

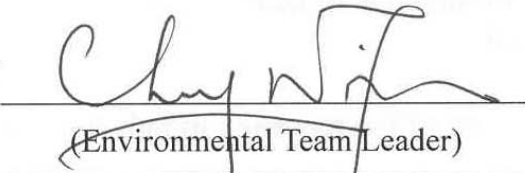
# Highways Department

## Route 8 (previously known as Route 9) between Cheung Sha Wan & Sha Tin

### Contract No. HY/2003/10 - Environmental Team for Lai Chi Kok Viaduct and Eagle's Nest Tunnel

#### Quarterly EM&A Report Part I – Lai Chi Kok Viaduct (Version 1.0)

December 2003 - February 2004

Approved By   
(Environmental Team Leader)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

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**EXECUTIVE SUMMARY**

- This is the first Quarterly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for the “Route 8 (previously known as Route 9) between Cheung Sha Wan & Sha Tin, Lai Chi Kok Viaduct & Eagle’s Nest Tunnel”. This summary report documents the findings of EM&A works performed in the period between December 2003 and February 2004 for Contract No. HY/2003/01, Route 8 – Lai Chi Kok Viaduct (the Project).
- The construction activities undertaken in the reporting quarter were:
  - Construction of box culvert section;
  - Site clearance;
  - Pre-drilling works;
  - Excavation works;
  - Drainage works; and
  - Bored piling works.

**Environmental Monitoring Works**

- Environmental monitoring for the Project was performed regularly as stipulated in the EM&A Manuals and the results were checked and reviewed. Environmental site audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.
- Summary of the exceedances recorded in the reporting quarter is tabulated in Table I.

**Table I Summary Table for Exceedances Recorded in the Reporting Quarter**

Parameter	No. of Exceedances		No. of Exceedances Due to the Project	Action Taken
	Action Level	Limit Level		
<i>December 2003</i>				
1-hr TSP	2	1	0	N/A
24-hr TSP	0	0	0	N/A
Noise	0	0	0	N/A
<i>January 2004</i>				
1-hr TSP	2	0	0	N/A
24-hr TSP	0	0	0	N/A
Noise	0	0	0	N/A
<i>February 2004</i>				
1-hr TSP	0	0	0	N/A
24-hr TSP	1	0	0	N/A
Noise	0	0	0	N/A

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*1-hr TSP Monitoring*

- All 1-hr TSP monitoring was conducted as scheduled in this reporting quarter. A total of four Action Level exceedances and one Limit Level exceedance were recorded at AM2 (Lai Chi Kok Park Sports Centre) in the reporting period.
- The Action Level exceedances were recorded at AM2 on 18 & 22 December 2003 and 2 & 7 January 2004, whereas the Limit Level exceedance was recorded on 19 December 2003. No direct evidence showing that the exceedances were due to the Project. According to the field observations, the exceedances were due to the traffic road dust and/or the poor ambient air quality. Therefore, no further action was required.

*24-hr TSP Monitoring*

- All 24-hr TSP monitoring was conducted as scheduled in this reporting quarter, except that the monitoring work at 12 January 2004 was cancelled due to the typo error in the tentative monitoring schedule. One Action Level exceedance was recorded at AM2 on 13 February 2004.
- According to the field observation, the dominated dust sources were identified as the road traffic dust and poor ambient air quality. The exceedance was not due to the Project and no further action was required.

*Construction Noise*

- All construction noise monitoring was conducted as scheduled in this reporting quarter, except that the monitoring work at NM4 (Mei Foo Sun Chuen) on 19<sup>th</sup> December 2003 was cancelled due to the high wind speed and no re-measurement was conducted.
- No Action/Limit Level exceedance was recorded in this reporting quarter.

**Environmental Licensing and Permitting**

- Licenses/Permits granted to the Project include the Environmental Permit (EP) for the Project, Construction Noise Permit (CNP) and Water Discharge Licenses (WDL). One CNP and two WDLs were issued to the Project in this reporting quarter.

**Key Information in the Reporting Quarter**

- Summary of key information in this reporting quarter is tabulated in Table II.

