

Highways Department

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**Agreement No. HMW  
5/2009 (EP) Traffic  
Improvements to Tuen  
Mun Road Town Centre  
Section**

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Quarterly Environmental  
Monitoring and Audit  
Summary Report  
(November 2010 to  
January 2011)

Final



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Certified by Environmental Team Leader  
Coleman Ng  
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Verified by Independent Environmental Checker  
David Yeung  
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## Executive Summary

This is the second quarterly Environmental Monitoring and Audit (EM&A) summary report prepared by Ove Arup & Partners Hong Kong Limited (Arup), the designated Environmental Team (ET), for the Project "Traffic Improvements to Tuen Mun Road Town Centre Section". This report presents the results of EM&A works conducted for the period from 1 November 2010 to 31 January 2011.

### Environmental Monitoring Works – Breaches of Action and Limit Levels

#### *Air Quality*

All 24-hour TSP measurements during the reporting period were below the Action and Limit Level. No exceedance of Action and Limit Level was found.

#### *Noise*

Totally 22 limit level exceedances (9 in November 2010, 7 in December 2010 and 6 in January 2011) of noise monitoring were recorded during the reporting period. Based on the on-site observations and interpretation from the results, noise exceedance was not related to the construction activities. No particular remedial work is required.

However, one noise complaint, hence, one Action Level exceedance, was recorded in the reporting period (November 2010).

Construction works were carried out during the restricted hours, the conditions stipulated in CNPs of related construction works were strictly followed by the Contractor. No non-compliance was recorded.

#### *Landscape and Visual Audit*

In the reporting period, landscape and visual site audit in accordance with the requirements stipulated in the EM&A manual were conducted. Total 452 trees were felled and the pruning of the transplanted trees was carried out during the reporting period, no substantial change of LR, LCA and VSR was noted.

#### *Waste Disposal*

Inert C&D materials with actual amount of 3,056.625 m<sup>3</sup> were generated and disposed of at public fills at Tuen Mun Area 38 in the reporting period. 180.38 m<sup>3</sup> general refuse were generated and disposed of at WENT landfill during the reporting period.

#### **Environmental Auditing**

The environmental site audits were conducted on a weekly basis. No non-conformance to the environmental requirements was identified during the reporting period.

#### **Complaint Log**

One environmental complaint regarding the construction noise was recorded in the reporting period. The complaint was received by the ICC and ET on 4 and 11 November 2010 respectively. After the investigations, it is concluded that the complaint was attributable to the Contractor. The corresponding mitigation measure due to the complaint was recommended to carry out by the Contractor. Nevertheless, the Contractor was reminded to implement proper mitigation measure as stipulated in EM&A Manual to minimize any noise implication.

#### **Notifications of Summons and Successful Prosecutions**

No summonses or prosecution related to the environmental issues were made against the Project in the reporting period.

# 1 Project Information

## 1.1 Project Background and Programme

Ove Arup & Partners Hong Kong Limited (Arup) was appointed by Highways Department (HyD) as the Environmental Team (ET) for *Agreement No. CE22/2005 (HY) Supplementary Agreement 1 Traffic Improvements to Tuen Mun Road Town Centre Section* (the Project) under Agreement No. HMW 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section. The major construction period of the Project is planned to be commenced from August 2010 to January 2014. Location of the works area is indicated in **Figure 1.1**.

The Project involves widening the following sections of TMR from dual-two carriageway to dual-three carriageway:

- Wong Chu Road Section, (from Wong Chu Road Interchange to Tuen Hing Road);
- Tuen Mun Town Plaza Section, (from Yan Oi Town Square to Tuen Hing Road).

The Project is a designated project under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499). Environmental Monitoring and Audit (EM&A) work is required in accordance with the conditions stipulated in the Environmental Permit (EP) (EP-342/2009/A) and the EM&A Manual of the Project.

The rolling construction programme during the reporting period is attached in **Appendix A**. The major construction activities carried out by the Contractor in the reporting period are summarized in **Table 1.1**.

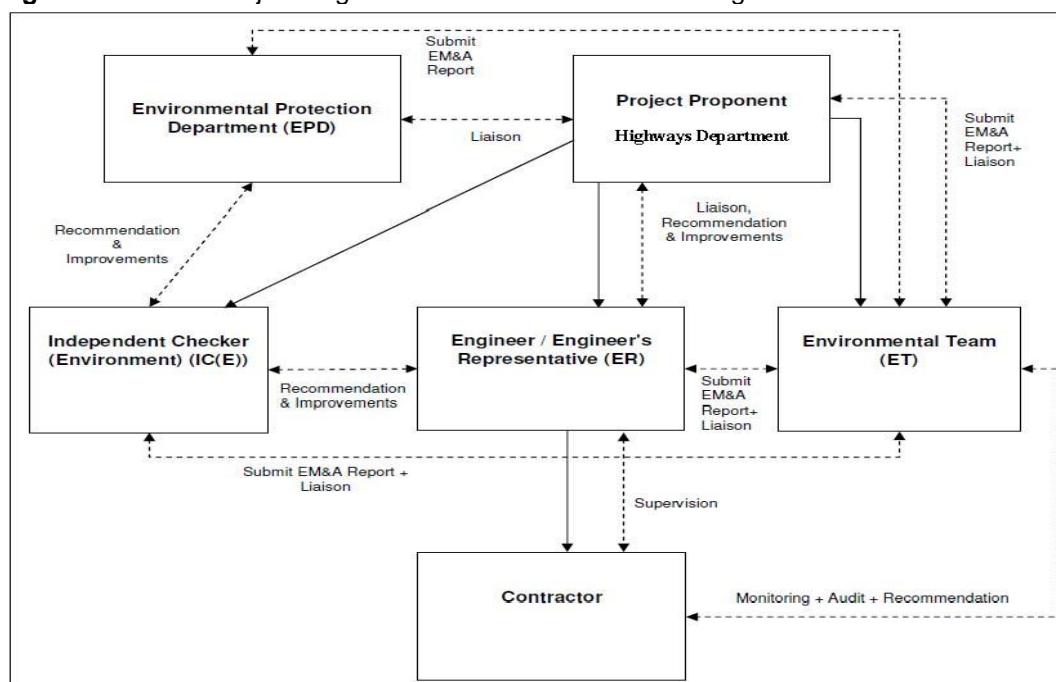
**Table 1.1** Construction activities in the reporting period

Locations	Major Works Undertaken
All area	Site clearance, site hoarding construction, tree felling and transplanting, ground investigation, temporary footbridge construction; piling works, underground utilities and drainage diversion

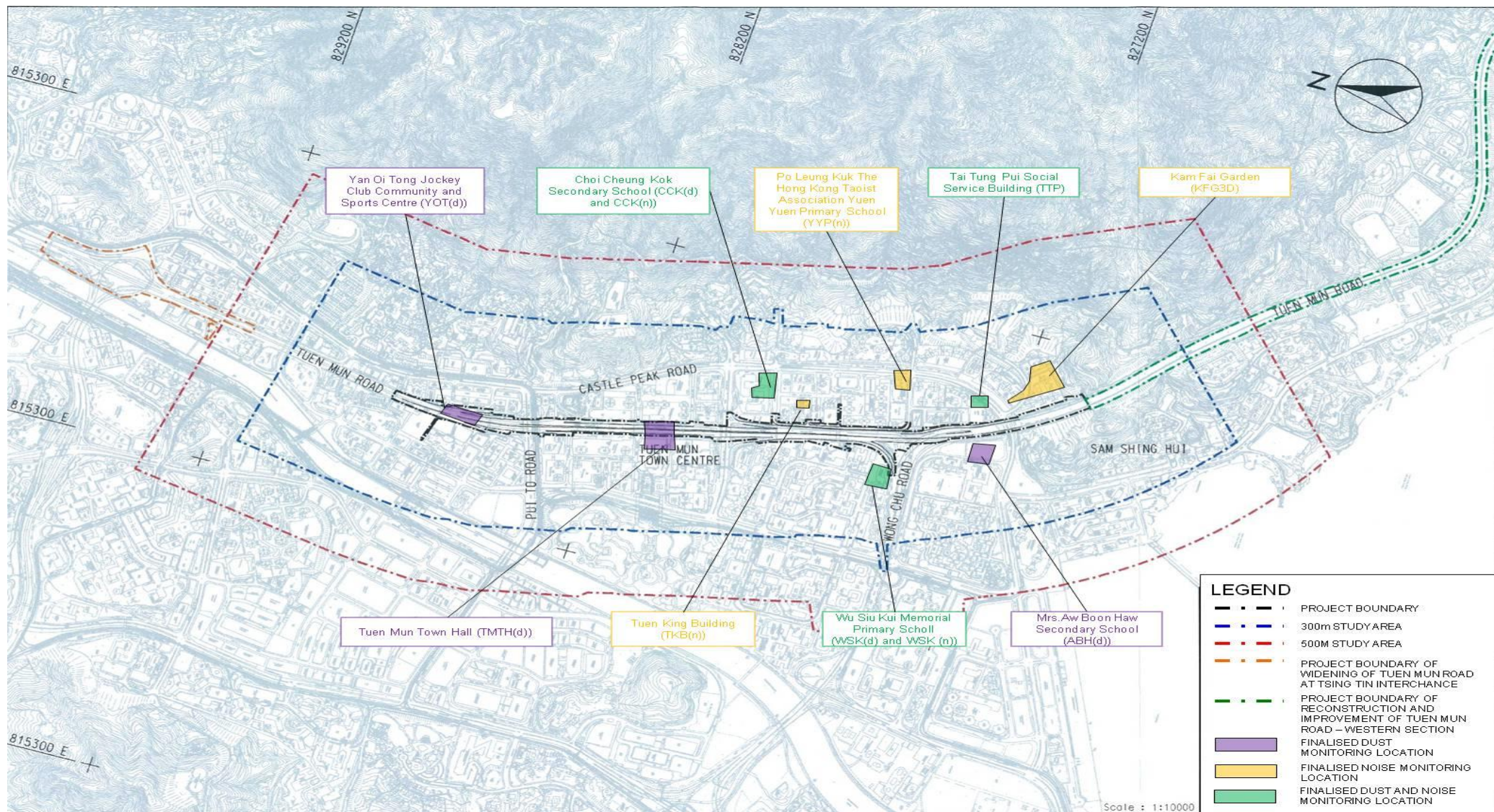
## 1.2 Project Organization

The Project organization structure in relation to the environmental management is shown in **Figure 1.2**. Contacts of key environmental staff of the Project are shown in **Table 1.2**.

**Figure 1.2** Project Organization – Environmental Management



**Figure 1.1** Location of works area and air, noise environmental monitoring stations



**Table 1.2** Contacts of key environmental staff

Organization	Name	Telephone
<b>Environmental Protection Department</b>		
Environmental Protection Officer (Strategic Assessment)22	Thomas To	2835 1103
<b>Engineer's Representative</b>		
Highways Department: Senior Engineer	Kenneth Chan	2762 3422
<b>Independent Environmental Checker</b>		
ENVIRON Hong Kong Limited: Independent Environmental Checker	David Yeung	3743 0717
<b>Environmental Team</b>		
Ove Arup & Partners Hong Kong Ltd: Environmental Team Leader	Coleman Ng	2268 3097
<b>Contractor</b>		
China Harbour Engineering Company Limited		
Site Agent	Kenny Cheung	2403 0503
Safety and Environmental Officer	Marko Chan	2403 0527

## 2 EM&A Requirements

### 2.1 Monitoring Parameters

Air quality monitoring shall be measured in terms of the TSP levels for 24-hour periods. For noise monitoring, construction noise shall be measured in terms of the A-weighted equivalent continuous sound pressure level ( $L_{eq}$ ). Furthermore, the monitoring of the implementation of the landscape and visual mitigation measures shall be checked to ensure that they are fully required. **Table 2.1 and Figure 1.1** show the names and locations of the monitoring locations. The monitoring parameters, frequency and performance limits are summarised in **Table 2.2**.

**Table 2.1** Summary of air and noise monitoring stations

ID	Premise
<b>Air</b>	
AM1	Chung Sing Benevolent Society Mrs. Aw Boon Haw Secondary School
AM2	Tung Wah Group of Hospitals Tai Tung Pui Social Service Building
AM3	Shun Tak Fraternal Association Wu Siu Kui Memorial Primary School
AM4	The Chinese Manufacturers' Association Of Hong Kong Choi Cheung Kok Secondary School
AM5	Tuen Mun Town Hall
AM6	Yan Oi Tong Jockey Club Community and Sports Centre
<b>Noise</b>	
N1	Kam Fai Garden
N2	Tung Wah Group of Hospitals Tai Tung Pui Social Service Building
N3	Po Leung Kuk The Hong Kong Taoist Association Yuen Yuen Primary School
N4	Shun Tak Fraternal Association Wu Siu Kui Memorial Primary School
N5	Tuen King Building
N6	The Chinese Manufacturers' Association Of Hong Kong Choi Cheung Kok Secondary School

**Table 2.2** Monitoring parameters, frequency, locations and performance limits

Monitoring	Parameters	Frequency	Location	Action Level	Limit Level
Air	1-hour TSP	3 times every 6 days <sup>(Note 1)</sup>	AM1	290 µg/m <sup>3</sup>	500 µg/m <sup>3</sup>
			AM2	291 µg/m <sup>3</sup>	
			AM3	287 µg/m <sup>3</sup>	
			AM4	292 µg/m <sup>3</sup>	
			AM5	286 µg/m <sup>3</sup>	
			AM6	290 µg/m <sup>3</sup>	
	24-hour TSP	Once every 6 days	AM1	146 µg/m <sup>3</sup>	260 µg/m <sup>3</sup>
			AM2	151 µg/m <sup>3</sup>	
			AM3	150 µg/m <sup>3</sup>	
			AM4	150 µg/m <sup>3</sup>	
			AM5	146 µg/m <sup>3</sup>	
			AM6	147 µg/m <sup>3</sup>	
Noise	0700 - 1900 hour on normal weekdays - $L_{eq}(30min)$	Once per week	N1, N2 & N5 N3, N4 & N6	When one documented complaint is received	75 dB(A)
	0700 - 2300 hours on holiday; and 1900 - 2300 hours on all other days - $L_{eq}(5min)$ <sup>(Note 2)</sup>	--	N1, N2, N3, N4, N5 & N6		70/65 <sup>(Note 3)</sup>
	2300 - 0700 hours of next day - $L_{eq}(5min)$ <sup>(Note 2)</sup>			--	
	Landscape and Visual	Landscape resources (LR), landscape character area(LCA) and view sensitive receiver (VSR) <sup>(Note 4)</sup>	Twice site audit per month	Entire site area	N/A

Notes:

- 1-hr TSP monitoring would be required in case of receiving complaints
- If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed.
- For normal day-time working hours, the noise criteria are 70 dB(A) and 65 dB(A) for normal reaching periods and examination period respectively.
- The details of each LR, LCA and VSR are summarized in **Appendix F**.

## 2.2 Environmental Quality Performance Limits

All the monitoring results will be checked against the Action and Limit levels described in the Baseline Monitoring Report, of which they are summarised in **Table 2.1**.

## 2.3 Environmental Mitigation Measures

The environmental mitigation measures carried out were basically followed the requirements described in the EIA Report. Major mitigation measures during the construction phase in relation air quality, noise, water quality, ecology, waste management as well as landscape and visual are summarised in **Appendix B**.

# 3 Implementation Status

## 3.1 Implementation Status of Mitigation Measures

Environmental site inspections were carried out on a weekly basis to monitor environmental issues on the construction sites to ensure that all mitigation measures were implemented timely and properly. Key mitigation measures observed were: vehicles were washed to remove any dusty materials from its body and wheels before leaving a construction site, quiet powered mechanical equipment (QPME) were used as well as sufficient waste disposal points were provided and regular collection for disposal.



**Table 3.1** summaries the site inspections in the reporting period and corresponding follow-up status by the Contractor.

**Table 3.1** Key findings of weekly environmental site audit in the reporting period

Monitoring Parameter	Location	Inspection Date	Key Observations & Recommendations	Contractor's Follow-Up Status
Air Quality	Pui To Road	2 Nov 10	Slight dark smoke emission from the excavator was observed. The Contractor should enhance the machine maintenance to avoid dark smoke emission.	Dark smoke emission was not observed. Closed on 10 Nov 10.
		13 Jan 11	The Contractor was reminded to enhance the dust abatement measures at the cement mixing area.	The reminder had been noted by Contractor. Closed on 20 Jan 11.
	Area under Wong Chu Road flyover	2 Nov 10	The Contractor should provide water spraying on the unpaved area to avoid dust disturbance.	Water spraying was undertaken. Closed on 10 Nov 10.
	Yan Ching street and Pui To Road	10 Nov 10	The Contractor should provide the water hose for water spraying during dust generating activities.	Water hose was provided. Closed on 10 Nov 10.
Water Quality	Tuen Hi Road	10 Nov 10	Muddy water should be confined to the bund for collection and treatment.	Bunding was provided. Closed on 16 Nov 10.
		2 Dec 10	The Contractor should provide bunding in order to intercept the muddy water / soil to the public sewer.	Sandbags bunding had been provided. Closed on 9 Dec 10.
		27 Jan 11	The Contractor was advised to improve the performance of wastewater treatment facilities along the centre medium.	Additional sedimentation tanks had been provided. Closed on 2 Feb 11.
	Pui To Road	22 Nov 10	The Contractor should clean the stagnant water within the site area to avoid accumulation.	Stagnant water was cleaned. Closed on 2 Dec 10.
	Tuen Fat Road	30 Dec 10	The Contractor should replace the damaged sandbag bunding to avoid the muddy water overflowing.	Sandbags had been replaced. Closed on 5 Jan 11.
	Area below Wong Chu Road Flyover	5 Jan 11	Accumulated debris and leaves was observed in the u-channels. The Contractor should clean the u-channels regularly to avoid accumulation.	U-channels had been cleaned. Closed on 13 Jan 11.
	Noise	Yan Ching street and Pui To Road	10 Nov 10	Temporary noise barriers or other means of noise mitigation measures should be provided to the breaker during site clearance works.
All area		10 Nov 10	The Contractor was reminded to review the plant inventory used in the working site to comply with EIA Report condition so as to minimize noise disturbance, especially the site at Tuen Hi Road.	The reminder had been noted by Contractor. Closed on 16 Nov 10.
Landscape and Visual	Pui To Road	30 Dec 10	The Contractor should provide the fence for the transplanted trees protection.	Fence had been erected. Closed on 5 Jan 10.

Monitoring Parameter	Location	Inspection Date	Key Observations & Recommendations	Contractor's Follow-Up Status
Landscape and Visual	On Ting Estate	22 Nov 10	The Contractor should not place the construction materials (steels) too close to retained trees and provide the fence for tree protection.	Steels were removed and the fences were provided. Closed on 2 Dec 10.
			The Contractor was reminded to inspect the retained trees condition and provide remedial measures if necessary.	The reminder had been noted by Contractor. Closed on 2 Dec 10.
	Yan Oi Tong Circuit	13 Jan 11	Attention should be paid on transplant plant protection. Fencing should be provided and construction materials should be placed away from the trees.	Fencing had been provided. Closed on 20 Jan 11.
Waste / Chemical Management	Yan Ching street and Pui To Road	2 Nov 10	Debris was accumulated within site area without proper containers. The Contractor should clean the debris regularly to avoid accumulation and provide adequate rubbish bin/containers for refuse storage.	Debris was cleaned. Closed on 10 Nov 10.
General	All area	23 Dec 10	The Contractor was reminded to cover the stockpile / concerned exposed slope with surface prior to public holiday.	The reminder had been noted by Contractor. Closed on 30 Dec 10.
	Pui To Road	13 Jan 11	The Contractor was reminded to improve the house keeping.	The reminder had been noted by Contractor. Closed on 20 Jan 11.

## 4 Environmental Monitoring Results

### 4.1 Air Monitoring Results and Observations

#### 4.1.1 Air Quality Monitoring Results

Monitoring of 24-hour TSP were conducted at monitoring stations AM1, AM2, AM3, AM4, AM5 and AM6 in the reporting period. All monitoring data and graphical presentation of the monitoring results are provided in **Appendix C** and are summarised in **Table 4.1**. Wind data obtained from the Hong Kong Observatory – Tuen Mun anemometer station during the reporting period is presented in **Appendix D**.

**Table 4.1** Summary of 24-hour TSP monitoring results in the reporting period

Location	Average 24-hour TSP Concentration, $\mu\text{g}/\text{m}^3$ (Range)			
	Nov 10	Dec 10	Jan11	Mean
AM1	79 (45 – 111)	68 (46 – 91)	79 (30 – 130)	75 (30 – 130)
AM2	81 (50 – 114)	64 (25 – 86)	84 (44 – 132)	75 (25 – 132)
AM3	86 (60 – 105)	82 (55 – 108)	77 (59 – 102)	82 (55 – 108)
AM4	96 (68 – 126)	91 (50 – 144)	71 (37 – 141)	86 (37 – 144)
AM5	85 (61 – 103)	84 (36 – 137)	80 (47 – 115)	83 (36 – 137)
AM6	78 (51 – 115)	75 (35 – 122)	98 (56 – 143)	83 (35 – 143)

All 24-hour TSP measurements during the reporting period were below the Action/Limit Level. No exceedance of action and limit level was found.

#### 4.1.2 General Observations

Major construction works including site clearance, site hoarding construction, ground investigation and underground utilities diversion were implemented during the reporting period.

### 4.2 Noise Monitoring Results and Observations

#### 4.2.1 Noise Monitoring Results

##### Non-restricted Hours

Monitoring of the construction noise level was conducted during non-restricted hours in the reporting period at monitoring locations N1, N2, N3, N4, N5 and N6. All monitoring data and graphical presentation of the monitoring results are provided in **Appendix E** and are summarised in **Table 4.2**.

**Table 4.2** Summary of impact noise monitoring in the reporting period

Location	Noise Level, $L_{eq(30min)}$ , dB(A) (Range)			
	Nov 10	Dec 10	Jan11	Mean
N1	77 (75 – 78)	78 (76 – 79)	76 (74 – 78)	77 (74 – 79)
N2	78 (77 – 78)	77 (74 – 78)	76 (74 – 79)	77 (74 – 79)
N3	68 (68 – 69)	67 (67)	67 (66 – 67)	67 (66 – 69)
N4	66 (64 – 67)	67 (66 – 69)	66 (64 – 67)	66 (64 – 71)
N5	71 (71)	71 (70 – 72)	70 (69 – 70)	71 (69 – 72)
N6	70 (69 – 70)	70 (70)	69 (68 – 70)	70 (68 – 70)

##### Restricted Hours

In the reporting period, the construction works and activities such as mobilization of materials and plants etc were carried out during restricted hours. The granted Construction Noise Permits (CNPs) were issued by EPD for the related activities before the works commencement, the Contractor strictly followed the conditions stipulated in the CNPs. There was no non-compliance recorded during the reporting period.

#### 4.2.2 Exceedance of Limit and Action Levels for Construction Noise

There were total 22 limit level exceedances (9 in November 2010, 7 in December 2010 and 6 in January 2011) for noise measurement during non-restricted hours in the reporting period and are summarized in **Table 4.3**.

**Table 4.3** Summary of exceedance of Limit Levels for construction noise in the reporting period

Location (Note 1)	No. of exceedance of Limit Level			
	Nov 10	Dec 10	Jan11	Total
N1	4	4	3	11
N2	5	3	3	11

##### Notes:

- No Limit Level exceedance was recorded at monitoring location N3, N4, N5 and N6 during the reporting period.

Based on the field observations, it was revealed that the exceedances were mainly caused by traffic vehicles along Tuen Mun Road. It was therefore concluded that the noise exceedance was not related to the construction activities. The details of the limit level exceedances had been presented in the corresponding monthly EM&A report (November & December 2010 and January 2011).

One environmental complaint regarding noise nuisance was recorded in the reporting period. The complaint was received by the ICC and ET on 4 and 11 November 2010 respectively. Therefore, one Action Level exceedance of construction noise was recorded in the reporting period.

Summary of above exceedance investigation of the Project is provided in the following Section 6.4 and **Appendix G**.

#### 4.2.3 General Observations

The construction site had been under normal operation during the noise monitoring period and no unusual operation was observed. Traffic noise had been noticed at the monitoring location during the noise monitoring period.

#### 4.3 Landscape and Visual Monitoring Audit Results

In the reporting period, landscape and visual site audit in accordance with the requirements stipulated in the EIA Report was conducted during the routine monthly site audit. The details of each LR, LCA and VSR are summarized in **Appendix F**. The implementation and maintenance of landscape and visual mitigation measures, listed in EIA Report, were checked during the site audit. During the reporting period, no substantial change of LR, LCA and VSR was noted, no non-compliance has been triggered, total 452 trees were felled and the pruning of the transplanted trees was carried out in accordance with the Specification for Tree Protection and Transplanting Works in Landscape Plan. The summary reports are presented in the corresponding monthly EM&A report (November & December 2010 and January 2011).

## 5 Waste Disposal

The amounts of different types of waste generated by the activities of the Project in the reporting period are shown in **Table 5.1**. It is anticipated that the amount of different types of waste will be increased in the forth-coming month due to the increasing of the scale of construction works, attention should be paid and the mitigation measures recommended in the EIA Report should be implemented and maintained. No liquid waste was generated in the reporting period.

**Table 5.1** Amounts of waste generated in reporting period

Waste Type	Amount				Disposal Locations
	Nov 10	Dec 10	Jan11	Total	
Inert C&D Materials	0 m <sup>3</sup>	0 m <sup>3</sup>	0 m <sup>3</sup>	0 m <sup>3</sup>	Broken concrete <sup>(Note 1)</sup>
	0 m <sup>3</sup>	0 m <sup>3</sup>	0 m <sup>3</sup>	0 m <sup>3</sup>	Reused in the Contract
	0 m <sup>3</sup>	0 m <sup>3</sup>	0 m <sup>3</sup>	0 m <sup>3</sup>	Reused in other Projects
	1,589.25 m <sup>3</sup>	931.125 m <sup>3</sup>	536.25 m <sup>3</sup>	3,056.625 m <sup>3</sup>	Disposal of at public fill at Tuen Mun Area 38
Chemical Waste	0 kg	0 kg	0 kg	0 kg	N/A
Paper / cardboard packaging	230 kg	0 kg	350 kg	580 kg	Recycler
Plastic	0 kg	0 kg	0 kg	0 kg	
Metal	0 kg	0 kg	3 kg	3 kg	
General Refuse	29.25 m <sup>3</sup>	97.5 m <sup>3</sup>	53.63 m <sup>3</sup>	180.38 m <sup>3</sup>	Disposal of at WENT landfill

**Notes:**

1. Broken concrete for recycling into aggregates.

## 6 Environmental Performance

### 6.1 Non-Compliance Record

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There was no non-compliance received in the reporting period.

### 6.2 Review of Reasons of Non-Compliance

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There was no non-compliance identified in the reporting period so review of the non-compliance was not required.

### 6.3 Notification of Summons and Successful Prosecution

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No summons or prosecutions related to environmental issues were received or made against the Project in the reporting period.

### 6.4 Complaint Record

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One environmental complaint regarding the construction noise was recorded during the reporting period.

The complaint was received by the ICC and ET on 4 and 11 November 2010 respectively regarding the noise generated from the night works on TMR in the vicinity of Tsing Sin Playground.

