AECOM

Highways Department

Agreement No. CE 20/2009 (EP)

Environmental Team for the Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling

(Stage 1) Between Island House Interchange and Tai Hang - Investigation

Monthly EM&A Report for September 2014

[10/2014]

	Name	Signature
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Disclaimer

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20 October 2014
By Fax (2805 5028) and Post

Attn.: Mr. James Penny

Dear Sir,

Widening of Tolo Highway between Island House Interchange and Tai Hang
Environmental Permit (EP) No.: EP-324/2008/B
Condition 3.3 – Submission of Monthly EM&A Report for September 2014 (Stage 1)

We refer to the captioned Monthly EM&A Report submitted by Environmental Team (ET) on 14 and 20 October 2014 via email. Pursuant to EP Condition 3.3, I hereby verify the Monthly EM&A Report for September 2014 (Stage 1) for the Project.

Yours faithfully
for MOTT MACDONALD HONG KONG LIMITED

Terence Kong
Independent Environmental Checker

c.c. HyD – Mr. Raymond T W Kong / Mr. Dennis Wong (Fax: 2714 5198)
ETL, AECOM – Mr. Y T Tang (Fax: 2317 7609)

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EXECUTIVE SUMMARY

The proposed widening of Tolo Highway and Fanling Highway between Island House Interchange and Fanling (the Project) is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO) and is governed by an Environmental Permit (EP-324/2008)(EP) issued by EPD on 23 December 2008. Subsequently, EPD issued a Variation of Environmental Permit (EP-324/2008/A) (VEP) on 31 January 2012. The VEP (EP-324/2008/B) was subsequently granted on 17 March 2014 which superseded the previous EP (EP-324/2008/A). The most recent variation of the EP does not cover Stage 1 (between Island House Interchange and Tai Hang) of the Project.

The Project aims to widen Tolo Highway and Fanling Highway to dual 4-lane carriageway in order to alleviate the current traffic congestion problems and to cope with the increasing transport demands to and from the urban areas and also cross boundary traffic.

The construction works for this Project will be delivered in 2 stages i.e. Stage 1 (between Island House Interchange and Tai Hang) and Stage 2 (between Tai Hang and Wo Hop Shek Interchange). The construction works of Stage 1 were commenced on 23 November 2009 and substantially completed on 30 September 2014. This report focuses on Stage 1 of the Project only.

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

This report documents the findings of EM&A works conducted in the period between 1 and 30 September 2014.

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

- Asphalt laying; and
- Landscape softworks.

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

- Temporary traffic arrangements;
- Slope outstanding and remedial works;
- Noise barrier outstanding and remedial works;
- Entrusted watermains works;
- Road and drainage outstanding and remedial works; and
- Landscaping works.

Reporting Change

There was no reporting change required in the reporting month.

Breaches of Action and Limit Levels for Air Quality

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

Breaches of Action and Limit Levels for Noise

No Action Level exceedance of construction noise was recorded in the reporting month since no noise complaints related to 0700 – 1900 hours on normal weekdays was received and followed by the Environmental Team in the reporting month.

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

Complaint, Notification of Summons and Successful Prosecution

No complaint, notification of summons and successful prosecution was received in the reporting month.

Future Key Issues

Key issues to be considered in the coming month included:-

- Exposed slopes should be covered up properly if no temporary work will be conducted for dust suppression;
- Better scheduling of construction works to minimize noise nuisance; and
- Tree protective measures for all retained trees should be well maintained.

1 INTRODUCTION

1.1 Background

1.1.1. Tolo Highway and Fanling Highway are expressways in the North East New Territories connecting Sha Tin, Tai Po and Fanling. These highways form a vital part of the strategic Route 9, which links other major strategic routes to Shenzhen. At present, this section of Route 9 is dual 3-lane carriageway. However, at several major interchanges along this section of Route 9, the highway is only dual-2 lane. Severe congestion is a frequent occurrence during peak periods, particularly in the Kowloon bound direction.

1.1.2. The objective of the Project "Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling" is to widen Tolo Highway and Fanling Highway to dual 4-lane carriageway in order to alleviate the current traffic congestion problems and to cope with the increasing transport demands to and from the urban areas and also cross boundary traffic.

1.1.3. The Project is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO) and is governed by an Environmental Permit (EP-324/2008)(EP) issued by EPD on 23 December 2008. Subsequently, EPD issued a Variation of Environmental Permit (EP-324/2008/A) (VEP) on 31 January 2012. The VEP (EP-324/2008/B) was subsequently granted on 17 March 2014 which superseded the previous EP (EP-324/2008/A). The most recent variation of the EP does not cover Stage 1 (between Island House Interchange and Tai Hang) of the Project.

1.1.4. The scope of the Project comprises mainly:-

(i) Widening of a 5.7 km section of Tolo Highway and 3.0 km section of Fanling Highway between Island House Interchange and Wo Hop Shek Interchange from the existing dual 3-lane to dual 4-lane, including construction of new vehicular bridges;

(ii) Widening of interchange sections at Island House Interchange, Tai Po North Interchange, and Lam Kam Road Interchange from dual 2-lane to dual 3-lane, except Sha Tin bound carriageway at Tai Po North Interchange, which is widened from 3-lane to 4-lane, including realignment of various slip roads;

(iii) Modification and reconstruction of highways, vehicular bridges, underpasses and footbridges.

1.1.5. The construction works for this Project will be delivered in 2 stages i.e. Stage 1 (between Island House Interchange and Tai Hang) and Stage 2 (between Tai Hang and Wo Hop Shek Interchange). The construction works of Stage 1 commenced on 23 November 2009 and will tentatively be completed in October 2014; while the construction works of Stage 2 commenced on 21 November 2013. This report focuses on Stage 1 of the Project only.

1.1.6. The construction works for Stage 1 of the Project will be implemented under 2 works contracts (Contract 1 and Contract 2). Contract 1 covers the section of Tolo Highway between Island House Interchange and Ma Wo, Contract 2 covers the section of Tolo Highway between Ma Wo and Tai Hang.

1.1.7. Hyder-Arup-Black and Veatch Joint Venture (HABVJV) are appointed by Highways Department (HyD) as the consultants for the design and construction assignment for the Tolo project under Agreement No. CE 58/2000 Supplementary Agreement No. 3 (SA3) (i.e. the Engineer for the Contracts).

1.1.8. China State Construction Engineering (Hong Kong) Ltd. (CSHK) was commissioned as the Contractor of Contract 1 of Stage 1 of the Project, while Gammon Construction Limited (GCL) was commissioned as the Contractor of Contract 2 of Stage 1 of the Project.

1.1.9. AECOM Asia Co. Ltd. was employed by HyD as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) works for Stage 1 of the Project and Mott MacDonald Hong Kong Ltd. acts as the Independent Environmental Checker (IEC) for the Contracts.

1.1.10. The construction phase of Stage 1 under the EP commenced on 23 November 2009.

1.1.11. According to the updated EM&A Manual of Stage 1 of the Project, there is a need of an EM&A programme including air quality and noise monitoring. The EM&A programme for Stage 1 of the Project commenced on 23 November 2009.

1.2 Scope of Report

1.2.1 This is the fifty-ninth monthly EM&A Report under the Agreement No. CE 20/2009 (EP) - Widening of Tolo Highway between Island House Interchange and Tai Hang – Investigation. This report presents a summary of the environmental monitoring and audit works, list of activities and mitigation measures proposed by the ET for Stage 1 of the Project in September 2014.

1.3 Project Organization

1.3.1 The project organization structure is shown in Appendix A. The key personnel contact names and numbers are summarized in Table 1.1.

Table 1.1 Contact Information of Key Personnel

Party	Position	Name	Telephone	Fax
ER of Stage 1, Contract 1 (Hyder-Arup-Black & Veatch Joint Venture)	Chief Resident Engineer /TOLO1	James Tsang	9038 8797	26674000
ER of Stage 1, Contract 2 (Hyder-Arup-Black & Veatch Joint Venture)	Chief Resident Engineer /TOLO2	Paul Appleton	9097 5833	2653 2348
IEC of Stage 1 (Mott MacDonald Hong Kong Limited)	Independent Environmental Checker	Terence Kong	2828 5919	2827 1823
Contractor of Stage 1, Contract 1 (China State Construction Engineering (Hong Kong) Limited)	Site Agent	Eddie Tang	9863 7686	2667 5666
	Environmental Officer	Michael Tsang	9277 4956	2667 5666
		M L Lam	9489 4641	2667 5666
Contractor of Stage 1, Contract 2 (Gammon Construction Limited)	Site Agent	John Chan	3126 1202	2559 3410
	Environmental Officer	Thomson Chang	9213 6569	2559 3410
		Crispin Ao	9223 8773	2559 3410
		Jimmy Tsang	9720 9738	2559 3410

Party	Position	Name	Telephone	Fax
ET of Stage 1 (AECOM Asia Company Limited)	ET Leader	Y T Tang	3922 9393	3922 9797

1.4 Summary of Construction Works

1.4.1 The construction phase of Stage 1 under the EP commenced on 23 November 2009.

1.4.2 Details of the construction works carried out by the Contract 1 Contractor (China State Construction Engineering (Hong Kong) Ltd.) in this reporting period are listed below:-

- Asphalt laying; and
- Landscape softworks.

1.4.3 Details of the construction works carried out by the Contract 2 Contractor (Gammon Construction Ltd.) in this reporting period are listed below:-

- Temporary traffic arrangements;
- Slope outstanding and remedial works;
- Noise barrier outstanding and remedial works;
- Entrusted watermains works;
- Road and drainage outstanding and remedial works; and
- Landscaping works.

1.4.4 The Construction Programmes are shown in Appendix B.

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

1.4.6 The environmental mitigation measures implementation schedule are presented in Appendix C.

1.5 Summary of EM&A Programme Requirements

1.5.1 The EM&A programme required environmental monitoring for air quality, noise and environmental site inspections for air quality, water quality, noise, waste management, ecology, and landscape and visual impact. The EM&A requirements for each parameter described in the following sections include:-

- All monitoring parameters;
- Monitoring schedules for the reporting month and forthcoming months;
- Action and Limit levels for all environmental parameters;
- Event / Action Plan;
- Environmental mitigation measures, as recommended in the Project EIA study final report; and
- Environmental requirement in contract documents.

2 AIR QUALITY MONITORING

2.1 Monitoring Requirements

2.1.1 In accordance with the updated EM&A Manual, baseline 1-hour and 24-hour TSP levels at 4 air quality monitoring stations were established. Impact 1-hour TSP monitoring will be conducted for at least three times every 6 days; while impact 24-hour TSP monitoring will be carried out for at least once every 6 days. The Action and Limit level of the air quality monitoring is provided in Appendix D.

2.2 Monitoring Equipment

2.2.1 24-hour TSP air quality monitoring was performed using High Volume Sampler (HVS) located at each designated monitoring station. The HVS meets all the requirements of the updated EM&A Manual. Portable direct reading dust meters were used to carry out the 1-hour TSP monitoring. Brand and model of the equipment is given in Table 2.1.

Table 2.1 Air Quality Monitoring Equipment

Equipment	Brand and Model
Portable direct reading dust meter (1-hour TSP)	Sibata Digital Dust Monitor (Model No. LD-3 and LD-3B)
High Volume Sampler (24-hour TSP)	Tisch Total Suspended Particulate Mass Flow Controlled High Volume Air Sampler (Model No. TE-5170 & GMW-2310)

2.3 Monitoring Locations

2.3.1 Monitoring locations AM2 and AM3 were set up at the proposed locations in accordance with updated EM&A Manual. However, for monitoring locations: Dynasty View and Tai Po Garden, proposed in the updated EM&A Manual, as approval could not be obtained from the owner's corporation of the premises, baseline and impact air quality monitoring was conducted at 13 Ha Wun Yiu (AM1) and Tai Kwong Secondary School (AM4) respectively. The monitoring station at 13 Ha Wun Yiu (AM1) was relocated to Fan Sin Temple, 3 Sheung Wun Yiu (AM1A) in February 2010. Also, the monitoring station at Tai Kwong Secondary School (AM4) was relocated to 168 Shek Kwu Lung Village (AM4A) in September 2011.

2.3.2 Figure 2.1 shows the locations of monitoring stations. Table 2.2 describes the details of the monitoring stations.

Table 2.2 Locations of Impact Air Quality Monitoring Stations

Monitoring Station	Location	Description
AM1A	3 Sheung Wun Yiu	Ground floor at the boundary outside Fan Sin Temple
AM2	12 Shan Tong New Village	Ground floor outside the premises
AM3	Riverain Bayside	Roof of the switch room
AM4A	168 Shek Kwu Lung Village	Roof of the switch room

2.4 Monitoring Parameters and Frequency

2.4.1 Table 2.3 summarizes the monitoring parameters, frequency and duration of impact TSP monitoring.

Table 2.3 Air Quality Monitoring Parameters and Frequency

Parameter	Frequency
1-hour TSP	Three times every 6 days while the highest dust impact was expected
24-hour TSP	Once every 6 days

2.5 Monitoring Methodology

2.5.1 24-hour TSP Monitoring

(a) The HVS was installed in the vicinity of the air sensitive receivers. The following criteria were considered in the installation of the HVS.

(i) A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
(ii) The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
(iii) A minimum of 2 meters separation from walls, parapets and penthouse for rooftop sampler.
(iv) A minimum of 2 meters separation from any supporting structure, measured horizontally.
(v) No furnace or incinerator flues nearby.
(vi) Airflow around the sampler was unrestricted.
(vii) Permission was obtained to set up the samplers and access to the monitoring stations.
(viii) A secured supply of electricity was obtained to operate the samplers.
(ix) The sampler was located more than 20 meters from any dripline.
(x) Any wire fence and gate, required to protect the sampler, did not obstruct the monitoring process.
(xi) Flow control accuracy was kept within ±2.5% deviation over 24-hour sampling period.

(b) Preparation of Filter Papers

(i) Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.
(ii) All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±5%. A convenient working RH was 40%.
(iii) All filter papers were prepared and analysed by ALS Technichem (HK) Pty Ltd., which is a HOKLAS accredited laboratory and has comprehensive quality assurance and quality control programmes.

(c) Field Monitoring

(i) The power supply was checked to ensure the HVS works properly.
(ii) The filter holder and the area surrounding the filter were cleaned.
(iii) The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
(iv) The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
(v) The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied was sufficient to avoid air leakage at the edges.
(vi) Then the shelter lid was closed and was secured with the aluminum strip.

(vii) The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
(viii) A new flow rate record sheet was set into the flow recorder.
(ix) On site temperature and atmospheric pressure readings were taken and the flow rate of the HVS was checked and adjusted at around 1.1 m^3/min, and complied with the range specified in the updated EM&A Manual (i.e. 0.6-1.7 m^3/min).
(x) The programmable digital timer was set for a sampling period of 24 hrs, and the starting time, weather condition and the filter number were recorded.
(xi) The initial elapsed time was recorded.
(xii) At the end of sampling, on site temperature and atmospheric pressure readings were taken and the final flow rate of the HVS was checked and recorded.
(xiii) The final elapsed time was recorded.
(xiv) The sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
(xv) It was then placed in a clean plastic envelope and sealed.
(xvi) All monitoring information was recorded on a standard data sheet.
(xvii) Filters were then sent to ALS Technichem (HK) Pty Ltd. for analysis.

(d) Maintenance and Calibration

(i) The HVS and its accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
(ii) 5-point calibration of the HVS was conducted using TE-5025A Calibration Kit prior to the commencement of baseline monitoring. Bi-monthly 5-point calibration of the HVS will be carried out during impact monitoring.
(iii) Calibration certificate of the HVSs are provided in Appendix E.

2.5.2 1-hour TSP Monitoring

(a) Measuring Procedures

The measuring procedures of the 1-hour dust meter were in accordance with the Manufacturer's Instruction Manual as follows:-
(i) Turn the power on.
(ii) Close the air collecting opening cover.
(iii) Push the "TIME SETTING" switch to [BG].
(iv) Push "START/STOP" switch to perform background measurement for 6 seconds.
(v) Turn the knob at SENSI ADJ position to insert the light scattering plate.
(vi) Leave the equipment for 1 minute upon "SPAN CHECK" is indicated in the display.
(vii) Push "START/STOP" switch to perform automatic sensitivity adjustment. This measurement takes 1 minute.
(viii) Pull out the knob and return it to MEASURE position.
(ix) Push the "TIME SETTING" switch the time set in the display to 3 hours.
(x) Lower down the air collection opening cover.
(xi) Push "START/STOP" switch to start measurement.

(b) Maintenance and Calibration

(i) The 1-hour TSP meter was calibrated at 1-year intervals against a continuous particulate TEOM Monitor, Series 1400ab. Calibration certificates of the Laser Dust Monitors are provided in Appendix E.
(ii) 1-hour validation checking of the TSP meter against HVS is carried out yearly at the air quality monitoring locations.

2.6 Monitoring Schedule for the Reporting Month

2.6.1 The schedule for environmental monitoring in September 2014 is provided in Appendix F.

2.7 Monitoring Results

2.7.1 The baseline condition of air quality in the Project site was reviewed in October and November 2009. A baseline monitoring of air quality, in terms of 1-hour Total Suspended Particulates (TSP) and 24-hour TSP, was carried out from 20 October 2009 to 4 November 2009 for 14 days. The baseline monitoring report was submitted by ETL and approved by the ER and the IEC on 9 November 2009. Action Levels for air quality were established and are summarized in Table 2.4, Table 2.5 and Appendix D.

2.8 Results and Observations

2.8.1 The monitoring results for 1-hour TSP and 24-hour TSP are summarized in Table 2.4 and 2.5 respectively. Detailed impact air quality monitoring results are presented in Appendix G.

Table 2.4 Summary of 1-hour TSP Monitoring Results in the Reporting Period

	Average ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
AM1A	Construction Phase EM&A Programme for Contract 1 of the Project was completed on 15 July 2014. No monitoring has been carried out beyond 15 July 2014.			
AM2				
AM3				
AM4A	75.7	68.2 – 79.9	302.3	500

Table 2.5 Summary of 24-hour TSP Monitoring Results in the Reporting Period

	Average ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
AM1A	Construction Phase EM&A Programme for Contract 1 of the Project was completed on 15 July 2014. No monitoring has been carried out beyond 15 July 2014.			
AM2				
AM3				
AM4A	25.1	12.0 – 45.0	198.5	260

2.8.2 Construction Phase EM&A Programme for Contract 1 of the Project was completed on 15 July 2014. No monitoring has been carried out at AM1A, AM2 and AM3 beyond 15 July 2014.

2.8.3 Construction Phase EM&A Programme for Contract 2 of the Project was completed on 30 September 2014. No monitoring will be carried out at AM4A starting from 1 October 2014.

2.8.4 The major dust source in the reporting period included construction activities from Stage 1 of the Project, as well as nearby traffic emissions.

2.8.5 All 1-hour and 24-hour TSP results were below the Action and Limit Level at all monitoring locations in the reporting month.

2.8.6 The event action plan is annexed in Appendix J.

2.8.7 Weather information including wind speed and wind direction is annexed in Appendix H. The information was obtained from Hong Kong Observatory Sha Tin and Tai Mei Tuk Automatic Weather Station. As some of the weather data in September 2014 from the Tai Mei Tuk Automatic Weather Station were missing, the weather data from Tai Po Automatic Weather Station in Septemeber 2014 are included in Appendix H for supplementary purpose.

3 NOISE MONITORING

3.1 Monitoring Requirements

3.1.1 In accordance with the EM&A Manual, impact noise monitoring was conducted for at least once per week during the construction phase of Stage 1 of the Project. The Action and Limit level of the noise monitoring is provided in Appendix D.

3.2 Monitoring Equipment

3.2.1 Noise monitoring was performed using sound level meter at each designated monitoring station. The sound level meters deployed comply with the International Electrotechnical Commission Publications (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator was deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in Table 3.1.

Table 3.1 Noise Monitoring Equipment

Equipment	Brand and Model
Integrated Sound Level Meter	Rion NL-31 / B&K 2238
Acoustic Calibrator	Rion NC-73

3.3 Monitoring Locations

3.3.1 Monitoring stations NM3, NM6 and NM7 were set up at the proposed locations in accordance with updated EM&A Manual. However, for monitoring locations: Tai Po Garden (NM1), Dynasty View (NM2), Hong Kong Teachers' Association Lee Heng Kwei Secondary School (NM4) and Grand Palisades (NM5), proposed in the updated EM&A Manual, impact noise monitoring was conducted at alternative monitoring locations, as approval of access could not be obtained from the owner's corporation of the premises or the principal of the education institutes. The monitoring station at Tai Kwong Secondary School (NM1) was relocated to 168 Shek Kwu Lung Village (NM1A) in September 2011.

3.3.2 Figure 2.1 shows the locations of the monitoring stations. Table 3.2 describes the details of the monitoring stations.

Table 3.2 Locations of Impact Noise Monitoring Stations

Monitoring Station	Location	Description
NM1A	168 Shek Kwu Lung Village	1m from the exterior wall of the village house
NM2	38 Ha Wun Yiu	1.2m from the ground floor free-field of the village house
NM3	Wong Shiu Chi Middle School	1m from the exterior of the roof top façade of the New Wing
NM4	Uptown Plaza	1m from the exterior of the roof top façade of Block 4
NM5	The Paragon	1m from the exterior of the roof top façade of the club house
NM6	PLK Tin Ka Ping Primary School	1.2m ground floor free-field near the entrance
NM7	Riverain Bayside	1m from the exterior of the roof façade of the switch room

3.4 Monitoring Parameters and Frequency

3.4.1 Table 3.3 summarizes the monitoring parameters, frequency and duration of impact noise monitoring.

Table 3.3 Noise Monitoring Parameters and Frequency

Parameter	Frequency
30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays. L_{eq}, L_{10} and L_{90} would be recorded.	At least once per week

3.5 Monitoring Methodology

3.5.1 Monitoring Procedure

(a) Façade measurements were made at all monitoring locations, except monitoring stations NM2 and NM6.

(b) The sound level meter was set on a tripod at a height of 1.2 m above the ground for free-field measurements at NM2 and NM6.

(c) The battery condition was checked to ensure the correct functioning of the meter.

(d) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:-

(i) frequency weighting: A
(ii) time weighting: Fast
(iii) time measurement: $L_{eq(30\text{-minutes})}$ during non-restricted hours i.e. 07:00 – 1900 on normal weekdays; $L_{eq(5\text{-minutes})}$ during restricted hours i.e. 19:00 – 23:00 and 23:00 – 07:00 of normal weekdays, whole day of Sundays and Public Holidays

(e) Prior to and after each noise measurement, the meter was calibrated using the acoustic calibrator for 94dB(A) at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.

(f) During the monitoring period, the L_{eq}, L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.

(g) Noise measurement was paused during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible. Observations were recorded when intrusive noise was unavoidable.

(h) Noise monitoring was cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind with gusts exceeding 10m/s.

3.5.2 Maintenance and Calibration

(a) The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.

(b) The meter and calibrator were sent to the supplier or HOKLAS laboratory to check and calibrate at yearly intervals.

(c) Calibration certificates of the sound level meters and acoustic calibrators are provided in Appendix E.

3.6 Monitoring Schedule for the Reporting Month

3.6.1 The schedule for environmental monitoring in September 2014 is provided in Appendix F.

3.7 Monitoring Results

3.7.1 The monitoring results for construction noise are summarized in Table 3.4 and the monitoring data is provided in Appendix I.

Table 3.4 Summary of Construction Noise Monitoring Results in the Reporting Period

	Average, dB(A), $L_{eq\ (30\ mins)}$	**Range, dB(A),** $L_{eq\ (30\ mins)}$	**Limit Level, dB(A),** $L_{eq\ (30\ mins)}$
NM1A	61.4	54.0 – 64.0	75
NM2	Construction Phase EM&A Programme for Contract 1 of the Project was completed on 15 July 2014. No monitoring has been carried out beyond 15 July 2014.		
NM3			
NM4			
NM5			
NM6			
NM7			

*+3dB(A) Façade correction included
Limit Level of 70dB(A) applies to education institutes while 65dB(A) applies during school examination period.

3.7.2 Construction Phase EM&A Programme for Contract 1 of the Project was completed on 15 July 2014. No monitoring has been carried out at NM 2, NM3, NM4, NM5, NM6 and NM7 beyond 15 July 2014.

3.7.3 Construction Phase EM&A Programme for Contract 2 of the Project was completed on 30 September 2014. No monitoring will be carried out at NM1A starting from 1 October 2014.

3.7.4 No noise complaint related to 0700 – 1900 hours on normal weekdays was received and followed up by the Environmental Team in the reporting period. Hence, no Action Level exceedance was recorded.

3.7.5 No noise monitoring result exceeding the Limit Level was recorded at all monitoring stations in the reporting month.

3.7.6 Major noise sources during the noise monitoring included construction activities of Stage 1 of the Project and nearby traffic noise and general school activities.

3.7.7 The event action plan is annexed in Appendix J.

4 ENVIRONMENTAL SITE INSPECTION AND AUDIT

4.1 Site Inspection

4.1.1 Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for Stage 1 of the Project. Since Construction Phase EM&A Programme for Contract 1 of the Project was completed on 15 July 2014, no weekly site inspection for Contract 1 has been carried out beyond 15 July 2014.

4.1.2 In the reporting month, 3 site inspections for Contract 2 of the Project were carried out on 4, 11 and 18 September 2014.

4.1.3 The environmental site inspections summaries are provided in Appendix K.

4.1.4 Particular observations and reminder during the site inspections for Contract 2 are described below:

Air Quality

4.1.5 Active removal of stockpiles by excavators was observed. However, the Contractor was reminded to cover the exposed slopes entirely by impervious sheeting when there are no construction activities in the concerned area. (Reminder)

4.1.6 An exposed stockpile was observed. The Contractor was reminded to cover the stockpile entirely by impervious sheeting when the soil is not in use.

Noise

4.1.7 No adverse observation was identified in the reporting month.

Water Quality

4.1.8 No adverse observation was identified in the reporting month.

Chemical and Waste Management

4.1.9 No adverse observation was identified in the reporting month.

Landscape and Visual Impact

4.1.10 No adverse observation was identified in the reporting month.

Miscellaneous

4.1.11 No adverse observation was identified in the reporting month.

4.2 Advice on the Solid and Liquid Waste Management Status

4.2.1 The Contract 1 Contractor (CSHK) and the Contract 2 Contractor (GCL) are registered as chemical waste producers for Stage 1 of the Project. C&D material sorting was carried out on site. Sufficient numbers of receptacles were available for general refuse collection.

