

China State Construction Engineering (Hong Kong) Ltd.

Contract No. CV/2007/03

**Development at Anderson Road –
Site Formation and Associated
Infrastructure Works**

**Quarterly EM&A Summary Report for
March 2012 – May 2012**

June 2012

	Name	Signature
Prepared & Checked:	Jill Wong	
Reviewed, Approved & Certified:	Edith Ng (ETL)	

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AECOM Asia Co. Ltd.

11/F, Grand Central Plaza, Tower 2, 138 Shatin Rural Committee Road, Shatin, NT, Hong Kong.
Tel: (852) 3105 8686 Fax: (852) 2317 7609 www.aecom.com

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25 June 2012

By Fax (3656 3100 / 2407 8382) and Post

Engineer's Representative
Ove Arup & Partners
Level 5, Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
Hong Kong

Attention: Mr. Dennis Leung

Dear Sir,

**Re: Contract No. CV/2007/03 (Environmental Permit No. EP -140/2002)
Development at Anderson Road
Site Formation and Associated Infrastructure Works
Quarterly EM&A Report for March to May 2012**

Reference is made to the Environmental Team's submission of the draft Quarterly EM&A Report for March to May 2012 received by E-mail on 19 June 2012.

Please be informed that we have no adverse comment on the captioned submission.

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
CSCEC Attn: Mr. Wilson Lau

Fax: 2891 0305
Fax: 2702 6553

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EXECUTIVE SUMMARY

The Project “Development at Anderson Road – Site Formation and Associated Infrastructure Works” (hereafter called “the Project”) is proposed to form platforms for housing development and associated uses in area of about 20 hectares, and to carry out necessary infrastructural upgrading or improvement works to cater for the proposed development.

China State Construction Engineering (Hong Kong) Limited (CSCE) was commissioned as the Contractor of the Project. AECOM Asia Co. Ltd. (AECOM) was employed by CSCE as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) works for the Project.

The impact EM&A for the Project includes air quality and noise monitoring. The EM&A programme for Sau Ming Primary School (ID 4) and Sau Mau Ping Catholic Primary School (ID 5) commenced on 1 May 2008, while for Kwun Tong Government Secondary School (ID 1A), On Yat House (ID 2) and Sau Nga House (ID 3) commenced on 1 June 2008.

The monitoring stations ID 4 & ID 5 will serve both the entire Development of Anderson Road (Schedule 3 Designated Project (DP)) project as well as the Widening of Po Lam Road (Schedule 2 DP) project.

The construction for the Widening of Po Lam Road (Schedule 2 DP) project was commenced in this reporting period, i.e. on 21 September 2011.

This report documents the findings of EM&A works for ID 1A, ID 2, ID 3, ID 4 and ID 5 conducted in the period from 1 March 2012 to 31 May 2012. As informed by the Contractor, construction activities in the reporting quarter were:

- Blasting;
- Drainage works;
- Slope upgrading works;
- Excavation work at Portions A, B, C, D, E, H, J4, S1a, S2a, S2b;
- Temporary traffic arrangement at J/O Po Lam Road & Sau Mau Ping Road, Portion J2, J3 and J4;
- Site clearance;
- Erection of hoardings and chain link fence;
- Establishment of temporary access and temporary drainage;
- Slope stabilization;
- Tree transplanting and protection;
- Maintenance works;
- Bridge structural works;
- Retaining structures structural works;
- RE wall panel installation;
- Slope drainage and maintenance access;
- Erection and maintenance of blasting cages and fencing;
- Pre-stressing works of bridge;
- Toe / Beam planter construction;
- Permanent backfilling at RW22;
- Bored pile(column method), capping beam & panel wall construction at R15;
- Lowering down of bored pile at R15;
- Construction of Bridge A, B and D;
- U-channel and box-culvert works at Portion D and E; and
- Preparation works for area J1a and J1b (R15b)

Environmental Monitoring Works

EM&A Programme

A summary of monitoring and audit activities conducted in the reporting quarter is listed below:

24-hour TSP monitoring	16 sessions
1-hour TSP monitoring	48 sessions
Daytime Noise monitoring	13 sessions
Environmental Site Inspection	14 sessions

Breaches of Action and Limit Levels

No exceedance of Action and Limit Level was recorded for 1-hour TSP and 24-hour TSP monitoring in the reporting quarter.

According to the information provided by the Contractor, two (2) Action Level exceedance were recorded since two (2) noise related complaints were received in the reporting quarter.

No exceedance Limit Level of noise was recorded in the reporting quarter.

Complaint, Notification of Summons and Successful Prosecution

Based on the information provided by the Contractor, nine (9) air complaints and two (2) noise complaints and no notification of summons and successful prosecution were received in the reporting quarter.

- CEDD (ICC) referred complaint about gravel on the haul road at Anderson Road and New Clear Water Bay Road on 13 March 2012.

High pressure water jet was provided by the Contractor in the construction site entrance. Gravel was potentially generated when the vehicles passing the haul roads at Portion J2.

According to the routine 1-hour TSP and 24-hour TSP monitoring data recorded at the nearest monitoring station ID 1A (roof of Kwun Tong Government Secondary School) on 8 and 14 Mar 2012, the measured 24-hour TSP level were found to be $29.6\mu\text{g}/\text{m}^3$ and $82.7\mu\text{g}/\text{m}^3$. The measured 1-hour TSP level on 8 and 14 Mar 2012 were found to be $73.0\mu\text{g}/\text{m}^3$; $71.7\mu\text{g}/\text{m}^3$; $70.2\mu\text{g}/\text{m}^3$ and $71.6\mu\text{g}/\text{m}^3$; $73.0\mu\text{g}/\text{m}^3$; $72.4\mu\text{g}/\text{m}^3$ respectively. All measured 1-hour TSP and 24-hour TSP level were below the Action and Limit Level.

In order to minimize the dust impact, public road joint cleaning between the Contractor and Food and Environmental Hygiene Department was carried out on 19 March 2012 respectively. The Contractor should ensure the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site.

No further complaint was received and the complaint was closed.

- CEDD (ICC) referred a complaint about traffic obstruction by accumulation of fugitive dust from the road works at Clear Water Bay Road near Anderson Road crossing on 13 March 2012.

Fugitive dust emission was potentially generated from the vehicles passing the haul roads at Portion J2. High pressure water jet was provided by the Contractor in the construction site entrance.