As confirmed by the Contractor and Supervising Officer's Representative, the tree felling work was carried out on TMR during the complaint period in the vicinity of Tsing Sin playground.

Totally 4 units of power mechanical equipments had been used including crane lorry, dump truck, aerial platform and chain saw. The relevant construction noise permit (CNP) no. GW-RW0307-10 was obtained for the above works prior commencement. The conditions stipulated in the CNP were strictly followed by the Contractor. EPD had been informed prior the work commencement.

Based on the above-mentioned information provided by the Contractor, it is anticipated that the noise nuisance was mainly due to the machines operation. Therefore, it is concluded that the complaint was work-related under the Project.

In accordance with the Action/Event Plan, additional noise monitoring during the restricted hours was undertaken on 22 November 2010 at the monitoring location N2 (Tai Tung Pui Social Service Building), where the same night works was carried out on TMR in the vicinity of the monitoring location N2.

Comparison is made between the monitoring results against the corresponding baseline noise level. Based on the interpretation from the results, the construction noise is 54dB(A) which below the night time noise limit level (55dB(A)).

Nevertheless, ET recommended that the Contractor should undertake following mitigation measures to minimize the noise nuisance.

1. Minimize the no. of machines used for the work as far as possible;
2. Well-maintain the machines condition to minimize noise nuisance;
3. Relocate operating machinery as far as possible from nearby sensitive receivers;
4. Machines that may be in intermittent use should be shut down between work periods or should be throttled down;
5. Optimize the working programme to minimize the restricted hours work activities as far as possible;
6. Improve the working practices to minimize the noise nuisance during the working activities as far as possible;
7. Provide temporary / mobile noise barrier for the noisy activities as far as possible; and

8. Enhance the workers awareness by regular training to minimize noise nuisance during the restricted hours.

The recommendations that advised by ET had been noted by the Contractor and would be implemented as far as possible. The updated statistical summary of complaint is presented in **Table 6.1**. The updated complaint log (C001) of the Project in the reporting period is shown in **Appendix G**.

**Table 6.1** Summary of complaints for the contract

Reporting Period	Complaint Statistics		Area of Concern	Validity to the Project	Status
	Number	Cumulative			
02/08/10 – 31/10/10	0	0	--	--	--
01/11/10 – 30/11/10	1	1	Noise	Yes	Closed on 30 Nov 10
01/12/10 – 31/01/11	0	1	--	--	--

## 7 Conclusions and Recommendations

### 7.1 Conclusions

The construction phase of the Project was commenced on 2 August 2010. The EM&A programme has been implemented since then, including air quality, noise, landscape and visual and environmental site audits.

No Action and Limit Level exceedance was recorded for impact air quality monitoring in the reporting period.

Total 22 limit level exceedances (9 in November 2010, 7 in December 2010 and 6 in January 2011) of noise monitoring were recorded during the reporting period. Based on the field observations and interpretation of the results, the noise exceedance the exceedances were mainly caused by traffic vehicles along Tuen Mun Road. It was concluded that the exceedance were not project related and no particular remedial work is required. But one noise complaint, hence one Action Level exceedance, was recorded in the reporting period.

One environmental complaint regarding the construction noise was recorded in the reporting period. The complaint was received by the ICC and ET on 4 and 11 November 2010 respectively. After the investigations, it is concluded that the complaint was attributable to the Contract. The corresponding mitigation measure due to the complaint was recommended to carry out by the Contractor. Nevertheless, the Contractor was reminded to implement proper mitigation measure as stipulated in EM&A Manual to minimize any noise implication.

No summons or prosecution related to environmental issues was received in the reporting period.

In accordance with the requirements stipulated in the EM&A manual, landscape and visual site audit was conducted regularly during the reporting period. Total 452 trees were felled and the pruning of the transplanted trees was carried out. No substantial change of LR, LCA and VSR was noted.

Weekly environmental site audit was carried out during the reporting period. The major environmental concerns were related to air quality, noise, water quality, waste management and tree maintenance.

### 7.2 Recommendations

Impact monitoring will be continued to carry out in the following month and followed by the requirement stipulated in the EM&A manual. Attention will be paid to environmental issues

identified in EIA Report and weekly site audit. Mitigation measures recommended in EIA Report and Implementation Schedule of Mitigation Measure will be fully implemented.

Construction noise is one of the key environmental issues especially in restricted hours. The conditions stipulated in CNPs should be strictly followed when the construction works were carried out during the restricted hours.

Construction dust is another key environmental issue. The implemented construction dust mitigation measures including covering of exposed slope / soil with tarpaulin sheet etc., should be maintained and improved as necessary. Adequate water spraying should be provided for the unpaved area to minimize dust disturbance.

Water quality impact is also key environmental issue. The drainage system should be well maintained. The solid and liquid waste management should be strictly followed in accordance with the requirements described in the EIA report.

The retained trees should be protected and fenced properly. The Contractor was reminded to avoid trunks damage during construction works and, take the proper remedial measures immediately when damage was observed.

Moreover, the corresponding mitigation measures due to the complaint were recommended to carry out by the Contractor and are presented in Section 6.4. The Contractor was reminded to implement proper mitigation measure to minimize any environmental nuisance.

## 8 Reference

- [1] AECOM Asia Co. Ltd. Agreement No. CE 22/2005 (HY) Supplementary No. 1 Traffic Improvements to Tuen Mun Road Town Centre Section – Environmental Monitoring & Audit Manual – December 2008
- [2] Ove Arup & Partners Hong Kong Limited. Agreement No. HMW 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section – Baseline Monitoring Report (Revision\_4) – July 2010
- [3] Ove Arup & Partners Hong Kong Limited. Agreement No. HMW 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section – Monthly Environmental Monitoring and Audit Report – November 2010 (Final)
- [4] Ove Arup & Partners Hong Kong Limited. Agreement No. HMW 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section – Monthly Environmental Monitoring and Audit Report – December 2010 (Final)
- [5] Ove Arup & Partners Hong Kong Limited. Agreement No. HMW 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section – Monthly Environmental Monitoring and Audit Report – January 2011 (Final)

Appendix A

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**Construction  
Programme**



HY/2009/03

01-Nov-10?

Design and Build of Traffic Improvement to Tuen Mun Road Town Centre Section

Activity Name	Original Duration	Remaining Duration	Early Start	Early Finish	Late Start	Late Finish

Month	25	01	08	15	22	29	06	13	20	27	03	10	17	24
November														
December														
January														

Design and Build of Traffic Improvements to Tuen Mun Road Town Centre Section

PRELIMINARIES AND GENERAL REQUIREMENTS

PROJECT COMMENCEMENT AND SITE POSSESSION

Activity Name	Original Duration	Remaining Duration	Early Start	Early Finish	Late Start	Late Finish
KD1000	0	0	0	31-Oct-10	10-Sep-10	
KD1010	0	0	0	31-Oct-10	26-Apr-10	
KD1020	0	0	0	31-Oct-10	31-Oct-10	
KD1030	0	0	0	31-Oct-10	31-Oct-10	
KD1040	0	0	0	31-Oct-10	31-Oct-10	
KD1060	0	0	0	31-Oct-10	25-Aug-14	

PROJECT COMPLETION

KD1160	0	0	0	25-Feb-11	25-Feb-11	
KD1180	0	0	0	25-Feb-11	25-Feb-11	
KD1230	0	0	0	31-Oct-10	25-Aug-14	

DESIGN OF PERMANENT WORKS

GENERAL DESIGN SUBMISSION

DS2600	0	0	0	31-Oct-10	25-Aug-14	
DS2605	0	0	0	31-Oct-10	25-Aug-14	
DS2610	0	0	0	31-Oct-10	25-Aug-14	
DS2615	0	0	0	31-Oct-10	25-Aug-14	
DS2617	0	0	0	31-Oct-10	08-Nov-10	
DS2619	0	0	0	08-Nov-10	08-Nov-10	
DS2620	0	0	0	31-Oct-10	25-Aug-14	
DS2625	0	0	0	31-Oct-10	25-Aug-14	
DS2630	0	0	0	31-Oct-10	25-Aug-14	
DS2635	0	0	0	31-Oct-10	23-Sep-10	
DS2640	0	0	0	31-Oct-10	25-Aug-14	
DS2645	0	0	0	31-Oct-10	25-Aug-14	
DS2650	0	0	0	31-Oct-10	25-Aug-14	
DS2650	0	0	0	31-Oct-10	25-Aug-14	
DS2650	0	0	0	31-Oct-10	25-Aug-14	
DS2680	0	0	0	31-Oct-10	25-Aug-14	
DS2730	0	0	0	31-Oct-10	25-Aug-14	

PACKAGE OF SITE INVESTIGATION

DS1000	39	0	0	31-Oct-10	31-Oct-10	20-Aug-10
DS1010	28	0	0	31-Oct-10	31-Oct-10	20-Aug-10
DS1020	42	0	0	31-Oct-10	20-Aug-10	20-Aug-10
DS1030	35	0	0	31-Oct-10	31-Oct-10	20-Aug-10
DS1040	60	0	0	31-Oct-10	31-Oct-10	20-Aug-10

Remaining Level of Effort  Actual Work

Actual Level of Effort  Remaining ...

Primary Baseline  Critical Rem...

3 Months Rolling Programme (cutoff: 31-10-10)?

Date	Revision	Ch...
06-...	1008	Tim
05-...	1009A	Tim
28-...	cutoff: 31/10	Tim

Approved

are for Site Investigation

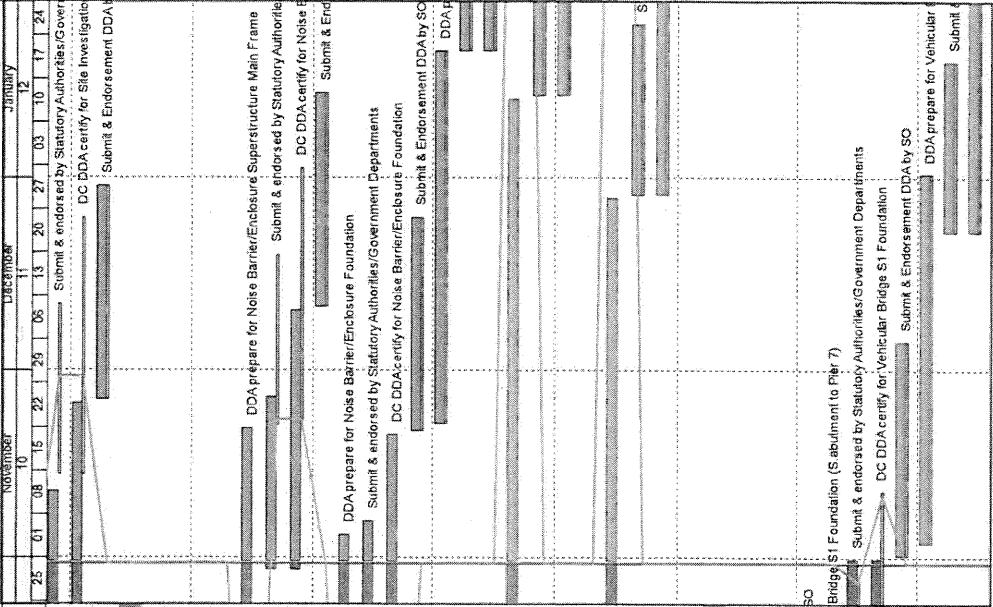
- ◆ Ground Investigation report (Final)
- ◆ Report of Utilities (Final)
- ◆ Report on construction traffic impact assessment (Final)

HY/2009/03

01-Nov-10?

**Design and Build of Traffic Improvement to Tuen Mun Road Town Centre Section**

Activity ID	Activity Name	Original Duration	Remaining Duration	Early Start	Early Finish	Late Start	Late Finish	
DS1050	Submit & endorsed by Statutory Authorities/Government Departments	28	12	31-Oct-10	11-Nov-10	20-Aug-10	01-Sep-10	
DS1060	DC DDA certify for Site Investigation	42	26	31-Oct-10	25-Nov-10	20-Aug-10	15-Sep-10	
DS1070	Submit & Endorsement DDA by SO	35	35	29-Nov-10	30-Dec-10	15-Sep-10	20-Oct-10	
<b>PACKAGE OF NOISE BARRIER/ENCLOSURE</b>								
DS1080	AIP prepare for Noise Barrier/Enclosure	55	0	31-Oct-10	31-Oct-10	08-Sep-10	08-Sep-10	
DS1090	Submit & endorsed by Statutory Authorities/Government Departments	28	0	31-Oct-10	31-Oct-10	08-Sep-10	08-Sep-10	
DS1100	DC AIP certify for Noise Barrier/Enclosure	35	0	31-Oct-10	31-Oct-10	08-Sep-10	08-Sep-10	
DS1110	Submit & Endorsement AIP by SO	35	0	31-Oct-10	31-Oct-10	08-Sep-10	08-Sep-10	
DS1120	DDA prepare for Noise Barrier/Enclosure Superstructure Main Frame	60	22	31-Oct-10	21-Nov-10	08-Sep-10	01-Oct-10	
DS1130	Submit & endorsed by Statutory Authorities/Government Departments	28	27	31-Oct-10	26-Nov-10	08-Sep-10	06-Oct-10	
DS1140	DC DDA certify for Noise Barrier/Enclosure Superstructure Main Frame	42	41	31-Oct-10	10-Dec-10	08-Sep-10	20-Oct-10	
DS1150	Submit & Endorsement DDA by SO	35	35	11-Dec-10	14-Jan-11	20-Oct-10	24-Nov-10	
DS1160	DDA prepare for Noise Barrier/Enclosure Foundation	60	5	31-Oct-10	04-Nov-10	08-Sep-10	13-Sep-10	
DS1170	Submit & endorsed by Statutory Authorities/Government Departments	28	7	31-Oct-10	06-Nov-10	08-Sep-10	15-Sep-10	
DS1180	DC DDA certify for Noise Barrier/Enclosure Foundation	42	21	31-Oct-10	25-Nov-10	08-Sep-10	29-Sep-10	
DS1190	Submit & Endorsement DDA by SO	35	35	21-Nov-10	25-Dec-10	28-Sep-10	03-Nov-10	
DS1200	DDA prepare for Noise Barrier/Enclosure Architectural Works	60	60	22-Nov-10	21-Jan-11	08-Aug-10	08-Oct-10	
DS1210	Submit & endorsed by Statutory Authorities/Government Departments	28	28	21-Jan-11	18-Feb-11	08-Oct-10	05-Nov-10	
DS1220	DC DDA certify for Noise Barrier/Enclosure Architectural Works	42	42	21-Jan-11	04-Mar-11	08-Oct-10	19-Nov-10	
DS1230	DDA prepare for Noise Barrier/Enclosure Vertical and Roof Panel	90	75	31-Oct-10	13-Jan-11	03-Mar-11	17-May-11	
DS1240	Submit & endorsed by Statutory Authorities/Government Departments	28	28	14-Jan-11	10-Feb-11	17-May-11	14-Jun-11	
DS1250	DC DDA certify for Noise Barrier/Enclosure Vertical and Roof Panel	42	42	14-Jan-11	24-Feb-11	17-May-11	28-Jun-11	
DS1260	Submit & Endorsement DDA by SO	35	35	25-Feb-11	31-Mar-11	28-Jun-11	02-Aug-11	
DS1270	DDA prepare for Noise Barrier/Enclosure Irrigation Systems	60	59	31-Oct-10	28-Dec-10	19-Mar-11	17-May-11	
DS1280	Submit & endorsed by Statutory Authorities/Government Departments	28	28	29-Dec-10	25-Jan-11	17-May-11	14-Jun-11	
DS1300	DC DDA certify for Noise Barrier/Enclosure Irrigation Systems	42	42	29-Dec-10	08-Feb-11	17-May-11	28-Jun-11	
DS1310	Submit & Endorsement DDA by SO	35	35	09-Feb-11	15-Mar-11	28-Jun-11	02-Aug-11	
<b>PACKAGE OF VEHICULAR BRIDGE S1</b>								
DS1320	AIP prepare for Vehicular Bridge S1	55	0	31-Oct-10	31-Oct-10	19-Mar-11	19-Mar-11	
DS1330	Submit & endorsed by Statutory Authorities/Government Departments	28	0	31-Oct-10	31-Oct-10	19-Mar-11	19-Mar-11	
DS1340	DC AIP certify for Vehicular Bridge S1	35	0	31-Oct-10	31-Oct-10	19-Mar-11	19-Mar-11	
DS1350	Submit & Endorsement AIP by SO	35	0	31-Oct-10	31-Oct-10	19-Mar-11	19-Mar-11	
DS1360	DDA prepare for Vehicular Bridge S1 Foundation (S abutment to Pier 7)	60	0	31-Oct-10	31-Oct-10	27-Nov-10	27-Nov-10	
DS1370	Submit & endorsed by Statutory Authorities/Government Departments	28	1	31-Oct-10	31-Oct-10	27-Nov-10	27-Nov-10	
DS1380	DC DDA certify for Vehicular Bridge S1 Foundation	42	42	31-Oct-10	31-Oct-10	31-Dec-10	31-Dec-10	
DS1390	Submit & Endorsement DDA by SO	35	35	01-Nov-10	05-Dec-10	01-Jan-11	04-Feb-11	
DS1400	DDA prepare for Vehicular Bridge S1 Foundation (Pier 7 to N abutment)	60	60	03-Nov-10	19-Jan-11	30-Nov-10	28-Jan-11	
DS1410	Submit & endorsed by Statutory Authorities/Government Departments	28	28	23-Dec-10	19-Jan-11	19-Jan-11	15-Feb-11	
DS1420	DC DDA certify for Vehicular Bridge S1 Foundation	42	42	23-Dec-10	02-Feb-11	19-Jan-11	01-Mar-11	



**3 Months Rolling Programme (cutoff: 31-10-10?)**

Date	Revision	Ch...
06-...	1008	Tim
05-...	1009A	Tim
28-...	cutoff: 31/10	Tim

Approved

Remaining Level of Effort  
 Actual Work  
 Remaining ...  
 Primary Baseline  
 Critical Rem...

HY/2009/03

01-Nov-10?

**Design and Build of Traffic Improvement to Tuen Mun Road Town Centre Section**

Activity ID	Activity Name	Original Remaining Duration	Early Start	Early Finish	Late Start	Late Finish	November	December	January
DS1430	Submit & Endorsement DDA by SO	35	03-Feb-11	05-Mar-11	02-Mar-11	05-Apr-11			
DS1440	DDA prepare for Vehicular Bridge S1 Superstructure, Pier and Abutment	60	30-Oct-10	29-Dec-10	18-Jan-11	18-Mar-11			
DS1450	Submit & endorsed by Statutory Authorities/Government Departments	28	30-Dec-10	26-Jan-11	19-Mar-11	15-Apr-11			
DS1460	DC DDA certify for Vehicular Bridge S1 Superstructure, Pier and Abutment	42	30-Dec-10	09-Feb-11	19-Mar-11	29-Apr-11			
DS1470	Submit & Endorsement DDA by SO	35	10-Feb-11	16-Mar-11	30-Apr-11	03-Jun-11			
<b>PACKAGE OF FOOTBRIDGE AND ASSOCIATED LIFT</b>									
DS1650	AIP prepare for Footbridge & Associated Lift	55	03-Oct-10	31-Oct-10	08-Jan-11	08-Jan-11			
DS1670	Submit & endorsed by Statutory Authorities/Government Departments	28	03-Oct-10	31-Oct-10	08-Jan-11	08-Jan-11			
DS1680	DC AIP certify for Footbridge & Associated Lift	35	03-Oct-10	31-Oct-10	08-Jan-11	08-Jan-11			
DS1690	Submit & Endorsement AIP by SO	35	03-Oct-10	31-Oct-10	08-Jan-11	08-Jan-11			
DS1610	DDA prepare for Yan Ching & Siu On Bridge & Associated Lift Structure	60	25 31-Oct-10	24-Nov-10	21-Jun-11	16-Jul-11			
DS1620	Submit & endorsed by Statutory Authorities/Government Departments	28	25 31-Oct-10	08-Dec-10	08-Jan-11	03-Feb-11			
DS1620	DC DDA certify for Yan Ching & Siu On Bridge & Associated Lift Structure	42	30 31-Oct-10	08-Dec-10	21-Jun-11	16-Jul-11			
DS1630	Submit & Endorsement DDA by SO	35	08-Dec-10	12-Jan-11	30-Jul-11	03-Sep-11			
DS1640	DDA prepare for Yan Oi & Chi Lok Bridge & Associated Lift Structure	60	25 31-Oct-10	25-Nov-10	08-Jan-11	03-Feb-11			
DS1650	Submit & endorsed by Statutory Authorities/Government Departments	28	25 31-Oct-10	25-Nov-10	08-Jan-11	03-Feb-11			
DS1660	DC DDA certify for Yan Oi & Chi Lok Bridge & Associated Lift Structure	42	40 31-Oct-10	06-Dec-10	08-Jan-11	17-Feb-11			
DS1670	Submit & Endorsement DDA by SO	35	10-Dec-10	13-Jan-11	17-Feb-11	24-Mar-11			
DS1680	DDA prepare for Footbridge Architectural Works	60	11-Nov-10	10-Jan-11	21-Sep-11	20-Nov-11			
DS1690	Submit & endorsed by Statutory Authorities/Government Departments	28	10-Jan-11	07-Feb-11	20-Nov-11	18-Dec-11			
DS1700	DC DDA certify for Footbridge Architectural Works	42	10-Jan-11	21-Feb-11	20-Nov-11	01-Jan-12			
DS1710	Submit & Endorsement DDA by SO	35	21-Feb-11	28-Mar-11	01-Jan-12	05-Feb-12			
DS1760	DDA prepare for Footbridge Lift & E&M Works	60	17-Jan-11	18-Mar-11	18-Sep-11	17-Nov-11			
<b>PACKAGE OF LIFT LIFT</b>									
DS1800	AIP prepare for LRT Lift Structure	60	03-Oct-10	31-Oct-10	02-Sep-10	02-Sep-10			
DS1810	Submit & endorsed by Statutory Authorities/Government Departments	45	03-Oct-10	31-Oct-10	25-Aug-14	25-Aug-14			
DS1820	DC AIP certify for LRT Lift Structure	62	03-Oct-10	31-Oct-10	02-Sep-10	02-Sep-10			
DS1830	Submit & Endorsement AIP by SO	35	03-Oct-10	31-Oct-10	02-Sep-10	02-Sep-10			
DS1840	DDA prepare for LRT Lift	60	03-Oct-10	31-Oct-10	02-Sep-10	02-Sep-10			
DS1850	Submit & endorsed by Statutory Authorities/Government Departments	28	03-Oct-10	31-Oct-10	02-Sep-10	02-Sep-10			
DS1860	DC DDA certify for LRT Lift	42	22 31-Oct-10	21-Nov-10	02-Sep-10	24-Sep-10			
DS1870	Submit & Endorsement DDA by SO	35	22-Nov-10	26-Dec-10	24-Sep-10	29-Oct-10			
DS1880	DDA prepare for LRT Lift E&M Works	60	02-Nov-10	25-Nov-10	25-Aug-14	25-Aug-14			
DS1890	Submit & endorsed by Statutory Authorities/Government Departments	28	1 31-Oct-10	31-Oct-10	25-Aug-14	25-Aug-14			
DS1900	DC DDA certify for LRT Lift E&M Works	42	12 31-Oct-10	11-Nov-10	31-Dec-10	12-Jan-11			
DS1910	Submit & Endorsement DDA by SO	35	12-Nov-10	16-Dec-10	12-Jan-11	16-Feb-11			
<b>PACKAGE OF GEOTECHNICAL WORKS</b>									
DS1920	AIP prepare for Geotechnical Works	48	03-Oct-10	31-Oct-10	25-Aug-14	25-Aug-14			
DS1930	Submit & endorsed by Statutory Authorities/Government Departments	28	03-Oct-10	31-Oct-10	25-Aug-14	25-Aug-14			

**3 Months Rolling Programme (cutoff: 31-10-10)?**

Remaining Level of Effort
  Actual Work
  Remaining ...
  Critical Rem...

