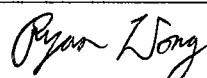
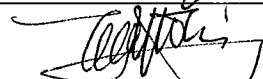


Highways Department

Agreement No. CE 20/2009 (EP)

**Environmental Team for the Widening of
Tolo Highway / Fanling Highway between
Island House Interchange and Fanling****(Stage 1)****Between Island House Interchange and
Tai Hang - Investigation****Annual EM&A Review Report
for November 2009 - October 2010**

[01/2011]

	Name	Signature
Prepared & Checked:	Ryan Wong	
Reviewed & Approved:	Y T Tang	

Version: Rev. 0 Date: 19 January 2011

Disclaimer

This report is prepared for Highways Department and is given for its sole benefit in relation to and pursuant to Environmental Team for the Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling (Stage 1) Between Island House Interchange and Tai Hang - Investigation and may not be disclosed to, quoted to or relied upon by any person other than Highways Department without our prior written consent. No person (other than Highways Department) into whose possession a copy of this report comes may rely on this report without our express written consent and Highways Department may not rely on it for any purpose other than as described above.

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14 January 2011
By Fax (2805 5028) and Post

Attn.: Mr. Tony Wong

Dear Sir,

**Widening of Tolo Highway between
Island House Interchange and Tai Hang
Environmental Permit No.: EP-324/2008
Condition 3.3 – Submission of Annual EM&A Review Report for November 2009 to
October 2010 (Stage 1)**

We refer to the Annual EM&A Review Report received on 7 January 2011 submitted by ET via email. Pursuant to EP Condition 3.3, I hereby verify the Annual EM&A Review Report for November 2009 to October 2010 (Stage 1) for the Project.

Yours faithfully
for MOTT MACDONALD HONG KONG LIMITED

A handwritten signature in black ink, appearing to read "Terence Kong", written over a white background.

Terence Kong
Independent Environmental Checker

c.c. HyD – Mr. Raymond Yip / Mr. C K Chan / Mr. William Chiang
(Fax: 2761 4864/ 2714 5198/2761 4864)

ETL, AECOM – Mr. Y T Tang (Fax: 2891 0305)

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EXECUTIVE SUMMARY

The proposed widening of Tolo Highway and Fanling Highway between Island House Interchange and Fanling (the Project) is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO) and is governed by an Environmental Permit (EP-324/2008)(EP). The Project aims to widen Tolo Highway and Fanling Highway to dual 4-lane carriageway in order to alleviate the current traffic congestion problems and to cope with the increasing transport demands to and from the urban areas and also cross boundary traffic.

The construction works for this Project will be delivered in 2 stages i.e. Stage 1 (between Island House Interchange and Tai Hang) and Stage 2 (between Tai Hang and Wo Hop Shek Interchange). The construction works of Stage 1 were commenced on 23 November 2009 and will tentatively be completed in December 2013; while construction programme of Stage 2 is currently under review. This report focuses on Stage 1 of the Project only.

The construction phase of Stage 1 under the EP and the EM&A programme for Stage 1 of the Project commenced on 23 November 2009. The impact environmental monitoring and audit includes air quality and noise monitoring.

This report documents the findings of EM&A works conducted in the period between 23 November 2009 and 31 October 2010.

As informed by the Contract 1 Contractor (China State Construction Engineering (Hong Kong) Ltd.), construction activities in the reporting period included:

- Temporary shoring and sheetpiling;
- Demolition and re-construction of box culverts;
- Excavation and backfilling;
- Pipe pile wall construction;
- Pile cap construction;
- Bridge column and pier head construction;
- Bored piling;
- Tree felling and transplanting of trees;
- Installation of soil nails;
- Construction of retaining wall;
- Construction of at-grade road;
- Widening and demolition of central dividers;
- Formation of slip road;
- Construction of temporary access;
- Construction of step channel;
- Construction of retaining wall;
- Construction of temporary bridges; and
- Demolition of bridges.

The construction works carried out by the Contract 2 Contractor (Gammon Construction Ltd.) in the reporting period included:

- Construction of haul roads and temporary site accesses;
- Tree felling and tree transplant;
- Piling and pile cap of bridges;
- Construction of pilecap / spread footing of noise barrier / semi noise enclosure;
- Slope works, including installation of soil nail;
- Entrusted watermain works;
- Retaining wall construction; and
- Modification of existing bridge structure.

Breaches of Action and Limit Levels for Air Quality

No exceedance of Action and Limit Levels was recorded for 1-hour TSP monitoring in the reporting period.

However, one (1) Limit Level exceedance was recorded for 24-hour TSP monitoring at AM2 in the reporting period.

Breaches of Action and Limit Levels for Noise

There were six noise related complaints followed up by Environmental Team in the reporting period, hence six (6) Action Level exceedances of noise were recorded.

No Limit Level exceedance of construction noise monitoring was recorded in the reporting period.

Complaint, Notification of Summons and Successful Prosecution

Nine (9) environmental complaints were followed up by Environmental Team in the reporting period.

No notification of summons and successful prosecution was received in the reporting period.

