Highways Department

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

Quarterly Environmental Monitoring and Audit Summary Report (May 2012 to July 2012)

Revision 1

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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This is the fifth 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 May 2012 to 31 July 2012.

Environmental Monitoring Works – Breaches of Action and Limit Levels

Air Quality

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

Noise

Totally 11 limit level exceedances (5 in May, 6 in June and 0 in July 2012) of noise monitoring were recorded during the reporting period. Based on the on-site observations and interpretation from the results, noise exceedances were not related to the construction activities. No particular remedial work is required.

However, two noise complaints (In May 2012), hence, two Action Level exceedences, were recorded in the reporting period.

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

Landscape and Visual Audit

In the reporting period, landscape and visual site audit in accordance with the requirements stipulated in the EM&A manual were conducted. Total 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 12,987.000 m^3 were generated and disposed of at public fills at Tuen Mun Area 38 in the reporting period. 419.25 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 (3 in May 2012) regarding the construction noise and water quality were recorded during the reporting period. After the investigation, it is concluded that all complaints were attributable to the Contract. The corresponding mitigation measures due to the complaints were recommended to carry out by the Contractor. Nevertheless, the Contractor was reminded to implement proper mitigation measure as stipulated in EM&A Manual to minimize any environmental implication.

Notifications of Summons and Successful Prosecutions

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

1 Project Information

1.1 Project Background and Programme

Ove Arup & Partners Hong Kong Limited (Arup) was appointed by Highways Department (HyD) as the Environmental Team (ET) for *Agreement No. CE22/2005 (HY) Supplementary Agreement 1 Traffic Improvements to Tuen Mun Road Town Centre Section* (the Project) under Agreement No. HMW 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section. The 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	Site clearance, ground investigation, footbridge construction, noise barrier construction; pilling works, underground utilities and drainage diversion

1.2 Project Organization

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

Figure 1.2 Project Organization – Environmental Management

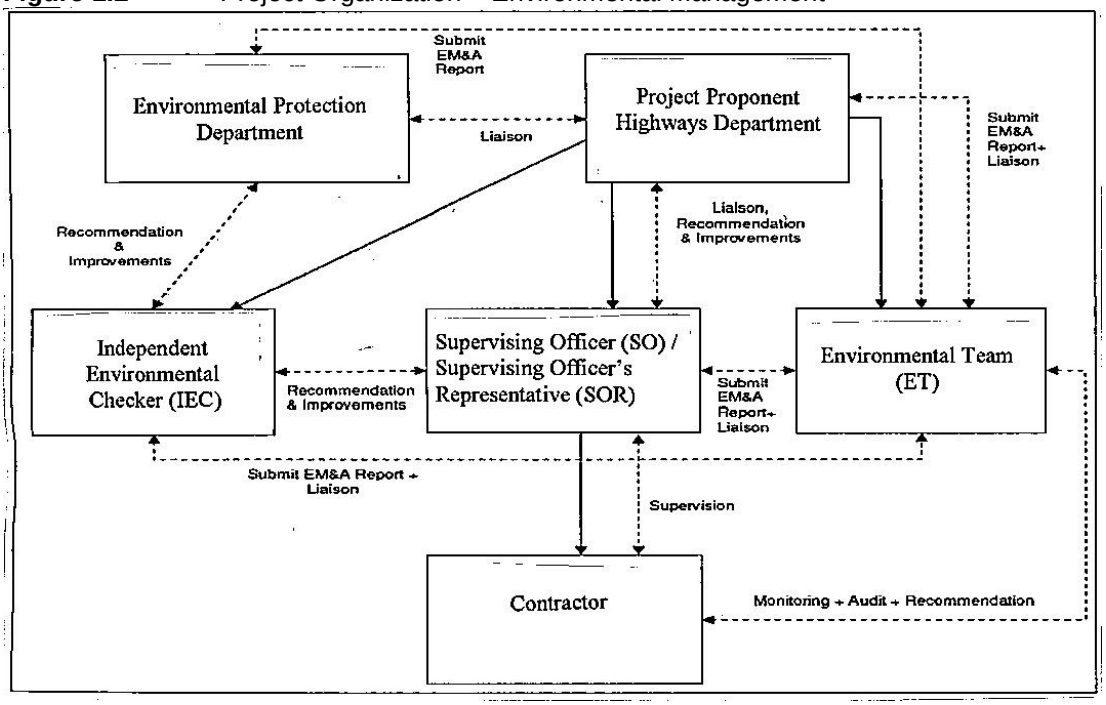


Figure 1.1 Location of works area and air, noise environmental monitoring stations

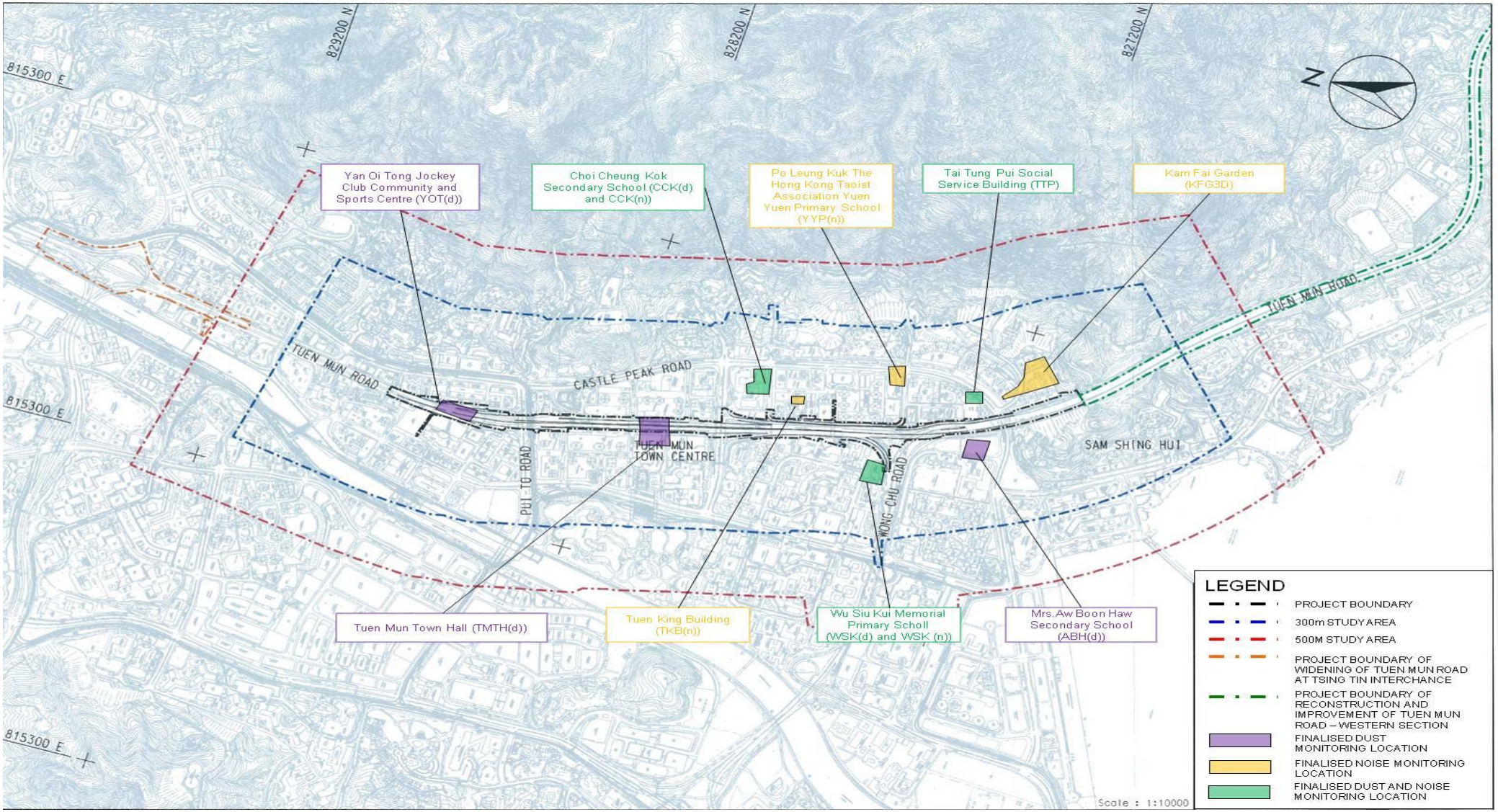


Table 1.2 Contacts of key environmental staff

Organization	Name	Telephone
Environmental Protection Department		
Environmental Protection Officer (Strategic Assessment)22	Thomas To	2835 1103
Project Proponent		
Highways Department: Senior Engineer	Kenneth Chan	2762 3422
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	Chi Lok Fa Yuen	17 May 12	The contractor should replace the damaged sandbag bundings.	Sandbag bundings have been replaced. Closed on 24 May 12.
	Yan Ching Street	24 May 12	The contractor should ensure the stockpile well covered with tarpaulin after daily works.	Tarpaulin cover has been provided. Closed on 31 May 12.
	Yan Ching Street (Central Median)	24 May 12	The contractor should maintain the condition of the tarpaulin enclosure to the cement mixing area.	The enclosure has been maintained. Closed on 31 May 12.
	Yan Oi Street & TMT Plaza	7 Jun 12	The contractor should cover the stockpiles entirely with tarpaulin after daily works.	Stockpiles have been covered properly. Closed on 14 Jun 12.
	Yan Ching Street	14 Jun 12	The contractor should keep good maintenance of the tracked excavator to prevent intermittence smoke emission.	Maintenance has been arranged for the excavator. Closed on 21 Jun 12.
	Tsing Sin Carpark	12 Jul 12	The contractor was reminded to provide water spraying to the haul road.	The reminder has been noted. Closed on 19 Jul 12.
	Tsing Hoi Circuit	12 Jul 12	Cement bags of quantity more than 20 should be covered entirely with tarpaulin.	Entire coverage has been provided for the cement bags. Closed on 19 Jul 12.
Water Quality	Yan Oi Bridge near Rosedale Garden	3 May 12	The contractor should clear the muddy water in the sump pit to avoid overflow to road kerb of Tuen Mun Road.	Muddy water has been cleared. Closed on 10 May 12.
	New Town Mansion	10 May 12	Accumulated water within the site should be cleared.	Accumulated water has been cleared. Closed on 17 May 12.

Monitoring Parameter	Location	Inspection Date	Key Observations & Recommendations	Contractor's Follow-Up Status
Water Quality	Pui To Road (Sliproad)	21 Jun 12	Little muddy water was observed in the road kerb. The contractor should clear the muddy water and ensure no more spillage from the site.	Muddy water has been cleared. Closed on 28 Jun 12.
	Tsing Hoi Circuit	21 Jun 12	Stagnant water was observed in the drip tray after heavy rain. The contractor should remove the water to avoid accumulation as soon as possible.	Stagnant water has been cleared. Closed on 28 Jun 12.
	Tsing Sin Carpark	21 Jun 12	The contractor should increase the height of sand bag bunding around the bore-pile location to prevent surface runoff from site to drainage system.	More sand bag bundings have been provided. Closed on 28 Jun 12.
	Yan Oi Tong Circuit	28 Jun 12	The contractor was reminded to provide bundings in the road kerb next to the stockpiles to prevent muddy water washing into Tuen Mun Road during rainstorm.	Bundings have been provided. Closed on 5 Jul 12.
	Yan Oi Bridge	6 Jul 12	The contractor should clear the stagnant water accumulated under the Yan Oi Bridge.	Stagnant water has been cleared. Closed on 13 Jul 12.
	On Ting Estate	12 Jul 12	Muddy water generated from wheel washing was observed in Tuen Mun Road. The contractor should rectify it as soon as possible.	Muddy water has been cleared. Closed on 19 Jul 12.
	New Yan Oi Bridge	19 Jul 12	All accumulated water should be drained.	Accumulated water has been drained. Closed on 26 Jul 12.
	Chi Lok Fa Yuen	19 Jul 12	Surface runoff was observed to the public drainage system. The contractor should consider appropriate mitigation measures, such as the use of sand bag bunding to divert the water flow.	Sand bag bundings have been provided. Closed on 26 Jul 12.
	All areas	26 Jul 12	The contractor was reminded to clear the accumulated water after rains.	The reminder has been noted. Closed on 2 Aug 12.
Noise	New Yan Oi Bridge	6 Jul 12	Valid noise label should be affixed to the electric hand-held breakers.	Valid noise label has been affixed. Closed on 13 Jul 12.
Landscape and Visual	Yan Ching Street	10 May 12	Fencing should be provided to unprotected trees within the site.	Fencing has been provided. Closed on 17 May 12.
Waste / Chemical Management	All areas	3 May 12	Accumulated water was observed in most of the drip trays after a rainy morning. The contractor was reminded to clear the water, ensuring the adequate capacity of drip tray.	Accumulated water has been removed. Closed on 10 May 12.

Monitoring Parameter	Location	Inspection Date	Key Observations & Recommendations	Contractor's Follow-Up Status
Waste / Chemical Management	Kam Fai Garden	10 May 12	Oil stains were observed in the unpaved areas. The contractor should rectify the contaminated soil.	Contaminated soil has been removed. Closed on 17 May 12.
	Tuen Hing Road	31 May 12	The contractor should remove the debris accumulated in the U-channel.	Debris has been removed. Closed on 7 Jun 12.
	Central median under Yan Oi Bridge & Tuen Hing Bridge	14 Jun 12	Accumulated waste, debris and construction materials were observed. The contractor should arrange frequent pick up of the waste to avoid accumulation.	Accumulated waste has been removed. Closed on 21 Jun 12.
	On Ting Estate	14 Jun 12	The contractor was reminded to ensure all chemical containers were not scattered within site area. Designated storage should be provided.	Designated storage area has been provided for the chemical containers. Closed on 21 Jun 12.
	Rosedale Garden & Waldorf Garden	28 Jun 12	Chemical waste should be sorted out from the general refuse. All wastes should be disposed of regularly.	Waste sorting has been carried out. Waste has been disposed of regularly. Closed on 5 Jul 12.
	Rosedale Garden & TMT Plaza	28 Jun 12	Scattered chemicals should be centralized and stored in designated storage area.	Designated storage area has been provided. Closed on 5 Jul 12.
	TMT Plaza	6 Jul 12	Construction wastes (e.g. wooden board) should be disposed of regularly to avoid accumulation.	Accumulated waste has been removed. Closed on 13 Jul 12.
	New Yan Oi Bridge	26 Jul 12	The contractor should arrange frequent waste disposal to avoid waste accumulation.	Waste has been disposed of regularly. Closed on 2 Aug 12.

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)			
	May 12	Jun 12	Jul 12	Mean
AM1	16 (9 - 25)	23 (14 - 29)	22 (9 – 47)	21 (9 – 47)

Location	Average 24-hour TSP Concentration, μg/m³ (Range)			
	May 12	Jun 12	Jul 12	Mean
AM2	26 (14 - 36)	24 (20 - 31)	27 (8 – 65)	27 (8 – 65)
AM3	24 (16 - 37)	21 (16 - 26)	39 (16 – 78)	28 (16 – 78)
AM4	20 (13 - 26)	27 (15 - 48)	43 (15 – 82)	31 (13 – 82)
AM5	24 (12 - 39)	24 (16 - 38)	39 (13 – 66)	31 (12 – 66)
AM6	22 (13 - 35)	24 (11 - 41)	36 (11 – 73)	28 (11 – 73)

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)			
	May 12	Jun 12	Jul 12	Mean
N1	75 (74 – 77)	74 (73 – 76)	73 (73 – 75)	74 (72 – 77)
N2	75 (74 – 75)	74 (73 – 75)	74 (73 – 74)	74 (73 – 75)
N3	67 (67 – 68)	68 (67 – 68)	67 (67 – 68)	67 (67 – 69)
N4	66 (65 – 66)	66 (66 – 66)	66 (66 – 66)	66 (65 – 66)
N5	70 (69 – 70)	70 (69 – 70)	69 (68 – 70)	69 (68 – 70)
N6	68 (68 – 69)	68 (68 – 69)	68 (67 – 68)	68 (67 – 70)

Restricted Hours

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

4.2.2 Exceedance of Limit and Action Levels for Construction Noise

Totally 11 limit level exceedances (5 in May, 6 in June and 0 in July 2012) were recorded for noise measurement during non-restricted hours in the reporting period and are summarized in **Table 4.3**.

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

Location (Note 1)	No. of exceedance of Limit Level			
	May 12	Jun 12	Jul 12	Total
N1	3	1	0	4
N3	2	2	0	4
N4	0	1	0	1
N6	0	2	0	2

Notes:
1. No Limit Level exceedance was recorded at monitoring location N4 and N5 during the reporting period.