Date	Revision	Ch...
06-... 1008	Tim	Approved
05-... 1009A	Tim	
28-... cutoff: 31/10	Tim	

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Design and Build of Traffic Improvement to Tuen Mun Road Town Centre Section

Activity ID	Activity Name	Original Duration	Remaining Duration	Early Start	Early Finish	Late Start	Late Finish	November	December	January
DS1940	DC AIP certify for Geotechnical Works	14	0	31-Oct-10	31-Oct-10	27-Oct-10	27-Oct-10	25	01	02
DS1950	Submit & Endorsement AIP by SO	35	0	31-Oct-10	31-Oct-10	27-Oct-10	27-Oct-10	08	10	17
DS1960	DDA prepare for Retaining Wall 6SW-AFR91 & FR93	60	14	31-Oct-10	27-Oct-10	27-Oct-10	27-Oct-10	15	20	27
DS1970	DC DDA certify for Retaining Wall 6SW-AFR91 & FR93	14	14	31-Oct-10	13-Nov-10	27-Oct-10	10-Nov-10	22	29	06
DS1980	Submit & endorsed by Statutory Authorities/Government Departments	28	28	14-Nov-10	11-Dec-10	10-Nov-10	08-Dec-10	01	08	15
DS1990	Submit & Endorsement DDA by SO	35	35	12-Dec-10	15-Jan-11	08-Dec-10	12-Jan-11	15	22	29
DS2000	DDA prepare for Reinforced Earth Wall 6SW-AFR10	90	32	31-Oct-10	01-Dec-10	01-Nov-10	05-Dec-10	22	29	06
DS2010	DC DDA certify for Reinforced Earth Wall 6SW-AFR10	14	14	02-Dec-10	15-Dec-10	17-Jul-11	31-Jul-11	01	08	15
DS2020	Submit & endorsed by Statutory Authorities/Government Departments	28	28	16-Dec-10	12-Jan-11	28-Aug-11	28-Aug-11	08	15	22
DS2030	Submit & Endorsement DDA by SO	35	35	13-Jan-11	16-Feb-11	28-Aug-11	02-Oct-11	15	22	29
DS2040	DDA prepare for Slope Works	90	90	14-Nov-10	11-Feb-11	15-Nov-10	12-Feb-11	01	08	15
DS2050	DC DDA certify for Slope Works	14	14	12-Feb-11	25-Feb-11	13-Feb-11	26-Feb-11	08	15	22
DS2060	Submit & endorsed by Statutory Authorities/Government Departments	28	28	26-Feb-11	25-Mar-11	27-Feb-11	26-Mar-11	15	22	29
<b>PACKAGE OF ROADWORKS</b>										
DS2080	AIP prepare for Roadworks	75	0	31-Oct-10	31-Oct-10	19-Aug-10	19-Aug-10	25	01	02
DS2090	Submit & endorsed by Statutory Authorities/Government Departments	28	0	31-Oct-10	31-Oct-10	19-Aug-10	19-Aug-10	08	15	22
DS2100	DC AIP certify for Roadworks	35	0	31-Oct-10	31-Oct-10	19-Aug-10	19-Aug-10	15	22	29
DS2110	Submit & Endorsement AIP by SO	35	0	31-Oct-10	31-Oct-10	19-Aug-10	19-Aug-10	22	29	06
DS2120	DDA prepare for Street Lighting System	60	0	31-Oct-10	31-Oct-10	19-Aug-10	19-Aug-10	29	06	13
DS2130	Submit & endorsed by Statutory Authorities/Government Departments	28	0	31-Oct-10	31-Oct-10	19-Aug-10	20-Aug-10	06	13	20
DS2140	DC DDA certify for Street Lighting System	42	12	31-Oct-10	11-Nov-10	19-Aug-10	31-Aug-10	13	20	27
DS2150	Submit & Endorsement DDA by SO	35	35	12-Nov-10	16-Dec-10	31-Aug-10	05-Oct-10	20	27	04
DS2160	DDA prepare for Fire Fighting System	60	0	31-Oct-10	31-Oct-10	19-Aug-10	19-Aug-10	27	04	11
DS2170	Submit & endorsed by Statutory Authorities/Government Departments	28	0	31-Oct-10	31-Oct-10	19-Aug-10	20-Aug-10	04	11	18
DS2180	DC DDA certify for Fire Fighting System	42	12	31-Oct-10	11-Nov-10	19-Aug-10	31-Aug-10	11	18	25
DS2190	Submit & Endorsement DDA by SO	35	35	12-Nov-10	16-Dec-10	31-Aug-10	05-Oct-10	18	25	02
DS2200	DDA prepare for Road Alignment and Road Features	60	0	31-Oct-10	31-Oct-10	19-Aug-10	19-Aug-10	25	02	09
DS2210	Submit & endorsed by Statutory Authorities/Government Departments	28	0	31-Oct-10	31-Oct-10	19-Aug-10	20-Aug-10	02	09	16
DS2220	DC DDA certify for Road Alignment and Road Features	42	0	31-Oct-10	31-Oct-10	19-Aug-10	04-Oct-10	09	16	23
DS2230	Submit & Endorsement DDA by SO	35	1	31-Oct-10	31-Oct-10	19-Aug-10	05-Oct-10	16	23	30
DS2260	DDA prepare for improvement of existing traffic light signal controlled junction	60	0	31-Oct-10	31-Oct-10	19-Aug-10	07-Oct-10	23	30	06
DS2700	Submit & endorsed by Statutory Authorities/Government Departments	28	0	31-Oct-10	31-Oct-10	19-Aug-10	07-Oct-10	30	06	13
DS2710	DC DDA certify for improvement of existing traffic light signal controlled junction	42	0	31-Oct-10	31-Oct-10	19-Aug-10	07-Oct-10	06	13	20
DS2720	Submit & Endorsement DDA by SO	35	1	31-Oct-10	31-Oct-10	19-Aug-10	07-Oct-10	13	20	27
<b>PACKAGE OF DRAINAGE</b>										
DS2240	AIP prepare for Drainage Works	60	0	31-Oct-10	31-Oct-10	08-Sep-10	08-Sep-10	25	02	09
DS2250	Submit & endorsed by Statutory Authorities/Government Departments	28	0	31-Oct-10	31-Oct-10	08-Sep-10	08-Sep-10	02	09	09
DS2260	DC AIP certify for Drainage Works	35	0	31-Oct-10	31-Oct-10	08-Sep-10	08-Sep-10	09	16	23
DS2270	Submit & Endorsement AIP by SO	35	0	31-Oct-10	31-Oct-10	08-Sep-10	08-Sep-10	16	23	30

**3 Months Rolling Programme (cutoff: 31-10-10)?**

Remaining Level of Effort
  Actual Work

Actual Level of Effort
  Remaining ...

Primary Baseline
  Critical Rem...

Date	Revision	Ch...	Approved
06-...	1008	Tim	
05-...	1009A	Tim	
28-...	cutoff: 31/10	Tim	

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HY2009/03

01-Nov-10?

Design and Build of Traffic Improvement to Tuen Mun Road Town Centre Section

Activity ID	Activity Name	Original Duration	Remaining Duration	Early Start	Early Finish	Late Start	Late Finish	December	November	October	September	August	July	June	May	April	March	February	January
DS2280	DDA prepare for Drainage Works	60	0	01-Oct-10	31-Oct-10	09-Sep-10	09-Sep-10												
DS2290	Submit & endorsed by Statutory Authorities/Government Departments	28	1	01-Oct-10	31-Oct-10	09-Sep-10	09-Sep-10												
DS2300	DC DDA certify for Drainage Works	42	14	01-Oct-10	19-Nov-10	09-Sep-10	09-Sep-10												
DS2310	Submit & Endorsement DDA by SO	35	35	14-Nov-10	18-Dec-10	23-Sep-10	23-Sep-10												
<b>PACKAGE OF PROVISIONING WORKS FOR TCSS INSTALLATION</b>																			
DS2320	AIP prepare for Provisioning Works for TCSS Installation	60	0	01-Oct-10	31-Oct-10	08-Jun-11	08-Jun-11												
DS2330	Submit & endorsed by Statutory Authorities/Government Departments	28	0	01-Oct-10	31-Oct-10	08-Jun-11	08-Jun-11												
DS2340	DC AIP certify for Provisioning Works for TCSS Installation	35	0	01-Oct-10	31-Oct-10	08-Jun-11	08-Jun-11												
DS2350	Submit & Endorsement AIP by SO	35	0	01-Oct-10	31-Oct-10	08-Jun-11	08-Jun-11												
DS2360	DDA prepare for Provisioning Works for TCSS Installation	60	0	01-Oct-10	31-Oct-10	08-Jun-11	08-Jun-11												
DS2370	Submit & endorsed by Statutory Authorities/Government Departments	28	1	01-Oct-10	31-Oct-10	08-Jun-11	08-Jun-11												
DS2380	DC DDA certify for Provisioning Works for TCSS Installation	42	15	01-Oct-10	14-Nov-10	08-Jun-11	08-Jun-11												
DS2390	Submit & Endorsement DDA by SO	35	35	15-Nov-10	19-Dec-10	23-Jun-11	23-Jun-11												
<b>PACKAGE OF AT-GRADE IRRIGATION SYSTEM</b>																			
DS2400	AIP prepare for At-grade Irrigation Systems	90	0	01-Oct-10	31-Oct-10	29-Mar-12	29-Mar-12												
DS2410	Submit & endorsed by Statutory Authorities/Government Departments	28	1	01-Oct-10	31-Oct-10	29-Mar-12	29-Mar-12												
DS2420	DC AIP certify for At-grade Irrigation Systems	35	1	01-Oct-10	31-Oct-10	29-Mar-12	29-Mar-12												
DS2430	Submit & Endorsement AIP by SO	35	35	01-Nov-10	05-Dec-10	30-Mar-12	30-Mar-12												
DS2440	DDA prepare for At-grade Irrigation Systems	60	12	01-Oct-10	11-Nov-10	24-Jul-11	05-Aug-11												
DS2450	Submit & endorsed by Statutory Authorities/Government Departments	28	28	12-Nov-10	09-Dec-10	30-Mar-12	26-Apr-12												
DS2460	DC DDA certify for At-grade Irrigation Systems	42	42	12-Nov-10	23-Dec-10	30-Mar-12	10-May-12												
DS2470	Submit & Endorsement DDA by SO	35	35	24-Dec-10	27-Jan-11	11-May-12	14-Jun-12												
<b>PACKAGE OF LANDSCAPE WORKS</b>																			
DS2480	AIP prepare for Landscape Works	55	0	01-Oct-10	31-Oct-10	15-Aug-10	15-Aug-10												
DS2490	Submit & endorsed by Statutory Authorities/Government Departments	28	0	01-Oct-10	31-Oct-10	15-Aug-10	15-Aug-10												
DS2500	DC AIP certify for Landscape Works	35	0	01-Oct-10	31-Oct-10	15-Aug-10	15-Aug-10												
DS2510	Submit & Endorsement AIP by SO	35	0	01-Oct-10	31-Oct-10	15-Aug-10	15-Aug-10												
DS2520	DDA prepare for At-grade Landscape Works	60	60	12-Nov-10	10-Jan-11	05-Aug-11	04-Oct-11												
DS2530	Submit & endorsed by Statutory Authorities/Government Departments	28	28	11-Jan-11	07-Feb-11	04-Oct-11	04-Oct-11												
DS2540	DC DDA certify for At-grade Landscape Works	42	42	11-Jan-11	21-Feb-11	04-Oct-11	15-Nov-11												
DS2550	Submit & Endorsement DDA by SO	35	35	22-Feb-11	28-Mar-11	15-Nov-11	20-Dec-11												
DS2560	DDA prepare for Noise Barrier/Enclosure Landscape Works	90	18	01-Oct-10	17-Nov-10	28-Jul-10	15-Aug-10												
DS2570	Submit & endorsed by Statutory Authorities/Government Departments	28	28	18-Nov-10	15-Dec-10	15-Aug-10	12-Sep-10												
DS2580	DC DDA certify for Noise Barrier/Enclosure Landscape Works	42	42	18-Nov-10	29-Dec-10	15-Aug-10	26-Sep-10												
DS2590	Submit & Endorsement DDA by SO	35	35	30-Dec-10	02-Feb-11	26-Sep-10	31-Oct-10												
<b>PROJECT GENERAL SUBMISSION</b>																			
GS1000	Survey setting out point	0	0		31-Oct-10														
GS1010	Spares to enable WSD to decide on the quantities and type	0	0		31-Oct-10														
GS1020	Drift works programme	0	0		31-Oct-10														

**3 Months Rolling Programme (cutoff: 31-10-10)?**

Remaining Level of Effort  Actual Work  Remaining ...  Critical Rem...

Date Revision Ch... Approved

06...	1008	Tim	
05...	1009A	Tim	
28...	cutoff: 31/10	Tim	

Spares to enable WSD to decide on the quantities and type

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**Design and Build of Traffic Improvement to Tuen Mun Road Town Centre Section**

01-Nov-10?

Activity ID	Activity Name	Original Duration	Remaining Duration	Early Start	Early Finish	Late Start	Late Finish	Timeline														
								25	01	08	15	22	29	06	13	20	27	04	11	18	25	
GS1030	First three month rolling programme	0	0		31-Oct-10		25-Aug-14															
GS1040	Proposed quality system	0	0		31-Oct-10		25-Aug-14															
GS1050	Safety risk management plan	0	0		31-Oct-10		25-Aug-14															
GS1060	IEC and EM&A manual	0	0		31-Oct-10		25-Aug-14															
GS1070	Baseline environmental monitoring report	0	0		31-Oct-10		25-Aug-14															
GS1080	Layout for Supervising Officer's site accommodation	0	0		31-Oct-10		25-Aug-14															
GS1090	Erect for Supervising Officer's interim accommodation	0	0		31-Oct-10		25-Aug-14															
GS1100	Contract computer facilities & EDMS	0	0		31-Oct-10		25-Aug-14															
GS1110	Deliver contract computer facilities & EDMS	0	0		31-Oct-10		25-Aug-14															
GS1120	Appoint web-page design house	0	0		31-Oct-10		30-Sep-10															
GS1130	Preliminary of web-page	0	0		31-Oct-10		30-Sep-10															
GS1140	Produce the web site	0	0		31-Oct-10		30-Sep-10															
GS1150	Deliver survey equipment	0	0		31-Oct-10		25-Aug-14															
GS1160	Video production company & video director	0	0		31-Oct-10		25-Aug-14															
GS1170	Proposed plans for release of video	0	0		31-Oct-10		25-Aug-14															
GS1180	Contractor organisation	0	0		31-Oct-10		25-Aug-14															
GS1190	Traffic consultant & engineer	0	0		31-Oct-10		25-Aug-14															
GS1200	Establish a project Emergency group	0	0		31-Oct-10		25-Aug-14															
GS1210	Traffic management contingency plan	0	0		31-Oct-10		25-Aug-14															
GS1220	Temporary drainage management plan	0	0		31-Oct-10		25-Aug-14															
GS1230	Utilities survey	0	0		31-Oct-10		25-Aug-14															
GS1240	Detailed utility interface report	0	0		31-Oct-10		25-Aug-14															
GS1250	Underground services detection equipment	0	0		31-Oct-10		25-Aug-14															
GS1260	Sample of the uniform	0	0		31-Oct-10		25-Aug-14															
GS1270	Traffic recovery unit	0	0		31-Oct-10		25-Aug-14															
GS1280	Particulars of the emergency unit & the supporting machinery	0	0		31-Oct-10		25-Aug-14															
GS1290	Layout of storage compartment	0	0		31-Oct-10		25-Aug-14															
GS1300	Drinking water facilities	0	0		31-Oct-10		25-Aug-14															
GS1310	Toilet facilities	0	0		31-Oct-10		25-Aug-14															
GS1320	Hand-wash facilities	0	0		31-Oct-10		25-Aug-14															
GS1330	Showering facilities	0	0		31-Oct-10		25-Aug-14															
GS1340	Rubbish bins	0	0		31-Oct-10		25-Aug-14															
GS1350	Weather protection scheme	0	0		31-Oct-10		25-Aug-14															
GS1360	Sample of weather protection system	0	0		31-Oct-10		25-Aug-14															
GS1370	Security system	0	0		31-Oct-10		25-Aug-14															
GS1380	Operate security system	0	0		31-Oct-10		25-Aug-14															
GS1390	Assigned person for trees preservation	0	0		31-Oct-10		25-Aug-14															
GS1400	Erected PII policy	0	0		31-Oct-10		25-Aug-14															
GS1410	Drain safety plan	0	0		31-Oct-10		25-Aug-14															

	<b>3 Months Rolling Programme (cutoff: 31-10-10)?</b>	<b>Approved</b>
Actual Work Remaining ... Critical Rem...	Date: 06... Revision: 1008 Ch...: Tim	
	Date: 05... Revision: 1009A Ch...: Tim	
	Date: 28... Revision: cutoff: 31/10 Ch...: Tim	

HY/2009/03

01-Nov-10?

Design and Build of Traffic Improvement to Tuen Mun Road Town Centre Section

Activity ID	Activity Name	Original Duration	Remaining Duration	Early Start	Early Finish	Late Start	Late Finish	November	December	January
								01-08-10	01-11-10	01-12-10
GS1420	Ad hoc meeting for draft safety plan	0	0	0	31-Oct-10		25-Aug-14			
GS1430	Safety plan	0	0	0	31-Oct-10		25-Aug-14			
GS1440	Sub-contractor management plan	0	0	0	31-Oct-10		25-Aug-14			
GS1450	Outline environmental plan	0	0	0	31-Oct-10		25-Aug-14			
GS1460	Final environmental plan	0	0	0	31-Oct-10		25-Aug-14			
GS1470	Arrangement of payment wages	0	0	0	31-Oct-10		25-Aug-14			
GS1480	Contractor's management team	0	0	0	31-Oct-10		25-Aug-14			
GS1490	Proposal of Design Checker	0	0	0	31-Oct-10		15-Aug-10			
GS1500	Approval and appointment of Design Checker	14	0	31-Oct-10	31-Oct-10	15-Aug-10	15-Aug-10			
GS1510	Proposal of temporary bridge	60	0	31-Oct-10	31-Oct-10	08-Nov-10	08-Nov-10			
GS1520	Approval and temporary bridge	28	4	31-Oct-10	03-Nov-10	04-Nov-10	08-Nov-10			
<b>GENERAL WORKS</b>										
GW1000	Tree survey for existing trees	21	0	31-Oct-10	31-Oct-10	21-Sep-10	21-Sep-10			
GW1010	Sub. & app. tree survey report	14	0	31-Oct-10	31-Oct-10	21-Sep-10	21-Sep-10			
GW1020	Tree felling and transplant	80	48	01-Nov-10	28-Dec-10	21-Sep-10	19-Nov-10			
GW2340	Investigation works for vicinity of petrol station	21	21	01-Nov-10	24-Nov-10	01-Aug-14	25-Aug-14			
<b>SECTION OF WORKS</b>										
<b>EARTHWORKS, DRAINAGE WORKS AND ROADWORKS IN PORTION 1</b>										
<b>TUEN HING RD/CASTLE PEAK RD</b>										
<b>TEMPORARY TRAFFIC ARRANGEMENT AND UTILITIES DIVERSION</b>										
SI-1180	Submit and approve TTA for Tuen Hing Rd/Castle Peak Rd	120	30	31-Oct-10	29-Nov-10	08-Sep-10	07-Oct-10			
<b>ROAD WORKS</b>										
SI-1000	Construct new slow lane at Kowloon bound	50	50	30-Nov-10	29-Jan-11	08-Oct-10	06-Dec-10			
SI-1010	Construct new fast lane at Kowloon bound	50	50	31-Jan-11	01-Apr-11	28-Jan-11	30-Mar-11			
<b>FU FAT LANE/CASTLE PEAK RD</b>										
<b>TEMPORARY TRAFFIC ARRANGEMENT AND UTILITIES DIVERSION</b>										
SI-1190	Submit and approve TTA for Fu Fat Lane/Castle Peak Rd	120	120	25-Jan-11	24-May-11	01-Dec-10	30-Mar-11			
<b>TSING WUI ST</b>										
<b>TEMPORARY TRAFFIC ARRANGEMENT AND UTILITIES DIVERSION</b>										
SI-1210	Submit and approve TTA for Tsing Wui St car parking	120	89	31-Oct-10	27-Jan-11	26-Mar-11	22-Jun-11			
<b>ROAD WORKS</b>										
SI-1150	Construct new car parking spaces	90	90	28-Jan-11	23-May-11	23-Jun-11	08-Oct-11			
<b>TSING SIN ST</b>										
<b>TEMPORARY TRAFFIC ARRANGEMENT AND UTILITIES DIVERSION</b>										
SI-1220	Submit and approve TTA for Tsing Sin St car parking	120	89	31-Oct-10	27-Jan-11	25-Mar-11	22-Jun-11			
<b>ROAD WORKS</b>										
SI-1160	Construct new car parking spaces	90	90	28-Jan-11	23-May-11	23-Jun-11	08-Oct-11			
<b>TSING WUI ST NEAR HAI HELLAND BLDG</b>										
<b>TEMPORARY TRAFFIC ARRANGEMENT AND UTILITIES DIVERSION</b>										

**3 Months Rolling Programme (cutoff: 31-10-10)?**

Remaining Level of Effort  Actual Work

Actual Level of Effort  Remaining ...

Primary Baseline  Critical Rem...

Date	Revision	Ch...
06-...	1008	Tim
05-...	1009A	Tim
28-...	cutoff: 31/10	Tim

Approved

Design and Build of Traffic Improvement to Tuen Mun Road Town Centre Section

Activity ID	Activity Name	Original Duration	Remaining Duration	Early Start	Early Finish	Late Start	Late Finish
S1-1230	Submit and approve TTA for Tsing Wui St near Healand Bldg car parking	120	120	24-Jan-11	23-May-11	12-Jun-11	09-Oct-11
<b>SECTION II OF WORKS</b>							
<b>TEMPORARY TRAFFIC ARRANGEMENT AND UTILITIES DIVERSION</b>							
<b>TEMPORARY TRAFFIC ARRANGEMENT PERIOD</b>							
S2-2950	Road Construction Scheme A Stage 1	380	338	01-Nov-10	19-Dec-11	29-Jul-10	04-Aug-12
S2-3010	Road Construction Scheme B Stage 1	321	284	01-Nov-10	15-Oct-11	28-Jul-10	11-Jul-11
S2-3050	Road Construction Scheme C Stage 1	402	388	01-Nov-10	22-Feb-12	29-Jul-10	07-Nov-11
<b>UTILITIES DIVERSION</b>							
S2-3110	Permanent diversion of MP gas main (foundation SB04)	90	90	01-Nov-10	19-Feb-11	18-Nov-11	09-Mar-12
S2-3130	Permanent diversion of existing 150 & 330 watermain (foundation NB01, 02 & Yan Ching foundation)	90	90	01-Nov-10	19-Feb-11	15-Jun-11	03-Oct-11
S2-3170	Permanent diversion of existing 132kv & 11kv cable (foundation SE20, SB21, MB10, NB9, NB11)	90	90	01-Nov-10	19-Feb-11	07-Sep-10	24-Dec-10
S2-3190	Permanent diversion of existing 132kv & 11kv cable (foundation Temp. bridge & Chi Lok bridge)	90	90	01-Nov-10	19-Feb-11	22-Jul-10	08-Nov-10
<b>TEMPORARY TRAFFIC ARRANGEMENT SUBMISSION &amp; APPROVAL</b>							
S2-1000	Submit and approve TTA for RA Stage 1	90	0	31-Oct-10	31-Oct-10	15-Jun-11	15-Jun-11
S2-1730	Submit and approve TTA for RB Stage 1	120	0	31-Oct-10	31-Oct-10	01-Nov-10	01-Nov-10
S2-2000	Submit and approve TTA for RC Stage 1	90	0	31-Oct-10	31-Oct-10	22-Jul-10	22-Jul-10
<b>SITE INVESTIGATION WORKS IN PORTION 2</b>							
S2-1010	Site investigation works for New Yan Ching bridge (5nos, 1.8m bored piles)	15	15	31-Jan-11	19-Feb-11	13-Sep-11	08-Oct-11
S2-1020	Site investigation works for NB foundation SB01 to SB05 (39nos, 610mm Socket H-pile)	30	30	21-Feb-11	25-Mar-11	03-Feb-12	09-Mar-12
S2-1520	Site investigation works for NB foundation MB01 to MB04 (64nos, 610mm Socket H-pile)	30	29	01-Nov-10	02-Dec-10	18-Aug-12	26-Sep-12
S2-1740	Site investigation works for NB foundation SB12 to 14 & NB05 to 07 (96nos, mini pile)	30	28	01-Nov-10	02-Dec-10	01-Nov-10	03-Dec-10
S2-2300	Site investigation works for NB foundation NB09 to NB13 (109nos, 610mm Socket H-pile)	30	30	31-Jan-11	09-Mar-11	19-Nov-10	24-Dec-10
<b>EARTHWORKS, DRAINAGE WORKS AND ROADWORKS IN PORTION 2</b>							
<b>ROADWORKS</b>							
S2-2260	Road re-alignment along Tsing Hoi Circuit	60	60	17-Jan-11	30-Mar-11	04-Nov-10	17-Jan-11
<b>DRAINAGE WORKS</b>							
S2-2250	Construct drainage along Tsing Hoi Circuit	40	40	02-Dec-10	21-Jan-11	11-Oct-10	27-Nov-10
<b>NOISE BARRIER AND NOISE ENCLOSURE IN PORTION 2</b>							
<b>PILING WORKS</b>							
S2-1530	Construct Socket H-piles foundation for MB01 to MB04 (64nos, 610mm)	35	35	25-Jan-11	10-Mar-11	20-Sep-12	05-Nov-12
S2-1750	Construct Mini piles foundation for SB13 & NB05 (45nos)	48	48	25-Jan-11	24-Mar-11	03-Dec-10	01-Feb-11
<b>PILE CAP AND FOOTING</b>							
S2-1560	Construct footing MB03	20	20	03-Dec-10	28-Dec-10	23-Nov-12	17-Dec-12
S2-1760	Construct footing SB12, 14 & NB05-07	60	60	03-Dec-10	12-Mar-11	14-Dec-10	24-Mar-11
<b>PROVISIONING WORKS FOR TCSS INSTALLATION IN PORTION 2</b>							
S2-04020	Provisioning works for TCSS	830	830	21-Feb-11	07-Dec-13	04-Nov-11	25-Aug-14
<b>FIRE FIGHTING SYSTEM IN PORTION 2</b>							
S2-04030	Fire fighting system	830	830	21-Feb-11	07-Dec-13	04-Nov-11	25-Aug-14
<b>REPROVISION OF YAN CHING BRIDGE</b>							

**3 Months Rolling Programme (cutoff: 31-10-10)?**

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Remaining Level of Effort	Actual Work	Date	Revision	Ch...
Actual Level of Effort	Remaining ...	06-... 1008	Tim	Approved
Primary Baseline	Critical Rem...	05-... 1009A	Tim	
		28-... cutoff: 31/10	Tim	



