

BARBICAN CONSTRUCTION CO., LTD

**Contract No. HY/2001/18
Sai Sha Road Widening between Kam Ying Road
and Future Trunk Road T7 Junction**

QUARTERLY ENVIRONMENTAL

MONITORING & AUDIT REPORT

REPORT NO. 05

(OCT – DEC 2003)

Document No. R/2563/022 Issue 1

January 2004

Babtie Asia

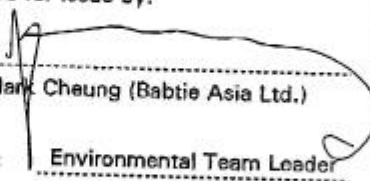



Babtie Asia

R/2563/022
Issue 1
January 2004

Contract No. HY/2001/18
Sai Sha Road Widening between Kam Ying Road and
Proposed Road T7 Junction

Quarterly Environmental Monitoring & Audit Report
(Oct - Dec 2003)
Report No. 05

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**CONTRACT NO. HY/2001/18
SAI SHA ROAD WIDENING BETWEEN KAM YING ROAD
AND FUTURE TRUNK ROAD T7 JUNCTION**

**QUARTERLY ENVIRONMENTAL MONITORING & AUDIT REPORT
(OCT - DEC 2003)**

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EXECUTIVE SUMMARY

This is the fifth Quarterly EM & A Report for the project of Sai Sha Road Widening between Kam Ying Road and Future Trunk Road T7 Junction.

This report mainly presents the EM & A works undertaken for the above project from 1 October 2003 to 31 December 2003 in accordance with the EM & A Manual under Appendix H.3 of the Particular Specification.

Noise Level

During the reporting quarter, $L_{eq(30min)}$ noise level measurement was performed at CNM 1 and CNM 2. CNM 1 is for noise sensitive receivers (NSRs 1 & 2) Wu Kwai Sha New Village. CNM 2 is for (NSRs 3 & 4) Kam Lung Court/ Lee On Estate. The noise limit level for all the noise sensitive receivers is 75 dB(A).

In general, all the measured noise levels at two monitoring stations are below the noise limit level.

Complaint log

No written or verbal complaints were received during the reporting quarter.

Others

No notifications of summons, no successful prosecutions were received during the reporting period except the above mentioned.

Comments

Noise Impact Mitigation Measures

The mitigation measures mentioned in the EIA Report generally help the Contractor reduce the noise level. Less noisy construction activities are undertaken in this construction phase, as the result, the noise pollution control for Wu Kwai Sha New Village (2) and Lok Wo Sha (2) should be changed from mitigation option 2 to mitigation option 1, i.e. less stringent environmental controls are adopted.

Landscape Impact Mitigation Measures

The mitigation measures mentioned in the EIA Report generally help the Contractor protect the environment especially for the trees mentioned in the EIA Report to be retained. The Contractor should notify the ET in advance before any tree transplanting works are undertaken.

1.0 PROJECT INFORMATION

1.1 Background

Babtie Asia Ltd was employed by the Contractor to act as the Environmental Team for this project. The Independent Environmental Checker is BMT Asia Pacific Ltd.

The purpose of this report is to document the Environmental Monitoring & Audit (EM & A) works for the period between 1 October 2003 and 31 December 2003.

1.2 Contact Details of Key Personnel

Titles, names and contact telephone numbers of the key personnel of the captioned project are shown in Appendix H.

1.3 Construction Programme

The construction programme has been recently revised. The latest construction programme is attached in Appendix A. This construction programme is subject to continuous refinement.

1.4 Site Management Structure

The site organization chart is shown as Appendix B.

1.5 Synopsis of Works undertaken during the Quarter

The works for this project are divided into three sections: Section 1, Section 2 and Section 3.

Section 1 comprises all the works for the completion of the subway system connecting the existing vacant subway barrel across Sai Sha Road adjacent to Kam Ying Road and the local widening of northern Kam Ying Road and all associated landscaping works.

Section 2 comprises all construction works including the new carriageways, two footbridges and all footpath, cycle tracks, subways, village access road, noise barriers, roundabout and associated works comprising drainage works, E&M works, traffic signs and aids, slope works, embankments, retaining walls, subway wing walls, cycle parks, fencing, street lighting and all associated landscaping works, except Section 1 and Section 3.

Section 3 comprises all the works for the new access road to Whitehead and all the works except Section 1 and 2.

The works undertaken during the year were as follows:

- Drainage Works
- Minipile Works for Footbridge (FB 1)
- Retaining Wall Construction
- Construction of three Subways
- Road Works

1.6 Project Area, Sensitive Receivers & Monitoring Locations

The drawings showing the project area, noise sensitive receivers (NSRs) and the locations of the monitoring stations are shown in Appendix D.

The construction noise monitoring stations are CNM 1 and CNM 2.

CNM 1 is for noise sensitive receivers (NSRs 1 & 2) Wu Kwai Sha New Village.
CNM 2 is for (NSRs 3 & 4) Kam Lung Court/ Lee On Estate.