According to the routine 1-hour TSP and 24-hour TSP monitoring data recorded at the nearest monitoring station ID 1A (roof of Kwun Tong Government Secondary School) on 8 and 14 Mar 2012, the measured 24-hour TSP level were found to be $29.6\mu\text{g}/\text{m}^3$ and $82.7\mu\text{g}/\text{m}^3$. The measured 1-hour TSP level on 8 and 14 Mar 2012 were found to be $73.0\mu\text{g}/\text{m}^3$; $71.7\mu\text{g}/\text{m}^3$; $70.2\mu\text{g}/\text{m}^3$ and $71.6\mu\text{g}/\text{m}^3$; $73.0\mu\text{g}/\text{m}^3$; $72.4\mu\text{g}/\text{m}^3$ respectively. All measured 1-hour TSP and 24-hour TSP level were below the Action and Limit Level.

Despite that the 1-hour and 24-hour TSP levels were below the Action and Limit level. The Contractor was recommended to ensure the wheel washing facility was operated at the construction site entrance and closely monitor the effectiveness of the wheel washing facility.

No further complaint was received and the complaint was closed.

- A complaint was referred by CEDD (ICC) regarding the construction noise impact from rock breaking at R15 on 14 March 2012.

According to the noise monitoring data recorded on 8 and 14 March 2012 at the nearest monitoring station ID 5 (rooftop of Sau Mau Ping Catholic Primary School), the measured noise levels in Leq (30-min) was 66.6 dB(A) and 67.7 dB(A) on 8 and 14 March 2012 respectively, which was below the Limit Level. The averaged noise level is Leq (30-min) 66.5 dB(A).

Noise mitigation measures have been provided at rock breaking works area to mitigate the noise impacts which included erection of mobile noise barriers; provide acoustic wrappings to the breaking tips of the breakers worked at the works area for the sides facing the noise sensitive receivers and postpone the starting time of the rock breaking work after 10:00 a.m.

Construction noise was potentially contributed by rock breaking activities at R15 of the Project.

Apart from the mitigation measures implementing, the Contractor was recommended to provide additional noise mitigation measures at the concerned working areas to further minimize the noise impacts, including proper scheduling of construction works; and provision of additional noise screening measures (in form of noise barriers) at the breaking works areas.

Noise levels measured at the roof of Sau Mau Ping Catholic Primary School (ID5) on 20 and 26 Mar 2012 (Routine noise monitoring) was Leq(30-min) 63.7 dB(A) and 68.2 dB(A).

The measured noise level was below the Limit Level.

No further complaint was received and the complaint was closed.

- A complaint was referred by CSCEC regarding the construction noise impact from rock breaking at R15 on 14 March 2012.

According to the noise monitoring data recorded on 8 and 14 March 2012 at the nearest monitoring station ID 5 (rooftop of Sau Mau Ping Catholic Primary School), the measured noise levels in Leq (30-min) was 66.6 dB(A) and 67.7 dB(A) on 8 and 14 March 2012 respectively, which was below the Limit Level. The averaged noise level is Leq (30-min) 66.5 dB(A).

Noise mitigation measures have been provided at rock breaking works area to mitigate the noise impacts which included erection of mobile noise barriers; provide acoustic wrappings to the breaking tips of the breakers worked at the works area for the sides facing the noise sensitive receivers and postpone the starting time of the rock breaking work after 10:00 a.m.

Construction noise was potentially contributed by rock breaking activities at R15 of the Project.

Apart from the mitigation measures implementing, the Contractor was recommended to provide additional noise mitigation measures at the concerned working areas to further minimize the noise impacts, including proper scheduling of construction works; and provision of additional noise screening measures (in form of noise barriers) at the breaking works areas.

Noise levels measured at the roof of Sau Mau Ping Catholic Primary School (ID5) on 20 and 26 Mar 2012 (Routine noise monitoring) was Leq(30-min) 63.7 dB(A) and 68.2 dB(A).

The measured noise level was below the Limit Level.

No further complaint was received and the complaint was closed.

- CEDD (ICC) referred complaint about gravel and mud on the haul road at Anderson Road on 14 March 2012.

High pressure water jet was provided by the Contractor in the construction site entrance. Gravel and mud were potentially generated when the vehicles passing the haul roads at Portion J2.

According to the routine 1-hour TSP and 24-hour TSP monitoring data recorded at the nearest monitoring station ID 1A (roof of Kwun Tong Government Secondary School) on 14 Mar 2012, the

measured 24-hour TSP level was found to be $82.7\mu\text{g}/\text{m}^3$. The measured 1-hour TSP level on 14 Mar 2012 were found to be $71.6\mu\text{g}/\text{m}^3$; $73.0\mu\text{g}/\text{m}^3$; $72.4\mu\text{g}/\text{m}^3$. All measured 1-hour TSP and 24-hour TSP level were below the Action and Limit Level.

In order to minimize the dust impact, public road joint cleaning between the Contractor and Food and Environmental Hygiene Department was carried out on 19 and 20 March 2012 respectively. The Contractor should ensure the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site.

No further complaint was received and the complaint was closed.

- CEDD (ICC) referred complaint about accumulation of mud on the haul road at New Clear Water Bay Road on 14 March 2012.

High pressure water jet was provided by the Contractor in the construction site entrance. Mud was potentially generated when the vehicles passing the haul roads at Portion J2.

According to the routine 1-hour TSP and 24-hour TSP monitoring data recorded at the nearest monitoring station ID 1A (roof of Kwun Tong Government Secondary School) on 14 Mar 2012, the measured 24-hour TSP level was found to be $82.7\mu\text{g}/\text{m}^3$. The measured 1-hour TSP level on 14 Mar 2012 were found to be $71.6\mu\text{g}/\text{m}^3$; $73.0\mu\text{g}/\text{m}^3$; $72.4\mu\text{g}/\text{m}^3$. All measured 1-hour TSP and 24-hour TSP level were below the Action and Limit Level.

In order to minimize the dust impact, public road joint cleaning between the Contractor and Food and Environmental Hygiene Department was carried out on 19 and 20 March 2012 respectively. The Contractor should ensure the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site.

No further complaint was received and the complaint was closed.

- CEDD (ICC) referred complaint about gravel on the haul road at New Clear Water Bay Road on 15 March 2012.

High pressure water jet was provided by the Contractor in the construction site entrance. Gravel was potentially generated when the vehicles passing the haul roads at Portion J2.