4.2.2 As advised by the Contract 1 Contractor (CSHK), 30m^3 of inert C&D materials was disposed of to the public fill at Tuen Mun 38 (of which 0m^3 was broken concrete), while 40m^3 of general refuse was disposed of at the NENT landfill. 30kg of paper/cardboard packaging, 5,342kg of plastics and 56,733kg of metals were collected by recycling contractors in the reporting month. 255m^3 and 0m^3 of inert C&D materials were reused on site and reused in other projects respectively. 0kg of chemical waste was collected by the licensed contractor in the reporting period.

4.2.3 As advised by the Contract 2 Contractor (GCL), 20m^3 of inert C&D materials was disposed of to Tuen Mun 38 and 140m^3 of general refuse was disposed of to the NENT landfill in the reporting period. No paper/cardboard packaging, plastics or metals was collected by the recycling contractors in the reporting month. 0m^3 and 0m^3 of inert C&D materials were reused on site and reused in other projects respectively. Besides, no chemical waste was collected by the licensed contractor in the reporting period.

4.2.4 The Contractors have been advised to maintain on site waste sorting and recording system, and maximize the reuse / recycling of C&D wastes.

4.3 Environmental Licenses and Permits

4.3.1 The environmental licenses and permits for Stage 1 of the Project and valid in the reporting month is summarized in Table 4.1.

Table 4.1 Summary of Environmental Licensing and Permit Status

Statutory Reference	License/ Permit	License or Permit No.	Valid Period		License/ Permit Holder	Remarks
			From	To		
EIAO	Environmental Permit	EP-324/2008/B	17/03/2014	N/A	HyD	Tolo Highway/Fanling Highway between Island House Interchange and Ma Wo The VEP (EP-324/2008/B) was granted on 17 March 2014 which superseded the previous EP (EP-324/2008/A).
WPCO	Discharge License (Office)	WT00005096-2009	03/12/2009	31/12/2014	CSHK	Discharge at Site Office
	Discharge License (Site)	WT00005445-2009	15/12/2009	31/12/2014	CSHK	Discharge of Construction Runoff
	Discharge License (Office)	WT00006782-2010	25/06/2010	30/06/2015	GCL	Discharge at Site Office

Statutory Reference	License/ Permit	License or Permit No.	Valid Period		License/ Permit Holder	Remarks
			From	To		
	Discharge License (Site)	WT00007162 -2010	09/08/2010	31/07/2015	GCL	Discharge of Construction Runoff
WDO	Chemical Waste Producer Registration	5213-727-C3249-46	25/09/2009	N/A	CSHK	Chemical waste produced in Contract HY/2008/09
		5213-722-G2347-18	18/05/2010	N/A	GCL	Chemical waste produced in Contract HY/2009/08
WDO	Billing Account for Disposal of Construction Waste	7009328	08/09/2009	N/A	CSHK	Waste disposal in Contract HY/2008/09
		7010320	02/03/2010	N/A	GCL	Waste disposal in Contract HY/2009/08
NCO	Construction Noise Permit	GW-RN0210-14	11/04/2014	09/10/2014	CSHK	Modification of Sign Gantries G13, 16, 66 & 70
		GW-RN0336-14	30/05/2014	30/09/2014	CSHK	Construction works at Island House Interchange
		GW-RN0573-14	15/09/2014	14/10/2014	CSHK	Works area at LKRB
		GW-RN0597-14	30/09/2014	11/12/2014	CSHK	Installation of Noise Barrier at Slip Road A
		GW-RN0412-14	04/07/2014	03/09/2014	GCL	Renewal of GW-RN0225-14 for road reconstruction at 2 sections of Tolo Highway (Shatin and Fanling Bound)
		GW-RN0490-14	12/08/2014	19/09/2014	GCL	A section of Fanling Highway, Tai Wo Service Road West and Hong Lok Yuen Road near Wai Tau Tsuen, Tai Po, N.T.
		GW-RN0503-14	20/08/2014	13/09/2014	GCL	Tolo Highway (South Bound) between Ma Wo and Tai Hang, Tai Po, New Territories
		GW-RN0509-14	14/08/2014	19/09/2014	GCL	Tolo Highway and Fanling Highway near Tai Po Tai Wo Road, Lam Kam Interchange & Tai Wo Service Road West, Tai Po, N.T.

4.4 Implementation Status of Environmental Mitigation Measures

4.4.1 In response to the site audit findings, the Contractors carried out corrective actions.

4.4.2 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in Appendix C. Most of the necessary mitigation measures were implemented properly.

4.5 Summary of Exceedances of the Environmental Quality Performance Limit

4.5.1 All 1-hour and 24-hour TSP monitoring results complied with the Action / Limit Levels in the reporting period.

4.5.2 For construction noise, no Action and Limit Level exceedance was recorded at all monitoring stations in the reporting period.

4.6 Summary of Complaints, Notification of Summons and Successful Prosecutions

4.6.1 The Environmental Complaint Handling Procedure is annexed in Figure 4.1.

4.6.2 No complaint, notification of summons and successful prosecution was received in the reporting month. Statistics on complaints, notifications of summons and successful prosecutions are summarized in Appendix L.

5 FUTURE KEY ISSUES

5.1 Construction Programme for the Coming Month

5.1.1 The major construction works for Contract 1 in October 2014 will be:-

- Asphalt laying; and
- Landscape softworks.

5.1.2 The major construction works for Contract 2 in October 2014 will be:-

- Temporary traffic arrangements;
- Slope outstanding and remedial works;
- Noise barrier outstanding and remedial works;
- Entrusted watermains works;
- Road and drainage outstanding and remedial works; and
- Landscaping works.

5.2 Key Issues for the Coming Month

5.2.1 Key issues to be considered in October 2014:-

- Exposed slopes should be covered up properly if no temporary work will be conducted for dust suppression;
- Better scheduling of construction works to minimize noise nuisance; and
- Tree protective measures for all retained trees should be well maintained.

5.3 Monitoring Schedule for the Coming Month

5.3.1 The tentative schedule for environmental monitoring in October 2014 is provided in Appendix F.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

6.1.1 The construction phase EM&A programme of Stage 1 of the project commenced on 23 November 2009.

6.1.2 Construction Phase EM&A Programme for Contract 1 of the Project was completed on 15 July 2014. Construction Phase EM&A Programme for Contract 2 of the Project was completed on 30 September 2014.

6.1.3 1-hour TSP, 24-hour TSP and noise monitoring were carried out in the reporting period.

6.1.4 All 1-hour and 24-hour TSP monitoring results complied with the Action / Limit Levels in the reporting period.

6.1.5 No Action and Limit Level exceedance for construction noise was recorded at all monitoring stations in the reporting month.

6.1.6 Environmental site inspection was carried out 3 times in September 2014. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site audits.

6.1.7 No new complaint, notification of summons or prosecution was received in the reporting period.

6.2 Recommendations

6.2.1 According to the environmental site inspections performed in the reporting month, the following recommendations were provided:-

Air Quality Impact

- The soil stockpiles should be properly covered.
- The grouting station should be properly sheltered as one of the dust control measures

Construction Noise Impact

- Properly erect the temporary noise barriers in accordance with the Environmental Permit requirement.
- Noisy operations should be oriented to a direction away from sensitive receivers as far as possible.
- Sound insulation materials shall be wrapped at the breaker tip for concrete breaking works.

Water Quality Impact

- Preventive measures should be implemented to avoid the spread of mud trails on the public road.
- Silty effluent should be treated/desilted before discharged. Untreated effluent should be prevented from entering public drain channel.
- Proper drainage channels/bunds should be provided at the site boundaries to collect/intercept the surface run-off from works areas.
- Stagnant water accumulated within works area should be removed.

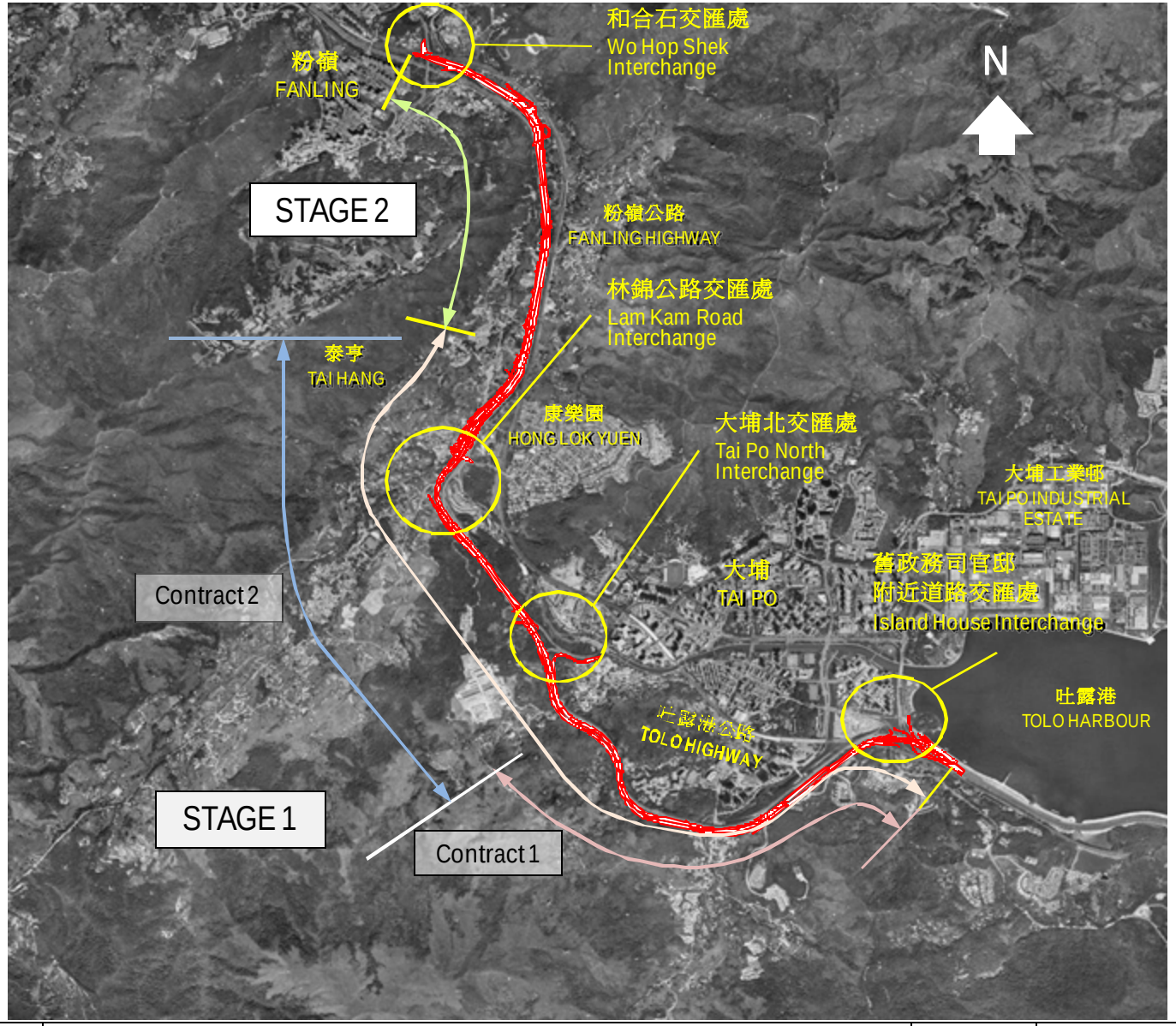
Chemical and Waste Management

- C&D materials and wastes, general refuse should be sorted properly and removed timely.
- All chemical containers and oil drums should be properly stored.
- All plants and vehicles on site should be properly maintained to prevent oil leakage.
- All drain holes of the drip trays utilized within works areas should be properly plugged to avoid any oil leakage.
- Oil stains on soil surface and empty chemical containers should be cleared and disposed of as chemical waste.
- Drip tray should be provided to prevent oil leakage.
- Only the recycling materials should be dumped into the appropriate recycling bins.

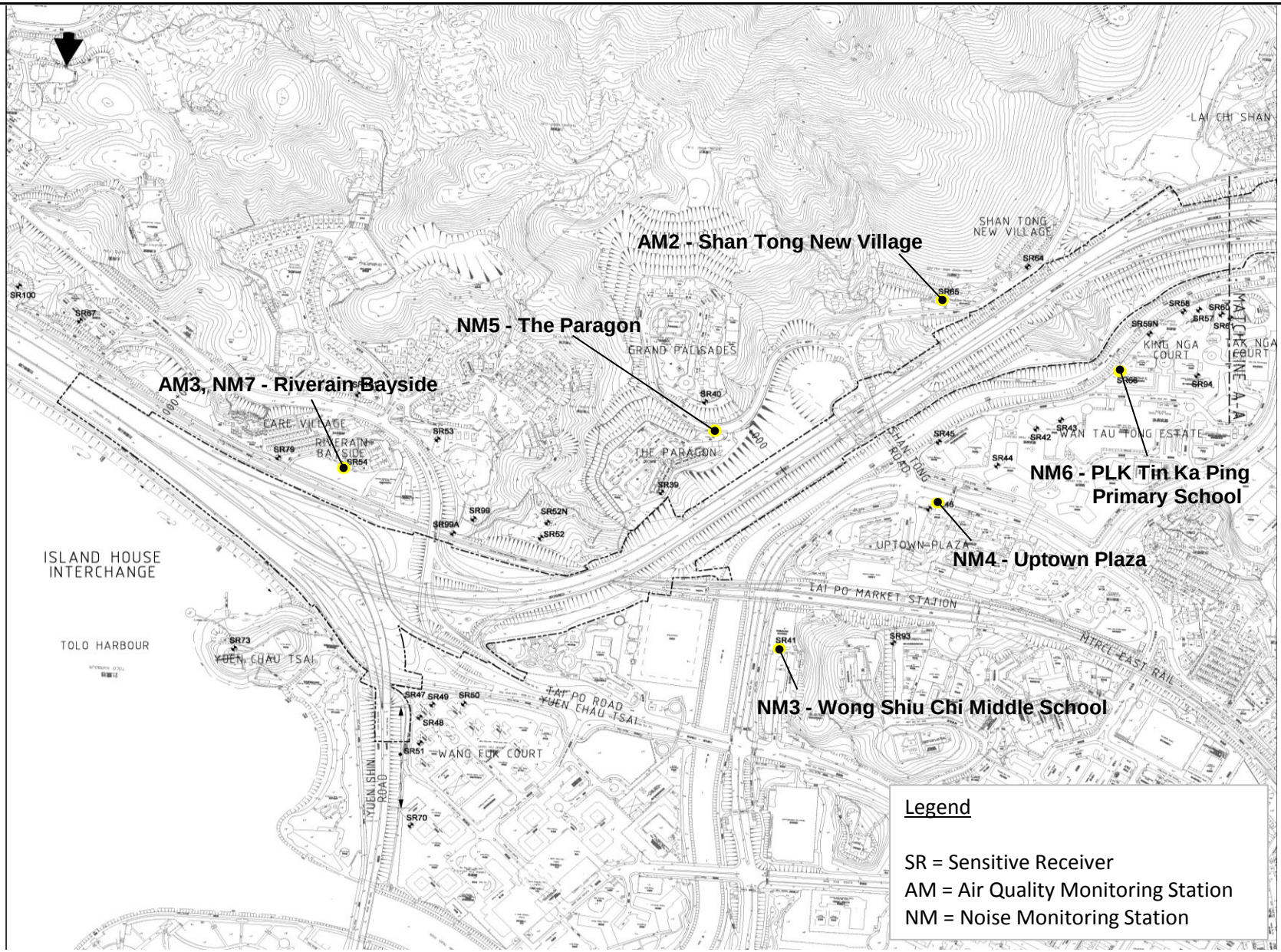
Landscape and Visual Impact

- All retained trees should be properly fenced off at the works area.

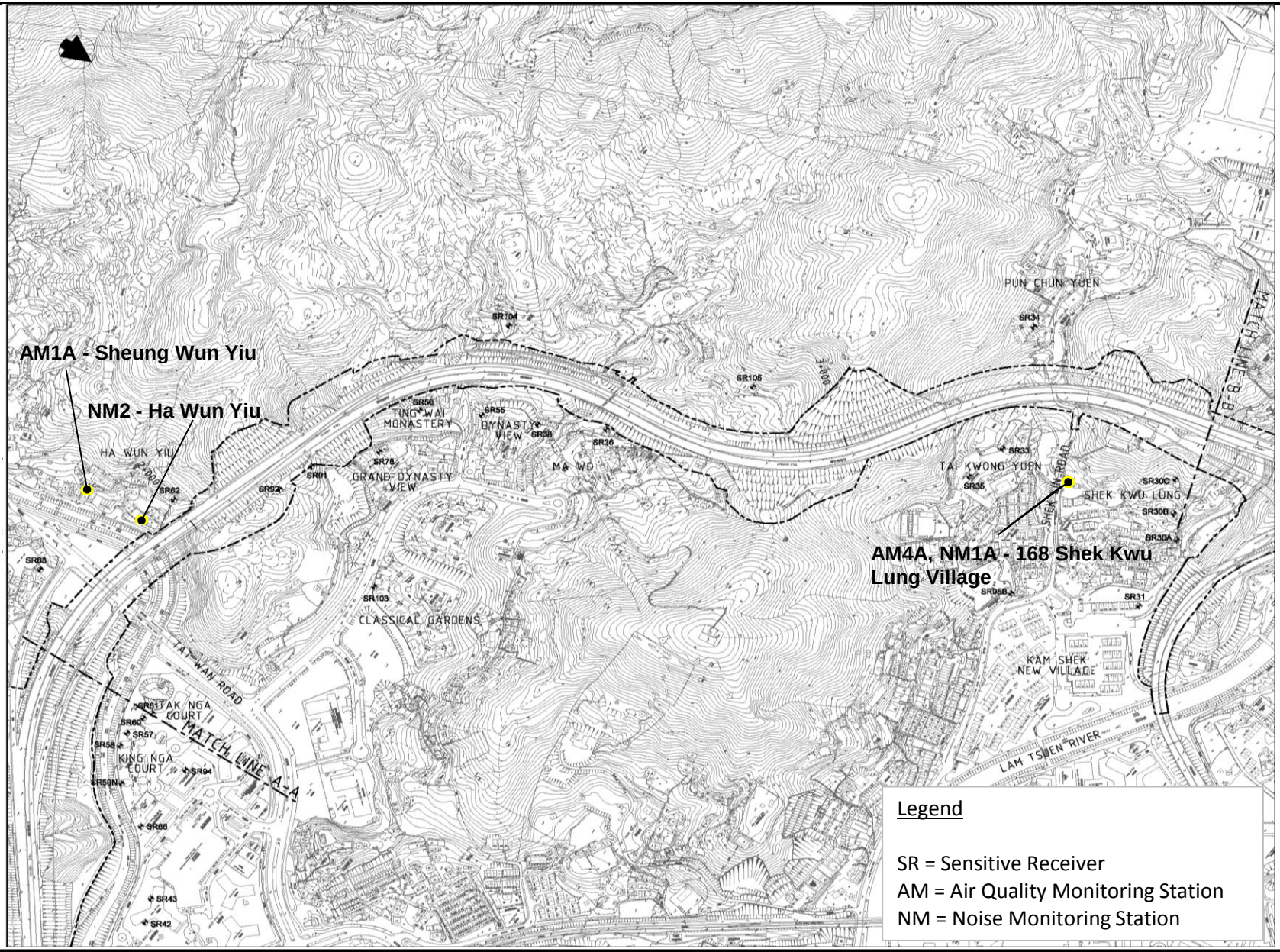
FIGURES



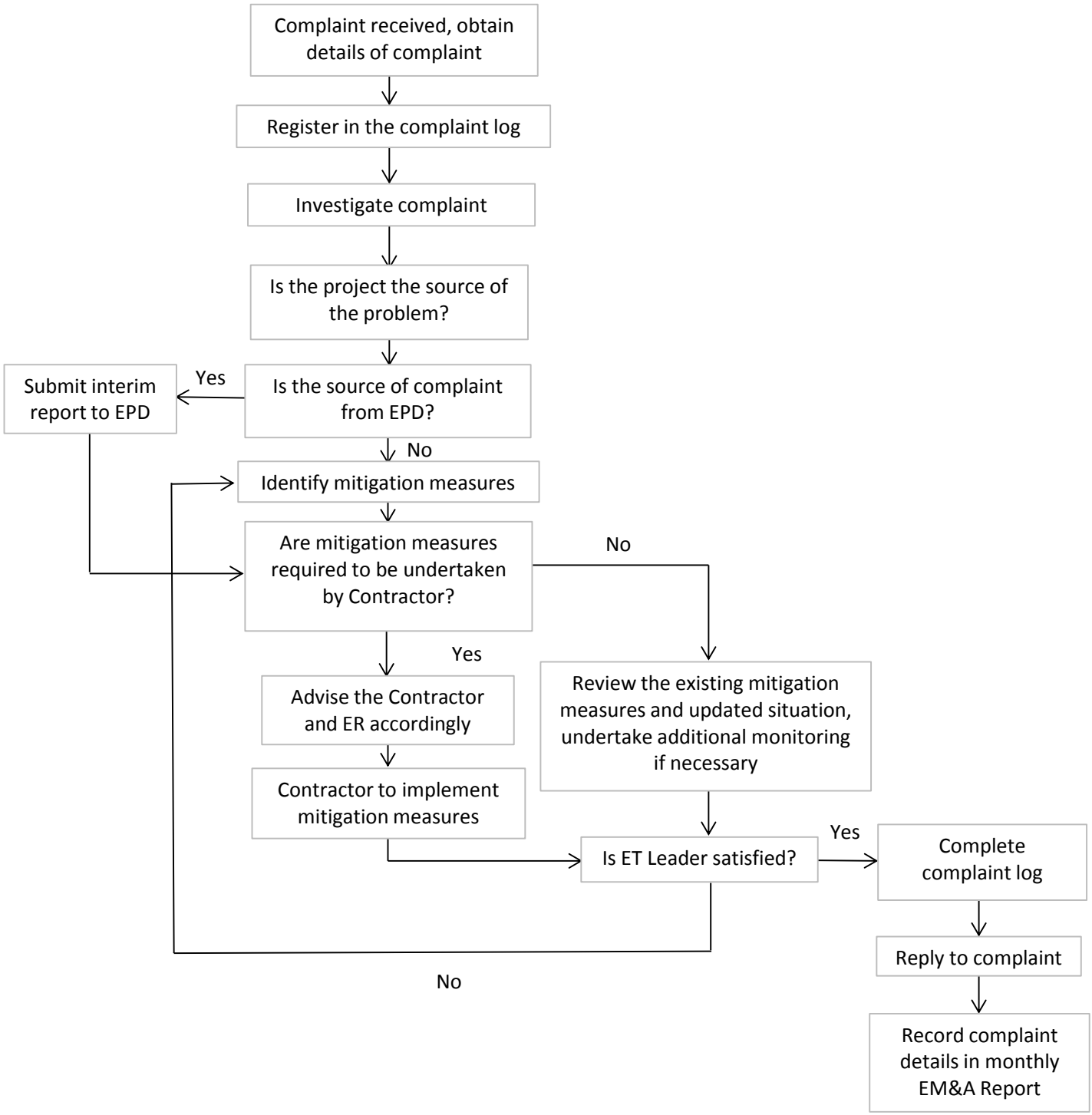
AECOM	**Environmental Team for the Widening of Tolo Highway between Island House Interchange and Tai Hang - Investigation**	SCALE	N.T.S.	DATE	Dec-09
		CHECK	ENFL	DRAWN	RWHW
	General Project Layout Plan	JOB NO.	60102979	FIGURE NO. 1.1	Rev 0



AECOM	**Environmental Team for the Widening of Tolo Highway between Island House Interchange and Tai Hang - Investigation**	SCALE	N.T.S.	DATE	Sep-11
		CHECK	ENFL	DRAWN	LCHC
	EM&A Monitoring Locations (Sheet 1 of 2)	JOB NO.	60102979	FIGURE NO. 2.1	Rev 0

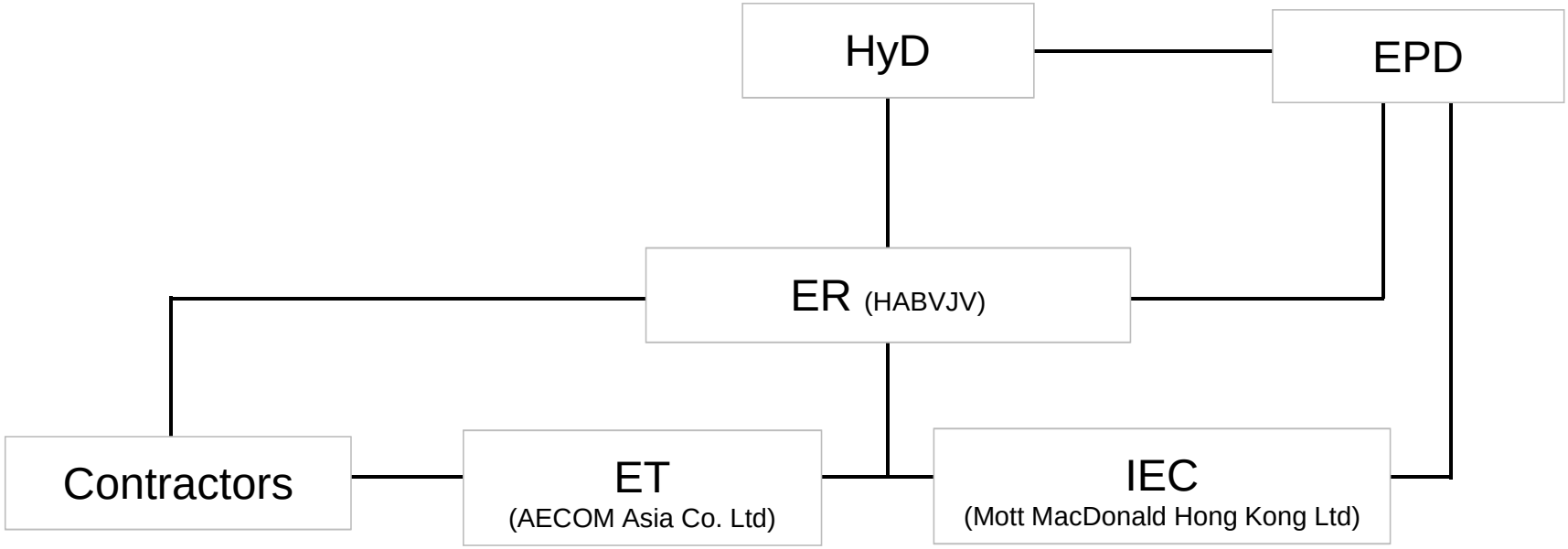


AECOM	**Environmental Team for the Widening of Tolo Highway between Island House Interchange and Tai Hang - Investigation**	SCALE	N.T.S.	DATE	Sep-11
		CHECK	ENFL	DRAWN	LCHC
	EM&A Monitoring Locations (Sheet 2 of 2)	JOB NO.	60102979	FIGURE NO. 2.1	Rev 0