1 INTRODUCTION

Background

- 1.1. Tolo Highway and Fanling Highway are expressways in the North East New Territories connecting Sha Tin, Tai Po and Fanling. These highways form a vital part of the strategic Route 9, which links Hong Kong Island to Shenzhen. At present, this section of Route 9 is dual 3-lane carriageway. However, at several major interchanges along this section of Route 9, the highway is only dual-2 lane. Severe congestion is a frequent occurrence during peak periods, particularly in the Kowloon bound direction.
- 1.2. The objective of the Project “Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling” is to widen Tolo Highway and Fanling Highway to dual 4-lane carriageway in order to alleviate the current traffic congestion problems and to cope with the increasing transport demands to and from the urban areas and also cross boundary traffic.
- 1.3. The Project is a designated project and is governed by an Environmental Permit (EP-324/2008)(EP).
- 1.4. The scope of the Project comprises mainly:
 - (i) Widening of a 5.7 km section of Tolo Highway and 3.0 km section of Fanling Highway between Island House Interchange and Wo Hop Shek Interchange from the existing dual 3-lane to dual 4-lane, including construction of new vehicular bridges;
 - (ii) Widening of interchange sections at Island House Interchange, Tai Po North Interchange, and Lam Kam Road Interchange from dual 2-lane to dual 3-lane, except Sha Tin bound carriageway at Tai Po North Interchange, which is widened from 3-lane to 4-lane, including realignment of various slip roads;
 - (iii) Modification and reconstruction of highways, vehicular bridges, underpasses and footbridges.
- 1.5. The construction works for this Project will be delivered in 2 stages i.e. Stage 1 (between Island House Interchange and Tai Hang) and Stage 2 (between Tai Hang and Wo Hop Shek Interchange). The construction works of Stage 1 commenced on 23 November 2009 and will tentatively be completed in December 2013; while construction programme of Stage 2 is currently under review. This report focuses on Stage 1 of the Project only.
- 1.6. The construction works for Stage 1 of the Project will be implemented under 2 works contracts (Contract 1 and Contract 2). Contract 1 covers the section of Tolo Highway between Island House Interchange and Ma Wo, Contract 2 covers the section of Tolo Highway between Ma Wo and Tai Hang.
- 1.7. Hyder-Arup-Black and Veatch Joint Venture (HABVJV) are appointed by Highways Department as the consultants for the design and construction assignment for the Tolo project under Agreement No. CE 58/2000 Supplementary Agreement No. 3 (SA3) (i.e. the Engineer for the Contracts).
- 1.8. China State Construction Engineering (Hong Kong) Ltd. (CSCE) was commissioned as the Contractor of Contract 1 of Stage 1 of the Project, while Gammon Construction Limited (GCL) was commissioned as the Contractor of Contract 2 of Stage 1 of the Project.
- 1.9. AECOM Asia Co. Ltd. was employed by Highways Department as the Environmental Team to undertake the EM&A works for Stage 1 of the Project and Mott MacDonald Hong Kong Ltd. acts as the Independent Environmental Checker (IEC) for the Contracts.
- 1.10. The construction phase of Stage 1 under the EP commenced on 23 November 2009.
- 1.11. According to the updated EM&A Manual of Stage 1 of the Project, there is a need of an EM&A programme including air quality and noise monitoring. The EM&A programme for Stage 1 of the Project commenced on 23 November 2009.

Scope of Report

- 1.12. This is the first Annual Environmental Monitoring and Audit (EM&A) Review Report under the Agreement No. CE 20/2009 (EP) - Widening of Tolo Highway between Island House Interchange and Tai Hang – Investigation. This report presents a summary of the environmental monitoring and audit works, list of activities and mitigation measures proposed by the ET for Stage 1 of the Project from 23 November 2009 to 31 October 2010.

Project Organization

- 1.13. 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
ER of Stage 1, Contract 1 (Hyder-Arup-Black & Veatch Joint Venture)	Chief Resident Engineer /TOLO1	James Tsang	9038 8797	26674000
ER of Stage 1, Contract 2 (Hyder-Arup-Black & Veatch Joint Venture)	Chief Resident Engineer /TOLO2	Paul Appleton	9097 5833	2653 2348
IEC of Stage 1 (Mott MacDonald Hong Kong Ltd.)	Independent Environmental Checker	Joseph Chan (up to 22 Aug 2010)	2828 5920	2827 1823
		Terence Kong (with effect from 23 Aug 2010)	2828 5919	2827 1823
Contractor of Stage 1, Contract 1 (China State Construction Engineering (Hong Kong) Ltd.)	Site Agent	David Lau	9499 0818	2667 5666
	Environmental Officer	Michael Tsang	9277 4956	2667 5666
Contractor of Stage 1, Contract 2 (Gammon Construction Ltd.)	Site Agent	K F Tam (up to 9 Aug 2010)	9032 1133	2559 3410
		Edmond Chan (with effect from 10 Aug 2010)	9483 8885	2559 3410
	Environmental Officer	Kenneth Chan	9300 2182	2559 3410
ET of Stage 1 (AECOM Asia Co. Ltd.)	ET Leader	Y T Tang	2893 1551	2891 0305