Based on the field observations, it was revealed that the exceedances were mainly caused by traffic vehicles along Tuen Mun Road. It was therefore concluded that the noise 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 (May 2012 to Jul 2012).

Two noise complaints (In May 2012), hence, two Action Level exceedences, were recorded in the reporting period

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

4.2.3 General Observations

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

4.3 Landscape and Visual Monitoring Audit Results

In the reporting period, landscape and visual site audit in accordance with the requirements stipulated in the EIA Report was conducted during the routine monthly site audit. The details of each LR, LCA and VSR are summarized in **Appendix F**. The implementation and maintenance of landscape and visual mitigation measures, listed in EIA Report, were checked during the site audit. During the reporting period, no substantial change of LR, LCA and VSR was noted, no non-compliance has been triggered, total 514 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 (May 2012 to Jul 2012).

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	

	May 12	Jun 12	Jul 12	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
	5,562.375 m^3	4,138.875 m^3	3,285.75 m^3	12,987 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	0 kg	0 kg	0 kg	0 kg	
General Refuse	131.625 m^3	136.500 m^3	151.125 m^3	419.25 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

Totally 11 limit level exceedances (5 in May, 6 in June and 0 in July 2012) of noise monitoring were recorded from the monitoring data at locations N1, N3, N4 and N6 during the reporting period, which triggered the Event and Action Plan for remedial action. Based on the on-site observations and interpretation from the results, it was revealed that the exceedances were mainly caused by traffic noise along Tuen Mun Road and was not related to the construction activities. No particular remedial work is required.

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 (3 in May 2012) regarding the construction noise and water quality were recorded during the reporting period.

The **first** complaint was received by ICC on 14 May 12 muddy water spillage from the site to the carriageway in Tsing Sin Street (Near Tsing Sin Playground)

As confirmed by the Contractor and Supervising Officer's Representative, the complaint was related to muddy water spillage from the site to the carriageway on 14 May 12.

In the complaint location, the contractor was carrying out the piling works for the S1 Bridge in the vicinity. Immediate checking has been done by site workers after receiving complaint. It was found that the muddy water spillage was generated from the bore pile machine. As advised by the Supervising Officer's Representative, the contractor has cleaned up the muddy water and ensuring the bore pile machine is well enclosed during operation. The site was also placed with more sandbag bundings around to avoid reoccurrence. Weekly site inspection by ET on 17 and 24 May 12 revealed that the site condition was satisfactory and no muddy water spillage was observed.

Based on the above information, it is therefore concluded that the complaint was work related under the Project. The Contractor was reminded to take necessary resources to ensure review for site performance and prevent reoccurrence.

In view of this, ET recommended that the Contractor should undertake following mitigation measures to minimize the nuisance.

1. Maintain good site practice by ensuring well enclosure to the bore pile machine in operation.
2. Site workers should be well trained for operating the bore pile machine.
3. Sufficient sandbag bundings shall be placed in the site boundary.

The **second** complaint was received by ICC on 26 May 12 regarding noise generated from loading/ unloading works in Tuen Mun Road (Kowloon Bound) near Waldorf Garden.

As confirmed by the Contractor and Supervising Officer's Representative, the complaint was related to noise generated from loading/ unloading on 26 May 12.

In the complaint location, the contractor was carrying out loading/ unloading of construction materials (e.g. wooden board, scaffolding materials, etc.). 2 units of lorry, with crane, have been deployed in the complaint period.

The relevant construction noise permit (CNP) no. GW-RW0305-12 was obtained for the loading/ unloading works 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 information, it is therefore concluded that the complaint was work related under the Project.

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

1. Relocate the location of loading/ unloading operation as far as possible from nearby noise sensitive receivers; and
2. Improve the working practices; minimize the noise nuisance during the working activities as far as possible.

The **third** complaint was received by ICC on 27 May 12 regarding noise generated from sheet piling works in Tuen Mun Road (Yuen Long Bound) near Rosedale Garden.

As confirmed by the Contractor and Supervising Officer's Representative, the complaint was related to noise generated from sheet piling works on 27 May 12.

In the complaint location, the contractor was carrying out installation of sheet piles in the central median of Tuen Mun Road near Rosedale Garden. 1 unit of tracked excavator and 1 unit of vibration hammer have been deployed.

The relevant construction noise permit (CNP) no. GW-RW0840-11 was obtained for the sheet piling works 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. In addition, the sheet piling works in the complaint area has been completed. Based on the above information, it is therefore concluded that the complaint was work related under the Project.

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

1. Employ the QPME units as far as possible;
2. Well-maintain the machines condition to minimize noise nuisance;
3. Provide temporary / mobile noise barrier for the noisy activities as far as possible;

Improve the working practices; minimize the noise nuisance during the working activities as far as possible;

The recommendations that advised by ET had been noted by the Contractor and would be implemented as far as possible. The updated statistical summary of complaint is presented in **Table 6.1**. The updated complaint logs (C024 to C026) 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.
	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.

Reporting Period	Complaint Statistics		Area of Concern	Validity to the Project	Status
	Number	Cumulative			
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	-	-	-

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.

Totally 11 limit level exceedances (5 in May, 6 in June and 0 in July 2012) of noise monitoring were recorded during the reporting period. Based on the field observations and interpretation of the results, the noise exceedance the exceedances were mainly caused by traffic vehicles along Tuen Mun Road. It was concluded that the exceedance were not project related and no particular remedial work is required. Two noise complaints (In May 2012), hence, two Action Level exceedences, were recorded in the reporting period

Three environmental complaints (3 in May 2012) regarding the construction noise and water quality were recorded in the reporting period. After the investigations, it is concluded that the complaints were attributable to the Contract. The corresponding mitigation measures due to the complaints were recommended to carry out by the Contractor. Nevertheless, the Contractor was reminded to implement proper mitigation measure as stipulated in EM&A Manual to minimize any environmental implication.

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

In accordance with the requirements stipulated in the EM&A manual, landscape and visual site audit was conducted regularly during the reporting period. Total 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 – May 2012 (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 – June 2012 (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 – July 2012 (Final)

Appendix A

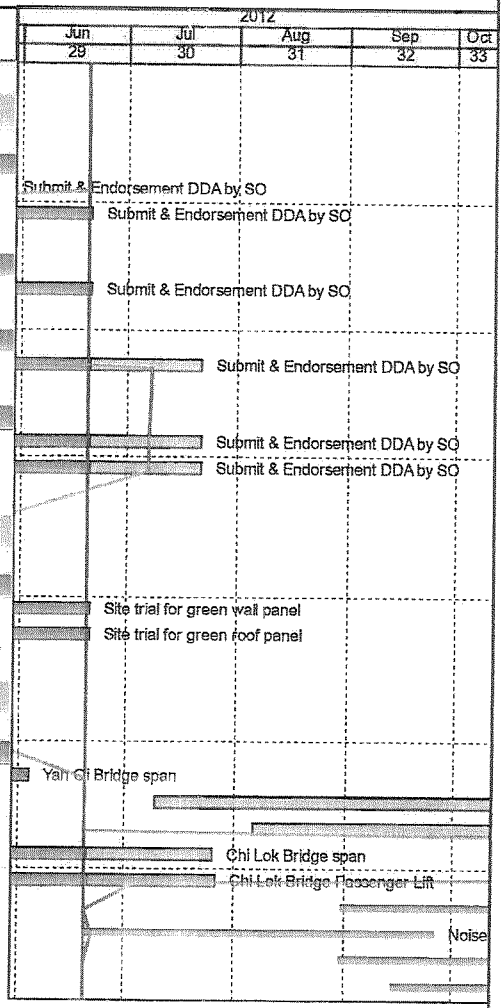
Construction Programme

HY/2009/03

20 Jun 2012

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

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Late Start	Late Finish
Design of Permanent Works							
Design of Permanent Works							
Package of Geotechnical Works							
Detailed Design Approval (DDA)							
DDAGE1140	Submit & Endorsement DDA by SO	35	0	24-Apr-12 A	28-May-12 A	03-Oct-14	03-Oct-14
DDAGE1180	Submit & Endorsement DDA by SO	35	1	14-Dec-11 A	20-Jun-12	22-Jun-12	23-Jun-12
Package of Provisional Works for TCSS Installation							
Detailed Design Approval (DDA)							
DDATS1030	Submit & Endorsement DDA by SO	35	1	09-Dec-10 A	20-Jun-12	23-Apr-12	24-Apr-12
Package of At-Grade Irrigation System							
Detailed Design Approval (DDA)							
DDAIS1030	Submit & Endorsement DDA by SO	35	32	26-Mar-12 A	21-Jul-12	01-Sep-14	03-Oct-14
Package of Landscaping Works							
Detailed Design Approval (DDA)							
DDALW1030	Submit & Endorsement DDA by SO	35	32	26-Mar-12 A	21-Jul-12	01-Sep-14	03-Oct-14
DDALW1070	Submit & Endorsement DDA by SO	35	32	11-May-12 A	21-Jul-12	14-Jul-12	15-Aug-12
Project General Submission							
General Submission							
Trail Green Panel							
Trail Green Panel							
GS1580	Site trial for green wall panel	365	1	05-Mar-11 A	20-Jun-12	21-Mar-13	21-Mar-13
GS1600	Site trial for green roof panel	365	1	05-Mar-11 A	20-Jun-12	21-Mar-13	21-Mar-13
Procurement							
Material Procurement and Fabrication							
Material Procurement and Fabrication							
Procurement and Fabrication							
MP1020	Yan Oi Bridge span	90	0	19-Apr-12 A	04-Jun-12 A	14-Jan-13	14-Jan-13
MP1030	Yan Oi Bridge Passenger Lift	90	90	09-Jul-12	25-Oct-12	11-May-13	27-Aug-13
MP1070	Siu On Bridge Passenger Lift	90	90	06-Aug-12	22-Nov-12	23-Apr-13	09-Aug-13
MP1080	Chi Lok Bridge span	90	29	30-May-12 A	25-Jul-12	29-Aug-14	03-Oct-14
MP1090	Chi Lok Bridge Passenger Lift	90	29	01-Feb-12 A	26-Jul-12	24-Apr-12	31-May-12
MP1100	Noise Barrier/Enclosure steel structure for Scheme A Area	131	131	31-Aug-12	07-Feb-13	03-Sep-12	20-Mar-13
MP1110	Noise Barrier/Enclosure steel structure for Scheme B Area	69	81	01-Jun-12 A	26-Sep-12	03-Sep-12	18-Jan-13
MP1140	Noise Barrier/Enclosure steel structure for Scheme E Area	189	189	30-Aug-12	23-Apr-13	27-Sep-12	25-Apr-13
MP1160	Noise Barrier/Enclosure wall panel for Scheme B Area	280	280	14-Sep-12	26-Aug-13	02-Aug-13	03-Oct-13



Remaining Level of Effort | Critical ...
Actual Work | Milestone
Remaining Work

3 Months Rolling Programme WP04 (20 Jun 2012)

Date	Revision	Checked	Appr...
20-Jun-12	WP04-3MRP 1206	Renato	

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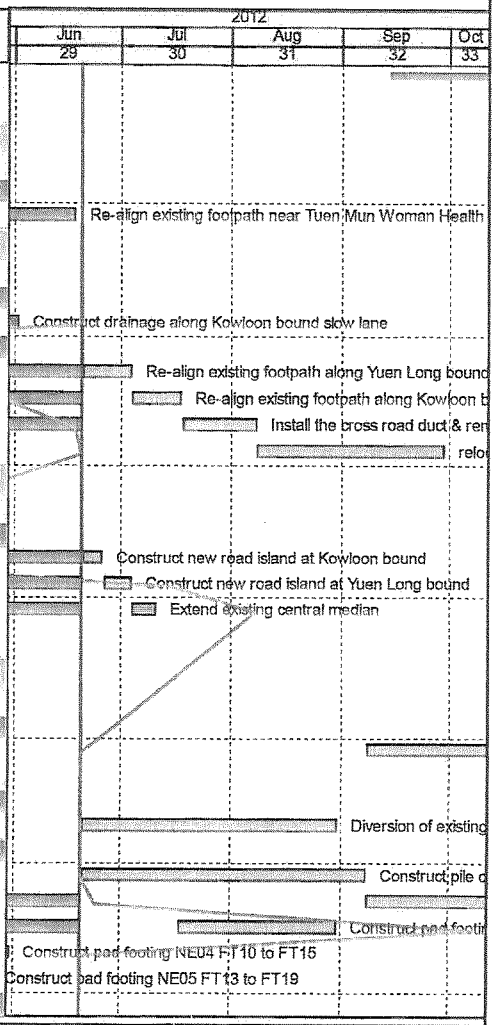
20 Jun 2012

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

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Late Start	Late Finish
MP1210	Noise Barrier/Enclosure roof panel for Scheme B Area	258	258	14-Sep-12	31-Jul-13	02-Aug-13	03-Oct-13
Section 1 of Works							
Tuen Hing Road /Castle Peak Road							
Improvement Works at Tuen Hing Road / Castle Peak Road							
Roadworks							
SEC11130	Re-align existing footpath near Tuen Mun Woman Health Centre	60	0	02-Jul-11 A	18-Jun-12 A	17-Oct-12	17-Oct-12
Fu Fat Lane / Castle Peak Road							
Improvement Works at Fu Fat Lane / Castle Peak Road							
Drainage Works							
SEC11450	Construct drainage along Kowloon bound slow lane	60	0	26-Aug-11 A	02-Jun-12 A	20-Jul-12	20-Jul-12
Roadworks							
SEC11170	Re-align existing footpath along Yuen Long bound slow lane	60	10	15-Jun-11 A	03-Jul-12	09-Jul-12	19-Jul-12
SEC11180	Re-align existing footpath along Kowloon bound slow lane	60	12	02-Jan-12 A	17-Jul-12	20-Jul-12	02-Aug-12
SEC11190	Install the cross road duct & remove existing central median	45	18	13-Feb-12 A	07-Aug-12	03-Aug-12	23-Aug-12
SEC11200	relocation existing road lighting & construct new central median	45	45	08-Aug-12	29-Sep-12	24-Aug-12	17-Oct-12
Hoi Wing Road / Castle Peak Road							
Improvement Works at Hoi Wing Road / Castle Peak Road							
Roadworks							
SEC11230	Construct new road island at Kowloon bound	30	4	02-Jan-12 A	25-Jun-12	28-Sep-12	03-Oct-12
SEC11360	Construct new road island at Yuen Long bound	55	6	08-May-12 A	03-Jul-12	04-Oct-12	10-Oct-12
SEC11370	Extend existing central median	30	6	15-May-12 A	10-Jul-12	11-Oct-12	17-Oct-12
Section II of Works							
Scheme A (CH29405 - CH29050)							
Stage 1 Kowloon Bound Road Verge & T1							
Drainage Works							
RA1430	Construct drainage S/B verge CH29270 to CH29400 and T1 alignment	77	77	08-Sep-12	10-Dec-12	13-Apr-13	17-Jul-13
Stage 2 Both bound Road Verge near Yan Ching Bridge							
Utilities Diversion							
RA1830	Diversion of existing PCCW cable	60	60	20-Jun-12	30-Aug-12	24-Jul-12	04-Oct-12
Pile Cap / Footing							
RA1125	Construct pile cap NE03 PC5 to PC7 & FT08	67	67	20-Jun-12	07-Sep-12	23-Jun-12	11-Sep-12
RA1130	Construct pad footing NE02 PC8 & NE04 FT1 to FT5	100	72	17-May-12 A	04-Dec-12	05-Oct-12	02-Jan-13
RA1140	Construct pad footing NE05 FT1 to FT7	56	38	08-May-11 A	30-Aug-12	17-Aug-12	04-Oct-12
RA1145	Construct pad footing NE04 FT10 to FT15	48	0	06-Apr-11 A	31-May-12 A	02-Jan-13	02-Jan-13
RA1150	Construct pad footing NE05 FT13 to FT19	62	0	20-Jul-11 A	26-May-12 A	19-Jan-13	19-Jan-13
NB Structural Steel Post/Colum Erection							