AECOM	**Environmental Team for the Widening of Tolo Highway between Island House Interchange and Tai Hang - Investigation**	SCALE	N.T.S.	DATE	Mar-13
		CHECK	ENFL	DRAWN	CHCL
	Environmental Complaint Handling Procedure	JOB NO.	60102979	FIGURE 4.1	Rev. -

APPENDIX A
PROJECT ORGANIZATION STRUCTURE



AECOM

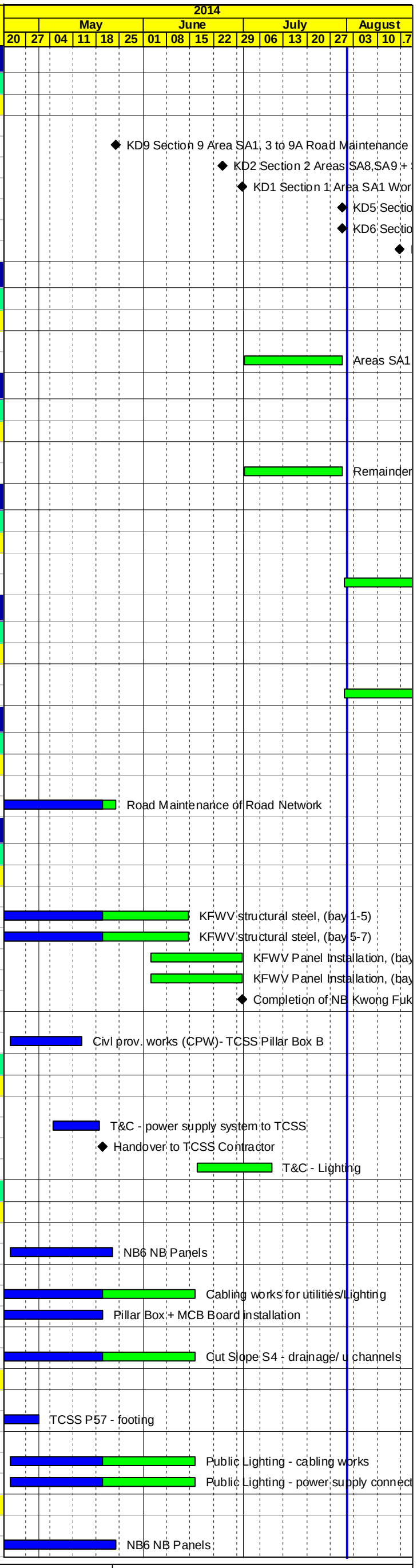
Environmental Team for the Widening of Tolo Highway between Island House Interchange and Tai Hang - Investigation

Project Organization Structure

SCALE	N.T.S.	DATE	2009	
CHECK	ENFL	DRAWN	RWHW	
JOB NO.	60102979	APPENDIX	A	Rev -

APPENDIX B
CONSTRUCTION PROGRAMMES

Activity ID	Activity Name	Original Durat...	Start	Finish
KEY DATES				
Section Completion				
Section Completion Date				
Key Date				
KD-300900	KD9 Section 9 Area SA1, 3 to 9A Road Maintenance (1580)	0		23-May-14*
KD-300200	KD2 Section 2 Areas SA8,SA9 + SA9A Work (1052d)	0		24-Jun-14*
KD-300100	KD1 Section 1 Area SA1 Work, Except LS + EW (1311d)	0		30-Jun-14*
KD-300500	KD5 Section 5 Area SA1 Landscape Softwork (1337d)	0		30-Jul-14*
KD-300600	KD6 Section 6 Remainder Landscape Softwork (1355d)	0		30-Jul-14*
KD-300400	KD4 Section 4 Remainder of the Work (1328d)	0		16-Aug-14*
SOFT LANDSCAPE IN SA1: SECT. 5 WORKS				
Landscaping Works				
Landscape Works				
S5-212800	Areas SA1 Irrigation + Landscape Soft Works	30	01-Jul-14	30-Jul-14
REMAINDER OF SOFT LANDSCAPE: SECT. 6 WORKS				
Landscaping Works				
Landscape Works				
S6-212800	Remainder Irrigation + Landscape Soft Works	30	01-Jul-14	30-Jul-14
ESTABLISHMENT WORKS AT SA1: SECT. 7 WORKS				
Establishment Works				
Landscape and Establishment Works				
S7-211800	Area SA1 Establishment Works	365	31-Jul-14	30-Jul-15
REMAINDER OF ESTABLISHMENT WORKS: SECT. 8 WORKS				
Establishment Works				
Landscape and Establishment Works				
S8-214800	Remainder - Establishment Works	365	31-Jul-14	30-Jul-15
ROUTINE MAINTENANCE: SECT. 9 WORKS				
Road Maintenance				
Routine Maintenance of Road Network				
S9-100000	Road Maintenance of Road Network	1401	22-Feb-10 A	23-May-14*
Z1: CH 0 to CH 500: SECT. 1 WORKS				
Noise Barrier at Kwong Fuk West				
Noise Barrier at Kwong Fuk West Viaduct				
Noise Barrier Foundation Works				
S1-180700A	KFWV structural steel, (bay 1-5)	18	08-Apr-14 A	14-Jun-14
S1-180810	KFWV structural steel, (bay 5-7)	26	08-Apr-14 A	14-Jun-14
S1-180820	KFWV Panel Installation, (bay 5-7)	24	03-Jun-14*	30-Jun-14
S1-180800	KFWV Panel Installation, (bay 1-5)	24	03-Jun-14*	30-Jun-14
S1-180900	Completion of NB Kwong Fuk West Viaduct	0		30-Jun-14
TCSS Works/Other Utlities				
S1-180905	Civl prov. works (CPW)- TCSS Pillar Box B	18	22-Apr-14 A	13-May-14 A
TCSS Works				
TCSS E&M Works & Handover				
S1-700080	T&C - power supply system to TCSS	20	05-May-14 A	19-May-14 A
S1-700090	Handover to TCSS Contractor	0		20-May-14 A
S1-700075	T&C - Lighting	20	17-Jun-14	09-Jul-14
Southbound Work- Ret. Wall, Noise B, Rd				
NB6, and Slope S4				
Noise Barrier NB6				
S1-208060	NB6 NB Panels	8	22-Apr-14 A	23-May-14 A
Road Lighting/ or High Mast				
S1-700050	Cabling works for utilities/Lighting	20	20-Feb-14 A	16-Jun-14
S1-700070	Pillar Box + MCB Board installation	18	15-Mar-14 A	20-May-14 A
Cut Slope S4				
S1-031060B	Cut Slope S4 - drainage/ u channels	20	15-Oct-13 A	16-Jun-14
SB Road & Drain, Ch 0-300, after NB3				
TCSS Works/Other Utlities				
S1-035045	TCSS P57 - footing	14	20-Nov-13 A	30-Apr-14 A
Road Lighting/ or High Mast				
S1-051215A	Public Lighting - cabling works	8	22-Apr-14 A	16-Jun-14
S1-051215B	Public Lighting - power supply connection & test	8	22-Apr-14 A	16-Jun-14
NB6 and Slope S4A, after TB1 demolition				
Noise Barrier NB6 (remaining 1 bay after TB1 removal)				
S1-208135	NB6 NB Panels	6	22-Mar-14 A	23-May-14 A



Contract: HY/2008/09

Widening of Tolo Highway / Fanling Highway

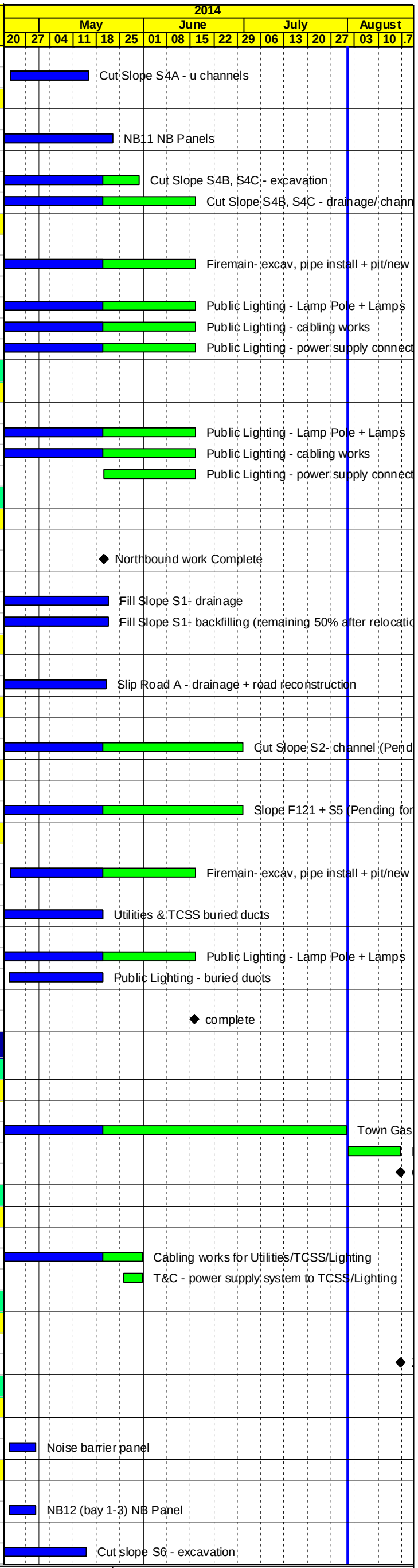
Between Island House Interchange and Fanling

(Stage 1 - Between Island House Interchange and Ma Wo)

Three Months Rolling Programme

for the Period of 21 May 2014 to 20 Aug 2014

Activity ID	Activity Name	Original Durat...	Start	Finish
	Cut Slope S4A			
S1-208140B	Cut Slope S4A - u channels	20	22-Apr-14 A	15-May-14 A
	NB11, Slope S4B & F124, after TB2 dem.			
	Noise Barrier NB11			
S1-208110	NB11 NB Panels	10	28-Mar-14 A	23-May-14 A
	Cut Slope S4B, S4C			
S1-031040A	Cut Slope S4B, S4C - excavation	21	04-Mar-14 A	30-May-14
S1-031040B	Cut Slope S4B, S4C - drainage/ channels	48	20-Mar-14 A	16-Jun-14
	South Bound Road and Drain, Ch 300-500			
	Firemain			
S1-051305	Firemain- excav, pipe install + pit/new hydrants	14	01-Mar-14 A	16-Jun-14
	Road Lighting/ or High Mast			
S1-051350	Public Lighting - Lamp Pole + Lamps	18	26-Nov-13 A	16-Jun-14
S1-051350A	Public Lighting - cabling works	18	17-Mar-14 A	16-Jun-14
S1-051350B	Public Lighting - power supply connection & test	18	17-Mar-14 A	16-Jun-14
	Central Median Work- Noise Barrier + Road/Drain			
	Noise Barrier NB3 CH0-357			
	Road Lighting/ or High Mast			
S1-208040	Public Lighting - Lamp Pole + Lamps	18	22-Aug-13 A	16-Jun-14
S1-208040A	Public Lighting - cabling works	18	22-Aug-13 A	16-Jun-14
S1-208040B	Public Lighting - power supply connection & test	23	20-May-14*	16-Jun-14
	Northbound Work- Ret. Wall, Noise B, Rd			
	RW W1+ NB1+S1, NB2 Ch200-300			
	Noise Barrier NB1			
S1-208015	Northbound work Complete	0	20-May-14	
	Cut Slope S1			
S1-031015020	Fill Slope S1- drainage	26	18-Oct-13 A	21-May-14 A
S1-031015015	Fill Slope S1- backfilling (remaining 50% after relocation of HM7)	57	20-Nov-13 A	21-May-14 A
	Slip Rd A after Banyan West Completion			
	Slip Rd A			
S1-051155	Slip Road A - drainage + road reconstruction	175	20-Oct-12 A	21-May-14 A
	NB2 & Slope S2, after TB1 demolition			
	Cut Slope S2			
S1-031025B	Cut Slope S2- channel (Pending for Slope Profile design)	24	01-Apr-14 A	30-Jun-14
	NB9, Slope F121, S5, (after TB2 demolition)			
	Cut Slope S5			
S1-200140	Slope F121 + S5 (Pending for Slope Profile design)	24	01-Apr-14 A	30-Jun-14
	North Bound Road and Drain, Ch 300-500			
	Firemain			
S1-200170	Firemain- excav, pipe install + pit/new hydrants	10	22-Apr-14 A	16-Jun-14
	TCSS Works/Other Utlities			
S1-200180	Utilities & TCSS buried ducts	15	10-Jan-14 A	20-May-14 A
	Road Lighting/ or High Mast			
S1-200205	Public Lighting - Lamp Pole + Lamps	15	10-Dec-13 A	16-Jun-14
S1-200175	Public Lighting - buried ducts	20	22-Apr-14 A	20-May-14 A
	Roadworks			
S1-200215	complete	0	16-Jun-14	
	Z2: CH 500 to CH 1100: SECT. 4 WORKS			
	Zone 2: CH500 to Ch1100 (Section 4 Works)			
	VO No.28 (VO 211) - Diversion of Existing Stormwater Drain in Kwong Fuk Park			
VO28-1085	Town Gas installation works (from main to complete connection to ...	50	05-Dec-13 A	31-Jul-14
VO28-1090	Backfill Topsoil Manhole Z to P	14	01-Aug-14	16-Aug-14
VO28-1150	Completion of VO28	0		16-Aug-14
	WM Test+Drain CCTV+ E&M Works			
	TCSS E&M Works & Handover			
S4-208355	Cabling works for Utilities/TCSS/Lighting	22	20-Sep-13 A	31-May-14
S4-208370	T&C - power supply system to TCSS/Lighting	6	26-May-14	31-May-14
	Section Completion			
	Section Completion Date			
KD-300400A	ZONE 2 COMPLETE - KD4 Section 4	0		16-Aug-14
	Stage 1: Southbound Work- Ret. Wall, Noise B, Rd			
	NLKRB - Bridge Deck + Noise Barrier			
	Bridge Deck			
S4-N01385	Noise barrier panel	8	22-Apr-14 A	30-Apr-14 A
	RW W4-W7+Slope S7+NB15, NB12+Slip Rd L			
	Noise Barrier NB12			
S4-208270	NB12 (bay 1-3) NB Panel	8	22-Apr-14 A	30-Apr-14 A
	Cut Slope S6 and Slip Rd L			
S1-203065A	Cut slope S6 - excavation	403	01-Feb-12 A	15-May-14 A



Contract: HY/2008/09

Widening of Tolo Highway / Fanling Highway

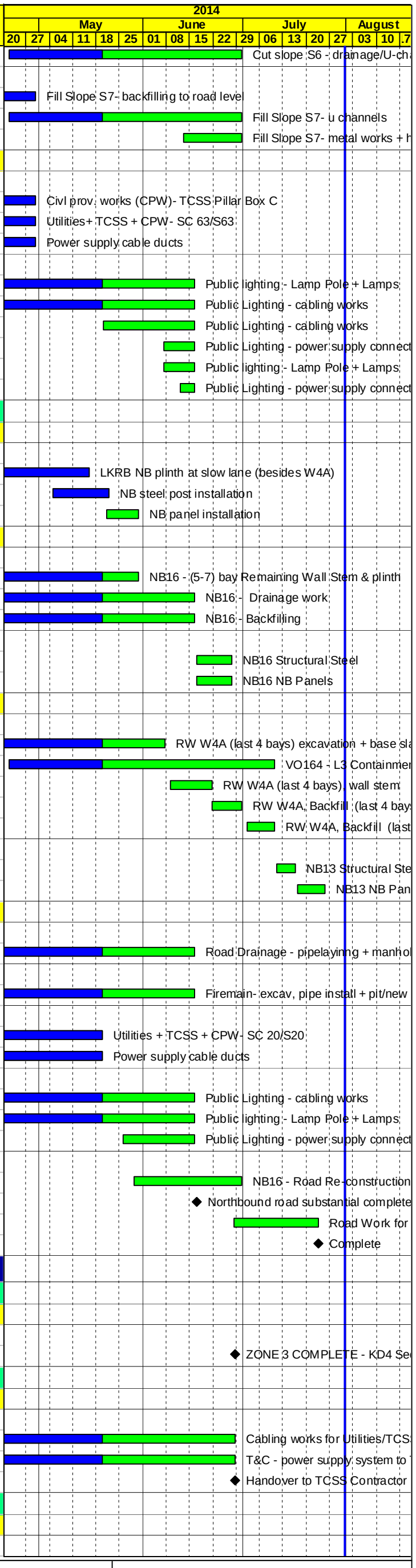
Between Island House Interchange and Fanling

(Stage 1 - Between Island House Interchange and Ma Wo)

Three Months Rolling Programme

for the Period of 21 May 2014 to 20 Aug 2014

Activity ID	Activity Name	Original Durat...	Start	Finish
S1-203065B	Cut slope S6 - drainage/U-channels	20	22-Apr-14 A	30-Jun-14
Fill Slope S7				
S4-031070B	Fill Slope S7- backfilling to road level	1016	20-Jul-10 A	30-Apr-14 A
S4-031070C	Fill Slope S7- u channels	20	22-Apr-14 A	30-Jun-14
S4-031070D	Fill Slope S7- metal works + hand rails etc.	15	13-Jun-14	30-Jun-14
SB: CH500-1100, Road&Drain+Utilities				
TCSS Works/Other Utlities				
S4-512850	Civl prov. works (CPW)- TCSS Pillar Box C	20	20-Sep-13 A	30-Apr-14 A
S4-512880	Utilities+ TCSS + CPW- SC 63/S63	14	16-Oct-13 A	30-Apr-14 A
S4-031160	Power supply cable ducts	31	20-Nov-13 A	30-Apr-14 A
Road Lighting/ or High Mast				
S4-031178	Public lighting - Lamp Pole + Lamps	12	18-Oct-13 A	16-Jun-14
S4-031178A	Public Lighting - cabling works	6	18-Oct-13 A	16-Jun-14
S4-031178A10	Public Lighting - cabling works	23	20-May-14	16-Jun-14
S4-031178B10	Public Lighting - power supply connection & test	8	07-Jun-14	16-Jun-14
S4-512930	Public lighting - Lamp Pole + Lamps	8	07-Jun-14	16-Jun-14
S4-031178B	Public Lighting - power supply connection & test	4	12-Jun-14	16-Jun-14
Stage 2: Northbound Work- Ret. Wall, Noise B, Rd				
Mod. Existing Lam Kam Railway Br. +Noise B.				
S4-193900	LKRB NB plinth at slow lane (besides W4A)	75	13-Jan-14 A	16-May-14 A
S4-193910	NB steel post installation	8	05-May-14 A	22-May-14 A
S4-193920	NB panel installation	5	21-May-14	30-May-14
Noise Barrier NB16				
Noise Barrier Foundation Works				
S4-513145	NB16 - (5-7) bay Remaining Wall Stem & plinth	42	06-Dec-13 A	30-May-14
S4-513150	NB16 - Drainage work	26	16-Dec-13 A	16-Jun-14
S4-513160	NB16 - Backfilling	12	18-Mar-14 A	16-Jun-14
Noise Barrier Structural Steel & Panels				
S4-207160	NB16 Structural Steel	10	17-Jun-14	27-Jun-14
S4-208160	NB16 NB Panels	10	17-Jun-14	27-Jun-14
Retaining Wall W4A & NB13 & Slip Rd M				
Retaining Wall W4A				
S4-03504A040	RW W4A (last 4 bays) excavation + base slab+wall thickening	30	06-Jan-14 A	07-Jun-14
S4-03504A070	VO164 - L3 Containment barrier	31	22-Apr-14 A	10-Jul-14
S4-03504A050	RW W4A (last 4 bays), wall stem	12	09-Jun-14	21-Jun-14
S4-03504A055	RW W4A, Backfill (last 4 bays)-1st 3m	7	21-Jun-14	30-Jun-14
S4-03504A060	RW W4A, Backfill (last 4 bays)	8	02-Jul-14	10-Jul-14
Noise Barrier NB13				
S4-208140	NB13 Structural Steel (last 2 bays)	5	11-Jul-14	16-Jul-14
S4-208170	NB13 NB Panels (last 2 bays)	8	17-Jul-14	25-Jul-14
NB: CH500-1100, Road&Drain+Utilities				
Road Drainage				
S4-031210	Road Drainage - pipelayinng + manhole	44	02-Jul-13 A	16-Jun-14
Firemain				
S4-031220	Firemain- excav, pipe install + pit/new hydrants	36	25-Jul-13 A	16-Jun-14
TCSS Works/Other Utlities				
S4-031225	Utilities + TCSS + CPW- SC 20/S20	36	17-Jul-13 A	20-May-14 A
S4-031230	Power supply cable ducts	36	20-Jul-13 A	20-May-14 A
Road Lighting/ or High Mast				
S4-031250A	Public Lighting - cabling works	18	04-Oct-13 A	16-Jun-14
S4-031250	Public lighting - Lamp Pole + Lamps	24	20-Dec-13 A	16-Jun-14
S4-031250B	Public Lighting - power supply connection & test	18	26-May-14	16-Jun-14
Roadworks				
A1170	NB16 - Road Re-construction for (HS)	27	29-May-14	30-Jun-14
S4-031260	Northbound road substantial completed in Zone 2	0	17-Jun-14	
A1210	Road Work for Slip Road M (HS)	22	28-Jun-14	23-Jul-14
A1220	Complete	0		23-Jul-14
Z3: CH 1100 to CH 2000: SECT. 4 WORKS				
Section Completion				
Section Completion Date				
KD-300400B	ZONE 3 COMPLETE - KD4 Section 4	0		28-Jun-14
TCSS Works				
TCSS E&M Works & Handover				
S4-0512765	Cabling works for Utilities/TCSS/Lighting	24	20-Sep-13 A	28-Jun-14
S4-0512780	T&C - power supply system to TCSS/Lighting	36	20-Sep-13 A	28-Jun-14
S4-0512785	Handover to TCSS Contractor	0		28-Jun-14
Stage 3: Central Median - Ret. Wall, Noise B, Rd				
W20A + Slope S20				
Cut Slope S20A				



Contract: HY/2008/09

Widening of Tolo Highway / Fanling Highway

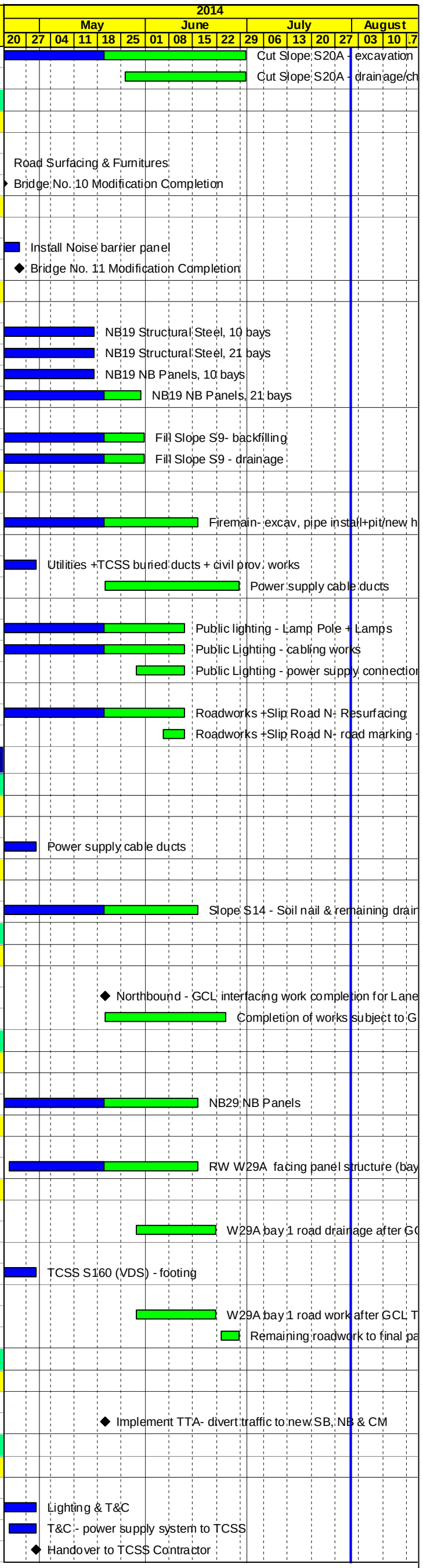
Between Island House Interchange and Fanling

(Stage 1 - Between Island House Interchange and Ma Wo)

