Highways Department

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

Quarterly Environmental Monitoring and Audit Summary Report (August 2013 to October 2013)

Final

Certified by Environmental Team Leader
Coleman Ng
Ove Arup & Partners Hong Kong Ltd

Verified by Independent Environmental Checker
David Yeung
ENVIRON Hong Kong Ltd

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Executive Summary

This is the thirteenth 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 August 2013 to 31 October 2013.

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

No Limit Level exceedance of noise monitoring was recorded from the monitoring data during the reporting period.

Three noise complaints, hence, three Action Level exceedences, were recorded in the reporting period. After the investigations, it is concluded that the complaints were attributable to the Contract. The corresponding mitigation measure due to the complaint was recommended to be carried out by the Contractor.

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 521 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 2,233.147 m^3 were generated and disposed of at public fills at Tuen Mun Area 38 in the reporting period. 297.375 m^3 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

Three environmental complaints regarding noise issue were recorded during the reporting period. After the investigations, it is concluded that the complaints were attributable to the Contract. The corresponding mitigation measure due to the complaint was recommended to be carried out by the Contractor.

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 Project was commenced on August 2010 and to be completed on 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/C) 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	Footbridge construction, noise barrier construction; piling works, underground utilities and drainage diversion, Erection of noise barrier/ enclosure steelworks

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

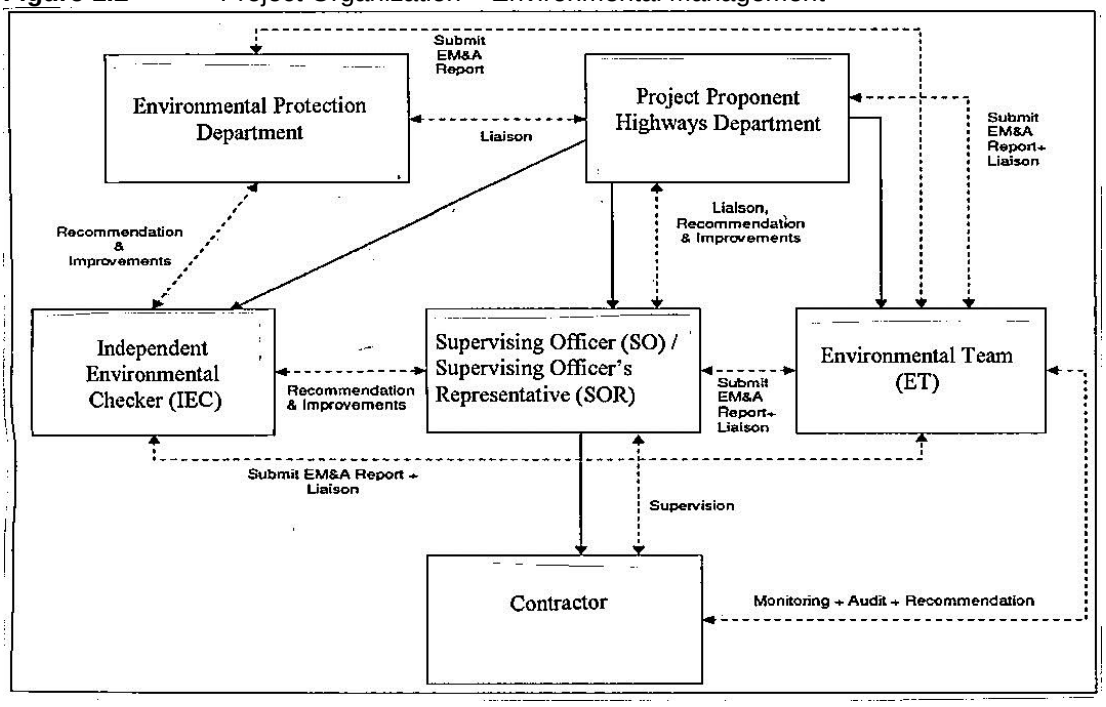


Figure 1.1 Location of works area and air, noise environmental monitoring stations

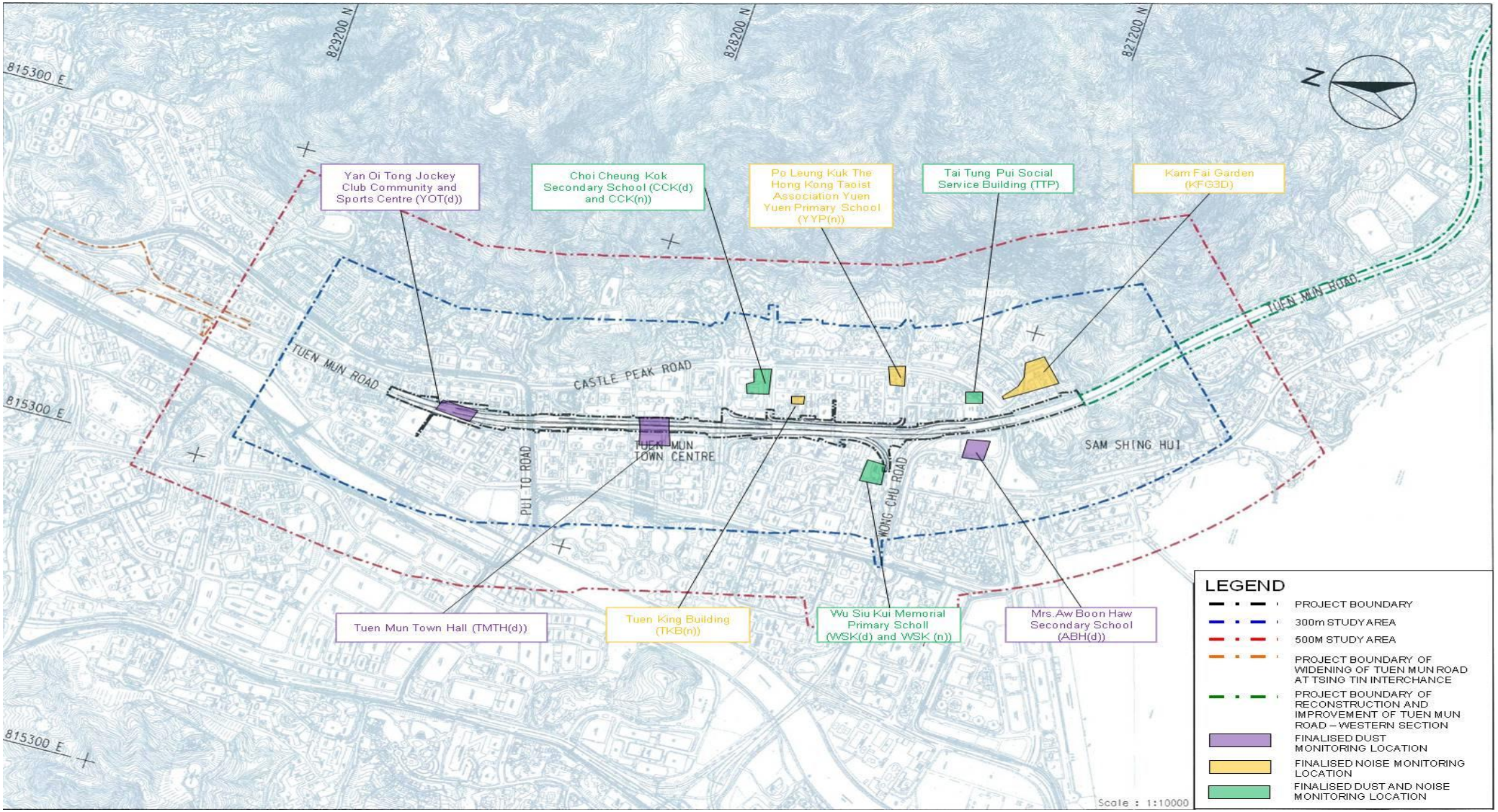


Table 1.2 Contacts of key environmental staff

Organization	Name	Telephone
Environmental Protection Department		
Environmental Protection Officer (Strategic Assessment)22	Thomas To	2835 1103
Project Proponent		
Highways Department: Senior Engineer	Peter Law	2762 3539
Supervising Officer / Supervising Officer's Representative		
AECOM Asia Co. Ltd.: Chief Resident Engineer	Patrick Lee	2969 9200
Independent Environmental Checker		
ENVIRON Hong Kong Limited: Independent Environmental Checker	David Yeung	3743 0717
Environmental Team		
Ove Arup & Partners Hong Kong Ltd: Environmental Team Leader	Coleman Ng	2268 3097
Contractor		
China Harbour Engineering Company Limited		
Site Agent	W.S. Ng	2403 0529
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
Air	
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
Noise	
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 (Note 1)	AM1	290 μg/m³	500 μg/m³
			AM2	291 μg/m³	
			AM3	287 μg/m³	
			AM4	292 μg/m³	
			AM5	286 μg/m³	
			AM6	290 μg/m³	
	24-hour TSP	Once every 6 days	AM1	146 μg/m³	260 μg/m³
			AM2	151 μg/m³	
			AM3	150 μg/m³	
			AM4	150 μg/m³	
			AM5	146 μg/m³	
			AM6	147 μg/m³	
Noise	0700 - 1900 hour on normal weekdays - $L_{eq(30min)}$	Once per week	N1, N2 & N5	When one documented complaint is received	75 dB(A)
			N3, N4 & N6		70/65 (Note 3)
	0700 - 2300 hours on holiday; and 1900 – 2300 hours on all other days - $L_{eq(5min)}$ (Note 2)	--	N1, N2, N3, N4, N5 & N6		--
	2300 – 0700 hours of next day - $L_{eq(5min)}$ (Note 2)				--
Landscape and Visual	Landscape resources (LR), landscape character area(LCA) and view sensitive receiver (VSR) (Note 4)	Twice site audit per month	Entire site area	N/A	N/A

Notes:
1. 1-hr TSP monitoring would be required in case of receiving complaints
2. 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.
3. 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.
4. 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	Yan Oi Footbridge	8-Aug-13	The Contractor was reminded to provide water spraying to the exposed soil on top of the noise enclosure.	The reminder has been noted. Closed on 15 Aug 13.
	On Ting Estate	15-Aug-13	Tarpaulin cover should be provided to temporary stockpiles	Tarpaulin cover has been provided. Closed on 22 Aug 13.
	TMT Plaza	29-Aug-13	The Contractor was reminded to minimize the gap of manhole cover to suppress odour impact to the environment.	The reminder has been noted. Closed on 5 Sep 13.
	On Ting Estate	26-Sep-13	The Contractor was reminded to provide water spraying during rock breaking.	The reminder has been noted. Closed on 3 Oct 13.
	On Ting Estate	31-Oct-13	Water spraying and acoustic jacket should be provided for rock breaking.	The reminder has been noted. Closed on 7 Nov 13.
Water Quality	On Ting Estate	15-Aug-13	Stagnant muddy water should be clear to avoid accumulation.	Muddy water has been cleared. Closed on 22 Aug 13.
	Siu On Footbridge	22-Aug-13	Mud was observed outside the site area. The Contractor should keep the public area clean and increase the bunding around.	Public area has been cleaned. Closed on 29 Aug 13.
	All Areas	22-Aug-13	The Contractor was reminded to improve the temporary drainage system.	The reminder has been noted. Closed on 29 Aug 13.
	TMT Plaza	29-Aug-13	Site access should be kept clean from mud.	Site access has been cleaned. Closed on 5 Sep 13.
	Chi Lok Garden	5-Sep-13	Stockpiles at the road side should be removed/ covered during rain.	Stockpiles have been covered. Closed on 11 Sep 13.
	Chi Lok Garden	5-Sep-13	The Contractor was reminded to drain the rainwater in the site to avoid accumulation.	The reminder has been noted. Closed on 11 Sep 13.
	All Areas	11-Sep-13	The Contractor was reminded to clear all the muds/ silts in the U-channel within the site.	The reminder has been noted. Closed on 18 Sep 13.
	Yan Oi Circuit	26-Sep-13	Stagnant water was observed in the drain channel of noise barrier footing. Larvicide should be applied to it to suppress the breeding of mosquitos.	Larvicide has been applied. Closed on 3 Oct 13.
Noise	On Ting Estate	1-Aug-13	Hydraulic breaker should be shielded with acoustic insulation jacket during operation.	Acoustic jacket has been provided. Closed on 8 Aug 13.

Monitoring Parameter	Location	Inspection Date	Key Observations & Recommendations	Contractor's Follow-Up Status
Noise	On Ting Estate	8-Aug-13	Valid noise label should be affixed on the electric hand-held breaker.	Noise label has been affixed. Closed on 15 Aug 13.
	All areas	3-Oct-13	The Contractor was reminded to follow the requirement stated in CNP during night work.	The reminder has been noted. Closed on 10 Oct 13.
Waste / Chemical Management	Yan Oi Footbridge	18-Sep-13	Drip trays should be provided for generator.	Drip tray has been provided. Closed on 26 Sep 13.
	Yan Oi Footbridge	18-Sep-13	Chemical containers should be placed in designated storage area/ placed with drip tray.	Drip tray has been provided. Closed on 26 Sep 13.
	On Ting Estate	10-Oct-13	The Contractor was reminded to provide drip tray for generator placing.	The reminder has been noted. Closed on 17 Oct 13.
	S1 Bridge	17-Oct-13	The Contractor should dispose of the broken asphalt/ concrete on a regular basis.	Broken asphalt has been removed. Closed on 24 Oct 13.
	On Ting Estate	24-Oct-13	The Contractor was reminded to provide drip tray for generator placing.	The reminder has been noted. Closed on 31 Oct 13.
	Pui To Road	31-Oct-13	The Contractor was reminded to dispose of the chemical drum as chemical waste.	The reminder has been noted. Closed on 7 Nov 13.

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, μg/m³ (Range)			
	Aug 13	Sep 13	Oct 13	Mean
AM1	22.0 (11 - 38)	11.0 (5 - 16)	27.0 (14 - 69)	20.1 (5 - 69)
AM2	26.0 (13 - 51)	13.0 (8 - 20)	26.0 (16 - 63)	22 (8 - 63)
AM3	23.0 (9 - 46)	15.0 (3 - 26)	28.0 (15 - 56)	22.2 (3 - 56)
AM4	32.0 (11 - 73)	23.0 (9 - 37)	26.0 (20 - 43)	26.9 (9 - 73)
AM5	20.0 (10 - 28)	24.0 (17 - 30)	27.0 (14 - 64)	23.9 (10 - 64)

Location	Average 24-hour TSP Concentration, μg/m³ (Range)			
	Aug 13	Sep 13	Oct 13	Mean
AM6	20.0 (11 - 36)	12.0 (10 - 14)	35.0 (17 - 55)	22.8 (10 - 55)

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)			
	Aug 13	Sep 13	Oct 13	Mean
N1	72 (71 – 73)	72 (71 – 73)	70 (69 – 70)	71 (69 – 73)
N2	72 (71 – 72)	72 (71 – 72)	71 (70 – 71)	71 (70 – 72)
N3	67 (66 – 68)	67 (66 – 68)	66 (66 – 67)	67 (66 – 68)
N4	65 (65 – 65)	65 (65 – 65)	65 (64 – 66)	65 (64 – 66)
N5	69 (69 – 70)	69 (69 – 70)	69 (68 – 69)	69 (68 – 70)
N6	68 (68 – 69)	68 (68 – 69)	68 (67 – 68)	68 (67 – 69)

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

No Limit Level exceedance of noise monitoring was recorded from the monitoring data during the reporting period.

Three noise complaints, hence, three Action Level exceedences, were recorded in the reporting period. After the investigations, it is concluded that the complaints were attributable to the Contract. The corresponding mitigation measure due to the complaint was recommended to be carried out by the Contractor.

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

exceedances were not related to the construction activities. The details of the limit level exceedances had been presented in the corresponding monthly EM&A report (Aug 2013 to Oct 2013).

Summary of above exceedance investigation of the Project is provided in the following **Section 6.2**.

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 521 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 (Aug 2013 to Oct 2013).

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				
	Aug 13	Sep 13	Oct 13	Total	Disposal Locations
Inert C&D Materials	0 m^3	0 m^3	0 m^3	0 m^3	Broken concrete (Note 1)
	0 m^3	0 m^3	0 m^3	0 m^3	Reused in the Contract
	0 m^3	0 m^3	0 m^3	0 m^3	Reused in other Projects
	628.141 m^3	831.559 m^3	773.447 m^3	2,233.147 m^3	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	0 kg	0 kg	0 kg	0 kg	Recycler
Plastic	0 kg	0 kg	0 kg	0 kg	
Metal	220,014 kg	0 kg	0 kg	220,014 kg	
General Refuse	68.250 m^3	151.125 m^3	78 m^3	297.375 m^3	Disposal of at WENT landfill

Notes:

1. Broken concrete for recycling into aggregates.

6 Environmental Performance

6.1 Non-Compliance Record

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

6.2 Review of Reasons of Non-Compliance

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

No Limit Level exceedance of noise monitoring was recorded from the monitoring data during the reporting period.

Three noise complaints, hence, three Action Level exceedences, were recorded in the reporting period. After the investigations, it is concluded that the complaints were attributable to the Contract. The corresponding mitigation measure due to the complaint was recommended to be carried out by the Contractor.

6.3 Notification of Summons and Successful Prosecution

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

6.4 Complaint Record

Three environmental complaints regarding noise issue were recorded during the reporting period.

The **first** complaint was received by ICC on 17 Aug 13 related to noise nuisance of night works at Tuen Mun Road (near Siu On Court).

As confirmed by the Contractor and Supervising Officer's Representative, the related night works was carried out in Tuen Mun Road (near Siu On Court). The noise nuisance was mainly caused by road paving works. On Friday midnight, 1 unit of roller, 1 unit of road paver, 1 unit of miller, 1 unit of lorry and 1 unit of dump truck have been deployed.

The relevant construction noise permit (CNP) no. GW-RW0339-13 was obtained for the corresponding work in the designated area prior to commencement. The conditions stipulated in the CNP were strictly followed by the Contractor. EPD had been informed prior to the work commencement. No abnormal activities were observed during the complaint period. Based on the above-mentioned information, it is concluded that the complaint was work-related under the Project.

Based on the above-mentioned information, it is concluded that the complaint was work-related under the Project. In order to minimize the potential noise nuisance generated from the road paving works, ET recommended that the Contractor should undertake following mitigation measures to minimize the noise nuisance.

1. Well maintain the machines condition to minimize noise nuisance;
2. Relocate operating machinery as far as possible from nearby sensitive receivers;
3. Idle equipments should be either turned off or throttled down; and
4. Improve the working practices to minimize the noise nuisance during the working activities as far as possible.

The **second** complaint was received by ICC on 15 Sep 13 related to noise nuisance of night works near Pui To Road.

As confirmed by the Contractor and Supervising Officer's Representative, the related night works was carried out in Tuen Mun Road (near Pui To Road). The noise nuisance was mainly caused by rock breaking works. On Sunday midnight, 1 unit of breaker, 1 unit of lorry and 1 unit of dump truck have been deployed.

The relevant construction noise permit (CNP) no. GW-RW0583-13 was obtained for the corresponding work in the designated area prior to commencement. The conditions stipulated in the CNP were strictly followed by the Contractor. EPD had been informed prior to the work commencement. No abnormal activities were observed during the complaint period. Based on the above-mentioned information, it is concluded that the complaint was work-related under the Project.

Based on the above-mentioned information, it is concluded that the complaint was work-related under the Project.

In order to minimize the potential noise nuisance generated from the road paving works, ET recommended that the Contractor should undertake following mitigation measures to minimize the noise nuisance.

1. Well maintain the machines condition to minimize noise nuisance;
2. Relocate operating machinery as far as possible from nearby sensitive receivers;
3. Idle equipments should be either turned off or throttled down; and
4. Improve the working practices to minimize the noise nuisance during the working activities as far as possible.

The **third** complaint was received by ICC on 17 Sep 13 related to noise nuisance of night works near Tuen Hing Road.

As confirmed by the Contractor and Supervising Officer's Representative, the related night works was carried out in Tuen Mun Road (near Tuen Hing Road). The noise nuisance was mainly caused by road resurfacing works. On Sunday midnight, 1 unit of roller, 1 unit of road paver, 1 unit of miller, 1 unit of lorry and 1 unit of dump truck have been deployed.

The relevant construction noise permit (CNP) no. GW-RW0584-13 was obtained for the corresponding work in the designated area prior to commencement. The conditions stipulated in the CNP were strictly followed by the Contractor. EPD had been informed prior to the work commencement. No abnormal activities were observed during the complaint period. Based on the above-mentioned information, it is concluded that the complaint was work-related under the Project.

Based on the above-mentioned information, it is concluded that the complaint was work-related under the Project.

In order to minimize the potential noise nuisance generated from the road paving works, ET recommended that the Contractor should undertake following mitigation measures to minimize the noise nuisance.

