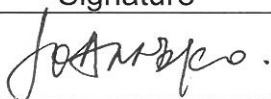



Environmental Protection Department

Contract No. HY/2012/06

**Widening of Fanling Highway
– Tai Hang to Wo Hop Shek
Interchange****Monthly EM&A Report
for January 2014**

[02/2014]

	Name	Signature
Prepared & Checked:	Joanne Ko	
Reviewed & Approved:	Y W Fung	

Version: Rev. 0 Date: 14 February 2014

Disclaimer

This report is prepared for Environmental Protection Department and is given for its sole benefit in relation to and pursuant to Contract No. HY/2012/06 and may not be disclosed to, quoted to or relied upon by any person other than Environmental Protection Department without our prior written consent. No person (other than Environmental Protection Department) into whose possession a copy of this report comes may rely on this report without our express written consent and Environmental Protection Department may not rely on it for any purpose other than as described above.

AECOM Asia Co. Ltd.
15/F, Grand Central Plaza, Tower 1, 138 Shatin Rural Committee Road, Shatin, NT, Hong Kong
Tel: (852) 3922 9000 Fax: (852) 2317 7609 www.aecom.com



Our ref AFK/TK/jn/bw/T329380/22.05/L-0012

T 2828 5919

E terence.kong@mottmac.com.hk

Your ref

Hyder-Arup-Black & Veatch Joint Venture
c/o Hyder Consulting Limited
47/F Hopewell Centre
183 Queen's Road East
Wanchai, Hong Kong

Dear Sir,

12 February 2014

By Fax (2805 5028) & Post

Attn: Mr. James Penny

EM&A for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling Stage 2 (between Tai Hang to Wo Hop Shek Interchange)
Environmental Permit No. EP-324/2008/A
Condition 3.3 – Submission of Monthly EM&A Report – January 2014 for the portion of Stage 2 works under Contract No. HY/2012/06

We refer to the revised Monthly EM&A Report – January 2014 received on 10 and 12 February 2014 submitted by ET via email. Pursuant to EP Condition 3.3, I hereby verify the Monthly EM&A Report – January 2014 (Rev. 0) for the portion of works under Stage 2 of the captioned Project which is managed under Contract No. HY/2012/06.

Yours faithfully
for MOTT MACDONALD HONG KONG LIMITED

A handwritten signature in black ink, appearing to read 'Terence Kong'.

Terence Kong
Independent Environmental Checker

c.c. HyD – Mr. Chung Lok Chin (Fax: 2714 5198) / Ms. Jackei Yin (Fax: 2761 4864)
AECOM – Mr. Y W Fung (Fax:2891 0305)

TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	3
1 INTRODUCTION	5
1.1 Background	5
1.2 Scope of Report	6
1.3 Project Organization	6
1.4 Summary of Construction Works	6
1.5 Summary of EM&A Programme Requirements	7
2 AIR QUALITY MONITORING	8
2.1 Monitoring Requirements	8
2.2 Monitoring Equipment	8
2.3 Monitoring Locations	8
2.4 Monitoring Parameters, Frequency and Duration	8
2.5 Monitoring Methodology	9
2.6 Monitoring Schedule for the Reporting Month	10
2.7 Results and Observations	11
3 NOISE MONITORING	12
3.1 Monitoring Requirements	12
3.2 Monitoring Equipment	12
3.3 Monitoring Locations	12
3.4 Monitoring Parameters, Frequency and Duration	12
3.5 Monitoring Methodology	13
3.6 Monitoring Schedule for the Reporting Month	13
3.7 Monitoring Results	13
4 ENVIRONMENTAL SITE INSPECTION AND AUDIT	15
4.1 Site Inspection	15
4.2 Advice on the Solid and Liquid Waste Management Status	15
4.3 Environmental Licenses and Permits	16
4.4 Implementation Status of Environmental Mitigation Measures	17
4.5 Summary of Exceedances of the Environmental Quality Performance Limit	17
4.6 Summary of Complaints, Notification of Summons and Successful Prosecutions	17
5 FUTURE KEY ISSUES	18
5.1 Construction Programme for the Coming Months	18
5.2 Key Issues for the Coming Month	18
5.3 Monitoring Schedule for the Coming Month	18
6 CONCLUSIONS AND RECOMMENDATIONS	19
6.1 Conclusions	19
6.2 Recommendations	19

List of Tables

Table 1.1	Contact Information of Key Personnel
Table 2.1	Air Quality Monitoring Equipment
Table 2.2	Locations of Impact Air Quality Monitoring Station
Table 2.3	Air Quality Monitoring Parameters, Frequency and Duration
Table 2.4	Summary of 1-hour TSP Monitoring Results in the Reporting Period
Table 2.5	Summary of 24-hour TSP Monitoring Results in the Reporting Period
Table 3.1	Noise Monitoring Equipment
Table 3.2	Locations of Impact Noise Monitoring Stations
Table 3.3	Noise Monitoring Parameters, Frequency and Duration
Table 3.4	Summary of Construction Noise Monitoring Results in the Reporting Period
Table 4.1	Summary of Waste Flow Table
Table 4.2	Summary of Environmental Licensing and Permit Status

Figures

Figure 1.1	General Project Layout Plan
Figure 1.2a-b	Locations of Monitoring Station
Figure 4.1	Environmental Complaint Handling Procedures

List of Appendices

Appendix A	Project Organization Structure
Appendix B	Construction Programme
Appendix C	Implementation Schedule of Environmental Mitigation Measures (EMIS)
Appendix D	Summary of Action and Limit Levels
Appendix E	Calibration Certificates of Monitoring Equipments
Appendix F	EM&A Monitoring Schedules
Appendix G	Impact Air Quality Monitoring Results and their Graphical Presentation
Appendix H	Meteorological Data for the Reporting Month
Appendix I	Impact Daytime Construction Noise Monitoring Results and their Graphical Presentation
Appendix J	Event Action Plan
Appendix K	Site Inspection Summaries
Appendix L	Statistics on Complaints, Notifications of Summons and Successful Prosecutions

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). An Environmental Impact Assessment (EIA) Report (the approved EIA Report) together with an Environmental Monitoring and Audit (EM&A) Manual (the approved EM&A Manual) were completed and approved under the EIAO on 14 July 2000 (Register Number: EIA-043/2000).

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.

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). Stage 2 would be implemented under two works contracts. Contract No. HY2012/06 “Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange” and the entrusted portion to CEDD under Contract No. CV/2012/09 “Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works – Contract 3”. This report focuses on Contract No. HY2012/06 “Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange” in Stage 2 of the Project only.

The construction phase of the Contract under the EP and the Environmental Monitoring and Audit (EM&A) programme of the contract commenced on 21 November 2013. 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 31 January 2014. As informed by the Contractor, construction activities in the reporting period were:-

- Site clearance;
- Ground investigation;
- Tree felling and transplanted; and
- Erection of hoarding.

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 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 include:

- Properly store and label oils and chemicals on site;
- Chemical, chemical waste and waste management;
- Collection of construction waste should be carried out regularly;
- Properly maintain all drainage facilities and wheel washing facilities on site;
- Exposed slopes should be covered up properly if no temporary work will be conducted;
- Quieter powered mechanical equipment should be used;
- Suppress dust generated from excavation activities and haul road traffic; 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 the expressways in the North East New Territories (NENT) connecting Sha Tin, Tai Po and Fanling. These highways form a vital part of the strategic Route 9, which links Hong Kong Island to the boundary at Shenzhen. At present, this section of Route 9 is a dual 3-lane carriageway. However, at several major interchanges along this section of Route 9, the highway is a dual-2 lane carriageway only. Severe congestion is a frequent occurrence during the 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 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.
- 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). Stage 2 would be implemented under two works contracts. Contract No. HY/2012/06 “Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange” and the entrusted portion to CEDD under Contract No. CV/2012/09 “Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works – Contract 3”. This report focuses on Contract No. HY2012/06 “Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange” in Stage 2 of the Project only.
- 1.1.6. 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 Contract).
- 1.1.7. China State Construction Engineering (Hong Kong) Ltd. (CSHK) was commissioned as the Contractor of the Contract.
- 1.1.8. AECOM Asia Co. Ltd. was commissioned by China State Construction Engineering (Hong Kong) Limited as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) works for the Contract and Mott MacDonald Hong Kong Ltd. acts as the Independent Environmental Checker (IEC) for the Contract.
- 1.1.9. The construction phase of the Contract under the EP commenced on 21 November 2013.
- 1.1.10. According to the updated EM&A Manual of Stage 2 of the Project, there is a need of an EM&A programme including air quality and noise monitoring. The EM&A programme for Stage 2 of the Project commenced on 21 November 2013.

1.2 Scope of Report

1.2.1 This is the third monthly EM&A Report under the Contract No. HY/2012/06 “Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange. This report presents a summary of the environmental monitoring and audit works, list of activities and mitigation measures proposed by the ET for the Contract in January 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 (Hyder-Arup-Black & Veatch Joint Venture)	Chief Resident Engineer	Edwin Chung	6115 0818	2638 0950
IEC (Mott MacDonald Hong Kong Limited)	Independent Environmental Checker	Terence Kong	2828 5919	2827 1823
Contractor (China State Construction Engineering (Hong Kong) Limited)	Site Agent	Edward Ho	9183 3827	2672 2501
	Environmental Officer	Michael Tsang	9277 4956	2672 2501
		C C Chow	9679 6315	2672 2501
ET (AECOM Asia Company Limited)	ET Leader	Y W Fung	3922 9393	3922 9797

1.4 Summary of Construction Works

1.4.1 The construction phase for the Contract under the EP commenced on 21 November 2013.

1.4.2 Details of the construction works carried out by the Contractor in this reporting period are listed below:-

- Site clearance;
- Ground investigation;
- Tree felling and transplantation; and
- Erection of hoarding.

1.4.3 The Construction Programme is shown in Appendix B.

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

1.4.5 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 one air quality monitoring station was established. Impact 1-hour TSP monitoring was conducted for at least three times every 6 days, while impact 24-hour TSP monitoring was 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)

2.3 Monitoring Locations

2.3.1 The monitoring station was set up at the proposed location in accordance with updated EM&A Manual. Table 2.2 describes details of the monitoring station. The locations are shown in Figure 1.2a.

Table 2.2 Locations of Impact Air Quality Monitoring Station

Location	Monitoring Station
AM2 (SR2)	Fanling Government Secondary School

2.4 Monitoring Parameters, Frequency and Duration

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

Table 2.3 Air Quality Monitoring Parameters, Frequency and Duration

Parameter	Frequency and Duration
24-hour TSP	Once every 6 days
1-hour TSP	3 times every 6 days while the highest dust impact was expected

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 $\pm 2.5\%$ 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 $\pm 5\%$. 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 m³/min, and complied with the range specified in the updated EM&A Manual (i.e. 0.6-1.7 m³/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 January 2014 is provided in Appendix F.

2.7 Results and Observations

2.7.1 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

Location	Average ($\mu\text{g}/\text{m}^3$)	Range ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AM2 (Fanling Government Secondary School)	80.5	75.9 – 88.6	317.8	500

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

Location	Average ($\mu\text{g}/\text{m}^3$)	Range ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AM2 (Fanling Government Secondary School)	88.8	50.3 – 123.0	200.7	260

- 2.7.2 The major dust source during the monitoring mainly from nearby traffic emission.
- 2.7.3 All 1-hour and 24-hour TSP results were below the Action and Limit Level at all monitoring locations in the reporting month.
- 2.7.4 The event action plan is annexed in Appendix J.
- 2.7.5 Weather information including wind speed and wind direction is annexed in Appendix H. The information was obtained from the Hong Kong Observatory Tai Po and Tai Mei Tuk Automatic Weather Stations.