Summary of Construction Works

- 1.14. The construction phase of Stage 1 under the EP commenced on 23 November 2009. Details of the construction works carried out by the Contract 1 Contractor (CSCE) in this reporting period are listed below:
- Temporary shoring and sheetpiling;
 - Demolition and re-construction of box culverts;
 - Excavation and backfilling;
 - Pipe pile wall construction;
 - Pile cap construction;
 - Bridge column and pier head construction;
 - Bored piling;
 - Tree felling and transplanting of trees;
 - Installation of soil nails;
 - Construction of retaining wall;
 - Construction of at-grade road;
 - Widening and demolition of central dividers;
 - Formation of slip road;
 - Construction of temporary access;
 - Construction of step channel;
 - Construction of retaining wall;
 - Construction of temporary bridges; and
 - Demolition of bridges.
- 1.15. The construction works carried out by the Contract 2 Contractor (GCL) in the reporting period were:
- Construction of haul roads and temporary site accesses;
 - Tree felling and tree transplant;
 - Piling and pile cap of bridges;
 - Construction of pilecap / spread footing of noise barrier / semi noise enclosure;
 - Slope works, including installation of soil nail;
 - Entrusted watermain works;
 - Retaining wall construction; and
 - Modification of existing bridge structure.
- 1.16. The general layout plan of the Project site showing the contract areas is shown in Figure 1.1.
- 1.17. The mitigation measures implementation schedule are presented in Appendix B.

2 ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

Monitoring Parameters

- 2.1. The updated EM&A Manual designated 4 air quality monitoring stations and 7 noise monitoring stations to monitor environmental impacts on air quality and noise due to Stage 1 of the Project.
- 2.2. For air quality, monitoring locations AM2 (Shan Tong New Village) and AM3 (Riverain Bayside) were set up at the proposed locations in accordance with updated EM&A Manual. However, for monitoring locations: Dynasty View and Tai Po Garden, proposed in the updated EM&A Manual, as approval could not be obtained from the owner's corporation of the premises, impact air quality monitoring was conducted at alternative monitoring locations: AM1 (Ha Wun Yiu) and AM4 (Tai Kwong Secondary School). The monitoring station at 13 Ha Wun Yiu (AM1) was relocated to Fan Sin Temple, 3 Sheung Wun Yiu (AM1A) in February 2010.
- 2.3. For noise, monitoring stations NM3 (Wong Shiu Chi Middle School), NM6 (PLK Tin Ka Ping Primary School) and NM7 (Riverain Bayside) were set up at the proposed locations in accordance with updated EM&A Manual. However, for monitoring locations: Tai Po Garden, Dynasty View, Hong Kong Teachers' Association Lee Heng Kwei Secondary School and Grand Palisades, proposed in the updated EM&A Manual, as approval of access could not be obtained from the owner's corporation of

the premises or the principal of the education institutes, impact noise monitoring was conducted at alternative monitoring locations: NM1 (Tai Kwong Secondary School), NM2 (Ha Wun Yiu), NM4 (Uptown Plaza) and NM5 (The Paragon).

- 2.4. The monitoring locations are depicted in Figure 2.1.
- 2.5. The updated EM&A Manual also required environmental site inspections for air quality, noise, water quality, chemical, waste management, ecology and landscape and visual impact.

Environmental Quality Performance Limits (Action/Limit Levels)

- 2.6. The environmental quality performance limits (i.e. Action/Limit Levels) of air quality monitoring were derived from the baseline air quality monitoring results at the respective monitoring stations (AM1(A), AM2, AM3 and AM4), while the environmental quality performance limits of noise monitoring were defined in the EM&A Manual.
- 2.7. The environmental quality performance limits of air quality and noise monitoring and are given in Appendix C.

Environmental Mitigation Measures

- 2.8. Relevant environmental mitigation measures were stipulated in the Particular Specification and EP (EP-324/2008) for the Contractor to adopt. A list of mitigation measures and their implementation statuses are given in Appendix B.

3 AIR QUALITY MONITORING

- 3.1. Air quality monitoring, including 1-hour and 24-hour TSP, was conducted at least 3 times every 6 days and at least once every 6 days respectively at the 4 monitoring stations, in accordance with the updated EM&A Manual.
- 3.2. Figure 2.1 shows the locations of monitoring stations. Table 3.1 describes the details of the monitoring stations.

Table 3.1 Locations of Impact Air Quality Monitoring Stations

Monitoring Station	Location	Description
AM1*	13 Ha Wun Yiu	Ground floor outside the premises
AM1A	3 Sheung Wun Yiu	Ground floor at the boundary outside Fan Sin Temple
AM2	12 Shan Tong New Village	Ground floor outside the premises
AM3	Riverain Bayside	Roof of the switch room
AM4	Tai Kwong Secondary School	Roof of the school

* AM1 1-hr TSP monitoring station was relocated to AM1A on 26 February 2010; and
 AM1 24-hr TSP monitoring station was relocated to AM1A on 25 February 2010

- 3.3. The weather was mostly sunny within the reporting period, but with several downpours between July 2010 and October 2010. The major dust source of the construction work area included concrete breaking, soil nail installation and excavation activities from Stage 1 of the Project, as well as nearby traffic emissions.
- 3.4. The number of monitoring events and exceedances recorded in each month of the reporting period are presented in Table 3.2 and Table 3.3 respectively.