It is noted that the locations of the monitoring stations are the same as those adopted in the Noise Baseline Monitoring.

1.7 Summary of EM & A Requirements

The summary of the EM & A Requirement is shown in Appendix C.

2.0 IMPLEMENTATION STATUS

According to the EIA report, the following mitigation options and mitigation measures should be adopted and implemented in the fifth construction phase quarter.

Location	Reference Section	Environmental Protection Measures	Agent
Construction Noise Mitigation			
Wu Kwai Sha New Village (1)	EIA 3.5.25	Mitigation Option 2	Contractor
Wu Kwai Sha New Village (2)	EIA 3.5.23	Mitigation Option 1	Contractor
Lok Wo Sha (1)	EIA 3.5.23	Mitigation Option 1	Contractor
Lok Wo Sha (2)	EIA 3.5.23	Mitigation Option 1	Contractor
Kam Lung Court (1)	EIA 3.5.25	Mitigation Option 2	Contractor
Kam Lung Court (2)	EIA 3.5.25	Mitigation Option 2	Contractor
Lee On Estate (1)	EIA 3.5.25	Mitigation Option 2	Contractor
Lee On Estate (2)	EIA 3.5.25	Mitigation Option 2	Contractor
Residential Development STTL446	EIA 3.5.23	Mitigation Option 1	Contractor

Location	Reference Section	Environmental Protection Measures	Agent
Construction Phase Landscape and Visual Mitigation Measures			
All Scheme Roads	EIA 4.5.1	<ul style="list-style-type: none"> • Conservation of topsoil; • Screening of site construction works by use of hoardings; • Surface treatment of site hoardings to enhance visual interest and harmony with surrounding landscape / townscape; • Locating site offices and other temporary buildings in least visually prominent locations; • Efficient programming of construction works to reduce duration of construction works; • Staging of construction works to minimise areas requiring site hoardings which creates visual intrusion; • Re-routing of pedestrian routes away from the work site where possible; • Retaining existing trees and minimising damage to vegetation where possible. Care shall be taken not to damage those trees identified in the Tree Survey Report to be retained during the construction phase; and • Careful and efficient transplanting of existing vegetation carried out under the supervision of a professional landscape architect 	Contractor

- Note: The locations of the noise assessment points are shown in the Figure 7 of the EIA Report

2.1 Advice on the Implementation Status of Environmental Protection & Pollution Control / Mitigation Measures

2.1.1 Construction Noise Mitigation Measures

The Contractor should use silencers or mufflers on construction equipment such as pneumatic breaker and have noisy air compressor completely enclosed to avoid the noise limit exceedance and the nuisance to the nearby sensitive receivers.

Regular maintenance of the construction plant is strongly encouraged to avoid the black smoke and the excessive noise production. The machines and plant should be shut down or throttled down to a minimum when they are in intermittent use.

The plant known to emit noise strongly in one direction should be orientated to direct noise away from nearby noise sensitive receivers. The mobile plants should be sited as far away from the noise sensitive receivers as possible.

Care should be taken that different mitigation plans (option 1 & option 2) should be applied to different noise sensitive receivers. For mitigation option 2, more stringent environmental control will be required and implemented. The Contractor should pay particular attention to follow and carry out the mitigation measures mentioned in the EIA Report for those sensitive receivers to whom mitigation option 2 should be applied.

It is noted that for different construction phase quarters, the mitigation option will be different. The detailed environmental mitigation implementation schedule is shown in the EIA Report Annex A for different construction phases.

If significant noise impact due to future construction works is identified, the Contractor may be required to erect the temporary movable noise barrier to surround the noise source as recommended in the EIA Report and the EM & A Manual.

2.1.2 Landscape and Visual Mitigation Measures

Care should be taken not to damage those trees identified in the Tree Survey Report to be retained during the construction phase.

In case of the conflict between the construction machine and the trees during the construction activities, the Contractor may consider adopting an alternative construction approach to protect the trees from being damaged. As the last resort, the tree transplanting method may be considered. However, prior to such action, approval from the Engineer, the Environmental Team Leader and the Independent Environmental Checker should be obtained.

Frequent monitoring of the transplanted tree is required to observe whether they live in good condition in new environment.

Whenever tree transplanting is required, the Contractor should notify the ET in advance and should carry out the works under the supervision of a professional landscape architect as stipulated in the EM & A Manual.

3.0 MONITORING RESULTS

3.1 Graphical plots of the monitored parameters

The graphical plots of the trends of the monitored parameters over the past 4 months (the last month of the previous quarter and the present quarter) for representative monitoring stations are shown in Appendix F.

3.2 Major Activities during the Quarter

Major activities during the quarter include the followings:

- Drainage Works
- Reinforcement and Concreting for Footbridge (FB 1)
- Retaining Wall Construction
- Construction of three Subways
- Road Works
- Noise Barrier Construction

3.3 Weather Conditions

The weather conditions were mainly sunny and cloudy and did not affect the environmental monitoring works during the reporting period. The weather conditions during the period are shown in the Appendix E.