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 the Contract. 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; B&K 2250L
Acoustic Calibrator	Rion NC-73

3.3 Monitoring Locations

3.3.1 Monitoring stations M2 and M3 were set up at the proposed locations in accordance with updated EM&A Manual. Figure 1.2a-b 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
M2	West Tai Wo	1.2m from the ground floor free-field of the Residential
M3	Fanling Government Secondary School	1m from the exterior of the roof top façade of the school

3.4 Monitoring Parameters, Frequency and Duration

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

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

Parameter	Frequency and Duration
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 measurement was made at monitoring station M3, while free-field measurement was made at monitoring station M2.
- (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 monitoring station M2.
- (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 January 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), $L_{eq(30\text{ mins})}$	Range, dB(A), $L_{eq(30\text{ mins})}$	Limit Level, dB(A), $L_{eq(30\text{ mins})}$
M2*	69.0	66.4 – 71.3	75
M3#	63.6	62.9 – 64.2	65/70

*+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 There was no noise complaint related to 0700 – 1900 hours on normal weekdays was received and followed up by Environmental Team in the reporting period. Hence, no Action Level exceedance was recorded.
- 3.7.3 No noise monitoring result exceeding the Limit Level was recorded at all monitoring stations in the reporting month.
- 3.7.4 Major noise sources during the noise monitoring were mainly road traffic noise.
- 3.7.5 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 the Contract. In the reporting month, 4 site inspections were carried out respectively on 10, 14, 21 and 28 January 2014 for the Contract. While no specific observation was recorded, recommendations on remedial actions were given to the Contractor for precautionary purpose.

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

4.1.3 Particular observations during the site inspections are described below:

Air Quality

4.1.4 No adverse observation was identified in the reporting month.

Noise

4.1.5 No adverse observation was identified in the reporting month.

Water Quality

4.1.6 No adverse observation was identified in the reporting month.

Chemical and Waste Management

4.1.7 Chemical containers were observed on bare ground at Area 342 without the provision of drip trays. The Contractor should provide drip trays or equivalent measures to retain leakage, if any.

Landscape and Visual Impact

4.1.8 No adverse observation was identified in the reporting month.

Miscellaneous

4.1.9 No adverse observation was identified in the reporting month.

4.2 Advice on the Solid and Liquid Waste Management Status

4.2.1 The Contractor has registered as chemical waste producers for the Contract. 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 Contractor, 7m³ of inert C&D material was disposed of as public fill to Tuen Mun 38 (of which 0m³ was broken concrete), while 20m³ of general refuse was disposed of at NENT landfill. 0kg of paper/cardboard packaging, 0kg of plastics and 0kg of metals were collected by recycling contractors in the reporting month. 0m³ and 0m³ of inert C&D materials were reused on site and reused in NENT for backfilling purpose respectively. 0kg of chemical wastes was collected by licensed contractors in the reporting period.

4.2.3 The actual amounts of different types of waste generated by the activities of the Project in the reporting month are shown in Table 4.1.

Table 4.1 Summary of Waste Flow Table

Waste Type	Actual Amount	Disposal/Reuse Locations
Inert C&D materials	7m ³ (of which 0m ³ was broken concrete)	Tuen Mun 38
General refuse	20m ³	NENT Landfill
Paper/cardboard packaging	0kg	Recycling Contractors
Plastics	0kg	Recycling Contractors
Metals	0kg	Recycling Contractors
C&D materials reused on site	0m ³	Site Area
C&D materials reused in NENT for backfilling	0m ³	NENT Landfill
Chemical wastes	0kg	Licensed Contractors

4.2.4 The Contractor was advised to maintain on site waste sorting and recording system and maximize reuse / recycle 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 4.2.

Table 4.2 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/A	31/01/2012	N/A	HyD	--
WPCO	Discharge License (Site)	WT00017159-2013	18/09/2013	30/09/2018	CSHK	--
WDO	Chemical Waste Producer Registration	5213-722-C3822-01	5/09/2013	N/A	CSHK	Chemical waste produced in Contract HY/2012/06
WDO	Billing Account for Disposal of Construction Waste	7009328	08/09/2009	N/A	CSHK	Waste disposal in Contract HY/2008/09

Statutory Reference	License/ Permit	License or Permit No.	Valid Period		License/ Permit Holder	Remarks
			From	To		
NCO	Construction Noise Permit	GW-RN0648-13	10/11/2013	20/4/2014	CSHK	Tree Felling at South of Fanling Highway between Yuen Leng and Hong Lok Yuen (0900 to 1800 hours on Sunday)
		GW-RN0755-13	08/12/2013	01/06/2014	CSHK	Tree Felling at North of Fanling Highway between Yuen Leng and Hong Lok Yuen
		GW-RN0782-13	12/12/2013	07/06/2014	CSHK	Loading & Unloading at Fanling Highway between Hong Lok Yuen and Yuen Leng
		GW-RN0029-14	23/01/2014	25/02/2014	CSHK	Tree Felling at Fanling Highway near Ho Ka Yuen Bridge (South Bound)

4.4 Implementation Status of Environmental Mitigation Measures

4.4.1 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in Appendix C.

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.

4.6.3 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 Months

5.1.1 The major construction works for the Contract in February 2014 will be:-

- Site clearance;
- Ground investigation;
- Tree felling and transplantation; and
- Piling.

5.2 Key Issues for the Coming Month

5.2.1 Key issues to be considered in February 2014:-

- Properly store and label oils and chemicals on site;
- Chemical, chemical waste and waste management;
- Collection of construction waste should be carried out regularly;
- Properly maintain all drainage facilities and wheel washing facilities on site;
- Exposed slopes should be covered up properly if no temporary work will be conducted;
- Quieter powered mechanical equipment should be used;
- Suppress dust generated from excavation activities and haul road traffic; 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 February 2014 is provided in Appendix F.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

- 6.1.1 The construction phase and EM&A programme of the Contract commenced on 21 November 2013.
- 6.1.2 1-hour TSP, 24-hour TSP and noise monitoring were carried out in the reporting period.
- 6.1.3 All 1-hour and 24-hour TSP monitoring results complied with the Action / Limit Levels in the reporting period. No Action and Limit Level exceedance for construction noise was recorded at all monitoring stations in the reporting month.
- 6.1.4 4 environmental site inspections were carried out in January 2014. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site audits.
- 6.1.5 No complaint, notification of summons and successful prosecution was received in the reporting month.

6.2 Recommendations

- 6.2.1 According to the environmental site inspection performed in the reporting month, while no specific observation was recorded, the following recommendations on remedial actions were provided to the Contractor for precautionary purpose:

Air Quality Impact

- All vehicles should be washed to remove any dusty materials before leaving the site.
- Haul roads should be sufficiently dampened to minimize fugitive dust generation.
- Wheel washing facilities should be properly maintained to ensure properly functioning.

Construction Noise Impact

- Noisy operations should be oriented to a direction away from sensitive receivers as far as possible.

Water Quality Impact

- Stagnant water accumulated in drip trays should be removed.
- Silt accumulated at public drain should be cleaned up.
- Silty effluent should be treated/desilted before discharged. Untreated effluent should be prevented from entering public drain channel.

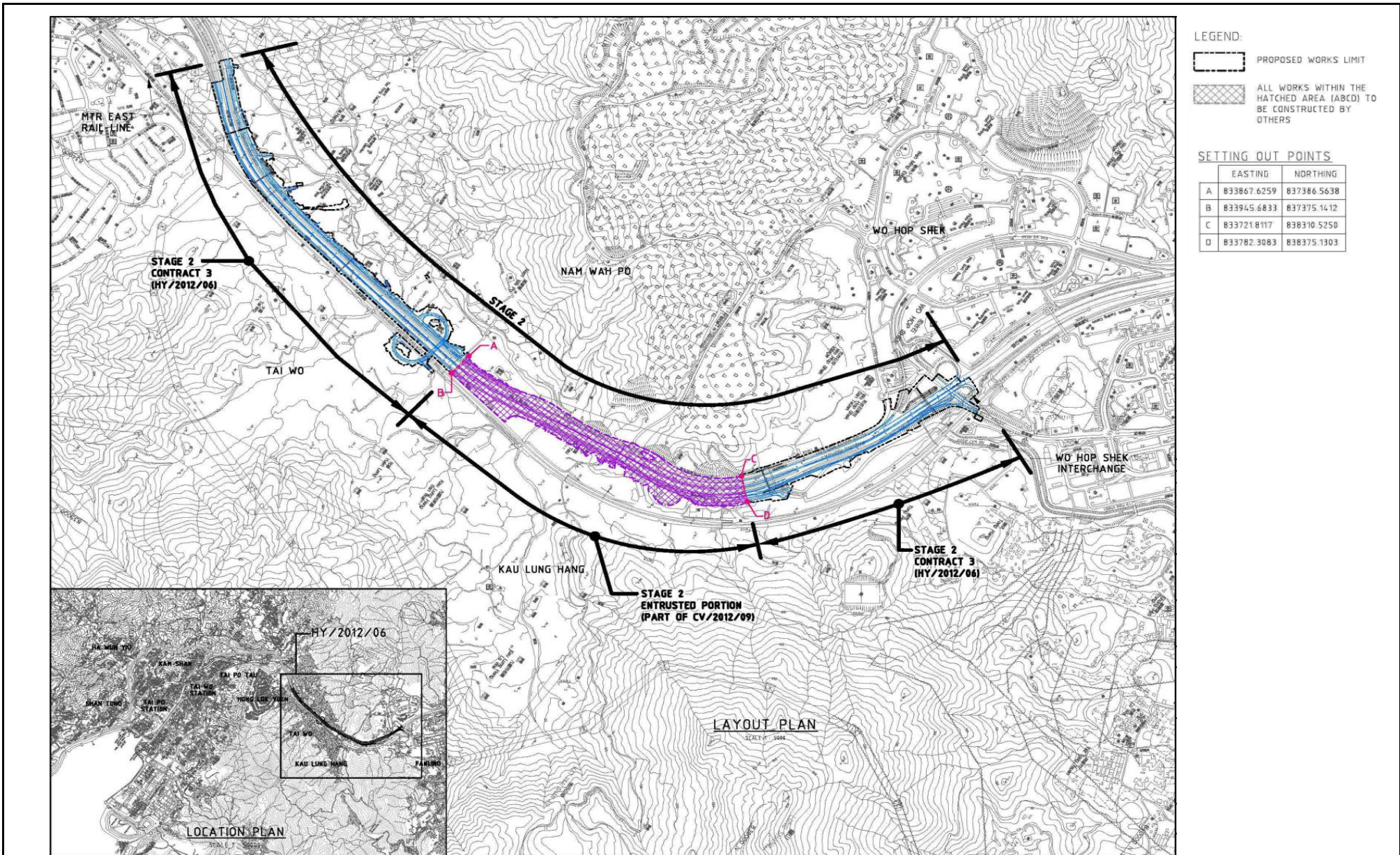
Chemical and Waste Management

- C&D material should be sorted and removed timely.
- All plants on site should be properly maintained to prevent oil leakage.
- Oil stains on soil surface and empty chemical containers should be cleared and disposed of as chemical waste.

Landscape and Visual Impact

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

FIGURES



This Drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent.

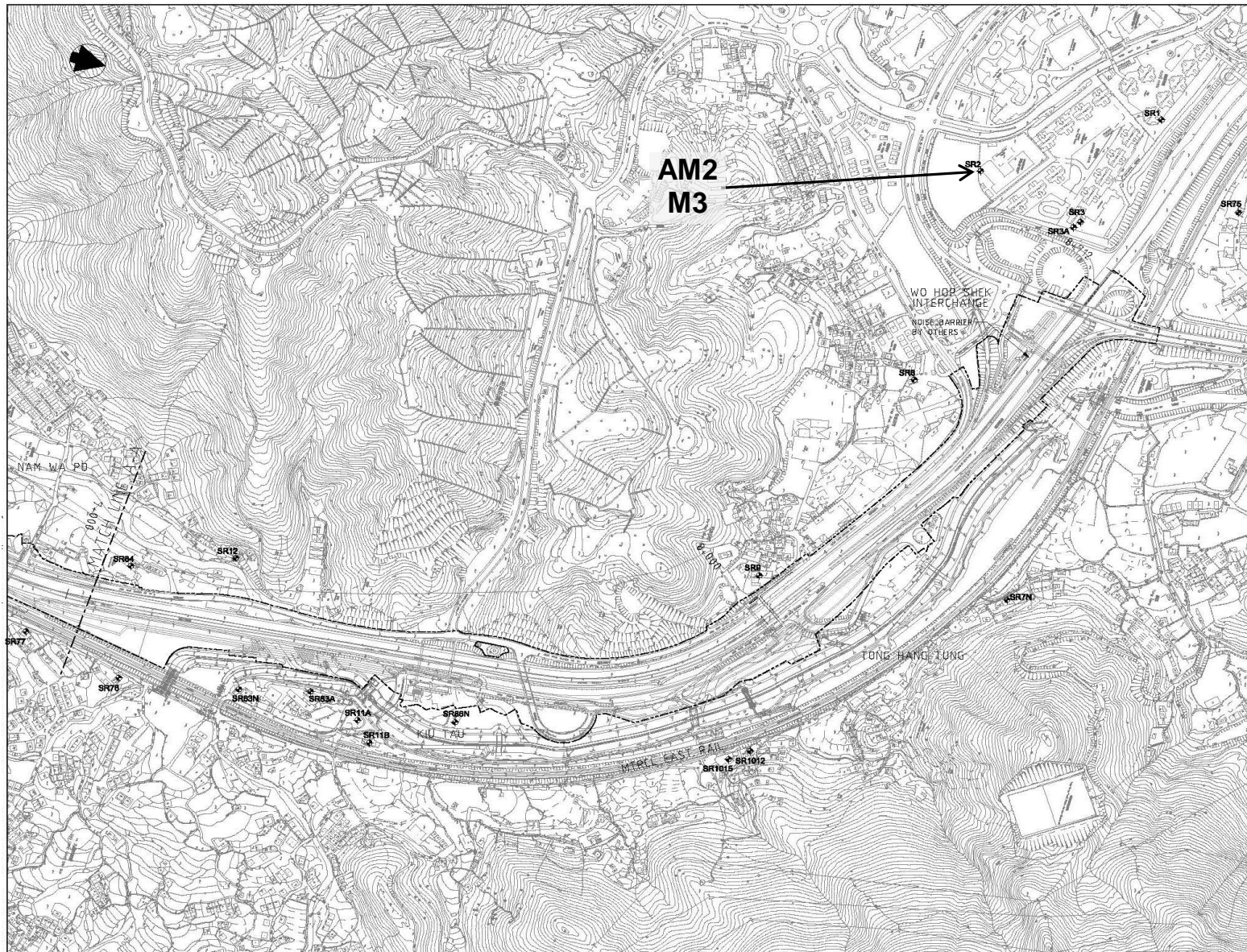
CONTRACT NO. HY/2012/06
 WIDENING OF FANLING HIGHWAY
 - TAI HANG TO WO HOP SHEK INTERCHANGE



