
**Improvements to
San Tin Interchange
(Contract No. HY/2004/09)**

**Monthly Environmental
Monitoring & Audit Report**

Report No. 3

August 2005

ATKINS

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Executive Summary

Atkins China Limited (ACL) has been appointed by Chun Wo Construction & Engineering Co., Ltd. to implement the Environmental Monitoring and Audit (EM&A) programme for the construction works under Contract No. HY/2004/09 Improvements to San Tin Interchange (hereinafter, the Project).

The construction of the Project commenced since 21st June 2005. This report is the third monthly EM&A report for the Project which summarises the monitoring results and audit findings during the reporting period from 1st to 31st August 2005.

Environmental Monitoring and Audit Progress

The monthly EM&A programme was undertaken in accordance with the EM&A Manual. A summary of the monitoring activities in this reporting month is listed below:

- Site inspections were undertaken jointly with the Contractor and Engineer's Representative (ER) on 4th, 11th, 18th & 25th August 2005. The Independent Environmental Checker (IEC) joined the site inspection on 25th August 2005.
- Noise monitoring at three designated monitoring stations was undertaken on 5th, 12th, 24th and 31st August 2005 during normal hours, and 7th, 14th, and 28th August 2005 during restricted hours.
- Visual site surveillance inspections for water quality were undertaken 3 days per week.
- Site inspections for landscape and visual resources were undertaken on 16th, 22nd and 29th August 2005.

Breaches of Action and Limit Levels

There were two environmental exceedances recorded during the restricted hours noise monitoring on 7th and 28th August 2005 during this reporting month. The mentioned exceedances were, however proved not to have been caused by the site activities of the Contractor.

Complaint Log

There were no environmental complaints received during this reporting month.

Notifications of Summons and Prosecutions

There were no notifications of summons or prosecutions received during this reporting period.

Reporting Changes

This report has been developed in compliance with the reporting requirements for the subsequent monthly EM&A reports as required by the Project EM&A Manual.

Future Key Issues

Piling works at both North and South Division will commence in September 2005.

1 ENVIRONMENTAL STATUS

1.1 Works undertaken during the Reporting Period

The major construction activities undertaken during this reporting period are summarised below:

- Pre-bored H-piling;
- Pre-drilling works;
- Bored piling works;
- Laying of drainage pipes;
- Tree felling and transplantation;
- Temporary platform formation;
- Trench works; and
- Implementation of temporary traffic arrangement schemes.

The site plan of the Project is shown in Figure 1. The Contractor's works programme is provided in Annex A.

1.2 Environmental Permit and Licences

There were no changes or clarification to the Environmental Permit (EP-190/2004) during the reporting period.

One Construction Noise Permit (CNP) was issued in August 2005. Details of the CNP is summarised in Table 1.1.

Table 1.1 Details of Permits and Licences issued in August 2005

Permit / License	Reference No.	Issue Date	Expiry Date
Construction Noise Permit	PP-RN0027-05	15 th August 2005	14 th February 2006

1.3 Environmental Document Submissions to EPD

A summary of the status of the submissions specified in the Project EP as provided during the month of August 2005 is presented in Table 1.2.

Table 1.2 Summary of Environmental Document Submissions to EPD

Item No.	Document Title	Date of Submission
1	Monthly EM&A Report No. 2 for July 2005	16 th August 2005
2	Notification of Internet Address for the Project Website under Environmental Permit	18 th August 2005

1.4 Environmental Monitoring Locations

Noise monitoring was undertaken at three monitoring stations and the locations are shown on Figure 1. Description of these monitoring stations is provided in Table 1.3.

Table 1.3 Noise Monitoring Stations

Monitoring Station ID	Description	Easting	Northing
CM1	Village house near San Tin Highway	826133	839839
CM2	Village house near San Tin Highway	826291	839918
CM3	Village house near Kwu Tung Road	826605	840076

2 ENVIRONMENTAL MEASURES AND IMPLEMENTATION STATUS

The mitigation measures listed in the Project EIA Report, EM&A Manual and Environmental Permit and the implementation status are provided in Annex B. Based on the site inspection findings, it appears that the Contractor has implemented the required mitigation measures during construction works to date.

