

**Territory Development Department
NT EAST Development Office**

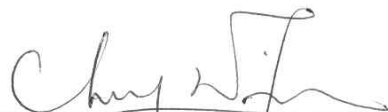
**Tseung Kwan O Development, Phase II
Contract No. TK57/02**

Grade Separated Interchange T1/P1/P2

**Environmental Monitoring and Audit
Quarterly Report (Version 1)**

December 2002 to February 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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EXECUTIVE SUMMARY

This is the third Environmental Monitoring and Audit (EM&A) Quarterly Summary Report prepared by Cinotech Consultants Limited for the “Tseung Kwan O Development, Phase II – Grade Separated Interchange T1/P1/P2” (the Project). This summary report presents EM&A work performed in the period between 27th November 2002 and 26th February 2003.

The construction activities undertaken in the reporting quarter were:-

- Piles & substructure works
- Mobilization & work area set up for bored piles
- Trial pit excavation
- Pre-drilling works
- Site clearances works
- Utility diversion
- Drainage works
- Erection of steel frame of noise barrier type E

Environmental Monitoring Works

Environmental monitoring for the Project was performed regularly as stipulated in the EM&A Manual 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

All 1-hour TSP monitoring was conducted as scheduled.

All 1-hour TSP results complied with the Action and Limit Levels (AL Levels) in the reporting quarter.

24-hour TSP Monitoring

All 24-hour TSP monitoring was conducted as scheduled.

All 24-hour TSP results complied with the Action and Limit Levels in the reporting quarter.

Construction Noise

All construction noise monitoring was conducted as scheduled. One Action Level exceedance (complaint) was raised by a resident living at King Lam Estate on 6th January 2003. The complainant repeated the complaint on 24th February 2003. (Refer to the section of Environmental Complaint and Prosecution section). Two Limit Level exceedances were recorded during the reporting quarter. One Limit Level exceedance was recorded at the monitoring station N7 (Chung Ming Court) on 6th December 2002. Event Action Plan has been implemented. An additional noise monitoring was conducted on 10th December 2002 at N7 while no exceedance was recorded. Nevertheless, the Contractor proposed remedial measures on 12th December 2002 to avoid further exceedance. The other Limit Level exceedance was reported at N1 (TKO Public Library) on 19th February

2003. There was no direct evidence showing that the exceedance was due to the construction activities under the Project works, the limit level exceedance was considered to be invalid.

Environmental Complaint and Prosecution

No environmental prosecution was received during the reporting quarter.

One complaint related to the Project works was reported on 6th January 2003 and repeated on 24th February 2003. The complaint, which was transferred by Environmental Protection Department (EPD) to Environmental Team (ET) on 6th and 25th February 2003, was raised by a resident living at King Lam Estate concerning the piling noise and construction noise after 19:00 induced by the Project work. Complaint handling procedures stipulated in the EM&A Manual was initiated.

ET visited the concerned area on 7th February 2003 whilst noise measurements were conducted at two locations, which are public areas (the corridor) at 5/F of King Yung House, King Lam Estate, facing the Project site at Po Shun Road. The noise levels at the measurement locations are considered representative to that of the most affected residents of King Lam Estate. The measurement results were 73.0 and 72.0 dB(A). Besides, based on the Works Supervisor's Daily Reports provided by ER, construction works were carried out from 08:00 to 19:30 on 3rd January 2003. As ET was not informed for any construction work after 19:00, no noise monitoring was undertaken. ET has submitted the investigation report for the complaint on 6th January 2003 to the Engineer and EPD.

The investigation for the repeated complaint on 24th February 2003 is still undergoing by the end of the reporting month.

Environmental Licensing and Permitting

License/Permits granted to the Project include the Environmental Permit (EP) for the Project, construction noise permit, water discharge licenses and Waste Disposal (Chemical Waste) license.

Future Key Issues

Bored piling and site formation will be the major construction site activities for the coming quarter. The anticipated environmental impact will be mainly on dust and noise due to earthworks.