Layout Plan

Date: Dec 2013

Figure 1.1



This Drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent.

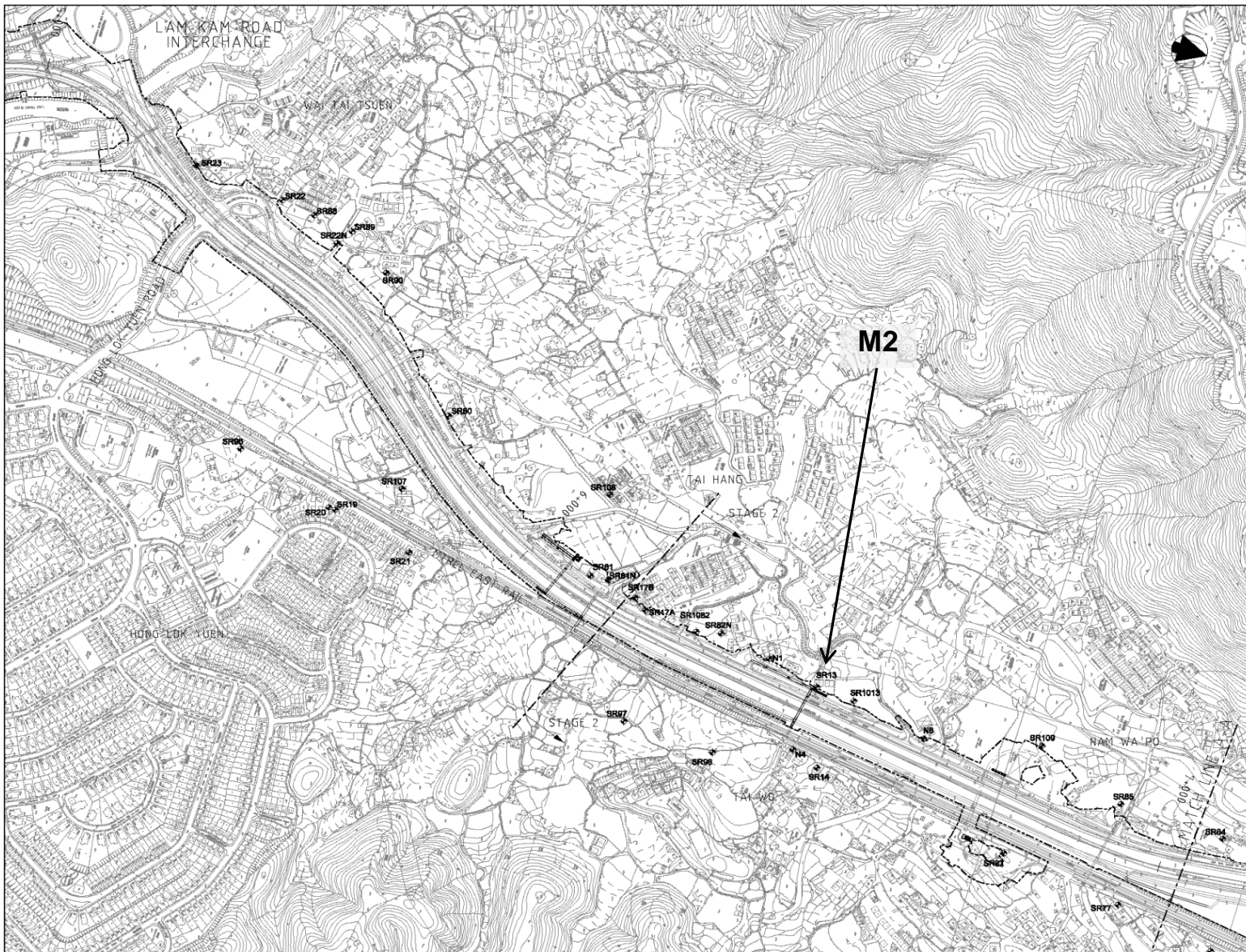
CONTRACT NO. HY/2012/06
 WIDENING OF FANLING HIGHWAY
 - TAI HANG TO WO HOP SHEK INTERCHANGE



Locations of Monitoring Station

Date: Dec 2013

Figure 1.2a



This Drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent.

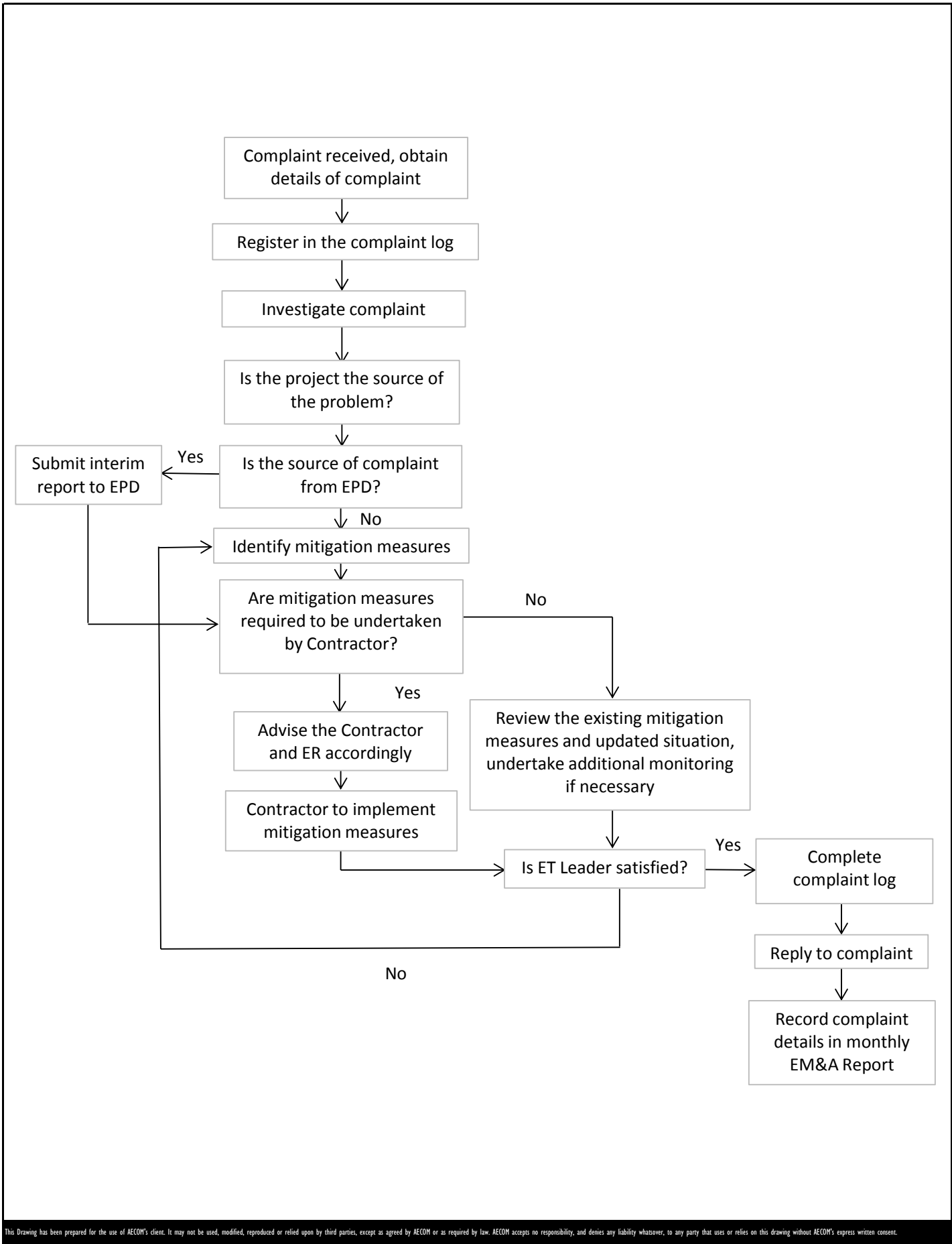
CONTRACT NO. HY/2012/06
 WIDENING OF FANLING HIGHWAY
 - TAI HANG TO WO HOP SHEK INTERCHANGE



Locations of Monitoring Station

Date: Dec 2013

Figure 1.2b



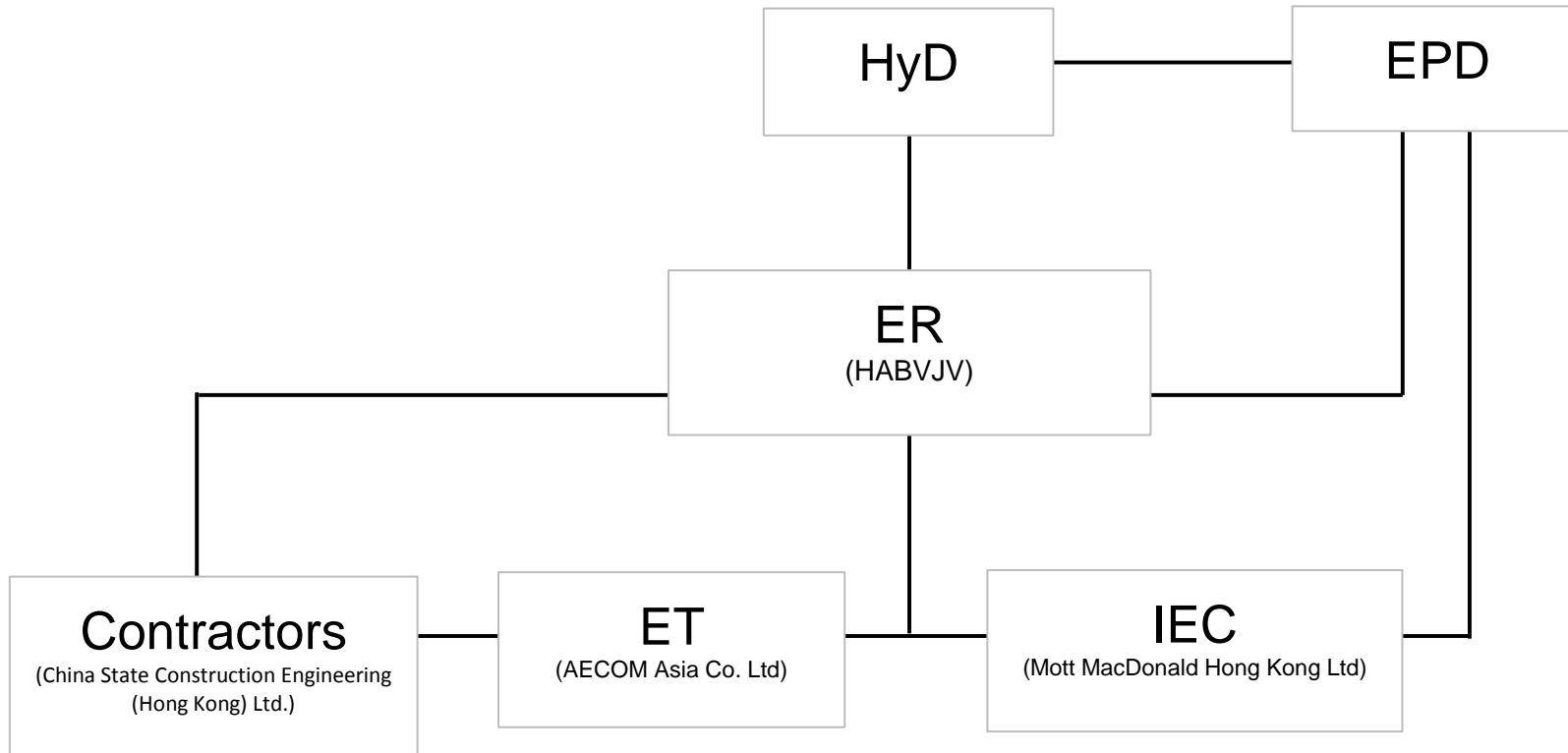
This Drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent.