**Table II Summary Table for Key Information in the Reporting Quarter**

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received	0	---	N/A	N/A	---
Changes to the assumptions and key construction / operation activities recorded	0	---	N/A	N/A	---
Status of submissions under EP	1	WMP	Certified by ET & Verified by IEC	Submitted to EPD by HyDs	---
Notifications of any summons & prosecutions received	0	---	N/A	N/A	---
<b><u>Future Key Issues:</u></b>					
<p>Major site activities for the coming month include:</p> <ul style="list-style-type: none"> <li>• Construction of box culvert section;</li> <li>• Utility detection and diversion in advance of piling works;</li> <li>• Site clearance;</li> <li>• Pre-boring works;</li> <li>• Erection of hoarding and rock fall fence;</li> <li>• Drainage works; and</li> <li>• Bored piling works.</li> </ul> <p>The anticipated environmental impacts will be mainly on dust and noise due to the earthworks and surface runoff during rainy days.</p>					

## 1. INTRODUCTION

- 1.1 Route 9 (Kowloon Section) (R9K) (hereinafter call the R9K-Project) forms part of the Route 9 between Cheung Sha Wan and Sha Tin (R9-CSWST) project, which will be a new expressway connecting West Kowloon and Sha Tin. It will be the fourth external link between Sha Tin and Kowloon and will form an important link between the northeast New Territories and the west Kowloon, Lantau Island and the western New Territories. R9K is being managed and implemented by the Highways Department (HyD).
- 1.2 The engineering design of R9K is covered under Agreement No. CE 50/98 "Route 9 between Cheung Sha Wan and Sha Tin – Design Construction Assignment". The main consultant engaged under Agreement No. CE 50/98 is Maunsell Hyder Joint Venture (MHJV), who will act as the Engineer for the construction contracts. The works of R9K mainly comprise a 1.4km dual 3-lane Lai Chi Kok Viaduct from Lai Wan Interchange to Butterfly Valley; 0.5 km of dual 3-lane at-grade carriageway linking to the 2.1 km dual 3-lane twin-bore Eagle's Nest Tunnel with associated portal buildings; a toll plaza with an administration building located with the Sha Tin valley woodland; a ventilation building and an adit; associated noise barriers, noise enclosures, drainage, slope and landscape works; and electrical and mechanical works for the whole R9-CSWST. The remainder of the R9-CSWST forms the Sha Tin Section (R9S) of the project and is being managed and implemented separately by the Territory Development Department (TDD).
- 1.3 The R9-CSWST project is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 449) (EIAO). An environmental impact assessment (EIA) report has been prepared in 1998 for the R9-CSWST project (1998 R9 EIA) to consider the key issues of noise, air quality, water quality, ecological, construction waste, landscape and visual, land use and cultural impacts, and identify possible mitigation measures.
- 1.4 An Updated Final EIA report was subsequently completed in August 1999 for the R9-CSWST project (1999 R9 EIA), to cater for some changes in R9K portion as mentioned in paragraph 1 in the report. The 1999 R9 EIA was endorsed by Environmental Protection Department (EPD) in November 1999. The 1998 R9 EIA and the 1999 R9 EIA (R9 EIA Reports) were included in the EIA register under the EIAO as report no. EIA-135/BC and AEIAR-022/1999 respectively. An Environmental Monitoring and Audit (EM&A) Manuals for each of the R9 EIA Reports (EM&A Manuals) were also included as part of the EIA reports in the register.
- 1.5 Subsequent to the endorsement of the R9 EIA Reports by EPD in November 1999, the project programme was deferred to start in 2002/2003 for completion by 2006/07. The implementation of the project was then separated into the R9S and R9K portion. An Environmental Permit (EP) No. EP-103/2001 was issued on 17 September 2001 for R9K to the HyD as Permit Holder. A revised EP No. EP-103/2001/A was issued on 20 May 2003 for R9K (R9K EP) to HyD as Permit Holder.
- 1.6 Two civil works contracts of the R9K project, Contract No. HY/2003/01 entitled "Route 9 – Lai Chi Kok Viaduct" and Contract No. HY/2003/02 entitled "Route 9 – Eagle's Nest

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Tunnel and Associated Works”, were commenced in 15<sup>th</sup> December 2003 for completion in April 2007.

- 1.7 “Route 9” was recently re-titled as “Route 8 (previously known as Route 9)”. Cinotech Consultants Limited (Cinotech) was commissioned by HyD to undertake the Environmental Monitoring and Audit works for “Route 8 (previously known as Route 9) between Cheung Sha Wan and Sha Tin - Environmental Team (ET) for Lai Chi Kok Viaduct and Eagle's Nest Tunnel (Contract No. HY/2003/10)”. Dr. Priscilla CHOY of Cinotech was appointed as the ET Leader under Condition 2.2 of the EP. Mr. David YEUNG of CH2M-IDC Hong Kong Ltd. was appointed as the IEC under Condition 2.1 of the EP. This is the first quarterly EM&A report summarizing the EM&A works for the LCKV Project between December 2003 and February 2004.