Table 3.2 Summary of Number of Monitoring Events for 1-hr & 24-hr TSP Concentration

Monitoring Parameter	Location	No. of monitoring events
		Nov 09 – Oct 10
1-hr TSP	AM1	48*
	AM1A	129
	AM2	177
	AM3	177
	AM4	177
24-hr TSP	AM1	13**
	AM1A	43
	AM2	58
	AM3	59
	AM4	59

* AM1 1-hr TSP monitoring station was relocated to AM1A on 26 February 2010

** AM1 24-hr TSP monitoring station was relocated to AM1A on 25 February 2010

Table 3.3 Summary of Number of Exceedances for 1-hr & 24-hr TSP Monitoring

Monitoring Parameter	Location	Level of Exceedance	Level of Exceedance
			Nov 09 – Oct 10
1-hr TSP	AM1	Action	0
		Limit	0
	AM1A	Action	0
		Limit	0
	AM2	Action	0
		Limit	0
	AM3	Action	0
		Limit	0
AM4	Action	0	

		Limit	0
		Total	0
24-hr TSP	AM1	Action	0
		Limit	0
	AM1A	Action	0
		Limit	0
	AM2	Action	0
		Limit	1
	AM3	Action	0
		Limit	0
	AM4	Action	0
		Limit	0
		Total	1

- 3.5. All 1-hour TSP results were below the Action and Limit Levels at all monitoring locations in the reporting period.
- 3.6. However, one (1) Limit Level exceedance was recorded for 24-hour TSP monitoring at AM2 on 22 March 2010.

Soil nailing works, bored piling and excavation works were carried out on 22 March 2010. The following dust mitigation measures have been implemented by the Contract 1 Contractor (CSCE):

- Covering the stockpile of excavated material and slope surface with tarpaulin;
- Soil was dampened before excavation;
- Erecting dust screen during soil nail drilling work;
- Haul roads were dampened by water truck;
- Vehicle washing facility was provided at vehicle exit points, and every vehicle was washed to remove any dusty materials from its body and wheels before leaving the sites.

However, there was a territory-wide air quality issue on the date due to the dust storm from Mainland China. From the information of the EPD, the Air Pollution Index (API) at Tai Po exceeded 300 and even reached 500 at some time during the same monitoring period. The dust exceedance was therefore considered not due to the Project works.

- 3.7. The graphical plots of the air quality monitoring results are provided in Appendix D.

4 CONSTRUCTION NOISE MONITORING

- 4.1. Construction noise monitoring was conducted at 7 monitoring stations for at least once per week during 07:00 – 19:00 in the reporting period.
- 4.2. Figure 2.1 shows the locations of the monitoring stations. Table 4.1 describes the details of the monitoring stations.

Table 4.1 Locations of Impact Noise Monitoring Stations

Monitoring Station	Location	Description
NM1	Tai Kwong Secondary School	1m from the exterior of the roof top façade of the School
NM2	38 Ha Wun Yiu	1.2m from the ground floor free-field of the village house
NM3	Wong Shiu Chi Middle School	1m from the exterior of the roof top façade of the New Wing
NM4	Uptown Plaza	1m from the exterior of the roof top façade of Block 4
NM5	The Paragon	1m from the exterior of the roof top façade of the club house
NM6	PLK Tin Ka Ping Primary School	1.2m ground floor free-field near the entrance
NM7	Riverain Bayside	1m from the exterior of the roof façade of the switch room

- 4.3. The major noise source during the noise monitoring included construction activities of Stage 1 of the Project, nearby traffic noise and general school activities.
- 4.4. The number of construction noise monitoring events and exceedances are summarized in Table 4.2 and Table 4.3 respectively.

Table 4.2 Summary of Number of Monitoring Events for Construction Noise

Monitoring Parameter	Location	No. of monitoring events
		Nov 09 – Oct 10
Construction Noise	NM1	49
	NM2	49
	NM3	49
	NM4	49
	NM5	49
	NM6	49
	NM7	49

Table 4.3 Summary of Number of Monitoring Exceedances for Construction Noise

Monitoring Parameter	Location	Level of Exceedance	Level of Exceedance
			Nov 09 – Oct 10
Construction Noise	NM1	Limit	0
	NM2		0
	NM3		0
	NM4		0
	NM5		0
	NM6		0
	NM7		0
	Total	0	

- 4.5. All measured construction noise levels were below the Limit level and the graphical plots of the trends of the monitoring results are provided in Appendix F.
- 4.6. There were six (6) noise related complaints followed up by Environmental Team in the reporting period. Hence, six (6) Action Level exceedances were recorded.
- 4.7. The details of the noise related complaints are described in Section 7, paragraphs 7.3, 7.5, 7.6, 7.10, 7.11 and 7.12 of this report.

5 ENVIRONMENTAL SITE INSPECTION AND AUDIT

5.1. Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for Stage 1 of the Project. In the reporting period, 49 and 23 site inspections were carried out for Contract 1 and Contract 2 of the Project respectively.

5.2. Particular observations during the site inspections for Contract 1 are described below:

Air Quality

5.2.1. Stockpiles of stonefine and sediment were not properly covered at Wall 8 and at Bridge 10A respectively. The Contractor was reminded to cover the stockpiles with tarpaulin sheet.

5.2.2. Excessive smoke emission was observed from an excavator at W1 at Banyan Bridge. The Contractor was reminded to properly maintain the plants on site.

5.2.3. Mud trails were observed on the public road at the site entrances of Wall 8 and Wall 10. The Contractor was reminded to properly wash the wheels of all vehicles leaving the site.

Noise

5.2.4. Moderate noise level was generated during the concrete breaking activity at Bridge 10A. The Contractor was recommended to wrap the breaker tip with sound insulation material.