CONTRACT NO. HY/2012/06
 WIDENING OF FANLING HIGHWAY
 - TAI HANG TO WO HOP SHEK INTERCHANGE



Environmental Complaint Handling Procedure

**APPENDIX A
PROJECT ORGANIZATION STRUCTURE**



This Drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent.

CONTRACT NO. HY/2012/06
 WIDENING OF FANLING HIGHWAY
 - TAI HANG TO WO HOP SHEK INTERCHANGE



Project Organization Structure

**APPENDIX B
CONSTRUCTION PROGRAMMES**


Activity ID	Activity Name	Duration % Complete	Remaining Duration	Original Duration	Start	Finish	Total Float	2014					
								2013	Jan	Feb	Mar	Apr	
Contract Condition													
General													
Contract Condition													
POSSA320	Site Area SA320 (0d)	0%	0	0	01-Mar-14*		0						
POSSA320A	Site Area SA320A (120d)	0%	0	0	14-Mar-14*		0						
POSSA320B	Site Area SA320B (0d)	0%	0	0	01-Mar-14*		0						
POSSA321	Site Area SA321 (120d)	0%	0	0	01-Apr-14*		0						
POSSA322	Site Area SA322 (120d)	0%	0	0	01-Apr-14*		0						
POSSA324	Site Area SA324 (180d)	0%	0	0	01-Apr-14*		0						
POSSA325	Site Area SA325 (180d)	0%	0	0	01-Apr-14*		0						
POSSA326	Site Area SA326 (180d)	0%	0	0	01-Apr-14*		0						
POSSA327	Site Area SA327 (180d)	0%	0	0	01-Apr-14*		0						
POSSA328	Site Area SA328 (90d)	0%	0	0	01-Apr-14*		0						
POSSA329	Site Area SA329 (90d)	0%	0	0	01-Apr-14*		0						
POSSA340	Site Area SA340 (0d)	0%	0	0	28-Feb-14*		0						
POSSA343	Site Area SA343 (180d)	0%	0	0	20-Jan-14*		-6						
POSSA343A	Site Area SA343A (180d)	0%	0	0	20-Jan-14*		-6						
POSSA345	Site Area SA345 (0d)	0%	0	0	28-Feb-14*		0						
Z1.1000	Instruction by The Engineer to Commence Work (Section Subject to Excision-424d)(SA310)	2.06%	238	243	18-Jul-13 A	14-Sep-14	1524						
ZONE 2 (Ch. 5880 to 6930)													
Noise Barrier Along TWSR-West and Laying New Utilities													
Site Clearance & Demolition of Existing Structure													
Demolition Work													
Z2.P2N.1242	Pending for design brief from Village/Engineer	7.77%	1816	1969	18-Jul-13 A	24-Mar-20	0						
Z2.P2N.1245	Method statement submission/ approval	0%	60	60	20-Jan-14	09-Apr-14	11						
Z2.P2N.1250	Construction of proposed SHRINE	0%	165	165	10-Apr-14	30-Oct-14	1188						
Z2.P2N.1260	Demolition of existing SHRINE	0%	30	30	10-Apr-14	20-May-14	11						
NB47 (Ch.5880-5930)-TWSR West Side													
DSD Southern Trunk Sewer, Water Main Fire Main Works													
TSZ10250	Sheet Piling & Excavation (~6m below ground) (along NB47)	0%	18	18	01-Apr-14	25-Apr-14	49						
NB47A (Ch.5950-5975)-TWSR West Side													
Noise Barrier Works													
NB00300	NB47A - ID 1-1 piling (0.19m -24no)-1 rigs	0%	72	72	20-Jan-14	26-Apr-14	27						
NB48 (Ch.5995-6120)-TWSR West Side													
Noise Barrier Works													
NB00355	NB48 - Pre-drilling	0%	27	27	01-Apr-14	08-May-14	19						
NB49B (Ch.6215-6235)-TWSR West Side													
Noise Barrier Works													
NB00545	NB49B - Pre-drilling	0%	22	22	01-Apr-14	30-Apr-14	-10						
NB57 (Ch.6365-6445)-TWSR West Side													
Noise Barrier Works													
NB00800	NB57 -Pre-drilling	0%	40	40	01-Apr-14	23-May-14	-35						
NB59 (Ch.6490-6590)-TWSR West Side													
Noise Barrier Works													
NB00940	NB59 -Pre-drilling	0%	47	47	01-Apr-14	31-May-14	16						
NB63 (Ch.6610-6700)-TWSR West Side													
Noise Barrier Works													
NB4550	NB63 - ID3-1 piling (0.19m -18no)-1 rigs	0%	27	27	01-Mar-14	01-Apr-14	-132						
DSD Southern Trunk Sewer, Water Main Fire Main Works													
TSZ10300	Sheet Piling & Excavation (~7m below ground) (along NB63)	0%	21	21	02-Apr-14	30-Apr-14	-132						
Bridge Construction													
New Tai Hang Footbridge													
General													
THBF0100	Site Clearance	0%	30	30	01-Apr-14	12-May-14	-81						

Remaining Level o...
 Actual Level of Effort
 Actual Work
 Remaining Work
 Critical Remaining ...
 Milestone
 Crit. Milestone

Project File: HY/2012/06: IWP Rev. 4 (1401)
 Layout: 3 Month Rolling Program
 Page 1 of 3
 Primavera Systems, Inc.

Contract No. HY/2012/06
Widening of Fanling Highway - Tai Hang to Wo Hop Shek Interchange
3 Month Rolling Program(20-Jan-14)

Date: 07...
 Revision: IWP Rev 4
 C...
 App...




Activity ID	Activity Name	Duration % Complete	Remaining Duration	Original Duration	Start	Finish	Total Float	2014					
								2013	Jan	Feb	Mar	Apr	
THBF0330	Structure steel Shop drawing submission (THFB)	0%	60	60	20-Jan-14	09-Apr-14	821						
THBF0335	Structure steel Shop drawing approval (THFB)	0%	30	30	22-Mar-14	30-Apr-14	821						
New Tai Wo Footbridge													
General													
TWFB1010	Site Clearance	0%	30	30	01-Apr-14	12-May-14	32						
TWFB1020	Structure steel Shop drawing submission (TWFB)	0%	90	90	20-Jan-14	20-May-14	1008						
Temporary Tai Wo Footbridge													
Design Works													
TWFB-T1000	Procurement of Temporary bridge Design consultant	0%	52	52	20-Jan-14	29-Mar-14	387						
TWFB-T1010	Design preparation	0%	90	90	31-Mar-14	22-Jul-14	387						
Demolition of Existing Tai Wo Footbridge													
TWSR-West/ FL Highway NB Side Section													
TWFB-DE0900	Site Clearance	0%	30	30	01-Mar-14	04-Apr-14	799						
Noise Barrier Along Fanling Highway S/B													
NB51 (Ch.5935-6055)-FH S/B Side													
Noise Barrier Works													
NB02250	NB51 ID1-3 (0-25m), 18nos Predrilling	0%	10	10	01-Mar-14	12-Mar-14	510						
NB02260	NB51 ID1-3 (0-25m) 18nos Piling- 1 rigs	0%	27	27	13-Mar-14	14-Apr-14	510						
NB02270	NB51 ID1-3 (0-25m) - Sheet piling & Excavation	0%	21	21	15-Apr-14	14-May-14	510						
NB61A (Ch.6560-6745)-FH S/B Side (MTRC I&P Area)													
Noise Barrier Works													
NB02870	Coordinate with MTRC for Precautionary Measure	50%	30	60	13-Nov-13 A	04-Mar-14	-109						
NB02880	Precautionary Measure installation	0%	26	26	05-Mar-14	03-Apr-14	-109						
NB02940	NB61A D2-3 (50-75m), 18nos Predrilling	0%	18	18	04-Apr-14	29-Apr-14	31						
NB03010	NB61A (75-190m) - Sheet piling & Excavation	0%	26	26	04-Apr-14	10-May-14	-109						
Other Works													
Site Clearance & Demolition of Existing Structure													
Contract Condition													
MCLT1000	Engineer Excise Section 3b Option	51.67%	174	360	18-Jul-13 A	12-Jul-14	27						
General													
Z2.P2N.1000	Liaison with relevant villages houses's owner and related parties	0%	30	30	11-Apr-14	21-May-14	-131						
South Buffer Zone 1 (SBZ1) (within Zone 2)(Ch.6740 to 6930)													
General													
General													
General													
POSSA328a	Tree Felling/Transplant	0%	30	30	01-Apr-14	12-May-14	102						
POSSA329a	Tree Felling/Transplant	0%	30	30	01-Apr-14	12-May-14	-50						
Noise Barrier Along TWSR-West and Laying New Utilities													
NB64 (Ch.6860-6920)-TWSR West Side													
Noise Barrier Works													
NB001000	NB64 -Pre-drilling	0%	35	35	01-Apr-14	17-May-14	-105						
Bridge Construction													
Kau Lung Hang Vehicular Bridge													
General													
Z2.KLH.1070	Consent from Engineer	64.29%	10	28	28-Nov-13 A	30-Jan-14	53						
Demolition of Existing Nam Wa Po Footbridge													
General													
Z2.NWP.0500	Site Clearance	0%	20	20	01-Apr-14	28-Apr-14	493						
North Buffer Zone 2 (NBZ2) (within Zone 4) (Ch. 7925 to 8100)													
Site Formation													
Site Formation Works													
Site Formation Work													
Z4SF1040	Construct earth bund	0%	19	12	20-Jan-14 A	19-Feb-14	-112						
Z4SF1050	Remove existing unsuitable material	0%	12	12	20-Feb-14	05-Mar-14	-112						
Z4SF1060	Backfilling up to formation level for Drainage work	0%	30	30	06-Mar-14	10-Apr-14	-112						
Z4SF1065	Drainage Work	0%	30	30	11-Apr-14	21-May-14	-112						
Retaining Wall W76													

Remaining Level o...
 Actual Level of Effort
 Actual Work
 Remaining Work
 Critical Remaining ...
 Milestone
 Crit. Milestone

Project File: HY/2012/06: IWP Rev. 4 (1401)
 Layout: 3 Month Rolling Program
 Page 2 of 3
 Primavera Systems, Inc.

