

**Territory Development Department
NT EAST Development Office**


Contract No. ST 92/02

Sha Tin Heights Tunnel and Approaches

**Environmental Monitoring and Audit
Quarterly Report (Version 2)**

August 2003 to October 2003

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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TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	1
Environmental Monitoring Works	1
Environmental Complaint and Prosecution	1
Environmental Licensing and Permitting	3
Future Key Issues.....	3
1. INTRODUCTION.....	4
2. PROJECT CHARACTERISTICS	5
Project Organization and Contacts of Key Management	5
Construction Programme and Synopsis of Work.....	5
3. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS.....	6
Monitoring Parameters and Monitoring Locations	6
Monitoring Methodology and Calibration Details	6
Environmental Quality Performance Limits (Action and Limit Levels).....	6
Environmental Mitigation Measures	6
4. MONITORING RESULTS	7
Weather Conditions	7
Air Quality	7
Noise.....	7
5. AUDIT RESULTS.....	8
Implementation Status of Environmental Mitigation Measures	8
Site Audit Summary.....	8
Status of Environmental Licensing and Permitting.....	9
Advice on Solid Waste Management Status	9
6. NON-COMPLIANCE (EXCEEDANCES) OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS (ACTION AND LIMIT LEVELS).....	10
Summary of Exceedances	10
Review of the Reasons for and the Implications of Non-compliance.....	10
Summary of Actions Taken.....	10
7. ENVIRONMENTAL COMPLAINTS	11
Complaints Log	11
8. NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS	12
9. COMMENTS, CONCLUSIONS AND RECOMMENDATIONS	12

LIST OF TABLE

Table 2.1 Summary of Works Undertaken in the Reporting Months

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 fourth Environmental Monitoring and Audit (EM&A) Quarterly Summary Report prepared by Cinotech Consultants Limited for the “Sha Tin New Town, Stage II Route 9 between Cheung Sha Wan and Sha Tin – Entrusted Portion” (the Project). This summary report presents EM&A works performed in the period between August 2003 and October 2003.
2. The construction activities undertaken in this reporting quarter were:
 - Site clearance and formation works
 - Excavation works
 - Installation of soil nail
 - Slope cutting and filling work
 - Retaining wall construction
 - Road pavement works
 - Bored pile foundation

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-hour TSP Monitoring

4. All 1-hour TSP monitoring was conducted as scheduled during the reporting period except that the monitoring works on 25th August 2003 were postponed to 26th August 2003 due to the hoist of Typhoon Signal No. 3 and the monitoring works on 2nd September 2003 were postponed to 4th September 2003 due to the hoist of Typhoon Signal No. 8. No Action/Limit Level exceedance was recorded in the reporting period.

24-hour TSP Monitoring

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

Construction Noise

6. All construction noise monitoring was conducted as scheduled during the reporting month, except the monitoring works at station N7 on 29th September 2003 were postponed to 30th September 2003.
7. Totally nine (9) Limit Level exceedance were recorded at Station N7 (Lau Pak Lok Secondary School) on 7th August, 5th, 11th, 24th, 25th, 30th September, 6th, 22nd and 30th October 2003 in the reporting quarter. According to ET’s investigation, all the exceedance were due to the construction works of T3 and were not related to the Project.

Environmental Complaint and Prosecution

8. A warning from EPD was received by the Contractor on 15th October 2003. It was about the works straddling over 19:00 without a valid CNP. The Contractor agreed to strengthen the works planning and schedule. The sub-contractor was also strongly requested to follow the Contractor's site requirement. Administrative penalty would be exerted on the sub-contractor by the Contractor for any further non-compliance from CNP requirements.
9. A total of 3 complaints have been received in the reporting period.
10. The first complaint was a public complaint received by EPD on 1st September 2003. The complaint was forwarded by EPD to the Environmental Team (ET) on the same day. It was about the construction dust and Sunday noise generated from construction activities at Toll Plaza near Garden Villa. The complainant also expressed his/her concerns on the noise from breaking activities during weekdays' early morning around 7am. ET undertook the investigation and submitted the complaint investigation report to EPD on 9th September 2003.
11. According to the ET's investigation report, the first complaint was considered to be valid. However, the Contractor stated that no Powered Mechanical Equipment was used on Sunday except that wire mesh installation works were carried out at the concerned area. In additions, the measured noise levels and dust levels were below the respective environmental limits in August 2003 at the concerned area. Further dust measurement was conducted on 9th September 2003 to confirm that the dust level at Garden Villa was below the limit.
12. The second complaint was raised via the Honourable Cheng Kar Foo and Leung Wing Hung and was received by TDD on 5th September 2003. The complaint was forwarded by TDD to the ET on the same day. It was about the construction dust and noise generated from the construction activities at the site near Garden Villa. The complainant also requested to erect barrier to mitigate the noise and dust problem. ET undertook the investigation and submitted the complaint investigation report to TDD on 9th September 2003.
13. According to the ET's investigation report, the complaint was considered to be valid. However, the measured noise levels and dust levels were below the respective environmental limits in August and September 2003.
14. According to the ET's investigation reports of first and second complaint, it is recommended the Contractor:-