Water Quality

5.2.5. Leaves and debris was observed accumulated inside the perimeter u-channel at Banyan Bridge and stagnant water was resulted inside the u-channel. The Contractor was reminded to unblock the u-channel.

5.2.6. Leaves and general refuse were accumulated inside the u-channel at Retaining Wall W8 and at box culverts TP4 and TP5. The Contractor was reminded to clear the u-channel regularly.

5.2.7. Muddy water was found discharged to Tai Po River outside Retaining Wall W10. The Contractor was requested to properly maintain the drainage system on site, as well as to closely check the water quality of the discharge to public drains.

5.2.8. Silt was observed deposited in the u-channel at Wall 8, Bridge 10A pier 2 and along Bridge 11A to Retaining Wall 10. The Contractor was reminded to clear the u-channel regularly, especially during rainy seasons.

5.2.9. Stagnant water was observed at Retaining Wall W8, W10, inside a drip tray under a generator at Lam Kam Bridge area, the wheel washing bay at Banyan Bridge and near the sedimentation tanks at Bridge 10A. The Contractor was reminded to clear the stagnant water or to spray larvicide to the water to prevent mosquito breeding.

5.2.10. The water in Tai Po River outside Wall 10 was muddy. The Contractor was requested to investigate the cause of the muddy water and suspend the work of the possible source immediately.

5.2.11. Muddy water from vehicle wheel washing overflowed to the public road at the site entrance of Wall 8. The Contractor was requested to review the methodology of the wheel washing facility at the site entrance.

5.2.12. A portion of perimeter u-channel or bunding was missing at Wall 8. The Contractor was reminded to provide u-channel or bunding at that section.

Chemical and Waste Management

- 5.2.13. Oil stain was observed on the top soil layer at Bridge No. 10A and on the ground at Banyan Bridge. The Contractor was reminded to clear the contaminated soil and treat it as chemical waste.
- 5.2.14. Oil stains were observed on the ground near the site entrance of Retaining Wall W8. The Contractor was reminded to clear the oil stains and properly maintain the site vehicles to prevent oil seepage.
- 5.2.15. Oil stain was observed on the ground underneath an excavator under maintenance at Retaining Wall W8. The Contractor was advised to provide a tarpaulin sheet underneath the excavator.
- 5.2.16. Some chemical containers at Tat Wan Road Slope 13 and at Retaining Wall W10 were not provided with chemical labels. The Contractor was reminded to provide proper labels to all chemical containers on site.
- 5.2.17. Construction materials were scattered on the slope facing the MTR rail and general refuse was mixed with C&D materials at Lam Kam Bridge area. The Contractor was reminded to sort the C&D materials and maintain housekeeping on site properly.
- 5.2.18. Oil drums were observed placed inside the general refuse storage area near the site entrance at Wall 8. The Contractor was reminded that chemicals and their containers should be stored separately from general refuse.
- 5.2.19. A hole was observed on the drip tray underneath an oil drum at Banyan Bridge. The Contractor was reminded to seal off the hole.
- 5.2.20. Oil drums were found placed on ground without drip tray at Bridge 10A, at Wall 14, at Bridge 11A and at Tat Wan Road Slope 13. The Contractor was reminded to provide drip tray to all chemicals containers on site.
- 5.2.21. The drip tray underneath a water pump at Tat Wan Road was full. The Contractor was reminded to remove the content inside the drip tray.
- 5.2.22. Oil seepage was observed underneath an idle excavator at Banyan Bridge and underneath a crawler crane at Bridge 10A. The Contractor was reminded to provide a tarpaulin sheets underneath the idle excavator, remove the contaminated soil as chemical waste and properly maintain the machineries on site.

Landscape and Visual Impact

- 5.2.23. A few retained trees were not properly fenced off at Retaining Wall W10 and at box culverts TP4 and TP5. The Contractor was reminded to fence off all retained trees on site.
- 5.2.24. One of the fencings for protecting the retained trees was broken at Banyan Bridge. The Contractor was reminded to fix the fencing.
- 5.2.25. A few rocks were observed placed against a retained tree at Banyan Bridge. The Contractor was reminded to keep all construction materials away from retained trees and properly fence off the retained trees.

Miscellaneous

- 5.2.26. Display of Environmental Permit is missing at the site entrance at TP7. The Contractor was reminded to post the EP at all the site entrances.
- 5.3. All the observations during the site inspections had been rectified by the Contract 1 Contractor (CSCE) in the reporting period.

5.4. Particular observations during the site inspections for Contract 2 are described below:

Air Quality

- 5.4.1. A truck was not washed properly before it left the site at W73. The Contractor was requested to manually wash the wheels and body of all vehicles leaving the site at W73.
- 5.4.2. Cement powder was scattered on the ground at W72B. The Contractor was requested to clean up the cement powder.
- 5.4.3. Empty cement bags were accumulated next to the grouting station at Lam Kam Flyover Pier 3. The Contractor was advised to dispose of the empty cement bags properly.

Noise

- 5.4.4. Noise emission labels were missing on air compressors at Lam Kam Flyover Pier 3 and Bridge 12A P1. The Contractor was reminded to fit noise labels at obvious location of the air compressors.
- 5.4.5. The flap of a piling crane was opened during operation at Bridge 12A P1. The Contractor was reminded to close the flaps of the mechanical equipments during operation.
- 5.4.6. Noise was generated from the pavement breaking work underneath Bridge 12 at Shek Lin Road. The Contractor was advised to erect additional movable noise barriers for noisy activities to reduce the noise nuisance to the nearby residents.