Remaining Level of Effort | Critical ...
Actual Work | Milestone
Remaining Work

3 Months Rolling Programme WP04 (20 Jun 2012)

Date	Revision	Checked	Appr...
20-Jun-12	WP04-3MRP 1206	Renato	

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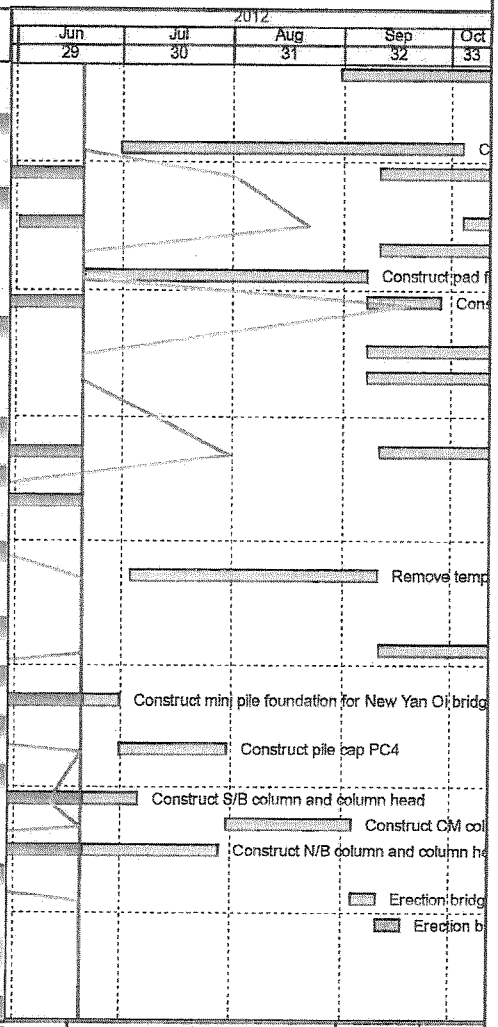
20 Jun 2012

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

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Late Start	Late Finish
RA1210	Erect NE05 N/B & S/B steel columns	44	44	31-Aug-12	24-Oct-12	19-Jan-13	14-Mar-13
Stage 3 Central Median Area							
Foundation Works							
RA1260	Construct mini pile foundation for NE01 PC9 to PC15	79	79	30-Jun-12	04-Oct-12	09-Aug-12	12-Nov-12
RA1270	Construct mini pile foundation for NE02 PC9 to PC14	108	25	28-Dec-11 A	11-Oct-12	27-Dec-12	26-Jan-13
Pile Cap / Footing							
RA1372	Construct pile cap NE01 PC9 to PC15	117	87	02-Jun-12 A	18-Jan-13	12-Nov-12	28-Feb-13
RA1374	Construct pile cap NE02 PC9 to PC14	100	100	11-Sep-12	11-Jan-13	27-Dec-12	03-May-13
RA1376	Construct pad footing NE04 FT6 to FT9	67	67	20-Jun-12	07-Sep-12	30-Aug-12	20-Nov-12
RA1378	Construct pad footing NE05 FT8 to FT12	83	17	03-Mar-12 A	28-Sep-12	20-Nov-12	10-Dec-12
Concrete Column at Central Barrier							
RA1400	Construct concrete column for NE04	44	44	07-Sep-12	01-Nov-12	27-Nov-12	21-Jan-13
RA1410	Construct concrete column for NE05	75	75	07-Sep-12	07-Dec-12	20-Nov-12	22-Feb-13
Stage 3-1 NE02 Kowloon Bound Verge (After remove Temp. Bridge)							
Foundation Works							
RA1040	Construct mini pile foundation for NE02 PC1 to PC7	108	66	20-May-11 A	29-Nov-12	16-Jan-13	11-Apr-13
Pile Cap / Footing							
RA1070	Construct pile cap NE02 PC1 to PC7	56	50	21-Oct-11 A	30-Jan-13	11-Apr-13	11-Jun-13
Construction of Temporary Yan Oi Bridge							
Remove Temporary Bridge							
TB1070	Remove temporary bridge	60	60	03-Jul-12*	10-Sep-12	15-Oct-12	27-Dec-12
Construction of New Yan Oi Bridge							
Site Investigation/Pre-drilling Works							
YO1220	Pre-drilling works for New Yan Oi bridge N/B PC6 & PC7	30	30	11-Sep-12	17-Oct-12	18-Apr-13	25-May-13
Piling Works							
YO1030	Construct mini pile foundation for New Yan Oi bridge PC4	73	9	10-Sep-11 A	30-Jun-12	30-Jul-12	09-Aug-12
Pile Cap							
YO1052	Construct pile cap PC4	24	24	30-Jun-12	30-Jul-12	08-Nov-12	06-Dec-12
Column, Pier Head and Staircase							
YO1070	Construct S/B column and column head	45	12	12-Jan-12 A	05-Jul-12	29-Dec-12	14-Jan-13
YO1180	Construct CM column and column head	30	30	30-Jul-12	03-Sep-12	06-Dec-12	14-Jan-13
YO1185	Construct N/B column and column head	45	32	16-Dec-11 A	28-Jul-12	04-Dec-12	14-Jan-13
Bridge and Lift Steel Frame Erection							
YO1100	Erection bridge N/B span	6	6	03-Sep-12	10-Sep-12	14-Jan-13	21-Jan-13
YO1110	Erection bridge S/B span	6	6	10-Sep-12	17-Sep-12	21-Jan-13	28-Jan-13
Scheme B (CH29050 - CH28520)							
Stage 1 Both Bound Road Verge							
Utilities Diversion							



Remaining Level of Effort | Critical ...
Actual Work | Milestone
Remaining Work

3 Months Rolling Programme WP04 (20 Jun 2012)

Date	Revision	Checked	Appr...
20-Jun-12	WP04-3MRP 1206	Renato	

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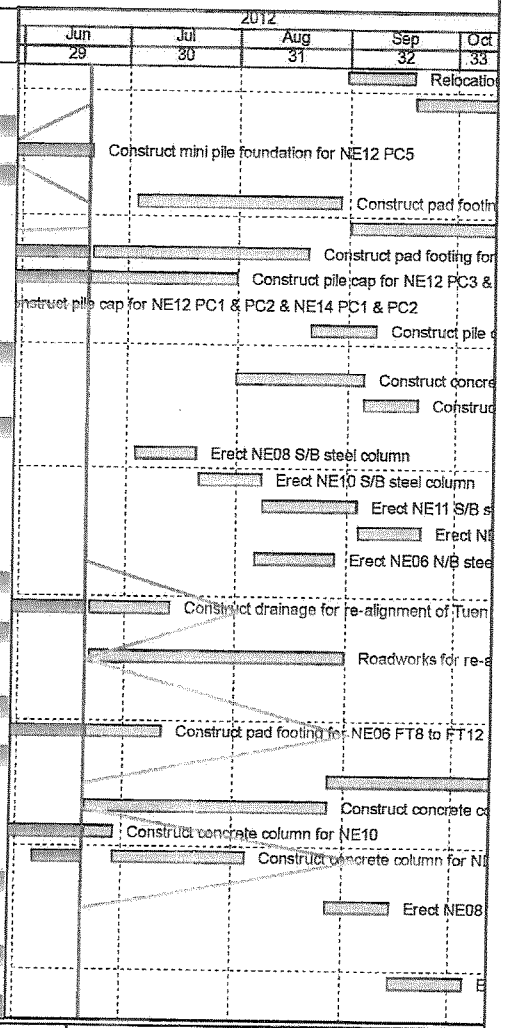
20 Jun 2012

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

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Late Start	Late Finish
RB2122	Relocation existing bus stop	16	16	31-Aug-12	18-Sep-12	04-Oct-12	24-Oct-12
RB2124	Diversion existing PCCW 24 ways, HGC, 11kv & sewer	55	55	19-Sep-12	24-Nov-12	24-Oct-12	29-Dec-12
Foundation Works							
RB1515	Construct mini pile foundation for NE12 PC5	36	1	20-Mar-12 A	20-Jun-12	04-Oct-12	05-Oct-12
Pile Cap / Footing							
RB1070	Construct pad footing forNE06 FT1 to FT3	50	50	03-Jul-12*	29-Aug-12	30-Oct-12	29-Dec-12
RB1245	Construct pad footing for NE07 FT4 & FT5	33	33	01-Sep-12	12-Oct-12	09-Nov-12	19-Dec-12
RB1300	Construct pad footing for NE10 FT10 to FT14 & NE11 FT15 to FT22	100	50	03-Jun-11 A	20-Aug-12	05-Oct-12	04-Dec-12
RB1302	Construct pile cap for NE12 PC3 & PC4 & NE13 PC1 & NE14 PC3 & PC4	83	33	23-Sep-11 A	31-Jul-12	28-Jul-12	05-Sep-12
RB1306	Construct pile cap for NE12 PC1 & PC2 & NE14 PC1 & PC2	67	0	09-Jan-12 A	22-May-12 A	05-Oct-12	05-Oct-12
RB1310	Construct pile cap for NE12 PC5	17	17	21-Aug-12	08-Sep-12	04-Dec-12	24-Dec-12
Concrete Column at Central Barrier							
RB1590	Construct concrete column for NE12 (4nos.)	31	31	31-Jul-12	05-Sep-12	05-Sep-12	13-Oct-12
RB1600	Construct concrete column for NE13 (2nos.)	13	13	05-Sep-12	20-Sep-12	13-Oct-12	30-Oct-12
NB Structural Steel Post Collum Erection							
RB1342	Erect NE08 S/B steel column	16	16	03-Jul-12*	20-Jul-12	20-Oct-12	09-Nov-12
RB1360	Erect NE10 S/B steel column	15	15	21-Jul-12	07-Aug-12	09-Nov-12	27-Nov-12
RB1370	Erect NE11 S/B steel column	23	23	08-Aug-12	03-Sep-12	27-Nov-12	24-Dec-12
RB1760	Erect NE12 & NE14 S/B steel column	16	16	04-Sep-12	21-Sep-12	11-Mar-13	29-Mar-13
RB1870	Erect NE06 N/B steel column	20	20	06-Aug-12*	28-Aug-12	26-Nov-12	19-Dec-12
Drainage Works							
RB1375	Construct drainage for re-alignment of Tuen Lung Street	60	18	07-May-12 A	13-Jul-12	28-Aug-12	18-Sep-12
Roadworks							
RB1395	Roadworks for re-alignment of Tuen Lung Street	60	60	21-Jun-12	31-Aug-12	28-Aug-12	09-Nov-12
Stage 2 Central Median							
Pile Cap / Footing							
RB1015	Construct pad footing for NE06 FT8 to FT12 & NE07 FT3	100	17	10-Apr-12 A	11-Jul-12	28-Nov-12	17-Dec-12
Concrete Column at Central Barrier							
RB1540	Construct concrete column for NE06	63	63	27-Aug-12	10-Nov-12	17-Dec-12	07-Mar-13
RB1560	Construct concrete column for NE08	56	56	20-Jun-12	27-Aug-12	11-Oct-12	17-Dec-12
RB1570	Construct concrete column for NE10	50	6	26-May-12 A	28-Jun-12	13-Oct-12	20-Oct-12
RB1580	Construct concrete column for NE11	69	31	06-Jun-12 A	04-Aug-12	20-Oct-12	28-Nov-12
NB Structural Steel Truss Erection							
RB1622	Erect NE08 longitudinal steel truss at central median of TMR	16	16	27-Aug-12	14-Sep-12	15-Jul-13	02-Aug-13
Stage 3 Steel Frame & Panel							
Main Span Erection at YL/B & KL/B of TMR							
RB1672	Erection NE08 S/B roof beam	16	16	14-Sep-12	05-Oct-12	02-Aug-13	21-Aug-13
Wall and Roof Panel Installation							



Remaining Level of Effort | Critical ...
Actual Work | Milestone
Remaining Work

3 Months Rolling Programme WP04 (20 Jun 2012)

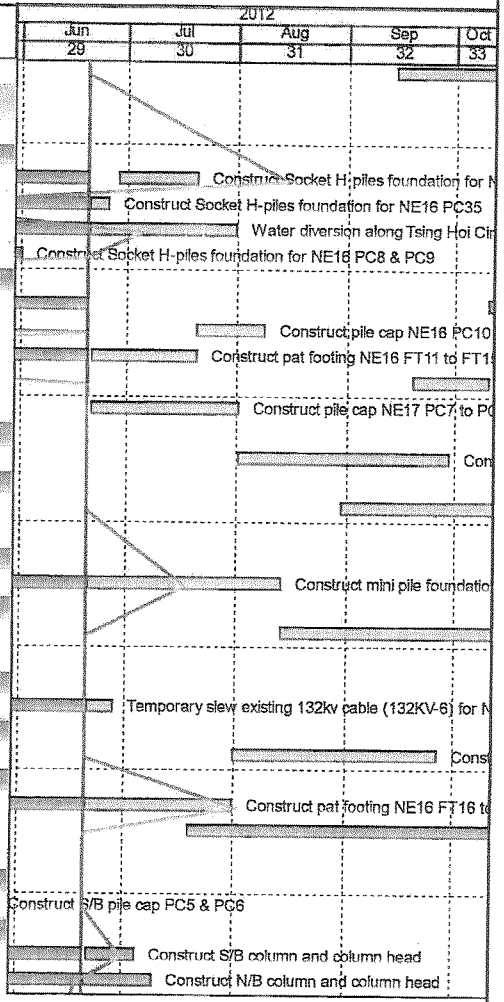
Date	Revision	Checked	Appr...
20-Jun-12	WP04-3MRP 1206	Renato	

HY/2009/03

20 Jun 2012

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

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Late Start	Late Finish
RB1692	Install roof cladding & translucent roof panel NE08 S/B	38	38	14-Sep-12	31-Oct-12	02-Aug-13	16-Sep-13
Scheme C (CH28520 - CH28200)							
Stage 1 NE15 East Side, Tsing Hoi Circuit Re-alignment & S/B Foundation							
Foundation Works							
RC1203	Construct Socket H-piles foundation for NE16 PC10	36	18	17-Apr-12 A	20-Jul-12	29-Dec-12	21-Jan-13
RC1205	Construct Socket H-piles foundation for NE16 PC35	36	4	14-Dec-11 A	25-Jun-12	23-Nov-12	27-Nov-12
RC1735	Water diversion along Tsing Hoi Circuit (by others)	49	34	12-Apr-12 A	31-Jul-12	24-Jul-12	01-Sep-12
RC1770	Construct Socket H-piles foundation for NE16 PC8 & PC9	24	0	22-Mar-12 A	01-Jun-12 A	19-Jan-13	19-Jan-13
Pile Cap / Footing							
RC1080	Construct pat footing NE16 FT27 to FT34 (with retaining FR91)	133	50	12-May-11 A	08-Dec-12	17-Dec-12	20-Feb-13
RC1320	Construct pile cap NE16 PC10	17	17	20-Jul-12	08-Aug-12	21-Jan-13	08-Feb-13
RC1750	Construct pat footing NE16 FT11 to FT15 & NE17 FT1 to FT6	85	23	14-Sep-11 A	20-Jul-12	24-Dec-12	23-Jan-13
RC1755	Construct pile cap NE16 PC35	17	17	19-Sep-12	10-Oct-12	27-Nov-12	17-Dec-12
RC1757	Construct pile cap NE17 PC7 to PC8	33	33	21-Jun-12	01-Aug-12	21-Feb-13	01-Apr-13
Drainage Works							
RC1800	Construct drainage S/B verge CH28250 to CH28400	50	50	01-Aug-12	29-Sep-12	19-Apr-13	20-Jun-13
Roadworks							
RC1810	Roadworks S/B verge CH28250 to CH28400	38	38	30-Aug-12	15-Oct-12	21-May-13	05-Jul-13
Stage 2 NE15 West Side							
Foundation Works							
RC1210	Construct mini pile foundation for NE15 PC7 to PC12	97	44	20-Apr-12 A	13-Aug-12	28-Jul-12	18-Sep-12
Pile Cap / Footing							
RC1295	Construct pile cap NE15 PC7 to PC12	100	100	13-Aug-12	11-Dec-12	18-Sep-12	19-Jan-13
Stage 3 Central Median & N/B Foundation							
Utilities Diversion							
RC1730	Temporary slew existing 132kv cable (132KV-6) for NE16 PC22	30	6	24-Apr-12 A	27-Jun-12	01-Nov-12	08-Nov-12
Foundation Works							
RC1380	Construct Socket H-piles foundation for NE16 PC22	48	48	31-Jul-12	26-Sep-12	08-Sep-12	08-Nov-12
Pile Cap / Footing							
RC1565	Construct pat footing NE16 FT16 to FT21	100	33	05-Apr-12 A	31-Jul-12	21-Jul-12	29-Aug-12
RC1845	Construct pat footing NE16 FT23 to FT26 & NE17 FT9 to FT14	167	167	19-Jul-12	05-Feb-13	22-May-12	10-Dec-12
Construction of New Chi Lok Bridge							
Pile Cap							
CL1070	Construct S/B pile cap PC5 & PC6	50	0	29-Mar-12 A	26-May-12 A	04-May-12	04-May-12
Column, Pier Head and Staircase							
CL1080	Construct S/B column and column head	45	10	03-May-12 A	04-Jul-12	24-Apr-12	08-May-12
CL1270	Construct N/B column and column head	37	15	21-May-12 A	09-Jul-12	04-May-12	22-May-12