Three Months Rolling Programme

for the Period of 21 May 2014 to 20 Aug 2014

Activity ID	Activity Name	Original Durat...	Start	Finish
S4-03120AA	Cut Slope S20A - excavation	30	20-Jan-14 A	30-Jun-14
S4-03120AB	Cut Slope S20A - drainage/channels	30	26-May-14	30-Jun-14
Stage 2: Northbound Work- Ret. Wall, Noise B, Rd				
Modification of Existing Bridge No. 10 + Noise B				
Bridge Roadworks & Furnitures				
S4-194899	Road Surfacing & Furnitures	18	18-Apr-14 A	20-Apr-14 A
S4-194990	Bridge No. 10 Modification Completion	0		20-Apr-14 A
Modification of Existing Bridge No.11 + Noise B				
Bridge Roadworks & Furnitures				
S4-195910	Install Noise barrier panel	30	22-Mar-14 A	25-Apr-14 A
S4-195900	Bridge No. 11 Modification Completion	0		25-Apr-14 A
RW W9, Slope S9, & Noise Barrier NB19, NB22				
Noise Barrier NB19				
S4-207190	NB19 Structural Steel, 10 bays	35	01-Apr-14 A	17-May-14 A
S4-207190A	NB19 Structural Steel, 21 bays	35	01-Apr-14 A	17-May-14 A
S4-208190	NB19 NB Panels, 10 bays	10	01-Apr-14 A	17-May-14 A
S4-208190A	NB19 NB Panels, 21 bays	10	01-Apr-14 A	30-May-14
Fill Slope S9				
S4-031095A	Fill Slope S9- backfilling	24	01-Apr-14 A	31-May-14
S4-031095B	Fill Slope S9 - drainage	12	01-Apr-14 A	31-May-14
NB: CH1260-1750, L=410m, Road&Drain+Utilities				
Firemain				
S4-0512630	Firemain- excav, pipe install+pit/new hydrants	24	17-Sep-13 A	16-Jun-14
TCSS Works/Other Utlities				
S4-0512635	Utilities +TCSS buried ducts + civil prov. works	36	21-Oct-13 A	30-Apr-14 A
S4-0512640	Power supply cable ducts	34	20-May-14*	28-Jun-14
Road Lighting/ or High Mast				
S4-0512660	Public lighting - Lamp Pole + Lamps	36	21-Oct-13 A	12-Jun-14
S4-051266A	Public Lighting - cabling works	36	21-Oct-13 A	12-Jun-14
S4-051266B	Public Lighting - power supply connection & test	12	29-May-14	12-Jun-14
Roadworks				
S4-0512645	Roadworks +Slip Road N- Resurfacing	26	18-Oct-13 A	12-Jun-14
S4-0512655	Roadworks +Slip Road N- road marking + furnitures	6	06-Jun-14	12-Jun-14
Z4: CH 2000 to CH 2400: SECT. 2 WORKS				
Stage 1A: Southbound - S14-, RW21-28, TP7,Rd/Dr				
SB Road & Drain, Ch 2000-2200, L=200m				
TCSS Works/Other Utlities				
S2-031295	Power supply cable ducts	277	25-Jul-12 A	30-Apr-14 A
Cut Slope S14				
S2-031140E10	Slope S14 - Soil nail & remaining drainage work (VO343-additional ...	61	10-Jun-13 A	16-Jun-14
Stage 1B: Northbound- S15-S19, RW31-33, Rd/Dr				
Retaining Wall W30, W31, W32(Piled), W33				
Retaining Wall W31,32, 33				
S2-GCL036	Northbound - GCL interfacing work completion for Lane 1,2,3 open	0		20-May-14*
S2-GCL046	Completion of works subject to GCL works completion	30	20-May-14	24-Jun-14
Stage 2A: Southbound- S17, RW 29-34, NB27-29				
Noise Barrier NB27, NB29				
Noise Barrier NB29				
S2-035350	NB29 NB Panels	7	16-Oct-13 A	16-Jun-14
Retaining Wall, W29 & NB27(@W29)				
Retaining Wall W29A				
S2-03529AB	RW W29A facing panel structure (bay 1)	34	22-Apr-14 A	16-Jun-14
SB: CH2200-2400, L=200m, Road&Drain+Utilities				
Road Drainage				
S2-031250	W29A bay 1 road drainage after GCL TTA stage 6A	20	29-May-14	21-Jun-14
TCSS Works/Other Utlities				
S2-031287	TCSS S160 (VDS) - footing	23	14-Sep-13 A	30-Apr-14 A
Roadworks				
S2-031255	W29A bay 1 road work after GCL TTA stage 6A	20	29-May-14	21-Jun-14
S2-031265	Remaining roadwork to final pavement level after GCL TTA stage 6A	6	23-Jun-14	28-Jun-14
Stage 3: Central Median- NB26, NB29 +Road&Drain				
CM: NB26 & NB28 L=400m & Road&Drain+Utilities				
Noise Barrier Structural Steel & Panels				
S2-208395	Implement TTA- divert traffic to new SB, NB & CM	0	20-May-14	
TCSS Works				
TCSS E&M Works & Handover				
S2-208420	Lighting & T&C	24	15-Oct-13 A	30-Apr-14 A
S2-208450	T&C - power supply system to TCSS	8	22-Apr-14 A	30-Apr-14 A
S2-208425	Handover to TCSS Contractor	0		30-Apr-14 A



Contract: HY/2008/09

Widening of Tolo Highway / Fanling Highway

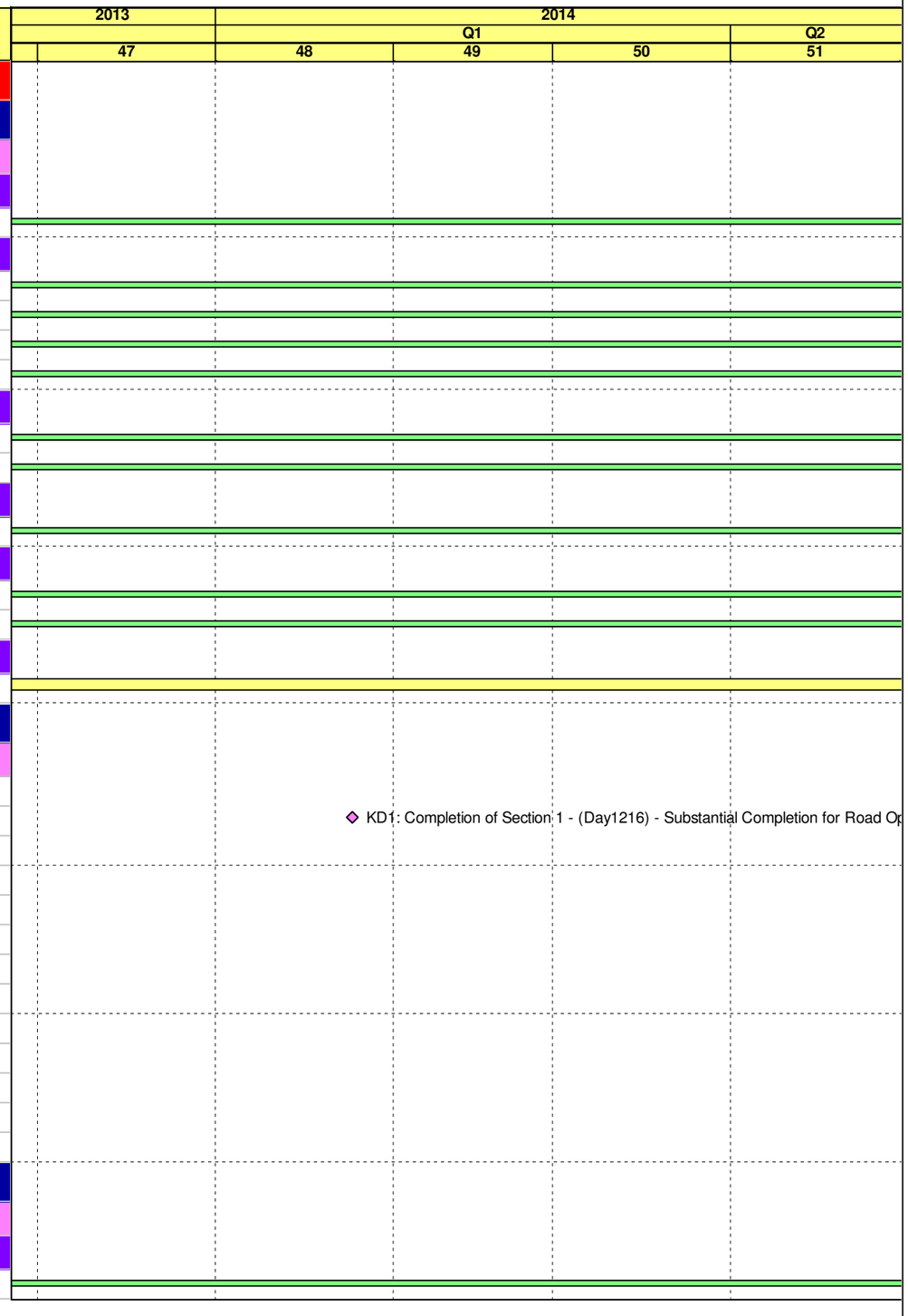
Between Island House Interchange and Fanling

(Stage 1 - Between Island House Interchange and Ma Wo)

Three Months Rolling Programme

for the Period of 21 May 2014 to 20 Aug 2014

Activity ID	Activity Name	Total Float	Activity % Complete	Original Duration	Start	Finish
HY/2009/08 TOLO HIGHWAY WIDENING, Based on UWP Jan 14, upto Feb progress						
EXECUTIVE SUMMARY						
Construction						
Section 1						
A1010	SA21 - South Bound	-96	99.02%	814	15-Oct-10 A	03-Oct-14
Section 2						
A1040	SA22 - South Bound	-122	95.47%	1037	01-Apr-10 A	11-Nov-14
A1070	SA24 - North Bound	-195	98.98%	787	25-Aug-10 A	03-Oct-14
A1080	SA25 - South Bound	-191	99.49%	777	20-Oct-10 A	29-Sep-14
A1100	SA26 - South Bound	-201	98.89%	1216	26-Feb-10 A	09-Oct-14
Section 3						
A1110	SA26A - North Bound	-132	98.93%	1191	26-Feb-10 A	08-Oct-14
A1120	SA26A - South Bound	-45	98.56%	879	26-Feb-10 A	08-Oct-14
Section 4						
A1160	SA28 - South Bound	-155	96.72%	1099	23-Jun-10 A	31-Oct-14
Section 7						
A1200	SA41 - Site Office	-52	85.52%	1581	26-Feb-10 A	12-May-15
A1210	SA42 - Temporary Contractor's Works Area	-92	100%	1582	25-Feb-10 A	26-Sep-14
Section 17 (Subject to Excision, Engineer may instruct within 819 days)						
A1300	Validity Period	167	98.6%	819	25-Feb-10 A	07-Oct-14
KEY DATES/ MILESTONES						
Key Dates (include EOT GCL submitted and awarded upto Dec 2013)						
HDS01000	KD1: Completion of Section 1 - (Day1216) - Overall Completion of Works	-251	0%	0		03-Oct-14*
HDS01100	KD1: Completion of Section 1 - (Day1216) - Substantial Completion for Road		100%	0		25-Jan-14 A
HDS02000	KD2: Completion of Section 2 - (Day1216) - Overall Completion of Works	-234	0%	0		11-Nov-14*
HDS03000	KD3: Completion of Section 3 - (Day1216) - Overall Completion of Works	-222	0%	0		08-Oct-14*
HDS04000	KD4: Completion of Section 4 - (Day1216) - Overall Completion of Works	-262	0%	0		17-Nov-14*
HDS07000	KD7: Completion of Section 7 - (Day1581)	-92	0%	0		26-Sep-14*
HDS08000	KD8: Completion of Section 8 - (Day1581)	-123	0%	0		28-May-15*
HDS09000	KD9: Completion of Section 9 - (Day1581)	-111	0%	0		12-Jul-15*
HDS10000	KD10: Completion of Section 10 - (Day1581)	-122	0%	0		01-Jul-15*
HDS11000	KD11: Completion of Section 11 - (Day1581)	-122	0%	0		01-Jul-15*
HDS12000	KD12: Completion of Section 12 - (Day1581)	-92	0%	0		26-Sep-14*
HDS13000	KD13: Completion of Section 13 - (Day1581)	-123	0%	0		26-Jun-15*
HDS14000	KD14: Completion of Section 14 - (Day1581)	-92	0%	0		26-Sep-14*
CONSTRUCTION PHASE						
Section 1						
Site Area SA21						
SA210000	Site Area SA21 Works Period	178	99.97%	1076	16-Jul-10 A	26-Sep-14



Project ID: J3318-UPDATE 2014FEB-1
Project Name: HY/2009/08 TOLO HIGHWAY WIDENING...
Print Date:09-Oct-14
Data Date: 26-Sep-14
Page 1 **of** 5

Current Bar
Level of Effort
Critical
Milestone

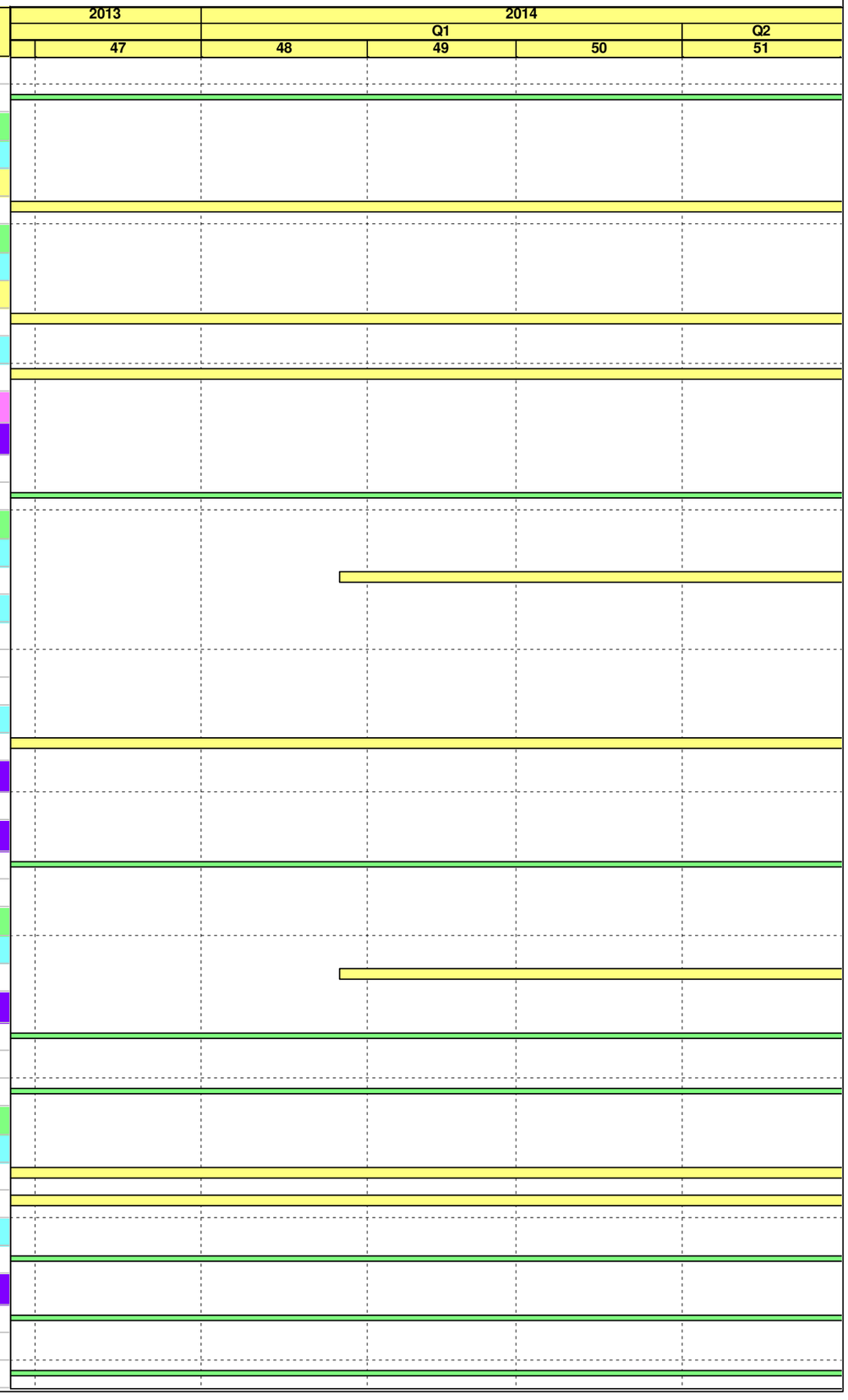
Highways Department - Contract No. HY/2009/08

Widening of Tolo Highway/ Fanling Highway
Stage 1 - Between Ma Wo and Tai Hang

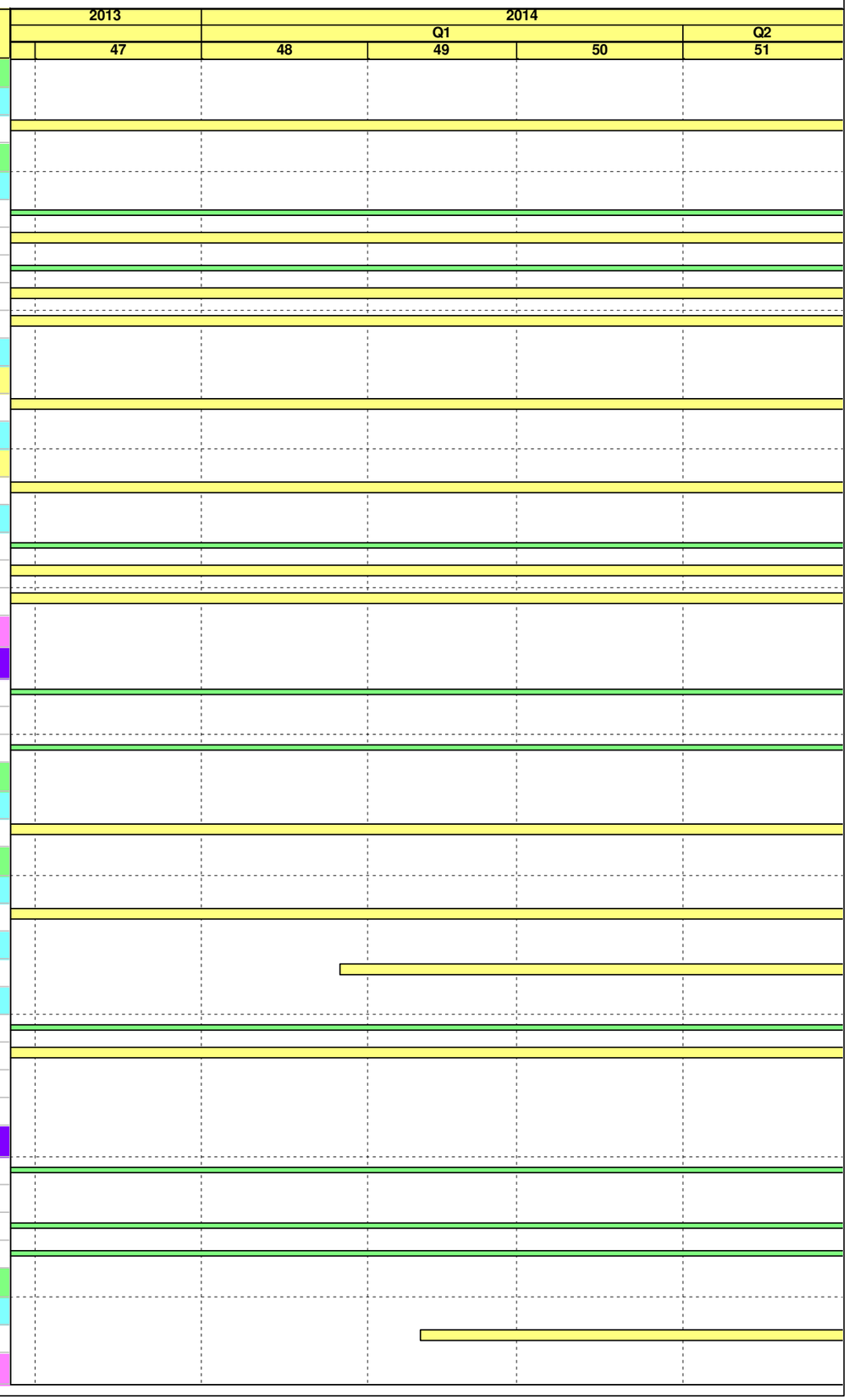
3 MRP, 26 September 2014

UWP Revision			
Date	Revision	Checked	Approved
27-Jan-14	3MRP January 2014	WY	JC

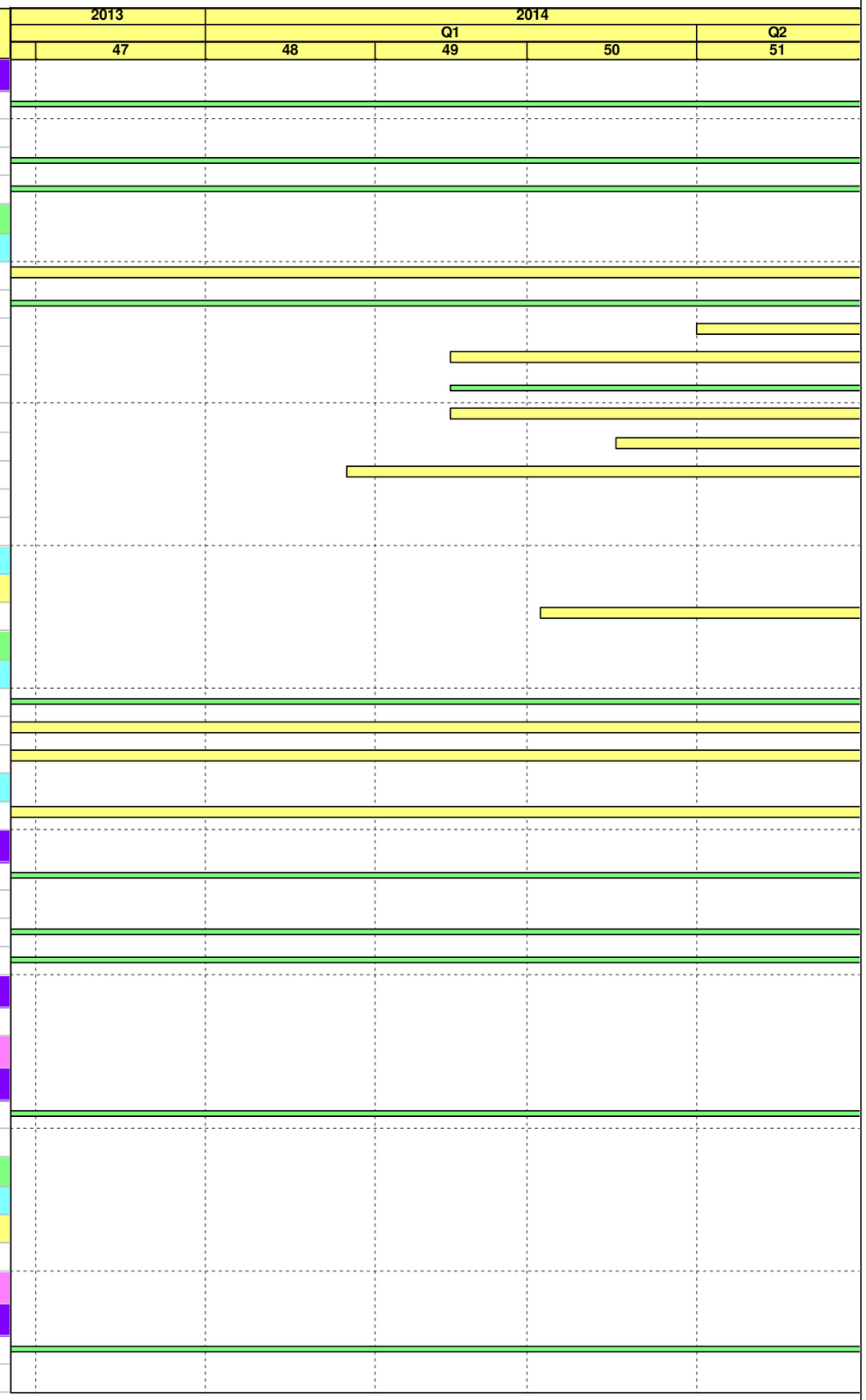
Activity ID	Activity Name	Total Float	Activity % Complete	Original Duration	Start	Finish
SA210010	Site Area SA21 Works Completion	178	0%	0		26-Sep-14
SA210020	Temporary Traffic Management (Detail shall refer to supplementary informatio	145	99.96%	872	16-Jul-10 A	26-Sep-14
North Bound						
Noise Barriers & Road Barriers						
Noise Barrier NB31						
S21N3100	Remaining NB31 Installation of Panel	-202	84.99%	33	27-Jun-13 A	03-Oct-14
South Bound						
Noise Barriers						
Noise barrier NB30						
S21S3029	NB30 : Installing Panel	-198	99%	50	17-Oct-13 A	26-Sep-14
Landscaping						
S21S6000	Landscaping Works	-197	99%	35	26-Nov-13 A	26-Sep-14
Section 2						
Site Area SA22						
SA220010	Site Area SA22 Works Completion	177	0%	0		26-Sep-14
SA220020	Temporary Traffic Management (Detail shall refer to supplementary informatio	177	99.9%	985	25-Feb-10 A	26-Sep-14
South Bound						
Slopeworks						
S22S5100	Slope Reinstatement Works (Bridge 12B)	-190	50%	40	27-Jan-14 A	21-Oct-14
Road Re-construction Works, Roadworks & Drainage						
S22S4441	Claim 40: Revised Traffic signs & road markings	-153	95%	8	28-Jun-14 A	26-Sep-14
S22S4442	Claim 41: Revised kerb & fencing layout	-153	90%	6	28-Jun-14 A	26-Sep-14
S22S4500	Roadworks for Realignment of Existing Shek Lin Road	-190	0%	18	22-Oct-14	11-Nov-14
Landscaping						
S22S6000	Landscaping Works	-173	98%	30	23-Sep-13 A	22-Oct-14
Site Area SA23						
SA230010	Site Area SA23 Works Completion	178	0%	0		26-Sep-14
Site Area SA24						
SA240000	Site Area SA24 Works Period	-195	98.98%	788	04-May-10 A	03-Oct-14
SA240010	Site Area SA24 Works Completion	170	0%	0		03-Oct-14
North Bound						
Landscaping						
S24N6000	Landscaping Works	-157	90%	50	27-Jan-14 A	03-Oct-14
Site Area SA25						
SA250000	Site Area SA25 Works Period (incl, Provision of hoarding at site boundary of S	174	99.48%	770	04-May-10 A	29-Sep-14
SA250010	Site Area SA25 Works Completion	174	0%	0		29-Sep-14
SA250020	Temporary Traffic Management (Detail shall refer to supplementary informatio	142	99.61%	765	04-May-10 A	29-Sep-14
South Bound						
Slopeworks						
S25S5110	Slope Reinstatement Works (Bridge 13A)	-155	93%	25	26-Sep-13 A	27-Sep-14
S25S5140	Slope Reinstatement Works (Bridge LB1)	-155	95%	25	26-Sep-13 A	29-Sep-14
Road Re-construction Works, Roadworks & Drainage						
S25S4000	Roadworks, Drainages & Utilities (CH 3400 - 3600)	145	100%	109	27-Feb-13 A	26-Sep-14
Site Area SA26						
SA260000	Site Area SA26 Works Period	-201	98.89%	1216	26-Feb-10 A	09-Oct-14
SA260010	Site Area SA26 Works Completion	-201	0%	0		09-Oct-14
SA260020	Temporary Traffic Management (Detail shall refer to supplementary informatio	-162	99.03%	983	26-Feb-10 A	09-Oct-14