According to the routine 1-hour TSP and 24-hour TSP monitoring data recorded at the nearest monitoring station ID 1A (roof of Kwun Tong Government Secondary School) on 14 and 20 Mar 2012, the measured 24-hour TSP level were found to be $82.7\mu\text{g}/\text{m}^3$ and $\mu\text{g}/\text{m}^3$. The measured 1-hour TSP level on 14 and 20 Mar 2012 were found to be $71.6\mu\text{g}/\text{m}^3$; $73.0\mu\text{g}/\text{m}^3$; $72.4\mu\text{g}/\text{m}^3$ and $76.2\mu\text{g}/\text{m}^3$; $77.6\mu\text{g}/\text{m}^3$; $78.2\mu\text{g}/\text{m}^3$ respectively. All measured 1-hour TSP and 24-hour TSP level were below the Action and Limit Level.

In order to minimize the dust impact, public road joint cleaning between the Contractor and Food and Environmental Hygiene Department was carried out on 19 and 20 March 2012 respectively. The Contractor should ensure the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site.

No further complaint was received and the complaint was closed.

- CEDD (ICC) referred complaint about gravel on the haul road at Anderson Road and New Clear Water Bay Road crossing on 15 March 2012.

High pressure water jet was provided by the Contractor in the construction site entrance. Gravel was potentially generated when the vehicles passing the haul roads at Portion J2.

According to the routine 1-hour TSP and 24-hour TSP monitoring data recorded at the nearest monitoring station ID 1A (roof of Kwun Tong Government Secondary School) on 14 and 20 Mar 2012, the measured 24-hour TSP level were found to be $82.7\mu\text{g}/\text{m}^3$ and $63.2\mu\text{g}/\text{m}^3$. The measured 1-hour TSP level on 14 and 20 Mar 2012 were found to be $71.6\mu\text{g}/\text{m}^3$; $73.0\mu\text{g}/\text{m}^3$; $72.4\mu\text{g}/\text{m}^3$ and $76.2\mu\text{g}/\text{m}^3$; $77.6\mu\text{g}/\text{m}^3$; $78.2\mu\text{g}/\text{m}^3$ respectively. All measured 1-hour TSP and 24-hour TSP level were below the Action and Limit Level.

In order to minimize the dust impact, public road joint cleaning between the Contractor and Food and Environmental Hygiene Department was carried out on 19 and 20 March 2012 respectively. The Contractor should ensure the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site.

No further complaint was received and the complaint was closed.

- CEDD (ICC) referred complaint about gravel on the haul road at Anderson Road and New Clear Water Bay Road on 16 March 2012.

High pressure water jet was provided by the Contractor in the construction site entrance. Gravel was potentially generated when the vehicles passing the haul roads at Portion J2.

According to the routine 1-hour TSP and 24-hour TSP monitoring data recorded at the nearest monitoring station ID 1A (roof of Kwun Tong Government Secondary School) on 14 and 20 Mar 2012, the measured 24-hour TSP level were found to be $82.7\mu\text{g}/\text{m}^3$ and $63.2\mu\text{g}/\text{m}^3$. The measured 1-hour TSP level on 14 and 20 Mar 2012 were found to be $71.6\mu\text{g}/\text{m}^3$; $73.0\mu\text{g}/\text{m}^3$; $72.4\mu\text{g}/\text{m}^3$ and $76.2\mu\text{g}/\text{m}^3$; $77.6\mu\text{g}/\text{m}^3$; $78.2\mu\text{g}/\text{m}^3$ respectively. All measured 1-hour TSP and 24-hour TSP level were below the Action and Limit Level.

In order to minimize the dust impact, public road joint cleaning between the Contractor and Food and Environmental Hygiene Department was carried out on 19 and 20 March 2012 respectively. The Contractor should ensure the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site.

No further complaint was received and the complaint was closed.

- CEDD (ICC) referred a complaint about traffic obstruction by accumulation of fugitive dust from the road works at junction of Clear Water Bay and New Clear Water Bay Road on 22 March 2012.

Fugitive dust emission was potentially generated from the vehicles passing the haul roads at Portion J2. High pressure water jet was provided by the Contractor in the construction site entrance.

According to the routine 1-hour TSP and 24-hour TSP monitoring data recorded at the nearest monitoring station ID 1A (roof of Kwun Tong Government Secondary School) on 20 Mar 2012, the measured 24-hour TSP level was found to be $63.2\mu\text{g}/\text{m}^3$. The measured 1-hour TSP level on 20 Mar 2012 were found to be $76.2\mu\text{g}/\text{m}^3$; $77.6\mu\text{g}/\text{m}^3$; $78.2\mu\text{g}/\text{m}^3$. All measured 1-hour TSP and 24-hour TSP level were below the Action and Limit Level.

In order to minimize the dust impact, public road joint cleaning between the Contractor and Food and Environmental Hygiene Department was carried out on 19 and 20 March 2012 respectively. The Contractor should ensure the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site.

No further complaint was received and the complaint was closed.

- CEDD (ICC) referred a complaint about traffic obstruction by accumulation of fugitive dust from the road works at Clear Water Bay Road on 23 March 2012.

Fugitive dust emission was potentially generated from the vehicles passing the haul roads at Portion J2. High pressure water jet was provided by the Contractor in the construction site entrance.

According to the routine 1-hour TSP and 24-hour TSP monitoring data recorded at the nearest monitoring station ID 1A (roof of Kwun Tong Government Secondary School) on 20 Mar 2012, the measured 24-hour TSP level was found to be $63.2\mu\text{g}/\text{m}^3$. The measured 1-hour TSP level on 20 Mar 2012 were found to be $76.2\mu\text{g}/\text{m}^3$; $77.6\mu\text{g}/\text{m}^3$; $78.2\mu\text{g}/\text{m}^3$. All measured 1-hour TSP and 24-hour TSP level were below the Action and Limit Level.

In order to minimize the dust impact, public road joint cleaning between the Contractor and Food and Environmental Hygiene Department was carried out on 19 and 20 March 2012 respectively. The Contractor should ensure the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site.

No further complaint was received and the complaint was closed.

Please refer to the monthly EM&A report (March 2012 Version 0) accordingly for the details of the captioned complaint.

1 INTRODUCTION

1.1 Scope of Report

1.1.1 This is the quarterly Environmental Monitoring and Audit (EM&A) Report for the reporting period from 1 March 2012 to 31 May 2012 under the Project “Contract CV/2007/03 - Development at Anderson Road – Site Formation and Associated Infrastructure Works” (hereafter called “the Project”), which serving for both the entire Development of Anderson Road (Schedule 3 Designated Project (DP)) project as well as the Widening of Po Lam Road (Schedule 2 DP) project (which was commenced on 21 September 2011).

1.1.2 This report presents a summary of the EM&A works, list of activities and mitigation measures proposed by the Environmental Team (ET) for the Project during the reporting period.