3.4 Influencing Factors

The construction works of the ASD site area near Lee On Estate slightly affected the noise monitoring results especially for CNM 2. The traffic noise from Sai Sha Road significantly contributed to the noise pollution.

4. SUMMARY OF NON-COMPLIANCE OF THE ACTION AND LIMIT LEVELS, COMPLAINTS, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS

4.1 Non-compliance of the Action and Limit Levels

4.1.1 Noise

During the reporting period, no noise limit exceedance was found.

4.2 Written Complaints and Verbal Complaints

4.2.1 Summary Record of All Complaints Received

No complaints were received during the reporting quarter. The statistics for environmental complaint is shown in Appendix G.

The following table shows the summary for all the complaints received since the commencement of the Contract.

TOTAL NO. OF COMPLAINT	NO. OF COMPLAINT RECEIVED WITHIN REPORTING PERIOD	NO. OF COMPLAINT THAT IS STILL UNDER INVESTIGATION	NO. OF CLOSED COMPLAINT
1	0	0	1

5.0 COMMENTS

5.1 Effectiveness & Efficiency

Noise Impact Mitigation Measures

The mitigation measures mentioned in the EIA Report generally help the Contractor reduce the noise level. It is satisfactory to see that the noisy air compressors were completely enclosed, which significantly reduces the equipment noise.

During the quarter, the site activities were not very noisy and no noise exceedance was found. The effectiveness and the efficiency of the mitigation measures through good site practice have been in general effective in minimising the noise impact. The Contractor should frequently review the construction work and prevent simultaneous operation of noisy plant and equipment to prevent intolerable disturbance to the sensitive receivers at the concerned vicinity.

If significant noise impact is identified, the Contractor may be required to erect the temporary movable noise barriers to surround the noise source as stipulated in the EM & A Manual.

Landscape Impact Mitigation Measures

The mitigation measures mentioned in the EIA Report generally help the Contractor protect the environment especially the trees mentioned in the EIA Report to be retained.

The transplanted trees are generally in good condition. This complies with the recommendations of the EIA Report.

5.2 Recommendations

The Contractor should closely monitor the environment being affected by their site activities not only limited to their site area but to those places where the site works will adversely influence the environment and residents.

Closely following the mitigation options mentioned in the EIA Report can help the Contractor eliminate unfavourable environmental impacts.

In addition, the Contractor should minimize the accumulation of the stagnant water within the site area to avoid the breeding of insects especially for the mosquitoes and the spread of dengue fever.

To improve the hygiene condition of the site, the Contractor should remove the rubbish within the site area regularly.

The site runoff resulting from the piling works for the construction of footbridges should be properly treated through the desilting sedimentation tank before being discharged to the stormwater drainage system.

The Contractor is always reminded that unpaved access road should be watered frequently for dust suppression.

5.3 Conclusions

During the past three months, no serious environmental pollution was observed. However, the Contractor should keep it up and maintain a good environment for both residents and the pedestrians.

The ET will closely monitor the site environment by conducting weekly noise monitoring and site environmental audit.

6.0 PROPONENTS' CONTACTS AND HOTLINE TELEPHONE NUMBER

The contact details can be found in Appendix H.