Activity ID	Activity Name	Total Float	Activity % Complete	Original Duration	Start	Finish
North Bound						
Landscaping						
S26N6040	Landscaping Works (CH3400 - 3720)	-155	95%	50	16-Sep-13 A	29-Sep-14
South Bound						
Slopeworks						
S26S5000	Slopeworks Fill(S32)	-162	60.42%	24	18-Feb-13 A	09-Oct-14
S26S5020	Slopeworks Fill (S32) - Stage 2 (Upper +45mPD)	-162	90%	20	08-Jun-13 A	09-Oct-14
S26S5110	Slope Reinstatement Works (besides LB3)	-158	75%	24	04-Mar-13 A	04-Oct-14
S26S5120	Slope Reinstatement Works (besides LB3) - Lower: below +24mPD	-158	85%	20	04-Mar-13 A	29-Sep-14
S26S5130	Slope Reinstatement Works (besides LB3) - Upper: above +24mPD	-158	85%	20	27-Aug-13 A	04-Oct-14
Construction of Retaining Wall						
Retaining Wall RWTW3, (VO)						
S26S1606	VO 51.1: Remaining Rockfill below LB3	144	93%	20	19-Jun-13 A	27-Sep-14
Noise Barriers & Road Barriers						
Noise Barrier NB35						
S26S3030	Remaining Works of NB35	-162	85%	50	27-Aug-13 A	07-Oct-14
Landscaping						
S26S6000	Landscaping Works	-162	84.17%	60	26-Nov-13 A	09-Oct-14
S26S6010	Landscaping Works - Stage 1, East of B13A	-162	99%	30	26-Nov-13 A	09-Oct-14
S26S6040	Landscaping Works - Stage 2, West of B13A	-162	99%	30	26-Nov-13 A	09-Oct-14
Section 3						
Site Area SA26A						
SA26A000	Site Area SA26A Works Period	-209	100%	1215	26-Feb-10 A	26-Sep-14
SA26A010	Site Area SA26A Works Completion	-209	0%	0		26-Sep-14
SA26A020	Temporary Traffic Arrangement (Detail shall refer to supplementary informatio	-171	100%	983	26-Feb-10 A	26-Sep-14
North Bound						
Landscaping						
S26AN610	Landscaping Works	-172	95%	29	15-Mar-13 A	27-Sep-14
South Bound						
Slopeworks						
S26AS515	Backfilling Slope	-172	99%	65	08-Aug-13 A	26-Sep-14
Landscaping						
S26AS600	Landscaping	138	80%	30	27-Jan-14 A	06-Oct-14
Road Re-Construction Works, Roadworks, Drainage & Utilities						
S26AS400	Roadworks, Drainages & Utilities (CH 4020 - 4500)	-180	99.57%	399	14-Feb-12 A	27-Sep-14
S27S4110	Slip Road S (utilities, drainage & roadwork)	-180	98%	85	04-Oct-13 A	27-Sep-14
S27S4111	Claim 40: Revised traffic signs & road markings	-180	0%	5	27-Sep-14	06-Oct-14
S27S4112	Claim 41: Revised kerb & fencing layout	-180	0%	2	06-Oct-14	08-Oct-14
Site Area SA27						
SA270000	Site Area SA27 Works Period	-209	100%	1187	26-Mar-10 A	26-Sep-14
SA270010	Site Area SA27 Works Completion	-209	0%	0		26-Sep-14
SA270020	Temporary Traffic Arrangement (Detail shall refer to supplementary informatio	-171	100%	959	26-Mar-10 A	26-Sep-14
SA270030	Overall Utilities Diversion (Detail shall refer to supplementary information)	-171	100%	959	26-Mar-10 A	26-Sep-14
South Bound						
Landscaping						
S27S6010	Landscaping	-172	98%	40	11-Feb-14 A	27-Sep-14
Section 4						



Activity ID	Activity Name	Total Float	Activity % Complete	Original Duration	Start	Finish
Site Area SA28						
SA280000	Site Area SA28 Works Period	125	95.64%	1216	26-Feb-10 A	17-Nov-14
SA280010	Site Area SA28 Works Completion	125	0%	0		17-Nov-14
SA280030	Temporary Traffic Arrangement (Detail shall refer to supplementary informatio	102	95.63%	983	26-Feb-10 A	17-Nov-14
SA280040	Overall Utilities Diversion (Detail shall refer to supplementary information)	102	95.63%	983	26-Feb-10 A	17-Nov-14
North Bound						
Road Re-Construction Works, Roadworks, Drainage & Utilities						
S28N4310	Remaining Works for Water Pipe installation (DN300 CH183 - 227 cross road	-199	80%	140	26-Nov-13 A	30-Oct-14
S28N4330	Roadwork, Drainages & Utilities at TWSRW Road from NB38 to NB41-bay6 (	-211	0%	0	26-Nov-12 A	21-Oct-14
S28N4360	Road Works and Road surfacing at Tai Wo Service Road West from NB38 to	-211	70%	35	01-Apr-14 A	10-Oct-14
S28N4370	Road Works and Road Surfacing at Slip Road T (Slow Lane)	-211	50%	40	15-Feb-14 A	21-Oct-14
S28N4380	Roadworks, Drainages & Utilities at TWSRW Road from NB38 to NB41- bay6	-214	57.35%	68	15-Feb-14 A	31-Oct-14
S28N4390	Removal existing paving, Drainage & Utilities (incl.TTA case 50 stage 9 & 10 ar	-214	60%	35	15-Feb-14 A	14-Oct-14
S28N4400	Road Works and Road surfacing at Tai Wo Service Road West from NB38 to	-214	50%	18	17-Mar-14 A	24-Oct-14
S28N4420	Remaining Road Works at Slip Road T and TWSRW Road from NB38 to NB4	-214	85%	40	27-Jan-14 A	31-Oct-14
S28N4421	Claim 40: Revised traffic signs & road marking	-214	0%	12	01-Nov-14	14-Nov-14
S28N4422	Claim 41: Revised kerb & fencing layout	-214	0%	2	15-Nov-14	17-Nov-14
Noise Barriers & Road Barriers						
Noise Barrier NB38, NB39, NB40 & NB41 (AD5)						
S28N2350	Erection of steel and panel (NB39)	-173	80%	10	03-Mar-14 A	27-Sep-14
South Bound						
Roadworks, Drainage & Utilities						
S28S4010	Roadworks, Drainages & Utilities (CH4820 - Ch5700)(incl. VO20: Revised Fire	-174	99.76%	454	11-May-12 A	27-Sep-14
S28S4031	Road Surface and Roadmark - Stage 2 (Fast Lane)	-174	99%	30	13-Aug-13 A	26-Sep-14
S28S4085	Remaining Road Works at Slip Road W	-174	98%	40	27-Aug-13 A	27-Sep-14
Road Construction and Road Resufacing						
S28S4960	Road Construction and Resurfacing S/B for SA28	-174	95%	60	26-Sep-13 A	30-Sep-14
Site Area SA29						
SA290000	Site Area SA29 Works Period (incl. VO002 & VO0011: Fencing details along si	178	100%	946	27-Jul-10 A	26-Sep-14
SA290010	Site Area SA29 Works Completion	178	0%	0		26-Sep-14
SA290020	Temporary Traffic Arrangement (Detail shall refer to supplementary informatio	145	100%	764	27-Jul-10 A	26-Sep-14
SA290030	Overall Utilities Diversion (Detail shall refer to supplementary information)	145	100%	764	27-Jul-10 A	26-Sep-14
Site Area SA32						
SA320010	Site Area SA32 Works Completion	-209	0%	0		26-Sep-14
Section 5						
Site Area SA31						
SA310000	Site Area SA31 Works Period (incl. VO42, VO52, VO59 & VO65)	177	99.83%	884	26-Feb-10 A	27-Sep-14
SA310010	Site Area SA31 Works Completion	177	0%	0		27-Sep-14
South Bound						
Roadworks, Drainage & Utilities						
Portion 3						
S31S5120	Traffic Lights	144	70%	5	30-May-14 A	27-Sep-14
Section 7						
Site Area SA41						
SA410000	Site Area SA41 Works Period	-52	85.52%	1581	26-Feb-10 A	12-May-15
SA410010	Site Area SA41 Works Completion	-51	0%	0		12-May-15



Activity ID	Activity Name	Total Float	Activity % Complete	Original Duration	Start	Finish
Temporary Site Office						
S41G9100	Temp Warehouse, Fabrication & Equip Yard	-320	90%	1419	13-May-10 A	14-Feb-15
S41G9120	Dismantle of ER & Contractor's Office	-40	0%	68	14-Feb-15	12-May-15
Site Area SA42 (Core Storage & Works Area)						
SA410040	Site Area SA42 Works Period	-92	100%	1581	26-Feb-10 A	26-Sep-14
SA420010	Site Area SA42 Works Completion	-92	0%	0		26-Sep-14*
Site Area SA43						
SA410020	Site Area SA43 Works Period	-321	84.66%	1492	04-May-10 A	12-May-15
SA410030	Site Area SA43 Works Completion	-321	0%	0		12-May-15*
Mulching Production Area						
S41G050	Temp Warehouse, Fabrication & Equip Yard (Site allcated for period till 8 May	178	100%	1260	13-Sep-10 A	26-Sep-14
S41G260	Dismantle of Mulching Production Yard	-262	0%	68	14-Feb-15	12-May-15
S41G270	Dismantle of Mulching Production Yard : Removing Mulching Office	-262	0%	48	14-Feb-15	17-Apr-15
S41G280	Dismantle of Mulching Production Yard : Removing Security Fence and Securi	-262	0%	20	17-Apr-15	12-May-15
Section 8						
Establishment Works						
S21G8000	SA21 Establishment Works	-123	33%	365	26-Jan-14 A	28-May-15
Section 9						
Establishment Works						
S22G8000	SA22 Establishment Works	-111	33.9%	365	24-Mar-14 A	12-Jul-15
S23G8000	SA23 Establishment Works	-111	33.9%	365	24-Mar-14 A	12-Jul-15
S24G8000	SA24 Establishment Works	-111	33.9%	365	24-Mar-14 A	12-Jul-15
S25G8000	SA25 Establishment Works	-111	33.9%	365	24-Mar-14 A	12-Jul-15
S26G8000	SA26 Establishment Works	-111	33.9%	365	24-Mar-14 A	12-Jul-15
Section 10						
Establishment Works						
S26AG800	SA26A Establishment Works	-122	23.8%	365	01-Mar-14 A	01-Jul-15
S27G8000	SA27 Establishment Works	-122	23.8%	365	01-Mar-14 A	01-Jul-15
Section 11						
Establishment Works						
S28G8000	SA28 Establishment Works	-122	23.8%	365	01-Mar-14 A	01-Jul-15
S29G8000	SA29 Establishment Works	-122	23.8%	365	01-Mar-14 A	01-Jul-15
Section 12						
Establishment Works						
S30AG800	SA30A Establishment Works	-187	0%	365	26-Sep-14	25-Sep-15
S30G8000	SA30 Establishment Works	-187	0%	365	26-Sep-14	25-Sep-15
Section 13						
Establishment Works						
S30AG810	Remainder of Establishment Works (Exclude Section 8 to 12)	-123	25%	365	25-Jan-14 A	26-Jun-15

APPENDIX C
IMPLEMENTATION SCHEDULE OF ENVIRONMENTAL MITIGATION MEASURES (EMIS)

Appendix C - Implementation Schedule of Environmental Mitigation Measures (EMIS)

Air Quality - Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Implementation Status
Air Quality during Construction	• Restricting heights from which materials are dropped, as far as practicable to minimize the fugitive dust arising from unloading/loading.	During construction	V
	• All stockpiles of excavated materials or spoil of more than $50m^3$ shall be enclosed, covered or dampened during dry or windy conditions.		V
	• Effective water sprays shall be used to control potential dust emission sources such as unpaved haul roads and active construction areas.		V
	• All spraying of materials and surfaces shall avoid excessive water usage.		V
	• Vehicles that have the potential to create dust while transporting materials shall be covered, with the cover properly secured and extended over the edges of the side and tail boards.		V
	• Materials shall be dampened, if necessary, before transportation.		V
	• Travelling speeds shall be controlled to reduce traffic induced dust dispersion and resuspension within the site from the operating haul trucks.		V
	• Vehicle washing facilities shall be provided to minimize the quantity of material deposited on public roads.		V

Noise - Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Implementation Status
Noise during Construction	• Use of silenced plant or plant equipped with mufflers or dampers in substitute of ordinary plant.	During construction	V
	• Reduce the number of equipment and their percentage on-time.		V
	• 3.5 m and 5.5 m high temporary noise barrier at culvert construction work area (Figure 2a of the Environmental Permit).		V
	• 3 m high temporary noise barrier along the northern edge of Bridge 12 at ground level (Figure 2b of the Environmental Permit).		V
	• 2 m high temporary noise barrier along the northern edge of Bridge 12 at bridge level (Figure 2b of the Environmental Permit).		In progress
	• 2.5 m high temporary noise barrier along Tai Wo Service Road West (Figure 2c of the Environmental Permit).		V
	• 3.5m high temporary noise barrier along Tai Wo Services Road West near Tai Hang (Figure2c of the Environmental Permit).		In progress

Water Quality - Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Implementation Status
Water quality during Construction	Demolition and reconstruction of bridges	During construction	
	• Prevent off-site migration through use of sheet piles.		V
	• Minimize duration of works as far as practical.		V
	• All sewer and drainage connections should be sealed to prevent debris, soil, sand, etc, from entering public sewers/drains.		V
	• Site surface runoff should be settled to remove sand/silt before it is discharged into the existing storm drains.		V
	River training works		
	• Inspection and testing of water quality in the nullah on the Tai Po River.		N/A
	Road Widening Works and Earthworks		
	• Wastewater generated from any concrete batching washdown of equipment or similar activities should be discharged into foul sewers, after the removal of settable solids, and pH adjustment as necessary. All sewage discharges from the study area should meet the TM standards and approval from EPD through the licensing process is required.		V
	• Sand traps, oil interceptors and other pollution prevention installations should be provided, properly cleaned and maintained.		V
	• Runoff from exposed working areas, unfinished slopes and from unlined temporary channels should be directed to stilling basins and/or silt traps before discharging to the drainage outfalls.		V
	• Regular inspections of stilling basins and/or silt traps are required to ensure that sediment is not conveyed into the existing drainage system.		V
	• Open stockpiles should be covered with a tarpaulin cover.		V
	• During the wet season, any exposed top soils should be covered with a tarpaulin, shotcreted or hydroseeded.		V
	• Sand and silt from wash-water from vehicle washing should be settled out before discharging into storm drains.		V
	• Fuels should be stored in bunded areas such that spillage can be easily collected.		V

Waste - Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Implementation Status
Waste Management during Construction	General Waste	During construction	
	• Transport of wastes off site as soon as possible.		V
	• Maintenance of accurate waste records		V
	• Minimization of waste generation for disposal (via reduction/recycling/re-use).		V
	• No on-site burning will be permitted.		V
	• Use of re-useable metal hoardings/signboards.		V
	Vegetation from site clearance		
	• Segregation of materials to facilitate disposal.		V
	• Mulching to reduce bulk and where possible review opportunities for the possible beneficial use within landscaping areas.		V
	Demolition Wastes		
	• Segregation of materials to facilitate disposal.		V

	• Appropriate stockpile management.		V
	Excavated Materials		
	• Segregation of materials to facilitate disposal / reuse.		V
	• Appropriate stockpile management.		V
	• Re-use of excavated material on or off site (where possible).		V
	• Special handling and disposal procedures in the event that contaminated materials are excavated.		N/A
	Construction Wastes		
	• Segregation of materials to facilitate recycling/reuse (within designated area in appropriate containers/stockpiles).		V
	• Appropriate stockpile management.		V
	• Planning to reduce over ordering and waste generation.		V
	• Recycling and re-use of materials where possible (e.g. metal, wood from formwork)		V
	• For material which cannot be re-used/recycled, collection should be carried out by an approved waste contractor for landfill disposal.		V
	Bentonite Slurries		
	• Bentonite slurries should be reused as far as possible.		N/A
	• Disposal in accordance with *Practice Note For Professional Persons ProPECC PN 1/94.*		N/A
	Chemical Wastes		
	• Storage within locked, covered and bunded area.		V
	• The storage area shall not be located adjacent to sensitive receivers e.g. drains.		V
	• Minimize waste production and recycle oils/solvents where possible.		V
	• A spill response procedure shall be in place and absorption material available for minor spillages.		V
	• Use appropriate and labelled containers.		V
	• Educate site workers on site cleanliness/waste management procedures.		V
	• If chemical wastes are to be generated, the contractor must register with EPD as a Chemical Waste Producer.		V
	• The chemical wastes shall be collected by a licensed chemical waste collector.		V
	Municipal Wastes		
	• Waste shall be stored within a temporary refuse collection facility, in appropriate containers prior to collection and disposal.		V
	• Regular, daily collections are required by an approved waste collector.		V

Ecology - Schedule of Recommended Mitigation Measures

Impact	**Mitigation Measures**	**Timing**	**Implementation Status**
Ecology during Construction	Accurate Delineation of Works Area	During construction	
	• Boundaries of proposed works areas shall be clearly identified and separated from external areas by a physical barrier to prevent encroachment of adjacent habitats.		V
	• Individual trees which fall within the works areas but which work plans show do not require removal are to be retained and fenced off to maximize protection.		V
	Vegetation Clearance		
	• No fires shall be lit within the works area for the purpose of burning cleared vegetation.		V
	• The Contractor shall give consideration to mulching the cleared vegetation for recycling within the works area /		V

	adjacent land.		
	Dust generation		
	• Vehicle washing facilities to be provided at every discernible or designated vehicle exit point;		V
	• All temporary site access roads shall be sprayed with water to suppress dust as necessary;		V
	• All dusty materials should be sprayed with water immediately prior to any handling; and		V
	• All debris should be covered entirely by impervious sheeting or stored in a sheltered debris collection area.		V
	Surface Run-off		
	• Bund and cover stockpiles to avoid run-off;		V
	• Channel any run-off through a system of oil, grease and sediment / silt traps and reuse water on site where ever practical;		V
	• All vehicle maintenance to be undertaken within a bunded area; and		N/A
	• Maximize vegetation retention on-site to maximize absorption (minimize transport).		V

Landscape and Visual Impact - Schedule of Recommended Mitigation Measures

Impact	**Mitigation Measures**	**Timing**	**Implementation Status**
Landscape and Visual Impact during Construction	Preservation of Existing Vegetation	During construction	
	• Trees identified for retention within the project limit would be protected during the works		V
	• The tree transplanting and planting works shall be implemented by approved Landscape Contractors		V
	Temporary Works Areas		
	• Where feasible the works areas would be screened using hoarding and existing vegetation would be retained where possible to reduce the landscape and visual impacts arising from the construction activity. The landscape of these works areas would be restored following the completion of the construction phase.		V
	Hoarding		
	• A hoarding would be erected where practicable in the most visually sensitive locations to screen the temporary construction works from the local VSR's.		V
	Top Soils		
	• The works will result in disturbance to extensive areas of topsoil. Topsoil worthy of retention should be stockpiled for use following completion of the civil engineering works. It should either be temporarily vegetated with hydroseeded grass or turned over on a regular basis.		N/A
	Protection of Important Landscape Features		
	• Important features such as temples, Island House and kilns within the study area, although remote from the proposed works retained and adequately protected.		V

Legend: V = implemented;
x = not implemented;
@ = partially implemented;
N/A = not applicable - No such work was undertaken or no such material was used on site.

APPENDIX D
SUMMARY OF ACTION AND LIMIT LEVELS

Appendix D - Summary of Action and Limit Levels

Table 1 – Action and Limit Levels for 1-hour TSP

Location	Action Level	Limit Level
AM1A	302.1 μg/m3	500 μg/m3
AM2	301.9 μg/m3	500 μg/m3
AM3	301.9 μg/m3	500 μg/m3
AM4A	302.3 μg/m3	500 μg/m3

Table 2 – Action and Limit Levels for 24-hour TSP

Location	Action Level	Limit Level
AM1A	176.6 μg/m3	260 μg/m3
AM2	178.6 μg/m3	260 μg/m3
AM3	193.1 μg/m3	260 μg/m3
AM4A	198.5 μg/m3	260 μg/m3

Table 3 – Action and Limit Levels for Construction Noise (0700-1900 hrs of normal weekdays)

Location	Action Level	Limit Level
NM1A	When one documented complaint, related to 0700 – 1900 hours on normal weekdays, is received from any one of the sensitive receivers	75 dB(A)
NM2		75 dB(A)
NM3		65/70 dB(A)*
NM4		75 dB(A)
NM5		75 dB(A)
NM6		70 dB(A)*
NM7		75 dB(A)

*Daytime noise Limit Level of 70 dB(A) applies to education institutions, while 65dB(A) applies during school examination period

APPENDIX E
CALIBRATION CERTIFICATES OF MONITORING EQUIPMENTS

AECOM Asia Company Limited
TSP High Volume Sampler
Field Calibration Report

Station	168 Shek Kwu Lung Village (AM4A)	Operator:	Gary Choi
Cal. Date:	11-Jul-14	Next Due Date:	11-Sep-14
Equipment No.:	A-001-70T	Serial No.	10273

Ambient Condition			
Temperature, Ta (K)	303	Pressure, Pa (mmHg)	753.1

Orifice Transfer Standard Information					
Serial No:	988	Slope, mc	1.97518	Intercept, bc	-0.01001
Last Calibration Date:	28-May-14	$mc \times Qstd + bc = [DH \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	28-May-15	$Qstd = \{[DH \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Resistance Plate No.	Orfice			HVS Flow Recorder	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m^3/min) **X - axis**	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) **Y-axis**
18	8.4	2.86	1.45	47.0	46.40
13	6.4	2.50	1.27	40.0	39.49
10	4.7	2.14	1.09	33.0	32.58
7	3.3	1.79	0.91	26.0	25.67
5	2.2	1.46	0.75	21.0	20.73

By Linear Regression of Y on X

Slope , mw = **36.8171** **Intercept, bw =** **-7.3137**

Correlation Coefficient* = **0.9981**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/min

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = IC \times [(Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $IC = (mw \times Qstd + bw) \times [(760 / Pa) \times (Ta / 298)]^{1/2} =$ **41.07**

Remarks: _____

QC Reviewer: WS CHAN Signature: _____ Date: 14/7/14

AECOM Asia Company Limited
TSP High Volume Sampler
Field Calibration Report

Station	168 Shek Kwu Lung Village (AM4A)	Operator:	Gary Choi
Cal. Date:	11-Sep-14	Next Due Date:	11-Nov-14
Equipment No.:	A-001-70T	Serial No.	10273

Ambient Condition			
Temperature, Ta (K)	307	Pressure, Pa (mmHg)	754.8

Orifice Transfer Standard Information					
Serial No:	988	Slope, mc	1.97518	Intercept, bc	-0.01001
Last Calibration Date:	28-May-14	$mc \times Qstd + bc = [DH \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	28-May-15	$Qstd = \{[DH \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler

Resistance Plate No.	Orfice			HVS Flow Recorder	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m^3/min) **X - axis**	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) **Y-axis**
18	8.8	2.91	1.48	48.0	47.13
13	6.6	2.52	1.28	40.0	39.27
10	4.7	2.13	1.08	34.0	33.38
7	3.4	1.81	0.92	26.0	25.53
5	2.2	1.46	0.74	22.0	21.60

By Linear Regression of Y on X

Slope , mw = **35.2979** **Intercept, bw =** **-5.5055**

Correlation Coefficient* = **0.9908**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/min

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = IC \times [(Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $IC = (mw \times Qstd + bw) \times [(760 / Pa) \times (Ta / 298)]^{1/2}$ = **41.13**

Remarks: _____

QC Reviewer: Y Y Fung Signature: Y Date: 12-Sep-14

TISCH Environmental

TISCH ENVIRONMENTAL, INC.
145 SOUTH MIAMI AVE
VILLAGE OF CLEVES, OH
45002
513.467.9000
877.263.7610 TOLL FREE
513.467.9009 FAX

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 28, 2014 Rootsmeter S/N 0438320 Ta (K) - 296
Operator Tisch Orifice I.D. - 0988 Pa (mm) - 751.84

PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)
1	NA	NA	1.00	1.3790	3.2	2.00
2	NA	NA	1.00	0.9720	6.4	4.00
3	NA	NA	1.00	0.8690	7.9	5.00
4	NA	NA	1.00	0.8260	8.8	5.50
5	NA	NA	1.00	0.6830	12.8	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9917	0.7191	1.4113		0.9957	0.7221	0.8874
0.9875	1.0159	1.9959		0.9915	1.0201	1.2549
0.9854	1.1339	2.2315		0.9894	1.1385	1.4030
0.9843	1.1916	2.3405		0.9883	1.1965	1.4715
0.9790	1.4333	2.8227		0.9829	1.4392	1.7747
Qstd slope (m) =		1.97518		Qa slope (m) =		1.23683
intercept (b) =		-0.01001		intercept (b) =		-0.00630
coefficient (r) =		0.99998		coefficient (r) =		0.99998
y axis = SQRT[H2O(Pa/760)(298/Ta)]				y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

Vstd = Diff. Vol[(Pa-Diff. Hg)/760](298/Ta)
Qstd = Vstd/Time

Va = Diff Vol [(Pa-Diff Hg)/Pa]
Qa = Va/Time

For subsequent flow rate calculations:

Qstd = 1/m{[SQRT(H2O(Pa/760)(298/Ta))]- b}
Qa = 1/m{[SQRT H2O(Ta/Pa)]- b}

EQUIPMENT CALIBRATION RECORD

Type: ***Laser Dust Monitor***
Manufacturer/Brand: ***SIBATA***
Model No.: ***LD-3***
Equipment No.: ***A.005.07a***
Sensitivity Adjustment Scale Setting: ***557 CPM***

Operator: *Mike Shek (MSKM)*

Standard Equipment

Equipment: *Rupprecht & Patashnick TEOM®*
Venue: *Cyberport (Pui Ying Secondary School)*
Model No.: *Series 1400AB*
Serial No: Control: *140AB219899803*
Sensor: *1200C143659803* K_o: *12500*
Last Calibration Date*: *10 May 2014*

*Remarks: Recommended interval for hardware calibration is 1 year

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): *557* CPM
Sensitivity Adjustment Scale Setting (After Calibration): *557* CPM

Hour	Date (dd-mm-yy)	Time	Ambient Condition		Concentration[1] (mg/m^3) **Y-axis**	Total Count[2]	Count/ Minute[3] **X-axis**
			Temp (°C)	R.H. (%)			
1	*11-05-14*	*09:30 - 10:30*	*26.7*	*75*	*0.04434*	*1775*	*29.58*
2	*11-05-14*	*10:30 - 11:30*	*26.7*	*75*	*0.04716*	*1880*	*31.33*
3	*11-05-14*	*11:30 - 12:30*	*26.8*	*76*	*0.04927*	*1964*	*32.73*
4	*11-05-14*	*12:30 - 13:30*	*26.8*	*75*	*0.05035*	*2015*	*33.58*

Note: 1. Monitoring data was measured by Rupprecht & Patashnick TEOM®
2. Total Count was logged by Laser Dust Monitor
3. Count/minute was calculated by (Total Count/60)

By Linear Regression of Y or X
Slope (K-factor): *0.0015*
Correlation coefficient: *0.9982*

Validity of Calibration Record: *11 May 2015*

Remarks:

QC Reviewer: *YW Fung* Signature: Date: 12 May 2014

EQUIPMENT CALIBRATION RECORD

Type: ***Laser Dust Monitor***
Manufacturer/Brand: ***SIBATA***
Model No.: ***LD-3***
Equipment No.: ***A.005.09a***
Sensitivity Adjustment Scale Setting: ***797 CPM***