Contract No. HY/2012/06
Widening of Fanling Highway - Tai Hang to Wo Hop Shek Interchange
3 Month Rolling Program(20-Jan-14)

Date	Revision	C...	App...
07...	IWP Rev 4		




Activity ID	Activity Name	Duration % Complete	Remaining Duration	Original Duration	Start	Finish	Total Float	2014					
								2013	Jan	Feb	Mar	Apr	
Structure Works													
RW761080	Base slab - W76 (~7m high)	0%	12	12	06-Mar-14	19-Mar-14	-104						
RW761085	Wall construction - W76 (~7m high)	0%	40	40	20-Mar-14	12-May-14	-104						
Bridge Construction													
New Ho Ka Yuen Footbridge													
General													
HKY1020	Site Clearance (TWSR-W side)	0%	30	30	28-Feb-14	03-Apr-14	-146						
HKY1025	Site Clearance (TWSR-E side)(SA346)	66.67%	10	30	27-Nov-13 A	30-Jan-14	-68						
HKY1030	Structure steel Shop drawing submission (HKYB)	0%	60	60	20-Jan-14	09-Apr-14	8						
HKY1040	Structure steel Shop drawing approval (HKYB)	0%	30	30	22-Mar-14	30-Apr-14	8						
TWSR-West/ FL Highway NB Side Section													
HKY1140	HKYP6 - Predrilling	0%	24	24	04-Apr-14	08-May-14	-146						
TWSR-East FL Highway S/B Side Section													
HKY1490	Temp Access Formation	0%	45	45	10-Feb-14	02-Apr-14	-68						
HKY1500	HKYAB1 - Predrilling	0%	12	12	04-Apr-14	22-Apr-14	-69						
HKY1810	HKYAB2 - Predrilling	25%	25	33	14-Jan-14 A	10-Mar-14	-48						
HKY1820	HKYAB2 - Pre-bored H pile (22 nos)	0%	66	66	03-Apr-14	26-Jun-14	-17						
Demolition of Existing Ho Ka Yuen Footbridge													
TWSR-West/ FL Highway NB Side Section													
HKY1880	Construct Temp Ramp for existing HKY footbridge	0%	90	90	04-Apr-14	26-Jul-14	-29						
HKY1900	Erect temp platform for demolishing Ramp & staircase at TWSR-W	0%	45	45	04-Apr-14	03-Jun-14	17						
ZONE 4 (Ch. 7925 to 8700)													
Noise Barrier Along TWSR-West and Laying New Utilities													
NB75 (Ch. 7930-8090)-FH N/B Side													
Noise Barrier Works													
NB4040	NB75 -Pre-drilling (Ch7930-7990)	0%	60	60	28-Feb-14	15-May-14	-177						
Bridge Construction													
New Wo Hop Shek Pedestrian & Cycle Bridge													
General													
WHS1000	Site Clearance (Main bridge area SA344)	0%	30	30	20-Jan-14	04-Mar-14	846						
WHS1010	Site Clearance & Temp Platform erection (SA340)	0%	45	45	28-Feb-14	25-Apr-14	425						
WHS1020	Structure steel Shop drawing submission (WHSB)	0%	60	60	20-Jan-14	09-Apr-14	480						
WHS1030	Structure steel Shop drawing approval (WHSB)	0%	30	30	22-Mar-14	30-Apr-14	480						
Crossing Fanling Highway Section													
WHS1440	WHSP1 - Predrilling	0%	18	18	05-Mar-14	25-Mar-14	846						
WHS1450	WHSP1 - Pre-bored H pile (6 nos)	0%	18	18	26-Mar-14	16-Apr-14	846						
WHS1460	WHSP1 - Pile Test	0%	28	28	17-Apr-14	14-May-14	1059						
TWSR-East FL Highway S/B Side Section													
WHS2042	Tree felling	78%	7	30	20-Dec-13 A	07-Mar-14	-119						
WHS2045	Temp footbridge construction for pedestrian diversion	0%	40	40	07-Mar-14	28-Apr-14	-119						
Fanling Highway Construction													
Drainage & Road Works													
TWSR-East FL Highway S/B Side Section													
RDZ41002	TTA approval period	0%	90	90	20-Jan-14	19-Apr-14	-186						
Other Works													
Retaining Wall W77A													
TWSR-East FL Highway S/B Side Section													
RWZ4.1050	Site Clearance	0%	30	30	28-Feb-14	03-Apr-14	-44						
RWZ4.1060	Base slab & Wall (0-3m high)- RW77A (Ch.50-130)	0%	60	60	04-Apr-14	20-Jun-14	-44						
Retaining Wall W77B													
TWSR-East FL Highway S/B Side Section													
RWZ4.1092	Site Clearance	0%	30	30	04-Apr-14	15-May-14	61						
TCSS Works													
TCSS Pre-Construction Works													
TCSS0100	Acquire Design Criteria from Drawing & procurement	0%	180	180	20-Jan-14	04-Sep-14	601						

Remaining Level o...
 Actual Level of Effort
 Actual Work
 Remaining Work
 Critical Remaining ...
 Milestone
 Crit. Milestone

Project File: HY/2012/06: IWP Rev. 4 (1401)
 Layout: 3 Month Rolling Program
 Page 3 of 3
 Primavera Systems, Inc.

Contract No. HY/2012/06
Widening of Fanling Highway - Tai Hang to Wo Hop Shek Interchange
3 Month Rolling Program(20-Jan-14)

Date	Revision	C...	App...
07...	IWP Rev 4		



**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 re-suspension 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	#
	Reduce the number of equipment and their percentage on-time.		#
	3.5 m and 5.5 m high temporary noise barrier at culvert construction work area (Figure 2a of the Environmental Permit).		#
	3 m high temporary noise barrier along the northern edge of Bridge 12 at ground level (Figure 2b of the Environmental Permit).		#
	2 m high temporary noise barrier along the northern edge of Bridge 12 at bridge level (Figure 2b of the Environmental Permit).		#
	2.5 m high temporary noise barrier along Tai Wo Service Road West (Figure 2c of the Environmental Permit).		#
	3.5m and 7m high temporary noise barrier along Tai Wo Services Road West near Tai Hang (Figure 2c of the Environmental Permit).		#
	7 m high temporary noise barrier along Tai Wo Service Road West near Tai Wo Footbridge work area (Figure 2d of the Environmental Permit).		#
	7 m high temporary noise barrier near Kiu Tau Footbridge work area (Figure 2d of the Environmental Permit).		#
	2.5 m high temporary noise barrier near river diversion work area (Figure 2e of the Environmental Permit).		#

Water Quality – Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Implementation Status
Water quality during construction	Demolition and reconstruction of bridges <ul style="list-style-type: none"> - Prevent off-site migration through use of sheet piles. - Minimise duration of works as far as practical. - All sewer and drainage connections should be sealed to prevent debris, soil, sand, etc, from entering public sewers/drains. - Site surface runoff should be settled to remove sand/silt before it is discharged into the existing storm drains. 	During construction	#
	Road Widening Works, Earthworks and Culvert Extension Works <ul style="list-style-type: none"> - Wastewater generated from any concrete batching washdown of equipment or similar activities should be discharged into foul sewers, after the removal of settleable 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. - Sand traps, oil interceptors and other pollution prevention installations should be provided, properly cleaned and maintained. - 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. - Regular inspections of stilling basins and/or silt traps is required to ensure that sediment is not conveyed into the existing drainage system. - Open stockpiles should be covered with a tarpaulin cover. - During the wet season, any exposed top soils should be covered with a tarpaulin, shotcreted or hydroseeded. - Sand and silt from wash-water from vehicle washing should be settled out before discharging into storm drains. - 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 - Transport of wastes off site as soon as possible. - Maintenance of accurate waste records. - Minimisation of waste generation for disposal (via reduction/recycling/re-use). - No on-site burning will be permitted. - Use of re-useable metal hoardings/signboards.	During construction	V
	Vegetation from site clearance - Segregation of materials to facilitate disposal. - 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. - Appropriate stockpile management.		V
	Excavated Materials - Segregation of materials to facilitate disposal / reuse. - Appropriate stockpile management. - Re-use of excavated material on or off site (where possible). - Special handling and disposal procedures in the event that contaminated materials are excavated.		V
	Construction Wastes - Segregation of materials to facilitate recycling/reuse (within designated area in appropriate containers/stockpiles). - Appropriate stockpile management. - Planning to reduce over ordering and waste generation. - Recycling and re-use of materials where possible (e.g. metal, wood from formwork) - 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. - Disposal in accordance with Practice Note For Professional Persons ProPECC PN 1/94.		#

	<p>Chemical Wastes</p> <ul style="list-style-type: none"> - Storage within locked, covered and bunded area. - The storage area shall not be located adjacent to sensitive receivers e.g. drains. - Minimise waste production and recycle oils/solvents where possible. - A spill response procedure shall be in place and absorption material available for minor spillages. - Use appropriate and labelled containers. - Educate site workers on site cleanliness/waste management procedures. - If chemical wastes are to be generated, the contractor must register with EPD as a chemical waste producer. - The chemical wastes shall be collected by a licensed chemical waste collector. 		<p>@</p>
	<p>Municipal Wastes</p> <ul style="list-style-type: none"> - Waste shall be stored within a temporary refuse collection facility, in appropriate containers prior to collection and disposal. - Regular, daily collections are required by an approved waste collector. 		<p>V</p>

Ecology – Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Implementation Status
Ecology during construction	Accurate Delineation of Works Area - Boundaries of proposed works areas shall be clearly identified and separated from external areas by a physical barrier to prevent encroachment of adjacent habitats. - Individual trees which fall within the works areas but which work plans do not require removal are to be retained and fenced off to maximize protection.	During construction	V
	Vegetation Clearance - No fires shall be lit within the works area for the purpose of burning cleared vegetation. - The Contractor shall give consideration to mulching the cleared vegetation for recycling within the works area / adjacent land.		V
	Dust generation There are a number of measures which shall be taken as specified in the Air Pollution Control (Construction Dust) Regulation on 'Dust Control Requirements, including the following key measures to be applied during construction: - Vehicle washing facilities to be provided at every discernible or designated vehicle exit point; - All temporary site access roads shall be sprayed with water to suppress dust as necessary; - All dusty materials should be sprayed with water immediately prior to any handling; and - All debris should be covered entirely by impervious sheeting or stored in a sheltered debris collection area.		V
	Surface Run-off In general, mitigation measures shall be in accordance with ProPECC PN1/94 on 'Construction Site Drainage'. Key measures include: - Bund and cover stock piles to avoid run-off; - Channel any run-off through a system of oil, grease and sediment / silt traps and reuse water on site where ever practical; - All vehicle maintenance to be undertaken within a bunded area; and - Maximise vegetation retention on-site to maximise absorption (minimise transport).		V

Landscape and Visual Impact – Schedule of Recommended Mitigation Measures

Impact	Mitigation Measures	Timing	Responsibility
Landscape & Visual during construction	Preservation of Existing Vegetation - Trees identified for retention within the project limit would be protected during the works; - The tree transplanting and planting works shall be implemented by approved Landscape Contractors.	During construction	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 VSRs.		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.		#
	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.		#

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;

= to be implemented.

**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
AM2	317.8 µg/m ³	500 µg/m ³

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

Location	Action Level	Limit Level
AM2	200.7 µg/m ³	260 µg/m ³

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

Location	Action Level	Limit Level
M2	When one documented complaint, related to 0700 – 1900 hours on normal weekdays, is received from any one of the sensitive receivers	75 dB(A)
M3*		65/70 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**

Total Suspended Particulates (TSP) Sampler
Field Calibration Report

Station Fanling Government Secondary School (AM2)
Date: 11-Dec-13
Model No: TE-5170
Equipment No.: A-001-74T

Operator: Shum Kam Yuen
Next Due Date: 11-Feb-14
Verified Against: O.T.S -- 988
Expiration Date: 20-May-2014

Ambient Condition				
Temperature, Ta	289.0	Kelvin	Pressure, Pa	756.9 mmHg

Orifice Transfer Standard Information					
Equipment No.:	988	Slope, mc	1.99238	Intercept, bc	-0.00351
Last Calibration Date:	20-May-13	$mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	20-May-14				

Calibration of TSP Sampler					
Calibration Point	H in. of water	$[H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m ³ /min) X - axis	W in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	6.2	2.52	1.27	5.1	2.29
2	5.0	2.27	1.14	4.1	2.05
3	4.6	2.17	1.09	3.5	1.90
4	3.8	1.98	0.99	3.1	1.78
5	2.2	1.50	0.76	1.8	1.36

By Linear Regression of Y on X
Slope, mw = 1.8045 Intercept, bw = -0.0188
Correlation Coefficient* = 0.9969

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.21 m³/min (43 CFM)
From the Regression Equation, the "Y" value according to

$$m \times Qstd + b = [W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point W = (m x Qstd + b)² x (760 / Pa) x (Ta / 298) = 4.56

*If Correlation Coefficient < 0.990, check and recalibrate again.