To Minimize the Construction Noise by
 - spacing out noisy equipment and position it as far away as possible from the sensitive receivers;
 - avoiding concurrent uses of noisy equipment near the sensitive area;
 - ensuring the equipment are maintaining in good operation condition; and
 - turning off any idle equipment on site.
To Minimize the Dust Generation by
 - spraying water to suppress the dust generation.
 - road surface washing and avoiding accumulation of soil/mud.
15. An additional construction dust monitoring station was set up at Garden Villa (A4). Regular dust monitoring have been conducted at A4 since 8th September 2003.
16. The third complaint was raised by a resident of Golden Time Villa and received by Territory Development Department (TDD) on 3rd October 2003. The complaint was forwarded by TDD to

the ET on the same day. It was about wildlife threat due to road works. The complainant also expressed his concerns on whether the concerned departments had any plans on how to settle the wildlife. ET undertook the investigation and submitted the complaint investigation report to TDD on 14th October 2003.

17. According to the ET's investigation report of the above complaint, the animal wildlife recorded for the Project was limited and no species of conservation interest was found. Avifauna, reptile, amphibian and butterfly species in the area were all common in Hong Kong. The potential impacts on animal wildlife were expected to be low. Therefore, no specific mitigation measure to the animal wildlife was recommended.

Environmental Licensing and Permitting

18. License/Permits granted to the Project include the Environmental Permit (EP), Construction Noise Permits (CNP), Waste Disposal (Chemical Waste) License and Water Discharge Permit.

Future Key Issues

19. Excavation works, geotechnical works (soil nail), drainage works and site formation works will be the major construction activities for the coming quarter. The anticipated environmental impact will be mainly on dust and noise due to earthworks.

1. INTRODUCTION

- 1.1 Route 9 (Sha Tin Section) (R9S) (hereinafter called the “Project”) forms part of the Route 9 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 project, is being managed and implemented by Territory Development Department (TDD).
- 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 (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 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 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 project was then separated into the R9S and R9K portions. Meanwhile further design amendments had also been proposed for the R9S during the detailed design stage to resolve various engineering constraints. In view of these changes, an Environmental Review on the R9S 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 R9S is constructed under TDD’s construction Contract No. ST 89/02 “Route 9 – 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 TDD to undertake the Environmental Team (ET) Services for the Project. This is the fourth Quarterly EM&A report summarizing the EM&A works for the Project between August 2003 and October 2003.

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 TDD, 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 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		
		Aug 03	Sept 03	Oct 03
1.	Site clearance and formation works	✓	✓	✓
2.	Excavation works	✓	✓	✓
3.	Installation of soil nail	✓	✓	✓
4.	Slope cutting and filling work	✓	✓	✓
5.	Retaining wall construction	✓	✓	✓
6.	Road pavement works	-	✓	✓
7.	Bored pile foundation	-	-	✓

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

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

- 4.2 All dust monitoring was conducted as scheduled during the reporting period except that the 1-hour TSP monitoring works on 25th August 2003 were postponed to 26th August 2003 due to the hoist of Typhoon Signal No. 3 and the 1-hour TSP monitoring works on 2nd September 2003 were postponed to 4th September 2003 due to the hoist of Typhoon Signal No. 8.
- 4.3 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.

1-hour TSP

- 4.4 All measured 1-hour TSP levels in this reporting quarter were below the Action/Limit Levels.

24-hour TSP

- 4.5 No exceedance of 24-hour TSP monitoring results was recorded in this reporting quarter.

Noise

- 4.6 Noise monitoring was performed at four designated locations during the daytime period (0700 to 1900) as scheduled, except the monitoring works at station N7 on 29th September 2003 were postponed to 30th September 2003.
- 4.7 The noise monitoring data are attached in the appendices of the Monthly Reports. The graphical plot of the noise monitoring results in this reporting quarter are shown in Appendix G.
- 4.8 Totally nine (9) limit exceedance were recorded at Station N7 (Lau Pak Lok Secondary School) on 7th August, 5th, 11th, 24th, 25th, 30th September, 6th, 22nd and 30th October 2003 in the reporting quarter. According to ET's investigation, all the exceedances were due to the construction works of T3 and were not related to the Project.
- 4.9 The summary exceedance report in this reporting quarter is presented in Appendix J.