Operator: *Mike Shek (MSKM)*

Standard Equipment

Equipment: *Rupprecht & Patashnick TEOM®*
Venue: *Cyberport (Pui Ying Secondary School)*
Model No.: *Series 1400AB*
Serial No: Control: *140AB219899803*
Sensor: *1200C143659803* K_o: *12500*
Last Calibration Date*: *10 May 2014*

*Remarks: Recommended interval for hardware calibration is 1 year

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): *797* CPM
Sensitivity Adjustment Scale Setting (After Calibration): *797* CPM

Hour	Date (dd-mm-yy)	Time	Ambient Condition		Concentration[1] (mg/m^3) **Y-axis**	Total Count[2]	Count/ Minute[3] **X-axis**
			Temp (°C)	R.H. (%)			
1	11-05-14	13:30 - 14:30	26.8	75	0.05034	2017	33.62
2	11-05-14	14:30 - 15:30	26.9	76	0.05211	2084	34.73
3	11-05-14	15:30 - 16:30	26.9	76	0.05163	2066	34.43
4	11-05-14	16:30 - 17:30	26.9	76	0.05272	2113	35.22

Note: 1. Monitoring data was measured by Rupprecht & Patashnick TEOM®
2. Total Count was logged by Laser Dust Monitor
3. Count/minute was calculated by (Total Count/60)

By Linear Regression of Y or X
Slope (K-factor): *0.0015*
Correlation coefficient: *0.9965*

Validity of Calibration Record: *11 May 2015*

Remarks:

QC Reviewer: *YW Fung* Signature: Date: 12 May 2014

EQUIPMENT CALIBRATION RECORD

Type:	***Laser Dust Monitor***
Manufacturer/Brand:	***SIBATA***
Model No.:	***LD-3***
Equipment No.:	***A.005.11a***
Sensitivity Adjustment Scale Setting:	***799 CPM***
Operator:	*Mike Shek (MSKM)*

Standard Equipment

Equipment:	*Rupprecht & Patashnick TEOM®*		
Venue:	*Cyberport (Pui Ying Secondary School)*		
Model No.:	*Series 1400AB*		
Serial No:	Control: *140AB219899803*		
	Sensor: *1200C143659803*	K_o: *12500*	
Last Calibration Date*:	*10 May 2014*		

*Remarks: Recommended interval for hardware calibration is 1 year

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): *799* CPM
Sensitivity Adjustment Scale Setting (After Calibration): *799* CPM

Hour	Date (dd-mm-yy)	Time	Ambient Condition		Concentration[1] (mg/m^3) **Y-axis**	Total Count[2]	Count/ Minute[3] **X-axis**
			Temp (°C)	R.H. (%)			
1	*18-05-14*	*09:00 - 10:00*	*28.3*	*77*	*0.04527*	*1815*	*30.25*
2	*18-05-14*	*10:00 - 11:00*	*28.3*	*77*	*0.04811*	*1923*	*32.05*
3	*18-05-14*	*11:00 - 12:00*	*28.3*	*77*	*0.05103*	*2041*	*34.02*
4	*18-05-14*	*12:00 - 13:00*	*28.4*	*77*	*0.05366*	*2157*	*35.95*

Note: 1. Monitoring data was measured by Rupprecht & Patashnick TEOM®
2. Total Count was logged by Laser Dust Monitor
3. Count/minute was calculated by (Total Count/60)

By Linear Regression of Y or X
Slope (K-factor): *0.0015*
Correlation coefficient: *0.9987*

Validity of Calibration Record: *18 May 2015*

Remarks:

QC Reviewer: *YW Fung* Signature: Date: 19 May 2014

EQUIPMENT CALIBRATION RECORD

Type:	***Laser Dust Monitor***
Manufacturer/Brand:	***SIBATA***
Model No.:	***LD-3B***
Equipment No.:	***A.005.13a***
Sensitivity Adjustment Scale Setting:	***643 CPM***
Operator:	*Mike Shek (MSKM)*

Standard Equipment

Equipment:	*Rupprecht & Patashnick TEOM®*		
Venue:	*Cyberport (Pui Ying Secondary School)*		
Model No.:	*Series 1400AB*		
Serial No:	Control: *140AB219899803*		
	Sensor: *1200C143659803*	K_o: *12500*	
Last Calibration Date*:	*10 May 2014*		

*Remarks: Recommended interval for hardware calibration is 1 year

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): *643* CPM
Sensitivity Adjustment Scale Setting (After Calibration): *643* CPM

Hour	Date (dd-mm-yy)	Time	Ambient Condition		Concentration[1] (mg/m^3) **Y-axis**	Total Count[2]	Count/ Minute[3] **X-axis**
			Temp (°C)	R.H. (%)			
1	*18-05-14*	*09:30 - 10:30*	*28.3*	*77*	*0.04614*	*1846*	*30.77*
2	*18-05-14*	*10:30 - 11:30*	*28.3*	*77*	*0.04823*	*1934*	*32.23*
3	*18-05-14*	*11:30 - 12:30*	*28.3*	*77*	*0.05152*	*2053*	*34.22*
4	*18-05-14*	*12:30 - 13:30*	*28.4*	*77*	*0.05391*	*2162*	*36.03*

Note: 1. Monitoring data was measured by Rupprecht & Patashnick TEOM®
2. Total Count was logged by Laser Dust Monitor
3. Count/minute was calculated by (Total Count/60)

By Linear Regression of Y or X
Slope (K-factor): *0.0015*
Correlation coefficient: *0.9981*

Validity of Calibration Record: *18 May 2015*

Remarks:

QC Reviewer: *YW Fung* Signature: Date: 19 May 2014

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
香港黃竹坑道37號利達中心地下，9樓，12樓，13樓及20樓
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel : (852) 2873 6860
Fax : (852) 2555 7533
HOKLAS 028

CERTIFICATE OF CALIBRATION

Certificate No.: 14CA0702 01-01

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2238	,	4188
Serial/Equipment No.:	2800927 / N.009.06	,	2791211
Adaptors used:	-	,	-

Item submitted by

Customer Name:	AECOM ASIA CO., LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	02-Jul-2014

Date of test: 03-Jul-2014

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	20-Jun-2015	CIGISMEC
Signal generator	DS 360	33873	09-Apr-2015	CEPREI
Signal generator	DS 360	61227	09-Apr-2015	CEPREI

Ambient conditions

Temperature:	21 ± 1 °C
Relative humidity:	60 ± 10 %
Air pressure:	1000 ± 10 hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.

3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory: Huang Jian Min/Feng Jun Qi **Date:** 04-Jul-2014 **Company Chop:**

SOILS & MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong. Tel : (852) 2873 6860
香港黃竹坑道37號利達中心地下，9樓，12樓，13樓及20樓 Fax : (852) 2555 7533
E-mail: smec@cigismec.com Website: www.cigismec.com
HOKLAS 028

CERTIFICATE OF CALIBRATION

Certificate No.: 13CA1107 01-01 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	Rion Co., Ltd.	,	Rion Co., Ltd.
Type/Model No.:	NL-31	,	UC-53A
Serial/Equipment No.:	00320528 / N.007.03A	,	90565
Adaptors used:	-	,	-

Item submitted by

Customer Name:	AECOM ASIA CO., LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	07-Nov-2013

Date of test: 08-Nov-2013

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	22-Jun-2014	CIGISMEC
Signal generator	DS 360	33873	15-Apr-2014	CEPREI
Signal generator	DS 360	61227	15-Apr-2014	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	60 ± 10 %
Air pressure:	1000 ± 10 hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.
2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.
3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory: Huang Jian Min/Feng Jun Qi **Date:** 11-Nov-2013 **Company Chop:** SOILS & MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
香港黃竹坑道37號利達中心地下，9樓，12樓，13樓及20樓
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel : (852) 2873 6860
Fax : (852) 2555 7533
HOKLAS 028

CERTIFICATE OF CALIBRATION

Certificate No.: 13CA1107 01-02 **Page:** 1 **of** 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	Rion Co., Ltd.
Type/Model No.:	NC-73
Serial/Equipment No.:	10307223 / N.004.08
Adaptors used:	-

Item submitted by

Curstomer:	AECOM ASIA CO., LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	07-Nov-2013

Date of test: 08-Nov-2013

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	17-Apr-2014	SCL
Preamplifier	B&K 2673	2239857	16-Apr-2014	CEPREI
Measuring amplifier	B&K 2610	2346941	24-Apr-2014	CEPREI
Signal generator	DS 360	61227	15-Apr-2014	CEPREI
Digital multi-meter	34401A	US36087050	10-Dec-2013	CEPREI
Audio analyzer	8903B	GB41300350	15-Apr-2014	CEPREI
Universal counter	53132A	MY40003662	15-Apr-2014	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	60 ± 10 %
Air pressure:	1000 ± 10 hPa

Test specifications

1, The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.

2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.

3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on **page 2** of this certificate.

Approved Signatory: Huang Jian Min/Feng Jun Qi **Date:** 11-Nov-2013 **Company Chop:** SOILS & MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the conditon of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

APPENDIX F
EM&A MONITORING SCHEDULES

Widening of Tolo Highway / Fanling Highway (Stage 1) Between Island House Interchange and Tai Hang - Investigation
Impact Monitoring and Audit Schedule for September 2014

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1-Sep	2-Sep	3-Sep	4-Sep	5-Sep	6-Sep
					24-hour TSP 1-hour TSP & Noise	
7-Sep	8-Sep	9-Sep	10-Sep	11-Sep	12-Sep	13-Sep
				Site inspection (Contract 2) 24-hour TSP 1-hour TSP & Noise		
14-Sep	15-Sep	16-Sep	17-Sep	18-Sep	19-Sep	20-Sep
	24-hour TSP 1-hour TSP & Noise			Site inspection (Contract 2)		24-hour TSP 1-hour TSP
21-Sep	22-Sep	23-Sep	24-Sep	25-Sep	26-Sep	27-Sep
					24-hour TSP 1-hour TSP & Noise	
28-Sep	29-Sep	30-Sep				
		24-hour TSP 1-hour TSP & Noise				

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

APPENDIX G
IMPACT AIR QUALITY MONITORING RESULTS AND THEIR GRAPHICAL PRESENTATION

Appendix G
Impact Air Quality Monitoring Results

1-hour TSP Monitoring Results at Station AM1A (Fan Sin Temple, 3 Sheung Wun Yiu G/F)

Date	Start Time (hh:mm)	1st Hour Conc. ($\mu g/m^3$)	2nd Hour Conc. ($\mu g/m^3$)	3rd Hour Conc. ($\mu g/m^3$)
Construction Phase EM&A Programme for Contract 1 of the Project was completed on 15 July 2014. No monitoring has been carried out beyond 15 July 2014.				

1-hour TSP Monitoring Results at Station AM2 (12 Shan Tong New Village G/F)

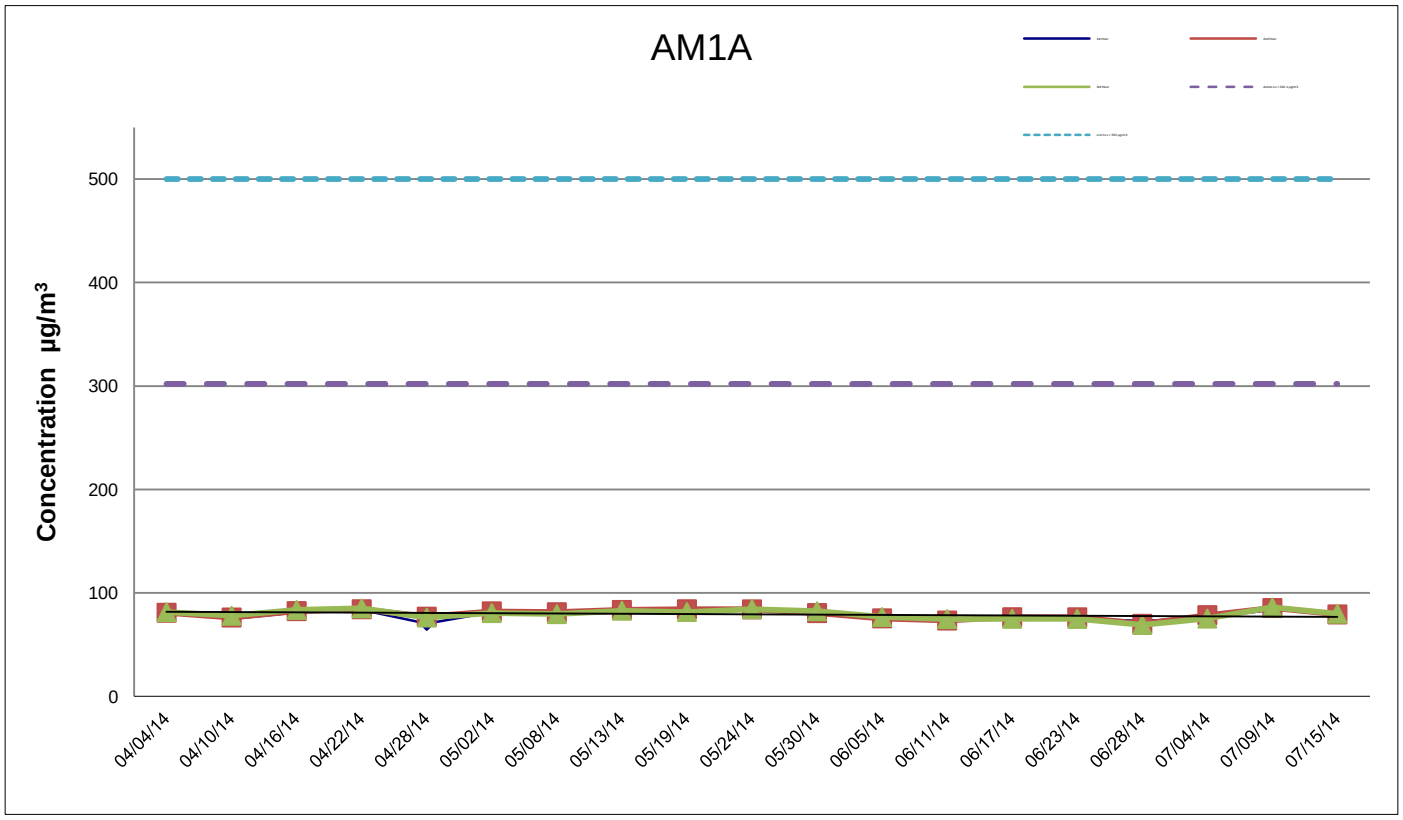
Date	Start Time (hh:mm)	1st Hour Conc. ($\mu g/m^3$)	2nd Hour Conc. ($\mu g/m^3$)	3rd Hour Conc. ($\mu g/m^3$)
Construction Phase EM&A Programme for Contract 1 of the Project was completed on 15 July 2014. No monitoring has been carried out beyond 15 July 2014.				

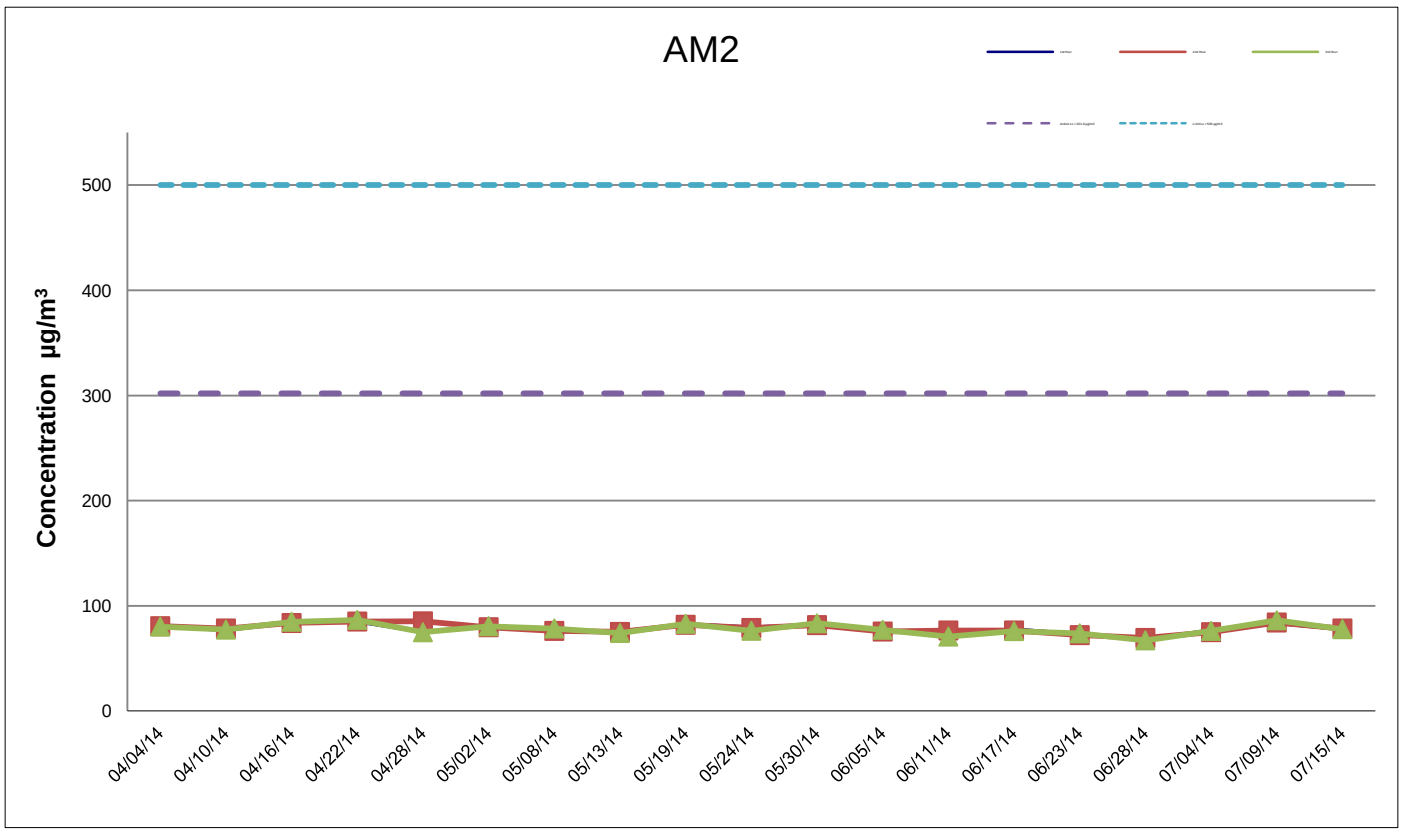
1-hour TSP Monitoring Results at Station AM3 (Roof of Switch Room at Riverain Bayside)

Date	Start Time (hh:mm)	1st Hour Conc. ($\mu g/m^3$)	2nd Hour Conc. ($\mu g/m^3$)	3rd Hour Conc. ($\mu g/m^3$)
Construction Phase EM&A Programme for Contract 1 of the Project was completed on 15 July 2014. No monitoring has been carried out beyond 15 July 2014.				

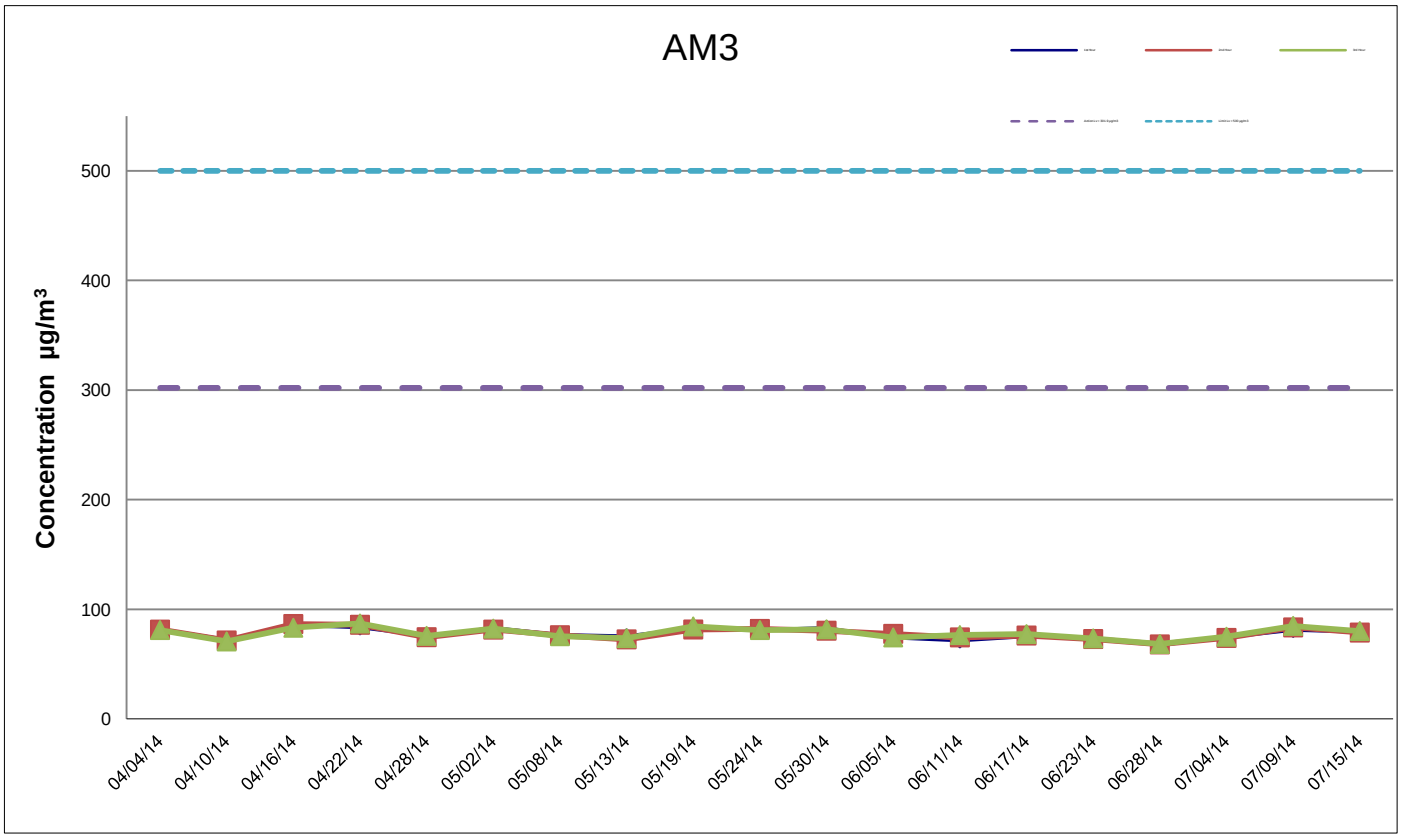
1-hour TSP Monitoring Results at Station AM4A (Roof of Switch Room at 168 Shek Kwu Lung Village)

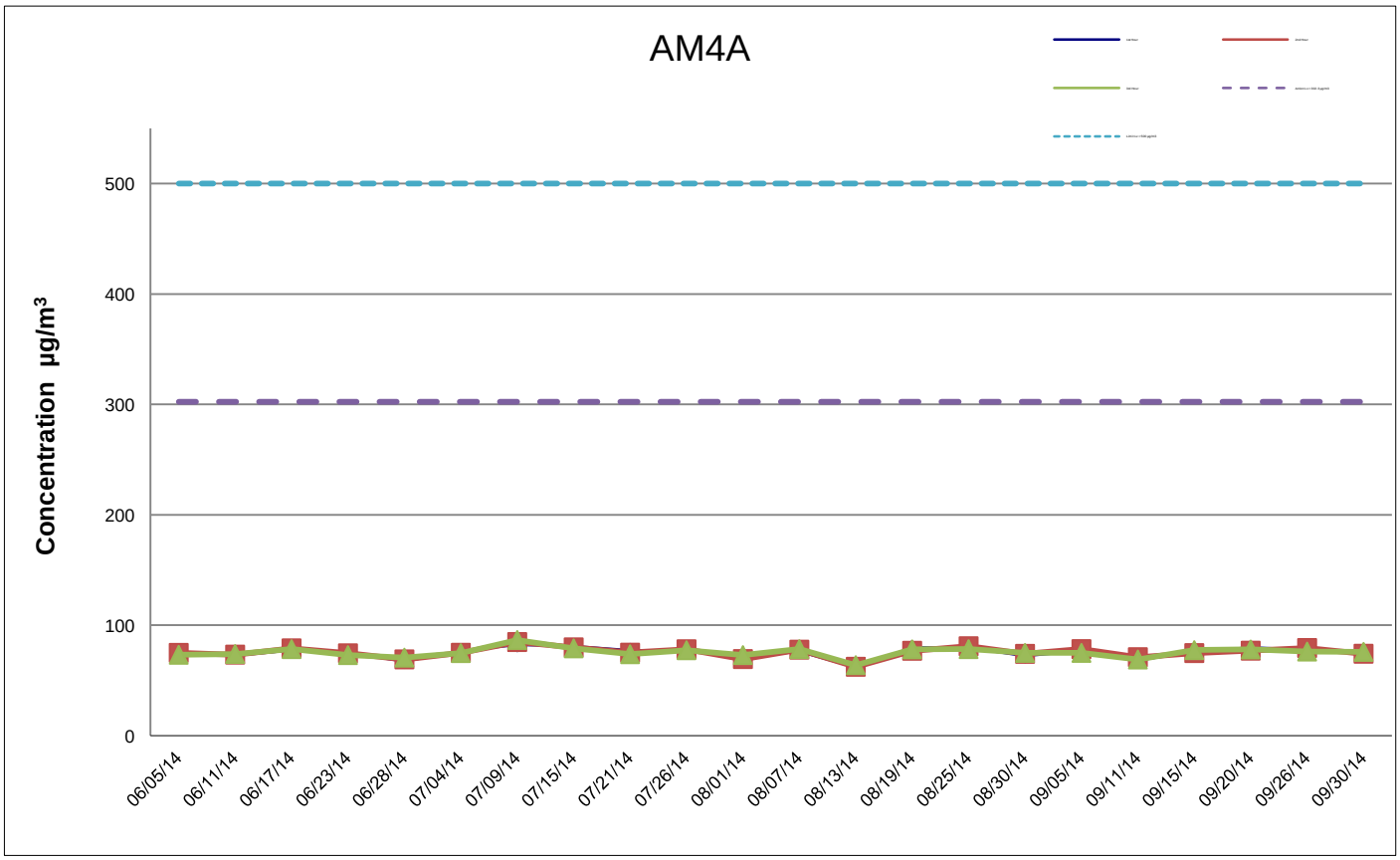
Date	Start Time (hh:mm)	1st Hour Conc. ($\mu g/m^3$)	2nd Hour Conc. ($\mu g/m^3$)	3rd Hour Conc. ($\mu g/m^3$)
5-Sep-14	10:40	76.7	78.4	75.0
11-Sep-14	13:05	68.2	71.1	69.0
15-Sep-14	12:00	76.2	74.8	77.5
20-Sep-14	10:10	79.9	77.0	78.1
26-Sep-14	11:20	77.8	79.4	76.2
30-Sep-14	10:30	76.6	74.2	75.9
			Average	75.7
			Min	68.2
			Max	79.9





AECOM	**Environmental Team for the Widening of Tolo Highway between Island House Interchange and Tai Hang - Investigation**	SCALE	N.T.S.	DATE	Sep-14
		CHECK	ENFL	DRAWN	JCYK
	Graphical Presentation of Impact 1-hour TSP Monitoring Results	JOB NO.	60102979	**APPENDIX No.** G	**Rev.** -





Remark: The monitoring station at Tai Kwong Secondary School (AM4) was relocated to 168 Shek Kwu Lung Village (AM4A) starting from 1 September 2011 due to the mentioned school was closed down.

