China State – China Railway Joint Venture

CE 28/2004 (GE)

# Landslide Preventive Works at Po Shan Road, Mid-Levels – Design and Construction (Natural Terrain Risk Mitigation Works)

## Monthly EM&A Report for December 2009

January 2010

| | Name | Signature |
|---|---|---|
| Prepared & Checked: | Ryan Wong | Ryan Wong |
| Reviewed & Approved: | Edith Ng | |

| Version: 0 | Date: 15 January 2010 |
|---|---|



AECOM Asia Co. Ltd.
11/F, Grand Central Plaza, Tower 2, 138 Shatin Rural Committee Road, Shatin, NT, Hong Kong.
Tel: (852) 2893 1551 Fax: (852) 2891 0305 www.aecom.com

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ENVIRON

Ref.: MSLPOSHNEM00_0_0232L.10

15 January 2010 By Fax (3188 0775) and Post

Engineer's Representative
Maunsell Geotechnical Services Ltd
Room 1808, 18/F, Tung Che Comm. Centre
246 Des Voeux Road West
Sheung Wan, Hong Kong

Attention: Mr. Lawrence Shek

Dear Mr. Shek,

**Re: Agreement No. CE28/2004 (GE)**
**Landslide Preventive Works at Po Shan, Mid-levels**
**Monthly EM&A Report for December 2009**

Reference is made to the Monthly EM&A Report for December 2009 (Version 0) by the Environmental Team through email on 15 January 2010, we would like to inform that we have no comment on the captioned report.

Please also note that the monthly EM&A report had been verified in accordance with the Condition 2.9 of the Environmental Permit No. EP-235/2005/B.

Thank you very much for your kind attention and please do not hesitate to contact the undersigned should you have any queries.

Yours sincerely,

David Yeung
Independent Environmental Checker

c.c. AECOM Attn: Ms. Edith Ng Fax: 2891 0305

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**TABLE OF CONTENTS**

**List of Tables**



**List of Figures**



**List of Appendices**

# EXECUTIVE SUMMARY

The Project "Landslide Preventive Works at Po Shan, Mid-levels – Design and Construction (Natural Terrain Risk Mitigation Works)" (hereafter called "the Project") includes the installation of about 700 numbers of soil nails and about 60 numbers of raking drains on the natural terrain within the concerned area.

China State – China Railway Joint Venture (CCJV) was commissioned as the Contractor of the Project. ENSR Asia (HK) Ltd., which was integrated into AECOM Asia Company Limited as of 1 May 2009, was employed by CCJV as the Environmental Team to carry out the EM&A programme.

The impact environmental monitoring and audit for the Project includes the air quality, noise, ecology, landscape and visual monitoring. The construction of the Project and the EM&A programme commenced on 1 April 2008.

This report documented the findings of EM&A works conducted in the period between 1 and 31 December 2009. As informed by the Contractor, construction activity in the reporting period was:

- Compensatory planting to soiling nailing areas at Section 3.

**Breaches of Action and Limit Levels**

There was no action / limit level exceedance recorded for 1-hour and 24-hour TSP monitoring.

In the reporting month, all noise level recorded complied with the limit level.

**Complaint, Notification of Summons and Successful Prosecution**

There was no complaint, notification of summons and successful prosecution received in the reporting month.

**Reporting Change**

There was no reporting change required in the reporting month.

**Future Key Issues**

The weather in the forthcoming month is expected to be dry and windy. The Contractor was reminded to closely monitor and provide adequate irrigation to the transplanted trees and compensatory planted species.

# 1. INTRODUCTION

**Background**

1.1 The project site is located at the mostly undeveloped hillside above the residential development at Po Shan Road and adjacent to the trimmed back slope on the site of the catastrophic 1972 Po Shan Road failure. Previous studies had been carried out and results indicated that the natural hillside above Po Shan Road is affected by high groundwater level and unfavourable geology. Sub-surface drainage measures by means of sub-horizontal drains had been installed in 1984-85. These measures have been successful in lowering the main ground water table, thus improving the stability of the slopes such that large-scale failure has not occurred in the last twenty years.

1.2 The objective of the Project "Landslide Preventive Works at Po Shan, Mid-levels – Design and Construction (Natural Terrain Risk Mitigation Works)" under Contract CE 28/2004 (GE) is to carry out detailed design and supervision of landslide preventive works on local repair of the hillside to minimize slope deterioration and shallow instability.