**Design and Build of Traffic Improvement to Tuen Mun Road Town Centre Section**

Activity ID	Activity Name	Original Duration	Remaining Duration	Early Start	Early Finish	Late Start	Late Finish	25	01	08	15	22	29	06	13	20	27	03	10	17	24
<b>TEMPORARY BRIDGE</b>																					
S2-1160	Construct footing at N/B S/B and central barrier	60	60	21-Feb-11	06-May-11	15-Nov-11	31-Jan-12														
S2-1170	Demolition existing Yan Oi bridge N/B staircase	45	0	19-Feb-11	19-Feb-11	31-Jan-12	31-Jan-12														
<b>REPROVISION OF VAN CHING BRIDGE</b>																					
<b>PIILING WORKS</b>																					
S2-1040	Construct bored piles foundation for New Yan Ching bridge (Shos. 1.5m)	58	58	21-Feb-11	04-May-11	03-Oct-11	10-Dec-11														
<b>REPROVISION OF CHILLOK BRIDGE</b>																					
<b>TEMPORARY BRIDGE</b>																					
S2-2010	Construct footing at N/B S/B and central barrier	60	60	21-Feb-11	06-May-11	08-Nov-10	20-Jan-11														
<b>RELOCATION OF LRT PASSENGER LIFT</b>																					
<b>PIILING WORKS</b>																					
S2-2880	Construct Socket H-piles foundation for LRT lift	42	42	08-Feb-11	28-Mar-11	29-Oct-10	17-Dec-10														
<b>RETAINING WALL AT SLOPE NO. 6SW-A/FR91</b>																					
S2-2290	Construct retaining wall 6SW-A/FR93	60	60	15-Feb-11	29-Apr-11	11-Feb-11	27-Apr-11														
<b>SECTION III OF WORKS</b>																					
<b>TEMPORARY TRAFFIC ARRANGEMENT AND UTILITIES DIVERSION</b>																					
<b>TEMPORARY TRAFFIC ARRANGEMENT SUBMISSION &amp; APPROVAL</b>																					
S3-1000	Submit and approve TTA for RD Stage 1	90	0	31-Oct-10	31-Oct-10	19-Jul-10	19-Jul-10														
<b>TEMPORARY TRAFFIC ARRANGEMENT PERIOD</b>																					
S3-1940	Road Construction Scheme D Stage 1	319	282	01-Nov-10	14-Oct-11	29-Jul-10	12-Sep-11														
<b>UTILITIES DIVERSION</b>																					
S3-3200	Permanent diversion of existing 132kv & 11kv cable (foundation SB23, MB17, NB13 & NB14)	180	180	01-Nov-10	11-Jun-11	19-Jul-10	24-Feb-11														
<b>SITE INVESTIGATION WORKS IN PORTION 3A</b>																					
S3-1090	Site investigation works for NB foundation NB16, 17 & SB26 (05nos. 610mm Socket H-pile)	30	30	31-Jan-11	09-Mar-11	16-Dec-10	24-Jan-11														
<b>LANDSCAPE WORKS IN PORTION 4</b>																					
S3-2050	Landscape Works (Nos. 26, 27, 28, 29, 30, 30A, 31, 31A, 31B, 32, 33, 33B, 34, 34A, 34B, 34C and 34D)	150	150	01-Nov-10	06-May-11	25-Aug-10	25-Feb-11														
S3-2060	Landscape Works (Nos. 46, 46A, 46B, 47A, 47C, 47D, 47E & 47F)	150	131	01-Nov-10	13-Apr-11	16-Sep-10	25-Feb-11														
S3-2070	Landscape Works (Nos. 1A, 2, 4, 6, 8-10, 12, 13, 13A-B, 14-16, 18A-C, 20, 20A, 21, 22, 24, 37, 39, 39B, 39C, 39D, 39E, 39F, 39G, 39H, 39I, 39J, 39K, 39L, 39M, 39N, 39O, 39P, 39Q, 39R, 39S, 39T, 39U, 39V, 39W, 39X, 39Y, 39Z, 40, 40A, 40B, 40C, 40D, 40E, 40F, 40G, 40H, 40I, 40J, 40K, 40L, 40M, 40N, 40O, 40P, 40Q, 40R, 40S, 40T, 40U, 40V, 40W, 40X, 40Y, 40Z, 41, 41A, 41B, 41C, 41D, 41E, 41F, 41G, 41H, 41I, 41J, 41K, 41L, 41M, 41N, 41O, 41P, 41Q, 41R, 41S, 41T, 41U, 41V, 41W, 41X, 41Y, 41Z, 42, 42A, 42B, 42C, 42D, 42E, 42F, 42G, 42H, 42I, 42J, 42K, 42L, 42M, 42N, 42O, 42P, 42Q, 42R, 42S, 42T, 42U, 42V, 42W, 42X, 42Y, 42Z, 43, 43A, 43B, 43C, 43D, 43E, 43F, 43G, 43H, 43I, 43J, 43K, 43L, 43M, 43N, 43O, 43P, 43Q, 43R, 43S, 43T, 43U, 43V, 43W, 43X, 43Y, 43Z, 44, 44A, 44B, 44C, 44D, 44E, 44F, 44G, 44H, 44I, 44J, 44K, 44L, 44M, 44N, 44O, 44P, 44Q, 44R, 44S, 44T, 44U, 44V, 44W, 44X, 44Y, 44Z, 45, 45A, 45B, 45C, 45D, 45E, 45F, 45G, 45H, 45I, 45J, 45K, 45L, 45M, 45N, 45O, 45P, 45Q, 45R, 45S, 45T, 45U, 45V, 45W, 45X, 45Y, 45Z, 46, 46A, 46B, 46C, 46D, 46E, 46F, 46G, 46H, 46I, 46J, 46K, 46L, 46M, 46N, 46O, 46P, 46Q, 46R, 46S, 46T, 46U, 46V, 46W, 46X, 46Y, 46Z, 47, 47A, 47B, 47C, 47D, 47E & 47F)	250	205	01-Nov-10	13-Jul-11	21-Jun-11	28-Feb-12														
<b>ESTABLISHMENT WORKS IN PORTION 4</b>																					
S3-3050	Establishment Works (Nos. 26, 27, 28, 29, 30, 30A, 31, 31A, 31B, 32, 33, 33B, 34, 34A, 34B, 34C and 34D)	365	365	26-Feb-11	25-Feb-12	26-Feb-11	26-Feb-12														
S3-3240	Establishment Works (Nos. 46, 46A, 46B, 47A, 47C, 47D, 47E & 47F)	385	385	26-Feb-11	25-Feb-12	26-Feb-11	26-Feb-12														
<b>SECTION IV OF WORKS</b>																					
<b>PRESERVATION AND PROTECTION OF TREES</b>																					
S4-1000	Preservation and protection of trees	982	859	01-Nov-10	24-Sep-13	30-Sep-10	24-Aug-13														
<b>SECTION V OF WORKS</b>																					
<b>STRUCTURAL CONDITION SURVEY IN PORTION 2, 3A AND 3B</b>																					
S5-1000	Condition survey of existing structures	90	0	31-Oct-10	31-Oct-10	25-Aug-14	25-Aug-14														
<b>SUMMARY PROGRAMME SCHEDULE OF MILESTONES</b>																					

**3 Months Rolling Programme (cutoff: 31-10-10)?**

Remaining Level of Effort	Actual Work	Date	Revision	Ch...	Approved
Actual Level of Effort	Remaining ...	06-...	1008	Tim	
Primary Baseline	Critical Rem...	05-...	1009A	Tim	
		28-...	cutoff: 31/10	Tim	

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Appendix B

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**Environmental  
Mitigation Measures**

## Environmental Mitigation Measures

The environmental mitigation measures carried out were basically followed the requirements described in the EIA Report. Major mitigation measures during the construction phase in relation to the air quality, noise, water quality, ecology, waste management as well as landscape and visual are summarised as follows:

### Air Quality (Dust) related

- Skip hoist for material transport should be totally enclosed by impervious sheeting;
- Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site;
- The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;
- Where a site boundary adjoins a road, streets or other accessible to the public, hording of not less than 2.4m high from ground level should be provided along the entire length except for a site entrance or exit;
- Every stack of more than 20 bags of cement should be covered entirely by impervious sheeting places in an area sheltered on the top and the 3 sides;
- All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet;
- The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading;
- The load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle; and
- Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.

### Construction Noise related

Mitigation measures are implemented in three levels, namely Level 1, which involves adoption of quiet PME; Level 2, which involves provision of movable noise barrier; and Level 3, which involves scheduling of construction activities.

#### Level 1 – Adoption of Quiet PME

- Quieter PME to be used in the assessment are given in **Table A**.

**Table A** Listing of Quiet PME items

Powered Mechanical Equipment (PME)	Identification Code / BS5228	Maximum SWL, dB(A)
Excavator	C8/33	102
Crane	C7/114	101
Truck	C3/59	105
Concrete Truck	C6/35	100
Poker Vibrator	CNP 173	102
Asphalt Paver	C8/24	101
Roller, vibratory	C3/115	102

**Level 2 – Use of Movable Noise Barrier**

- Use of movable noise barrier (3m high or above) is proposed to be provided for the PMEs operated in the vicinity of the NSRs given in **Table B** during the construction phase.

**Table B** NSRs – with movable noise barrier

NSR	Description
FEC	Far East Consortium Tuen Mun Central Building
FM	Forward Mansion
HTB	Hing Tai Building
TMTP1	Tuen Mun Town Plaza
WG2	Waldorf Garden
CMA*	CMA Choi Cheung Kok Secondary School
LWF*	Yan Oi Tong Madam Lau Wong Fat Primary School
TMF	Tuen Mun Fa Yuen
LCK*	Lui Cheung Kwong Lutheran College
CLFY1	Chi Lok Fa Yuen
TFH	On Ting Estate ( Ting Fuk House)
LCKP*	Lui Cheung Kwong Lutheran Primary School
TTP	Tung Wah Group of Hospitals Tai Tung Pui Social Service Building
CSBS*	CSBS Mrs. Aw Boon Haw Secondary School
KFG3D	Kam Fai Garden

Remark: NSR with asterisk means educational institution.

**Level 3 – Scheduling of Construction Activities**

- It is proposed that site clearance and the following activities not to be undertaken in the vicinity of the NSR LCK at stage 2 (Ch. 28050 – 28200 of TMR) so as to reduce construction noise impact during normal teaching hours.
  - Truck would not operate concurrently with other PMEs during tree transplanting and noise barrier foundation work.
  - Tree Transplanting would not be undertaken concurrently with Bulk Excavation and Utilities Diversion.
  - Construction of Storm Water Drain would not be undertaken concurrently with Noise Barrier/Enclosure Foundation.
  - Construction of Sub-base and Road Base would not be undertaken concurrently with Noise Barrier/Enclosure Installation.
  - Road Surfacing, Construction of Road kerbs, Central Dividers, Parapets, and Installation of Crash Cushion and Sign Gantry would not be undertaken concurrently.
  - Installation of Gantry and Directional Lighting, and Street Lighting would not be undertaken concurrently.
- In order to avoid or reduce the construction noise problems at the schools during examination, the Contractor of the Project is suggested to liaison with all the relevant schools (CMA, LWF, LCK, LCKP and CSBS) to check out their examination periods and

activities at the beginning of the work programme. Thus, the Contractor can make good planning and arrangement of works and provide sufficient mitigation plans to alleviate the noise impacts.

- Good Site Practice:
  - Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.
  - Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum.
  - Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.
  - Mobile plant should be sited as far away from NSRs as possible.
  - Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.

### **Water Quality related**

#### **Construction Runoff and Drainage**

The site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" should be followed as far as practicable in order to minimise surface runoff and the chance of erosion, and also to retain and reduce any suspended solids prior to discharge. These practices include the following items:

- Before commencing any site formation work, all sewer and drainage connections should be sealed to prevent debris, soil, sand etc. from entering public sewers/drains.
- Silt removal facilities such as silt traps or sedimentation facilities should be provided to remove silt particles from runoff to meet the requirements of the TM standards under the WPCO. The design of silt removal facilities should be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures should be inspected monthly and maintained to ensure proper and efficient operation at all times and particularly during rainstorms.
- Careful programming of the works to minimise surface excavations for the road improvement works during the wet season. If excavation of soil cannot be avoided during the wet season, exposed slope surfaces should be covered by a tarpaulin or other means. Other measures that need to be implemented before, during, and after rainstorms are summarized in ProPECC PN 1/94.
- Exposed soil surfaces should be protected by paving or fill material as soon as possible to reduce the potential of soil erosion.
- Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric during rainstorms. These materials should not be placed near water courses.

#### **General Construction Activities**

Debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering the nearby local stormwater drainage system. Stockpiles of cement and other construction materials should be kept covered when not being used.

- Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. All fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund should be drained of rainwater after a rain event.

### **Sewage Effluents**

Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site. A licensed contractor would be responsible for appropriate disposal and maintenance of these facilities.

### **Waste Management related**

#### **Good Site Practices**

Adverse impacts related to waste management are not expected to arise, provided that good site practices are adhered to. Recommendations for good site practices during the construction activities include:

- Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site;
- Training of site personnel in proper waste management and chemical handling procedures;
- Provision of sufficient waste disposal points and regular collection for disposal;
- Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;
- Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and
- A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).

#### **Waste Reduction Measures**

Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:

- Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;
- Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the workforce;
- Any unused chemicals or those with remaining functional capacity shall be recycled;
- Use of reusable non-timber formwork to reduce the amount of C&D material;
- Prior to disposal of C&D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill;
- Proper storage and site practices to minimise the potential for damage or contamination of construction materials; and
- Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.

In addition to the above measures, specific mitigation measures are recommended below for the identified waste arising to minimise environmental impacts during handling, transportation and disposal of these wastes.

#### **Construction and Demolition Material**

In order to minimise the impact resulting from collection and transportation of inert C&D material for off-site disposal, it is recommended that the excavated fill material shall be re-used on-site as backfill material as far as possible. The surplus excavated material should be disposed of at the designated public fill reception facility, as agreed with the Secretary of the Public Fill Committee, for other beneficial uses. C&D waste would require disposal to the designated landfill site. In order to monitor the disposal of C&D materials at the public fill reception facility and landfill and to control fly-tipping, a trip-ticket system should be included (see ETWB TCW No. 31/2004 for details).

### **Chemical Wastes**

After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTC or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.

### **General Refuse**

General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material.

### **Ecology related**

Following EIAO-TM Annex 16 guidelines, mitigation measures are discussed in this section to avoid, minimise and compensate for identified ecological impacts.

#### **Avoid**

Construction activities should be confined to developed areas of low ecological value. There should be no direct impact on other habitats within the Study Area.

#### **Minimise**

Noise mitigation measures, including installation of noise-emitting construction plant away from egretry, careful scheduling of noisy works with high disturbance impact to avoid breeding season of ardeid species (i.e. mid March to August) to prevent impacts on nesting activities of Little Egret, operation of well-maintained machinery, and use of noise reduction facilities could be implemented to mitigate noise impacts arising from construction activities such as road widening and road paving. Temporary noise barrier should also be used to reduce the level of noise during construction. Noise impact would be minimised during operation phase as permanent noise barrier has been proposed to be constructed. These measures could minimise disturbance to habitats within and adjacent to the proposed Works Area.

In order to minimise the impact of construction dust to the vegetation and associated wildlife within and around the proposed Works Area, practical measures such as regular watering, complete coverage of dusty material storage piles, and the use of minimum practical height for dropping excavated material should be implemented.

Standard good site practice measures should be implemented and should include:

- Placement of equipment in designated Works Areas within the existing disturbed land.
- Construction activities should be restricted to the proposed Works Area.
- The proposed Works Area should be reinstated immediately after completion of the works.
- Open burning on proposed works site is illegal, and will be strictly enforced.

- Waste skips should be provided to collect general refuse and construction wastes, which should be disposed regularly and properly off-site.
- Soil contaminated by fuel leaked from construction plants should be removed and treated.

Mitigation measures should be implemented to prevent and minimise the indirect impacts to the nearby Tuen Mun River Channel by controlling construction site runoff and drainage from the proposed Works Area. Site runoff could be directed towards regularly cleaned and maintained sand traps, silt traps and where appropriate, oil/grease separators to minimise risk of sedimentation and pollution to the river channel. Debris and rubbish generated on-site should be collected, handled and disposed properly.

In order to prevent and minimise the chance of bird collision during operation phase, falcon sticker, tinted materials, embedded opaque stripes and superimposed patterns of thin opaque stripes are methods that could be used during the design of noise barrier.

### **Compensate**

Compensatory planting is recommended as the current roadside plantation must be removed to give way to the works. Species of choice should be composed of similar native species and the felling and planting ratio should be no less than 1:1 in terms of quality and quantity.

### **Landscape and Visual related**

- Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical.
- Existing trees to be retained on site should be carefully protected during construction.
- Trees unavoidably affected by the works should be transplanted where practical.
- Compensatory tree planting should be provided to compensate for felled trees.
- Control of night-time lighting.
- Erection of decorative screen hoarding compatible with the surrounding setting.



**Summary of Implementation Schedule of Mitigation Measures**

EIA Ref #	EM&A Ref#	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *		
				Nov 10	Dec 10	Jan 11
<b>Noise Control</b>						
3.8.1	2.8.1	<p>Good site practice and management can significantly reduce the noise impact of construction site activities on nearby NSRs</p> <ul style="list-style-type: none"> <li>only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction works;</li> <li>machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</li> <li>plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs;</li> <li>mobile plant should be sited as far away from NSRs as possible; and</li> <li>material stockpiles and other structures should be effectively utilized, where practicable, to screen noise from on-site construction activities.</li> </ul>	Works Sites / During Construction Phase	✓  ✓  ✓  ✓  N/O	✓  ✓  ✓  ✓  N/O	✓  ✓  ✓  ✓  N/O
3.8.4	2.8.3	Use of quieter mechanical equipment	Works Sites / During Construction Phase	✓	✓	✓
3.8.9	2.8.4	<p>Provision of movable noise barrier in the vicinity of the following NSRs</p> <ul style="list-style-type: none"> <li>FEC (Far East Consortium Tuen Mun Central Building)</li> <li>FM (Forward Mansion)</li> <li>HTB (Hing Tai Building)</li> <li>TMTP1 (Tuen Mun Town Plaza)</li> <li>WG2 (Waldorf Garden)</li> <li>CMA (CMA Choi Cheung Kok Secondary School)</li> <li>LWF (Yan Oi Tong Madam Lau Wong Fat Primary School)</li> <li>TMF (Tuen Mun Fa Yuen)</li> <li>LCK (Lui Cheung Kwong Lutheran College)</li> </ul>	Works Sites from the listed NSRs / During Construction Phase	Rdr	N/O	N/O

Notes (\*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance

EIA Ref #	EM&A Ref#	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *		
				Nov 10	Dec 10	Jan 11
		<ul style="list-style-type: none"> <li>• CLFY1 (Chi Lok Fa Yuen)</li> <li>• TFH (On Ting Estate (Ting Fuk House))</li> <li>• LCKP (Lui Cheung Kwong Lutheran Primary School)</li> <li>• TTP (Tung Wah Group of Hospitals Tai Tung Pui Social Service Building)</li> <li>• CSBS (CSBS Mrs. Aw Boon Haw Secondary School)</li> <li>• KFG3D (Kam Fai Garden)</li> </ul>				
3.8.12	2.8.5	<p>Site clearance and the following activities not to be undertaken in the vicinity of the NSR LCK so as to reduce construction noise impact during normal teaching hours.</p> <ul style="list-style-type: none"> <li>• truck would not operate concurrently with other PMEs during tree transplanting and noise barrier foundation work.</li> <li>• tree transplanting would not be undertaken concurrently with bulk excavation and utilities diversion.</li> <li>• construction of storm water drain would not be undertaken concurrently with noise barrier/enclosure foundation.</li> <li>• construction of sub-base and road base would not be undertaken concurrently with noise barrier/enclosure installation.</li> <li>• road surfacing, construction of road kerbs, central dividers, parapets, and installation of crash cushion and sign gantry would not be undertaken concurrently.</li> <li>• installation of gantry and directional lighting, and street lighting would not be undertaken concurrently.</li> </ul>	Work site in the vicinity of Lui Cheung Kwong Lutheran College (LCK) / Stage 2 (Ch. 28050 – 28200 of TMR) during Construction Phase	N/O	N/O	N/O

Notes (\*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance

EIA Ref #	EM&A Ref#	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *		
				Nov 10	Dec 10	Jan 11
3.8.13	2.8.6	Liaise with all the relevant schools to check out their examination periods and activities in the beginning of the work programme in order to make good planning and arrangement of works and provide sufficient mitigation plans to alleviate noise impacts.	CMA Choi Cheung Kok Secondary School (CMA), Yan Oi Tong Madam Lau Wong Fat Primary School (LWF), Lui Cheung Kwong Lutheran College (LCK), Lui Cheung Kwong Lutheran Primary School (LCKP) and CSBS Mrs. Aw Boon Haw Secondary School (CSBS) / During Construction Phase	✓	✓	✓

# All recommendations and requirements resulted during the course of EIA Process, including ACE and / or accepted public comment to the proposed project.

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *		
				Nov 10	Dec 10	Jan 11
		<b><i>Air Quality Control</i></b>				
4.8.1	3.11.2	Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. <ul style="list-style-type: none"> <li>• skip hoist for material transport should be totally enclosed by impervious sheeting</li> <li>• every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site</li> </ul>	Works Sites / During Construction Phase	✓	✓	✓
				✓	✓	✓

Notes (\*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *		
				Nov 10	Dec 10	Jan 11
		<ul style="list-style-type: none"> <li>the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores</li> <li>where a site boundary adjoins a road, streets or other accessible to the public, hording of not less than 2.4m high from ground level should be provided along the entire length except for a site entrance or exit</li> <li>every stack of more than 20 bags of cement should be covered entirely by impervious sheeting places in an area sheltered on the top and the 3 sides</li> <li>all dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet</li> <li>the height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading</li> <li>the load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle</li> <li>instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.</li> </ul>		✓	✓	✓
				✓	✓	✓
				N/O	N/O	✓
				✓	N/O	✓
				✓	✓	✓
				✓	N/O	✓
				✓	✓	✓

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EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *		
				Nov 10	Dec 10	Jan 11
		<b>Water Quality Control</b>				
5.8.2	4.3.2	Construction run-off and Drainage <ul style="list-style-type: none"> <li>Silt removal facilities such as silt traps or sedimentation facilities should be provided to remove silt particles from runoff to meet the requirements of the TM standards under the WPCO. The design of silt removal facilities should be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures should be inspected monthly and maintained to ensure proper and efficient operation at</li> </ul>	Works Sites / During Construction Phase	✓	N/O	Rdr

Notes (\*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *		
				Nov 10	Dec 10	Jan 11
		<p>all times and particularly during rainstorms.</p> <ul style="list-style-type: none"> <li>Careful programming of the works to minimise surface excavations for the road improvement works during the wet season. If excavation of soil cannot be avoided during the wet season, exposed slope surfaces should be covered by a tarpaulin or other means. Other measures that need to be implemented before, during, and after rainstorms are summarized in ProPECC PN 1/94.</li> <li>Exposed soil surfaces should be protected by paving or fill material as soon as possible to reduce the potential of soil erosion.</li> <li>Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric during rainstorms. These materials should not be placed near water courses.</li> </ul>		✓	✓	✓
5.8.3 - 5.8.4	4.3.3	<p>General Construction Activities</p> <ul style="list-style-type: none"> <li>Debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering the nearby local stormwater drainage system.</li> <li>Stockpiles of cement and other construction materials should be kept covered when not being used.</li> <li>Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. All fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund should be drained of rainwater after a rain event</li> </ul>	Works Sites / During Construction Phase	Obs	Obs	Obs
				N/O	N/O	✓
				✓	✓	✓
5.8.5	4.3.4	<p>Sewage from Construction Workforce</p> <ul style="list-style-type: none"> <li>Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site. A licensed contractor would be responsible for appropriate disposal and maintenance of these facilities</li> </ul>	Works Sites / During Construction Phase	✓	✓	✓

# All recommendations and requirements resulted during the course of EIA Process, including ACE and / or accepted public comment to the proposed project.

Notes (\*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *		
				Nov 10	Dec 10	Jan 11
		<b>Waste Management</b>				
6.6.1	5.2.2	<p><i>Good Site Practices</i></p> <ul style="list-style-type: none"> <li>Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.</li> <li>Training of site personnel in proper waste management and chemical waste handling procedures.</li> <li>Provision of sufficient waste disposal points and regular collection for disposal.</li> <li>Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.</li> <li>Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.</li> <li>A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).</li> </ul>	Works Sites / During Construction Phase	✓	✓	✓
6.6.5	5.2.6	<p><i>Chemical Wastes</i></p> <ul style="list-style-type: none"> <li>After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.</li> <li>Spent chemicals should be collected by a licensed collector for disposal at the CWTC or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.</li> </ul>	Works Sites / During Construction Phase	✓	✓	✓

Notes (\*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *		
				Nov 10	Dec 10	Jan 11
6.6.6	5.2.7	<p><i>General Refuse</i></p> <ul style="list-style-type: none"> <li>General refuse should be stored in enclosed bins or compaction units separate from C&amp;D material.</li> <li>A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&amp;D material.</li> <li>An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material.</li> </ul>	Works Sites / During Construction Phase	✓	✓	Rdr
6.6.2	5.2.3	<p><i>Waste Reduction Measures</i></p> <p>Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> <li>Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.</li> <li>Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force.</li> <li>Any unused chemicals or those with remaining functional capacity shall be recycled.</li> <li>Use of reusable non-timber formwork to reduce the amount of C&amp;D material.</li> <li>Prior to disposal of C&amp;D waste, it is recommended that wood, steel and other metals shall be separated for re-use and / or recycling to minimise the quantity of waste to be disposed of to landfill.</li> <li>Proper storage and site practices to minimise the potential for damage or contamination of construction materials.</li> <li>Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.</li> </ul>	Works Sites / During Construction Phase	✓	✓	✓

Notes (\*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *		
				Nov 10	Dec 10	Jan 11
6.6.4	5.2.5	<p><i>Construction and Demolition (C&amp;D) Material</i></p> <ul style="list-style-type: none"> <li>The excavated fill material shall be re-used on-site as backfill material as far as possible.</li> <li>The surplus excavated material should be disposed of at the designated public fill reception facility, as agreed with the Secretary of the Public Fill Committee, for other beneficial uses.</li> <li>C&amp;D waste would require disposal to the designated landfill site.</li> <li>In order to monitor the disposal of C&amp;D materials at the public fill reception facility and landfill and to control fly-tipping, a trip-ticket system should be included. One may make reference to ETWB TCW No. 31/2004 for details.</li> </ul>	Works Sites / During Construction Phase	✓	✓	✓
				✓	✓	✓
				✓	✓	✓
				✓	✓	✓

# All recommendations and requirements resulted during the course of EIA Process, including ACE and / or accepted public comment to the proposed project.

Notes (\*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance



EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *		
				Nov 10	Dec 10	Jan 11
		<b>Ecology</b>				
7.9.2	6.2.2	Construction activities should be confined to developed areas of low ecological value, and there should be no direct impact on other habitats within the Study Area.	Works Sites / During Construction Phase	✓	✓	✓
7.9.3	6.2.3	Noise mitigation measures, including installation of noise-emitting construction plant away from egret, careful scheduling of noisy works with high disturbance impact to avoid breeding season of ardeid species (i.e. mid March to August) to prevent impacts on nesting activities of Little Egret, operation of well-maintained machinery, careful programming of works and use of noise reduction facilities could be implemented to mitigate noise impacts arising from construction activities such as road widening and road paving. Temporary noise barrier should also be used to reduce the level of noise during construction. Noise impact would be minimised during operation phase as permanent noise barrier has been proposed to be constructed. The use of low noise road surfacing could also reduce the level of noise during operation.	Works Sites / During Construction Phase	✓	✓	✓
7.9.4	6.2.4	In order to minimise the impact of construction dust to the vegetation and associated wildlife within and around the proposed Works Area, the following mitigation measures should be implemented: <ul style="list-style-type: none"> <li>regular watering</li> <li>complete coverage of dusty material storage piles</li> <li>the use of minimum practical height for dropping excavated material</li> </ul>	Works Sites / During Construction Phase	N/O ✓ ✓	N/O ✓ ✓	✓ ✓ ✓
7.9.6	6.2.6	To minimise the indirect impacts to the nearby Tuen Mun River Channel, the following mitigation measures should be implemented: <ul style="list-style-type: none"> <li>Site runoff could be directed towards regularly cleaned and maintained sand traps, silt traps and where appropriate</li> <li>Oil/grease separators to minimise risk of sedimentation and pollution to the river channel.</li> <li>Debris and rubbish generated on-site should be collected, handled and disposed properly.</li> </ul>	Works Sites / During Construction Phase	N/O N/O ✓	N/O N/O ✓	✓ N/O ✓

Notes (\*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *		
				Nov 10	Dec 10	Jan 11
7.9.5	6.2.5	<p>Standard good site practice measures should be implemented and should include:</p> <ul style="list-style-type: none"> <li>• Placement of equipment in designated Works Areas within the existing disturbed land.</li> <li>• Construction activities should be restricted to the proposed Works Area.</li> <li>• The proposed Works Area should be reinstated immediately after completion of the works.</li> <li>• Open burning on proposed works site is illegal, and will be strictly enforced.</li> <li>• Waste skips should be provided to collect general refuse and construction wastes, which should be disposed regularly and properly off-site.</li> <li>• Soil contaminated by fuel leaked from construction plants should be removed and treated.</li> </ul>	Works Sites / During Construction Phase	✓ ✓ ✓ ✓ ✓ N/O	✓ ✓ ✓ ✓ ✓ N/O	✓ ✓ ✓ ✓ ✓ N/O
7.9.7	6.2.7	To minimise the chance of bird collision during operation phase, falcon sticker, tinted materials, embedded opaque stripes and superimposed patterns of thin opaque stripes are methods that could be used during the design of noise barrier.	Works Sites / During Operation Phase	N/O	N/O	N/O
7.9.8	6.2.8	Compensatory planting is recommended as the current roadside plantation must be removed to give way to the works. Species of choice should be composed of similar native species and the felling and planting ratio should be no less than 1:1 in terms of quantity.	Works Sites / During Operation Phase	N/O	N/O	N/O

# All recommendations and requirements resulted during the course of EIA Process, including ACE and / or accepted public comment to the proposed project.

