

**Civil Engineering & Development Department**  
**NT EAST Development Office**

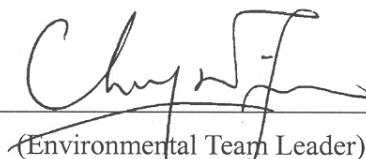
**Contract No. ST89/02**

**Sha Tin Heights Tunnel and Approaches**

**Environmental Monitoring and Audit**  
**Quarterly Report (Version 1.0)**

November 2005 to January 2006

Certified 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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**CINOTECH CONSULTANTS LTD**

Room 1602-1610, Delta House,  
3 On Yiu Street,

Shatin, NT, Hong Kong

Tel: (852) 2151 2083 Fax: (852) 3107 1388

Email: [info@cinotech.com.hk](mailto:info@cinotech.com.hk)

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## EXECUTIVE SUMMARY

1. This is the thirtieth Environmental Monitoring and Audit (EM&A) Quarterly Summary Report prepared by Cinotech Consultants Limited for the “Sha Tin Heights Tunnel and Approaches” (the Project). This summary report presents EM&A works performed in the period between November 2005 and January 2006.
2. The construction activities undertaken in this reporting quarter were:
  - Construction of Portal Buildings;
  - Slope works;
  - Tunneling works;
  - Bridge superstructure works;
  - Drainage works;
  - Construction of retaining structure and;
  - Demolition of Temporary Access Road no.1.

### Environmental Monitoring Works

3. Environmental monitoring for the Project was performed regularly as stipulated in the EM&A Manuals and the results were checked and reviewed. 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.

#### *Air Quality*

##### 1-hr TSP Monitoring

4. On 30<sup>th</sup> November 2005, two Action Level exceedances were recorded at Stations A2 and A3. It was considered that the exceedances were due to the poor ambient air quality but not related to the Project works. No limit Level exceedance was recorded.

##### 24-hr TSP Monitoring

5. All 24-hour TSP monitoring was conducted as scheduled during the reporting quarter. No Action/Limit Level exceedance was recorded.

#### *Construction Noise*

6. All construction noise monitoring was conducted as scheduled in this reporting quarter.
7. One Action Level exceedance was recorded due to one public complaint received by the ET Leader on 18<sup>th</sup> November 2005.

### Environmental Complaint and Prosecution

8. No environmental prosecution was recorded in the reporting quarter.
9. One environmental complaint was received by CEDD on 18<sup>th</sup> November 2005, which was about the nighttime construction noise due to construction works near Carado Garden and KCRC

depot on 17<sup>th</sup> November 2005. A complaint investigation report was issued by ET on 5 December 2005.

### **Environmental Licensing and Permitting**

10. License/Permits granted to the Project include the Environmental Permit (EP), Construction Noise Permits (CNP), Waste Disposal (Chemical Waste) License and Water Discharge Permit.
11. A total of two new CNPs (CNP no. GW-RN0598-05 and GW-RN0631-05) were issued by the EPD in the reporting period.

### **Future Key Issues**

12. Construction of portal buildings, drainage work, tunneling works, slope works and demolition of TAR 1 will be the major construction activities for the coming quarter.
13. The anticipated environmental impacts will be mainly on potential dust emission, surface runoff during rains and construction noise impact during restricted-hour works.