1. INTRODUCTION

- 1.1 Cinotech Consultants Limited (hereinafter called the “ET”) was appointed by Territory Development Department (TDD) (hereinafter called the "Project Proponent") via Maunsell Consultants Asia Limited (hereinafter called the “Engineer/ Engineer’s Representative) to undertake the Environmental Monitoring and Audit (EM&A) works for the Project “Tseung Kwan O Development, Phase II – Grade Separated Interchange T1/P1/P2” (the Project).
- 1.2 In accordance with the EM&A Manual, environmental monitoring of air quality and noise, and environmental audits are required for the Projects.
- 1.3 The Project contains the works for upgrading the existing at-grade interchange at Roads T1/P1/P2 junction at Tseung Kwan O to a grade separated interchange, and to widen the section of Road P2 between Po Hong Road and Po Ning Road. Figure 1 shows the location and the site boundary of the Project. The works have been commenced under Contract No. TK 57/02 – “Grade Separated Interchange T1/P1/P2”
- 1.4 The Project is a designated project under the Environmental Impact Assessment Ordinance (Cap. 449) and an environmental impact assessment report titled “Tseung Kwan O Development Contract F – Grade Separated Interchange T1/P1/P2, Environmental Impact Assessment (EIA) Study” (Register No. AEIAR – 017/1999) has been approved and deposited with Environmental Protection Department (EPD). An Environmental Permit (EP) No. EP-073/2000/B has been issued by EPD for the construction and operation of the proposed works under the Project.
- 1.5 China Civil Engineering Construction Corporation (the Contractor) was appointed to carry the main works on the Project.
- 1.6 This report presents the monitoring results and observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely noise and dust levels and audit works for the Project between December 2002 and February 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 Project Proponent, 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 2.

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	2002	2003	
		December	January	February
1.	Piles & substructure works	0	0	0
2.	Mobilization & work area set up	0	0	0
3.	Trial pit excavation	0	0	0
4.	Pre-drilling works	0	0	0
5.	Site clearances works	0	0	0
6.	Drainage work	0	0	0
7.	Utility diversion	0	0	0
8.	Erection of noise barrier	-	-	0

3. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

Monitoring Parameters and Monitoring Locations

- 3.1 The EM&A Manual designates 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 1. Appendix C gives details of monitoring requirements.

Monitoring Methodology and Calibration Details

- 3.2 Monitoring works/equipment were conducted/ calibrated regularly in accordance with the EM&A Manual. Copies of calibration certificates are attached in the appendices in 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 Manual for the Contractor to adopt. A list of mitigation measures is given in Appendix G.

4. MONITORING RESULTS

- 4.1 In the reporting quarter, monitoring at all designated monitoring stations were performed on scheduled.

Weather Conditions

- 4.2 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-hour TSP

- 4.3 All 1-hour TSP monitoring results in the reporting quarter was all below the Action/Limit Levels. The graphical presentation of the monitoring results is provided in Appendix E.

24-hour TSP

- 4.4 All measured 24-hour TSP levels were below the Action/Limit Levels in the reporting period. The graphical presentation of the monitoring results is provided in Appendix E.

Noise

- 4.5 The graphical presentation of the monitoring results is provided in Appendix F. One Action Level exceedance (complaint) was raised by a resident living at King Lam Estate on 6th January 2003. The complainant repeated the complaint on 24th February 2003. (Refer to Section 7 for details)
- 4.6 One Limit Level exceedance of construction noise was recorded at N7 on 6th December 2002. Event Action Plan has been implemented. An additional noise monitoring was conducted on 10th December 2002 at N7 while no exceedance was recorded. Nevertheless, the Contractor proposed remedial measure (crawler crane and bored piling machine should not be fully operated at the same time) on 12th December 2002 to avoid further exceedance. The proposal was implemented and no further exceedance was reported at the monitoring station by the end of the reporting period.
- 4.7 In addition, one Limit Level exceedance was reported at N1 (TKO Public Library) on 19th February 2003. Since there was no Project work near the monitoring station during the monitoring period and the main noise source was the road improvement works which was conducted by other contractor near the Public Library, the exceedance was considered invalid and no further action is required.

5. AUDIT RESULTS

Implementation Status of Environmental Mitigation Measures

- 5.1 Pre-drilling works, piles and substructure works, drainage work and utility diversion were the main construction activities in the reporting quarter.

Summary of Site Audit Results

- 5.2 The Contractor was recommended to avoid sandy water from overflowing into existing drainage system by using sand bags or other alternatives.
- 5.3 During weekly site audits, damaged sand bags were observed near the drainage channel and gullies were not protected by sand bags. The situation was rectified by the Contractor by the end of the reporting quarter.
- 5.4 Accumulation of stagnant water was observed during site audit sessions. The Contractor was recommended to clean up the stand water to avoid mosquito breeding.
- 5.5 Some of the oil buckets were occasionally placed on bare ground. The Contractor was recommended to provide drip trays or alternatives for storage of oil buckets.
- 5.6 Lubricant oil dripping from machines was occasionally observed inside the site. The Contractor was recommended to provide drip trays or other alternatives to prevent oil leaking to the ground.
- 5.7 During the site audit on 17th January 2003, muddy water was directly discharged into the gully at Po Shun Road. The Contractor immediately stopped the discharge and indicated that they would prohibit any direct discharge of wastewater.