1.3 The proposed landslide preventive works would be constructed to protect the existing residential developments at the toe of the project site.

1.4 The scope of works of this Project includes the installation about 700 numbers of soil nails and about 60 numbers of raking drains on the natural terrain within the concerned area. The length of the soil nails is about 20m with a spacing of 2m horizontally and 3m vertically; the length of raking drains is about 10m with a spacing of 5m horizontally and 15m vertically.

1.5 According to the Environmental Permit (EP-235/2005/B) and the EM&A Manual of the Project, there is a need of an EM&A programme including air quality, noise, ecology, and landscape and visual monitoring.

1.6 AECOM Asia Company, integrating the operation of ENSR Asia (HK) Ltd. as of 1 May 2009, was employed by the Contractor, China State – China Railway Joint Venture, as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) works for the Project. In accordance with the EM&A Manual of the Project, environmental monitoring of air quality, noise, ecology, landscape and visual and environmental site inspections would be required for this Project.

**Scope of Report**

1.7 This is the twentieth monthly Environmental Monitoring and Audit (EM&A) Report under the Contract CE 28/2004 (GE) – Landslide Preventive Works at Po Shan Road, Mid-Levels – Design and Construction (Natural Terrain Risk Mitigation Works). This report presented a summary of the environmental monitoring and audit works, list of activities, and mitigation measures proposed by the ET for the Project in December 2009.

**Project Organization**

1.8 The project organization is shown in Appendix A. The key personnel contact names and numbers are summarized in Table 1.1

.

**Table 1.1 Contact Information of Key Personnel**

| Party | Position | Name | Telephone | Fax |
|---|---|---|---|---|
| CEDD | Senior Engineer | H. W. Sun | 2762 5375 | 2714 0247 |
| ER (MGS) | Resident Engineer | Lawrence Shek | 3188 0400 | 3188 0775 |
| | Assistant Resident Engineer | S. F. Chau | 3188 0400 | 3188 0775 |
| IEC (ENVIRON) | Independent Environmental Checker | David Yeung | 3743 0788 | 3548 6988 |
| Contractor (CCJV) | Project Manager | C. Y. Mak | 3188 0538 | 3188 1710 |
| | Safety and Environmental Officer | Yue Kin Fung | 3188 0538 | 3188 1710 |
| ET (AECOM) | ET Leader | Edith Ng | 3105 8525 | 2891 0305 |

**Summary of Construction Works**

1.9 The Contactor has carried out major activities in the reporting month. The construction work undertaken in this reporting period is listed below:

- Compensatory planting to soiling nailing areas at Section 3.

1.10 The general layout plan of the Project site showing the contract area is shown in Figure 1.1. The construction programme is provided in Appendix B.

1.11 The mitigation measures implementation schedule are presented in Appendix C.

**Summary of EM&A Programme Requirements**

1.12 The EM&A programme required environmental monitoring for air quality, noise, ecology and landscape and visual and environmental site inspections for air quality, noise, ecology, landscape and visual and waste management. The EM&A requirements for each parameter described in the following sections include:

- All monitoring parameters;
- Monitoring schedules for the reporting month and forthcoming months;
- Action and Limit levels for all environmental parameters;
- Event / Action Plan;
- Environmental mitigation measures, as recommended in the Project EIA study final report; and
- Environmental requirement in contract documents.

# 2. AIR QUALITY

### Monitoring Requirements

2.1 In accordance with the EM&A Manual, 1-hour and 24-hour TSP levels at 2 air quality monitoring stations were established. Impact 1-hour and 24-hour TSP monitoring was conducted for at least once every 7 days during the construction phase of the Project. The Action and Limit level of the air quality monitoring is provided in Appendix D.

### Monitoring Equipment

2.2 24-hour TSP air quality monitoring was performed using High Volume Sampler (HVS) located at each designated monitoring station. The HVS meets all the requirements of the EM&A Manual. Portable direct reading dust meters were used to carry out the 1-hour TSP monitoring. Table 2.1 summarises the equipment used.