## 1. INTRODUCTION

- 1.1 Sha Tin Heights Tunnel and Approaches (SHT) (hereinafter called the “Project”) forms part of the Route 9 (Formerly Route 8) between Cheung Sha Wan and Sha Tin project, which will be a new expressway connecting west Kowloon and Sha Tin. The Project, the entrusted portion of the Route 9 (Formerly Route 8) project, is being managed and implemented by Civil Engineering & Development Department (CEDD).
- 1.2 The Project works mainly comprise the site formation for a toll plaza at the valley of Sha Tin Heights, the construction of 1 km long dual three-lane tunnels under Sha Tin Heights, a 0.6 km long dual two-lane tunnel approach road in Tai Wai, two slip road viaducts with approximately total length of 1 km connecting to Che Kung Miu Road, associated noise barriers and noise enclosures, drainage, slope works and landscape works. The remainder of the Route 9 (Formerly Route 8) (Main Portion, R9K) project forms the Kowloon Section and is being managed and implemented separately by Highways Department.
- 1.3 The 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 Route 9 (Formerly Route 8) project to consider the key issues of noise, air quality, water quality, ecological, construction waste, landscape and visual, land use and culture impacts, and identify possible mitigation measures. An updated Final EIA report was subsequently completed in August 1999 to cater for some changes in the main portion. The 1998 and 1999 Route 9 (Formerly Route 8) EIA (R9 EIA Reports) reports were included in the EIA register under the EIAO as report number EIA-135/BC and AEIAR-022/1999 respectively. EM&A Manuals for each of the R9 EIA reports were also included as part of the EIA reports in the register.
- 1.4 Subsequent to the endorsement of the R9 EIA reports by EPD in November 1999, the R9 project was deferred to start in 2002/2003 for completion by 2006/07. The implementation of the Route 9 (Formerly Route 8) project was then separated into the SHT and R9K portions. Meanwhile further design amendments had also been proposed for the SHT during the detailed design stage to resolve various engineering constraints. In view of these changes, an Environmental Review on the SHT was undertaken to update the findings of the R9 EIA reports. The Environmental Review report for R9S was completed in September 2001 and an Environmental Permit No. EP-104/2001 was issued on 4<sup>th</sup> October 2001 for the Project.
- 1.5 The works of the SHT is constructed under CEDD’s construction Contract No. ST 89/02 “Sha Tin Heights Tunnel and Approaches”. The site layout of the Project is shown in Figure 1.
- 1.6 Cinotech Consultants Limited (Cinotech) was commissioned by CEDD to undertake the Environmental Team (ET) Services for the Project. This is the thirtieth Quarterly EM&A report summarizing the EM&A works for the Project between November 2005 and January 2006.

## **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 CEDD, Engineer Representative (ER), Independent Environmental Checker (IEC), the Contractor and Environmental Team (ET). The organization chart and contact details are shown in Appendix A and Figure 3.

### **Construction Programme and Synopsis of Work**

- 2.2 The construction programme is presented in Appendix B. The construction activities undertaken in this reporting quarter were:
- Construction of Portal Buildings;
  - Slope works;
  - Tunneling works;
  - Bridge superstructure works;
  - Drainage works;
  - Construction of retaining structure and;
  - Demolition of Temporary Access Road no.1.

## **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 air quality and noise due to the Project. The Project area and monitoring locations are depicted in Figures 2a and 2b. 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 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 action plans would be implemented. The Action/Limit Levels for each environmental parameter are given 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 given in Appendix E.

#### **4. MONITORING RESULTS**

- 4.1 The summary exceedance report in this reporting quarter is presented in Appendix J.

##### **Weather Conditions**

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

##### **Air Quality**

- 4.3 All 1-hour TSP monitoring was conducted as scheduled in the reporting quarter.
- 4.4 On 30<sup>th</sup> November 2005, two Action Level exceedances of 1-hour TSP levels were recorded at Station A2 and A3. Based on the EPD monitoring data, the hourly Air Pollution Index (API) from most air quality monitoring stations was ranked as high. Besides, exceedance of air quality were also recorded in our other EM&A Projects such as Sha Tin, Yuen Long and Lai Chi Kok, etc. Therefore, the recorded exceedance of air quality may be due to the high ambient TSP level as a consequence of regional air pollution over Hong Kong. Finally, no further action is required for the exceedance.
- 4.5 All 24-hour dust monitoring was conducted as scheduled and no exceedance was recorded during the reporting quarter.
- 4.6 The monitoring data of 1-hour and 24-hour TSP Levels are shown in the appendices of the Monthly Reports. The graphical presentations of the monitoring results are shown in Appendix F.

##### **Noise**

- 4.7 All construction noise monitoring was conducted as scheduled during the reporting quarter.
- 4.8 One Action Level exceedance was recorded due to one public complaints received by the ET Leader on 18<sup>th</sup> November 2005. No Limit Level exceedance was recorded.
- 4.9 The noise monitoring data are attached in the appendices of the Monthly Reports. The graphical plots of the noise monitoring results in this reporting quarter are shown in Appendix G.



## 5. AUDIT RESULTS

### Implementation Status of Environmental Mitigation Measures

- 5.1 The implementation status of environmental mitigation measures (EMIS) is given in Appendix G.

#### Site Audit Summary

##### *Water Quality*

- 5.2 Stagnant water was observed at the area near North Portal Building and in U-channel at Che Kung Miu. The contractor was reminded to level up the ground with soil or crushed stone or remove the water.
- 5.3 Sand was accumulated in a channel at Portion 9 and at the area of Che Kung Miu. The contractor was reminded to remove regularly.
- 5.4 Wheel washing waste was discharged into culvert box through the U-channel at Portion 9. The contractor was reminded to desilt the wheel washing water before discharging into culvert box.
- 5.5 Muddy water was discharged from tunnel of North Portal Building to Culvert Box at Portion 9. The contractor was reminded that the muddy water must pass through a sedimentation tank before discharging into Culvert Box.