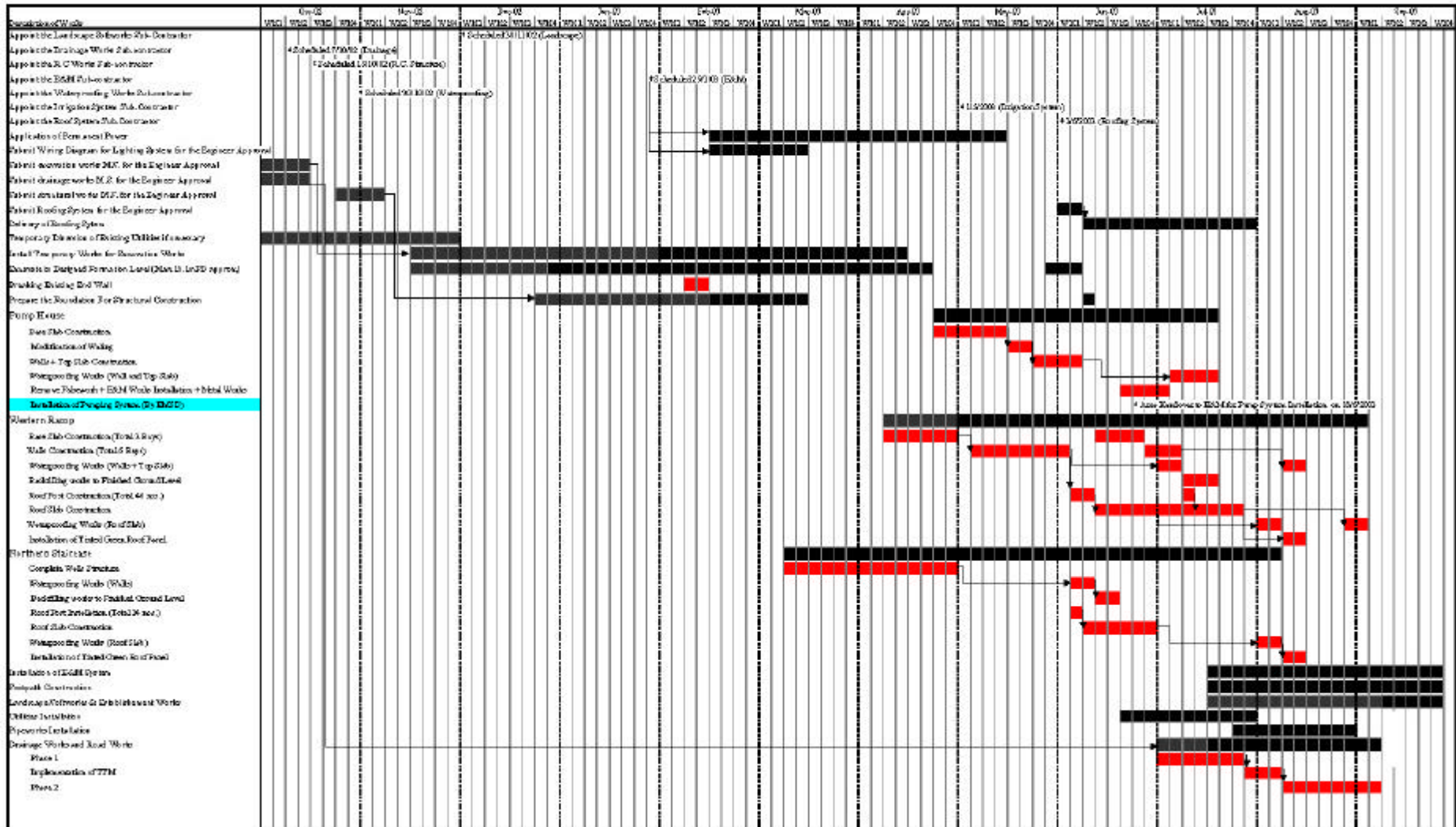
APPENDIX A
CONSTRUCTION PROGRAMME

Barbican Construction Limited
 Contract No. H392401/8
 Sai Sha Road Widening Between Kwan Yung Road and Futuro Trunk Road T7 Junction

Detailed Working Programme for Completion of Section 2 Works

Exam. at May 2003

Rev. 3





APPENDIX B
SITE ORGANIZATION CHART

Barbican Construction Co., Ltd.

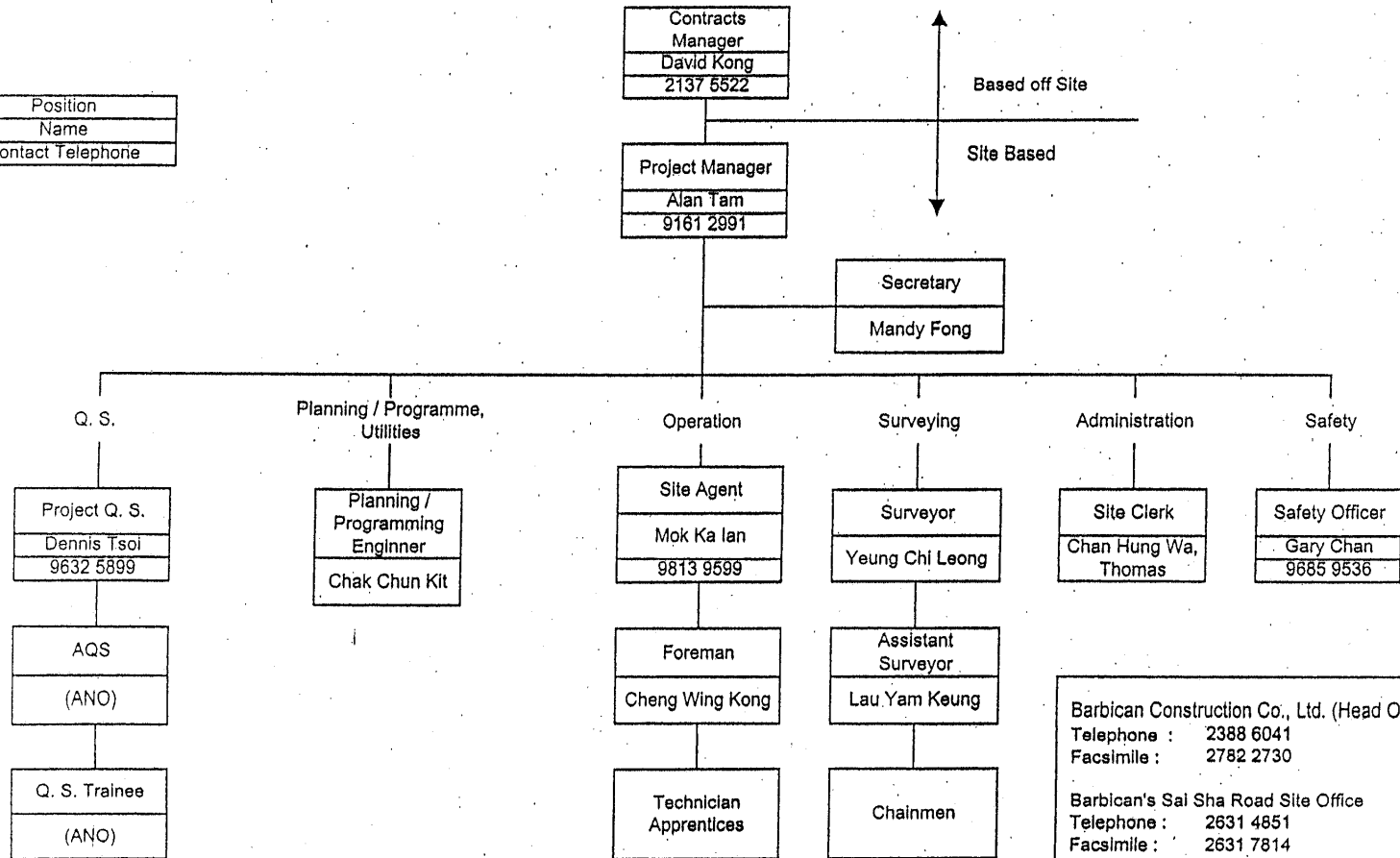
Contract No. : HY/2001/18
 Sai Sha Road Widening between
 Kam Ying Road and Future Trunk Road T7 Junction