**Table 2.1 Air Quality Monitoring Equipment**

| Equipment | Model |
|---|---|
| High Volume Sampler | GS 2310 Accu-vol system |
| Calibrator | GMW 25 |
| 1-hour TSP Dust Meter | Laser Dust Monitor – Model LD-3 |

### Monitoring Parameters, Frequency and Duration

2.3 Table 2.2 summarizes the monitoring parameters, frequency and duration of impact TSP monitoring.

**Table 2.2 Air Quality Monitoring Parameters, Frequency and Duration**

| Monitoring Station | Parameter | Frequency and Duration |
|---|---|---|
| CA1 & CA2 | 24-hour TSP | At least once every 7 days |
| | 1-hour TSP | At least 3 times every 7 days |

### Monitoring Locations

2.4 Both monitoring stations were set up at the proposed locations in accordance with EM&A Manual. Table 2.3 describes details of the two monitoring stations. The monitoring locations are shown in Figure 2.1.

**Table 2.3 Locations of Air Quality Monitoring Stations**

| Monitoring Station | Identity / Description |
|---|---|
| CA1 | Access road to Po Shan Mansions |
| CA2 | Podium of Hamilton Court |

**Monitoring Methodology**

24-hour TSP Monitoring

Installation

2.5 The HVS was installed in the vicinity of the air sensitive receivers. The following criteria were considered in the installation of the HVS.

- A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
- The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
- A minimum of 2 meters separation from walls, parapets and penthouse was required for rooftop sampler.
- No furnace or incinerator flues were nearby.
- Airflow around the sampler was unrestricted.
- Permission was obtained to set up the samplers and to obtain access to the monitoring stations.
- A secured supply of electricity is needed to operate the samplers.

Preparation of Filter Papers

- Glass fibre filters, G810 were labeled and sufficient filters that were clean and without pinholes were selected.
- All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±5%. A convenient working RH was 40%.
- *ALS Technichem (HK) Pty Ltd.* has comprehensive quality assurance and quality control programmes.

Field Monitoring

- The power supply was checked to ensure the HVS works properly.
- The filter holder and the area surrounding the filter were cleaned.
- The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
- The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
- The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges.
- Then the shelter lid was closed and was secured with the aluminum strip.
- The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
- A new flowrate record sheet was set into the flow recorder.
- The range specified in the EM&A Manual was between 0.6-1.7 $m^3$/min.
- The programmable timer was set for a sampling period of 24 hrs $\pm$ 1 hr, and the starting time, weather condition and the filter number were recorded.
- The initial elapsed time was recorded.
- At the end of sampling, the sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
- It was then placed in a clean plastic envelope and sealed.
- All monitoring information was recorded on a standard data sheet.
- Filters were sent to *ALS Technichem (HK) Pty Ltd.* for analysis.

Maintenance and Calibration

- The HVS and its accessories are maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
- HVSs are calibrated using GMW-25 Calibration Kit prior to the commencement of baseline air

quality monitoring, and will be calibrated at bi-monthly intervals throughout all stages of the impact monitoring.
- Calibration records are shown in Appendix E.

1-hour TSP Monitoring

Measuring Procedures

2.6 The measuring procedures of the 1-hour dust meter are in accordance with the Manufacturer's Instruction Manual as follows:
- Set POWER to "ON", push BATTERY button, make sure that the meter's indicator is in the range with a red line and allow the instrument to stand for about 3 minutes (Then, the air sampling inlet has been capped).
- Push the knob at MEASURE position.
- Push "O-ADJ" button. (Then meter's indication is 0).
- Push the knob at SENSI ADJ position and set the meter's indication to S value described on the Test Report using the trimmer for SENSI ADJ.
- Pull out the knob and return it to MEASURE position.
- Push "START" button.

Maintenance and Calibration

- The 1-hour TSP meter would be checked at 3-month intervals and calibrated at 1-year intervals throughout all stages of the air quality baseline monitoring. Calibration records are shown in Appendix E.

**Monitoring Results**

2.7 The monitoring results for 1-hour TSP and 24-hour TSP are summarized in Table 2.4 and 2.5 respectively and the monitoring results are provided in Appendix F.