Remarks: _____

QC Reviewer: YT Leung

Signature: [Signature]

Date: 11-Dec-13



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

AIR POLLUTION MONITORING EQUIPMENT

ORIFICE TRANSFER STANDARD CERTIFICATION WORKSHEET TE-5025A

Date - May 20, 2013 Roots-meter S/N 0438320 Ta (K) - 297
 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	ORFICE
					DIFF Hg (mm)	DIFF H2O (in.)
1	NA	NA	1.00	1.3900	3.2	2.00
2	NA	NA	1.00	0.9720	6.4	4.00
3	NA	NA	1.00	0.8670	7.9	5.00
4	NA	NA	1.00	0.8270	8.7	5.50
5	NA	NA	1.00	0.6800	12.6	8.00

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)	Va	(x axis) Qa	(y axis)
0.9884	0.7110	1.4090	0.9957	0.7163	0.8889
0.9842	1.0125	1.9926	0.9915	1.0201	1.2570
0.9821	1.1327	2.2278	0.9894	1.1412	1.4054
0.9811	1.1863	2.3365	0.9884	1.1952	1.4740
0.9759	1.4352	2.8179	0.9832	1.4459	1.7777
Qstd slope (m) = 1.94727			Qa slope (m) = 1.21935		
intercept (b) = 0.02332			intercept (b) = 0.01471		
coefficient (r) = 0.99998			coefficient (r) = 0.99998		
y axis = SQRT[H2O(Pa/760)(298/Ta)]			y axis = SQRT[H2O(Ta/Pa)]		

CALCULATIONS

$$Vstd = \text{Diff. Vol} [(Pa - \text{Diff. Hg}) / 760] (298 / Ta)$$

$$Qstd = Vstd / \text{Time}$$

$$Va = \text{Diff Vol} [(Pa - \text{Diff Hg}) / Pa]$$

$$Qa = Va / \text{Time}$$

For subsequent flow rate calculations:

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

$$Qa = 1/m \{ [\text{SQRT} H2O(Ta/Pa)] - b \}$$

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*: 18 May 2013

*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	18-05-13	12:30 - 13:30	28.1	78	0.04714	1887	31.45
2	18-05-13	13:30 - 14:30	28.1	78	0.04932	1970	32.83
3	18-05-13	14:30 - 15:30	28.2	77	0.05156	2056	34.27
4	18-05-13	15:30 - 16:30	28.1	78	0.05083	2026	33.77

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: 0.9978

Validity of Calibration Record: 17 May 2014

Remarks:

QC Reviewer: YW Fung Signature:  Date: 20 May 2013

EQUIPMENT CALIBRATION RECORD

Type: Laser Dust Monitor
 Manufacturer/Brand: SIBATA
 Model No.: LD-3
 Equipment No.: A.005.10a
 Sensitivity Adjustment Scale Setting: 753 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 K₀: 12500
 Last Calibration Date*: 18 May 2013

*Remarks: Recommended interval for hardware calibration is 1 year

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): 753 CPM
 Sensitivity Adjustment Scale Setting (After Calibration): 753 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	18-05-13	12:30 - 13:30	28.1	78	0.04714	1886	31.43
2	18-05-13	13:30 - 14:30	28.1	78	0.04932	1968	32.80
3	18-05-13	14:30 - 15:30	28.2	77	0.05156	2061	34.35
4	18-05-13	15:30 - 16:30	28.1	78	0.05083	2026	33.77


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: 0.9983

Validity of Calibration Record: 17 May 2014

Remarks:

QC Reviewer: YW Fung Signature:  Date: 20 May 2013

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 K₀: 12500
 Last Calibration Date*: 18 May 2013

*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	18-05-13	12:15 - 13:15	28.1	78	0.04685	1871	31.18
2	18-05-13	13:15 - 14:15	28.1	78	0.04941	1979	32.98
3	18-05-13	14:15 - 15:15	28.2	77	0.05127	2055	34.25
4	18-05-13	15:15 - 16:15	28.1	78	0.05060	2021	33.68

- 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: 0.9976

Validity of Calibration Record: 17 May 2014

Remarks:

QC Reviewer: YW Fung

Signature: 

Date: 20 May 2013

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 K₀: 12500
 Last Calibration Date*: 18 May 2013

*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	18-05-13	12:15 - 13:15	28.1	78	0.04685	1867	31.12
2	18-05-13	13:15 - 14:15	28.1	78	0.04941	1975	32.92
3	18-05-13	14:15 - 15:15	28.2	77	0.05127	2048	34.13
4	18-05-13	15:15 - 16:15	28.1	78	0.05060	2017	33.62

- 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: 0.9986

Validity of Calibration Record: 17 May 2014

Remarks:

QC Reviewer: YW Fung Signature:  Date: 20 May 2013

EQUIPMENT CALIBRATION RECORD

Type: Laser Dust Monitor
 Manufacturer/Brand: SIBATA
 Model No.: LD-3B
 Equipment No.: A.005.16a
 Sensitivity Adjustment Scale Setting: 521 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*: 18 May 2013

*Remarks: Recommended interval for hardware calibration is 1 year

Calibration Result

Sensitivity Adjustment Scale Setting (Before Calibration): 521 CPM
 Sensitivity Adjustment Scale Setting (After Calibration): 521 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	27-07-13	11:00 - 12:00	27.3	75	0.04734	1893	31.55
2	27-07-13	12:00 - 13:00	27.3	75	0.04789	1915	31.92
3	27-07-13	13:00 - 14:00	27.4	74	0.04953	1976	32.93
4	27-07-13	14:00 - 15:00	27.4	75	0.04867	1949	32.48

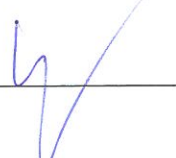
Note: 1. Monitoring data was measured by Rupprecht & Patashnick TEOM®
 2. Total Count was logged by Laser Dust Monitor
 3. Count/minute was calculated by (Total Count/60)

By Linear Regression of Y or X

Slope (K-factor): 0.0015
 Correlation coefficient: 0.9934

Validity of Calibration Record: 26 July 2014

Remarks:

QC Reviewer: YW Fung Signature:  Date: 29 July 2013



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

- 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.
- 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%.
- 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 response 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:



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.



CERTIFICATE OF CALIBRATION

Certificate No.: 13CA0325 01-01 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2238	,	4188
Serial/Equipment No.:	2285692	, 11009.04	2250420
Adaptors used:	-	,	-

Item submitted by

Customer Name: AECOM ASIA CO., LTD.
Address of Customer: -
Request No.: -
Date of receipt: 25-Mar-2013

Date of test: 26-Mar-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-2013	CIGISMEC
Signal generator	DS 360	33873	29-May-2013	CEPREI
Signal generator	DS 360	61227	29-May-2013	CEPREI

Ambient conditions

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

Test specifications

- 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.
- 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%.
- 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 response 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: 26-Mar-2013

Company Chop:



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.



CERTIFICATE OF CALIBRATION

Certificate No.: 13CA0305 01-01 Page 1 of 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone
Manufacturer:	B & K	,	B & K
Type/Model No.:	2250-L	,	4950
Serial/Equipment No.:	2681366 (N.011.01)	,	2665582
Adaptors used:	-	,	-

Item submitted by

Customer Name: AECOM ASIA CO LIMITED
Address of Customer: -
Request No.: -
Date of receipt: 05-Mar-2013

Date of test: 05-Mar-2013

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-May-2013	CIGISMEC
Signal generator	DS 360	33873	29-May-2013	CEPREI
Signal generator	DS 360	61227	29-May-2013	CEPREI

Ambient conditions

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

Test specifications

- 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.
- 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%.
- 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 responsiveness 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: 05-Mar-2013

Company Chop:



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.



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

Customer: 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

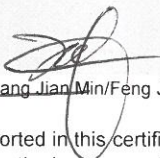
- The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.
- The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.
- The results 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:



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.

**APPENDIX F
EM&A MONITORING SCHEDULES**

Contract No. HY/2012/06
Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange
Tentative Impact Monitoring and Audit Schedule for January 2014

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Jan	2-Jan	3-Jan	4-Jan
						1-hr TSP 24-hr TSP
5-Jan	6-Jan	7-Jan	8-Jan	9-Jan	10-Jan	11-Jan
				1-hr TSP 24-hr TSP Noise		
12-Jan	13-Jan	14-Jan	15-Jan	16-Jan	17-Jan	18-Jan
			1-hr TSP 24-hr TSP Noise			
19-Jan	20-Jan	21-Jan	22-Jan	23-Jan	24-Jan	25-Jan
		1-hr TSP 24-hr TSP Noise				
26-Jan	27-Jan	28-Jan	29-Jan	30-Jan	31-Jan	
	1-hr TSP 24-hr TSP Noise			1-hr TSP 24-hr TSP		

Contract No. HY/2012/06
Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange
Tentative Impact Monitoring and Audit Schedule for February 2014

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Feb
2-Feb	3-Feb	4-Feb	5-Feb	6-Feb	7-Feb	8-Feb
			1-hr TSP 24-hr TSP Noise			1-hr TSP 24-hr TSP
9-Feb	10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	15-Feb
					1-hr TSP 24-hr TSP Noise	
16-Feb	17-Feb	18-Feb	19-Feb	20-Feb	21-Feb	22-Feb
				1-hr TSP 24-hr TSP Noise		
23-Feb	24-Feb	25-Feb	26-Feb	27-Feb	28-Feb	
			1-hr TSP 24-hr TSP Noise			

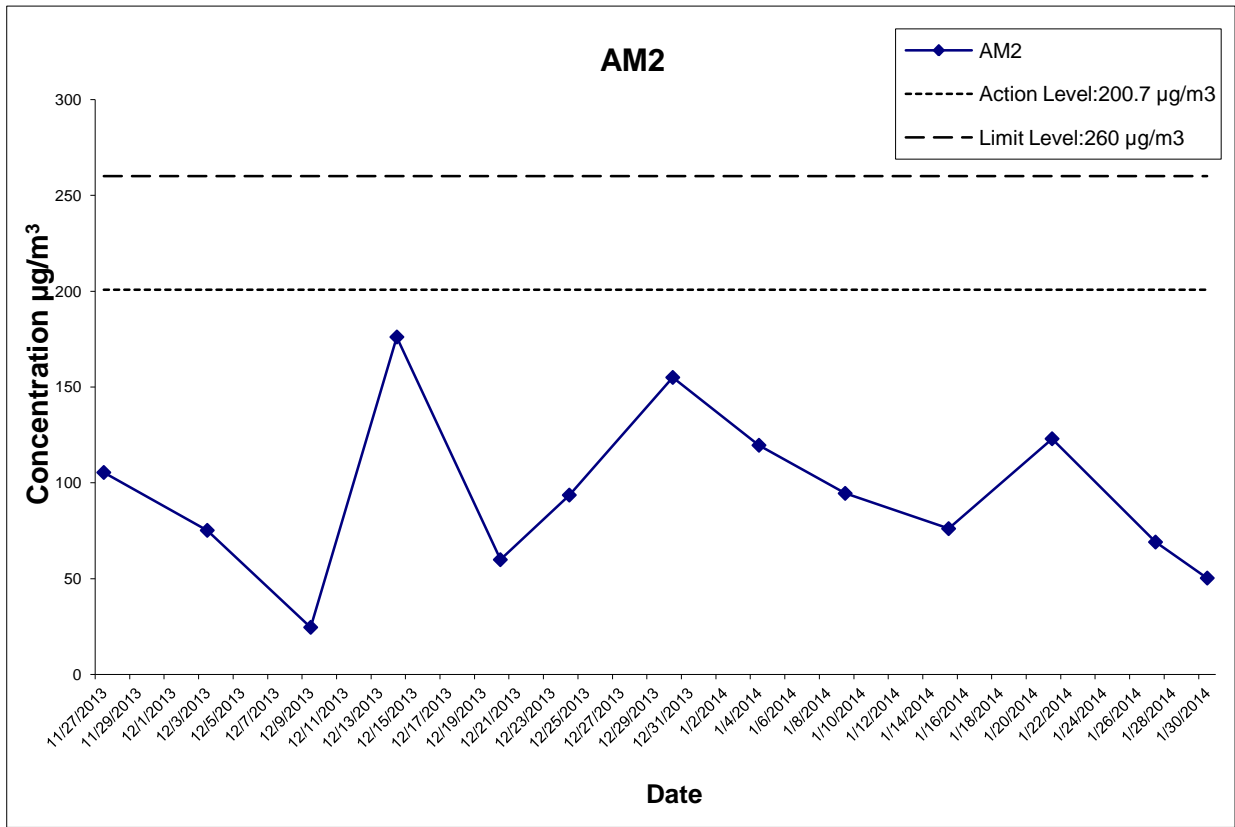
The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

**APPENDIX G
IMPACT AIR QUALITY MONITORING
RESULTS AND THEIR GRAPHICAL
PRESENTATION**

Appendix G
Impact Air Quality Monitoring Results

24-hour TSP Monitoring Results at Station AM2 (Fanling Government Secondary School)

Date	Weather Condition	Air Temp. (°C)	Atmospheric Pressure(hPa)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Filter Weight (g)		Particulate weight(g)	Elapse Time		Sampling Time(hrs.)	Conc. (µg/m ³)	Actino Level (µg/m ³)	Limit Level (µg/m ³)
				Initial	Final			Initial	Final		Initial	Final				
4-Jan-14	Sunny	18.8	1017.8	1.314	1.314	1.314	1892.2	2.7387	2.9650	0.2263	3369.02	3393.02	24.00	119.6	200.7	260
9-Jan-14	Fine	15.5	1022.9	1.314	1.314	1.314	1892.2	2.7104	2.8893	0.1789	3393.02	3417.02	24.00	94.5	200.7	260
15-Jan-14	Fine	13.2	1025.6	1.314	1.314	1.314	1892.2	2.7211	2.8651	0.1440	3417.02	3441.02	24.00	76.1	200.7	260
21-Jan-14	Sunny	14.9	1024.5	1.314	1.314	1.314	1892.2	2.6852	2.9179	0.2327	3441.02	3465.02	24.00	123.0	200.7	260
27-Jan-14	Sunny	16.4	1021.3	1.314	1.314	1.314	1892.2	2.6550	2.7857	0.1307	3465.02	3489.02	24.00	69.1	200.7	260
30-Jan-14	Sunny	18.9	1019.3	1.314	1.314	1.314	1892.2	2.6818	2.7770	0.0952	3489.02	3513.02	24.00	50.3	200.7	260
													Average	88.8		
													Min	50.3		
													Max	123.0		



This Drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent.