1.2 Project Organization

1.2.1 The project organization structure 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
ER (Ove Arup)	Chief Resident Engineer	Dennis Leung	3656 3000	3656 3100
	Senior Resident Engineer	Victor Leung (from 1 March 2012 to 10 May 2012)	3656 3000	3656 3100
		Michael Wright (from 11 May 2012 to 31 May 2012)	3656 3000	3656 3100
	Resident Engineer (Safety and Environmental)	Kenneth Lee	3656 3000	3656 3100
IEC (ENVIRON)	Independent Environmental Checker	David Yeung	3743 0717	3548 6988
Contractor (CSCE)	Site Agent	Wilson Lau	2704 2095	2702 6553
	Environmental Manager	Leo Chung	2704 2095	2702 6553
ET (AECOM)	ET Leader	Edith Ng	3922 9407	2317 7609

1.3 Summary of Construction Works

1.3.1 The Contactor has carried out major activities in the reporting quarter. Details of the works undertaken in this reporting period are listed below:

- Blasting;
- Drainage works;
- Slope upgrading works;
- Excavation work at Portions A, B, C, D, E, H, J4, S1a, S2a, S2b;
- Temporary traffic arrangement at J/O Po Lam Road & Sau Mau Ping Road, Portion J2, J3 and J4;
- Site clearance;
- Erection of hoardings and chain link fence;
- Establishment of temporary access and temporary drainage;
- Slope stabilization;
- Tree transplanting and protection;
- Maintenance works;
- Bridge structural works;

- Retaining structures structural works;
- RE wall panel installation;
- Slope drainage and maintenance access;
- Erection and maintenance of blasting cages and fencing;
- Pre-stressing works of bridge;
- Toe / Beam planter construction;
- Permanent backfilling at RW22;
- Bored pile(column method), capping beam & panel wall construction at R15;
- Lowering down of bored pile at R15;
- Construction of Bridge A, B and D;
- U-channel and box-culvert works at Portion D and E; and
- Preparation works for area J1a and J1b (R15b)

1.3.2 The general layout plan of the Project site showing the contract area is shown in Figure 1.1.

1.3.3 The environmental mitigation measures implementation schedule (EMIS) are presented in Appendix B.

2 SUMMARY OF EM&A PROGRAMME REQUIREMENTS

2.1 Monitoring Parameters

- 2.1.1 The EM&A Manual designated five monitoring stations to monitor environmental impacts on air quality and noise due to the Project. The monitoring locations are depicted in Figure 2.1.
- 2.1.2 The monitoring stations ID 4 & ID 5 will serve both the entire Development of Anderson Road (Schedule 3 Designated Project (DP)) project as well as the Widening of Po Lam Road (Schedule 2 DP) project.

2.2 Environmental Quality Performance Limits (Action/Limit Levels)

- 2.2.1 The environmental quality performance limits (i.e. Action/Limit Levels) were derived from the baseline air quality and noise monitoring results of Kwun Tong Government Secondary School (ID 1A), On Yat House (ID 2), Sau Nga House (ID 3), Sau Ming Primary School (ID 4) and Sau Mau Ping Catholic Primary School (ID 5) and / or as defined in the EM&A Manual for air quality and noise impacts.
- 2.2.2 The baseline condition of air quality (for ID 1A, ID 2 & ID 3) in the Project site was reviewed in August 2008 upon agreed by ER and IEC. Reviewed Action Levels for air quality at ID 1A, ID 2 and ID 3 were established in September 2008. The latest Action and Limit Levels (established in September 2008) for all monitoring parameters are summarized in Appendix C.

2.3 Environmental Mitigation Measures

- 2.3.1 Relevant environmental mitigation measures were stipulated in the Particular Specification and EP (No.: EP-140/2002) for the Contractor to adopt. A list of environmental mitigation measures and their implementation statuses are given in Appendix B.

3 MONITORING RESULTS

3.1 Air Quality

- 3.1.1 Air quality monitoring, including 1-hr and 24-hr TSP, was conducted for at least three times every 6 days and for at least once every 6 days respectively at the 5 monitoring stations (ID 1A, ID 2, ID 3, ID 4 and ID 5), in accordance with the EM&A Manual.
- 3.1.2 Forty-eighth (48) sessions of 1-hr TSP monitoring and sixteen (16) sessions of 24-hr TSP monitoring were conducted for the 5 monitoring stations (ID 1A, ID 2, ID 3, ID4 & ID5) in the reporting quarter.
- 3.1.3 The weather was mostly sunny and fine, with occasionally cloudy period in the reporting quarter. The trend of impact air quality monitoring results for the reporting quarter is given in Appendix D. Major dust source included construction activities of the Project, concurrent construction activities of another project carried out in the vicinity and nearby traffic emissions.
- 3.1.4 No exceedance of Action and Limit Level was recorded for 1-hour TSP and 24-hour TSP monitoring in the reporting quarter.
- 3.1.5 Table 3.1 presents the number of exceedances recorded in each month of the reporting quarter. The number of monitoring events included regular impact monitoring events and additional ones, if any.

Table 3.1 Summary of Number of Exceedances for 1-hr and 24-hr TSP Concentration

Monitoring Parameter	Location	Level of Exceedance	Month		
			Mar 12	Apr 12	May 12
1-hr TSP	ID 1A	No. of monitoring events	18	15	15
		Action	0	0	0
		Limit	0	0	0
	ID 2	No. of monitoring events	18	15	15
		Action	0	0	0
		Limit	0	0	0
	ID 3	No. of monitoring events	18	15	15
		Action	0	0	0
		Limit	0	0	0
	ID 4	No. of monitoring events	18	15	15
		Action	0	0	0
		Limit	0	0	0
	ID 5	No. of monitoring events	18	15	15
		Action	0	0	0
		Limit	0	0	0
	Total		0	0	0
24-hr TSP	ID 1A	No. of monitoring events	6	5	5
		Action	0	0	0
		Limit	0	0	0
	ID 2	No. of monitoring events	6	5	5
		Action	0	0	0
		Limit	0	0	0
	ID 3	No. of monitoring events	6	5	5
		Action	0	0	0
		Limit	0	0	0
	ID 4	No. of monitoring events	6	5	5
		Action	0	0	0
		Limit	0	0	0
	ID 5	No. of monitoring events	6	5	5
		Action	0	0	0
		Limit	0	0	0
	Total		0	0	0

3.2 Construction Noise

- 3.2.1 Noise was conducted at the 5 monitoring stations (ID 1A, ID 2, ID 3, ID 4 and ID 5) for at least once per week during the construction phase (0700 – 1900) of the Project.
- 3.2.2 Thirteen (13) noise monitoring events were carried out for all monitoring stations in the reporting quarter.
- 3.2.3 According to the information provided by the Contractor, two (2) noise complaints were received in the reporting quarter; hence, two (2) Action Level exceedance were received in the reporting quarter.
- 3.2.4 No Limit Level exceedance of noise was recorded in the reporting quarter.
- 3.2.5 The graphical plots of trends of the noise monitoring results in the reporting quarter are provided in Appendix E. Major noise source included construction activities of the Project, concurrent construction activities of another project carried out in the vicinity, nearby traffic emissions and noise from school activities and community noise.
- 3.2.6 Table 3.2 presents the number of exceedances recorded in each month of the reporting quarter. The number of monitoring events included regular monitoring events and additional ones, if any.