## 2 PROJECT CHARACTERISTICS

### Project Organization and Contacts of Key Management

- 2.1 An organization structure and the line of communication were set up for the Project between the Project Proponent, Engineer's Representative (ER), Independent Environmental Checker (IEC), the Contractor and Environmental Team (ET). The organization chart and contact details are shown in Figure 2 and Appendix A.

### Construction Programme and Synopsis of Work

- 2.2 The construction programme is presented in Appendix B. The site activities during the reporting period are summarized in Table 2.1.

**Table 2.1 Summary of Works Undertaken in the Reporting Months**

Item	Work Activity	Month		
		Dec 03	Jan 04	Feb 04
1.	Construction of box culvert;			✓
2.	Site clearance;	✓	✓	✓
3.	Pre-drilling works;	✓	✓	✓
4.	Excavation works;	✓	✓	✓
5.	Drainage works; and			✓
6.	Bored piling works			✓

### **3 ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS**

#### **Monitoring Parameters and Monitoring Locations**

- 3.1 The EM&A Manuals designate locations for the ET to monitor environmental impacts in terms of noise and air quality due to the Project. The Project area and monitoring locations are depicted in Figure 1. Appendix C gives details of monitoring requirements.

#### **Monitoring Methodology and Calibration Details**

- 3.2 Monitoring works/equipments were conducted/calibrated regularly in accordance with the EM&A Manuals. Copies of calibration certificates are attached in the appendices of the Monthly EM&A Reports.

#### **Environmental Quality Performance Limits (Action and Limit Levels)**

- 3.3 The environmental quality performance limits, i.e. Action and Limit Levels were derived from the baseline monitoring results. Should the measured environmental quality parameters exceed the Action/Limit Levels, the respective Event Action Plans would be implemented. The Action/Limit Levels for each environmental parameter are provided in Appendix D.

#### **Environmental Mitigation Measures**

- 3.4 Relevant mitigation measures as recommended in the project EIA report have been stipulated in the EM&A Manuals for the Contractor to implement. A list of mitigation measures is provided in Appendix G.

## 4 MONITORING RESULTS

### Weather Conditions

- 4.1 The weather during monitoring sessions was mainly sunny or cloudy. The weather conditions for each individual monitoring session were presented in the field record sheets.

### Air Quality

#### 1-hr TSP Monitoring

- 4.2 All 1-hr TSP monitoring was conducted as scheduled in this reporting quarter. A total of four Action Level exceedances and one Limit Level exceedance were recorded at AM2 (Lai Chi Kok Park Sports Centre) in the reporting period.
- 4.3 The Action Level exceedances were recorded at AM2 on 18 & 22 December 2003 and 2 & 7 January 2004, whereas the Limit Level exceedance was recorded on 19 December 2003. No direct evidence showing that the exceedances were due to the Project. According to the field observations, the exceedances were due to the traffic road dust and/or the poor ambient air quality. Therefore, no further action was required.

#### 24-hr TSP Monitoring

- 4.4 All 24-hr TSP monitoring was conducted as scheduled in this reporting quarter, except that the monitoring work at 12 January 2004 was cancelled due to the typo error in the tentative monitoring schedule. One Action Level exceedance was recorded at AM2 on 13 February 2004.
- 4.5 According to the field observation, the dominated dust sources were identified as the road traffic dust and poor ambient air quality. The exceedance was not due to the Project and no further action was required.
- 4.6 The monitoring data of 1-hr and 24-hr TSP Levels are attached in the appendices of the Monthly Reports for December 2003 to February 2004. The graphical presentations of the monitoring results are shown in Appendix E.
- 4.7 1-hr TSP and 24-hr TSP exceedances recorded in the reporting quarter and the associated actions taken are summarized in Appendix J.

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**Construction Noise**

- 4.8 All construction noise monitoring was conducted during the daytime period (0700 to 1900) as scheduled in this reporting quarter, except that the monitoring work at NM4 (Mei Foo Sun Chuen) on 19<sup>th</sup> December 2003 was cancelled due to the high wind speed and no re-measurement was conducted.
- 4.9 No Action/Limit Level exceedance was recorded in this reporting quarter.
- 4.10 The major noise source identified at the designated stations was road traffic noise.
- 4.11 All the Construction Noise Levels (CNLs) reported in this report were adjusted with the corresponding baseline level (i.e. Measured Leq – Baseline Leq = Measured CNL), in order to facilitate the interpretation of the noise exceedance. The baseline noise level at each designated noise monitoring station is presented at Table 4.1.
- 4.12 The monitoring data of construction noise are attached in the appendices of the Monthly Reports for December 2003 to February 2004. The graphical presentations of the monitoring results are shown in Appendix F.