Notes (\*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *		
				Nov 10	Dec 10	Jan 11
<b><i>Landscape and Visual</i></b>						
Table 8.8	7.3.1	CM1 Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical.	Works Sites / During Construction Phase	✓	✓	✓
Table 8.8	7.3.1	CM2 Existing trees to be retained on site should be carefully protected during construction.		Obs	✓	Obs
Table 8.8	7.3.1	CM3 Trees unavoidably affected by the works should be transplanted where practical.		✓	✓	✓
Table 8.8	7.3.1	CM4 Compensatory tree planting should be provided to compensate for felled trees.		✓	✓	✓
Table 8.8	7.3.1	CM5 Control of night-time lighting.		✓	✓	✓
Table 8.8	7.3.1	CM6 Erection of decorative screen hoarding compatible with the surrounding setting.		✓	✓	✓

# All recommendations and requirements resulted during the course of EIA Process, including ACE and / or accepted public comment to the proposed project.

Notes (\*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *		
				Nov 10	Dec 10	Jan 11
		<b><i>Land Contamination</i></b>				
9.8.3	8.2.2	<p>To minimize construction workers' potential contact with the contaminated materials</p> <ul style="list-style-type: none"> <li>The use of bulk earth-moving excavator equipment would minimise construction workers' potential contact with the contaminated materials;</li> <li>Exposure to any contaminated materials can be minimised by the wearing of appropriate clothing and personal protective equipment such as gloves (when interacting directly with suspected contaminated material), providing adequate hygiene and washing facilities and preventing smoking and eating during such activities;</li> <li>Stockpiling of contaminated soil should be avoided as far as possible. If this cannot be avoided, the stockpile of contaminated materials should be segregated from the uncontaminated ones. Moreover, the contaminated materials should be properly covered with waterproof material (e.g. tarpaulin sheet) to avoid leaching of contaminants, especially during rainy season.</li> <li>Vehicles containing any excavated materials should be suitably covered to limit potential dust emissions or contaminated wastewater run-off, and truck bodies and tailgates should be sealed to prevent any leakage during transport or during wet conditions;</li> <li>Only licensed waste haulers should be used to collect and transport any contaminated material to an appropriate disposal site and procedures should be developed to ensure that illegal disposal of waste does not occur;</li> <li>Necessary waste disposal permits should be obtained, as required, from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap 35), as required;</li> <li>Records of the quantities of wastes generated and disposed of should be maintained; Adequate washing facilities should be provided on site; and</li> <li>In accordance with good construction practice, silt traps should be used to reduce the impact to drainage caused by suspended solids arising from disturbed ground,</li> </ul>	Excavation zones / During excavation	N/O	N/O	N/O

Notes (\*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *		
				Nov 10	Dec 10	Jan 11
		or any construction materials such as cement and gravel. Groundwater should be disposed of in accordance with the Water Pollution Control Ordinance (Cap 358).				

# All recommendations and requirements resulted during the course of EIA Process, including ACE and / or accepted public comment to the proposed project.

Notes (\*): ✓ – Compliance; N/A - Not Applicable; N/O – Not Observed; Rdr – Reminder; Obs – Observation; N/C - Non Compliance

Appendix C

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**Impact Air Monitoring  
Results**

**Agreement No. HMW 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section  
Impact Air Quality Monitoring Result at Mrs Aw Boon Haw Secondary School (AM1) - 24 hour TSP**

Filter No.	Month	Date	Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m <sup>3</sup> /min)		Average Flow Rate (m <sup>3</sup> /min)	Elapse Time		Sampling Time	Total vol. (m <sup>3</sup> )	(ug/m <sup>3</sup> ) AM1
						Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish			
130083	Nov-10	2-Nov-10	AM1	Fine	Normal Operation	765.0	765.0	21.0	21.0	40.0	40.0	2.7361	2.8755	0.1394	1.2438	1.2438	1.2438	10345.30	10369.30	1440.0	1791.07	77.8
130095	Nov-10	8-Nov-10	AM1	Fine	Normal Operation	762.0	764.0	22.0	21.0	40.0	40.0	2.745	2.9207	0.1757	1.2390	1.2429	1.2410	10369.30	10393.30	1440.0	1786.97	98.3
130076	Nov-10	13-Nov-10	AM1	Fine	Normal Operation	762.0	765.0	22.0	22.0	40.0	40.0	2.7326	2.8466	0.1140	1.2390	1.2416	1.2403	10393.30	10417.30	1440.0	1786.03	63.8
130172	Nov-10	19-Nov-10	AM1	Fine	Normal Operation	761.0	760.0	21.0	21.0	40.0	40.0	2.8106	3.0079	0.1973	1.2403	1.2395	1.2399	10417.30	10441.30	1440.0	1785.46	110.5
130178	Nov-10	25-Nov-10	AM1	Fine	Normal Operation	763.0	763.0	20.0	19.0	40.0	40.0	2.8390	2.9196	0.0806	1.2443	1.2465	1.2454	10441.30	10465.30	1440.0	1793.38	44.9
130184	Dec-10	1-Dec-10	AM1	Fine	Normal Operation	761.0	762.0	20.0	21.0	50.0	50.0	2.8080	3.0000	0.1920	1.5725	1.5707	1.5716	10465.30	10489.30	1440.0	2263.10	84.8
130190	Dec-10	7-Dec-10	AM1	Fine	Normal Operation	763.0	762.0	19.0	17.0	50.0	50.0	2.8448	3.0515	0.2067	1.5774	1.5820	1.5797	10489.30	10513.30	1440.0	2274.77	90.9
130196	Dec-10	13-Dec-10	AM1	Fine	Normal Operation	757.0	759.0	21.0	21.0	50.0	50.0	2.8207	2.9527	0.1320	1.5653	1.5675	1.5664	10513.30	10537.30	1440.0	2255.62	58.5
130166	Dec-10	18-Dec-10	AM1	Fine	Normal Operation	763.0	763.0	14.0	18.0	50.0	50.0	2.8343	2.9394	0.1051	1.5917	1.5803	1.5860	10537.30	10561.30	1440.0	2283.84	46.0
130209	Dec-10	24-Dec-10	AM1	Fine	Normal Operation	761.0	762.0	18.0	16.0	50.0	50.0	2.7712	2.9104	0.1392	1.5781	1.5849	1.5815	10561.30	10585.30	1440.0	2277.36	61.1
130215	Dec-10	30-Dec-10	AM1	Fine	Normal Operation	763.0	763.0	17.0	17.0	50.0	50.0	2.7677	2.9245	0.1568	1.5831	1.5831	1.5831	10585.30	10609.30	1440.0	2279.66	68.8
130221	Jan-11	5-Jan-11	AM1	Cloudy	Normal Operation	763.0	765.0	15.0	14.0	50.0	50.0	2.7612	2.9738	0.2126	1.5428	1.5481	1.5455	10609.3	10633.3	1440.0	2225.45	95.5
130202	Jan-11	11-Jan-11	AM1	Cloudy	Normal Operation	763.0	764.0	11.0	8.0	50.0	50.0	2.7789	2.8568	0.0779	1.5550	1.5655	1.5603	10633.3	10657.3	1440.0	2246.76	34.7
130233	Jan-11	17-Jan-11	AM1	Fine	Normal Operation	768.0	765.0	11.0	14.0	50.0	50.0	2.7546	2.8226	0.0680	1.5607	1.5481	1.5544	10657.3	10681.3	1440.0	2238.34	30.4
130244	Jan-11	22-Jan-11	AM1	Fine	Normal Operation	765.0	765.0	13.0	15.0	50.0	50.0	2.7588	2.9939	0.2351	1.5512	1.5451	1.5482	10681.3	10705.3	1440.0	2229.34	105.5
130227	Jan-11	28-Jan-11	AM1	Fine	Normal Operation	767.0	768.0	15.0	12.0	50.0	50.0	2.7535	3.0448	0.2913	1.5474	1.5576	1.5525	10705.3	10729.3	1440.0	2235.60	130.3

<b>Average (ug/m<sup>3</sup>)</b>	75.1
<b>Max (ug/m<sup>3</sup>)</b>	130.3
<b>Min (ug/m<sup>3</sup>)</b>	30.4

<b>Action Level (ug/m<sup>3</sup>)</b>	146
<b>Limit Level (ug/m<sup>3</sup>)</b>	260

**Agreement No. HMW 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section  
Impact Air Quality Monitoring Result at Tai Tung Pui Social Service Building (AM2) - 24 hour TSP**

Filter No.	Month	Date	Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m <sup>3</sup> /min)		Average Flow Rate (m <sup>3</sup> /min)	Elapse Time		Sampling Time	Total vol. (m <sup>3</sup> )	(ug/m <sup>3</sup> ) AM2
						Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish			
130084	Nov-10	2-Nov-10	AM2	Fine	Normal Operation	765.0	765.0	21.0	21.0	40.0	40.0	2.7213	2.8232	0.1019	1.2585	1.2585	1.2585	4499.10	4523.10	1440.0	1812.24	56.2
130096	Nov-10	8-Nov-10	AM2	Fine	Normal Operation	762.0	764.0	22.0	21.0	40.0	40.0	2.7482	2.9135	0.1653	1.2531	1.2576	1.2554	4523.10	4547.10	1440.0	1807.70	91.4
130077	Nov-10	13-Nov-10	AM2	Fine	Normal Operation	762.0	765.0	22.0	22.0	40.0	40.0	2.7393	2.8292	0.0899	1.2531	1.2561	1.2546	4547.10	4571.10	1440.0	1806.62	49.8
130173	Nov-10	19-Nov-10	AM2	Fine	Normal Operation	761.0	760.0	21.0	21.0	40.0	40.0	2.8536	3.0589	0.2053	1.2547	1.2537	1.2542	4571.10	4595.10	1440.0	1806.05	113.7
130179	Nov-10	25-Nov-10	AM2	Fine	Normal Operation	763.0	763.0	20.0	19.0	40.0	40.0	2.8196	2.9853	0.1657	1.2591	1.2615	1.2603	4595.10	4619.10	1440.0	1814.83	91.3
130185	Dec-10	1-Dec-10	AM2	Fine	Normal Operation	761.0	762.0	20.0	21.0	50.0	50.0	2.8269	3.0185	0.1916	1.6246	1.6226	1.6236	4619.10	4643.10	1440.0	2337.98	82.0
130191	Dec-10	7-Dec-10	AM2	Fine	Normal Operation	763.0	762.0	19.0	17.0	50.0	50.0	2.8579	3.0132	0.1553	1.6301	1.6353	1.6327	4643.10	4667.10	1440.0	2351.09	66.1
130197	Dec-10	13-Dec-10	AM2	Fine	Normal Operation	757.0	759.0	21.0	21.0	50.0	50.0	2.8655	2.9238	0.0583	1.6167	1.6191	1.6179	4667.10	4691.10	1440.0	2329.78	25.0
130167	Dec-10	18-Dec-10	AM2	Fine	Normal Operation	763.0	763.0	14.0	18.0	50.0	50.0	2.8006	2.9171	0.1165	1.6461	1.6333	1.6397	4691.10	4715.10	1440.0	2361.17	49.3
130210	Dec-10	24-Dec-10	AM2	Fine	Normal Operation	761.0	762.0	18.0	16.0	50.0	50.0	2.7646	2.9659	0.2013	1.6309	1.6384	1.6347	4715.10	4739.10	1440.0	2353.90	85.5
130216	Dec-10	30-Dec-10	AM2	Fine	Normal Operation	763.0	763.0	17.0	17.0	50.0	50.0	2.778	2.9516	0.1736	1.6365	1.6365	1.6365	4739.10	4763.10	1440.0	2356.56	73.7
130222	Jan-11	5-Jan-11	AM2	Cloudy	Normal Operation	763.0	765.0	15.0	14.0	50.0	50.0	2.7510	2.8993	0.1483	1.5903	1.5958	1.5931	4763.10	4787.10	1440.0	2293.99	64.6
130208	Jan-11	11-Jan-11	AM2	Cloudy	Normal Operation	763.0	764.0	11.0	8.0	50.0	50.0	2.7646	2.9395	0.1749	1.6028	1.6136	1.6082	4787.10	4811.10	1440.0	2315.81	75.5
130237	Jan-11	17-Jan-11	AM2	Fine	Normal Operation	768.0	765.0	11.0	14.0	50.0	50.0	2.7520	2.8524	0.1004	1.6087	1.5958	1.6023	4811.10	4835.10	1440.0	2307.24	43.5
130245	Jan-11	22-Jan-11	AM2	Fine	Normal Operation	765.0	765.0	13.0	15.0	50.0	50.0	2.7499	2.9882	0.2383	1.5989	1.5927	1.5958	4835.10	4859.10	1440.0	2297.95	103.7
130228	Jan-11	28-Jan-11	AM2	Fine	Normal Operation	767.0	768.0	15.0	12.0	50.0	50.0	2.7656	3.0705	0.3049	1.5950	1.6055	1.6003	4859.10	4883.10	1440.0	2304.36	132.3

Average (ug/m <sup>3</sup> )	75.2
Max (ug/m <sup>3</sup> )	132.3
Min (ug/m <sup>3</sup> )	25.0

Action Level (ug/m <sup>3</sup> )	151
Limit Level (ug/m <sup>3</sup> )	260



**Agreement No. HMW 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section  
Impact Air Quality Monitoring Result at Wu Siu Kui Primary School (AM3) - 24 hour TSP**

Filter No.	Month	Date	Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m <sup>3</sup> /min)		Average Flow Rate (m <sup>3</sup> /min)	Elapse Time		Sampling Time	Total vol. (m <sup>3</sup> )	(ug/m <sup>3</sup> ) AM3
						Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish			
130091	Nov-10	2-Nov-10	AM3	Fine	Normal Operation	765.0	765.0	21.0	21.0	40.0	40.0	2.7537	2.9440	0.1903	1.2913	1.2913	1.2913	8665.39	8689.39	1440.0	1859.47	102.3
130097	Nov-10	8-Nov-10	AM3	Fine	Normal Operation	762.0	764.0	22.0	21.0	40.0	40.0	2.7458	2.8940	0.1482	1.2859	1.2904	1.2882	8689.39	8713.39	1440.0	1854.94	79.9
130080	Nov-10	13-Nov-10	AM3	Fine	Normal Operation	762.0	765.0	22.0	22.0	40.0	40.0	2.7405	2.8913	0.1508	1.2859	1.2888	1.2874	8713.39	8737.39	1440.0	1853.78	81.3
130174	Nov-10	19-Nov-10	AM3	Fine	Normal Operation	761.0	760.0	21.0	21.0	40.0	40.0	2.8286	3.0230	0.1944	1.2874	1.2864	1.2869	8737.39	8761.39	1440.0	1853.14	104.9
130180	Nov-10	25-Nov-10	AM3	Fine	Normal Operation	763.0	763.0	20.0	19.0	40.0	40.0	2.8248	2.9370	0.1122	1.2919	1.2944	1.2932	8761.39	8785.39	1440.0	1862.14	60.3
130186	Dec-10	1-Dec-10	AM3	Fine	Normal Operation	761.0	762.0	20.0	21.0	50.0	50.0	2.8687	3.0751	0.2064	1.6638	1.6618	1.6628	8785.39	8809.39	1440.0	2394.43	86.2
130192	Dec-10	7-Dec-10	AM3	Fine	Normal Operation	763.0	762.0	19.0	17.0	50.0	50.0	2.8728	3.1339	0.2611	1.6694	1.6747	1.6721	8809.39	8833.39	1440.0	2407.75	108.4
130198	Dec-10	13-Dec-10	AM3	Fine	Normal Operation	757.0	759.0	21.0	21.0	50.0	50.0	2.8405	2.9722	0.1317	1.6557	1.6582	1.6570	8833.39	8857.39	1440.0	2386.01	55.2
130168	Dec-10	18-Dec-10	AM3	Fine	Normal Operation	763.0	763.0	14.0	18.0	50.0	50.0	2.7911	2.9450	0.1539	1.6856	1.6727	1.6792	8857.39	8881.39	1440.0	2417.98	63.6
130211	Dec-10	24-Dec-10	AM3	Fine	Normal Operation	761.0	762.0	18.0	16.0	50.0	50.0	2.7729	2.9626	0.1897	1.6702	1.6779	1.6741	8881.39	8905.39	1440.0	2410.63	78.7
130217	Dec-10	30-Dec-10	AM3	Fine	Normal Operation	763.0	763.0	17.0	17.0	50.0	50.0	2.7626	3.0071	0.2445	1.6759	1.6759	1.6759	8905.39	8929.39	1440.0	2413.30	101.3
130223	Jan-11	5-Jan-11	AM3	Cloudy	Normal Operation	763.0	765.0	15.0	14.0	50.0	50.0	2.7414	2.8760	0.1346	1.5886	1.5932	1.5909	8929.39	8953.39	1440.0	2290.90	58.8
130204	Jan-11	11-Jan-11	AM3	Cloudy	Normal Operation	763.0	764.0	11.0	8.0	50.0	50.0	2.7588	2.9204	0.1616	1.5991	1.6083	1.6037	8953.39	8977.39	1440.0	2309.33	70.0
130239	Jan-11	17-Jan-11	AM3	Fine	Normal Operation	768.0	765.0	11.0	14.0	50.0	50.0	2.7334	2.9331	0.1997	1.6041	1.5932	1.5987	8977.39	9001.39	1440.0	2302.06	86.7
130247	Jan-11	22-Jan-11	AM3	Fine	Normal Operation	765.0	765.0	13.0	15.0	50.0	50.0	2.7516	2.9037	0.1521	1.5959	1.5906	1.5933	9001.39	9025.39	1440.0	2294.28	66.3
130229	Jan-11	28-Jan-11	AM3	Fine	Normal Operation	767.0	768.0	15.0	12.0	50.0	50.0	2.7543	2.9880	0.2337	1.5925	1.6014	1.5970	9025.39	9049.39	1440.0	2299.61	101.6

<b>Average (ug/m<sup>3</sup>)</b>	81.6
<b>Max (ug/m<sup>3</sup>)</b>	108.4
<b>Min (ug/m<sup>3</sup>)</b>	55.2
<b>Action Level (ug/m<sup>3</sup>)</b>	150
<b>Limit Level (ug/m<sup>3</sup>)</b>	260

**Agreement No. HMW 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section  
Impact Air Quality Monitoring Result at Choi Cheung Kok Secondary School (AM4) - 24 hour TSP**

Filter No.	Month	Date	Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m <sup>3</sup> /min)		Average Flow Rate (m <sup>3</sup> /min)	Elapse Time		Sampling Time	Total vol. (m <sup>3</sup> )	(ug/m <sup>3</sup> ) AM4
						Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish			
130092	Nov-10	2-Nov-10	AM4	Fine	Normal Operation	765.0	765.0	21.0	21.0	40.0	40.0	2.7553	2.9742	0.2189	1.2088	1.2088	1.2088	9547.12	9571.12	1440.0	1740.67	125.8
130098	Nov-10	8-Nov-10	AM4	Fine	Normal Operation	762.0	764.0	22.0	21.0	40.0	40.0	2.761	2.8784	0.1174	1.2036	1.2079	1.2058	9571.12	9595.12	1440.0	1736.28	67.6
130079	Nov-10	13-Nov-10	AM4	Fine	Normal Operation	762.0	765.0	22.0	22.0	40.0	40.0	2.728	2.8584	0.1304	1.2036	1.2064	1.2050	9595.12	9619.12	1440.0	1735.20	75.1
130175	Nov-10	19-Nov-10	AM4	Fine	Normal Operation	761.0	760.0	21.0	21.0	40.0	40.0	2.8496	3.0411	0.1915	1.2051	1.2041	1.2046	9619.12	9643.12	1440.0	1734.62	110.4
130181	Nov-10	25-Nov-10	AM4	Fine	Normal Operation	763.0	763.0	20.0	19.0	40.0	40.0	2.8676	3.0413	0.1737	1.2093	1.2117	1.2105	9643.12	9667.12	1440.0	1743.12	99.6
130187	Dec-10	1-Dec-10	AM4	Fine	Normal Operation	761.0	762.0	20.0	21.0	50.0	50.0	2.8752	3.1152	0.2400	1.5592	1.5573	1.5583	9667.12	9691.12	1440.0	2243.88	107.0
130193	Dec-10	7-Dec-10	AM4	Fine	Normal Operation	763.0	762.0	19.0	17.0	50.0	50.0	2.8361	3.1608	0.3247	1.5644	1.5694	1.5669	9691.12	9715.12	1440.0	2256.34	143.9
130199	Dec-10	13-Dec-10	AM4	Fine	Normal Operation	757.0	759.0	21.0	21.0	50.0	50.0	2.8425	2.9535	0.1110	1.5516	1.5539	1.5528	9715.12	9739.12	1440.0	2235.96	49.6
130169	Dec-10	18-Dec-10	AM4	Fine	Normal Operation	763.0	763.0	14.0	18.0	50.0	50.0	2.7956	2.9531	0.1575	1.5797	1.5675	1.5736	9739.12	9763.12	1440.0	2265.98	69.5
130212	Dec-10	24-Dec-10	AM4	Fine	Normal Operation	761.0	762.0	18.0	16.0	50.0	50.0	2.7715	2.9615	0.1900	1.5652	1.5724	1.5688	9763.12	9787.12	1440.0	2259.07	84.1
130218	Dec-10	30-Dec-10	AM4	Fine	Normal Operation	763.0	763.0	17.0	17.0	50.0	50.0	2.7534	2.9569	0.2035	1.5705	1.5705	1.5705	9787.12	9811.12	1440.0	2261.52	90.0
130225	Jan-11	5-Jan-11	AM4	Cloudy	Normal Operation	763.0	765.0	15.0	14.0	50.0	50.0	2.7592	2.8754	0.1162	1.5812	1.5864	1.5838	9811.120	9835.120	1440.0	2280.67	50.9
130205	Jan-11	11-Jan-11	AM4	Cloudy	Normal Operation	763.0	764.0	11.0	8.0	50.0	50.0	2.7664	2.8516	0.0852	1.5930	1.6031	1.5981	9835.120	9859.120	1440.0	2301.19	37.0
130240	Jan-11	17-Jan-11	AM4	Fine	Normal Operation	768.0	765.0	11.0	14.0	50.0	50.0	2.7437	2.8953	0.1516	1.5985	1.5864	1.5925	9859.120	9883.120	1440.0	2293.13	66.1
130248	Jan-11	22-Jan-11	AM4	Fine	Normal Operation	765.0	765.0	13.0	15.0	50.0	50.0	2.7493	2.8819	0.1326	1.5894	1.5835	1.5865	9883.120	9907.120	1440.0	2284.49	58.0
130230	Jan-11	28-Jan-11	AM4	Fine	Normal Operation	767.0	768.0	15.0	12.0	50.0	50.0	2.7527	3.0753	0.3226	1.5856	1.5955	1.5906	9907.120	9931.120	1440.0	2290.39	140.8

Average (ug/m <sup>3</sup> )	86.0
Max (ug/m <sup>3</sup> )	143.9
Min (ug/m <sup>3</sup> )	37.0

Action Level (ug/m <sup>3</sup> )	150
Limit Level (ug/m <sup>3</sup> )	260

**Agreement No. HMW 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section  
Impact Air Quality Monitoring Result at Tuen Mun Town Hall (AM5) - 24 hour TSP**

Filter No.	Month	Date	Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m <sup>3</sup> /min)		Average Flow Rate (m <sup>3</sup> /min)	Elapse Time		Sampling Time	Total vol. (m <sup>3</sup> )	(ug/m <sup>3</sup> ) AM5
						Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish			
130093	Nov-10	2-Nov-10	AM5	Fine	Normal Operation	765.0	765.0	21.0	21.0	40.0	40.0	2.7488	2.9235	0.1747	1.2699	1.2699	1.2699	9333.27	9357.27	1440.0	1828.66	95.5
130163	Nov-10	8-Nov-10	AM5	Fine	Normal Operation	762.0	764.0	22.0	21.0	40.0	40.0	2.7763	2.8870	0.1107	1.2648	1.2690	1.2669	9357.27	9381.27	1440.0	1824.34	60.7
130081	Nov-10	13-Nov-10	AM5	Fine	Normal Operation	762.0	765.0	22.0	22.0	40.0	40.0	2.7378	2.8566	0.1188	1.2648	1.2676	1.2662	9381.27	9405.27	1440.0	1823.33	65.2
130176	Nov-10	19-Nov-10	AM5	Fine	Normal Operation	761.0	760.0	21.0	21.0	40.0	40.0	2.8303	3.0179	0.1876	1.2663	1.2654	1.2659	9405.27	9429.27	1440.0	1822.82	102.9
130182	Nov-10	25-Nov-10	AM5	Fine	Normal Operation	763.0	763.0	20.0	19.0	40.0	40.0	2.8174	3.0032	0.1858	1.2705	1.2728	1.2717	9429.27	9453.27	1440.0	1831.18	101.5
130188	Dec-10	1-Dec-10	AM5	Fine	Normal Operation	761.0	762.0	20.0	21.0	50.0	50.0	2.865	3.0167	0.1517	1.6182	1.6163	1.6173	9453.27	9477.27	1440.0	2328.84	65.1
130194	Dec-10	7-Dec-10	AM5	Fine	Normal Operation	763.0	762.0	19.0	17.0	50.0	50.0	2.8405	3.1616	0.3211	1.6234	1.6283	1.6259	9477.27	9501.27	1440.0	2341.22	137.2
130200	Dec-10	13-Dec-10	AM5	Fine	Normal Operation	757.0	759.0	21.0	21.0	50.0	50.0	2.8444	2.9275	0.0831	1.6106	1.6129	1.6118	9501.27	9525.27	1440.0	2320.92	35.8
130170	Dec-10	18-Dec-10	AM5	Fine	Normal Operation	763.0	763.0	14.0	18.0	50.0	50.0	2.8156	3.0059	0.1903	1.6386	1.6264	1.6325	9525.27	9549.27	1440.0	2350.80	81.0
130213	Dec-10	24-Dec-10	AM5	Fine	Normal Operation	761.0	762.0	18.0	16.0	50.0	50.0	2.7678	2.9372	0.1694	1.6242	1.6313	1.6278	9549.27	9573.27	1440.0	2343.96	72.3
130219	Dec-10	30-Dec-10	AM5	Fine	Normal Operation	763.0	763.0	17.0	17.0	50.0	50.0	2.7646	3.0230	0.2584	1.6294	1.6294	1.6294	9573.27	9597.27	1440.0	2346.34	110.1
130226	Jan-11	5-Jan-11	AM5	Cloudy	Normal Operation	763.0	765.0	15.0	14.0	50.0	50.0	2.7600	2.8708	0.1108	1.6519	1.6581	1.6550	9597.27	9621.27	1440.0	2383.20	46.5
130206	Jan-11	11-Jan-11	AM5	Cloudy	Normal Operation	763.0	764.0	11.0	8.0	50.0	50.0	2.7753	2.9328	0.1575	1.6662	1.6786	1.6724	9621.27	9645.27	1440.0	2408.26	65.4
130242	Jan-11	17-Jan-11	AM5	Fine	Normal Operation	768.0	765.0	11.0	14.0	50.0	50.0	2.7747	3.0492	0.2745	1.6729	1.6581	1.6655	9645.27	9669.27	1440.0	2398.32	114.5
130249	Jan-11	22-Jan-11	AM5	Fine	Normal Operation	765.0	765.0	13.0	15.0	50.0	50.0	2.7323	2.9282	0.1959	1.6618	1.6546	1.6582	9669.27	9693.27	1440.0	2387.81	82.0
130234	Jan-11	28-Jan-11	AM5	Fine	Normal Operation	767.0	768.0	15.0	12.0	50.0	50.0	2.7561	2.9720	0.2159	1.6572	1.6693	1.6633	9693.27	9717.27	1440.0	2395.08	90.1