**Table 2.4 Summary of 1-hour TSP Monitoring Results in the Reporting Period**

| | Average ($\mu g/m^3$) | Range ($\mu g/m^3$) | Action Level ($\mu g/m^3$) | Limit Level ($\mu g/m^3$) |
|---|---|---|---|---|
| **CA1** | 72.8 | 42.3 – 85.4 | 309.3 | 500 |
| **CA2** | 73.5 | 69.2 – 82.4 | 319.6 | 500 |

**Table 2.5 Summary of 24-hour TSP Monitoring Results in the Reporting Period**

| | Average ($\mu g/m^3$) | Range ($\mu g/m^3$) | Action Level ($\mu g/m^3$) | Limit Level ($\mu g/m^3$) |
|---|---|---|---|---|
| **CA1** | 23.6 | 12.4 – 38.0 | 166.8 | 260 |
| **CA2** | 50.8 | 18.6 – 86.9 | 187.0 | 260 |

2.8 Air quality monitoring was carried out for both 1-hour TSP and 24-hour TSP at all the monitoring stations in the reporting month.

2.9 The air quality monitoring results, in terms of 1-hour TSP and 24-hour TSP, were below the action and limit level at both monitoring locations in the reporting month. The event action plan is annexed in Appendix G.

2.10 Weather information including wind speed and wind direction is annexed in Appendix H. The information was obtained from Hong Kong Observatory Victoria Peak Automatic Weather Station and Central Pier Anemometer Station.

# 3. NOISE MONITORING

### Monitoring Requirements

3.1 In accordance with the EM&A Manual, impact noise levels should be obtained at 2 noise monitoring stations. Impact noise monitoring was conducted for at least once per week during the construction phase of the Project. The Action and Limit level of the noise monitoring is provided in Appendix D.

### Monitoring Equipment

3.2 Integrating Sound Level Meter was employed for noise monitoring. They were Type 1 sound level meters capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level ($L_{eq}$) and percentile sound pressure level (Lx). They comply with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1). Portable electronic wind speed indicator capable of measuring wind speed in m/s was employed to check the wind speed. Table 3.1 details the noise monitoring equipment used.

**Table 3.1 Noise Monitoring Equipment**

| Equipment | Model |
|---|---|
| Integrating Sound Level Meter | Rion NL-31 |
| Calibrator | Rion NC-73 |

### Monitoring Locations

3.3 Two monitoring stations were set up in accordance with EM&A Manual. Table 3.2 describes details of the two monitoring stations. The monitoring locations are shown in Figure 2.1.

**Table 3.2 Locations of Noise Monitoring Stations**

| Monitoring Station | Identity / Description |
|---|---|
| CN1 | Access road to Po Shan Mansions |
| CN2 | Podium of Po Shan Mansions |

### Monitoring Parameters

3.4 One set of 30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays at a frequency of once per week was required to determine the impact noise level. $L_{eq}$, $L_{10}$ and $L_{90}$ would be recorded.

### Monitoring Methodology

Monitoring Procedures

- The Sound Level Meter was set on a tripod at a height of 1.2 m above the ground.
- Façade measurements were made at all three monitoring locations.
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - frequency weighting: A
  - time weighting: Fast
  - time measurement: $L_{eq}$(30 minutes) during non-restricted hours i.e. between 07:00 and 19:00 on normal weekdays
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- The wind speed was frequently checked with a portable wind meter.

- During the monitoring period, the $L_{eq}$ , $L_{10}$ and $L_{90}$ were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise measurement was paused during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible. Observations were recorded when intrusive noise was unavoidable.
- Noise monitoring was cancelled in the presence of fog, rain, wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.

Maintenance and Calibration

- The microphone head of the sound level meter and calibrator is cleaned with soft cloth at quarterly intervals.
- The meter should be checked and calibrated at yearly intervals.
- Calibration details for the sound level meter and calibrator are provided in Appendix E.

**Monitoring Results**

3.5 The monitoring results for noise are summarized in Table 3.3 and the monitoring data is provided in Appendix I.

**Table 3.3 Summary of Noise Monitoring Results in the Reporting Period**

| | Average, dB(A), $L_{eq\ (30\ mins)}$ | Range, dB(A), $L_{eq\ (30\ mins)}$ | Limit Level, dB(A), $L_{eq\ (30\ mins)}$ |
|---|---|---|---|
| **CN1** | 62.1 | 57.8 – 63.9 | 75.0 |
| **CN2** | 61.3 | 57.4 – 63.3 | 75.0 |

3.6 There was no noise complaint received in the reporting month, hence, no action level exceedance was recorded. At both monitoring locations, CN1 and CN2, all the monitoring results (daytime) were below the limit level of 75 dB(A).