1. Well maintain the machines condition to minimize noise nuisance;
2. Relocate operating machinery as far as possible from nearby sensitive receivers;
3. Idle equipments should be either turned off or throttled down; and
4. Improve the working practices to minimize the noise nuisance during the working activities as far as possible

The updated statistical summary of complaint is presented in **Table 6.1**. The updated complaint logs (C039 to C041) of the Project in the reporting period are 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 (Ref.: C001)	Closed on 30 Nov 10.
01/12/10 – 31/01/11	0	1	-	-	-
01/02/11 – 28/02/11	1	2	Noise	Yes (Ref.: C002)	Closed on 2 Mar 11.
01/03/11 – 31/03/11	0	2	-	-	-
01/04/11 – 30/04/11	2	4	Water	Yes (Ref.: C003)	Closed on 16 Apr 11.
			Noise	Yes (Ref.: C004)	Closed on 16 May 11.
01/05/11 – 31/05/11	1	5	Water	Yes (Ref.: C005)	Closed on 10 Jun 11.
01/06/11 – 30/06/11	1	6	Air	Yes (Ref.: C006)	Closed on 23 Jun 11.
	1	7	Noise	Yes (Ref.: C007)	Closed on 24 Jun 11.
	1	8	Water	Yes (Ref.: C008)	Closed on 4 Jul 11.
	1	9	Air	Yes (Ref.: C009)	Closed on 14 Jul 11.
01/07/11 – 31/07/11	1	10	Noise	Yes (Ref.: C010)	Closed on 4 Aug 11.
	1	11	Water	Yes (Ref.: C011)	Closed on 4 Aug 11.
01/08/11 – 31/08/11	0	11	-	-	-
01/09/11 – 30/09/11	1	12	Noise	Yes (Ref.: C012)	Closed on 29 Sep 11.

Reporting Period	Complaint Statistics		Area of Concern	Validity to the Project	Status
	Number	Cumulative			
	1	13	Water	Yes (Ref.: C013)	Closed on 14 Oct 11.
	1	14	Water	Yes (Ref.: C014)	Closed on 14 Oct 11.
01/10/11 – 31/10/11	1	15	Water	Yes (Ref.: C015)	Closed on 28 Oct 11.
01/11/11 – 30/11/11	1	16	Noise	Yes (Ref.: C016)	Closed on 24 Nov 11.
	1	17	Noise	Yes (Ref.: C017)	Closed on 30 Nov 11.
01/12/11 – 31/12/11	0	17	-	-	-
01/01/12 – 31/01/12	1	18	Water	Yes (Ref.: C018)	Closed on 6 Feb 12.
	1	19	Water	Yes (Ref.: C019)	Closed on 6 Feb 12.
01/02/12 – 29/02/12	0	19	-	-	-
01/03/12 – 31/03/12	1	20	Water	Yes (Ref.: C020)	Closed on 22 Mar 12.
	1	21	Noise	Yes (Ref.: C021)	Closed on 28 Mar 12.
	1	22	Noise	Yes (Ref.: C022)	Closed on 5 Apr 12.
	1	23	Water	Yes (Ref.: C023)	Closed on 5 Apr 12.
01/04/12 – 30/04/12	0	23	-	-	-
01/05/12 – 31/05/12	1	24	Water	Yes (Ref.: C024)	Closed on 24 May 12.
	1	25	Noise	Yes (Ref.: C025)	Closed on 7 Jun 12.
	1	26	Noise	Yes (Ref.: C026)	Closed on 7 Jun 12.
01/06/12 – 30/06/12	0	26	-	-	-
01/07/12 – 31/07/12	0	26	-	-	-
01/08/12 – 31/08/12	0	26	-	-	-
01/09/12 – 30/09/12	0	26	-	-	-
01/10/12 – 31/10/12	0	26	-	-	-
01/11/12 – 30/11/12	1	27	Noise	Yes (Ref.: C027)	Closed on 8 Nov 12.
	1	28	Noise	Yes (Ref.: C028)	Closed on 8 Nov 12.
01/12/12 – 31/12/12	1	29	Noise	Yes (Ref.: C029)	Closed on 31 Dec 12.
	1	30	Noise	Yes (Ref.: C030)	Closed on 31 Dec 12.

Reporting Period	Complaint Statistics		Area of Concern	Validity to the Project	Status
	Number	Cumulative			
	1	31	Noise	Yes (Ref.: C031)	Closed on 31 Dec 12.
01/01/13 – 31/01/13	0	31	-	-	-
01/02/13 – 28/02/13	1	32	Noise	Yes (Ref.: C032)	Closed on 15 Feb 13.
	1	33	Noise	Yes (Ref.: C033)	Closed on 15 Feb 13.
	1	34	Noise	Yes (Ref.: C034)	Closed on 15 Feb 13.
	1	35	Noise	Yes (Ref.: C035)	Closed on 15 Feb 13.
01/03/13 – 31/03/13	0	35	-	-	-
01/04/13 – 30/04/13	1	36	Noise	Yes (Ref.: C036)	Closed on 9 May 13.
01/05/13 – 31/05/13	0	36	-	-	-
01/06/13 – 30/06/13	1	37	Noise	Yes (Ref.: C037)	Closed on 11 July 13.
01/07/13 – 31/07/13	1	38	Noise	Yes (Ref.: C038)	Closed on 25 July 13.
01/08/13 – 31/08/13	1	39	Noise	Yes (Ref.: C039)	Closed on 29 Aug 13.
01/09/13 – 30/09/13	1	40	Noise	Yes (Ref.: C040)	Closed on 26 Sep 13.
	1	41	Noise	Yes (Ref.: C041)	Closed on 26 Sep 13.
01/10/13 – 31/10/13	0	41	-	-	-

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.

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

No Limit Level exceedance of noise monitoring was recorded from the monitoring data during the reporting period.

Three noise complaints, hence, three Action Level exceedences, were recorded in the reporting period. After the investigations, it is concluded that the complaints were attributable to the Contract. The corresponding mitigation measure due to the complaint was recommended to be carried out by the Contractor.

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 521 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 complaints 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. December 2008. Agreement No. CE 22/2005 (HY) Supplementary No. 1 Traffic Improvements to Tuen Mun Road Town Centre Section – Environmental Monitoring & Audit Manual.

[2] Ove Arup & Partners Hong Kong Limited. July 2010. Agreement No. HMW 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section – Baseline Monitoring Report (Revision_4)

[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 – August 2013 (Final)

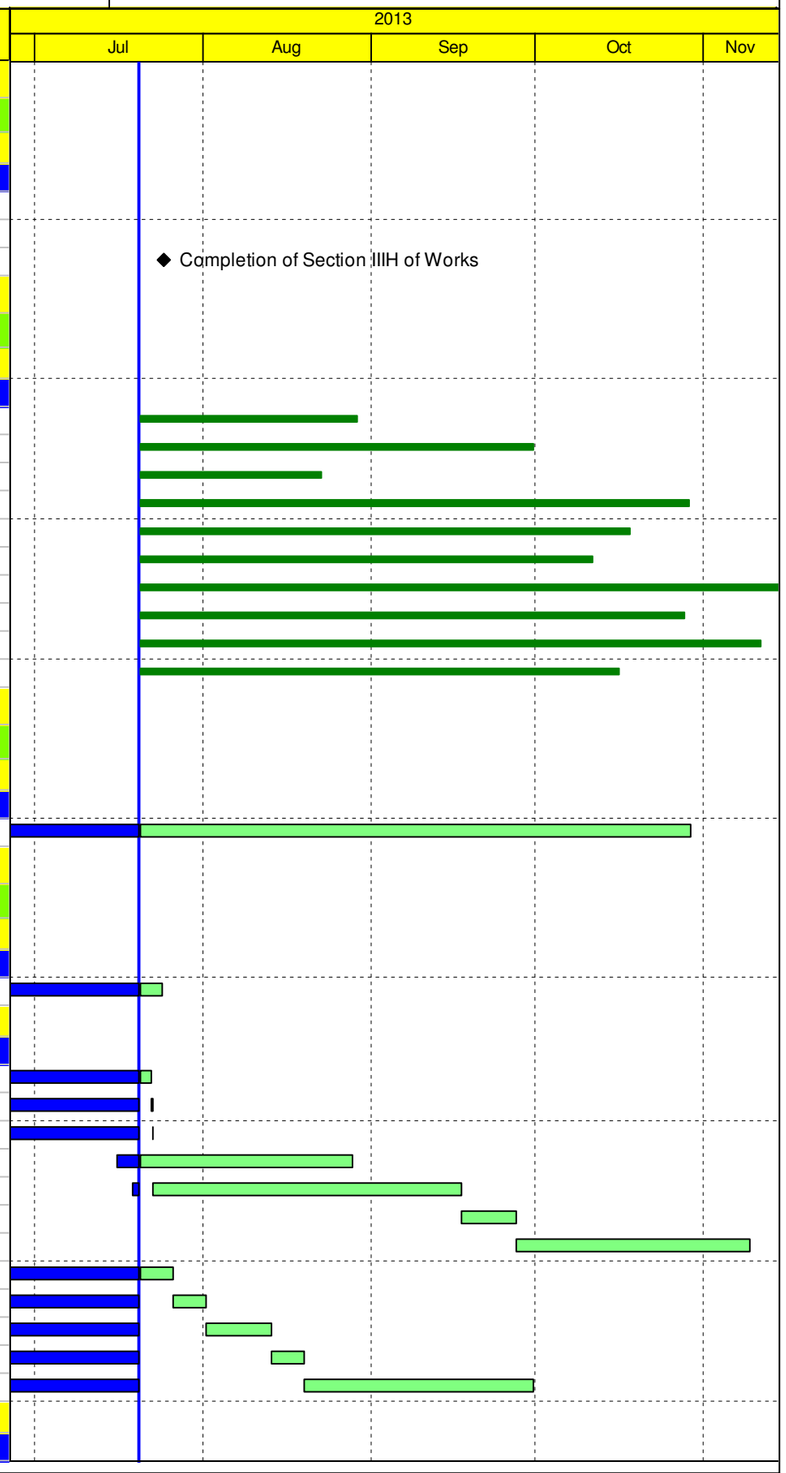
[4] Ove Arup & Partners Hong Kong Limited. Agreement No. HMW 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section – Monthly Environmental Monitoring and Audit Report – September 2013 (Final)

[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 – October 2013 (Final)

Appendix A

Construction Programme

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Late Start	Late Finish
Preliminaries and General Requirements							
Preliminaries and General Requirements							
Contract Key Dates							
Project Completion							
KD1100	Completion of Section II of Works (Extended up to 9-Jan-14)	0	0		30-Jan-14*		09-Jan-14
KD1130	Completion of Section III of Works (Extended up to 16-Nov-13)	0	0		14-Feb-14*		16-Nov-13
KD1210	Completion of Section IIIH of Works	0	0		24-Jul-13*		24-Feb-13
Procurement							
Material Procurement and Fabrication							
Procurement and Fabrication							
Material Procurement and Fabrication							
MP1120	Noise Barrier/Enclosure steel structure for Scheme C Area	176	34	23-Dec-12 A	29-Aug-13	24-Dec-12	25-Nov-13
MP1150	Noise Barrier/Enclosure wall panel for Scheme A Area	207	61	31-Jan-13 A	30-Sep-13	31-Jan-13	09-Jan-14
MP1160	Noise Barrier/Enclosure wall panel for Scheme B Area	140	29	28-Sep-12 A	22-Aug-13	28-Sep-12	09-Jan-14
MP1170	Noise Barrier/Enclosure wall panel for Scheme C Area	125	83	16-Apr-13 A	29-Oct-13	16-Apr-13	09-Jan-14
MP1180	Noise Barrier/Enclosure wall panel for Scheme D Area	112	75	04-Jun-13 A	18-Oct-13	22-Jul-13	02-Dec-13
MP1190	Noise Barrier/Enclosure wall panel for Scheme E Area	145	70	06-Mar-13 A	11-Oct-13	06-Mar-13	11-Oct-13
MP1210	Noise Barrier/Enclosure roof panel for Scheme B Area	237	123	28-Sep-12 A	13-Dec-13	28-Sep-12	09-Jan-14
MP1220	Noise Barrier/Enclosure roof panel for Scheme C Area	163	83	16-Apr-13 A	28-Oct-13	16-Apr-13	20-Dec-13
MP1230	Noise Barrier/Enclosure roof panel for Scheme D Area	161	95	15-Apr-13 A	11-Nov-13	26-Mar-13	11-Oct-13
MP1240	Noise Barrier/Enclosure roof panel for Scheme E Area	236	73	20-Feb-13 A	16-Oct-13	20-Feb-13	16-Nov-13
Section 1 of Works							
Establishment Works in Portion 1							
Establishment Works							
Establishment Works in Portion 1							
SEC11090	Establisment Works	365	102	30-Sep-12 A	29-Oct-13	29-Jul-13	07-Nov-13
Section II of Works							
Scheme A (CH29405 - CH29050)							
NB Structural Steel Post/Colum Erection							
Stage 1 Kowloon Bound Road Verge & T1							
RA1110	Erect NE01 S/B steel column	25	4	22-Sep-12 A	24-Jul-13	13-Nov-13	16-Nov-13
Wall and Roof Panel Installation							
Stage 4 Steel Frame & Panel							
RA1505	Install translucent roof panel NE03	16	1	31-Jan-13 A	22-Jul-13	16-Sep-13	17-Sep-13
RA1507	Install translucent roof panel NE04 N/B & S/B	31	0	07-May-13 A	22-Jul-13	17-Sep-13	17-Sep-13
RA1510	Install roof cladding & translucent roof panel NE05 N/B & S/B	63	0	13-Apr-13 A	22-Jul-13	17-Sep-13	17-Sep-13
RA1532	Install roof cladding & translucent roof panel NE02 S/B	38	34	16-Jul-13 A	28-Aug-13	18-Oct-13	26-Nov-13
RA1541	Planting for green roof NE05	52	49	19-Jul-13 A	17-Sep-13	17-Sep-13	16-Nov-13
RA1542	Planting for green roof NE01	8	8	17-Sep-13	27-Sep-13	16-Nov-13	26-Nov-13
RA1543	Planting for green roof NE02	35	35	27-Sep-13	09-Nov-13	27-Nov-13	09-Jan-14
RA1545	Install green and transparent wall panel NE03	26	5	17-Apr-13 A	26-Jul-13	28-Oct-13	02-Nov-13
RA1550	Install green and transparent wall panel NE04	57	5	11-May-13 A	01-Aug-13	02-Nov-13	08-Nov-13
RA1790	Install green and transparent wall panel NE05	39	10	14-Apr-13 A	13-Aug-13	08-Nov-13	20-Nov-13
RA1800	Install green and transparent wall panel NE01	21	5	15-Apr-13 A	19-Aug-13	20-Nov-13	26-Nov-13
RA1810	Install green and transparent wall panel NE02	46	35	22-Jun-13 A	30-Sep-13	26-Nov-13	09-Jan-14
Roadworks							
Stage 3 Central Median Area							



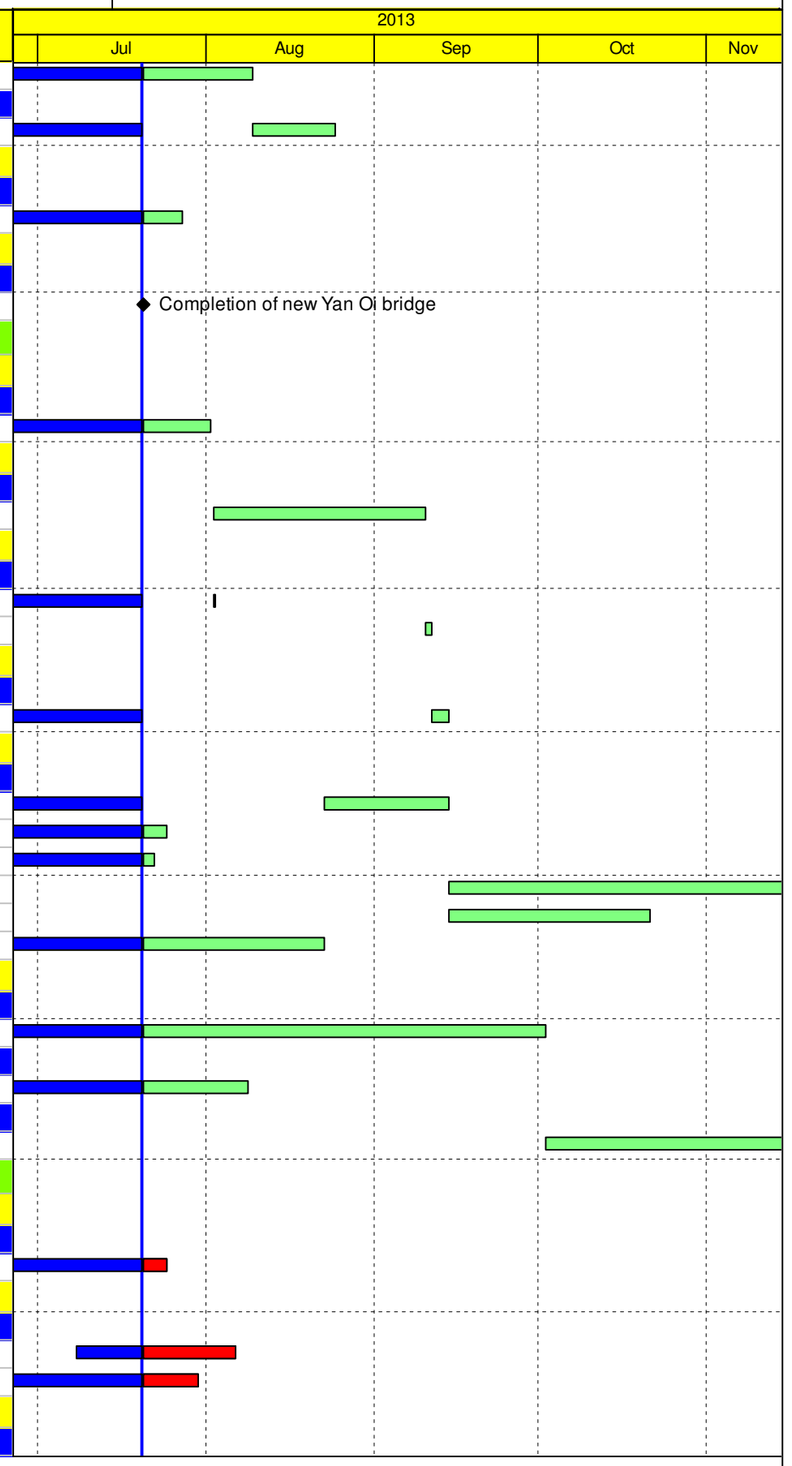
Remaining Level of Effort ◆ ◆ Milestone
Actual Work
Remaining Work
Critical

3 Months Rolling Programme WP04 (Cutoff: 20-07-13)

Data Date: 20-Jul-13

Date	Revision	Checked	Approved
20-May-13	WP04 3MRP updated on 20-05-13	ZJ	
20-Jun-13	WP04 3MRP updated on 20-06-13	ZJ	
20-Jul-13	WP04 3MRP updated on 20-07-13	ZJ	

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Late Start	Late Finish
RA1480	Roadworks central barrier CH29050 to CH29400	58	18	04-Feb-13 A	09-Aug-13	02-Dec-13	21-Dec-13
Stage 5 Road Re-surface							
RA1570	Existing road re-surfacing CH29050 to CH29400	45	14	16-Mar-13 A	24-Aug-13	21-Dec-13	09-Jan-14
Column, Pier Head and Staircase							
Construction of New Yan Oi Bridge							
YO1187	Construct N/B staircase	45	7	16-Mar-13 A	27-Jul-13	02-Jan-14	09-Jan-14
Completion of New Yan Oi Bridge							
Construction of New Yan Oi Bridge							
YO1150	Completion of new Yan Oi bridge	0	0		20-Jul-13		09-Jan-14
Scheme B (CH29050 - CH28520)							
Utilities Diversion							
Stage 1 Both Bound Road Verge							
RB2124	Diversion existing PCCW 24 ways, HGC, 11kv & sewer	55	11	06-Nov-12 A	01-Aug-13	13-Aug-13	26-Aug-13
Pile Cap / Footing							
Stage 1 Both Bound Road Verge							
RB1240	Construct pad footing for NE07 FT1 & FT2	33	33	02-Aug-13	10-Sep-13	26-Aug-13	05-Oct-13
NB Structural Steel Post/Colum Erection							
Stage 1 Both Bound Road Verge							
RB1335	Erect NE06 S/B steel column	20	1	13-Jan-13 A	02-Aug-13	05-Oct-13	07-Oct-13
RB1340	Erect NE07 S/B steel column	1	1	10-Sep-13	11-Sep-13	05-Oct-13	07-Oct-13
Main Span Erection at YL/B & KL/B of TMR							
Stage 3 Steel Frame & Panel							
RB1670	Erection NE06 & 07 S/B roof beam	24	3	03-Jan-13 A	14-Sep-13	07-Oct-13	11-Oct-13
Wall and Roof Panel Installation							
Stage 3 Steel Frame & Panel							
RB1690	Install roof cladding & translucent roof panel NE06 & 07 N/B & S/B	68	20	09-Jun-13 A	14-Sep-13	16-Sep-13	11-Oct-13
RB1694	Install translucent roof panel NE10 to 14 S/B	67	4	18-Dec-12 A	24-Jul-13	06-Jan-14	09-Jan-14
RB1702	Install roof cladding & translucent roof panel NE10 to 14 N/B	74	1	18-Dec-12 A	22-Jul-13	08-Jan-14	09-Jan-14
RB1710	Planting for green roof NE06 & NE07	74	74	14-Sep-13	13-Dec-13	11-Oct-13	09-Jan-14
RB1720	Install green and transparent wall panel NE06 & 07	28	28	14-Sep-13	21-Oct-13	04-Dec-13	09-Jan-14
RB2180	Install green and transparent wall panel NE10 to 14	132	29	16-Nov-12 A	22-Aug-13	04-Dec-13	09-Jan-14
Roadworks							
Stage 1 Both Bound Road Verge							
RB1400	Roadworks N/B verge CH28600 to CH28950 (L=350m.)	88	61	11-Mar-13 A	02-Oct-13	27-Jul-13	09-Oct-13
Stage 2 Central Median							
RB1650	Roadworks central barrier CH28500 to CH29000 (L=500m.)	83	17	31-Aug-12 A	08-Aug-13	18-Sep-13	09-Oct-13
Stage 4 Road Re-surface							
RB1740	Existing road re-surfacing CH28550 to CH29050	75	75	02-Oct-13	02-Jan-14	10-Oct-13	09-Jan-14
Scheme C (CH28520 - CH28200)							
Foundation Works							
Stage 1 NE15 East Side, Tsing Hoi Circuit Re-alignment & S/B Foundation							
RC1735	Water diversion along Tsing Hoi Circuit (by others)	49	4	12-Apr-12 A	24-Jul-13	05-Jul-13	10-Jul-13
Pile Cap / Footing							
Stage 3 Central Median & N/B Foundation							
RC1350	Construct pile cap NE16 PC36	17	14	08-Jul-13 A	06-Aug-13	28-Jun-13	16-Jul-13
RC1370	Construct pat footing NE16 FT37 to FT41 & NE17 FT15 to FT20	92	8	10-Dec-12 A	30-Jul-13	02-Jul-13	11-Jul-13
NB Structural Steel Post/Colum Erection							
Stage 1 NE15 East Side, Tsing Hoi Circuit Re-alignment & S/B Foundation							