<b>Average (ug/m<sup>3</sup>)</b>	82.9
<b>Max (ug/m<sup>3</sup>)</b>	137.2
<b>Min (ug/m<sup>3</sup>)</b>	35.8

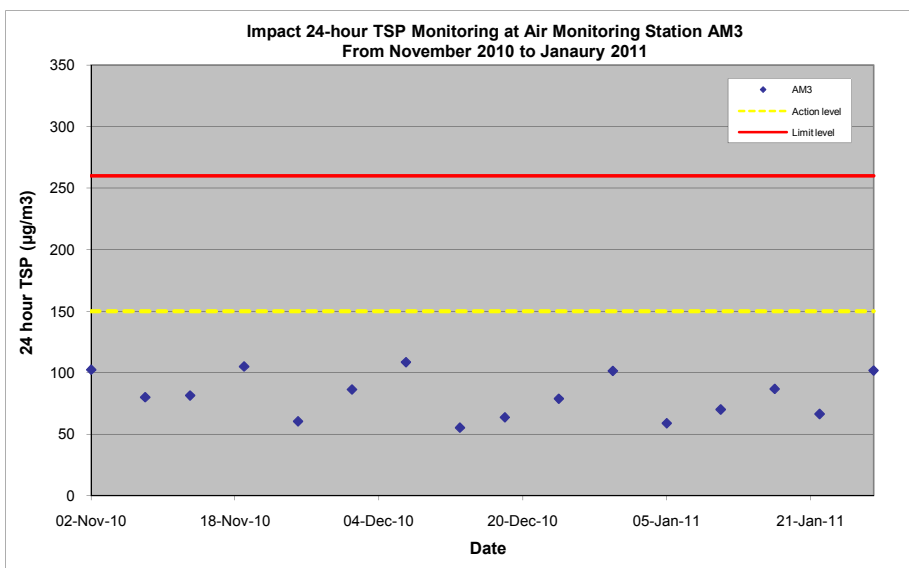
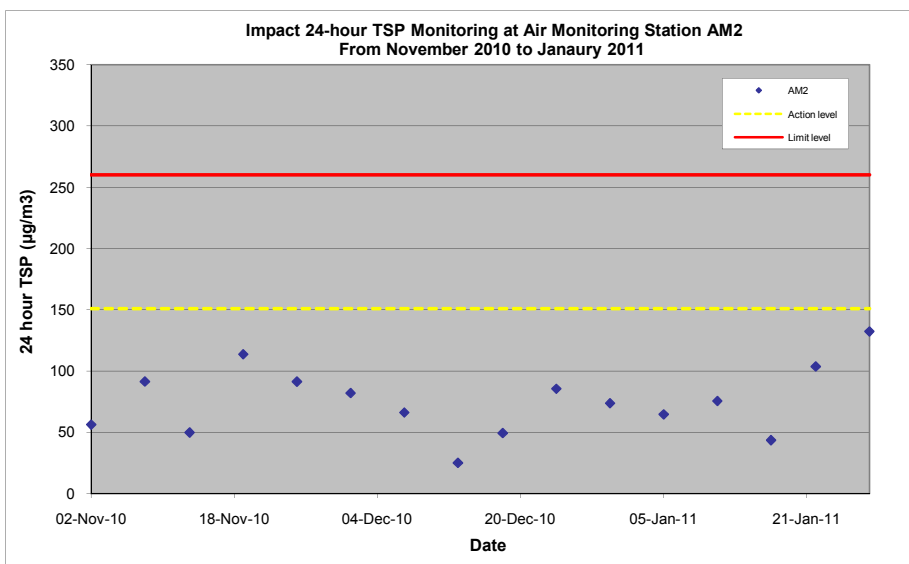
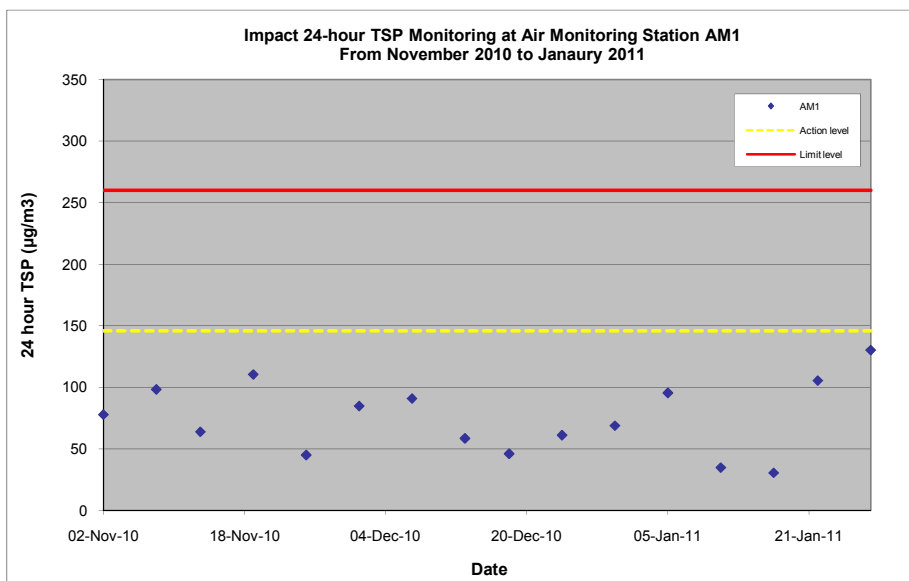
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<b>Limit Level (ug/m<sup>3</sup>)</b>	260

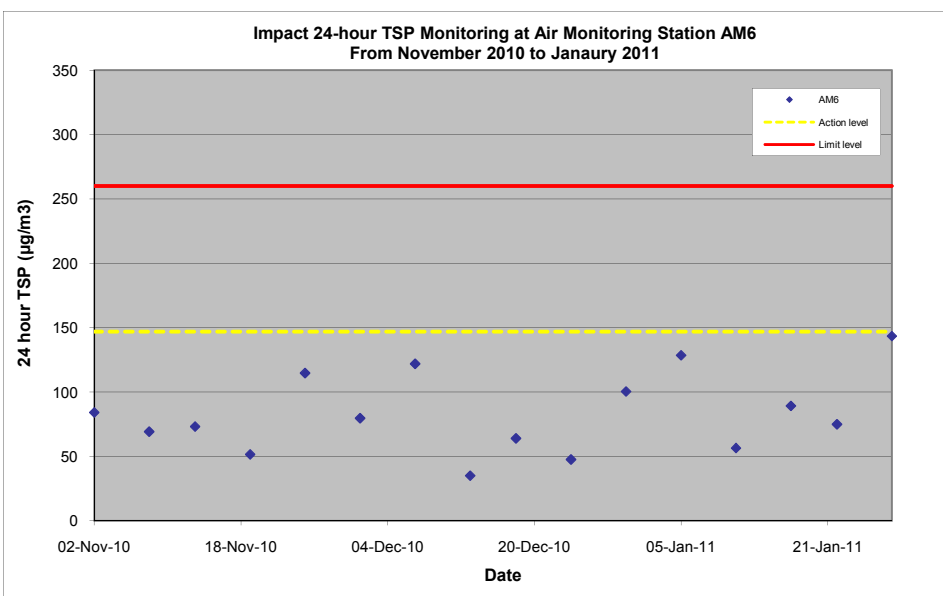
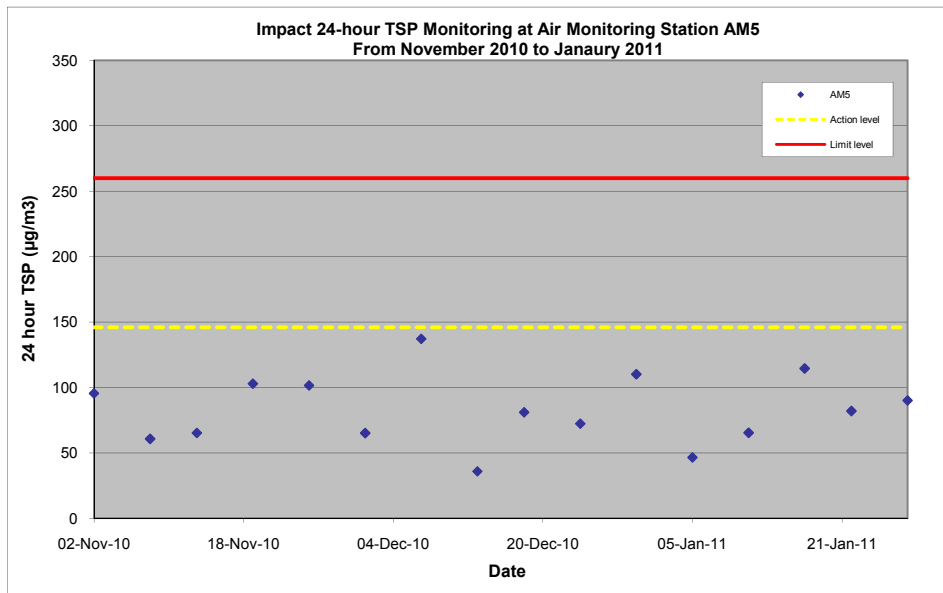
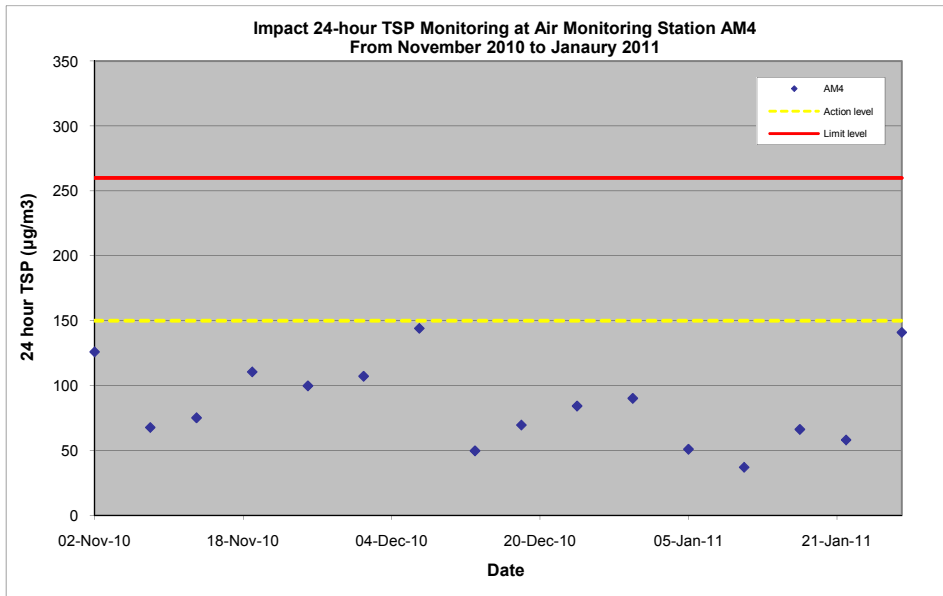
**Agreement No. HMW 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section**  
**Impact Air Quality Monitoring Result at Yan Oi Tong Community and Sports Centre (AM6) - 24 hour TSP**

Filter No.	Month	Date	Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m <sup>3</sup> /min)		Average Flow Rate (m <sup>3</sup> /min)	Elapse Time		Sampling Time (mins.)	Total vol. (m <sup>3</sup> )	(ug/m <sup>3</sup> ) AM6
						Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish			
130094	Nov-10	2-Nov-10	AM6	Fine	Normal Operation	765.0	765.0	21.0	21.0	40.0	40.0	2.7523	2.9160	0.1637	1.3542	1.3542	1.3542	5666.80	5690.80	1440.0	1950.05	83.9
130165	Nov-10	8-Nov-10	AM6	Fine	Normal Operation	762.0	764.0	22.0	21.0	40.0	40.0	2.7963	2.9308	0.1345	1.3485	1.3532	1.3509	5690.80	5714.80	1440.0	1945.22	69.1
130082	Nov-10	13-Nov-10	AM6	Fine	Normal Operation	762.0	765.0	22.0	22.0	40.0	40.0	2.7366	2.8785	0.1419	1.3485	1.3516	1.3501	5714.80	5738.80	1440.0	1944.07	73.0
130177	Nov-10	19-Nov-10	AM6	Fine	Normal Operation	761.0	760.0	21.0	21.0	40.0	40.0	2.8671	2.9670	0.0999	1.3501	1.3491	1.3496	5738.80	5762.80	1440.0	1943.42	51.4
130183	Nov-10	25-Nov-10	AM6	Fine	Normal Operation	763.0	763.0	20.0	19.0	40.0	40.0	2.8384	3.0619	0.2235	1.3548	1.3574	1.3561	5762.80	5786.80	1440.0	1952.78	114.5
130189	Dec-10	1-Dec-10	AM6	Fine	Normal Operation	761.0	762.0	20.0	21.0	50.0	50.0	2.8221	3.0218	0.1997	1.7423	1.7402	1.7413	5786.80	5810.80	1440.0	2507.40	79.6
130195	Dec-10	7-Dec-10	AM6	Fine	Normal Operation	763.0	762.0	19.0	17.0	50.0	50.0	2.7879	3.0947	0.3068	1.7481	1.7536	1.7509	5810.80	5834.80	1440.0	2521.22	121.7
130201	Dec-10	13-Dec-10	AM6	Fine	Normal Operation	757.0	759.0	21.0	21.0	50.0	50.0	2.7793	2.8666	0.0873	1.7339	1.7364	1.7352	5834.80	5858.80	1440.0	2498.62	34.9
130171	Dec-10	18-Dec-10	AM6	Fine	Normal Operation	763.0	763.0	14.0	18.0	50.0	50.0	2.7901	2.9519	0.1618	1.7651	1.7515	1.7583	5858.80	5882.80	1440.0	2531.95	63.9
130214	Dec-10	24-Dec-10	AM6	Fine	Normal Operation	761.0	762.0	18.0	16.0	50.0	50.0	2.7566	2.8765	0.1199	1.7490	1.7569	1.7530	5882.80	5906.80	1440.0	2524.25	47.5
130220	Dec-10	30-Dec-10	AM6	Fine	Normal Operation	763.0	763.0	17.0	17.0	50.0	50.0	2.7551	3.0086	0.2535	1.7549	1.7549	1.7549	5906.80	5930.80	1440.0	2527.06	100.3
130231	Jan-11	5-Jan-11	AM6	Cloudy	Normal Operation	763.0	765.0	15.0	14.0	50.0	50.0	2.7721	3.0672	0.2951	1.5930	1.5982	1.5956	5930.80	5954.80	1440.0	2297.66	128.4
130207	Jan-11	11-Jan-11	AM6	Cloudy	Normal Operation	763.0	764.0	11.0	8.0	50.0	50.0	2.7761	2.9067	0.1306	1.6048	1.6149	1.6099	5954.80	5978.80	1440.0	2318.18	56.3
130243	Jan-11	17-Jan-11	AM6	Fine	Normal Operation	768.0	765.0	11.0	14.0	50.0	50.0	2.7580	2.9639	0.2059	1.6103	1.5982	1.6043	5978.80	6002.80	1440.0	2310.12	89.1
130250	Jan-11	22-Jan-11	AM6	Fine	Normal Operation	765.0	765.0	13.0	15.0	50.0	50.0	2.7417	2.9139	0.1722	1.6012	1.5953	1.5983	6002.80	6026.80	1440.0	2301.48	74.8
130235	Jan-11	28-Jan-11	AM6	Fine	Normal Operation	767.0	768.0	15.0	12.0	50.0	50.0	2.7659	3.0966	0.3307	1.5974	1.6073	1.6024	6026.80	6050.80	1440.0	2307.38	143.3

Average (ug/m <sup>3</sup> )	83.2
Max (ug/m <sup>3</sup> )	143.3
Min (ug/m <sup>3</sup> )	34.9

Action Level (ug/m <sup>3</sup> )	147
Limit Level (ug/m <sup>3</sup> )	260



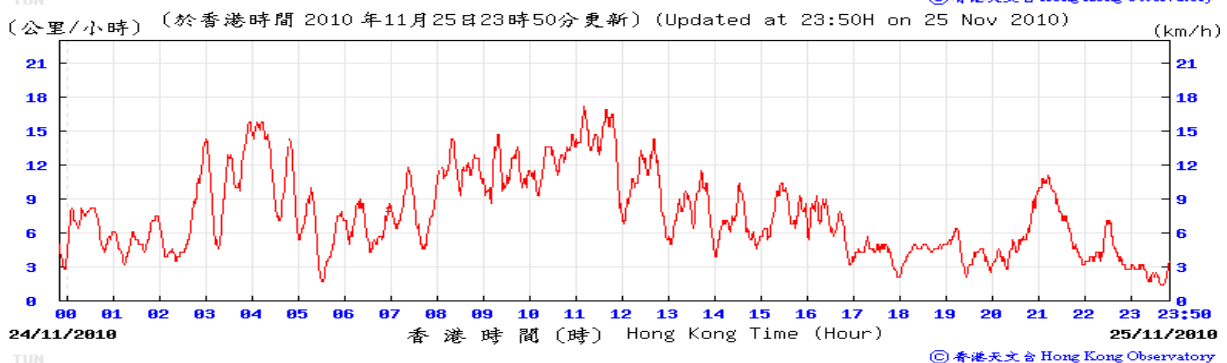
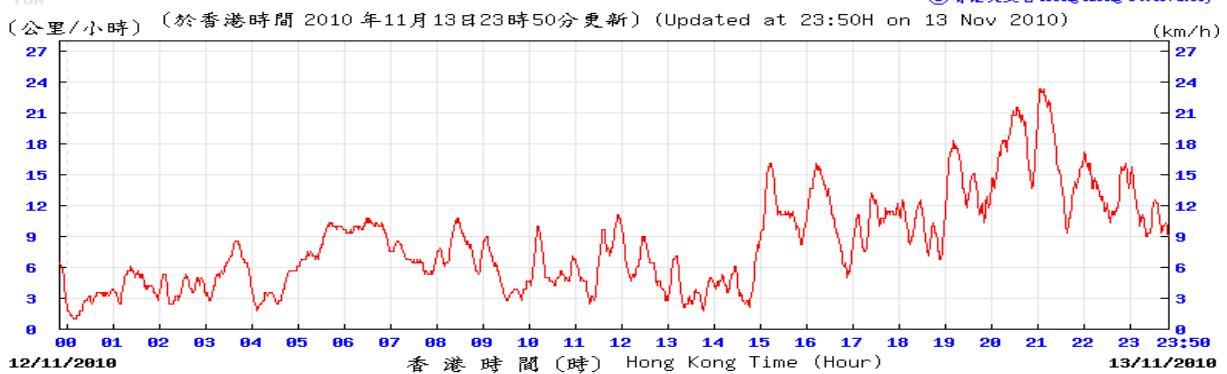
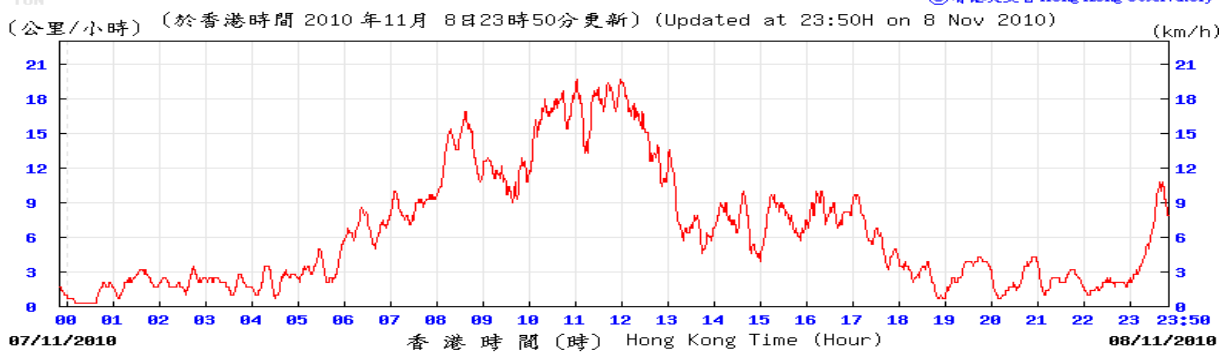
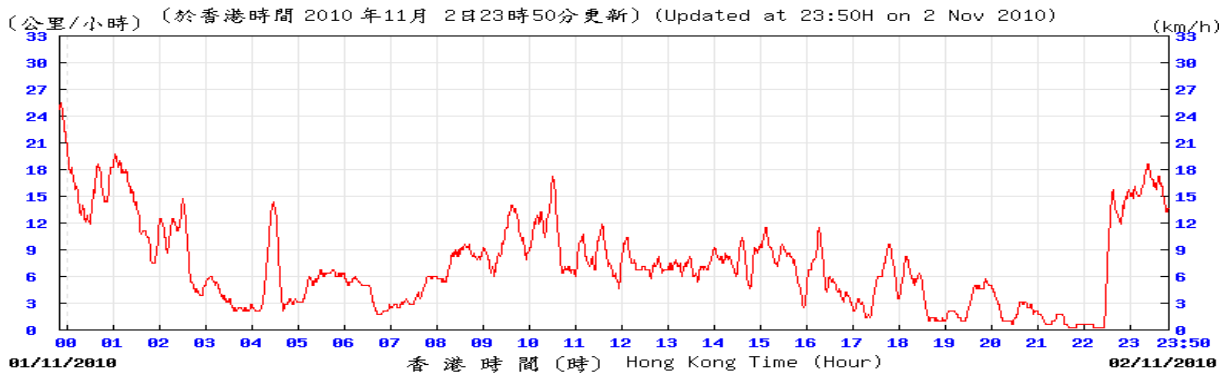


Appendix D

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**Wind Data**

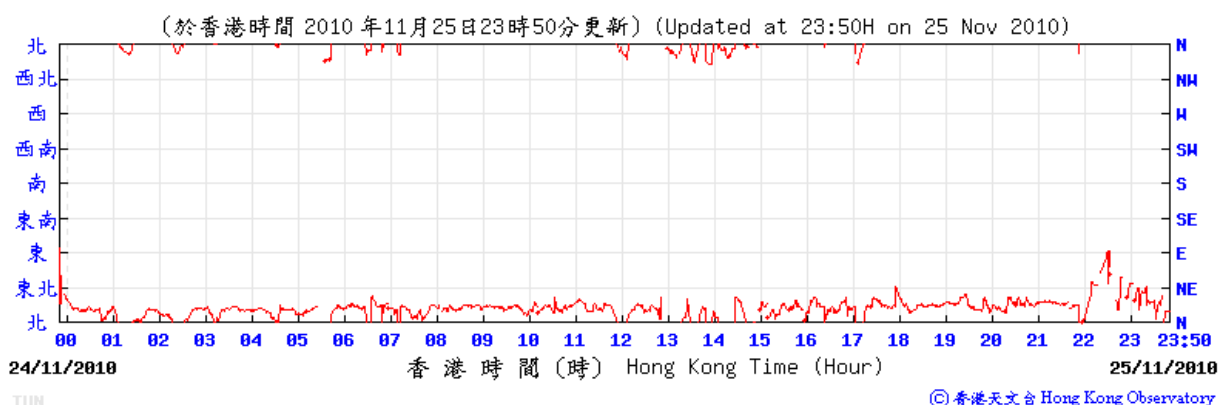
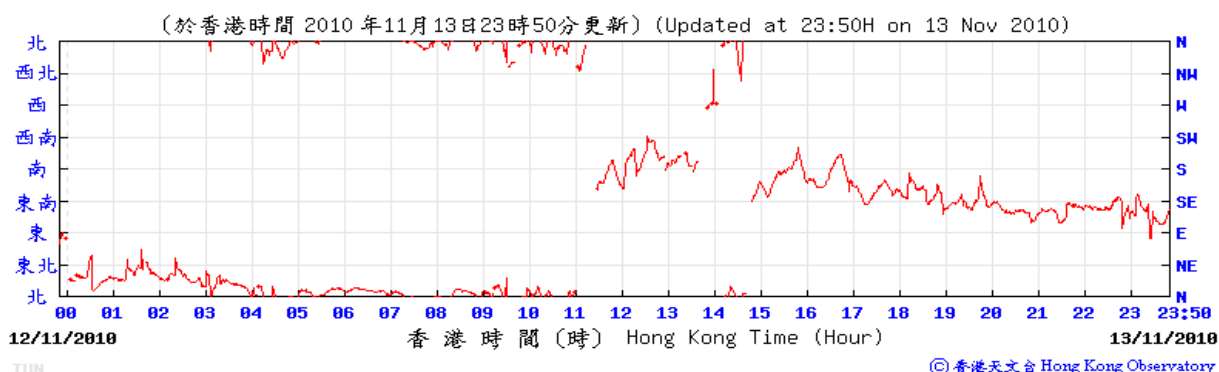
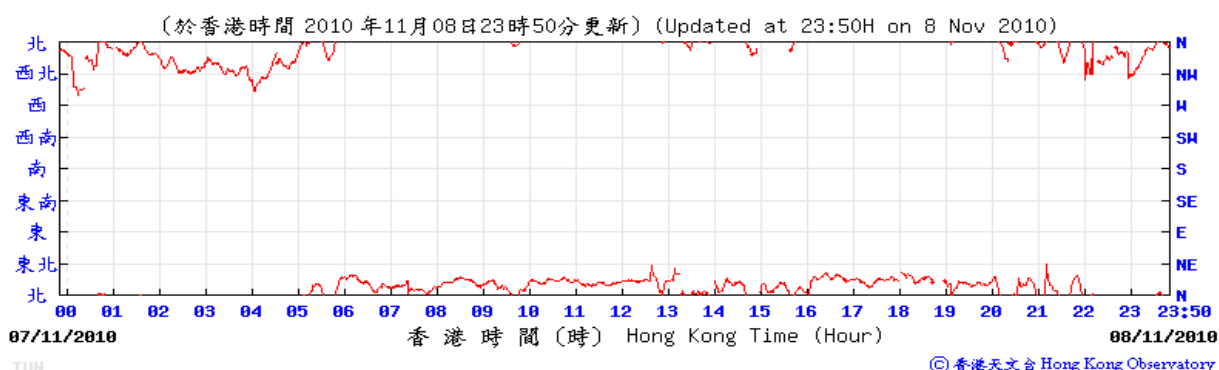
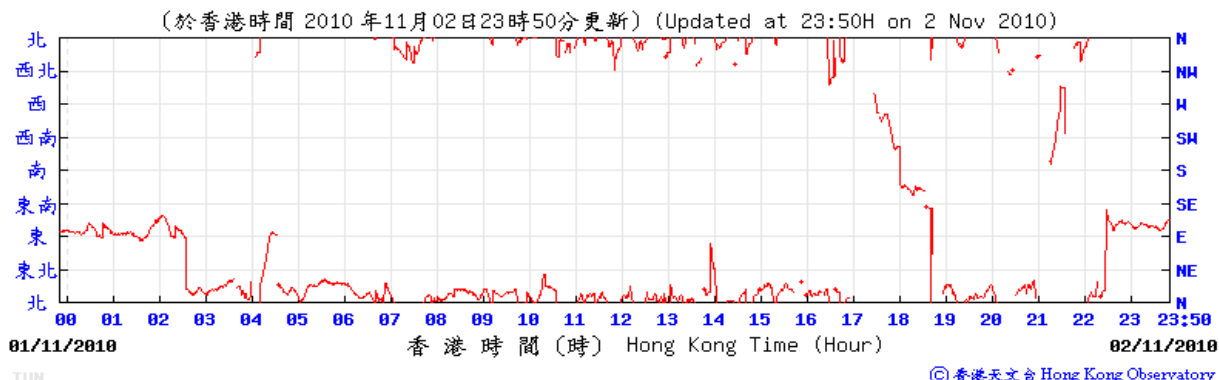
### Wind Monitoring Data – Wind Speed during Air Quality Monitoring in November 2010



Note: Owing to the maintenance of the monitoring station, the data on 19 Nov 2010 was not available from HKO.