Date : 23 September 2002

Rev : C

Site Organization Chart

Position
Name
Contact Telephone



Barbican Construction Co., Ltd. (Head Office)
 Telephone : 2388 6041
 Facsimile : 2782 2730

Barbican's Sai Sha Road Site Office
 Telephone : 2631 4851
 Facsimile : 2631 7814



APPENDIX C
SUMMARY OF EM & A REQUIREMENT

SUMMARY OF EM & A REQUIREMENTS

Noise Monitoring Parameters

According to Section 2.2.1 of the *EM & A Manual*, the noise monitoring parameters are:

- 1) A-weighted equivalent continuous sound pressure level L_{Aeq} (30min) for the time period between 0700 and 1900 hours on normal weekdays. For all other time periods, L_{Aeq} (5min) shall be employed for comparison with the Noise Control Ordinance (NCO) criteria
- 2) L_{A10} and L_{A90} , defined as the levels that have been exceeded the 10% and 90% of the measurement time in decibels respectively

Action and Limit Noise Levels

According to Section 2.7 of the *EM & A Manual*, the Action and Limit Noise Levels are summarised in the following table:

Time Period	Action	Limit Level
0700-1900 hours on normal weekdays	When one documented complaint is received	75 dB(A)
0700-2300 hours on holidays; and 1900-2300 hours on all other days		70 dB(A)
2300-0700 hours of next day		55 dB(A)

Event and Action Plan for Construction Noise

Should any non-compliance of the action and limit noise level criteria stipulated in Section 2.7 of the *EM & A Manual* occurs, the ET Leader, the IC(E), the ER (Engineer's Representative) and the Contractor shall undertake relevant actions in accordance with the Event and Action Plan for noise tabulated below:

EVENT	ACTION	
	ET Leader	IC(E)
Action Level	<ol style="list-style-type: none"> 1. Notify IC(E) and Contractor 2. Carry out investigation 3. Report the results of investigation to the IC(E) and Contractor 4. Discuss with the Contractor and formulate remedial measures 5. Increase monitoring frequency to check mitigation effectiveness 	<ol style="list-style-type: none"> 1. Review the analysed results submitted by the ET 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly 3. Supervise the implementation of remedial measures

EVENT	ACTION	
	ET Leader	IC(E)
Limit Level	<ol style="list-style-type: none"> 1. Notify IC(E), ER, EPD and Contractor; 2. Identify source 3. Repeat measurement to confirm findings 4. Increase monitoring frequency 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 6. Inform IC(E), ER and EPD the causes & actions taken for the exceedances 7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results 8. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET and Contractor on the potential remedial actions 2. Review Contractor' remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly 3. Supervise the implementation of remedial measures.

