

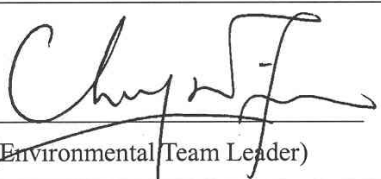
Civil Engineering & Development Department
NT EAST Development Office

Contract No. ST89/02

Sha Tin Heights Tunnel and Approaches

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

May to July 2005

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.

CINOTECH accepts no responsibility for changes made to this report by third parties.

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

TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	1
Environmental Monitoring Works	1
Environmental Complaint and Prosecution	1
Environmental Licensing and Permitting	2
Future Key Issues.....	2
1. INTRODUCTION.....	3
2. PROJECT CHARACTERISTICS	4
Project Organization and Contacts of Key Management	4
Construction Programme and Synopsis of Work.....	4
3. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS	5
Monitoring Parameters and Monitoring Locations	5
Monitoring Methodology and Calibration Details	5
Environmental Quality Performance Limits (Action and Limit Levels).....	5
Environmental Mitigation Measures	5
4. MONITORING RESULTS	6
Weather Conditions	6
Air Quality.....	6
Noise.....	6
5. AUDIT RESULTS.....	7
Implementation Status of Environmental Mitigation Measures	7
Site Audit Summary.....	7
Status of Environmental Licensing and Permitting.....	7
Advice on Solid Waste Management Status	8
6. NON-COMPLIANCE (EXCEEDANCES) OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS (ACTION AND LIMIT LEVELS).....	9
Summary of Exceedances	9
Review of the Reasons for and the Implications of Non-compliance.....	9
Summary of Actions Taken.....	9
7. ENVIRONMENTAL COMPLAINTS	10
Complaints Log	10
8. NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS	10
9. COMMENTS, CONCLUSIONS AND RECOMMENDATIONS	10

LIST OF FIGURES

Figure 1	Site Layout Plan
Figure 2a	Location of Monitoring Stations
Figure 2b	Location of Monitoring Stations
Figure 3	Project Organization Chart

LIST OF APPENDICES

Appendix A	Contact Details of the Project Organisation
Appendix B	Construction Programme
Appendix C	Monitoring Requirements
Appendix D	Environmental Quality Performance (Action/Limit) Levels
Appendix E	Implementation Status of Environmental Mitigation Measures (EMIS)
Appendix F	Graphical Presentation of Air Quality Monitoring Results
Appendix G	Graphical Presentation of Noise Monitoring Results
Appendix H	Summary Status of Environmental Licences and Permits
Appendix I	Complaint Log
Appendix J	Summary report of Exceedances

EXECUTIVE SUMMARY

1. This is the eleventh 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 May and July 2005.
2. The construction activities undertaken in this reporting quarter were:
 - Construction of Portal Buildings;
 - Site formation and slope works;
 - Tunneling works;
 - Bridge superstructure works;
 - Drainage works; and
 - Construction of retaining structure.

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. All 1-hour TSP monitoring was conducted as scheduled except that monitoring at Station 4 was suspended occasionally due to power disruption to the monitoring equipment.
5. No Action/ Limit Level exceedance was recorded in the reporting period.

24-hr TSP Monitoring

6. All 24-hour TSP monitoring was conducted as scheduled except that monitoring at Station 4 was suspended occasionally due to power disruption to the monitoring equipment.
7. No Action/Limit Level exceedance was recorded in the reporting quarter.

Construction Noise

8. All construction noise monitoring was conducted as in this reporting quarter.
9. No Limit Level exceedance was recorded in the reporting period. Two Action Level exceedances were recorded due to two public complaints received by the ET Leader on 9th and 13th May 2005.

Environmental Complaint and Prosecution

10. No environmental prosecution was recorded in the reporting quarter.
11. Two environmental complaints were received on 9th and 13th May 2005. One of the complaints was related to the excessive noise generated by the night work. The records of the ER and the Contractor showed that bridge launching operation was being carried out over the East and Ma On Shan (MOS) Rail near Tai Wai Depot during the time of concern. Nevertheless, the CNP no. GW-RN0140-05 has been issued to the Contractor for the night work and no violation of the permit conditions was observed. There was no action or limit level exceedance recorded based on the monitoring results from ET. Nevertheless, mitigation measures have been proposed to the Contractor.
12. The other complaint complaint was about construction noise nuisance at the residents of Golden Villa and was received on 13th May 2005 by EPD. The site of concern was likely to be the Sha Tin Height Tunnel. According to the Contractor's information, tunnel excavation works including the rock drill and charging of explosive were undertaken after 2300 hours in the tunnels. It was believed that the nuisance was caused by the vibration due to drilling works. The nuisance was more significant as the excavation face at south bound tunnel came closer towards Keng Hau Road. Upon receipt of the complaint, the Contractor had already stopped all drilling works after 23:00 hours inside the sound bound tunnel. In addition, the Contractor also delivered notices to the residents of Golden Villa for explaining the cause of nuisance and the actions they had taken to rectify the problems.

Environmental Licensing and Permitting

13. License/Permits granted to the Project include the Environmental Permit (EP), Construction Noise Permits (CNP), Waste Disposal (Chemical Waste) License and Water Discharge Permit.
14. A total of four new CNPs (CNP no. GW-RN0250-05, GW-RN0288-05, GW-RN0289-05 and GW-RN0290-05) were issued by the EPD in the report period.