Remaining Level of Effort | Critical ...
Actual Work | Milestone
Remaining Work

3 Months Rolling Programme WP04 (20 Jun 2012)

Date	Revision	Checked	Appr...
20-Jun-12	WP04-3MRP 1206	Renato	

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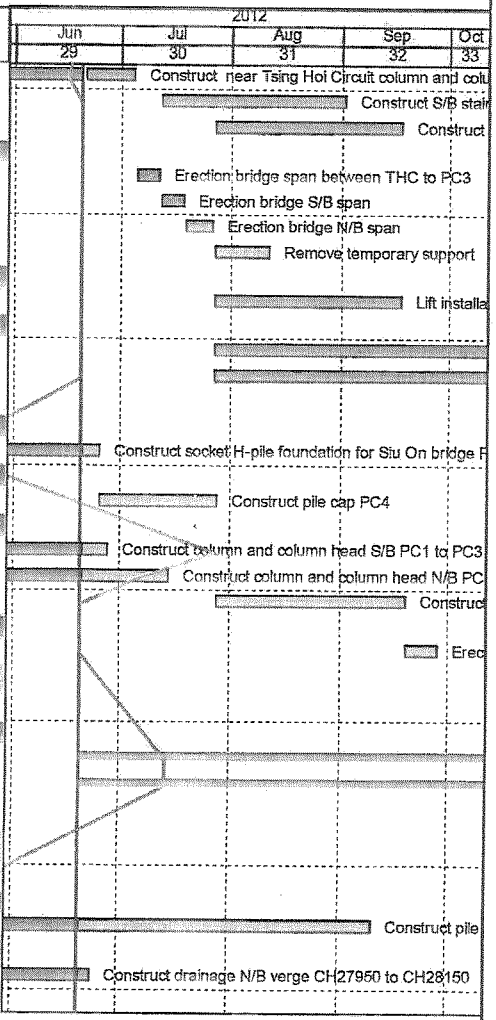
20 Jun 2012

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

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Late Start	Late Finish
CL1290	Construct near Tsing Hoi Circuit column and column head	30	10	17-May-12 A	04-Jul-12	24-Apr-12	08-May-12
CL1300	Construct S/B staircase and lift structure	45	45	12-Jul-12	01-Sep-12	31-May-12	25-Jul-12
CL1310	Construct N/B staircase and lift structure	45	45	27-Jul-12	17-Sep-12	31-May-12	25-Jul-12
Bridge and Lift Steel Frame Erection							
CL1125	Erection bridge span between THC to PC3	6	6	05-Jul-12	11-Jul-12	08-May-12	15-May-12
CL1130	Erection bridge S/B span	6	6	12-Jul-12	18-Jul-12	15-May-12	22-May-12
CL1140	Erection bridge N/B span	7	7	19-Jul-12	26-Jul-12	22-May-12	31-May-12
CL1142	Remove temporary support	14	14	27-Jul-12	11-Aug-12	04-Aug-12	21-Aug-12
Lift Installation							
CL1170	Lift installation	45	45	27-Jul-12	17-Sep-12	31-May-12	25-Jul-12
E&M and Finishing Works							
CL1150	Finishing works	90	90	27-Jul-12	12-Nov-12	31-May-12	15-Sep-12
CL1160	E&M installation	90	90	27-Jul-12	12-Nov-12	31-May-12	15-Sep-12
Construction of New Siu On Bridge							
Piling Works							
SO1080	Construct socket H-pile foundation for Siu On bridge PC4	27	3	22-Feb-12 A	25-Jun-12	27-Jun-12	30-Jun-12
Pile Cap							
SO1250	Construct pile cap PC4	28	28	25-Jun-12	28-Jul-12	30-Jun-12	03-Aug-12
Column, Pier Head and Staircase							
SO1070	Construct column and column head S/B PC1 to PC3	60	6	22-Mar-12 A	27-Jun-12	18-Sep-12	26-Sep-12
SO1270	Construct column and column head N/B PC5 to PC7	60	20	31-May-12 A	14-Jul-12	18-Sep-12	13-Oct-12
SO1280	Construct column and column head PC4	45	45	28-Jul-12	19-Sep-12	03-Aug-12	26-Sep-12
Bridge and Lift Steel Frame Erection							
SO1085	Erection bridge span between THC to PC4	7	7	19-Sep-12	28-Sep-12	26-Sep-12	05-Oct-12
TCSS and Fire Fighting System							
TCSS and Fire Fighting System							
TCSS and Fire Fighting System							
TCSS1000	Section 2 TCSS installation	692	405	11-Mar-11 A	30-Oct-13	11-Mar-11	03-Oct-13
TCSS1010	Section 2 Street lighting & Fire Fighting system installation	692	405	11-Mar-11 A	30-Oct-13	11-Mar-11	03-Oct-13
Section III of Works							
Scheme D (CH28200 - CH27785)							
Stage 1 N/B Foundation							
Pile Cap / Footing							
RD1710	Construct pile cap and wall NE26 PC1 to PC10	77	68	08-Mar-12 A	10-Sep-12	05-Oct-12	27-Dec-12
Drainage Works							
RD1300	Construct drainage N/B verge CH27950 to CH28150	67	3	30-Jan-12 A	23-Jun-12	28-May-12	31-May-12
Roadworks							



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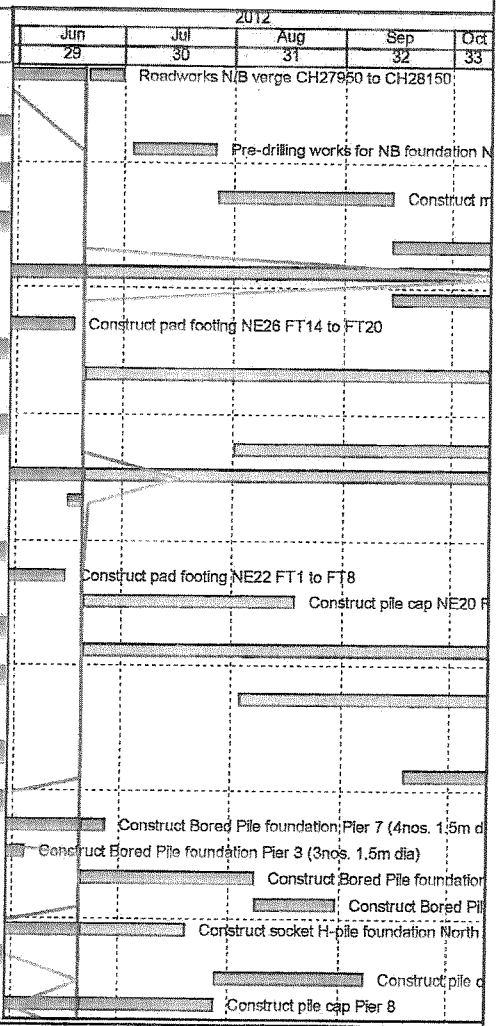
Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Late Start	Late Finish
RD1310	Roadworks N/B verge CH27950 to CH28150	50	8	30-Jan-12 A	30-Jun-12	28-May-12	06-Jun-12
Stage 3 Central Median Foundation							
Site Investigation/Pre-drilling Works							
RD1360	Pre-drilling works for NB foundation NE20 PC1 to PC7	21	21	03-Jul-12	26-Jul-12	06-Jun-12	03-Jul-12
Foundation Works							
RD1420	Construct mini pile foundation for NE20 PC1	42	42	27-Jul-12	14-Sep-12	03-Jul-12	21-Aug-12
Pile Cap / Footing							
RD1450	Construct pad footing NE18 FT10 to FT15	100	100	14-Sep-12	16-Jan-13	21-Aug-12	19-Dec-12
RD1470	Construct pad footing NE24 FT1 to FT12	200	148	18-May-12 A	15-Dec-12	06-Nov-12	10-May-13
RD1475	Construct pile cap & pad footing NE20 PC1, FT2 to FT7	117	117	14-Sep-12	05-Feb-13	21-Aug-12	11-Jan-13
RD1480	Construct pad footing NE26 FT14 to FT20	133	0	12-Mar-12 A	17-Jun-12 A	06-Nov-12	06-Nov-12
Concrete Column at Central Barrier							
RD1510	Construct concrete column for NE26	94	94	20-Jun-12	11-Oct-12	20-Nov-12	16-Mar-13
Stage 4 NE18, NE21 & NE23 Foundation							
Pile Cap / Footing							
RD3040	Construct pad footing NE18 FT1 to FT9	133	133	01-Aug-12	10-Jan-13	01-Sep-12	15-Feb-13
RD3050	Construct pad Footing NE18 FT16 to FT23	133	100	29-Mar-12 A	18-Oct-12	08-Nov-12	12-Mar-13
RD3070	Construct pad footing NE23 FT1 to FT12	200	198	16-Jun-12 A	23-Jul-13	08-Nov-12	13-Jul-13
Stage 5 NE20 & NE22 Foundation							
Pile Cap / Footing							
RD1570	Construct pad footing NE22 FT1 to FT8	133	0	21-Sep-11 A	15-Jun-12 A	27-Dec-12	27-Dec-12
RD1890	Construct pile cap NE20 FT9 to FT11	50	50	20-Jun-12	18-Aug-12	02-Feb-13	10-Apr-13
Concrete Column at Central Barrier							
RD1800	Construct concrete column for NE22	106	106	20-Jun-12	27-Oct-12	27-Dec-12	10-May-13
Drainage Works							
RD1870	Construct drainage for Wong Chu road	93	93	03-Aug-12	23-Nov-12	09-Feb-13	08-Jun-13
Construction of Vehicular Bridge S1							
Temporary Traffic Arrangement							
S1B1510	Submit and approve TTA for Modification of existing Wong Chu Road flyove	120	120	18-Sep-12	15-Jan-13	17-Sep-12	14-Jan-13
Piling Works							
S1B3030	Construct Bored Pile foundation Pier 7 (4nos. 1.5m dia)	53	5	07-Jan-12 A	26-Jun-12	07-Jun-12	13-Jun-12
S1B3070	Construct Bored Pile foundation Pier 3 (3nos. 1.5m dia)	30	0	16-Feb-12 A	04-Jun-12 A	11-Jun-12	11-Jun-12
S1B3080	Construct Bored Pile foundation Pier 2 (2nos. 1.5m dia)	40	40	20-Jun-12	07-Aug-12	11-Jun-12	30-Jul-12
S1B3090	Construct Bored Pile foundation Pier 1 (1nos. 1.5m dia)	20	20	08-Aug-12	30-Aug-12	30-Jul-12	22-Aug-12
S1B3110	Construct socket H-pile foundation North Abutment	47	24	13-Mar-12 A	19-Jul-12	26-Jun-12	25-Jul-12
Pile Cap							
S1B4030	Construct pile cap Pier 7	36	36	28-Jul-12	07-Sep-12	10-Jul-12	21-Aug-12
S1B4040	Construct pile cap Pier 8	36	31	31-May-12 A	27-Jul-12	01-Jun-12	10-Jul-12



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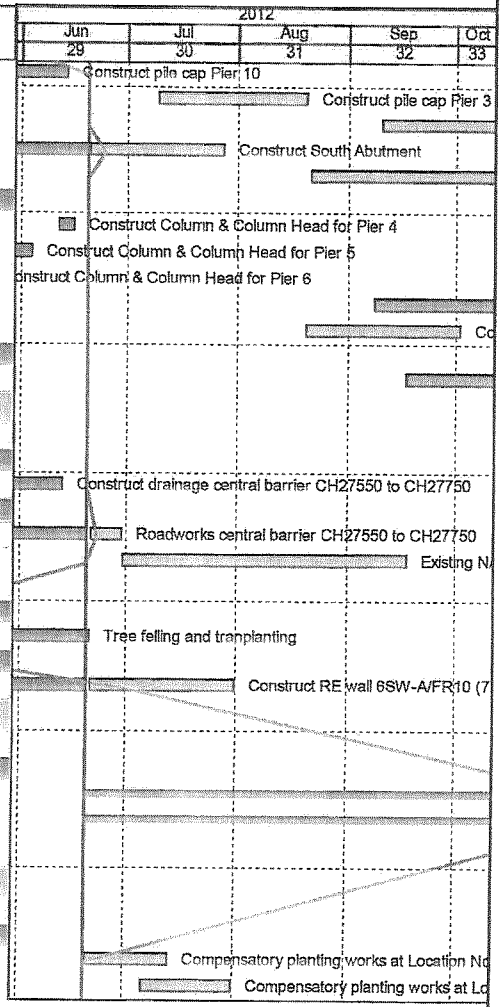
Design and Build of Traffic Improvement to Tuen Mun Road Town Centre Section

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Late Start	Late Finish
S1B4060	Construct pile cap Pier 10	36	0	02-May-12 A	14-Jun-12 A	21-Jul-12	21-Jul-12
S1B4070	Construct pile cap Pier 3	36	36	09-Jul-12	20-Aug-12	21-Jul-12	01-Sep-12
S1B4080	Construct pile cap Pier 2	36	36	10-Sep-12	24-Oct-12	25-Sep-12	08-Nov-12
S1B4100	Construct South Abutment	60	31	18-May-12 A	27-Jul-12	26-Jun-12	02-Aug-12
S1B4110	Construct North Abutment	60	60	21-Aug-12	02-Nov-12	27-Aug-12	08-Nov-12
Pier and Pier Head							
S1B5000	Construct Column & Column Head for Pier 4	35	0	12-Jun-12 A	16-Jun-12 A	13-Aug-12	13-Aug-12
S1B5010	Construct Column & Column Head for Pier 5	35	0	04-May-12 A	04-Jun-12 A	01-Sep-12	01-Sep-12
S1B5020	Construct Column & Column Head for Pier 6	35	0	08-May-12 A	23-May-12 A	21-Aug-12	21-Aug-12
S1B5030	Construct Column & Column Head for Pier 7	35	35	08-Sep-12	20-Oct-12	21-Aug-12	03-Oct-12
S1B5070	Construct Column & Column Head for Pier 3	35	35	20-Aug-12	02-Oct-12	01-Sep-12	15-Oct-12
Bridge S1 Deck Construction							
S1B1060	Falseworks for Bridge Deck Pier 7 to Pier 3	40	40	17-Sep-12	05-Nov-12	10-Sep-12	30-Oct-12
Scheme E (CH27785 - CH27000)							
Stage 2 NE27 Contral Median Foundation							
Drainage Works							
RE1065	Construct drainage central barrier CH27550 to CH27750	33	0	26-Apr-12 A	13-Jun-12 A	25-Jul-12	25-Jul-12
Roadworks							
RE1192	Roadworks central barrier CH27550 to CH27750	35	7	12-May-12 A	29-Jun-12	25-Jul-12	02-Aug-12
RE1200	Existing N/B road reconstruction ML CH27550 to CH27750	67	67	30-Jun-12	17-Sep-12	13-Jul-13	30-Sep-13
Construction of Reinforced Earth Wall 6SW-A/FR10							
Tree Felling and Transplanting							
REW1030	Tree felling and tranplanting	90	1	13-Jun-11 A	20-Jun-12	21-Jun-12	23-Jun-12
REW 6SW-A/FR10							
REW1010	Construct RE wall 6SW-A/FR10 (7 bays)	95	33	05-Mar-12 A	31-Jul-12	23-Jun-12	02-Aug-12
TCSS and Fire Fighting System							
TCSS and Fire Fighting System							
TCSS and Fire Fighting System							
TCSS1020	Section 3 TCSS installation	644	292	13-Jan-11 A	17-Jun-13	13-Jan-11	03-Oct-13
TCSS1030	Section 3 Street lighting & Fire Fighting system installation	644	292	13-Jan-11 A	17-Jun-13	13-Jan-11	03-Oct-13
Section IIIC of Works							
Landscaping Works in Portion 4							
Landscaping Works							
Landscaping Works							
3C1010	Compensatory planting works at Location No.27 (9 nos.)	18	18	20-Jun-12	13-Jul-12	23-Aug-13	17-Sep-13
3C1020	Compensatory planting works at Location No.28 (8 nos.)	18	18	06-Jul-12	31-Jul-12	10-Sep-13	03-Oct-13