Remaining Level of Effort ◆ Milestone
Actual Work
Remaining Work
Critical

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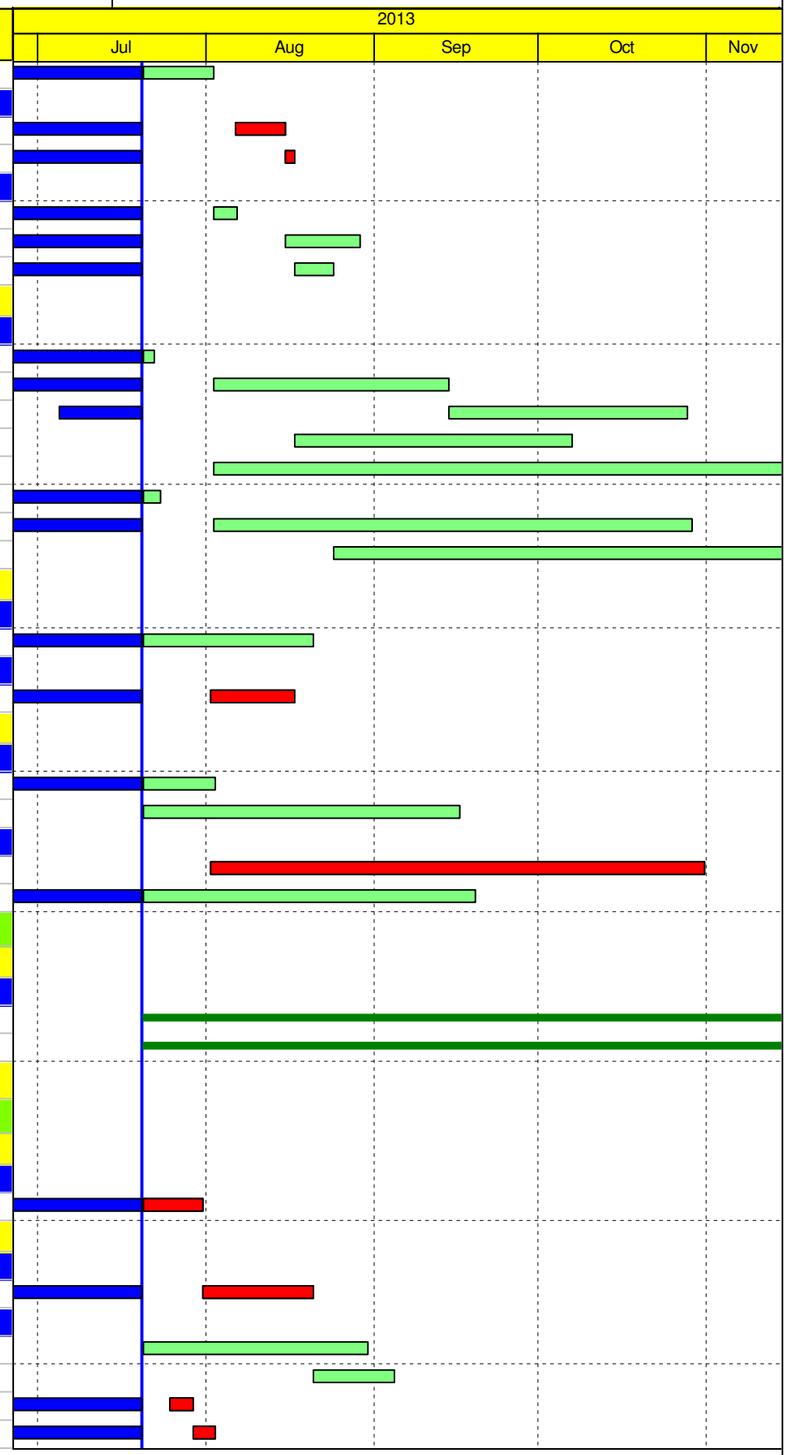
Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Late Start	Late Finish
RC1130	Erection part of NE16 N/B steel column (FT27 to FT34 & PC35)	25	11	30-Dec-12 A	02-Aug-13	12-Sep-13	26-Sep-13
Stage 3 Central Median & N/B Foundation							
RC1690	Erection NE16 N/B steel column	18	8	30-Dec-12 A	15-Aug-13	16-Jul-13	25-Jul-13
RC1710	Erection NE17 N/B steel column	23	2	21-May-13 A	17-Aug-13	25-Jul-13	27-Jul-13
Stage 4 Steel Frame & Panel							
RC1447	Erection NE16 roof beam (Tuen Hing Rd to Siu On Bridge) NB & SB	50	3	03-Feb-13 A	06-Aug-13	26-Sep-13	30-Sep-13
RC1449	Erection NE16 roof beam (Siu On Bridge to NE17) NB & SB	36	12	01-Mar-13 A	29-Aug-13	11-Nov-13	25-Nov-13
RC1450	Erection NE17 roof beam NB & SB	46	6	21-May-13 A	24-Aug-13	26-Sep-13	03-Oct-13
Wall and Roof Panel Installation							
Stage 4 Steel Frame & Panel							
RC1465	Install roof translucent roof panel NE15	21	1	16-Apr-13 A	22-Jul-13	08-Jan-14	09-Jan-14
RC1466	Install roof translucent roof panel NE16 (Tuen Hing Rd to Siu On Bridge) NB & SB	90	38	03-Apr-13 A	14-Sep-13	26-Sep-13	11-Nov-13
RC1470	Install roof cladding & translucent roof panel NE16 (Siu On Bridge to NE17) NB &	57	34	05-Jul-13 A	28-Oct-13	11-Nov-13	20-Dec-13
RC1480	Install translucent roof panel NE17 NB & SB	41	41	17-Aug-13	07-Oct-13	20-Nov-13	09-Jan-14
RC1484	Green roof planting for NE16	129	129	02-Aug-13	07-Jan-14	07-Aug-13	09-Jan-14
RC1495	Install green and transparent wall panel NE15	42	3	17-Apr-13 A	23-Jul-13	07-Jan-14	09-Jan-14
RC1865	Install green and transparent wall panel NE16	109	72	21-May-13 A	29-Oct-13	12-Oct-13	09-Jan-14
RC1875	Install green and transparent wall panel NE17	80	80	24-Aug-13	29-Nov-13	04-Oct-13	09-Jan-14
Drainage Works							
Stage 1 NE15 East Side, Tsing Hoi Circuit Re-alignment & S/B Foundation							
RC1165	Construct drainage N/B verge CH28400 to CH28500	67	27	07-May-13 A	20-Aug-13	10-Aug-13	10-Sep-13
Stage 3 Central Median & N/B Foundation							
RC1670	Construct drainage N/B verge CH28250 to CH28400	100	13	27-Dec-12 A	17-Aug-13	12-Jul-13	27-Jul-13
Roadworks							
Stage 1 NE15 East Side, Tsing Hoi Circuit Re-alignment & S/B Foundation							
RC1150	Roadworks T5 alignment	60	12	04-Mar-13 A	02-Aug-13	25-Sep-13	09-Oct-13
RC1175	Roadworks N/B verge CH28400 to CH28500	50	50	20-Jul-13	16-Sep-13	10-Aug-13	09-Oct-13
Stage 3 Central Median & N/B Foundation							
RC1680	Roadworks N/B verge CH28250 to CH28400	75	75	01-Aug-13	31-Oct-13	12-Jul-13	09-Oct-13
RC1685	Roadworks central barrier CH28150 to CH28500	117	53	07-Jan-13 A	19-Sep-13	07-Aug-13	09-Oct-13
TCSS and Fire Fighting System							
TCSS and Fire Fighting System							
TCSS and Fire Fighting System							
TCSS1000	Section 2 TCSS installation	692	161	11-Mar-11 A	30-Jan-14	11-Mar-11	09-Jan-14
TCSS1010	Section 2 Street lighting & Fire Fighting system installation	692	161	11-Mar-11 A	30-Jan-14	11-Mar-11	09-Jan-14
Section III of Works							
Scheme D (CH28200 - CH27785)							
Pile Cap / Footing							
Stage 1 N/B Foundation							
RD1710	Construct pile cap and wall NE26 PC1 to PC10	77	9	08-Mar-12 A	31-Jul-13	20-Jun-13	02-Jul-13
NB Structural Steel Post/Colum Erection							
Stage 1 N/B Foundation							
RD1380	Erect NE26 S/B steel column	29	18	26-Mar-13 A	20-Aug-13	02-Jul-13	23-Jul-13
Stage 4 NE18, NE21 & NE23 Foundation							
RD3000	Erect NE23 steel column	36	36	20-Jul-13	30-Aug-13	28-Aug-13	11-Oct-13
RD3010	Erect NE21 steel column	13	13	20-Aug-13	04-Sep-13	11-Oct-13	28-Oct-13
RD3020	Erect NE18 S/B steel column	21	3	12-Apr-13 A	29-Jul-13	10-Jul-13	13-Jul-13
RD3030	Erect NE18 N/B steel column	21	4	23-Mar-13 A	02-Aug-13	13-Jul-13	18-Jul-13



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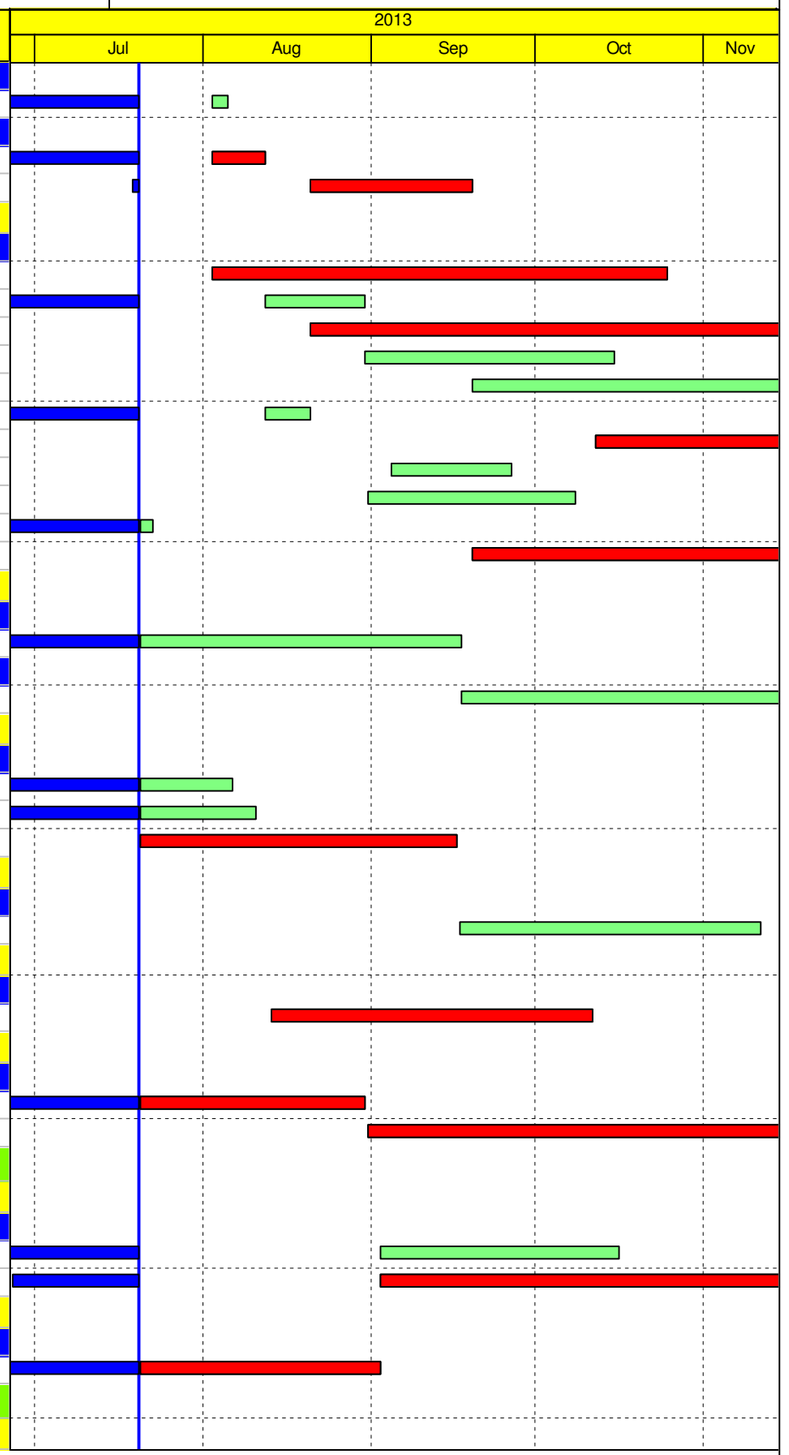
Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Late Start	Late Finish
Stage 5 NE20 & NE22 Foundation							
RD1532	Erect NE20 N/B steel column	24	2	07-Feb-13 A	05-Aug-13	04-Nov-13	06-Nov-13
Stage 6 Steel Frame & Panel							
RD1580	Erection NE18 N/B & S/B roof beam	42	8	09-Jun-13 A	12-Aug-13	18-Jul-13	27-Jul-13
RD1590	Erection NE26 roof beam	29	26	19-Jul-13 A	19-Sep-13	23-Jul-13	22-Aug-13
Wall and Roof Panel Installation							
Stage 6 Steel Frame & Panel							
RD1600	Install roof cladding & translucent roof panel NE18 N/B & S/B	69	69	02-Aug-13	25-Oct-13	18-Jul-13	09-Oct-13
RD1602	Install roof cladding & translucent roof panel NE20	53	16	14-Jun-13 A	30-Aug-13	06-Nov-13	25-Nov-13
RD1610	Install roof cladding & translucent roof panel NE26	98	98	20-Aug-13	16-Dec-13	23-Jul-13	16-Nov-13
RD1625	Planting for green roof NE20	36	36	30-Aug-13	15-Oct-13	25-Nov-13	09-Jan-14
RD1630	Install green and transparent wall panel NE18	52	52	19-Sep-13	22-Nov-13	07-Nov-13	09-Jan-14
RD1635	Install green and transparent wall panel NE20	24	8	15-Jun-13 A	20-Aug-13	31-Dec-13	09-Jan-14
RD3095	Install absorptive transparent wall panel NE19	52	52	12-Oct-13	13-Dec-13	13-Sep-13	16-Nov-13
RD3100	Install absorptive & transparent wall panel NE21	18	18	04-Sep-13	26-Sep-13	28-Oct-13	16-Nov-13
RD3110	Install absorptive & transparent wall panel NE23	30	30	31-Aug-13	08-Oct-13	11-Oct-13	16-Nov-13
RD3120	Install absorptive & transparent wall panel NE24	35	2	14-May-13 A	22-Jul-13	15-Nov-13	16-Nov-13
RD3150	Install absorptive & transparent wall panel NE26	48	48	19-Sep-13	18-Nov-13	19-Sep-13	16-Nov-13
Roadworks							
Stage 3 Central Median Foundation							
RD1860	Roadworks along central median CH27800 to CH28250	113	51	22-Aug-12 A	17-Sep-13	09-Aug-13	09-Oct-13
Stage 7 Road Re-surface							
RD1640	Existing road re-surfacing CH27800 to CH28200 (L=400m.)	75	75	17-Sep-13	17-Dec-13	10-Oct-13	09-Jan-14
Parapet Type A & B Installation							
Construction of Vehicular Bridge S1							
S1B1070	Construct parapet Pier 7 to Pier 3	60	14	14-Mar-13 A	06-Aug-13	05-Aug-13	21-Aug-13
S1B1075	Construct parapet Pier 7 to South Abutment	50	19	21-May-13 A	10-Aug-13	31-Jul-13	21-Aug-13
S1B1490	Construct parapet Pier 3 to North Abutment	50	50	20-Jul-13	16-Sep-13	22-Jun-13	21-Aug-13
Bituminous Surfacing Works							
Construction of Vehicular Bridge S1							
S1B1080	Road paving and features	45	45	17-Sep-13	11-Nov-13	24-Sep-13	16-Nov-13
Vehicular Bridge S1 NB Steel Column							
Construction of Vehicular Bridge S1							
S1B1110	Erect NE19 steel column	50	50	13-Aug-13	11-Oct-13	18-Jul-13	13-Sep-13
Modification of Existing Wong Chu Road Flyover							
Construction of Vehicular Bridge S1							
S1B1090	Modification of existing Wong Chu Road flyover	120	36	18-Mar-13 A	30-Aug-13	19-Jun-13	31-Jul-13
S1B1100	Stitching of existing Wong Chu Road flyover and S1 bridge	90	90	31-Aug-13	17-Dec-13	01-Aug-13	16-Nov-13
Scheme E (CH27785 - CH27000)							
Wall and Roof Panel Installation							
Stage 4 Steel Frame & Panel							
RE1140	Install transparent roof panel NE27	146	35	12-Jun-13 A	16-Oct-13	05-Oct-13	16-Nov-13
RE1150	Install green and transparent wall panel NE27	85	62	27-Jun-13 A	16-Nov-13	02-Sep-13	16-Nov-13
Roadworks							
Stage 3 NE27 S/B Foundation							
RE1202	Roadworks S/B verge CH27550 to CH27750	50	38	15-Apr-13 A	02-Sep-13	20-Jul-13	02-Sep-13
TCSS and Fire Fighting System							
TCSS and Fire Fighting System							