Table 3.2 Summary of Number of Exceedances for Construction Noise

Monitoring Parameter	Location	Level of Exceedance	Month		
			Mar 12	Apr 12	May 12
Construction Noise	ID 1A	No. of monitoring events	5	4	4
		Limit	0	0	0
	ID 2	No. of monitoring events	5	4	4
		Limit	0	0	0
	ID 3	No. of monitoring events	5	4	4
		Limit	0	0	0
	ID 4	No. of monitoring events	5	4	4
		Limit	0	0	0
	ID 5	No. of monitoring events	5	4	4
		Limit	0	0	0
	Total Action Level*		0	0	0
	Total Limit Level		0	0	0

Remarks: * Number of Action Level exceedance for construction noise is the number of documented noise related complaint received in the reporting period from any one of the sensitive receivers.

3.3 Environmental Site Inspection

3.3.1 There were 14 site inspections conducted in the reporting quarter to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. The major concerns for the Project are air quality, noise, water quality and chemical and waste management. Particular observations and non-compliance and their statuses are described below.

3.3.2 The Contractor has rectified most of the observations as identified during environmental site inspection in the reporting period within agreed time frame. Rectifications of remaining identified items are undergoing by the Contractor. Follow-up inspections on the status on provision of mitigation measures will be conducted to ensure all identified items are mitigated properly.

3.3.3 Air Quality Impact

- Wheel washing facility was found not operating at Portion E1 (works area near site office). The Contractor should ensure that the wheel washing facility provided at site entrance/exit was operating effectively to wash off the deposited silt on vehicles' bodies and wheels and clear the mud trails on public road.
- Mud trails were observed on ground at Portion E1 (works area near site office) and accumulated along the haul road at Portion J2 (Clear Water Bay Road). The Contractor should clear the mud trails frequently and provide sand bags/bundings to intercept the silt from the works area. The Contractor should ensure the wheel washing facility was provide for vehicle washing at the site entrance and review the effectiveness of the wheel washing facility.
- Dark smoke emission was observed from excavator worked at P1/P2 works area. The Contractor should repair the excavator and conduct regular inspection of the working machineries worked in site areas to avoid any dark smoke emission.
- Insufficient dust suppression measure was observed at shotcreting area on Po Lam Road R15b works area. The Contractor should provide adequate dust suppression measures when shotcreting was carried out.
- Dusty haul road was observed at R9 subway. The Contractor was recommended to provide regular water spraying or equivalent dust control measures on the haul road to suppress the dust impacts.

3.3.4 Construction Noise Impact

- Noise mitigation measure was found insufficient at work area R25, works area Portion C2 near water tank and Po Lam Road and Sau Mau Ping Road crossing works area. The Contractor should ensure that proper noise barriers and absorptive material wrapping to the breaking tip of breaker should be provided at rock breaking works area prior to any rock breaking works was carried out to minimize the noise impact to the sensitive receiver nearby.

3.3.5 Water Quality Impact

- Accumulation of deposited silt and silty water was observed in the drainage channels and the drainage channels were blocked at Portion E1 and E18 (works area near site office). The Contractor should clear the deposited silt inside the drainage channels regularly and review the temporary drainage channels/systems within works area to handle the surface run-off from works area effectively.

- Muddy surface run-off was observed on ground without bundings between Site Office and R15. The Contractor should provide sand bags/bunds to direct the surface run-off from works areas to desilting facility. Effluent discharging to public drains shall be well treated.
- Silt and debris were observed accumulated inside the gully at Portion J2. The Contractor should clear the accumulated silt and debris inside the gully regularly.

3.3.6 Chemical and Waste Management

- Oil leakage from the vehicle was found mixing with water and found on ground under the breaker at Portion C2 works area. Oil stain was observed on ground in Po Lam Road works area. The Contractor should clear the oily mixture and oil leakage on ground and disposed of as chemical waste to avoid the oily mixture and leaked oil spread out on site.
- Improper stored chemical containers were observed placing on the bare ground at Bridge A, R25 works area and R9 subway. The Contractor should provide drip tray to the chemical containers stored in the works area to retain any oil leakage.
- Stockpiles of used cement bags were found at Road L4 works area. The Contractor should clear the used cement bags accumulated within the works area regularly and dispose of them properly.
- Breaking tip of breaker was found place on ground and oil stain was observed on ground near the breaking tip of the breaker at Po Lam Road. The Contractor should provide drip tray or tarpaulin sheet to retain any oil leakage. Oil stain on ground should be cleared and disposed of as chemical waste.

3.3.7 Landscape and Visual Impact

- Tree protection nets for the retained trees at Bridge A were found loosely installed and C&D materials were found placed near retained trees. The Contractor should reinstate the tree protective measures to the retained trees and remove the C&D materials placed near the retained trees.

4 ADVICE ON SOLID AND LIQUID WASTE MANAGEMENT STATUS

4.1 Summary of Solid and Liquid Waste Management

- 4.1.1 The Contractor is registered as a chemical waste producer for this Project. C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.
- 4.1.2 As advised by the Contractor, quantity of waste for disposal in the reporting quarter is summarized in the Table 4.1.

Table 4.1 Summary of Quantity of Waste for Disposal

Type of waste	Month		
	Mar 12	Apr 12	May 12
Total C&D material (m ³)	78,422m ³	55,857.11m ³	82,712.33m ³
Hard Rock and Large Broken Concrete	49,091m ³	45,115.92m ³	61,399.42m ³
Reuse in the Project	8,698m ³	0m ³	0 m ³
Reuse in other Projects	0m ³	215.99m ³	761.71m ³
Disposed to barging point	20,633m ³	10,525.2m ³	20,551.2m ³
Metals	20,160kg	0kg	19,530kg
Paper cardboard packing	10kg	10kg	10kg
Plastics	0kg	0kg	0kg
Chemical waste	0L	0L	396L
General refuse	144.15tonnes	51.77tonnes	70.02tonnes

- 4.1.3 The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.
- 4.1.4 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practise on the Packaging, Labelling and Storage of Chemical Wastes.