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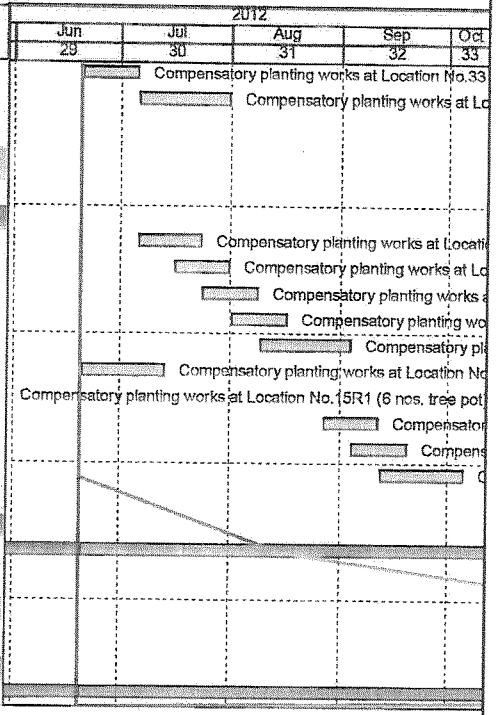
Design and Build of Traffic Improvement to Tuen Mun Road Town Centre Section

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Late Start	Late Finish
3C1100	Compensatory planting works at Location No.33 (3 nos. tree pot)	12	12	20-Jun-12	05-Jul-12	18-Sep-13	03-Oct-13
3C1150	Compensatory planting works at Location No.34C (5 nos.)	18	18	06-Jul-12	31-Jul-12	10-Sep-13	03-Oct-13
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	06-Jul-12	23-Jul-12	18-Mar-13	02-Apr-13
3G1040	Compensatory planting works at Location No.6 (2 nos. tree pot)	12	12	16-Jul-12	31-Jul-12	26-Mar-13	10-Apr-13
3G1050	Compensatory planting works at Location No.8 (2 nos. tree pot)	12	12	24-Jul-12	08-Aug-12	03-Apr-13	18-Apr-13
3G1060	Compensatory planting works at Location No.9 (2 nos. tree pot)	12	12	01-Aug-12	16-Aug-12	11-Apr-13	26-Apr-13
3G1070	Compensatory planting works at Location No.10 (9 nos.)	18	18	09-Aug-12	03-Sep-12	19-Apr-13	14-May-13
3G1090	Compensatory planting works at Location No.13 (10 nos.)	18	18	20-Jun-12	13-Jul-12	28-Feb-13	25-Mar-13
3G1130	Compensatory planting works at Location No.15R1 (6 nos. tree pot)	12	0	29-May-12 A	30-May-12 A	19-Apr-13	19-Apr-13
3G1140	Compensatory planting works at Location No.17 (3 nos.)	12	12	27-Aug-12	11-Sep-12	07-May-13	22-May-13
3G1150	Compensatory planting works at Location No.18 (8 nos.)	12	12	04-Sep-12	19-Sep-12	15-May-13	30-May-13
3G1160	Compensatory planting works at Location No.18A (9 nos.)	18	18	12-Sep-12	05-Oct-12	23-May-13	17-Jun-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,	365	250	25-Feb-12 A	24-Feb-13	20-Jun-12	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	383	26-Feb-10 A	03-Oct-13	20-Jun-12	03-Oct-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 *		
				May 12	Jun 12	Jul 12
		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;		✓	Rdr	✓
		• 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		✓	✓	Rdr
		• 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 *		
				May 12	Jun 12	Jul 12
		• 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 *		
				May 12	Jun 12	Jul 12
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 *		
				May 12	Jun 12	Jul 12
		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 *		
				May 12	Jun 12	Jul 12
		• 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		Obs	✓	Obs
		• all dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet		✓	✓	Obs
		• 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 *		
				May 12	Jun 12	Jul 12
		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 *		
				May 12	Jun 12	Jul 12
		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	✓	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.		✓	Rdr	Obs
		• 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		Obs	✓	✓
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 *		
				May 12	Jun 12	Jul 12
		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	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.		Obs	Obs	✓
		• 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.		Obs	Obs	Obs
		• 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 *		
				May 12	Jun 12	Jul 12
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.		✓	✓	✓
		• 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 *		
				May 12	Jun 12	Jul 12
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.		✓	✓	✓
		• 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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EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *		
				May 12	Jun 12	Jul 12
		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 *		
				May 12	Jun 12	Jul 12
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

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

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

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *		
				May 12	Jun 12	Jul 12
		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.		Rdr	✓	✓
Table 8.8	7.3.1	CM3 Trees unavoidably affected by the works should be transplanted where practical.		✓	✓	✓
Table 8.8	7.3.1	CM4 Compensatory tree planting should be provided to compensate for felled trees.		✓	✓	✓
Table 8.8	7.3.1	CM5 Control of night-time lighting.		✓	✓	✓
Table 8.8	7.3.1	CM6 Erection of decorative screen hoarding compatible with the surrounding setting.		✓	✓	✓

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

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

EIA Ref #	EM&A Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Status *		
				May 12	Jun 12	Jul 12
		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 *		
				May 12	Jun 12	Jul 12
		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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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			
130704	May-12	3-May-12	AM1	Cloudy	Normal Operation	753.0	754.0	29.0	28.0	50.0	50.0	2.7794	2.8082	0.0288	1.5817	1.5848	1.5833	12649.30	12673.30	1440.00	2279.88	12.6
102059	May-12	9-May-12	AM1	Fine	Normal Operation	756.0	756.0	29.0	29.0	50.0	50.0	2.8015	2.8585	0.0570	1.5844	1.5844	1.5844	12673.30	12697.30	1440.00	2281.54	25.0
102063	May-12	15-May-12	AM1	Rainy	Normal Operation	755.0	754.0	28.0	26.0	50.0	50.0	2.8141	2.8355	0.0214	1.5857	1.5894	1.5876	12697.30	12721.30	1440.00	2286.07	9.4
130726	May-12	21-May-12	AM1	Cloudy	Normal Operation	755.0	756.0	25.0	25.0	50.0	50.0	2.7753	2.8021	0.0268	1.5925	1.5934	1.5930	12721.30	12745.30	1440.00	2293.85	11.7
102064	May-12	26-May-12	AM1	Cloudy	Normal Operation	754.0	755.0	26.0	26.0	50.0	50.0	2.8109	2.8565	0.0456	1.5384	1.5395	1.5390	12745.30	12769.30	1440.00	2216.09	20.6
130737	Jun-12	1-Jun-12	AM1	Fine	Normal Operation	753.0	754.0	29.0	28.0	50.0	50.0	2.7716	2.8331	0.0615	1.5290	1.5328	1.5309	12769.30	12793.30	1440.00	2204.50	27.9
130744	Jun-12	7-Jun-12	AM1	Rainy	Normal Operation	756.0	756.0	29.0	29.0	50.0	50.0	2.7439	2.8075	0.0636	1.5323	1.5323	1.5323	12793.30	12817.30	1440.00	2206.51	28.8
130750	Jun-12	13-Jun-12	AM1	Cloudy	Normal Operation	755.0	754.0	28.0	26.0	50.0	50.0	2.7485	2.7962	0.0477	1.5339	1.5384	1.5362	12817.30	12841.30	1440.00	2212.06	21.6
130756	Jun-12	19-Jun-12	AM1	Cloudy	Normal Operation	755.0	756.0	25.0	25.0	50.0	50.0	2.7397	2.7700	0.0303	1.5423	1.5434	1.5429	12841.30	12865.30	1440.00	2221.70	13.6
102079	Jun-12	25-Jun-12	AM1	Fine	Normal Operation	754.0	755.0	26.0	26.0	50.0	50.0	2.8131	2.8630	0.0499	1.5384	1.5395	1.5390	12865.30	12889.30	1440.00	2216.09	22.5
130761	Jul-12	3-Jul-12	AM1	Fine	Normal Operation	753.0	753.0	29.0	29.0	50.0	50.0	2.7494	2.7684	0.0190	1.5290	1.5290	1.5290	12889.30	12913.30	1440.00	2201.76	8.6
130767	Jul-12	9-Jul-12	AM1	Fine	Normal Operation	755.0	755.0	29.0	29.0	50.0	50.0	2.7408	2.7676	0.0268	1.5312	1.5312	1.5312	12913.30	12937.30	1440.00	2204.93	12.2
130769	Jul-12	14-Jul-12	AM1	Fine	Normal Operation	753.0	753.0	29.0	30.0	50.0	50.0	2.7416	2.7674	0.0258	1.5290	1.5262	1.5276	12937.30	12961.30	1440.00	2199.74	11.7
130777	Jul-12	20-Jul-12	AM1	Fine	Normal Operation	753.0	751.0	30.0	30.0	50.0	50.0	2.7646	2.8649	0.1003	1.4979	1.4956	1.4968	12961.30	12985.30	1440.00	2155.32	46.5
130782	Jul-12	26-Jul-12	AM1	Cloudy	Normal Operation	754.0	754.0	25.0	25.0	50.0	50.0	2.7705	2.8401	0.0696	1.5141	1.5141	1.5141	12985.30	13009.30	1440.00	2180.30	31.9

Average (ug/m^3)	21.4
Max (ug/m^3)	46.5
Min (ug/m^3)	8.6

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			
130705	May-12	3-May-12	AM2	Cloudy	Normal Operation	753.0	754.0	29.0	28.0	50.0	50.0	2.7949	2.8272	0.0323	1.5847	1.5878	1.5863	6803.10	6827.10	1440.00	2284.20	14.1
130702	May-12	9-May-12	AM2	Fine	Normal Operation	756.0	756.0	29.0	29.0	50.0	50.0	2.7723	2.8550	0.0827	1.5873	1.5873	1.5873	6827.10	6851.10	1440.00	2285.71	36.2
130721	May-12	15-May-12	AM2	Rainy	Normal Operation	755.0	754.0	28.0	26.0	50.0	50.0	2.7817	2.8462	0.0645	1.5886	1.5923	1.5905	6851.10	6875.10	1440.00	2290.25	28.2
130727	May-12	21-May-12	AM2	Cloudy	Normal Operation	755.0	756.0	25.0	25.0	50.0	50.0	2.7583	2.8064	0.0481	1.5954	1.5963	1.5959	6875.10	6899.10	1440.00	2298.02	20.9
130733	May-12	26-May-12	AM2	Cloudy	Normal Operation	754.0	755.0	26.0	26.0	50.0	50.0	2.7795	2.8425	0.0630	1.5472	1.5483	1.5478	6899.10	6923.10	1440.00	2228.76	28.3
130739	Jun-12	1-Jun-12	AM2	Fine	Normal Operation	753.0	754.0	29.0	28.0	50.0	50.0	2.7671	2.8127	0.0456	1.5376	1.5414	1.5395	6923.10	6947.10	1440.00	2216.88	20.6
130745	Jun-12	7-Jun-12	AM2	Rainy	Normal Operation	756.0	756.0	29.0	29.0	50.0	50.0	2.7488	2.8184	0.0696	1.5409	1.5409	1.5409	6947.10	6971.10	1440.00	2218.90	31.4
130751	Jun-12	13-Jun-12	AM2	Cloudy	Normal Operation	755.0	754.0	28.0	26.0	50.0	50.0	2.7457	2.8000	0.0543	1.5426	1.5472	1.5449	6971.10	6995.10	1440.00	2224.66	24.4
102070	Jun-12	19-Jun-12	AM2	Cloudy	Normal Operation	755.0	756.0	25.0	25.0	50.0	50.0	2.8151	2.8629	0.0478	1.5512	1.5523	1.5518	6995.10	7019.10	1440.00	2234.52	21.4
102080	Jun-12	25-Jun-12	AM2	Fine	Normal Operation	754.0	755.0	26.0	26.0	50.0	50.0	2.8161	2.8611	0.0450	1.5472	1.5483	1.5478	7019.10	7043.10	1440.00	2228.76	20.2
130762	Jul-12	3-Jul-12	AM2	Fine	Normal Operation	753.0	753.0	29.0	29.0	50.0	50.0	2.7602	2.7917	0.0315	1.5376	1.5376	1.5376	7043.10	7067.10	1440.00	2214.14	14.2
130768	Jul-12	9-Jul-12	AM2	Fine	Normal Operation	755.0	755.0	29.0	29.0	50.0	50.0	2.7439	2.7613	0.0174	1.5398	1.5398	1.5398	7067.10	7091.10	1440.00	2217.31	7.8
102109	Jul-12	14-Jul-12	AM2	Fine	Normal Operation	753.0	753.0	29.0	30.0	50.0	50.0	2.854	2.9009	0.0469	1.5376	1.5347	1.5362	7091.10	7115.10	1440.00	2212.06	21.2
130778	Jul-12	20-Jul-12	AM2	Fine	Normal Operation	753.0	751.0	30.0	30.0	50.0	50.0	2.7607	2.8987	0.1380	1.4793	1.4770	1.4782	7115.10	7139.10	1440.00	2128.54	64.8
130783	Jul-12	26-Jul-12	AM2	Cloudy	Normal Operation	754.0	754.0	25.0	25.0	50.0	50.0	2.7717	2.8291	0.0574	1.4947	1.4947	1.4947	7139.10	7163.10	1440.00	2152.37	26.7

Average (ug/m^3)	26.7
Max (ug/m^3)	64.8
Min (ug/m^3)	7.8

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			
130706	May-12	3-May-12	AM3	Cloudy	Normal Operation	753.0	754.0	29.0	28.0	50.0	50.0	2.7678	2.8043	0.0365	1.4969	1.5003	1.4986	10969.39	10993.39	1440.00	2157.98	16.9
130708	May-12	9-May-12	AM3	Fine	Normal Operation	756.0	756.0	29.0	29.0	50.0	50.0	2.7821	2.8159	0.0338	1.4998	1.4998	1.4998	10993.39	11017.39	1440.00	2159.71	15.7
130722	May-12	15-May-12	AM3	Rainy	Normal Operation	755.0	754.0	28.0	26.0	50.0	50.0	2.7706	2.8263	0.0557	1.5013	1.5054	1.5034	11017.39	11041.39	1440.00	2164.82	25.7
130728	May-12	21-May-12	AM3	Cloudy	Normal Operation	755.0	756.0	25.0	25.0	50.0	50.0	2.7605	2.8104	0.0499	1.5088	1.5098	1.5093	11041.39	11065.39	1440.00	2173.39	23.0
102066	May-12	26-May-12	AM3	Cloudy	Normal Operation	754.0	755.0	26.0	26.0	50.0	50.0	2.8097	2.8913	0.0816	1.5304	1.5314	1.5309	11065.39	11089.39	1440.00	2204.50	37.0
130740	Jun-12	1-Jun-12	AM3	Fine	Normal Operation	753.0	754.0	29.0	28.0	50.0	50.0	2.7861	2.8340	0.0479	1.5218	1.5253	1.5236	11089.39	11113.39	1440.00	2193.91	21.8
130746	Jun-12	7-Jun-12	AM3	Rainy	Normal Operation	756.0	756.0	29.0	29.0	50.0	50.0	2.7465	2.7806	0.0341	1.5248	1.5248	1.5248	11113.39	11137.39	1440.00	2195.71	15.5
130752	Jun-12	13-Jun-12	AM3	Cloudy	Normal Operation	755.0	754.0	28.0	26.0	50.0	50.0	2.7356	2.7807	0.0451	1.5263	1.5304	1.5284	11137.39	11161.39	1440.00	2200.82	20.5
130758	Jun-12	19-Jun-12	AM3	Cloudy	Normal Operation	755.0	756.0	25.0	25.0	50.0	50.0	2.7367	2.7873	0.0506	1.5340	1.5350	1.5345	11161.39	11185.39	1440.00	2209.68	22.9
102081	Jun-12	25-Jun-12	AM3	Fine	Normal Operation	754.0	755.0	26.0	26.0	50.0	50.0	2.8137	2.8717	0.0580	1.5304	1.5314	1.5309	11185.39	11209.39	1440.00	2204.50	26.3
130763	Jul-12	3-Jul-12	AM3	Fine	Normal Operation	753.0	753.0	29.0	29.0	50.0	50.0	2.7516	2.7870	0.0354	1.5218	1.5218	1.5218	11209.39	11233.39	1440.00	2191.39	16.2
102107	Jul-12	9-Jul-12	AM3	Fine	Normal Operation	755.0	755.0	29.0	29.0	50.0	50.0	2.8461	2.8853	0.0392	1.5238	1.5238	1.5238	11233.39	11257.39	1440.00	2194.27	17.9
130771	Jul-12	14-Jul-12	AM3	Fine	Normal Operation	753.0	753.0	29.0	30.0	50.0	50.0	2.7622	2.9320	0.1698	1.5218	1.5192	1.5205	11257.39	11281.39	1440.00	2189.52	77.6
130779	Jul-12	20-Jul-12	AM3	Fine	Normal Operation	753.0	751.0	30.0	30.0	50.0	50.0	2.7642	2.8434	0.0792	1.5482	1.5460	1.5471	11281.39	11305.39	1440.00	2227.82	35.6
130784	Jul-12	26-Jul-12	AM3	Cloudy	Normal Operation	754.0	754.0	25.0	25.0	50.0	50.0	2.7682	2.8740	0.1058	1.5635	1.5635	1.5635	11305.39	11329.39	1440.00	2251.44	47.0