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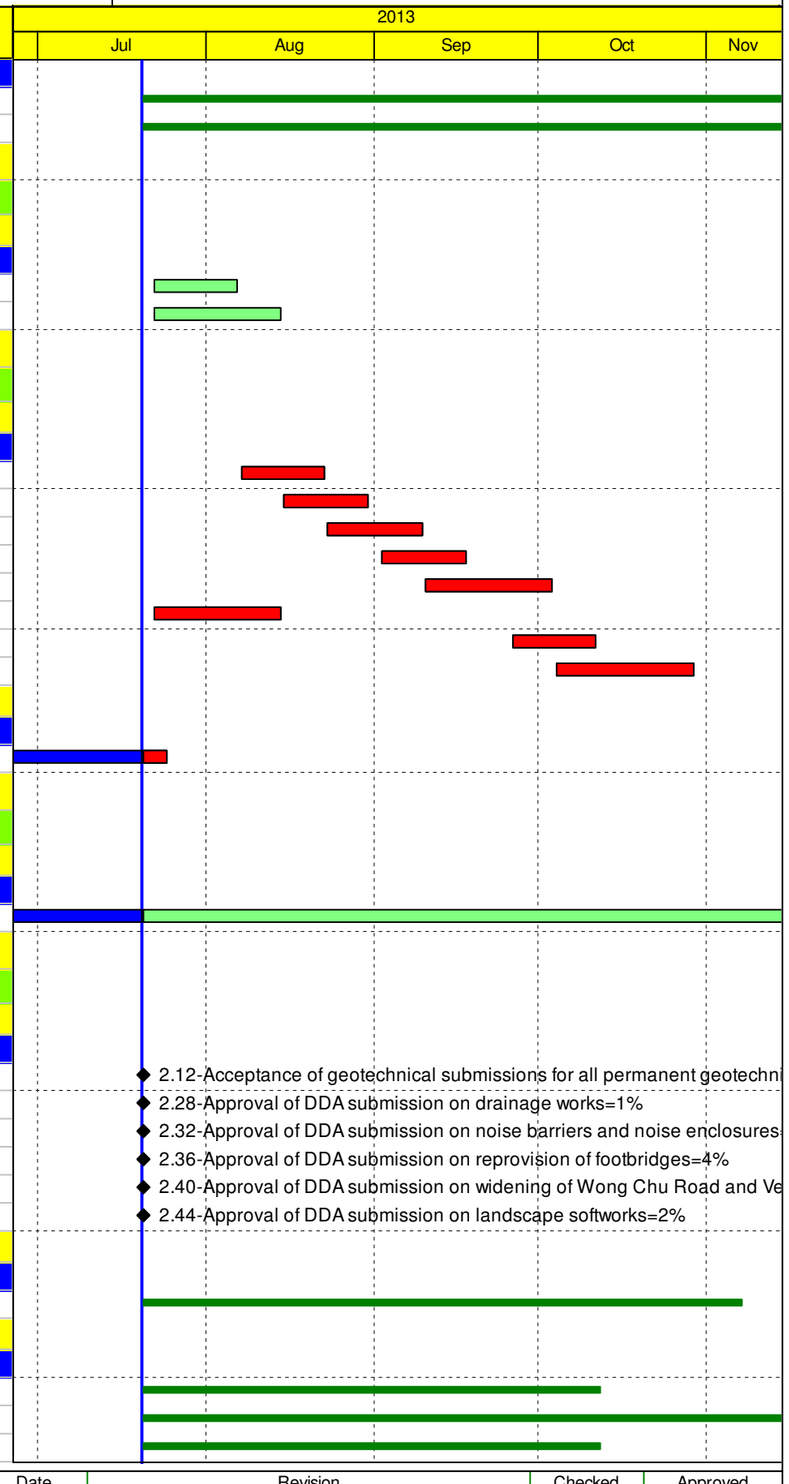
Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Late Start	Late Finish
TCSS and Fire Fighting System							
TCSS1020	Section 3 TCSS installation	644	126	13-Jan-11 A	17-Dec-13	13-Jan-11	09-Jan-14
TCSS1030	Section 3 Street lighting & Fire Fighting system installation	644	126	13-Jan-11 A	17-Dec-13	13-Jan-11	09-Jan-14
Section IIIC of Works							
Landscaping Works in Portion 4							
Landscaping Works							
Landscaping Works							
3C1100	Compensatory planting works at Location No.33 (3 nos. tree pot)	12	12	22-Jul-13	06-Aug-13	25-Dec-13	09-Jan-14
3C1150	Compensatory planting works at Location No.34C (5 nos.)	18	18	22-Jul-13	14-Aug-13	17-Dec-13	09-Jan-14
Section IIIG of Works							
Landscaping Works in Portion 4							
Landscaping Works							
Landscaping Works							
3G1010	Compensatory planting works at Location No.2 (3 nos.)	12	12	07-Aug-13	22-Aug-13	08-May-13	23-May-13
3G1040	Compensatory planting works at Location No.6 (2 nos. tree pot)	12	12	15-Aug-13	30-Aug-13	16-May-13	31-May-13
3G1050	Compensatory planting works at Location No.8 (2 nos. tree pot)	12	12	23-Aug-13	09-Sep-13	24-May-13	10-Jun-13
3G1060	Compensatory planting works at Location No.9 (2 nos. tree pot)	12	12	02-Sep-13	17-Sep-13	03-Jun-13	18-Jun-13
3G1070	Compensatory planting works at Location No.10 (9 nos.)	18	18	10-Sep-13	03-Oct-13	11-Jun-13	04-Jul-13
3G1090	Compensatory planting works at Location No.13 (10 nos.)	18	18	22-Jul-13	14-Aug-13	22-Apr-13	15-May-13
3G1140	Compensatory planting works at Location No.17 (3 nos.)	12	12	26-Sep-13	11-Oct-13	27-Jun-13	12-Jul-13
3G1160	Compensatory planting works at Location No.18A (9 nos.)	18	18	04-Oct-13	29-Oct-13	05-Jul-13	30-Jul-13
Establishment Works							
Establishment Works							
3G1360	Establisment Work(Nos.1A,2,4-6,8-10,12,13,13A-B,14-18,18A-C,20,20A, 21,22,:	365	5	25-Feb-12 A	24-Jul-13	20-Feb-13	24-Feb-13
Section IV of Works							
Preservation and Protection of Trees							
Preservation and Protection of Existing Trees							
Preservation and Protection of Existing Trees							
S4-1000	Preservation and protection of trees	982	129	26-Feb-10 A	20-Dec-13	06-Aug-13	09-Jan-14
Schedule of Milestones							
Schedule of Milestones							
Design of Permanent Works							
Schedule of Milestones							
CC0200210	2.12-Acceptance of geotechnical submissions for all permanent geotechnical wo	0	0		20-Jul-13		09-Jan-15
CC0200370	2.28-Approval of DDA submission on drainage works=1%	0	0		20-Jul-13		09-Jan-15
CC0200410	2.32-Approval of DDA submission on noise barriers and noise enclosures=5%	0	0		20-Jul-13		09-Jan-15
CC0200450	2.36-Approval of DDA submission on reprovision of footbridges=4%	0	0		20-Jul-13		09-Jan-15
CC0200490	2.40-Approval of DDA submission on widening of Wong Chu Road and Vehicula	0	0		20-Jul-13		09-Jan-15
CC0200530	2.44-Approval of DDA submission on landscape softworks=2%	0	0		20-Jul-13		09-Jan-15
Establishment Works in Portion 1							
Schedule of Milestones							
CC0600100	6.1.1 to 12 month of Establishment Work period of Section IB	365	111	29-Sep-12 A	07-Nov-13	29-Sep-12	07-Nov-13
Earthworks, Drainage Works, Roadworks and Landscape Hardworks on Portion 2							
Schedule of Milestones							
CC0800100	8.1.1 to 5 base course plan area of the roadworks in Portion 2	634	85	02-Jul-11 A	12-Oct-13	03-Jul-11	20-Sep-13
CC0800150	8.2.1 to 5 wearing course of the total plan area of the roadworks in Portion 2	705	122	26-May-11 A	18-Nov-13	27-May-11	28-Oct-13
CC0800200	8.3.1 to 5 length of sewer and drain pipes in Portion 2	657	85	07-Jun-11 A	12-Oct-13	08-Jun-11	20-Sep-13



Remaining Level of Effort ◆ Milestone
Actual Work
Remaining Work
Critical

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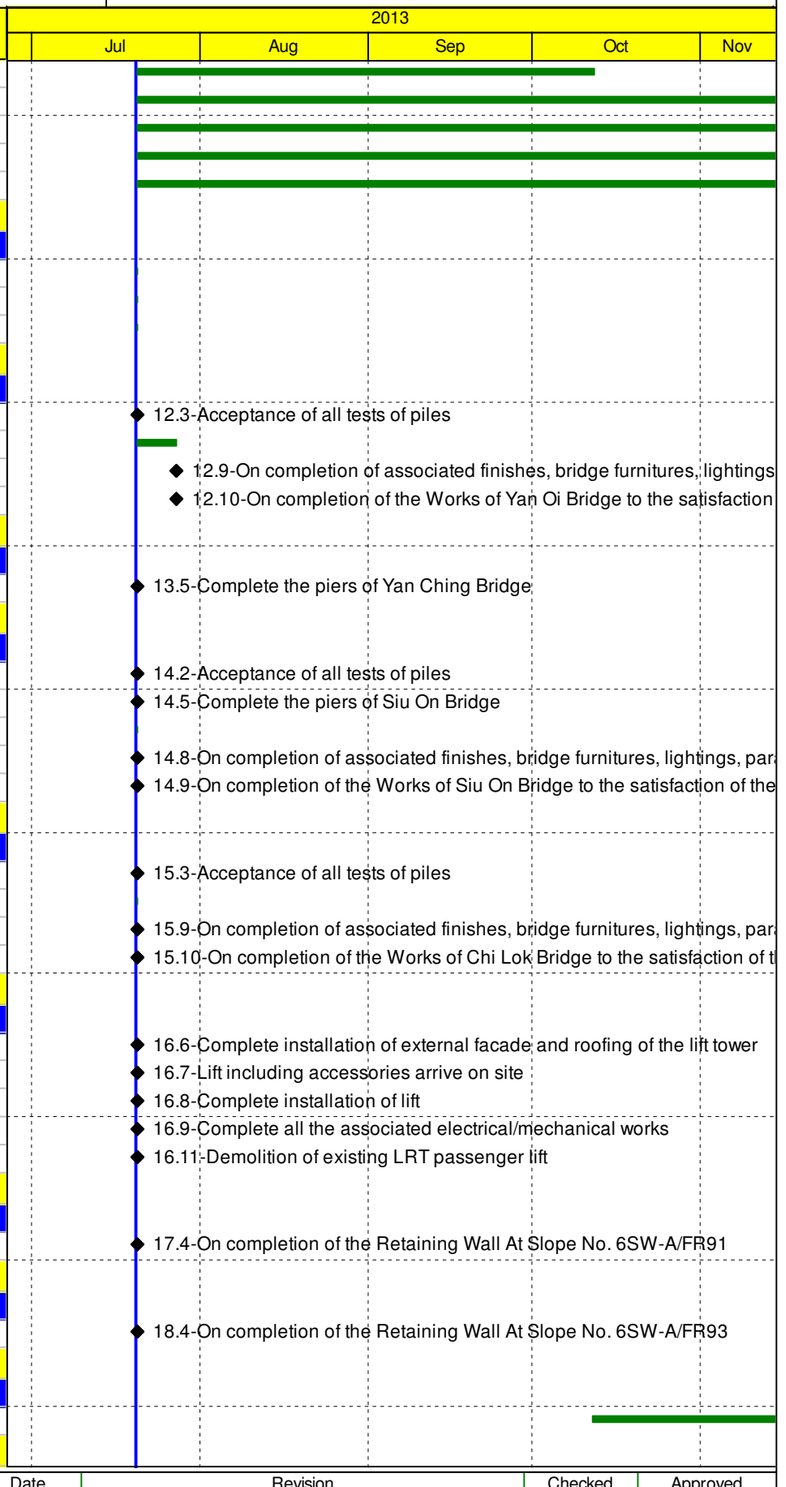
20-Jul-13	WP04 3MRP updated on 20-07-13	ZJ	

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Late Start	Late Finish
CC0800250	8.4.1 to 5 number of Manholes, Gullies, Catchpits, Other Chambers and Drawpits	657	85	07-Jun-11 A	12-Oct-13	08-Jun-11	20-Sep-13
CC0800300	8.5.1 to 5 number of Traffic Signs in Portion 2	707	157	06-Aug-11 A	23-Dec-13	07-Aug-11	02-Dec-13
CC0800350	8.6.1 to 5 number of Sign Gantries in Portion 2	707	157	06-Aug-11 A	23-Dec-13	07-Aug-11	02-Dec-13
CC0800410	8.8.1 to 5 length of road kerbs in Portion 2	669	122	02-Jul-11 A	18-Nov-13	03-Jul-11	28-Oct-13
CC0800460	8.9.1 to 5 area of footpaths in Portion 2	669	122	02-Jul-11 A	18-Nov-13	03-Jul-11	28-Oct-13
Noise Barrier and Noise Enclosure in Portion 2							
Schedule of Milestones							
CC0900520	9.6.1 to 10 length of noise barriers in Portion 2	0	0	17-Nov-12 A	20-Jul-13	17-Nov-12	09-Jan-15
CC0900620	9.7.1 to 10 length of noise enclosures in Portion 2	0	0	17-Nov-12 A	20-Jul-13	17-Nov-12	09-Jan-15
CC0900720	9.8.1 to 20 total panel and roof area (including absorptive, reflective, green wall a	0	0	27-Jun-13 A	20-Jul-13	27-Jun-13	09-Jan-15
Reprovision of Yan Oi Bridge							
Schedule of Milestones							
CC1200160	12.3-Acceptance of all tests of piles	0	0		20-Jul-13		09-Jan-15
CC1200380	12.8.1 to 2 the deck, the staircases and the roof of the Yan Oi Bridge	163	8	28-Jun-12 A	27-Jul-13	28-Jun-12	09-Jan-14
CC1200400	12.9-On completion of associated finishes, bridge furnitures, lightings, parapets,	0	0		27-Jul-13		09-Jan-15
CC1200410	12.10-On completion of the Works of Yan Oi Bridge to the satisfaction of the Supe	0	0		27-Jul-13		09-Jan-15
Reprovision of Yan Ching Bridge							
Schedule of Milestones							
CC1300310	13.5-Complete the piers of Yan Ching Bridge	0	0		20-Jul-13		09-Jan-15
Reprovision of Siu On Bridge							
Schedule of Milestones							
CC1400150	14.2-Acceptance of all tests of piles	0	0		20-Jul-13		09-Jan-15
CC1400310	14.5-Complete the piers of Siu On Bridge	0	0		20-Jul-13		09-Jan-15
CC1400320	14.6.1 to 5 bridge deck plan area of Siu On Bridge	0	0	20-Jul-13	20-Jul-13	09-Jan-15	09-Jan-15
CC1400390	14.8-On completion of associated finishes, bridge furnitures, lightings, parapets,	0	0		20-Jul-13		09-Jan-15
CC1400400	14.9-On completion of the Works of Siu On Bridge to the satisfaction of the Super	0	0		20-Jul-13		09-Jan-15
Reprovision of Chi Lok Bridge							
Schedule of Milestones							
CC1500160	15.3-Acceptance of all tests of piles	0	0		20-Jul-13		09-Jan-15
CC1500330	15.7.1 to 5 bridge deck plan area of Chi Lok Bridge	0	0	20-Jul-13	20-Jul-13	09-Jan-15	09-Jan-15
CC1500400	15.9-On completion of associated finishes, bridge furnitures, lightings, parapets,	0	0		20-Jul-13		09-Jan-15
CC1500410	15.10-On completion of the Works of Chi Lok Bridge to the satisfaction of the Sup	0	0		20-Jul-13		09-Jan-15
Relocation of LRT Passenger Lift							
Schedule of Milestones							
CC1600150	16.6-Complete installation of external facade and roofing of the lift tower	0	0		20-Jul-13		09-Jan-15
CC1600160	16.7-Lift including accessories arrive on site	0	0		20-Jul-13		09-Jan-15
CC1600170	16.8-Complete installation of lift	0	0		20-Jul-13		09-Jan-15
CC1600180	16.9-Complete all the associated electrical/mechanical works	0	0		20-Jul-13		09-Jan-15
CC1600200	16.11-Demolition of existing LRT passenger lift	0	0		20-Jul-13		09-Jan-15
Retaining Wall at Slope No. 6SW-A/FR91							
Schedule of Milestones							
CC1700250	17.4-On completion of the Retaining Wall At Slope No. 6SW-A/FR91	0	0		20-Jul-13		09-Jan-14
Retaining Wall at Slope No. 6SW-A/FR93							
Schedule of Milestones							
CC1800250	18.4-On completion of the Retaining Wall At Slope No. 6SW-A/FR93	0	0		20-Jul-13		09-Jan-14
Landscape Softworks in Portion 2							
Schedule of Milestones							
CC1900150	19.2.1 to 10 plan area of Landscape Softworks in Portion 2	90	90	12-Oct-13	09-Jan-14	12-Oct-13	09-Jan-14
Earthworks, Drainage Works, Roadworks and Landscape Hardworks in Portion 3A							



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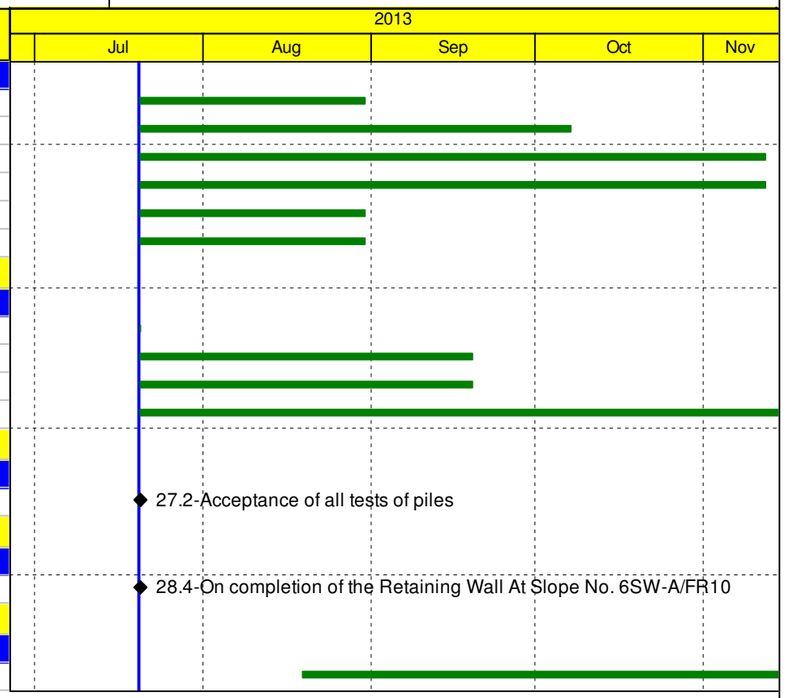
Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Late Start	Late Finish
Schedule of Milestones							
CC2300100	23.1.1 to 5 base course of the total plan area of the roadworks in Portion 3A	382	42	18-May-12 A	30-Aug-13	19-May-12	20-Sep-13
CC2300150	23.2.1 to 5 wearing course of the total plan area of the roadworks in Portion 3A	277	80	25-Jun-12 A	07-Oct-13	26-Jun-12	28-Oct-13
CC2300300	23.5.1 to 5 total number of Traffic Signs in Portion 3A	309	116	04-Sep-12 A	12-Nov-13	05-Sep-12	02-Dec-13
CC2300350	23.6.1 to 5 total number of Sign Gantries in Portion 3A	309	116	04-Sep-12 A	12-Nov-13	05-Sep-12	02-Dec-13
CC2300410	23.8.1 to 5 total length of road kerbs in Portion 3	382	42	18-May-12 A	30-Aug-13	19-May-12	20-Sep-13
CC2300460	23.9.1 to 5 total area of footpaths in Portion 3A	382	42	18-May-12 A	30-Aug-13	19-May-12	20-Sep-13
Noise Barrier and Noise Enclosure in Portion 3A							
Schedule of Milestones							
CC2400110	24.2.1 to 20 number of piles of the noise barriers and noise enclosures in Portion	556	0	09-Apr-11 A	20-Jul-13	09-Apr-11	09-Jan-15
CC2400520	24.6.1 to 10 of the length of noise barriers in Portion 3A	207	62	20-Sep-12 A	19-Sep-13	22-Aug-13	22-Aug-13
CC2400620	24.7.1 to 10 of the length of noise enclosures in Portion 3A	62	62	20-Jul-13	19-Sep-13	22-Aug-13	22-Aug-13
CC2400720	24.8.1 to 20 panel and roof area (including absorptive, reflective, green wall and	138	150	12-Jun-13 A	16-Dec-13	12-Jun-13	16-Nov-13
Widening of Wong Chu Road and Vehicular Bridge S1							
Schedule of Milestones							
CC2700150	27.2-Acceptance of all tests of piles	0	0		20-Jul-13		09-Jan-15
Reinforced Earth Wall at Slope No. 6SW-A/FR10							
Schedule of Milestones							
CC2800250	28.4-On completion of the Retaining Wall At Slope No. 6SW-A/FR10	0	0		20-Jul-13		20-Jul-13
Landscape Softworks in Portion 3A							
Schedule of Milestones							
CC2900150	29.2.1 to 10 Landscape Softworks in Portion 3A	90	90	19-Aug-13	16-Nov-13	19-Aug-13	16-Nov-13



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Appendix B

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 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 arised 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 *		
				Aug 13	Sep 13	Oct 13
		Noise Control				
3.8.1	2.8.1	Good site practice and management can significantly reduce the noise impact of construction site activities on nearby NSRs	Works Sites / During Construction Phase			
		• only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction works;		✓	✓	✓
		• machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;		✓	✓	✓
		• plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs;		✓	✓	✓
		• mobile plant should be sited as far away from NSRs as possible; and		✓	✓	✓
		• material stockpiles and other structures should be effectively utilized, where practicable, to screen noise from on-site construction activities.		✓	✓	✓
3.8.4	2.8.3	Use of quieter mechanical equipment	Works Sites / During Construction Phase	✓	✓	✓
3.8.9	2.8.4	Provision of movable noise barrier in the vicinity of the following NSRs • 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)	Works Sites from the listed NSRs / 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 *		
				Aug 13	Sep 13	Oct 13
		• 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)				
3.8.12	2.8.5	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. • 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.	Work site in the vicinity of Lui Cheung Kwong Lutheran College (LCK) / Stage 2 (Ch. 28050 – 28200 of TMR) 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 *		
				Aug 13	Sep 13	Oct 13
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 *		
				Aug 13	Sep 13	Oct 13
		Air Quality Control				
4.8.1	3.11.2	Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation.	Works Sites / During Construction Phase			
		• 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		✓	✓	✓

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 *		
				Aug 13	Sep 13	Oct 13
		• 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		Rdr	✓	✓
		• 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		✓	✓	✓
		• 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.				