**Table 4.1 Day Time Baseline Noise Level at Each Noise Monitoring Station**

Station	Baseline Noise Level, dB(A)
NM2 - Lai Chi Kok Reception Centre	68.4
NM3 - Lai Chi Kok Hospital	61.4
NM4 - Mei Foo Sun Chuen	73.8

## 5 ENVIRONMENTAL AUDIT

### Implementation Status of Environmental Mitigation Measures

5.1 According to the Environmental Permit and the EM&A Manuals, the mitigation measures detailed in the documents are required to be implemented. An updated summary of the Environmental Mitigation Implementation Status (EMIS) is provided in Appendix G.

### Site Audit Summary

5.2 ET's weekly site audits were conducted on 17, 24 & 31 December 2003; 7, 14, 20 & 28 January 2004 and 4, 11, 18 & 25 February 2004. IEC's monthly site audits were conducted on 17 December 2003, 7 January 2004 and 4 February 2004 together with ET.

5.3 During site inspections in the reporting period, no non-conformance was identified. The observations and recommendations are summarized in Table 5.1.

**Table 5.1 Observations and Recommendations of the Site Audits**

Parameters	Date	Observations	Remedial Actions
Air Quality	17 Dec 2003	Dry unpaved haul road at site office area was observed. The Contractor was recommended to watering the road more frequently.	Rectification was observed during the site audit on 24 Dec 2003.
	31 Dec 2003	Uncovered stockpiled materials were observed at Portion W (Site Office Area) and Area K5 (Lai Po Road).	Rectification was observed during the site audit on 07 Jan 2004.
	07 Jan 2004	Uncovered stockpiled material was observed at Area K5.	Rectification was observed during the site audit on 14 Jan 2004.
	07 Jan 2004	Dusty materials generated from excavation activities were observed at Area K5.	The Contractor rectified the problem immediately.
	14 Jan 2004	No water spraying during breaking of concrete slope was observed at Portion E2.	Rectification was observed during the site audit on 20 Jan 2004.
	14 Jan 2004	A portion of stockpiled material at Area K5 was not covered. The Contractor was recommended to cover the material with tarpaulin or similar material.	Rectification was observed during the site audit on 20 Jan 2004.
	28 Jan 2004	Dry unpaved road was observed at Portion W (Site Office Area). The Contractor was recommended to water the road more frequently.	Rectification was observed during the site audit on 04 Feb 2004.
	11 Feb 2004	Uncovered stockpiled materials were observed at Pier B2 (Lai Po Road) and Pier D11 (Lai Wan Road). The Contractor was recommended to rectify the problem as soon as possible.	Rectification was observed during the site audit on 18 Feb 2004.
	11 Feb 2004	At Pier C13, no water spraying was provided for breaking of concrete road.	---
	25 Feb 2004	Dry unpaved haul roads were observed at Portion W (site office area) and Mui Kong Tsuen. The Contractor was recommended to	---

Parameters	Date	Observations	Remedial Actions
		water the roads more frequently.	
	25 Feb 2004	Dusty materials were observed at the vehicle entrance/exit of the construction site at Lai Po Road.	---
	25 Feb 2004	No water spraying was provided for concrete breaking at Portion E2 (Butterfly Valley Road).	---
Water Quality	20 Jan 2004	A manhole at Lai Po Road (Area K5) was blocked by debris and sandy material. The Contractor was recommended to clear the manhole and provide sand bags to prevent entering of sandy water into the manhole.	Rectification was observed during the site audit on 28 Jan 2004.
	04 Feb 2004	Potential surface runoff into the nullah at the site office area (Portion W). The Contractor was recommended to rectify the problem.	The Contractor agreed to keep on reviewing the issue of potential surface runoff at Portion W.
	04 Feb 2004	Sandbags were recommended to provide at the exit of the storm drain at Portion K1-K5 (Lai Po Road).	Rectification was observed during the site audit on 11 Feb 2004.
	04 Feb 2004	No wheel washing facility was observed at Portion K1-K5. The Contractor was recommended to build it as soon as possible.	The construction works for wheel washing facilities at Lai Po Road were finished during the site audit on 18 Feb 2004.
	18 Feb 2004	In order to prevent water quality impact at the nullah near the site office area, the Contractor was recommended to provide sandbags at the temporary U-channel at the site office area.	Rectification was observed during the site audit on 25 Feb 2004.
	18 Feb 2004	Water ponding was observed at one of the U-channel at Pier DA1. The Contractor was recommended to clear the U-channel as soon as possible.	Rectification was observed during the site audit on 25 Feb 2004.
	Chemical and Waste Management	17 Dec 2003	Chemical container was not placed inside drip tray at Lai Po Road.
17 Dec 2003		No drip tray was provided for one of the drilling machines at Lai Po Road.	Rectification was observed during the site audit on 24 Dec 2003.
24 Dec 2003		Oil drum was not placed inside the drip tray at Area K2. The Contractor was recommended to provide a drip tray to rectify the problem.	Rectification was observed during the site audit on 31 Dec 2003.
28 Jan 2003		Leakage of oily water from drip-tray was found at Portion K1-K5 (Lai Po Road). The Contractor was recommended to clear the drip-tray and the adjacent storm drain.	Rectification was observed during the site audit on 04 Feb 2004.
04 Feb 2004		Chemical container was observed at the bare ground at Portion K1 – K5 (Lai Po Road). The Contractor was recommended to provide a drip-tray for the temporary storage of the chemical container.	Rectification was observed during the site audit on 11 Feb 2004.
11 Feb 2004		At Pier D11, the drip-tray for one of the generator was full of oily water. The Contractor was recommended to clear the drip-tray more frequently.	Rectification was observed during the site audit on 18 Feb 2004.