3.7 All the monitoring results lied within the range of the predicted noise levels in the EIA report.

3.8 Major noise sources during the noise monitoring included the construction activities from the Project and nearby traffic noise.

# 4. VEGETATION MONITORING

### Monitoring Requirement

4.1 As required under Environmental Permit No. EP-235/2005/B, the Permit Holder is required to carry out monitoring of the plant species of conservation interest to check on the health and condition of the plants twice a month during the construction period of the Project.

4.2 It is required to undertake the ecological tasks to fulfill the requirements of the Environmental Permit (EP). As required by Conditions 2.11 and 3.5 of the EP, a suitably qualified ecologist with 7 or more years of relevant experience shall be employed to conduct the ecological monitoring.

### Monitoring Location

4.3 The ecological monitoring was carried out for plant individuals of conservation interest identified within the proposed works area.

### Monitoring Methodology

4.4 The ecological monitoring was conducted twice in the reporting month on 22 and 29 December 2009 by Ms. Gigi C C Lam, who had over 7 years of relevant ecological experience.

4.5 The plants of conservation interest, which were tagged during the baseline survey, were checked during each monitoring.

### Monitoring Results

4.6 Shrubs had been planted within the within the impacted areas under this Project to compensate for the loss of understorey vegetation of the woodland habitat due to the construction of landslide preventive works.

# 5. LANDSCAPE AND VISUAL

**Monitoring Requirement**

5.1 During the construction phase of the Project, landscape and visual monitoring should be carried out bi-weekly by a Registered Landscape Architect (RLA) to check if the design, implementation and maintenance of the landscape and visual mitigation measures are fully realized. A detailed report is annexed in Appendix J.

**Summary of Inspection – 1 December 2009**

Matters Arising from Previous Inspections

5.2 The Contractor had clarified that no records of trees T516 and T517 were found in the original tree survey report, although the tree locations were shown on the topographic survey plan. Therefore, it was presumed that these trees may have been dead / missing between the time of the topographic survey being completed and when the tree survey was actually carried out.

Protection of Existing Trees and Compensatory Planting Works

5.3 Hydroseeding works was observed completed with no particular matters arising during the inspection period.

Recommendations

5.4 N/A.

**Summary of Inspection – 15 December 2009**

Matters Arising from Previous Inspections

5.5 N/A

Protection of Existing Trees and Compensatory Planting Works

5.6 It was observed that the compensatory planting works was substantially completed. The contractor was requested to also plant into gap areas as identified on site.

Recommendations

5.7 The Contractor was recommended to plant into gap areas as observed on site.

**Summary of Inspection – 29 December 2009**

Matters Arising from Previous Inspections

5.8 The Contractor had planted the gaps as previously identified on site.

Protection of Existing Trees and Compensatory Planting Works

5.9 It was observed the compensatory planting works was completed.

Recommendations

5.10 N/A.

**Next Landscape and Visual Audit Schedule**

5.11 The audits for the Construction Phase of the EM&A Programme were completed on 31 December 2009. The monthly audit for the Establishment Phase of the EM&A Programme is scheduled to be conducted on 26 January 2010.

# 6. ENVIRONMENTAL SITE INSPECTION AND AUDIT

**Site Inspection**

6.1 Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. In the reporting month, 5 site inspections were carried out on 1, 8, 15, 22 and 29 December 2009. The detail findings of the landscape and visual audits in the reporting month are presented separately in Section 5. The environmental site inspection summaries are attached in Appendix K. Particular observations are described below.

***Air Quality***

6.2 No adverse observation was identified in the reporting month.

***Noise***

6.3 No adverse observation was identified in the reporting month.

***Water Quality***

6.4 No adverse observation was identified in the reporting month.

***Chemical and Waste Management***

6.5 No adverse observation was identified in the reporting month.

***Ecology***

6.6 No adverse observation was identified in the reporting month.

***Landscape and Visual***

6.7 For the complementary planting works, the Contractor was requested to also plant into gap areas as identified on site. The Contractor had planted into the gaps, as observed on 29 December 2009.