Average (ug/m^3)	28.4
Max (ug/m^3)	77.6
Min (ug/m^3)	15.5

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			
130707	May-12	3-May-12	AM4	Cloudy	Normal Operation	753.0	754.0	29.0	28.0	50.0	50.0	2.78	2.8225	0.0425	1.5396	1.5428	1.5412	11851.12	11875.12	1440.00	2219.33	19.1
130709	May-12	9-May-12	AM4	Fine	Normal Operation	756.0	756.0	29.0	29.0	50.0	50.0	2.8021	2.8422	0.0401	1.5424	1.5424	1.5424	11875.12	11899.12	1440.00	2221.06	18.1
130723	May-12	15-May-12	AM4	Rainy	Normal Operation	755.0	754.0	28.0	26.0	50.0	50.0	2.7688	2.7984	0.0296	1.5438	1.5477	1.5458	11899.12	11923.12	1440.00	2225.88	13.3
130729	May-12	21-May-12	AM4	Cloudy	Normal Operation	755.0	756.0	25.0	25.0	50.0	50.0	2.7687	2.8251	0.0564	1.5510	1.5519	1.5515	11923.12	11947.12	1440.00	2234.09	25.2
130735	May-12	26-May-12	AM4	Cloudy	Normal Operation	754.0	755.0	26.0	26.0	50.0	50.0	2.7698	2.8302	0.0604	1.5919	1.5930	1.5925	11947.12	11971.12	1440.00	2293.13	26.3
130741	Jun-12	1-Jun-12	AM4	Fine	Normal Operation	753.0	754.0	29.0	28.0	50.0	50.0	2.7418	2.8311	0.0893	1.5826	1.5863	1.5845	11971.12	11995.12	1440.00	2281.61	39.1
130747	Jun-12	7-Jun-12	AM4	Rainy	Normal Operation	756.0	756.0	29.0	29.0	50.0	50.0	2.7595	2.8686	0.1091	1.5858	1.5858	1.5858	11995.12	12019.12	1440.00	2283.55	47.8
130753	Jun-12	13-Jun-12	AM4	Cloudy	Normal Operation	755.0	754.0	28.0	26.0	50.0	50.0	2.7459	2.7841	0.0382	1.5874	1.5919	1.5897	12019.12	12043.12	1440.00	2289.10	16.7
130759	Jun-12	19-Jun-12	AM4	Cloudy	Normal Operation	755.0	756.0	25.0	25.0	50.0	50.0	2.7379	2.7811	0.0432	1.5957	1.5968	1.5963	12043.12	12067.12	1440.00	2298.60	18.8
102082	Jun-12	25-Jun-12	AM4	Fine	Normal Operation	754.0	755.0	26.0	26.0	50.0	50.0	2.8179	2.8515	0.0336	1.5919	1.5930	1.5925	12067.12	12091.12	1440.00	2293.13	14.7
130764	Jul-12	3-Jul-12	AM4	Fine	Normal Operation	753.0	753.0	29.0	29.0	50.0	50.0	2.7452	2.7794	0.0342	1.5826	1.5826	1.5826	12091.12	12115.12	1440.00	2278.94	15.0
102108	Jul-12	9-Jul-12	AM4	Fine	Normal Operation	755.0	755.0	29.0	29.0	50.0	50.0	2.8472	2.8883	0.0411	1.5847	1.5847	1.5847	12115.12	12139.12	1440.00	2281.97	18.0
130772	Jul-12	14-Jul-12	AM4	Fine	Normal Operation	753.0	753.0	29.0	30.0	50.0	50.0	2.7524	2.9399	0.1875	1.5826	1.5798	1.5812	12139.12	12163.12	1440.00	2276.93	82.3
130780	Jul-12	20-Jul-12	AM4	Fine	Normal Operation	753.0	751.0	30.0	30.0	50.0	50.0	2.775	2.9128	0.1378	1.5338	1.5318	1.5328	12163.12	12187.12	1440.00	2207.23	62.4
130785	Jul-12	26-Jul-12	AM4	Cloudy	Normal Operation	754.0	754.0	25.0	25.0	50.0	50.0	2.769	2.8467	0.0777	1.5474	1.5474	1.5474	12187.12	12211.12	1440.00	2228.26	34.9

Average (ug/m^3)	31.4
Max (ug/m^3)	82.3
Min (ug/m^3)	13.3

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			
130712	May-12	3-May-12	AM5	Cloudy	Normal Operation	753.0	754.0	29.0	28.0	50.0	50.0	2.7993	2.8278	0.0285	1.6169	1.6202	1.6186	11637.27	11661.27	1440.00	2330.71	12.2
130710	May-12	9-May-12	AM5	Fine	Normal Operation	756.0	756.0	29.0	29.0	50.0	50.0	2.7779	2.8210	0.0431	1.6197	1.6197	1.6197	11661.27	11685.27	1440.00	2332.37	18.5
130724	May-12	15-May-12	AM5	Rainy	Normal Operation	755.0	754.0	28.0	26.0	50.0	50.0	2.782	2.8223	0.0403	1.6212	1.6252	1.6232	11685.27	11709.27	1440.00	2337.41	17.2
130730	May-12	21-May-12	AM5	Cloudy	Normal Operation	755.0	756.0	25.0	25.0	50.0	50.0	2.7838	2.8592	0.0754	1.6286	1.6295	1.6291	11709.27	11733.27	1440.00	2345.83	32.1
130736	May-12	26-May-12	AM5	Cloudy	Normal Operation	754.0	755.0	26.0	26.0	50.0	50.0	2.7729	2.8579	0.0850	1.5058	1.5069	1.5064	11733.27	11757.27	1440.00	2169.14	39.2
130742	Jun-12	1-Jun-12	AM5	Fine	Normal Operation	753.0	754.0	29.0	28.0	50.0	50.0	2.7653	2.8128	0.0475	1.4966	1.5003	1.4985	11757.27	11781.27	1440.00	2157.77	22.0
130748	Jun-12	7-Jun-12	AM5	Rainy	Normal Operation	756.0	756.0	29.0	29.0	50.0	50.0	2.756	2.8378	0.0818	1.4998	1.4998	1.4998	11781.27	11805.27	1440.00	2159.71	37.9
130754	Jun-12	13-Jun-12	AM5	Cloudy	Normal Operation	755.0	754.0	28.0	26.0	50.0	50.0	2.7403	2.7759	0.0356	1.5014	1.5058	1.5036	11805.27	11829.27	1440.00	2165.18	16.4
130760	Jun-12	19-Jun-12	AM5	Cloudy	Normal Operation	755.0	756.0	25.0	25.0	50.0	50.0	2.7531	2.7958	0.0427	1.5096	1.5107	1.5102	11829.27	11853.27	1440.00	2174.62	19.6
102085	Jun-12	25-Jun-12	AM5	Fine	Normal Operation	754.0	755.0	26.0	26.0	50.0	50.0	2.8001	2.8517	0.0516	1.5058	1.5069	1.5064	11853.27	11877.27	1440.00	2169.14	23.8
130765	Jul-12	3-Jul-12	AM5	Fine	Normal Operation	753.0	753.0	29.0	29.0	50.0	50.0	2.7684	2.7973	0.0289	1.4966	1.4966	1.4966	11877.27	11901.27	1440.00	2155.10	13.4
130774	Jul-12	9-Jul-12	AM5	Fine	Normal Operation	755.0	755.0	29.0	29.0	50.0	50.0	2.764	2.8709	0.1069	1.4987	1.4987	1.4987	11901.27	11925.27	1440.00	2158.13	49.5
102110	Jul-12	14-Jul-12	AM5	Fine	Normal Operation	753.0	753.0	29.0	30.0	50.0	50.0	2.846	2.8735	0.0275	1.4966	1.4939	1.4953	11925.27	11949.27	1440.00	2153.16	12.8
130781	Jul-12	20-Jul-12	AM5	Fine	Normal Operation	753.0	751.0	30.0	30.0	50.0	50.0	2.7723	2.9151	0.1428	1.5023	1.5001	1.5012	11949.27	11973.27	1440.00	2161.73	66.1
130786	Jul-12	26-Jul-12	AM5	Cloudy	Normal Operation	754.0	754.0	25.0	25.0	50.0	50.0	2.7641	2.8847	0.1206	1.5174	1.5174	1.5174	11973.27	11997.27	1440.00	2185.06	55.2

Average (ug/m^3)	30.9
Max (ug/m^3)	66.1
Min (ug/m^3)	12.2

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

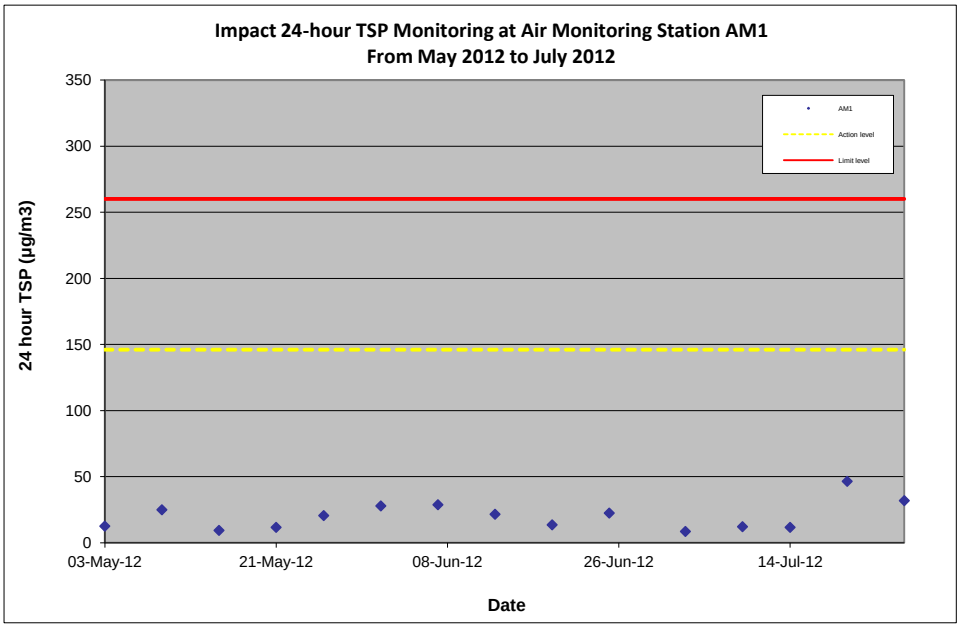
Agreement No. HMW 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section

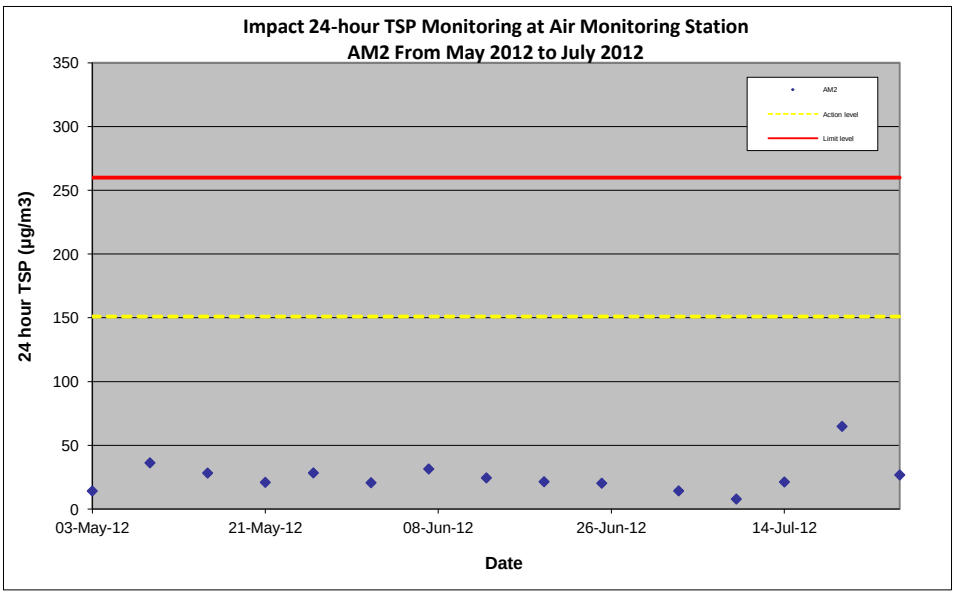
Impact Air Quality Monitoring Result at Yan Oi Tong Community and Sports Centre (AM6) - 24 hour TSP

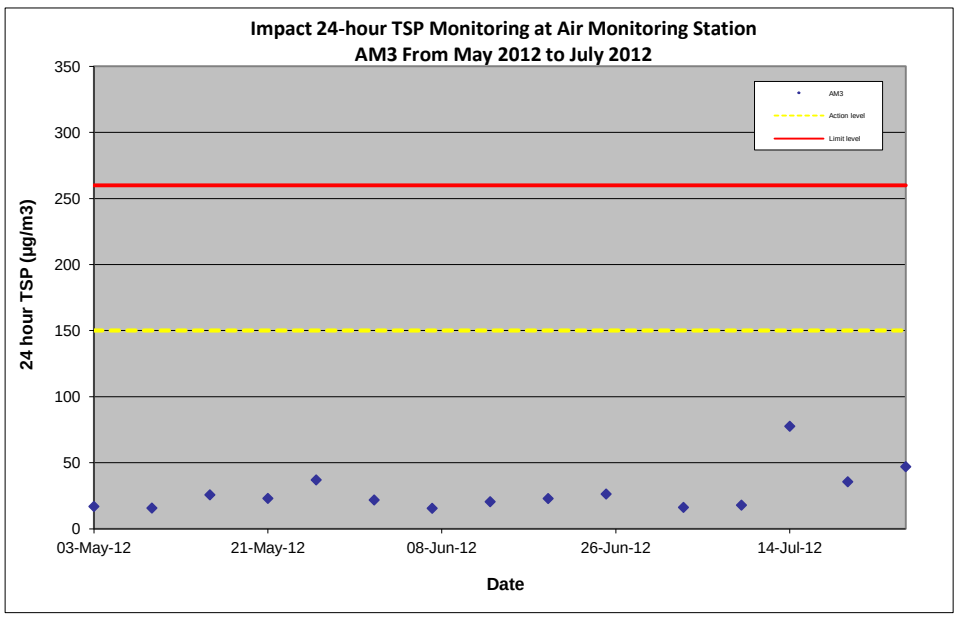
Filter No.	Month	Date	Receptor No.	Weather condition	Site condition	Pressure (mmHg)		Temperature (oC)		Flow Recorder Reading (CFM)		Filter Weight (g)		TSP weight (g)	Flow Rate (m^3/min)		Average Flow Rate (m^3/min)	Elapse Time		Sampling Time (mins.)	Total vol. (m^3)	(ug/m^3) AM6
						Initial	Final	Initial	Final	Initial	Final	Initial	Final		Initial	Final		Start	Finish			
130713	May-12	3-May-12	AM6	Cloudy	Normal Operation	753.0	754.0	29.0	28.0	50.0	50.0	2.781	2.8130	0.0320	1.6604	1.6642	1.6623	7970.80	7994.80	1440.00	2393.71	13.4
130711	May-12	9-May-12	AM6	Fine	Normal Operation	756.0	756.0	29.0	29.0	50.0	50.0	2.8004	2.8494	0.0490	1.6637	1.6637	1.6637	7994.80	8018.80	1440.00	2395.73	20.5
130725	May-12	15-May-12	AM6	Rainy	Normal Operation	755.0	754.0	28.0	26.0	50.0	50.0	2.7712	2.8167	0.0455	1.6653	1.6698	1.6676	8018.80	8042.80	1440.00	2401.27	18.9
130731	May-12	21-May-12	AM6	Cloudy	Normal Operation	755.0	756.0	25.0	25.0	50.0	50.0	2.7851	2.8697	0.0846	1.6737	1.6748	1.6743	8042.80	8066.80	1440.00	2410.92	35.1
102067	May-12	26-May-12	AM6	Cloudy	Normal Operation	754.0	755.0	26.0	26.0	50.0	50.0	2.8058	2.8586	0.0528	1.4999	1.5009	1.5004	8066.80	8090.80	1440.00	2160.58	24.4
130743	Jun-12	1-Jun-12	AM6	Fine	Normal Operation	753.0	754.0	29.0	28.0	50.0	50.0	2.7593	2.7933	0.0340	1.4910	1.4946	1.4928	8090.80	8114.80	1440.00	2149.63	15.8
130749	Jun-12	7-Jun-12	AM6	Rainy	Normal Operation	756.0	756.0	29.0	29.0	50.0	50.0	2.7541	2.8129	0.0588	1.4941	1.4941	1.4941	8114.80	8138.80	1440.00	2151.50	27.3
130755	Jun-12	13-Jun-12	AM6	Cloudy	Normal Operation	755.0	754.0	28.0	26.0	50.0	50.0	2.7464	2.7707	0.0243	1.4956	1.4999	1.4978	8138.80	8162.80	1440.00	2156.76	11.3
102075	Jun-12	19-Jun-12	AM6	Cloudy	Normal Operation	755.0	756.0	25.0	25.0	50.0	50.0	2.8105	2.8995	0.0890	1.5035	1.5045	1.5040	8162.80	8186.80	1440.00	2165.76	41.1
102086	Jun-12	25-Jun-12	AM6	Fine	Normal Operation	754.0	755.0	26.0	26.0	50.0	50.0	2.8	2.8513	0.0513	1.4999	1.5009	1.5004	8186.80	8210.80	1440.00	2160.58	23.7
130766	Jul-12	3-Jul-12	AM6	Fine	Normal Operation	753.0	753.0	29.0	29.0	50.0	50.0	2.7612	2.7871	0.0259	1.4910	1.4910	1.4910	8210.80	8234.80	1440.00	2147.04	12.1
130775	Jul-12	9-Jul-12	AM6	Fine	Normal Operation	755.0	755.0	29.0	29.0	50.0	50.0	2.7694	2.9272	0.1578	1.4931	1.4931	1.4931	8234.80	8258.80	1440.00	2150.06	73.4
130776	Jul-12	14-Jul-12	AM6	Fine	Normal Operation	753.0	753.0	29.0	30.0	50.0	50.0	2.7631	2.8211	0.0580	1.4910	1.4884	1.4897	8258.80	8282.80	1440.00	2145.17	27.0
130770	Jul-12	20-Jul-12	AM6	Fine	Normal Operation	753.0	751.0	30.0	30.0	50.0	50.0	2.7406	2.8623	0.1217	1.5073	1.5052	1.5063	8282.80	8306.80	1440.00	2169.00	56.1
130787	Jul-12	26-Jul-12	AM6	Cloudy	Normal Operation	754.0	754.0	25.0	25.0	50.0	50.0	2.749	2.7732	0.0242	1.5218	1.5218	1.5218	8306.80	8330.80	1440.00	2191.39	11.0