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 *		
				Aug 13	Sep 13	Oct 13
		Water Quality Control				
5.8.2	4.3.2	Construction run-off and Drainage • 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	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 *		
				Aug 13	Sep 13	Oct 13
		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.		Obs	✓	✓
5.8.3 - 5.8.4	4.3.3	General Construction Activities	Works Sites / During Construction Phase			
		• 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		✓	✓	✓
5.8.5	4.3.4	Sewage from Construction Workforce	Works Sites / During Construction Phase			
		• 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		✓	✓	✓

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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 *		
				Aug 13	Sep 13	Oct 13
		Waste Management				
6.6.1	*5.2.2*	*Good Site Practices*	Works Sites / During Construction Phase			
		• 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 waste handling procedures.		✓	✓	✓
		• Provision of sufficient waste disposal points and regular collection for disposal.		Obs	✓	✓
		• 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.		✓	✓	✓
		• A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).		✓	✓	✓
6.6.5	*5.2.6*	*Chemical Wastes*	Works Sites / During Construction Phase			
		• 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.		✓	✓	✓

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 *		
				Aug 13	Sep 13	Oct 13
6.6.6	*5.2.7*	*General Refuse*	Works Sites / During Construction Phase			
		• 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.		✓	✓	✓
6.6.2	*5.2.3*	*Waste Reduction Measures*	Works Sites / During Construction Phase			
		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, 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.		✓	✓	✓
		• 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.		Obs	✓	✓
		• Proper storage and site practices to minimise the potential for damage or contamination of construction materials.		✓	✓	✓
		• Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.		✓	✓	✓

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 *		
				Aug 13	Sep 13	Oct 13
6.6.4	*5.2.5*	*Construction and Demolition (C&D) Material*	Works Sites / During Construction Phase			
		• 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.		Obs	✓	✓
		• 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. One may make reference to ETWB TCW No. 31/2004 for details.		✓	✓	✓

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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 *		
				Aug 13	Sep 13	Oct 13
		Ecology				
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 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, careful programming of works and use of noise reduction facilities could be implemented to mitigate noise impacts arised 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: • regular watering • complete coverage of dusty material storage piles • the use of minimum practical height for dropping excavated material	Works Sites / During Construction Phase	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓
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: • 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.	Works Sites / 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 *		
				Aug 13	Sep 13	Oct 13
7.9.5	6.2.5	Standard good site practice measures should be implemented and should include:	Works Sites / During Construction Phase			
		• 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.		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

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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 *		
				Aug 13	Sep 13	Oct 13
		Landscape and Visual				
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.		✓	✓	✓
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.		✓	✓	✓

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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 *		
				Aug 13	Sep 13	Oct 13
		Land Contamination				
9.8.3	8.2.2	To minimize construction workers' potential contact with the contaminated materials • The use of bulk earth-moving excavator equipment would minimise construction workers' potential contact with the contaminated materials; • 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; • 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. • 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; • 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; • 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; • Records of the quantities of wastes generated and disposed of should be maintained; Adequate washing facilities should be provided on site; and • 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,	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 *		
				Aug 13	Sep 13	Oct 13
		or any construction materials such as cement and gravel. Groundwater should be disposed of in accordance with the Water Pollution Control Ordinance (Cap 358).				

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

Appendix C

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^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time	Total vol. (m^3)	(ug/m^3) AM1
						Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish			
131177	Aug-13	6-Aug-13	AM1	Fine	Normal Operation	754.0	754.0	25.0	25.0	40.0	40.0	3.653	3.6822	0.0292	1.1921	1.1921	1.1921	14617.30	14641.30	1440.00	1716.62	17.0
131183	Aug-13	12-Aug-13	AM1	Fine	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6498	3.6686	0.0188	1.1856	1.1856	1.1856	14641.30	14665.30	1440.00	1707.26	11.0
131189	Aug-13	17-Aug-13	AM1	Cloudy	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6564	3.7054	0.0490	1.1856	1.1856	1.1856	14665.30	14689.30	1440.00	1707.26	28.7
131197	Aug-13	23-Aug-13	AM1	Cloudy	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6564	3.6788	0.0224	1.1856	1.1856	1.1856	14689.30	14713.30	1440.00	1707.26	13.1
131203	Aug-13	29-Aug-13	AM1	Fine	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.658	3.7226	0.0646	1.1856	1.1856	1.1856	14713.30	14737.30	1440.00	1707.26	37.8
131209	Sep-13	4-Sep-13	AM1	Rainy	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6578	3.6664	0.0086	1.1856	1.1856	1.1856	14737.30	14761.30	1440.00	1707.26	5.0
131215	Sep-13	10-Sep-13	AM1	Fine	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6632	3.6846	0.0214	1.1289	1.1289	1.1289	14761.30	14785.30	1440.00	1625.62	13.2
131221	Sep-13	16-Sep-13	AM1	Fine	Normal Operation	756.0	756.0	28.0	28.0	40.0	40.0	3.6679	3.6923	0.0244	1.1306	1.1306	1.1306	14785.30	14809.30	1440.00	1628.06	15.0
124001	Sep-13	21-Sep-13	AM1	Fine	Normal Operation	755.0	754.0	29.0	29.0	40.0	40.0	2.8744	2.8997	0.0253	1.1276	1.1268	1.1272	14809.30	14833.30	1440.00	1623.17	15.6
124007	Sep-13	27-Sep-13	AM1	Fine	Normal Operation	755.0	756.0	28.0	28.0	40.0	40.0	2.8858	2.8944	0.0086	1.1297	1.1306	1.1302	14833.30	14857.30	1440.00	1627.42	5.3
124013	Oct-13	3-Oct-13	AM1	Fine	Normal Operation	757.0	759.0	27.0	27.0	40.0	40.0	2.8032	2.8304	0.0272	1.1337	1.1354	1.1346	14857.30	14881.30	1440.00	1633.75	16.6
124019	Oct-13	9-Oct-13	AM1	Fine	Normal Operation	761.0	760.0	26.0	26.0	40.0	40.0	2.8072	2.8462	0.0390	1.1337	1.1354	1.1346	14881.30	14905.30	1440.00	1633.75	23.9
124025	Oct-13	15-Oct-13	AM1	Fine	Normal Operation	762.0	762.0	23.0	23.0	40.0	40.0	2.7586	2.8708	0.1122	1.1394	1.1385	1.1390	14905.30	14929.30	1440.00	1640.09	68.4
124031	Oct-13	21-Oct-13	AM1	Fine	Normal Operation	761.0	760.0	24.0	25.0	40.0	40.0	2.8933	2.9153	0.0220	1.1469	1.1469	1.1469	14929.30	14953.30	1440.00	1651.54	13.3
124037	Oct-13	26-Oct-13	AM1	Fine	Normal Operation	761.0	760.0	24.0	25.0	40.0	40.0	2.8953	2.9259	0.0306	1.1438	1.1407	1.1423	14953.30	14977.30	1440.00	1644.84	18.6
124043	Oct-13	31-Oct-13	AM1	Fine	Normal Operation	761.0	760.0	24.0	25.0	40.0	40.0	2.9077	2.9400	0.0323	1.1438	1.1407	1.1423	14977.30	15001.30	1440.00	1644.84	19.6

Average (ug/m^3)	20.1
Max (ug/m^3)	68.4
Min (ug/m^3)	5.0

Action Level (ug/m^3)	146
Limit Level (ug/m^3)	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^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time	Total vol. (m^3)	(ug/m^3) AM2
						Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish			
131178	Aug-13	6-Aug-13	AM2	Fine	Normal Operation	754.0	754.0	25.0	25.0	40.0	40.0	3.661	3.7430	0.0820	1.1281	1.1281	1.1281	8771.10	8795.10	1440.00	1624.46	50.5
131184	Aug-13	12-Aug-13	AM2	Fine	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6542	3.6739	0.0197	1.1213	1.1213	1.1213	8795.10	8819.10	1440.00	1614.67	12.2
131190	Aug-13	17-Aug-13	AM2	Cloudy	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6507	3.6906	0.0399	1.1213	1.1213	1.1213	8819.10	8843.10	1440.00	1614.67	24.7
131198	Aug-13	23-Aug-13	AM2	Cloudy	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6569	3.6851	0.0282	1.1213	1.1213	1.1213	8843.10	8867.10	1440.00	1614.67	17.5
131204	Aug-13	29-Aug-13	AM2	Fine	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6647	3.7044	0.0397	1.1213	1.1213	1.1213	8867.10	8891.10	1440.00	1614.67	24.6
131210	Sep-13	4-Sep-13	AM2	Rainy	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6595	3.6751	0.0156	1.1213	1.1213	1.1213	8891.10	8915.10	1440.00	1614.67	9.7
131216	Sep-13	10-Sep-13	AM2	Fine	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6668	3.6785	0.0117	1.0830	1.0830	1.0830	8915.10	8939.10	1440.00	1559.52	7.5
131222	Sep-13	16-Sep-13	AM2	Fine	Normal Operation	756.0	756.0	28.0	28.0	40.0	40.0	3.6623	3.6788	0.0165	1.0849	1.0849	1.0849	8939.10	8963.10	1440.00	1562.26	10.6
124002	Sep-13	21-Sep-13	AM2	Fine	Normal Operation	755.0	754.0	29.0	29.0	40.0	40.0	2.8705	2.8962	0.0257	1.0816	1.0806	1.0811	8963.10	8987.10	1440.00	1556.78	16.5
124008	Sep-13	27-Sep-13	AM2	Fine	Normal Operation	755.0	756.0	28.0	28.0	40.0	40.0	2.8658	2.8967	0.0309	1.0840	1.0849	1.0845	8987.10	9011.10	1440.00	1561.61	19.8
124014	Oct-13	3-Oct-13	AM2	Fine	Normal Operation	757.0	759.0	27.0	27.0	40.0	40.0	2.7986	2.8292	0.0306	1.0884	1.0903	1.0894	9011.10	9035.10	1440.00	1568.66	19.5
124020	Oct-13	9-Oct-13	AM2	Fine	Normal Operation	761.0	760.0	26.0	26.0	40.0	40.0	2.8164	2.8519	0.0355	1.0948	1.0938	1.0943	9035.10	9059.10	1440.00	1575.79	22.5
124026	Oct-13	15-Oct-13	AM2	Fine	Normal Operation	762.0	762.0	23.0	23.0	40.0	40.0	2.763	2.8622	0.0992	1.1032	1.1032	1.1032	9059.10	9083.10	1440.00	1588.61	62.4
124032	Oct-13	21-Oct-13	AM2	Fine	Normal Operation	761.0	760.0	24.0	25.0	40.0	40.0	2.8959	2.9227	0.0268	1.0997	1.0963	1.0980	9083.10	9107.10	1440.00	1581.12	17.0
124038	Oct-13	26-Oct-13	AM2	Fine	Normal Operation	761.0	760.0	24.0	25.0	40.0	40.0	2.883	2.9081	0.0251	1.0997	1.0963	1.0980	9107.10	9131.10	1440.00	1581.12	15.9
124044	Oct-13	31-Oct-13	AM2	Fine	Normal Operation	761.0	760.0	24.0	25.0	40.0	40.0	2.9024	2.9361	0.0337	1.0997	1.0963	1.0980	9131.10	9155.10	1440.00	1581.12	21.3

Average (ug/m^3)	22.0
Max (ug/m^3)	62.4
Min (ug/m^3)	7.5

Action Level (ug/m^3)	151
Limit Level (ug/m^3)	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^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time	Total vol. (m^3)	(ug/m^3) AM3
						Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish			
131179	Aug-13	6-Aug-13	AM3	Fine	Normal Operation	754.0	754.0	25.0	25.0	40.0	40.0	3.6498	3.6928	0.0430	1.1300	1.1300	1.1300	12937.39	12961.39	1440.00	1627.20	26.4
131185	Aug-13	12-Aug-13	AM3	Fine	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6590	3.6733	0.0143	1.1232	1.1232	1.1232	12961.39	12985.39	1440.00	1617.41	8.8
131191	Aug-13	17-Aug-13	AM3	Cloudy	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6498	3.7228	0.0730	1.1232	1.1232	1.1232	12985.39	13009.39	1440.00	1617.41	45.1
131199	Aug-13	23-Aug-13	AM3	Cloudy	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6595	3.6878	0.0283	1.1232	1.1232	1.1232	13009.39	13033.39	1440.00	1617.41	17.5
131205	Aug-13	29-Aug-13	AM3	Fine	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6615	3.6853	0.0238	1.1232	1.1232	1.1232	13033.39	13057.39	1440.00	1617.41	14.7
131211	Sep-13	4-Sep-13	AM3	Rainy	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6653	3.6702	0.0049	1.1232	1.1232	1.1232	13057.39	13081.39	1440.00	1617.41	3.0
131217	Sep-13	10-Sep-13	AM3	Fine	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6678	3.6912	0.0234	1.2186	1.2186	1.2186	13081.39	13105.39	1440.00	1754.78	13.3
131223	Sep-13	16-Sep-13	AM3	Fine	Normal Operation	756.0	756.0	28.0	28.0	40.0	40.0	3.6585	3.7035	0.0450	1.2204	1.2204	1.2204	13105.39	13129.39	1440.00	1757.38	25.6
124003	Sep-13	21-Sep-13	AM3	Fine	Normal Operation	755.0	754.0	29.0	29.0	40.0	40.0	2.8747	2.8986	0.0239	1.2173	1.2164	1.2169	13129.39	13153.39	1440.00	1752.26	13.6
124009	Sep-13	27-Sep-13	AM3	Fine	Normal Operation	755.0	756.0	28.0	28.0	40.0	40.0	2.8651	2.8965	0.0314	1.2195	1.2204	1.2200	13153.39	13177.39	1440.00	1756.73	17.9
124015	Oct-13	3-Oct-13	AM3	Fine	Normal Operation	757.0	759.0	27.0	27.0	40.0	40.0	2.7985	2.8528	0.0543	1.2237	1.2255	1.2246	13177.39	13201.39	1440.00	1763.42	30.8
124021	Oct-13	9-Oct-13	AM3	Fine	Normal Operation	761.0	760.0	26.0	26.0	40.0	40.0	2.8024	2.8508	0.0484	1.2297	1.2288	1.2293	13201.39	13225.39	1440.00	1770.12	27.3
124027	Oct-13	15-Oct-13	AM3	Fine	Normal Operation	762.0	762.0	23.0	23.0	40.0	40.0	2.7099	2.8087	0.0988	1.2375	1.2375	1.2375	13225.39	13249.39	1440.00	1782.00	55.4
124033	Oct-13	21-Oct-13	AM3	Fine	Normal Operation	761.0	760.0	24.0	25.0	40.0	40.0	2.8788	2.9041	0.0253	1.2343	1.2310	1.2327	13249.39	13273.39	1440.00	1775.02	14.3
124039	Oct-13	26-Oct-13	AM3	Fine	Normal Operation	761.0	760.0	24.0	25.0	40.0	40.0	2.8898	2.9247	0.0349	1.2343	1.2310	1.2327	13273.39	13297.39	1440.00	1775.02	19.7
124045	Oct-13	31-Oct-13	AM3	Fine	Normal Operation	761.0	760.0	24.0	25.0	40.0	40.0	2.892	2.9300	0.0380	1.2343	1.2310	1.2327	13297.39	13321.39	1440.00	1775.02	21.4

Average (ug/m^3)	22.2
Max (ug/m^3)	55.4
Min (ug/m^3)	3.0

Action Level (ug/m^3)	150
Limit Level (ug/m^3)	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^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time	Total vol. (m^3)	(ug/m^3) AM4
						Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish			
131180	Aug-13	6-Aug-13	AM4	Fine	Normal Operation	754.0	754.0	25.0	25.0	40.0	40.0	3.6502	3.6667	0.0165	1.1135	1.1135	1.1135	13819.12	13843.12	1440.00	1603.44	10.3
131186	Aug-13	12-Aug-13	AM4	Fine	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6515	3.6962	0.0447	1.1069	1.1069	1.1069	13843.12	13867.12	1440.00	1593.94	28.0
131192	Aug-13	17-Aug-13	AM4	Cloudy	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6583	3.6983	0.0400	1.1069	1.1069	1.1069	13867.12	13891.12	1440.00	1593.94	25.1
131200	Aug-13	23-Aug-13	AM4	Cloudy	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6627	3.7001	0.0374	1.1069	1.1069	1.1069	13891.12	13915.12	1440.00	1593.94	23.5
131206	Aug-13	29-Aug-13	AM4	Fine	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6562	3.7723	0.1161	1.1069	1.1069	1.1069	13915.12	13939.12	1440.00	1593.94	72.8
131212	Sep-13	4-Sep-13	AM4	Rainy	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6611	3.6997	0.0386	1.1069	1.1069	1.1069	13939.12	13963.12	1440.00	1593.94	24.2
131218	Sep-13	10-Sep-13	AM4	Fine	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6703	3.6979	0.0276	1.1463	1.1463	1.1463	13963.12	13987.12	1440.00	1650.67	16.7
131224	Sep-13	16-Sep-13	AM4	Fine	Normal Operation	756.0	756.0	28.0	28.0	40.0	40.0	3.6635	3.6772	0.0137	1.1480	1.1480	1.1480	13987.12	14011.12	1440.00	1653.12	8.3
124004	Sep-13	21-Sep-13	AM4	Fine	Normal Operation	755.0	754.0	29.0	29.0	40.0	40.0	2.8644	2.9239	0.0595	1.1450	1.1441	1.1446	14011.12	14035.12	1440.00	1648.15	36.1
124010	Sep-13	27-Sep-13	AM4	Fine	Normal Operation	755.0	756.0	28.0	28.0	40.0	40.0	2.8531	2.9022	0.0491	1.1472	1.1480	1.1476	14035.12	14059.12	1440.00	1652.54	29.7
124016	Oct-13	3-Oct-13	AM4	Fine	Normal Operation	757.0	759.0	27.0	27.0	40.0	40.0	2.8042	2.8413	0.0371	1.1512	1.1530	1.1521	14059.12	14083.12	1440.00	1659.02	22.4
124022	Oct-13	9-Oct-13	AM4	Fine	Normal Operation	761.0	760.0	26.0	26.0	40.0	40.0	2.8014	2.8351	0.0337	1.1570	1.1561	1.1566	14083.12	14107.12	1440.00	1665.43	20.2
124028	Oct-13	15-Oct-13	AM4	Fine	Normal Operation	762.0	762.0	23.0	23.0	40.0	40.0	2.7152	2.7862	0.0710	1.1647	1.1647	1.1647	14107.12	14131.12	1440.00	1677.17	42.3
124034	Oct-13	21-Oct-13	AM4	Fine	Normal Operation	761.0	760.0	24.0	25.0	40.0	40.0	2.8817	2.9320	0.0503	1.1615	1.1583	1.1599	14131.12	14155.12	1440.00	1670.26	30.1
124040	Oct-13	26-Oct-13	AM4	Fine	Normal Operation	761.0	760.0	24.0	25.0	40.0	40.0	2.8946	2.9296	0.0350	1.1615	1.1583	1.1599	14155.12	14179.12	1440.00	1670.26	21.0
124046	Oct-13	31-Oct-13	AM4	Fine	Normal Operation	761.0	760.0	24.0	25.0	40.0	40.0	2.8836	2.9161	0.0325	1.1615	1.1583	1.1599	14179.12	14203.12	1440.00	1670.26	19.5

Average (ug/m^3)	26.9
Max (ug/m^3)	72.8
Min (ug/m^3)	8.3

Action Level (ug/m^3)	150
Limit Level (ug/m^3)	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^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time	Total vol. (m^3)	(ug/m^3) AM5
						Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish			
131181	Aug-13	6-Aug-13	AM5	Fine	Normal Operation	754.0	754.0	25.0	25.0	40.0	40.0	3.6537	3.6882	0.0345	1.1376	1.1376	1.1376	13605.27	13629.27	1440.00	1638.14	21.1
131187	Aug-13	12-Aug-13	AM5	Fine	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6472	3.6720	0.0248	1.1314	1.1314	1.1314	13629.27	13653.27	1440.00	1629.22	15.2
131193	Aug-13	17-Aug-13	AM5	Cloudy	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6533	3.6982	0.0449	1.1314	1.1314	1.1314	13653.27	13677.27	1440.00	1629.22	27.6
131201	Aug-13	23-Aug-13	AM5	Cloudy	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6638	3.7081	0.0443	1.1314	1.1314	1.1314	13677.27	13701.27	1440.00	1629.22	27.2
131207	Aug-13	29-Aug-13	AM5	Fine	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6552	3.6706	0.0154	1.1314	1.1314	1.1314	13701.27	13725.27	1440.00	1629.22	9.5
131213	Sep-13	4-Sep-13	AM5	Rainy	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6632	3.6906	0.0274	1.1314	1.1314	1.1314	13725.27	13749.27	1440.00	1629.22	16.8
131219	Sep-13	10-Sep-13	AM5	Fine	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6667	3.7129	0.0462	1.1645	1.1645	1.1645	13749.27	13773.27	1440.00	1676.88	27.6
102354	Sep-13	16-Sep-13	AM5	Fine	Normal Operation	756.0	756.0	28.0	28.0	40.0	40.0	2.7802	2.8300	0.0498	1.1665	1.1665	1.1665	13773.27	13797.27	1440.00	1679.76	29.6
124005	Sep-13	21-Sep-13	AM5	Fine	Normal Operation	755.0	754.0	29.0	29.0	40.0	40.0	2.8612	2.8915	0.0303	1.1631	1.1621	1.1626	13797.27	13821.27	1440.00	1674.14	18.1
124011	Sep-13	27-Sep-13	AM5	Fine	Normal Operation	755.0	756.0	28.0	28.0	40.0	40.0	2.8603	2.9035	0.0432	1.1655	1.1665	1.1660	13821.27	13845.27	1440.00	1679.04	25.7
124017	Oct-13	3-Oct-13	AM5	Fine	Normal Operation	757.0	759.0	27.0	27.0	40.0	40.0	2.7954	2.8389	0.0435	1.1700	1.1719	1.1710	13845.27	13869.27	1440.00	1686.17	25.8
124023	Oct-13	9-Oct-13	AM5	Fine	Normal Operation	761.0	760.0	26.0	26.0	40.0	40.0	2.8007	2.8370	0.0363	1.1764	1.1754	1.1759	13869.27	13893.27	1440.00	1693.30	21.4
124029	Oct-13	15-Oct-13	AM5	Fine	Normal Operation	762.0	762.0	23.0	23.0	40.0	40.0	2.7339	2.8430	0.1091	1.1849	1.1849	1.1849	13893.27	13917.27	1440.00	1706.26	63.9
124035	Oct-13	21-Oct-13	AM5	Fine	Normal Operation	761.0	760.0	24.0	25.0	40.0	40.0	2.8751	2.9157	0.0406	1.1814	1.1779	1.1797	13917.27	13941.27	1440.00	1698.70	23.9
124041	Oct-13	26-Oct-13	AM5	Fine	Normal Operation	761.0	760.0	24.0	25.0	40.0	40.0	2.8901	2.9173	0.0272	1.1814	1.1779	1.1797	13941.27	13965.27	1440.00	1698.70	16.0
124047	Oct-13	31-Oct-13	AM5	Fine	Normal Operation	761.0	760.0	24.0	25.0	40.0	40.0	2.8847	2.9072	0.0225	1.1814	1.1779	1.1797	13965.27	13989.27	1440.00	1698.70	13.2