CONTRACT NO. HY/2012/06
 WIDENING OF FANLING HIGHWAY
 - TAI HANG TO WO HOP SHEK INTERCHANGE

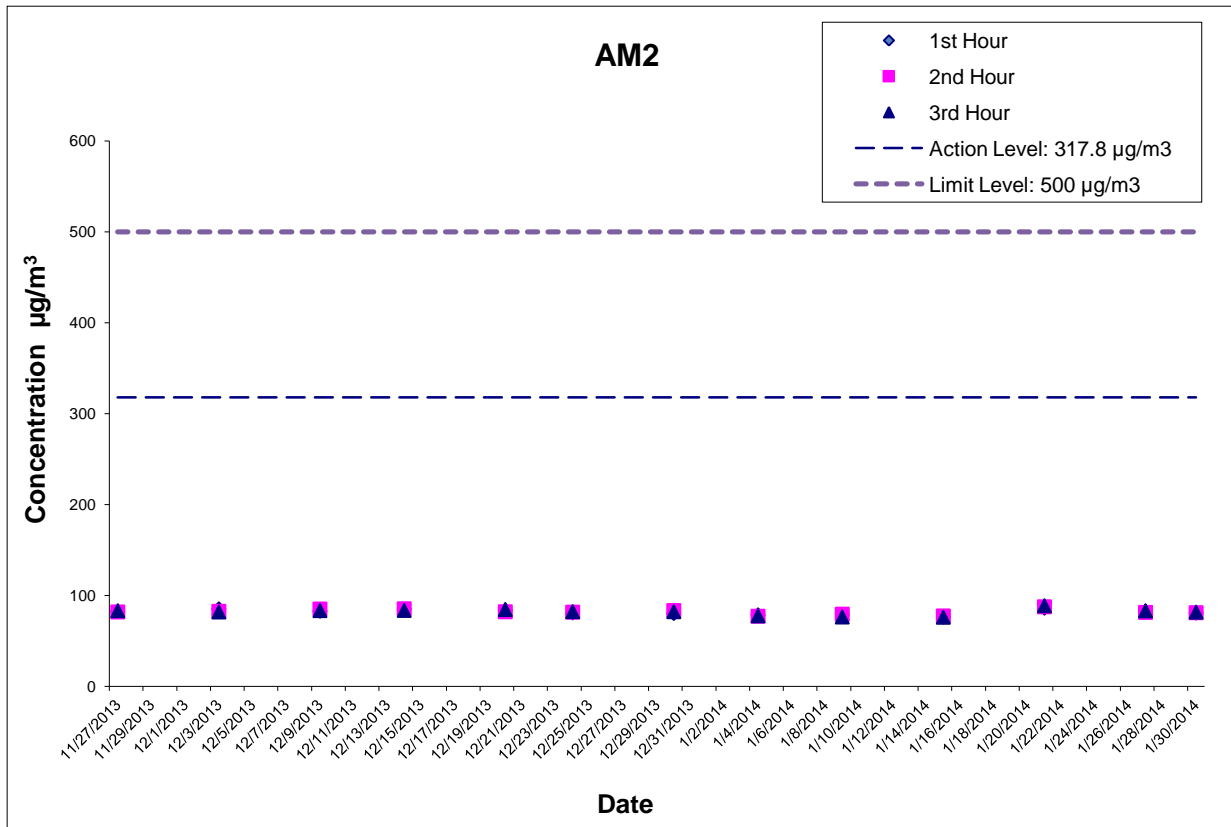


Graphical Presentation of Impact 24-hour TSP Monitoring Results

Appendix G
Impact Air Quality Monitoring Results

1-hour TSP Monitoring Results at Station AM2
(Fanling Government Secondary School)

Date	Start Time (hh:mm)	1st Hour Conc. ($\mu\text{g}/\text{m}^3$)	2nd Hour Conc. ($\mu\text{g}/\text{m}^3$)	3rd Hour Conc. ($\mu\text{g}/\text{m}^3$)
4-Jan-14	13:05	78.5	77.0	77.5
9-Jan-14	14:08	78.6	79.3	76.2
15-Jan-14	13:49	76.2	77.3	75.9
21-Jan-14	9:45	85.9	87.4	88.6
27-Jan-14	15:20	82.6	81.2	83.0
30-Jan-14	11:00	80.5	80.9	81.6
		Average	80.5	
		Min	75.9	
		Max	88.6	



This Drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent.

CONTRACT NO. HY/2012/06
 WIDENING OF FANLING HIGHWAY
 - TAI HANG TO WO HOP SHEK INTERCHANGE



Graphical Presentation of Impact 1-hour TSP Monitoring Results

**APPENDIX H
METEOROLOGICAL DATA FOR THE
REPORTING MONTH**

**Extract of Meteorological Observations for Tai Po Automatic Weather Station,
January 2014**

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. (%)
1-Jan	1019.3	19.1	13.4	9.0	3.9	72	54	35
2-Jan	1016.9	20.3	15.1	10.2	10.5	92	75	59
3-Jan	1015.7	24.8	19.3	15.1	12.3	85	65	41
4-Jan	1018	21.8	17.2	13.7	7.4	76	54	33
5-Jan	1018.9	18.2	14.9	10.5	6.4	82	58	37
6-Jan	1018.1	18.3	16	12	9.9	84	68	53
7-Jan	1016.8	19.2	17.5	16.4	13.9	89	80	65
8-Jan	1018.1	22.8	18.3	14.6	14.3	94	78	59
9-Jan	1023.3	15.7	14.4	12.6	7.6	72	64	55
10-Jan	1024.5	16	14.9	13.9	10	79	73	65
11-Jan	1023.8	19.3	15.9	13	11.4	91	75	57
12-Jan	1023.5	21	16.1	12.7	11.2	92	74	52
13-Jan	1024.2	14.6	12.2	10	5.5	76	64	51
14-Jan	1024	16.3	12.1	9.2	5.1	73	62	51
15-Jan	1025.8	16.2	11.9	8.6	4.2	80	60	40
16-Jan	1024.4	16.6	13.2	9.2	6.8	95	66	45
17-Jan	1023.4	19.7	14.5	10.3	8.8	92	70	43
18-Jan	1026.4	19.9	15.5	10.2	3.5	79	46	25
19-Jan	1026.3	16.4	13	9.5	7.0	87	68	46
20-Jan	1024	20.3	15.1	10.2	2.9	78	48	17
21-Jan	1024.8	17.3	14.2	10.3	-5.4	44	27	12
22-Jan	1025.4	16.6	11.9	6.6	-2	66	40	16
23-Jan	1023.4	15.5	11.9	8.8	5.8	86	67	42
24-Jan	1018.9	18.5	14.6	9.7	10.2	91	76	60
25-Jan	1017.8	21.3	17.8	15	13.7	89	77	62
26-Jan	1019.6	24.1	18.3	16.1	13.8	91	76	48
27-Jan	1021.3	18.9	16.1	14.1	9.8	85	67	47
28-Jan	1020.5	20	16	12.9	11.3	91	74	54
29-Jan	1020	21.4	16.3	12.1	11.4	90	74	48
30-Jan	1019.3	22.8	17.4	12.7	13	90	76	60
31-Jan	1018.4	22.6	18.1	13.2	13.4	93	76	45
Mean	1021.4	19.2	15.3	11.7	8.3	83	65	46
Maximum	1026.4	24.8	19.3	16.4	14.3	95	80	65
Minimum	1015.7	14.6	11.9	6.6	-5.4	44	27	12

**Extract of Meteorological Observations for Tai Po Automatic Weather Station,
January 2014**

Date	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
1-Jan	*****	***	*****
2-Jan	*****	***	*****
3-Jan	*****	***	*****
4-Jan	*****	***	*****
5-Jan	*****	***	*****
6-Jan	*****	***	*****
7-Jan	*****	***	*****
8-Jan	*****	***	*****
9-Jan	*****	***	*****
10-Jan	*****	***	*****
11-Jan	*****	***	*****
12-Jan	*****	***	*****
13-Jan	*****	***	*****
14-Jan	*****	***	*****
15-Jan	*****	***	*****
16-Jan	*****	***	*****
17-Jan	*****	***	*****
18-Jan	*****	***	*****
19-Jan	*****	***	*****
20-Jan	*****	***	*****
21-Jan	*****	***	*****
22-Jan	*****	***	*****
23-Jan	*****	***	*****
24-Jan	*****	***	*****
25-Jan	*****	***	*****
26-Jan	*****	***	*****
27-Jan	*****	***	*****
28-Jan	*****	***	*****
29-Jan	*****	***	*****
30-Jan	*****	***	*****
31-Jan	*****	***	*****
Mean	-----	***	*****
Total	*****	---	-----
Maximum	*****	---	*****
Minimum	*****	---	*****

*** 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

**Extract of Meteorological Observations for Tai Mei Tuk Automatic Weather Station,
January 2014**

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. (%)
1-Jan	*****	21.3	14.8	10.5	****	***	***	***
2-Jan	*****	21.3	16.1	11.5	****	***	***	***
3-Jan	*****	25.6	20	15.7	****	***	***	***
4-Jan	*****	22.7	18.4	15.3	****	***	***	***
5-Jan	*****	19.8	15.5	12	****	***	***	***
6-Jan	*****	20.4	16.1	12.8	****	***	***	***
7-Jan	*****	19.4	17.7	16.1	****	***	***	***
8-Jan	*****	23.2	18.5	14.3	****	***	***	***
9-Jan	*****	16.5	14.4	12.4	****	***	***	***
10-Jan	*****	17.7	15.1	13.4	****	***	***	***
11-Jan	*****	21.4	16.1	12.9	****	***	***	***
12-Jan	*****	22.7	16.5	12.3	****	***	***	***
13-Jan	*****	16.4	12.3	9.8	****	***	***	***
14-Jan	*****	17.3	12.6	9.1	****	***	***	***
15-Jan	*****	18.4	13	9.2	****	***	***	***
16-Jan	*****	19.6	14	10.5	****	***	***	***
17-Jan	*****	21.5	15.7	11.7	****	***	***	***
18-Jan	*****	20.9	16.5	13.3	****	***	***	***
19-Jan	*****	18.1	14	11	****	***	***	***
20-Jan	*****	22.2	16.2	11.4	****	***	***	***
21-Jan	*****	18.3	14.9	12.5	****	***	***	***
22-Jan	*****	18.4	13.2	8.2	****	***	***	***
23-Jan	*****	17.7	12.8	9.7	****	***	***	***
24-Jan	*****	20.9	15.4	11.2	****	***	***	***
25-Jan	*****	23.1	18.4	15.4	****	***	***	***
26-Jan	*****	26.6	18.8	15.4	****	***	***	***
27-Jan	*****	22.2	16.5	14	****	***	***	***
28-Jan	*****	21.7	16.6	12.9	****	***	***	***
29-Jan	*****	24.4	17.1	13.1	****	***	***	***
30-Jan	*****	25	18.6	13.6	****	***	***	***
31-Jan	*****	26	19.1	14.4	****	***	***	***
Mean	*****	21	16	12.4	****	***	***	***
Maximum	*****	26.6	20	16.1	****	***	***	***
Minimum	*****	16.4	12.3	8.2	****	***	***	***