5 SUMMARY OF NON-COMPLIANCE (EXCEEDANCES) OF ENVIRONMENTAL QUALITY

5.1 Summary of Exceedances and Review of the Reasons for Non-compliance

- 5.1.1 There was no Action and Limit Level exceedance recorded for 1-hr TSP and 24-hr TSP in the reporting quarter.
- 5.1.2 According to the information provided by the Contractor, two (2) noise complaints were received in the reporting quarter. Hence, two (2) Action Level exceedance were received in the reporting quarter.
- 5.1.3 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting quarter.

6 COMPLAINT, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTION

6.1 Summary of Environmental complaints, notification of summons and successful prosecutions

6.1.1 Based on the information provided by the Contractor, nine (9) air complaints and two (2) noise complaints and no notification of summons and successful prosecution were received in the reporting quarter.

- CEDD (ICC) referred complaint about gravel on the haul road at Anderson Road and New Clear Water Bay Road on 13 March 2012.

High pressure water jet was provided by the Contractor in the construction site entrance. Gravel was potentially generated when the vehicles passing the haul roads at Portion J2.

According to the routine 1-hour TSP and 24-hour TSP monitoring data recorded at the nearest monitoring station ID 1A (roof of Kwun Tong Government Secondary School) on 8 and 14 Mar 2012, the measured 24-hour TSP level were found to be $29.6\mu\text{g}/\text{m}^3$ and $82.7\mu\text{g}/\text{m}^3$. The measured 1-hour TSP level on 8 and 14 Mar 2012 were found to be $73.0\mu\text{g}/\text{m}^3$; $71.7\mu\text{g}/\text{m}^3$; $70.2\mu\text{g}/\text{m}^3$ and $71.6\mu\text{g}/\text{m}^3$; $73.0\mu\text{g}/\text{m}^3$; $72.4\mu\text{g}/\text{m}^3$ respectively. All measured 1-hour TSP and 24-hour TSP level were below the Action and Limit Level.

In order to minimize the dust impact, public road joint cleaning between the Contractor and Food and Environmental Hygiene Department was carried out on 19 March 2012 respectively. The Contractor should ensure the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site.

No further complaint was received and the complaint was closed.

- CEDD (ICC) referred a complaint about traffic obstruction by accumulation of fugitive dust from the road works at Clear Water Bay Road near Anderson Road crossing on 13 March 2012.

Fugitive dust emission was potentially generated from the vehicles passing the haul roads at Portion J2. High pressure water jet was provided by the Contractor in the construction site entrance.

According to the routine 1-hour TSP and 24-hour TSP monitoring data recorded at the nearest monitoring station ID 1A (roof of Kwun Tong Government Secondary School) on 8 and 14 Mar 2012, the measured 24-hour TSP level were found to be $29.6\mu\text{g}/\text{m}^3$ and $82.7\mu\text{g}/\text{m}^3$. The measured 1-hour TSP level on 8 and 14 Mar 2012 were found to be $73.0\mu\text{g}/\text{m}^3$; $71.7\mu\text{g}/\text{m}^3$; $70.2\mu\text{g}/\text{m}^3$ and $71.6\mu\text{g}/\text{m}^3$; $73.0\mu\text{g}/\text{m}^3$; $72.4\mu\text{g}/\text{m}^3$ respectively. All measured 1-hour TSP and 24-hour TSP level were below the Action and Limit Level.

Despite that the 1-hour and 24-hour TSP levels were below the Action and Limit level. The Contractor was recommended to ensure the wheel washing facility was operated at the construction site entrance and closely monitor the effectiveness of the wheel washing facility.

No further complaint was received and the complaint was closed.

- A complaint was referred by CEDD (ICC) regarding the construction noise impact from rock breaking at R15 on 14 March 2012.

According to the noise monitoring data recorded on 8 and 14 March 2012 at the nearest monitoring station ID 5 (rooftop of Sau Mau Ping Catholic Primary School), the measured noise levels in Leq (30-min) was 66.6 dB(A) and 67.7 dB(A) on 8 and 14 March 2012 respectively, which was below the Limit Level. The averaged noise level is Leq (30-min) 66.5 dB(A).

Noise mitigation measures have been provided at rock breaking works area to mitigate the noise impacts which included erection of mobile noise barriers; provide acoustic wrappings to the breaking tips of the breakers worked at the works area for the sides facing the noise sensitive receivers and postpone the starting time of the rock breaking work after 10:00 a.m.

Construction noise was potentially contributed by rock breaking activities at R15 of the Project.

Apart from the mitigation measures implementing, the Contractor was recommended to provide additional noise mitigation measures at the concerned working areas to further minimize the noise impacts, including proper scheduling of construction works; and provision of additional noise screening measures (in form of noise barriers) at the breaking works areas.

Noise levels measured at the roof of Sau Mau Ping Catholic Primary School (ID5) on 20 and 26 Mar 2012 (Routine noise monitoring) was Leq(30-min) 63.7 dB(A) and 68.2 dB(A).

The measured noise level was below the Limit Level.

No further complaint was received and the complaint was closed.

- A complaint was referred by CSCEC regarding the construction noise impact from rock breaking at R15 on 14 March 2012.

According to the noise monitoring data recorded on 8 and 14 March 2012 at the nearest monitoring station ID 5 (rooftop of Sau Mau Ping Catholic Primary School), the measured noise levels in Leq (30-min) was 66.6 dB(A) and 67.7 dB(A) on 8 and 14 March 2012 respectively, which was below the Limit Level. The averaged noise level is Leq (30-min) 66.5 dB(A).

Noise mitigation measures have been provided at rock breaking works area to mitigate the noise impacts which included erection of mobile noise barriers; provide acoustic wrappings to the breaking tips of the breakers worked at the works area for the sides facing the noise sensitive receivers and postpone the starting time of the rock breaking work after 10:00 a.m.

Construction noise was potentially contributed by rock breaking activities at R15 of the Project.

Apart from the mitigation measures implementing, the Contractor was recommended to provide additional noise mitigation measures at the concerned working areas to further minimize the noise impacts, including proper scheduling of construction works; and provision of additional noise screening measures (in form of noise barriers) at the breaking works areas.

Noise levels measured at the roof of Sau Mau Ping Catholic Primary School (ID5) on 20 and 26 Mar 2012 (Routine noise monitoring) was Leq(30-min) 63.7 dB(A) and 68.2 dB(A).