Average (ug/m^3)	23.9
Max (ug/m^3)	63.9
Min (ug/m^3)	9.5

Action Level (ug/m^3)	146
Limit Level (ug/m^3)	260

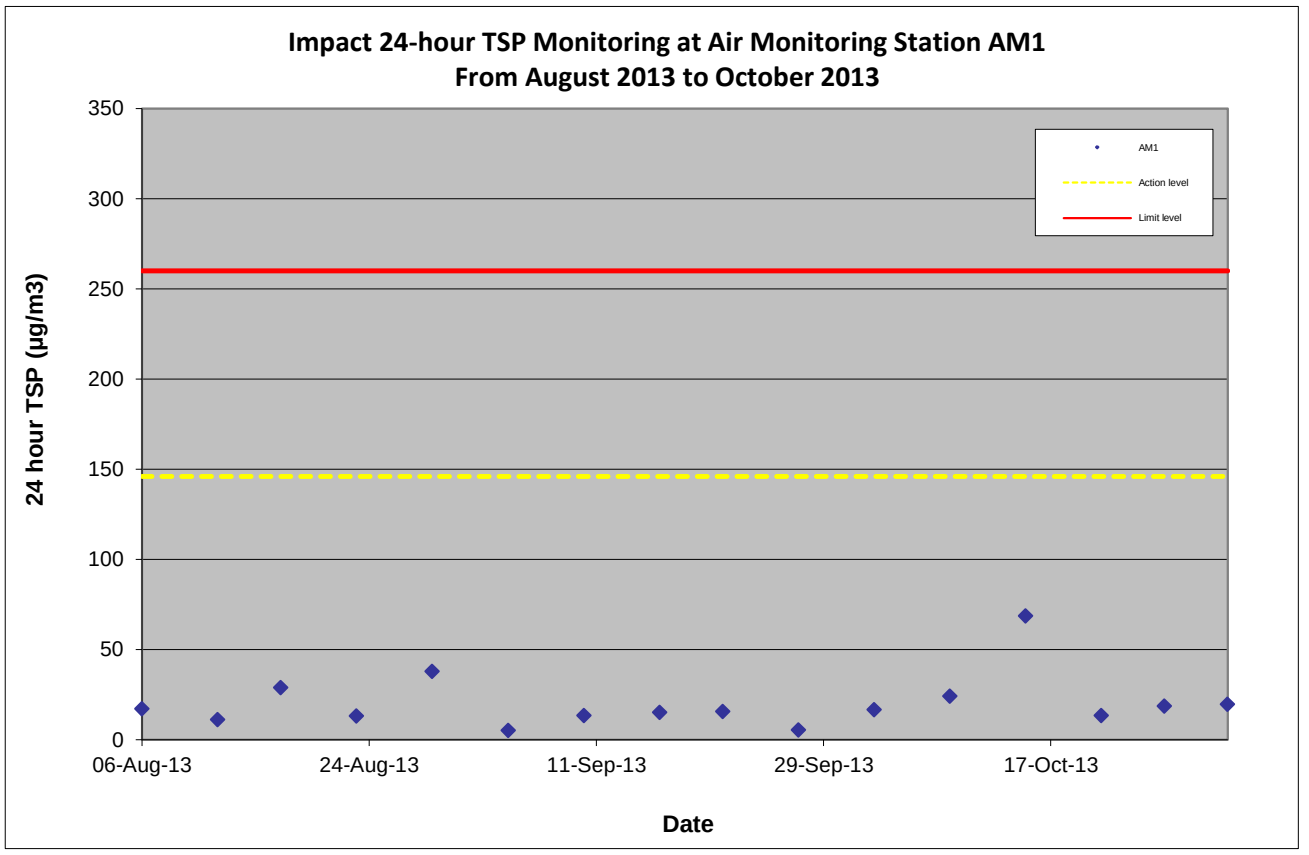
Agreement No. HMW 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section

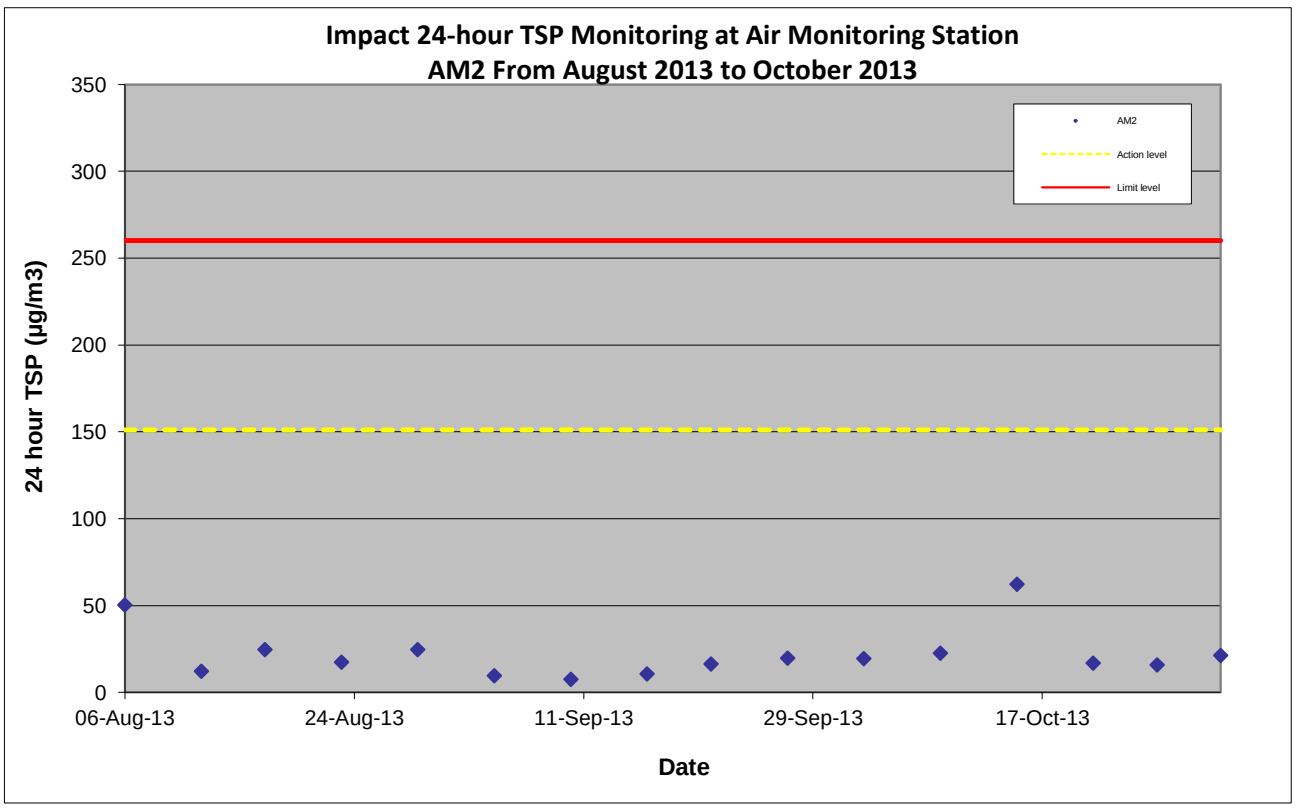
Impact Air Quality Monitoring Result at Yan Oi Tong Community and Sports Centre (AM6) - 24 hour TSP

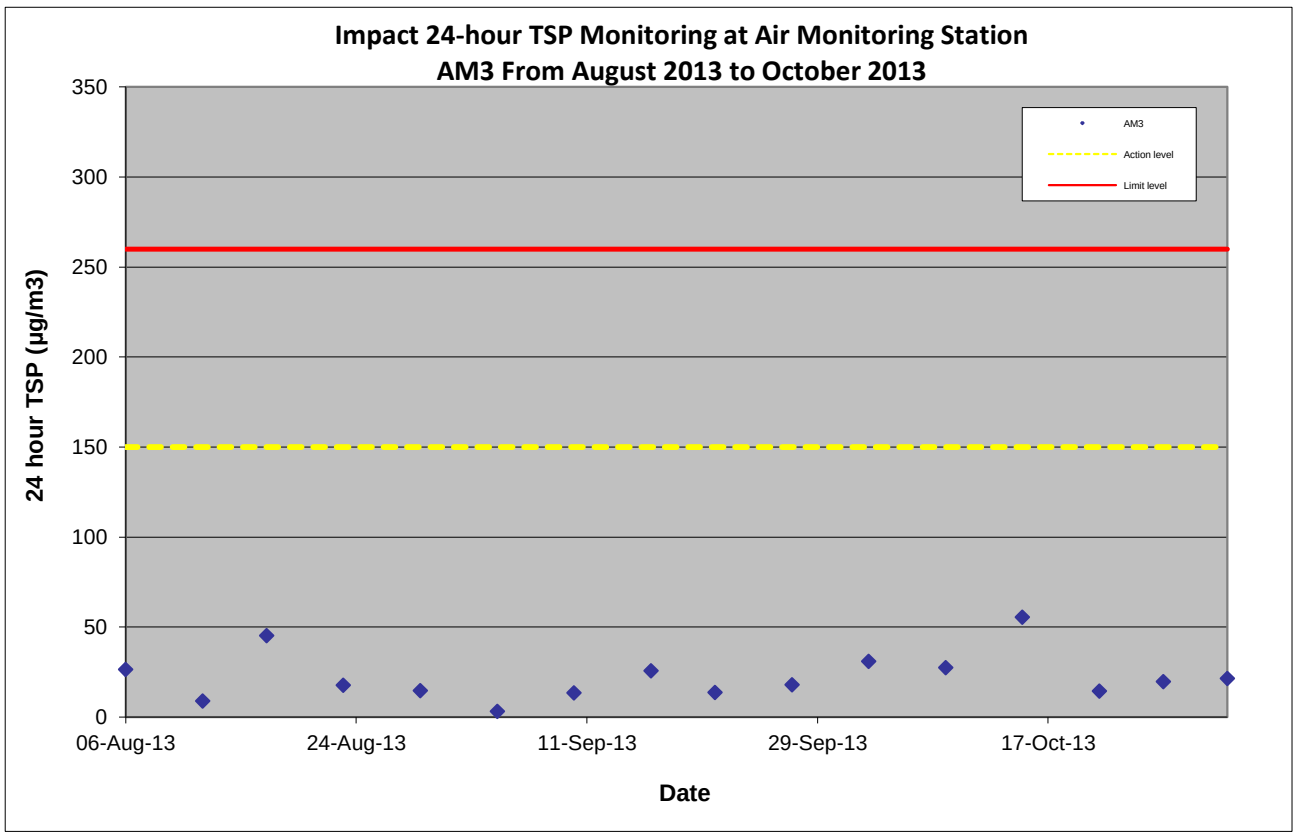
Filter No.	Month	Date	Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m^3)	(ug/m^3)
						Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish			AM6
131182	Aug-13	6-Aug-13	AM6	Fine	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6522	3.7106	0.0584	1.1388	1.1388	1.1388	9938.80	9962.80	1440.00	1639.87	35.6
131188	Aug-13	12-Aug-13	AM6	Fine	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6565	3.6762	0.0197	1.1388	1.1388	1.1388	9962.80	9986.80	1440.00	1639.87	12.0
131194	Aug-13	17-Aug-13	AM6	Cloudy	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6524	3.6693	0.0169	1.1388	1.1388	1.1388	9986.80	10010.80	1440.00	1639.87	10.3
131202	Aug-13	23-Aug-13	AM6	Cloudy	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6666	3.7034	0.0368	1.1388	1.1388	1.1388	10010.80	10034.80	1440.00	1639.87	22.4
131208	Aug-13	29-Aug-13	AM6	Fine	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6612	3.6911	0.0299	1.1388	1.1388	1.1388	10034.80	10058.80	1440.00	1639.87	18.2
131214	Sep-13	4-Sep-13	AM6	Rainy	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6696	3.6915	0.0219	1.1388	1.1388	1.1388	10058.80	10082.80	1440.00	1639.87	13.4
131220	Sep-13	10-Sep-13	AM6	Fine	Normal Operation	754.0	754.0	28.0	28.0	40.0	40.0	3.6696	3.6889	0.0193	1.2208	1.2208	1.2208	10082.80	10106.80	1440.00	1757.95	11.0
102335	Sep-13	16-Sep-13	AM6	Fine	Normal Operation	756.0	756.0	28.0	28.0	40.0	40.0	2.792	2.8092	0.0172	1.2225	1.2225	1.2225	10106.80	10130.80	1440.00	1760.40	9.8
124006	Sep-13	21-Sep-13	AM6	Fine	Normal Operation	755.0	754.0	29.0	29.0	40.0	40.0	2.8913	2.9116	0.0203	1.2195	1.2187	1.2191	10130.80	10154.80	1440.00	1755.50	11.6
124012	Sep-13	27-Sep-13	AM6	Fine	Normal Operation	755.0	756.0	28.0	28.0	40.0	40.0	2.8772	2.8980	0.0208	1.2216	1.2225	1.2221	10154.80	10178.80	1440.00	1759.75	11.8
124018	Oct-13	3-Oct-13	AM6	Fine	Normal Operation	757.0	759.0	27.0	27.0	40.0	40.0	2.7932	2.8492	0.0560	1.2256	1.2273	1.2265	10178.80	10202.80	1440.00	1766.09	31.7
124024	Oct-13	9-Oct-13	AM6	Fine	Normal Operation	761.0	760.0	26.0	26.0	40.0	40.0	2.7711	2.8685	0.0974	1.2312	1.2304	1.2308	10202.80	10226.80	1440.00	1772.35	55.0
124030	Oct-13	15-Oct-13	AM6	Fine	Normal Operation	762.0	762.0	23.0	23.0	40.0	40.0	2.7235	2.8199	0.0964	1.2387	1.2387	1.2387	10226.80	10250.80	1440.00	1783.73	54.0
124036	Oct-13	21-Oct-13	AM6	Fine	Normal Operation	761.0	760.0	24.0	25.0	40.0	40.0	2.8912	2.9207	0.0295	1.2356	1.2325	1.2341	10250.80	10274.80	1440.00	1777.03	16.6
124042	Oct-13	26-Oct-13	AM6	Fine	Normal Operation	761.0	760.0	24.0	25.0	40.0	40.0	2.9107	2.9473	0.0366	1.2356	1.2325	1.2341	10274.80	10298.80	1440.00	1777.03	20.6
124048	Oct-13	31-Oct-13	AM6	Fine	Normal Operation	761.0	760.0	24.0	25.0	40.0	40.0	2.8728	2.9266	0.0538	1.2356	1.2325	1.2341	10298.80	10322.80	1440.00	1777.03	30.3

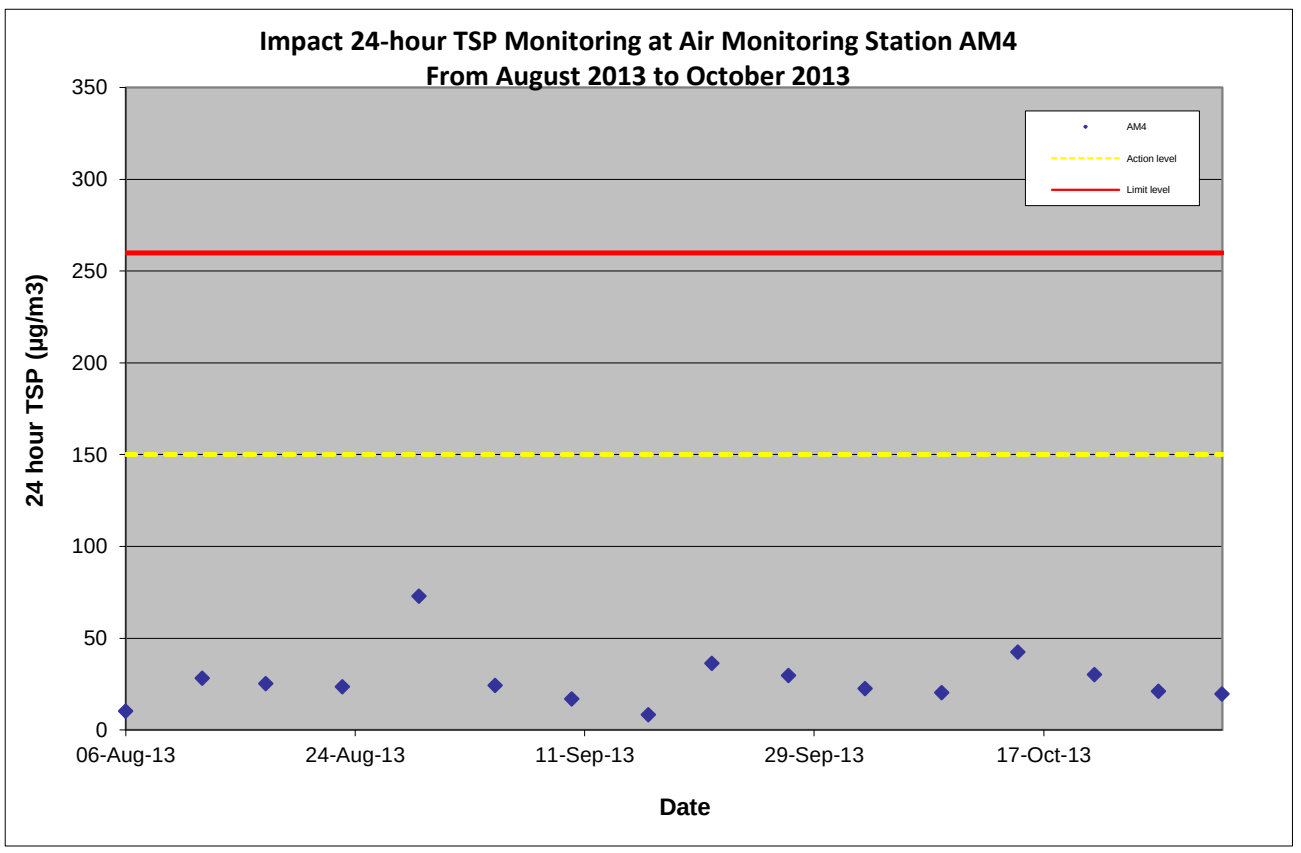
Average (ug/m^3)	22.8
Max (ug/m^3)	55.0
Min (ug/m^3)	9.8

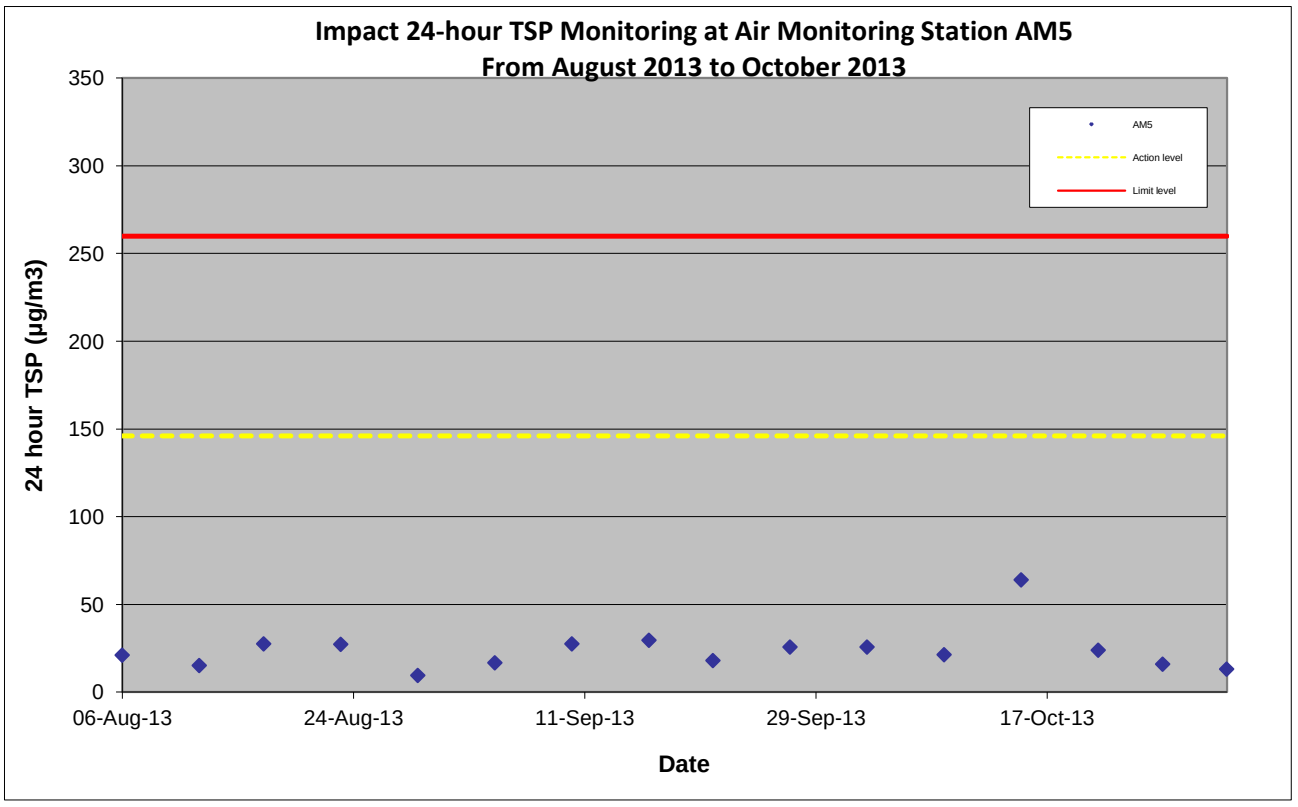
Action Level (ug/m^3)	147
Limit Level (ug/m^3)	260

