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

**Monthly Environmental
Monitoring & Audit Report**

Report No. 14

July 2006

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 fourteenth monthly EM&A report for the Project which summarises the monitoring results and audit findings during the reporting period from 1st to 31st July 2006.

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 period is listed below:

- Weekly site inspections were undertaken jointly with the Contractor and Engineer's Representative (ER) on 6th, 13th, 18th and 27th July 2006. The Independent Environmental Checker (IEC) joined the site inspection on 27th July 2006.
- Noise monitoring at three designated monitoring stations was undertaken on 7th, 13th, 19th and 25th July 2006 during normal working hours; and on 2nd, 6th, 9th, 13th, 19th, 23rd and 30th July 2006 during the restricted hour periods on a weekly basis when there were construction activities scheduled during those periods.
- Visual site surveillance for water quality was undertaken three times a week.
- Site inspections for landscape and visual resources were undertaken on 19th and 31st July 2006.

Breaches of Action and Limit Levels

There were totally seven environmental exceedances recorded during the restricted hours noise monitoring on 2nd, 6th, 9th, 13th, 19th, 23rd and 30th July 2006. However, all the exceedances were proved not to have been caused by the site activities of the Contractor and were attributable to the high ambient traffic noise from San Tin Highway.

Complaint Log

No environmental complaints were received during this reporting period.

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

Installation of viaduct segments will continue in August 2006. The Contamination Assessment Report (CAR) and Remediation Action Plan (RAP) of Site A and Site E will be finalized to incorporate the ER's comments. Further sampling at Site A will be conducted.

1 ENVIRONMENTAL STATUS

1.1 Works undertaken during the Reporting Period

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

- Laying of drainage pipes;
- Road widening works;
- Trench works;
- Storage and preparation of precast viaduct segments; and
- Erection of precast viaduct segments.

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 July 2006. Details of the CNP are summarised in Table 1.1.

Table 1.1 Details of Permits and Licenses issued in July 2006

Permit / License	Reference No.	Issue Date	Expiry Date
Construction Noise Permit for general construction work	GW-RN0366-06	7 th July 2006	31 st July 2006

1.3 Environmental Document Submissions to EPD

A summary of the status of the submissions to EPD as provided during the month of July 2006 is presented in Table 1.2.

Table 1.2 Summary of Environmental Submissions to EPD in July 2006

Item No.	Document Title	Date of Submission
1	Monthly EM&A Report No. 13 for June 2006	17 th July 2006

1.4 Environmental Monitoring Locations

Noise monitoring was undertaken at three monitoring stations CM1, CM2 and CM3. 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, the Contractor has implemented the required mitigation measures during construction works to date in general.

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 in July 2006, during the normal working hours, restricted hours from 1900 to 2300 hours on normal working days and from 0700 to 1900 hours on general holidays, and restricted hours from 2300 to 0700 hours of next day are summarised in Table 3.1, Table 3.2 and Table 3.3, respectively. There were no environmental exceedances of the Action and Limit Levels for noise monitoring recorded during the normal daytime hours within the reporting period but seven 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 Working Hours

Date of Monitoring	Normal Hours. Noise Monitoring Results $L_{eq(30 \text{ minutes})}$ dB(A)		
	CM1	CM2	CM3
7 ^h July 2006	69	73	63
13 th July 2006	70	73	61
19 th July 2006	67	74	67
25 th July 2006	67	72	65

Remarks:

- (1) CM2 is a non-façade measurement location. A positive correction of 3dB(A) has been applied to the measured noise level at CM2 according to EPD's guideline.

Table 3.2 Summary of Noise Monitoring Results during Restricted Hours – All days during the evening (1900 to 2300 hours), and general holidays (including Sundays) during the day-time and evening (0700-2300 hours)

Date of Monitoring	Restricted Hours Noise Monitoring Results $L_{eq(15 \text{ minutes})}$ dB(A)		
	CM1	CM2	CM3
2 nd July 2006	62	<u>66</u>	58
6 th July 2006	63	<u>70</u>	55
9 th July 2006	61	<u>66</u>	57
13 th July 2006	64	<u>71</u>	60
19 th July 2006	64	<u>74</u>	58
23 rd July 2006	64	<u>74</u>	63
30 th July 2006	62	<u>68</u>	61

Remark:

- (1) CM2 is a non-façade measurement location. A positive correction of 3dB(A) has been applied to the measured noise level at CM2 according to EPD's guideline.
 (2) Underlined figure indicates exceedance of the Limit Level of 65dB(A).

Table 3.3 Summary of Noise Monitoring Results during Restricted Hours – All days during the night-time (2300 to 0700 hours)

Date of Monitoring	Restricted Hours Noise Monitoring Results $L_{eq(15 \text{ minutes})}$ dB(A)		
	CM1	CM2	CM3
6 th July 2006	<u>63</u>	<u>70</u>	<u>55</u>
13 th July 2006	<u>63</u>	<u>71</u>	<u>61</u>
19 th July 2006	<u>64</u>	<u>73</u>	<u>54</u>

Remark:

- (1) CM2 is a non-façade measurement location. A positive correction of 3dB(A) has been applied to the measured noise level at CM2 according to EPD's guideline.
 (2) Underlined figure indicates exceedance of the Limit Level of 50dB(A).
 (3) Time of the measurement at CM3 started after 23:59 hours (midnight) of the "Date of Monitoring" stated in the table. Therefore, the "Date of Monitoring" for CM3 refers to 7th, 14th, and 20th July 2006, respectively.