AECOM	**Environmental Team for the Widening of Tolo Highway between Island House Interchange and Tai Hang - Investigation**	SCALE	N.T.S.	DATE	Oct-14
		CHECK	ENFL	DRAWN	JCYK
	Graphical Presentation of Impact 1-hour TSP Monitoring Results	JOB NO.	60102979	**APPENDIX No.** G	**Rev.** -

Impact Air Quality Monitoring Results

24-hour TSP Monitoring Results at Station AM1A (Fan Sin Temple, 3 Sheung Wun Yiu G/F)

Date	Weather Condition	Air Temp. (^{o}C)	Atmospheric Pressure(hPa)	Flow Rate (m^3/min.) Initial	Flow Rate (m^3/min.) Final	Av. flow (m^3/min)	Total vol. (m^3)	Filter Weight (g) Initial	Filter Weight (g) Final	Particulate weight(g)	Elapse Time Initial	Elapse Time Final	Sampling Time(hrs.)	Conc. ($\mu g/m^3$)
Construction Phase EM&A Programme for Contract 1 of the Project was completed on 15 July 2014. No monitoring has been carried out beyond 15 July 2014.														

24-hour TSP Monitoring Results at Station AM2 (12 Shan Tong New Village G/F)

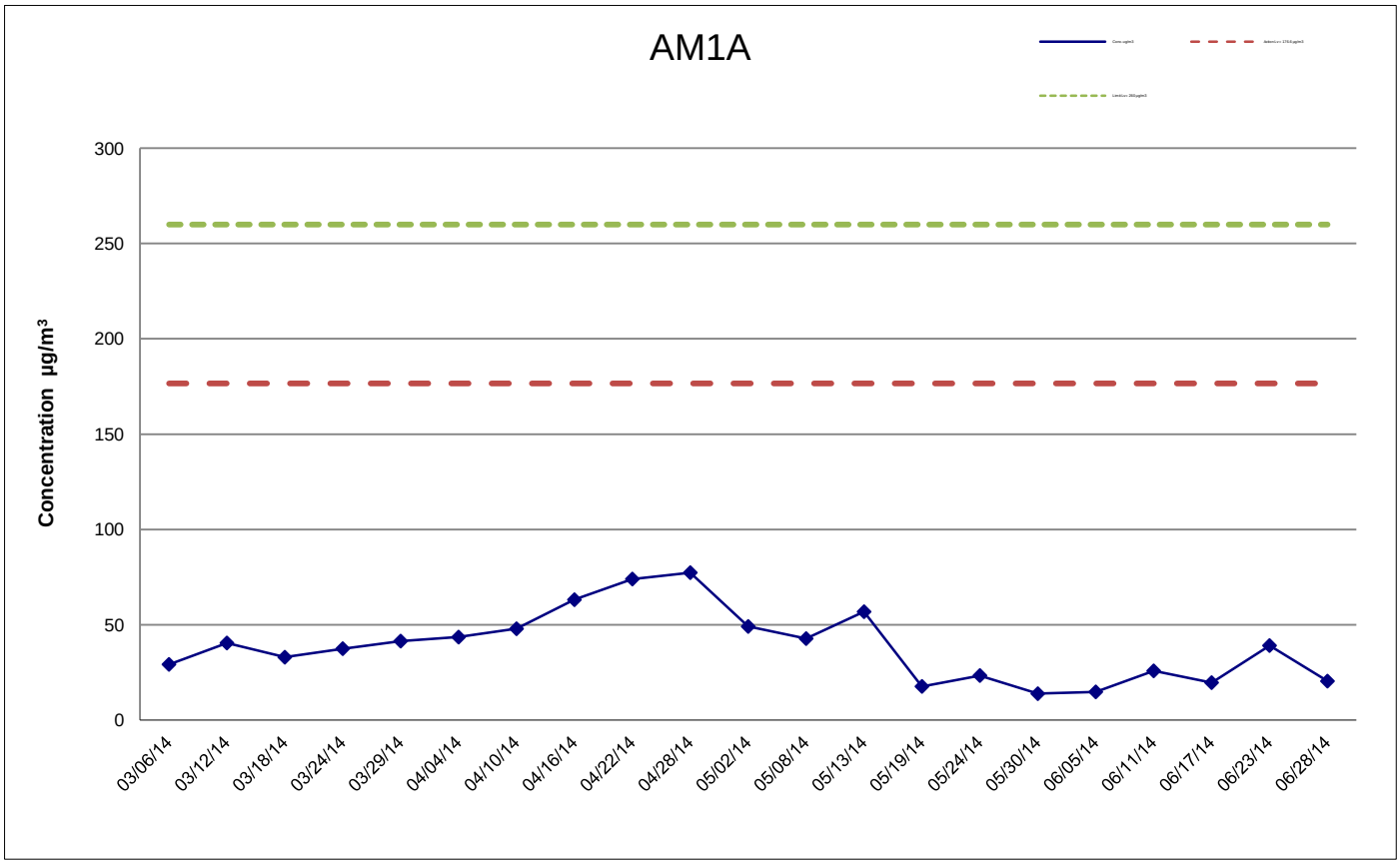
Date	Weather Condition	Air Temp. (^{o}C)	Atmospheric Pressure(hPa)	Flow Rate (m^3/min.) Initial	Flow Rate (m^3/min.) Final	Av. flow (m^3/min)	Total vol. (m^3)	Filter Weight (g) Initial	Filter Weight (g) Final	Particulate weight(g)	Elapse Time Initial	Elapse Time Final	Sampling Time(hrs.)	Conc. ($\mu g/m^3$)
Construction Phase EM&A Programme for Contract 1 of the Project was completed on 15 July 2014. No monitoring has been carried out beyond 15 July 2014.														

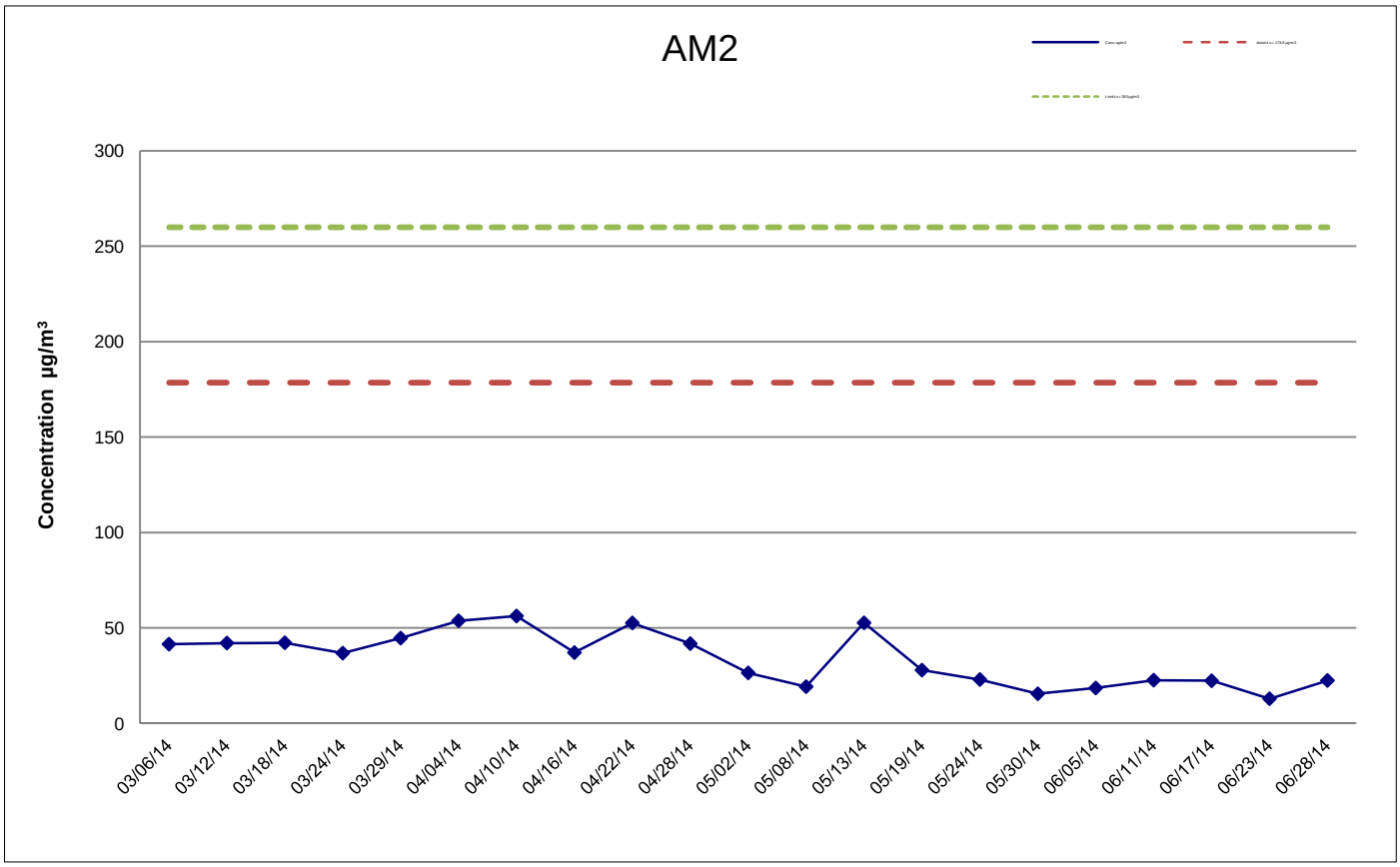
24-hour TSP Monitoring Results at Station AM3 (Roof of Switch Room at Riverain Bayside)

Date	Weather Condition	Air Temp. (^{o}C)	Atmospheric Pressure(hPa)	Flow Rate (m^3/min.) Initial	Flow Rate (m^3/min.) Final	Av. flow (m^3/min)	Total vol. (m^3)	Filter Weight (g) Initial	Filter Weight (g) Final	Particulate weight(g)	Elapse Time Initial	Elapse Time Final	Sampling Time(hrs.)	Conc. ($\mu g/m^3$)
Construction Phase EM&A Programme for Contract 1 of the Project was completed on 15 July 2014. No monitoring has been carried out beyond 15 July 2014.														

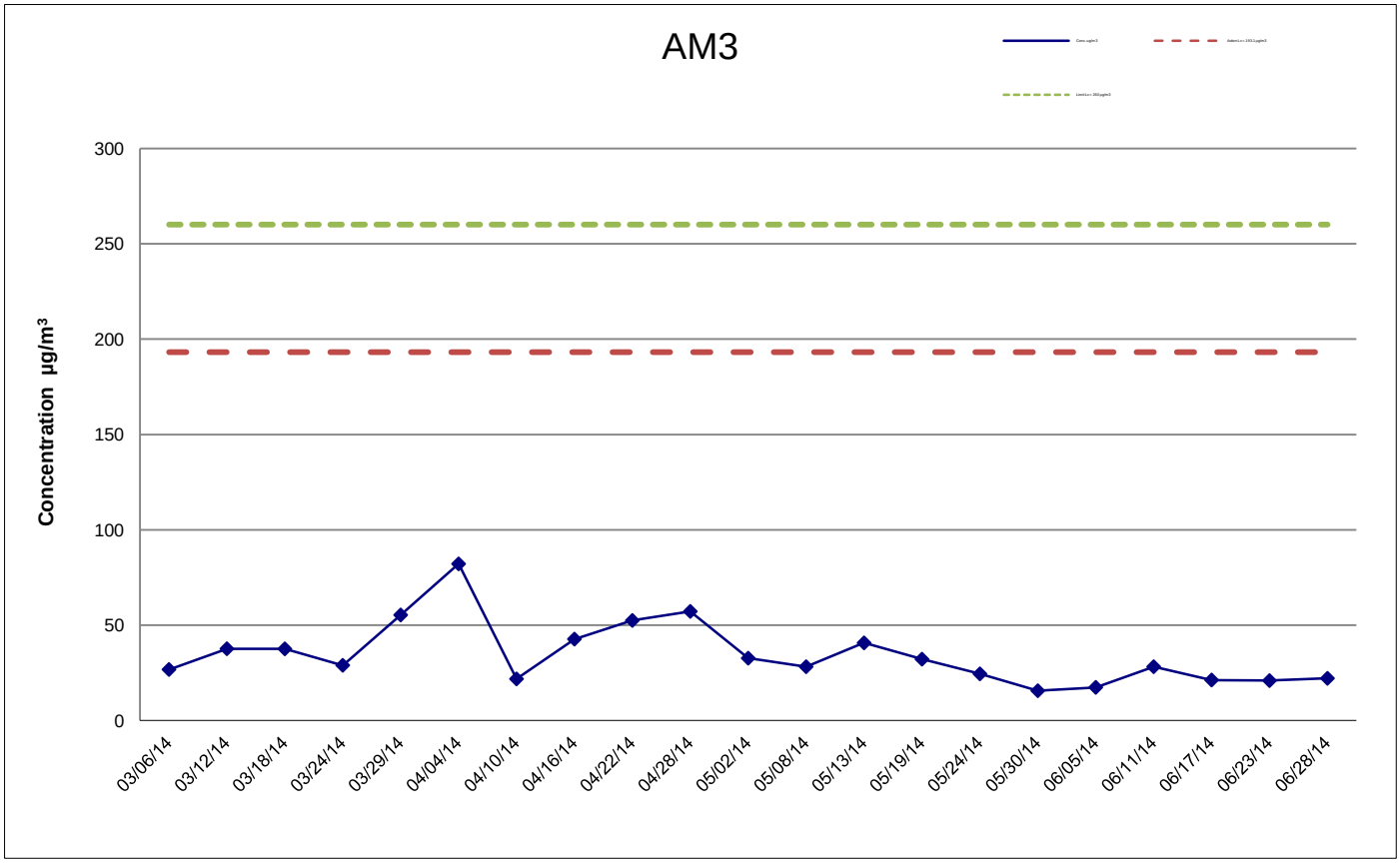
24-hour TSP Monitoring Results at Station AM4A (Roof of Switch Room at 168 Shek Kwu Lung Village)

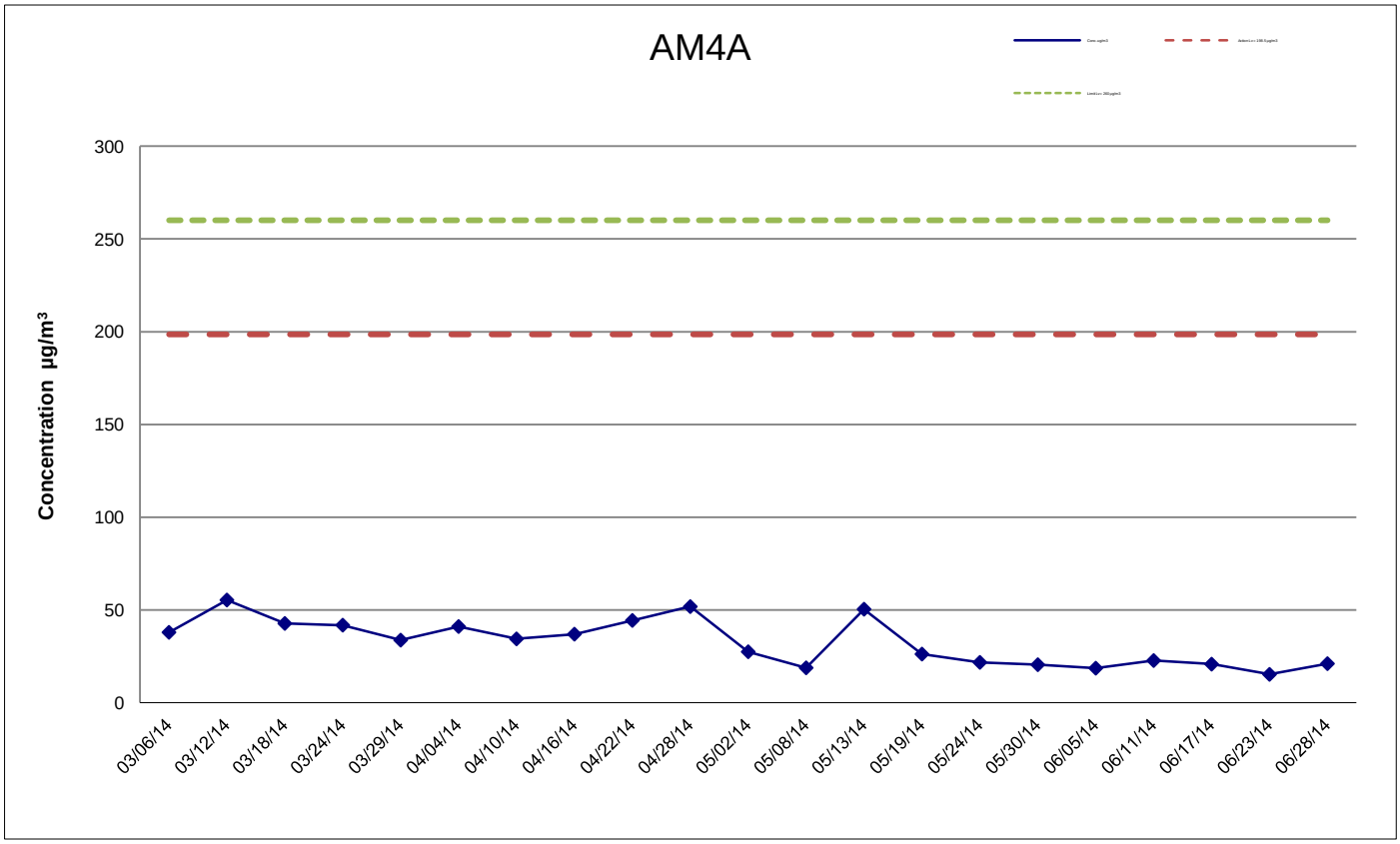
Date	Weather Condition	Air Temp. (^{o}C)	Atmospheric Pressure(hPa)	Flow Rate (m^3/min.) Initial	Flow Rate (m^3/min.) Final	Av. flow (m^3/min)	Total vol. (m^3)	Filter Weight (g) Initial	Filter Weight (g) Final	Particulate weight(g)	Elapse Time Initial	Elapse Time Final	Sampling Time(hrs.)	Conc. ($\mu g/m^3$)
5-Sep-14	Sunny	29.7	1007.2	1.33	1.33	1.33	1918.1	2.7085	2.7470	0.0385	17842.59	17866.59	24.00	20.1
11-Sep-14	Sunny	30.3	1008.0	1.33	1.33	1.33	1918.1	2.7800	2.8030	0.0230	17866.59	17890.59	24.00	12.0
15-Sep-14	Cloudy	29.2	1001.8	1.33	1.33	1.33	1918.1	2.7993	2.8464	0.0471	17890.59	17914.59	24.00	24.6
20-Sep-14	Sunny	29.2	1004.0	1.33	1.33	1.33	1918.1	2.7770	2.8633	0.0863	17914.59	17938.59	24.00	45.0
26-Sep-14	Fine	28.4	1012.5	1.33	1.33	1.33	1918.1	2.7726	2.8299	0.0573	17938.59	17962.59	24.00	29.9
30-Sep-14	Fine	29.6	1011.1	1.33	1.33	1.33	1918.1	2.7490	2.7861	0.0371	17962.59	17986.59	24.00	19.3
													Average	25.1
													Min	12.0
													Max	45.0





AECOM	**Environmental Team for the Widening of Tolo Highway between Island House Interchange and Tai Hang - Investigation**	SCALE	N.T.S.	DATE	Jul-14
		CHECK	ENFL	DRAWN	JCYK
	Graphical Presentation of Impact 24-hour TSP Monitoring Results	JOB NO.	60102979	**APPENDIX No.** G	**Rev.** -





Remark: The monitoring station at Tai Kwong Secondary School (AM4) was relocated to 168 Shek Kwu Lung Village (AM4A) starting from 1 September 2011 due to the mentioned school was closed down.

AECOM	**Environmental Team for the Widening of Tolo Highway between Island House Interchange and Tai Hang - Investigation**	SCALE	N.T.S.	DATE	Jul-14
		CHECK	ENFL	DRAWN	JCYK
	Graphical Presentation of Impact 24-hour TSP Monitoring Results	JOB NO.	60102979	**APPENDIX No.** G	**Rev.** -

APPENDIX H
METEOROLOGICAL DATA FOR THE REPORTING MONTH

Extract of Meteorological Observations for Tai Mei Tuk Automatic Weather Station, September 2014 (Table 1)

Date	Mean Pressure at M.S.L. (hPa)	Air Temperature			Mean Dew Point Temperature (deg C)	Relative Humidity		
		Max. (deg C)	Mean (deg C)	Min. (deg C)		Max. (%)	Mean (%)	Min. (%)
Sep 1	******	34.5	29.7	27.4	****	***	***	***
Sep 2	******	35.2	30.2	26.9	****	***	***	***
Sep 3	******	34.8	30.4	27.0	****	***	***	***
Sep 4	******	35.8	30.0	27.7	****	***	***	***
Sep 5	******	31.5	29.0	26.9	****	***	***	***
Sep 6	******	34.5	29.8	27.0	****	***	***	***
Sep 7	******	31.4	29.0	27.0	****	***	***	***
Sep 8	******	32.7	28.4	26.7	****	***	***	***
Sep 9	******	35.1	30.2	27.3	****	***	***	***
Sep 10	******	35.2	30.1	27.4	****	***	***	***
Sep 11	******	34.4	30.0	27.5	****	***	***	***
Sep 12	******	29.1	27.4	25.8	****	***	***	***
Sep 13	******	33.8	29.2	26.6	****	***	***	***
Sep 14	******	34.1	29.9	27.4	****	***	***	***
Sep 15	******	33.2	29.1	25.6	****	***	***	***
Sep 16	******	29.3	27.2	25.1	****	***	***	***
Sep 17	******	30.7	28.0	27.0	****	***	***	***
Sep 18	******	34.0	29.6	26.4	****	***	***	***
Sep 19	******	35.8	30.8	26.9	****	***	***	***
Sep 20	******	32.9	28.7	25.4	****	***	***	***
Sep 21	******	31.7	26.9#	25.3	****	***	***	***
Sep 22	******	32.0	27.8	24.8	****	***	***	***
Sep 23	******	33.1	27.9	24.5	****	***	***	***
Sep 24	******	34.0	28.7	25.4	****	***	***	***
Sep 25	******	34.4	28.9	25.8	****	***	***	***
Sep 26	******	32.6	28.3	26.1	****	***	***	***
Sep 27	******	33.9	28.9	26.2	****	***	***	***
Sep 28	******	34.0	28.4#	25.6	****	***	***	***
Sep 29	******	34.6	29.6	26.2	****	***	***	***
Sep 30	******	36.0	30.4	27.0	****	***	***	***
Mean	******	33.5	29.1#	26.4	****	***	***	***

Maximum	******	36.0	30.8#	27.7	****	***	***	***
Minimum	******	29.1	26.9#	24.5	****	***	***	***

Extract of Meteorological Observations for Tai Mei Tuk Automatic Weather Station, September 2014 (Table 2)

Date	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
Sep 1	0.0	090	9.3
Sep 2	0.0	140	5.4
Sep 3	0.0	260	12.1
Sep 4	0.0	270	6.8
Sep 5	6.5	090	14.4
Sep 6	0.0	050	9.1
Sep 7	3.5	080	22.7
Sep 8	8.0	140	9.5
Sep 9	0.0	140	5.3
Sep 10	0.0	140	5.6
Sep 11	0.0	080	11.0
Sep 12	26.5	050	22.4
Sep 13	12.0	140	11.5
Sep 14	0.5	040	9.8
Sep 15	34.5	040	29.0
Sep 16	34.5	100	49.3
Sep 17	2.5	120	20.5
Sep 18	0.0	140#	4.2#
Sep 19	0.0	240	5.6
Sep 20	0.0	040	17.1
Sep 21	0.0#	010#	14.0#
Sep 22	0.0	360	8.7
Sep 23	0.0	140	4.3
Sep 24	0.0	150	4.0
Sep 25	0.0	150	3.6
Sep 26	0.0	150	4.1
Sep 27	0.0	150	5.2
Sep 28	0.0#	130#	5.3#
Sep 29	0.0	140	3.3
Sep 30	0.0	150	5.0
Mean	-----	140#	11.3#
Total	128.5#	---	-----
Maximum	34.5#	---	49.3#
Minimum	0.0#	---	3.3#

*** unavailable

missing (less than 24 hourly observations a day)

Rainfall measured in increment of 0.5 mm. Amount of < 0.5 mm cannot be detected

APPENDIX I
IMPACT DAYTIME CONSTRUCTION NOISE MONITORING RESULTS AND THEIR GRAPHICAL PRESENTATION

Appendix I Impact Daytime Construction Noise Monitoring Results

Location : NM1A (168 Shek Kwu Lung Village G/F- Façade)
Day time 07:00-19:00 hrs Normal Weekdays Impact Noise Monitoring Results

Date	Measured Noise Level for 30-min, dB(A)				Baseline Noise Level, dB(A)	Corrected Construction Noise Level, dB(A) **	Limit Level, dB(A)	Exceedance (Y/N)
	Start Time	Leq	L10	L90				
5-Sep-14	10:40	64.0	66.8	61.2	64.2	64.0	75	N
11-Sep-14	13:10	59.6	60.4	56.7	64.2	59.6	75	N
15-Sep-14	13:05	63.2	66.8	61.0	64.2	63.2	75	N
26-Sep-14	11:30	60.6	61.5	57.5	64.2	60.6	75	N
30-Sep-14	10:30	64.6	66.9	61.2	64.2	54.0	75	N

	Corrected Noise Level dB(A)
Average	61.4
Max	64.0
Min	54.0

Location : NM2 (38 Ha Wun Yiu G/F - Free Field)
Day time 07:00-19:00 hrs Normal Weekdays Impact Noise Monitoring Results

Date	Measured Noise Level for 30-min, dB(A)				Baseline Noise Level, dB(A)*	Corrected Construction Noise Level, dB(A) **	Limit Level, dB(A)	Exceedance (Y/N)
	Start Time	Leq*	L10*	L90*				
Construction Phase EM&A Programme for Contract 1 of the Project was completed on 15 July 2014. No monitoring has been carried out beyond 15 July 2014.								