3 MONITORING RESULTS

3.1 Noise Monitoring

3.1.1 Noise Monitoring Equipment

The details of the noise monitoring equipment are listed below and the calibration certificates are presented in Annex C:

- Sound level meter ONO-SOKKI LA-5110
- Acoustical calibrator ONO-SOKKI SC-2110
- Hand-held anemometer

3.1.2 Noise Monitoring Methodology

The sound level meter was calibrated with an acoustical calibrator prior to each measurement. It was set on a tripod at 1.2 m above local ground level at the monitoring station. Measurement of the A-weighted $L_{eq(30 \text{ minutes})}$ noise level for normal daytime hours was undertaken. Three consecutive A-weighted $L_{eq(5 \text{ minutes})}$ noise levels were measured for restricted hours monitoring. Wind speed was checked during the monitoring period using the hand-held anemometer to ensure steady wind speed did not exceed 5 m/s, or gusts did not exceed 10 m/s. After the noise measurement the sound level meter was re-calibrated using the acoustical calibrator.

3.1.3 Noise Monitoring Results

Noise monitoring was undertaken on a weekly basis when noise generating activities were underway. The noise monitoring results obtained during the normal daytime hours and restricted hours in August 2005 are summarised in Table 3.1 and Table 3.2, respectively. There were no environmental exceedances of the Action and Limit Levels for noise monitoring recorded during the normal daytime hours in this reporting month but two exceedances were recorded during the restricted hours. Details of the monitoring time period and weather condition during the monitoring period and the graphical presentation of the noise monitoring results are provided in Annex D.

Table 3.1 Summary of Noise Monitoring Results during Normal Daytime Hours

Date of Monitoring	Normal Hours. Noise Monitoring Results $L_{eq(30 \text{ minutes})}$ noise		
	CM1	CM2	CM3
5 th August 2005	65.9	71.6	62.7
12 th August 2005	68.2	72.1	68.1
24 th August 2005	66.2	72.7	65.7
31 st August 2005	65.0	70.8	66.9

Remark: Scheduled noise monitoring on 17th August 2005 were cancelled due to adverse weather conditions.

Table 3.2 Summary of Noise Monitoring Results during Restricted Hours

Date of Monitoring	Restricted Hours Noise Monitoring Results $L_{eq(15 \text{ minutes})}$ noise		
	CM1	CM2	CM3
7 th August 2005	63.9	<u>67.1</u>	52.9
14 th August 2005	62.5	64.9	52.3
28 th August 2005	63.7	<u>66.3</u>	53.2

Remark: Scheduled Noise monitoring on 21st August 2005 were cancelled due to adverse weather conditions.
Underlined figure indicates exceedance of Limit Level (65 dB(A)).

3.2 Water Quality Monitoring

Visual site surveillance inspections for water quality were undertaken for 3 days per week. Based on the visual inspection results, the Contractor has followed all necessary site practices to control the surface runoff, including (1) the use of sandbag barriers to prevent surface runoff to the EMDC; (2) pumping away of accumulated rainwater inside sandbag barriers to sedimentation tanks; and (3) regular maintenance of the temporary drainage channels. The details of the water quality visual inspection reports are provided in Annex E.

3.3 Landscape & Visual Resources

Site inspection on the landscape & visual resources were undertaken on 16th and 22nd August 2005. During the inspection on the 16th August 2005, an environmental deficiency was observed. The crown of a tree (recorded as *Albizia Lebbek*) which is to be transplanted, had been accidentally cut away. The Contractor was advised to take remedial actions to prevent further damage and transplant the tree as soon as possible. The Contractor was reminded to take preventive measures to avoid damage to trees such as fencing off the trees in all site works areas. Further to the inspection on 16th August, it was observed on 22nd August that the remainder of the trunk of the tree had been completely cut off, leaving only the stump and roots in place. The ET highlighted to the Contractor that remedial measures would be required for the loss of this tree and preventive measures should be implemented to avoid a similar occurrence again. The Contractor proposed to replace a tree of the same species by transplanting one of the trees currently earmarked to be felled. The

Contractor shall ensure that the compensated tree is of the same species, similar height and diameter of breast height and similar health condition to the cut tree, and a complete root ball shall be formed. To prevent accidental tree felling, the Contractor was requested to ensure that all trees that are to be retained or transplanted are fenced off. The Contractor was also instructed to keep updating the tree transplantation and tree felling records for checking.