Water Quality

- 5.4.7. The water discharged through the trapezoidal channel at W73 was silty. Although sand bags were provided in the channel to trap the sediment in the water, the Contractor was advised to collect and divert the water to proper desilting facility before discharge.
- 5.4.8. Bunding was missing at one of the sides and several holes were observed on the temporary bridge leading to Bridge 12B. The Contractor was advised to provide bunding at both sides and to seal the holes on the temporary bridge to prevent runoff to the stream underneath.
- 5.4.9. The water discharged to the public drain at the site entrance of Bridge 12A was observed muddy. The Contractor was requested to stop the water discharge immediately and check the functioning of the desilting facility before further discharge.
- 5.4.10. A drip tray underneath an air compressor at Bridge 12A was overflowed with water. The Contractor was reminded to remove the water in the drip tray.
- 5.4.11. Stagnant water was observed on the ground next to the concrete mixing area at Bridge 12. The Contractor was reminded to remove the stagnant water.

Chemical and Waste Management

- 5.4.12. Chemical containers and empty oil drums at Slope 37 and S30A were placed on ground without drip tray. The Contractor was reminded to provide drip tray to all chemicals and remove the empty oil drums on site.
- 5.4.13. Oil stains were observed on the ground at Bridge 12A P1. The Contractor was advised to clear the oil stains and treat the contaminated soil as chemical waste.

- 5.4.14. Oil stain was observed on ground next to the drip tray of a generator at Area 25 near Tai Wo Road. The Contractor was advised to provide a large drip tray to the generator.
- 5.4.15. Excavated mud was overflowed into a drip tray underneath an air compressor at Bridge 12A P1. The Contractor was requested to remove the mud inside the drip tray and keep excavated materials away from drip trays.
- 5.4.16. General refuse and felled trees were scattered at the soil nailing area on Slope 41. The Contractor was reminded to maintain waste sorting and proper housekeeping.
- 5.4.17. A chemical container together with the drip tray was placed on top of the u-channel at Bridge 12. The Contractor was reminded to keep all chemicals away from the drainage system.
- 5.4.18. A chemical container was found placed inside a 610-diameter pile casing at Lam Kam Flyover. The Contractor was requested to properly place all chemicals with drip tray.

Landscape and Visual Impact

- 5.4.19. Electric wires were found tied onto retained trees and a metal bar was found stuck on the retained trees at Tai Wo Road Gate 3. The Contractor was reminded not to tie electric wires on retained trees nor use them as physical support. The Contractor was also advised to wrap the trunks of the easily accessible retained trees with hessian for protection.
- 5.4.20. An electric wire was observed hung on the branch of a retained tree at Lam Kam Flyover. The Contractor was reminded not to hang anything on the trees that have to be retained.
- 5.5. All the observations during the site inspections had been rectified by the Contract 2 Contractor (GCL) in the reporting period.

6 SUMMARY AND REVIEW OF NON-COMPLIANCE (EXCEEDANCES) OF THE ENVIRONMENTAL QUALITY

- 6.1. There was no 1-hour TSP and construction noise monitoring exceedance recorded in the reporting period.
- 6.2. One (1) Limit Level exceedance of 24-hour TSP monitoring was recorded in the reporting period. It was considered not Project related, as mentioned in Section 3.6 of this report.
- 6.3. There were six (6) noise related complaints followed up by Environmental Team in the reporting period. Hence, six (6) Action Level exceedances were recorded. The details of the exceedances are described in Section 7, paragraphs 7.3, 7.5, 7.6, 7.10, 7.11 and 7.12 of this report.

Summary of Actions Taken in the event of Non-Compliance

- 6.4. In the event of non-compliance, actions were taken in accordance with the Event-Action Plan in the updated EM&A Manual. Investigation was carried out within three working days of identification of non-compliance, checking the implementation status of the mitigation measures, etc. Assessments showed that the monitoring exceedance was not due to the Project works and therefore no further action was required to be taken.

7 ENVIRONMENTAL COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

- 7.1. No notification of summons and prosecutions was received in the reporting period.
- 7.2. Nine (9) environmental complaints were followed up by Environmental Team in the reporting period.