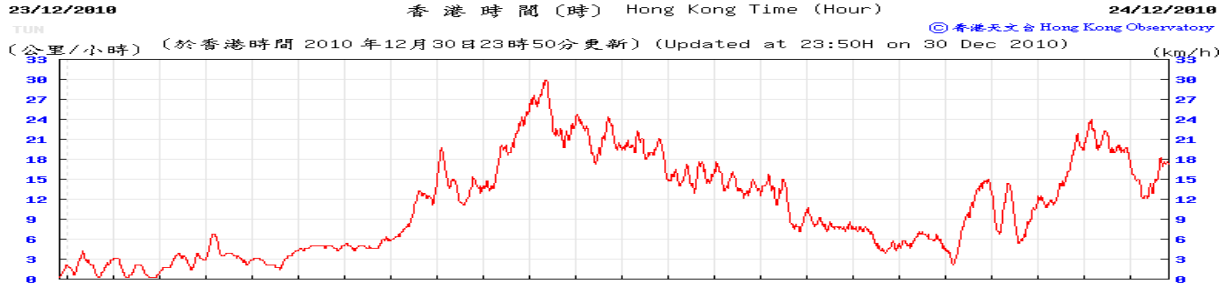
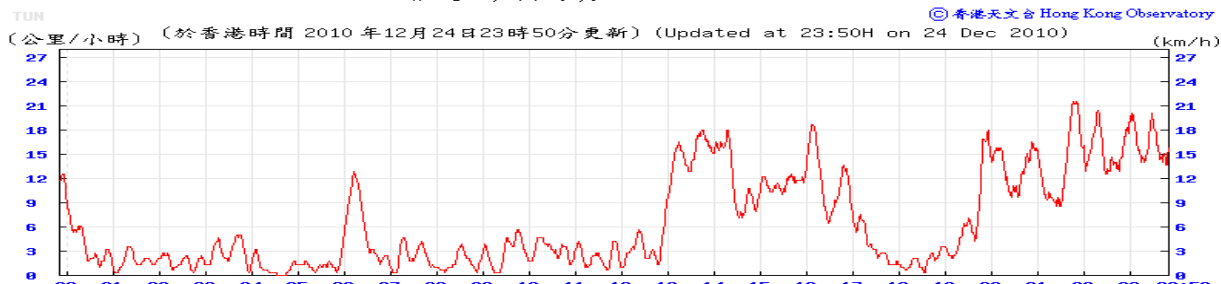
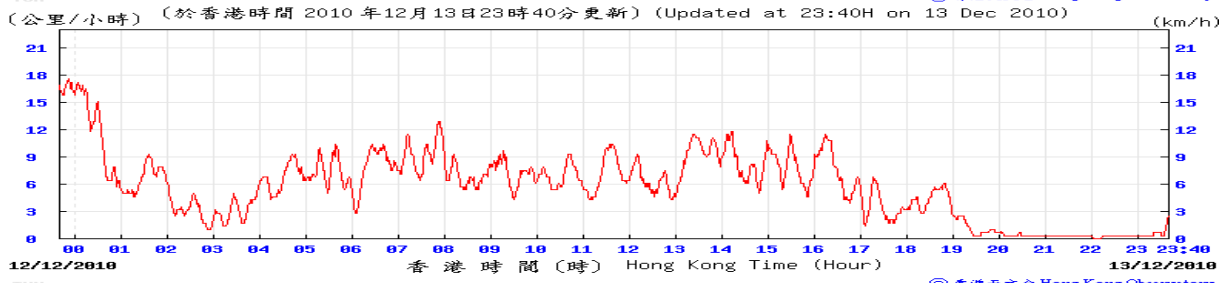
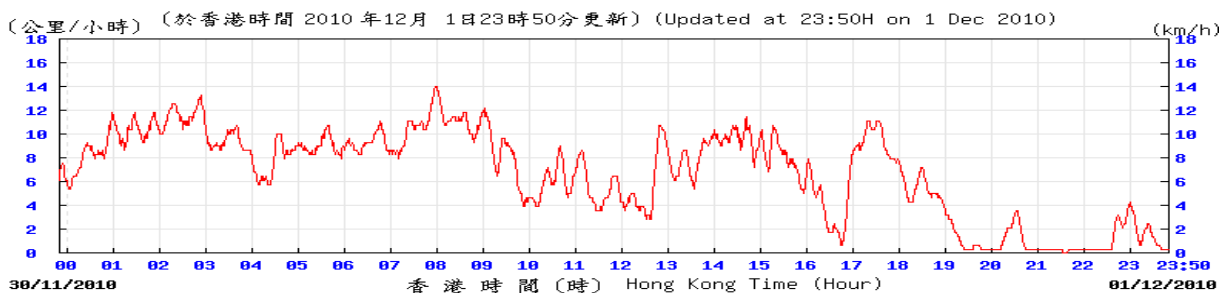


### Wind Monitoring Data – Wind Direction during Air Quality Monitoring in November 2010

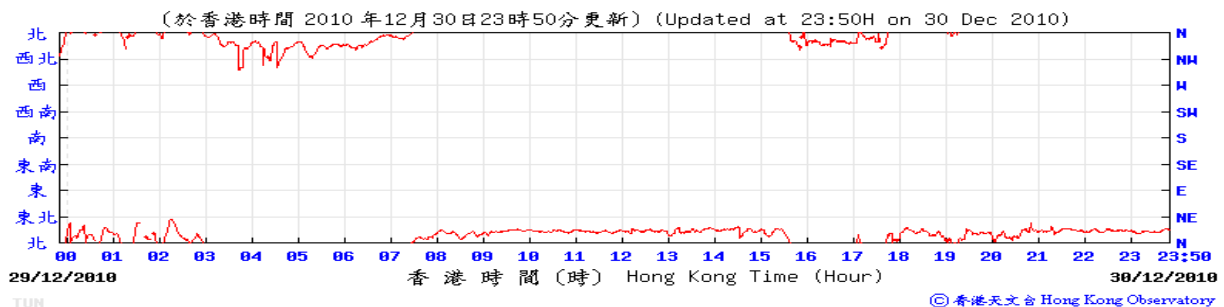
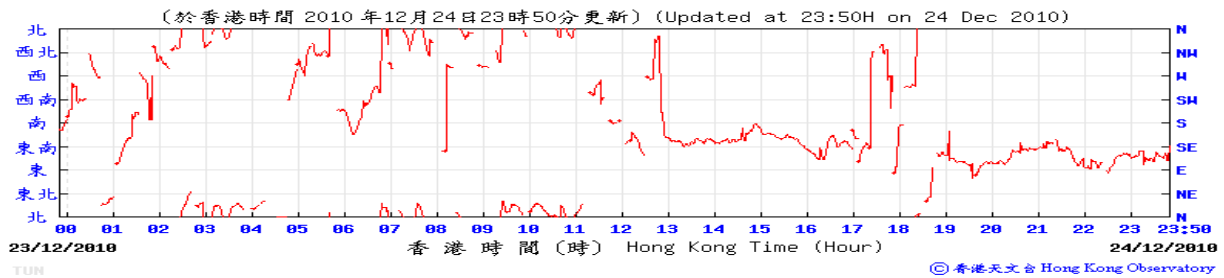
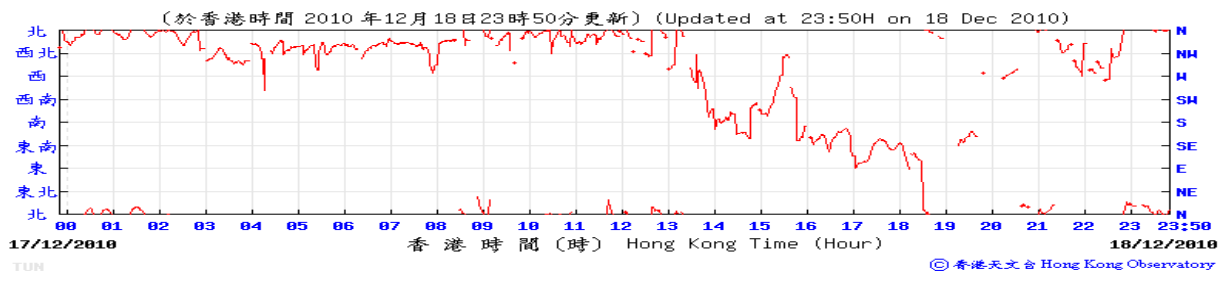
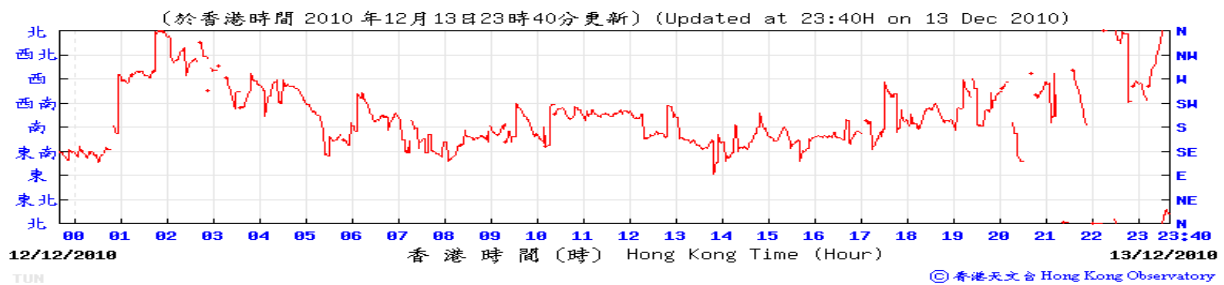
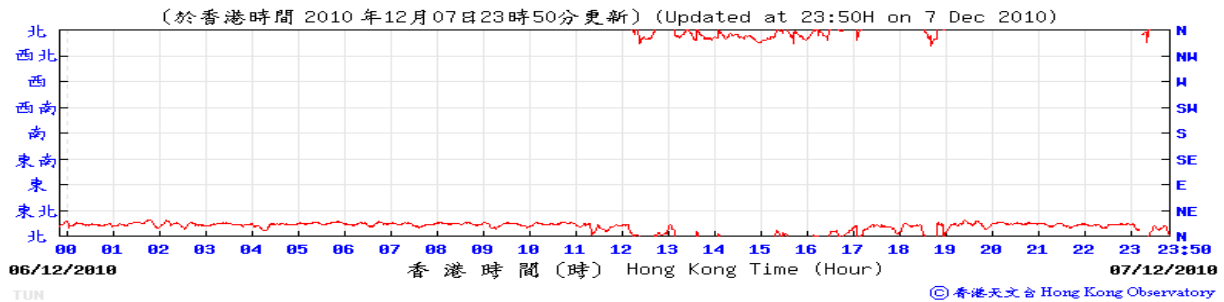
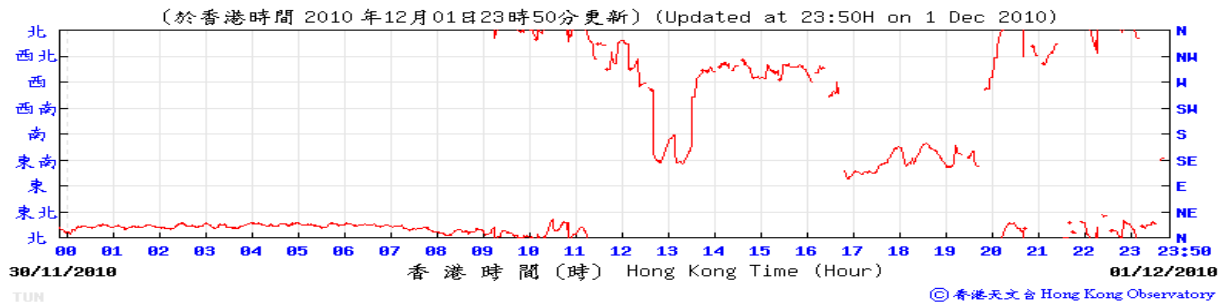


Note: Owing to the maintenance of the monitoring station, the data on 19 Nov 2010 was not available from HKO.

### Wind Monitoring Data – Wind Speed during Air Quality Monitoring in December 2010

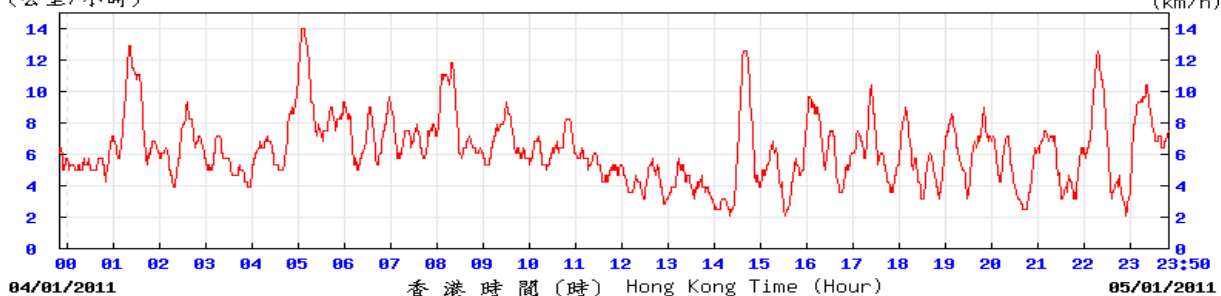


Wind Monitoring Data – Wind Direction during Air Quality Monitoring in December 2010



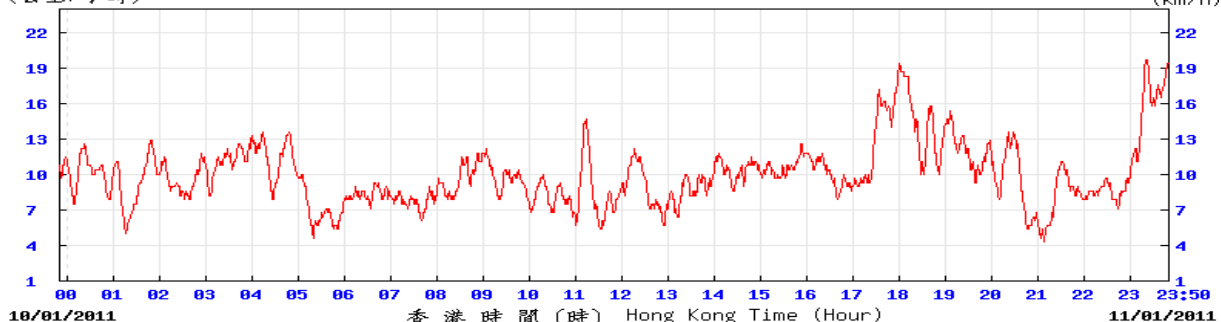
### Wind Monitoring Data – Wind Speed during Air Quality Monitoring in January 2011

(公里/小時) (於香港時間 2011 年 1 月 5 日 23 時 50 分更新) (Updated at 23:50H on 5 Jan 2011) (km/h)



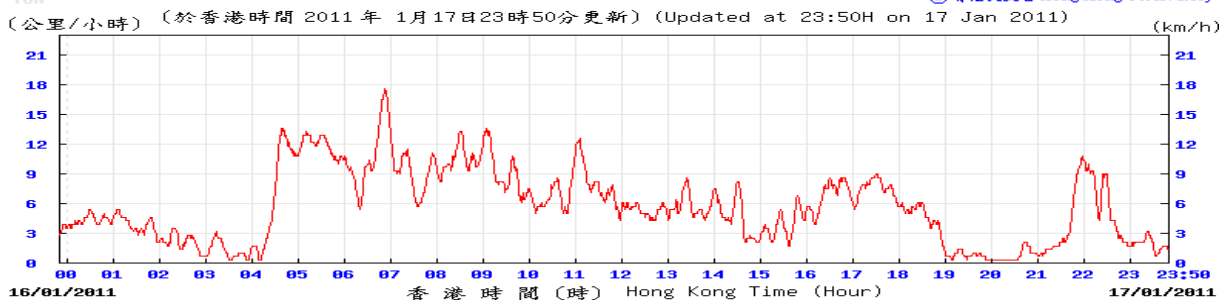
04/01/2011 香港時間 (時) Hong Kong Time (Hour) 05/01/2011 ©香港天文台 Hong Kong Observatory

TUN (公里/小時) (於香港時間 2011 年 1 月 11 日 23 時 50 分更新) (Updated at 23:50H on 11 Jan 2011) (km/h)



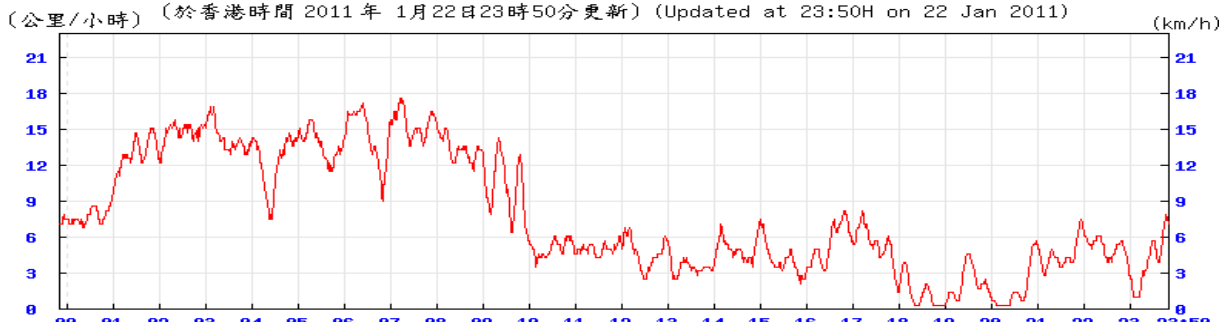
10/01/2011 香港時間 (時) Hong Kong Time (Hour) 11/01/2011 ©香港天文台 Hong Kong Observatory

TUN (公里/小時) (於香港時間 2011 年 1 月 17 日 23 時 50 分更新) (Updated at 23:50H on 17 Jan 2011) (km/h)



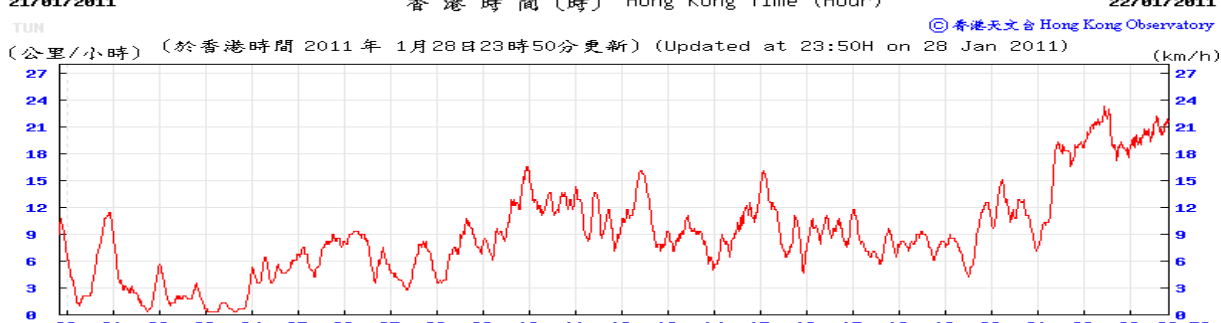
16/01/2011 香港時間 (時) Hong Kong Time (Hour) 17/01/2011 ©香港天文台 Hong Kong Observatory

TUN (公里/小時) (於香港時間 2011 年 1 月 22 日 23 時 50 分更新) (Updated at 23:50H on 22 Jan 2011) (km/h)



21/01/2011 香港時間 (時) Hong Kong Time (Hour) 22/01/2011 ©香港天文台 Hong Kong Observatory

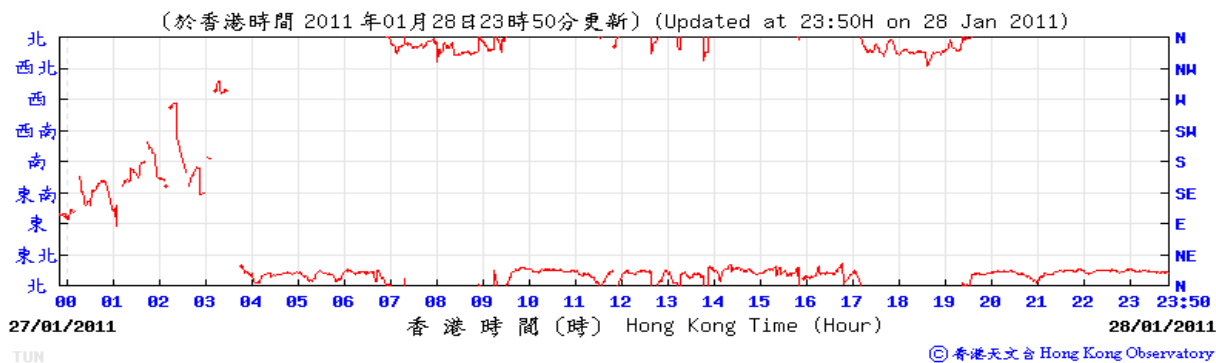
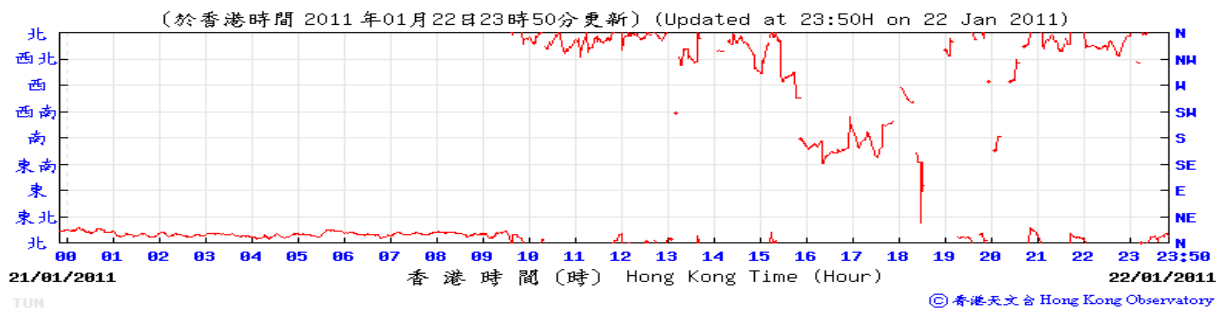
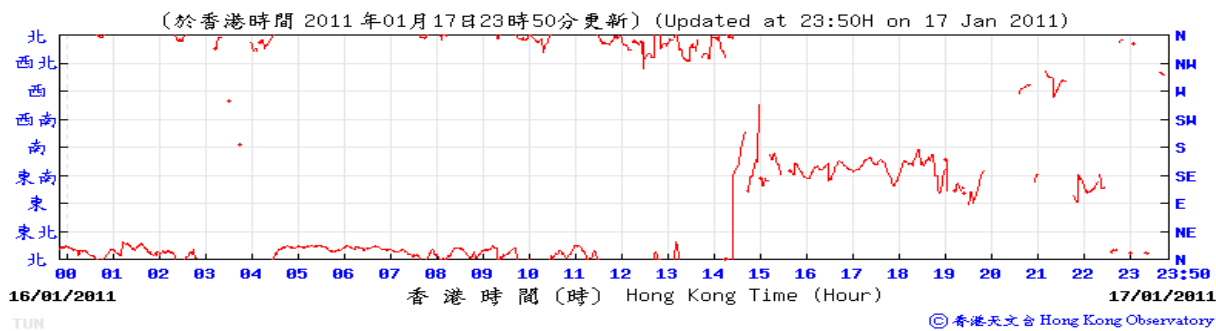
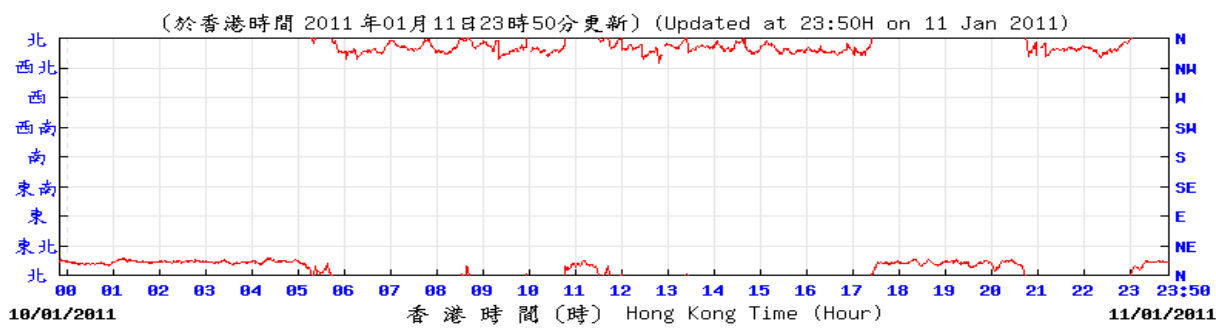
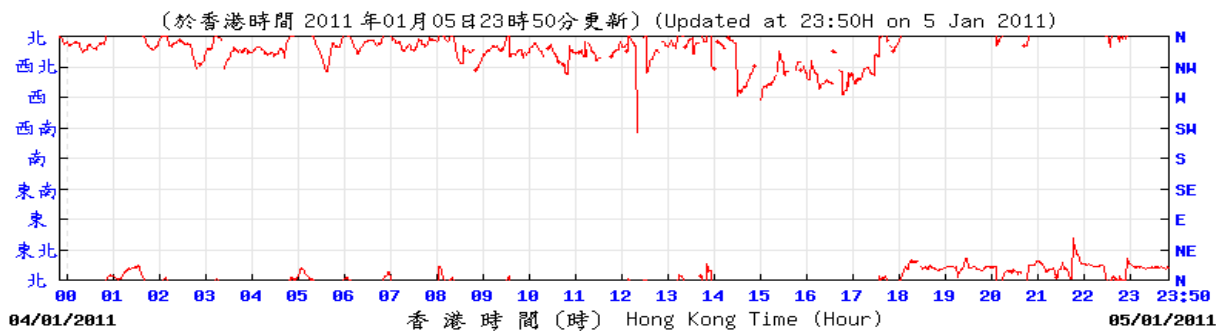
TUN (公里/小時) (於香港時間 2011 年 1 月 28 日 23 時 50 分更新) (Updated at 23:50H on 28 Jan 2011) (km/h)



27/01/2011 香港時間 (時) Hong Kong Time (Hour) 28/01/2011 ©香港天文台 Hong Kong Observatory