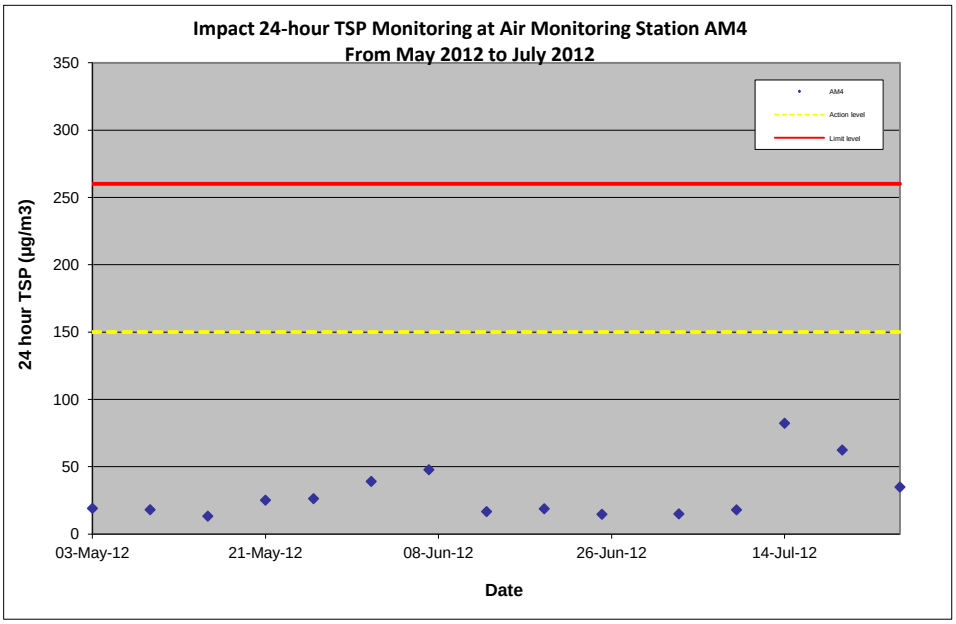
Average (ug/m^3)	28.2
Max (ug/m^3)	73.4
Min (ug/m^3)	11.0

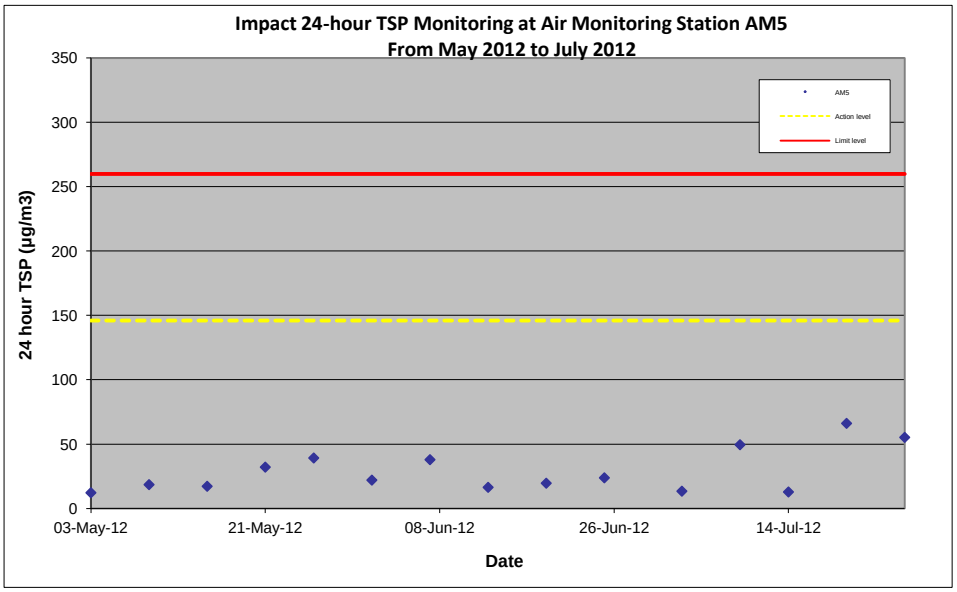
Action Level (ug/m^3)	147
Limit Level (ug/m^3)	260

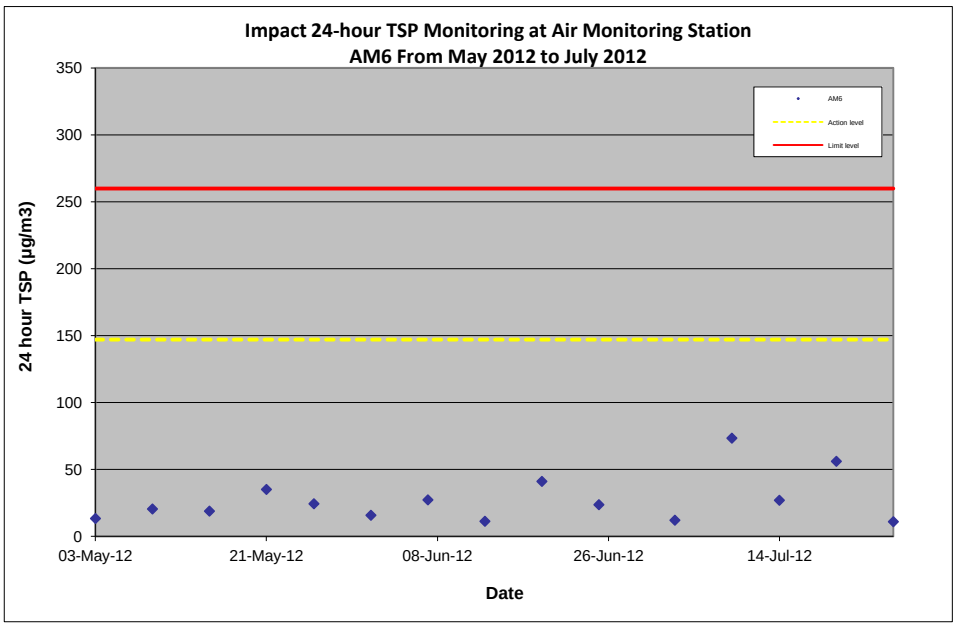

Impact 24-hour TSP Monitoring at Air Monitoring Station AM1
From May 2012 to July 2012
24 hour TSP (µg/m3)
350
300
250
200
150
100
50
0
03-May-12
21-May-12
08-Jun-12
26-Jun-12
14-Jul-12
Date
AM1
Action level
Limit level


Impact 24-hour TSP Monitoring at Air Monitoring Station
AM2 From May 2012 to July 2012
24 hour TSP (µg/m3)
350
300
250
200
150
100
50
0
03-May-12
21-May-12
08-Jun-12
26-Jun-12
14-Jul-12
Date
AM2
Action level
Limit level


Impact 24-hour TSP Monitoring at Air Monitoring Station
AM3 From May 2012 to July 2012
24 hour TSP (µg/m3)
350
300
250
200
150
100
50
0
03-May-12
21-May-12
08-Jun-12
26-Jun-12
14-Jul-12
Date
AM3
Action level
Limit level


Impact 24-hour TSP Monitoring at Air Monitoring Station AM4
From May 2012 to July 2012
24 hour TSP (µg/m3)
350
300
250
200
150
100
50
0
03-May-12
21-May-12
08-Jun-12
26-Jun-12
14-Jul-12
Date
AM4
Action level
Limit level


Impact 24-hour TSP Monitoring at Air Monitoring Station AM5
From May 2012 to July 2012
24 hour TSP (µg/m3)
350
300
250
200
150
100
50
0
03-May-12
21-May-12
08-Jun-12
26-Jun-12
14-Jul-12
Date
AM5
Action level
Limit level


Impact 24-hour TSP Monitoring at Air Monitoring Station
AM6 From May 2012 to July 2012
24 hour TSP (µg/m3)
350
300
250
200
150
100
50
0
03-May-12
21-May-12
08-Jun-12
26-Jun-12
14-Jul-12
Date
AM6
Action level
Limit level

Appendix D

Wind Data

Wind Monitoring Data - May 2012

Date	Wind Direction (degree)	Wind Speed (km/h)
3-May-12	210	23.8
9-May-12	240	24.7
15-May-12	110	8.5
21-May-12	100	41.5
26-May-12	80	29.7

Source extracted from Hong Kong Observatory (HKO)

Wind Monitoring Data - June 2012

Date	Wind Direction (degree)	Wind Speed (km/h)
1-Jun-12	100	37.3
7-Jun-12	90	16.3
13-Jun-12	80	17.4
19-Jun-12	50	32.1
25-Jun-12	210	35.1

Source extracted from Hong Kong Observatory (HKO)

Wind Monitoring Data - July 2012

Date	Wind Direction (degree)	Wind Speed (km/h)
3-Jul-12	140	11
9-Jul-12	210	15.9
14-Jul-12	230	30.5
20-Jul-12	230	8.7
26-Jul-12	120	18

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 - 4 May 2012

			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	09:40 - 10:10	77	75	80	73	76	68
N2	Tai Tung Pui Social Service Building	10:40 - 11:10	75	75	78	72	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:20 - 11:50	68	65	70	67	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	66	70	68	64	67	Measured ≦ Baseline
N5	Tuen King Building	13:00 - 13:30	69	75	72	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	14:00 - 14:30	68	70	70	67	69	Measured ≦ Baseline

Note: (#): Construction Noise Level = Measured Noise Level - Baseline Noise Level
(#): Limit Level of 65 dB(A) is adopted for N3 due to school examination hours

Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team
Day-time Noise Monitoring Results - 10 May 2012

			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	09:45 - 10:15	74	75	77	71	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:45 - 11:15	75	75	78	72	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:25 - 11:55	67	65	70	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	13:10 - 13:40	70	75	73	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	14:10 - 14:40	68	70	70	66	69	Measured ≦ Baseline

Note: (#): Construction Noise Level = Measured Noise Level - Baseline Noise Level
(#): Limit Level of 65 dB(A) is adopted for N3 due to school examination hours

Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team
Day-time Noise Monitoring Results - 16 May 2012

			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	09:35 - 10:05	74	75	76	71	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:35 - 11:05	74	75	77	72	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:35 - 12:05	67	70	69	65	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	66	70	68	65	67	Measured ≦ Baseline
N5	Tuen King Building	13:00 - 13:30	69	75	70	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	14:00 - 14:30	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 - 22 May 2012

			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	09:45 - 10:15	76	75	78	73	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:35 - 11:05	75	75	77	72	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:20 - 11:50	68	70	70	66	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	66	70	68	65	67	Measured ≦ Baseline
N5	Tuen King Building	13:15 - 13:35	70	75	72	68	70	57
N6	Choi Cheung kok Secondary School	14:00 - 14:30	69	70	71	67	69	Measured ≦ Baseline

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

Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team
Day-time Noise Monitoring Results - 28 May 2012

			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	09:45 - 10:15	76	75	78	72	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:45 - 11:15	75	75	78	72	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	08:30 - 09:00	65	70	67	63	67	Measured ≦ Baseline
N5	Tuen King Building	13:00 - 13:30	70	75	72	68	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	14:00 - 14:30	68	70	70	67	69	Measured ≦ Baseline

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

Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team
Day-time Noise Monitoring Results - 8 June 2012

			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	09:45 - 10:15	74	75	76	71	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:30 - 11:00	75	75	77	71	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:30 - 12:00	67	65	69	65	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	66	65	68	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	14:00 - 14:30	68	70	70	66	69	Measured ≦ Baseline

Note: (#): Construction Noise Level = Measured Noise Level - Baseline Noise Level
(#): Limit Level of 65 dB(A) is adopted for N3 and N4 due to school examination hours

Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team
Day-time Noise Monitoring Results - 14 June 2012

			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	09:50 - 10:20	75	75	77	72	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:40 - 11:10	74	75	77	71	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:40 - 12:10	68	70	70	66	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	66	70	67	64	67	Measured ≦ Baseline
N5	Tuen King Building	13:00 - 13:30	70	75	72	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	14:10 - 14:40	68	65	70	67	69	Measured ≦ Baseline

Note: (#): Construction Noise Level = Measured Noise Level - Baseline Noise Level
(#): Limit Level of 65 dB(A) is adopted for N6 due to school examination hours

Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team
Day-time Noise Monitoring Results - 20 June 2012

			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	09:45 - 10:15	73	75	75	71	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:40 - 11:10	73	75	76	71	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:45 - 12:15	68	65	70	66	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	66	70	68	65	67	Measured ≦ Baseline
N5	Tuen King Building	13:00 - 13:30	69	75	71	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	14:15 - 14:45	68	65	70	66	69	Measured ≦ Baseline

Note: (#): Construction Noise Level = Measured Noise Level - Baseline Noise Level
(#): Limit Level of 65 dB(A) is adopted for N3 and N6 due to school examination hours

Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team
Day-time Noise Monitoring Results - 26 June 2012

			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	09:40 - 10:10	76	75	78	72	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:30 - 11:00	75	75	78	71	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:30 - 12:00	67	70	69	66	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	66	70	67	64	67	Measured ≦ Baseline
N5	Tuen King Building	13:00 - 13:30	70	75	72	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	14:00 - 14:30	69	70	71	67	69	Measured ≦ Baseline

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

Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team
Day-time Noise Monitoring Results - 4 July 2012

			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	09:50 - 10:20	73	75	76	71	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:35 - 11:05	74	75	76	71	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:20 - 11:50	67	70	69	66	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	66	70	68	65	67	Measured ≦ Baseline
N5	Tuen King Building	13:15 - 13:45	70	75	71	68	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	14:15 - 14:45	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 - 10 July 2012

			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	73	75	75	70	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:45 - 11:15	73	75	75	71	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:25 - 11:55	67	70	69	65	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	66	70	67	64	67	Measured ≦ Baseline
N5	Tuen King Building	13:10 - 13:40	69	75	71	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	14:15 - 14:45	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 - 19 July 2012