- 7.3. A public complaint about construction noise at Box Culverts TP4 and TP5 was received from Contractor's complaint hotline at 09:15am on 19 December 2009. As informed by the Contractor, concrete breaking works were carrying out at box culverts TP4 and TP5 at the time. Although, under the Noise Control Ordinance, construction works are permitted during the period from 07:00am to 07:00pm on Saturdays, to minimize the noise nuisance to the public, the Contractor had suspended the concrete breaking works at once, upon receipt of the complaint, until 01:00pm of the date. The temporary noise barrier opposite to King Nga Court had been erected in accordance with the EP requirement. Regular impact noise monitoring record at PLK Tin Ka Ping Primary School (NM6) on 30 December 2009 at 10:15am was 64.4 dB(A). Follow-up site visit to Wan Tau Tong Estate was carried out on 30 December 2009 at 9:45am. No noisy construction work was carried out at the time. The Contractor deferred the noisy construction activities in the morning.
- 7.4. A complaint was lodged by Drainage Services Department on 23 December 2009 regarding muddy water discharged from construction site into Tai Po River near Shan Tong Road observed during routine inspection on 16 December 2009. As advised by the Contractor, muddy water collected in the sump pit on ground level was found leaked to the drainage system. The Contractor immediately blocked the u-channel to prevent further leakage on 24 December 2009 and built a metal tank to replace the original soil type sump pit on 28 December 2009. Water discharged to Tai Po River near Shan Tong Road was observed clear during the follow-up site inspection on 30 December 2009.
- 7.5. EPD, on 20 January 2010, referred a public complaint about noise nuisance from the highway opposite to Wan Tau Tong Estate, Wan Lam House from Monday to Saturday starting in the morning until 04:00am at the midnight in the recent 2 months. The complainant did not know if the noise came from road works or slope maintenance works. As informed by the Engineer and the Contractor, the Contractor only carried out night works on 12 and 15 January 2010 before 12:00am for unloading plant and material, with a valid CNP. The noise in midnights is suspected to be related to pavement resurfacing (routine maintenance) night work, carried out by others. The noise nuisance in the midnight is considered not Project related. As for the noise issue at daytime, breaking of box culvert, sheet piling and soil nail works were carrying out at Retaining Wall W10 and box culverts TP4 and TP5, as observed during weekly site inspections in December 2009 and January 2010. While temporary noise barrier opposite to King Nga Court had been erected in accordance with the EP requirement since early December 2009 and no noise monitoring exceedance was recorded at the nearest monitoring station - PLK Tin Ka Ping Primary School (NM6) in December 2009 and January 2010, the Contractor was reminded to ensure mitigation measures are implemented properly.
- 7.6. Another noise complaint, also from Wan Lam House, was referred by HyD about construction works of the Project near Wan Tau Tong Estate started at 09:00am affecting the public. On 20 January 2010, the complainant informed that the condition of noise nuisance became worse and asked if the noise level between 15 January 2010 and 20 January 2010 exceeded the allowable standard under the EPD permit and he/she also requested for supporting data. As informed by the Engineer and the Contractor, as well as our weekly environmental site inspections on 13 and 20 January 2010, demolition of box culvert by excavator mounted hydraulic breaker was carrying out at box culverts TP4 and TP5. Temporary noise barrier required under the EP had already been erected since early December 2009. Also, the Contractor has deferred the starting time of concrete breaking up operation to 09:00am and 10:00am on weekdays and Saturday respectively. Weekly noise monitoring in accordance with the EM&A Manual was scheduled on 11 and 22 January 2010 and no continuous noise monitoring was required in the EP and EM&A Manual, hence no noise monitoring result was obtained between 15 and 20 January 2010. Additional noise monitoring was arranged on 22 January 2010 upon receipt of the complaint. While no noise monitoring exceedance was recorded at the nearest monitoring station - PLK Tin Ka Ping Primary School (NM6) in December 2009 and January 2010, the Contractor was reminded to ensure mitigation measures are implemented properly.
- 7.7. Following up with the noise complaint in December 2009, ad hoc monitoring was conducted on 30 December 2009 at King Nga Court – King Yuet House G/F 2.5m above ground facing Tolo Highway, at 1:15pm during rock breaking and sheet piling works being taken place. The noise level was 69.6 dB(A), which complied with the noise Limit Level of 75 dB(A).
- 7.8. Following up with the noise complaints in January 2010, another ad hoc monitoring was conducted at King Nga Court – King Yuet House Rooftop 1m façade facing Tolo Highway, during rock breaking being taken place at box culverts TP4 and TP5 and soil nailing works at Retaining Wall W10 on 22 January 2010 at 10:30, and the noise level (Leq) was 72.9 dB(A), which complied with the noise Limit Level of 75 dB(A).