TUN

### Wind Monitoring Data – Wind Direction during Air Quality Monitoring in January 2011



Appendix E

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**Impact Noise  
Monitoring Results**

**Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team**  
**Day-time Noise Monitoring Results - 1 November 2010**

ID	Premise	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
			L <sub>Aeq,30min</sub>	Limit	L <sub>10,5min</sub>	L <sub>90,5min</sub>		
N1	Kam Fai Garden	09:40 - 10:10	78	75	79	74	76	72
N2	Tai Tung Pui Social Service Building	10:30 - 11:00	77	75	79	74	78	Measured ≤ Baseline
N3	Yuen Yuen Primary School	11:15 - 11:45	68	70	70	66	69	Measured ≤ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	67	70	68	65	67	Measured ≤ Baseline
N5	Tuen King Building	12:45 - 13:15	71	75	72	68	70	61
N6	Choi Cheung kok Secondary School	13:40 - 14:10	69	70	71	67	69	Measured ≤ Baseline

Note: (#): Construction Noise Level = Measured Noise Level - Baseline Noise Level

**Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team**  
**Day-time Noise Monitoring Results - 12 November 2010**

ID	Premise	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
			L <sub>Aeq,30min</sub>	Limit	L <sub>10,5min</sub>	L <sub>90,5min</sub>		
N1	Kam Fai Garden	09:45 - 10:15	77	75	80	74	76	71
N2	Tai Tung Pui Social Service Building	10:30 - 11:00	78	75	80	75	78	Measured ≤ Baseline
N3	Yuen Yuen Primary School	11:15 - 11:45	68	70	70	66	69	Measured ≤ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	67	70	69	65	67	Measured ≤ Baseline
N5	Tuen King Building	16:45 - 17:15	71	75	73	70	70	65
N6	Choi Cheung kok Secondary School	15:55 - 16:25	70	70	72	69	69	61

Note: (#): Construction Noise Level = Measured Noise Level - Baseline Noise Level

**Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team**  
**Day-time Noise Monitoring Results - 18 November 2010**

ID	Premise	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
			L <sub>Aeq,30min</sub>	Limit	L <sub>10,5min</sub>	L <sub>90,5min</sub>		
N1	Kam Fai Garden	09:40 - 10:10	78	75	81	73	76	73
N2	Tai Tung Pui Social Service Building	10:30 - 11:00	78	75	80	74	78	Measured ≤ Baseline
N3	Yuen Yuen Primary School	11:15 - 11:45	68	70	70	67	69	Measured ≤ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	66	70	68	64	67	Measured ≤ Baseline
N5	Tuen King Building	12:45 - 13:15	71	75	72	68	70	62
N6	Choi Cheung kok Secondary School	13:40 - 14:10	70	70	73	68	69	61

Note: (#): Construction Noise Level = Measured Noise Level - Baseline Noise Level

**Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team**  
**Day-time Noise Monitoring Results - 24 November 2010**

ID	Premise	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
			L <sub>Aeq,30min</sub>	Limit	L <sub>10,5min</sub>	L <sub>90,5min</sub>		
N1	Kam Fai Garden	09:40 - 10:10	78	75	81	75	76	73
N2	Tai Tung Pui Social Service Building	10:30 - 11:00	78	75	80	75	78	Measured ≤ Baseline
N3	Yuen Yuen Primary School	11:10 - 11:40	69	70	70	66	69	Measured ≤ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	67	70	69	65	67	Measured ≤ Baseline
N5	Tuen King Building	12:50 - 13:20	71	75	72	68	70	63
N6	Choi Cheung kok Secondary School	13:45 - 14:15	70	70	72	68	69	62

Note: (#): Construction Noise Level = Measured Noise Level - Baseline Noise Level

**Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team**  
**Day-time Noise Monitoring Results - 30 November 2010**

ID	Premise	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
			L <sub>Aeq,30min</sub>	Limit	L <sub>10,5min</sub>	L <sub>90,5min</sub>		
N1	Kam Fai Garden	09:40 - 10:10	75	75	76	72	76	Measured ≤ Baseline
N2	Tai Tung Pui Social Service Building	08:50 - 09:20	78	75	80	76	78	Measured ≤ Baseline
N3	Yuen Yuen Primary School	09:40 - 10:10	68	70	70	66	69	Measured ≤ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	64	70	66	63	67	Measured ≤ Baseline
N5	Tuen King Building	10:25 - 10:55	71	75	72	67	70	59
N6	Choi Cheung kok Secondary School	11:10 - 11:40	70	70	71	66	69	60

Note: (#): Construction Noise Level = Measured Noise Level - Baseline Noise Level

**Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team**  
**Day-time Noise Monitoring Results - 6 December 2010**

ID	Premise	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
			L <sub>Aeq</sub> 30min	Limit	L <sub>10</sub> 5min	L <sub>90</sub> 5min		
N1	Kam Fai Garden	09:45 - 10:15	79	75	81	75	76	75
N2	Tai Tung Pui Social Service Building	10:35 - 11:05	78	75	80	75	78	Measured ≤ Baseline
N3	Yuen Yuen Primary School	11:15 - 11:45	67	70	69	66	69	Measured ≤ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	66	70	67	64	67	Measured ≤ Baseline
N5	Tuen King Building	13:25 - 13:55	71	75	72	67	70	60
N6	Choi Cheung kok Secondary School	14:15 - 14:45	70	70	71	67	69	59

Note: (#): Construction Noise Level = Measured Noise Level - Baseline Noise Level

**Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team**  
**Day-time Noise Monitoring Results - 17 December 2010**

ID	Premise	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
			L <sub>Aeq</sub> 30min	Limit	L <sub>10</sub> 5min	L <sub>90</sub> 5min		
N1	Kam Fai Garden	09:45 - 10:15	76	75	78	71	76	Measured ≤ Baseline
N2	Tai Tung Pui Social Service Building	10:30 - 11:00	74	75	76	72	78	Measured ≤ Baseline
N3	Yuen Yuen Primary School	11:05 - 11:35	67	70	69	66	69	Measured ≤ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	66	70	68	64	67	Measured ≤ Baseline
N5	Tuen King Building	13:00 - 13:30	72	75	73	69	70	66
N6	Choi Cheung kok Secondary School	13:55 - 14:25	70	70	72	68	69	62

Note: (#): Construction Noise Level = Measured Noise Level - Baseline Noise Level

**Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team**  
**Day-time Noise Monitoring Results - 23 December 2010**

ID	Premise	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
			L <sub>Aeq</sub> 30min	Limit	L <sub>10</sub> 5min	L <sub>90</sub> 5min		
N1	Kam Fai Garden	09:40 - 10:10	78	75	81	74	76	74
N2	Tai Tung Pui Social Service Building	10:30 - 11:00	76	75	80	74	78	Measured ≤ Baseline
N3	Yuen Yuen Primary School	11:20 - 11:50	67	70	68	65	69	Measured ≤ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	69	70	70	65	67	Measured ≤ Baseline
N5	Tuen King Building	13:00 - 13:30	70	75	71	68	70	Measured ≤ Baseline
N6	Choi Cheung kok Secondary School	13:50 - 14:20	70	70	71	67	69	62

Note: (#): Construction Noise Level = Measured Noise Level - Baseline Noise Level

**Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team**  
**Day-time Noise Monitoring Results - 29 December 2010**

ID	Premise	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
			L <sub>Aeq</sub> 30min	Limit	L <sub>10</sub> 5min	L <sub>90</sub> 5min		
N1	Kam Fai Garden	09:50 - 10:20	78	75	80	74	76	74
N2	Tai Tung Pui Social Service Building	10:45 - 11:15	78	75	80	76	78	Measured ≤ Baseline
N3	Yuen Yuen Primary School	11:35 - 12:05	67	70	69	66	69	Measured ≤ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	66	70	67	64	67	Measured ≤ Baseline
N5	Tuen King Building	13:15 - 13:45	70	75	71	68	70	Measured ≤ Baseline
N6	Choi Cheung kok Secondary School	14:05 - 14:35	70	70	71	67	69	60

Note: (#): Construction Noise Level = Measured Noise Level - Baseline Noise Level



**Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team**  
**Day-time Noise Monitoring Results - 3 January 2011**

ID	Premise	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
			L <sub>Aeq</sub> 30min	Limit	L <sub>10</sub> 5min	L <sub>90</sub> 5min	L <sub>Aeq</sub> 30min	L <sub>Aeq</sub> 30min
N1	Kam Fai Garden	09:50 - 10:20	74	75	76	71	76	Measured ≤ Baseline
N2	Tai Tung Pui Social Service Building	10:30 - 11:00	76	75	78	73	78	Measured ≤ Baseline
N3	Yuen Yuen Primary School	11:30 - 12:00	67	70	68	65	69	Measured ≤ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	64	70	66	64	67	Measured ≤ Baseline
N5	Tuen King Building	13:10 - 13:40	69	75	72	67	70	Measured ≤ Baseline
N6	Choi Cheung kok Secondary School	14:00 - 14:30	68	70	70	65	69	Measured ≤ Baseline

Note: (#): Construction Noise Level = Measured Noise Level - Baseline Noise Level

**Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team**  
**Day-time Noise Monitoring Results - 10 January 2011**

ID	Premise	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
			L <sub>Aeq</sub> 30min	Limit	L <sub>10</sub> 5min	L <sub>90</sub> 5min	L <sub>Aeq</sub> 30min	L <sub>Aeq</sub> 30min
N1	Kam Fai Garden	09:50 - 10:20	78	75	81	75	76	74
N2	Tai Tung Pui Social Service Building	10:30 - 11:00	79	75	81	75	78	69
N3	Yuen Yuen Primary School	11:15 - 11:45	67	70	69	66	69	Measured ≤ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	65	70	66	63	67	Measured ≤ Baseline
N5	Tuen King Building	13:00 - 13:30	70	75	71	68	70	Measured ≤ Baseline
N6	Choi Cheung kok Secondary School	13:30 - 14:00	69	70	71	67	69	Measured ≤ Baseline

Note: (#): Construction Noise Level = Measured Noise Level - Baseline Noise Level

**Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team**  
**Day-time Noise Monitoring Results - 21 January 2011**

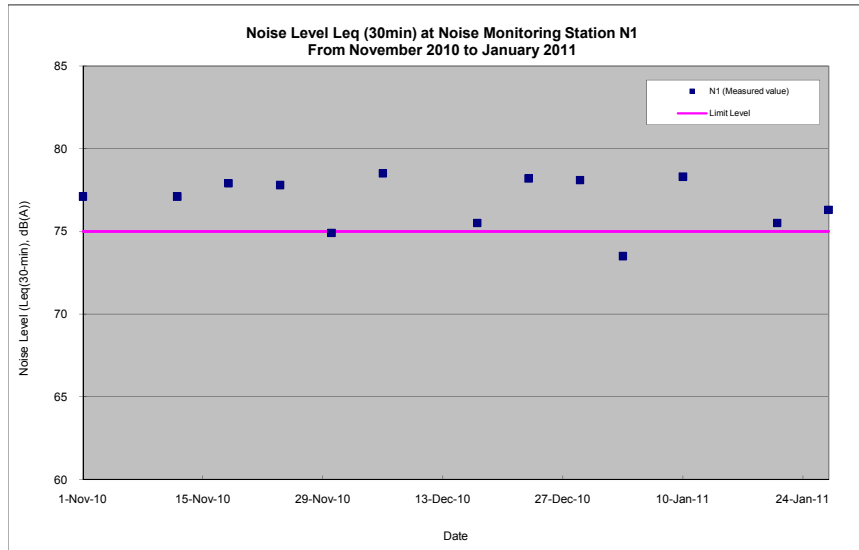
ID	Premise	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
			L <sub>Aeq</sub> 30min	Limit	L <sub>10</sub> 5min	L <sub>90</sub> 5min	L <sub>Aeq</sub> 30min	L <sub>Aeq</sub> 30min
N1	Kam Fai Garden	09:45 - 10:15	76	75	78	73	76	Measured ≤ Baseline
N2	Tai Tung Pui Social Service Building	10:35 - 11:05	74	75	77	72	78	Measured ≤ Baseline
N3	Yuen Yuen Primary School	11:15 - 11:45	67	70	68	65	69	Measured ≤ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	66	70	68	65	67	Measured ≤ Baseline
N5	Tuen King Building	12:40 - 13:10	70	75	71	68	70	Measured ≤ Baseline
N6	Choi Cheung kok Secondary School	13:40 - 14:10	70	70	72	67	69	62

Note: (#): Construction Noise Level = Measured Noise Level - Baseline Noise Level

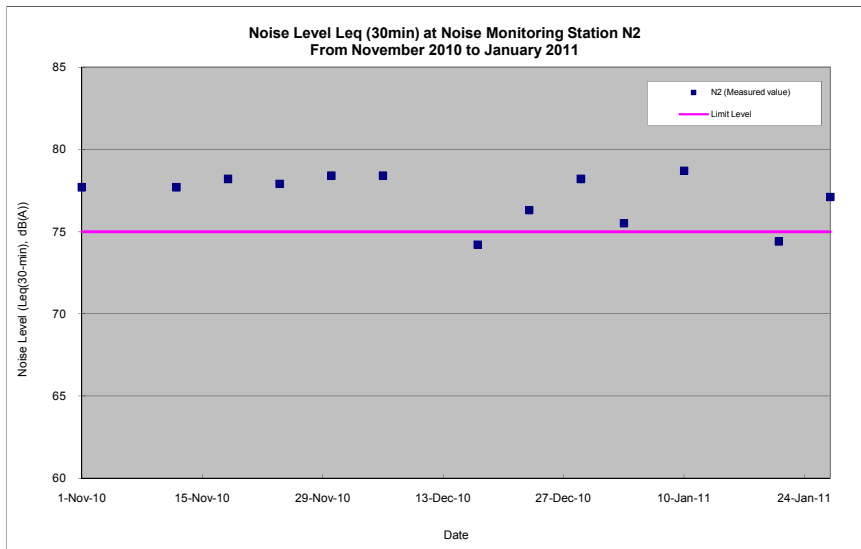
**Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team**  
**Day-time Noise Monitoring Results - 27 January 2011**

ID	Premise	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
			L <sub>Aeq</sub> 30min	Limit	L <sub>10</sub> 5min	L <sub>90</sub> 5min	L <sub>Aeq</sub> 30min	L <sub>Aeq</sub> 30min
N1	Kam Fai Garden	09:45 - 10:15	76	75	78	73	76	Measured ≤ Baseline
N2	Tai Tung Pui Social Service Building	10:30 - 11:00	77	75	80	75	78	Measured ≤ Baseline
N3	Yuen Yuen Primary School	11:00 - 11:30	66	70	68	64	69	Measured ≤ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	67	70	69	66	67	Measured ≤ Baseline
N5	Tuen King Building	12:30 - 13:00	70	75	71	67	70	Measured ≤ Baseline
N6	Choi Cheung kok Secondary School	13:35 - 14:05	68	70	70	66	69	Measured ≤ Baseline

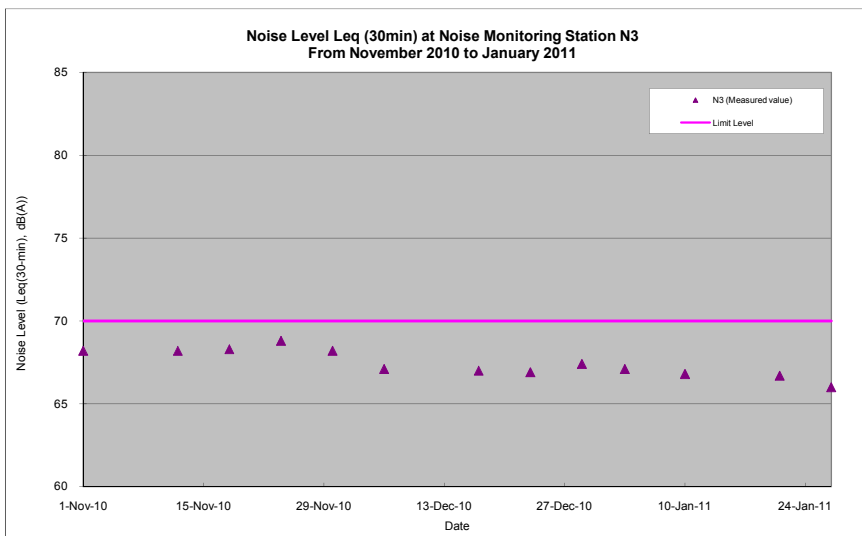
Note: (#): Construction Noise Level = Measured Noise Level - Baseline Noise Level



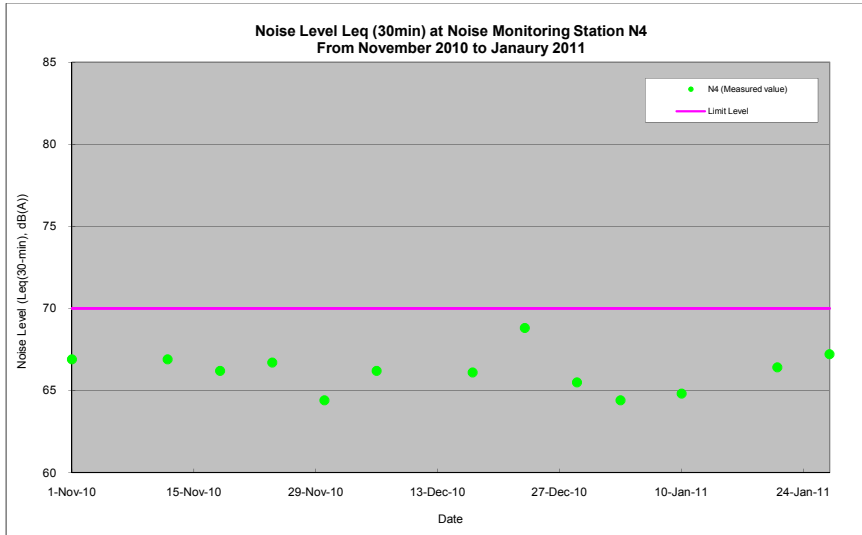
Note: For compliance comparison, please refer to above table and report.



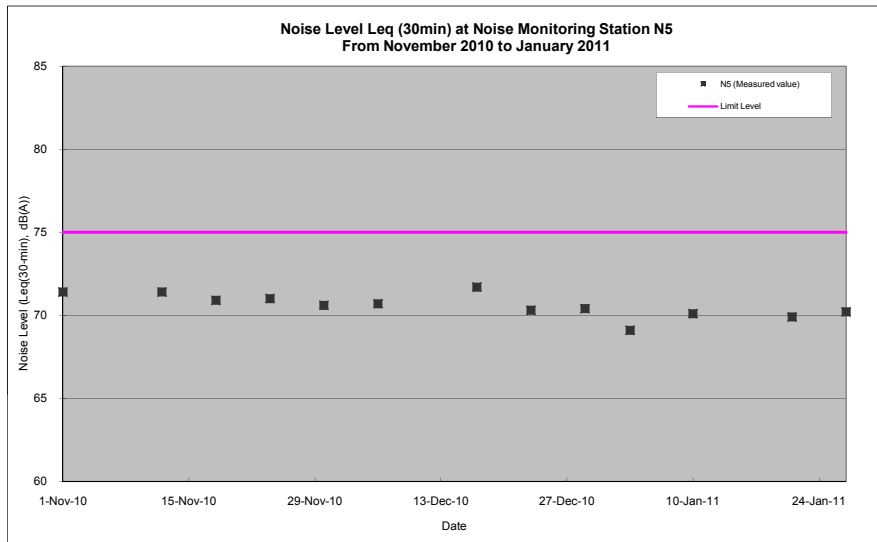
Note: For compliance comparison, please refer to above table and report.



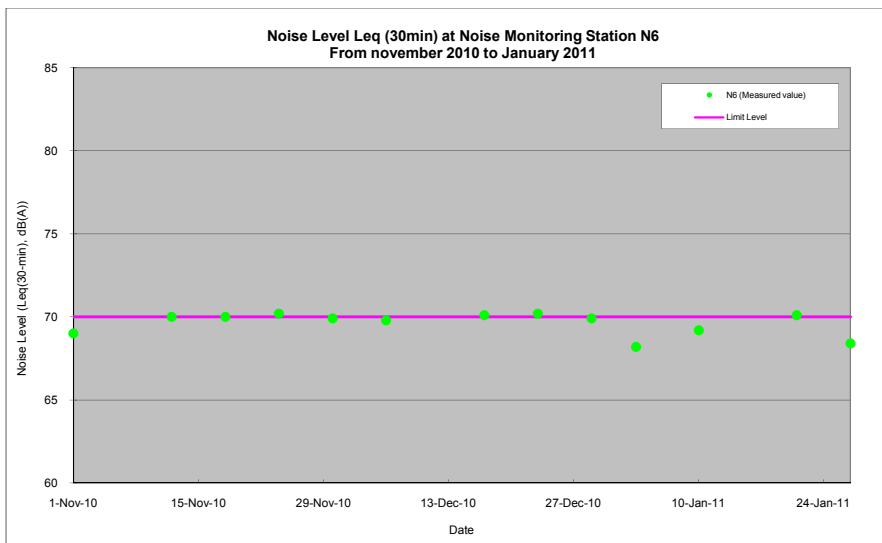
Note: For compliance comparison, please refer to above table and report.



Note: For compliance comparison, please refer to above table and report.



Note: For compliance comparison, please refer to above table and report.



Note: For compliance comparison, please refer to above table and report.

Appendix F

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**Details of LR, LCA and  
VSR**

### Landscape and Visual Impact Monitoring Locations

The landscape and visual conditions of the site and its vicinity shall be reviewed with regards to parameters assessed in the EIA Report, including landscape resources (LR), landscape character area (LCA) and view condition of visual sensitive receiver (VSR). The components of each assessed parameter of LR, LCA and VSR are summarised in **Tables A**.

**Table A** Parameters of landscape resources, landscape character areas and landscape sensitive receivers assessed during baseline site survey

ID No.	Names
<b>Landscape Resources</b>	
LR1	Tsing Sin Playground
LR2	Roadside Planting along Tuen Mun Road Adjacent to Kam Fai Garden
LR3	Street trees along Castle Peak Road – Castle Peak Bay
LR4	Street trees along Tuen Mun Road west of Chi Lok Fa Yuen and east of On Ting Estate
LR5	Street trees along Tuen Mun Road west of Waldorf Garden and CMA Choi Cheung Kok Prevocational School
LR6	Street trees along Tuen Mun Road near Tuen Mun Town Plaza
LR7	Street trees along Tuen Mun Road east of Yan Oi Tong
LR8	Trees at roadside planting areas near Yan Oi Tong Circuit
LR9	Trees at planting area near Tuen Mun Town Plaza
LR10	Trees at planting area near New Town Mansion
LR11	Trees at planting area near On Ting Estate
LR12	Tsing Hoi Playground
<b>Landscape Character Areas</b>	
LZ1	Tuen Mun Residential Urban Landscape
LZ2	Tuen Mun Mixed Modern Comprehensive Urban Development Landscape
LZ3	Tuen Mun 'Hui' Urban Landscape
<b>Visual Sensitive Receivers</b>	
C/R1	Tuen Mun Town Plaza, Waldorf Garden
C/R2	Tuen Cultural Centre, Tuen Mun Town Plaza
C/R3	Chelsea Height
GIC1	Tuen Mun Church and Tuen Mun Tseng Choi Street Joint-user Complex
GIC2	Sin Hing Tong Temple
GIC3	Semple Memorial Secondary School and Chung Shing Benevolent Society Mrs. Aw Boon Haw Secondary School
GIC4	Car park (Open)
GIC5	Yan Oi Tong Community & Sports Centre
GIC6	Tuen Mun Government Secondary School, Choi Cheung Kok Secondary School

ID No.	Names
GIC7	Madam Lau Wong Fat Primary School, Lui Cheung Kwong College, Leung Kau Kui College, Lui Cheung Kwong Primary School, Wu Siu Kui Primary School
GIC8	Sam Shing Temple
O1	San Hui Playground
O2	Tsing Sin Playground
O3	Siu Lun Sports Ground
O4	Hoi Sin Playground
R1	Residential Area of Tuen Mun San Hui
R2	Residential Area along Yan Oi Tong Circuit
R3	On Ting Estate and Siu On Court
R4	Residential Area along Tsing Hoi Circuit
R5	Handsome Court, Alpine Garden, Hoi Tak Garden and Harvest Garden, Kam Fai Garden
R6	Siu Lun Court
R7	Goodview Garden and Tsui Ning Garden
R8	Sam Shing Estate
R9	Hanford Garden
T1	Tuen Mun Road – Vehicular and Pedestrian

Appendix G

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**Complaint Log**

**Agreement No. HMW 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section**  
**Complaint Log**

ET's Complaint Log Ref. no.	Incoming Complaint Ref no.	Name of Complainant	Date of Complaint receive	Complaint Date/ Period	Complaint Location	Area of Concern	Details of Complaint	Date of Complaint received by ET	ET's Investigation Date	Investigation / Mitigation Measures	Validity to the Project	Status
C001-TCS	A complaint was received by ICC on 4 Nov 10 and informed the HyD and Supervising Officer Representative via the e-mail on same date.	Unknown	4 Nov 10	Night time (around 03:00) of 4 Nov 10	TMR near Tsing Sin Playground	Noise	The complaint was related to noise nuisance generated from the tree felling work on TMR during the night time in the vicinity of Tsing Sin playground.	11 Nov 10	11 ~ 30 Nov 10	<p>As confirmed by the Contractor and Supervising Officer's Representative, the tree felling work was carried out on TMR during the complaint period in the vicinity of Tsing Sin playground.</p> <p>Totally 4 units of power mechanical equipments had been used including crane lorry, dump truck, aerial platform and chain saw. The relevant construction noise permit (CNP) no. GW-RW0307-10 was obtained for the above works prior commencement. The conditions stipulated in the CNP were strictly followed by the Contractor. EPD had been informed prior the work commencement.</p> <p>Based on the above-mentioned information provided by the Contractor, it is anticipated that the noise nuisance was mainly due to the machines operation. Therefore, it is concluded that the complaint was work-related under the Project.</p> <p>In accordance with the Action/Event Plan, additional noise monitoring during the restricted hours was undertaken on 22 November 2010 at the monitoring location N2 (Tai Tung Pui Social Service Building), where the same night works was carried out on TMR in the vicinity of the monitoring location N2.</p> <p>Comparison is made between the monitoring results against the corresponding baseline noise level. Based on the interpretation from the results, the construction noise is 54dB(A) which below the night time noise limit level (55dB(A)).</p> <p>Nevertheless, ET recommended that the Contractor should undertake following mitigation measures to minimize the noise nuisance.</p> <ol style="list-style-type: none"> <li>1. Minimize the no. of machines used for the work as far as possible;</li> <li>2. Well-maintain the machines condition to minimize noise nuisance;</li> <li>3. Relocate operating machinery as far as possible from nearby sensitive receivers;</li> <li>4. Machines that may be in intermittent use should be shut down between work periods or should be throttled down;</li> <li>5. Optimize the working programme to minimize the restricted hours work activities as far as possible;</li> <li>6. Improve the working practices to minimize the noise nuisance during the working activities as far as possible;</li> <li>7. Provide temporary / mobile noise barrier for the noisy activities as far as possible; and</li> <li>8. Enhance the workers awareness by regular training to minimize noise nuisance during the restricted hours.</li> </ol>	Yes	Closed on 30 Nov 10