The measured noise level was below the Limit Level.

No further complaint was received and the complaint was closed.

- CEDD (ICC) referred complaint about gravel and mud on the haul road at Anderson Road on 14 March 2012.

High pressure water jet was provided by the Contractor in the construction site entrance. Gravel and mud were potentially generated when the vehicles passing the haul roads at Portion J2.

According to the routine 1-hour TSP and 24-hour TSP monitoring data recorded at the nearest monitoring station ID 1A (roof of Kwun Tong Government Secondary School) on 14 Mar 2012, the measured 24-hour TSP level was found to be $82.7\mu\text{g}/\text{m}^3$. The measured 1-hour TSP level on 14 Mar 2012 were found to be $71.6\mu\text{g}/\text{m}^3$; $73.0\mu\text{g}/\text{m}^3$; $72.4\mu\text{g}/\text{m}^3$. All measured 1-hour TSP and 24-hour TSP level were below the Action and Limit Level.

In order to minimize the dust impact, public road joint cleaning between the Contractor and Food and Environmental Hygiene Department was carried out on 19 and 20 March 2012 respectively. The Contractor should ensure the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site.

No further complaint was received and the complaint was closed.

- CEDD (ICC) referred complaint about accumulation of mud on the haul road at New Clear Water Bay Road on 14 March 2012.

High pressure water jet was provided by the Contractor in the construction site entrance. Mud was potentially generated when the vehicles passing the haul roads at Portion J2.

According to the routine 1-hour TSP and 24-hour TSP monitoring data recorded at the nearest monitoring station ID 1A (roof of Kwun Tong Government Secondary School) on 14 Mar 2012, the measured 24-hour TSP level was found to be $82.7\mu\text{g}/\text{m}^3$. The measured 1-hour TSP level on 14 Mar 2012 were found to be $71.6\mu\text{g}/\text{m}^3$; $73.0\mu\text{g}/\text{m}^3$; $72.4\mu\text{g}/\text{m}^3$. All measured 1-hour TSP and 24-hour TSP level were below the Action and Limit Level.

In order to minimize the dust impact, public road joint cleaning between the Contractor and Food and Environmental Hygiene Department was carried out on 19 and 20 March 2012 respectively. The Contractor should ensure the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site.

No further complaint was received and the complaint was closed.

- CEDD (ICC) referred complaint about gravel on the haul road at New Clear Water Bay Road on 15 March 2012.

High pressure water jet was provided by the Contractor in the construction site entrance. Gravel was potentially generated when the vehicles passing the haul roads at Portion J2.

According to the routine 1-hour TSP and 24-hour TSP monitoring data recorded at the nearest monitoring station ID 1A (roof of Kwun Tong Government Secondary School) on 14 and 20 Mar 2012, the measured 24-hour TSP level were found to be $82.7\mu\text{g}/\text{m}^3$ and $\mu\text{g}/\text{m}^3$. The measured 1-hour TSP level on 14 and 20 Mar 2012 were found to be $71.6\mu\text{g}/\text{m}^3$; $73.0\mu\text{g}/\text{m}^3$; $72.4\mu\text{g}/\text{m}^3$ and $76.2\mu\text{g}/\text{m}^3$; $77.6\mu\text{g}/\text{m}^3$; $78.2\mu\text{g}/\text{m}^3$ respectively. All measured 1-hour TSP and 24-hour TSP level were below the Action and Limit Level.

In order to minimize the dust impact, public road joint cleaning between the Contractor and Food and Environmental Hygiene Department was carried out on 19 and 20 March 2012 respectively. The Contractor should ensure the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site.

No further complaint was received and the complaint was closed.

- CEDD (ICC) referred complaint about gravel on the haul road at Anderson Road and New Clear Water Bay Road crossing on 15 March 2012.

High pressure water jet was provided by the Contractor in the construction site entrance. Gravel was potentially generated when the vehicles passing the haul roads at Portion J2.

According to the routine 1-hour TSP and 24-hour TSP monitoring data recorded at the nearest monitoring station ID 1A (roof of Kwun Tong Government Secondary School) on 14 and 20 Mar 2012, the measured 24-hour TSP level were found to be $82.7\mu\text{g}/\text{m}^3$ and $63.2\mu\text{g}/\text{m}^3$. The measured 1-hour TSP level on 14 and 20 Mar 2012 were found to be $71.6\mu\text{g}/\text{m}^3$; $73.0\mu\text{g}/\text{m}^3$; $72.4\mu\text{g}/\text{m}^3$ and $76.2\mu\text{g}/\text{m}^3$; $77.6\mu\text{g}/\text{m}^3$; $78.2\mu\text{g}/\text{m}^3$ respectively. All measured 1-hour TSP and 24-hour TSP level were below the Action and Limit Level.

In order to minimize the dust impact, public road joint cleaning between the Contractor and Food and Environmental Hygiene Department was carried out on 19 and 20 March 2012 respectively. The Contractor should ensure the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site.

No further complaint was received and the complaint was closed.

- CEDD (ICC) referred complaint about gravel on the haul road at Anderson Road and New Clear Water Bay Road on 16 March 2012.

High pressure water jet was provided by the Contractor in the construction site entrance. Gravel was potentially generated when the vehicles passing the haul roads at Portion J2.

According to the routine 1-hour TSP and 24-hour TSP monitoring data recorded at the nearest monitoring station ID 1A (roof of Kwun Tong Government Secondary School) on 14 and 20 Mar 2012, the measured 24-hour TSP level were found to be $82.7\mu\text{g}/\text{m}^3$ and $63.2\mu\text{g}/\text{m}^3$. The measured 1-hour TSP level on 14 and 20 Mar 2012 were found to be $71.6\mu\text{g}/\text{m}^3$; $73.0\mu\text{g}/\text{m}^3$; $72.4\mu\text{g}/\text{m}^3$ and $76.2\mu\text{g}/\text{m}^3$; $77.6\mu\text{g}/\text{m}^3$; $78.2\mu\text{g}/\text{m}^3$ respectively. All measured 1-hour TSP and 24-hour TSP level were below the Action and Limit Level.

In order to minimize the dust impact, public road joint cleaning between the Contractor and Food and Environmental Hygiene Department was carried out on 19 and 20 March 2012 respectively. The Contractor should ensure the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site.

No further complaint was received and the complaint was closed.

- CEDD (ICC) referred a complaint about traffic obstruction by accumulation of fugitive dust from the road works at junction of Clear Water Bay and New Clear Water Bay Road on 22 March 2012.