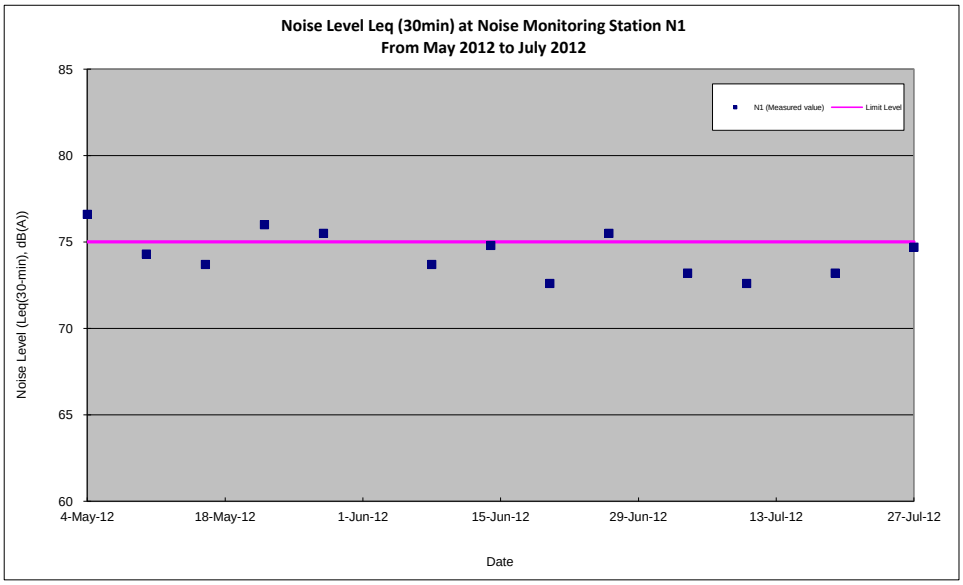
			Measured Noise Level, dB(A)				Baseline Noise Level, dB(A)	Construction Noise Level, dB(A)
ID	Premise	Time	L_{Aeq},30min	Limit	L_{10},5min	L_{90},5min	L_{Aeq},30min	L_{Aeq},30min
N1	Kam Fai Garden	09:45 - 10:15	73	75	76	71	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:40 - 11:10	73	75	76	71	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:30 - 12:00	67	70	70	66	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	08:35 - 09:05	66	70	68	65	67	Measured ≦ Baseline
N5	Tuen King Building	13:10 - 13:40	68	75	70	66	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	14:20 - 14:50	67	70	69	66	69	Measured ≦ Baseline

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

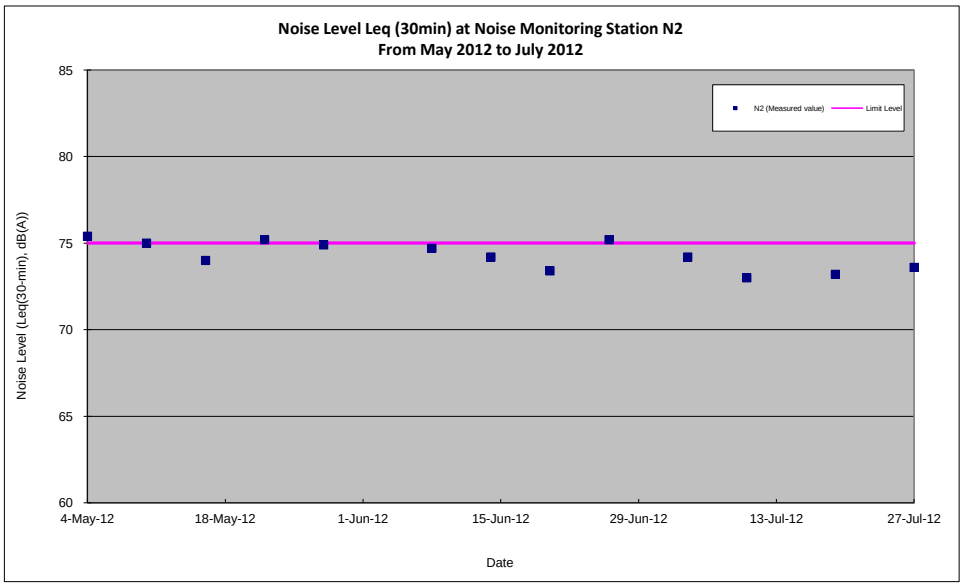
Agreement No. 5/2009 (EP) Traffic Improvements to Tuen Mun Road Town Centre Section - Environmental Team
Day-time Noise Monitoring Results - 27 July 2012

			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	09:40 - 10:10	75	75	77	71	76	Measured ≦ Baseline
N2	Tai Tung Pui Social Service Building	10:45 - 11:15	74	75	76	71	78	Measured ≦ Baseline
N3	Yuen Yuen Primary School	11:30 - 12:00	68	70	70	66	69	Measured ≦ Baseline
N4	Wu Siu Kui Primary School	08:30 - 09:00	66	70	68	64	67	Measured ≦ Baseline
N5	Tuen King Building	13:10 - 13:40	69	75	72	67	70	Measured ≦ Baseline
N6	Choi Cheung kok Secondary School	14:10 - 14:40	68	70	70	65	69	Measured ≦ Baseline

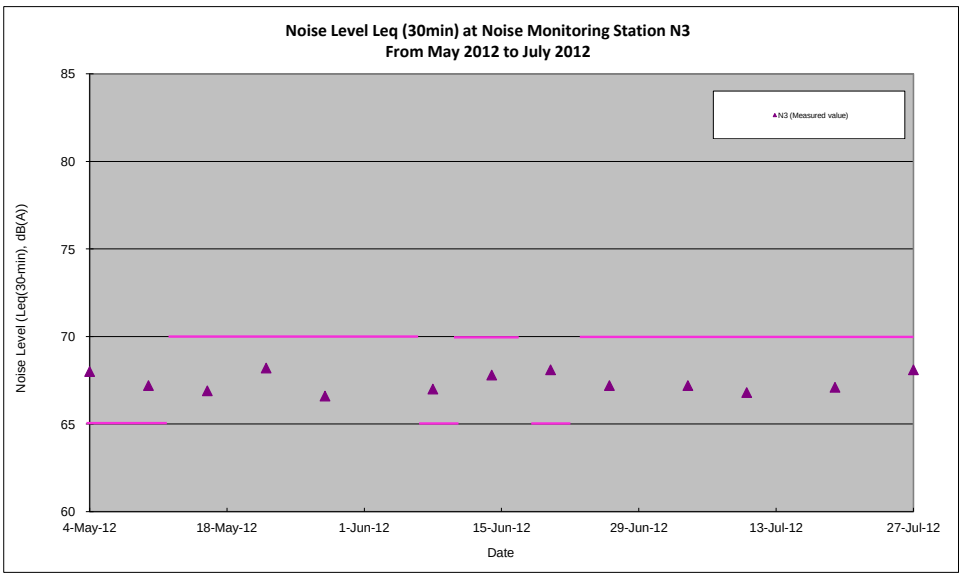
Note: (#): Construction Noise Level = Measured Noise Level - Baseline Noise Level



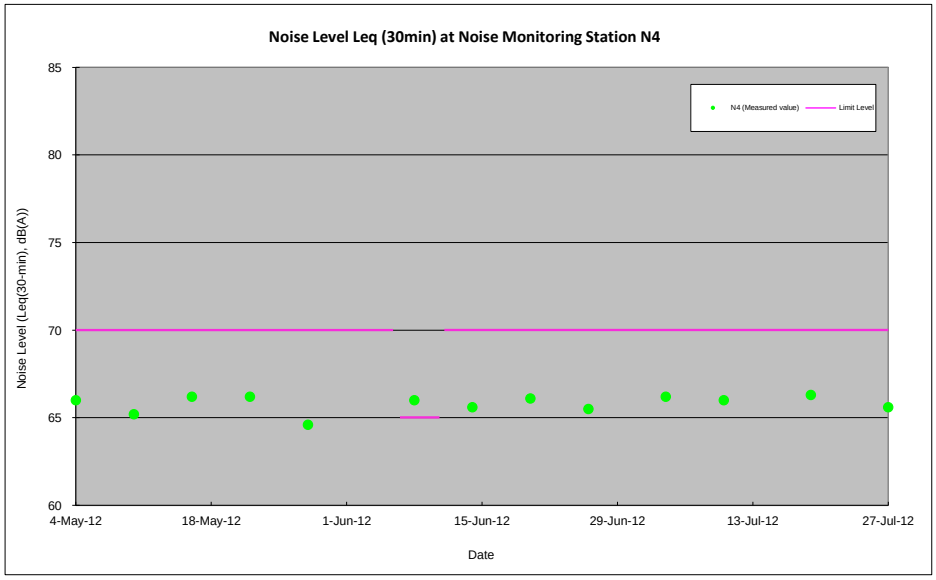
Note: For compliance comparison, please refer to above table and report.



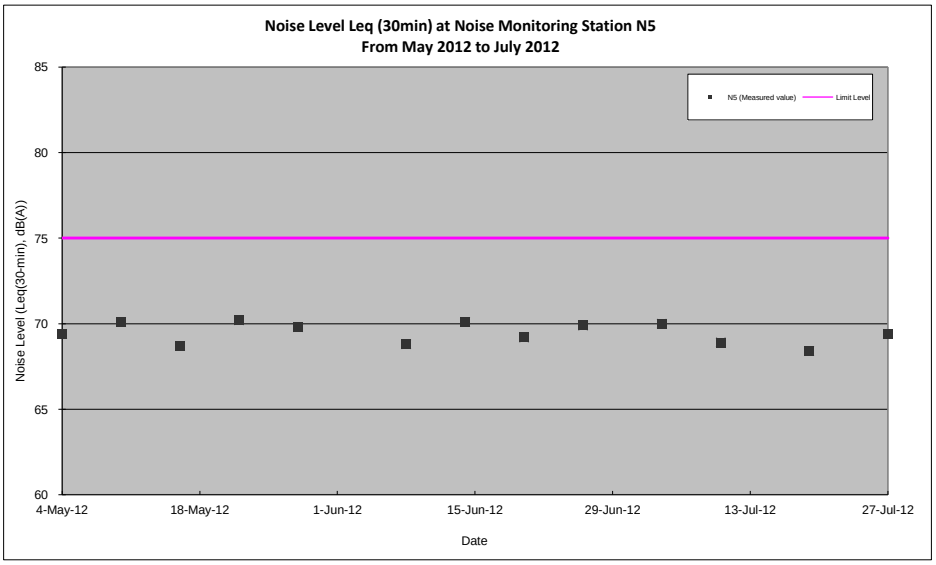
Note: For compliance comparison, please refer to above table and report.



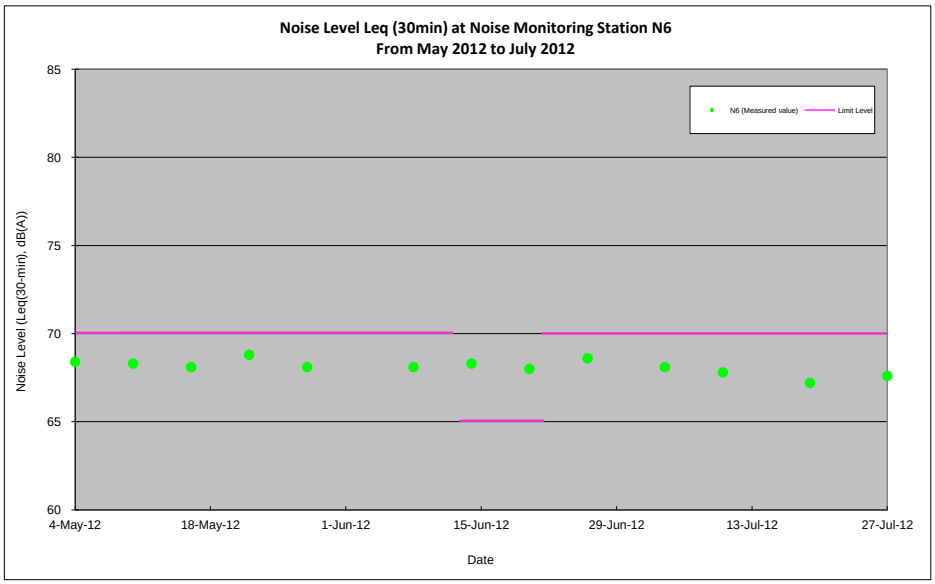
Note: For compliance comparison, please refer to above table and report.



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
C024-TCS	A complaint was received by ICC on 14 May 12 and the Supervising Officer Representative was informed via the e-mail on 15 May 12.	Mr. Chow	14 May 12	14 May 12 around 11:30 a.m.	Tsing Sin Street (Near Tsing Sin Playground)	Water	The complaint was related to muddy water spillage from the site to the carriageway.	15 May 12	15 May ~ 24 May 12	As confirmed by the Contractor and Supervising Officer's Representative, the complaint was related to muddy water spillage from the site to the carriageway on 14 May 12. In the complaint location, the contractor was carrying out the piling works for the S1 Bridge in the vicinity. Immediate checking has been done by site workers after receiving complaint. It was found that the muddy water spillage was generated from the bore pile machine. As advised by the Supervising Officer's Representative, the contractor has cleaned up the muddy water and ensuring the bore pile machine is well enclosed during operation. The site was also placed with more sandbag bundings around to avoid reoccurrence. Weekly site inspection by ET on 17 and 24 May 12 revealed that the site condition was satisfactory and no muddy water spillage was observed. Based on the above information, it is therefore concluded that the complaint was work related under the Project. The Contractor was reminded to take necessary resources to ensure review for site performance and prevent reoccurrence. In view of this, ET recommended that the Contractor should undertake following mitigation measures to minimize the nuisance. 1. Maintain good site practice by ensuring well enclosure to the bore pile machine in operation. 2. Site workers should be well trained for operating the bore pile machine. 3. Sufficient sandbag bundings shall be placed in the site boundary.	Yes	Closed on 24 May 12

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
C025-TCS	A complaint was received by ICC on 26 May 12 and the Supervising Officer Representative was informed via the e-mail on 29 May 12.	Ms. Ma	26 May 12	26 May 12 around 02:30 a.m.	Tuen Mun Road (Kowloon Bound) near Waldorf Garden	Noise	The complaint was related to noise generated from loading/ unloading works.	30 May 12	30 May ~ 7 Jun 12	As confirmed by the Contractor and Supervising Officer's Representative, the complaint was related to noise generated from loading/ unloading on 26 May 12. In the complaint location, the contractor was carrying out loading/ unloading of construction materials (e.g. wooden board, scaffolding materials, etc.). 2 units of lorry, with crane, have been deployed in the complaint period. The relevant construction noise permit (CNP) no. GW-RW0305-12 was obtained for the loading/ unloading works 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 information, it is therefore concluded that the complaint was work related under the Project. In order to minimize the potential noise nuisance generated from the loading/ unloading works, ET recommended that the Contractor should undertake following mitigation measures to minimize the noise nuisance. 1. Relocate the location of loading/ unloading operation as far as possible from nearby noise sensitive receivers; and 2. Improve the working practices; minimize the noise nuisance during the working activities as far as possible.	Yes	Closed on 7 Jun 12

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
C026-TCS	A complaint was received by ICC on 27 May 12 and the Supervising Officer Representative was informed via the e-mail on 28 May 12.	Ms. Chow	27 May 12 (Sunday)	27 May 12 (Sunday) around 10:00 a.m.	Tuen Mun Road (Yuen Long Bound) near Rosedale Garden	Noise	The complaint was related to noise generated from sheet piling works.	31 May 12	31 May ~ 7 Jun 12	As confirmed by the Contractor and Supervising Officer's Representative, the complaint was related to noise generated from sheet piling works on 27 May 12. In the complaint location, the contractor was carrying out installation of sheet piles in the central median of Tuen Mun Road near Rosedale Garden. 1 unit of tracked excavator and 1 unit of vibration hammer have been deployed. The relevant construction noise permit (CNP) no. GW-RW0840-11 was obtained for the sheet piling works 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. In addition, the sheet piling works in the complaint area has been completed. Based on the above information, it is therefore concluded that the complaint was work related under the Project. In order to minimize the potential noise nuisance generated from the sheet piling works, ET recommended that the Contractor should undertake following mitigation measures to minimize the noise nuisance. 1. Employ the QPME units as far as possible; 2. Well-maintain the machines condition to minimize noise nuisance; 3. Provide temporary / mobile noise barrier for the noisy activities as far as possible; 4. Improve the working practices; minimize the noise nuisance during the working activities as far as possible; 5. Make good planning and arrangement of construction activities and provide sufficient mitigation plans to alleviate noise nuisance.	Yes	Closed on 7 Jun 12