**Assessment of Environmental Monitoring Results**

6.8 All monitoring results were audited against the Action / Limit levels and any exceedance would be validated and issued when necessary.

6.9 The monitoring results in the reporting period were comparable with the EIA predictions. Detailed discussions are given in Section 2 and 3.

**Advice on the Solid and Liquid Waste Management Status**

6.10 The Contractor is registered as a chemical waste producer for this Project.

6.11 As advised by the Contractor, no C&D waste was disposed offsite in the reporting month. C&D material was reused on site as much as possible.

**Environmental Licenses and Permits**

6.12 The environmental licenses and permits for this Project and valid in the reporting month is summarized in Table 6.1.

**Table 6.1 Summary of Environmental Licensing and Permit Status**

| Description | Permit No. | Valid Period | | Remarks |
|---|---|---|---|---|
| | | From | To | |
| Environmental Permit | EP-235/2005/B | 23/11/07 | -- | - Installation of about 700 nos. of soil nails and about 60 nos. of raking drains in the natural terrain;<br>- Rock slope stabilisation works at upper portion of the natural terrain; and<br>- Other associated works. |
| Registration as a Chemical Waste Producer | 5213-141-C3250-02 | 13/12/06 | -- | Spent lubricating oil and mineral oil |
| Effluent Discharge License | EP880/W10/XX0261 | 07/11/06 | 31/12/11 | -- |
| Notification of Constriction Work under APCO (Construction Dust) | 001012125 | 18/07/06 | -- | -- |

**Implementation Status of Environmental Mitigation Measures**

6.13 In response to the site audit findings, the Contractor carried out corrective actions.

6.14 A summary of the Implementation Schedule of Mitigation Measures (EMIS) is presented in Appendix C. Most of the necessary mitigation measures were implemented properly.

**Summary of Exceedances of the Environmental Quality Performance Limit**

6.15 All 1-hour TSP, 24-hour TSP and noise monitoring results complied with the Action / Limit levels.

6.16 No exceedance was recorded in the reporting month.

**Summary of Complaints, Notification of Summons and Successful Prosecutions**

6.17 The Environmental Complaint Handling Procedure is annexed in Figure 6.1.

6.18 No environmental complaint, notification of summons and successful prosecutions was received in the reporting month.

# 7. FUTURE KEY ISSUES

**Construction Programme for the Coming Months**

7.1 The construction programme for the Project is provided in Appendix B.

7.2 All construction works have been substantially completed in December 2009. No construction work is anticipated to be undertaken in January 2010.

**Key Issues for Coming Month**

7.3 Key issues to be considered in the coming month included:
- Adequate irrigation to the transplanted trees and compensatory planted species.

7.4 The following mitigation measures are required:

***Air Quality Impact***
- Nil

***Construction Noise Impact***
- Nil

***Water Quality Impact***
- Nil

***Chemical and Waste Management***
- Nil

***Ecological Impact***
- Nil

***Landscape and Visual Impact***
- Nil

**Monitoring Schedule for the Coming Months**

7.5 The tentative schedule for environmental monitoring in January 2010 is provided in Appendix L.

# 8. CONCLUSIONS AND RECOMMENDATIONS

**Conclusions**

8.1 The construction phase of the project commenced in April 2008.

8.2 1-hour TSP and 24-hour TSP monitoring was carried out in the reporting month. All monitoring results complied with the action / limit level. No exceedance was recorded.

8.3 All impact daytime noise monitoring results complied with the limit level in the reporting month.

8.4 Environmental site inspections were carried out 5 times in December 2009. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.

8.5 Three landscape and visual audits were carried out in the reporting month. No particular matter arose during the inspection period.

8.6 Two ecological audits were carried out in the reporting month. No specific observation was identified in the reporting month.

8.7 No environmental complaint, notification of summons and prosecution was received in the reporting month.

**Recommendations**

8.8 According to the environmental site inspections performed in the reporting month, the following recommendations were provided:

***Air Quality Impact***
- Nil

***Construction Noise Impact***
- Nil

***Water Quality Impact***
- Nil

***Chemical and Waste Management***
- Nil

***Ecological Impact***
- Nil

***Landscape and Visual Impact***
- Nil