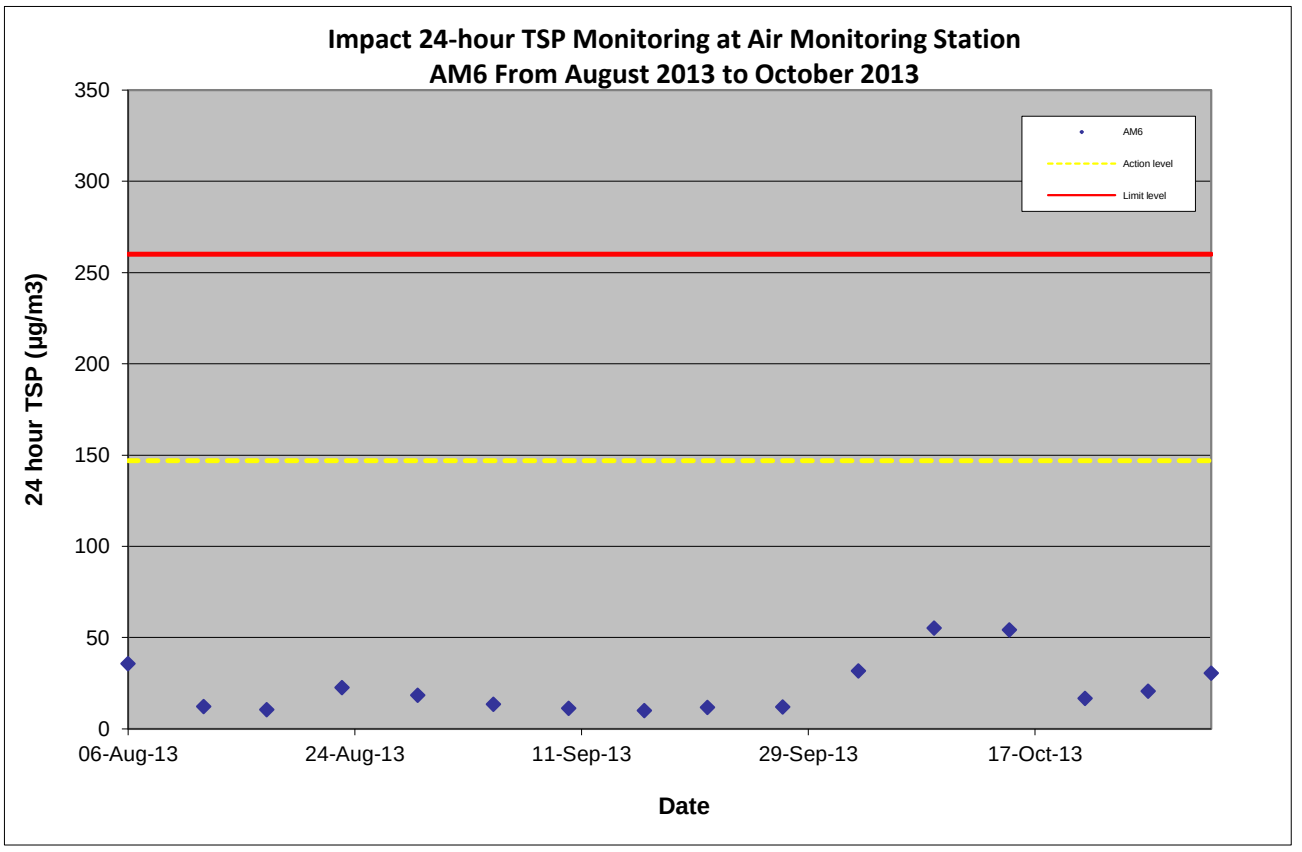

Impact 24-hour TSP Monitoring at Air Monitoring Station AM1
From August 2013 to October 2013
24 hour TSP (µg/m3)
350
300
250
200
150
100
50
0
06-Aug-13
24-Aug-13
11-Sep-13
29-Sep-13
17-Oct-13
Date
AM1
Action level
Limit level


Impact 24-hour TSP Monitoring at Air Monitoring Station
AM2 From August 2013 to October 2013
24 hour TSP (µg/m3)
350
300
250
200
150
100
50
0
06-Aug-13
24-Aug-13
11-Sep-13
29-Sep-13
17-Oct-13
Date
AM2
Action level
Limit level


Impact 24-hour TSP Monitoring at Air Monitoring Station
AM3 From August 2013 to October 2013
24 hour TSP (µg/m3)
350
300
250
200
150
100
50
0
06-Aug-13
24-Aug-13
11-Sep-13
29-Sep-13
17-Oct-13
Date
AM3
Action level
Limit level


Impact 24-hour TSP Monitoring at Air Monitoring Station AM4
From August 2013 to October 2013
24 hour TSP (µg/m3)
350
300
250
200
150
100
50
0
06-Aug-13
24-Aug-13
11-Sep-13
29-Sep-13
17-Oct-13
Date
AM4
Action level
Limit level


Impact 24-hour TSP Monitoring at Air Monitoring Station AM5
From August 2013 to October 2013
24 hour TSP (µg/m3)
350
300
250
200
150
100
50
0
06-Aug-13
24-Aug-13
11-Sep-13
29-Sep-13
17-Oct-13
Date
AM5
Action level
Limit level


Impact 24-hour TSP Monitoring at Air Monitoring Station
AM6 From August 2013 to October 2013
24 hour TSP (µg/m3)
350
300
250
200
150
100
50
0
06-Aug-13
24-Aug-13
11-Sep-13
29-Sep-13
17-Oct-13
Date
AM6
Action level
Limit level

Appendix D

Wind Data

Wind Monitoring Data - Aug 2013

Date	Wind Direction (degree)	Wind Speed (km/h)
6-Aug-13	120	10.5
12-Aug-13	50	13.5
17-Aug-13	210	33.3
23-Aug-13	230	42.1
29-Aug-13	230	9.2

Source extracted from Hong Kong Observatory (HKO)

Wind Monitoring Data - Sep 2013

Date	Wind Direction (degree)	Wind Speed (km/h)
4-Sep-13	90	22.1
10-Sep-13	70	22.6
16-Sep-13	100	39.5
21-Sep-13	20	24.9
27-Sep-13	90	29.6

Source extracted from Hong Kong Observatory (HKO)

Wind Monitoring Data - Oct 2013

Date	Wind Direction (degree)	Wind Speed (km/h)
3-Oct-13	100	16.2
9-Oct-13	30	21.8
15-Oct-13	100	25.7
21-Oct-13	40	16.3
26-Oct-13	30	24.1
31-Oct-13	70	20.9

Source extracted from Hong Kong Observatory (HKO)

Appendix E

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 - 7 August 2013

			Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
ID	Premise	Time	L_{Aeq},30min	Limit	L_{10},5min	L_{90},5min	L_{Aeq},30min	L_{Aeq},30min
N1	Kam Fai Garden	9:50-10:20	72	75	74	70	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:35-11:05	71	75	74	70	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:15-11:45	66	70	68	66	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	08:30-09:00	65	70	66	64	67	Measured ≦ Baseline
N5	Tuen King Building	13:00-13:30	69	75	71	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	13:50-14:20	68	70	70	66	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 - 13 August 2013

			Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
ID	Premise	Time	L_{Aeq},30min	Limit	L_{10},5min	L_{90},5min	L_{Aeq},30min	L_{Aeq},30min
N1	Kam Fai Garden	10:00-10:30	71	75	73	69	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:45-11:15	72	75	74	69	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:30-12:00	67	70	69	65	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	8:30-9:00	65	70	68	64	67	Measured ≦ Baseline
N5	Tuen King Building	13:20-13:50	69	75	72	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	14:30-15:00	68	70	71	66	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 - 19 August 2013

			Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
ID	Premise	Time	L_{Aeq},30min	Limit	L_{10},5min	L_{90},5min	L_{Aeq},30min	L_{Aeq},30min
N1	Kam Fai Garden	9:50-10:20	71	75	74	69	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:35-11:05	72	75	74	70	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:15-11:45	67	70	69	65	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	08:30-09:00	65	70	67	64	67	Measured ≦ Baseline
N5	Tuen King Building	13:00-13:30	69	75	71	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	13:50-14:20	68	70	70	66	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 - 26 August 2013

			Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
ID	Premise	Time	L_{Aeq},30min	Limit	L_{10},5min	L_{90},5min	L_{Aeq},30min	L_{Aeq},30min
N1	Kam Fai Garden	9:50-10:20	73	75	75	70	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:35-11:05	72	75	74	70	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:15-11:45	68	70	69	66	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	08:30-09:00	65	70	67	64	67	Measured ≦ Baseline
N5	Tuen King Building	13:00-13:30	70	75	72	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	13:50-14:20	69	70	70	66	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 - 4 October 2013

ID	Premise	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
			L_{Aeq},30min	Limit	L_{10},5min	L_{90},5min	L_{Aeq},30min	L_{Aeq},30min
N1	Kam Fai Garden	10:00-10:30	70	75	73	67	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:45-11:15	71	75	74	68	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:30-12:00	66	70	68	65	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	8:30-9:00	64	70	65	62	67	Measured ≦ Baseline
N5	Tuen King Building	13:20-13:50	69	75	72	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	14:30-15:00	68	70	70	66	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 - 11 October 2013

ID	Premise	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
			L_{Aeq},30min	Limit	L_{10},5min	L_{90},5min	L_{Aeq},30min	L_{Aeq},30min
N1	Kam Fai Garden	9:55-10:25	70	75	73	68	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:40-11:10	71	75	74	69	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:20-11:50	66	70	68	64	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	8:40-9:10	64	70	67	63	67	Measured ≦ Baseline
N5	Tuen King Building	13:00-13:30	69	75	72	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	13:50-14:20	68	70	71	66	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 - 17 October 2013

ID	Premise	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
			L_{Aeq},30min	Limit	L_{10},5min	L_{90},5min	L_{Aeq},30min	L_{Aeq},30min
N1	Kam Fai Garden	9:50-10:20	70	75	73	67	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:35-11:05	71	75	74	69	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:15-11:45	66	70	68	65	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	08:30-09:00	65	70	67	64	67	Measured ≦ Baseline
N5	Tuen King Building	13:00-13:30	69	75	71	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	13:50-14:20	68	70	69	66	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 - 23 October 2013

ID	Premise	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
			L_{Aeq},30min	Limit	L_{10},5min	L_{90},5min	L_{Aeq},30min	L_{Aeq},30min
N1	Kam Fai Garden	9:50-10:20	70	75	72	68	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:35-11:05	70	75	73	68	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	65	70	67	64	67	Measured ≦ Baseline
N5	Tuen King Building	13:00-13:30	69	75	72	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	13:50-14:20	68	70	69	66	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 - 29 October 2013

ID	Premise	Time	Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
			L_{Aeq},30min	Limit	L_{10},5min	L_{90},5min	L_{Aeq},30min	L_{Aeq},30min
N1	Kam Fai Garden	9:55-10:25	69	75	72	67	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:40-11:10	71	75	73	69	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:20-11:50	67	70	69	64	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	8:40-9:10	66	70	68	64	67	Measured ≦ Baseline
N5	Tuen King Building	13:00-13:30	68	75	71	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	13:50-14:20	67	70	71	66	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 - 5 September 2013

			Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
ID	Premise	Time	L_{Aeq},30min	Limit	L_{10},5min	L_{90},5min	L_{Aeq},30min	L_{Aeq},30min
N1	Kam Fai Garden	9:50-10:20	72	75	74	70	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:35-11:05	71	75	74	70	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:15-11:45	66	70	68	66	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	08:30-09:00	65	70	66	64	67	Measured ≦ Baseline
N5	Tuen King Building	13:00-13:30	69	75	71	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	13:50-14:20	68	70	70	66	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 - 11 September 2013

			Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
ID	Premise	Time	L_{Aeq},30min	Limit	L_{10},5min	L_{90},5min	L_{Aeq},30min	L_{Aeq},30min
N1	Kam Fai Garden	10:00-10:30	71	75	73	69	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:45-11:15	72	75	74	69	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:30-12:00	67	70	69	65	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	8:30-9:00	65	70	68	64	67	Measured ≦ Baseline
N5	Tuen King Building	13:20-13:50	69	75	72	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	14:30-15:00	68	70	71	66	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 - 17 September 2013

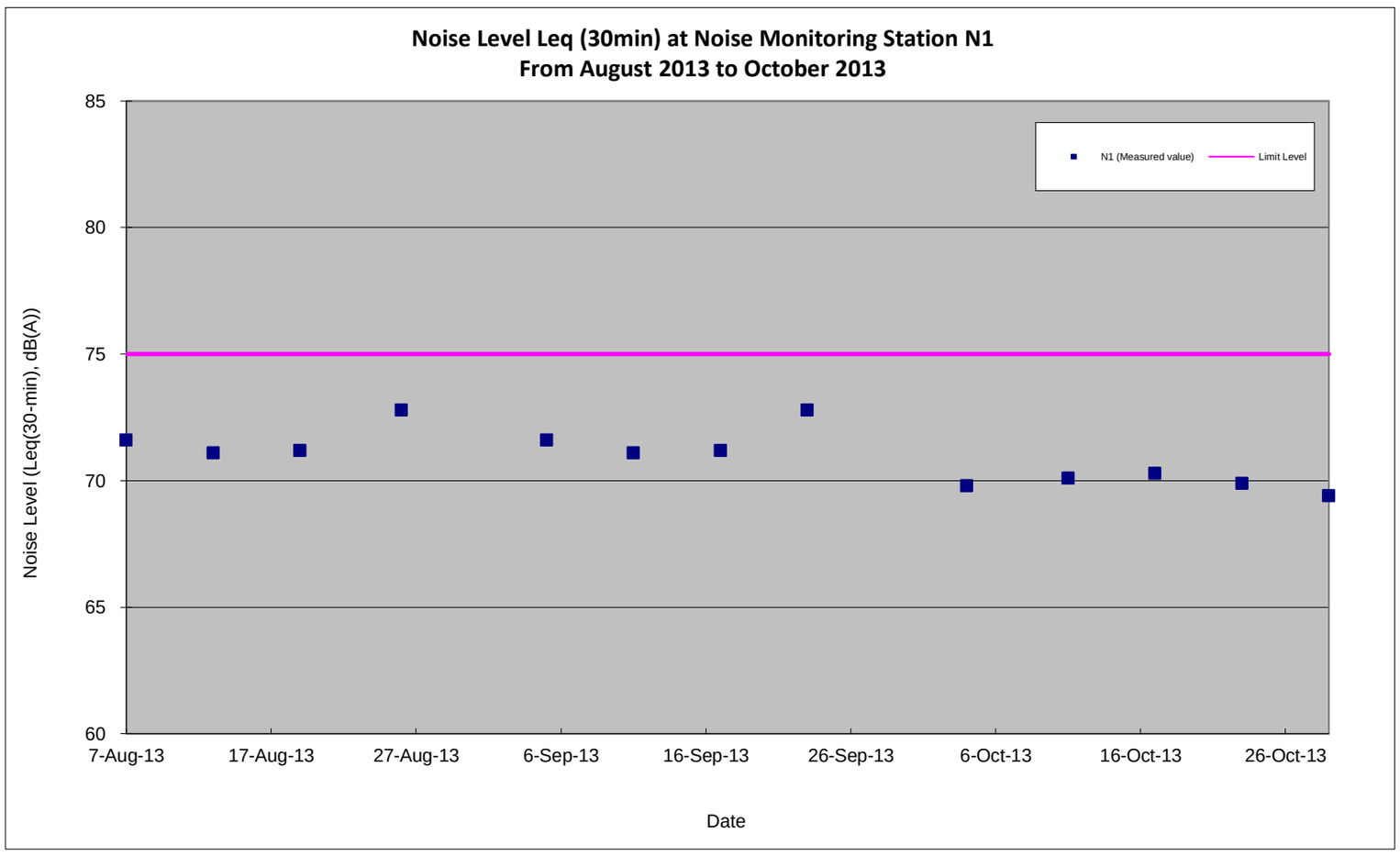
			Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
ID	Premise	Time	L_{Aeq},30min	Limit	L_{10},5min	L_{90},5min	L_{Aeq},30min	L_{Aeq},30min
N1	Kam Fai Garden	9:50-10:20	71	75	74	69	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:35-11:05	72	75	74	70	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:15-11:45	67	70	69	65	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	08:30-09:00	65	70	67	64	67	Measured ≦ Baseline
N5	Tuen King Building	13:00-13:30	69	75	71	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	13:50-14:20	68	70	70	66	69	Measured ≦ Baseline

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

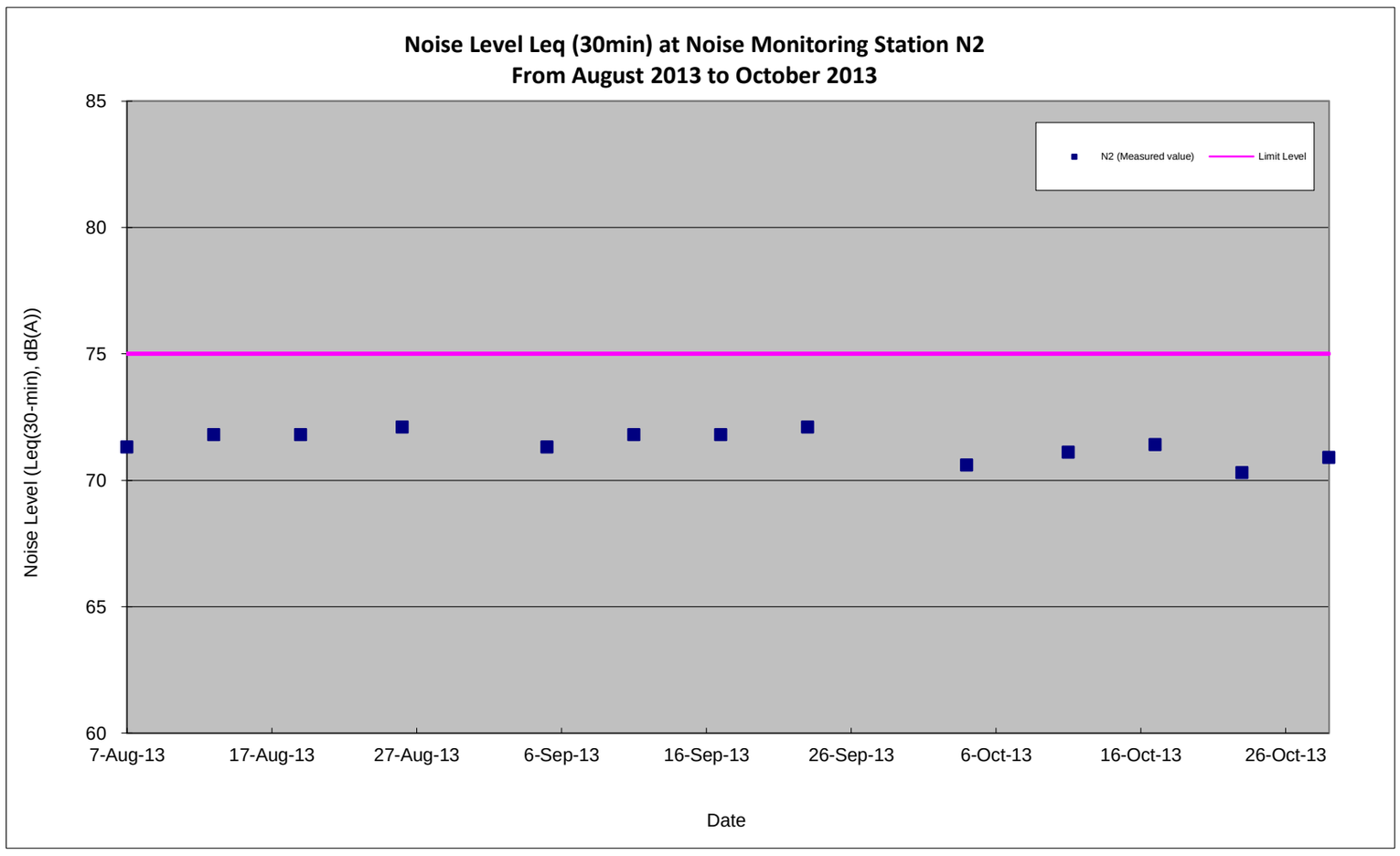
Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team
Day-time Noise Monitoring Results - 23 September 2013

			Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
ID	Premise	Time	L_{Aeq},30min	Limit	L_{10},5min	L_{90},5min	L_{Aeq},30min	L_{Aeq},30min
N1	Kam Fai Garden	9:50-10:20	73	75	75	70	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:35-11:05	72	75	74	70	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:15-11:45	68	70	69	66	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	08:30-09:00	65	70	67	64	67	Measured ≦ Baseline
N5	Tuen King Building	13:00-13:30	70	75	72	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	13:50-14:20	69	70	70	66	69	Measured ≦ Baseline

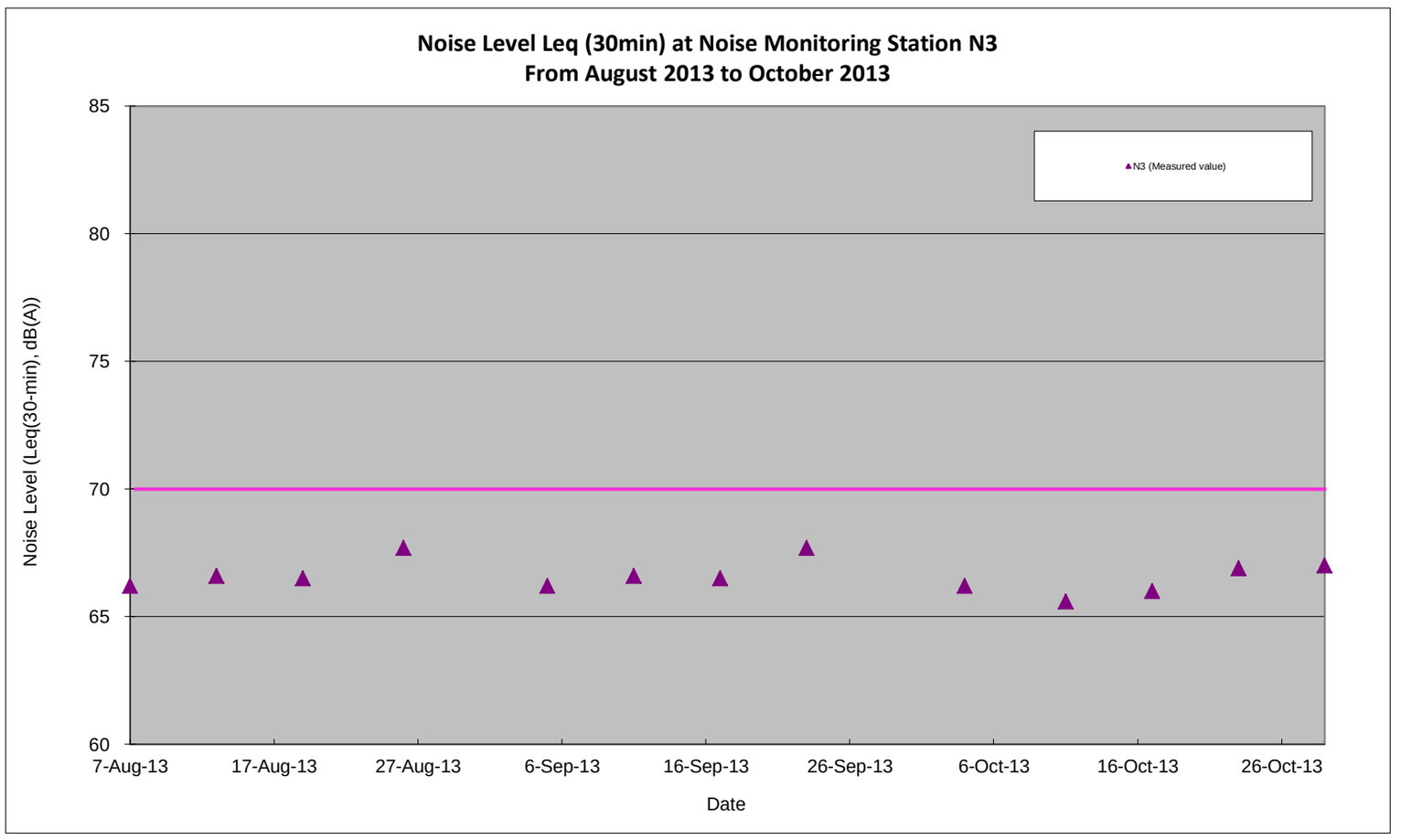
Note: (#): Construction Noise Level = Measured Noise Level - Baseline Noise Level



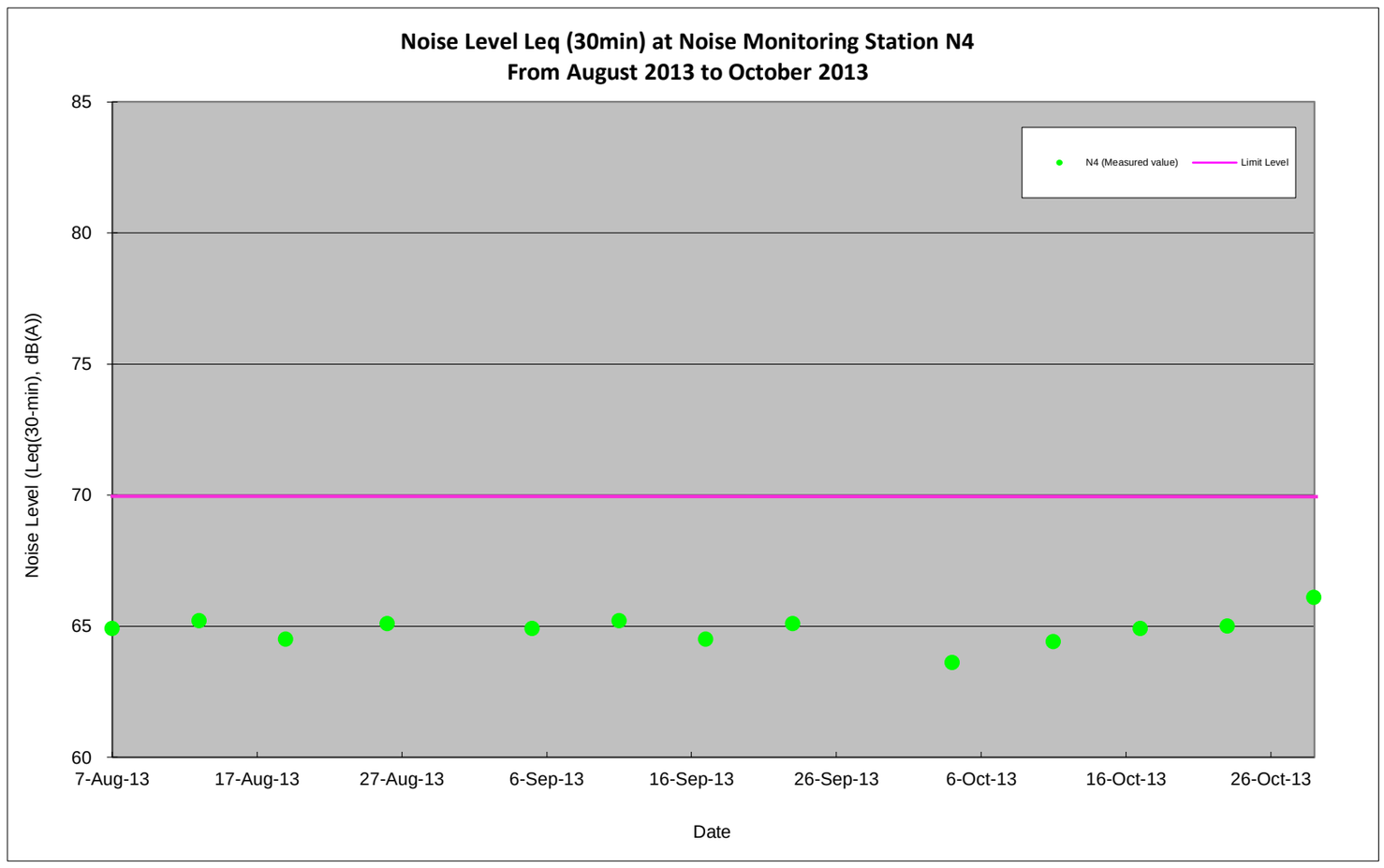
Note: For compliance comparison, please refer to above table and report.



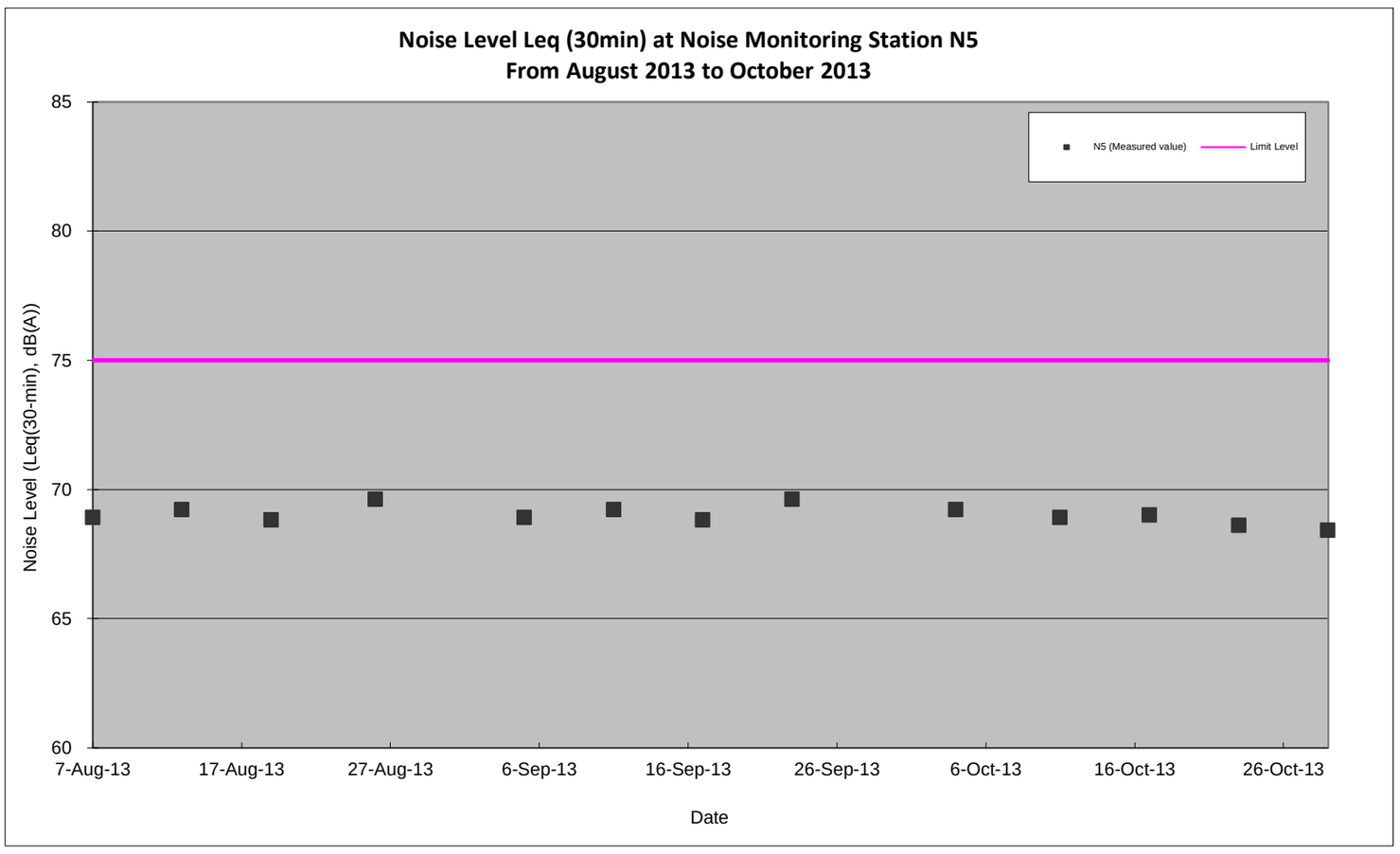
Note: For compliance comparison, please refer to above table and report.



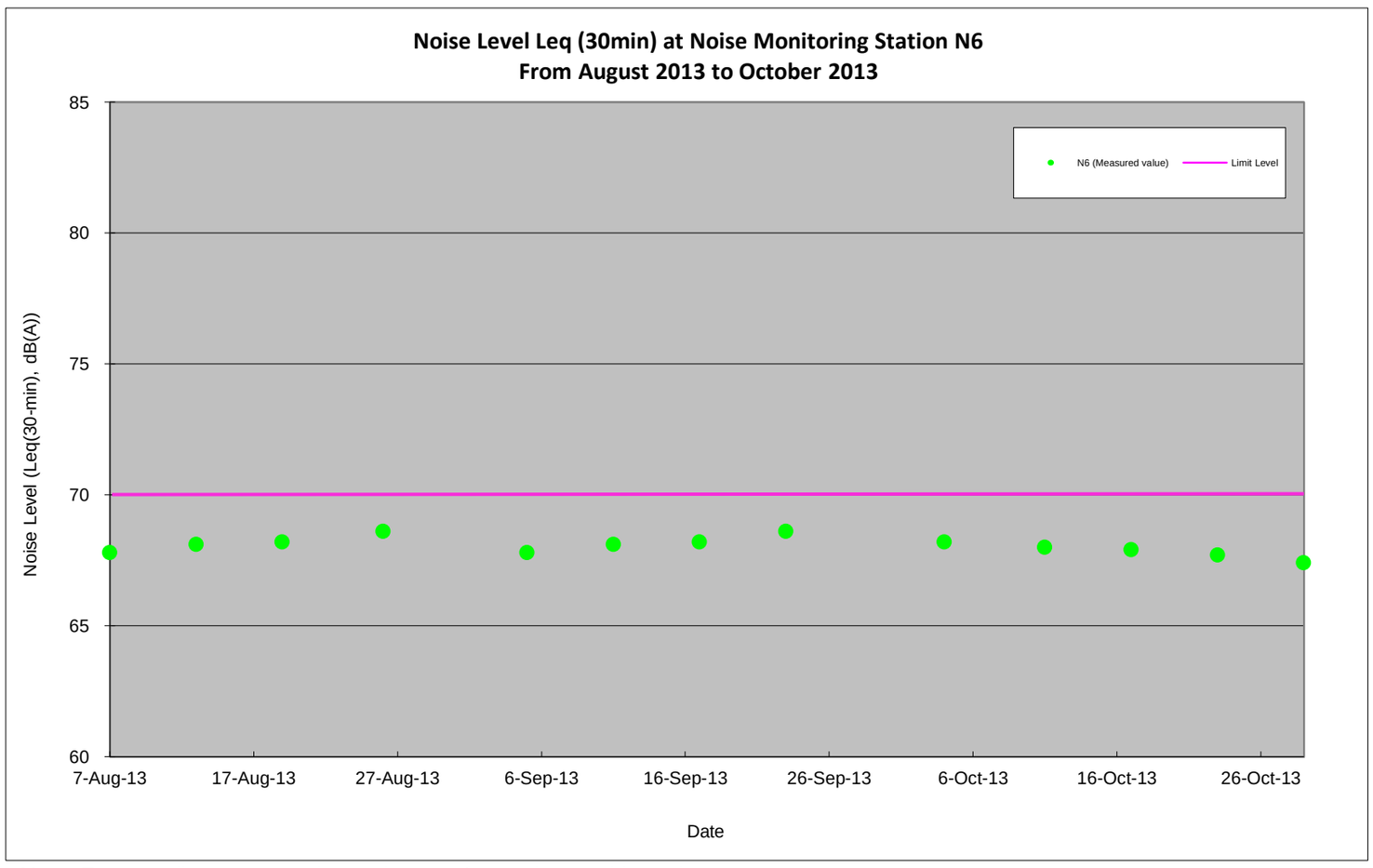
Note: For compliance comparison, please refer to above table and report.



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

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
Landscape Resources	
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
Landscape Character Areas	
LZ1	Tuen Mun Residential Urban Landscape
LZ2	Tuen Mun Mixed Modern Comprehensive Urban Development Landscape
LZ3	Tuen Mun ‘Hui’ Urban Landscape
Visual Sensitive Receivers	
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

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
C039-TCS	A complaint was received by ICC on 17 Aug 13 and the Supervising Officer Representative was informed on 20 Aug 13.	Mr. Pang	17 Aug 13	Friday Nighttime around 23:00.	Tuen Mun Road (near Siu On Court)	Noise	The complaint was related to noise nuisance of night works near Siu On Court.	20 Aug 13	20 Aug ~ 29 Aug 13	As confirmed by the Contractor and Supervising Officer's Representative, the related night works was carried out in Tuen Mun Road (near Siu On Court). The noise nuisance was mainly caused by road paving works. On Friday midnight, 1 unit of roller, 1 unit of road paver, 1 unit of miller, 1 unit of lorry and 1 unit of dump truck have been deployed. The relevant construction noise permit (CNP) no. GW-RW0339-13 was obtained for the corresponding work in the designated area prior to commencement. The conditions stipulated in the CNP were strictly followed by the Contractor. EPD had been informed prior to the work commencement. No abnormal activities were observed during the complaint period. Based on the above-mentioned information, it is concluded that the complaint was work-related under the Project. Based on the above-mentioned information, it is concluded that the complaint was work-related under the Project. In order to minimize the potential noise nuisance generated from the road paving works, ET recommended that the Contractor should undertake following mitigation measures to minimize the noise nuisance. 1. Well maintain the machines condition to minimize noise nuisance; 2. Relocate operating machinery as far as possible from nearby sensitive receivers; 3. Idle equipments should be either turned off or throttled down; and 4. Improve the working practices to minimize the noise nuisance during the working activities as far as possible.	Yes	Closed on 29 Aug 13

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
C040-TCS	A complaint was received by ICC on 15 Sep 13 and the Supervising Officer Representative was informed on 17 Sep 13.	Mr. Leung	15 Sep 13	Sunday Nighttime around 01:00.	Tuen Mun Road (near Pui To Road)	Noise	The complaint was related to noise nuisance of night works near Pui To Road.	15 Sep 13	15 Sep ~ 26 Sep 13	As confirmed by the Contractor and Supervising Officer's Representative, the related night works was carried out in Tuen Mun Road (near Pui To Road). The noise nuisance was mainly caused by rock breaking works. On Sunday midnight, 1 unit of breaker, 1 unit of lorry and 1 unit of dump truck have been deployed. The relevant construction noise permit (CNP) no. GW-RW0583-13 was obtained for the corresponding work in the designated area prior to commencement. The conditions stipulated in the CNP were strictly followed by the Contractor. EPD had been informed prior to the work commencement. No abnormal activities were observed during the complaint period. Based on the above-mentioned information, it is concluded that the complaint was work-related under the Project. Based on the above-mentioned information, it is concluded that the complaint was work-related under the Project. In order to minimize the potential noise nuisance generated from the road paving works, ET recommended that the Contractor should undertake following mitigation measures to minimize the noise nuisance. 1. Well maintain the machines condition to minimize noise nuisance; 2. Relocate operating machinery as far as possible from nearby sensitive receivers; 3. Idle equipments should be either turned off or throttled down; and 4. Improve the working practices to minimize the noise nuisance during the working activities as far as possible.	Yes	Closed on 26 Sep 13

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
C041-TCS	A complaint was received by ICC on 17 Sep 13 and the Supervising Officer Representative was informed on 17 Sep 13.	Mr. Wong	17 Sep 13	Sunday Nighttime around 03:00.	Tuen Mun Road (near Tuen Hing Road)	Noise	The complaint was related to noise nuisance of night works near Tuen Hing Road.	17 Sep 13	17 Sep ~ 26 Sep 13	As confirmed by the Contractor and Supervising Officer's Representative, the related night works was carried out in Tuen Mun Road (near Tuen Hing Road). The noise nuisance was mainly caused by road resurfacing works. On Sunday midnight, 1 unit of roller, 1 unit of road paver, 1 unit of miller, 1 unit of lorry and 1 unit of dump truck have been deployed. The relevant construction noise permit (CNP) no. GW-RW0584-13 was obtained for the corresponding work in the designated area prior to commencement. The conditions stipulated in the CNP were strictly followed by the Contractor. EPD had been informed prior to the work commencement. No abnormal activities were observed during the complaint period. Based on the above-mentioned information, it is concluded that the complaint was work-related under the Project. Based on the above-mentioned information, it is concluded that the complaint was work-related under the Project. In order to minimize the potential noise nuisance generated from the road paving works, ET recommended that the Contractor should undertake following mitigation measures to minimize the noise nuisance. 1. Well maintain the machines condition to minimize noise nuisance; 2. Relocate operating machinery as far as possible from nearby sensitive receivers; 3. Idle equipments should be either turned off or throttled down; and 4. Improve the working practices to minimize the noise nuisance during the working activities as far as possible.	Yes	Closed on 26 Sep 13