3.2 Water Quality Monitoring

Visual site surveillances for water quality were undertaken three times a week. Based on the visual inspection results, the Contractor has followed all necessary site practices for the maintenance of the site drainage system, including:

- Regular and prompt removal of stagnant water pools to prevent mosquito breeding.
- Placing unused sedimentation basins up-side-down to prevent water accumulation after rainstorm events.

The details of the water quality visual inspection reports are provided in Annex E.

3.3 Landscape and Visual Resources

Two site inspections on the landscape and visual resources were undertaken in July 2006.

Some trees in the transplantation nurseries in the N1 Division and N2 Division areas have been moved to another transplantation nursery off site owned by landscape contractor for maintenance.

Weeds were found growing inside the transplantation nursery in the N1 Division area. The Contractor was reminded to clear up the weeds as proper maintenance for the nursery.

The soil inside the transplantation nursery in the N2 Division Area was found to be in waterlogged condition. A shallow ditch excavated as for temporary drainage at the transplantation nursery in the N2 Division area has been filled up with soil. The Contractor was advised to improve the rainwater diversion effectiveness, e.g., to excavate the ditch with appropriate depth.

The details of the landscape and visual resources inspection reports are provided in Annex F.

3.4 Ad-hoc Air Quality Monitoring

No ad-hoc air quality monitoring was required during the reporting period.

3.5 Waste Management

The Contractor has adopted a trip ticket system for the disposal of construction wastes. According to the records provided by the Contractor, the disposal of construction waste within the reporting period is summarised in Table 3.4.

Table 3.4 Summary of Waste Disposal for July 2006

Waste Type	Destination	No. of Trips	Quantity
C&D Waste	NENT Landfill	22	110 m ³
C&D Waste	WENT Landfill	2	10 m ³
Building debris	CEDD's Tuen Mun Area 38 Fill Bank	292	1,460 m ³
	CEDD's Tuen Mun Area 38 C&D Materials Recycling Facility	Nil	Nil
Chemical Waste	Collected by Dunwell Enviro-Tech (Holdings) Ltd.	1	900 L
Chemical Toilet Waste	Collected by Proenvironmental Services Ltd.	16	-
Sewage Holding Tank Waste	Collected by Waylung Waste Services Ltd.	26	-

4 ENVIRONMENTAL AUDITS

4.1 Site Inspection and Audit

Site inspections were undertaken on 6th, 13th, 18th and 27th July 2006, and jointly with the IEC on 27th July 2006. Specific locations within the site were identified during the inspection for improvements in proper implementation of the environmental mitigation measures. These include:

- Regular and prompt removal of stagnant water pools to prevent mosquito breeding.
- Provision of additional sandbags barrier to properly control site runoff and prevent it from flowing out of the site area.
- Proper storage of chemical waste in a designated area.
- Daily cleaning up of general refuse / rubbish on site for site cleanliness and tidiness.

The record of the weekly site inspection findings is provided in Annex G.

4.2 Environmental Exceedances

During the reporting period, there were seven exceedances of limit level during restricted hours noise monitoring recorded on 2nd, 6th, 9th, 13th, 19th, 23rd and 30th July 2006.

Further to investigation and discussion with ER, the project-related works being undertaken during the measurement period were located at a distance away (at least over 100m) from the monitoring stations. The exceedances were due to the high ambient background noise caused by road traffic on San Tin Highway. Thus, the noise exceedances recorded 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

During the reporting period, no environmental complaints, prosecutions or summons were received. 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:

- Laying of drainage pipes;
- Road widening works;
- Bored piling works;
- Trench works;
- Storage and preparation of precast viaduct segments;
- Erection of precast viaduct segments; and
- Percussive piling.

The Contamination Assessment Report (CAR) and Remediation Action Plan (RAP) of Site A and Site E will be finalized to incorporate the ER's comments, including further sampling to be conducted at Site A.

5.2 Monitoring Schedules for the Next Month

The proposed schedule for noise monitoring in August 2006 is provided in Table 5.1 below:

Table 5.1 Proposed Noise Monitoring Schedule for August 2006

Date	Noise Monitoring Station
1 st August 2006 (Tuesday)	CM1, CM2 and CM3
10 th August 2006 (Thursday)	CM1, CM2 and CM3
18 th August 2006 (Friday)	CM1, CM2 and CM3
23 rd August 2006 (Wednesday)	CM1, CM2 and CM3
29 th August 2006 (Tuesday)	CM1, CM2 and CM3

6 CONCLUSION

There was no environmental non-compliance attributable to the Project works during reporting period.

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

No environmental complaints, prosecutions or summons was received during the reporting period.