- 7.9. An anonymous public complaint regarding muddy water running out from the construction site of HY/2008/09 to existing public drainage system at Shan Tong Road was received on 21 July 2010. Site inspection conducted on the same date found that muddy water from vehicle wheel washing was overflowing the concrete road hump and running off to the public road at the site entrance of Wall 8. The Contractor was requested to rectify the muddy water overflowing and to propose preventive measures for muddy runoff. The Contractor was also recommended to review the methodology of collecting the wheel washing water to prevent recurrence in the future. During the follow-up site inspection conducted on 28 July 2010, another concrete road hump (higher in height) to divert water to a newly constructed temporary water collection pit for prevention of water from flowing out from the site area had been constructed behind the gate of the site entrance of Wall 8. No muddy water running out from the site was observed.
- 7.10. A complainant expressed that noisy construction activities, including road breaking works, at the section of Tolo Highway near Wun Yiu towards Kowloon had already been started at 07:20am on 7 August 2010 (Saturday). As informed by the Contractor and the Engineer, the noise was generated from a breaker for breaking an existing retaining wall at Bridge 10A East Abutment, which started at 07:20am. It was within the non-restricted hours for general construction work of the Noise Control Ordinance. Although there was no noise monitoring exceedance recorded at the nearest noise monitoring station at PLK Tin Ka Ping Primary School and the construction period was in compliance with the NCO, the Contractor was recommended to take further mitigation measures to reduce the disturbance to the nearby residents. Upon receipt of the complaint, an ad-hoc noise monitoring was conducted on 9 August 2010 at 11:15am – 11:45am on the ground floor at King Nga Court. The Leq (30mins) was 69.3 dB(A) which was within the standard of 75 dB(A).
- 7.11. A complainant expressed that noise was generated from piling and breaking works, with heavy mechanical plants, still taking place after 07:00pm on 7 August 2010 (Saturday) at the construction site for expressway construction facing Tai Po, King Nga Court. According to the site diary provided by the Engineer, no construction work was carried out after 06:00pm on 7 August 2010 (Saturday). Besides, according to the Contractor's record, most of the staffs had got off duty before 07:00pm on 7 August 2010. Noise from heavy mechanical plants was unlikely to be generated from the Project after 07:00pm on 7 August 2010.
- 7.12. A complainant expressed that noise from piling works began from 07:00am on general days and noise was still generated from construction works on Sunday. In accordance with the Noise Control Ordinance, 07:00am-07:00pm of any general days are the non-restricted hours of general construction work. Therefore, commencement of construction work at 07:00am on general days is in compliance with the NCO. No noise monitoring exceedance was recorded at the nearest noise monitoring station at PLK Tin Ka Ping Primary School. However, according to the site diary provided by the Engineer, only general site cleaning works, without utilizing any mechanical plant, were carried out by the Contractor's staffs on Sunday (8 August 2010). The construction noise was unlikely to be generated from the Project on 8 August 2010 (Sunday).
- 7.13. EPD referred a public complaint regarding generation of construction dust from road extension construction site at Tolo Highway, near Pun Chun Yuen, and requested follow-up. As informed by the Contract 2 (HY/2009/08) Contractor (GCL), drilling works of pre-bored H-pile at Bridge 12A (the site opposite to Pun Chun Yuen) was taking place on 17 September 2010 and mitigation measures taken included circular dust cover surrounding the drill rod and casing; u-shape tarpaulin sheet covering the mast and drill rod; and water spraying to suppress the dust. However, there was a period on the date when water pressure for water spraying was low due to water hose being twisted and the dust from the drilling works could not be suppressed efficiently. Although the 24-hour TSP monitoring at Tai Kwong Secondary School Roof/F – AM4 on 17 September 2010 was below the Action Level, the Contractor was advised to ensure the mitigation measures on dust suppression were implemented properly throughout their construction activities.
- 7.14. Statistics on complaints, notifications of summons and successful prosecutions are summarized in Appendix F.

8 REVIEW OF THE VALIDITY OF THE EIA/ERR PREDICTION

- 8.1. Only one (1) 24-hour TSP monitoring exceedance was recorded in the reporting period and it was considered not related to the Project works. All the rest of the air quality monitoring results in the reporting period were below the Action Levels established in the baseline air quality monitoring carried out in October and November 2009. The result was in line with the Environmental Impact Assessment

(EIA) and Environmental Review Report (ERR) prediction that dust generation would be controlled and would not exceed the acceptable criteria, with proper implementation of the recommended dust mitigation measures.

- 8.2. No construction noise monitoring exceedance was recorded in the reporting period. This is generally in line with the EIA and ERR prediction that with the implementation of noise mitigation measures, the construction noise from the Project works will meet the stipulated criterion at the residential NSRs and at a majority of the education institutions, except that elevated construction noise level at Wong Shiu Chi Middle School (NM3) was predicted by the EIA and ERR.

9 REVIEW OF ENVIRONMENTAL IMPLEMENTATION STATUS

- 9.1. The environmental monitoring results indicated that the construction activities in general were in compliance with the relevant environmental requirements and were environmentally acceptable. Despite the minor deficiencies found during site audits, the relevant contractor had taken appropriate actions to rectify deficiencies within reasonable timeframe. Therefore, the effectiveness and efficiency of the mitigation measures were considered high in most of the time.
- 9.2. For all the parameters under monitoring as mentioned in Section 8, the measured levels were in line with the EIA and ERR predictions generally. This indicates that the mitigation measures were effectively implemented.

10 REVIEW OF EM&A PROGRAMME

- 10.1. The environmental monitoring methodology was considered well established as the monitoring results were found in line with the EIA predictions.
- 10.2. As effective follow up actions were promptly taken once exceedances were recorded, no further exceedance occurred for each case. The EM&A programme was considered successfully and adequately conducted during the course of the reporting period.

11 CONCLUSIONS

- 11.1. The construction phase and EM&A programme of Stage 1 of the Project commenced on 23 November 2009.
- 11.2. Air quality and noise monitoring, and weekly site inspections were carried out in the reporting period, in accordance with the updated EM&A manual.
- 11.3. All 1-hour TSP monitoring results complied with the Action / Limit Level in the reporting period. However, one (1) Limit Level exceedance of 24-hour TSP was recorded, but it was considered not related to the Project works.
- 11.4. There were six (6) noise related complaints followed up by Environmental Team in the reporting period. Hence, six (6) Action Level exceedances were recorded. No Limit Level exceedance for construction noise was recorded at all monitoring stations in the reporting period.
- 11.5. Nine (9) environmental complaints were followed up by Environmental Team in the reporting period.
- 11.6. No notification of summons and prosecution was received in the reporting period.
- 11.7. Mitigation measures had been implemented by the Contractors to minimize the environmental impacts due to construction activities. Site inspections carried out by ET and IEC showed that the Contractors rectified the problems observed promptly and no major environmental deficiency was induced. The EM&A programme was considered successfully and adequately conducted during the course of the reporting period.