EVENT	ACTION	
	ER	Contractor
Action Level	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures are properly implemented 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IC(E) 2. Implement noise mitigation proposals
Limit Level	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures are properly implemented 5. If exceedance continues, consider what portion of work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to IC(E) within 3 working days of notification 3. Implement the agreed proposals 4. Resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated



APPENDIX D
THE PROJECT AREA, ENVIRONMENTAL SENSITIVE RECEIVERS
AND THE LOCATIONS OF THE MONITORING STATIONS



Monitoring Point CNM 1 – Wu Kwai Sha New Village



Monitoring Point CNM 2 – Lee Wing House of Lee On Estate



APPENDIX E
WEATHER CONDITIONS DURING THE MONITORING PERIOD

Contract No. HY/2001/18**Sai Sha Road Widening between Kam Ying Road
and Future Trunk Road T7 Junction****Major Activity and Weather Condition During Baseline Monitoring****Monitoring Location: Wu Kwai Sha New Village (CNM 1)**

Date	Start Time	Weather Condition	Major Activities	Other Activities
02/10/03	09:45	Sunny	Piling Works	Pedestrian , Traffic
09/10/03	09:45	Sunny	Backhoe	Pedestrian , Traffic
16/10/03	09:45	Sunny	Backhoe	Pedestrian , Traffic , Dog Barking
23/10/03	10:00	Sunny	Backhoe	Pedestrian , Traffic , Dog Barking
30/10/03	09:58	Sunny	Nil	pedestrian , Traffic
06/11/03	10:00	Sunny	Nil	Traffic , Pedestrain , Dog Barking
13/11/03	09:53	Sunny	Nil	Traffic , Pedestrain , Dog Barking
20/11/03	10:00	Sunny	Slope Excavation	Traffic , Pedestrain
27/11/03	09:51	Sunny	Nil	Traffic , Pedestrain
04/12/03	09:53	Sunny	Nil	Traffic , Pedestrian
11/12/03	10:03	Sunny	Nil	Traffic , Pedestrian
18/12/03	10:25	Sunny	Nil	Traffic , Pedestrian
23/12/03	09:55	Sunny	Nil	Traffic , Pedestrian

Contract No. HY/2001/18

**Sai Sha Road Widening between Kam Ying Road
and Future Trunk Road T7 Junction**

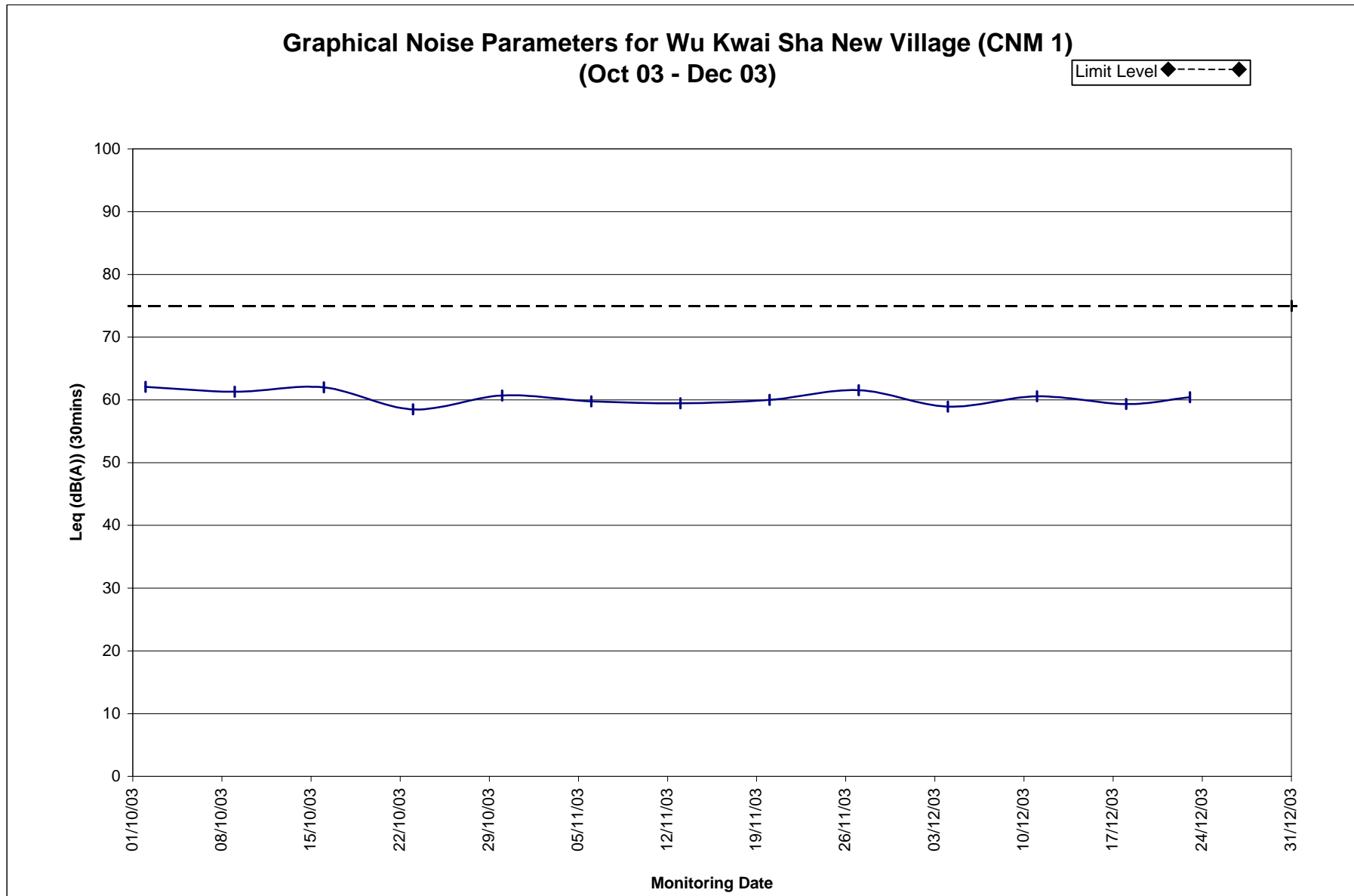
Major Activity and Weather Condition During Baseline Monitoring