Future Key Issues

15. Construction of portal buildings, drainage work, tunneling works and segment erection will be the major construction activities for the coming quarter.
16. The anticipated environmental impacts will be mainly on surface runoff during rains, 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 4th 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 eleventh Quarterly EM&A report summarizing the EM&A works for the Project between May and July 2005.

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;
 - Site formation and slope works;
 - Tunneling works;
 - Bridge superstructure works;
 - Drainage works; and
 - Construction of retaining structure.

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, cloudy and rainy. The weather conditions for each individual monitoring session were presented in the field record sheets.

Air Quality

- 4.3 All 1-hour dust monitoring was conducted as scheduled except that the monitoring at Garden Villa was suspended from 28th April 2005 to 30th May 2005, and on 10th, 21st, 23rd, 24th and 27th June 2005 and 22nd, 25th, 26th and 28th July 2005 due to power disruption to the monitoring equipment.
- 4.4 All 24-hour dust monitoring was conducted as scheduled except that the monitoring at Garden Villa was suspended from 28th April 2005 to 30th May 2005 and 27th July 2005, the monitoring station at Shatin Heights and Garden Villa were suspended on 10th, 16th and 22nd June 2005 due to power disruption to the monitoring equipment.
- 4.5 No Action / Limit Level exceedance was recorded in the reporting month.
- 4.6 The monitoring data of 1-hr and 24-hr 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 No Limit Level exceedance was recorded in the reporting quarter. Two Action Level exceedances were recorded due to two public complaints received by the ET Leader on 9th and 13th May 2005. The details of the complaints are provided in Appendix I
- 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 Accumulation of sand and silt was observed in the U-channel at Che Kung Miu Road, Box Culvert 5, North Portal and near TAR 1. The contractor was reminded to keep the facilities clean and pay more attention after each rainstorm.
- 5.3 The contractor was reminded to prevent the overflow of sedimentation tank and the muddy water discharge from site directly.
- 5.4 The silt retention ponds and sedimentation tanks were accumulated of silt and sludge. The contractor was reminded to remove silt more frequently and maintain the sedimentation tanks in good operation at Portion 9, North Portal and South Portal Building.
- 5.5 A tarpaulin water pipe, which diverted wastewater out of the tunnel to a sedimentation tank was broken. The contractor was reminded to repair the pipe as soon as possible.
- 5.6 Standing water was observed on the cover of stockpile at Portion 8 and other locations of the site. The contractor was reminded to prevent accumulation of standing water and pay more attention on the issue of mosquito breeding.

Air Quality

- 5.7 Dark smoke emission from plant was observed at portion 9. The contractor was reminded to keep the equipment on site well maintained.

Chemical and Waste Management

- 5.8 The chemical were observed stored without the drip tray. The contractor was reminded to provide drip tray for fuel storage.
- 5.9 Oil leaked out from container to ground at Che Kung Miu and Tunnel's Workshop. The contractor was reminded to clean up oil and keep the oil drums in the well sealed tray to prevent oil leakage to ground.
- 5.10 General wastes scattering on ground were observed at Che Kung Miu Road, Portal Building and Portion 7. The contractor was reminded to dispose regularly and properly.

Status of Environmental Licensing and Permitting

- 5.11 Environmental licenses and permits including Environmental Permit for the Project, Construction Noise Permits (CNPs), 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

- 5.12 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 No Action/Limit Level exceedance due to the Project was recorded in the reporting quarter.

24-hr TSP

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

Noise

- 6.3 No Limit Level exceedance was recorded in the reporting quarter. Two Action Level exceedances were recorded due to two public complaints received by the ET Leader on 9th and 13th May 2005. The details of the complaints are provided in Appendix I

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 All complaints have been handled in accordance with the EM&A Manuals. The implementation status of the complaint handling procedure is summarized in Appendix I.
- 7.2 Two environmental related complaints were received in the reporting period.
- 7.3 The first complaint was forwarded by EPD on 8th March 2005. It was related to the excessive noise generated by the night work. The records of the ER and the Contractor showed that bridge launching operation was being carried out over the East and Ma On Shan (MOS) Rail near Tai Wai Depot during the time of concern. Nevertheless, the CNP no. GW-RN0140-05 has been issued to the Contractor for the night work and no violation of the permit conditions was observed. There was no action or limit level exceedance recorded based on the monitoring results from ET. Nevertheless, mitigation measures have been proposed to the Contractor.
- 7.4 The second complaint was about construction noise nuisance at the residents of Golden Villa and was received on 13th May 2005 by EPD. The site of concern was likely to be the Sha Tin Height Tunnel. According to the Contractor's information, tunnel excavation works including the rock drill and charging of explosive were undertaken after 2300 hours in the tunnels. It was believed that the nuisance was caused by the vibration due to drilling works. The nuisance was more significant as the excavation face at south bound tunnel came closer towards Keng Hau Road. Upon receipt of the complaint, the Contractor had already stopped all drilling works after 23:00 hours inside the sound bound tunnel. In addition, the Contractor also delivered notices to the residents of Golden Villa for explaining the cause of nuisance and the actions they had taken to rectify the problems.

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 segment erection will be the major construction activities for the coming quarter. The anticipated environmental impacts will be mainly on surface runoff during rains, dust generation during blasting works and construction noise impact during restricted-hour works.