An ad-hoc inspection was undertaken on the 29th August 2005. During this inspection, most trees planned to be retained or transplanted were seen to have been fenced off. The Contractor was reminded to fence off the remaining trees that are to be retained or transplanted. The details of the inspections are summarized in Annex F.

3.4 Ad-hoc Air Quality Monitoring

No ad-hoc air quality monitoring was undertaken during the reporting month.

3.5 Waste Management

The Contractors have adopted a trip ticket system for the disposal of construction wastes. According to the records provided by the Contractors, the disposal of construction waste within the reporting month is summarised in Table 3.3.

Table 3.3 Summary of Waste Disposal for August 2005

Waste Type	Destination	No. of Trips	Quantity
C & D Waste	NENT	85	425 m ³
C & D Waste	WENT	3	15 m ³
Building debris	CEDD Tuen Mun Area 38 Fill Bank	305	1,525 m ³
Chemical Toilet Waste	Collected by Proenvironmental Services Ltd.	18	-
Sewage Holding Tank	Collected by Waylung Waste Services Ltd.	16	-

4 ENVIRONMENTAL AUDITS

4.1 Site Inspection and Audit

Site inspections were undertaken on 4th, 11th & 18th August 2005, and jointly with the IEC on 25th August 2005. Specific locations within the site were identified during the inspection for improvements in proper implementation of the environmental mitigation measures. These include:

- Dark smoke was observed emitting from a backhoe operating near Bridge K.
- Stagnant pools were observed at the works area near Bridge K which provides an environment for mosquito breeding.

The record of the weekly site inspection findings is provided in Annex G. Following the environmental inspections, the Contractor has undertaken remedial actions to improve the implementation of mitigation measures.

4.2 Environmental Exceedances

During the reporting month, there were two exceedances of the Limit Level recorded during the restricted hour noise monitoring at monitoring station CM2.

Further to investigation, the ER confirmed that the project-related major works were being undertaken further to the north (near Bridge K) during the measurement period. The exceedances were due to the high ambient background noise caused by road traffic on San Tin Highway. Thus, the noise exceedances recorded on 7th and 28th August 2005 were found not to be attributable to project works. Records of the notification of environmental exceedances are provided in Annex H. The Action and Limit Levels for impact monitoring are provided in Annex I.

4.3 Environmental Complaint and Prosecution

No environmental complaints and no prosecution or summons were received during the reporting period. Cumulative statistics on complaints, notifications of summons and successful prosecutions for the Project are provided in Annex J.

5 FORECAST AND SCHEDULE

5.1 Key Issues for the Coming Months

The key issues with respect to the works in the forthcoming 2 months include:

- Pile cap construction;
- Bore piles construction;
- Tree transplantation and felling;
- Sheet piling;
- Driven H-pile installation;
- Pre-bored H-pile installation;
- Temporary support works;
- Subway extension;
- Band drains installation; and
- Drainage pipe laying.

5.2 Monitoring Schedules for the Next Month

The schedule for noise monitoring in September 2005 is provided in Table 5.1 below:

Table 5.1 Noise Monitoring Schedule for September 2005

Date	Noise Monitoring Station
6 th September 2005 (Tuesday)	CM1, CM2 & CM3
14 th September 2005 (Wednesday)	CM1, CM2 & CM3
20 th September 2005 (Tuesday)	CM1, CM2 & CM3
28 th September 2005 (Wednesday)	CM1, CM2 & CM3

6 CONCLUSION

There was one environmental deficiency observed during the reporting period regarding the accidentally felling of a tree which was supposed to be transplanted. The Contractor proposed to replace a tree of the same species by transplanting one of the trees currently earmarked to be felled. The Contractor shall ensure that the compensated tree is of the same species, similar height and diameter of breast height and similar health condition to the cut tree, and a complete root ball shall be formed. Implementation of the proposed preventive measures (fencing off the trees to be retained / transplanted) was observed to be in progress.

There were two exceedances of the Limit Level recorded during the restricted hour noise monitoring during the reporting period. However, they were not found to be attributable to project works.

No environmental complaint, prosecution or summons was received during the reporting period. Mitigation Measures stated in the Project EIA have been implemented.