Maximum: 72.50 dB(A) Mean: 64.78 dB(A) Minimum: 62.30 dB(A)
Night-time : 2300-0700 hrs Of next day ( $L_{eq(5 \text{ min})}$ )	Maximum: 72.60 dB(A) Mean: 50.91 dB(A) Minimum: 39.90 dB(A)	Maximum: 72.20 dB(A) Mean: 64.64 dB(A) Minimum : 62.30 dB(A)

Detailed Monitoring Result are posted to the Cyberport Website regularly and a full set of data is stored on the CD-ROM attached to the report.

## 3.2 Air Quality

### 3.2.1 Monitoring Methodology

The TSP levels are measured in accordance with the standard high volume sampling method as established in the Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50), Appendix B.

One set of 24-hour TSP level and three sets of 1-hour TSP are measured in every six days.

All relevant data including temperature, weather conditions, elapsed-time meter reading for the start and stop of the sample, identification and weight of the filter paper, and any other local atmospheric factors affecting or affected by site conditions etc. are recorded in detail.

### 3.2.2 Monitoring Equipment

A High Volume Sampler, Model No. GMW2310, for TSP sampling, complying the Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50), Appendix B, is used for measurement, both for 24-hour and 1-hour TSP sampling. The High Volume Sampler is calibrated once every three months.

Its associated calibrator, Model No. GMW25, is used to calibrate the sampler.

A copy of calibration certificates of the high volume sampler in Pine Court & Magnolia Villa is included in Appendix C.

Samples are sent to the Government Chemist for measuring the weight of particulates and analysis, and the ER is responsible for handling the filter paper, conducting the tests and the calculation of TSP level.

### 3.2.3 Air Quality Parameter

Monitoring and audit of the Total Suspended Particulates (TSP) levels is carried out by the ER & ET to ensure that any deteriorating air quality can be readily detected and timely action is to be taken to rectify the situation.

Three 1-hour and one 24-hour TSP monitoring in every six-days is carried out to indicate the impacts of construction dust on air quality. The 24-hour TSP levels are conducted by following the standard high volume sampling method as set out in the Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50), Appendix B.

The action and limit levels are shown in Appendix D.

Any breakdown of the air samplers of Pine Court and Magnolia Villa was tabulated in Appendix I. The high volume sampler at Pine Court has been repaired and is functioning normally now.

### 3.2.4 Monitoring Location

Locations of monitoring stations are shown in Figure 1.6, the same set up as for the Baseline Monitoring. These are as follows :

ASR – NA1	Pine Court
ASR – A1	Magnolia Villa

### 3.2.5 Air Quality Monitoring Result

Available air quality sampling results from 27 January 2004 to 26 February 2004 are summarized in Table 3.2.

The graphical representation of air quality monitoring data shown in Appendix F.

Table 3.2 Summary of Air Quality Monitoring Results

	Location			
	ASR-NA1 ( $\mu\text{g}/\text{m}^3$ )	ASR-A1 ( $\mu\text{g}/\text{m}^3$ )		
24-hour monitoring	Maximum:	149.00	Maximum:	147.21
	Mean:	99.35	Mean:	99.08
	Minimum:	32.29	Minimum:	22.55
1-hour monitoring	Maximum:	388.01	Maximum:	401.20
	Mean:	180.39	Mean:	193.92
	Minimum:	78.12	Minimum:	92.92

Detailed monitoring results are posted to the Cyberport Website regularly and a full set of results are stored on the CD-ROM attached to the report.

#### 4. RECORD OF NON-COMPLIANCE, COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTION

##### 4.1 Non-compliance and Deficiency

###### 4.1.1 Air Quality

No non-compliance of air quality is found during the reporting period based on the monitoring results.

However, two numbers of construction plant causing dark smoke on both 17 and 24 February 2004 were recorded. ET has instructed the Contractor to rectify the problem immediately.

###### 4.1.2 Noise

No noise level exceedance was recorded at both stations. Despite this, a semi-enclosure was erected along the proposed electric substation at Sha Wan Drive to mitigate the noise impact.

The Environmental Team undertook the environmental weekly check on site, and no major deficiencies were found during the site inspection.

##### 4.2 Complaint

No verbal nor written complaint was received during the reporting period.

##### 4.3 Notification of Summons and Successful Prosecutions

No notification of summons or successful prosecutions were received by the contractor in the reporting month. The relevant cumulative statistics are shown in Appendix G.

#### 5. FUTURE KEY ISSUES AS VIEWED FROM THE WORKS PROGRAMME AND WORK METHOD STATEMENTS

The proposed construction works to be carried out in the next report period, which have a potential environmental impact and will require mitigation measures, are listed below:

1. Trench excavation for underground services.
2. Construction of Retaining Wall No. 2, Cascade 1 & 2
3. Construction of Bridge No. 2
4. Slope stabilization works at S1.
5. Demolition of electric sub-station at Sha Wan Drive.
6. Construction of new electric substation.

## **6. ADVICE ON THE SOLID AND LIQUID WASTE MANAGEMENT STATUS**

The waste management plan was approved by EPD.

The 'trip-and-ticket' system has been implemented for the disposal of the construction and demolition waste.