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 On the audit session on 7th August 2003, it was observed that damaged sand bags were found at Che Kung Miu Road and Portion 9.
- 5.3 On the audit session on 14th August 2003, silty water at Portion 9 was observed. The contractor was also recommended to bund the earthwork area by sand bags or other alternative method to prevent flooding at Portion 9.
- 5.4 Sand accumulated inside the catch pit at Portion 9 was observed on 28th August, 4th, 15th, 19th and 25th September 2003. The contractor was recommended to clean it up more frequently.
- 5.5 On the audit session on 25th September 2003, the Contractor was advised to treat the muddy water from the entrance of Access Road No.1 prior discharge.
- 5.6 Stagnant water was observed in temporary u-channel at site office on 9th October 2003

Air Quality

- 5.7 On the audit session on 21st August, 25th September and 16th October 2003, the Contractor was reminded to have wheel washing facilities for vehicles leaving the site.
- 5.8 On the audit session on 25th September 2003, black smoke was observed from an excavator at Access Road No.1. The particular excavator was retired on the same day.
- 5.9 On the audit session on 2nd, 9th and 16th October 2003, open stockpile, sandy road and uncovered newly excavated soil were found respectively. The Contractor was reminded to provide appropriate dust suppression measures.
- 5.10 Improper storage of cement bags were observed at Portion 3A on 30th October 2003

Chemical and Waste Management

- 5.11 Some oil drums placed on the bared ground at Access Road No. 1 were observed on 14th August 2003.
- 5.12 A pumping machine placed on the bared ground at Portion 9 was observed on 21st August 2003.
- 5.13 On the audit session on 15th September 2003, it was observed that some batteries were not stored in the proper area at Che Kung Mui Road.

5.14 On the audit session on 2nd and 23rd October 2003, it was observed that some batteries and empty drums were not stored in the proper area at Che Kung Mui Road, Portion 8 and 9 respectively.

5.15 Contaminated soils and oil stain were found on 2nd and 23rd October 2003 at Che Kung Mui Road and Portion 2C respectively.

Noise

5.16 No violation was observed during these subsequent site inspections.

Permit / Licenses

5.17 No violation was observed during these subsequent site inspections.

Status of Environmental Licensing and Permitting

5.18 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

5.19 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

- 6.1 All measured 1-hour and 24-hour TSP levels were below the Action/Limit Levels in the reporting period.
- 6.2 Totally nine (9) limit exceedance of construction noise were recorded at Station N7 (Lau Pak Lok Secondary School) on 7th August, 5th, 11th, 24th, 25th, 30th September, 6th, 22nd and 30th October 2003 in the reporting quarter. According ET's investigation, all the exceedance were due to the construction works of T3 and were not related to the Project.

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

- 6.3 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

- 6.4 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 were provided;
 - Groundwater pumped out was recycled via sediment tanks; and
 - 'AquaSep' has been setup at Portion 8 to incorporate with the modify desilting system.

7. ENVIRONMENTAL COMPLAINTS

Complaints Log

- 7.1 A warning from EPD was received by the Contractor on 15th October 2003. It was about the works straddling over 19:00 without a valid CNP. The Contractor agreed to strengthen the works planning and schedule. The sub-contractor was also strongly requested to follow the Contractor's site requirement. Administrative penalty would be exerted on the sub-contractor by the Contractor for any further non-compliance from CNP requirements.
- 7.2 A total of 3 complaints have been received in the reporting period.
- 7.3 The first complaint was a public complaint received by EPD on 1st September 2003. The complaint was forwarded by EPD to the ET on the same day. It was about the construction dust and Sunday noise generated from construction activities at Toll Plaza near Garden Villa. The complainant also expressed his/her concerns on the noise from breaking activities during weekdays' early morning around 7am. ET undertook the investigation and submitted the complaint investigation report to EPD on 9th September 2003.
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- 7.6 According to the ET's investigation report, the complaint was considered to be valid. However, the measured noise levels and dust levels were below the respective environmental limits in August and September 2003.
- 7.7 According to the ET's investigation reports of first and second complaint, it is recommended the Contractor:-

To Minimize the Construction Noise by

- spacing out noisy equipment and position it as far away as possible from the sensitive receivers;
- avoiding concurrent uses of noisy equipment near the sensitive area;
- ensuring the equipment are maintaining in good operation condition; and
- turning off any idle equipment on site.

To Minimize the Dust Generation by

- spraying water to suppress the dust generation.
- road surface washing and avoiding accumulation of soil/mud.

- 7.8 An additional construction dust monitoring station was set up at Garden Villa (A4). Regular dust monitoring have been conducted at A4 since 8th September 2003.
- 7.9 The third complaint was raised by a resident of Golden Time Villa and received by Territory Development Department (TDD) on 3rd October 2003. The complaint was forwarded by TDD to the Environmental Team (ET) on the same day. It was about wildlife threat due to road works. The complainant also expressed his concerns on whether the concerned departments had any plans on how to settle the wildlife. ET undertook the investigation and submitted the complaint investigation report to TDD on 14th October 2003.
- 7.10 According to the ET's investigation report of the above complaint, the animal wildlife recorded for the Project was limited and no species of conservation interest was found. Avifauna, reptile, amphibian and butterfly species in the area were all common in Hong Kong. The potential impacts on animal wildlife were expected to be low. Therefore, no specific mitigation measure to the animal wildlife was recommended.

8. NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

- 8.1 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 Complaint Log.

9. COMMENTS, CONCLUSIONS AND RECOMMENDATIONS

- 9.1 Excavation works, geotechnical works (soil nail), drainage works and site formation works will be the major construction activities for the coming quarter. The anticipated environmental impact will be mainly on dust and noise due to in dry season.