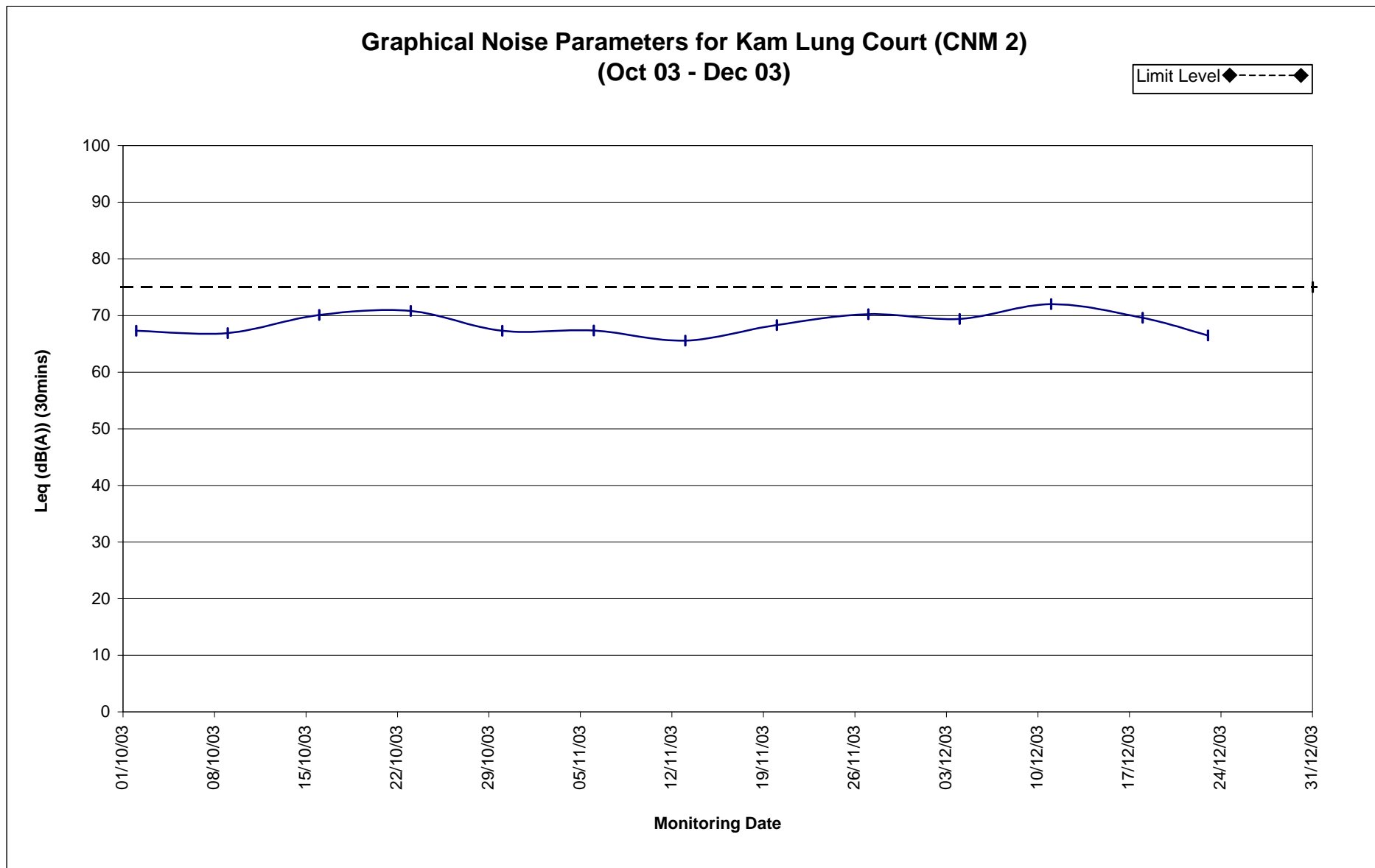
Monitoring Location: Kam Lung Court (CNM 2)