**Extract of Meteorological Observations for Tai Mei Tuk Automatic Weather Station,
January 2014**

Date	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
1-Jan	0.0	80	4.7
2-Jan	0.0	110	4.8
3-Jan	0.0	270	6.1
4-Jan	0.0	40	11.5
5-Jan	0.0	80	12.4
6-Jan	0.0	60	15.7
7-Jan	0.0	70	12.6
8-Jan	0.0	40	6.5
9-Jan	0.0	40	12.6
10-Jan	0.0	60	17.1
11-Jan	0.0	50	12.8
12-Jan	0.0	50	9.8
13-Jan	0.0	40	14.6
14-Jan	0.0	40	15.4
15-Jan	0.0	140	7.8
16-Jan	0.0	50	10.9
17-Jan	0.0	40	7.3
18-Jan	0.0	40	18.4
19-Jan	0.0	40	13.6
20-Jan	0.0	30	11.6
21-Jan	0.0	30	22.7
22-Jan	0.0	30	11.3
23-Jan	0.0	50	11.9
24-Jan	0.0	60	14.5
25-Jan	0.0	70	11.5
26-Jan	0.0	80	11.0
27-Jan	0.0	100	10.4
28-Jan	0.0	50	8.6
29-Jan	0.0	260	5.7
30-Jan	0.0	250	3.2
31-Jan	0.0	130	6.3
Mean	-----	50	11.1
Total	0.0	---	-----
Maximum	0.0	---	22.7
Minimum	0.0	---	3.2

*** 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 : M2 (West Tai Wo - Free Field)

Day time 07:00-19:00 hrs Normal Weekdays Impact Noise Monitoring Results

Date	Measured Noise Level for 30-min, dB(A)				Limit Level, dB(A)	Exceedance (Y/N)
	Start Time	Leq*	L10*	L90*		
9-Jan-14	15:07	66.4	68.7	64.1	75	N
15-Jan-14	14:20	68.1	70.1	65.7	75	N
21-Jan-14	10:15	70.1	72.2	68.0	75	N
27-Jan-14	15:45	71.3	73.0	69.0	75	N
	Min	66.4	68.7	64.1		
	Max	71.3	73.0	69.0		
	Average	69.0	71.0	66.7		

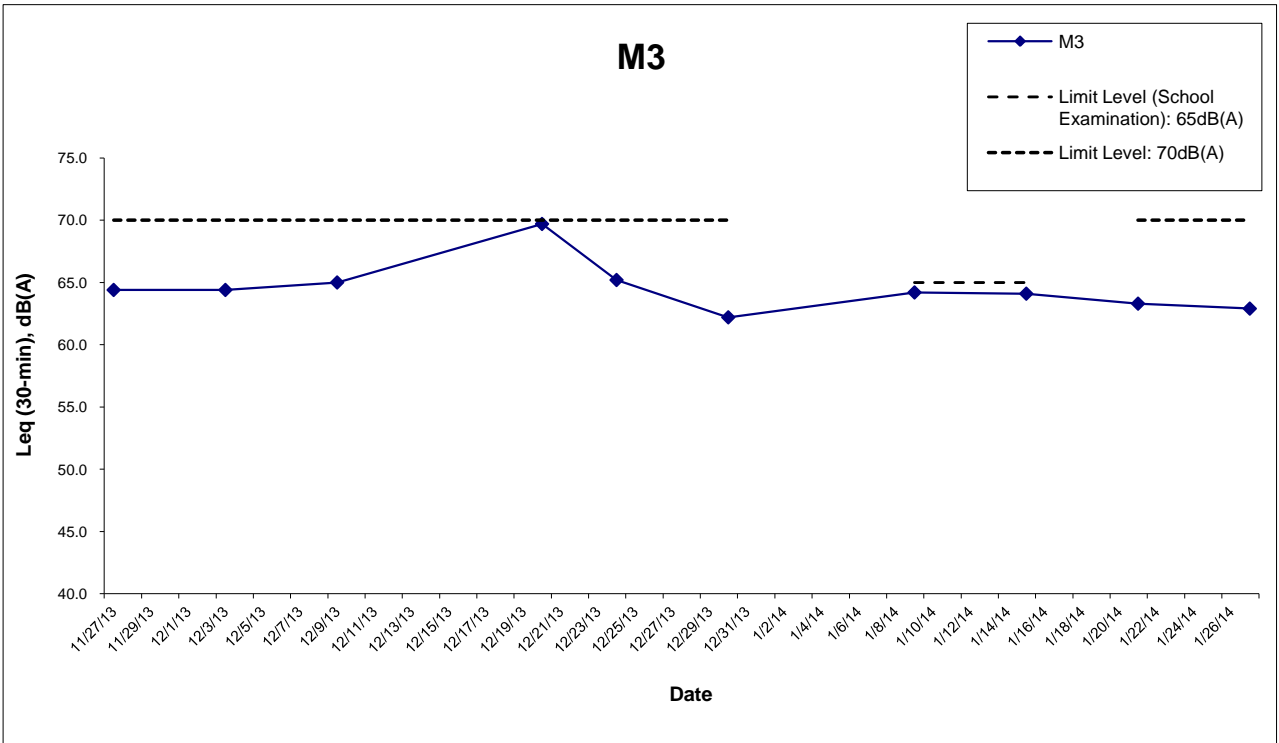
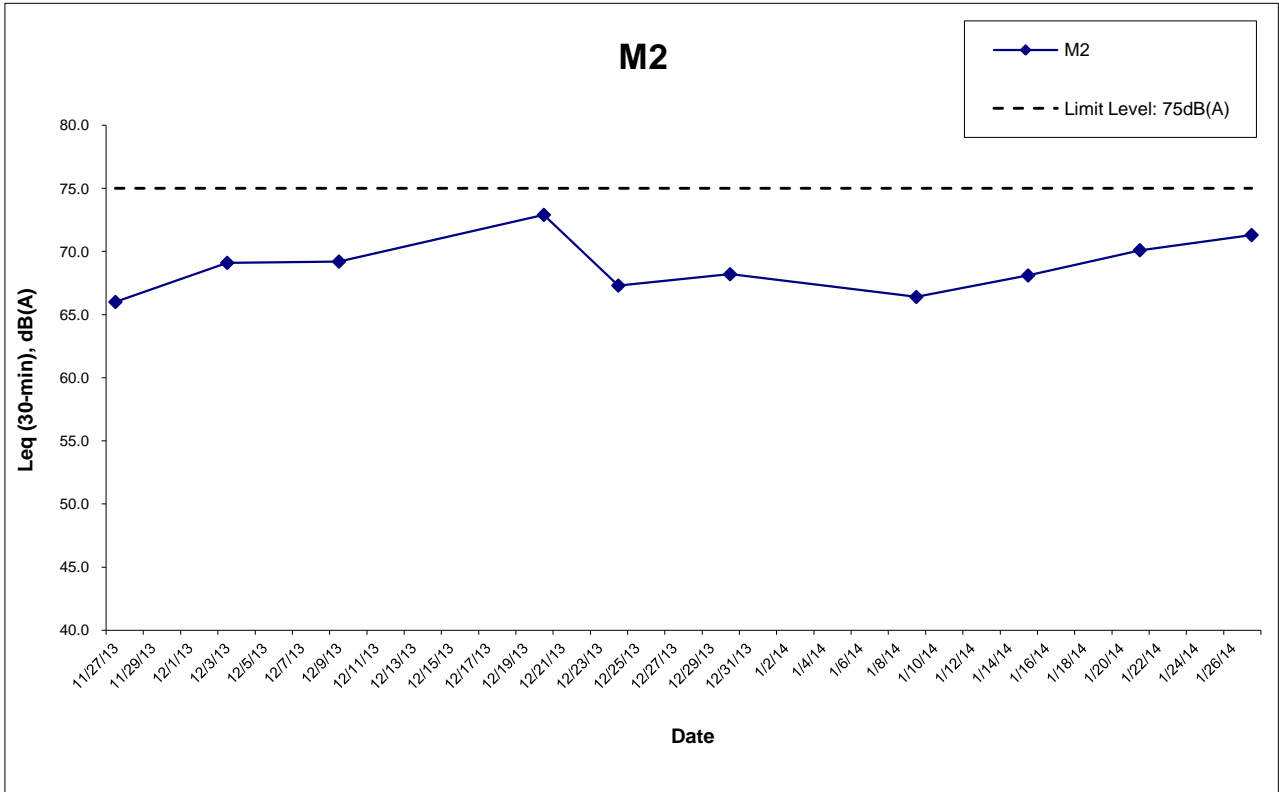
Location : M3 (Fanling Government Secondary School- Façade)

Day time 07:00-19:00 hrs Normal Weekdays Impact Noise Monitoring Results

Date	Measured Noise Level for 30-min, dB(A)				Limit Level, dB(A)^	Exceedance (Y/N)
	Start Time	Leq	L10	L90		
9-Jan-14	14:12	64.2	65.9	62.3	65	N
15-Jan-14	13:52	64.1	66.4	61.2	65	N
21-Jan-14	9:50	63.3	64.8	60.1	70	N
27-Jan-14	15:25	62.9	64.0	59.5	70	N
	Min	62.9	64.0	59.5		
	Max	64.2	66.4	62.3		
	Average	63.6	65.3	60.8		

* +3dB(A) Façade effect correction included

^ Limit Level of 70dB(A) applies to education institutes while 65dB(A) applies during school examination period.



Remark:

^ Limit Level of 70dB(A) applies to education institutes while 65dB(A) applies during school examination period.

This Drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever, to any party that uses or relies on this drawing without AECOM's express written consent.

CONTRACT NO. HY/2012/06
 WIDENING OF FANLING HIGHWAY
 - TAI HANG TO WO HOP SHEK INTERCHANGE



Graphical Presentation of Impact Daytime Construction Noise
 Monitoring Results

Project No.: 60307376

Date: Feb-14

Appendix I

**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	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC. 2. Implement noise mitigation proposals.
Limit Level	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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 Summaries

Inspection Information

Contract No.	HY/2012/06
Date:	10 January 2014
Time:	14:00
Inspection No.:	7

Non-compliance

Nil

Observations

<p><u>Follow-up Observation</u></p> <ol style="list-style-type: none">1. General refuse was cleared at Area 346 (Closed). <p><u>New Observations</u></p> <ol style="list-style-type: none">2. Chemical containers were observed on bare ground at Area 342 without the provision of drip trays. The Contractor should provide drip trays or equivalent measures to retain leakage, if any.
--

Remarks

Nil

Inspection Information

Contract No.	HY/2012/06
Date:	14 January 2014
Time:	14:00
Inspection No.:	8

Non-compliance

Nil

Observations

<p><u>Follow-up Observation</u></p> <ol style="list-style-type: none">1. Chemical containers were removed off site (Closed). <p><u>New Observations</u></p> <p>Nil.</p>
--

Remarks

Nil

Inspection Information

Contract No.	HY/2012/06
Date:	21 January 2014
Time:	14:00
Inspection No.:	9

Non-compliance

Nil

Observations

Follow-up Observation
Nil.

New Observation
Nil.

Remarks

Nil

Inspection Information

Contract No.	HY/2012/06
Date:	28 January 2014
Time:	14:00
Inspection No.:	10

Non-compliance

Nil

Observations

<p><u>Follow-up Observation</u></p> <p>Nil.</p> <p><u>New Observation</u></p> <p>Nil.</p>
--

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 the ET this month	Total no. followed up by the ET since project commencement
Environmental complaints	19 December 2013	EPD referred a complaint from Lot no. 116 of Fui Sha Wai at Tai Hang of Tai Po which is concerned about the construction noise and diesel-like smell generated from construction activities nearby which caused nuisance and health problems on 19 December 2013 morning.	Closed	1	1
Notification of summons	-	-	-	0	0
Successful Prosecutions	-	-	-	0	0