Status of Environmental Licensing and Permitting

- 5.8 Environmental licenses and permits including Environmental Permit for the Project, construction noise permit, wastewater discharge licenses and Waste Disposal (Chemical Waste) license were in place and valid during the reporting quarter. A summary status of licenses and permits is given in Appendix H.

Advice on Solid Waste Management Status

- 5.9 The solid waste generated from the Project 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-hr TSP levels were below the Action/Limit Levels in the reporting period.
- 6.2 All measured 24-hour TSP levels were below the Action/Limit Levels in the reporting period.
- 6.3 One Action Level exceedance (complaint) was raised by a resident living at King Lam Estate on 6th January 2003. The complainant repeated the complaint on 24th February 2003. Two Limit Level exceedances were recorded during the reporting quarter. One Limit Level exceedance were recorded at the monitoring station N7 (Chung Ming Court) on 6th December 2002. The other Limit Level exceedance was reported at N1 (TKO Public Library) on 19th February 2003.

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

- 6.4 (Refer to Section 7 for the details of the Action Level exceedance on construction noise) Event Action Plan was implemented for the Limit Level exceedance of construction noise recorded at N7 on 6th December 2002. An additional noise monitoring was conducted on 10th December 2002 at N7 while no exceedance was recorded. Nevertheless, the Contractor proposed remedial measure (crawler crane and bored piling machine should not be fully operated at the same time) on 12th December 2002 to avoid further exceedance. The proposal was implemented and no further exceedance at the monitoring station was reported by the end of the reporting period.
- 6.5 Since there was no Project work near the monitoring station during the monitoring period and the main noise source was the road improvement works which was conducted by other contractor near the Public Library, the Limit Level exceedance reported at N1 (TKO Public Library) on 19th February 2003 was considered invalid and no further action is required.
- 6.6 There were no non-compliances from the site audits in the reporting quarter. The observations and recommendations made in each individual site audit session were attached in the Monthly reports.

Summary of Actions Taken

- 6.7 In this reporting quarter, the following mitigation measures were implemented:
- insecticide was added into the accumulation of water on daily basis to prevent mosquito breeding.
 - excavated/dusty materials have been covered or water sprayed.
 - groundwater pumped out was recycled via sediment tanks.
 - machines that dripping oil had provide the drip tray to prevent oil leaking to the ground.
 - crawler crane and bored piling machine have not been fully operated at the same time.

7. ENVIRONMENTAL COMPLAINTS

Complaint Log

- 7.1 Appendix I summaries the complaints received since the Project commencement.
- 7.2 During the reporting quarter, one complaint was raised on 6th January 2003 and repeated on 24th February 2003. The complaint, which was transferred by Environmental Protection Department (EPD) to Environmental Team (ET) on 6th and 25th February 2003, was raised by a resident living at King Lam Estate concerning the piling noise and construction noise after 19:00 induced by the Project work. Complaint handling procedures stipulated in the EM&A Manual was initiated. ET visited the concerned area on 7th February 2003 whilst noise measurements were conducted at two locations, which are public areas (the corridor) at 5/F of King Yung House, King Lam Estate, facing the Project site at Po Shun Road. The noise levels at the measurement locations are considered representative to that of the most affected residents of King Lam Estate. The measurement results were 73.0 and 72.0 dB(A). Besides, based on the Works Supervisor's Daily Reports provided by ER, construction works were carried out from 08:00 to 19:30 on 3rd January 2003. As ET was not informed for any construction work after 19:00, no noise monitoring was undertaken. ET has submitted the investigation report for the complaint on 6th January 2003 to the Engineer and EPD. The investigation for the repeated complaint on 24th February 2003 is still undergoing by the end of the reporting month.

Complaint Handling Procedure

- 7.3 All complaints have been handled in accordance with the EM&A Manual. The implementation status of the complaint handling procedure is summarized in Appendix I Complaint Log.

8. NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

- 8.1 No notification of summons and successful prosecutions were recorded during the reporting quarter.

9. COMMENTS, CONCLUSIONS AND RECOMMENDATIONS

- 9.1 Utility diversion, piling and pre-drilling works were the major construction activities undertaken during the reporting quarter. No significant impact on air quality was identified. The construction noise nuisance to the nearby sensitive receivers identified should be rectified.