Date	Start Time	Weather Condition	Major Activities	Other Activities
02/10/03	10:20	Sunny	Piling Works , Backhoe	Pedestrian , Traffic
09/10/03	10:20	Sunny	Backhoe	Pedestrian , Traffic
16/10/03	10:20	Sunny	Concreting , Backhoe	Pedestrian , Traffic
23/10/03	10:41	Sunny	Nil	Pedestrian , Traffic
30/10/03	10:38	Sunny	Truck	Pedestrian , Traffic
06/11/03	10:38	Sunny	Truck	Traffic , Pedestrian , MOS Railway Construction
13/11/03	10:31	Sunny	Truck	Traffic , Pedestrian
20/11/03	10:37	Sunny	Truck	Traffic , Pedestrian , MOS Railway Construction
27/11/03	10:27	Sunny	Nil	Traffic , Pedestrian
04/12/03	10:31	Sunny	Truck	Traffic , Pedestrian
11/12/03	10:41	Sunny	Backhoe	Traffic , Pedestrian
18/12/03	11:03	Sunny	Nil	Traffic , Pedestrian
23/12/03	10:33	Sunny	Nil	Traffic , Pedestrian



APPENDIX F
GRAPHICAL PLOTS OF TRENDS OF MONITORED PARAMETERS



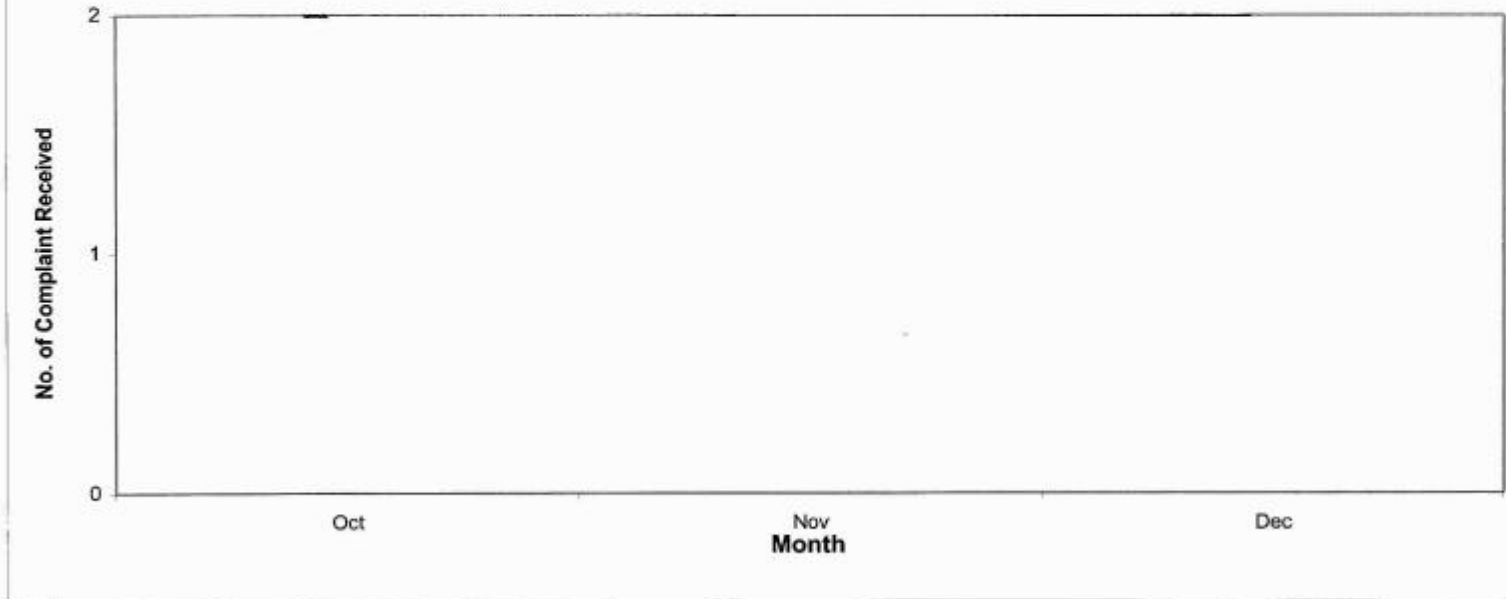




APPENDIX G
STATISTICS FOR ENVIRONMENTAL COMPLAINTS

Contract No. HY/2001/18
Sai Sha Road Widening between Kam Ying Road
and Future Trunk Road T7 Junction

Statistic for Environmental Complaint During the Quarter
Oct - Dec 2003





APPENDIX H
CONTACT DETAILS & HOTLINE

Contact Details of Key Personnel

Title	Name	Contact Number
Engineer's Representative (Highways Department)	Mr. Greg Leung	2716 1043
EPD	Mr. Simon Hui	2835 1105
Project Director (Contractor)	Mr. David Kong	2137 5522
Project Manager (Contractor)	Mr. Alan Tam	9161 2991
Site Agent (Contractor)	Mr. K I Mok	9813 9599
Environmental Team Leader (Babtie Asia Limited)	Mr. Mark Cheung	2738 3803
Independent Environmental Checker (BMT Asia Pacific Ltd)	Ms. Lyn Ip	2241 9812