Location : NM3 (Wong Shiu Chi Middle School Rooftop - Façade)
Day time 07:00-19:00 hrs Normal Weekdays Impact Noise Monitoring Results

Date	Measured Noise Level for 30-min, dB(A)				Baseline Noise Level, dB(A)	Corrected Construction Noise Level, dB(A) **	Limit Level, dB(A)#	Exceedance (Y/N)
	Start Time	Leq	L10	L90				
Construction Phase EM&A Programme for Contract 1 of the Project was completed on 15 July 2014. No monitoring has been carried out beyond 15 July 2014.								

Location : NM4 (Uptown Plaza Block 4 Rooftop - Façade)
Day time 07:00-19:00 hrs Normal Weekdays Impact Noise Monitoring Results

Date	Measured Noise Level for 30-min, dB(A)				Baseline Noise Level, dB(A)	Corrected Construction Noise Level, dB(A) **	Limit Level, dB(A)	Exceedance (Y/N)
	Start Time	Leq	L10	L90				
Construction Phase EM&A Programme for Contract 1 of the Project was completed on 15 July 2014. No monitoring has been carried out beyond 15 July 2014.								

Location : NM5 (The Paragon Clubhouse Rooftop - Façade)
Day time 07:00-19:00 hrs Normal Weekdays Impact Noise Monitoring Results

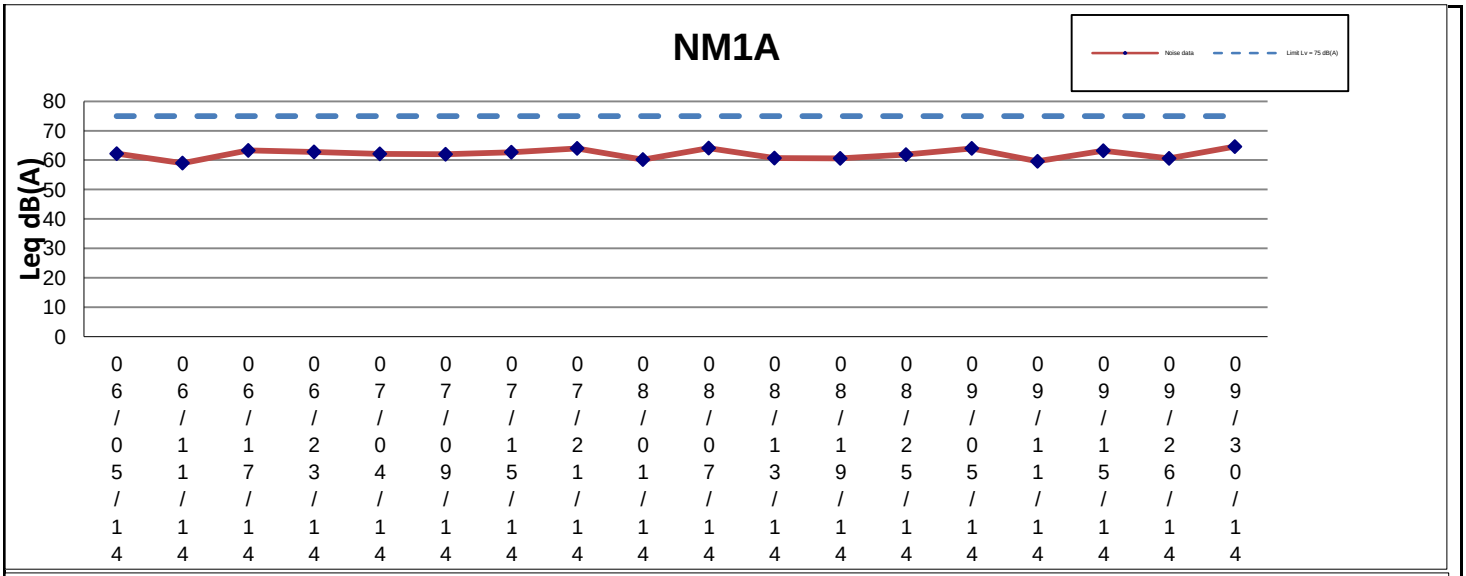
Date	Measured Noise Level for 30-min, dB(A)				Baseline Noise Level, dB(A)	Corrected Construction Noise Level, dB(A) **	Limit Level, dB(A)	Exceedance (Y/N)
	Start Time	Leq	L10	L90				
Construction Phase EM&A Programme for Contract 1 of the Project was completed on 15 July 2014. No monitoring has been carried out beyond 15 July 2014.								

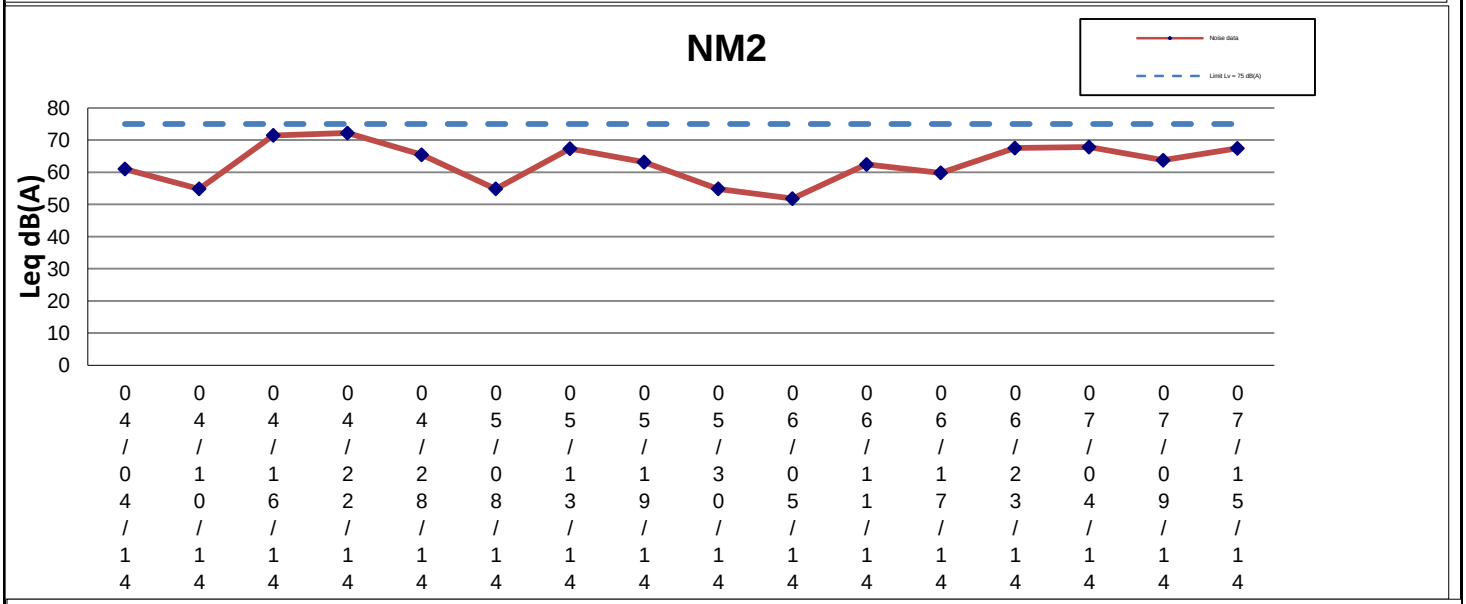
Location : NM6 (PLK Tin Ka Ping Primary School near the entrance - Free Field)
Day time 07:00-19:00 hrs Normal Weekdays Impact Noise Monitoring Results

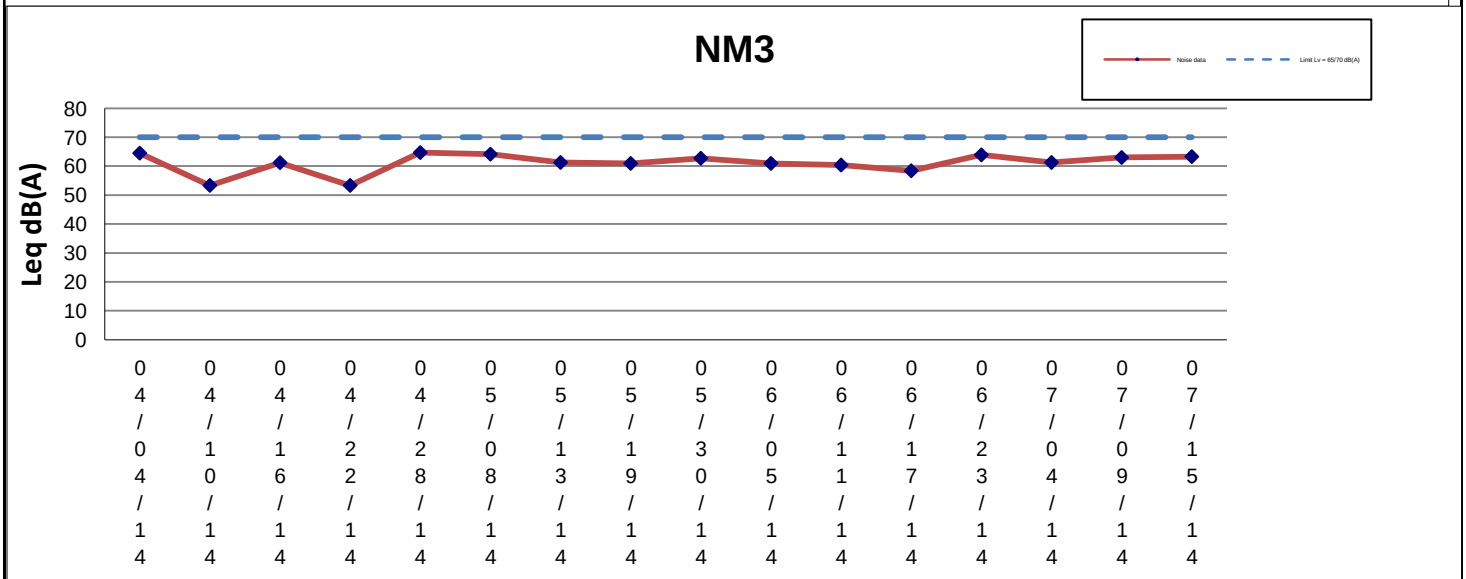
Date	Measured Noise Level for 30-min, dB(A)				Baseline Noise Level, dB(A)*	Corrected Construction Noise Level, dB(A) **	Limit Level, dB(A)#	Exceedance (Y/N)
	Start Time	Leq*	L10*	L90*				
Construction Phase EM&A Programme for Contract 1 of the Project was completed on 15 July 2014. No monitoring has been carried out beyond 15 July 2014.								

Location : NM7 (Riverain Bayside Switch Room Rooftop - Façade)
Day time 07:00-19:00 hrs Normal Weekdays Impact Noise Monitoring Results

Date	Measured Noise Level for 30-min, dB(A)				Baseline Noise Level, dB(A)	Corrected Construction Noise Level, dB(A) **	Limit Level, dB(A)	Exceedance (Y/N)
	Start Time	Leq	L10	L90				
Construction Phase EM&A Programme for Contract 1 of the Project was completed on 15 July 2014. No monitoring has been carried out beyond 15 July 2014.								



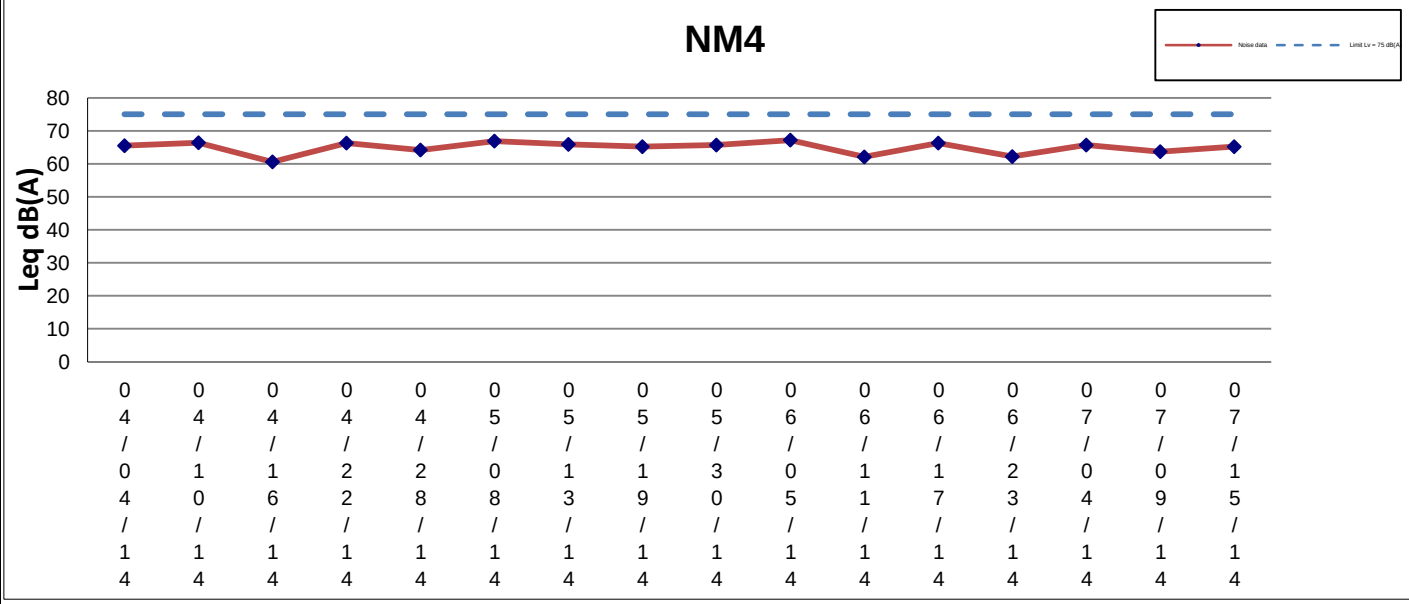




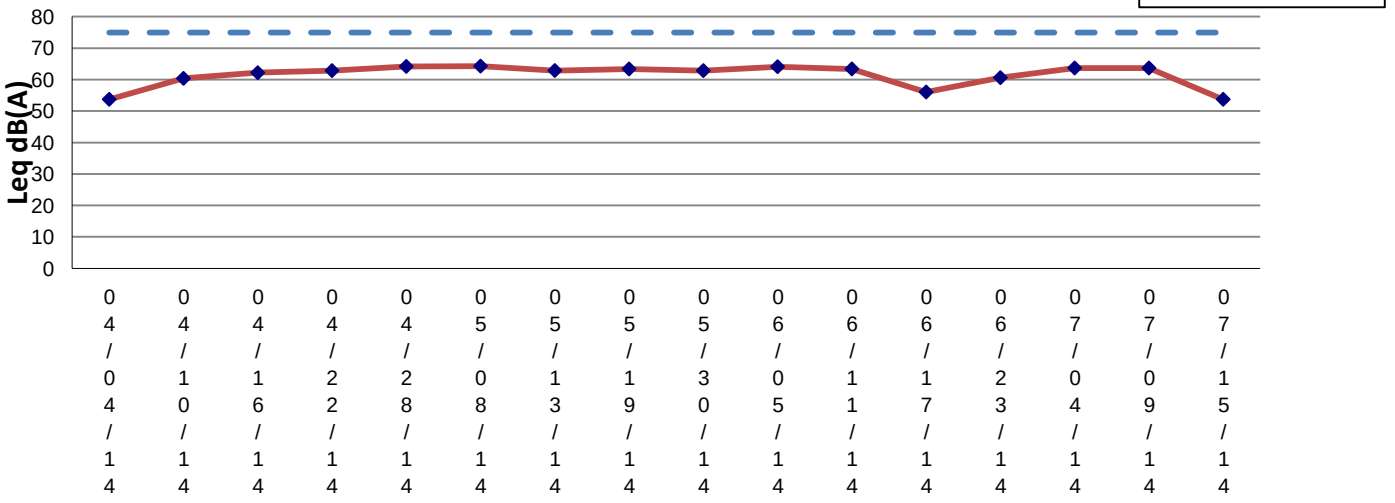
Remarks: (1) The monitoring station at Tai Kwong Secondary School (NM1) was relocated to 168 Shek Kwu Lung Village (NM1A) starting from 1 September 2011 due to the mentioned school was closed down;
(2) Measured noise level would be shown if Measured noise level (Leq) <= Baseline noise level

AECOM	**Environmental Team for the Widening of Tolo Highway between Island House Interchange and Tai Hang - Investigation**	SCALE	N.T.S.	DATE	Oct-14
		CHECK	ENFL	DRAWN	JCYK
	Graphical Presentation of Impact Daytime Construction Noise Monitoring Results	JOB NO.	60102979	**APPENDIX No.** I	**Rev.** -

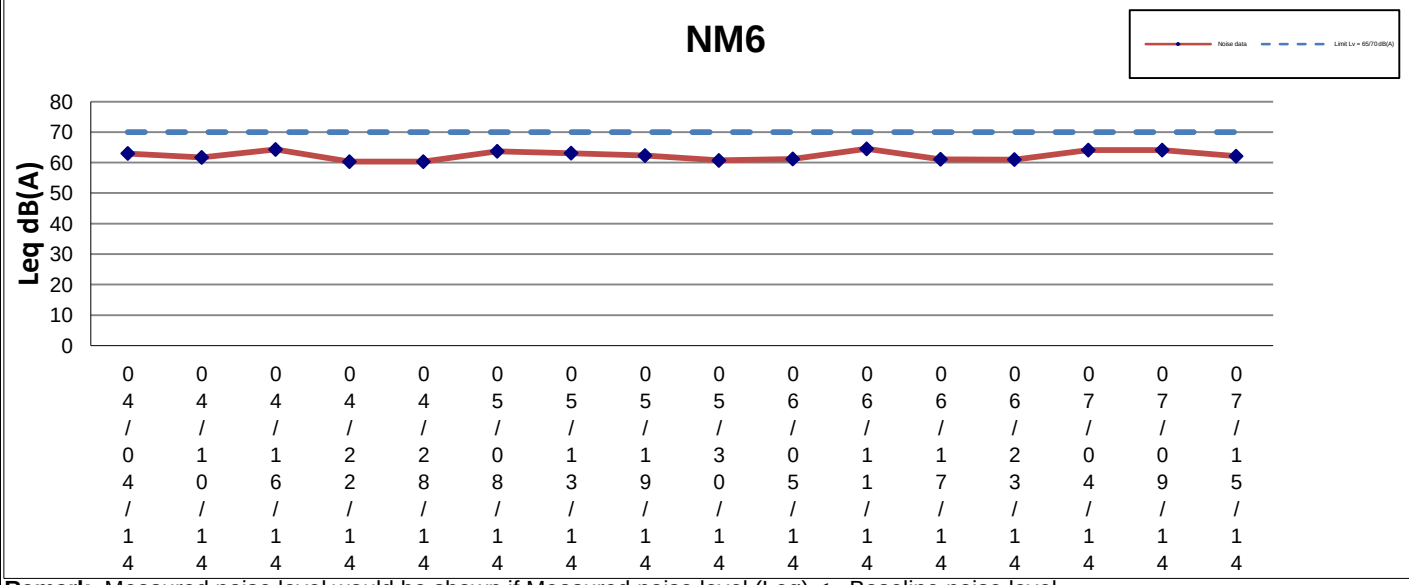
NM4



NM5

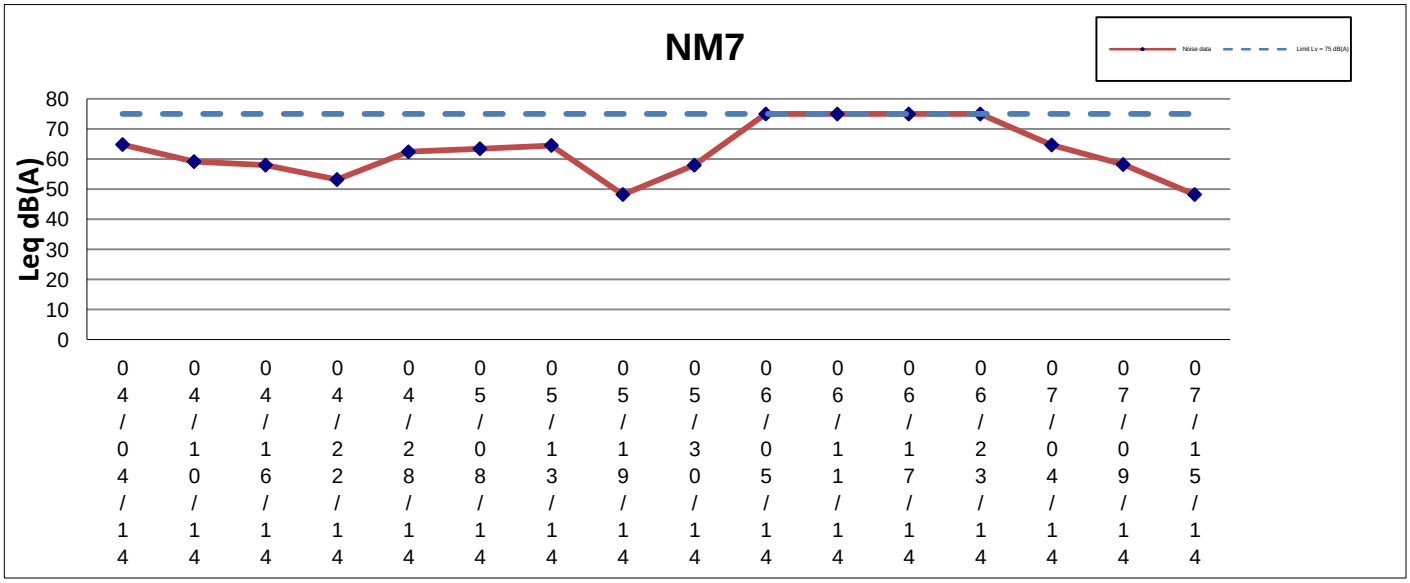


NM6



Remark: Measured noise level would be shown if Measured noise level (Leq) <= Baseline noise level

AECOM	**Environmental Team for the Widening of Tolo Highway between Island House Interchange and Tai Hang - Investigation**	SCALE	N.T.S.	DATE	Sep-14
		CHECK	ENFL	DRAWN	JCYK
	Graphical Presentation of Impact Daytime Construction Noise Monitoring Results	JOB NO.	60102979	**APPENDIX No.** I	**Rev.** -



Remark: Measured noise level would be shown if Measured noise level (Leq) <= Baseline noise level

AECOM	**Environmental Team for the Widening of Tolo Highway between Island House Interchange and Tai Hang - Investigation**	SCALE	N.T.S.	DATE	Sep-14
		CHECK	ENFL	DRAWN	JCYK
	Graphical Presentation of Impact Daytime Construction Noise Monitoring Results	JOB NO.	60102979	**APPENDIX No.** I	**Rev.** -

APPENDIX J
EVENT ACTION PLAN

Appendix J – Event Action Plan

Event / Action Plan for Air Quality

Event	Action			
	ET Leader	**IEC**	**ER**	**Contractor**
Action Level				
Exceedance for one sample	1. Identify source; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to dailv.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Exceedance for two or more consecutive samples	1. Identify source; 2. Inform IEC and ER; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. Discuss with IEC and Contractor on remedial actions required; 6. If exceedance continues, arrange meeting with IEC and ER; 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Submit proposals for remedial actions to IEC within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.

Event / Action Plan for Air Quality

Event Action Level	Action			
	ET Leader	**IEC**	**ER**	**Contractor**
Limit Level				
Exceedance for one sample	1. Identify source; 2. Inform IEC, ER, Contractor and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Exceedance for two or more consecutive samples	1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase frequency to daily; 5. Analyse Contractor's working procedures to determine possible mitigation to be; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise ER accordingly; 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by ER until the exceedance is abated.

Event / Action Plan for Noise Impact

Event Limit Level	Action			
	ET Leader	**IEC**	**ER**	**Contractor**
Action Level	1. Notify IEC and the Contractor. 2. Carry out investigation. 3. Report the results of investigation to IEC and the Contractor. 4. Discuss with the Contractor and formulate remedial measures. 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review with analysed results submitted by ET. 2. Review the proposed remedial measures by the Contractor and advise ER accordingly. 3. Supervise the implement of remedial measures.	1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IEC. 2. Implement noise mitigation proposals.
Limit Level	1. Notify, IEC, ER, EPD and the Contractor. 2. Identify the source. 3. Repeat measurement to confirm findings. 4. Increase monitoring frequency. 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented. 6. Inform IEC, ER, and EPD the causes & actions taken for the exceedances. 7. Assess effectiveness of the Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET Leader and the Contractor on the potential remedial actions. 2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise ER accordingly. 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant activity of works as determined by the ER until the exceedance is abated.

APPENDIX K
SITE INSPECTION SUMMARIES

Site Inspection Summary

Inspection Information

Contract No.	HY/2009/08 (Between Ma Wo and Tai Hang)
Date:	4 September 2014
Time:	14:00
Inspection No.:	466

Non-compliance

Nil

Observations

Follow Up Observations

Nil.

New Observations

Nil.

Reminders

Active removal of stockpiles by excavators was observed. However, the Contractor was reminded to cover the exposed slopes entirely by impervious sheeting when there are no construction activities in the concerned area.

Remarks

Nil

Inspection Information

Contract No.	HY/2009/08 (Between Ma Wo and Tai Hang)
Date:	11 September 2014
Time:	14:00
Inspection No.:	467

Non-compliance

Nil

Observations

Follow Up Observations

Nil.

New Observations

Nil.

Reminders

An exposed stockpile was observed. The Contractor was reminded to cover the stockpile entirely by impervious sheeting when the soil is not in use.

Remarks

Nil

Inspection Information

Contract No.	HY/2009/08 (Between Ma Wo and Tai Hang)
Date:	18 September 2014
Time:	14:00
Inspection No.:	468

Non-compliance

Nil

Observations

Follow Up Observations

Nil.

New Observations

Nil.

Remarks

Nil

APPENDIX L
STATISTICS ON COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

Appendix L

Statistics on Complaints, Notifications of Summons and Successful Prosecutions

	Date Received	Subject	Status	Total no. followed up by ET this month	Total no. followed up by ET since project commencement
Environmental complaints	-	-	-	0	39
Notification of summons	-	-	-	0	0
Successful Prosecutions	-	-	-	0	0