Parameters	Date	Observations	Remedial Actions
	18 Feb 2004	General refuse and stain of bituminous paint were observed at Pier DA1. The Contractor was recommended to clear the refuse and the stain as soon as possible.	Rectification was observed during the site audit on 25 Feb 2004.
Permit / License	17 Dec 2003	The Contractor was recommended to display the EP at every main site entrances.	---
	07 Jan 2004	The Contractor was reminded to display the EP at every site entrances.	Rectification was observed during the site audit on 14 Jan 2004.
	20 Jan 2004	No environmental permit (EP) was observed at the construction site at Lai Wan Road (Portion E3). The Contractor was reminded to display the EP at all main site entrances.	Rectification was observed during the site audit on 28 Jan 2004.

### Status of Environmental Licensing and Permitting

- 5.4 Environmental licenses and permits including the Environmental Permit for the Project were in place and valid during the reporting quarter. The status of all licenses and permits obtained for the Project is summarized in Appendix H.

## **6 NON-COMPLIANCE (EXCEEDANCES) OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS (ACTION AND LIMIT LEVELS)**

### **Summary of Exceedances**

#### 1-hr TSP Monitoring

- 6.1 A total of four Action Level exceedances and one Limit Level exceedance were recorded at AM2 (Lai Chi Kok Park Sports Centre) in this reporting quarter.
- 6.2 The Action Level exceedances were recorded at AM2 on 18 & 22 December 2003 and 2 & 7 January 2004, whereas the Limit Level exceedance was recorded on 19 December 2003. No direct evidence showing that the exceedances were due to the Project. According to the field observations, the exceedances were due to the traffic road dust and/or the poor ambient air quality.

#### 24-hr TSP Monitoring

- 6.3 One Action Level exceedance was recorded at AM2 on 13 February 2004.
- 6.4 According to the field observation, the dominated dust sources were identified as the road traffic dust and poor ambient air quality. The exceedance was not due to the Project and no further action was required.

#### Construction Noise

- 6.5 No Action/Limit Level exceedance was recorded in this reporting quarter.

### **Review of the Reasons for and the Implications of Non-compliance**

- 6.6 There was no non-compliance from the site audits in the reporting quarter. As mentioned previously in the Section 5.2 of this report, the observations and recommendations made in each individual site audit session were presented.

### **Summary of Actions Taken**

- 6.7 In this reporting quarter, the following mitigation measures were implemented:
- Drip trays for oil storage of oil buckets have been provided;
  - Excavated/dusty materials have been covered by tarpaulin or water sprayed;
  - Wheel washing facilities have been provided; and
  - Frequent watering the work area has been provided.



## **7 ENVIRONMENTAL COMPLAINTS**

- 7.1 No environmental complaint was received in this reporting quarter.
- 7.2 There was no complaint received since the Project commencement. All complaints have been handled in accordance with the Updated EM&A Manual. The implementation status of the complaint handling procedure is summarized in Appendix I.

## **8 NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS**

- 8.1 No notification of summon or successful prosecution was recorded in this reporting quarter.
- 8.2 There was no notification of summon or successful prosecution received since the Project commencement.

## **9 COMMENTS, CONCLUSIONS AND RECOMMENDATIONS**

- 9.1 Major site activities for the coming month include:

- Construction of box culvert section;
- Utility detection and diversion in advance of piling works;
- Site clearance;
- Pre-boring works;
- Erection of hoarding and rock fall fence;
- Drainage works; and
- Bored piling works.

The anticipated environmental impacts will be mainly on dust and noise due to the earthworks and surface runoff in rainy days.