##### *Air Quality*

- 5.6 Dust was generated from an open stockpile when an excavator was operating at TAR 1 and the Staircase N1. The contractor was reminded to provide adequate water. Sprinklers or spray water regularly to suppress dust emission.
- 5.7 Uncovered stockpile of soil was observed at the area under the bridge of Che Kung Miu. The contractor was reminded to spray water or cover the stockpile with impervious material to reduce dust emission.
- 5.8 A generator emitted dark smoke at North Portal Building. The contractor was reminded to ensure adequate maintenance of equipment used on site.
- 5.9 The works area at Che Kung Miu near to Tin San Village was observed dry. The contractor was reminded to water the area to minimize dust emission.

##### *Chemical and Waste Management*

- 5.10 Oil stain was observed at the area near to Staircase N1. The contractor was reminded to remove and dispose properly.
- 5.11 Debris were scattering on the ground at Che Kung Miu area. The contractor was reminded to remove and prevent accumulation and dispose of properly.
- 5.12 An oil drum was placed on ground at Che Kung Miu. The contractor was reminded to provide a drip tray to avoid fuel leakage to the ground.

*Permit / Licenses*

- 5.13 Noise label of air compressor was found missing. The contractor was reminded to provide a label for the air compressor.

**Status of Environmental Licensing and Permitting**

- 5.14 Environmental licenses and permits including Environmental Permit for the Project, Construction Noise Permits (CNP), Waste Disposal (Chemical Waste) License and Water Discharge Permit were in place and valid during this reporting quarter. A summary status of licenses and permits is given in Appendix H.

**Advice on Solid Waste Management Status**

- 5.15 The solid waste generated from the Project site office was mainly general refuse that was collected by a licensed collector on an as need basis.

**6. NON-COMPLIANCE (EXCEEDANCES) OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS (ACTION AND LIMIT LEVELS)****Summary of Exceedances***1-hr TSP*

- 6.1 On 30<sup>th</sup> November 2005, two Action Level exceedances were recorded at Stations A2 and A3. It was considered that the exceedances were due to the poor ambient air quality but not related to the Project works. No Limit Level exceedance was recorded.

*24-hr TSP*

- 6.2 No Action/Limit Level exceedance was recorded in the reporting quarter.

*Noise*

- 6.3 No Limit Level exceedance of noise monitoring was recorded. One Action Level exceedance was recorded due to one public complaint received by the ET Leader on 18 November 2005.

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

- 6.4 There was no non-compliance from the site audits in this reporting quarter. The observations and recommendations made in each individual site audit session were attached in the Monthly Reports.

## **Summary of Actions Taken**

6.5 In this reporting quarter, the following mitigation measures were implemented:

- Frequent watering on haul roads was applied for dust suppression;
- 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 were provided;
- Groundwater pumped out was recycled via sediment tanks; and
- 'AquaSep' has been setup to incorporate with the modified desilting system.

## **7. ENVIRONMENTAL COMPLAINTS**

### **Complaint Log**

7.1 The implementation status of the complaint handling procedure is summarized in Appendix I.

7.2 One environmental complaint was received by CEDD on 18<sup>th</sup> November 2005, which was about the nighttime construction noise due to construction works near Carado Garden and KCRC depot on 17<sup>th</sup> November 2005. As advised by RSS, stressing works carried out by the Contractor on the bridge N1 at the night of concern under a valid CNP no. GW-RN0436-05. The noise nuisance was likely to be generated by lorry passing the movement joints of the bridge deck where steel plates were installed temporarily. According to the RSS, it has been checked that all the PME and the type of lorry involved in the works complied with the CNP requirements. After complaint was received, the Contractor has installed steel bars to fix the steel plates. In addition, rubber pads have been installed under the steel plates to minimize noise generation. The complaint was considered valid and related to the Project works. A complaint investigation report was issued by ET on 5<sup>th</sup> December 2005.

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

8.1 No environmental prosecution was recorded in the reporting quarter.

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

9.1 Construction of portal buildings, drainage works, tunneling works and slope works will be the major construction activities for the coming quarter. The anticipated environmental impacts will be mainly on potential dust emission, surface runoff during rains and construction noise impact during restricted-hour works.