Fugitive dust emission was potentially generated from the vehicles passing the haul roads at Portion J2. High pressure water jet was provided by the Contractor in the construction site entrance.

According to the routine 1-hour TSP and 24-hour TSP monitoring data recorded at the nearest monitoring station ID 1A (roof of Kwun Tong Government Secondary School) on 20 Mar 2012, the measured 24-hour TSP level was found to be $63.2\mu\text{g}/\text{m}^3$. The measured 1-hour TSP level on 20 Mar 2012 were found to be $76.2\mu\text{g}/\text{m}^3$; $77.6\mu\text{g}/\text{m}^3$; $78.2\mu\text{g}/\text{m}^3$. All measured 1-hour TSP and 24-hour TSP level were below the Action and Limit Level.

In order to minimize the dust impact, public road joint cleaning between the Contractor and Food and Environmental Hygiene Department was carried out on 19 and 20 March 2012 respectively. The Contractor should ensure the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site.

No further complaint was received and the complaint was closed.

- CEDD (ICC) referred a complaint about traffic obstruction by accumulation of fugitive dust from the road works at Clear Water Bay Road on 23 March 2012.

Fugitive dust emission was potentially generated from the vehicles passing the haul roads at Portion J2. High pressure water jet was provided by the Contractor in the construction site entrance.

According to the routine 1-hour TSP and 24-hour TSP monitoring data recorded at the nearest monitoring station ID 1A (roof of Kwun Tong Government Secondary School) on 20 Mar 2012, the measured 24-hour TSP level was found to be $63.2\mu\text{g}/\text{m}^3$. The measured 1-hour TSP level on 20 Mar 2012 were found to be $76.2\mu\text{g}/\text{m}^3$; $77.6\mu\text{g}/\text{m}^3$; $78.2\mu\text{g}/\text{m}^3$. All measured 1-hour TSP and 24-hour TSP level were below the Action and Limit Level.

In order to minimize the dust impact, public road joint cleaning between the Contractor and Food and Environmental Hygiene Department was carried out on 19 and 20 March 2012 respectively. The Contractor should ensure the wheel washing facility was provided to remove any dusty materials from their bodies and wheels before leaving construction site.

No further complaint was received and the complaint was closed.

Please refer to the monthly EM&A report (March 2012 Version 0) accordingly for the details of the captioned complaint.

- 6.1.2 Table 6.1 summarized the complaint, summons and successful prosecution received in the reporting period.

Table 6.1 Summary of Environmental Complaints, Summons and Prosecutions

	Mar 12	Apr 12	May 12	Total
Complaint Logged	11	0	0	11
Summons Served	0	0	0	0
Successful Prosecution	0	0	0	0

- 6.1.3 Cumulative Statistics on Exceedances, Complaints, Notification of Summons and Successful Prosecutions recorded since the commencement of the Project are given in Appendix F.

7 COMMENTS, RECOMMENDATIONS AND CONCLUSIONS

7.1 Comments on Mitigation Measures

7.1.1 According to the environmental site inspections performed in the reporting quarter, the following comments are provided:

7.1.2 Air Quality Impact

- Proper wheel washing facility should be provided and maintained at all site entrances/exits to wash off the deposited silt from vehicles' bodies and wheels effectively. Regular review on the wheel washing facilities in works area should be conducted.
- Conduct regular inspection of the working machineries within works area to avoid any dark smoke emission.
- Provision of regular water spraying or equivalent dust control measures on the haul roads and at the drilling works area to minimize fugitive dust emission.
- Proper shelter, in form of covering on the top and at the 3 sides of the cement mixing works station, should be provided prior to any cement mixing work was carrying out on-site.

7.1.3 Construction Noise Impact

- Proper and effective noise mitigation measures (e.g. provision of noise barriers, absorptive material coverage on scaffolding and absorptive material wrappings to the breaking tips of the breakers) should be implemented at the breaking and drilling works areas to minimize the noise impacts to sensitive receivers nearby. The Contractor should conduct regular review on and maintain the noise screening measures provided within works area.

7.1.4 Water Quality Impact

- Effective temporary drainage systems/channels and wastewater treatment systems should be provided and operated properly in works area to cater the surface run-off generated from works area and wheel washing facility. Surface run-off should be properly treated prior to discharge. Any untreated run-off should be avoided from overflowing to public drains. Temporary drainage systems/channels and wastewater treatment systems should be maintained and reviewed regularly and deposited silt and debris inside the temporary drainage channels/systems should be cleared regularly.

7.1.5 Chemical and Waste Management

- Any oil stains and oil mixture found within the works area should be cleared and disposed of them as chemical waste. Proper measures (e.g. provision of drip trays or temporarily with tarpaulin sheets) should be provided if works with potential oil leakage was carrying out. Regular inspection should be conducted at works area to avoid accumulation of chemical waste in works area
- C&D wastes and general refuse accumulated in works area should be removed off site regularly and disposed of them properly.
- All chemical containers and oil drums placed within the works area should be stored with provision of drip trays in order to retain any oil and chemical leakage.

7.1.6 Landscape and Visual Impact

- Proper tree protection measures (e.g. provision of netting to demarcate the protection zone) should be provided to existing trees to avoid accidental damage to them.

7.2 Recommendations on EM&A Programme

- 7.2.1 The impact air quality and noise monitoring programme ensured that any environmental impact to the receivers would be readily detected and timely actions could be taken to rectify any non-compliance. Assessment and analysis of monitoring results collected demonstrated the environmental acceptability of the Project. The weekly site inspection ensured that all the environmental mitigation measures recommended in the EIA report were effectively implemented.
- 7.2.2 The EM&A programme effectively monitored the environmental impacts from the construction activities and no particular recommendation was advised for the improvement of the programme.

7.3 Conclusions

- 7.3.1 Air quality and noise monitoring and weekly site inspection were carried out from March 2012 to May 2012, in accordance with the EM&A Manual.
- 7.3.2 All 1-hour and 24-hour TSP monitoring results complied with the Action and Limit level at all monitoring locations in the reporting quarter.
- 7.3.3 As per Contractor's information, two (2) noise complaints were received in the reporting quarter. Hence, two (2) Action Level exceedance were noted in the reporting period and no Limit Level exceedance of noise were recorded in the reporting quarter.
- 7.3.4 Referring to the Contractor's information, eleven (11) complaints including nine (9) air complaints and two (2) noise complaints and no notification of summons and successful prosecution were received in the reporting quarter.
- 7.3.5 Environmental site inspections were carried out 14 times in the reporting period. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.